DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

N557263040

FACILITY: Howell Compressor Station		**SRN / ID:** N5572
LOCATION: 3990 Crooked Lake Rd, HOWELL		**DISTRICT:** Lansing
CITY: HOWELL		**COUNTY:** LIVINGSTON
CONTACT: Kristin Bollerman , Senior Environmental Specialist		**ACTIVITY DATE:** 12/16/2021
STAFF: Samantha Davis	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Scheduled inspection for compliance with MI-ROP-N5572-2021.		
RESOLVED COMPLAINTS:		

ACTIVITY REPORT – Scheduled Inspection

Safety Equipment Needed: Fire-retardant coveralls, earplugs, safety glasses, safety-toe boots, hard hat.

Purpose: Scheduled inspection for compliance with Renewable Operating Permit MI-ROP-N5572-2021.

Location: Howell Compressor Station, also known as Panhandle Eastern Pipe Line is in a light residential, rural area outside the town of Howell. The closest residence is approximately 350 feet and Three Fires Elementary is opposite corners from the facility.

Facility Background/Regulatory Overview: The Howell Compressor Station is part of the Panhandle Eastern Pipe Line. It is a natural gas transmission and storage facility located in Section 20 of Genoa Township, Livingston County, about one mile west of Crooked Lake. Natural gas is re-injected into an underground gas reservoir for storage and is withdrawn as needed for pipeline transport. The processes are seasonal, with injection activities approximately April through October; also known as the withdrawal season.

Four reciprocating internal combustion engines (RICE) run the compressors that inject the gas into the reservoir. Two are rated at 2000 HP and two at 1000 HP. Additional processes at the source include withdrawal gas heaters, a 465 HP emergency generator, and liquid storage tanks for methanol, waste water, and petroleum distillates.

The compressor engines have the potential to emit NOx at greater than 100 tons per year; therefore, Howell Compressor Station is a "Major Source" of NOx emissions. The engine also has Major Source potential for formaldehyde making the station a Major Source of HAPS

A *major source* has the potential to emit (PTE) of 100 tons per year (TPY) or more, of one of the criteria pollutants. *Criteria pollutants* are those for which a National Ambient Air Quality Standard exists, and include carbon monoxide, nitrogen oxides, sulfur dioxide, volatile organic compounds (VOCs), lead, particulate matter smaller than 10 microns, and particulate matter smaller than 2.5 microns. It is also considered a minor area source for Hazardous Air Pollutants (HAPs), because it was not considered to have a PTE of 10 TPY or more for a single HAP, nor to have PTE of 25 TPY or more for combined HAPs.

Applicable Regulations:

1. MI-ROP-N5572-2021
2. 40CFR63, Subpart DDDDD
3. 40CFR63, Subpart ZZZZ

4. R336.1284(n)
5. R336.1284(i)

Complaints within the last 2 Years: None

2021 Inspection Comments:

1. Glycol Dehydrator finished installation in December 2020. Stack test being performed today, 12/16/21. See stack test observation report for details.
2. Rain cap on EUDEHY stack.

Inspection:

There were no visible emissions from the facility upon arrival. No odors were identified. This inspection was performed during the 12/16/21 EUDEHY stack test.

During the EUDEHY stack test I had one of the site technicians escort me on a tour of the facility to show me the engines (EUKVS6ICENGINE-1601, EUKVS6ICENGINE-1602, EUKVS6ICENGINE-1603, and EUKVS6ICENGINE-1604) and the emergency generator (EUGEN-1626).

Table 1-1: Emission Units covered under MI-ROP-N5572-2015 and their compliance status as of recent inspection date.

No.	Emission Unit	Description	Comp. Status
1	EUKVS6ICENGINE-1601	Model KV-6; 1000 BHP, natural gas-fired engine to compress natural gas for transport. Installed 1955-grandfathered.	C
2	EUKVS6ICENGINE-1602	Model KV-6; 1000 BHP, natural gas-fired engine to compress natural gas for transport. Installed 1955-grandfathered.	C
3	EUKVS6ICENGINE-1603	Model KV-12; 2000 BHP, natural gas-fired engine to compress natural gas for transport. Installed 1965-grandfathered.	C
4	EUKVS6ICENGINE-1604	Model KV-12; 2000 BHP, natural gas-fired engine to compress natural gas for transport. Installed 1967-grandfathered.	C
5	EUCOLDCLEANER	Cold cleaner. Exempt 281(h)	C

6	EUWB-HTR-1	10 MMBTU/hr. natural gas fired, water bath heater for heating withdrawal gas. Exempt 282(b)(i)	C
7	EUWB-HTR-2	10 MMBTU/hr. natural gas fired, water bath heater for heating withdrawal gas. Exempt 282(b)(i)	C
8	EUWB-HTR-3	10 MMBTU/hr. natural gas fired, water bath heater for heating withdrawal gas. Exempt 282(b)(i)	C
9	EUPLANT-HTR-1	4.0 MMBTU/hr. natural gas fired horizontal heater used to heat the compressor building. Replaced 10/3/2017. Exempt 282(b)(i)	C
10	EUGEN-1626	465 HP, diesel fired, emergency generator. Manufacture Date: 10/2005. Exempt 285(g)	C
11	FG-RULE285(mm)	For permit exempt natural gas venting.	C
12	EU-DEHY	Glycol dehydration system for processing gas. 1.5 MMBTU/hr natural gas fired burner and 1,000 gal TEG storage tank. Installed December 2020.	C

1-4. Engines: The four natural gas fired compressor engines are used to place pipeline natural gas into the underground oil field / reservoir. The 4SLB engines do not have emission limits associated with the regulations tables per 63.6600(c). All the engines have electronic data collection systems, which records fuel usage and hours of operation. When complete, the field is pressurized at approx. 1000 psi. Due to this pressure, the withdrawal of gas during the winter months rarely requires engine operation. Spark plugs are changed every year on these units.

Though stack restrictions are not included in the ROP, I did observe the stacks, and all are about 40-50' high and discharge unobstructed vertically upwards. There is one stack for each 1,000 HP engine, and 2 stacks per 2,000 HP engine.

5. Cold Cleaner: Cold cleaner solvents have not changed since the last inspection. Mike informed me during my last inspection that they use it so rarely that they plan to get rid of it but are unsure when at the moment.

6-9. Heaters: EUWB-HTR-1, EUWB-HTR-2, EUWB-HTR-3, are 10 MMBTU withdrawal gas heaters located outside on the west end of the facility. They are used due to a point from where the gas exits the field and enters the pipeline during withdrawal to prevent valve and pipeline condensation and frost-up on the exterior. These heaters are minimally used. The 2019/2020

Run Time Log notes a total of 0 hours and 0 minutes for Heater 1, 1 hour and 30 minutes for Heater 2, and 0 hours and 0 minutes for the Heater 3.

EUPLANT-HTR-1 was put in last year on 10/3/2017 to replace the 3.5 MMBTU/hr. heater. This is a 4.0 MMMBTU/hr. horizontal heater primarily used to heat the compressor building, but also secondarily heats the engine blocks. The last tune-up was 2/22/2018. This engine is due for a tune-up every 5 years. Next tune-up is due 2/22/2023.

10. Emergency Generator: The site has an emergency generator for power outages. The Katolight generator is diesel fired or is a compression ignition (CI) rated 465 HP (about 1.2 MMBtu/hr) with an output of 300kW.The engine is subject to 40CFR63 ZZZZ and all applicable conditions from the regulation (Table 2C) are included in the ROP. Per ZZZZ; maintenance records were checked to determine compliance. Meter on the unit indicated 6,042 hours.

Glycol Dehydrator: This finished installation in December of 2020. It was rolled into the recent ROP renewal in July 2021 and is currently undergoing stack testing today (12/16) for benzene, toluene, ethylbenzene, and xylenes.

I noted during the stack test observation that there is a rain cap on the stack of the unit. The permit requires exhaust gases be discharged unobstructed vertically upwards. I told Kristin that would have to be removed and emailed her some alternatives to keeping rain out of the stack. I asked her to send me a photo when they had it removed.

Recordkeeping: I received records for MI-ROP-N5572-2021.

Records received:

- Received records of monthly fuel use for 2021. The permit does not have a limit on consumption, just requires it to be recorded monthly, which they are.
- 2021 annual maintenance records for emergency generator – last done 9/13/21
- Tune-up records for Engines
- Weekly Operating Logs for all engines for 2021.
- EUDEHY reboiler hours of operation
    - 12-month rolling limit of 7,000 hours; December of 2020 and 2021 had the highest monthly hours of 744. The highest the 12-month rolling ever got (December 2020-December 2021) was 3,961.7 hours.
- EUDEHY monthly and annual emissions

The ROP Renewal Application for this facility has been submitted and is currently in the technical review stage.

Summary: Kristin emailed me a photo of the EUDEHY stack after they removed the rain cap, so that has been resolved.

Facility appeared to be in compliance with their permit and all applicable state air regulations. No violations were noted during this inspection.

NAME Samantha Davis DATE 5/27/22 SUPERVISOR BM

Panhandle Eastern Pipe Line Company - Howell Storage Facility
Monthly / Annual Emissions (in tons)

Month	EU-DEHY (Dehy Burner)									
	NOx	NOx (12-Month)	CO	CO (12-Month)	HAPs	HAPs (12-Month)	VOC	VOC (12-Month)	Benzene	Benzene (12-Month)
Jan-20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Feb-20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mar-20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Apr-20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
May-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Jun-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Jul-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aug-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sep-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Oct-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nov-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dec-20	5.19E-02	5.19E-02	4.36E-02	4.36E-02	9.79E-04	9.79E-04	2.85E-03	2.85E-03	1.09E-06	1.09E-06
2020	5.19E-02		4.36E-02		9.79E-04		2.85E-03		1.09E-06	
Jan-21	4.86E-02	1.00E-01	4.08E-02	8.44E-02	9.16E-04	1.89E-03	2.67E-03	5.53E-03	1.02E-06	2.11E-06
Feb-21	4.69E-02	1.47E-01	3.94E-02	1.24E-01	8.84E-04	2.78E-03	2.58E-03	8.10E-03	9.85E-07	3.09E-06
Mar-21	4.60E-02	1.93E-01	3.86E-02	1.62E-01	8.67E-04	3.64E-03	2.53E-03	1.06E-02	9.65E-07	4.06E-06
Apr-21	7.18E-03	2.00E-01	6.03E-03	1.68E-01	1.35E-04	3.78E-03	3.95E-04	1.10E-02	1.51E-07	4.21E-06
May-21	0.00E+00	2.00E-01	0.00E+00	1.68E-01	0.00E+00	3.78E-03	0.00E+00	1.10E-02	0.00E+00	4.21E-06
Jun-21	3.57E-03	2.04E-01	3.00E-03	1.71E-01	6.74E-05	3.85E-03	1.97E-04	1.12E-02	7.51E-08	4.29E-06
Jul-21	6.70E-03	2.11E-01	5.63E-03	1.77E-01	1.26E-04	3.97E-03	3.68E-04	1.16E-02	1.41E-07	4.43E-06
Aug-21	0.00E+00	2.11E-01	0.00E+00	1.77E-01	0.00E+00	3.97E-03	0.00E+00	1.16E-02	0.00E+00	4.43E-06
Sep-21	0.00E+00	2.11E-01	0.00E+00	1.77E-01	0.00E+00	3.97E-03	0.00E+00	1.16E-02	0.00E+00	4.43E-06
Oct-21	1.54E-02	2.26E-01	1.29E-02	1.90E-01	2.90E-04	4.26E-03	8.47E-04	1.24E-02	3.23E-07	4.75E-06
Nov-21	5.02E-02	2.76E-01	4.22E-02	2.32E-01	9.47E-04	5.21E-03	2.76E-03	1.52E-02	1.05E-06	5.80E-06
Dec-21	5.19E-02	2.76E-01	4.36E-02	2.32E-01	9.79E-04	5.21E-03	2.85E-03	1.52E-02	1.09E-06	5.80E-06
2021	2.76E-01		2.32E-01		5.21E-03		1.52E-02		5.80E-06	

Panhandle Panhandle Panhandle Panhandle Eastern Pipe Line Company - Howell Storage Facility
Monthly / A Monthly / A Monthly / A Monthly / Annual Emissions (in tons)

Month	Dehy Plant											
	Benzene	Benzene (12-Month)	Toluene	Toluene (12-Month)	Xylenes	Xylenes (12-Month)	E-benzene	E-benzene (12-Month)	HAPs	HAPs (12-Month)	VOM	VOM (12-Month)
Jan-20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Feb-20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mar-20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Apr-20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
May-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Jun-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Jul-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aug-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sep-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Oct-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nov-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dec-20	2.98E-03	2.98E-03	8.04E-03	8.04E-03	1.12E-02	1.12E-02	9.64E-04	9.64E-04	2.36E-02	2.36E-02	7.19E-02	7.19E-02
2020	2.98E-03		8.04E-03		1.12E-02		9.64E-04		2.36E-02		7.19E-02	
Jan-21	6.55E-03	9.54E-03	1.72E-02	2.52E-02	1.96E-02	3.08E-02	1.93E-03	2.89E-03	4.63E-02	6.99E-02	9.74E-02	1.69E-01
Feb-21	6.18E-03	1.57E-02	1.59E-02	4.11E-02	1.73E-02	4.81E-02	1.75E-03	4.64E-03	4.21E-02	1.12E-01	9.18E-02	2.61E-01
Mar-21	6.08E-03	2.18E-02	1.57E-02	5.68E-02	1.71E-02	6.52E-02	1.73E-03	6.37E-03	4.16E-02	1.54E-01	9.03E-02	3.51E-01
Apr-21	9.60E-04	2.28E-02	2.50E-03	5.93E-02	2.79E-03	6.80E-02	2.78E-04	6.65E-03	6.68E-03	1.60E-01	1.43E-02	3.66E-01
May-21	0.00E+00	2.28E-02	0.00E+00	5.93E-02	0.00E+00	6.80E-02	0.00E+00	6.65E-03	0.00E+00	1.60E-01	0.00E+00	3.66E-01
Jun-21	0.00E+00	2.28E-02	0.00E+00	5.93E-02	0.00E+00	6.80E-02	0.00E+00	6.65E-03	0.00E+00	1.60E-01	0.00E+00	3.66E-01
Jul-21	0.00E+00	2.28E-02	0.00E+00	5.93E-02	0.00E+00	6.80E-02	0.00E+00	6.65E-03	0.00E+00	1.60E-01	0.00E+00	3.66E-01
Aug-21	0.00E+00	2.28E-02	0.00E+00	5.93E-02	0.00E+00	6.80E-02	0.00E+00	6.65E-03	0.00E+00	1.60E-01	0.00E+00	3.66E-01
Sep-21	0.00E+00	2.28E-02	0.00E+00	5.93E-02	0.00E+00	6.80E-02	0.00E+00	6.65E-03	0.00E+00	1.60E-01	0.00E+00	3.66E-01
Oct-21	0.00E+00	2.28E-02	0.00E+00	5.93E-02	0.00E+00	6.80E-02	0.00E+00	6.65E-03	0.00E+00	1.60E-01	0.00E+00	3.66E-01
Nov-21	0.00E+00	2.28E-02	0.00E+00	5.93E-02	0.00E+00	6.80E-02	0.00E+00	6.65E-03	0.00E+00	1.60E-01	0.00E+00	3.66E-01
Dec-21	0.00E+00	1.98E-02	0.00E+00	5.12E-02	0.00E+00	5.68E-02	0.00E+00	5.69E-03	0.00E+00	1.37E-01	0.00E+00	2.94E-01
2021	1.98E-02		5.12E-02		5.68E-02		5.69E-03		1.37E-01		2.94E-01	

Panhandle Panhandle Eastern Pipe Line Company - Howell Storage
Monthly / A Monthly / Annual Emissions (in tons)

Month	Dehy Totals					
	Benzene	Benzene (12-Month)	HAPs	HAPs (12-Month)	VOM	VOM (12-Month)
Jan-20	0.000	0.000	0.000	0.000	0.000	0.000
Feb-20	0.000	0.000	0.000	0.000	0.000	0.000
Mar-20	0.000	0.000	0.000	0.000	0.000	0.000
Apr-20	0.000	0.000	0.000	0.000	0.000	0.000
May-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Jun-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Jul-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aug-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sep-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Oct-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nov-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dec-20	2.99E-03	2.99E-03	2.46E-02	2.46E-02	7.48E-02	7.48E-02
2020	2.99E-03		2.46E-02		7.48E-02	
Jan-21	6.55E-03	9.54E-03	4.72E-02	7.18E-02	1.00E-01	1.75E-01
Feb-21	6.18E-03	1.57E-02	4.30E-02	1.15E-01	9.44E-02	2.69E-01
Mar-21	6.08E-03	2.18E-02	4.25E-02	1.57E-01	9.28E-02	3.62E-01
Apr-21	9.61E-04	2.28E-02	6.82E-03	1.64E-01	1.47E-02	3.77E-01
May-21	0.00E+00	2.28E-02	0.00E+00	1.64E-01	0.00E+00	3.77E-01
Jun-21	7.51E-08	2.28E-02	6.74E-05	1.64E-01	1.97E-04	3.77E-01
Jul-21	1.41E-07	2.28E-02	1.26E-04	1.64E-01	3.68E-04	3.77E-01
Aug-21	0.00E+00	2.28E-02	0.00E+00	1.64E-01	0.00E+00	3.77E-01
Sep-21	0.00E+00	2.28E-02	0.00E+00	1.64E-01	0.00E+00	3.77E-01
Oct-21	3.23E-07	2.28E-02	2.90E-04	1.65E-01	8.47E-04	3.78E-01
Nov-21	1.05E-06	2.28E-02	9.47E-04	1.66E-01	2.76E-03	3.81E-01
Dec-21	1.09E-06	1.98E-02	9.79E-04	1.42E-01	2.85E-03	3.09E-01
2021	1.98E-02		1.42E-01		3.09E-01	

Panhandle Eastern Pipe Line Company - Howell Compressor Station
Rolling Hours of Operation

Dehydration reboiler has a rolling 12 month limt of 7,000 hours

Unit	Dehy Hours	12-month Rolling
Dec-20	744.0	744.0
Jan-21	696.0	1440.0
Feb-21	672.0	2112.0
Mar-21	658.8	2770.8
Apr-21	102.9	2873.7
May-21	0.0	2873.7
Jun-21	51.2	2924.9
Jul-21	96.0	3020.9
Aug-21	0.0	3020.9
Sep-21	0.0	3020.9
Oct-21	220.8	3241.7
Nov-21	720.0	3961.7
Dec-21	744.0	3961.7
Jan-22	0.0	3265.7
Feb-22	0.0	2593.7
Mar-22	0.0	1934.9
Apr-22	0.0	1832.0
May-22	0.0	1832.0
Jun-22	0.0	1780.8
Jul-22	0.0	1684.8
Aug-22	0.0	1684.8
Sep-22	0.0	1684.8
Oct-22	0.0	1464.0
Nov-22	0.0	744.0
Dec-22	0.0	0.0

Ref Date 481730 Done

Engine # 1601	Date 5/25/21		BY B. Wood	
Engine Hours	208334		Low Stage Suc P	598
Spark Plug Hours	353		Low Stage Dis. P	769
Engine Oil Press. Pump/Bearing	58	52	High Stage Suc P	769
Jacket Water Pressure	38		High Stage Dis P	1598
Exhaust Temp. #1	935		L/S Suc T	58
Exhaust Temp. #2	869		L/S Dis T	93
Exhaust Temp. #3	853		H/S Suc T 2	86
Exhaust Temp. #4	911		H/S Dis T 2	177
Exhaust Temp. #5	877		Cmpr. Flo Chart/Meas	16.3
Exhaust Temp. #6	817		HP/MM Chart - Measured	51
Average Exhaust temp	877			
Maximum Exhaust temp	935		Frame Movement	
Minimum Exhaust temp	817		Foundation Conditon	
Jacket Water Temp In / Out	164	169	Ignition Condition	
Engine Oil Temp IN / Out	148	158	Valvetrain Condition	
Ignition Timing Grid / Actual	18		Power Cyl. Head Cond.	
RPM Panel / Test	332	332	Compr. Cyl. Motion	
Positions Bypass / Governor	37	13.6	Compressor Valves	
			Compr Cyls/ Rings	
Pressure Suc. / Dis.	598	1598	Combustion Air System	
Load Step	6	1-0/0-0	Cooling System	
Chart/Panel HP /meas HP	830	844	Bypass Valve Leakage	
SCFH Panel	6581		Hydraulic fan pressure	
FER Panel	6.41	6357246	Engine vibration	5
HP/BSFC=Fuel HP	854		Compressors 1/2	5//12
% BHP Panel / Meas.	84.7		Turbocharger vibr	9%
% Torque Panel / Meas	84.4		JW towr out temp/rpm	154//107
BSFC Panel /scfhxbtulhv/hp=bsfc	7441	7532	Oil cntrl % out	0
AMP Left Panel / Deficit/added	6.4	0.1	Aftercooler Temp	
AMP Deficit/ +or- air	0.3		Lube cts. Panel	128
AMT Panel / Test	142		Lube Test Panel 15 min / hr	128
Static Fuel Press. Panel / Test	25.8		Compr Packing leak	
Gas Flow Temp Panel / Test	73		CC Pressure	0.8
Fuel Manifold Press. Panel / Test	16.5	15.4	Air Filter diff	0.9
BTU Wet / Dry	1071	966	Compr Vent	0.05
Gas Gravity	0.599		Turbo oil pressure	28
Barometric Press. HG / PSI	29.98		L/S BHP / H/SBHP	212//635
Ambient Temp.	81		L/S HP/mm / H/S HP/mm	13.62//40.72
SCFM/RPM Panel/Calc.	19.82		Pumped Flow L/S / H/S	15.5//15.7
Average cyl deviation	18		Ratio L/S H/S	1.27//2.07
Maximum cyl deviation	25		EV LS / HS	.875//.746
Minimum cyl deviation	23		Added Clrc LS / HS	0

Windrock, Inc.
1832 Midpark Road, Suite 102
Knoxville, TN 37921
865-330-1100
865-330-1101 FAX

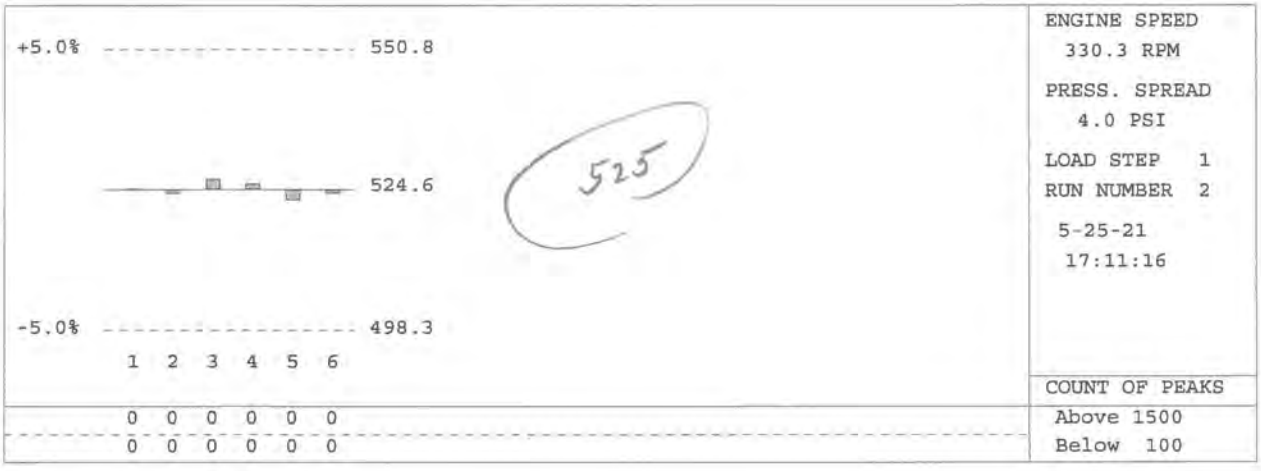
Station: **HOWELL**
Machine: **1601 Bal Route**

Date: **05-25-2021**

As left balance report:

Power Cylinder Name	Peak Press Mean	Diff	SD	Spread	Power Cylinder Name	Peak Press Mean	Diff	SD	Spread
1> 1	524.8	0.2	18.3	86					
2> 2	523.8	-0.7	21.4	75					
3> 3	526.6	2.1	21.9	68					
4> 4	525.7	1.1	21.6	88					
5> 5	522.6	-1.9	16.6	62					
6> 6	523.8	-0.7	19.0	65					

166/ 22
19.6



525

Analyst: **Wood, Brian G.**

Windrock, Inc.
1832 Midpark Road, Suite 102
Knoxville, TN 37921
865-330-1100
865-330-1101 FAX

Station: **HOWELL**
Machine: **1601 Bal Route**

Date: **05-25-2021**

Panel report:

Panel Data Name	AS FOUND	AS LEFT	Change, % Change
Unit speed	328.0	328.0	0.000, 0.00
GOV POS	13.70	13.70	0.000, 0.00
LOAD STEP	6.00	6.00	0.000, 0.00
IGN TIME	18.00	18.00	0.000, 0.00
Horsepower	846.0	840.0	-6.000, -0.71
Compressor torque	84.40	84.20	-0.200, -0.24
Suction pressure	585.0	598.0	13.000, 2.22
Discharge pressure	1598.0	1593.0	-5.000, -0.31
Fuel flow	6581.0	6520.0	-61.000, -0.93
Unit BSFC	7441.0	7469.0	28.000, 0.38
Fuel pressure	25.80	25.80	0.000, 0.00
FMP	16.60	16.50	-0.100, -0.60
AMP	6.60	6.40	-0.200, -3.03
AMT	142.0	140.0	-2.000, -1.41

Exhaust Temperatures

Cyl	FOUND	LEFT	Change, % Change
1	934	932	-2.000, -0.21
2	875	870	-5.000, -0.57
3	856	853	-3.000, -0.35
4	921	913	-8.000, -0.87
5	878	877	-1.000, -0.11
6	818	817	-1.000, -0.12

Analyst: **Wood, Brian G.**

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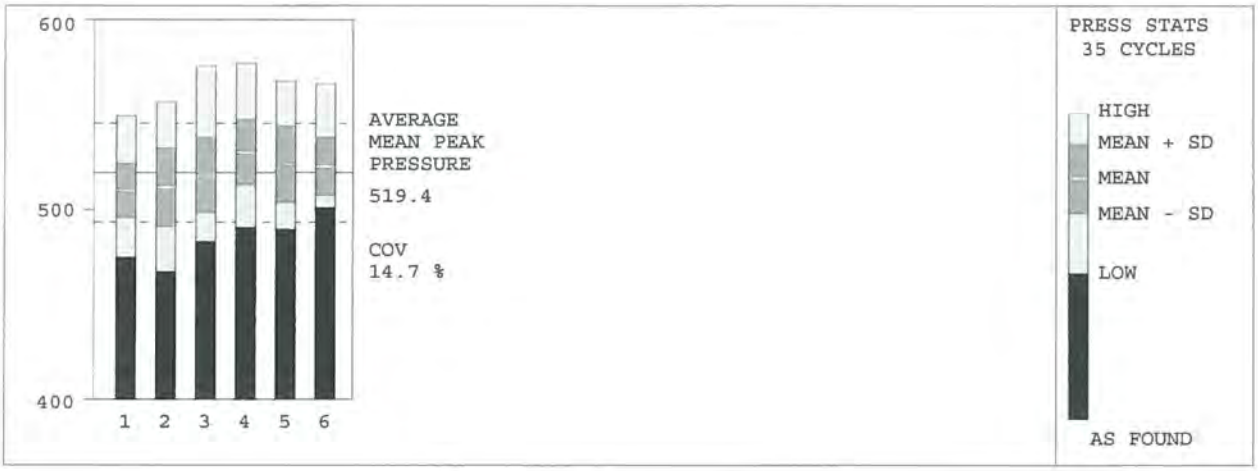
865-330-1100
865-330-1101 FAX

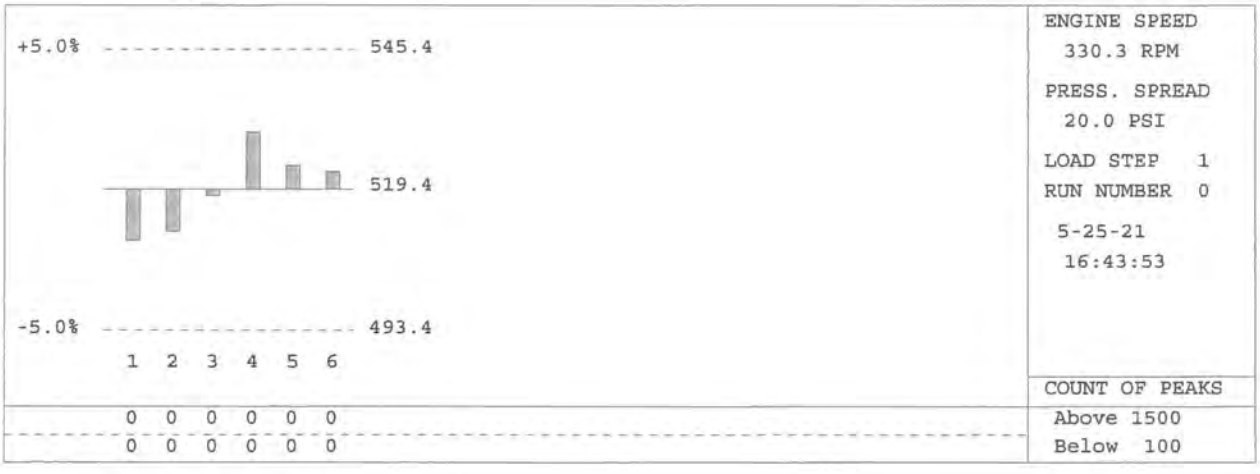
Station: **HOWELL**
Machine: **1601 Bal Route**

Date: **05-25-2021**

As found balance report:

Power Cylinder Name	Peak Press Mean	Diff	SD	Spread	Power Cylinder Name	Peak Press Mean	Diff	SD	Spread
1> 1	510.0	-9.4	14.8	75					
2> 2	511.6	-7.8	21.2	89					
3> 3	518.1	-1.2	20.0	93					
4> 4	530.0	10.6	17.7	87					
5> 5	523.9	4.5	20.5	78					
6> 6	522.7	3.3	15.6	65					





Analyst: **Wood, Brian G.**

541

490308 Done

Engine # 1602	Date 6-15-2021		BY B. Wood	
Engine Hours	20578Z		Low Stage Suc P	600
Spark Plug Hours	289		Low Stage Dis. P	685
Engine Oil Press. Pump/Bearing	56	54	High Stage Suc P	679
Jacket Water Pressure	38.6		High Stage Dis P	1667
Exhaust Temp. #1	869	873	L/S Suc T	58
Exhaust Temp. #2	955	952	L/S Dis T	84
Exhaust Temp. #3	855	854	H/S Suc T 2	72
Exhaust Temp. #4	811	804	H/S Dis T 2	204
Exhaust Temp. #5	846	844	Cmpr. Flo Chart/Meas	17 15
Exhaust Temp. #6	786	778	HP/MM Chart - Measured	485 527
Average Exhaust temp		851	Analysis W/O	
Maximum Exhaust temp		952	Frame Movement	
Minimum Exhaust temp		778	Foundation Conditon	
Jacket Water Temp In / Out	160	169	Ignition Condition	
Engine Oil Temp IN / Out	145	153	Valvetrain Condition	
Ignition Timing Grid / Actual	18.2		Power Cyl. Head Cond.	
RPM Panel / Test	330		Compr. Cyl. Motion	
Positions Bypass / Governor	29	12.6	Compressor Valves	
Turbocharger Speed	10968		Compr Cyls/ Rings	
Pressure Suc. / Dis.	600	1667	Combustion Air System	
Load Step	9	1-0/0-0	Cooling System	
Panel / Meas HP	825	790	Bypass Valve Leakage	
SCFH Panel/Orflow	6642		oil Filter / Stg	
FER Panel / Orflow	6.43	6409.530	Engine vibration	4
HP/BSFC=Fuel HP	823	794	Compressors 1/2	5.5/9
% BHP Panel / Calc.	825	~~824~~ 79.4	Turbocharger vibr	6
% Torque Panel / Calc.	82	79	JW towr out temp/rpm	
BSFC Panel /scfhxbtulhv/hp=bsfc	7784	8072	Oil cntrl % out	38%
AMP Left Panel / Deficit/added	6.5 ~~6.6~~	+.1	Aftercooler Temp	
AMT Panel / Test	118		Lube Test Panel / hr	138
Static Fuel Press. Panel / Test	27.7		Compr Packing leak	
Gas Flow Temp Panel / Test	67		CC Pressure	.25
Fuel Manifold Press. Panel / Test	15		Air Filter diff	.8
BTU Wet / Dry	1070	966	Compr Vent	07/85
Gas Gravity	.600		Turbo oil pressure	41.6
Barometric Press. HG / PSI	29.98		L/S BHP / H/SBHP	120 702
Ambient Temp.	71		L/S HP/mm / H/S HP/mm	8.09/46
SCFM/RPM Panel/Calc.	29.12		Pumped Flow L/S / H/S	16/15
Average cylinder standard deviation	20		Ratio L/S H/S	1.13 2.43
Maximum cylinder standard deviation	34		EV LS / HS	.822 .688
Minimum cylinder standard deviation	9		Added Circ LS / HS	6 0

867

150-

134 Adj 6

oil 52693

1.5 / 1.9

T/C- 10968

17728

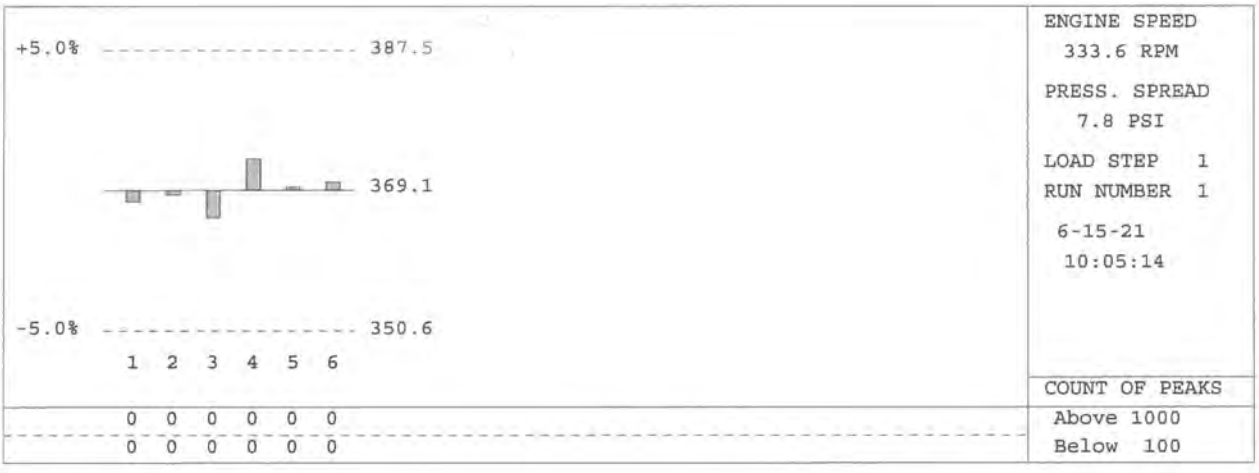
Windrock, Inc.
1832 Midpark Road, Suite 102
Knoxville, TN 37921
865-330-1100
865-330-1101 FAX

Station: **HOWELL**
Machine: **1602 Bal Route**

Date: **06-15-2021**

As left balance report:

Power Cylinder Name	Peak Press Mean	Diff	SD	Spread	Power Cylinder Name	Peak Press Mean	Diff	SD	Spread
1> 1	367.6	-1.5	26.6	119					
2> 2	368.4	-0.7	34.1	129					
3> 3	365.5	-3.6	14.0	73					
4> 4	373.3	4.2	19.8	75					
5> 5	369.5	0.5	17.4	69	(20)				
6> 6	370.3	1.2	9.2	49		34/9			



Analyst: **Wood, Brian G.**

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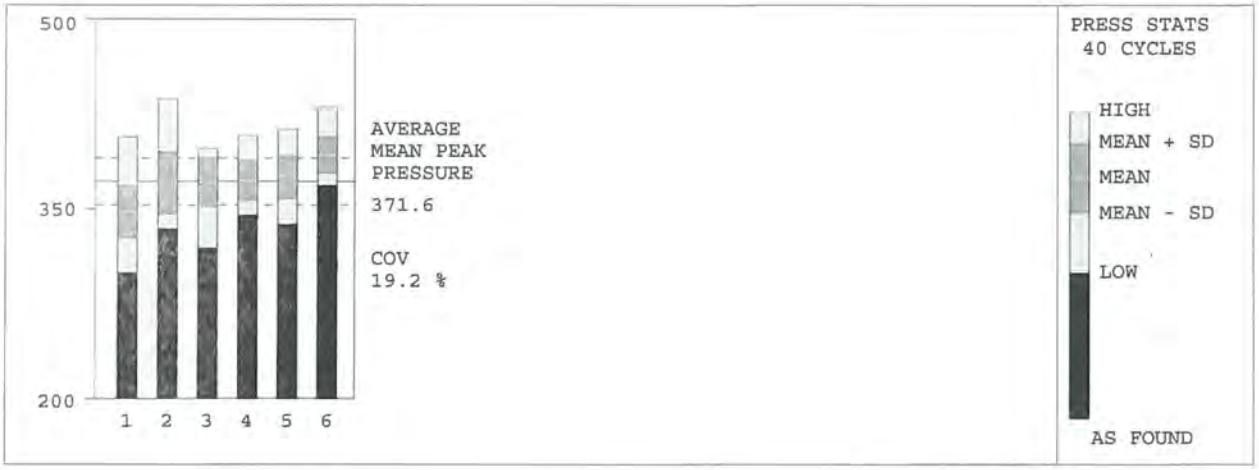
1832 Midpark Road, Suite 102
Knoxville, TN 37921
865-330-1100
865-330-1101 FAX

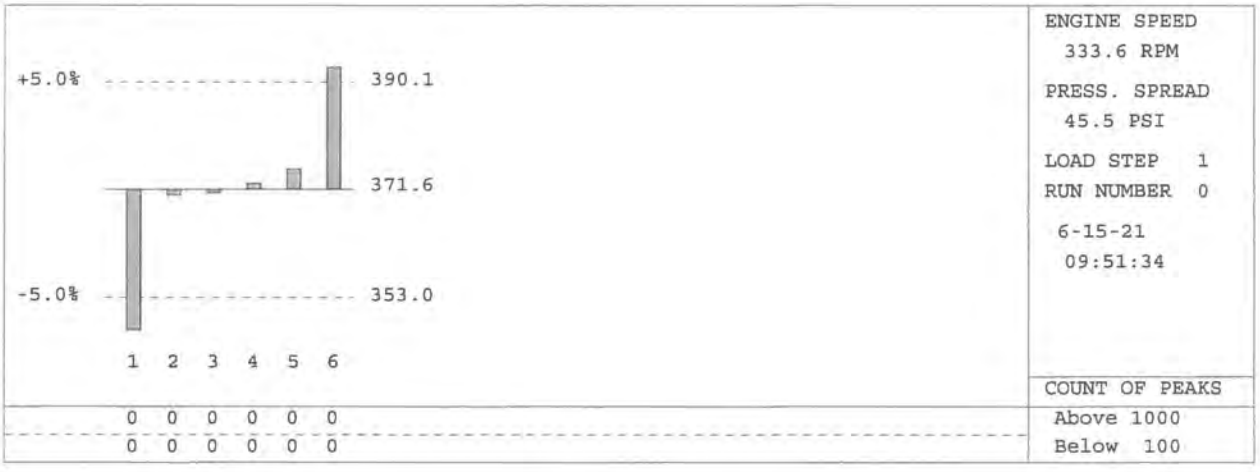
Station: **HOWELL**
Machine: **1602 Bal Route**

Date: **06-15-2021**

As found balance report:

Power Cylinder Name	Peak Press Mean	Diff	SD	Spread	Power Cylinder Name	Peak Press Mean	Diff	SD	Spread
1> 1	347.3	-24.2	21.3	108					
2> 2	370.5	-1.0	25.1	102					
3> 3	370.9	-0.6	19.8	79					
4> 4	372.7	1.1	16.5	63					
5> 5	375.1	3.6	17.5	76					
6> 6	392.8	21.2	14.9	62					





Analyst: **Wood, Brian G.**

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1832 Midpark Road, Suite 102
Knoxville, TN 37921
865-330-1100
865-330-1101 FAX

Station: **HOWELL**
Machine: **1602 Bal Route**

1-0/0-0 step 9

Date: **06-15-2021**

Panel report:

Panel Data Name	AS FOUND	AS LEFT	Change, % Change
Horsepower	822.0	826.0	4.000, 0.49
Unit speed	331.0	332.0	1.000, 0.30
Fuel pressure	27.00	0.0000	-27.000, -100.00
Suction pressure	600.0	600.0	0.000, 0.00
Discharge pressure	1667.0	1667.0	0.000, 0.00
L-STEP	9.00	9.00	0.000, 0.00
IGN TIME	18.20	18.00	-0.200, -1.10
FSP	27.00	27.00	0.000, 0.00
AMP	6.20	6.30	0.100, 1.61
AMT	118.0	118.0	0.000, 0.00
GOV-POS	12.90	12.50	-0.400, -3.10

Exhaust Temperatures

Cyl	FOUND	LEFT	Change, % Change
1	869	873	4.000, 0.46
2	955	952	-3.000, -0.31
3	855	855	0.000, 0.00
4	811	810	-1.000, -0.12
5	846	844	-2.000, -0.24
6	787	779	-8.000, -1.02

Analyst: **Wood, Brian G.**

For Next Balance — 2000 479702 — Done (6-2-21) TECO

Engine # 1603	Date 5-19-2021		BY B. Wood		
Engine Hours	204 897		Low Stage Suc P	600	
Spark Plug Hours	~~248~~	272	Low Stage Dis P	944	
Engine Oil Press. Pump/Bearing	66.5	55.6	High Stage Suc P	242	
Jacket Water Pressure	21		High Stage Dis P	1530	
Exhaust Temp. # 1	802		Low Stage Suc T 1/2	56	55
Exhaust Temp. # 2	838		Low Stage Dis T 1/2	135	125
Exhaust Temp. # 3	935		High Stage Suc T 3/4	107	107
Exhaust Temp. # 4	802		High Stage Dis T 3/4	187	185
Exhaust Temp. # 5	831		Hp/MM Chart / Measured		
Exhaust Temp. # 6	847		Hp Flow Chart / Meas.		
Exhaust Temp. # 7	816		***Analysis W/O***		
Exhaust Temp. # 8	808		Frame Movement		
Exhaust Temp. # 9	872		Foundation Condition		
Exhaust Temp. # 10	830		Ignition Condition		
Exhaust Temp. # 11	862		Valvetrain Condition		
Exhaust Temp. # 12	856		Power Cyl Head Cond		
Average Exhaust temp	833		Compressor Cyl Motion		
Maximum Exhaust temp	935		Compressor Valves		
Minimum Exhaust temp	800		Compr Cyls/Rings		
Jacket Water Temp In / Out	160	170	Combustion Air System		
Engine Oil Temp IN / Out	158	168	Cooling System		
Ignition Timing Grid / Actual	18		***From HP Panel***		
RPM Panel / Test	334		BHP- LS-HS	822	931
Positions Bypass / Governor	0	12	%BHP LS/HS	41	46
Pressure Suc. / Dis.	600	1550	% torq LS/HS	40	45.6
% BHP Panel / Calc.	87.2	91.5	HP/MM LS - HS	24	27
% Torque Panel / Calc.	86	90.5	Ratio LS-HS	1.56	1.64
Load Step/ Pocket setting	1-3+0-2	34	Swept Vol LS-HS	3988	2542
Panel /Chart HP	1755 / 1810		Pis Displ LS- HS		
SCFH Panel -Calc	13082		EV - LS-HS		
FER Panel	12665	12676458	Min Clrc - LS-HS		
BSFC Panel / calc	7218	6927	Added Clc LS-HS	6927	
Fuel HP (HP/BSFC)	17.56	1830	% Clearance L/S-H/S		
AMP Panel / Test	5.9	5.8	***Vibrations - Panel -3***		
AMP Deficit - Panel	-.7		Compresors 1/2		
AMT Panel/Test/ offset	132		Compressors 3/4		
Gas Flow Temp Panel / Test	75		JW tower		
Fuel Supply Press. Panel / Test	29.9		Gas Cooling Twr		
BTU Wet / Gas Gravity	1075	969	Engine		
Fuel Man Press. Panel / Test	13.7		Turbocharger - R/L		
Barometric Press. HG / PSI	30.3		**Average PFP Deviation**		
Ambient Temp.	81		**Maximum PFP Deviation**		
Aftercooler Temp	113		**Minimum PFP Deviation**		
CC Press Panel/GA.	.34		Lube Test / 15 min E/C		
Air Filter Diff R/L	.18		Lube Test Panel / hr-EC	70	126
Oil Filter / Strainer Dif	1.4	2.5	JW Twr-out Temp		
Tub. Oil Press E/W	22	21	Oil Control % out		

817
809

Windrock, Inc.
1832 Midpark Road, Suite 102
Knoxville, TN 37921
865-330-1100
865-330-1101 FAX

Station: **HOWELL**
Machine: **1603 Bal Route**

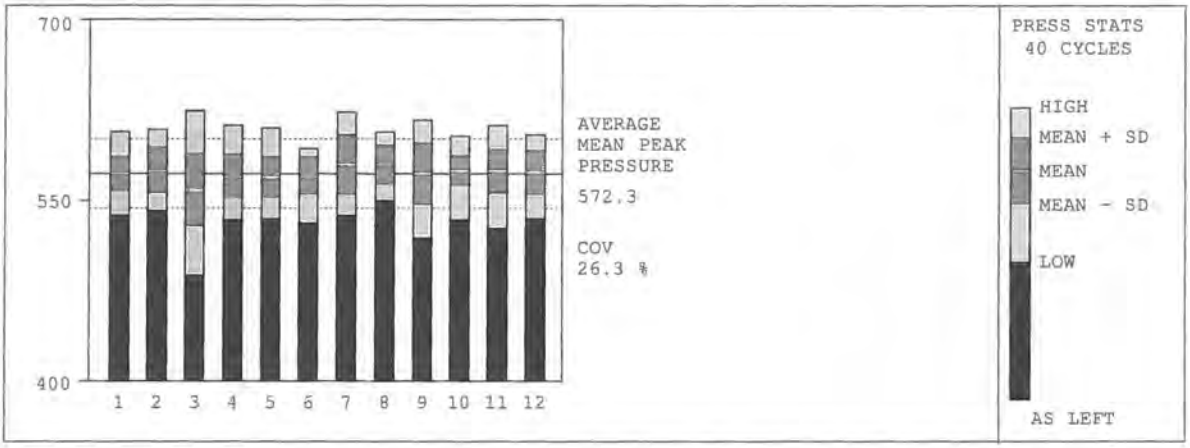
~~Due~~ for Bal

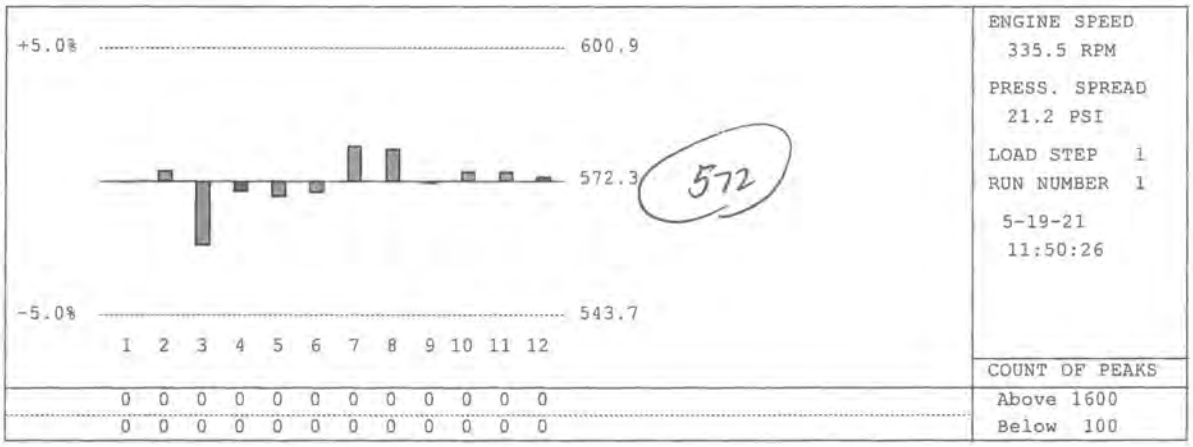
Date: **05-19-2021**

As left balance report: (Temp changes Reg.)

Power Cylinder Name	Peak Press Mean	Diff	SD	Spread	Power Cylinder Name	Peak Press Mean	Diff	SD	Spread
1> 1	572.1	-0.2	14.6	69	11> 11	574.4	2.1	18.4	85
2> 2	574.7	2.4	19.4	68	12> 12	573.3	1.0	18.9	69
3> 3	558.7	-13.7	30.4	136					
4> 4	570.1	-2.2	18.4	79					
5> 5	569.1	-3.2	17.2	75					
6> 6	570.0	-2.3	15.7	62					
7> 7	579.8	7.5	24.9	85					
8> 8	579.2	6.9	16.3	58					
9> 9	572.0	-0.3	25.9	97					
10> 10	574.4	2.0	13.0	69					

19.5
13 /30





Analyst: **Wood, Brian G.**

Windrock, Inc.
1832 Midpark Road, Suite 102
Knoxville, TN 37921
865-330-1100
865-330-1101 FAX

Station: **HOWELL**
Machine: **1603 Bal Route**

Date: **05-19-2021**

Panel report:

Panel Data Name	AS FOUND	AS LEFT	Change, % Change
Unit speed	330.0	334.0	4.000, 1.21
L-STEP	0.0000	34.00	34.000, ***
IGN TIME	18.00	18.00	0.000, 0.00
Horsepower	1800.0	1811.0	11.000, 0.61
Compressor torque	89.00	91.00	2.000, 2.25
Fuel flow	13126.0	13011.0	-115.000, -0.88
Unit BSFC	7248.0	7233.0	-15.000, -0.21
Suction pressure	600.0	600.0	0.000, 0.00
Discharge pressure	1550.0	1550.0	0.000, 0.00
Fuel pressure	0.0000	27.00	27.000, ***
SCFH	0.0000	13033.0	13033.000, ***
AMP	5.80	5.90	0.100, 1.72
AMT	131.0	19.80	-111.200, -84.89

Exhaust Temperatures				Exhaust Temperatures			
Cyl	FOUND	LEFT	Change, % Change	Cyl	FOUND	LEFT	Change, % Change
1	798	802	4.000, 0.50	7	822	816	-6.000, -0.73
2	844	838	-6.000, -0.71	8	803000	808	-802192.000, -99.90
3	933	933	0.000, 0.00	9	866	872	6.000, 0.69
4	790	800	10.000, 1.27	10	826	830	4.000, 0.48
5	826	833	7.000, 0.85	11	858	862	4.000, 0.47
6	850	847	-3.000, -0.35	12	866	855	-11.000, -1.27

Analyst: **Wood, Brian G.**

ENGINE OPERATING LOG -- WEEKLY

UNIT NO. 1601	ENGINE HOURS:			MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY	
	Dec 2021		DATE							23		24		25		26	
	MAX	MIN	SAFETY	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
WATER TEMP TO ENGINE	165	155	198								158	160		166		161	
WATER TEMP FROM ENGINE	175	165	195								165	167		167		168	
OIL TEMP TO ENGINE	155	145	188								139	145		145		146	
OIL TEMP FROM ENGINE	165	155	185								149	153		154		1	
OIL FILTER DIF. PRESSURE	10										2.7	2.6		2.7		2.4	
OIL STRAINER PRESSURE	5										1.1	1.2		1.3		1.1	
ENGINE OIL PRESSURE	50	35	30								54	53		53		52	
ENGINE WATER PRESSURE	50	30									38	38		38		38	
PANEL LUBE CTS / HR	120										112	134		138		8	
TURBOCHARGER OIL PRESS	40	30	15								29	28		8		28	
TURBOCHARGER RPM											—	—		—			
AIR FILTER PRESSURE	5	1									.7	.7		.9		.8	
CRANKCASE PRESSURE	1 1/2" H20										.25	.2		.28		.2	
FUEL MANIFOLD PRESS	20										15.5	17				12	
FUELSUPPLY PRESSURE											26	25.9		25.8		6	
AIR MANIFOLD PRESSURE	9	6									6	6.2		6		61	
AMP SETPOINT											5.8	6		6.2		6	
AMP CONTROL VALVE POS.											61	59		60		65	
AIR MANIFOLD TEMP											98.4	106		108		91	
ENGINE RPM	330	270	365								331	331		331		331	
PANEL HORSEPOWER											791	795		820		1	
PANEL TORQUE											78.8	79.2		81.6		8 8	
GOVERNOR											13.1	13.2		19		13.4	
GCFH											6328	6445		6618		6623	
BSFC											7776	7700		7861		7860	
AFTERCOOLER TEMP	140 for 12 HRS										48	103		18		97	
OIL METER READING	RECORD										3650	3652		3654		3661	
ENGINE OIL MAKE-UP	YESTERDAY VS TODAY											2		2		7	
DAILY ENGINE HOURS	RECORD																
MINIMUM SUCTION PRESS		280									600	600		600		600	
MAX DISCHARGE PRESS			1892								1500	1551		1573		1590	
OPERATOR	INITIAL										JL	JL		JL		JL	
REMARKS																	

COMPRESSOR PRESSURE\TEMPERATURE

	COMP #1		COMP #2		COMP #3		COMP #4	
	TEMP\SUC	TEMP\DISC	TEMP\SUC	TEMP\DISC	TEMP\SUC	TEMP\DISC	TEMP\SUC	TEMP\DISC
M								
M								
T								
T								
W								
W								
T								
T	595 / 46	729 / 76	729 / 44	1530 / 149				
F	595 / 45	729 / 76	729 / 48	1555 / 156				
F								
S	595 / 45	743 / 80	742 / 55	1578 / 163				
S								
S	596 / 44	730 / 76	730 / 43	1545 / 153				
S								

1601

CYLINDER EXHAUST TEMPERATURES

950 ALARM 1050 SD — 150 DEGREES MAX BETWEEN CYLINDERS

	1	2	3	4	5	6	7	8	9	10	11	12	TURBO
M													
M													
T													
T													
W													
W													
T													
T	928	870	826	895	861	793							856
F	931	873	831	899	869	800							863
F													
S	948	887	850	913	886	817							880
S													
S	936	877	837	896	869	797							865
S													

	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY	
POCKET SETTING								1-0/0-0	1-0/0-0		1-0/0-0		1-0/0-0	
CURVE HORSEPOWER								785	815		825		835	

INJ. HI 1ST STAGE DISCHARGE PRESSURE = 998 2ND STAGE DISCHARGE PRESSURE = 1892 HI 1ST STAGE DISCHARGE TEMP =235 2ND STAGE DISCHARGE TEMP = 235

W/D 1ST STAGE DISCHARGE PRESSURE = 958 W/D 2ND STAGE DISCHARGE PRESSURE = 958

ENGINE OPERATING LOG -- WEEKLY

UNIT NO. 1602	ENGINE HOURS:			MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY	
	Dec 2021		DATE-							23		24		25		26	
PARAMETER	MAX	MIN	SAFETY	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
WATER TEMP TO ENGINE	165	155	198								154	160		159		161	
WATER TEMP FROM ENGINE	175	165	195								161	167		166		168	
OIL TEMP TO ENGINE	155	145	188								143	144		145		145	
OIL TEMP FROM ENGINE	165	155	185								146	152		153		152	
OIL FILTER DIF. PRESSURE	10										1.4	1.3		1.2		1.3	
OIL STRAINER PRESSURE	5										.6	.5		.5		.5	
ENGINE OIL PRESSURE	50	35	30								54	54		54		53	
ENGINE WATER PRESSURE	50	30									39	39		39		38	
PANEL LUBE CTS / HR	120										112	114		122		114	
TURBOCHARGER OIL PRESS	40	30	15								41.9	41.6		41.6		41.7	
TURBOCHARGER RPM											10938	10903		10989		10985	
AIR FILTER PRESSURE	5	1									.7	.9		.8		.9	
CRANKCASE PRESSURE	1 1/2" H20										.25	.25		.28		.31	
COMPR VENT SCFH											0	0		0		0	
FUEL MANIFOLD PRESS	20										13.7	13.7		14.3		14.3	
FUEL SUPPLY PRESSURE											27.8	27.9		27.9		28.2	
AIR MANIFOLD PRESSURE	9	6									6.2	6.1		5.8		5.7	
AMP SETPOINT											5.8	57		5.8		5.8	
AMP CONTROL VALVE POS.											37	36		37		45	
AIR MANIFOLD TEMP											95	101		103		85	
ENGINE RPM	330	270	365								331	331		332		331	
PANEL HORSEPOWER											744	759		778		774	
PANEL TORQUE											74.4	75.8		77.1		76.9	
GOVERNOR											11.8	11.8		12		12.1	
SCFH											6445	6403		6393		6496	
BSFC											8291	8180		8016		8145	
AFTERCOOLER TEMP	140 for 12 HRS										48	103		108		97	
OIL METER READING	RECORD										3696	3697		3699		3704	
ENGINE OIL MAKE-UP	YESTERDAY VS TODAY											1		2		5	
MINIMUM SUCTION PRESS		280									600	600		600		600	
MAX DISCHARGE PRESS			1892								1500	1551		1573		1590	
OPERATOR	INITIAL										JL	JL		JL		JL	
REMARKS																	

1602

COMPRESSOR PRESSURE\TEMPERATURE

	COMP #1		COMP #2		COMP #3		COMP #4	
	TEMP\SUC	TEMP\DISC	TEMP\SUC	TEMP\DISC	TEMP\SUC	TEMP\DISC	TEMP\SUC	TEMP\DISC
M								
M								
T								
T								
W								
W								
T								
T	598 / 44	655 / 62	655 / 40	1529 / 162				
F	599 / 44	651 / 64	655 / 45	1554 / 170				
F								
S	598 / 44	663 / 66	662 / 52	1576 / 179				
S								
S	598 / 44	656 / 63	655 / 38	1544 / 167				
S								

CYLINDER EXHAUST TEMPERATURES

950 DEGREES = ALARM 1050 SD 150 DEGREES MAX BETWEEN CYLINDERS 750/800

1	2	3	4	5	6	7	8	9	10	11	12	TURBO
865	937	830	784	806	738							841
871	944	839	797	813	746							847
876	950	848	804	818	753							853
880	951	844	800	802	733							847

	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY	
POCKET SETTING								1-0/0-0	1-0/0-0		1-0/0-0		1-0/0-0	
CURVE HORSEPOWER								735	759		780		772	

INJ. HI 1ST STAGE DISCHARGE PRESSURE = 998 2ND STAGE DISCHARGE PRESSURE = 1892 HI 1ST STAGE DISCHARGE TEMP =235 2ND STAGE DISCHARGE TEMP = 235

W/D 1ST STAGE DISCHARGE PRESSURE = 958 W/D 2ND STAGE DISCHARGE PRESSURE = 958

ENGINE OPERATING LOG -- WEEKLY

UNIT NO. 1603	ENGINE HOURS:			MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY	
	Dec 2021		DATES							23		24		25		26	
	MAX	MIN	SAFETY	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
WATER TEMP TO ENGINE	165	155	198								155	160		158		159	
WATER TEMP FROM ENGINE	175	165	195								165	170		164		164	
OIL TEMP TO ENGINE	155	145	188								147	154		155		151	
OIL TEMP FROM ENGINE	165	155	185								154	163		164		160	
OIL FILTER DIF PRESSURE	10										1.7	1.5		1.4		1.6	
OIL STRAINER DIF. PRESSURE	10										1.5	1.7		2.2		2.3	
ENGINE OIL PRESSURE	50	35									57	56		55		56	
ENGINE WATER PRESSURE	50	30									21	21		21		21	
ENG / COMPR LUBE CTS / HR	60 / 103										114/258	58/104		58/106		52/98	
TURBINE OIL PRESSURE-E	40	30	15								23	21		21		22	
TURBINE OIL PRESSURE-W	40	30	15								22	22		22		22	
TURBINE RPM EAST											9756	9818		10066		10107	
TURBINE RPM WEST											9815	9928		10043		10043	
AIR FILTER PRESSURE-EAST	5	1									.5	.5		.5		.4	
AIR FILTER PRESSURE-WEST	5	1									.4	.5		.5		.4	
CRANKCASE PRESSURE	1 1/2" H20										.22	.24		.24		.23	
COMPR VENT SCFH											325	635		690		592	
FUEL MANIFOLD PRESSURE	20										13.6	14		14.5		14	
FUEL SUPPLY PRESSURE											30.3	30.3		30.3		30.6	
AIR MANIFOLD PRESSURE	9	6									6.2	6.4		6.4		6.1	
AMP SETPOINT											6.1	6.2		6.5		6.1	
AMP CONTROL VALVE POS.											18	18		9		18	
AIR MANIFOLD TEMPERATURE											98	105		105		81	
ENGINE RPM	330	270	365								331	330		330		330	
PANEL HORSEPOWER											1767	1740		1771		1749	
PANEL TORQUE											84.8	86.1		87.1		85.8	
GOVERNOR											12.3	12.6		13.1		12.4	
SCFH											12996	13160		13412		13224	
BSFC											7366	7302		7325		7455	
AFTERCOOLER TEMP	ALARM - 140		SD - 150								48	103		108		97	
OIL METER READING	RECORD										7208	7211		7215		7220	
ENGINE OIL MAKE-UP	YESTERDAY VS TODAY											3		4		5	
SUCTION PRESSURE	STA	MIN	280								600	600		600		600	
DISCHARGE PRESSURE	STA	MAX	1892								1500	1551		1573		1590	
OPERATOR	INITIAL										JL	JL		JL		JL	

1603

COMPRESSOR PRESSURE\TEMPERATURE

	COMP #1		COMP #2		COMP #3		COMP #4	
	TEMP\SUC	TEMP\DISC	TEMP\SUC	TEMP\DISC	TEMP\SUC	TEMP\DISC	TEMP\SUC	TEMP\DISC
M								
M								
T								
T								
W								
W								
T								
T	598 / 46	934 / 121	598 / 45	934 / 113	931 / 78	1531 / 160	931 / 78	1531 / 156
F	600 / 45	942 / 123	600 / 44	942 / 114	939 / 82	1557 / 166	939 / 82	1557 / 161
F								
S	599 / 45	948 / 124	599 / 44	948 / 115	945 / 85	1578 / 166	945 / 85	1578 / 166
S								
S	600 / 45	944 / 123	600 / 44	944 / 114	941 / 78	1597 / 165	941 / 78	1597 / 161
S								

CYLINDER EXHAUST TEMPERATURES

950 DEGREES = ALARM / 1050 SD 150 DEGREES MAX BETWEEN CYLINDERS 750/800

1	2	3	4	5	6	7	8	9	10	11	12	TURBO
758	748	883	760	794	810	770	758	814	779	885	817	794 / 771
770	810	904	770	804	820	784	772	829	791	898	830	804 / 783
773	811	905	773	802	822	783	772	830	791	903	837	808 / 787
764	799	901	770	793	817	772	765	820	783	887	827	795 / 774

	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY	
POCKET SETTING								1-3 / 0-2	1-3 / 0-2		1-3 / 0-2		1-4 / 0-2	
CURVE HORSEPOWER								1790	1810		1830		1800	

INJ. HI 1ST STAGE DISCHARGE PRESSURE = 1198 2ND STAGE DISCHARGE PRESSURE = 1892 HI 1ST STAGE DISCHARGE TEMP =235 2ND STAGE DISCHARGE TEMP = 260

W/D 1ST STAGE DISCHARGE PRESSURE = 958 W/D 2ND STAGE DISCHARGE PRESSURE = 958

ENGINE OPERATING LOG -- WEEKLY

UNIT NO. 1604	ENGINE HOURS:			MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY	
Dec 2021			DATES							23		24		25		26	
	MAX	MIN	SAFETY	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
WATER TEMP TO ENGINE	165	155	198								159	158		161		158	
WATER TEMP FROM ENGINE	175	165	195								168	169		170		168	
OIL TEMP TO ENGINE	155	145	188								143	144		144		144	
OIL TEMP FROM ENGINE	165	155	185								154	156		156		156	
OIL FILTER DIF PRESSURE	10										3.9	3.8		3.8		4	
OIL STRAINER DIF. PRESSURE	10										2.2	2.1		2.1		2.2	
ENGINE OIL PRESSURE	50	35									60	59		59		59	
ENGINE WATER PRESSURE	50	30									23	24		24		23	
ENG / COMPR LUBE CTS / HR	120 / 103										116/100	122/106		116/102		114/98	
TURBINE OIL PRESSURE-E	40	30	15								25	25		24		25	
TURBINE OIL PRESSURE-W	40	30	15								25	25		24		25	
TURBINE RPM EAST											9960	10088		10217		9857	
TURBINE RPM WEST											9818	10001		10116		9826	
AIR FILTER PRESSURE-EAST	5	1									.8	.8		.9		.8	
AIR FILTER PRESSURE-WEST	5	1									.7	.7		.7		.7	
CRANKCASE PRESSURE	1 1/2" H20										.44	.41		.47		.5	
COMPR VENT SCFH											1274	1557		1790		1525	
FUEL MANIFOLD PRESSURE	20										17	17.7		18.1		16.7	
FUEL SUPPLY PRESSURE											32	32.1		32.2		32.5	
AIR MANIFOLD PRESSURE	9	6									6.1	6.4		6.7		6	
AMP SETPOINT											6.2	6.5		6.7		6.1	
AMP CONTROL VALVE POS.											20	10		0		31	
AIR MANIFOLD TEMPERATURE											96	100		102		84	
ENGINE RPM	330	270	365								330	332		332		330	
PANEL HORSEPOWER											1759	179		1819		1757	
PANEL TORQUE											87.7	89.2		90.1		87.8	
GOVERNOR											16.2	16.8		17.2		15.6	
SCFH											13457	13926		14142		13964	
BSFC											7304	7381		7450		7318	
AFTERCOOLER TEMP	ALARM - 140		SD - 150								48	103		108		97	
OIL METER READING	RECORD										7134	7136		7140		7143	
ENGINE OIL MAKE-UP	YESTERDAY VS TODAY											2		4		3	
SUCTION PRESSURE	STA	MIN	280								600	600		600		600	
DISCHARGE PRESSURE	STA	MAX	1892								1500	1551		1573		1590	
OPERATOR	INITIAL										JL	JL		JL		JL	

1604

COMPRESSOR PRESSURE\TEMPERATURE

	COMP #1		COMP #2		COMP #3		COMP #4	
	TEMP\SUC	TEMP\DISC	TEMP\SUC	TEMP\DISC	TEMP\SUC	TEMP\DISC	TEMP\SUC	TEMP\DISC
M								
M								
T								
T								
W								
W								
T								
T	598 / 45	950 / 118	598 / 45	950 / 118	945 / 83	1532 / 160	945 / 83	1532 / 156
F	598 / 44	958 / 119	598 / 44	958 / 120	955 / 86	1557 / 166	955 / 87	1557 / 161
F								
S	598 / 44	963 / 119	598 / 44	963 / 120	958 / 89	1578 / 170	958 / 89	1578 / 166
S								
S	598 / 44	945 / 119	598 / 44	945 / 117	940 / 80	1596 / 165	940 / 80	1596 / 160
S								

CYLINDER EXHAUST TEMPERATURES

950 DEGREES = ALARM / 1050 SD 150 DEGREES MAX BETWEEN CYLINDERS 750/800

1	2	3	4	5	6	7	8	9	10	11	12	TURBO
710	732	790	794	784	742	724	733	752	869	807	764	785 / 759
717	735	796	798	789	747	729	737	760	873	810	766	792 / 736
726	741	797	801	797	752	735	741	763	875	815	774	798 / 743
701	717	780	775	767	727	715	717	743	857	792	751	772 / 719

	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY	
POCKET SETTING								1-3/0-2	1-3/0-2		1-3/0-2		1-4/0-2	
CURVE HORSEPOWER								1790	1810		1830		1800	

INJ. HI 1ST STAGE DISCHARGE PRESSURE = 1198 2ND STAGE DISCHARGE PRESSURE = 1892 HI 1ST STAGE DISCHARGE TEMP =235 2ND STAGE DISCHARGE TEMP = 260

W/D 1ST STAGE DISCHARGE PRESSURE = 958 W/D 2ND STAGE DISCHARGE PRESSURE = 958

OAKLEY SERVICES, INC.

GENERATOR MAINTENANCE SERVICE REPORT

Company Trunkline Gas Company Location Howell, MI Unit 300Kw Katolight

☒ Service ☐ Routine Date 09-13-21 Technician Scott Unit Hours 591.0

PRE-START CHECKS:

- ☒ Battery type 12J 761
- ☒ Battery volts 13.1/13.1/26.2
- ☒ Charge rate Floating
- ☒ Electrolyte level Full
- ☒ Hydrometer 1009
- ☒ Battery load test 10.6/10.7 V
- ☒ Clean & grease terminals
- ☒ Oil level Full
- ☒ †Oil added Changed
- ☒ *Changed oil & filter
- ☒ Check for oil leaks
- ☒ Fuel D level 3/4
- ☒ †Fuel added none
- ☒ Fuel lines Good
- ☒ *Changed fuel filter
- ☒ Day tank & pump N/A
- ☒ *Ignition tune up
- ☒ *Replaced spark plugs
- ☒ Coolant level Full
- ☒ †Coolant added Changed
- ☒ *Changed coolant filter
- ☒ Radiator cond. Clean
- ☒ Radiator cap cond. Good
- ☒ Hose cond. Good
- ☒ Check for coolant leaks
- ☒ Coolant cond. Changed
- ☒ Engine heater operable
- ☒ Air cleaner Good
- ☒ Belt tension & condition
- ☒ Exhaust cond. Good
- ☒ Drain condensate trap

Prior to engine start: ☒ Check overcrank: 5 crank cycles 10 sec

START ENGINE AND CHECK:

- ☒ High engine temperature safety
- ☒ Low oil pressure safety
- ☒ Overspeed safety
- ☒ Low engine temperature signal
- ☒ Voltage A-B 483 B-C 480 A-C 481
- ☒ Frequency 60.2 Hertz
- ☒ Remote annunciator operable
- ☒ Pre-alarms

SIMULATE POWER OUTAGE - AFTER 30 MINUTES CHECK:

- ☒ Oil pressure 55 psi
  Water temperature 160 oF
- ☒ Alternator charge rate 27.5 volts
- ☒ Check for fluid leaks
- ☒ Voltage A-B 483 B-C 479 A-C 479
- ☒ Frequency 60.2 Hertz
- ☒ AC amps A 87 B 94 C 94
- ☒ Check turbocharger for leaks

☒ Verify that system switches are in "auto".

* Annual service only † As needed only

REMARKS: Checked and tightened hose clamps, tightened Fan belts, drained and replaced coolant

PARTS NEEDED ON NEXT SERVICE CALL:

ADDITIONAL PARTS	ADDITIONAL LABOR

Technician signature _____ Approved by _____

OAKLEY SERVICES, INC.

EMERGENCY POWER SYSTEMS
1602 N. WATERWORKS ROAD OKAWVILLE, IL 62271 (618) 243-6592/5348 FAX (618) 243-5217

TRANSFER SWITCH CHECKLIST

LOCATION Panhandle Pipe Line DATE 09-13-21 TECH Scott

MAKE ASCO MODEL # H7ATSA3600N5XC SERIAL # 311357 FP

BOM # 78603 SWITCH IDENTIFICATION Unit #1626 600 amp

1. Clean and lubricate transfer mechanism, linkage, pivot points and other moving parts.
2. Inspect main contacts, arcing contacts, auxiliary contacts and cable termination.
3. Check contact defection, spring tension and travel of main contacts.
4. Inspect ARC shields for proper installation.
5. Transfer automatic transfer switch manually.
6. Power up switch and simulate power failure to test switch.
7. Timers and voltage settings as follows:

Override Momentary Outage 6sec Transfer to Emergency 4sec

Retransfer to Normal 30min Gen Set Cool Down 10min

	A Phase	B Phase	C Phase
Normal Source Voltage Pickup	90%	90%	90%
Normal Source Voltage Dropout	85%	85%	85%
Emergency Source Voltage Pickup	90%	90%	90%
Emergency Source Voltage Dropout	75%	75%	75%
Emergency Source Frequency Pickup	95%	95%	95%
Emergency Source Frequency Dropout	90%	90%	90%

Comments ATS visual inspection good
Heat sink 79° Room Temp 73°
ATS in good condition

Materials needed to repair switch

Approved By Signed

In compliance with NFPA 110 2016 Edition: 8.3.4, 8.3.5, and A.8.3.1
(as recommended by the manufacturer).

, ANHANDLE EASTERN PIPE LINE COMPANY

AC Generator Maintenance Record

STATION	AREA	LOCATION
Zionsville	Midwest	Howel, MI

☐ PEPL ☐ TGC ☐ SR ☐ Other

STATION	EQUIPMENT

GENERATOR TAG NO.	CHECK FOR EXCESSIVE NOISE	VISUALLY INSPECT COUPLING	LUBRICATE BEARINGS IF NEEDED	CHECK CONNECTIONS - VISUALLY INSPECT OR INFRARED SCAN			INSPECT, TEST, AND CALIBRATE DEVICES	MEGGER MEGA OHMS	CHECK AND ADJUST BRUSHES (if applicable)	REPLACE BATTERY (every 3 years)	DATE COMPLETED	CHECKED BY	COMMENTS
				LOAD	LINE	GROUND							
300 Kw	X	X	~~X~~ N/A	X	X	X	X	X	N/A	X	09-13-21	SM	
													Megger test
													1 - 20 MΩ
													2 - 24 MΩ
													3 - 27 MΩ

DISTRIBUTION:
Original - Electrical/Controls Technician
Copy - Area, Division

RETENTION:
Original - 3 years plus current
Copy - 1 year plus current

7T-24 04-04
AVAILABLE ELECTRONICALLY

PANHANDLE EASTERN PIPE LINE COMPANY

Transfer Switch Maintenance Record

STATION	AREA	LOCATION
Zionsville	Midwest	Howell

☐ PEPL ☐ TGC ☐ SR ☐ Other

STATION	EQUIPMENT

SWITCH TAG NO.	INSPECT CONNECTIONS - TORQUE OR INFRARED SCAN			VACUUM AND CLEAN	TEST METERS AND CALIBRATE (if needed)	VERIFY WRITTEN PROCEDURES UP-TO-DATE	VERIFY PROPER OPERATION	DATE COMPLETED	CHECKED BY	COMMENTS
	LINE	LOAD	GROUND							
600 Amp	78°	79°	73°	X	X	X	X	09-13-21	SM	Room Temp 73°
										Scott Moffett

DISTRIBUTION:
Original - Electrical/Controls Technician
Copy - Area, Division

RETENTION:
Original - 3 years plus current
Copy - 1 year plus current

AVAILABLE ELECTRONICALLY

Panhandle Energy

Controls End Devices and Support Equipment

Division	Area	Location
Midwest	Zionsville	Howell

SYSTEM DESCRIPTION:	ENGINE NO.

DESCRIPTION	TAG NO.	DATE	RECOMMENDED SETTINGS (zero/span etc.)	REMARKS (Use Back If Needed)
Fuel leak		09-13-21		Found: Good Left: Good
Low Battery voltage				Found: Good Left: Good
Charger Malfunction				Found: Good Left: Good
High engine Temp			205°	Found: Good Left: Good
Low oil pressue			15 psi	Found: Good Left: Good
Engine overspeed			71 HZ	Found: Good Left: Good
Engine overcrank			5 cycles @ 10sec	Found: Good Left: Good
EPS Supplying load				Found: Good Left: Good
Low water Temp			55°	Found: Good Left: Good
High engine temp pre Alarm			215°	Found: Good Left: Good
Low oil pressuer pre Alarm			20 psi	Found: Good Left: Good
Low Fuel level				Found: Good Left: Good
Unit not in Auto				Found: Good Left: Good
Emergency Stop				Found: Good Left: Good
				Found: Left:
				Found: Left:
				Found: Left:
				Found: Left:
				Found: Left:
				Found: Left:

SUPERVISOR	DATE	TECHNICIAN	DATE
			09-13-21

DISTRIBUTION:
Original - Area

RETENTION:
Original - Life of Facility
Copy - Life of Facility

Traverse City Laboratory
781 Industrial Circle, Ste 6
Traverse City, MI 49686
Phone 231-421-8202

Certificate of Analysis

Number: 8010-21020052-001A

Feb. 15, 2021

Tim Markham
PANHANDLE EASTERN
2355 Maple Drive
Jackson, MI 49203

Station Location: HOWELL STORAGE
Sample Point: UPSTREAM OF SEPERATOR
Method: GPA 2286
Analyzed: 02/15/2021 13:13:38 by SCJ

Sampled By: PANHANDLE
Sample Of: Gas Spot
Sample Date: 02/12/2021
Sample Conditions: 706 psig, @ 87 °F

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.696 psia
Nitrogen	0.702	1.135	
Carbon Dioxide	0.260	0.661	
Methane	91.725	84.967	
Ethane	6.840	11.876	1.829
Propane	0.360	0.916	0.099
Iso-Butane	0.035	0.117	0.011
n-Butane	0.042	0.141	0.013
Iso-Pentane	0.006	0.025	0.002
n-Pentane	0.005	0.021	0.002
Hexane	0.010	0.046	0.004
Heptanes Plus	0.015	0.095	0.006
	100.000	100.000	1.966

GPM TOTAL C2+	1.966
GPM TOTAL C3+	0.137
GPM TOTAL iC5+	0.014

Calculated Physical Properties	**Total**
Relative Density Real Gas	0.5993
Calculated Molecular Weight	17.32
Compressibility Factor	0.9977

GPA 2172 Calculation:

Calculated Gross BTU per ft³ @ 14.696 psia & 60°F

Real Gas Dry BTU	1064
Water Sat. Gas Base BTU	1045

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

Traverse City Laboratory
781 Industrial Circle, Ste 6
Traverse City, MI 49686
Phone 231-421-8202

Certificate of Analysis

Number: 8010-21020052-001A

Feb. 15, 2021

Tim Markham
PANHANDLE EASTERN
2355 Maple Drive
Jackson, MI 49203

Station Location: HOWELL STORAGE
Sample Point: UPSTREAM OF SEPERATOR
Method: GPA 2286
Analyzed: 02/15/2021 13:13:38 by SCJ

Sampled By: PANHANDLE
Sample Of: Gas Spot
Sample Date: 02/12/2021
Sample Conditions: 706 psig, @ 87 °F

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.696 psia	Detection Limit		
Nitrogen	0.7018	1.1352		10 ppm/v	GPM TOTAL C2+	1.966
Carbon Dioxide	0.2599	0.6605		10 ppm/v	GPM TOTAL C3+	0.137
Methane	91.7254	84.9665		100 ppm/v	GPM TOTAL iC5+	0.014
Ethane	6.8403	11.8763	1.829	10 ppm/v		
Propane	0.3599	0.9164	0.099	10 ppm/v		
Iso-Butane	0.0350	0.1174	0.011	10 ppm/v		
n-Butane	0.0420	0.1409	0.013	10 ppm/v		
Iso-Pentane	0.0060	0.0250	0.002	10 ppm/v		
n-Pentane	0.0050	0.0208	0.002	10 ppm/v		
i-Hexanes	0.0054	0.0269	0.002	1 ppm/v		
n-Hexane	0.0041	0.0187	0.002	1 ppm/v		
Benzene	0.0006	0.0027	NIL	1 ppm/v		
Cyclohexane	0.0013	0.0064	NIL	1 ppm/v		
i-Heptanes	0.0037	0.0217	0.002	1 ppm/v		
n-Heptane	0.0019	0.0111	0.001	1 ppm/v		
Toluene	0.0011	0.0059	NIL	1 ppm/v		
i-Octanes	0.0017	0.0099	0.001	1 ppm/v		
n-Octane	0.0009	0.0060	NIL	1 ppm/v		
Ethylbenzene	0.0001	0.0006	NIL	1 ppm/v		
Xylenes	0.0008	0.0050	NIL	1 ppm/v		
i-Nonanes	NIL	NIL	NIL	1 ppm/v		
n-Nonane	0.0006	0.0045	NIL	1 ppm/v		
i-Decanes	0.0010	0.0083	0.001	1 ppm/v		
n-Decane	0.0005	0.0042	NIL	1 ppm/v		
Undecanes	0.0010	0.0091	0.001	1 ppm/v		
Dodecanes	NIL	NIL	NIL	1 ppm/v		
Tridecanes	NIL	NIL	NIL	1 ppm/v		
Tetradecanes Plus	NIL	NIL	NIL	1 ppm/v		
	100.0000	100.0000	1.966			

Calculated Physical Properties	**Total**
Calculated Molecular Weight	17.32
GPA 2172 Calculation:	
Calculated Gross BTU per ft³ @ 14.696 psia & 60°F	
Real Gas Dry BTU	1064
Water Sat. Gas Base BTU	1045
Relative Density Real Gas	0.5993
Compressibility Factor	0.9977

Hydrocarbon Laboratory Manager

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Certificate of Analysis

Number: 8010-21020052-001B

Feb. 15, 2021

Tim Markham
PANHANDLE EASTERN
2355 Maple Drive
Jackson, MI 49203

Station Location:	HOWELL STORAGE	Sampled By:	PANHANDLE
Sample Point:	UPSTREAM OF SEPERATOR	Sample Of:	Gas Spot
Method:	ASTM D-5504	Sample Date:	02/12/2021
Analyzed:	02/15/2021 00:00:00 by SPL	Sample Conditions:	706 psig, @ 87 °F

Sulfur Analysis

SULFIDES	**ppm (v)**
Hydrogen Sulfide	ND <1
Carbonyl Sulfide	ND <1
Dimethyl Sulfide	ND <1
Diethyl Sulfide	ND <1
Methyl Ethyl Sulfide	ND <1

MERCAPTANS	**ppm (v)**
Methyl Mercaptan	ND <1
Ethyl Mercaptan	ND <1
Isopropyl Mercaptan	ND <1
n-Propyl Mercaptan	ND <1
n-Butyl Mercaptan	ND <1
Isobutyl Mercaptan	ND <1

DISULFIDES	**ppm (v)**
Dimethyl Disulfide	ND <1
Diethyl Disulfide	ND <1
Methyl Ethyl Disulfid	ND <1

Misc. Sulfurs	ND <1
Total Sulfur (Calc.)	0

Note: ND = None Detected
Note: Total Sulfur (Calc.) = Sum of detected sulfurs

Source Test Report

Panhandle Eastern Pipe Line
3990 Crooked Lake Rd
Howell, MI 48843

Source Tested: Dehydration Unit
Test Date: December 16, 2021

AST Project No. 2021-2950

Prepared By
Alliance Source Testing, LLC
1201 Parkway View Drive
Pittsburgh, PA 15205

CORPORATE OFFICE
255 Grant St. SE, Suite 600
Decatur, AL 35601
(256) 351-0121

SOURCE TESTING
stacktest.com

EMISSIONS MONITORING
alliance-em.com

ANALYTICAL SERVICES
allianceanalyticalservices.com

Regulatory Information

Permit No.	Michigan Department of Environment, Great Lakes and Energy (EGLE) Permit No. PTI 72-20
Regulatory Citation	40 CFR 63, Subpart HHH

Source Information

Source Name	*Source ID*	*Target Parameters*
Dehydration Unit	N5572	BTEX, VOC Leaks

Contact Information

Test Location
Panhandle Eastern Pipe Line
3990 Crooked Lake Rd
Howell, MI 48843

Facility Contact
Kristin Bollerman
Senior Environmental Specialist
kristin.bollerman@energytransfer.com
(317) 879-3034

Test Company
Alliance Source Testing, LLC
1201 Parkway View Drive
Pittsburgh, PA 15205

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Enthalpy Analytical, Inc.
800-1 Capitola Drive
Durham, NC 27713
David Myers
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(919) 850-4392

Alliance Source Testing, LLC (AST) has completed the source testing as described in this report. Results apply only to the source(s) tested and operating condition(s) for the specific test date(s) and time(s) identified within this report. All results are intended to be considered in their entirety, and AST is not responsible for use of less than the complete test report without written consent. This report shall not be reproduced in full or in part without written approval from the customer.

To the best of my knowledge and abilities, all information, facts and test data are correct. Data presented in this report has been checked for completeness and is accurate, error-free and legible. Onsite testing was conducted in accordance with approved internal Standard Operating Procedures. Any deviations or problems are detailed in the relevant sections in the test report.

This report is only considered valid once an authorized representative of AST has signed in the space provided below; any other version is considered draft. This document was prepared in portable document format (.pdf) and contains pages as identified in the bottom footer of this document.

Adam Robinson **Alliance Source Testing, LLC**	1/24/2022 Date

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APPENDICES

Introduction

1.0 Introduction

Alliance Source Testing, LLC (AST) was retained by Panhandle Eastern Pipe Line (PEPL) to conduct compliance testing at the Howell, Michigan facility. Portions of the facility are subject to provisions of the 40 CFR Part 63 – National Emission Standards for Hazardous Air Pollutants from Natural Gas Storage facilities and the Michigan Department of Environmental, Great Lakes and Energy (EGLE) Air Permit No. PTI 72-20. Testing was conducted to determine the emission rate of benzene, toluene, ethylbenzene and xylene (BTEX) at the exhaust of one (1) Dehydration Unit. Testing also included volatile organic compound (VOC) leak detection and repair (LDAR) monitoring on the dehydration unit and contactor adsorber tower.

1.1 Source and Control System Description

The Howell Compressor Station is a natural gas gathering station where compressors and related auxiliary equipment are used for the agglomeration of natural gas in the production region

1.2 Project Team

Personnel involved in this project are identified in the following table.

Table 1-1
Project Team

Facility Personnel	Kristin Bollerman – PELP Scott Dibert – PELP
Regulatory Personnel	Mark Dziadosz – EGLE
AST Personnel	Tyler Branca Anthony Delfratte

1.3 Test Protocol & Notification

Testing was conducted in accordance with the test protocol submitted to EGLE by PEPL.

Summary of Results

2.0 Summary of Results

AST conducted compliance testing at the PELP facility in Howell, Michigan on December 16, 2021. Testing consisted of determining the emission rate of BTEX at the exhaust of one (1) Dehydration Unit. LDAR monitoring was also conducted on the contactor absorber tower and dehydration unit.

Tables 2-1 and 2-2 provide summaries of the emission testing results. This table also provides a summary of the process operating data collected during the testing. Any difference between the summary results listed in the following tables and the detailed results contained in appendices is due to rounding for presentation.

Table 2-1
Summary of Results - BTEX

Run Number	Run 1	Run 2	Run 3	Average
Date	**12/16/21**	**12/16/21**	**12/16/21**	**--**
Benzene Data *				
Emission Rate, lb/hr	9.1E-05	9.9E-05	9.0E-05	9.3E-05
Emission Rate, kg/hr	4.1E-05	4.5E-05	4.1E-05	4.2E-05
Toluene Data *				
Emission Rate, lb/hr	8.3E-05	9.0E-05	8.2E-05	8.5E-05
Emission Rate, kg/hr	3.8E-05	4.1E-05	3.7E-05	3.8E-05
Ethylbenzene Data *				
Emission Rate, lb/hr	8.61E-05	9.32E-05	8.48E-05	8.81E-05
Emission Rate, kg/hr	3.91E-05	4.23E-05	3.85E-05	3.99E-05
Xylene Data *				
Emission Rate, lb/hr	2.5E-04	2.7E-04	2.4E-04	2.5E-04
Emission Rate, kg/hr	1.1E-04	1.2E-04	1.1E-04	1.1E-04
Process Operating Data				
Combustion Zone Temperature, °F	917.2	904.1	905.4	908.9
Reboiler Temperature, °F	384.0	384.1	385.0	384.4
Fuel Flow, MMSCF	65	52	51	56

*All laboratory results were below the laboratory detection limits. The detection limits were used for calculations purposes.

Table 2-2
Summary of Results – LDAR

Component Location at Facility	Component No.	Component Description	Identified leak(s) location details	Comments
Contactor Absorber Tower	LIT 100	Level transmitter/gauge	No	Upper tap out Lower tap out Highpoint vent Drain valve
Contactor Absorber Tower	LC 100	NA	No	Upper tap out Lower tap out Highpoint vent Drain valve
Contactor Absorber Tower	NA	Lower manway	No	Large Flange
Contactor Absorber Tower	NA	Upper manway	No	Large Flange
Contactor Absorber Tower	PSV 100	Pressure surge valve	No	NA
Contactor Absorber Tower	NA	Vapor to BTEX	No	NA
Contactor Absorber Tower	NA	BTEX offgas to burner	No	NA
Dehydration Unit	LC 201	Level control displacer	No	Upper tap out Lower tap out Drain valve
Dehydration Unit	LG 201	Level site glass	No	Upper tap out Lower tap out Highpoint vent Drain valve
Dehydration Unit	PSV 201	Pressure relief valve	No	Isolation Vent
Dehydration Unit	LIT 201	NA	No	Upper tap out Lower tap out
Dehydration Unit	LG 200	NA	No	Upper tap out Lower tap out Drain valve Highpoint vent
Dehydration Unit	NA	Fuel gas supply assembly	No	9 valves
Dehydration Unit	NA	Fuel gas control assembly	No	4 valves

Testing Methodology

3.0 Testing Methodology

The emission testing program was conducted in accordance with the test methods listed in Table 3-1. Method descriptions are provided below while quality assurance/quality control data is provided in Appendix D.

Table 3-1
Source Testing Methodology

Parameter	U.S. EPA Reference Test Methods	Notes/Remarks
Volumetric Flow Rate	1-2	Full Velocity Traverses
Oxygen/Carbon Dioxide	3/3A	Instrumental Analysis
Moisture Content	4	Gravimetric Analysis
Benzene, Toluene, Ethylbenzene & Xylene	18	Constant Rate Sampling
LDAR (Positive Pressure Sources)	21	Portable FID – Photovac MicroFID

3.1 U.S. EPA Reference Test Methods 1-2 – Volumetric Flow Rate

The sampling location and number of traverse (sampling) points were selected in accordance with U.S. EPA Reference Test Method 1. To determine the minimum number of traverse points, the upstream and downstream distances were equated into equivalent diameters and compared to Figure 1-2 in U.S. EPA Reference Test Method 1.

Full velocity traverses were conducted in accordance with U.S. EPA Reference Test Method 2 to determine the average stack gas velocity pressure, static pressure and temperature. The velocity and static pressure measurement system consisted of a pitot tube and inclined manometer. The stack gas temperature was measured with a K-type thermocouple and pyrometer.

Stack gas velocity pressure and temperature readings were recorded during each test run. The data collected was utilized to calculate the volumetric flow rate in accordance with U.S. EPA Reference Test Method 2.

3.2 U.S. EPA Reference Test Method 3A – Oxygen/Carbon Dioxide

The oxygen (O_2) and carbon dioxide (CO_2) testing was conducted in accordance with U.S. EPA Reference Test Method 3A. Data was collected online and reported in one-minute averages. The sampling system consisted of a stainless-steel probe, Teflon sample line(s), gas conditioning system and the identified gas analyzer. The gas conditioning system was a non-contact condenser used to remove moisture from the stack gas. If an unheated Teflon sample line was used, then a portable non-contact condenser was placed in the system directly after the probe. Otherwise, a heated Teflon sample line was used. The quality control measures are described in Section 3.6.

3.3 U.S. EPA Reference Test Method 4 – Moisture Content

The stack gas moisture content was determined in accordance with U.S. EPA Reference Test Method 4. The gas conditioning train consisted of a series of chilled impingers. Prior to testing, each impinger was filled with a known quantity of water or silica gel. Each impinger was analyzed gravimetrically before and after each test run on the same balance to determine the amount of moisture condensed.

3.4 U.S. EPA Reference Test Method 18 – BTEX

The BTEX testing was conducted in accordance with U.S. EPA Reference Test Method 18. The gas was withdrawn at a constant rate through a stainless probe, Teflon tubing, chilled midget impinger (moisture knockout), absorbent tubes, rotometer, critical orifice, and pump.

Two (2) identical sample trains, one labeled as spiked and one as unspiked, were used at each sampling location. The first tube in the spiked train was spiked with a known mass of BTEX prior to testing. The midget impinger and both tubes in the unspiked train were unspiked. The sampling system was pretest leak checked using the rotometer to verify the absence of flow. Three (3) spiked sample train were collected concurrently with the all three (3) of the un-spiked sample trains during each run to meet the method QA/QC requirements as U.S. EPA Reference test Method 18 Section 8.4.3. No posttest leak check is permitted for Method 18 adsorbent tubes. The sampling meter was also pre and post calibrated using a Dry-Cal flow meter.

Following the completion of each test run, the contents of the first and second impingers were measured and placed in a sample vial labelled as container 1. The first and second midget impingers and the connecting glassware were rinsed with DI water, and these rinses were added to the vial with zero headspace. Immediately following the recovery, container 1 was placed on ice. The contents of container 1 were analyzed for BTEX The two-section silica gel tube will be capped and labeled as tube 1 and placed on ice for shipment to the laboratory. The contents of the two-section silica gel tube were analyzed separately for breakthrough determination. The spiked sample train was recovered with the procedures described above. All the samples were kept on ice, sealed, zero-head spaced, labeled and shipped to the identified laboratory for analysis. Upon receiving the samples, the analytical lab analyzed them using gas chromatography / flame ionization detector (GC/FID) following the analytical procedures outlined in U.S. EPA Reference Test Method 18. The quality control measures are described in Section 3.7.

3.5 U.S. EPA Reference Test Method 21 – Positive Pressure Sources

Leaks from any positive pressure sources were determined using U.S. EPA Reference Test Method 21. The VOC detector was a Photovac MicroFID portable analyzer with a flame ionization detector. The instrument was calibrated prior to testing with ambient air and methane balanced air cylinder gas. The methane calibration gas concentration was approximately equal to the applicable leak definition (500 ppm as methane). Each source was evaluated by moving the instrument inlet probe along the potential leak area of each component. If a leak was detected, the area of leakage was monitored for two (2) times the instrument response time and the highest instrument reading recorded. If the instrument reading minus the background concentration was greater than the leak definition, then the source was considered leaking.

3.6 Quality Assurance/Quality Control – U.S. EPA Reference Test Method 3A

Cylinder calibration gases used met EPA Protocol 1 (+/- 2%) standards. Copies of all calibration gas certificates can be found in the Quality Assurance/Quality Control Appendix.

Low Level gas was introduced directly to the analyzer. After adjusting the analyzer to the Low-Level gas concentration and once the analyzer reading was stable, the analyzer value was recorded. This process was repeated for the High-Level gas. For the Calibration Error Test, Low, Mid, and High Level calibration gases were sequentially introduced directly to the analyzer. All values were within 2.0 percent of the Calibration Span or 0.5% absolute difference.

High or Mid Level gas (whichever was closer to the stack gas concentration) was introduced at the probe and the time required for the analyzer reading to reach 95 percent or 0.5% (whichever was less restrictive) of the gas

concentration was recorded. The analyzer reading was observed until it reached a stable value, and this value was recorded. Next, Low Level gas was introduced at the probe and the time required for the analyzer reading to decrease to a value within 5.0 percent or 0.5% (whichever was less restrictive) was recorded. If the Low-Level gas was zero gas, the response was 0.5% or 5.0 percent of the upscale gas concentration (whichever was less restrictive). The analyzer reading was observed until it reached a stable value and this value was recorded. The measurement system response time and initial system bias were determined from these data. The System Bias was within 5.0 percent of the Calibration Span or 0.5% absolute difference.

High or Mid Level gas (whichever was closer to the stack gas concentration) was introduced at the probe. After the analyzer response was stable, the value was recorded. Next, Low Level gas was introduced at the probe, and the analyzer value recorded once it reached a stable response. The System Bias was within 5.0 percent of the Calibration Span or 0.5% absolute difference or the data was invalidated and the Calibration Error Test and System Bias were repeated.

Drift between pre- and post-run System Bias was within 3 percent of the Calibration Span or 0.5% absolute difference. If the drift exceeded 3 percent or 0.5%, the Calibration Error Test and System Bias were repeated.

To determine the number of sampling points, a gas stratification check was conducted prior to initiating testing. The pollutant concentrations were measured at three points (16.7, 50.0 and 83.3 percent of the measurement line). Each traverse point was sampled for a minimum of twice the system response time.

If the pollutant concentration at each traverse point did not differ more than 5 percent or 0.3% (whichever was less restrictive) of the average pollutant concentration, then single point sampling was conducted during the test runs. If the pollutant concentration did not meet these specifications but differed less than 10 percent or 0.5% from the average concentration, then three (3) point sampling was conducted (stacks less than 7.8 feet in diameter - 16.7, 50.0 and 83.3 percent of the measurement line; stacks greater than 7.8 feet in diameter – 0.4, 1.0, and 2.0 meters from the stack wall). If the pollutant concentration differed by more than 10 percent or 0.5% from the average concentration, then sampling was conducted at a minimum of twelve (12) traverse points. Copies of stratification check data can be found in the Quality Assurance/Quality Control Appendix.

A Data Acquisition System with battery backup was used to record the instrument response in one (1) minute averages. The data was continuously stored as a *.CSV file in Excel format on the hard drive of a computer. At the completion of testing, the data was also saved to the AST server. All data was reviewed by the Field Team Leader before leaving the facility. Once arriving at AST's office, all written and electronic data was relinquished to the report coordinator and then a final review was performed by the Project Manager.

3.7 Quality Assurance/Quality Control – U.S. EPA Reference Test Method 18

A leak check before each sampling run was performed. The probe inlet was plugged, and a sample pump was turned on to pull a vacuum of at least 10-inch Hg or the highest vacuum experienced during the sampling run. A leakage rate in excess of 2 percent of the average sampling is acceptable. After the completion of the leak check, the probe inlet plug was released carefully before turning off the sample pump.

Initial dry gas meter reading and barometric pressure were recorded before starting each sampling run. The sampling began with the tip of the nozzle/probe assembly positioned close to the centroid of exhaust stack. Once the sample pump is started the sample flow was adjusted to a constant flow rate approximately 400 cc/min. The midget

impinger train was kept cold to maintain the temperature of the gases leaving the last impinger at 68ºF or less. After the completion of the sampling run a posttest leak check was not performed.

BTEX spike recovery was checked using the procedures outlined in U.S. EPA Method 18 Section 8.4.3. During all three of the sampling runs, two identical trains were setup and collected, with one of the trains spiked with a known concentration of BTEX. The known concentration was targeted between 40 to 60 percent of the mass expected to be collected in the native/unspiked sample train. The spiked samples were transported to the laboratory with all the other unspiked/native samples and analyzed following the procedures outlined in U.S. EPA Method 18 Section 11.0. The impinger contents and absorbents from the two trains were analyzed utilizing identical analytical procedures and instrumentation. The fraction of spiked BTEX recovered was determined by combining the amount recovered in the impinger and in the absorbent tube, using equations in U.S. EPA Method 18 Section 12.9. Recovery values for all the spiked samples were between the method allowable criteria of 70 to 130 percent as stated in U.S. EPA Method 18 Section 8.4.3.

Appendix A

Alliance SOURCE TESTING

Location Energy Transfer - Howell, MI
Source Dehydration Unit
Project No. 2021-2950
Run No. 1
Parameter(s) VFR

Meter Pressure (Pm), in. Hg

$$Pm = Pb + \frac{\Delta H}{13.6}$$

where,

Pb	28.62	= barometric pressure, in. Hg
ΔH	1.000	= pressure differential of orifice, in H_2O
Pm	28.69	= in. Hg

Absolute Stack Gas Pressure (Ps), in. Hg

$$Ps = Pb + \frac{Pg}{13.6}$$

where,

Pb	28.62	= barometric pressure, in. Hg
Pg	-0.28	= static pressure, in. H_2O
Ps	28.60	= in. Hg

Standard Meter Volume (Vmstd), dscf

$$Vmstd = \frac{17.636 \times Vm \times Pm \times Y}{Tm}$$

where,

Y	1.029	= meter correction factor
Vm	31.790	= meter volume, cf
Pm	28.69	= absolute meter pressure, in. Hg
Tm	521.5	= absolute meter temperature, °R
Vmstd	31.741	= dscf

Standard Wet Volume (Vwstd), scf

$$Vwstd = 0.04716 \times Vlc$$

where,

Vlc	116.6	= Volume of H2O collected, ml
Vwstd	5.499	= scf

Moisture Fraction (BWSsat), dimensionless (theoretical at saturated conditions)

$$BWSsat = \frac{10^{6.37 - \left(\frac{2,827}{Ts + 365}\right)}}{Ps}$$

where,

Ts	879.4	= stack temperature, °F
Ps	28.6	= absolute stack gas pressure, in. Hg
BWSsat	437.4	= dimensionless

Moisture Fraction (BWS), dimensionless

$$BWS = \frac{Vwstd}{(Vwstd + Vmstd)}$$

where,

Vwstd	5.499	= standard wet volume, scf
Vmstd	31.741	= standard meter volume, dscf
BWS	0.148	= dimensionless

Moisture Fraction (BWS), dimensionless

$$BWS = BWSmsd \text{ unless } BWSsat < BWSmsd$$

where,

BWSsat	437.373	= moisture fraction (theoretical at saturated conditions)
BWSmsd	0.148	= moisture fraction (measured)
BWS	0.148	

Molecular Weight (DRY) (Md), lb/lb-mole

$$Md = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + (0.28 \ (100 - \%CO_2 - \%O_2))$$

where,

CO2	10.1	= carbon dioxide concentration, %
O2	3.5	= oxygen concentration, %
Md	29.76	= lb/lb mol

Molecular Weight (WET) (Ms), lb/lb-mole

$$Ms = Md\ (1 - BWS) + 18.015\ (BWS)$$

where,

Md	29.76	= molecular weight (DRY), lb/lb mol
BWS	0.148	= moisture fraction, dimensionless
Ms	28.03	= lb/lb mol

Location	**Energy Transfer - Howell, MI**
Source	**Dehydration Unit**
Project No.	**2021-2950**
Run No.	**1**
Parameter(s)	**VFR**

Average Velocity (Vs), ft/sec

$$Vs = 85.49 \times Cp \times (\Delta P^{1/2})avg \times \sqrt{\frac{Ts}{Ps \times Ms}}$$

where,

Cp	0.84	= pitot tube coefficient
$\Delta P^{1/2}$	0.274	= average pre/post test velocity head of stack gas, $(in. H2O)^{1/2}$
Ts	1339.0	= average pre/post test absolute stack temperature, °R
Ps	28.60	= absolute stack gas pressure, in. Hg
Ms	28.03	= molecular weight of stack gas, lb/lb mol
Vs	25.5	= ft/sec

Average Stack Gas Flow at Stack Conditions (Qa), acfm

$$Qa = 60 \times Vs \times As$$

where,

Vs	25.5	= stack gas velocity, ft/sec
As	0.66	= cross-sectional area of stack, ft^2
Qa	1,008	= acfm

Average Stack Gas Flow at Standard Conditions (Qs), dscfm

$$Qsd = 17.636 \times Qa \times (1 - BWS) \times \frac{Ps}{Ts}$$

where,

Qa	1,008	= average stack gas flow at stack conditions, acfm
BWS	0.148	= moisture fraction, dimensionless
Ps	28.60	= absolute stack gas pressure, in. Hg
Ts	1339.0	= average pre/post test absolute stack temperature, °R
Qs	324	= dscfm

Dry Gas Meter Calibration Check (Yqa), dimensionless

$$Yqa = \frac{Y - \left(\frac{\Theta}{Vm} \sqrt{\frac{0.0319 \times Tm \times 29}{\Delta H @ \times \left(Pb + \frac{\Delta H\ avg.}{13.6} \right) \times Md}} \sqrt{\Delta H}\ avg. \right)}{Y} \times 100$$

where,

Y	1.029	= meter correction factor, dimensionless
Θ	60	= run time, min.
Vm	31.79	= total meter volume, dcf
Tm	521.5	= absolute meter temperature, °R
ΔH@	1.778	= orifice meter calibration coefficient, in. H_2O
Pb	28.62	= barometric pressure, in. Hg
ΔH avg	1.000	= average pressure differential of orifice, in H_2O
Md	29.76	= molecular weight (DRY), lb/lb mol
$(\Delta H)^{1/2}$	1.000	= average squareroot pressure differential of orifice, $(in. H_2O)^{1/2}$
Yqa	-3.4	= dimensionless

Appendix B

Alliance SOURCE TESTING

Location Energy Transfer - Howell, MI
Source Dehydration Unit
Project No. 2021-2950
Parameter(s): Benzene, Toluene, Ethylbenzene, Xylene (BTEX)

Run Number		Run 1	Run 2	Run 3	Average
Date		12/16/21	12/16/21	12/16/21	--
Start Time		10:25	12:17	14:24	--
Stop Time		11:25	13:17	15:24	--
Input Data					
Volumetric Flow Rate, dscfm	(Qs)	324	357	335	339
Moisture Fraction	(BWS)	0.148	0.148	0.147	0.148
Standard Meter Volume, L	(Vmstd)	32.381	32.975	33.995	33.117
Standard Meter Volume, ft^3	(Vmstd)	1.143	1.164	1.200	1.169
Lab Data					
Benzene Mass, ug	M(C6H6)	2.44	2.44	2.44	2.4
Toluene Mass, ug	M(C7H8)	2.21	2.21	2.21	2.2
Ethylbenzene Mass, ug	M(C8H10)	2.30	2.30	2.30	2.300
Xylene Mass, ug	M(C8H10)	6.58	6.58	6.58	6.58
Emissions Calculations					
Benzene Concentration, ppmvd	C(C6H6)	0.023	0.023	0.022	0.023
Benzene Emission Rate, lb/hr	ER(C6H6)	9.1E-05	9.9E-05	9.0E-05	9.3E-05
Benzene Emission Rate, kg/hr	ER(CH4)	4.1E-05	4.5E-05	4.1E-05	4.2E-05
Toluene Concentration, ppmvd	C(C7H8)	0.018	0.017	0.017	0.017
Toluene Emission Rate, lb/hr	ER(C2H6)	8.3E-05	9.0E-05	8.2E-05	8.5E-05
Toluene Emission Rate, kg/hr	ER(C2H6)	3.8E-05	4.1E-05	3.7E-05	3.8E-05
Ethylbenzene Concentration, ppmvd	C(C8H10)	0.016	0.016	0.015	0.016
Ethylbenzene Emission Rate, lb/hr	ER(C3H8)	8.61E-05	9.32E-05	8.48E-05	8.81E-05
Ethylbenzene Emission Rate, kg/hr	ER(C3H8)	3.91E-05	4.23E-05	3.85E-05	3.99E-05
Xylene Concentration, ppmvd	C(C8H10)	0.046	0.045	0.044	0.045
Xylene Emission Rate, lb/hr	ER(C4H10)	2.5E-04	2.7E-04	2.4E-04	2.5E-04
Xylene Emission Rate, kg/hr	ER(C4H10)	1.1E-04	1.2E-04	1.1E-04	1.1E-04

Location Energy Transfer - Howell, MI
Source Dehydration Unit
Project No. 2021-2950

Run Number		Run 1	Run 2	Run 3	Average
Date		12/16/21	12/16/21	12/16/21	--
Start Time		10:25	12:17	14:24	--
Stop Time		11:25	13:17	15:24	--
Calculated Data - Outlet					
O_2 Concentration, % dry	C_{O_2}	3.52	4.26	3.51	3.76
CO_2 Concentration, % dry	C_{CO_2}	10.13	9.77	10.25	10.05

Location: Energy Transfer - Howell, MI
Source: Dehydration Unit
Project No.: 2021-2950
Date: 12/16/21

Time	O_2 - Outlet	CO_2 - Outlet
Unit	% dry	% dry
Status	Valid	Valid
10:25	13.09	4.51
10:26	3.98	9.98
10:27	4.78	9.46
10:28	4.91	9.48
10:29	6.55	8.53
10:30	14.35	3.86
10:31	20.59	0.21
10:32	15.45	3.18
10:33	5.46	9.10
10:34	3.69	10.20
10:35	3.47	10.18
10:36	3.99	9.90
10:37	4.02	9.88
10:38	3.79	10.00
10:39	4.58	9.57
10:40	4.01	9.90
10:41	3.89	9.97
10:42	3.30	10.24
10:43	2.90	10.55
10:44	2.12	10.96
10:45	1.27	11.50
10:46	1.53	11.41
10:47	2.22	10.95
10:48	2.18	10.97
10:49	1.49	11.31
10:50	2.56	10.82
10:51	1.35	11.35
10:52	0.60	11.75
10:53	1.66	11.27
10:54	2.20	10.92
10:55	0.87	11.64
10:56	0.39	11.75
10:57	0.68	11.62
10:58	0.93	11.60
10:59	1.03	11.51
11:00	0.77	11.71
11:01	0.93	11.64
11:02	0.48	11.67
11:03	0.44	11.72
11:04	0.69	11.65
11:05	2.00	11.00
11:06	1.42	11.29
11:07	0.81	11.70
11:08	1.64	11.27
11:09	0.86	11.63
11:10	1.45	11.33
11:11	1.04	11.48
11:12	0.93	11.58
11:13	0.48	11.74
11:14	2.07	10.98
11:15	1.46	11.44
11:16	1.62	11.24
11:17	1.67	11.25
11:18	2.08	10.97
11:19	2.56	10.81
11:20	6.46	8.44
11:21	7.92	7.52
11:22	7.37	7.93
11:23	7.03	8.06
11:24	6.89	8.15

Parameter	O_2 - Outlet	CO_2 - Outlet
Uncorrected Run Average (C_{obs})	3.5	10.1
Cal Gas Concentration (C_{MA})	11.0	11.0
Pretest System Zero Response	0.00	0.00
Posttest System Zero Response	0.00	0.00
Average Zero Response (Co)	0.0	0.0
Pretest System Cal Response	10.98	11.03
Posttest System Cal Response	10.97	11.06
Average Cal Response (C_M)	11.0	11.0
Corrected Run Average (Corr)	3.5	10.1

Location: Energy Transfer - Howell, MI
Source: Dehydration Unit
Project No.: 2021-2950
Date: 12/16/21

Time	O_2 - Outlet	CO_2 - Outlet
Unit	% dry	% dry
Status	Valid	Valid
12:17	3.44	10.20
12:18	3.50	10.27
12:19	4.09	9.83
12:20	4.93	9.37
12:21	4.46	9.65
12:22	5.30	9.13
12:23	4.48	9.65
12:24	3.89	10.00
12:25	3.71	10.08
12:26	3.45	10.19
12:27	4.33	9.72
12:28	4.08	9.79
12:29	4.65	9.44
12:30	3.72	10.07
12:31	3.71	10.05
12:32	3.74	10.12
12:33	3.99	9.88
12:34	5.10	9.24
12:35	4.44	9.71
12:36	4.29	9.74
12:37	4.31	9.83
12:38	4.93	9.39
12:39	5.37	9.10
12:40	4.42	9.77
12:41	3.67	10.06
12:42	4.36	9.69
12:43	3.12	10.47
12:44	3.27	10.42
12:45	3.30	10.37
12:46	4.75	9.52
12:47	6.80	8.27
12:48	6.07	8.67
12:49	4.44	9.63
12:50	4.34	9.81
12:51	3.92	9.93
12:52	4.02	9.91
12:53	3.98	9.99
12:54	5.37	9.07
12:55	4.90	9.42
12:56	4.43	9.54
12:57	3.34	10.29
12:58	3.21	10.44
12:59	3.20	10.35
13:00	3.51	10.22
13:01	3.74	10.13
13:02	3.93	9.94
13:03	5.79	8.79
13:04	5.59	9.05
13:05	4.71	9.45
13:06	4.02	9.87
13:07	3.61	10.14
13:08	3.73	10.05
13:09	4.85	9.39
13:10	4.22	9.82
13:11	3.47	10.30
13:12	3.79	10.13
13:13	4.39	9.74
13:14	5.18	9.16
13:15	3.93	9.94
13:16	3.79	10.13

Parameter	O_2 - Outlet	CO_2 - Outlet
Uncorrected Run Average (C_{obs})	4.3	9.8
Cal Gas Concentration (C_{MA})	11.0	11.0
Pretest System Zero Response	0.00	0.00
Posttest System Zero Response	0.00	0.02
Average Zero Response (Co)	0.0	0.0
Pretest System Cal Response	10.97	11.06
Posttest System Cal Response	10.96	11.02
Average Cal Response (C_M)	11.0	11.0
Corrected Run Average (Corr)	4.3	9.8

Location: Energy Transfer - Howell, MI
Source: Dehydration Unit
Project No.: 2021-2950
Date: 12/16/21

Time	O_2 - Outlet	CO_2 - Outlet
Unit	% dry	% dry
Status	Valid	Valid
14:24	3.96	9.98
14:25	4.01	9.96
14:26	4.40	9.71
14:27	4.15	9.88
14:28	3.46	10.24
14:29	3.74	10.14
14:30	3.80	10.04
14:31	3.50	10.30
14:32	3.18	10.39
14:33	2.81	10.69
14:34	2.78	10.67
14:35	3.28	10.33
14:36	3.19	10.42
14:37	2.77	10.62
14:38	3.10	10.53
14:39	2.91	10.51
14:40	2.64	10.75
14:41	2.75	10.63
14:42	2.88	10.67
14:43	3.33	10.35
14:44	3.54	10.20
14:45	3.94	9.85
14:46	2.80	10.71
14:47	2.52	10.90
14:48	3.59	10.16
14:49	2.91	10.62
14:50	4.12	9.81
14:51	4.07	9.90
14:52	2.87	10.59
14:53	2.73	10.80
14:54	3.22	10.43
14:55	4.43	9.62
14:56	4.79	9.51
14:57	4.45	9.62
14:58	3.95	9.98
14:59	4.67	9.52
15:00	4.40	9.76
15:01	5.47	9.07
15:02	4.18	9.90
15:03	4.27	9.84
15:04	3.45	10.25
15:05	3.25	10.44
15:06	3.42	10.25
15:07	3.31	10.38
15:08	3.07	10.56
15:09	2.96	10.61
15:10	2.50	10.89
15:11	3.06	10.54
15:12	4.39	9.66
15:13	3.95	10.07
15:14	4.45	9.75
15:15	5.29	9.08
15:16	2.61	10.82
15:17	3.03	10.66
15:18	3.91	9.95
15:19	3.02	10.67
15:20	2.61	10.69
15:21	2.60	10.77
15:22	2.73	10.79
15:23	3.01	10.59

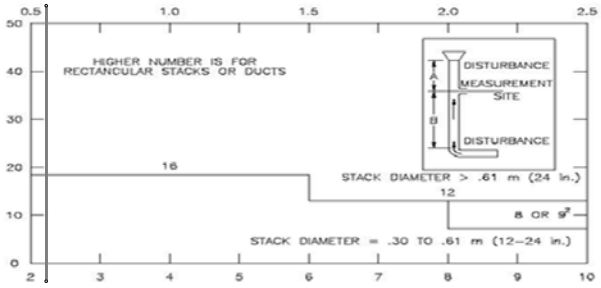
Parameter	O_2 - Outlet	CO_2 - Outlet
Uncorrected Run Average (C_{obs})	3.5	10.3
Cal Gas Concentration (C_{MA})	11.0	11.0
Pretest System Zero Response	0.00	0.02
Posttest System Zero Response	0.00	0.01
Average Zero Response (Co)	0.0	0.0
Pretest System Cal Response	10.96	11.02
Posttest System Cal Response	10.97	11.05
Average Cal Response (C_M)	11.0	11.0
Corrected Run Average (Corr)	3.5	10.3

Method 1 Data

Location Energy Transfer - Howell, MI
Source Dehydration Unit
Project No. 2021-2950
Date: 12/15/21

Stack Parameters

Duct Orientation:	Vertical	
Duct Design:	Circular	
Distance from Far Wall to Outside of Port:	14.00	in
Nipple Length:	3.00	in
Depth of Duct:	11.00	in
Cross Sectional Area of Duct:	0.66	ft^2
No. of Test Ports:	1	
Number of Readings per Point:	1	
Distance A:	13.0	ft
Distance A Duct Diameters:	14.2	**(must be > 0.5)**
Distance B:	2.0	ft
Distance B Duct Diameters:	2.2	**(must be > 2)**
Minimum Number of Traverse Points:	8	
Actual Number of Traverse Points:	8	
Measurer (Initial and Date):	ACD 12/15/21	
Reviewer (Initial and Date):	TBR 12/15/21	



CIRCULAR DUCT

LOCATION OF TRAVERSE POINTS

Number of traverse points on a diameter

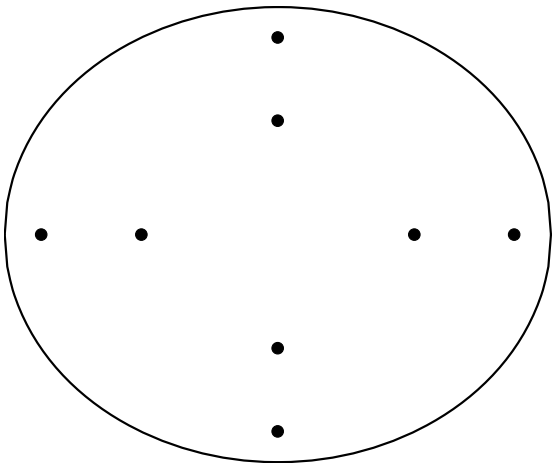
	2	3	4	5	6	7	8	9	10	11	12
1	14.6	--	6.7	--	4.4	--	3.2	--	2.6	--	2.1
2	85.4	--	25.0	--	14.6	--	10.5	--	8.2	--	6.7
3	--	--	75.0	--	29.6	--	19.4	--	14.6	--	11.8
4	--	--	93.3	--	70.4	--	32.3	--	22.6	--	17.7
5	--	--	--	--	85.4	--	67.7	--	34.2	--	25.0
6	--	--	--	--	95.6	--	80.6	--	65.8	--	35.6
7	--	--	--	--	--	--	89.5	--	77.4	--	64.4
8	--	--	--	--	--	--	96.8	--	85.4	--	75.0
9	--	--	--	--	--	--	--	--	91.8	--	82.3
10	--	--	--	--	--	--	--	--	97.4	--	88.2
11	--	--	--	--	--	--	--	--	--	--	93.3
12	--	--	--	--	--	--	--	--	--	--	97.9

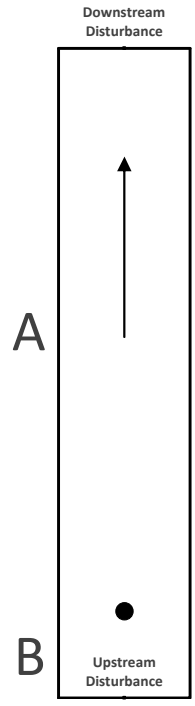
**Percent of stack diameter from inside wall to traverse point.*

Traverse Point	% of Diameter	Distance from inside wall	Distance from outside of port
1	6.7	0.74	3.74
2	25.0	2.75	5.75
3	75.0	8.25	11.25
4	93.3	10.26	13.26
5	--	--	--
6	--	--	--
7	--	--	--
8	--	--	--
9	--	--	--
10	--	--	--
11	--	--	--
12	--	--	--

Stack Diagram
A = 13 ft.
B = 2 ft.
Depth of Duct = 11 in.

Cross Sectional Area





Cyclonic Flow Check

Location Energy Transfer - Howell, MI
Source Dehydration Unit
Project No. 2021-2950
Date 12/15/21

Sample Point	Angle (ΔP=0)
1	0
2	0
3	0
4	2
5	2
6	1
7	1
8	0
9	1
10	1
11	0
12	1
13	1
14	2
15	2
16	0
Average	0.9

Location **Energy Transfer - Howell, MI**
Source **Dehydration Unit**
Project No. **2021-2950**

	Run No.	1		2		3	
	Date	12/16/21		12/16/21		12/16/21	
	Status	VALID		VALID		VALID	
	Start Time	10:40		12:25		14:52	
	Stop Time	10:46		12:32		15:00	
	Leak Check	Pass		Pass		Pass	
Traverse Point		**Δ P (in. WC)**	**Ts (°F)**	**Δ P (in. WC)**	**Ts (°F)**	**Δ P (in. WC)**	**Ts (°F)**
A1		0.06	858	0.07	838	0.06	843
2		0.06	900	0.07	875	0.07	897
3		0.08	940	0.09	713	0.09	939
4		0.10	797	0.09	585	0.10	805
B1		0.06	805	0.09	785	0.07	822
2		0.06	895	0.09	836	0.07	889
3		0.09	970	0.09	866	0.09	910
4		0.10	870	0.09	678	0.09	802

					Average
Square Root of ΔP, (in. WC)$^{1/2}$	**$(\Delta P)^{1/2}$**	0.274	0.290	0.282	0.282
Average ΔP, in. WC	**(ΔP)**	0.08	0.08	0.08	0.08
Pitot Tube Coefficient	**(Cp)**	0.840	0.840	0.840	0.840
Barometric Pressure, in. Hg	**(Pb)**	28.62	28.62	28.62	28.62
Static Pressure, in. WC	**(Pg)**	-0.28	-0.25	-0.27	-0.27
Stack Pressure, in. Hg	**(Ps)**	28.60	28.60	28.60	28.60
Average Temperature, °F	**(Ts)**	879.4	772.0	863.4	838.3
Average Temperature, °R	**(Ts)**	1339.0	1231.7	1323.0	1297.9
Measured Moisture Fraction	**(BWSmsd)**	0.148	0.148	0.147	0.147
Moisture Fraction @ Saturation	**(BWSsat)**	437.373	266.736	408.530	370.880
Moisture Fraction	**(BWS)**	0.148	0.148	0.147	0.147
O2 Concentration, %	**(O2)**	3.5	4.3	3.5	3.8
CO2 Concentration, %	**(CO2)**	10.1	9.8	10.3	10.1
Molecuar Weight, lb/lb-mole (dry)	**(Md)**	29.76	29.73	29.78	29.76
Molecuar Weight, lb/lb-mole (wet)	**(Ms)**	28.03	28.00	28.06	28.03
Velocity, ft/sec	**(Vs)**	25.5	25.8	26.0	25.8
VFR at stack conditions, acfm	**(Qa)**	1,008	1,023	1,029	1,020
VFR at standard conditions, scfh	**(Qsw)**	22,791	25,137	23,541	23,823
VFR at standard conditions, scfm	**(Qsw)**	380	419	392	397
/FR at standard conditions, dscfm	**(Qsd)**	324	357	335	339

Alliance SOURCE TESTING

Location Energy Transfer - Howell, MI
Source Dehydration Unit
Project No. 2021-2950
Parameter(s): VFR
Console Type Meter Box

Run No.		1					2					3				
Date		12/16/21					12/16/21					12/16/21				
Status		VALID					VALID					VALID				
Start Time		10:25					12:17					14:24				
End Time		11:25					13:17					15:24				
Run Time, min	(θ)	60					60					60				
Meter ID		T13A					Unit 5					Unit 5				
Meter Correction Factor	(Y)	1.029					1.013					1.013				
Orifice Calibration Value	(ΔH @)	1.778					1.648					1.648				
Max Vacuum, in. Hg		2					3					3				
Post Leak Check, ft3/min (at max vac.)		0.000					0.000					0.000				
Meter Volume, ft3																
0		0.000					392.290					425.720				
5		2.541					395.070					427.770				
10		5.101					397.900					430.640				
15		7.880					400.300					433.510				
20		10.610					403.000					436.380				
25		12.960					405.910					439.250				
30		14.730					408.640					442.120				
35		17.570					411.430					444.990				
40		20.410					414.200					447.860				
45		23.160					416.890					450.730				
50		26.040					419.620					453.600				
55		29.080					422.330					456.470				
60		31.790					425.600					459.340				
Total Meter Volume, ft3	(Vm)	31.790					33.310					33.620				
Temperature, °F		Meter	Probe	Filter	Vacuum	Imp. Exit	Meter	Probe	Filter	Vacuum	Imp. Exit	Meter	Probe	Filter	Vacuum	Imp. Exit
0		60	--	--	2	59	59	--	--	3	60	62	--	--	3	52
5		62	--	--	2	50	60	--	--	3	53	62	--	--	3	52
10		60	--	--	2	49	62	--	--	3	52	63	--	--	3	50
15		60	--	--	2	49	62	--	--	3	50	64	--	--	3	48
20		61	--	--	2	51	63	--	--	3	50	65	--	--	3	47
25		61	--	--	2	52	63	--	--	3	50	65	--	--	3	47
30		62	--	--	2	53	63	--	--	3	51	66	--	--	3	47
35		62	--	--	2	53	63	--	--	3	51	67	--	--	3	49
40		62	--	--	2	54	63	--	--	3	51	67	--	--	3	50
45		63	--	--	2	54	64	--	--	3	52	67	--	--	3	50
50		63	--	--	2	54	64	--	--	3	52	67	--	--	3	50
55		64	--	--	2	55	64	--	--	3	53	67	--	--	3	51
60		64	--	--	2	55	64	--	--	3	53	67	--	--	3	51
Average Temperature, °F	(Tm)	62	--	--	2	53	63	--	--	3	52	65	--	--	3	50
Average Temperature, °R	(Tm)	522	--	--	--	--	522	--	--	--	--	525	--	--	--	--
Minimum Temperature, °F		60	--	--	2	49	59	--	--	3	50	62	--	--	3	47
Maximum Temperature, °F		64	--	--	2	59	64	--	--	3	60	67	--	--	3	52
Barometeric Pressure, in. Hg	(Pb)	28.62					28.62					28.62				
Meter Orifice Pressure , in. WC	(ΔH)	1.000					1.000					1.000				
Meter Pressure, in. Hg	(Pm)	28.69					28.69					28.69				
Standard Meter Volume, ft3	(Vmstd)	31.741					32.693					32.828				
Analysis Type		Gravimetric					Gravimetric					Gravimetric				
Impinger 1, Pre/Post Test, g		H2O		703.0	812.8	109.8	H2O		858.6	854.7	-3.9	H2O		812.8	915.1	102.3
Impinger 2, Pre/Post Test, g		H2O		758.9	761.6	2.7	H2O		578.4	579.5	1.1	H2O		761.6	771.3	9.7
Impinger 3, Pre/Post Test, g		Empty		649.7	649.8	0.1	Empty		730.8	736.2	5.4	Empty		649.8	649.2	-0.6
Impinger 4, Pre/Post Test, g		Silica		859.5	863.5	4.0	Silica		747.4	865.3	117.9	Silica		863.5	871.6	8.1
Volume Water Collected, mL	(Vlc)	116.6					120.5					119.5				
Standard Water Volume, ft^3	(Vwstd)	5.499					5.683					5.636				
Moisture Fraction Measured	(BWS)	0.148					0.148					0.147				
Gas Molecular Weight, lb/lb-mole (dry)	(Md)	29.76					29.73					29.78				
DGM Calibration Check Value	(Yqa)	-3.4					-4.2					-3.5				

Appendix C

Alliance Source Testing, LLC - Pittsburgh

1201 Parkway View Drive
Pittsburgh, PA 15205

Energy Transfer

Howell, MI
Client Project # 21-2950

Analytical Report (1221-059)

EPA Method 18 (Adsorbents)

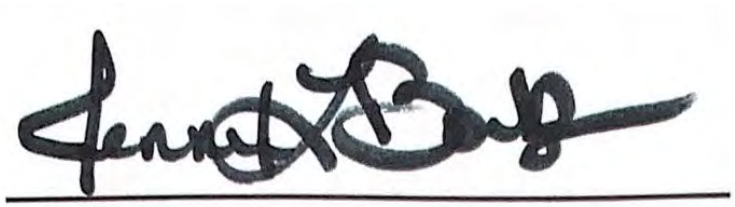
Benzene, Toluene, Ethylbenzene, o-Xylene, m-Xylene, p-Xylene

Enthalpy Analytical, LLC
Phone: (919) 850 - 4392 / Fax: (919) 850 - 9012 / www.enthalpy.com
800-1 Capitola Drive Durham, NC 27713-4385

I certify that to the best of my knowledge all analytical data presented in this report:

- Have been checked for completeness
- Are accurate, error-free, and legible
- Have been conducted in accordance with approved protocol, and that all deviations and analytical problems are summarized in the appropriate narrative(s)

This analytical report was prepared in Portable Document Format (.PDF) and contains 150 pages.



QA Review Performed by – Jennifer Bowker

Report Issued: 1/6/2022

ENTHALPY ANALYTICAL

Summary of Results

Enthalpy Analytical

Company: Alliance Source Testing, LLC - Pittsburgh
Job No.: 1221-059 - EPA Method 18 (Adsorbents)
Client No.: 21-2950 Site: Energy Transfer - Howell, MI

Summary Table

Sample ID / Adjusted Catch Weight (ug)

Compound	Dehydration Unit Run 1		Dehydration Unit Run 2		Dehydration Unit Run 3	
Benzene	2.44	ND	2.44	ND	2.44	ND
Ethylbenzene	2.30	ND	2.30	ND	2.30	ND
m-xylene	2.01	ND	2.01	ND	2.01	ND
o-xylene	2.59	ND	2.59	ND	2.59	ND
p-xylene	1.98	ND	1.98	ND	1.98	ND
Toluene	2.21	ND	2.21	ND	2.21	ND

Results

Enthalpy Analytical

Company: Alliance Source Testing, LLC - Pittsburgh
Job No.: 1221-059 - EPA Method 18 (Adsorbents)
Client No.: 21-2950 Site: Energy Transfer - Howell, MI

Benzene

Client's Sample Name	Filename #1	Filename #2	Filename #3	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1 (ug/mL)	Conc #2 (ug/mL)	Conc #3 (ug/mL)	%dif conc	Avg Conc (ug/mL)	DF * Aliquot Factor	Liquid Vol (mL)	Catch Weight (ug)	Rec Eff (%)	Adj. Catch Weight (ug)	Flag
Dehydration Unit Run 1.EXT	033F0501.D	033F0502.D	033F0503.D	2.63	1,055	0.363	NA	NA	NA	NA	0.363	0.363	0.363	0.0	0.363	1.286	5.00	2.33	95.6	2.44	ND
Dehydration Unit Run 1.FH	048F2101.D	048F2102.D	048F2103.D	2.63	1,055	0.363	NA	NA	NA	NA	0.363	0.363	0.363	0.0	0.363	1	5.00	1.81	95.6	1.90	ND
Dehydration Unit Run 1.BH	042F1501.D	042F1502.D	042F1503.D	2.63	1,055	0.363	NA	NA	NA	NA	0.363	0.363	0.363	0.0	0.363	1	5.00	1.81	95.6	1.90	ND
																				2.44	ND
Dehydration Unit Run 1 Spike.EXT	036F0801.D	036F0802.D	036F0803.D	2.63	1,055	0.363	NA	NA	NA	NA	0.363	0.363	0.363	0.0	0.363	1.286	5.00	2.33	100	2.33	ND
Dehydration Unit Run 1 Spike.FH	051F2501.D	051F2502.D	051F2503.D	2.63	1,055	0.363	0.85	0.85	0.85	0.0	20.7	20.3	20.6	1.3	20.6	1	5.00	103	100	103	
Dehydration Unit Run 1 Spike.BH	045F1801.D	045F1802.D	045F1803.D	2.63	1,055	0.363	NA	NA	NA	NA	0.363	0.363	0.363	0.0	0.363	1	5.00	1.81	100	1.81	ND
																				103	
Dehydration Unit Run 2.EXT	034F0601.D	034F0602.D	034F0603.D	2.63	1,055	0.363	NA	NA	NA	NA	0.363	0.363	0.363	0.0	0.363	1.286	5.00	2.33	95.6	2.44	ND
Dehydration Unit Run 2.FH	049F2201.D	049F2202.D	049F2203.D	2.63	1,055	0.363	NA	NA	NA	NA	0.363	0.363	0.363	0.0	0.363	1	5.00	1.81	95.6	1.90	ND
Dehydration Unit Run 2.BH	043F1601.D	043F1602.D	043F1603.D	2.63	1,055	0.363	NA	NA	NA	NA	0.363	0.363	0.363	0.0	0.363	1	5.00	1.81	95.6	1.90	ND
																				2.44	ND
Dehydration Unit Run 2 Spike.EXT	038F1001.D	038F1002.D	038F1003.D	2.63	1,055	0.363	NA	NA	NA	NA	0.363	0.363	0.363	0.0	0.363	1.286	5.00	2.33	100	2.33	ND
Dehydration Unit Run 2 Spike.FH	053F2701.D	053F2702.D	053F2703.D	2.63	1,055	0.363	0.85	0.85	0.85	0.0	20.1	19.6	19.8	1.3	19.8	1	5.00	99.1	100	99.1	
Dehydration Unit Run 2 Spike.BH	046F1901.D	046F1902.D	046F1903.D	2.63	1,055	0.363	NA	NA	NA	NA	0.363	0.363	0.363	0.0	0.363	1	5.00	1.81	100	1.81	ND
																				99.1	
Dehydration Unit Run 3.EXT	035F0701.D	035F0702.D	035F0703.D	2.63	1,055	0.363	NA	NA	NA	NA	0.363	0.363	0.363	0.0	0.363	1.286	5.00	2.33	95.6	2.44	ND
Dehydration Unit Run 3.FH	050F2301.D	050F2302.D	050F2303.D	2.63	1,055	0.363	NA	NA	NA	NA	0.363	0.363	0.363	0.0	0.363	1	5.00	1.81	95.6	1.90	ND
Dehydration Unit Run 3.BH	044F1701.D	044F1702.D	044F1703.D	2.63	1,055	0.363	NA	NA	NA	NA	0.363	0.363	0.363	0.0	0.363	1	5.00	1.81	95.6	1.90	ND
																				2.44	ND
Dehydration Unit Run 3 Spike.EXT	039F1101.D	039F1102.D	039F1103.D	2.63	1,055	0.363	NA	NA	NA	NA	0.363	0.363	0.363	0.0	0.363	1.286	5.00	2.33	100	2.33	ND
Dehydration Unit Run 3 Spike.FH	054F2801.D	054F2802.D	054F2803.D	2.63	1,055	0.363	0.85	0.85	0.85	0.1	20.0	20.0	20.3	1.0	20.1	1	5.00	101	100	101	
Dehydration Unit Run 3 Spike.BH	047F2001.D	047F2002.D	047F2003.D	2.63	1,055	0.363	NA	NA	NA	NA	0.363	0.363	0.363	0.0	0.363	1	5.00	1.81	100	1.81	ND
																				101	

Enthalpy Analytical

Company: Alliance Source Testing, LLC - Pittsburgh
Job No.: 1221-059 - EPA Method 18 (Adsorbents)
Client No.: 21-2950 Site: Energy Transfer - Howell, MI

Ethylbenzene

Client's Sample Name	Filename #1	Filename #2	Filename #3	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1 (ug/mL)	Conc #2 (ug/mL)	Conc #3 (ug/mL)	%dif conc	Avg Conc (ug/mL)	DF * Aliquot Factor	Liquid Vol (mL)	Catch Weight (ug)	Rec Eff (%)	Adj. Catch Weight (ug)	Flag
Dehydration Unit Run 1.EXT	033F0501.D	033F0502.D	033F0503.D	2.59	1,039	0.370	NA	NA	NA	NA	0.370	0.370	0.370	0.0	0.370	1.286	5.00	2.38	103	2.30	ND
Dehydration Unit Run 1.FH	048F2101.D	048F2102.D	048F2103.D	2.59	1,039	0.370	NA	NA	NA	NA	0.370	0.370	0.370	0.0	0.370	1	5.00	1.85	103	1.79	ND
Dehydration Unit Run 1.BH	042F1501.D	042F1502.D	042F1503.D	2.59	1,039	0.370	NA	NA	NA	NA	0.370	0.370	0.370	0.0	0.370	1	5.00	1.85	103	1.79	ND
																				2.30	ND
Dehydration Unit Run 1 Spike.EXT	036F0801.D	036F0802.D	036F0803.D	2.59	1,039	0.370	NA	NA	NA	NA	0.370	0.370	0.370	0.0	0.370	1.286	5.00	2.38	100	2.38	ND
Dehydration Unit Run 1 Spike.FH	051F2501.D	051F2502.D	051F2503.D	2.59	1,039	0.370	1.55	1.55	1.55	0.0	22.2	22.0	22.2	0.6	22.1	1	5.00	111	100	111	
Dehydration Unit Run 1 Spike.BH	045F1801.D	045F1802.D	045F1803.D	2.59	1,039	0.370	NA	NA	NA	NA	0.370	0.370	0.370	0.0	0.370	1	5.00	1.85	100	1.85	ND
																				111	
Dehydration Unit Run 2.EXT	034F0601.D	034F0602.D	034F0603.D	2.59	1,039	0.370	NA	NA	NA	NA	0.370	0.370	0.370	0.0	0.370	1.286	5.00	2.38	103	2.30	ND
Dehydration Unit Run 2.FH	049F2201.D	049F2202.D	049F2203.D	2.59	1,039	0.370	NA	NA	NA	NA	0.370	0.370	0.370	0.0	0.370	1	5.00	1.85	103	1.79	ND
Dehydration Unit Run 2.BH	043F1601.D	043F1602.D	043F1603.D	2.59	1,039	0.370	NA	NA	NA	NA	0.370	0.370	0.370	0.0	0.370	1	5.00	1.85	103	1.79	ND
																				2.30	ND
Dehydration Unit Run 2 Spike.EXT	038F1001.D	038F1002.D	038F1003.D	2.59	1,039	0.370	NA	NA	NA	NA	0.370	0.370	0.370	0.0	0.370	1.286	5.00	2.38	100	2.38	ND
Dehydration Unit Run 2 Spike.FH	053F2701.D	053F2702.D	053F2703.D	2.59	1,039	0.370	1.55	1.55	1.55	0.0	20.8	21.0	21.0	0.8	21.0	1	5.00	105	100	105	
Dehydration Unit Run 2 Spike.BH	046F1901.D	046F1902.D	046F1903.D	2.59	1,039	0.370	NA	NA	NA	NA	0.370	0.370	0.370	0.0	0.370	1	5.00	1.85	100	1.85	ND
																				105	
Dehydration Unit Run 3.EXT	035F0701.D	035F0702.D	035F0703.D	2.59	1,039	0.370	NA	NA	NA	NA	0.370	0.370	0.370	0.0	0.370	1.286	5.00	2.38	103	2.30	ND
Dehydration Unit Run 3.FH	050F2301.D	050F2302.D	050F2303.D	2.59	1,039	0.370	NA	NA	NA	NA	0.370	0.370	0.370	0.0	0.370	1	5.00	1.85	103	1.79	ND
Dehydration Unit Run 3.BH	044F1701.D	044F1702.D	044F1703.D	2.59	1,039	0.370	NA	NA	NA	NA	0.370	0.370	0.370	0.0	0.370	1	5.00	1.85	103	1.79	ND
																				2.30	ND
Dehydration Unit Run 3 Spike.EXT	039F1101.D	039F1102.D	039F1103.D	2.59	1,039	0.370	NA	NA	NA	NA	0.370	0.370	0.370	0.0	0.370	1.286	5.00	2.38	100	2.38	ND
Dehydration Unit Run 3 Spike.FH	054F2801.D	054F2802.D	054F2803.D	2.59	1,039	0.370	1.55	1.55	1.55	0.0	21.2	21.2	21.2	0.1	21.2	1	5.00	106	100	106	
Dehydration Unit Run 3 Spike.BH	047F2001.D	047F2002.D	047F2003.D	2.59	1,039	0.370	NA	NA	NA	NA	0.370	0.370	0.370	0.0	0.370	1	5.00	1.85	100	1.85	ND
																				106	

Enthalpy Analytical

Company: Alliance Source Testing, LLC - Pittsburgh
Job No.: 1221-059 - EPA Method 18 (Adsorbents)
Client No.: 21-2950 Site: Energy Transfer - Howell, MI

m-xylene

Client's Sample Name	Filename #1	Filename #2	Filename #3	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1 (ug/mL)	Conc #2 (ug/mL)	Conc #3 (ug/mL)	%dif conc	Avg Conc (ug/mL)	DF * Aliquot Factor	Liquid Vol (mL)	Catch Weight (ug)	Rec Eff (%)	Adj. Catch Weight (ug)	Flag
Dehydration Unit Run 1.EXT	033F0501.D	033F0502.D	033F0503.D	2.58	1,036	0.314	NA	NA	NA	NA	0.314	0.314	0.314	0.0	0.314	1.286	5.00	2.02	100	2.01	ND
Dehydration Unit Run 1.FH	048F2101.D	048F2102.D	048F2103.D	2.58	1,036	0.314	NA	NA	NA	NA	0.314	0.314	0.314	0.0	0.314	1	5.00	1.57	100	1.57	ND
Dehydration Unit Run 1.BH	042F1501.D	042F1502.D	042F1503.D	2.58	1,036	0.314	NA	NA	NA	NA	0.314	0.314	0.314	0.0	0.314	1	5.00	1.57	100	1.57	ND
																				2.01	ND
Dehydration Unit Run 1 Spike.EXT	036F0801.D	036F0802.D	036F0803.D	2.58	1,036	0.314	NA	NA	NA	NA	0.314	0.314	0.314	0.0	0.314	1.286	5.00	2.02	100	2.02	ND
Dehydration Unit Run 1 Spike.FH	051F2501.D	051F2502.D	051F2503.D	2.58	1,036	0.314	1.62	1.62	1.62	0.0	21.3	21.6	21.4	0.6	21.4	1	5.00	107	100	107	
Dehydration Unit Run 1 Spike.BH	045F1801.D	045F1802.D	045F1803.D	2.58	1,036	0.314	NA	NA	NA	NA	0.314	0.314	0.314	0.0	0.314	1	5.00	1.57	100	1.57	ND
																				107	
Dehydration Unit Run 2.EXT	034F0601.D	034F0602.D	034F0603.D	2.58	1,036	0.314	NA	NA	NA	NA	0.314	0.314	0.314	0.0	0.314	1.286	5.00	2.02	100	2.01	ND
Dehydration Unit Run 2.FH	049F2201.D	049F2202.D	049F2203.D	2.58	1,036	0.314	NA	NA	NA	NA	0.314	0.314	0.314	0.0	0.314	1	5.00	1.57	100	1.57	ND
Dehydration Unit Run 2.BH	043F1601.D	043F1602.D	043F1603.D	2.58	1,036	0.314	NA	NA	NA	NA	0.314	0.314	0.314	0.0	0.314	1	5.00	1.57	100	1.57	ND
																				2.01	ND
Dehydration Unit Run 2 Spike.EXT	038F1001.D	038F1002.D	038F1003.D	2.58	1,036	0.314	NA	NA	NA	NA	0.314	0.314	0.314	0.0	0.314	1.286	5.00	2.02	100	2.02	ND
Dehydration Unit Run 2 Spike.FH	053F2701.D	053F2702.D	053F2703.D	2.58	1,036	0.314	1.62	1.62	1.62	0.0	20.3	20.3	20.3	0.1	20.3	1	5.00	101	100	101	
Dehydration Unit Run 2 Spike.BH	046F1901.D	046F1902.D	046F1903.D	2.58	1,036	0.314	NA	NA	NA	NA	0.314	0.314	0.314	0.0	0.314	1	5.00	1.57	100	1.57	ND
																				101	
Dehydration Unit Run 3.EXT	035F0701.D	035F0702.D	035F0703.D	2.58	1,036	0.314	NA	NA	NA	NA	0.314	0.314	0.314	0.0	0.314	1.286	5.00	2.02	100	2.01	ND
Dehydration Unit Run 3.FH	050F2301.D	050F2302.D	050F2303.D	2.58	1,036	0.314	NA	NA	NA	NA	0.314	0.314	0.314	0.0	0.314	1	5.00	1.57	100	1.57	ND
Dehydration Unit Run 3.BH	044F1701.D	044F1702.D	044F1703.D	2.58	1,036	0.314	NA	NA	NA	NA	0.314	0.314	0.314	0.0	0.314	1	5.00	1.57	100	1.57	ND
																				2.01	ND
Dehydration Unit Run 3 Spike.EXT	039F1101.D	039F1102.D	039F1103.D	2.58	1,036	0.314	NA	NA	NA	NA	0.314	0.314	0.314	0.0	0.314	1.286	5.00	2.02	100	2.02	ND
Dehydration Unit Run 3 Spike.FH	054F2801.D	054F2802.D	054F2803.D	2.58	1,036	0.314	1.62	1.62	1.62	0.0	20.6	20.5	20.6	0.5	20.6	1	5.00	103	100	103	
Dehydration Unit Run 3 Spike.BH	047F2001.D	047F2002.D	047F2003.D	2.58	1,036	0.314	NA	NA	NA	NA	0.314	0.314	0.314	0.0	0.314	1	5.00	1.57	100	1.57	ND
																				103	

Enthalpy Analytical

Company: Alliance Source Testing, LLC - Pittsburgh
Job No.: 1221-059 - EPA Method 18 (Adsorbents)
Client No.: 21-2950 Site: Energy Transfer - Howell, MI

o-xylene

Client's Sample Name	Filename #1	Filename #2	Filename #3	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1 (ug/mL)	Conc #2 (ug/mL)	Conc #3 (ug/mL)	%dif conc	Avg Conc (ug/mL)	DF * Aliquot Factor	Liquid Vol (mL)	Catch Weight (ug)	Rec Eff (%)	Adj. Catch Weight (ug)	Flag
Dehydration Unit Run 1.EXT	033F0501.D	033F0502.D	033F0503.D	2.62	1,051	0.357	NA	NA	NA	NA	0.357	0.357	0.357	0.0	0.357	1.286	5.00	2.29	88.4	2.59	ND
Dehydration Unit Run 1.FH	048F2101.D	048F2102.D	048F2103.D	2.62	1,051	0.357	NA	NA	NA	NA	0.357	0.357	0.357	0.0	0.357	1	5.00	1.78	88.4	2.02	ND
Dehydration Unit Run 1.BH	042F1501.D	042F1502.D	042F1503.D	2.62	1,051	0.357	NA	NA	NA	NA	0.357	0.357	0.357	0.0	0.357	1	5.00	1.78	88.4	2.02	ND
																				2.59	ND
Dehydration Unit Run 1 Spike.EXT	036F0801.D	036F0802.D	036F0803.D	2.62	1,051	0.357	NA	NA	NA	NA	0.357	0.357	0.357	0.0	0.357	1.286	5.00	2.29	100	2.29	ND
Dehydration Unit Run 1 Spike.FH	051F2501.D	051F2502.D	051F2503.D	2.62	1,051	0.357	1.83	1.83	1.83	0.0	19.3	19.2	19.1	0.5	19.2	1	5.00	96.0	100	96.0	
Dehydration Unit Run 1 Spike.BH	045F1801.D	045F1802.D	045F1803.D	2.62	1,051	0.357	NA	NA	NA	NA	0.357	0.357	0.357	0.0	0.357	1	5.00	1.78	100	1.78	ND
																				96.0	
Dehydration Unit Run 2.EXT	034F0601.D	034F0602.D	034F0603.D	2.62	1,051	0.357	NA	NA	NA	NA	0.357	0.357	0.357	0.0	0.357	1.286	5.00	2.29	88.4	2.59	ND
Dehydration Unit Run 2.FH	049F2201.D	049F2202.D	049F2203.D	2.62	1,051	0.357	NA	NA	NA	NA	0.357	0.357	0.357	0.0	0.357	1	5.00	1.78	88.4	2.02	ND
Dehydration Unit Run 2.BH	043F1601.D	043F1602.D	043F1603.D	2.62	1,051	0.357	NA	NA	NA	NA	0.357	0.357	0.357	0.0	0.357	1	5.00	1.78	88.4	2.02	ND
																				2.59	ND
Dehydration Unit Run 2 Spike.EXT	038F1001.D	038F1002.D	038F1003.D	2.62	1,051	0.357	NA	NA	NA	NA	0.357	0.357	0.357	0.0	0.357	1.286	5.00	2.29	100	2.29	ND
Dehydration Unit Run 2 Spike.FH	053F2701.D	053F2702.D	053F2703.D	2.62	1,051	0.357	1.83	1.83	1.83	0.0	18.3	18.1	18.3	0.7	18.2	1	5.00	91.0	100	91.0	
Dehydration Unit Run 2 Spike.BH	046F1901.D	046F1902.D	046F1903.D	2.62	1,051	0.357	NA	NA	NA	NA	0.357	0.357	0.357	0.0	0.357	1	5.00	1.78	100	1.78	ND
																				91.0	
Dehydration Unit Run 3.EXT	035F0701.D	035F0702.D	035F0703.D	2.62	1,051	0.357	NA	NA	NA	NA	0.357	0.357	0.357	0.0	0.357	1.286	5.00	2.29	88.4	2.59	ND
Dehydration Unit Run 3.FH	050F2301.D	050F2302.D	050F2303.D	2.62	1,051	0.357	NA	NA	NA	NA	0.357	0.357	0.357	0.0	0.357	1	5.00	1.78	88.4	2.02	ND
Dehydration Unit Run 3.BH	044F1701.D	044F1702.D	044F1703.D	2.62	1,051	0.357	NA	NA	NA	NA	0.357	0.357	0.357	0.0	0.357	1	5.00	1.78	88.4	2.02	ND
																				2.59	ND
Dehydration Unit Run 3 Spike.EXT	039F1101.D	039F1102.D	039F1103.D	2.62	1,051	0.357	NA	NA	NA	NA	0.357	0.357	0.357	0.0	0.357	1.286	5.00	2.29	100	2.29	ND
Dehydration Unit Run 3 Spike.FH	054F2801.D	054F2802.D	054F2803.D	2.62	1,051	0.357	1.83	1.83	1.83	0.0	18.3	18.5	18.4	0.7	18.4	1	5.00	91.9	100	91.9	
Dehydration Unit Run 3 Spike.BH	047F2001.D	047F2002.D	047F2003.D	2.62	1,051	0.357	NA	NA	NA	NA	0.357	0.357	0.357	0.0	0.357	1	5.00	1.78	100	1.78	ND
																				91.9	

Enthalpy Analytical

Company: Alliance Source Testing, LLC - Pittsburgh
Job No.: 1221-059 - EPA Method 18 (Adsorbents)
Client No.: 21-2950 Site: Energy Transfer - Howell, MI

p-xylene

Client's Sample Name	Filename #1	Filename #2	Filename #3	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1 (ug/mL)	Conc #2 (ug/mL)	Conc #3 (ug/mL)	%dif conc	Avg Conc (ug/mL)	DF * Aliquot Factor	Liquid Vol (mL)	Catch Weight (ug)	Rec Eff (%)	Adj. Catch Weight (ug)	Flag
Dehydration Unit Run 1.EXT	033F0501.D	033F0502.D	033F0503.D	2.57	1,031	0.298	NA	NA	NA	NA	0.298	0.298	0.298	0.0	0.298	1.286	5.00	1.92	96.6	1.98	ND
Dehydration Unit Run 1.FH	048F2101.D	048F2102.D	048F2103.D	2.57	1,031	0.298	NA	NA	NA	NA	0.298	0.298	0.298	0.0	0.298	1	5.00	1.49	96.6	1.54	ND
Dehydration Unit Run 1.BH	042F1501.D	042F1502.D	042F1503.D	2.57	1,031	0.298	NA	NA	NA	NA	0.298	0.298	0.298	0.0	0.298	1	5.00	1.49	96.6	1.54	ND
																				1.98	ND
Dehydration Unit Run 1 Spike.EXT	036F0801.D	036F0802.D	036F0803.D	2.57	1,031	0.298	NA	NA	NA	NA	0.298	0.298	0.298	0.0	0.298	1.286	5.00	1.92	100	1.92	ND
Dehydration Unit Run 1 Spike.FH	051F2501.D	051F2502.D	051F2503.D	2.57	1,031	0.298	1.59	1.59	1.59	0.0	20.6	20.5	20.5	0.4	20.5	1	5.00	103	100	103	
Dehydration Unit Run 1 Spike.BH	045F1801.D	045F1802.D	045F1803.D	2.57	1,031	0.298	NA	NA	NA	NA	0.298	0.298	0.298	0.0	0.298	1	5.00	1.49	100	1.49	ND
																				103	
Dehydration Unit Run 2.EXT	034F0601.D	034F0602.D	034F0603.D	2.57	1,031	0.298	NA	NA	NA	NA	0.298	0.298	0.298	0.0	0.298	1.286	5.00	1.92	96.6	1.98	ND
Dehydration Unit Run 2.FH	049F2201.D	049F2202.D	049F2203.D	2.57	1,031	0.298	NA	NA	NA	NA	0.298	0.298	0.298	0.0	0.298	1	5.00	1.49	96.6	1.54	ND
Dehydration Unit Run 2.BH	043F1601.D	043F1602.D	043F1603.D	2.57	1,031	0.298	NA	NA	NA	NA	0.298	0.298	0.298	0.0	0.298	1	5.00	1.49	96.6	1.54	ND
																				1.98	ND
Dehydration Unit Run 2 Spike.EXT	038F1001.D	038F1002.D	038F1003.D	2.57	1,031	0.298	NA	NA	NA	NA	0.298	0.298	0.298	0.0	0.298	1.286	5.00	1.92	100	1.92	ND
Dehydration Unit Run 2 Spike.FH	053F2701.D	053F2702.D	053F2703.D	2.57	1,031	0.298	1.59	1.59	1.59	0.0	19.4	19.7	19.4	0.9	19.5	1	5.00	97.4	100	97.4	
Dehydration Unit Run 2 Spike.BH	046F1901.D	046F1902.D	046F1903.D	2.57	1,031	0.298	NA	NA	NA	NA	0.298	0.298	0.298	0.0	0.298	1	5.00	1.49	100	1.49	ND
																				97.4	
Dehydration Unit Run 3.EXT	035F0701.D	035F0702.D	035F0703.D	2.57	1,031	0.298	NA	NA	NA	NA	0.298	0.298	0.298	0.0	0.298	1.286	5.00	1.92	96.6	1.98	ND
Dehydration Unit Run 3.FH	050F2301.D	050F2302.D	050F2303.D	2.57	1,031	0.298	NA	NA	NA	NA	0.298	0.298	0.298	0.0	0.298	1	5.00	1.49	96.6	1.54	ND
Dehydration Unit Run 3.BH	044F1701.D	044F1702.D	044F1703.D	2.57	1,031	0.298	NA	NA	NA	NA	0.298	0.298	0.298	0.0	0.298	1	5.00	1.49	96.6	1.54	ND
																				1.98	ND
Dehydration Unit Run 3 Spike.EXT	039F1101.D	039F1102.D	039F1103.D	2.57	1,031	0.298	NA	NA	NA	NA	0.298	0.298	0.298	0.0	0.298	1.286	5.00	1.92	100	1.92	ND
Dehydration Unit Run 3 Spike.FH	054F2801.D	054F2802.D	054F2803.D	2.57	1,031	0.298	1.59	1.59	1.59	0.0	19.8	19.8	19.7	0.2	19.7	1	5.00	98.7	100	98.7	
Dehydration Unit Run 3 Spike.BH	047F2001.D	047F2002.D	047F2003.D	2.57	1,031	0.298	NA	NA	NA	NA	0.298	0.298	0.298	0.0	0.298	1	5.00	1.49	100	1.49	ND
																				98.7	

Enthalpy Analytical

Company: Alliance Source Testing, LLC - Pittsburgh
Job No.: 1221-059 - EPA Method 18 (Adsorbents)
Client No.: 21-2950 Site: Energy Transfer - Howell, MI

Toluene

Client's Sample Name	Filename #1	Filename #2	Filename #3	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1 (ug/mL)	Conc #2 (ug/mL)	Conc #3 (ug/mL)	%dif conc	Avg Conc (ug/mL)	DF * Aliquot Factor	Liquid Vol (mL)	Catch Weight (ug)	Rec Eff (%)	Adj. Catch Weight (ug)	Flag
Dehydration Unit Run 1.EXT	033F0501.D	033F0502.D	033F0503.D	2.59	1,038	0.333	NA	NA	NA	NA	0.333	0.333	0.333	0.0	0.333	1.286	5.00	2.14	96.8	2.21	ND
Dehydration Unit Run 1.FH	048F2101.D	048F2102.D	048F2103.D	2.59	1,038	0.333	NA	NA	NA	NA	0.333	0.333	0.333	0.0	0.333	1	5.00	1.66	96.8	1.72	ND
Dehydration Unit Run 1.BH	042F1501.D	042F1502.D	042F1503.D	2.59	1,038	0.333	NA	NA	NA	NA	0.333	0.333	0.333	0.0	0.333	1	5.00	1.66	96.8	1.72	ND
																				2.21	ND
Dehydration Unit Run 1 Spike.EXT	036F0801.D	036F0802.D	036F0803.D	2.59	1,038	0.333	NA	NA	NA	NA	0.333	0.333	0.333	0.0	0.333	1.286	5.00	2.14	100	2.14	ND
Dehydration Unit Run 1 Spike.FH	051F2501.D	051F2502.D	051F2503.D	2.59	1,038	0.333	1.17	1.17	1.17	0.0	20.8	20.5	20.4	1.0	20.6	1	5.00	103	100	103	
Dehydration Unit Run 1 Spike.BH	045F1801.D	045F1802.D	045F1803.D	2.59	1,038	0.333	NA	NA	NA	NA	0.333	0.333	0.333	0.0	0.333	1	5.00	1.66	100	1.66	ND
																				103	
Dehydration Unit Run 2.EXT	034F0601.D	034F0602.D	034F0603.D	2.59	1,038	0.333	NA	NA	NA	NA	0.333	0.333	0.333	0.0	0.333	1.286	5.00	2.14	96.8	2.21	ND
Dehydration Unit Run 2.FH	049F2201.D	049F2202.D	049F2203.D	2.59	1,038	0.333	NA	NA	NA	NA	0.333	0.333	0.333	0.0	0.333	1	5.00	1.66	96.8	1.72	ND
Dehydration Unit Run 2.BH	043F1601.D	043F1602.D	043F1603.D	2.59	1,038	0.333	NA	NA	NA	NA	0.333	0.333	0.333	0.0	0.333	1	5.00	1.66	96.8	1.72	ND
																				2.21	ND
Dehydration Unit Run 2 Spike.EXT	038F1001.D	038F1002.D	038F1003.D	2.59	1,038	0.333	NA	NA	NA	NA	0.333	0.333	0.333	0.0	0.333	1.286	5.00	2.14	100	2.14	ND
Dehydration Unit Run 2 Spike.FH	053F2701.D	053F2702.D	053F2703.D	2.59	1,038	0.333	1.17	1.18	1.17	0.0	19.3	19.7	19.7	1.4	19.6	1	5.00	97.8	100	97.8	
Dehydration Unit Run 2 Spike.BH	046F1901.D	046F1902.D	046F1903.D	2.59	1,038	0.333	NA	NA	NA	NA	0.333	0.333	0.333	0.0	0.333	1	5.00	1.66	100	1.66	ND
																				97.8	
Dehydration Unit Run 3.EXT	035F0701.D	035F0702.D	035F0703.D	2.59	1,038	0.333	NA	NA	NA	NA	0.333	0.333	0.333	0.0	0.333	1.286	5.00	2.14	96.8	2.21	ND
Dehydration Unit Run 3.FH	050F2301.D	050F2302.D	050F2303.D	2.59	1,038	0.333	NA	NA	NA	NA	0.333	0.333	0.333	0.0	0.333	1	5.00	1.66	96.8	1.72	ND
Dehydration Unit Run 3.BH	044F1701.D	044F1702.D	044F1703.D	2.59	1,038	0.333	NA	NA	NA	NA	0.333	0.333	0.333	0.0	0.333	1	5.00	1.66	96.8	1.72	ND
																				2.21	ND
Dehydration Unit Run 3 Spike.EXT	039F1101.D	039F1102.D	039F1103.D	2.59	1,038	0.333	NA	NA	NA	NA	0.333	0.333	0.333	0.0	0.333	1.286	5.00	2.14	100	2.14	ND
Dehydration Unit Run 3 Spike.FH	054F2801.D	054F2802.D	054F2803.D	2.59	1,038	0.333	1.17	1.17	1.17	0.0	20.1	20.3	20.1	0.7	20.1	1	5.00	101	100	101	
Dehydration Unit Run 3 Spike.BH	047F2001.D	047F2002.D	047F2003.D	2.59	1,038	0.333	NA	NA	NA	NA	0.333	0.333	0.333	0.0	0.333	1	5.00	1.66	100	1.66	ND
																				101	

Enthalpy Analytical

Company: Alliance Source Testing, LLC - Pittsburgh

Job No.: 1221-059 - EPA Method 18 (Adsorbents)

Client No.: 21-2950 Site: Energy Transfer - Howell, MI

Spike and Recovery Calculations

Analyte: Benzene

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	106	Spiked Train		103	97.4%
		Un-spiked Train	ND	2.33	

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	106	Spiked Train		99.1	93.9%
		Un-spiked Train	ND	2.33	

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	106	Spiked Train		101	95.3%
		Un-spiked Train	ND	2.33	

Average Recovery	95.6%

Analyte: Ethylbenzene

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	104	Spiked Train		111	106%
		Un-spiked Train	ND	2.38	

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	104	Spiked Train		105	101%
		Un-spiked Train	ND	2.38	

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	104	Spiked Train		106	102%
		Un-spiked Train	ND	2.38	

Average Recovery	103%

Enthalpy Analytical

Company: Alliance Source Testing, LLC - Pittsburgh

Job No.: 1221-059 - EPA Method 18 (Adsorbents)

Client No.: 21-2950 Site: Energy Transfer - Howell, MI

Spike and Recovery Calculations

Analyte: m-Xylene

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	104	Spiked Train		107	103%
		Un-spiked Train	ND	2.02	

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	104	Spiked Train		101	97.9%
		Un-spiked Train	ND	2.02	

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	104	Spiked Train		103	99.3%
		Un-spiked Train	ND	2.02	

Average Recovery	100%

Analyte: o-Xylene

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	105	Spiked Train		96.0	91%
		Un-spiked Train	ND	2.29	

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	105	Spiked Train		91.0	86.6%
		Un-spiked Train	ND	2.29	

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	105	Spiked Train		91.9	87.5%
		Un-spiked Train	ND	2.29	

Average Recovery	88.4%

Enthalpy Analytical

Company: Alliance Source Testing, LLC - Pittsburgh

Job No.: 1221-059 - EPA Method 18 (Adsorbents)

Client No.: 21-2950 Site: Energy Transfer - Howell, MI

Spike and Recovery Calculations

Analyte: p-Xylene

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	103	Spiked Train		102.5	99.4%
		Un-spiked Train	ND	1.92	

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	103	Spiked Train		97.4	94.5%
		Un-spiked Train	ND	1.92	

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	103	Spiked Train		98.7	95.7%
		Un-spiked Train	ND	1.92	

Average Recovery	96.6%

Analyte: Toluene

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	104	Spiked Train		103	99.1%
		Un-spiked Train	ND	2.14	

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	104	Spiked Train		97.8	94.2%
		Un-spiked Train	ND	2.14	

	Spike Amount		"ND"	Catch (ug)	Recovery (%)
Dehydration Unit Run 1	104	Spiked Train		101	97.0%
		Un-spiked Train	ND	2.14	

Average Recovery	96.8%

Enthalpy Analytical

Company: Alliance Source Testing, LLC - Pittsburgh

Job No.: 1221-059 - EPA Method 18 (Adsorbents)

Client No.: 21-2950 Site: Energy Transfer - Howell, MI

QC Samples

QC Type	QC Sample Name		Benzene	Ethylbenzene	m-xylene	o-xylene	p-xylene	Toluene
Spiked Blank Solvent	gcprep4511 #LCS-EXT	catch (ug)	49.3	49.1	48.7	49.4	47.7	48.2
	spiked:	spike (ug)	52.8	52.0	51.8	52.6	51.6	51.9
	spikeprep1600.SP * 50uL	recovery	93.4%	94.5%	94.1%	94.0%	92.6%	92.9%
Spiked Blank Tube	gcprep4511 #LCS-CT	catch (ug)	94.6	97.7	95.5	89.3	92.0	92.4
	spiked:	spike (ug)	106	104	104	105	103	104
	spikeprep1600.SP * 100uL	recovery	89.7%	94.0%	92.1%	84.9%	89.3%	89.0%
Lab Dup	1221-059.R1-SPK-LD.FH	ug/mL	20.6	22.0	21.2	19.1	20.4	20.3
	1221-059.R1-SPK.FH	ug/mL	20.6	22.1	21.4	19.2	20.5	20.6
		RD	0.4%	0.5%	1.2%	0.6%	0.4%	1.2%
Blank Solvent	gcprep4511 #MB-EXT	ug/mL	ND	ND	ND	ND	ND	ND
Blank Media	gcprep4511 #MB-CT	ug/mL	ND	ND	ND	ND	ND	ND

Narrative Summary

Enthalpy Analytical Narrative Summary

Company	Alliance Source Testing, LLC - Pittsburgh
Job #	1221-059 - EPA Method 18 (Adsorbents)
Client #	21-2950 Site: Energy Transfer – Howell, MI

Custody

Alyssa Miller received the the samples on 12/21/21 at 3.3ºC after being relinquished by Alliance Source Testing, LLC of Pittsburgh, PA. The samples were received in good condition.

Prior to, during, and after analysis, the samples were kept under lock with access only to authorized personnel by Enthalpy Analytical, LLC.

Analysis

The samples were analyzed for benzene, toluene, ethyl benzene, p-xylene, m-xylene, and o-xylene using the analytical procedures in EPA Method 18, Measurement of Gaseous Organic Compound Emissions by Gas Chromatography (40 CFR Part 60, Appendix A).

The standards and samples were analyzed following the procedures specified in section 8.2.4, Adsorption Tube Procedure.

Each sample train consisted of one condensate fraction, followed by two charcoal tubes.

Prior to extraction, 10 mL was archived from each condensate fraction. The remaining condensate was then extracted with 5 mL of solvent and shaken. To account for the removed volume, an aliquot factor was applied to the extract condensate fractions.

The SKC charcoal (Cat# 226-16) tubes were desorbed in two fractions: the front half (FH) consisting of the whole first tube combined with the front section of the second tube in series and the back half (BH) consisting of the rear section of the second tube. The tubes were desorbed on 12/23/21.

The Gas Chromatograph "Lucy" was used for these analyses.

Calibration

The calibration curve is located in the back of this report. For each calibration curve used, the first page of the curve contains all method specific parameters (i.e., curve type, origin, weight, etc.) used to quantify the samples. The calibration curve section also includes a table with the Retention Time (RetTime), Level (Lvl), Amount (corresponding units), Area, Response Factor (Amt/Area) and the analyte Name. The calibration table is used to identify (by retention time) and quantify each target compound.

Enthalpy Analytical Narrative Summary
(continued)

Chromatographic Conditions	The acquisition method (LUCY0301.M) may be made available upon request.
QC Notes	None of the compounds of interest were identified at a level greater than their detection limit in the analyses of the laboratory method blanks. Laboratory Duplicates (LD) were analyzed using aliquots of sample ***Dehydration Unit Run 1 Spike.FH***. The original and duplicate analyses differed by 1.2% or less. As required by section 8.4.3, Recovery Study for Adsorption Tube Sampling, a recovery study was performed for the compounds of interest during the field test. The laboratory prepared eight charcoal tube spikes containing 106 µg of benzene, 104 µg of ethyl benzene, 104 µg of toluene, 103 µg of p-xylene, 104 µg of m-xylene, and 105 µg of o-xylene. Six of the spikes were provided to the client prior to sample collection while two of each were retained by the lab to be used as Laboratory Control Samples (LCS). The train collection efficiencies (R) were calculated using equations 18-7, 18-8, and 18-9 in EPA Method 18. The reported results have been adjusted using these recovery efficiency values, which all met the method-required limits of 70% to 130%. One of the retained LCS spike tubes was desorbed and analyzed with the samples, and yielded recovery values between 84.9% and 94.0%. An aqueous LCS was also prepared and analyzed with the samples and yielded recovery values between 94.0% and 94.5%.
Reporting Notes	These analyses met the requirements of the TNI Standard. Any deviations from the requirements of the reference method or TNI Standard have been stated above. The results presented in this report are representative of the sample as provided to the laboratory.

General Reporting Notes

The following are general reporting notes that are applicable to all Enthalpy Analytical, LLC data reports, unless specifically noted otherwise.

- Any analysis which refers to the method as ***"Type"*** represents a planned deviation from the reference method. For instance a Hydrogen Sulfide assay from a Tedlar bag would be labeled as "EPA Method 16-Type" because Tedlar bags are not mentioned as one of the collection options in EPA Method 16.
- The acronym ***MDL*** represents the Minimum Detection Limit. Below this value the laboratory cannot determine the presence of the analyte of interest reliably.
- The acronym ***LOQ*** represents the Limit of Quantification. Below this value the laboratory cannot quantitate the analyte of interest within the criteria of the method.
- The acronym ***ND*** following a value indicates a non-detect or analytical result below the MDL.
- The letter ***J*** in the Qualifier or Flag column in the results indicates that the value is between the MDL and the LOQ. The laboratory can positively identify the analyte of interest as present, but the value should be considered an estimate.
- The letter ***E*** in the Qualifier or Flag column indicates an analytical result exceeding 100% of the highest calibration point. The associated value should be considered as an estimate.
- Sample results are presented 'as measured' for single injection methodologies, or an average value if multiple injections are made. If all injections are below the MDL, the sample is considered non-detect and the ND value is presented. If one, but not all, are below the MDL, the MDL value is used for any injections that are below the MDL. For example, if the MDL is 0.500 and LOQ is 1.00, and the instrument measures 0.355, 0.620, and 0.442 - the result reported is the average of 0.500, 0.620, and 0.500 - - - i.e. 0.540 with a J flag.
- When a spike recovery (Bag Spike, Collocated Spike Train, or liquid matrix spike) is being calculated, the native (unspiked) sample result is used in the calculations, as long as the value is above the MDL. If a sample is ND, then 0 is used as the native amount (not the MDL value).
- The acronym ***DF*** represents Dilution Factor. This number represents dilution of the sample during the preparation and/or analysis process. The analytical result taken from a laboratory instrument is multiplied by the DF to determine the final undiluted sample results.
- The addition of ***MS*** to the Sample ID represents a Matrix Spike. An aliquot of an actual sample is spiked with a known amount of analyte so that a percent recovery value can be determined. The MS analysis indicates what effect the sample matrix may have on the target analyte, i.e. whether or not anything in the sample matrix interferes with the analysis of the analyte(s).

General Reporting Notes
(continued)

- The addition of ***MSD*** to the Sample ID represents a Matrix Spike Duplicate. Prepared in the same manner as a MS, the use of duplicate matrix spikes allows further confirmation of laboratory quality by showing the consistency of results gained by performing the same steps multiple times.

- The addition of ***LD*** to the Sample ID represents a Laboratory Duplicate. The analyst prepares an additional aliquot of sample for testing and the results of the duplicate analysis are compared to the initial result. The result should have a difference value of within 10% of the initial result (if the results of the original analysis are greater than the LOQ).

- The addition of ***AD*** to the Sample ID represents an Alternate Dilution. The analyst prepares an additional aliquot at a different dilution factor (usually double the initial factor). This analysis helps confirm that no additional compound is present and coeluting or sharing absorbance with the analyte of interest, as they would have a different response/absorbance than the analyte of interest.

- The Sample ID ***LCS*** represents a Laboratory Control Sample. Clean matrix, similar to the client sample matrix, prepared and analyzed by the laboratory using the same reagents, spiking standards and procedures used for the client samples. The LCS is used to assess the control of the laboratory's analytical system. Whenever spikes are prepared for our client projects, two spikes are retained as LCSs. The LCSs are labeled with the associated project number and kept in-house at the appropriate temperature conditions. When the project samples are received for analysis, the LCSs are analyzed to confirm that the analyte could be recovered from the media, separate from the samples which were used on the project and which may have been affected by source matrix, sample collection, and/or sample transport.

- **Significant Figures**: Where the reported value is much greater than unity (1.00) in the units expressed, the number is rounded to a whole number of units, rather than to 3 significant figures. For example, a value of 10,456.45 ug catch is rounded to 10,456 ug. There are five significant digits displayed, but no confidence should be placed on more than two significant digits. In the case of small numbers, generally 3 significant figures are presented, but still only 2 should be used with confidence. Many neat materials are only certified to 3 digits, and as the mathematically correct final result is always 1 digit less than all its pre-cursors - 2 significant figures are what are most defensible.

- **Manual Integration**: The data systems used for processing will flag manually integrated peaks with an "M". There are several reasons a peak may be manually integrated. These reasons will be identified by the following two letter designations on sample chromatograms, if provided in the report. The peak was ***not integrated*** by the software **"NI"**, the peak was ***integrated incorrectly*** by the software **"II"** or the ***wrong peak*** was integrated by the software **"WP"**. These codes will accompany the analyst's manual integration stamp placed next to the compound name on the chromatogram.

Sample Custody

Chain of Custody Record

ENTHALPY ANALYTICAL

Page 1 of 1

Special Handling:
- ☑ Standard Turn Around Time (10 business days)
- ☐ Rush Turn Around Time -- Date Needed: _____
- All TATs Subject to Approval by Enthalpy Analytical, Inc.
- All Bag/Can Samples Disposed of 1 Month from Receipt.
- All Other Samples Disposed of 4 Months from Receipt.

Client Name:	Alliance Source Testing, LLC (PIT)	Project Number:	21-2950	PO#:	21-2950
Project Manager:	Adam Robinson	Site Name:	Energy Transfer	Telephone#:	(412) 668-4040
Report To:	Adam Robinson & PIT Group	Location:	Howell, MI	Email:	adam.robinson@stacktest.com

For spiked or duplicate samples: please provide sample volumes for recovery calculations. For Particulates: please provide tare weights and/or condensed water volumes.

Special Instructions: BTEX

A=Air 1=H2SO4 2=NaOH W=Water O=Other
X=XAD C=Charcoal SG=Silica Gel
G=Grab C=Composite Q=Quality Control O=Other

Sample ID	Date	Time	Sample Volume	Type	Matrix	Sample Containers: # of VOA Vials	# of Glass	# of Plastic	# of Bags	# of Canisters	# of Tubes	# Other	Analyses: M18	Notes:
Dehydration Unit - Impinger Catch - Run 1 Native	12/16/21	11:10 AM	40 ml	W	G	1							✓	BTEX
Dehydration Unit - Tube 1 - Run 1 Native	12/16/21	10:36 AM		C	G						1		✓	"
Dehydration Unit - Tube 2 - Run 1 Native	12/16/21	10:36 AM		C	G						1		✓	"
Dehydration Unit - Impinger Catch - Run 2 Native	12/16/21	2:10 PM	40 ml	W	G	1							✓	"
Dehydration Unit - Tube 1 - Run 2 Native	12/16/21	2:00 PM		C	G						1		✓	"
Dehydration Unit - Tube 2 - Run 2 Native	12/16/21	2:00 PM		C	G						1		✓	"
Dehydration Unit - Impinger Catch - Run 3 Native	12/16/21	3:55 PM	40 ml	W	G	1							✓	"
Dehydration Unit - Tube 1 - Run 3 Native	12/16/21	3:35 PM		C	G						1		✓	"
Dehydration Unit - Tube 2 - Run 3 Native	12/16/21	3:35 PM		C	G						1		✓	"

Relinquished By:	Date:	Received By:	Date:	Time:	Sample Condition Upon Receipt:
[signature]	12/20/21	Alyssa M Miller	12-21-21	1115	☒ Iced ☐ Ambient ☒ °C 3.3
					☐ Iced ☐ Ambient ☐ °C_____
					☐ Iced ☐ Ambient ☐ °C_____

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3.3°C Raytek2, good condition Amm3 12-21-21

Chain of Custody Record

ENTHALPY ANALYTICAL

Page 2 of 2

Special Handling:

☑ Standard Turn Around Time (10 business days)

☐ Rush Turn Around Time -- Date Needed: _____

- All TATs Subject to Approval by Enthalpy Analytical, Inc.
- All Bag/Can Samples Disposed of 1 Month from Receipt.
- All Other Samples Disposed of 4 Months from Receipt.

Client Name:	Alliance Source Testing, LLC (PIT)	Project Number:	21-2950	PO#:	21-2950
Project Manager:	Adam Robinson	Site Name:	Energy Transfer	Telephone#:	(412) 668-4040
Report To:	Adam Robinson & PIT Group	Location:	Howell, MI	Email:	adam.robinson@stacktest.com

For spiked or duplicate samples: please provide sample volumes for recovery calculations. For Particulates: please provide tare weights and/or condensed water volumes.

Special Instructions: BTEX

A=Air 1=H2SO4 2=NaOH W=Water O=Other
X=XAD C=Charcoal SG=Silica Gel
G=Grab C=Composite Q=Quality Control O=Other

Sample ID	Date	Time	Sample Volume	Type	Matrix	Sample Containers: # of VOA Vials	# of Glass	# of Plastic	# of Bags	# of Canisters	# of Tubes	# Other	Analyses: M18	Notes:
Dehydration Unit - Impinger Catch Sp - Run 1	12/16/21	11:10 AM	40 ml	W	G	1							✓	"
Dehydration Unit - Tube 1 Sp - Run 1	12/16/21	10:38 AM		C	G						1		✓	"
Dehydration Unit - Tube 2 Sp - Run 1	12/16/21	10:38 AM		C	G						1		✓	"
Dehydration Unit - Impinger Catch Sp - Run 2	12/16/21	2:10 PM	40 ml	W	G	1							✓	"
Dehydration Unit - Tube 1 Sp - Run 2	12/16/21	2:00 PM		C	G						1		✓	"
Dehydration Unit - Tube 2 Sp - Run 2	12/16/21	2:00 PM		C	G						1		✓	"
Dehydration Unit - Impinger Catch Sp - Run 3	12/16/21	3:55 PM	40 ml	W	G	1							✓	"
Dehydration Unit - Tube 1 Sp - Run 3	12/16/21	3:40 PM		C	G						1		✓	"
Dehydration Unit - Tube 2 Sp - Run 3	12/16/21	3:40 PM		C	G						1		✓	"

Relinquished By:	Date:	Received By:	Date:	Time:	Sample Condition Upon Receipt:
[signature]	12/20/21	Alyssa Mueller	12.21.21	1115	☒ Iced ☐ Ambient ☒ °C 3.3
					☐ Iced ☐ Ambient ☐ °C_____
					☐ Iced ☐ Ambient ☐ °C_____

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3.3°C Cayuse 2, good condition BMM3 12.21.21

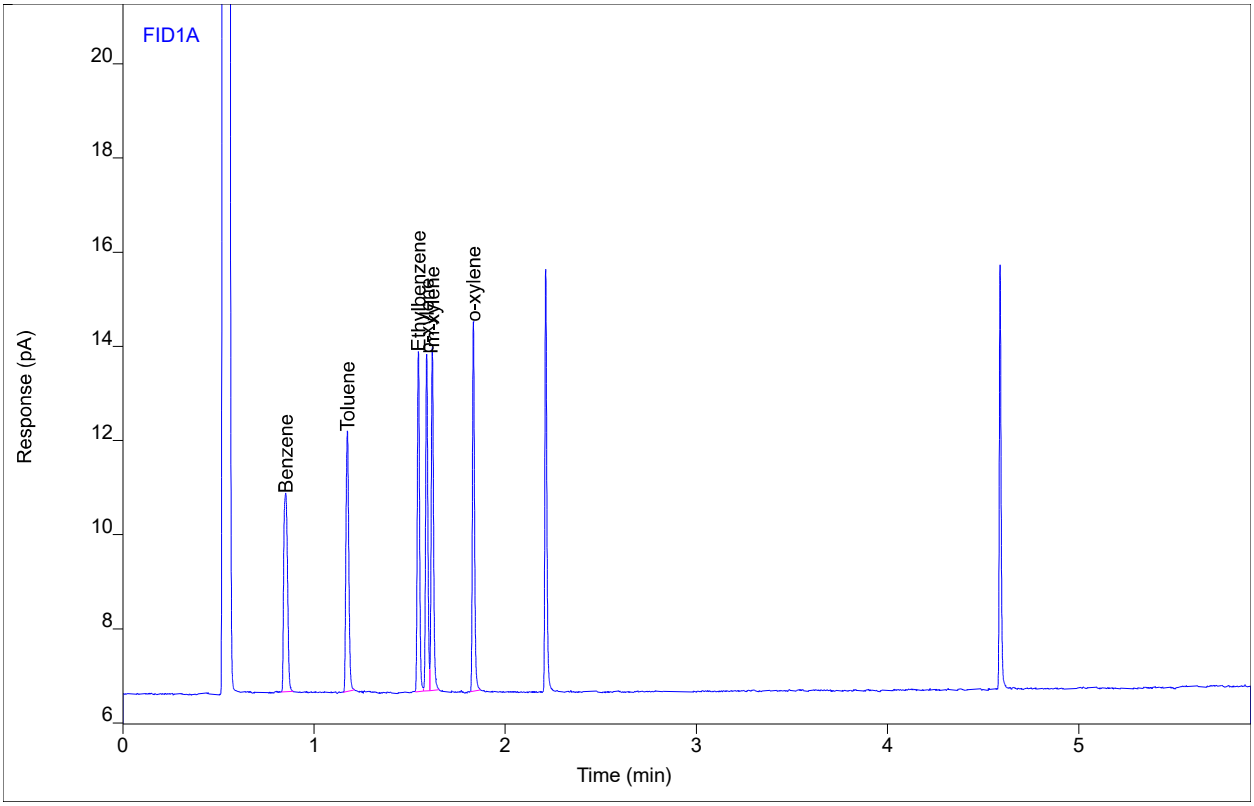
Raw Data

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #4
Sequence Name	LUCY1091 ver.2
Inj Data File	022F0101.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 9:19 AM
File Modified	12/28/2021 2:25 PM
Instrument	Lucy
Operator	Daniel Clayton

Sample Type	Calibration
Vial Number	Vial 22
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



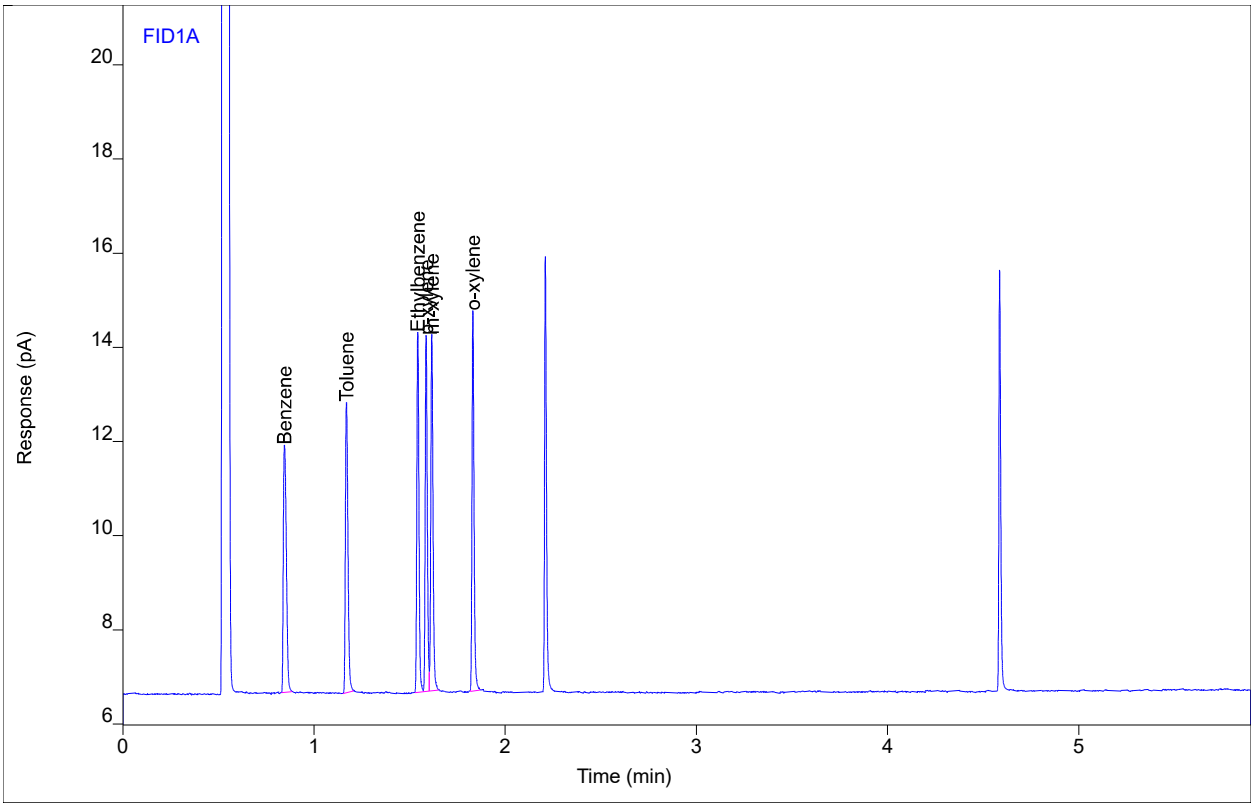
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	5.80961	4.22209	50.8895	1	50.8895	µg/mL
Toluene	BB	1.17	5.74246	5.53003	50.3394	1	50.3394	µg/mL
Ethylbenzene	BV	1.55	5.85443	7.22394	50.9704	1	50.9704	µg/mL
p-xylene	VV	1.59	5.68672	7.16270	50.2375	1	50.2375	µg/mL
m-xylene	VB	1.62	5.99777	7.28099	51.3007	1	51.3007	µg/mL
o-xylene	BB	1.83	5.88288	7.85274	51.6009	1	51.6009	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #4
Sequence Name	LUCY1091 ver.2
Inj Data File	022F0102.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 9:29 AM
File Modified	12/28/2021 2:25 PM
Instrument	Lucy
Operator	Daniel Clayton

Sample Type	Calibration
Vial Number	Vial 22
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



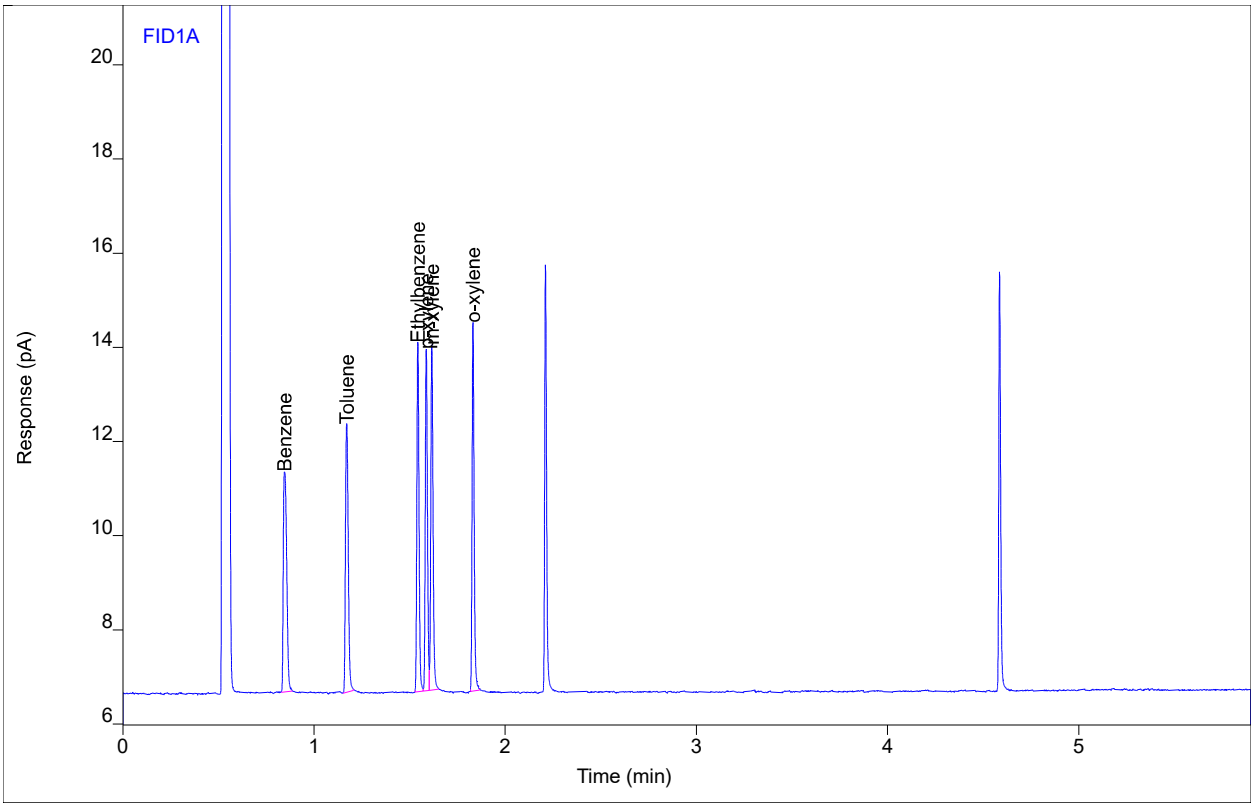
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	5.83544	5.25632	51.1157	1	51.1157	µg/mL
Toluene	BB	1.17	5.81156	6.18903	50.9422	1	50.9422	µg/mL
Ethylbenzene	BV	1.54	5.87487	7.64981	51.1472	1	51.1472	µg/mL
p-xylene	VV	1.59	5.71409	7.57501	50.4775	1	50.4775	µg/mL
m-xylene	VB	1.62	6.03079	7.57072	51.5815	1	51.5815	µg/mL
o-xylene	BB	1.83	5.92905	8.07857	52.0033	1	52.0033	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #4
Sequence Name	LUCY1091 ver.2
Inj Data File	022F0103.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 9:40 AM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Daniel Clayton

Sample Type	Calibration
Vial Number	Vial 22
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



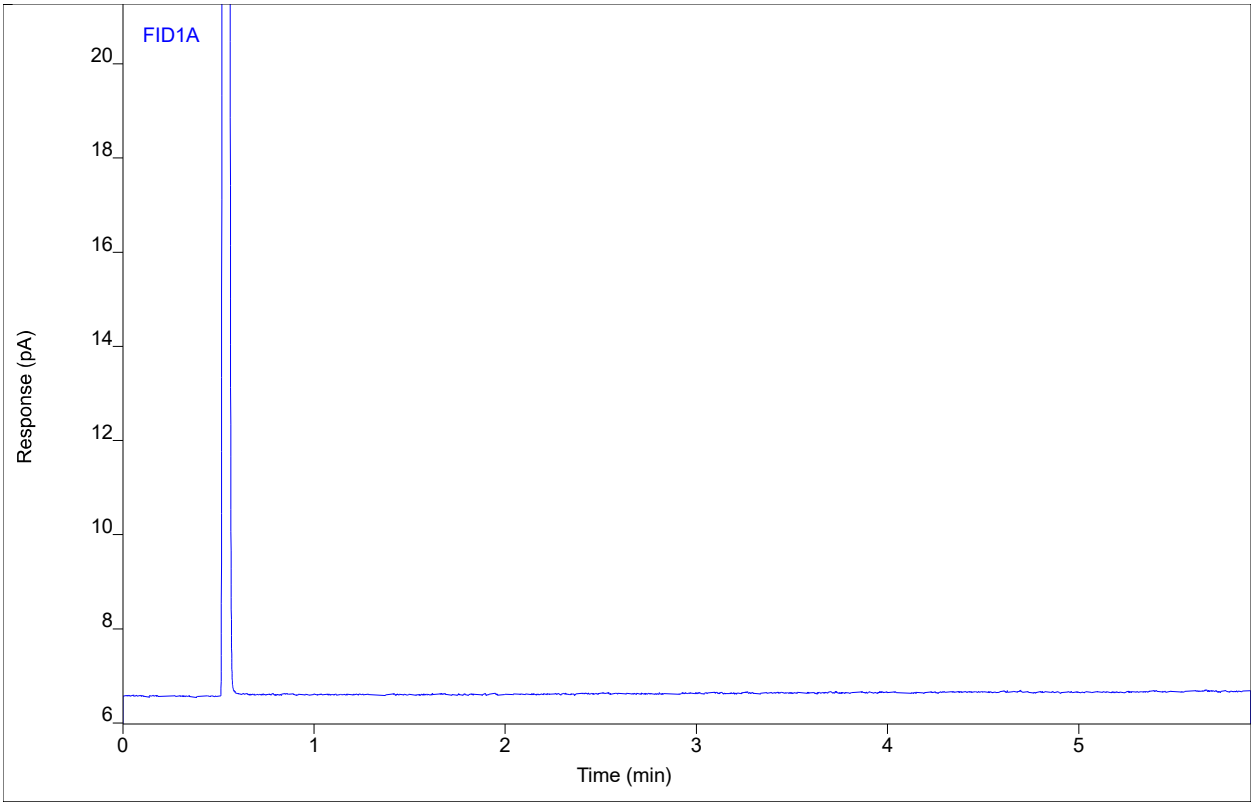
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	5.83805	4.67914	51.1385	1	51.1385	µg/mL
Toluene	BB	1.17	5.76943	5.70190	50.5746	1	50.5746	µg/mL
Ethylbenzene	BV	1.54	5.81118	7.40778	50.5964	1	50.5964	µg/mL
p-xylene	VV	1.59	5.66521	7.25086	50.0489	1	50.0489	µg/mL
m-xylene	VB	1.62	5.97079	7.33583	51.0712	1	51.0712	µg/mL
o-xylene	BB	1.83	5.88359	7.82435	51.6071	1	51.6071	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcprep4511 #MB-EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	031F0301.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 11:09 AM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Daniel Clayton

Sample Type	Sample
Vial Number	Vial 31
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



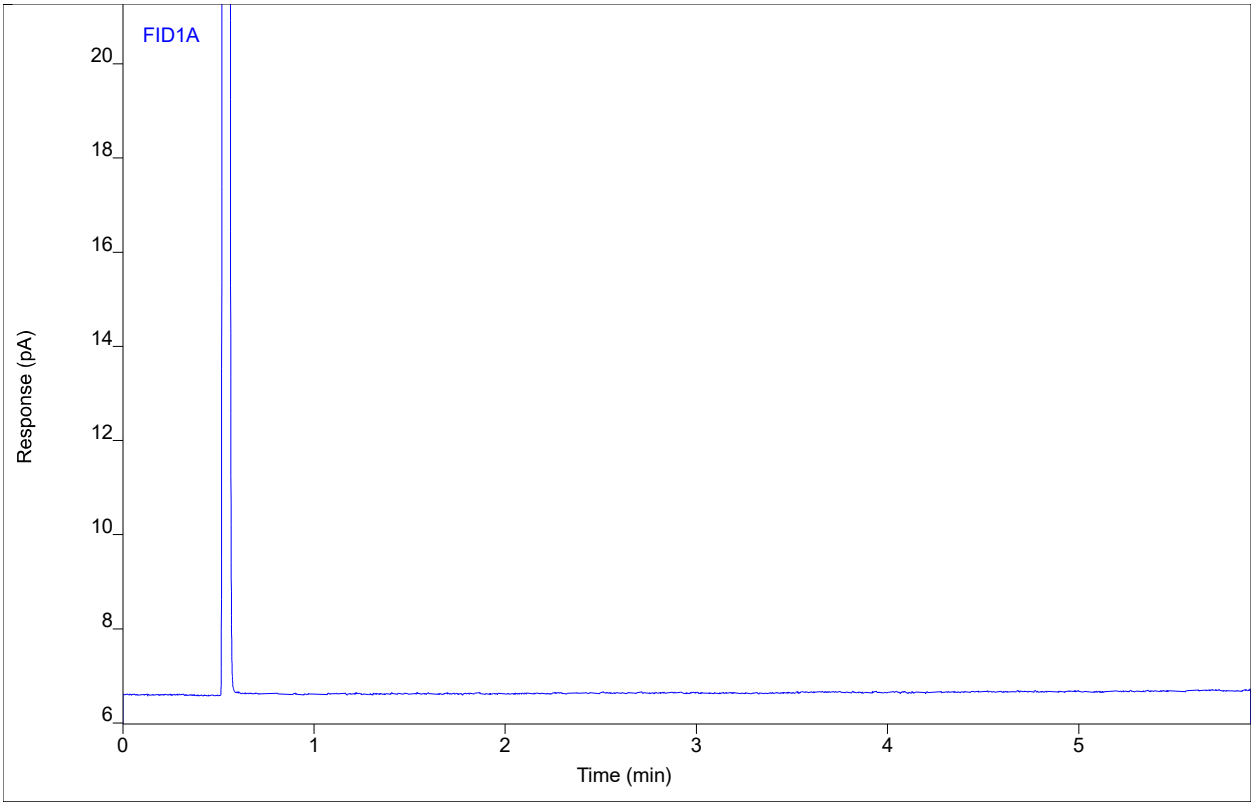
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	gcprep4511 #MB-EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	031F0302.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 11:19 AM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Daniel Clayton

Sample Type	Sample
Vial Number	Vial 31
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



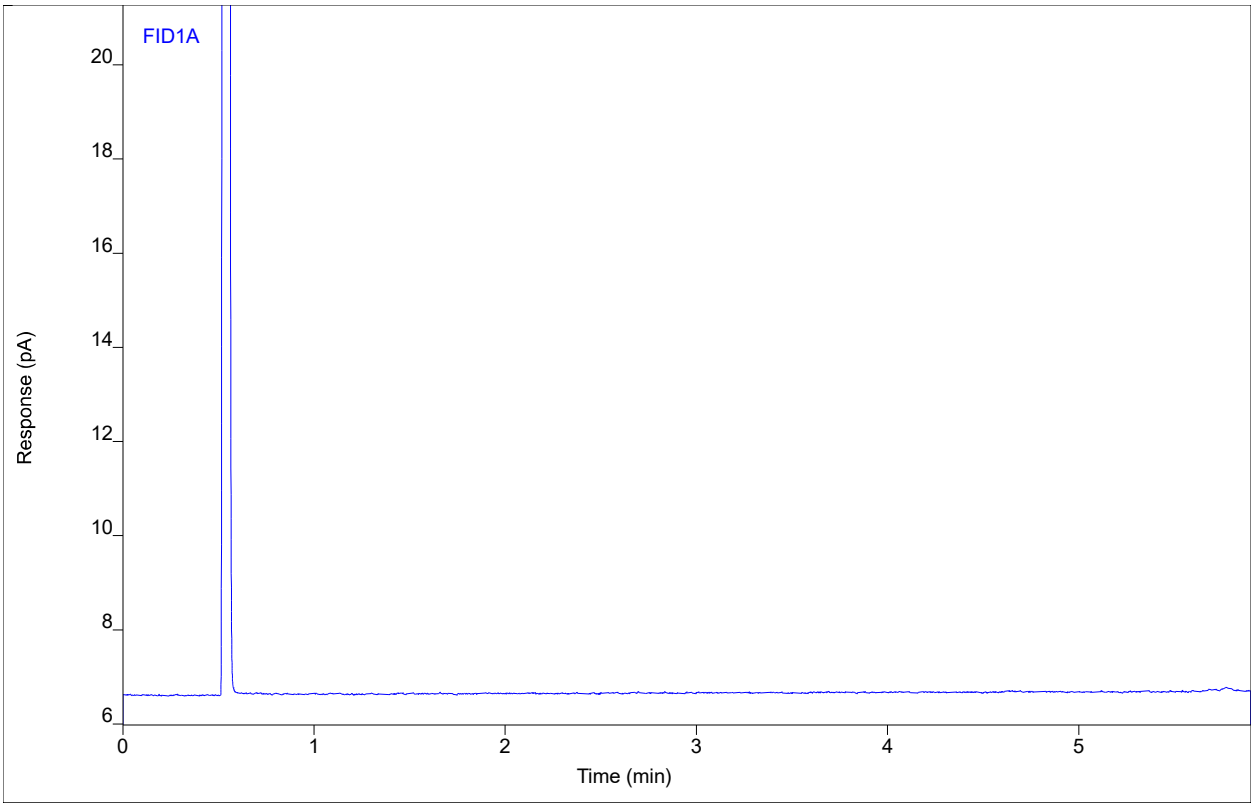
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Sample Name	gcprep4511 #MB-EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	031F0303.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 11:29 AM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Daniel Clayton

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 31
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



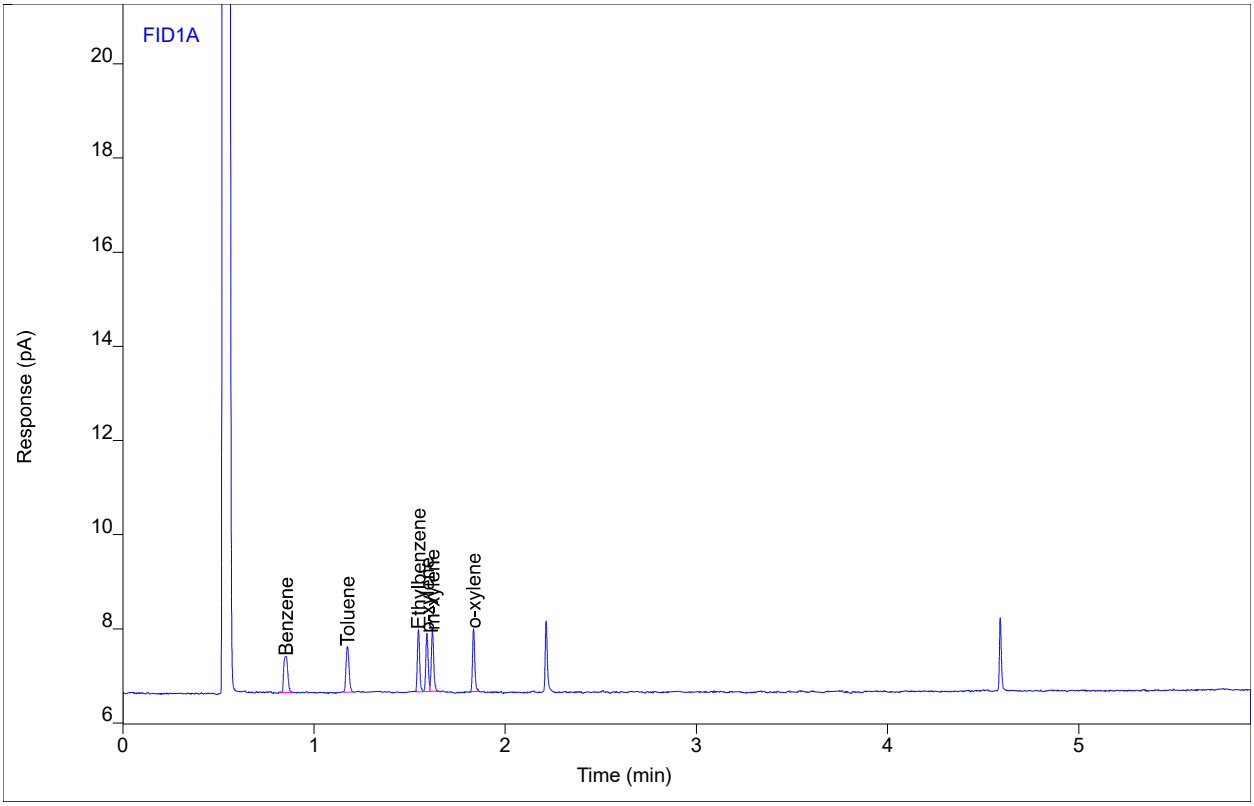
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Sample Name	gcprep4511 #LCS-EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	032F0401.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 11:40 AM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Daniel Clayton

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 32
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



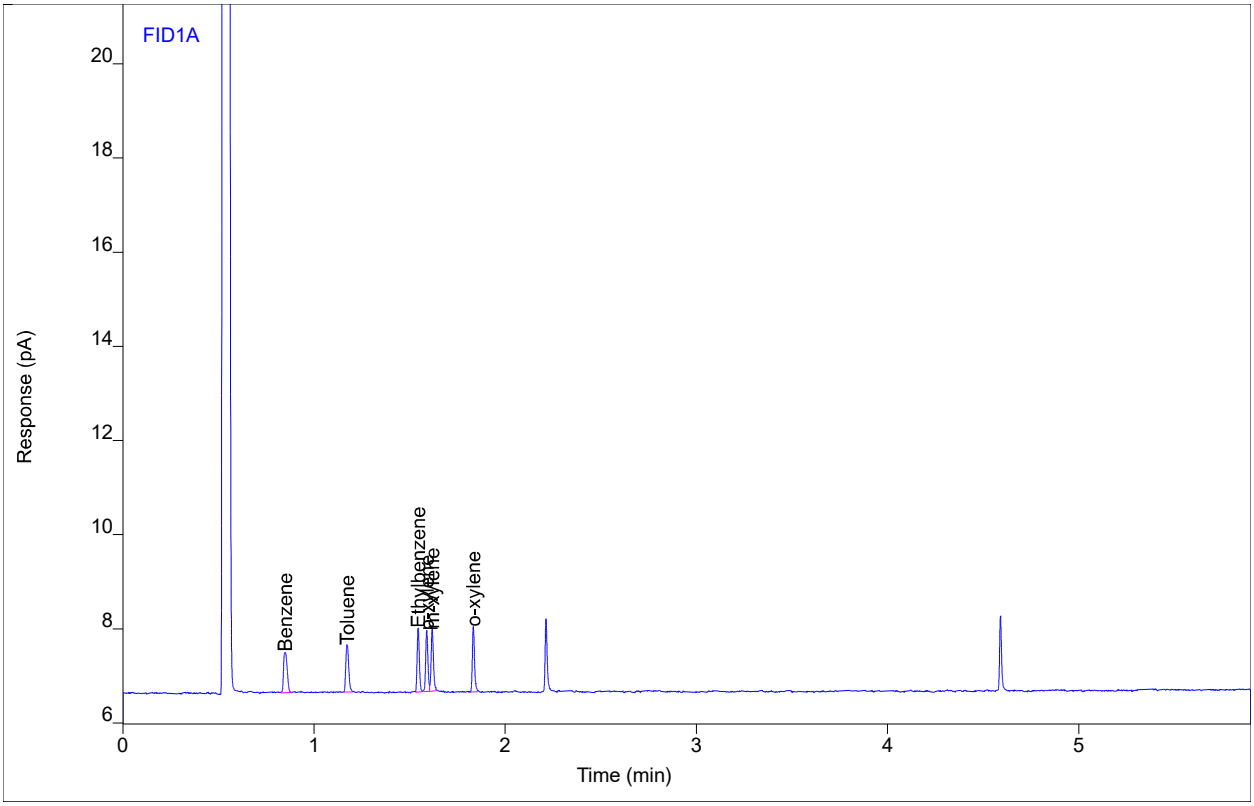
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	1.13416	0.78035	9.95164	1	9.95164	µg/mL
Toluene	BB	1.17	1.08286	0.97870	9.69173	1	9.69173	µg/mL
Ethylbenzene	BB	1.55	1.10102	1.32669	9.85942	1	9.85942	µg/mL
p-xylene	BV	1.59	1.05217	1.25069	9.59471	1	9.59471	µg/mL
m-xylene	VB	1.62	1.12251	1.30050	9.83030	1	9.83030	µg/mL
o-xylene	BB	1.83	1.08580	1.34301	9.79047	1	9.79047	µg/mL

Chromatogram Report

Sample Name	gcprep4511 #LCS-EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	032F0402.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 11:50 AM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Daniel Clayton

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 32
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



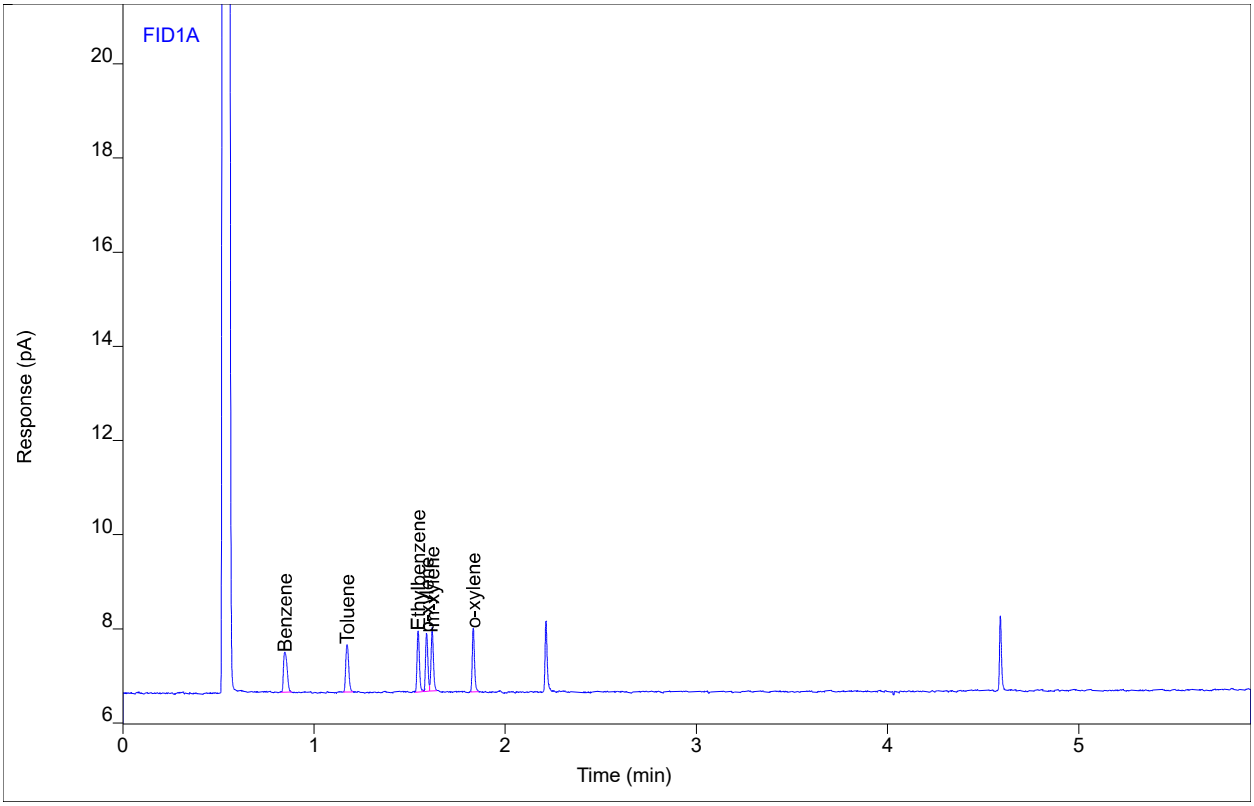
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	1.12961	0.87174	9.91184	1	9.91184	µg/mL
Toluene	BB	1.17	1.06132	0.99812	9.50379	1	9.50379	µg/mL
Ethylbenzene	BB	1.54	1.08547	1.36279	9.72494	1	9.72494	µg/mL
p-xylene	BV	1.59	1.04046	1.29981	9.49202	1	9.49202	µg/mL
m-xylene	VB	1.62	1.10547	1.32753	9.68538	1	9.68538	µg/mL
o-xylene	BB	1.83	1.09777	1.38612	9.89485	1	9.89485	µg/mL

Chromatogram Report

Sample Name	gcprep4511 #LCS-EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	032F0403.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 12:00 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Daniel Clayton

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 32
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



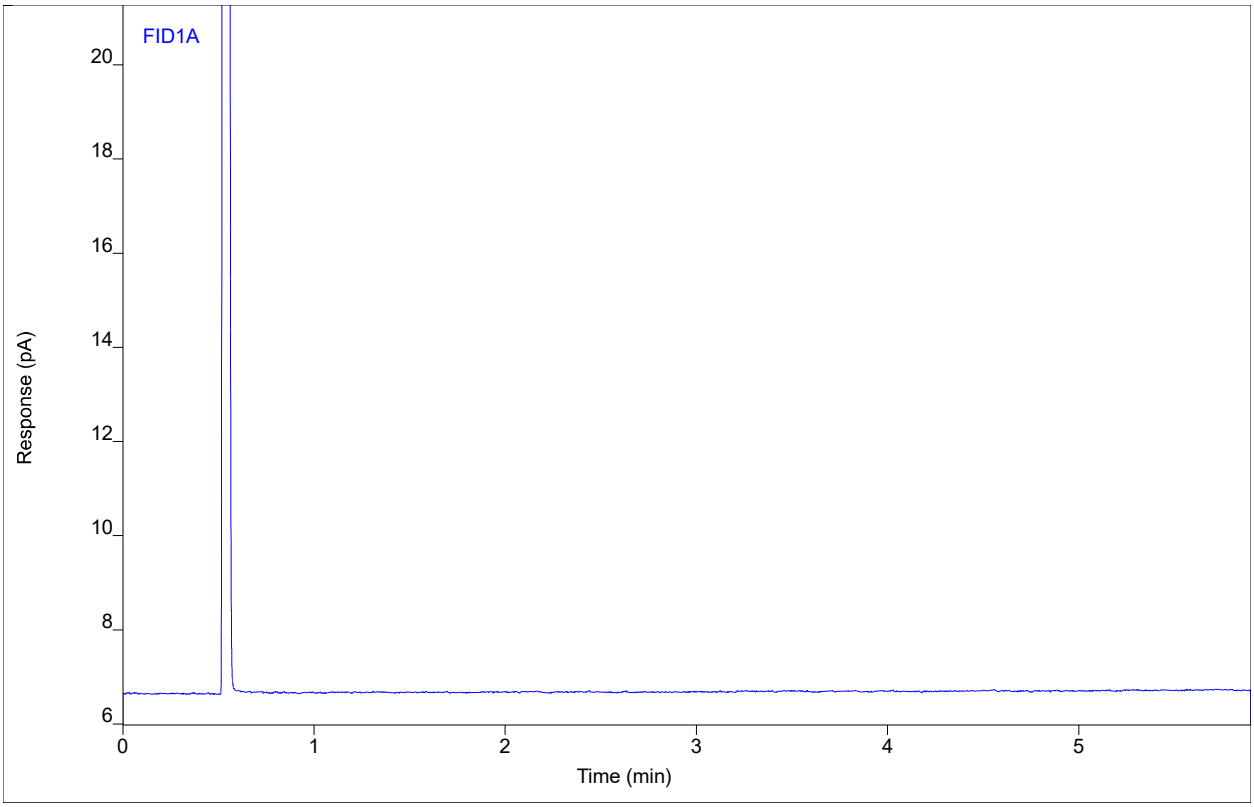
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	1.10416	0.85211	9.68902	1	9.68902	µg/mL
Toluene	BB	1.17	1.08656	1.01523	9.72398	1	9.72398	µg/mL
Ethylbenzene	BB	1.54	1.10102	1.30682	9.85943	1	9.85943	µg/mL
p-xylene	BV	1.59	1.04702	1.24892	9.54957	1	9.54957	µg/mL
m-xylene	VB	1.62	1.11080	1.34848	9.73069	1	9.73069	µg/mL
o-xylene	BB	1.83	1.10375	1.36011	9.94691	1	9.94691	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	033F0501.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 12:11 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Daniel Clayton

Sample Type	Sample
Vial Number	Vial 33
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



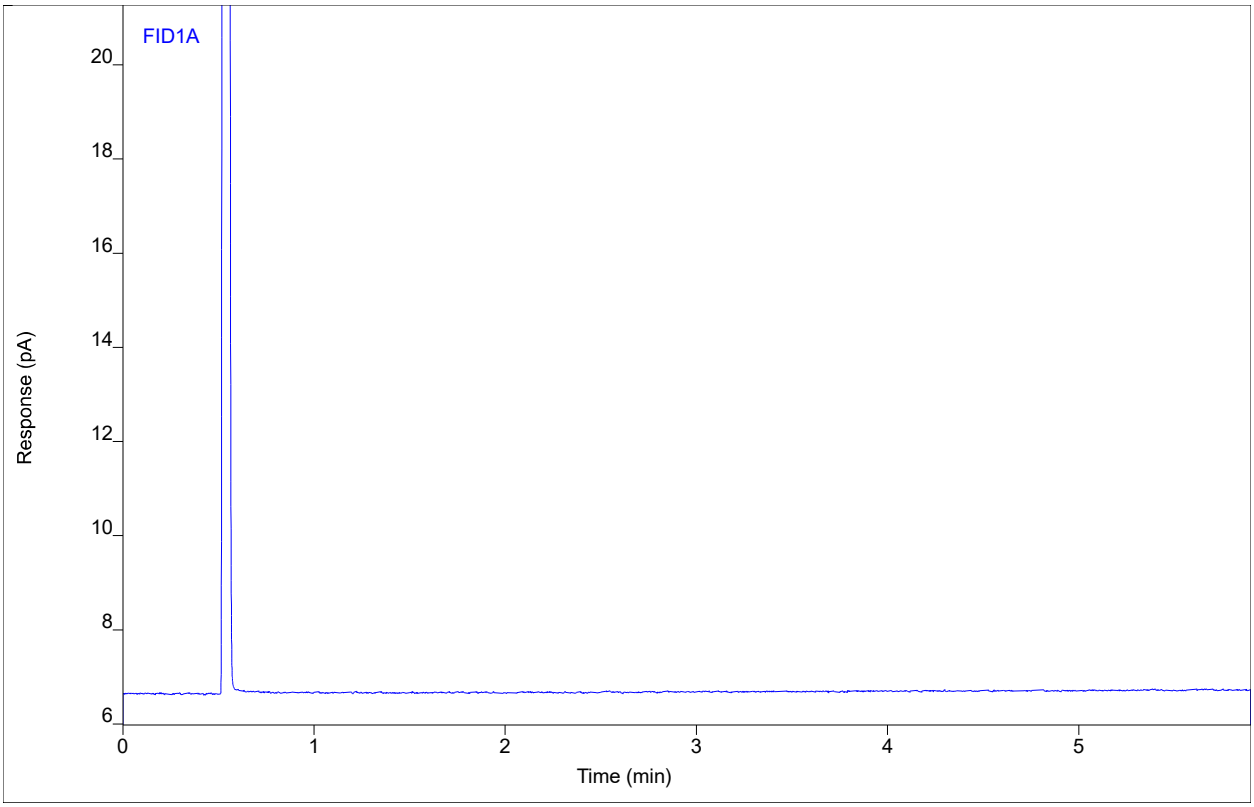
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	033F0502.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 12:21 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Daniel Clayton

Sample Type	Sample
Vial Number	Vial 33
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



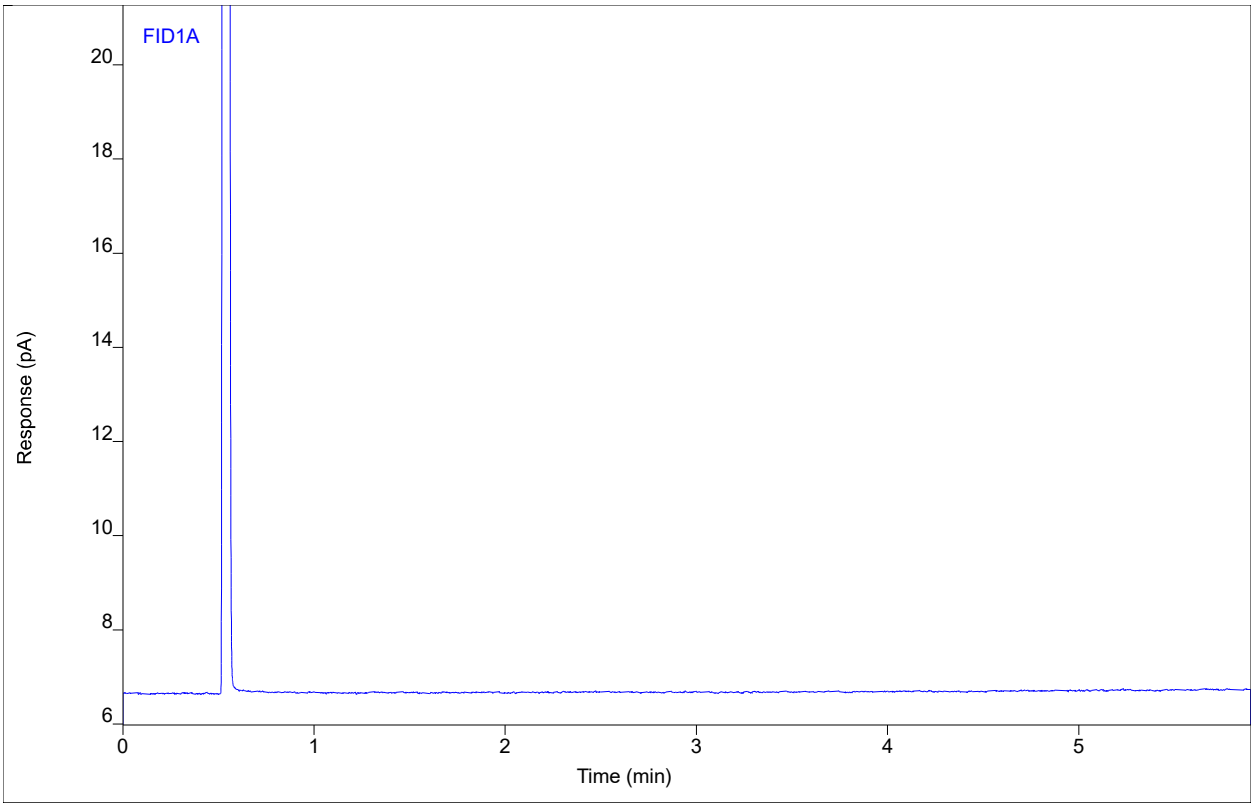
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	033F0503.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 12:32 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Daniel Clayton

Sample Type	Sample
Vial Number	Vial 33
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



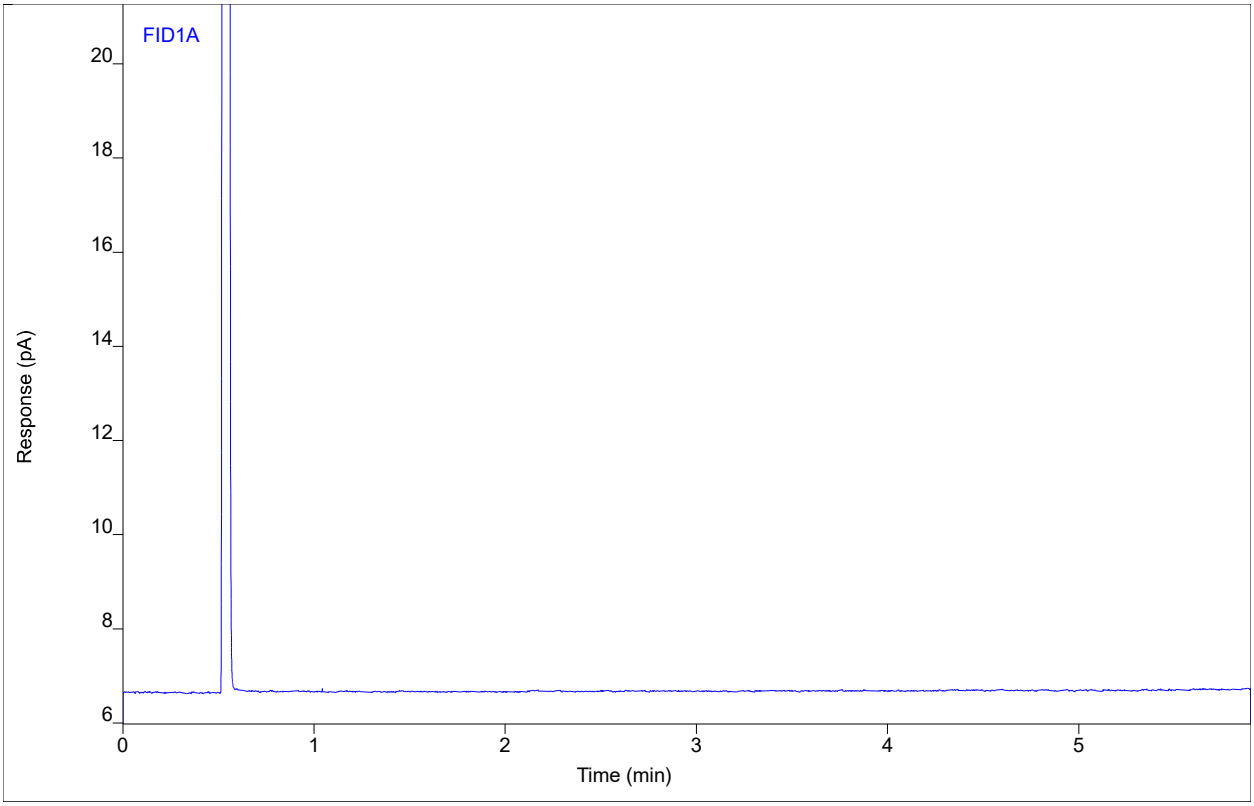
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R2.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	034F0601.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 12:42 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Daniel Clayton

Sample Type	Sample
Vial Number	Vial 34
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



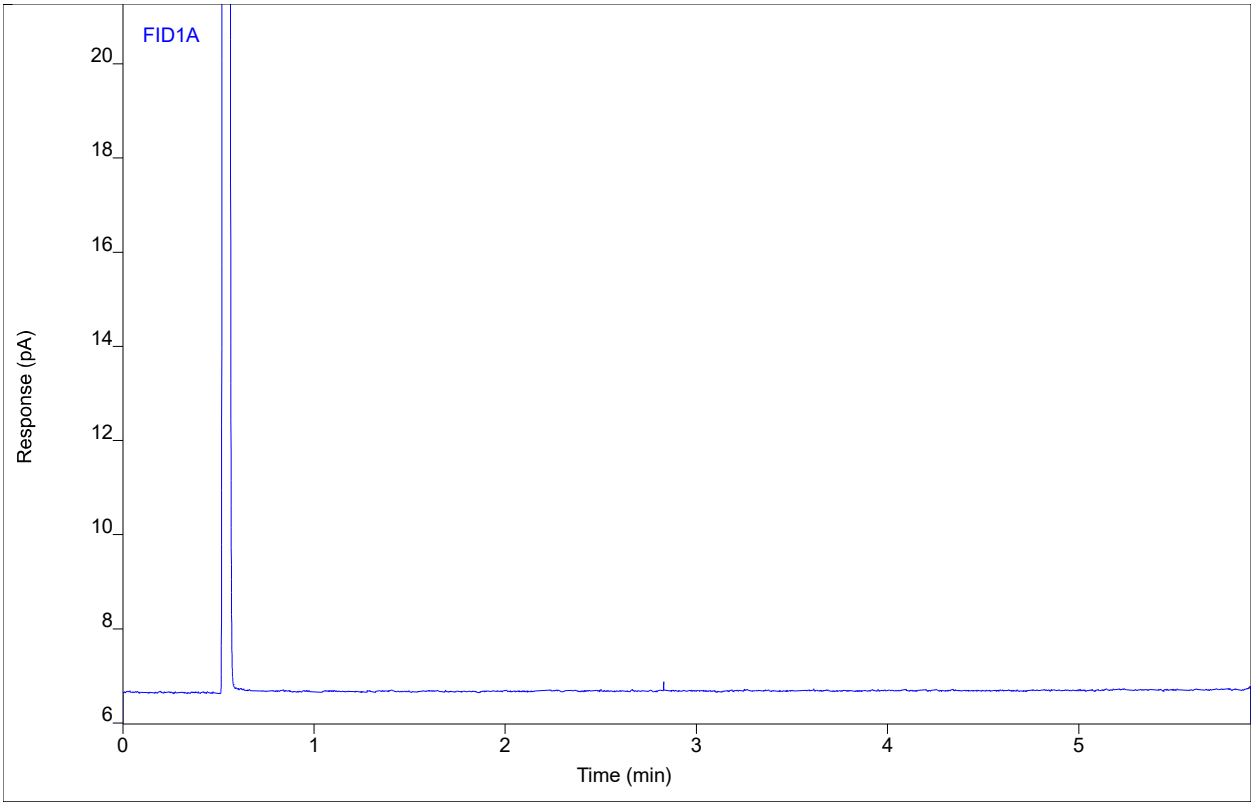
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R2.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	034F0602.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 12:52 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Daniel Clayton

Sample Type	Sample
Vial Number	Vial 34
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



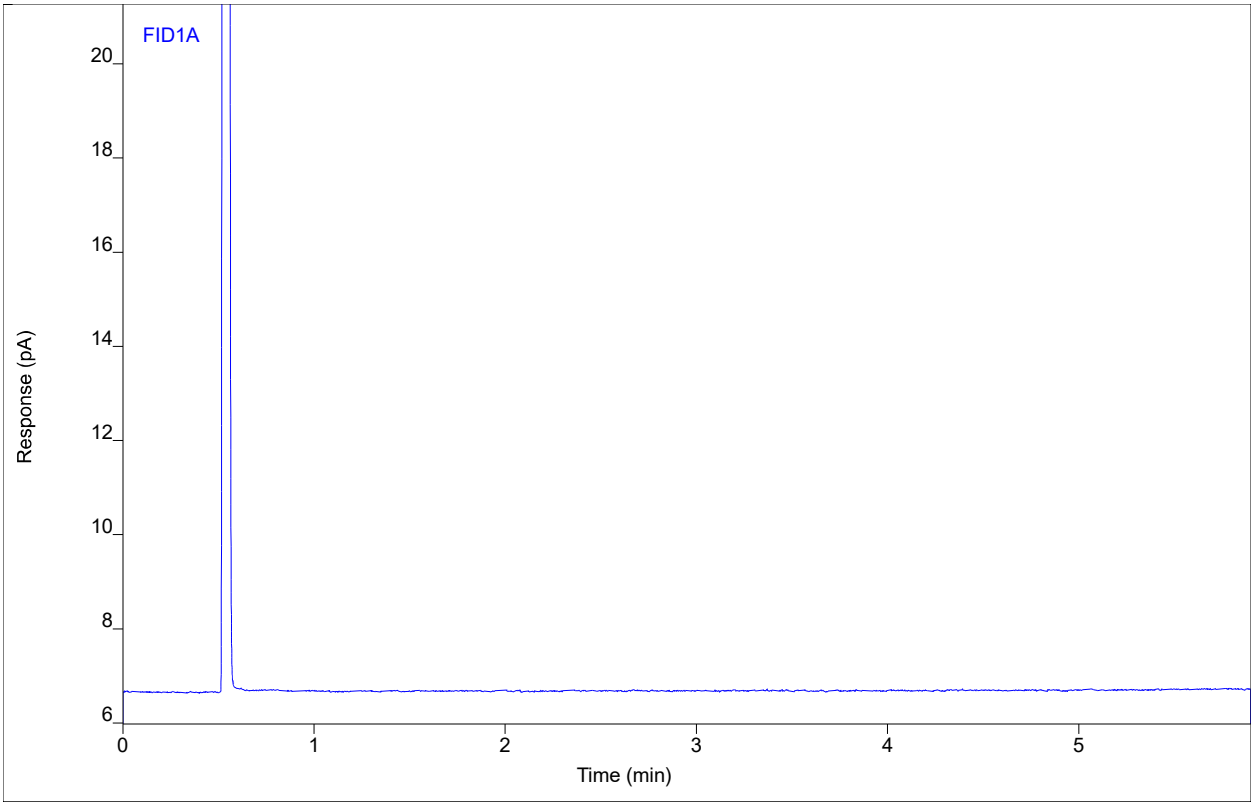
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Sample Name	1221-059.R2.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	034F0603.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 1:03 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Daniel Clayton

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 34
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



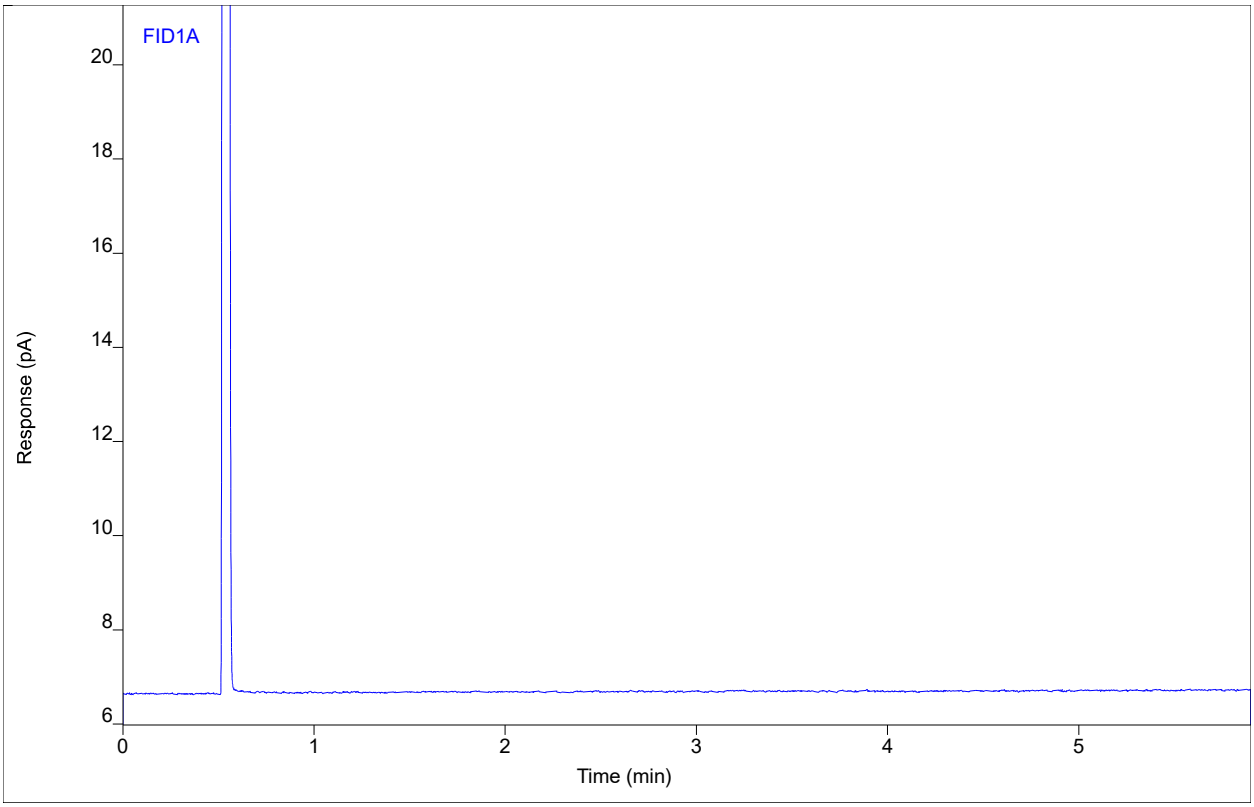
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Sample Name	1221-059.R3.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	035F0701.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 1:13 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Daniel Clayton

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 35
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



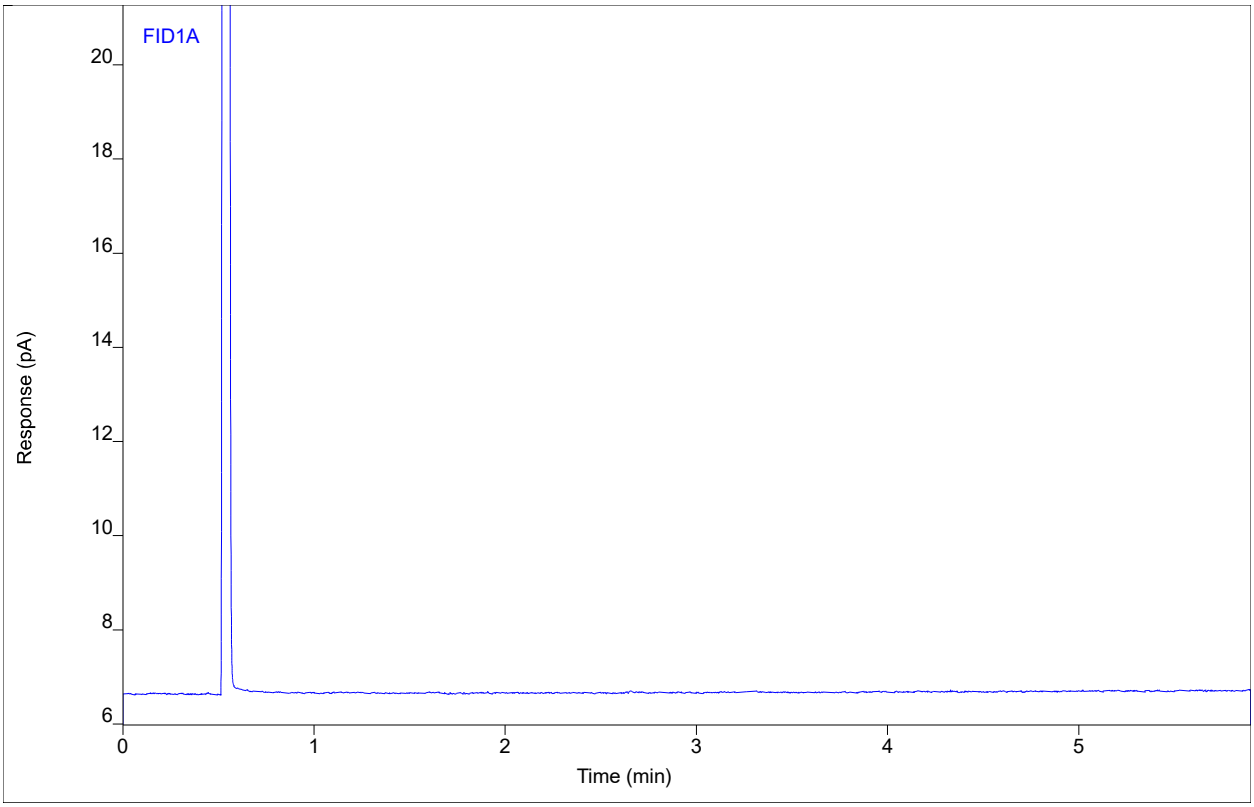
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R3.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	035F0702.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 1:23 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Daniel Clayton

Sample Type	Sample
Vial Number	Vial 35
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



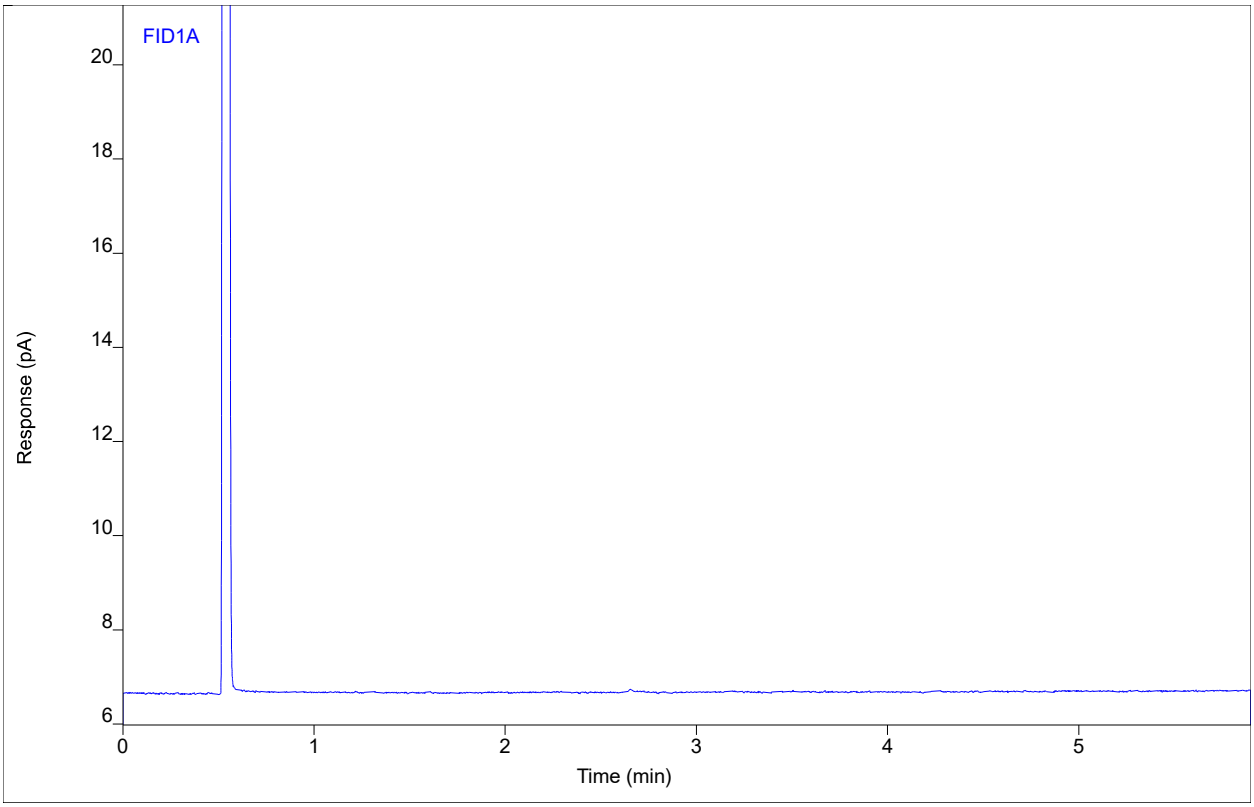
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R3.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	035F0703.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 1:34 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 35
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



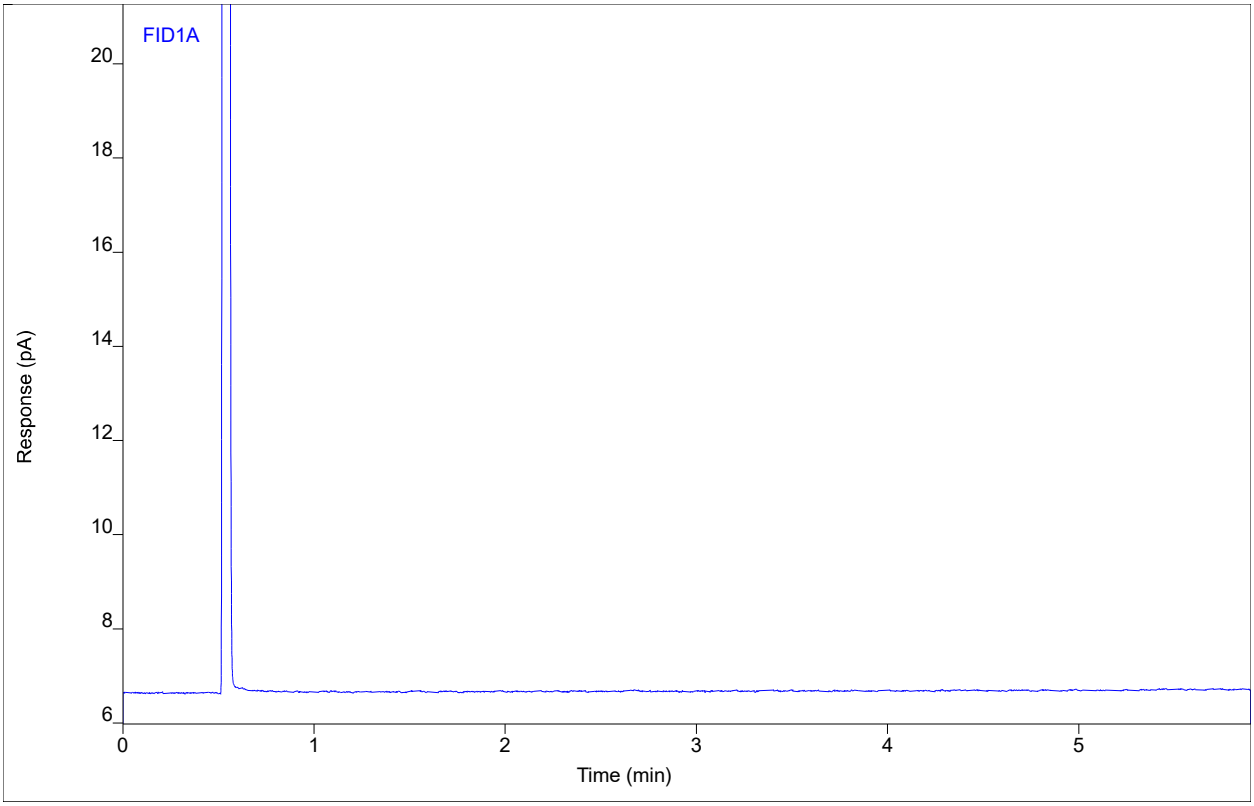
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1-SPK.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	036F0801.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 1:44 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 36
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



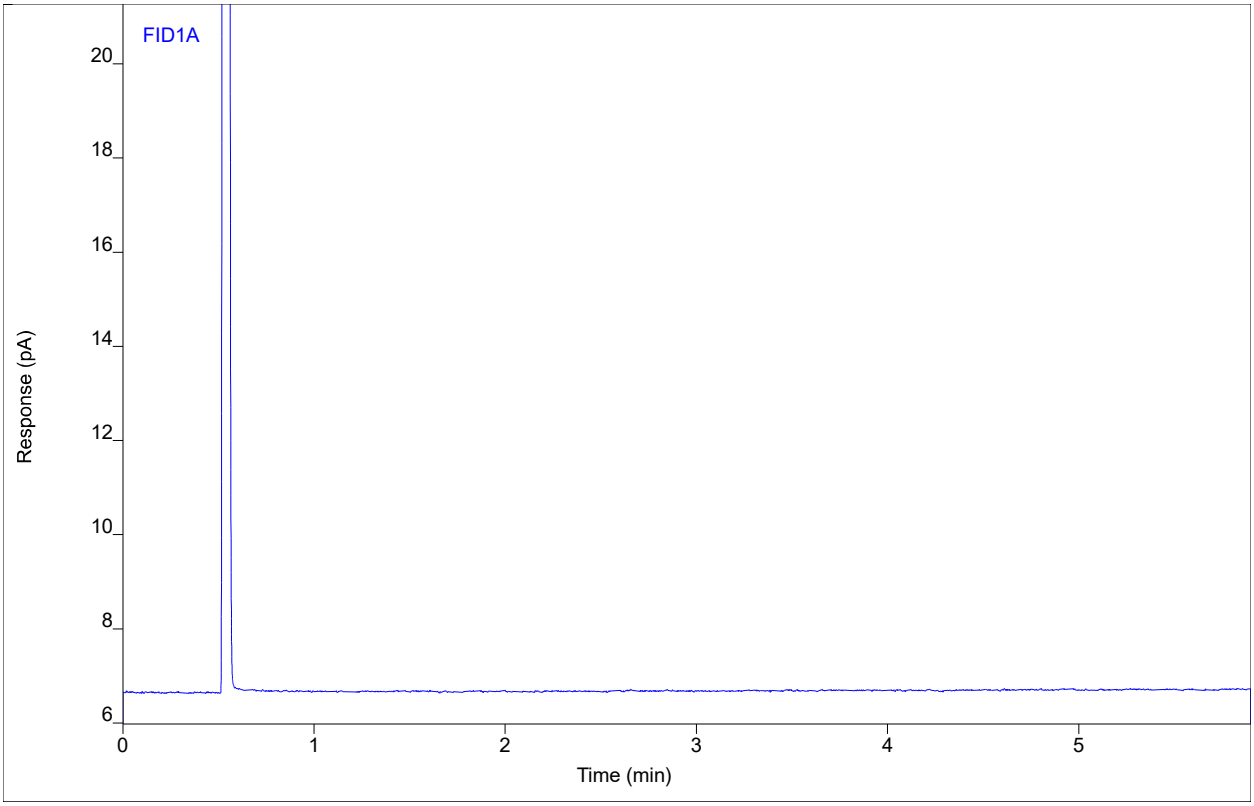
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1-SPK.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	036F0802.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 1:54 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 36
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



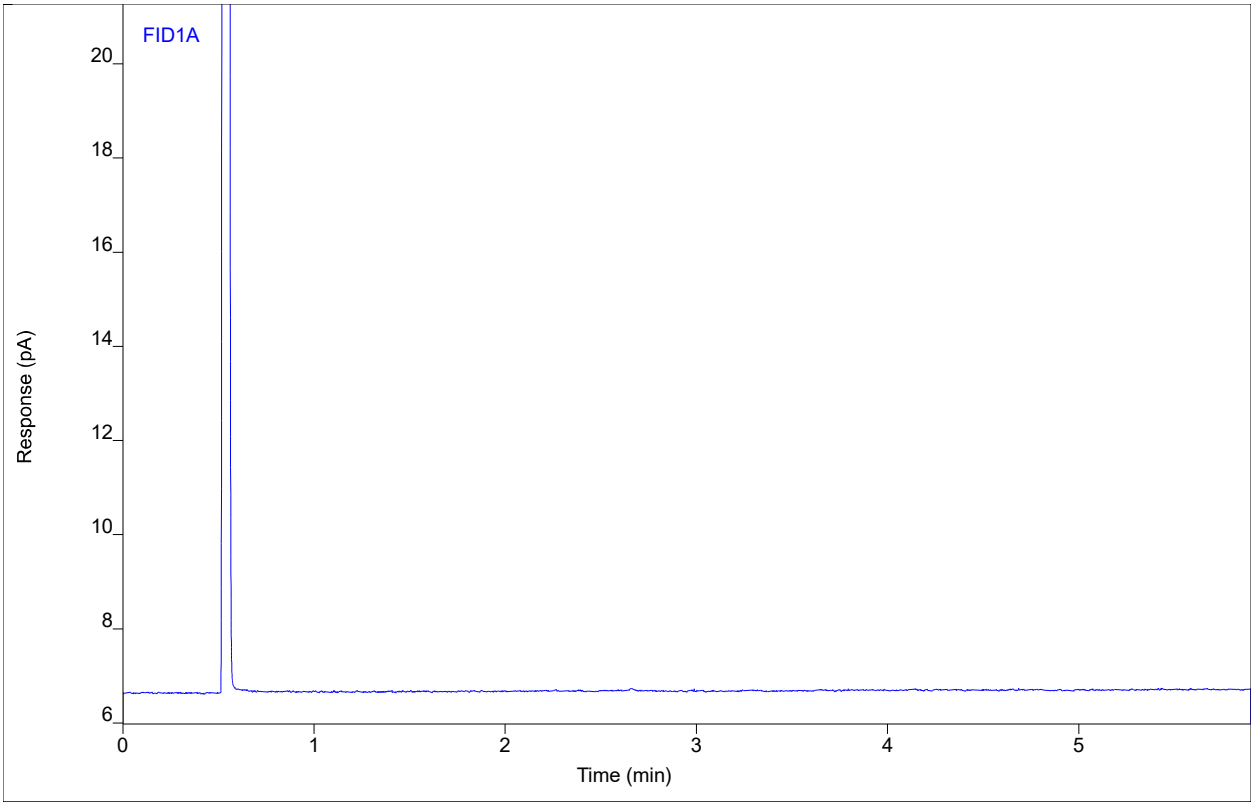
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1-SPK.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	036F0803.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 2:04 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 36
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



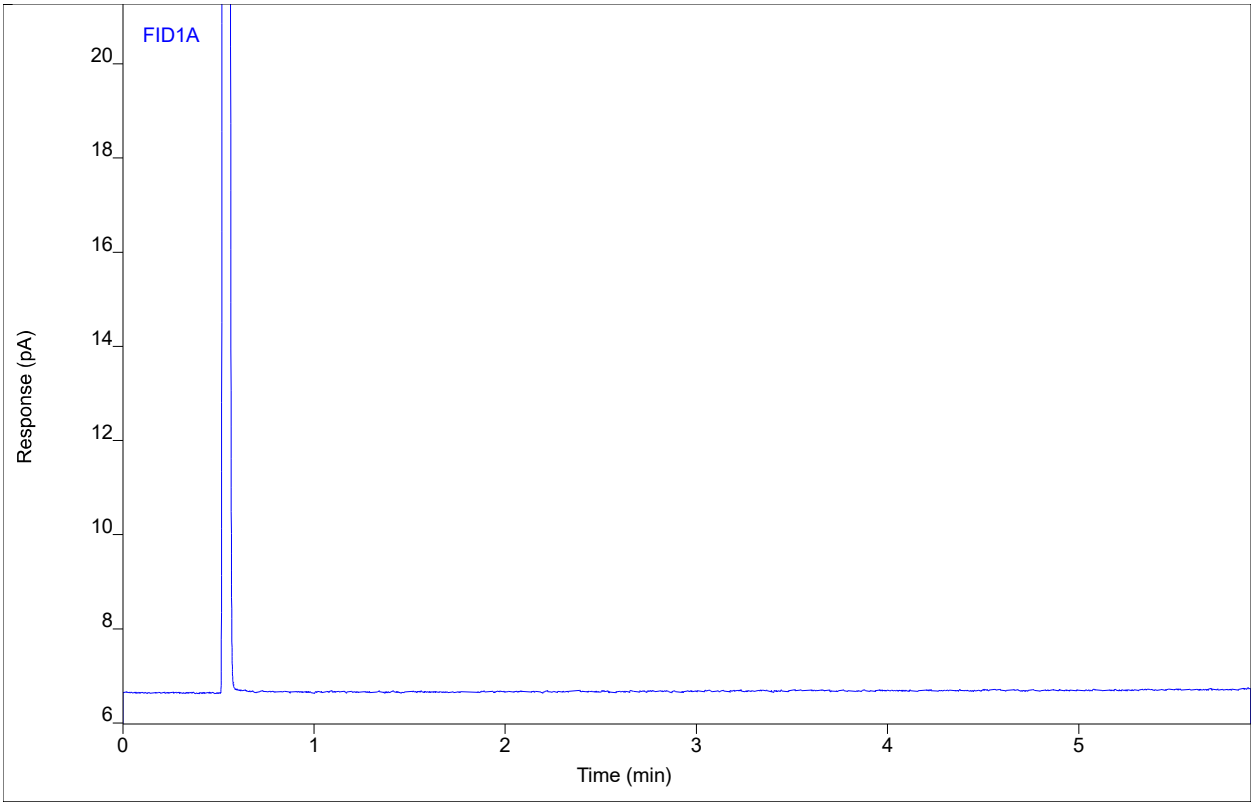
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1-SPK-LD.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	037F0901.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 2:15 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 37
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



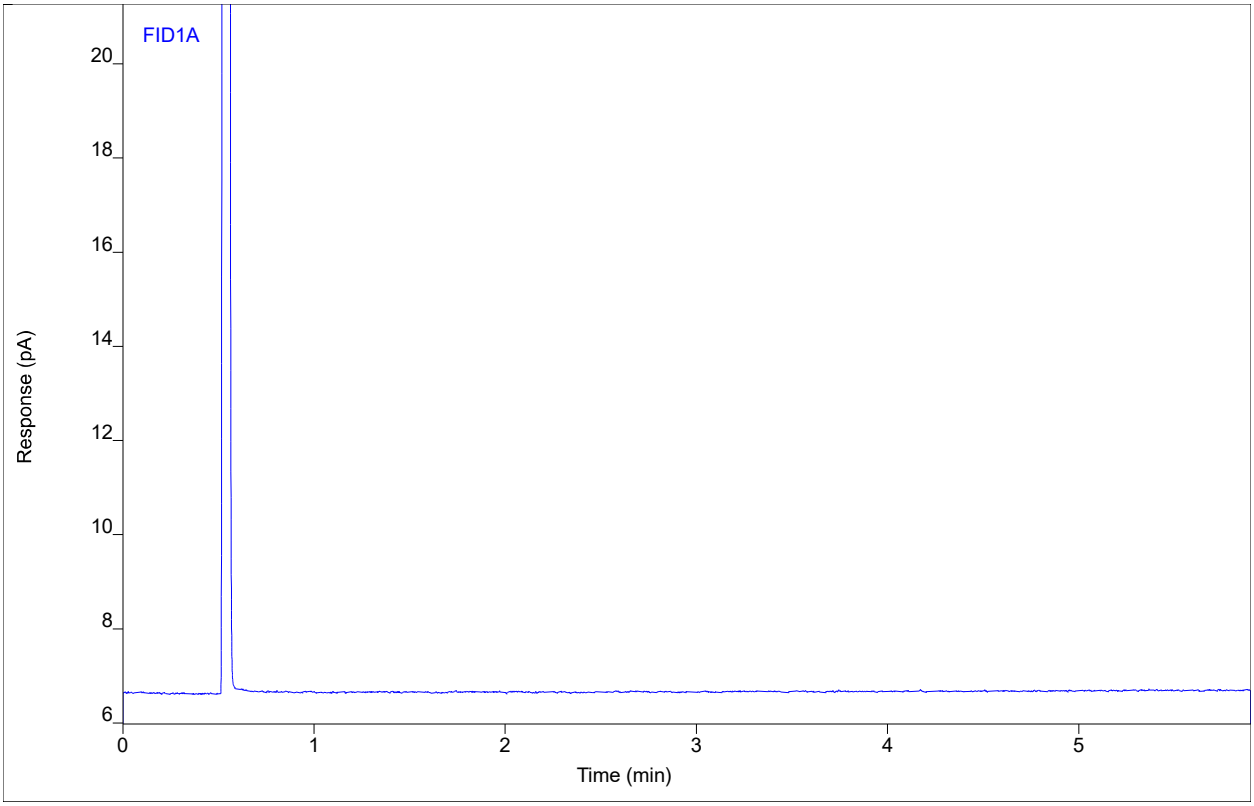
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1-SPK-LD.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	037F0902.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 2:25 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 37
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



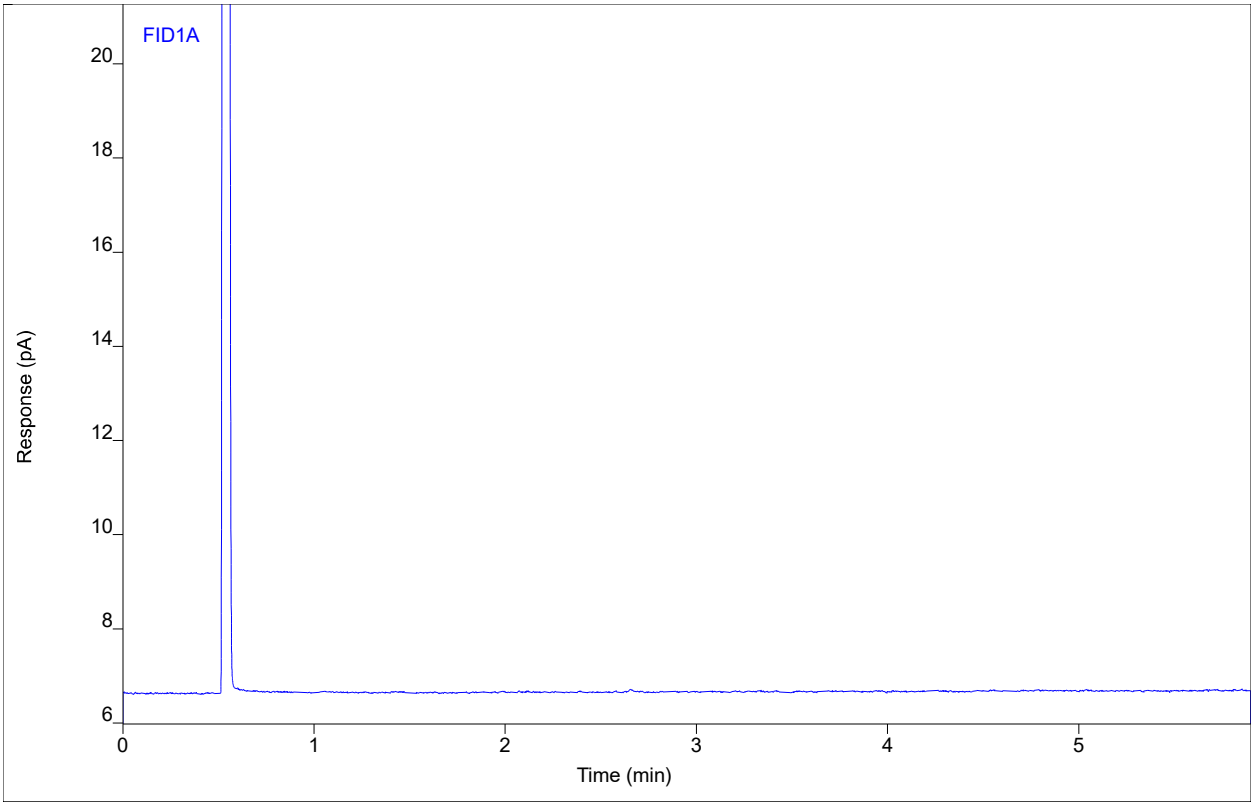
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1-SPK-LD.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	037F0903.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 2:35 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 37
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



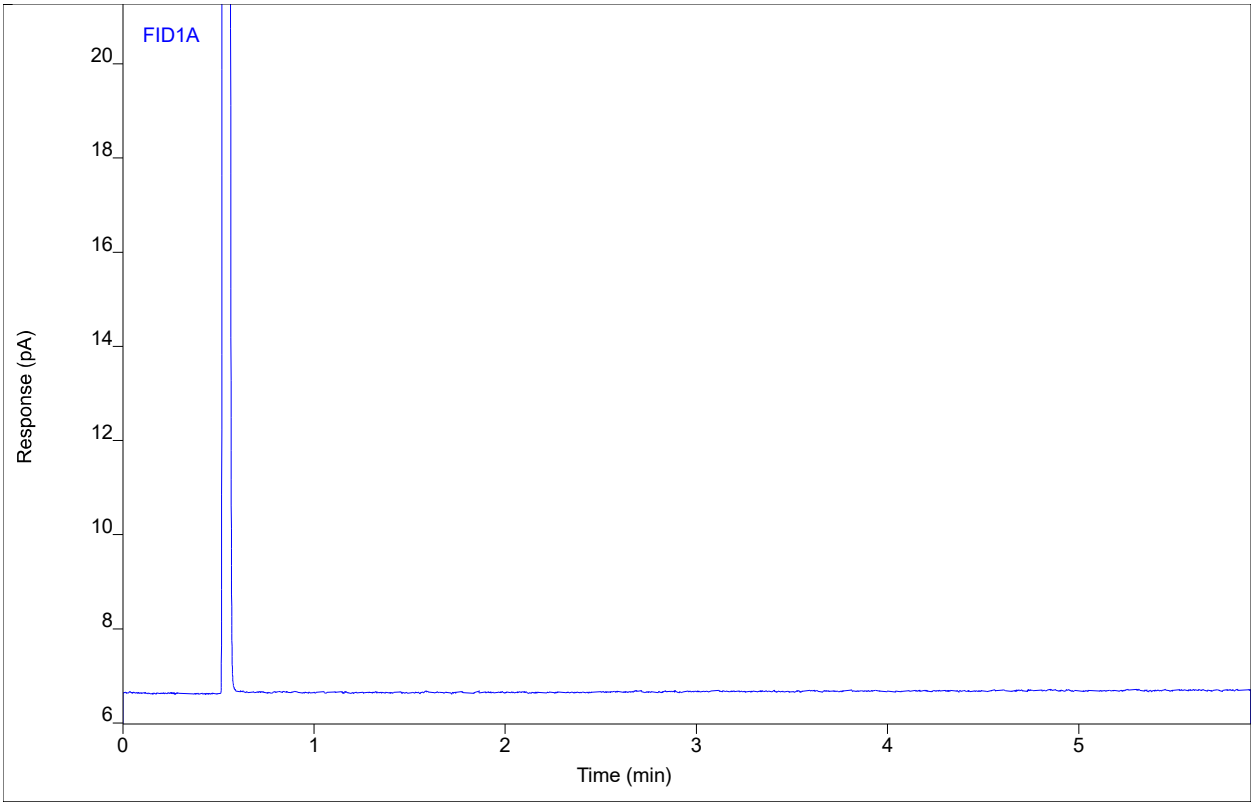
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R2-SPK.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	038F1001.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 2:46 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 38
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



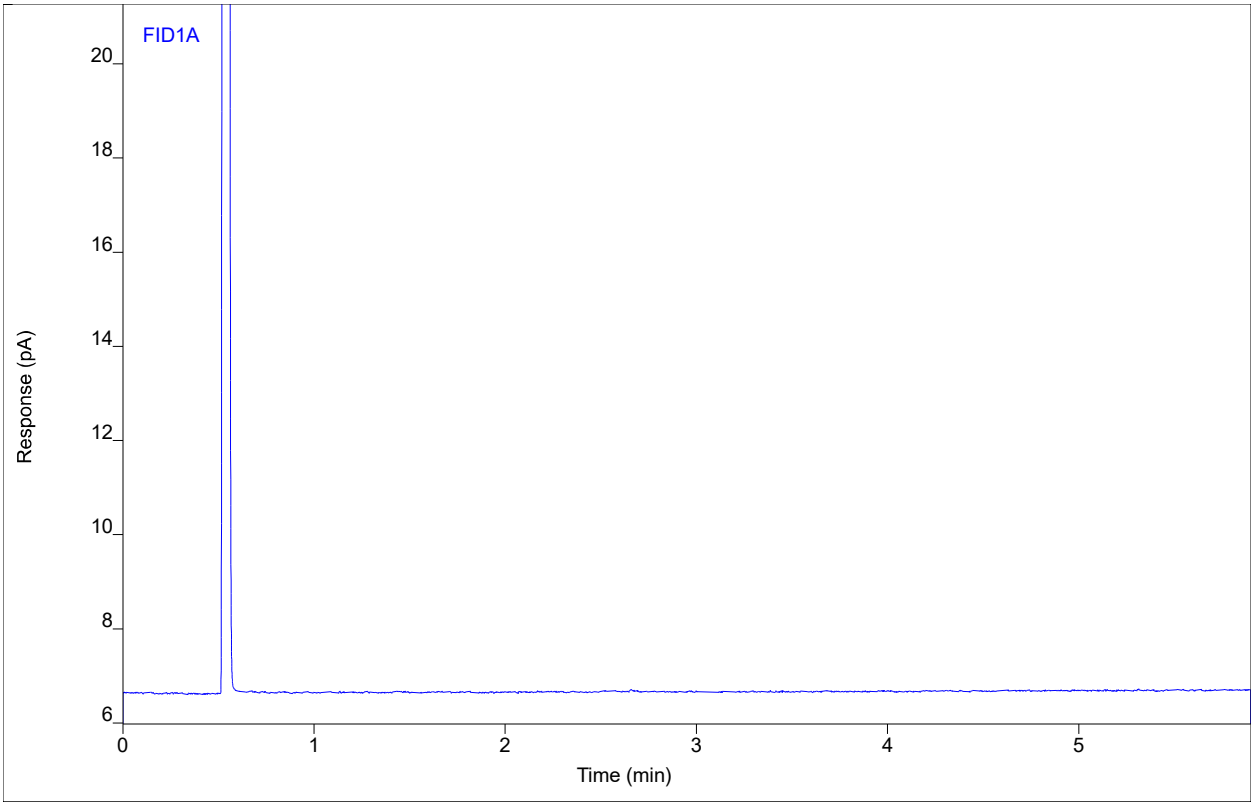
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R2-SPK.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	038F1002.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 2:56 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 38
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



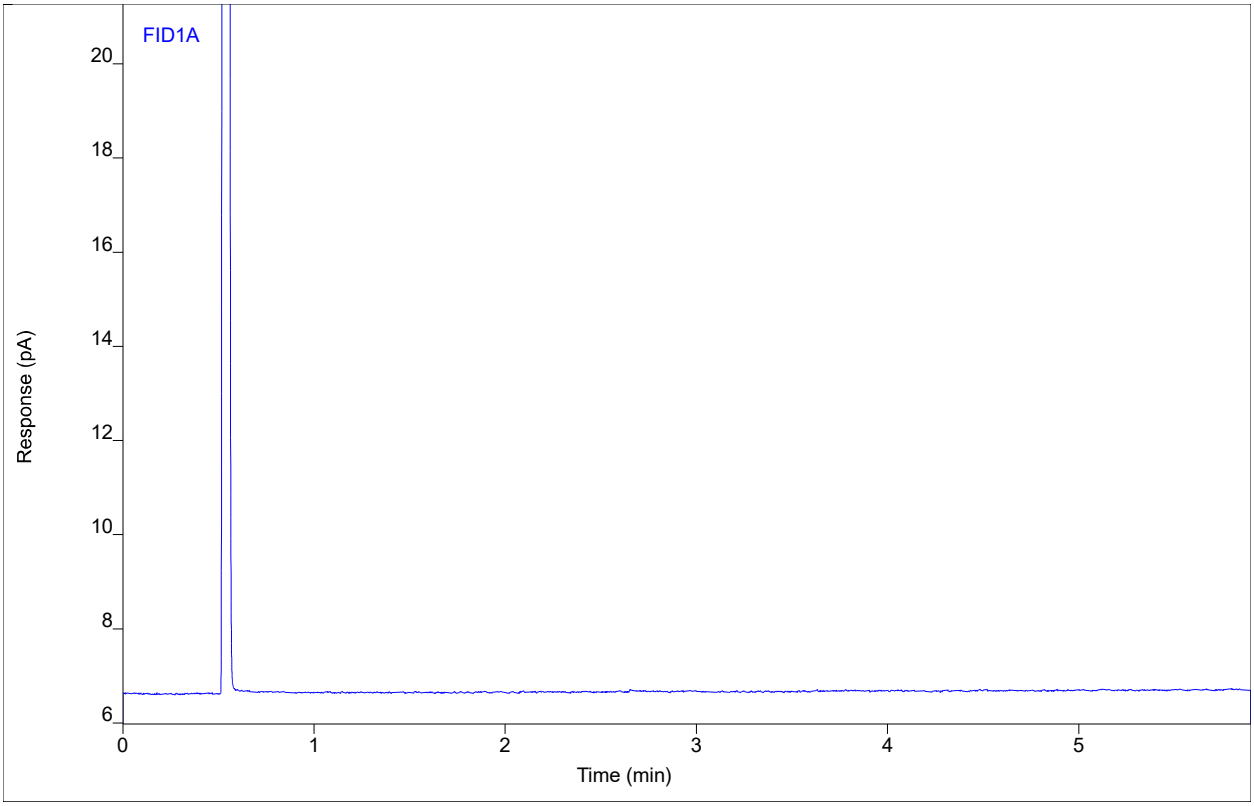
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R2-SPK.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	038F1003.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 3:06 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 38
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



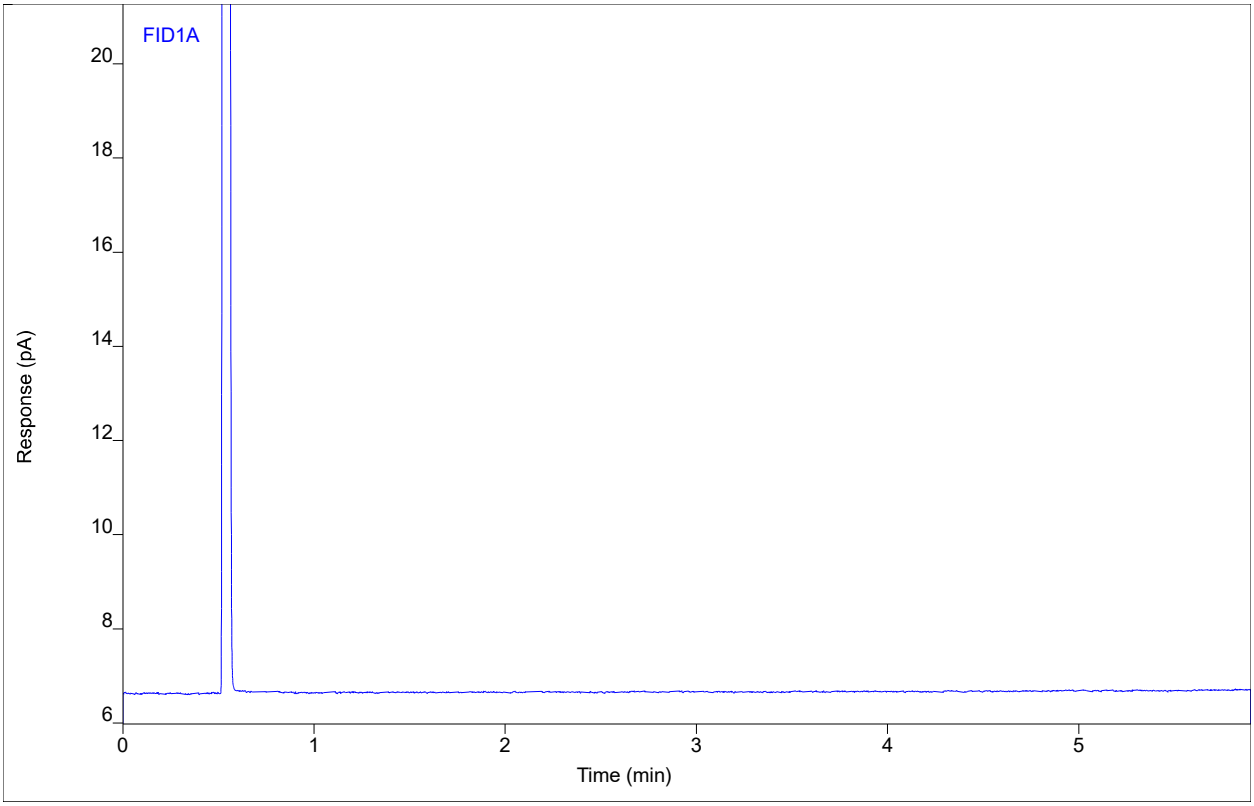
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R3-SPK.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	039F1101.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 3:17 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 39
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



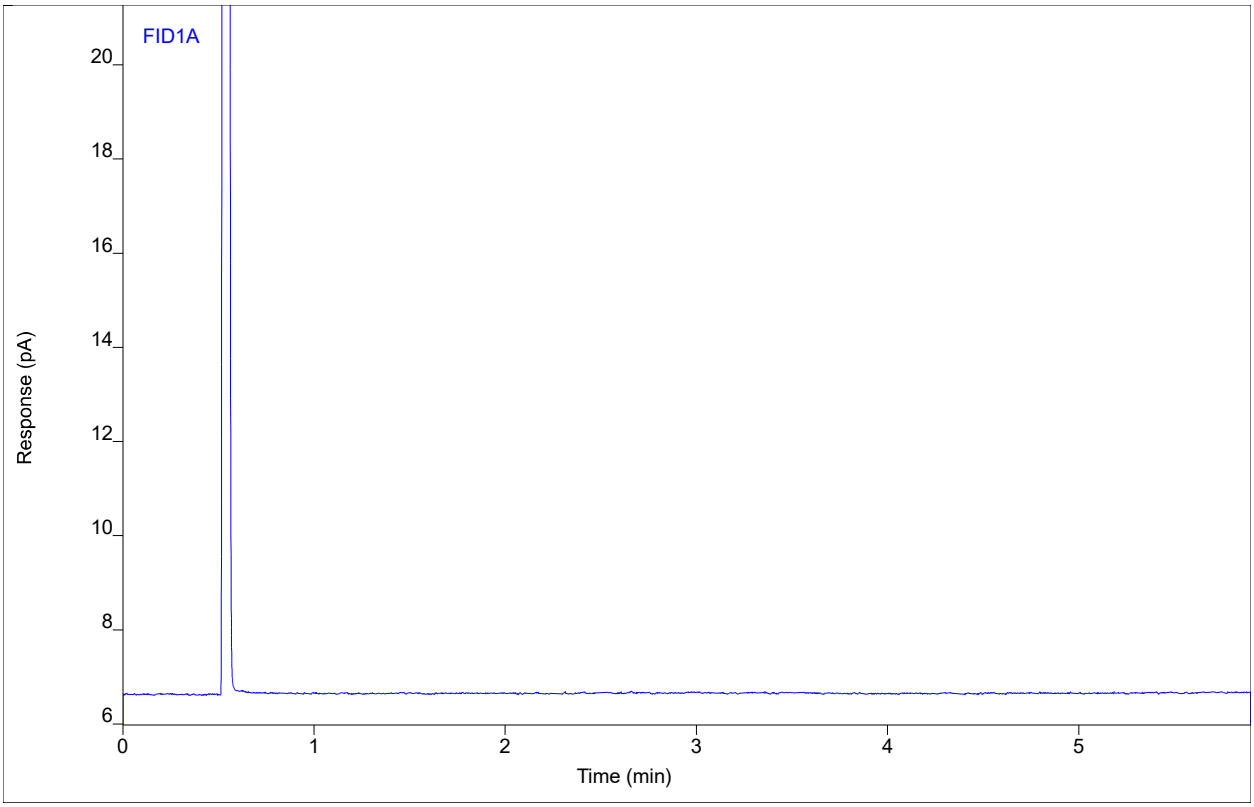
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R3-SPK.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	039F1102.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 3:27 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 39
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



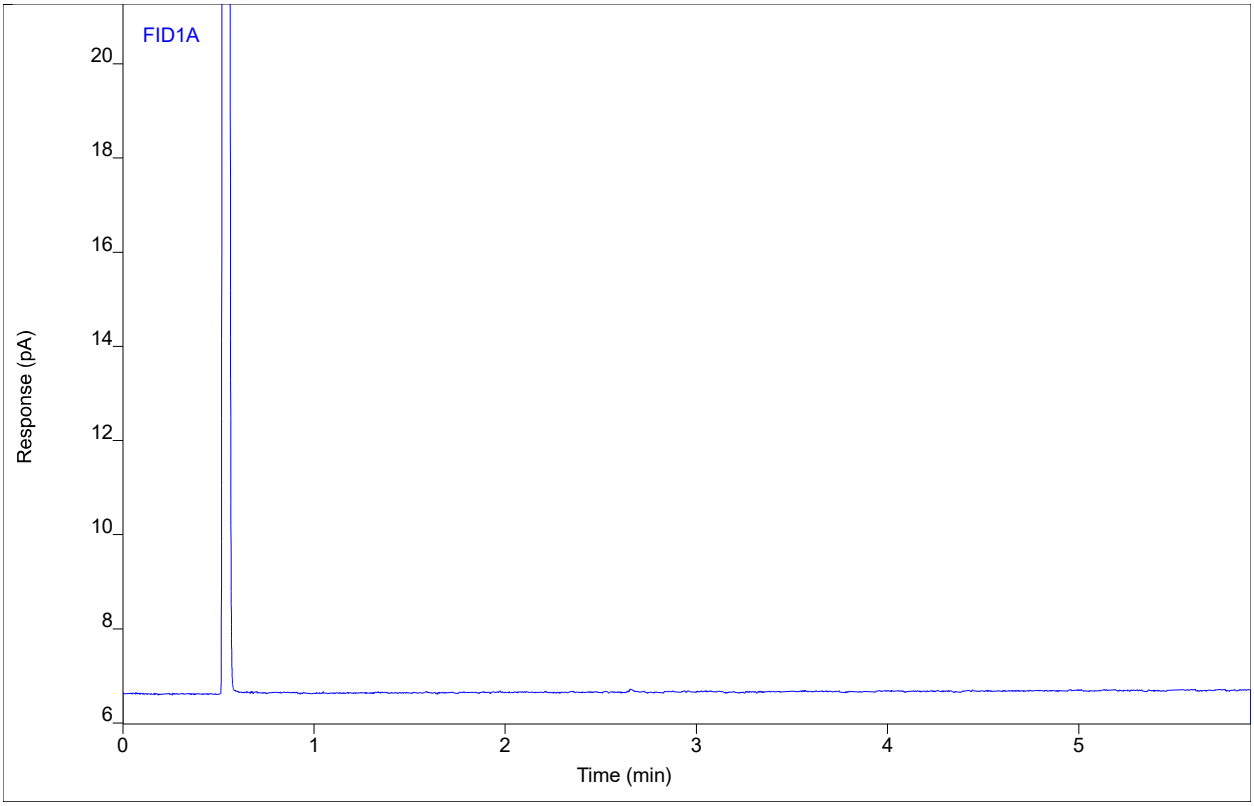
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R3-SPK.EXT
Sequence Name	LUCY1091 ver.2
Inj Data File	039F1103.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 3:37 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 39
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



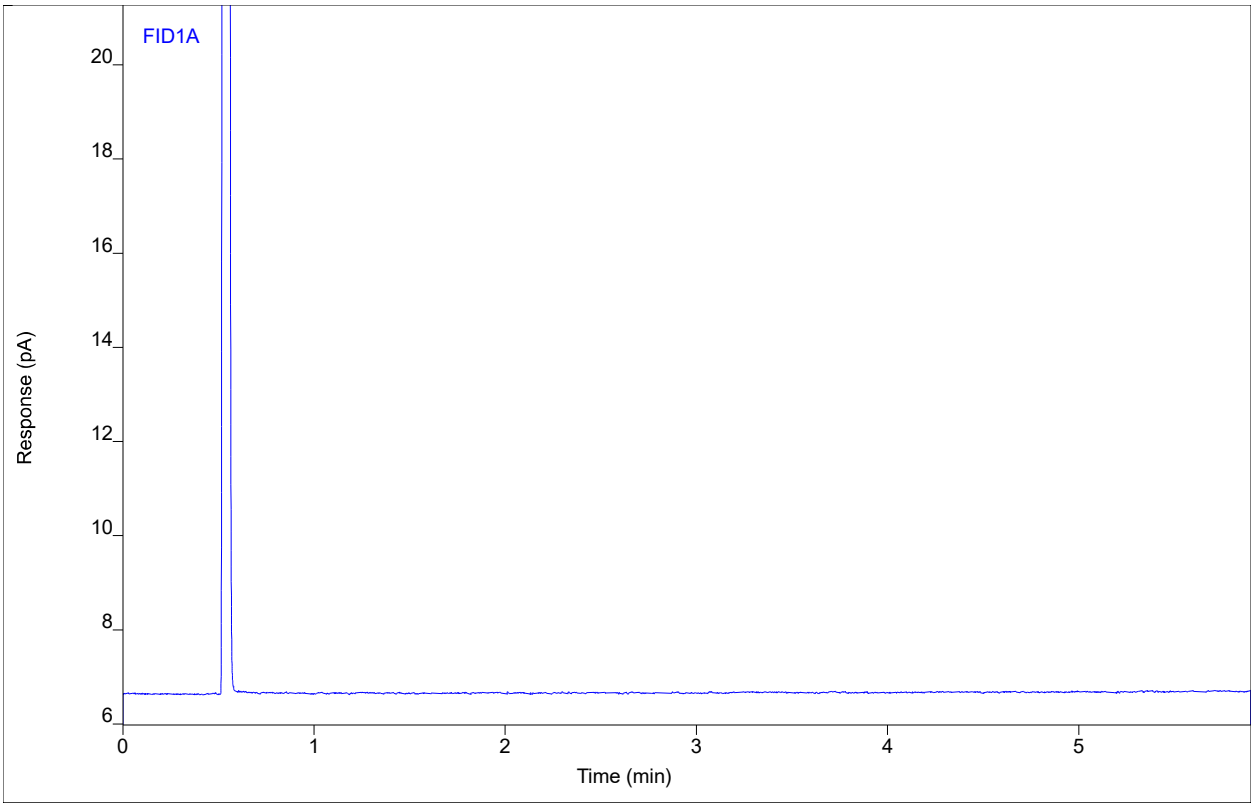
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	gcprep4511 #MB-CT
Sequence Name	LUCY1091 ver.2
Inj Data File	040F1201.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 3:48 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 40
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



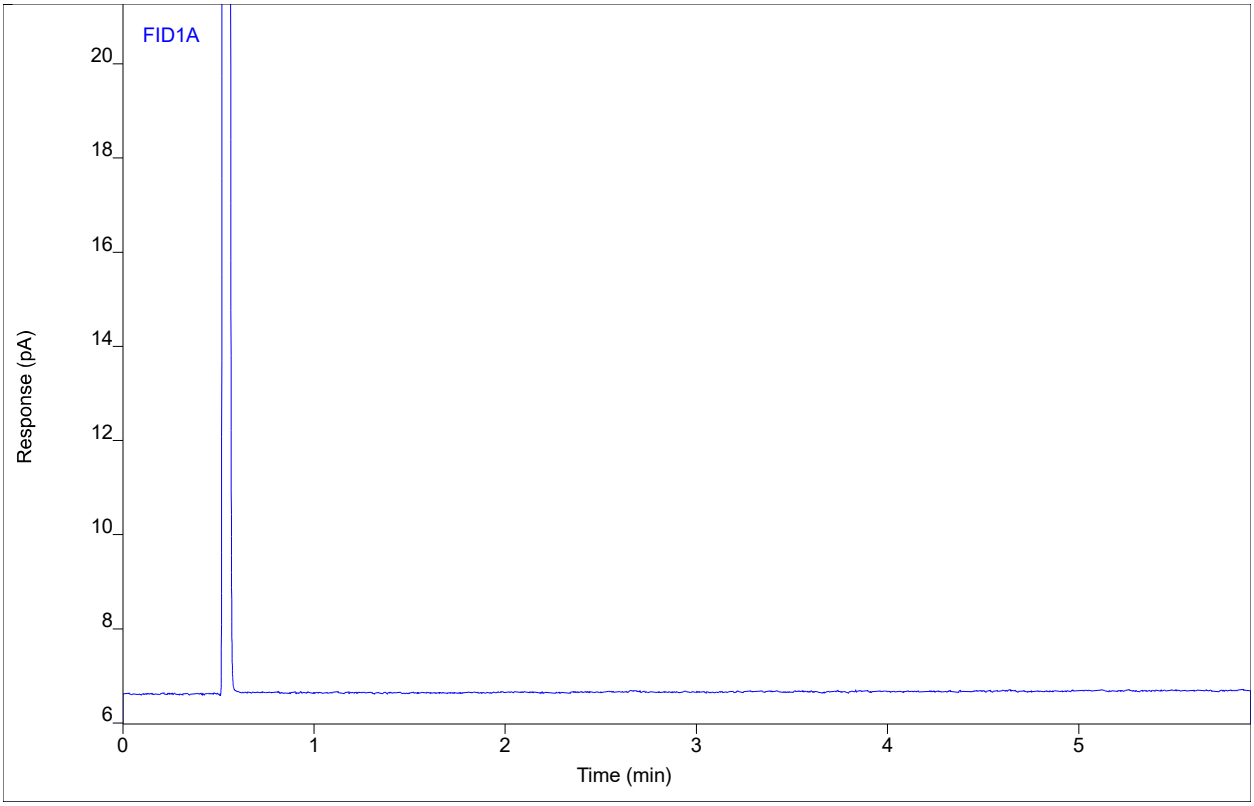
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	gcprep4511 #MB-CT
Sequence Name	LUCY1091 ver.2
Inj Data File	040F1202.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 3:58 PM
File Modified	12/28/2021 2:26 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 40
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



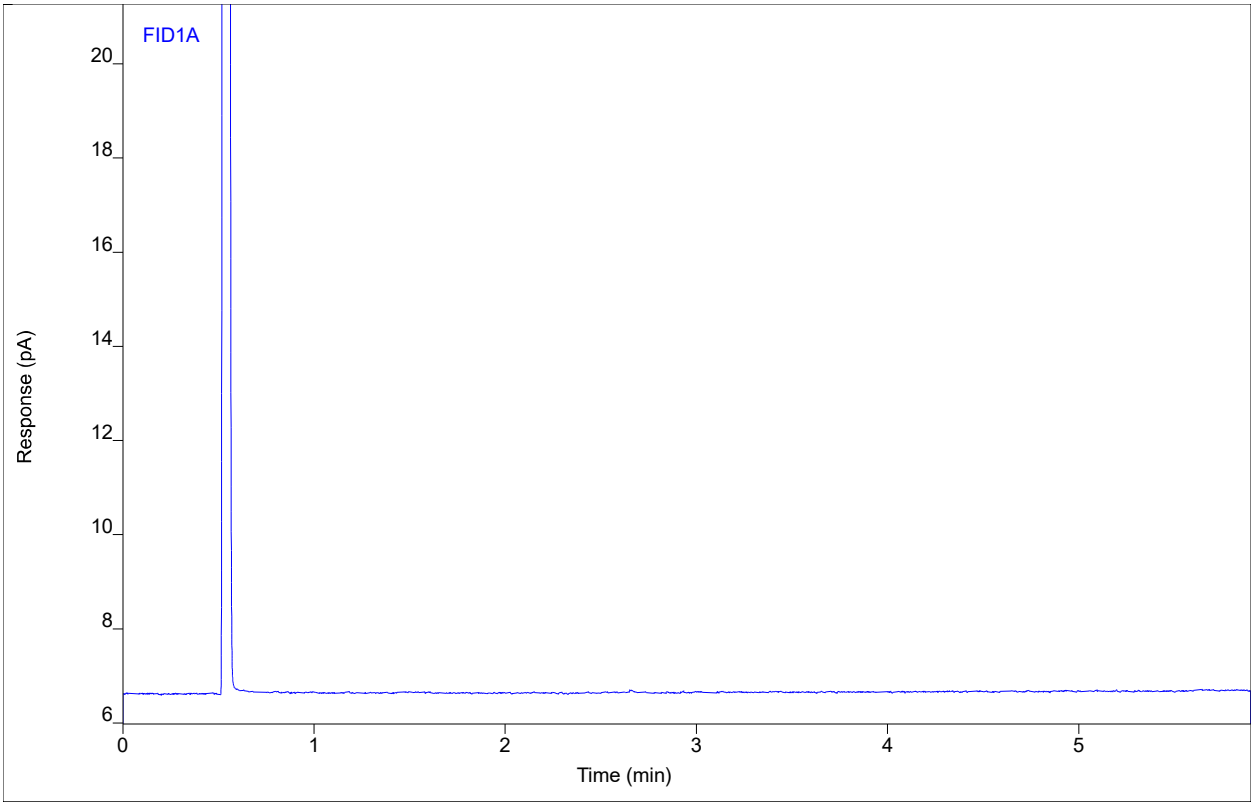
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	gcprep4511 #MB-CT
Sequence Name	LUCY1091 ver.2
Inj Data File	040F1203.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 4:08 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 40
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



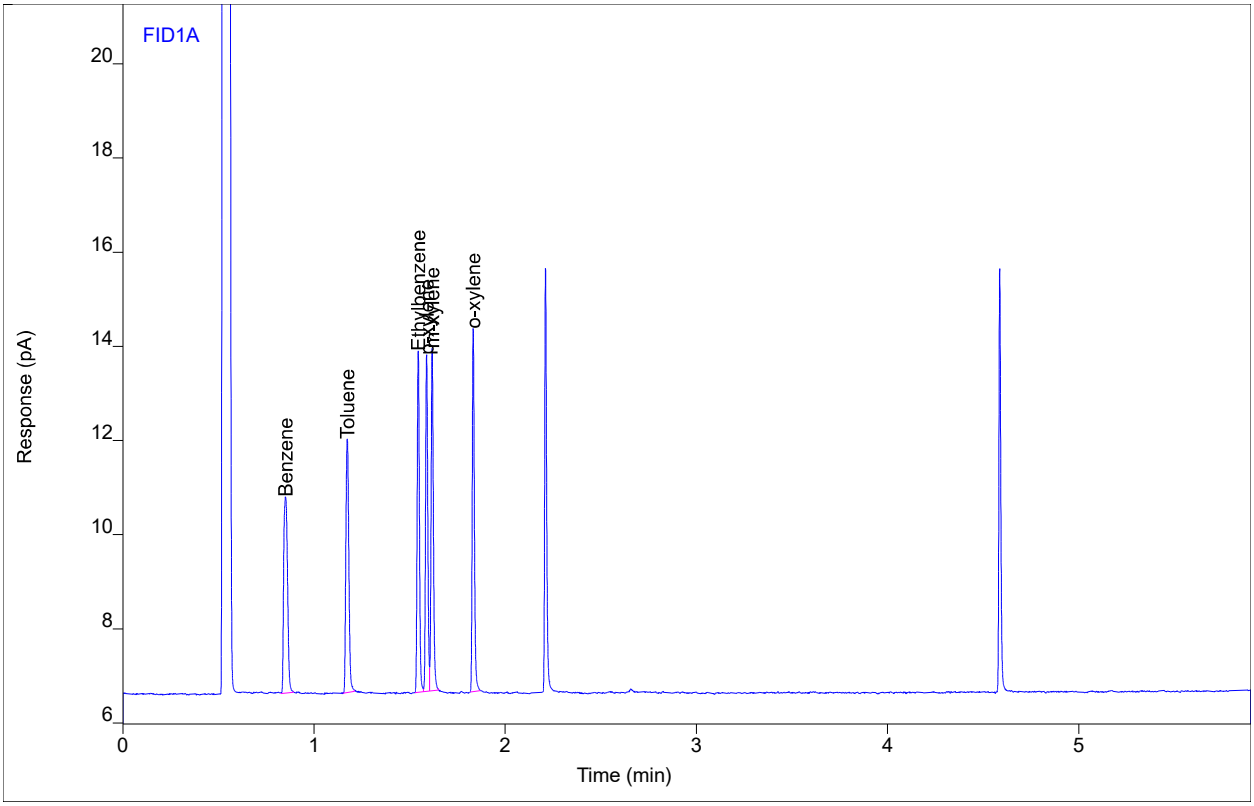
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Sample Name	gcstds1584 #4
Sequence Name	LUCY1091 ver.2
Inj Data File	023F1301.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 4:19 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 23
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



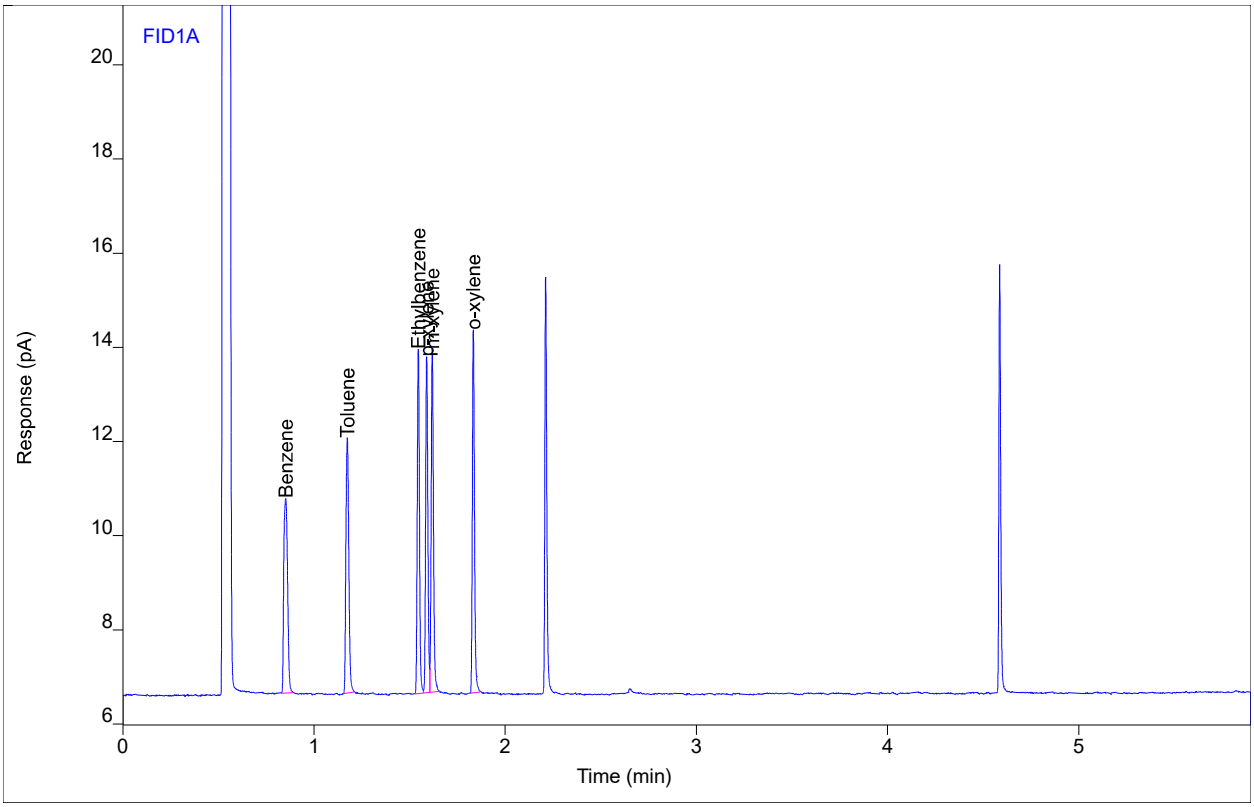
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	5.80249	4.17373	50.8271	1	50.8271	µg/mL
Toluene	BB	1.17	5.76243	5.38278	50.5136	1	50.5136	µg/mL
Ethylbenzene	BV	1.55	5.83998	7.26066	50.8454	1	50.8454	µg/mL
p-xylene	VV	1.59	5.69924	7.15153	50.3473	1	50.3473	µg/mL
m-xylene	VB	1.62	6.00707	7.27690	51.3798	1	51.3798	µg/mL
o-xylene	BB	1.83	5.90286	7.71784	51.7750	1	51.7750	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #4
Sequence Name	LUCY1091 ver.2
Inj Data File	023F1302.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 4:29 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	Vial 23
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



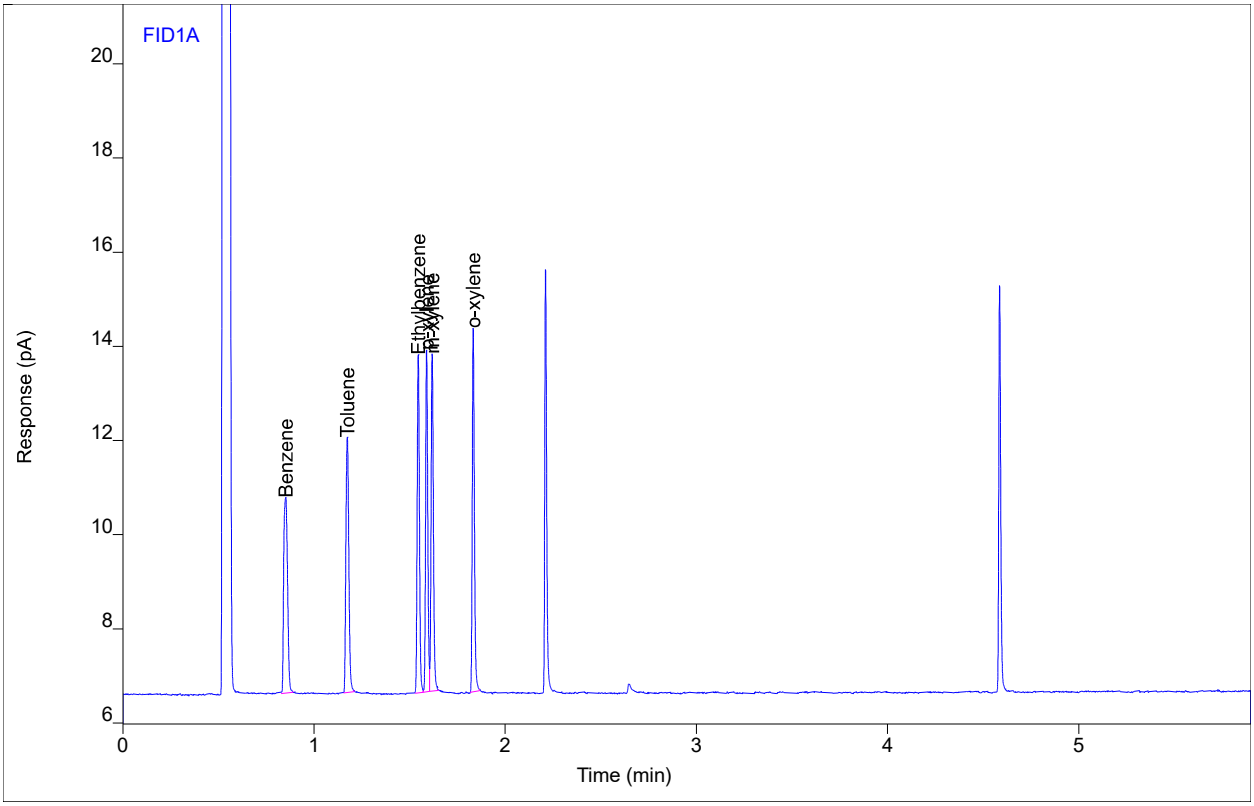
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	5.75061	4.14509	50.3729	1	50.3729	µg/mL
Toluene	BB	1.17	5.72633	5.40949	50.1987	1	50.1987	µg/mL
Ethylbenzene	BV	1.55	5.84144	7.31680	50.8581	1	50.8581	µg/mL
p-xylene	VV	1.59	5.68379	7.15313	50.2118	1	50.2118	µg/mL
m-xylene	VB	1.62	6.01303	7.28116	51.4305	1	51.4305	µg/mL
o-xylene	BB	1.83	5.88790	7.71312	51.6446	1	51.6446	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #4
Sequence Name	LUCY1091 ver.2
Inj Data File	023F1303.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 4:39 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	Vial 23
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



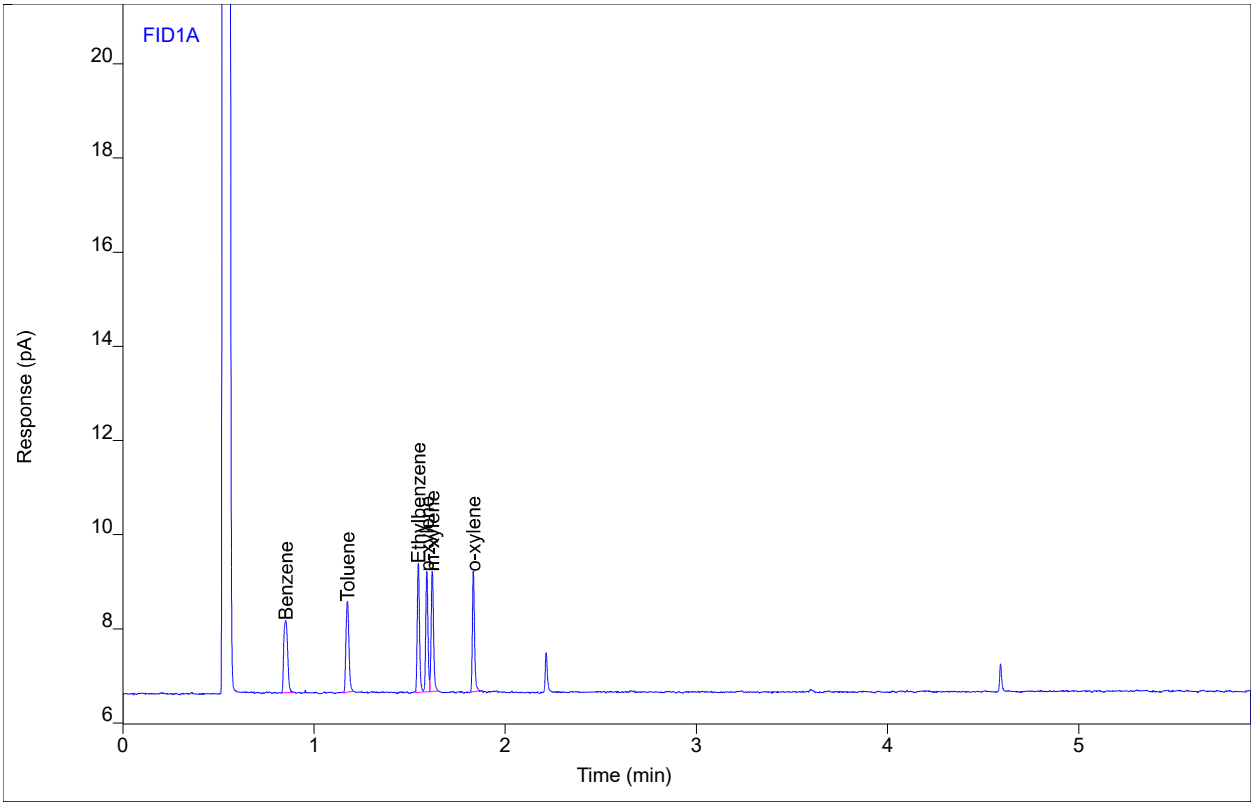
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	5.74082	4.16325	50.2872	1	50.2872	µg/mL
Toluene	BB	1.17	5.72658	5.42088	50.2009	1	50.2009	µg/mL
Ethylbenzene	BV	1.55	5.82239	7.17995	50.6933	1	50.6933	µg/mL
p-xylene	VV	1.59	5.67783	7.24829	50.1596	1	50.1596	µg/mL
m-xylene	VB	1.62	5.97934	7.15667	51.1439	1	51.1439	µg/mL
o-xylene	BB	1.83	5.88364	7.72036	51.6075	1	51.6075	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcprep4511 #LCS-CT
Sequence Name	LUCY1091 ver.2
Inj Data File	041F1401.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 4:50 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 41
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



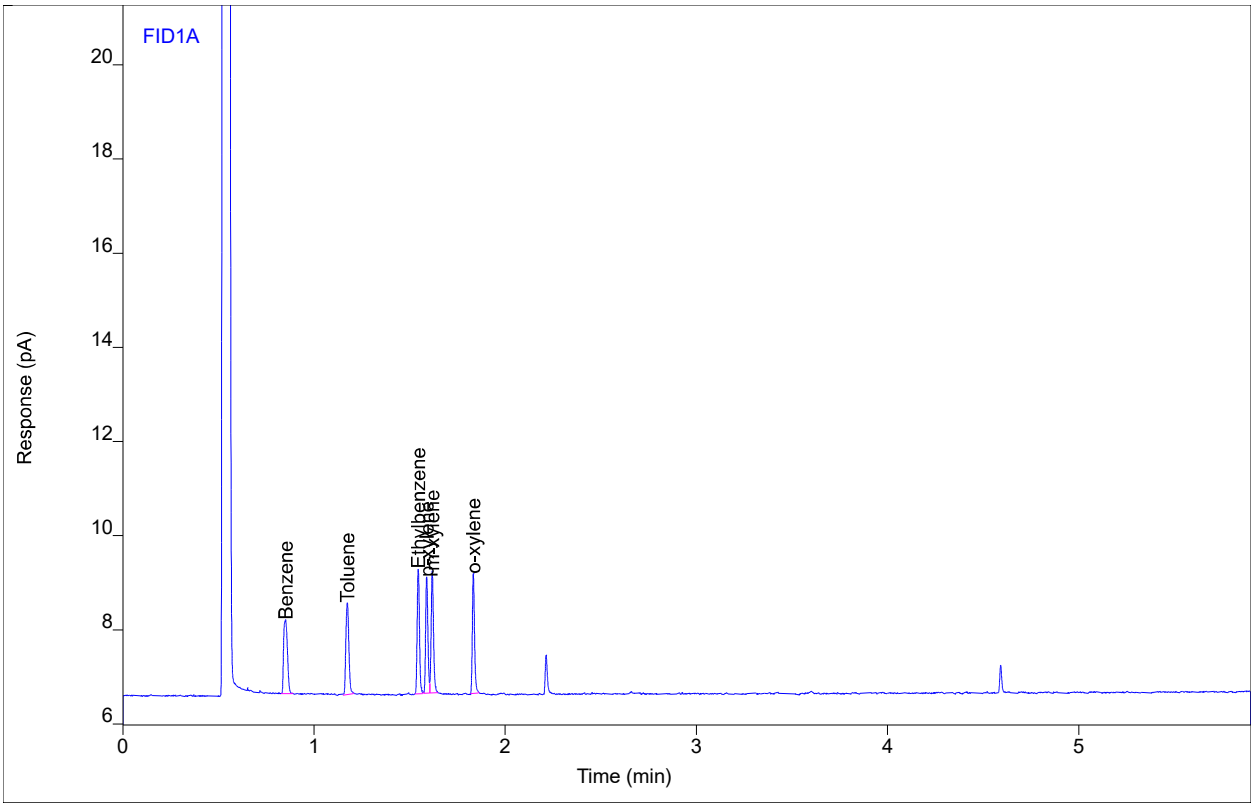
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	2.15216	1.54567	18.8652	1	18.8652	µg/mL
Toluene	BB	1.17	2.07803	1.92552	18.3730	1	18.3730	µg/mL
Ethylbenzene	BB	1.55	2.23723	2.74202	19.6862	1	19.6862	µg/mL
p-xylene	BV	1.59	2.06619	2.55732	18.4872	1	18.4872	µg/mL
m-xylene	VB	1.62	2.22499	2.54555	19.2083	1	19.2083	µg/mL
o-xylene	BB	1.83	2.01760	2.55674	17.9118	1	17.9118	µg/mL

Chromatogram Report

Sample Name	gcprep4511 #LCS-CT
Sequence Name	LUCY1091 ver.2
Inj Data File	041F1402.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 5:00 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 41
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



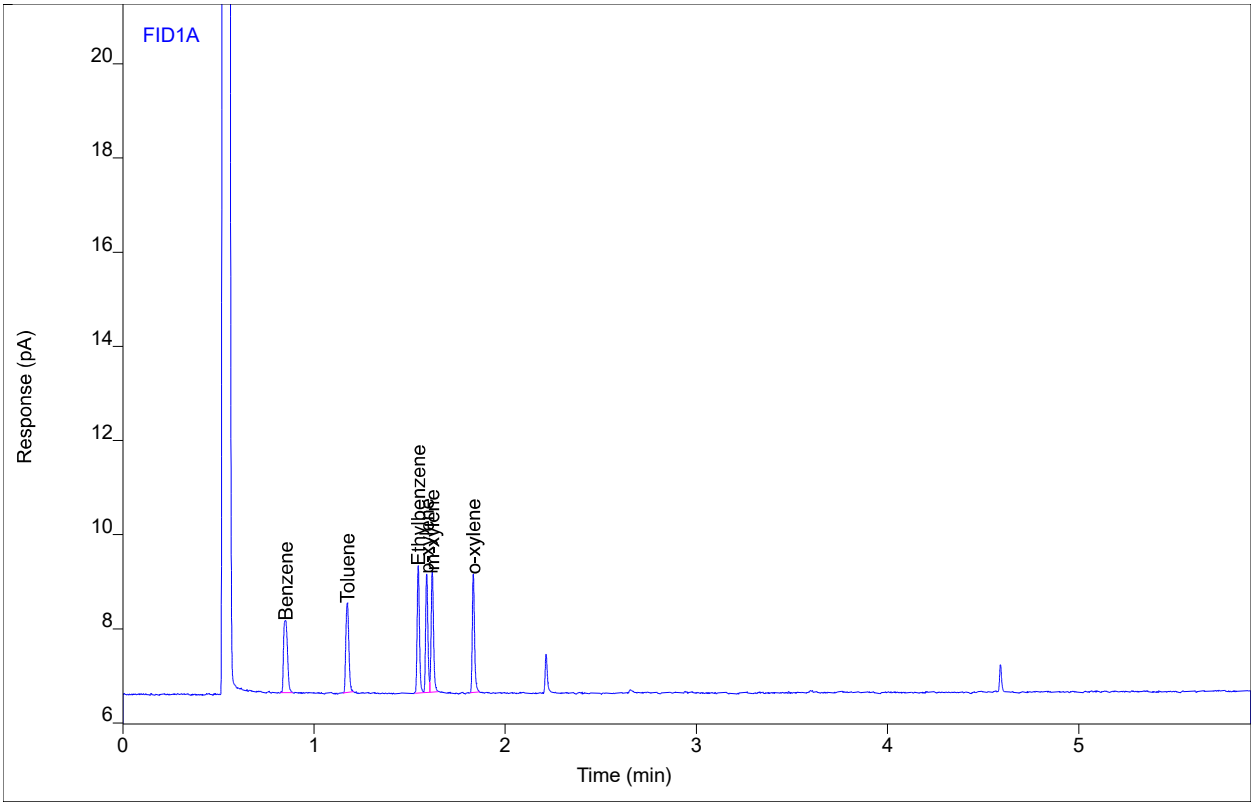
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	2.15839	1.57186	18.9197	1	18.9197	µg/mL
Toluene	BB	1.17	2.12095	1.95662	18.7474	1	18.7474	µg/mL
Ethylbenzene	BB	1.55	2.19436	2.65997	19.3155	1	19.3155	µg/mL
p-xylene	BV	1.59	2.03433	2.47476	18.2078	1	18.2078	µg/mL
m-xylene	VB	1.62	2.18705	2.59945	18.8856	1	18.8856	µg/mL
o-xylene	BB	1.83	1.98710	2.54278	17.6460	1	17.6460	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcprep4511 #LCS-CT
Sequence Name	LUCY1091 ver.2
Inj Data File	041F1403.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 5:10 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 41
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



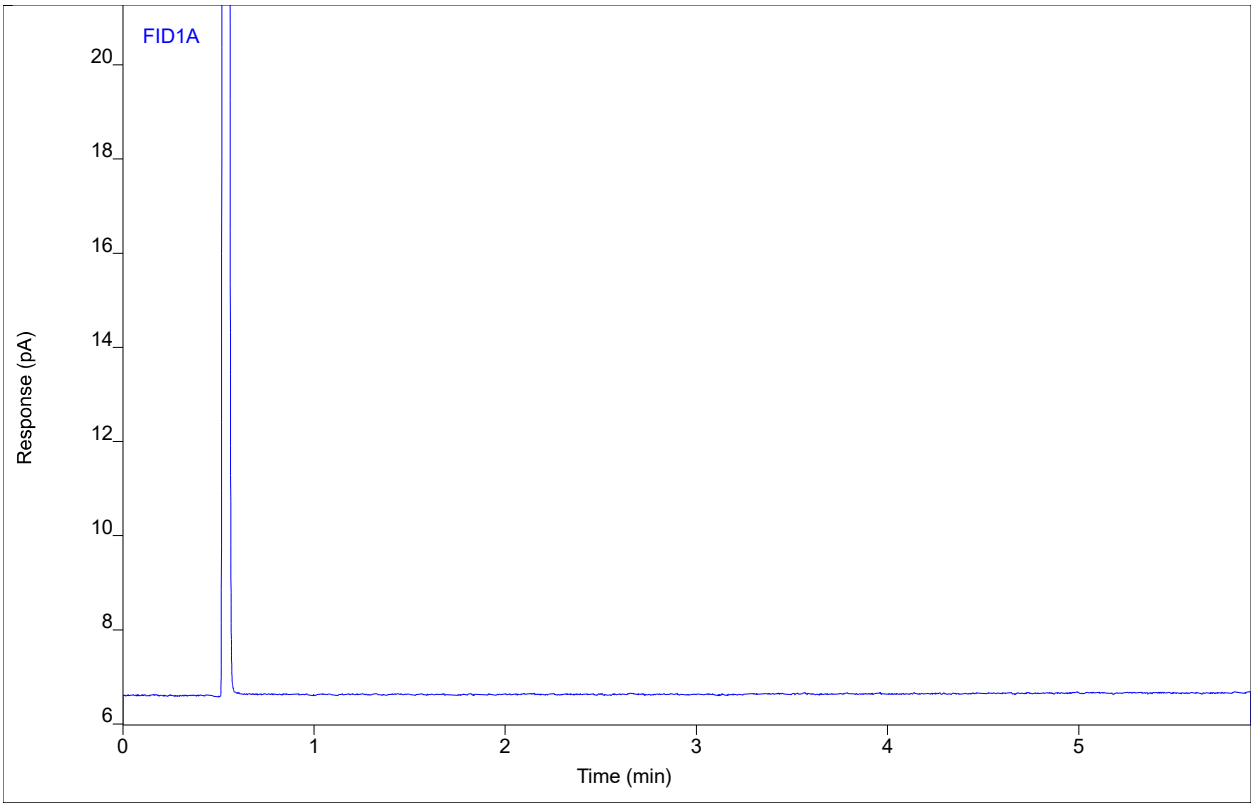
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	2.16426	1.53944	18.9711	1	18.9711	µg/mL
Toluene	BB	1.17	2.06857	1.90167	18.2904	1	18.2904	µg/mL
Ethylbenzene	BB	1.55	2.22620	2.69861	19.5908	1	19.5908	µg/mL
p-xylene	BV	1.59	2.07139	2.51645	18.5328	1	18.5328	µg/mL
m-xylene	VB	1.62	2.22155	2.58152	19.1791	1	19.1791	µg/mL
o-xylene	BB	1.83	2.02704	2.51763	17.9942	1	17.9942	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	042F1501.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 5:21 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 42
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



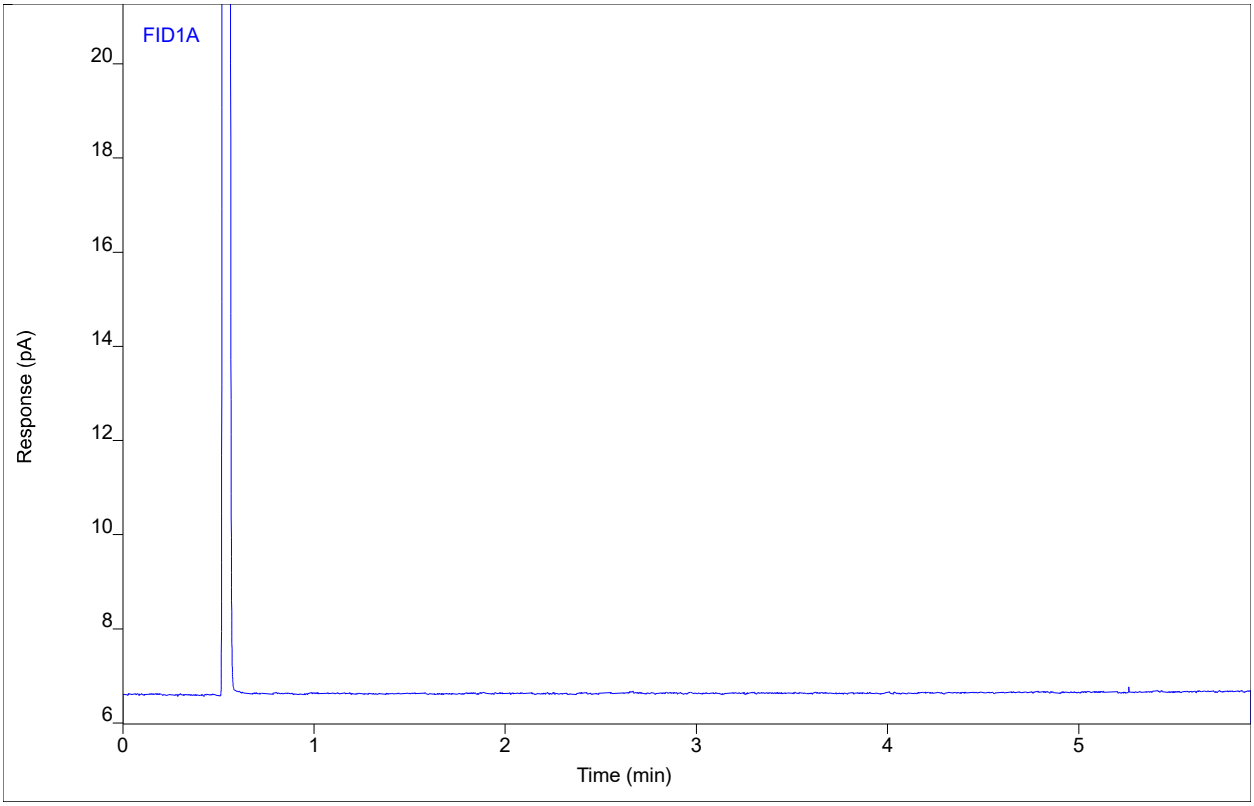
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	042F1502.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 5:31 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 42
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



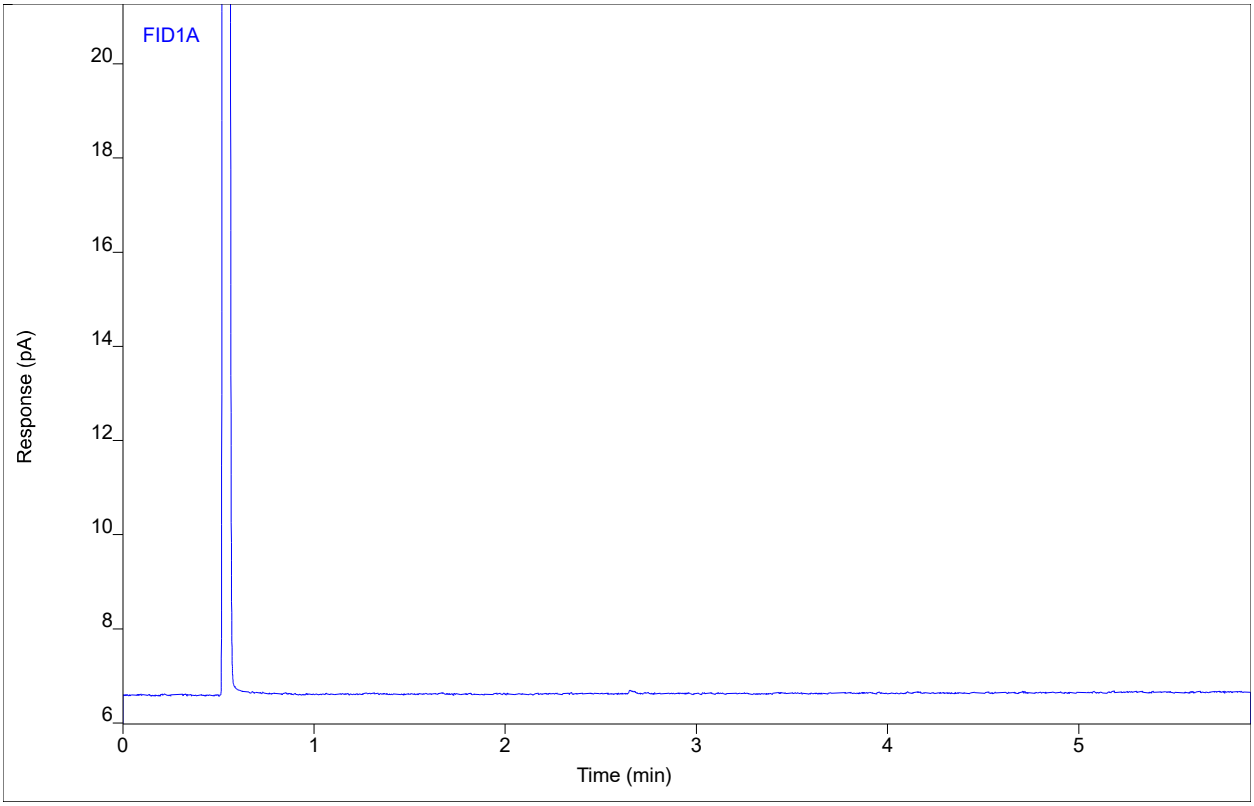
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Sample Name	1221-059.R1.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	042F1503.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 5:42 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 42
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



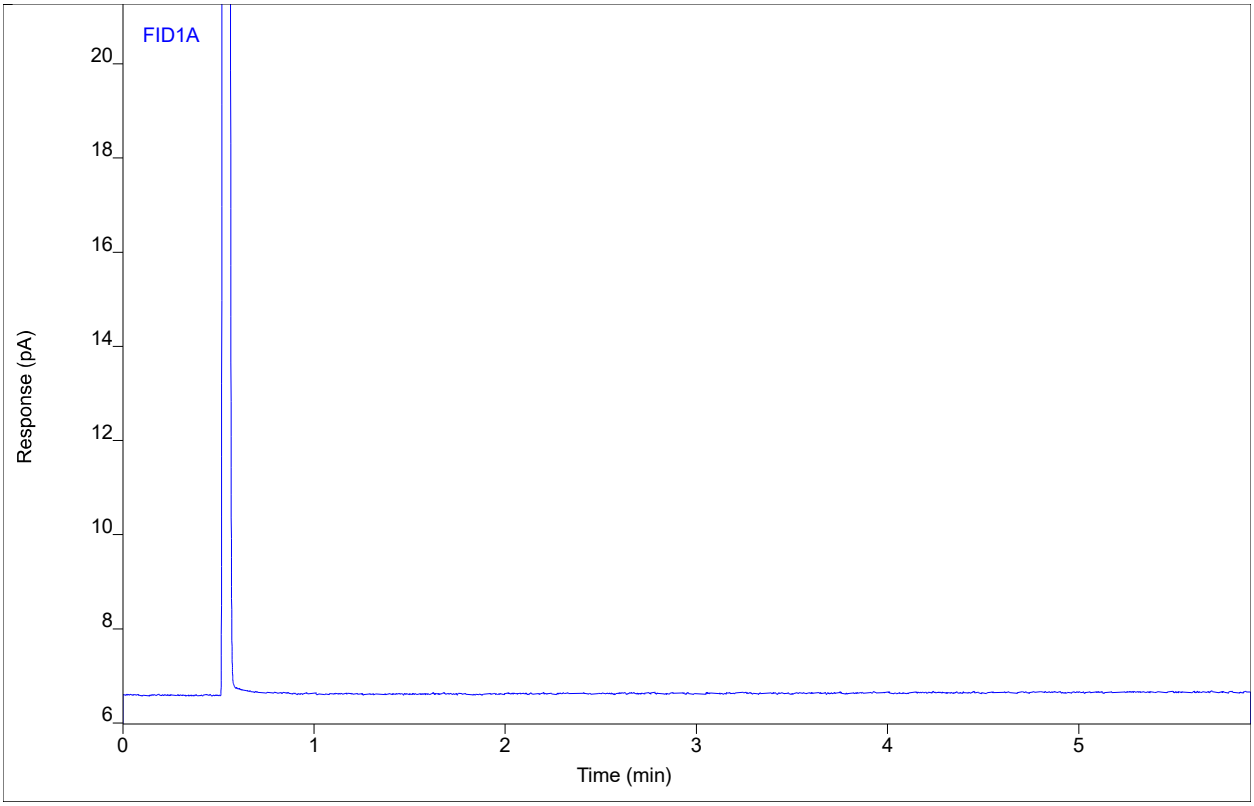
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R2.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	043F1601.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 5:52 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 43
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



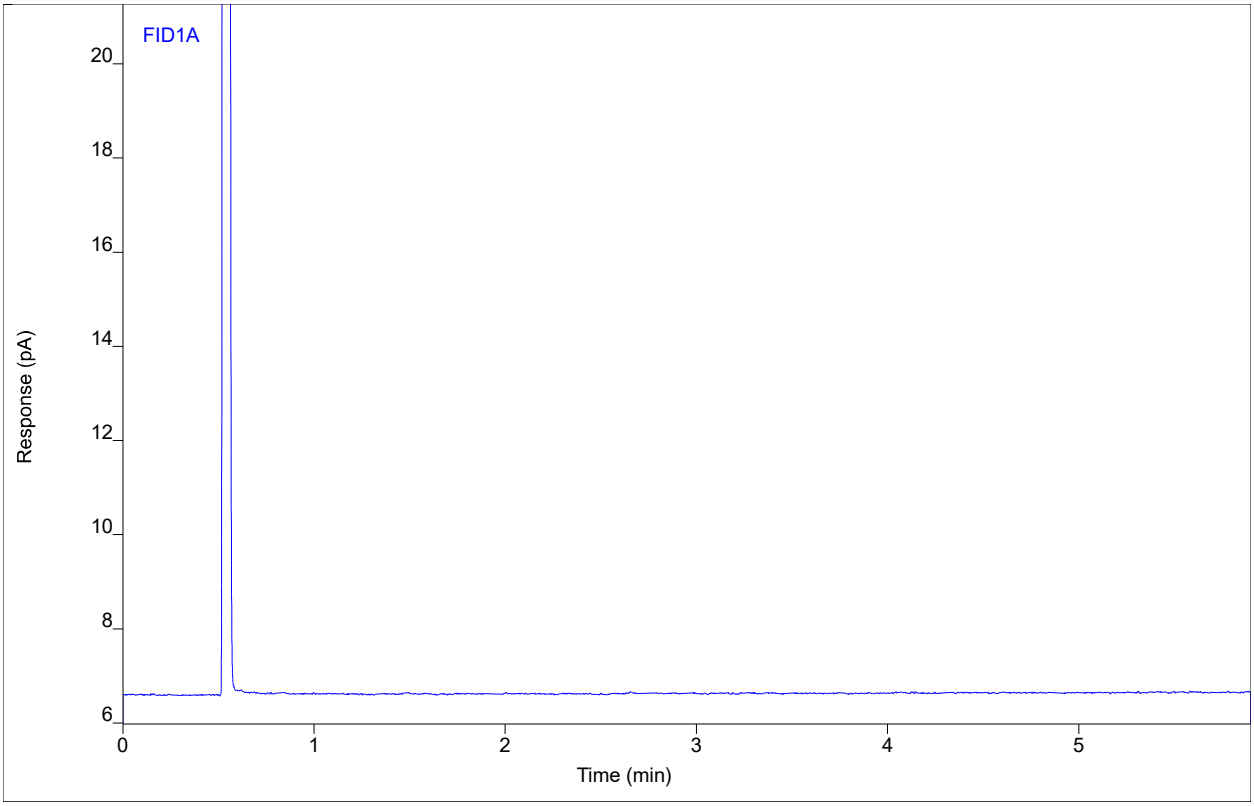
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R2.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	043F1602.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 6:02 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 43
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



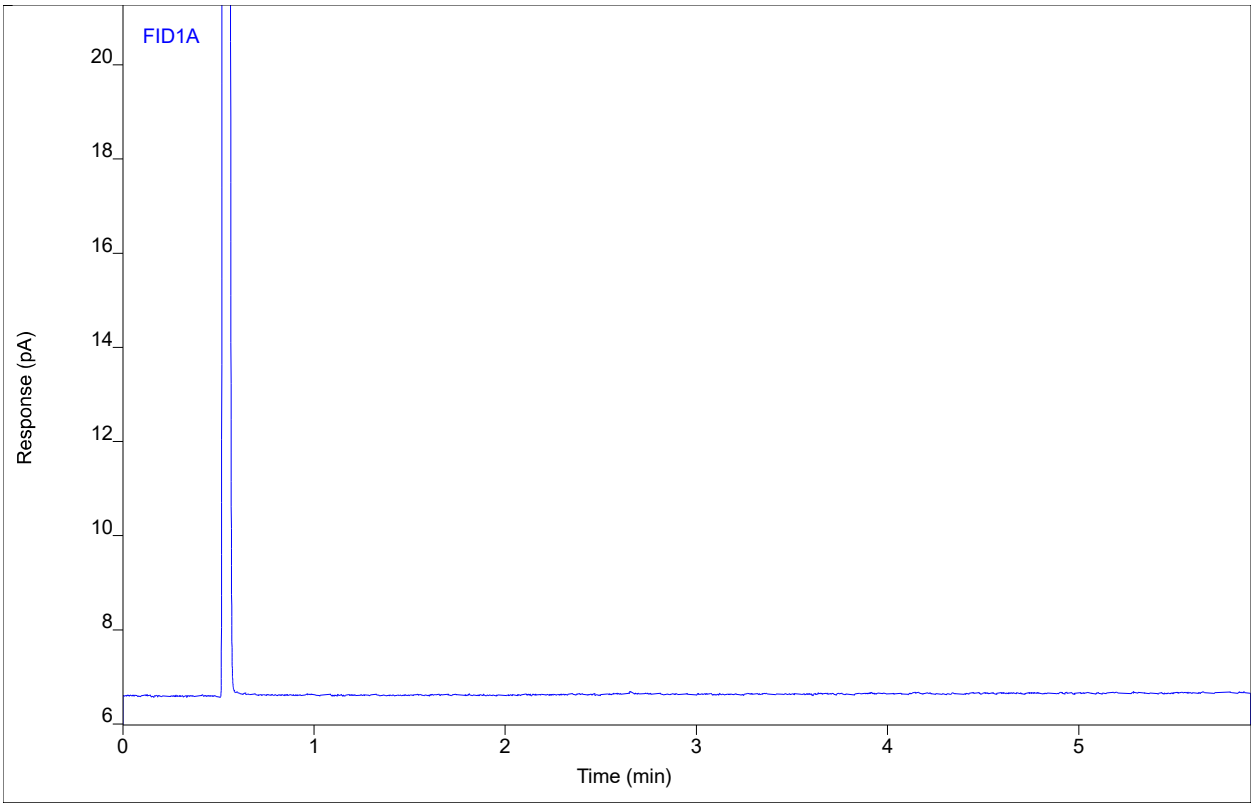
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R2.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	043F1603.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 6:13 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 43
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



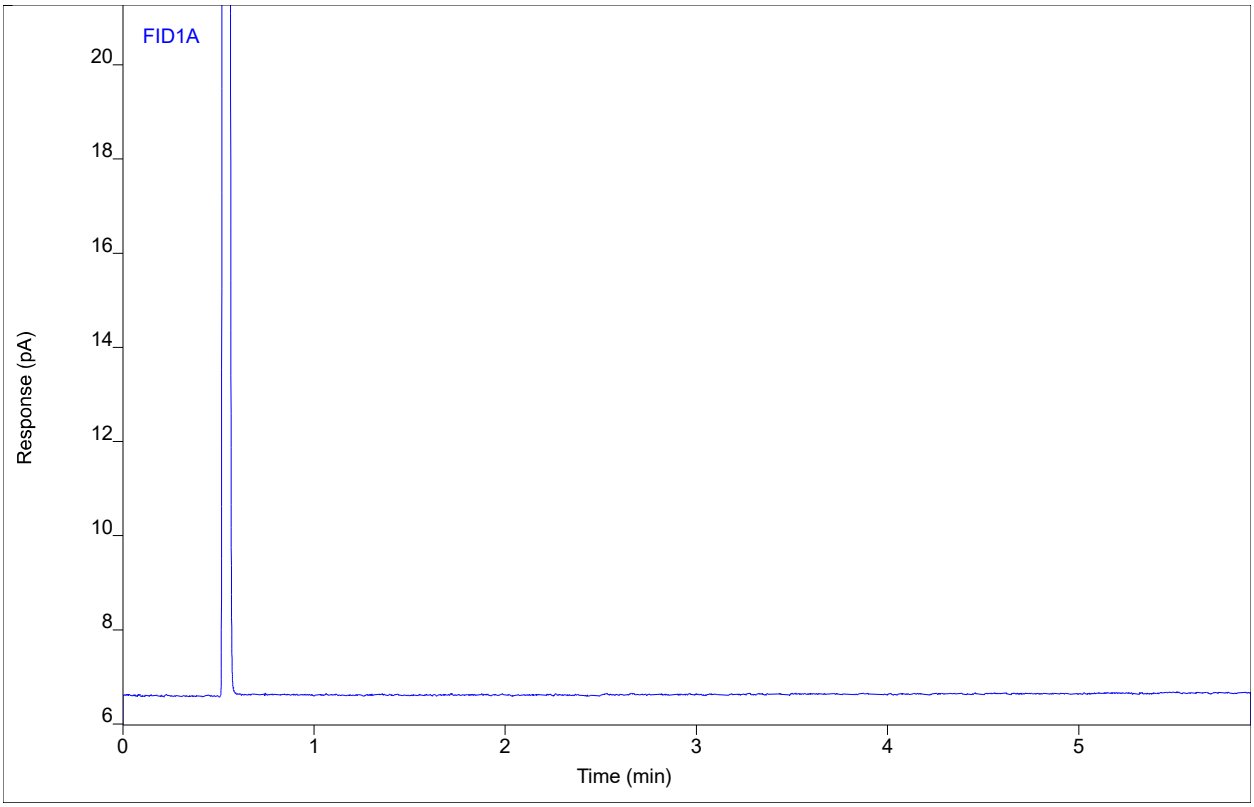
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R3.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	044F1701.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 6:23 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 44
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



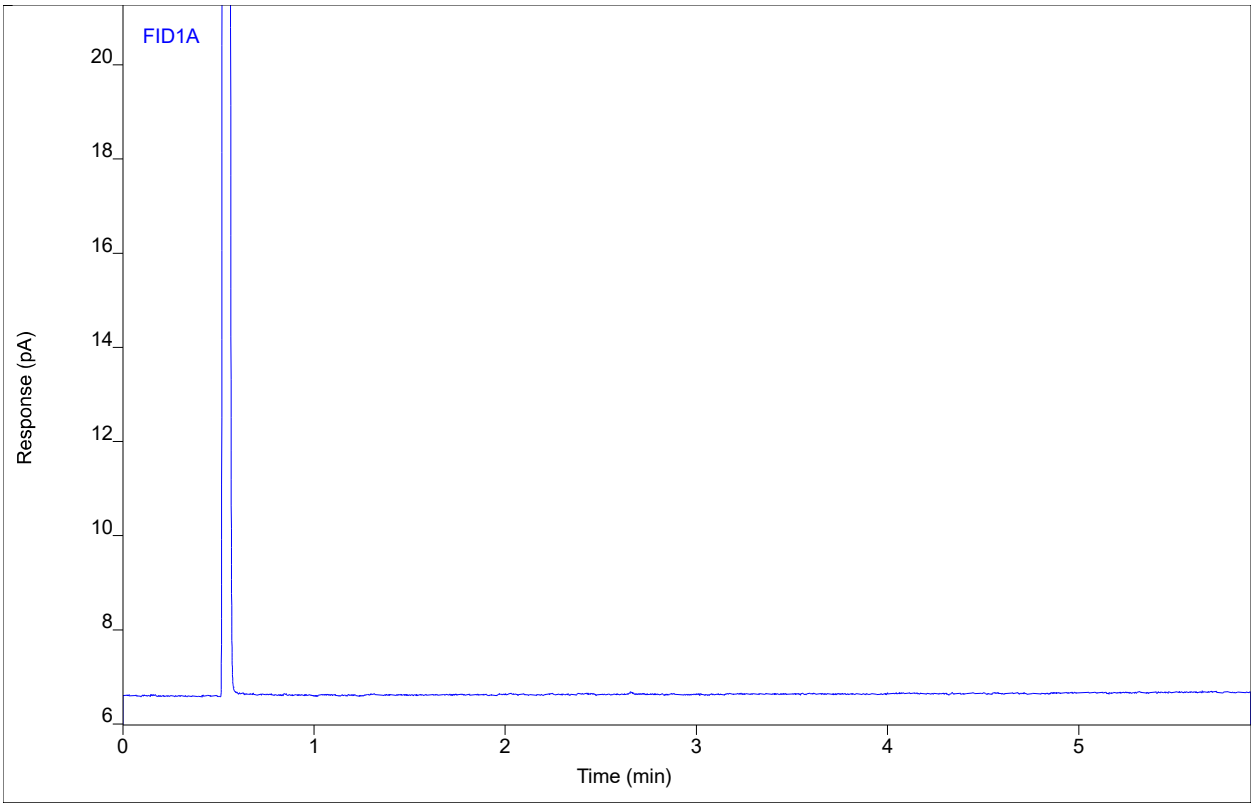
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R3.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	044F1702.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 6:33 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 44
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



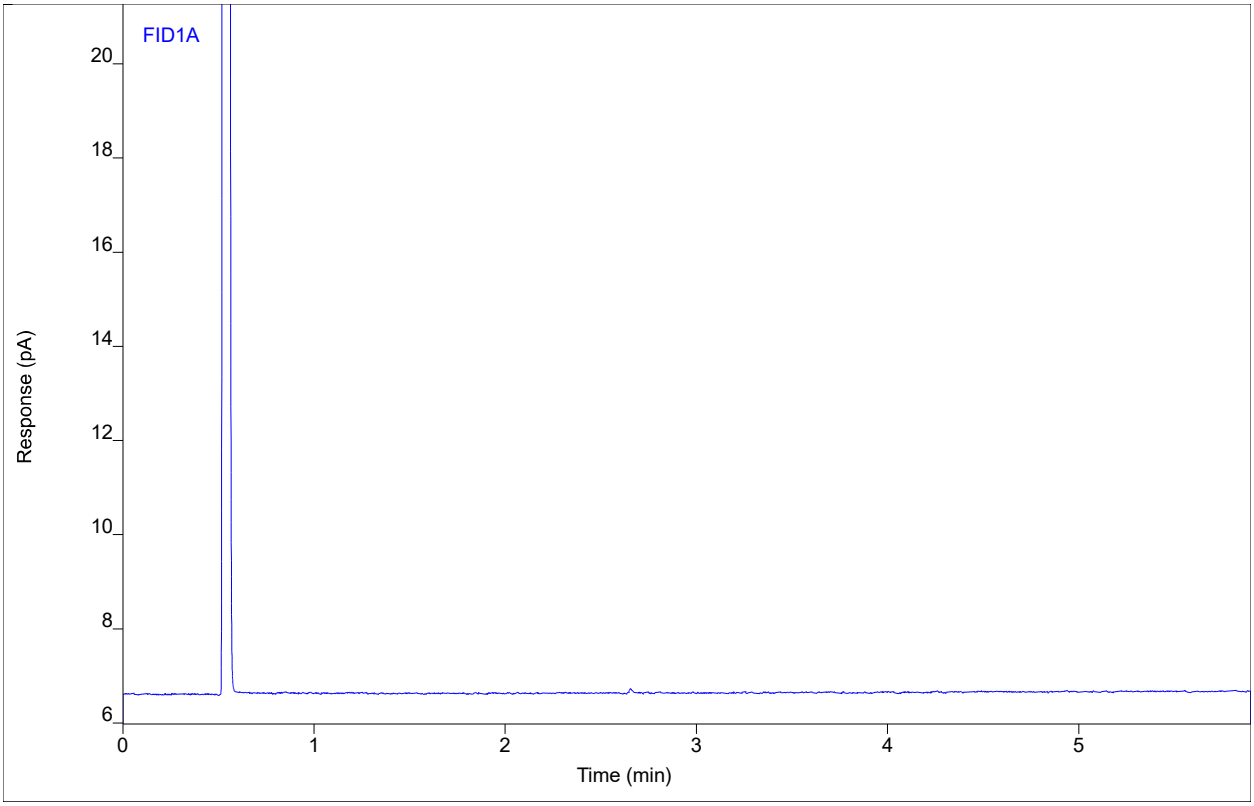
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R3.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	044F1703.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 6:47 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 44
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



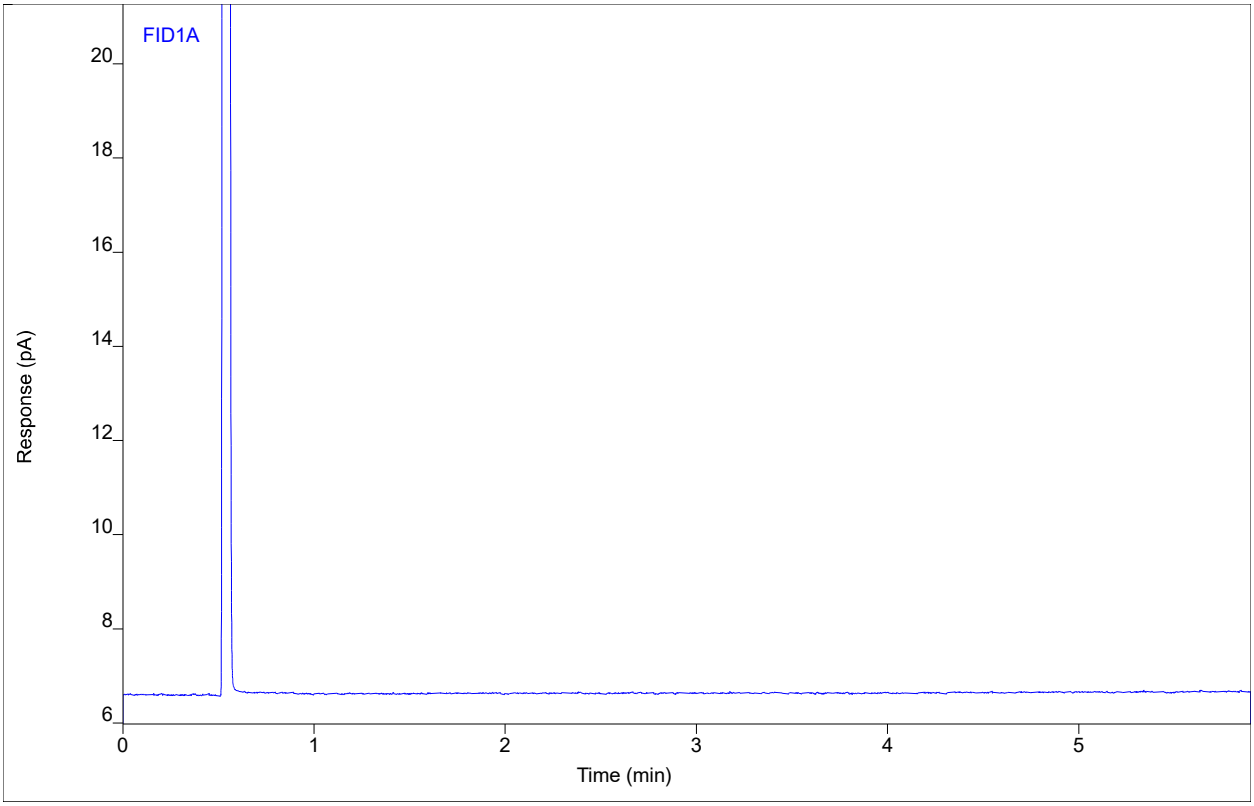
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1-SPK.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	045F1801.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 6:54 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 45
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



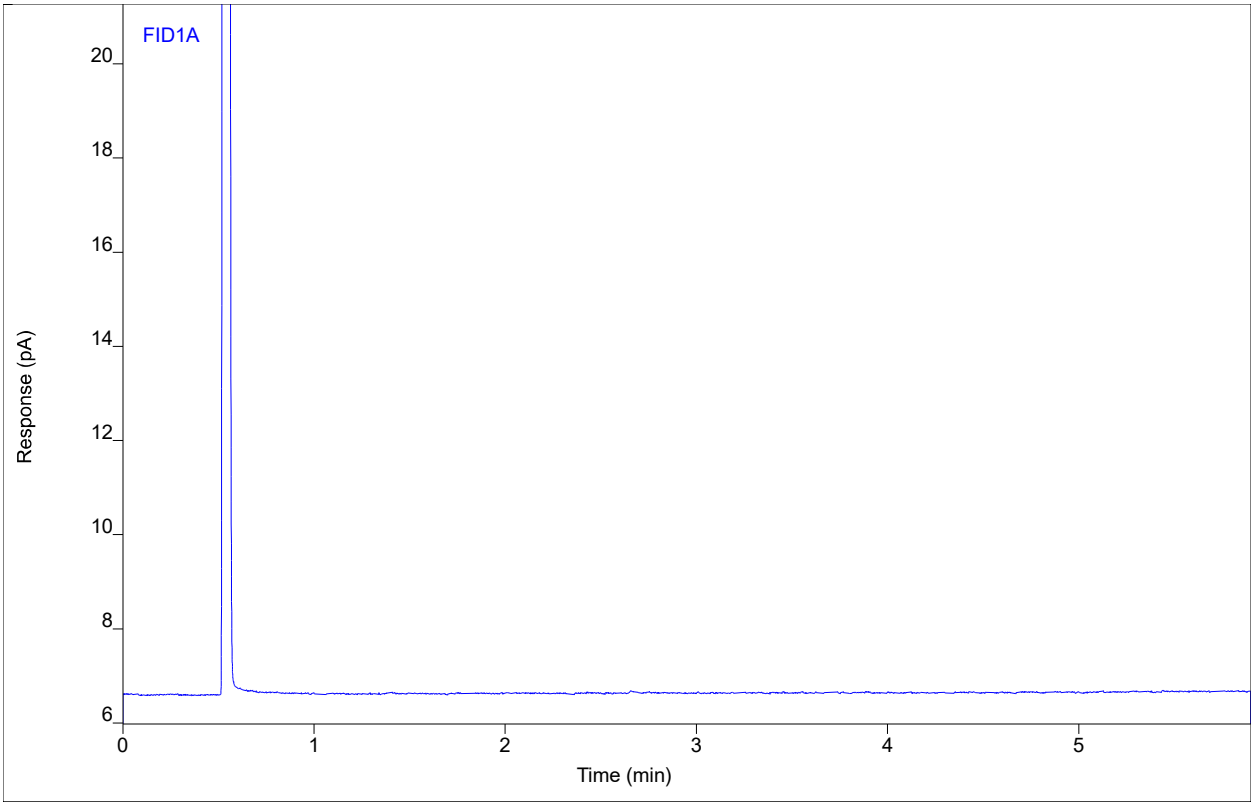
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1-SPK.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	045F1802.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 7:04 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 45
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



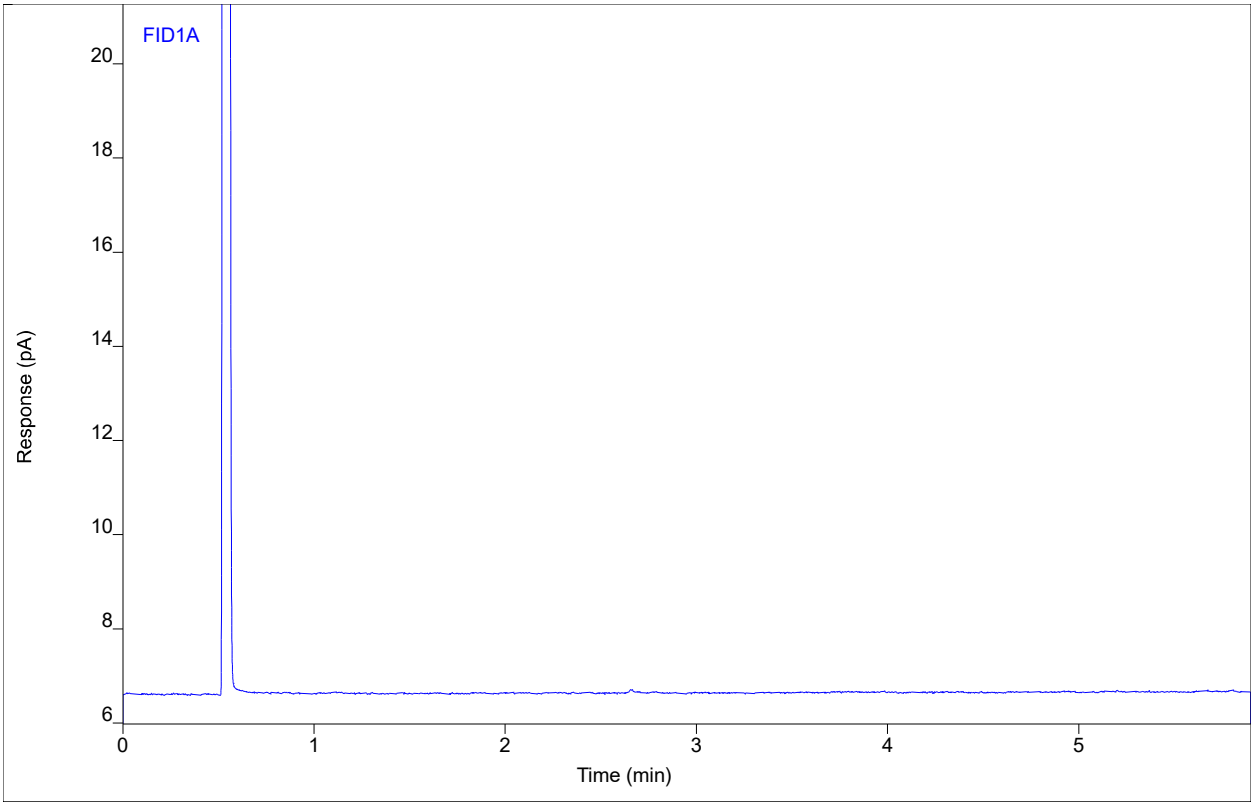
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1-SPK.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	045F1803.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 7:14 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 45
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



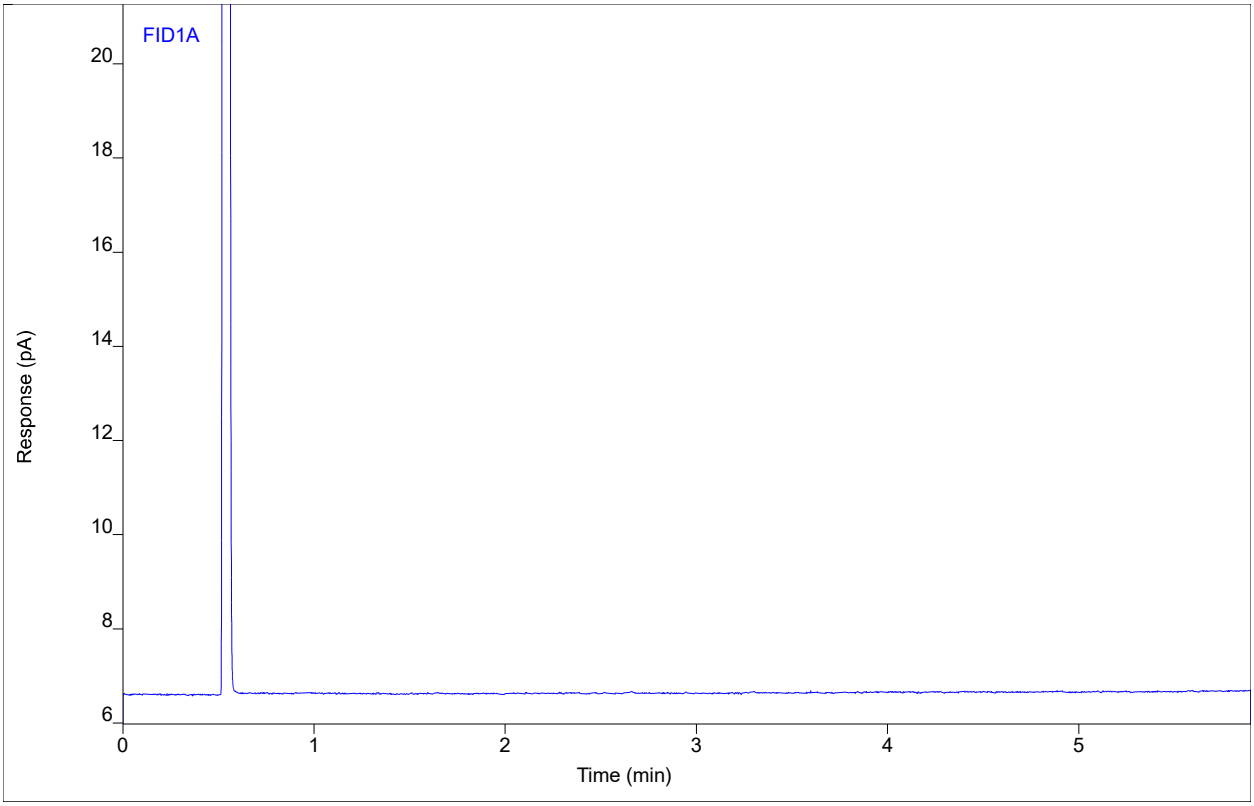
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R2-SPK.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	046F1901.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 7:25 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 46
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



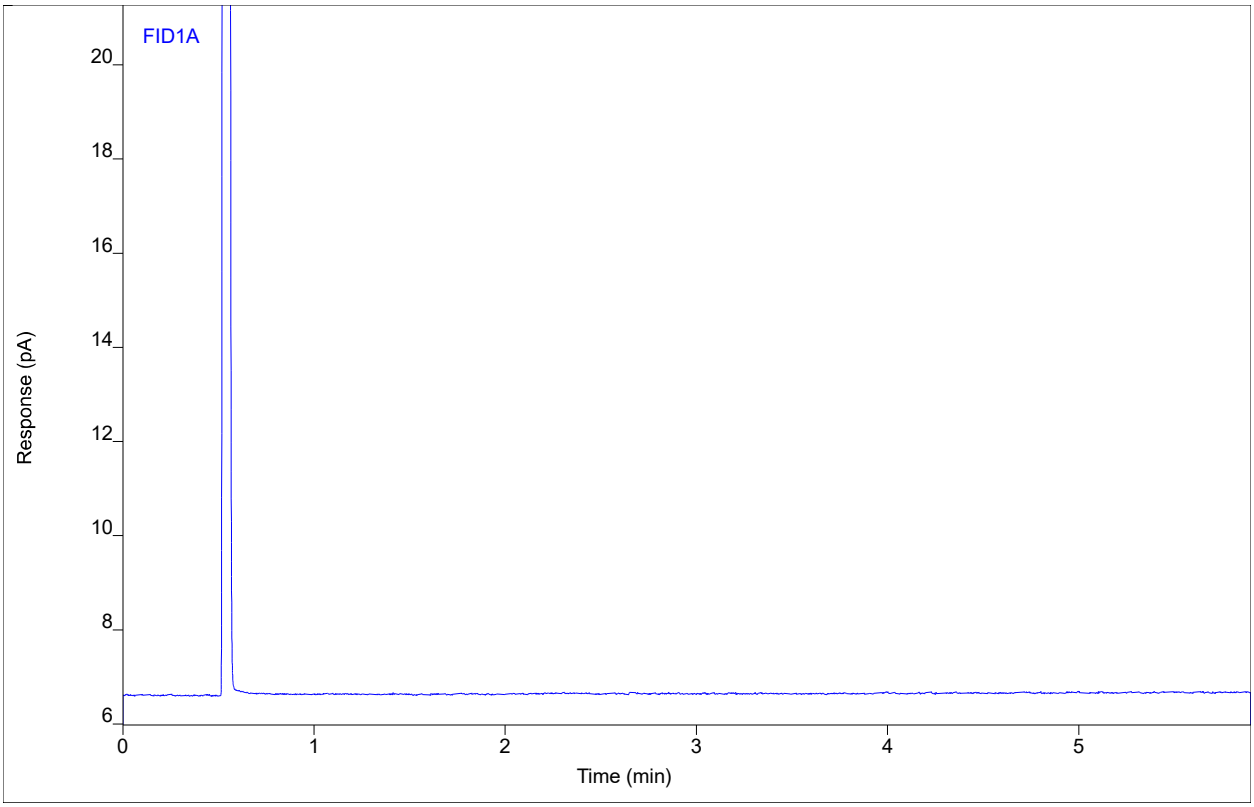
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R2-SPK.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	046F1902.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 7:35 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 46
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



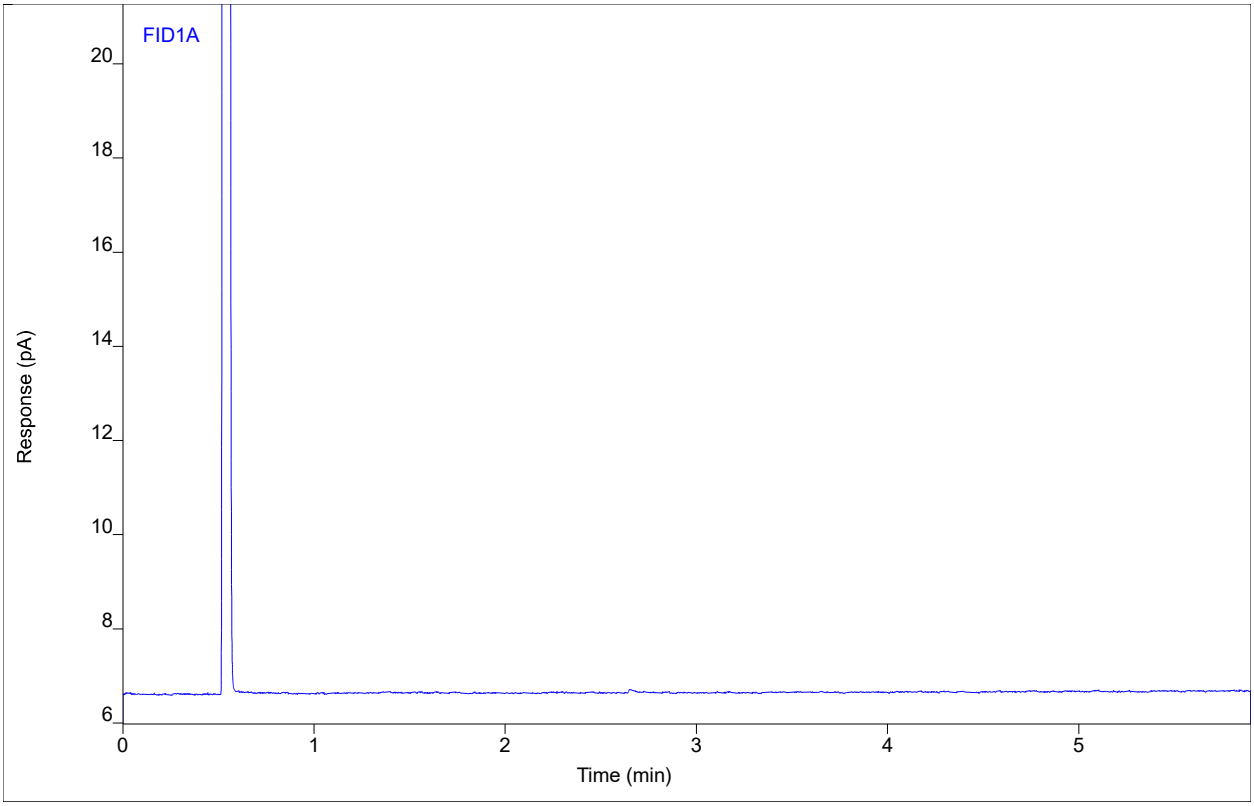
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Sample Name	1221-059.R2-SPK.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	046F1903.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 7:45 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 46
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



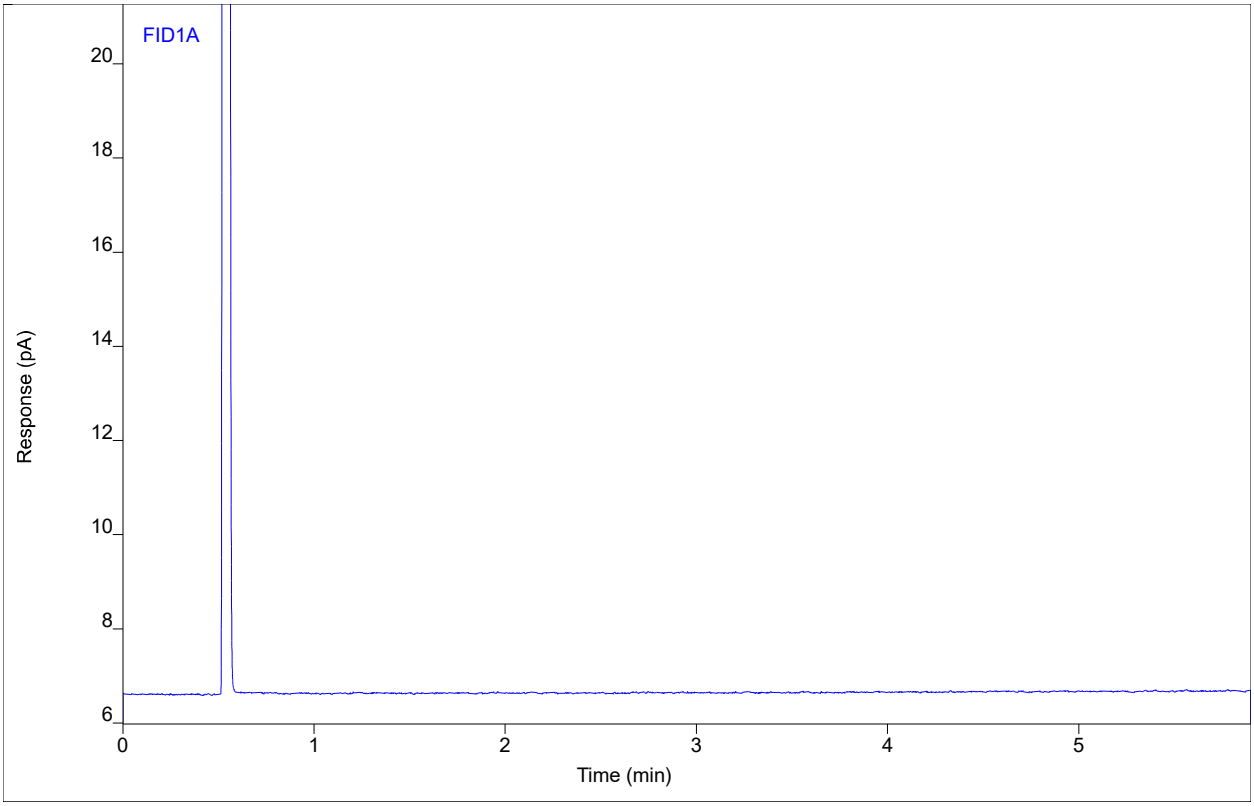
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R3-SPK.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	047F2001.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 7:56 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 47
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



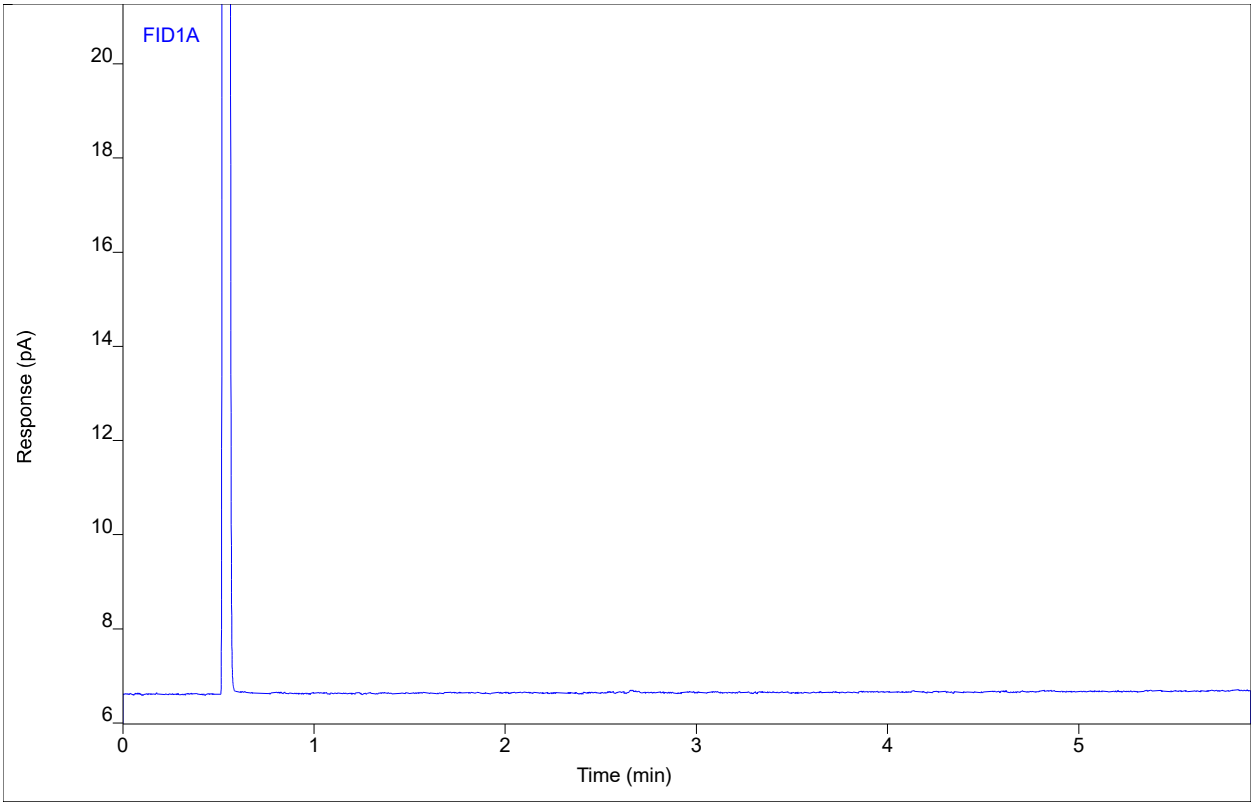
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R3-SPK.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	047F2002.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 8:06 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 47
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



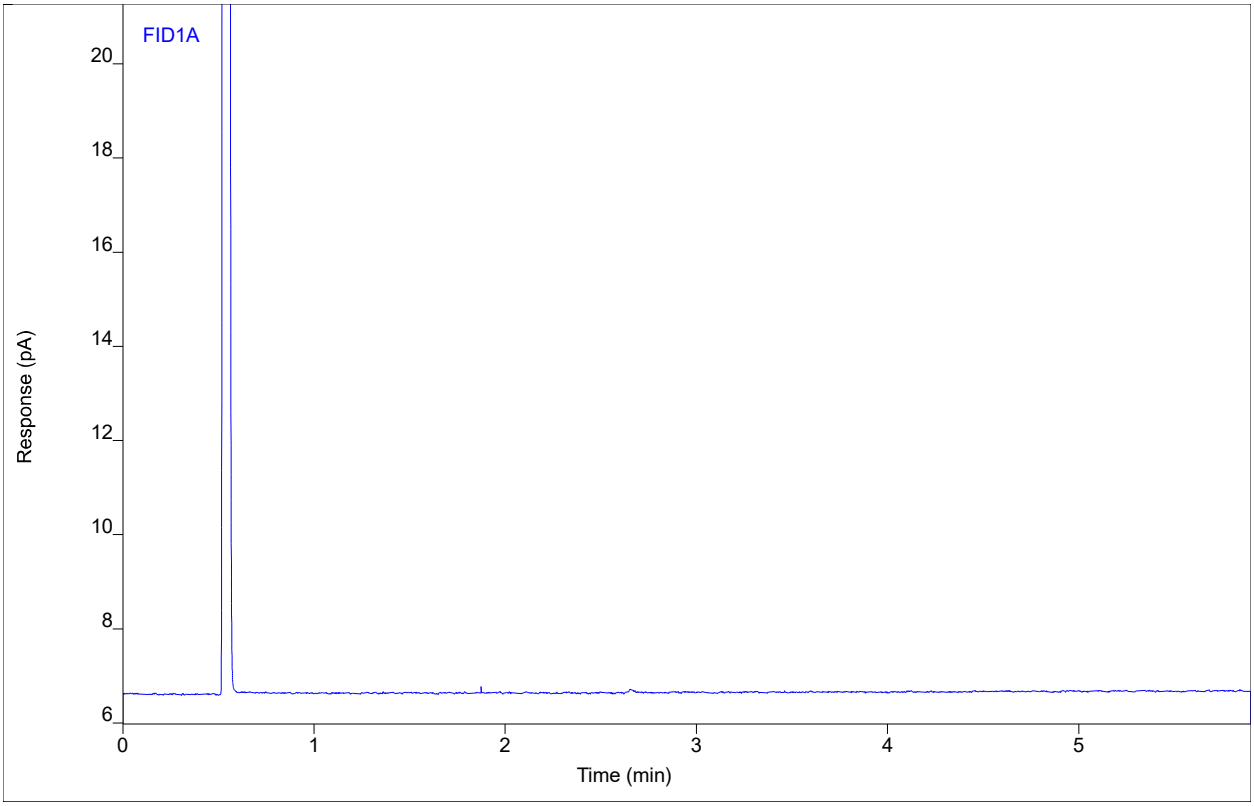
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R3-SPK.BH
Sequence Name	LUCY1091 ver.2
Inj Data File	047F2003.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 8:16 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 47
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



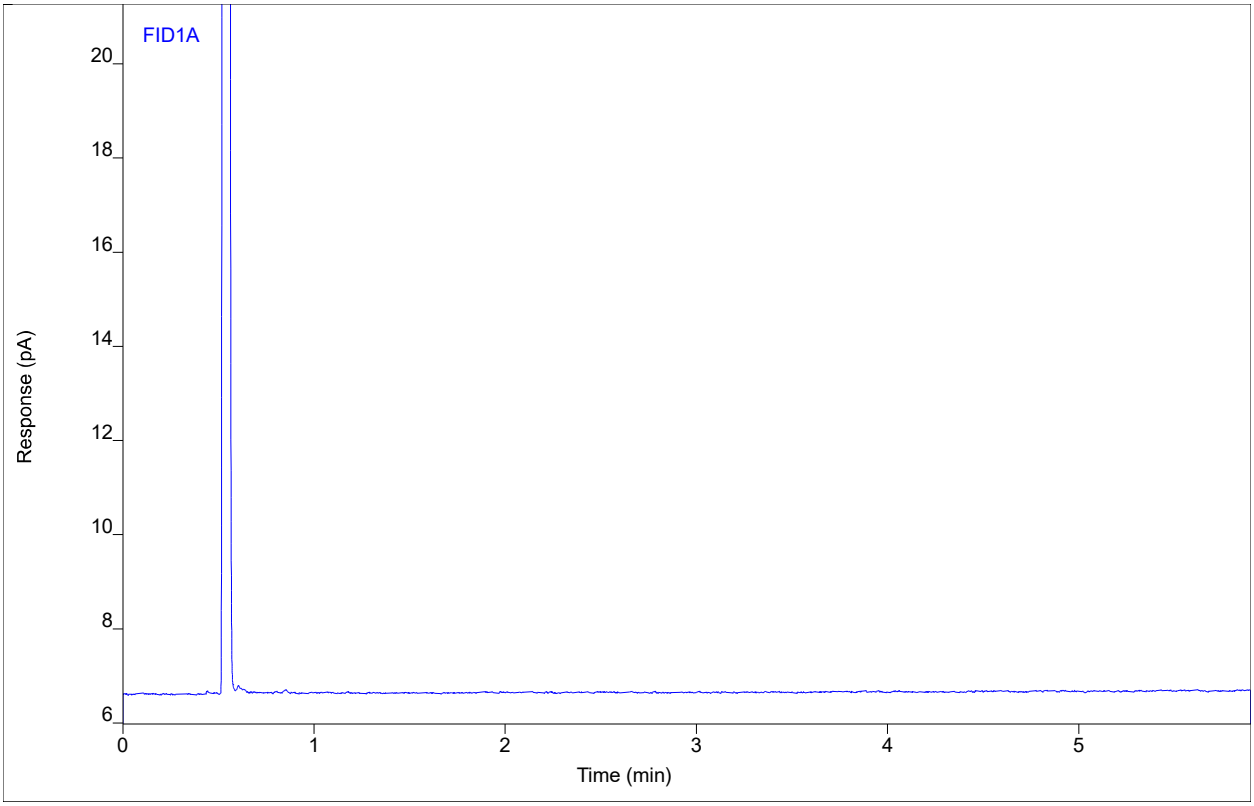
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	048F2101.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 8:27 PM
File Modified	12/28/2021 2:27 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 48
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



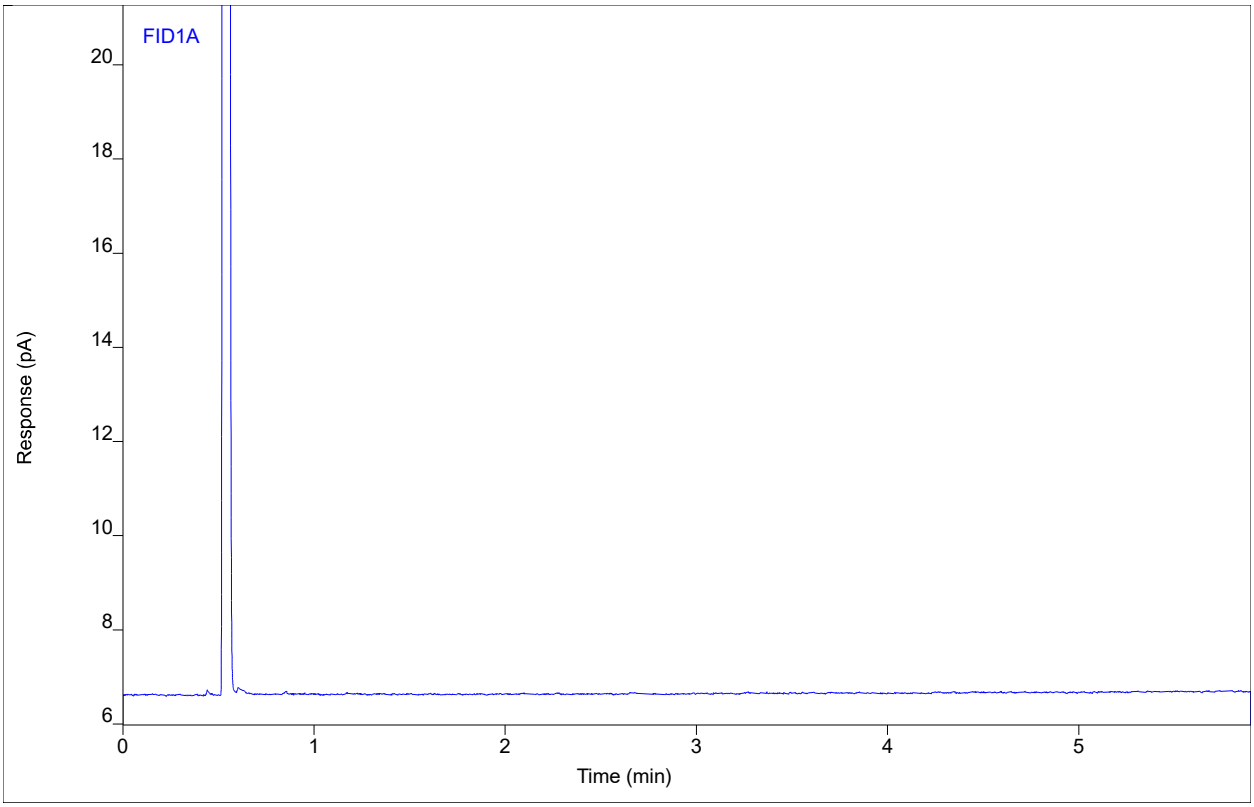
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	048F2102.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 8:37 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 48
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



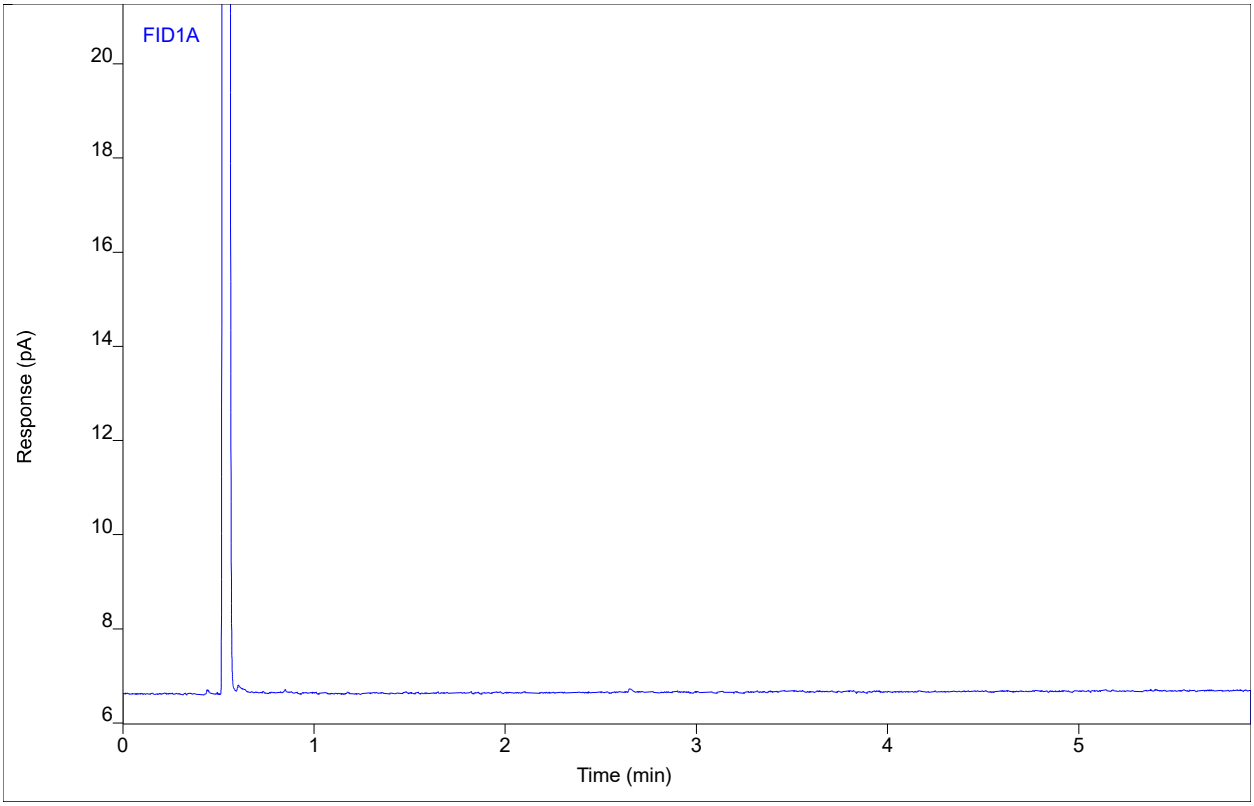
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	048F2103.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 8:47 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 48
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



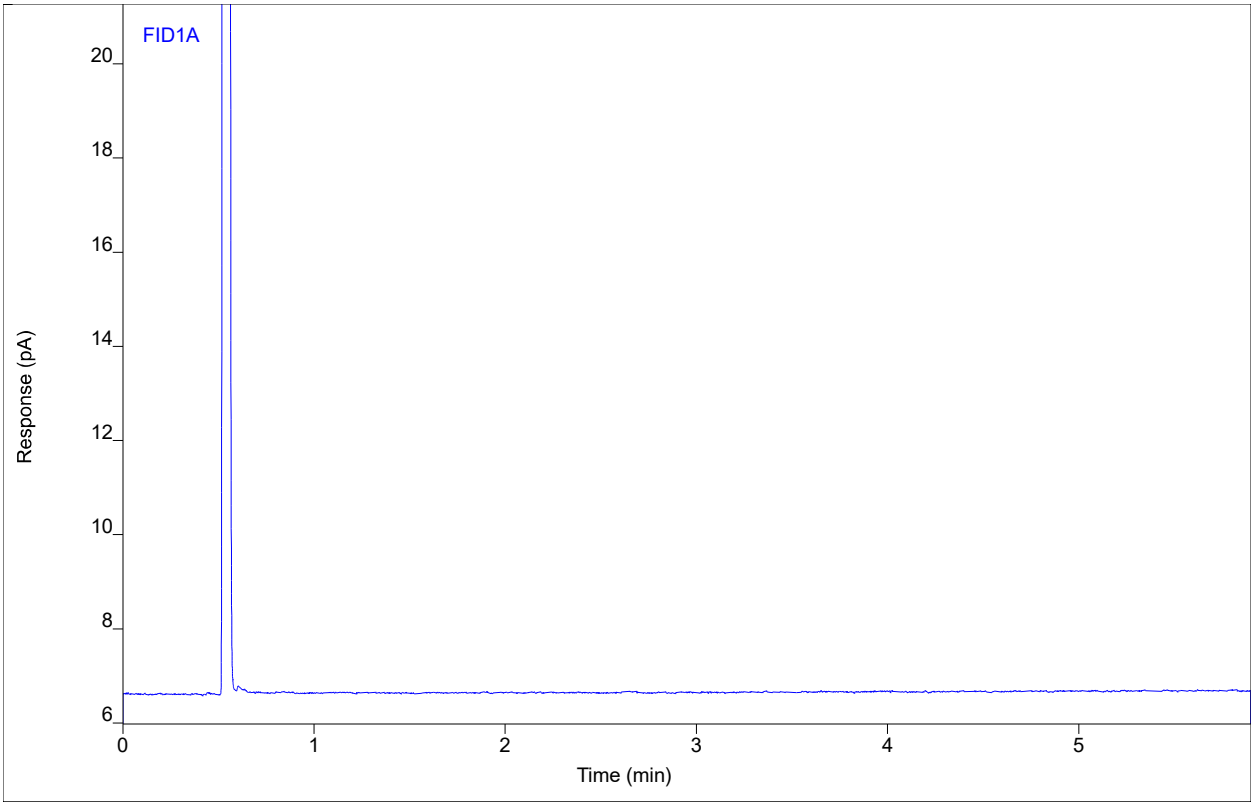
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R2.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	049F2201.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 8:58 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 49
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



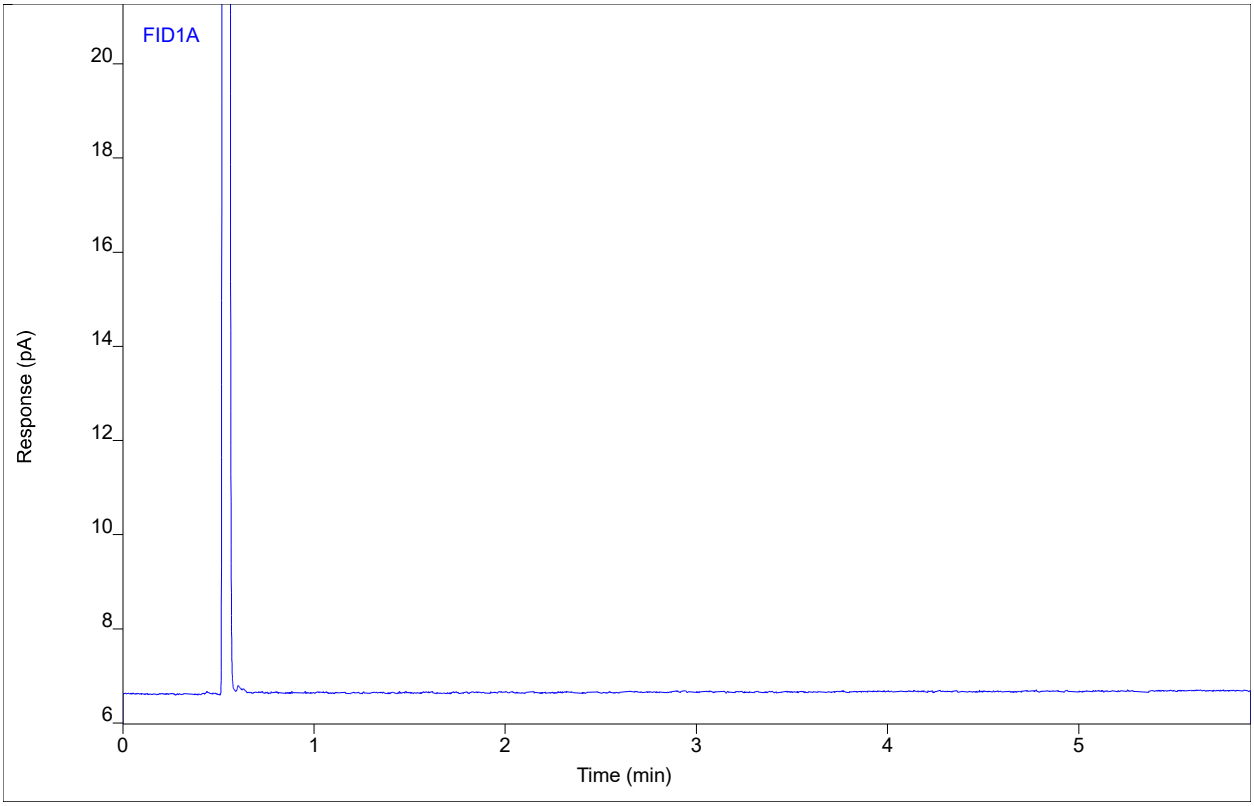
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R2.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	049F2202.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 9:08 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 49
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



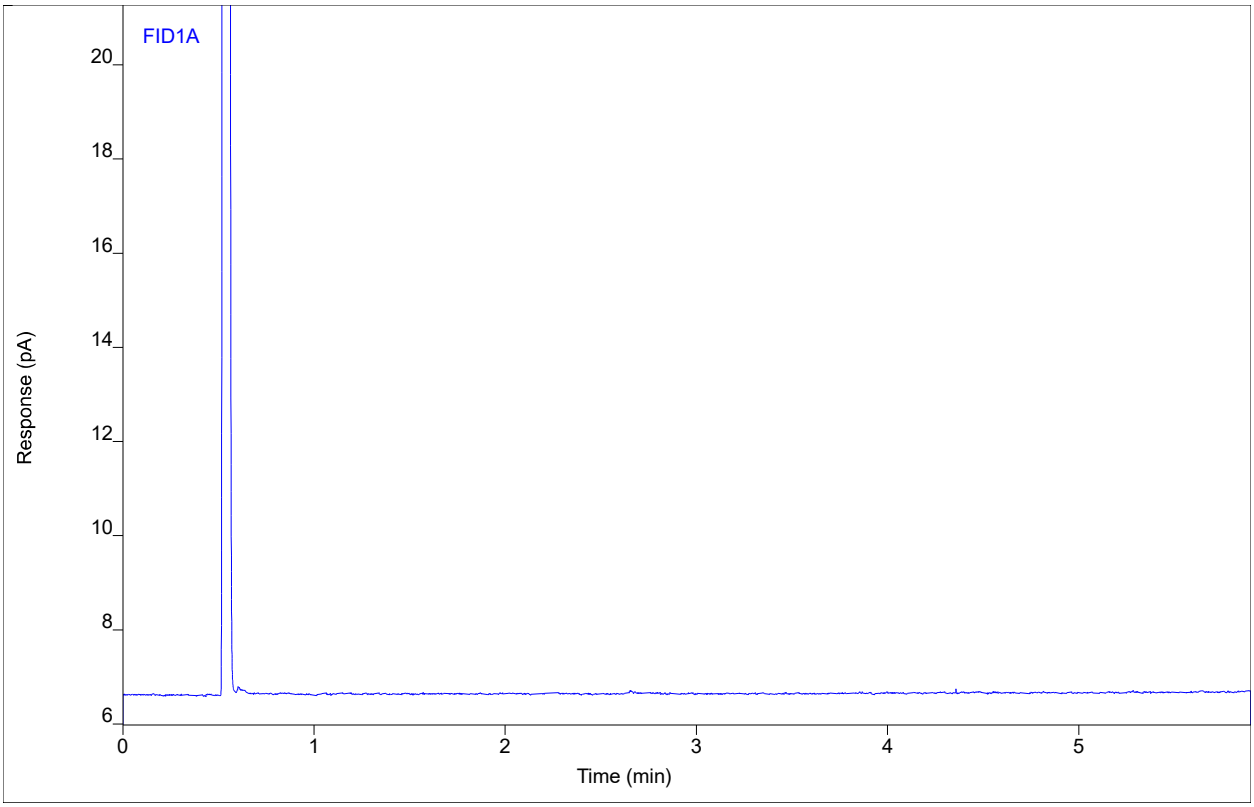
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R2.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	049F2203.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 9:18 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 49
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



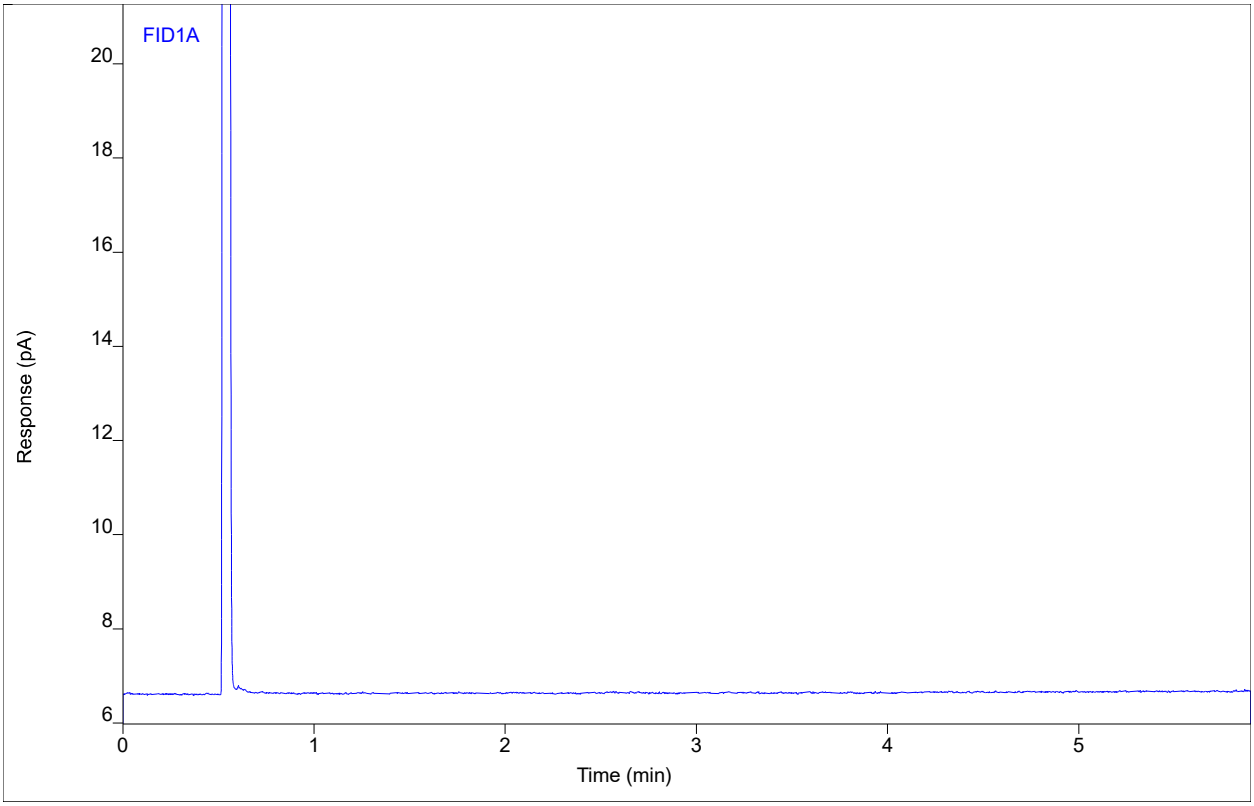
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R3.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	050F2301.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 9:29 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 50
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



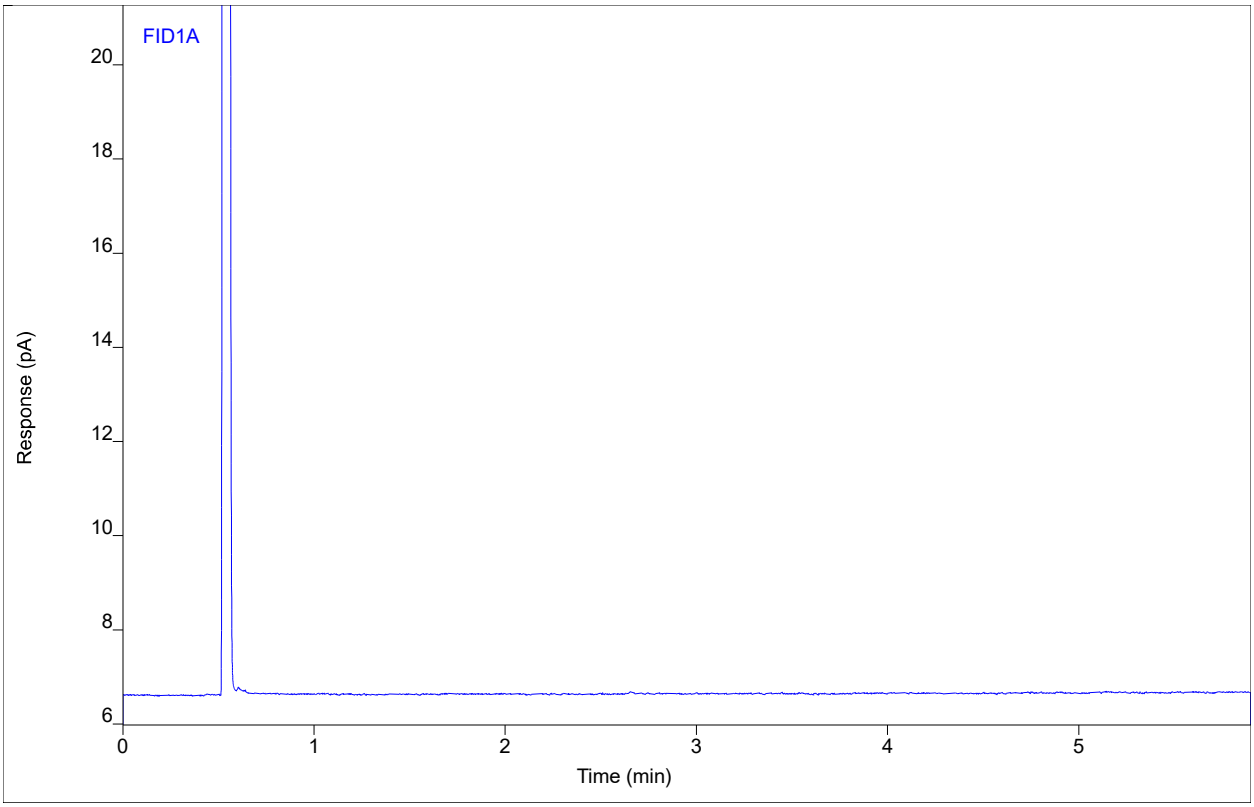
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R3.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	050F2302.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 9:39 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 50
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



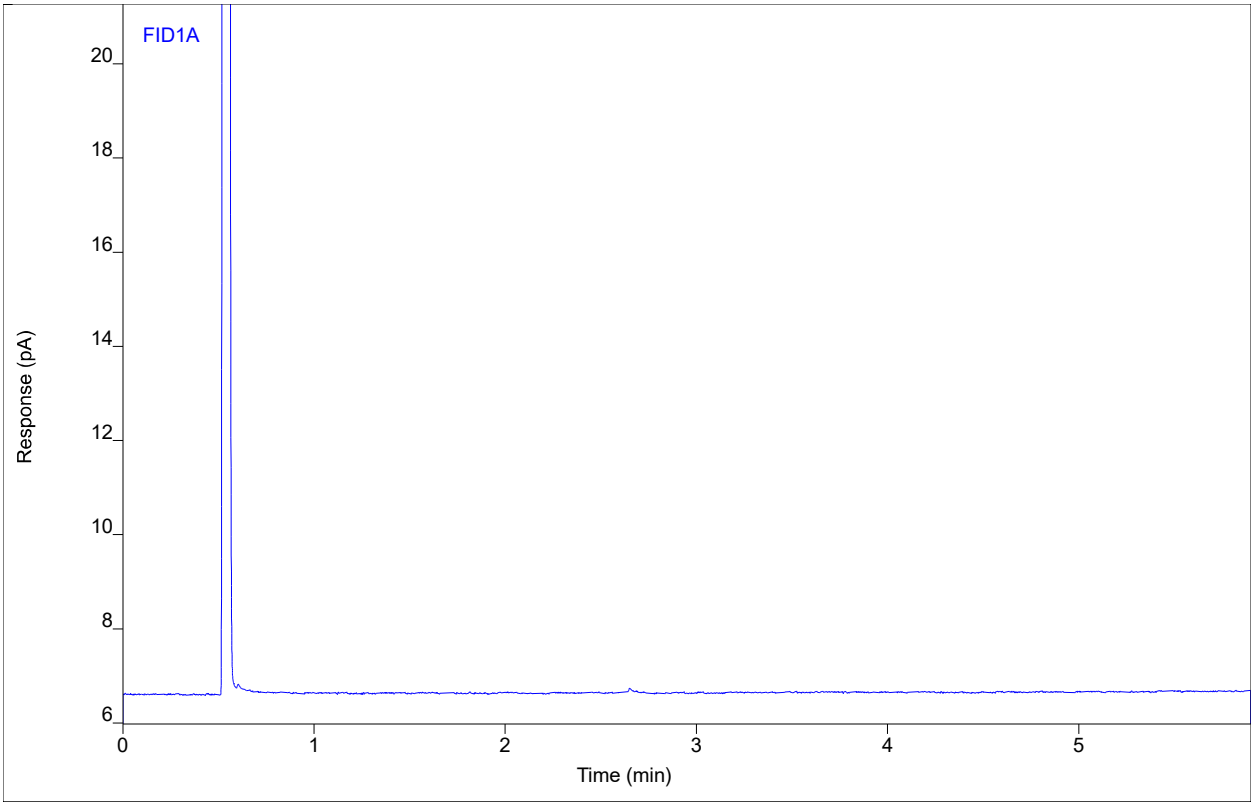
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R3.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	050F2303.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 9:49 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 50
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



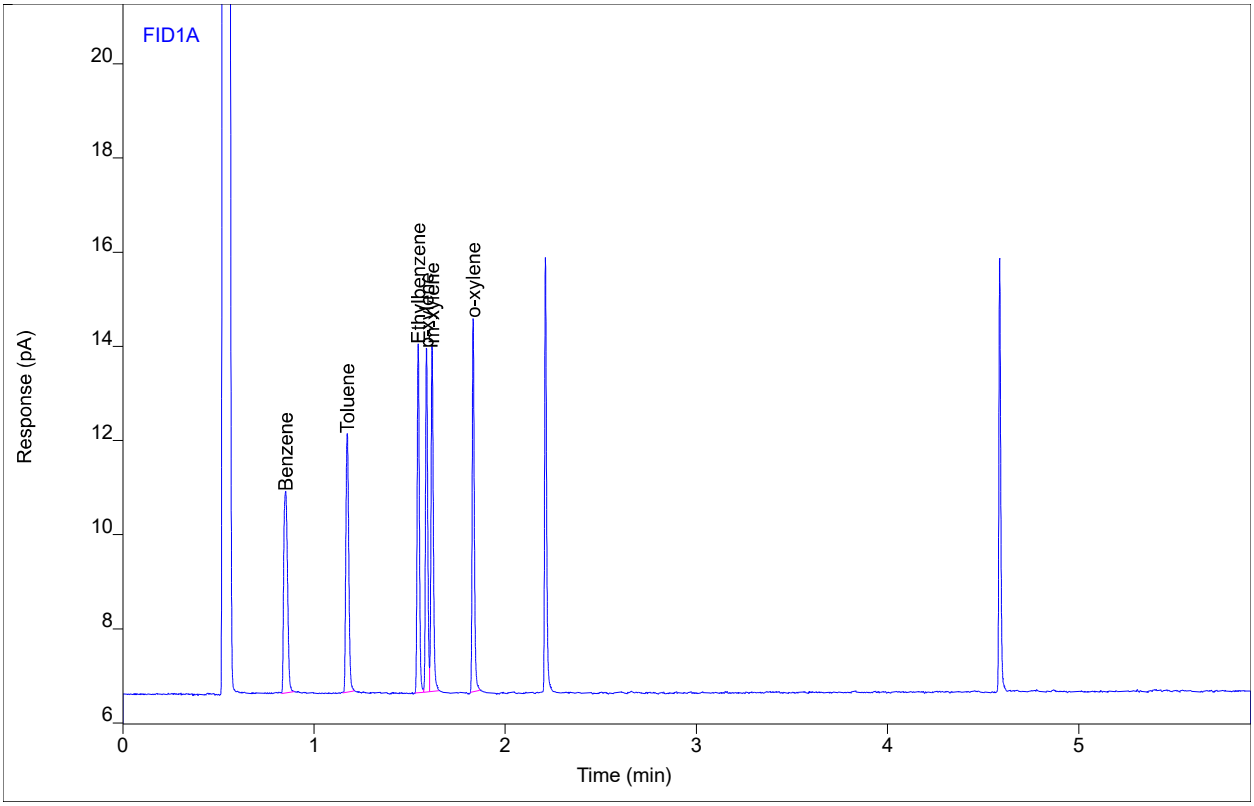
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene		(0.85)				1		
Toluene		(1.18)				1		
Ethylbenzene		(1.55)				1		
p-xylene		(1.60)				1		
m-xylene		(1.63)				1		
o-xylene		(1.84)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #4
Sequence Name	LUCY1091 ver.2
Inj Data File	024F2401.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 10:00 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	Vial 24
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



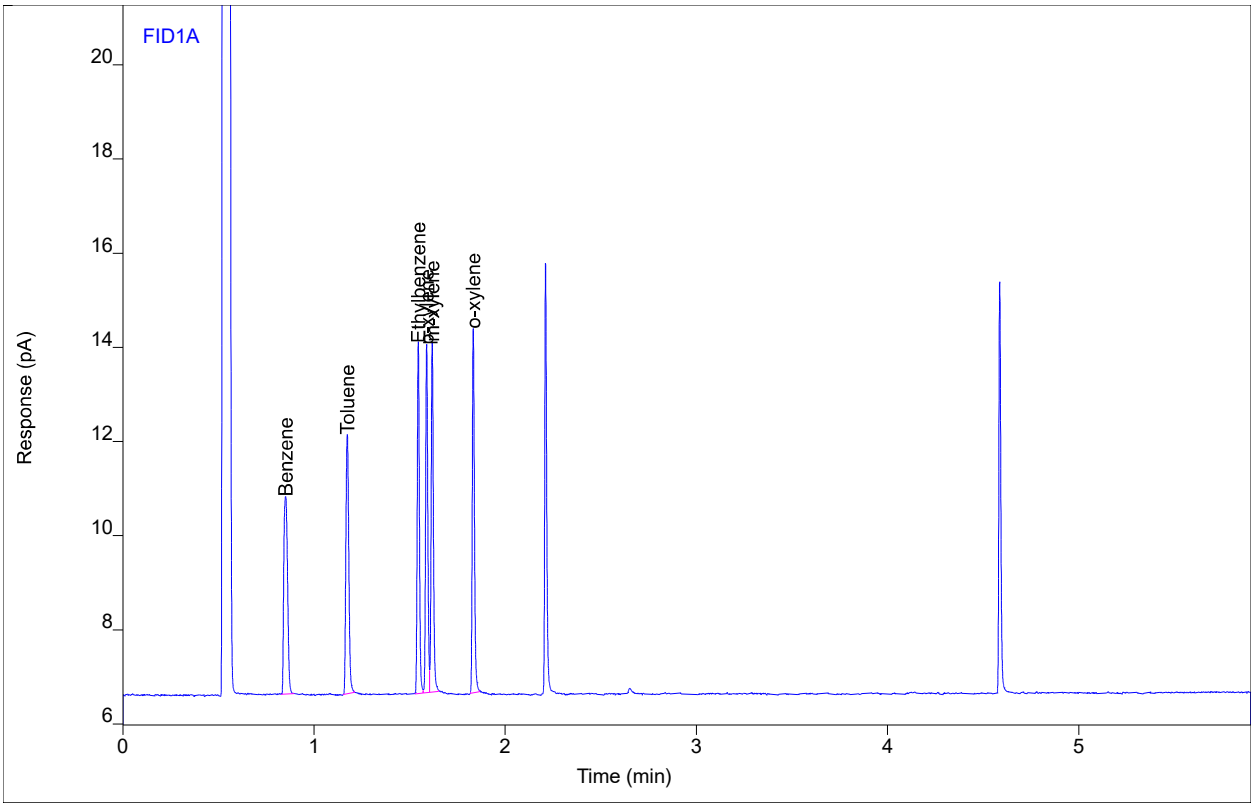
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	5.88452	4.28273	51.5454	1	51.5454	µg/mL
Toluene	BB	1.17	5.75578	5.49752	50.4556	1	50.4556	µg/mL
Ethylbenzene	BB	1.55	5.90667	7.40398	51.4222	1	51.4222	µg/mL
p-xylene	BV	1.59	5.77187	7.29971	50.9842	1	50.9842	µg/mL
m-xylene	VB	1.62	6.12163	7.39129	52.3542	1	52.3542	µg/mL
o-xylene	BB	1.83	5.95971	7.94016	52.2705	1	52.2705	µg/mL

Chromatogram Report

Sample Name	gcstds1584 #4
Sequence Name	LUCY1091 ver.2
Inj Data File	024F2402.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 10:10 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 24
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



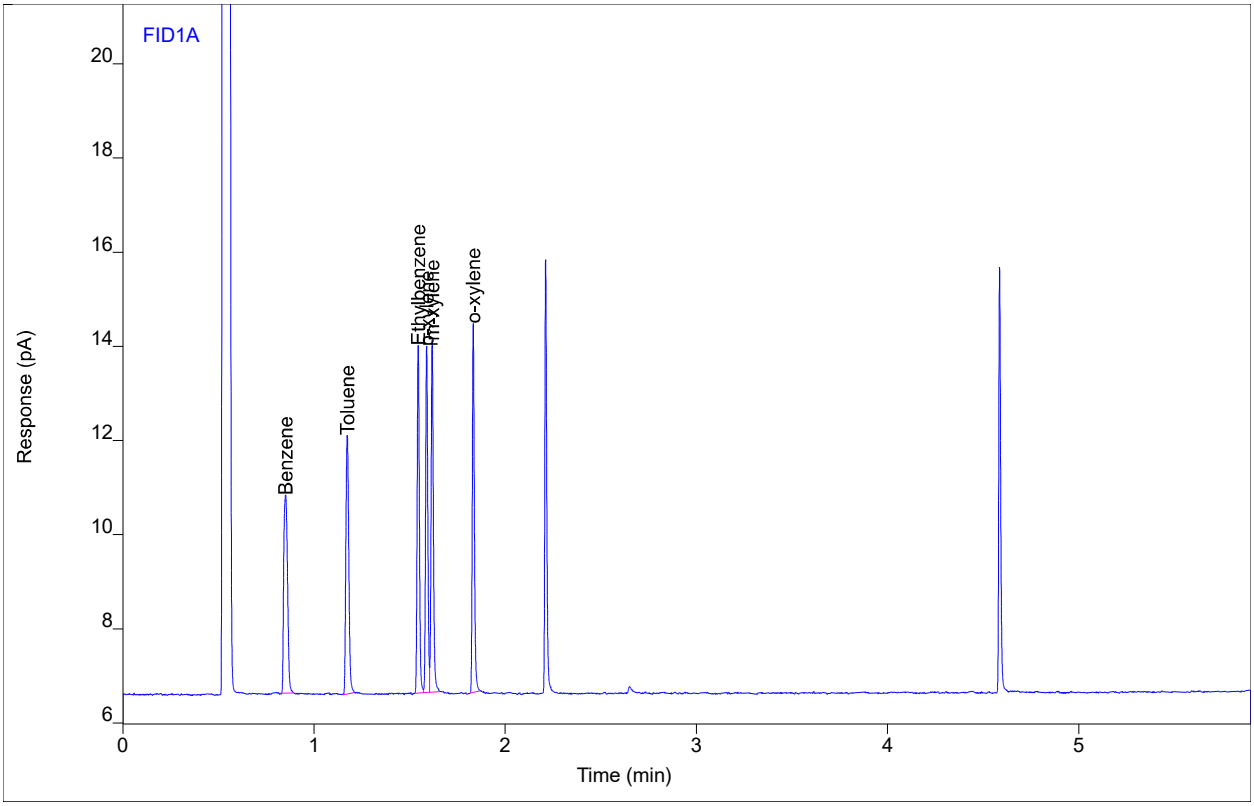
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	5.79916	4.20063	50.7980	1	50.7980	µg/mL
Toluene	BB	1.17	5.79752	5.51466	50.8197	1	50.8197	µg/mL
Ethylbenzene	BV	1.55	5.89636	7.45956	51.3331	1	51.3331	µg/mL
p-xylene	VV	1.59	5.75760	7.38467	50.8591	1	50.8591	µg/mL
m-xylene	VB	1.62	6.07559	7.43966	51.9626	1	51.9626	µg/mL
o-xylene	BB	1.83	5.95959	7.73163	52.2694	1	52.2694	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #4
Sequence Name	LUCY1091 ver.2
Inj Data File	024F2403.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 10:20 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	Vial 24
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



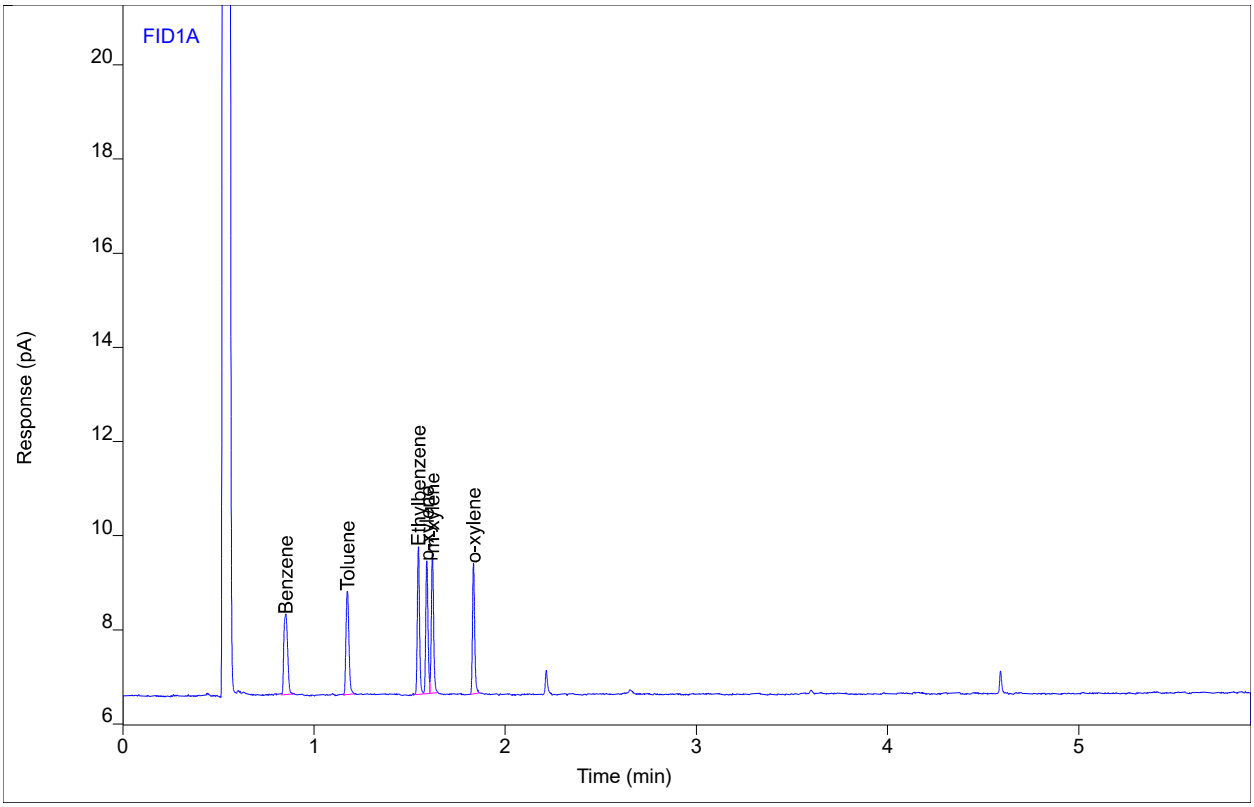
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	5.79850	4.21480	50.7922	1	50.7922	µg/mL
Toluene	BB	1.17	5.83716	5.49476	51.1655	1	51.1655	µg/mL
Ethylbenzene	BV	1.55	5.91419	7.38672	51.4873	1	51.4873	µg/mL
p-xylene	VV	1.59	5.78554	7.34678	51.1041	1	51.1041	µg/mL
m-xylene	VB	1.62	6.14442	7.46770	52.5481	1	52.5481	µg/mL
o-xylene	BB	1.83	5.92675	7.82207	51.9832	1	51.9832	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1-SPK.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	051F2501.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 10:31 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 51
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



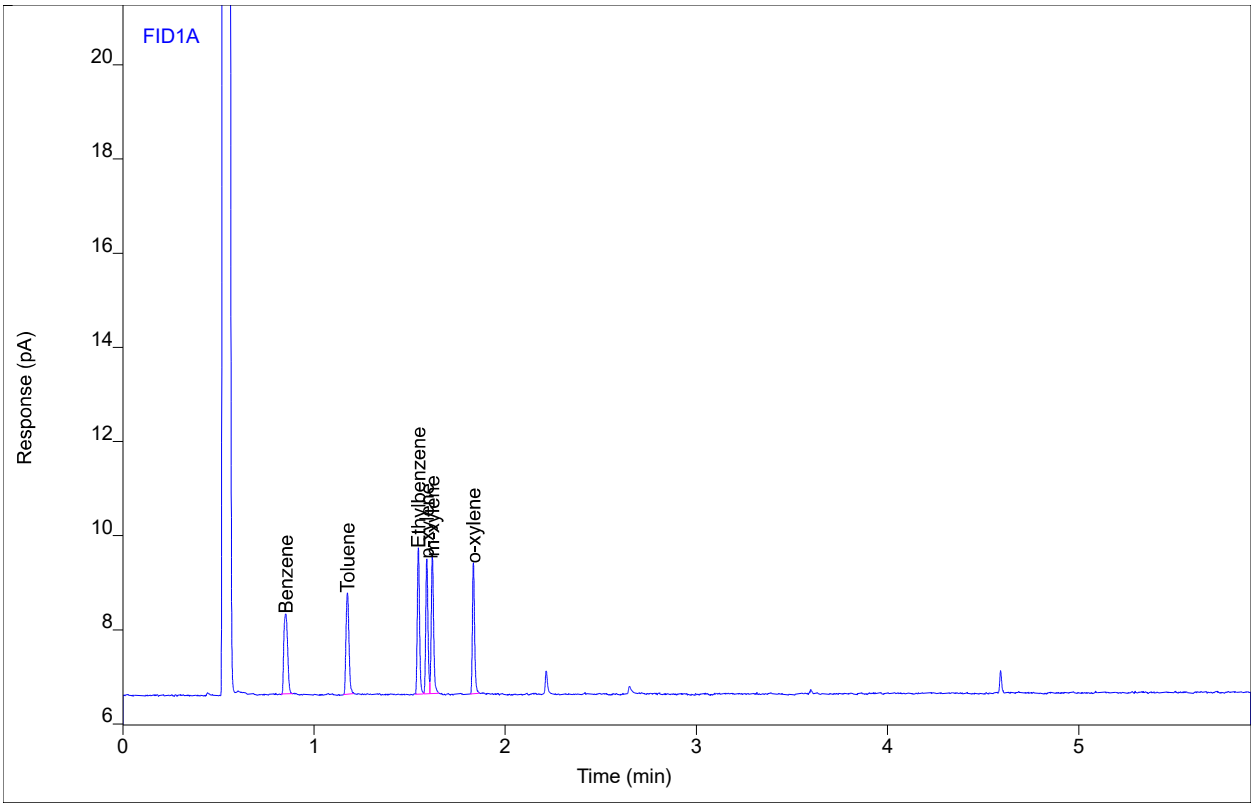
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	2.36613	1.70209	20.7387	1	20.7387	µg/mL
Toluene	BB	1.17	2.35374	2.20733	20.7781	1	20.7781	µg/mL
Ethylbenzene	BB	1.55	2.52373	3.14388	22.1641	1	22.1641	µg/mL
p-xylene	BV	1.59	2.30470	2.81456	20.5788	1	20.5788	µg/mL
m-xylene	VB	1.62	2.47090	2.96414	21.3001	1	21.3001	µg/mL
o-xylene	BB	1.83	2.17372	2.77618	19.2726	1	19.2726	µg/mL

Chromatogram Report

Sample Name	1221-059.R1-SPK.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	051F2502.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 10:41 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 51
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



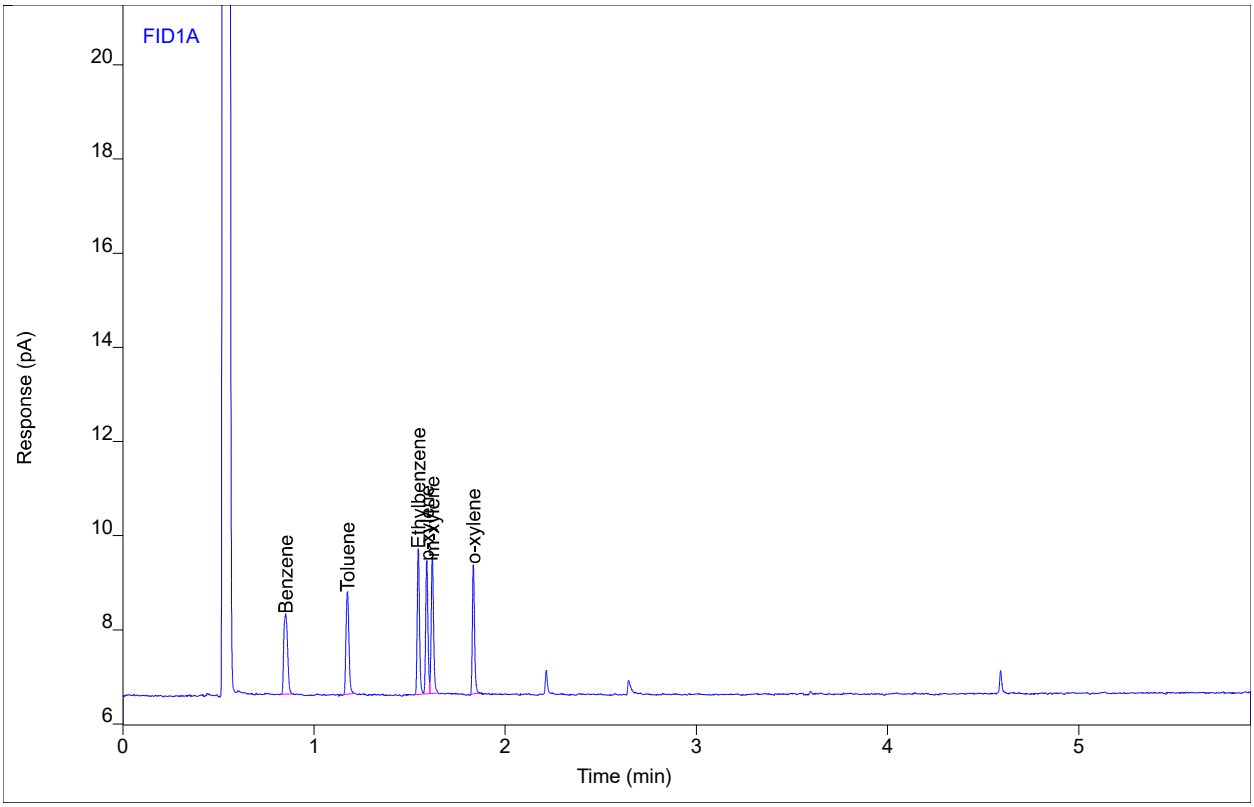
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	2.31464	1.70714	20.2879	1	20.2879	µg/mL
Toluene	BB	1.17	2.32615	2.15655	20.5374	1	20.5374	µg/mL
Ethylbenzene	BB	1.55	2.50326	3.10636	21.9871	1	21.9871	µg/mL
p-xylene	BV	1.59	2.29175	2.87127	20.4653	1	20.4653	µg/mL
m-xylene	VB	1.62	2.50069	2.90499	21.5535	1	21.5535	µg/mL
o-xylene	BB	1.83	2.16641	2.76996	19.2088	1	19.2088	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1-SPK.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	051F2503.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 10:52 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 51
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



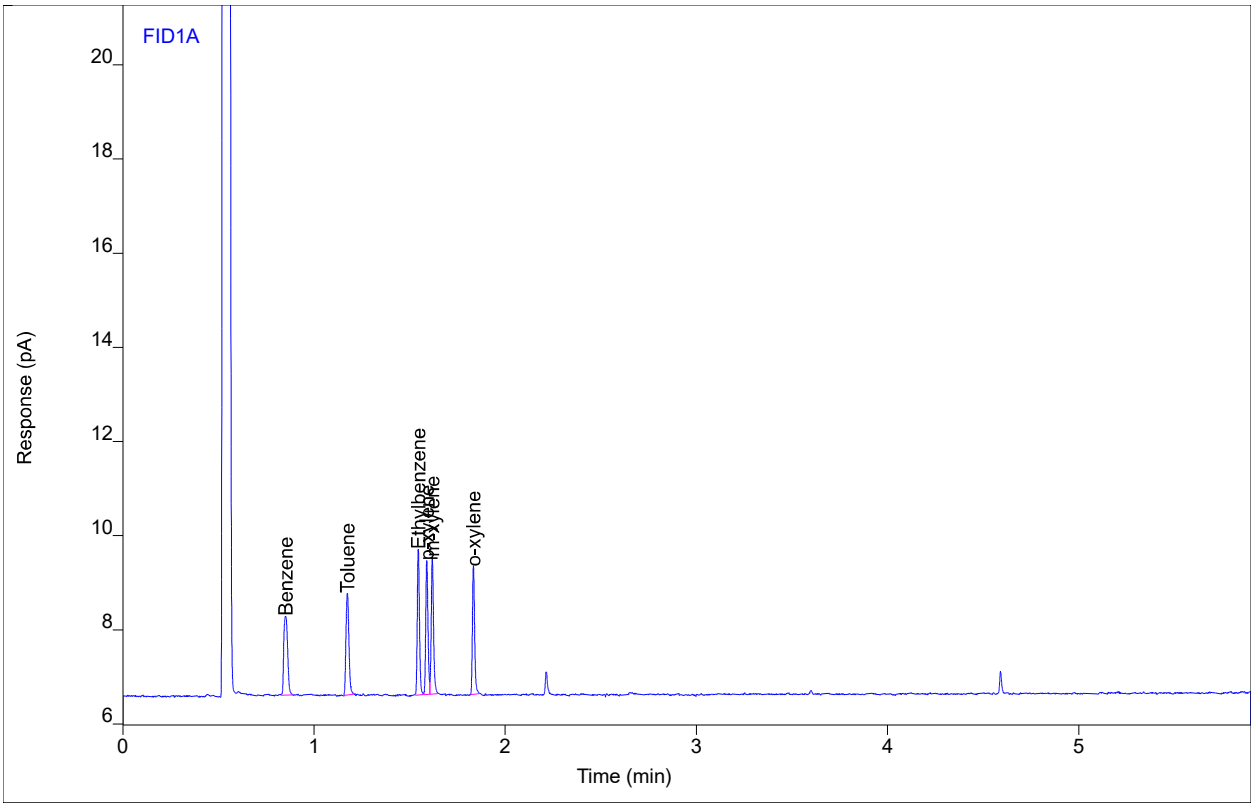
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	2.35381	1.71084	20.6308	1	20.6308	µg/mL
Toluene	BB	1.17	2.31149	2.17463	20.4095	1	20.4095	µg/mL
Ethylbenzene	BB	1.55	2.52902	3.10215	22.2099	1	22.2099	µg/mL
p-xylene	BV	1.59	2.29218	2.82506	20.4690	1	20.4690	µg/mL
m-xylene	VB	1.62	2.48718	2.90408	21.4386	1	21.4386	µg/mL
o-xylene	BB	1.83	2.15378	2.75789	19.0988	1	19.0988	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1-SPK-LD.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	052F2601.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 11:02 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 52
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



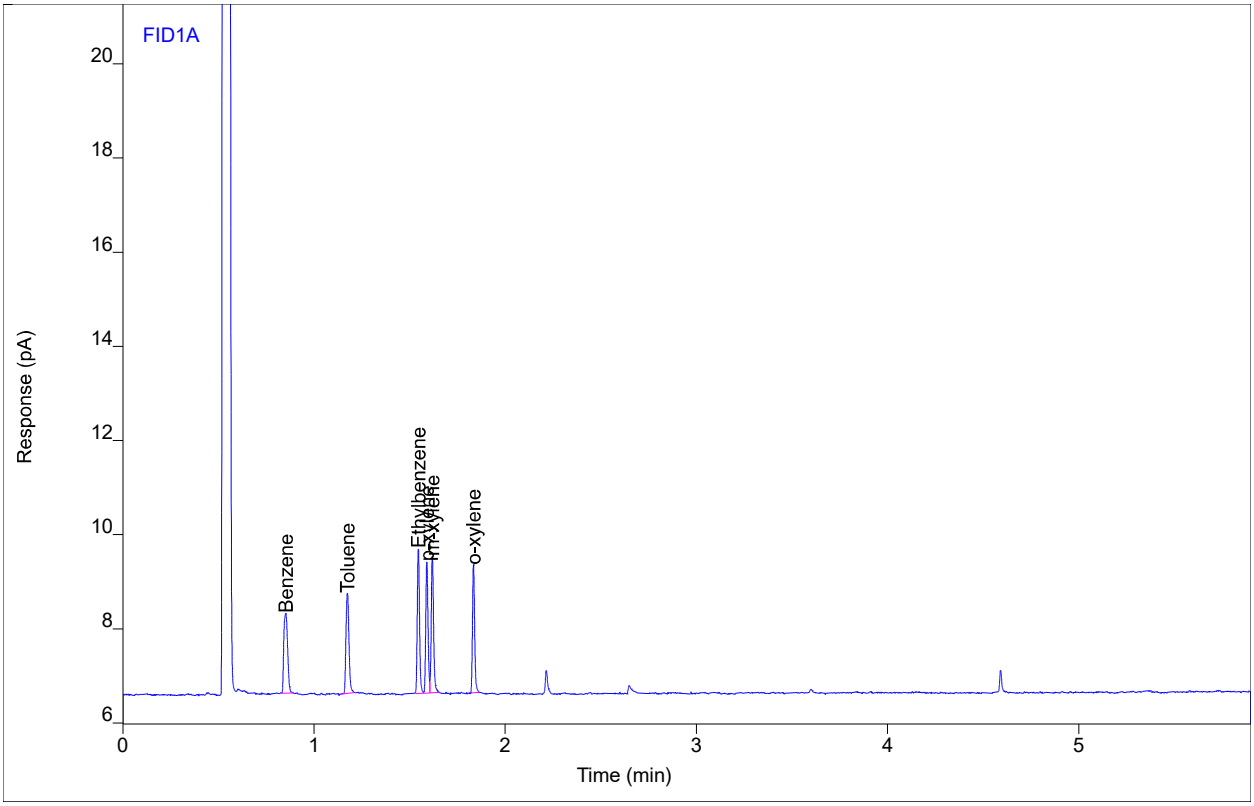
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	2.35026	1.68601	20.5997	1	20.5997	µg/mL
Toluene	BB	1.17	2.29459	2.16198	20.2621	1	20.2621	µg/mL
Ethylbenzene	BB	1.55	2.48980	3.10068	21.8707	1	21.8707	µg/mL
p-xylene	BV	1.59	2.30563	2.84179	20.5870	1	20.5870	µg/mL
m-xylene	VB	1.62	2.46035	2.90632	21.2104	1	21.2104	µg/mL
o-xylene	BB	1.83	2.15564	2.72711	19.1150	1	19.1150	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1-SPK-LD.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	052F2602.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 11:12 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 52
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



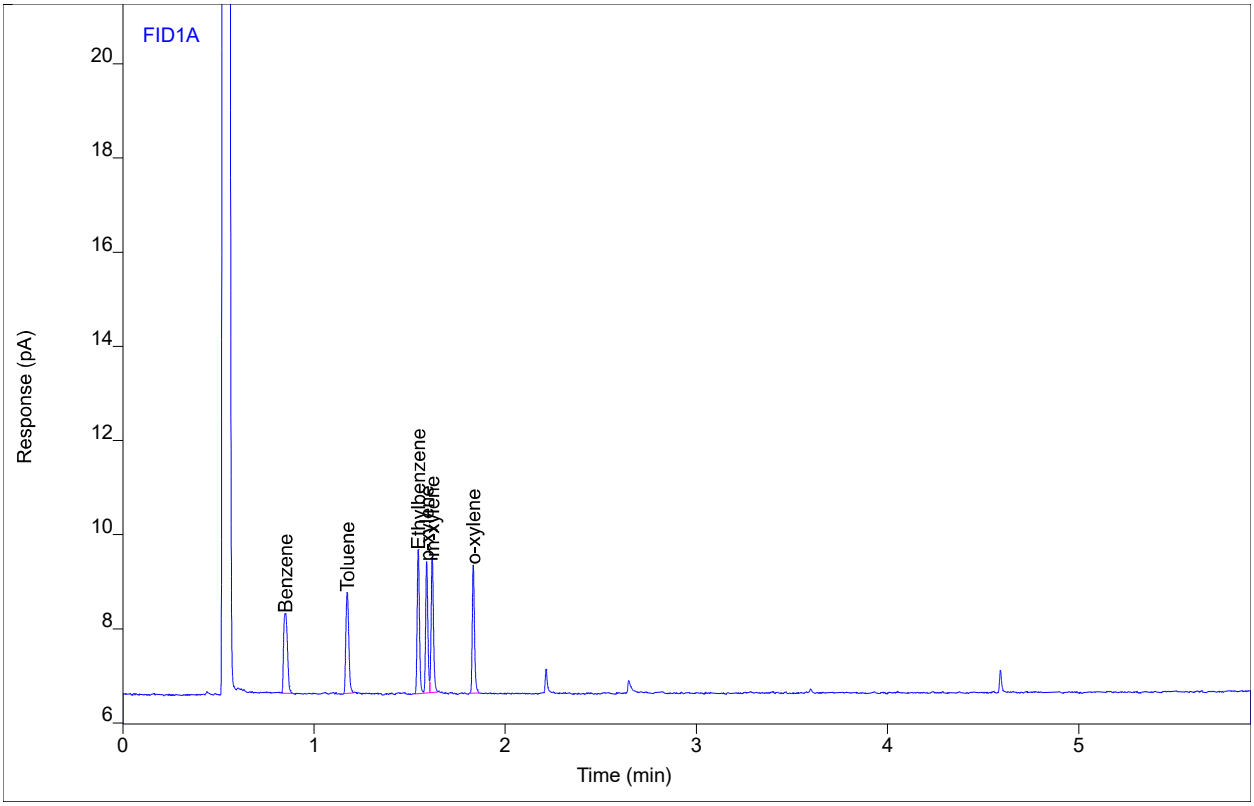
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	2.34931	1.71127	20.5914	1	20.5914	µg/mL
Toluene	BB	1.17	2.29954	2.13610	20.3053	1	20.3053	µg/mL
Ethylbenzene	BV	1.55	2.50222	3.07863	21.9781	1	21.9781	µg/mL
p-xylene	VV	1.59	2.27382	2.79708	20.3080	1	20.3080	µg/mL
m-xylene	VB	1.62	2.46100	2.90011	21.2159	1	21.2159	µg/mL
o-xylene	BB	1.83	2.12238	2.72169	18.8251	1	18.8251	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R1-SPK-LD.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	052F2603.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 11:23 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 52
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



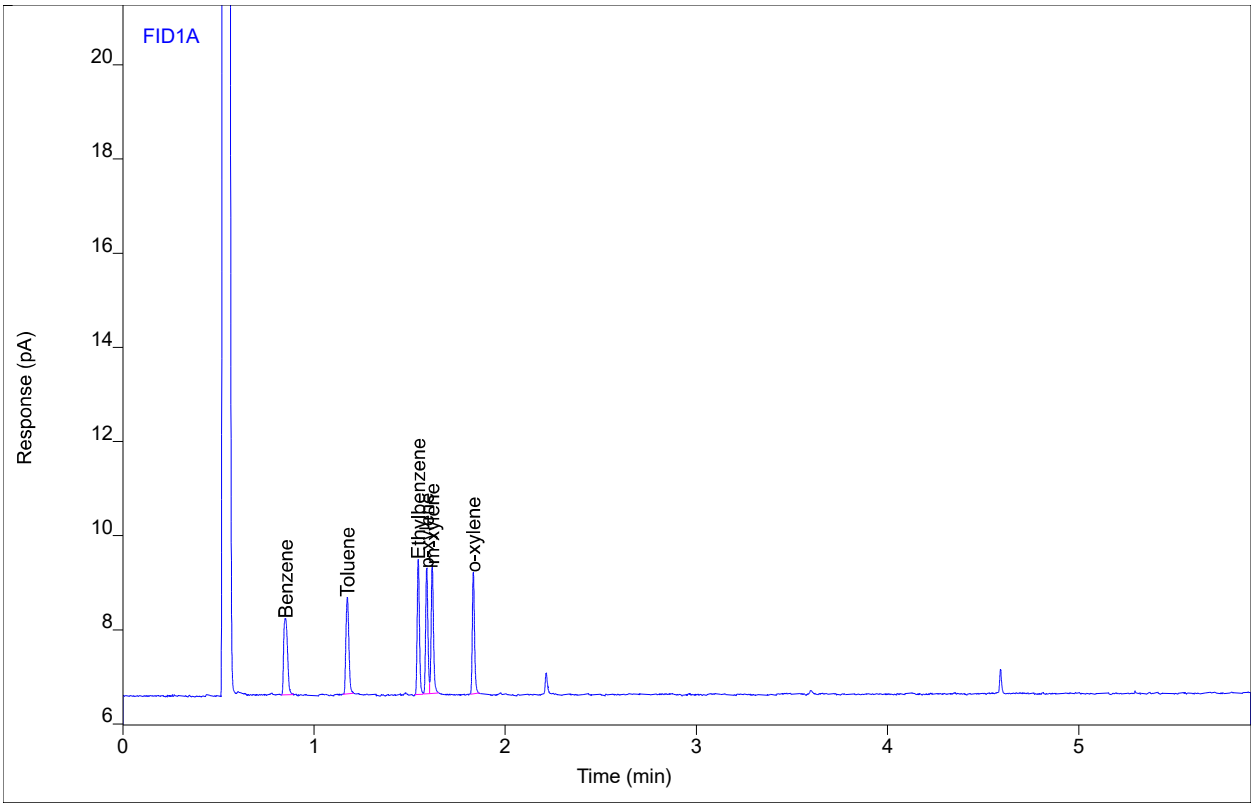
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	2.36113	1.71477	20.6949	1	20.6949	µg/mL
Toluene	BB	1.17	2.30946	2.16323	20.3919	1	20.3919	µg/mL
Ethylbenzene	BB	1.55	2.52659	3.06410	22.1888	1	22.1888	µg/mL
p-xylene	BV	1.59	2.28100	2.79481	20.3709	1	20.3709	µg/mL
m-xylene	VB	1.62	2.44746	2.88082	21.1007	1	21.1007	µg/mL
o-xylene	BB	1.83	2.17770	2.73397	19.3073	1	19.3073	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R2-SPK.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	053F2701.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 11:33 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 53
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



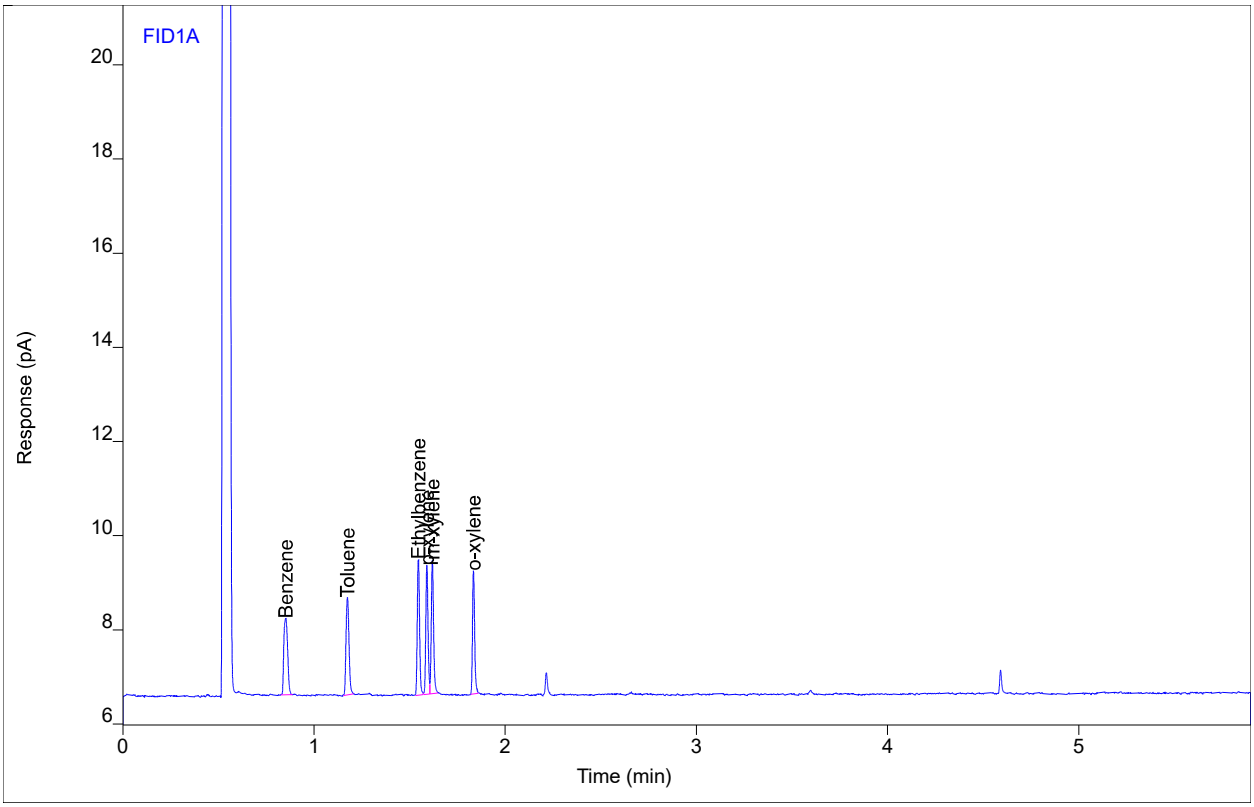
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	2.29034	1.63186	20.0751	1	20.0751	µg/mL
Toluene	BB	1.17	2.18343	2.05608	19.2924	1	19.2924	µg/mL
Ethylbenzene	BB	1.55	2.36332	2.86567	20.7767	1	20.7767	µg/mL
p-xylene	BV	1.59	2.17280	2.66825	19.4221	1	19.4221	µg/mL
m-xylene	VB	1.62	2.35048	2.74521	20.2758	1	20.2758	µg/mL
o-xylene	BB	1.83	2.05673	2.58722	18.2529	1	18.2529	µg/mL

Chromatogram Report

Sample Name	1221-059.R2-SPK.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	053F2702.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 11:43 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 53
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



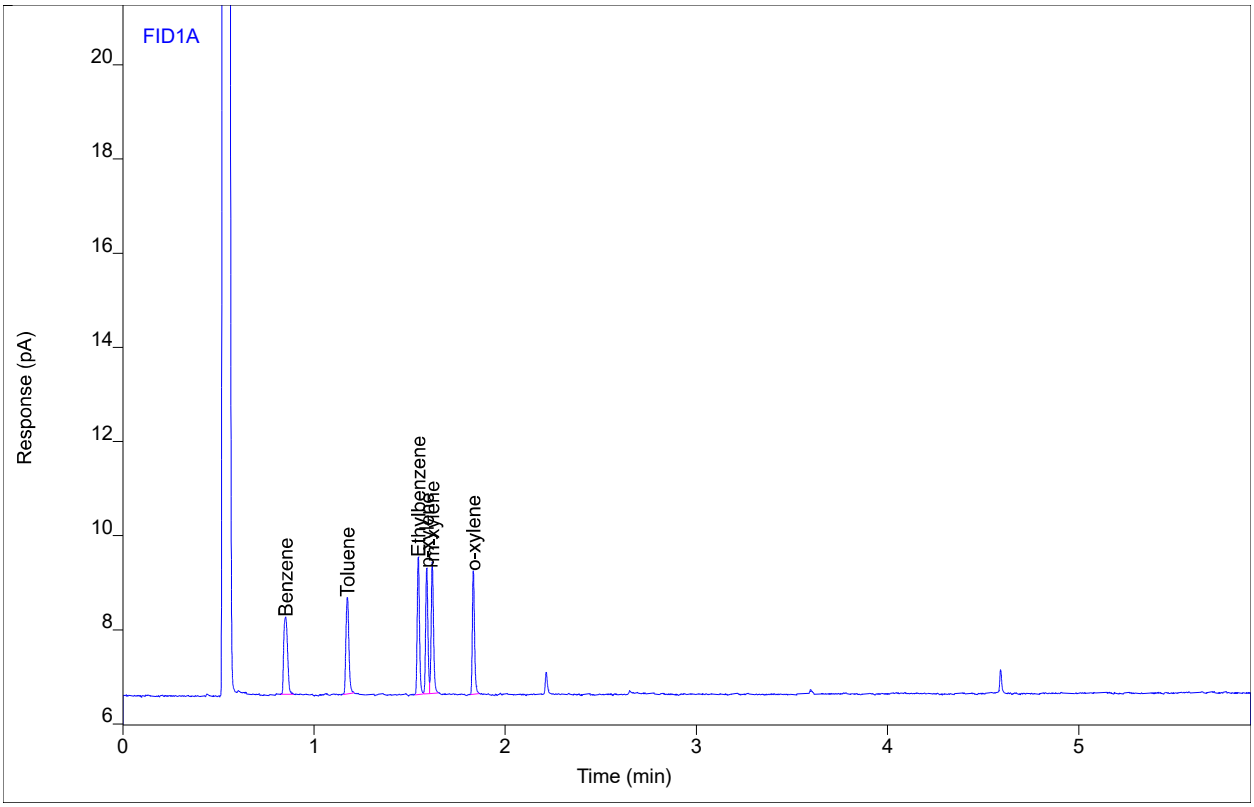
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	2.23246	1.62736	19.5683	1	19.5683	µg/mL
Toluene	BB	1.18	2.23111	2.06627	19.7083	1	19.7083	µg/mL
Ethylbenzene	BB	1.55	2.39486	2.89058	21.0495	1	21.0495	µg/mL
p-xylene	BV	1.59	2.20092	2.73972	19.6687	1	19.6687	µg/mL
m-xylene	VB	1.62	2.35117	2.83514	20.2816	1	20.2816	µg/mL
o-xylene	BB	1.83	2.03500	2.62152	18.0635	1	18.0635	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R2-SPK.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	053F2703.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/23/2021 11:54 PM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 53
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



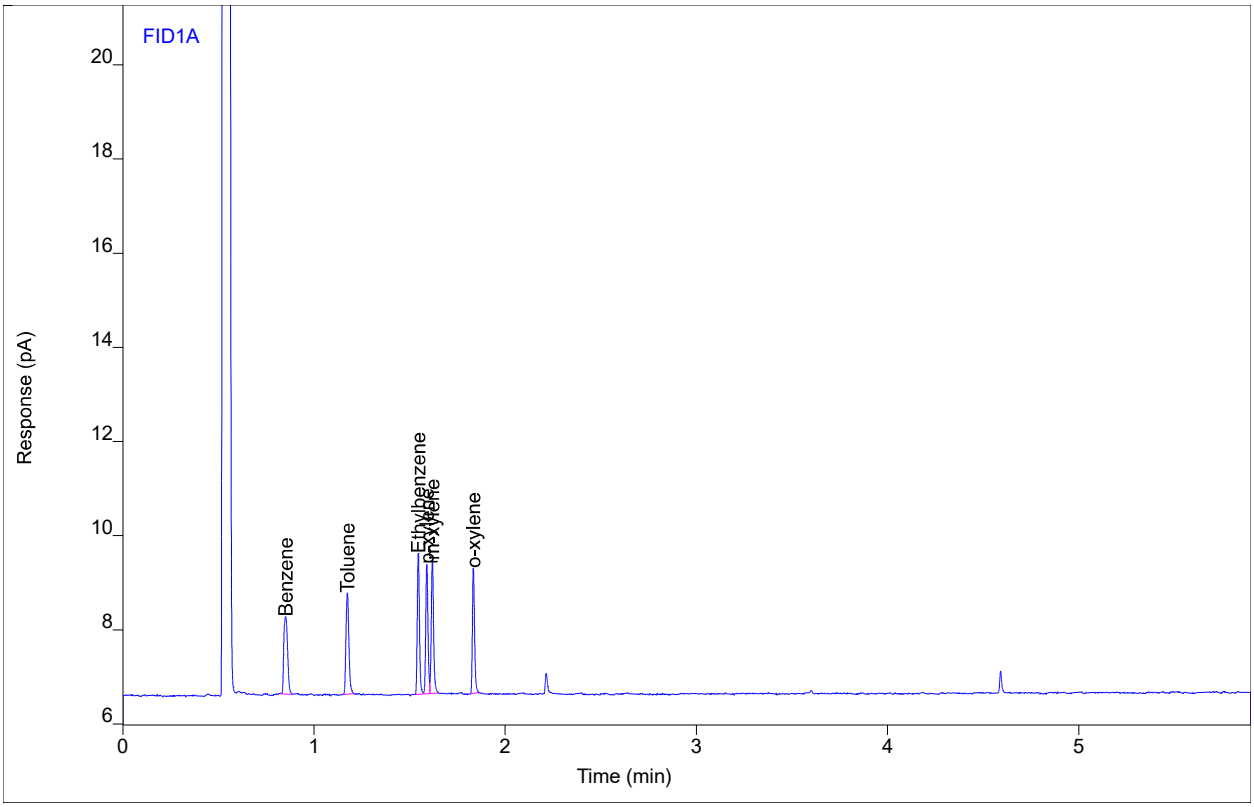
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	2.26152	1.64615	19.8227	1	19.8227	µg/mL
Toluene	BB	1.17	2.22881	2.05579	19.6883	1	19.6883	µg/mL
Ethylbenzene	BB	1.55	2.39209	2.92040	21.0256	1	21.0256	µg/mL
p-xylene	BV	1.59	2.16749	2.66749	19.3756	1	19.3756	µg/mL
m-xylene	VB	1.62	2.35358	2.78637	20.3021	1	20.3021	µg/mL
o-xylene	BB	1.83	2.05825	2.62675	18.2662	1	18.2662	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R3-SPK.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	054F2801.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 12:04 AM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 54
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



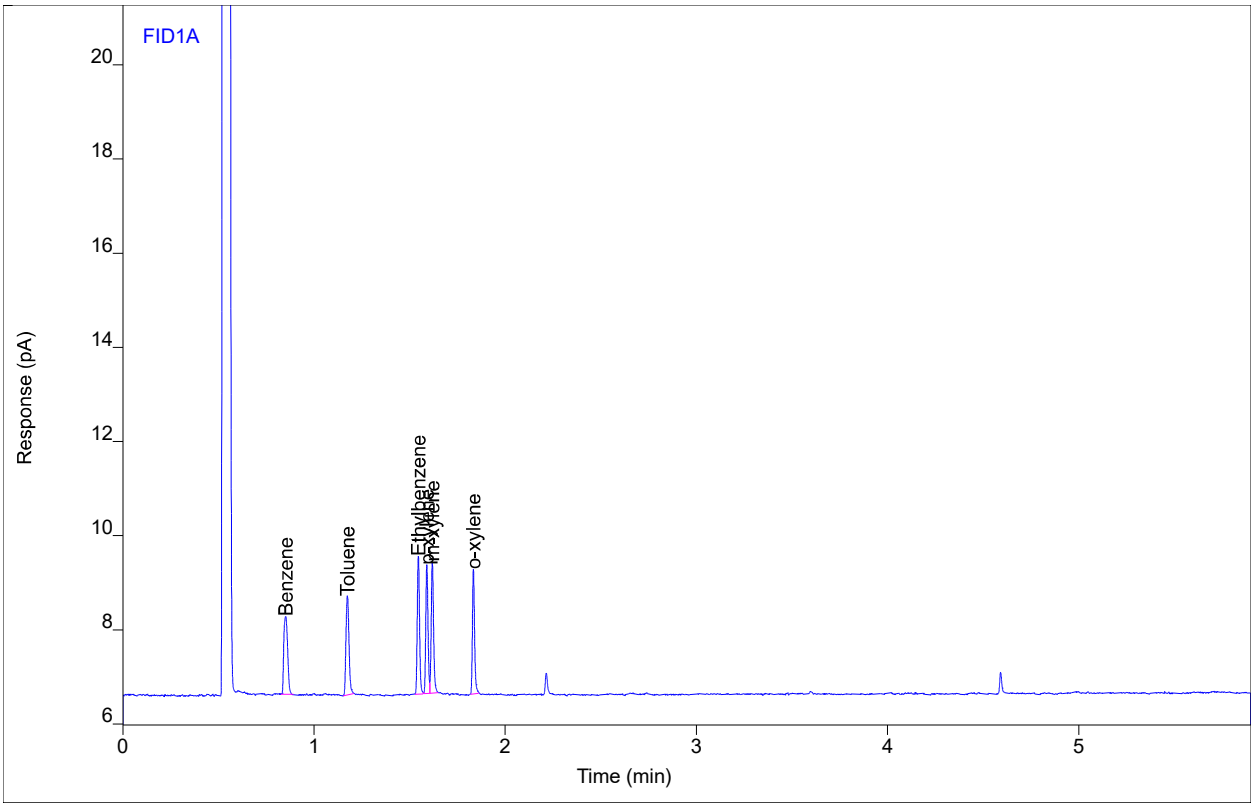
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	2.28149	1.65561	19.9976	1	19.9976	µg/mL
Toluene	BB	1.17	2.27092	2.14718	20.0557	1	20.0557	µg/mL
Ethylbenzene	BB	1.55	2.41758	3.00023	21.2460	1	21.2460	µg/mL
p-xylene	BV	1.59	2.21169	2.75808	19.7631	1	19.7631	µg/mL
m-xylene	VB	1.62	2.39157	2.82466	20.6253	1	20.6253	µg/mL
o-xylene	BB	1.83	2.05731	2.66505	18.2580	1	18.2580	µg/mL

Chromatogram Report

Sample Name	1221-059.R3-SPK.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	054F2802.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 12:14 AM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 54
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



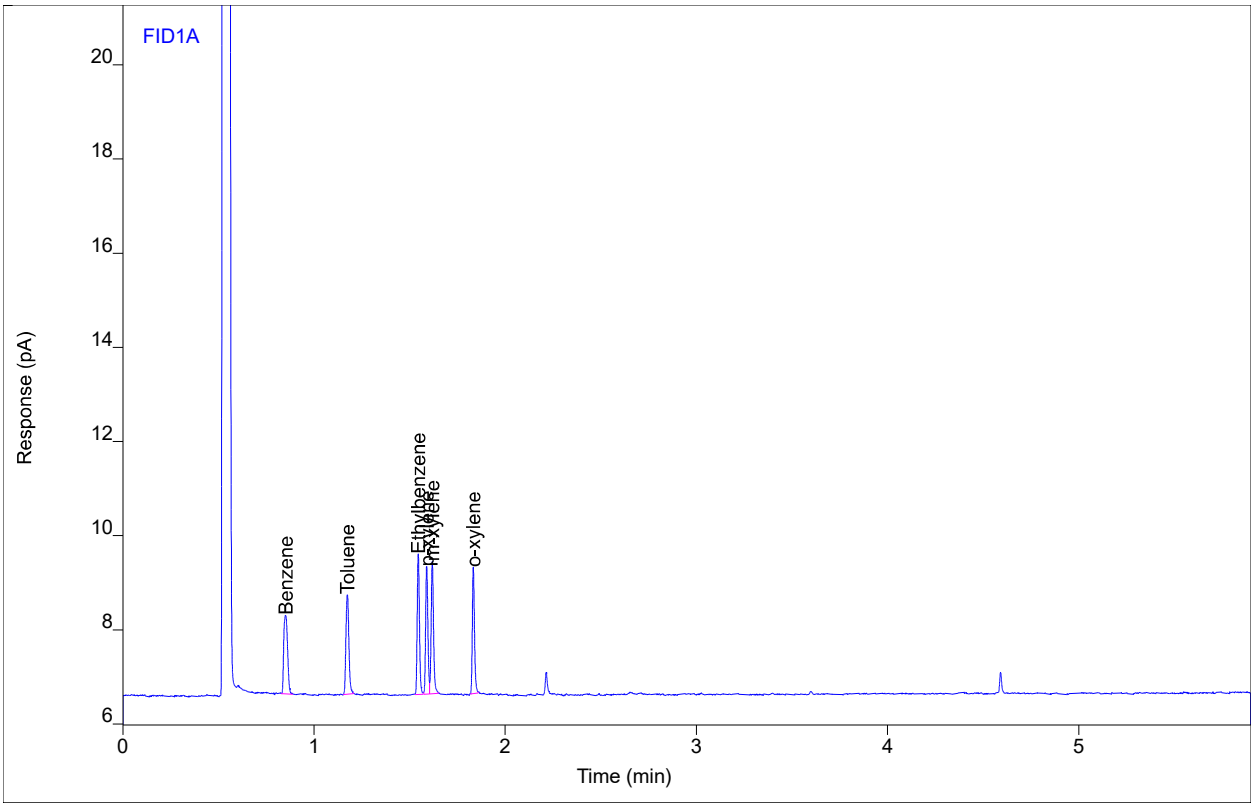
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	2.28333	1.66646	20.0137	1	20.0137	µg/mL
Toluene	BB	1.17	2.29672	2.09106	20.2807	1	20.2807	µg/mL
Ethylbenzene	BB	1.55	2.41458	2.94072	21.2201	1	21.2201	µg/mL
p-xylene	BV	1.59	2.21052	2.73894	19.7529	1	19.7529	µg/mL
m-xylene	VB	1.62	2.37298	2.80044	20.4672	1	20.4672	µg/mL
o-xylene	BB	1.83	2.08484	2.65346	18.4979	1	18.4979	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	1221-059.R3-SPK.FH
Sequence Name	LUCY1091 ver.2
Inj Data File	054F2803.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 12:25 AM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Sample
Vial Number	Vial 54
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



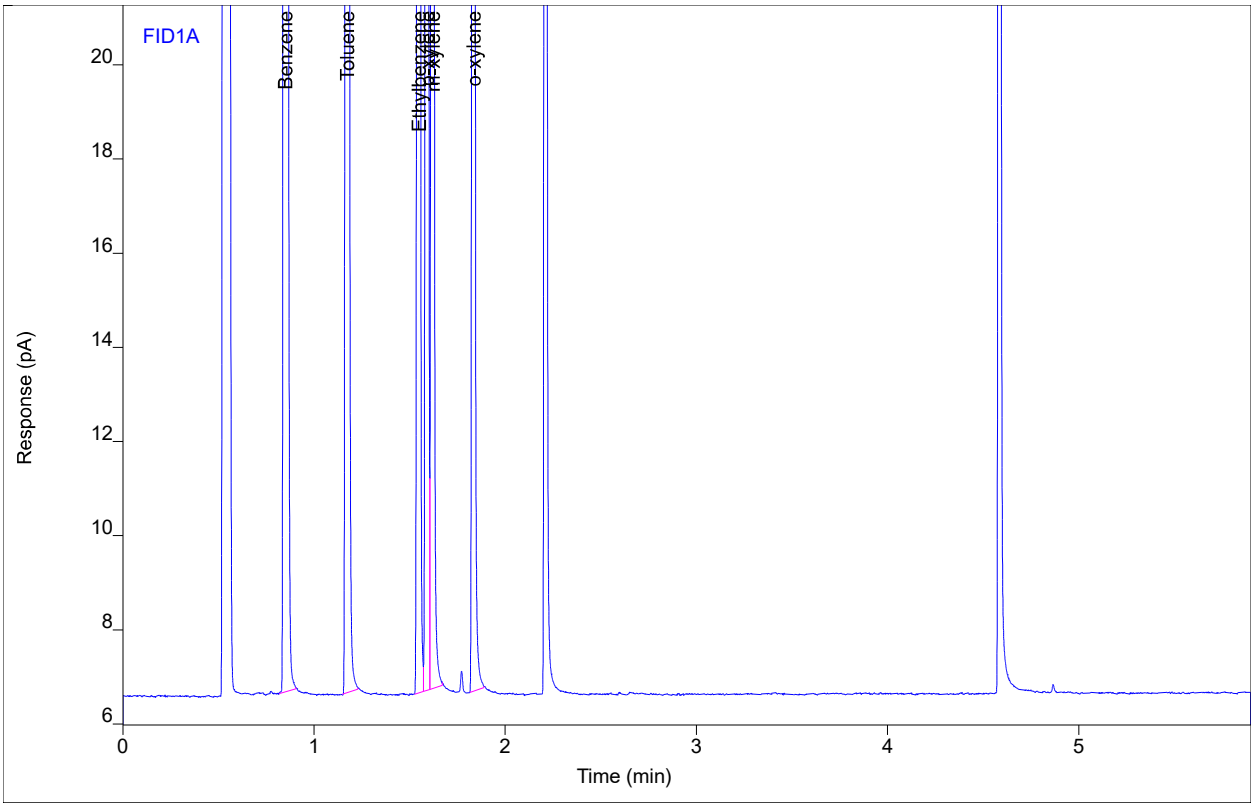
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	2.31797	1.68099	20.3170	1	20.3170	µg/mL
Toluene	BB	1.17	2.27524	2.12302	20.0933	1	20.0933	µg/mL
Ethylbenzene	BB	1.55	2.41139	2.99113	21.1925	1	21.1925	µg/mL
p-xylene	BV	1.59	2.20329	2.71346	19.6895	1	19.6895	µg/mL
m-xylene	VB	1.62	2.39414	2.80424	20.6472	1	20.6472	µg/mL
o-xylene	BB	1.83	2.07302	2.68747	18.3949	1	18.3949	µg/mL

Chromatogram Report

Sample Name	gcstds1584 #6
Sequence Name	LUCY1091 ver.2
Inj Data File	025F2901.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 12:35 AM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 25
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



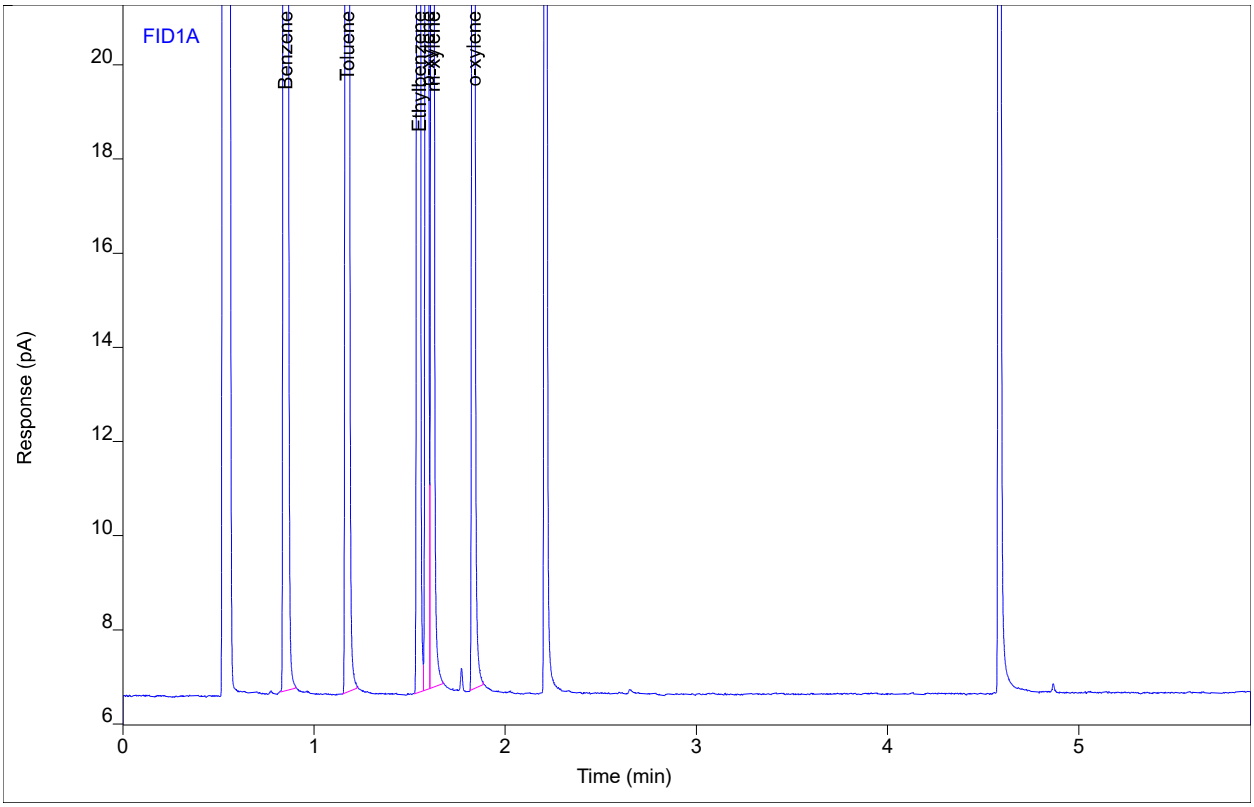
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	114.491	84.3188	1002.49	1	1002.49	µg/mL
Toluene	BB	1.17	115.262	111.650	1005.73	1	1005.73	µg/mL
Ethylbenzene	BV	1.55	116.802	137.119	1010.53	1	1010.53	µg/mL
p-xylene	VV	1.59	115.629	147.599	1014.37	1	1014.37	µg/mL
m-xylene	VB	1.62	119.195	167.875	1014.19	1	1014.19	µg/mL
o-xylene	BB	1.84	119.487	170.164	1041.75	1	1041.75	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #6
Sequence Name	LUCY1091 ver.2
Inj Data File	025F2902.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 12:45 AM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	Vial 25
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



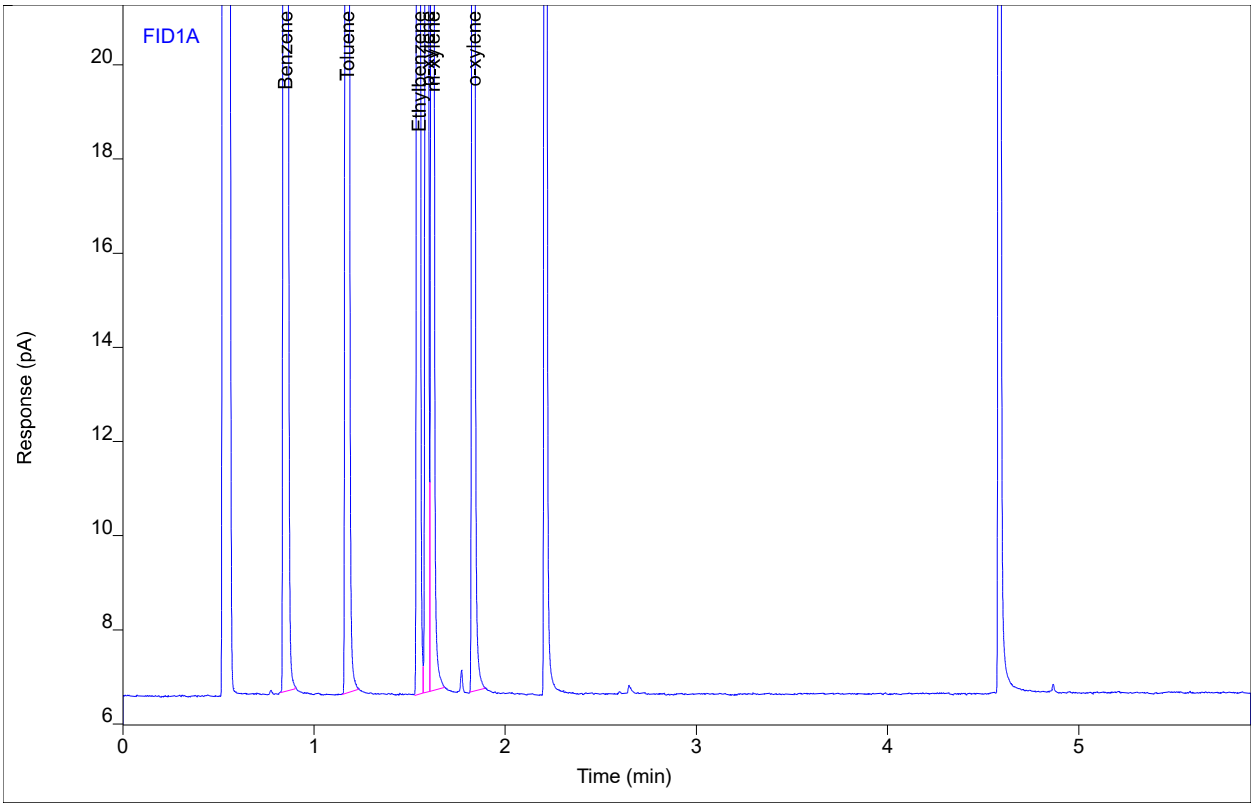
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	114.142	84.4192	999.437	1	999.437	µg/mL
Toluene	BB	1.17	114.737	113.277	1001.14	1	1001.14	µg/mL
Ethylbenzene	BV	1.55	116.266	136.816	1005.89	1	1005.89	µg/mL
p-xylene	VV	1.59	115.060	145.858	1009.39	1	1009.39	µg/mL
m-xylene	VB	1.62	118.721	170.977	1010.16	1	1010.16	µg/mL
o-xylene	BB	1.84	118.819	170.218	1035.93	1	1035.93	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #6
Sequence Name	LUCY1091 ver.2
Inj Data File	025F2903.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 12:56 AM
File Modified	12/28/2021 2:28 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	Vial 25
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



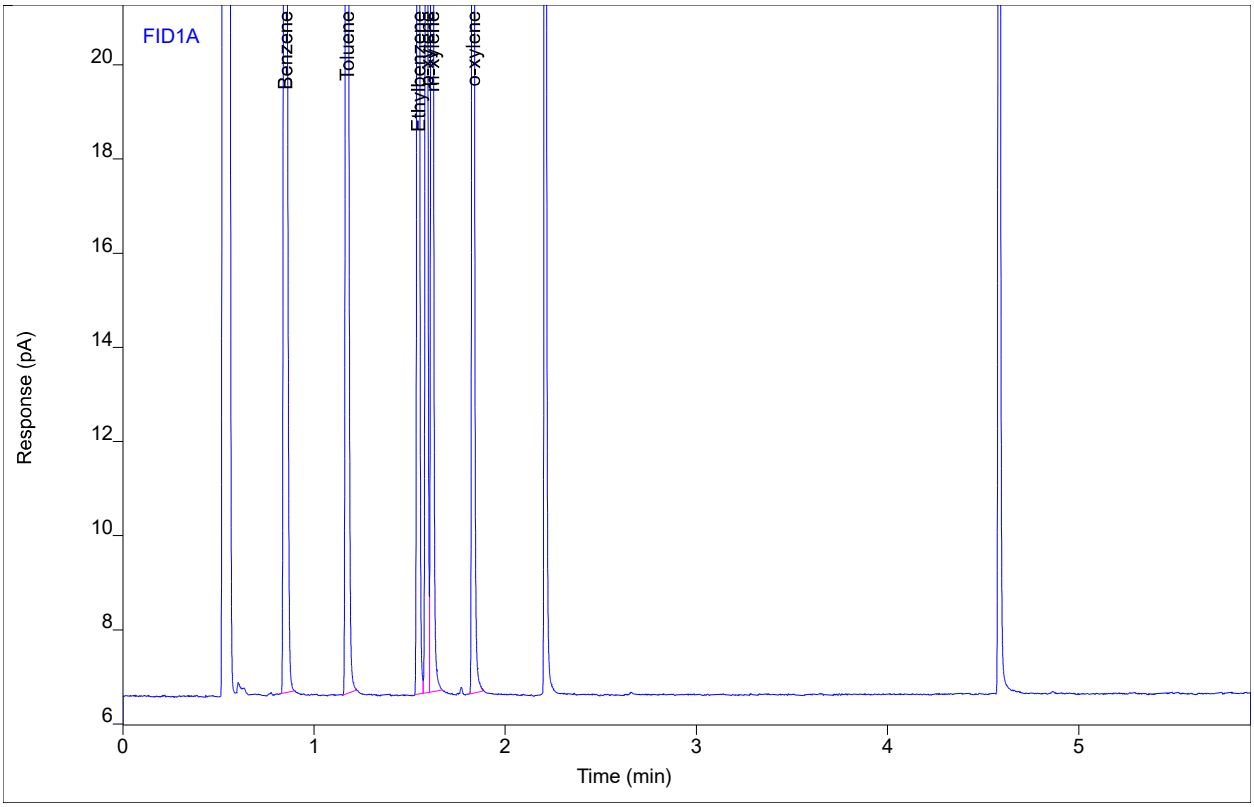
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	113.633	83.8163	994.983	1	994.983	µg/mL
Toluene	BB	1.17	114.429	110.843	998.456	1	998.456	µg/mL
Ethylbenzene	BV	1.55	115.999	136.507	1003.58	1	1003.58	µg/mL
p-xylene	VV	1.59	114.778	144.138	1006.91	1	1006.91	µg/mL
m-xylene	VB	1.62	118.522	167.144	1008.46	1	1008.46	µg/mL
o-xylene	BB	1.84	118.576	169.188	1033.81	1	1033.81	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #5
Sequence Name	LUCY1091 ver.2
Inj Data File	026F3001.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 1:06 AM
File Modified	12/28/2021 2:29 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	Vial 26
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



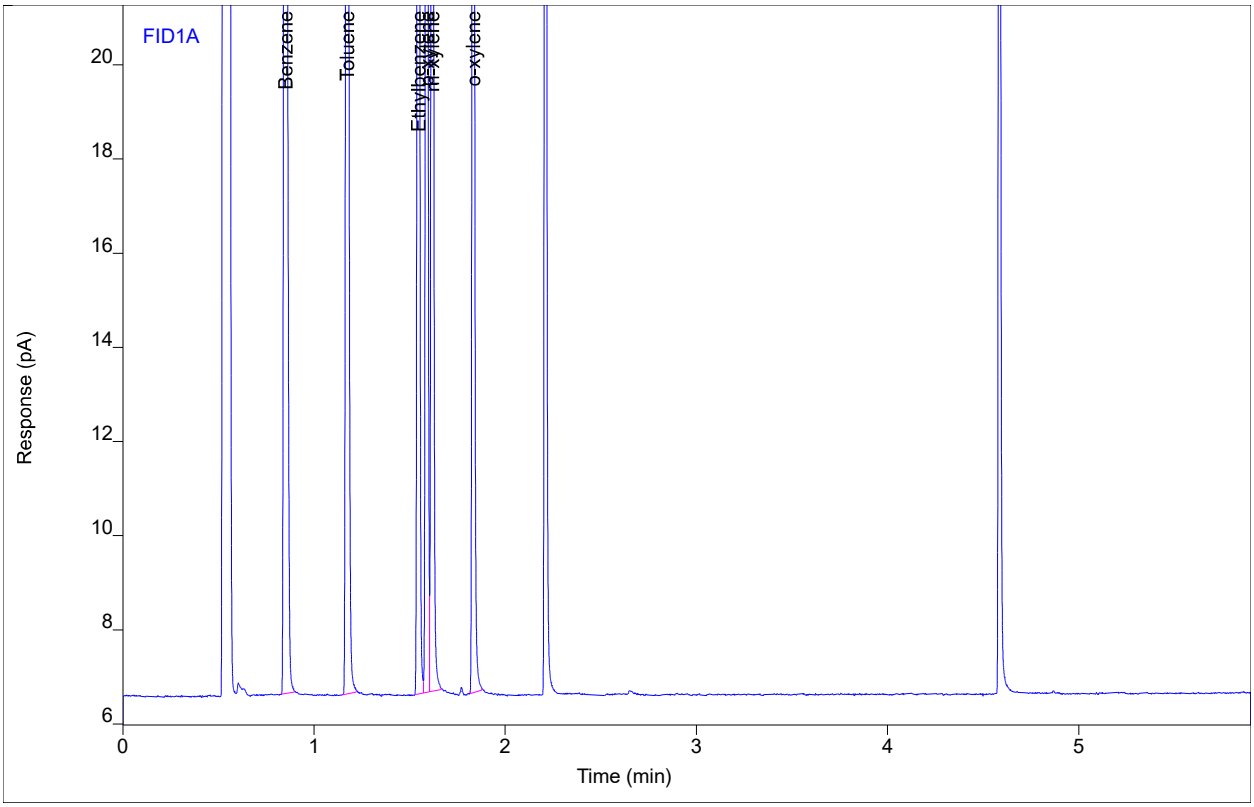
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	39.5607	29.5769	346.410	1	346.410	µg/mL
Toluene	BB	1.17	39.9966	39.3741	349.153	1	349.153	µg/mL
Ethylbenzene	BV	1.55	40.3835	50.6599	349.603	1	349.603	µg/mL
p-xylene	VV	1.59	39.8369	52.8434	349.718	1	349.718	µg/mL
m-xylene	VB	1.62	41.4304	55.1843	352.701	1	352.701	µg/mL
o-xylene	BB	1.83	41.2082	56.9827	359.489	1	359.489	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #5
Sequence Name	LUCY1091 ver.2
Inj Data File	026F3002.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 1:16 AM
File Modified	12/28/2021 2:29 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	Vial 26
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



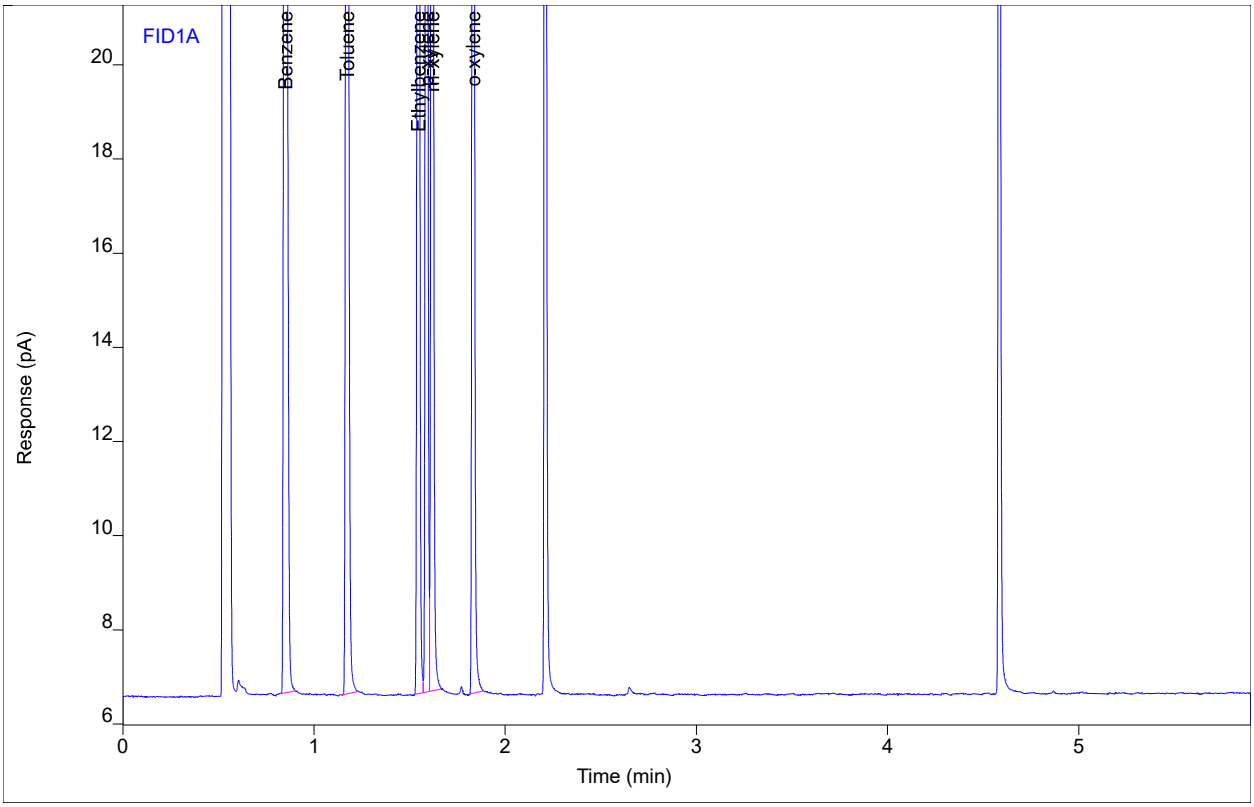
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	40.0830	29.4846	350.984	1	350.984	µg/mL
Toluene	BB	1.17	40.4684	39.8242	353.269	1	353.269	µg/mL
Ethylbenzene	BV	1.55	40.8227	51.4725	353.402	1	353.402	µg/mL
p-xylene	VV	1.59	40.2661	53.1243	353.482	1	353.482	µg/mL
m-xylene	VB	1.62	41.8520	55.8704	356.287	1	356.287	µg/mL
o-xylene	BB	1.83	41.5768	59.6875	362.701	1	362.701	µg/mL

Chromatogram Report

Sample Name	gcstds1584 #5
Sequence Name	LUCY1091 ver.2
Inj Data File	026F3003.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 1:27 AM
File Modified	12/28/2021 2:29 PM
Instrument	Lucy
Operator	Kim Maturo

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 26
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



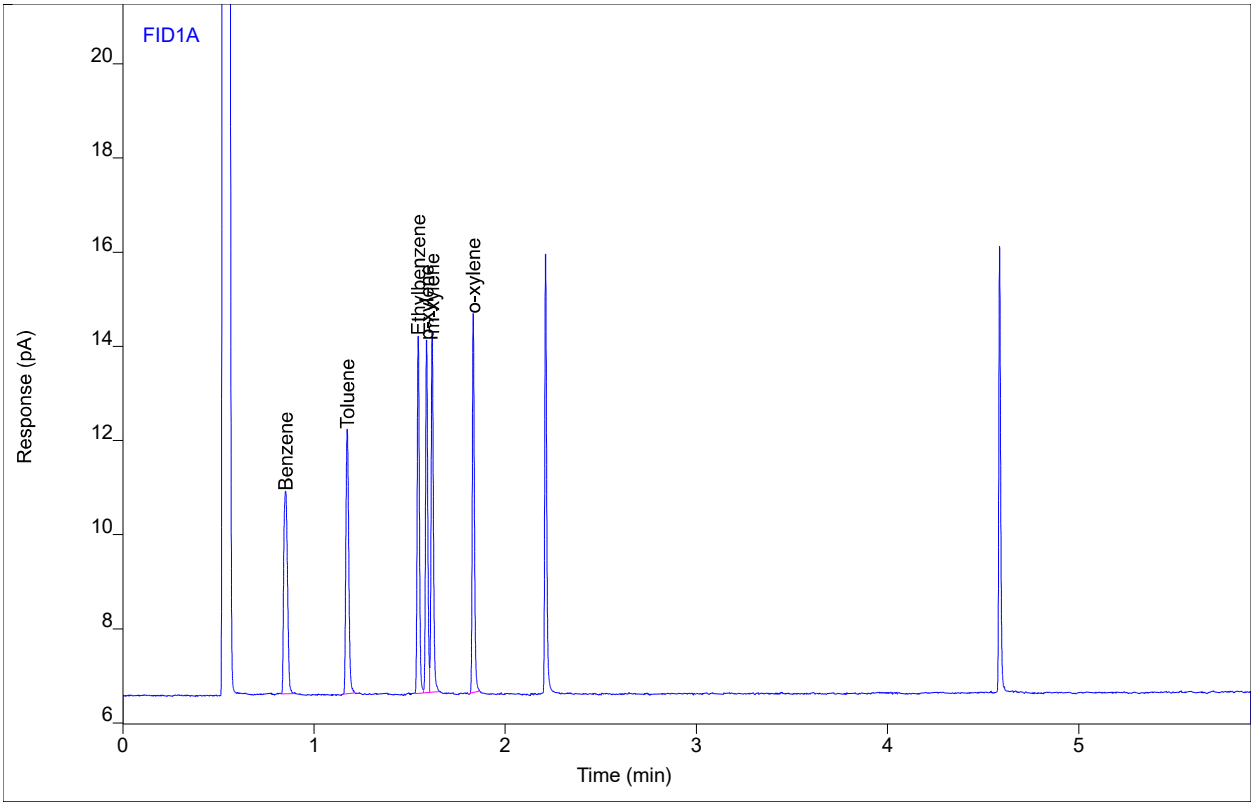
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	40.0041	29.6868	350.293	1	350.293	µg/mL
Toluene	BB	1.17	40.3796	39.7951	352.494	1	352.494	µg/mL
Ethylbenzene	BV	1.55	40.6766	51.8348	352.138	1	352.138	µg/mL
p-xylene	VV	1.59	40.1015	52.7853	352.039	1	352.039	µg/mL
m-xylene	VB	1.62	41.6184	55.0431	354.300	1	354.300	µg/mL
o-xylene	BB	1.83	41.4786	58.1098	361.846	1	361.846	µg/mL

Chromatogram Report

Sample Name	gcstds1584 #4
Sequence Name	LUCY1091 ver.2
Inj Data File	027F3101.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 1:37 AM
File Modified	12/28/2021 2:29 PM
Instrument	Lucy
Operator	Kim Maturo

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 27
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



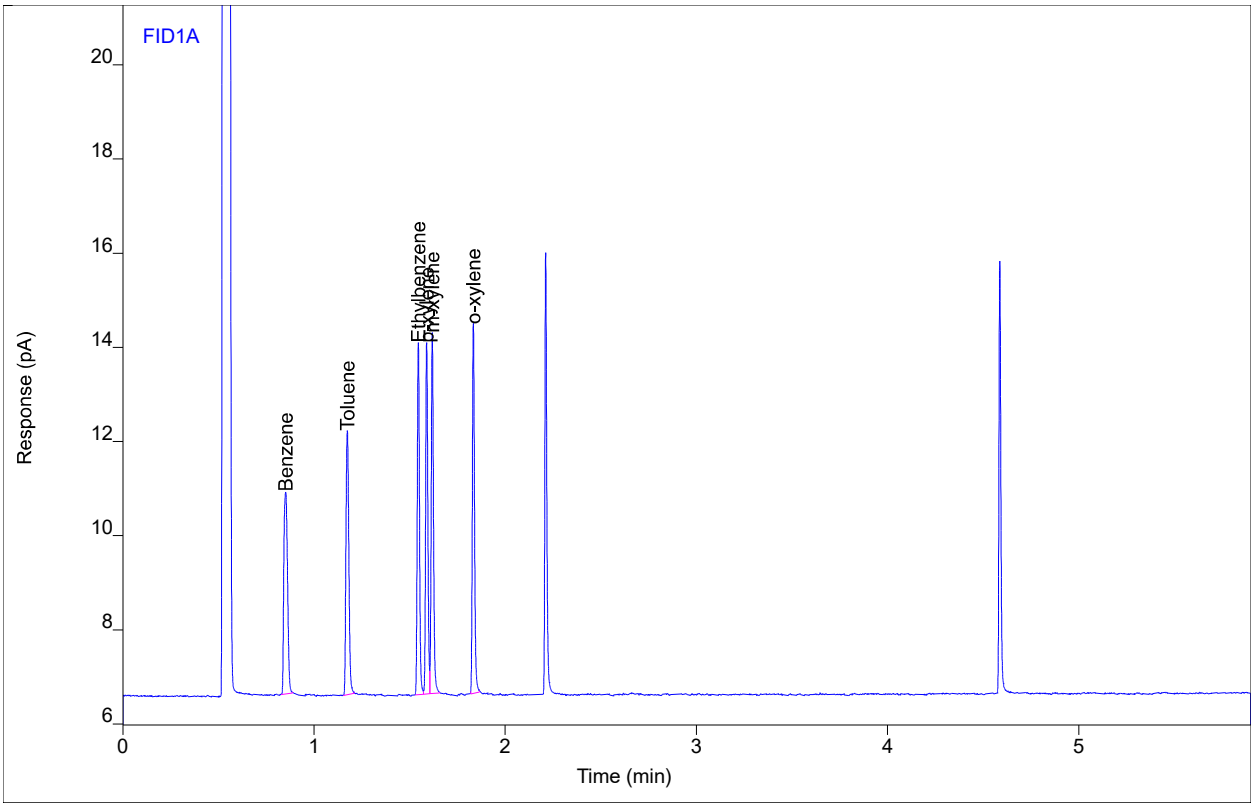
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	5.86971	4.31527	51.4157	1	51.4157	µg/mL
Toluene	BB	1.17	5.87752	5.62487	51.5176	1	51.5176	µg/mL
Ethylbenzene	BV	1.55	6.04010	7.60125	52.5762	1	52.5762	µg/mL
p-xylene	VV	1.59	5.87587	7.50120	51.8962	1	51.8962	µg/mL
m-xylene	VB	1.62	6.24592	7.62125	53.4116	1	53.4116	µg/mL
o-xylene	BB	1.83	6.04813	8.04985	53.0411	1	53.0411	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #4
Sequence Name	LUCY1091 ver.2
Inj Data File	027F3102.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 1:48 AM
File Modified	12/28/2021 2:29 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	Vial 27
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



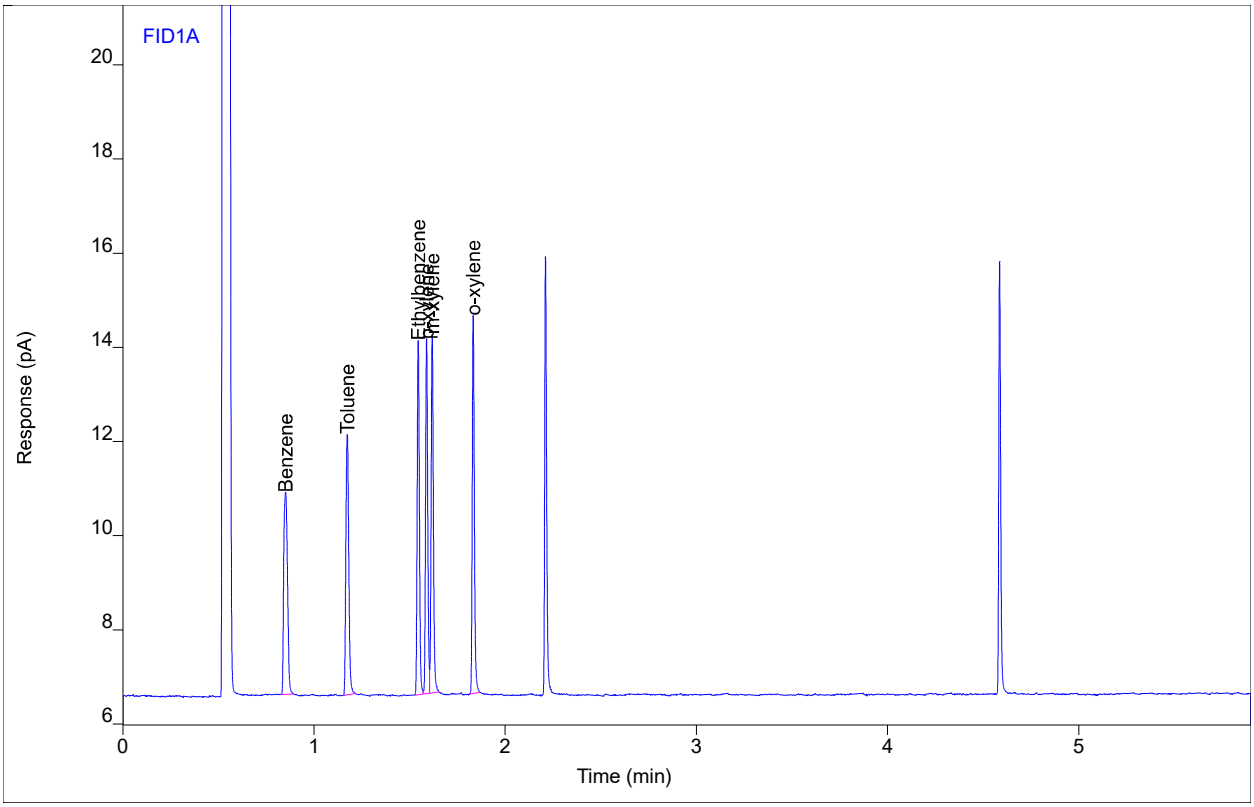
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	5.81875	4.29411	50.9695	1	50.9695	µg/mL
Toluene	BB	1.17	5.86923	5.61310	51.4453	1	51.4453	µg/mL
Ethylbenzene	BV	1.55	6.02716	7.46580	52.4643	1	52.4643	µg/mL
p-xylene	VV	1.59	5.88237	7.46227	51.9533	1	51.9533	µg/mL
m-xylene	VB	1.62	6.25192	7.66292	53.4626	1	53.4626	µg/mL
o-xylene	BB	1.83	6.05542	7.85274	53.1047	1	53.1047	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #4
Sequence Name	LUCY1091 ver.2
Inj Data File	027F3103.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 1:58 AM
File Modified	12/28/2021 2:29 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	Vial 27
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



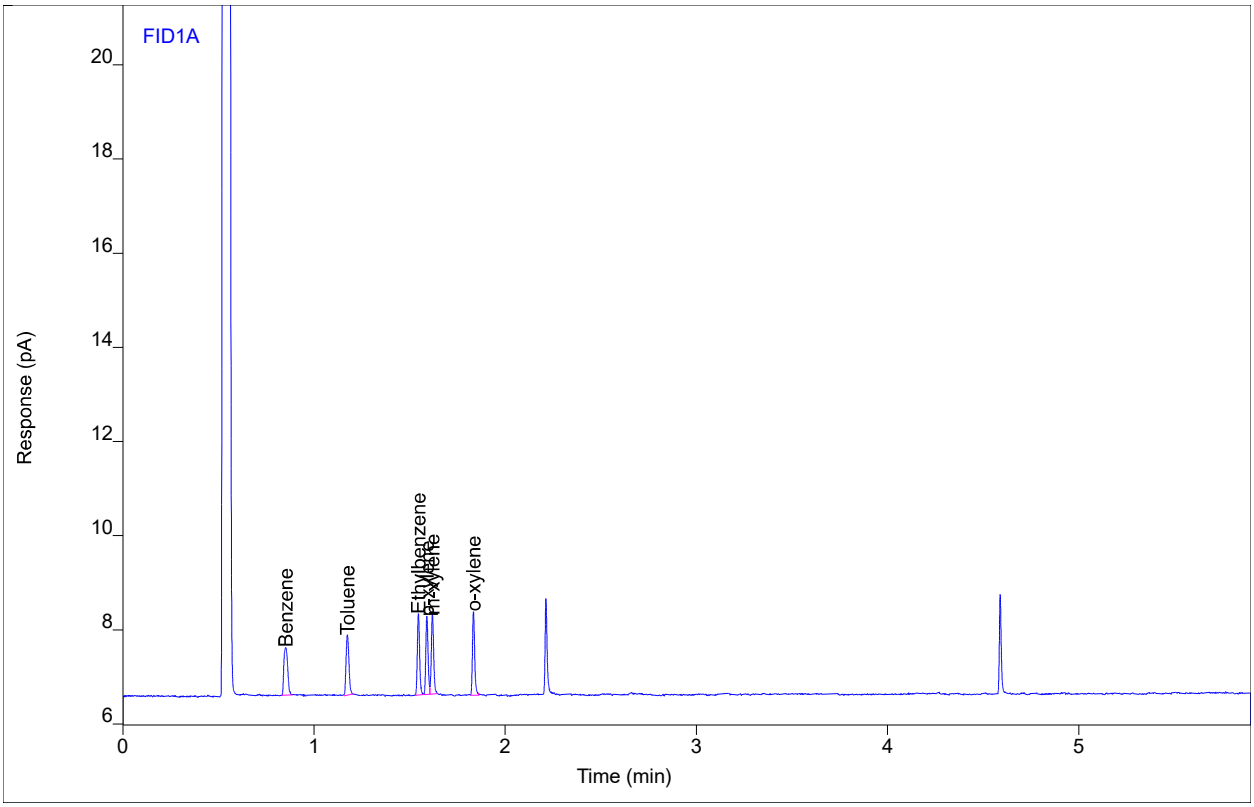
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	5.87239	4.28744	51.4391	1	51.4391	µg/mL
Toluene	BB	1.17	5.89943	5.54724	51.7087	1	51.7087	µg/mL
Ethylbenzene	BV	1.55	6.01897	7.52286	52.3935	1	52.3935	µg/mL
p-xylene	VV	1.59	5.87343	7.53836	51.8749	1	51.8749	µg/mL
m-xylene	VB	1.62	6.17387	7.60415	52.7987	1	52.7987	µg/mL
o-xylene	BB	1.83	6.08403	8.02540	53.3540	1	53.3540	µg/mL

Chromatogram Report

Sample Name	gcstds1584 #3
Sequence Name	LUCY1091 ver.2
Inj Data File	028F3201.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 2:08 AM
File Modified	12/28/2021 2:29 PM
Instrument	Lucy
Operator	Kim Maturo

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 28
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



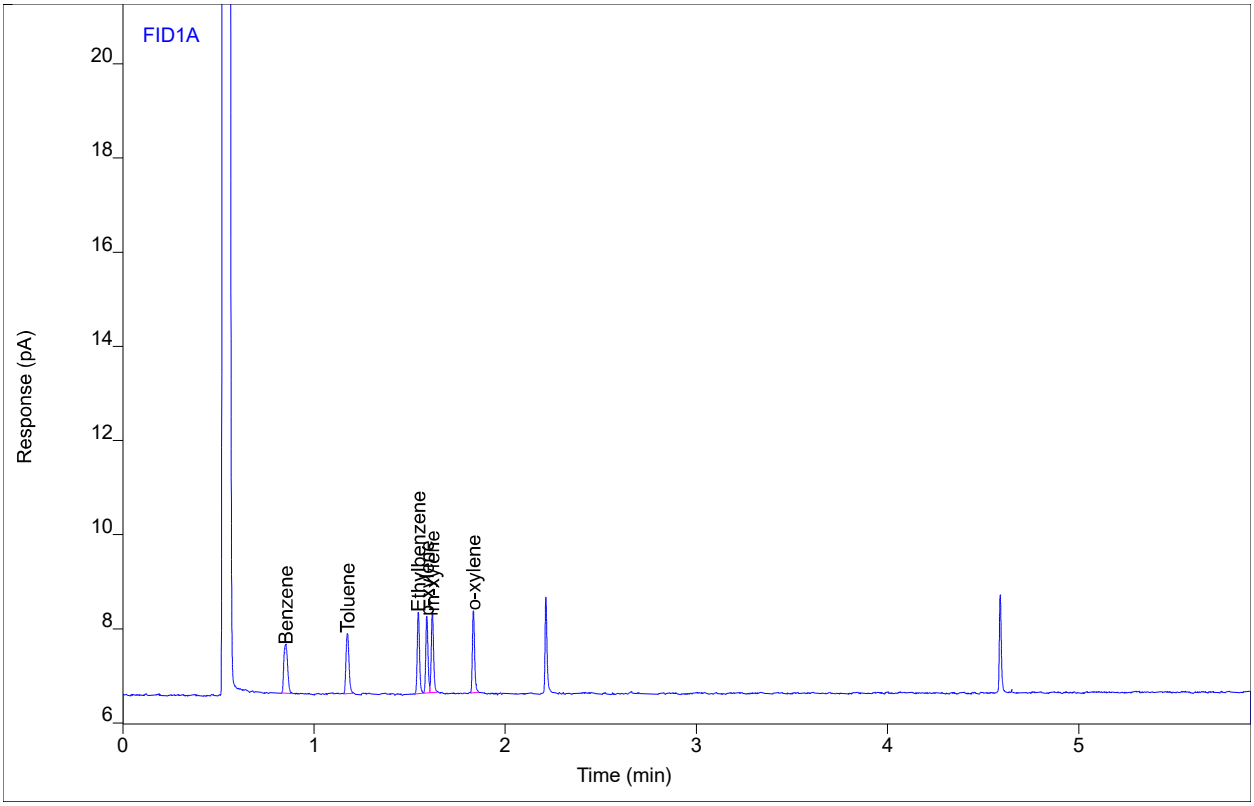
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	1.39748	1.02144	12.2573	1	12.2573	µg/mL
Toluene	BB	1.17	1.35060	1.27269	12.0273	1	12.0273	µg/mL
Ethylbenzene	BB	1.55	1.41827	1.72277	12.6033	1	12.6033	µg/mL
p-xylene	BV	1.59	1.35721	1.65794	12.2698	1	12.2698	µg/mL
m-xylene	VB	1.62	1.42411	1.68868	12.3958	1	12.3958	µg/mL
o-xylene	BB	1.83	1.42210	1.77204	12.7216	1	12.7216	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #3
Sequence Name	LUCY1091 ver.2
Inj Data File	028F3202.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 2:18 AM
File Modified	12/28/2021 2:29 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	Vial 28
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



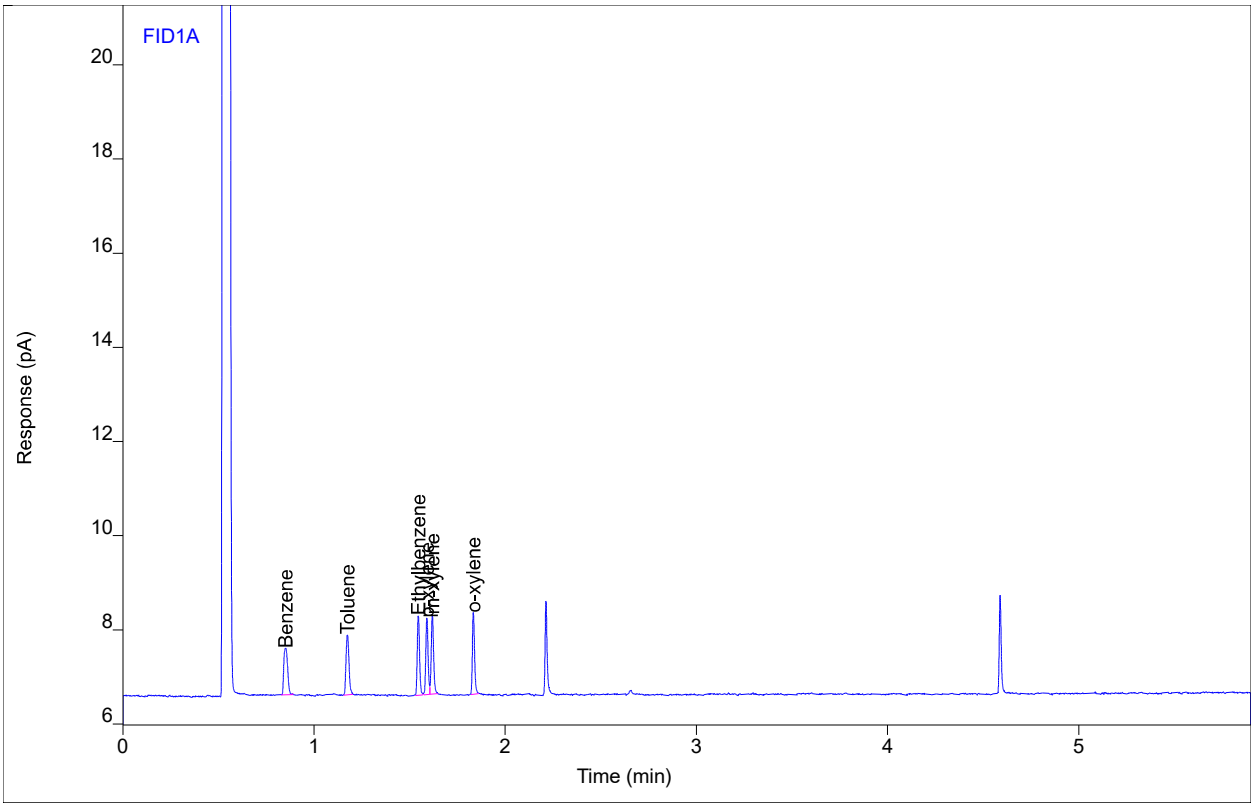
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	1.42512	1.03498	12.4993	1	12.4993	µg/mL
Toluene	BB	1.17	1.39236	1.28876	12.3916	1	12.3916	µg/mL
Ethylbenzene	BB	1.55	1.42224	1.73602	12.6376	1	12.6376	µg/mL
p-xylene	BV	1.59	1.34728	1.63584	12.1827	1	12.1827	µg/mL
m-xylene	VB	1.62	1.43120	1.71496	12.4561	1	12.4561	µg/mL
o-xylene	BB	1.83	1.38676	1.75221	12.4136	1	12.4136	µg/mL

Chromatogram Report

Sample Name	gcstds1584 #3
Sequence Name	LUCY1091 ver.2
Inj Data File	028F3203.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 2:29 AM
File Modified	12/28/2021 2:29 PM
Instrument	Lucy
Operator	Kim Maturo

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 28
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



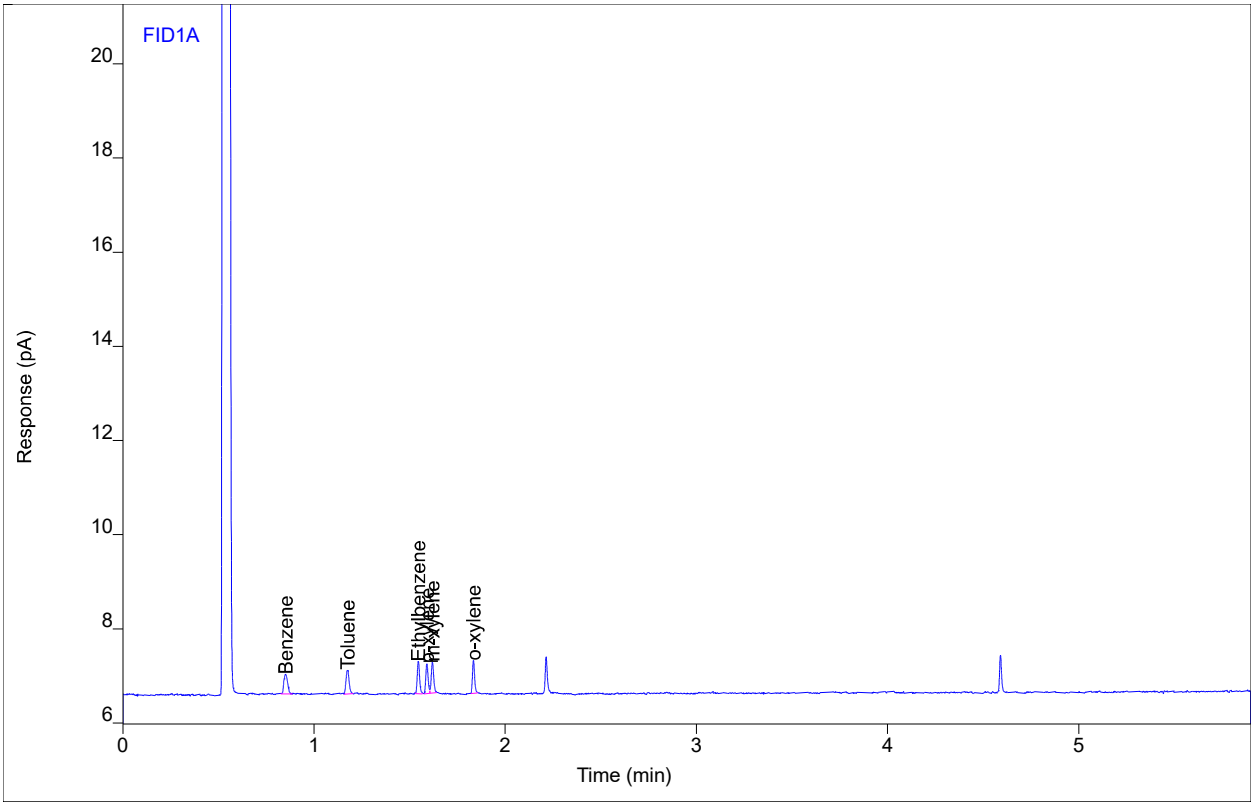
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	1.36686	0.99063	11.9892	1	11.9892	µg/mL
Toluene	BB	1.17	1.37788	1.28834	12.2653	1	12.2653	µg/mL
Ethylbenzene	BB	1.55	1.41521	1.70681	12.5768	1	12.5768	µg/mL
p-xylene	BV	1.59	1.36635	1.64155	12.3499	1	12.3499	µg/mL
m-xylene	VB	1.62	1.44860	1.69107	12.6041	1	12.6041	µg/mL
o-xylene	BB	1.83	1.38812	1.74301	12.4255	1	12.4255	µg/mL

Chromatogram Report

Sample Name	gcstds1584 #2
Sequence Name	LUCY1091 ver.2
Inj Data File	029F3301.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 2:39 AM
File Modified	12/28/2021 2:29 PM
Instrument	Lucy
Operator	Kim Maturo

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 29
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



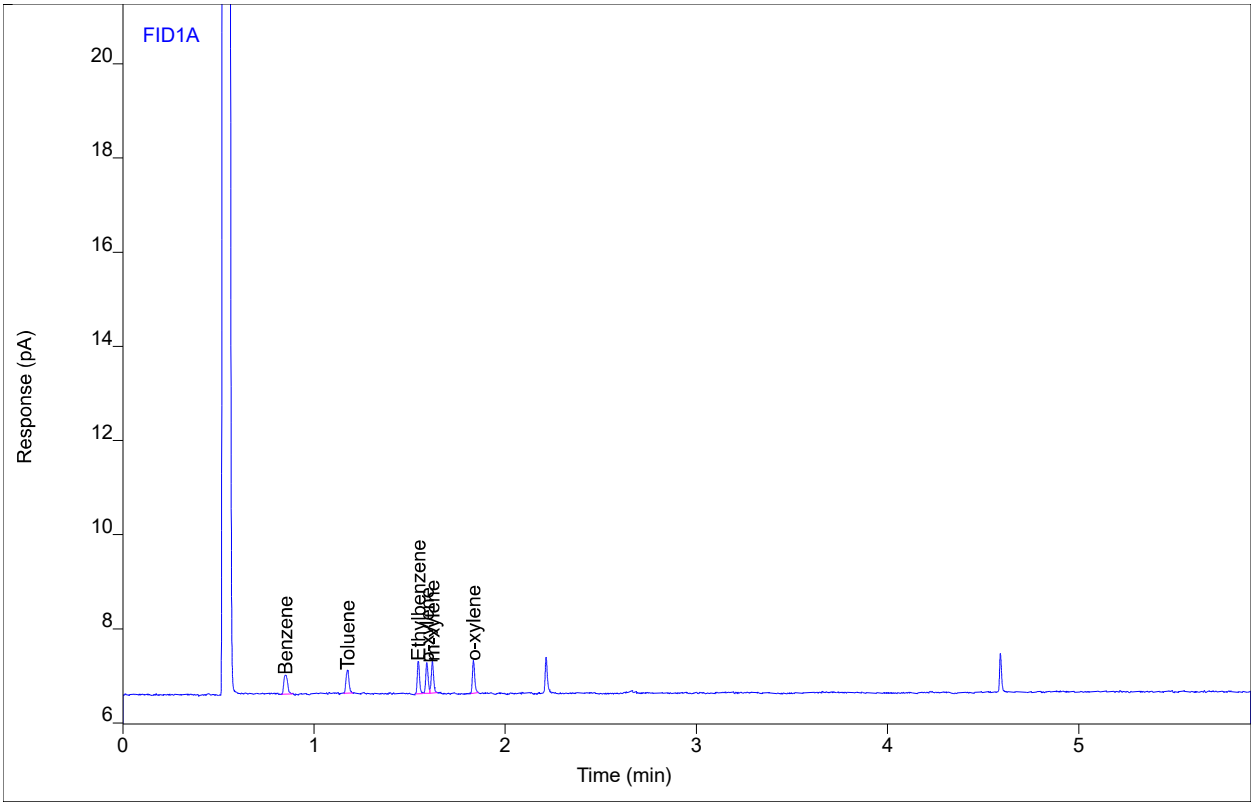
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	0.56746	0.41583	4.98967	1	4.98967	µg/mL
Toluene	BB	1.18	0.56894	0.51503	5.20852	1	5.20852	µg/mL
Ethylbenzene	BB	1.55	0.58297	0.68836	5.37898	1	5.37898	µg/mL
p-xylene	BV	1.59	0.54924	0.64841	5.18428	1	5.18428	µg/mL
m-xylene	VB	1.62	0.57780	0.67056	5.19688	1	5.19688	µg/mL
o-xylene	BB	1.83	0.54460	0.69623	5.07348	1	5.07348	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #2
Sequence Name	LUCY1091 ver.2
Inj Data File	029F3302.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 2:50 AM
File Modified	12/28/2021 2:29 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	Vial 29
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



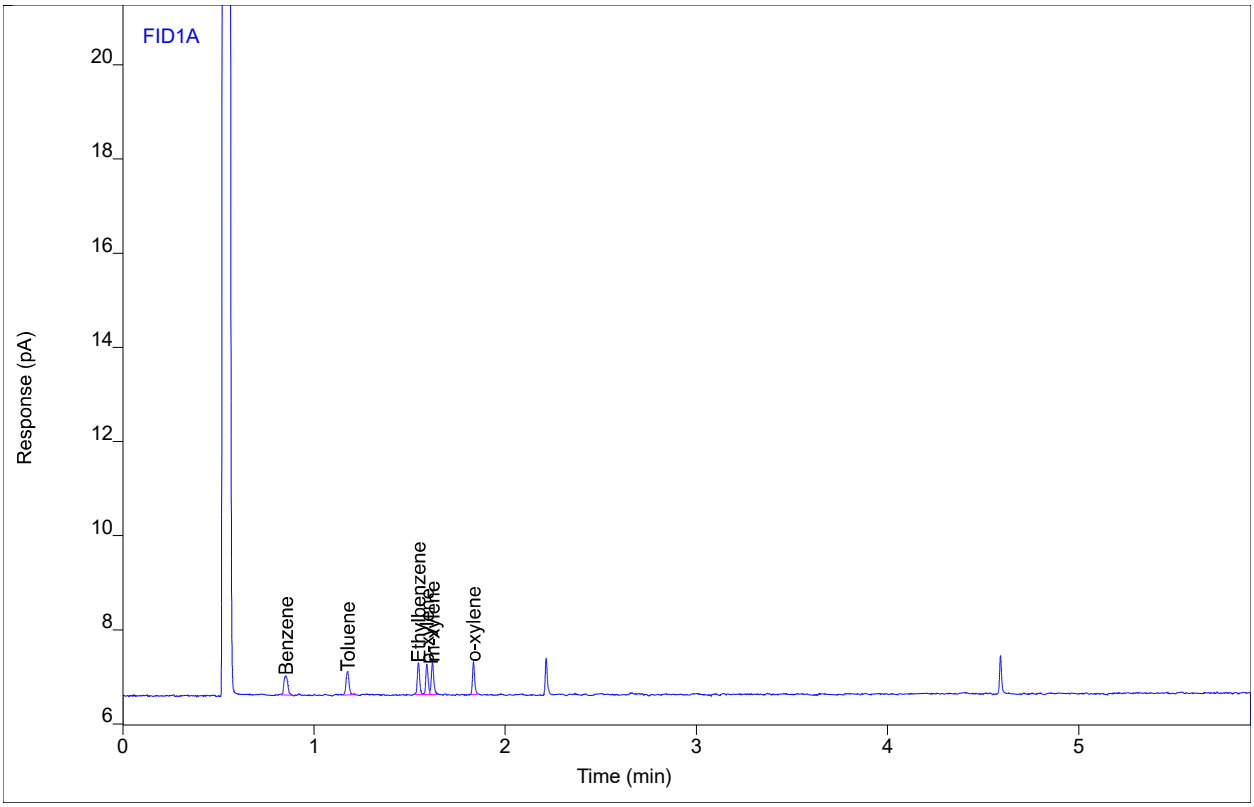
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	0.57033	0.41711	5.01480	1	5.01480	µg/mL
Toluene	BB	1.17	0.52456	0.49466	4.82137	1	4.82137	µg/mL
Ethylbenzene	BB	1.55	0.57283	0.70042	5.29127	1	5.29127	µg/mL
p-xylene	BV	1.59	0.55787	0.64605	5.25996	1	5.25996	µg/mL
m-xylene	VB	1.62	0.57222	0.67401	5.14941	1	5.14941	µg/mL
o-xylene	BB	1.83	0.56908	0.69961	5.28683	1	5.28683	µg/mL

Chromatogram Report

Sample Name	gcstds1584 #2
Sequence Name	LUCY1091 ver.2
Inj Data File	029F3303.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 3:00 AM
File Modified	12/28/2021 2:29 PM
Instrument	Lucy
Operator	Kim Maturo

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 29
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



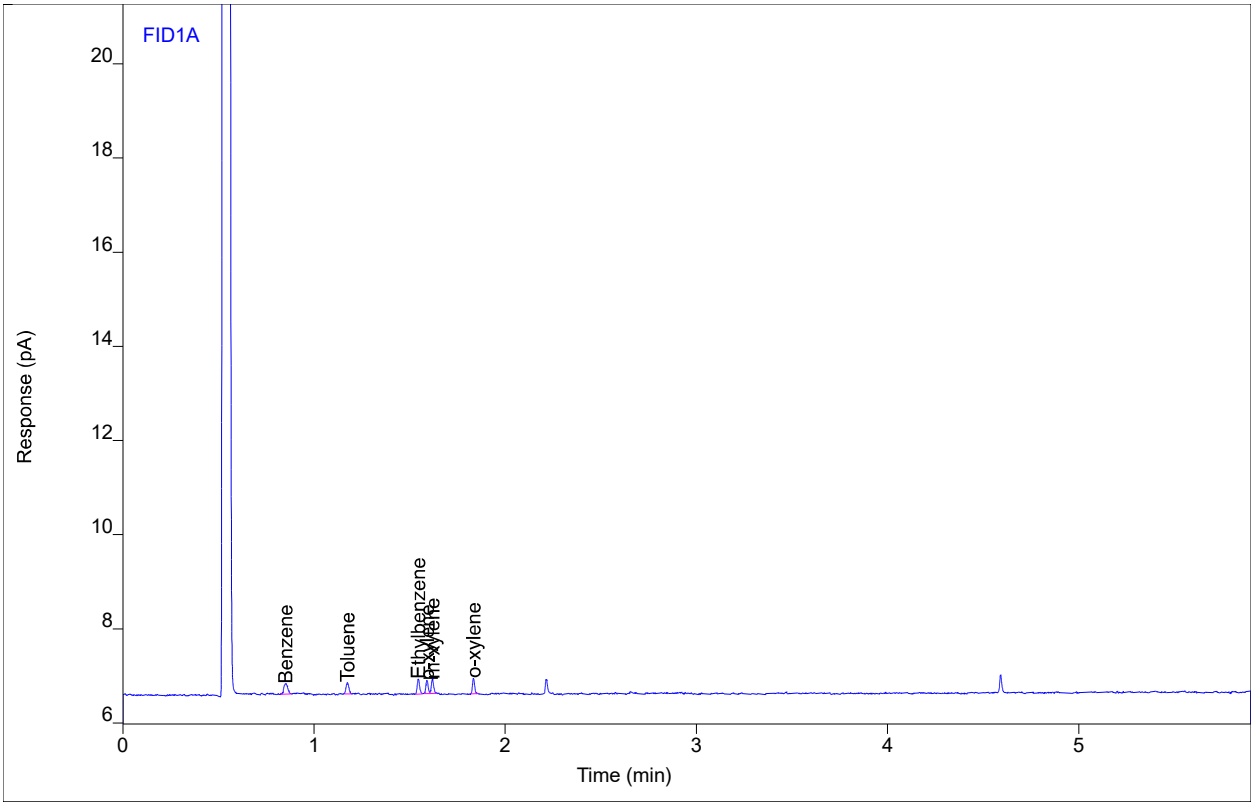
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	0.59304	0.42556	5.21365	1	5.21365	µg/mL
Toluene	BB	1.18	0.55991	0.50707	5.12979	1	5.12979	µg/mL
Ethylbenzene	BB	1.55	0.57908	0.67665	5.34535	1	5.34535	µg/mL
p-xylene	BV	1.59	0.53615	0.64752	5.06950	1	5.06950	µg/mL
m-xylene	VB	1.62	0.60510	0.68826	5.42906	1	5.42906	µg/mL
o-xylene	BB	1.83	0.54031	0.69737	5.03611	1	5.03611	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #1
Sequence Name	LUCY1091 ver.2
Inj Data File	030F3401.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 3:10 AM
File Modified	12/28/2021 2:29 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	Vial 30
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



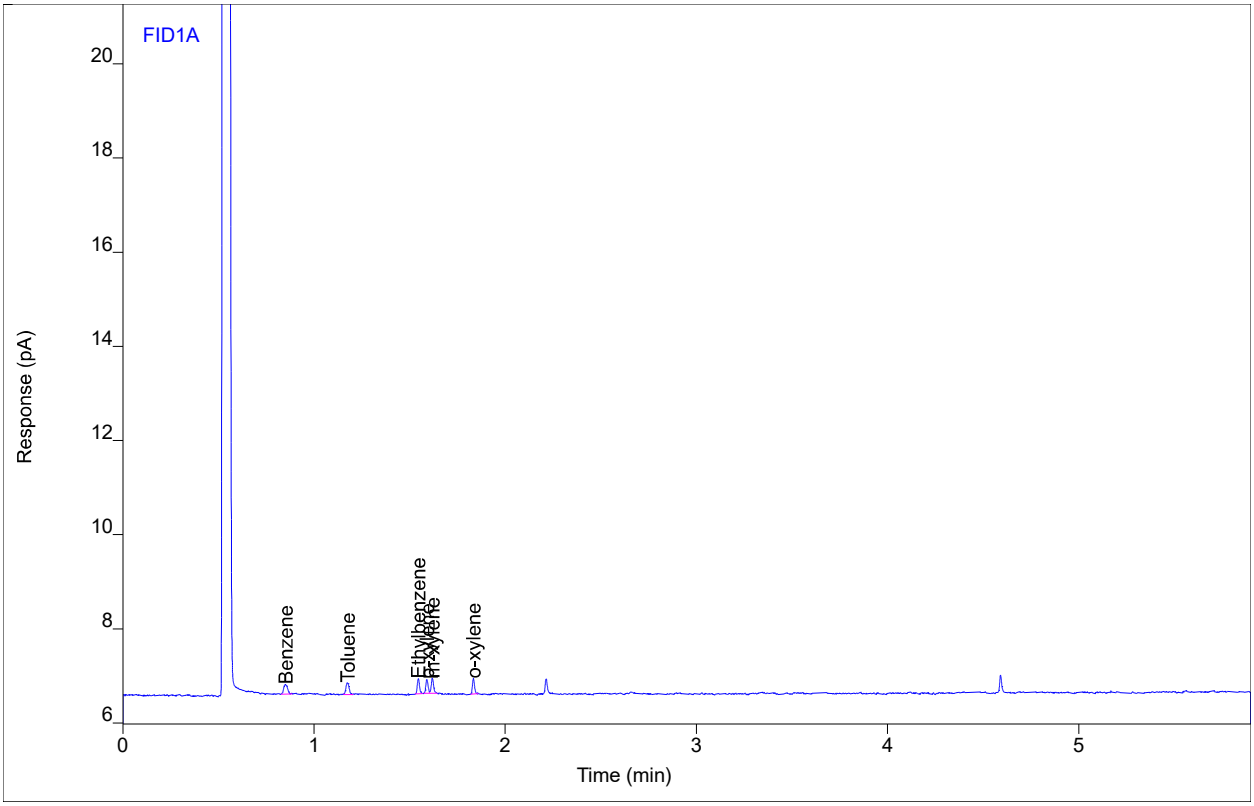
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	0.30850	0.22559	2.72223	1	2.72223	µg/mL
Toluene	BB	1.17	0.25447	0.25499	2.45244	1	2.45244	µg/mL
Ethylbenzene	BB	1.54	0.27852	0.32307	2.74582	1	2.74582	µg/mL
p-xylene	BV	1.59	0.24003	0.29273	2.45621	1	2.45621	µg/mL
m-xylene	VB	1.62	0.25584	0.31093	2.44289	1	2.44289	µg/mL
o-xylene	BB	1.83	0.26652	0.33877	2.64978	1	2.64978	µg/mL

Chromatogram Report

Sample Name	gcstds1584 #1
Sequence Name	LUCY1091 ver.2
Inj Data File	030F3402.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 3:21 AM
File Modified	12/28/2021 2:29 PM
Instrument	Lucy
Operator	Kim Maturo

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 30
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



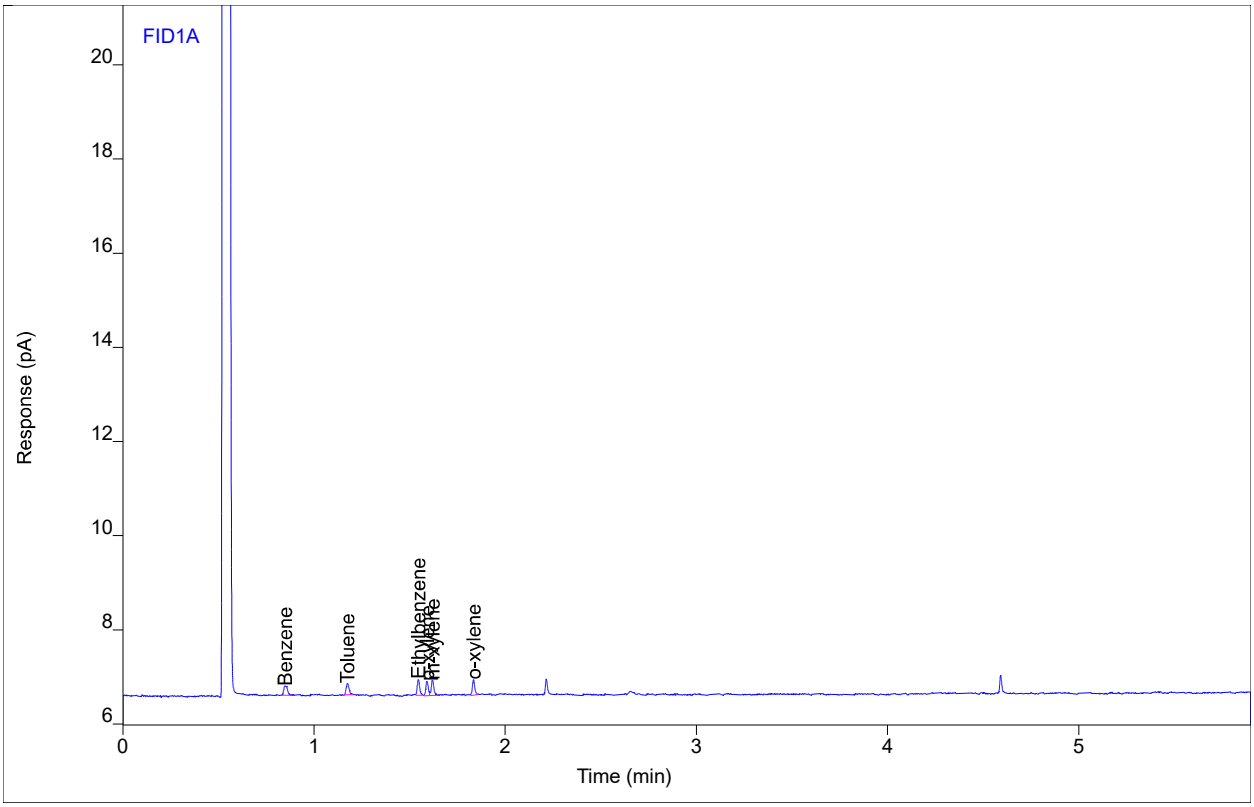
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	0.28159	0.21065	2.48552	1	2.48552	µg/mL
Toluene	BB	1.18	0.29584	0.25835	2.82620	1	2.82620	µg/mL
Ethylbenzene	BB	1.55	0.25848	0.32250	2.56977	1	2.56977	µg/mL
p-xylene	BV	1.59	0.24391	0.30953	2.49593	1	2.49593	µg/mL
m-xylene	VB	1.62	0.27967	0.32186	2.66088	1	2.66088	µg/mL
o-xylene	BB	1.83	0.25624	0.33102	2.55168	1	2.55168	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	gcstds1584 #1
Sequence Name	LUCY1091 ver.2
Inj Data File	030F3403.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	12/24/2021 3:31 AM
File Modified	12/28/2021 2:29 PM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	Vial 30
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301.M
Analysis Method	LUCY1068_F.M
Method Modified	12/23/2021 10:20 AM
Printed	1/5/2022 12:16 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	0.26882	0.20556	2.37276	1	2.37276	µg/mL
Toluene	BB	1.17	0.26227	0.24428	2.52757	1	2.52757	µg/mL
Ethylbenzene	BB	1.55	0.28791	0.35158	2.82707	1	2.82707	µg/mL
p-xylene	BV	1.59	0.28024	0.31603	2.82532	1	2.82532	µg/mL
m-xylene	VB	1.62	0.32275	0.33721	3.02732	1	3.02732	µg/mL
o-xylene	BB	1.83	0.28652	0.33484	2.82417	1	2.82417	µg/mL

Calibration Table

Calib. Data Modified : Monday, November 01, 2021 10:31:41 AM

Rel. Reference Window : 0.000 %
Abs. Reference Window : 0.030 min
Rel. Non-ref. Window : 0.000 %
Abs. Non-ref. Window : 0.030 min
Uncalibrated Peaks : not reported
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Signal 1: FID1 A,

RetTime [min]	Sig	Lvl	Amount [µg/mL]	Area	Amt/Area	Ref Grp	Name
0.853	1	1	2.62990	3.03676e-1	8.66020		Benzene
		2	5.24671	5.77740e-1	9.08144		
		3	13.01962	1.44506	9.00972		
		4	50.21853	5.97076	8.41074		
		5	351.52968	40.85902	8.60348		
		6	1054.58904	118.04206	8.93401		
1.178	1	1	2.58827	2.73400e-1	9.46698		Toluene
		2	5.16366	5.52874e-1	9.33968		
		3	12.81353	1.37355	9.32878		
		4	49.42363	5.85994	8.43415		
		5	345.96540	40.54830	8.53218		
		6	1037.89620	117.22500	8.85388		
1.552	1	1	2.59114	2.61599e-1	9.90499		Ethylbenzene
		2	5.16939	5.60616e-1	9.22091		
		3	12.82775	1.39403	9.20195		
		4	49.47845	5.89846	8.38837		
		5	346.34916	40.57628	8.53575		
		6	1039.04748	117.14555	8.86971		
1.597	1	1	2.57141	2.56601e-1	10.02104		p-xylene
		2	5.13002	5.28384e-1	9.70888		
		3	12.73004	1.35546	9.39165		
		4	49.10160	5.75680	8.52932		
		5	343.71120	40.06167	8.57955		
		6	1031.13400	115.83009	8.90213		
1.626	1	1	2.58285	2.74564e-1	9.40709		m-xylene
		2	5.15285	5.61398e-1	9.17861		
		3	12.78671	1.42260	8.98825		
		4	49.32017	6.00772	8.20946		

Method C:\GC\2021\LUCY\Q4\LUCY1068A\LUCY1068_F.M

RetTime [min]	Sig	Lvl	Amount [µg/mL]	Area	Amt/Area	Ref Grp	Name
		5	345.24116	41.28479	8.36243		
		6	1035.72348	118.90386	8.71060		
1.842	1	1	2.62025	2.69230e-1	9.73237		o-xylene
		2	5.22746	5.47175e-1	9.55354		
		3	12.97185	1.37832	9.41134		
		4	50.03429	5.91974	8.45211		
		5	350.24000	41.21922	8.49701		
		6	1050.72000	119.20803	8.81417		
2.225	1	1	2.71721	2.71986e-1	9.99026		Styrene
		2	5.42090	5.81293e-1	9.32559		
		3	13.45185	1.43753	9.35762		
		4	51.88571	6.25356	8.29699		
		5	363.20000	43.39688	8.36927		
		6	1089.60000	125.44158	8.68612		
4.604	1	1	2.49400	2.71193e-1	9.19640		Naphthalene
		2	4.97500	5.99491e-1	8.29870		
		3	12.34600	1.41379	8.73253		
		4	47.61900	5.93897	8.01805		
		5	333.33300	41.23517	8.08371		
		6	1000.00000	118.98904	8.40414		

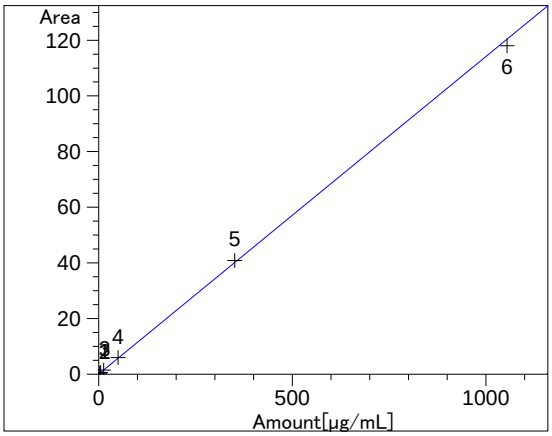
1 Warnings or Errors :

Warning : Overlapping peak time windows at 1.597 min, signal 1

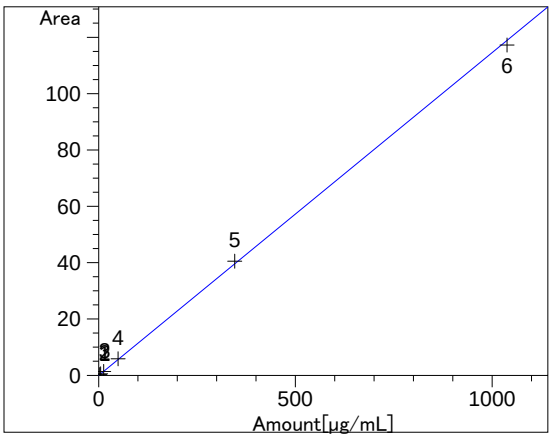
Peak Sum Table

No Entries in table

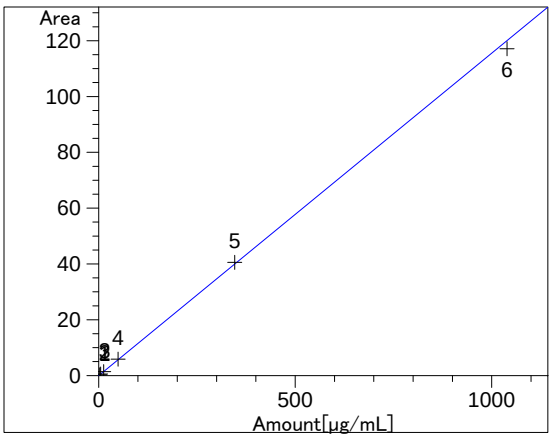
Calibration Curves



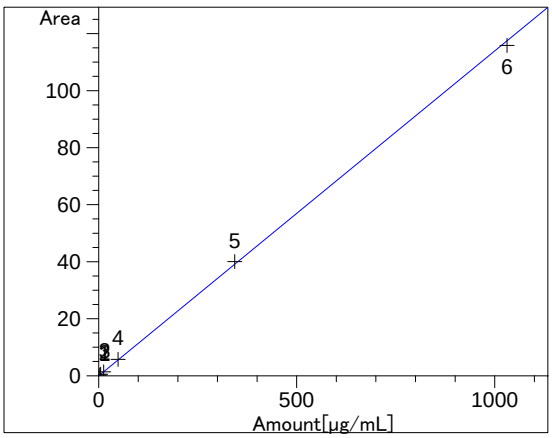
Benzene at exp. RT: 0.853
FID1 A,
Correlation: 0.99937
Residual Std. Dev.: 1.25715
Formula: y = mx + b
m: 1.14209e-1
b: -2.40667e-3
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.251248
Level 3 : 0.040802
Level 4 : 0.002743
Level 5 : 0.000056
Level 6 : 6.21887e-006



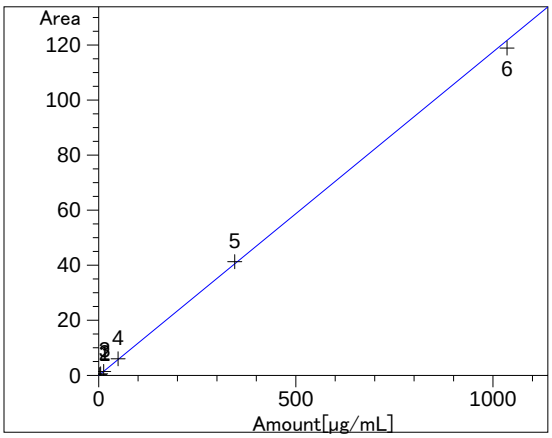
Toluene at exp. RT: 1.178
FID1 A,
Correlation: 0.99931
Residual Std. Dev.: 0.98369
Formula: y = mx + b
m: 1.14634e-1
b: -2.81375e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.251248
Level 3 : 0.040802
Level 4 : 0.002743
Level 5 : 0.000056
Level 6 : 6.21887e-006



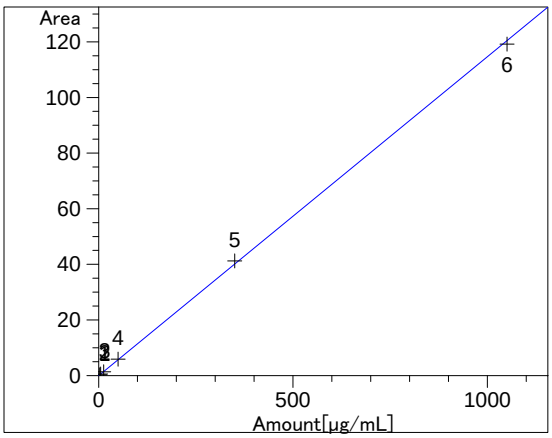
Ethylbenzene at exp. RT: 1.552
FID1 A,
Correlation: 0.99953
Residual Std. Dev.: 1.50834
Formula: y = mx + b
m: 1.15624e-1
b: -3.89674e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.251248
Level 3 : 0.040802
Level 4 : 0.002743
Level 5 : 0.000056
Level 6 : 6.21887e-006



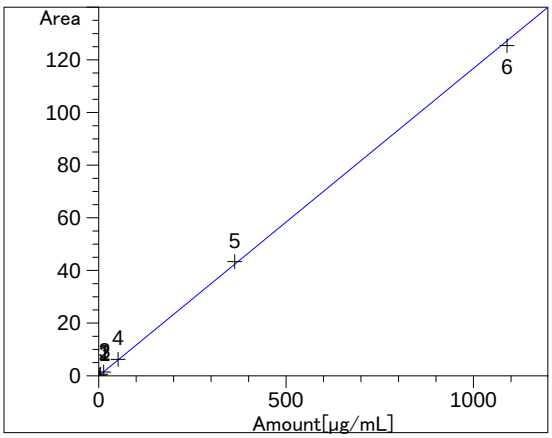
p-xylene at exp. RT: 1.597
FID1 A,
Correlation: 0.99939
Residual Std. Dev.: 0.97383
Formula: y = mx + b
m: 1.14031e-1
b: -4.19304e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.251248
Level 3 : 0.040802
Level 4 : 0.002743
Level 5 : 0.000056
Level 6 : 6.21886e-006



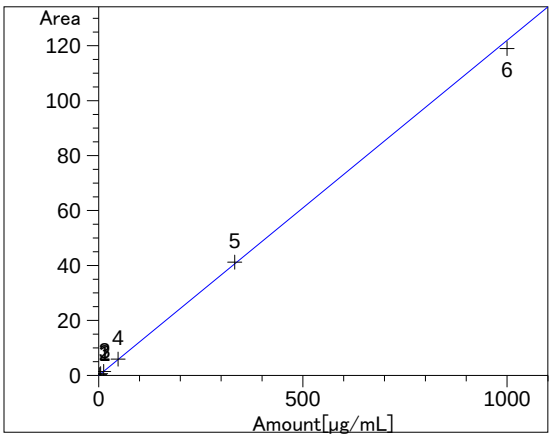
m-xylene at exp. RT: 1.626
FID1 A,
Correlation: 0.99942
Residual Std. Dev.: 1.46323
Formula: y = mx + b
m: 1.17560e-1
b: -3.31442e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.251248
Level 3 : 0.040802
Level 4 : 0.002743
Level 5 : 0.000056
Level 6 : 6.21887e-006



o-xylene at exp. RT: 1.842
FID1 A,
Correlation: 0.99921
Residual Std. Dev.: 0.85337
Formula: y = mx + b
m: 1.14734e-1
b: -3.75048e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.251248
Level 3 : 0.040802
Level 4 : 0.002743
Level 5 : 0.000056
Level 6 : 6.21887e-006



Styrene at exp. RT: 2.225
FID1 A,
Correlation: 0.99925
Residual Std. Dev.: 1.06376
Formula: y = mx + b
m: 1.16882e-1
b: -4.91851e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.251248
Level 3 : 0.040802
Level 4 : 0.002743
Level 5 : 0.000056
Level 6 : 6.21887e-006



Naphthalene at exp. RT: 4.604
FID1 A,
Correlation: 0.99934
Residual Std. Dev.: 1.53990
Formula: y = mx + b
m: 1.22038e-1
b: -2.97453e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.251308
Level 3 : 0.040808
Level 4 : 0.002743
Level 5 : 0.000056
Level 6 : 6.22004e-006

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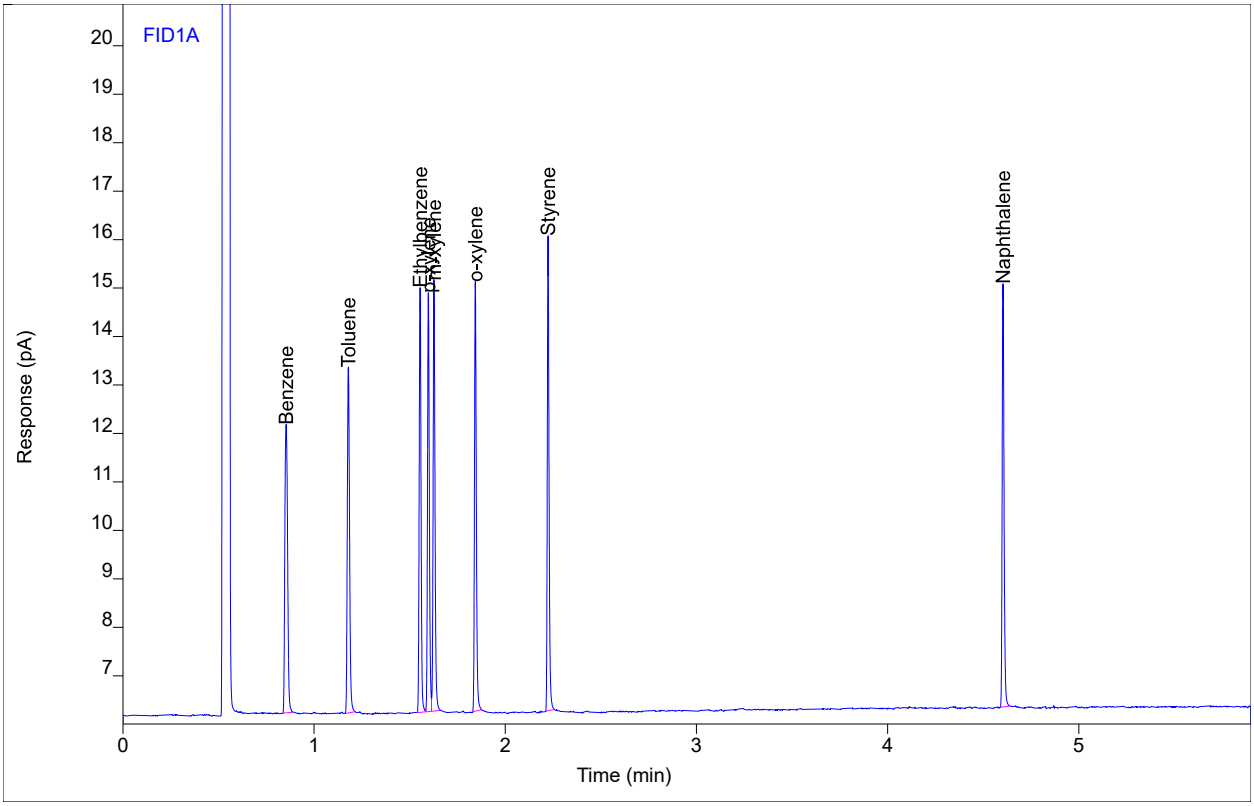
Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #4
Sequence Name	LUCY1068 ver.5
Inj Data File	001F0101.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 8:29 AM
File Modified	11/1/2021 10:52 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	1
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



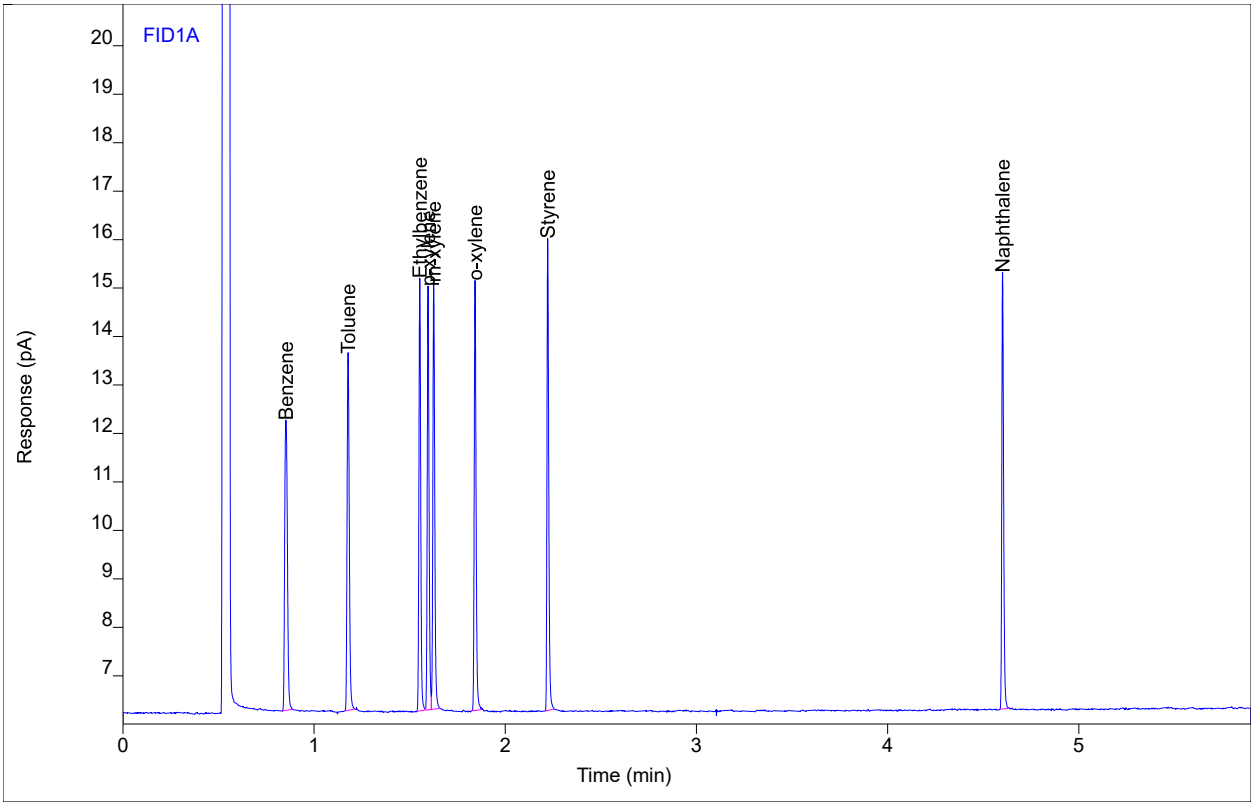
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	5.97167	5.93428	52.3085	1	52.3085	µg/mL
Toluene	BB	1.18	5.85374	7.12796	51.3101	1	51.3101	µg/mL
Ethylbenzene	BB	1.55	5.87622	8.75434	51.1589	1	51.1589	µg/mL
p-xylene	BV	1.60	5.74105	8.63323	50.7139	1	50.7139	µg/mL
m-xylene	VB	1.63	5.98719	8.90160	51.2107	1	51.2107	µg/mL
o-xylene	BB	1.84	5.89109	8.83829	51.6724	1	51.6724	µg/mL
Styrene	BB	2.22	6.21707	9.79608	53.6119	1	53.6119	µg/mL
Naphthalene	BB	4.60	5.91955	8.72752	48.7497	1	48.7497	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #4
Sequence Name	LUCY1068 ver.5
Inj Data File	001F0102.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 8:40 AM
File Modified	11/1/2021 10:52 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	1
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



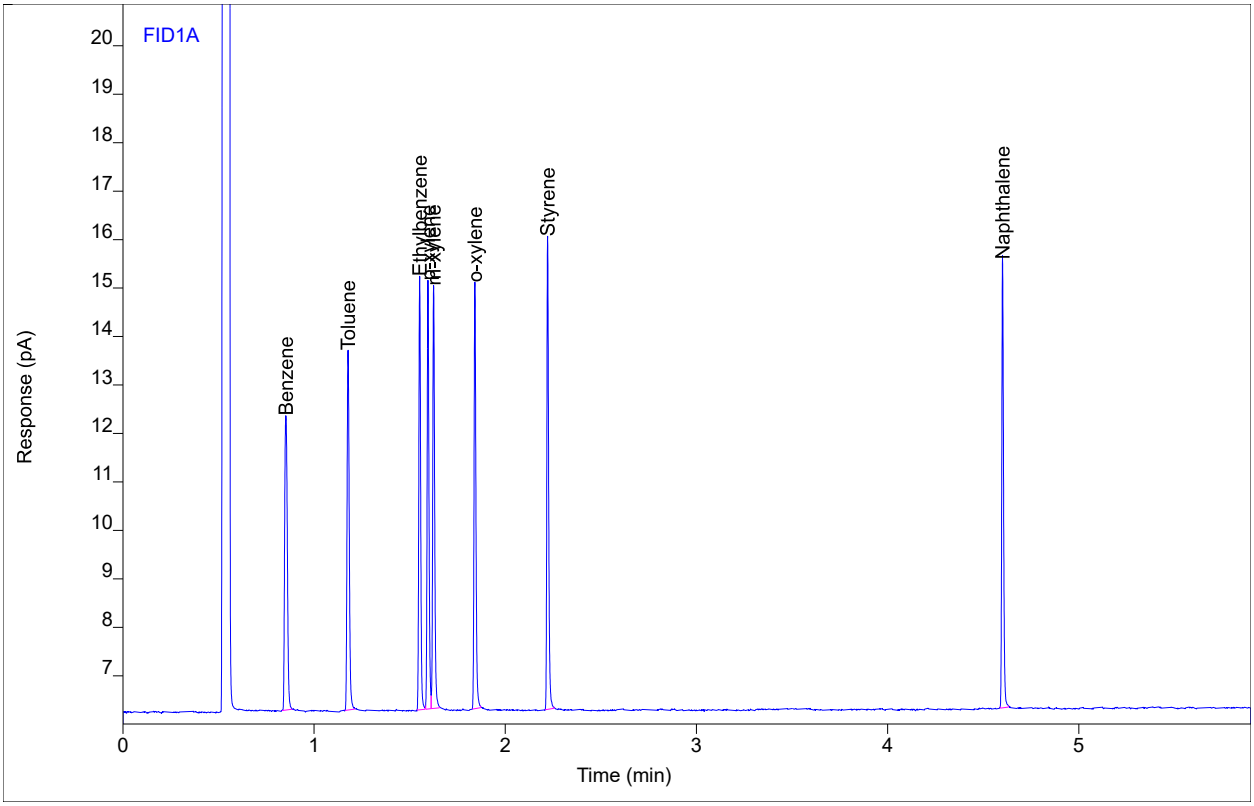
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	5.98490	5.98406	52.4243	1	52.4243	µg/mL
Toluene	BB	1.18	5.84608	7.37725	51.2433	1	51.2433	µg/mL
Ethylbenzene	BB	1.55	5.89880	8.92586	51.3542	1	51.3542	µg/mL
p-xylene	BV	1.60	5.75245	8.74265	50.8140	1	50.8140	µg/mL
m-xylene	VB	1.63	5.99696	8.80518	51.2938	1	51.2938	µg/mL
o-xylene	BB	1.84	5.93241	8.85723	52.0326	1	52.0326	µg/mL
Styrene	BB	2.22	6.25236	9.72167	53.9139	1	53.9139	µg/mL
Naphthalene	BB	4.60	5.91911	8.99577	48.7461	1	48.7461	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #4
Sequence Name	LUCY1068 ver.5
Inj Data File	001F0103.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 8:50 AM
File Modified	11/1/2021 10:52 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	1
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



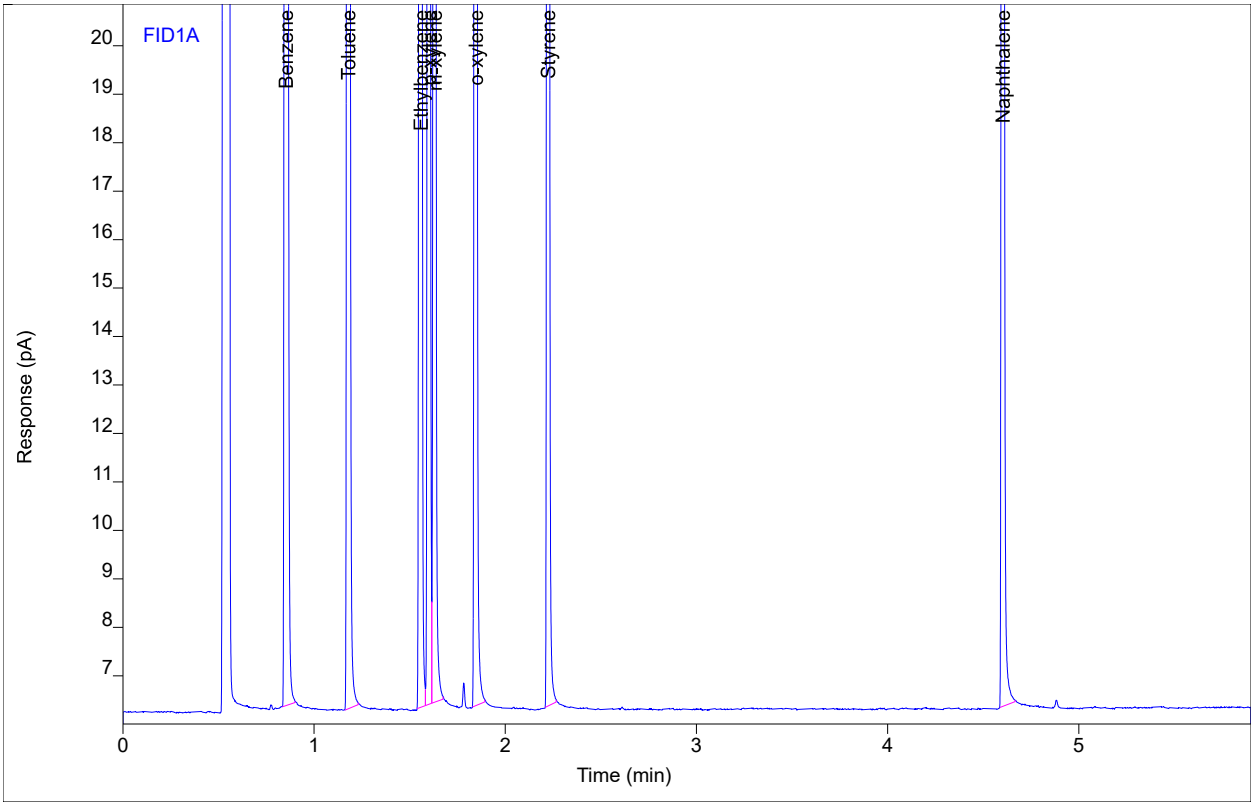
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	5.95571	6.08046	52.1687	1	52.1687	µg/mL
Toluene	BB	1.18	5.88000	7.41796	51.5392	1	51.5392	µg/mL
Ethylbenzene	BB	1.55	5.92036	8.94141	51.5406	1	51.5406	µg/mL
p-xylene	BV	1.60	5.77690	8.83845	51.0284	1	51.0284	µg/mL
m-xylene	VB	1.63	6.03902	8.71908	51.6515	1	51.6515	µg/mL
o-xylene	BB	1.84	5.93572	8.80585	52.0614	1	52.0614	µg/mL
Styrene	BB	2.22	6.29125	9.75890	54.2466	1	54.2466	µg/mL
Naphthalene	BB	4.60	5.97825	9.24134	49.2307	1	49.2307	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #6
Sequence Name	LUCY1068 ver.5
Inj Data File	066F0301.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 9:06 AM
File Modified	11/1/2021 10:52 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	66
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



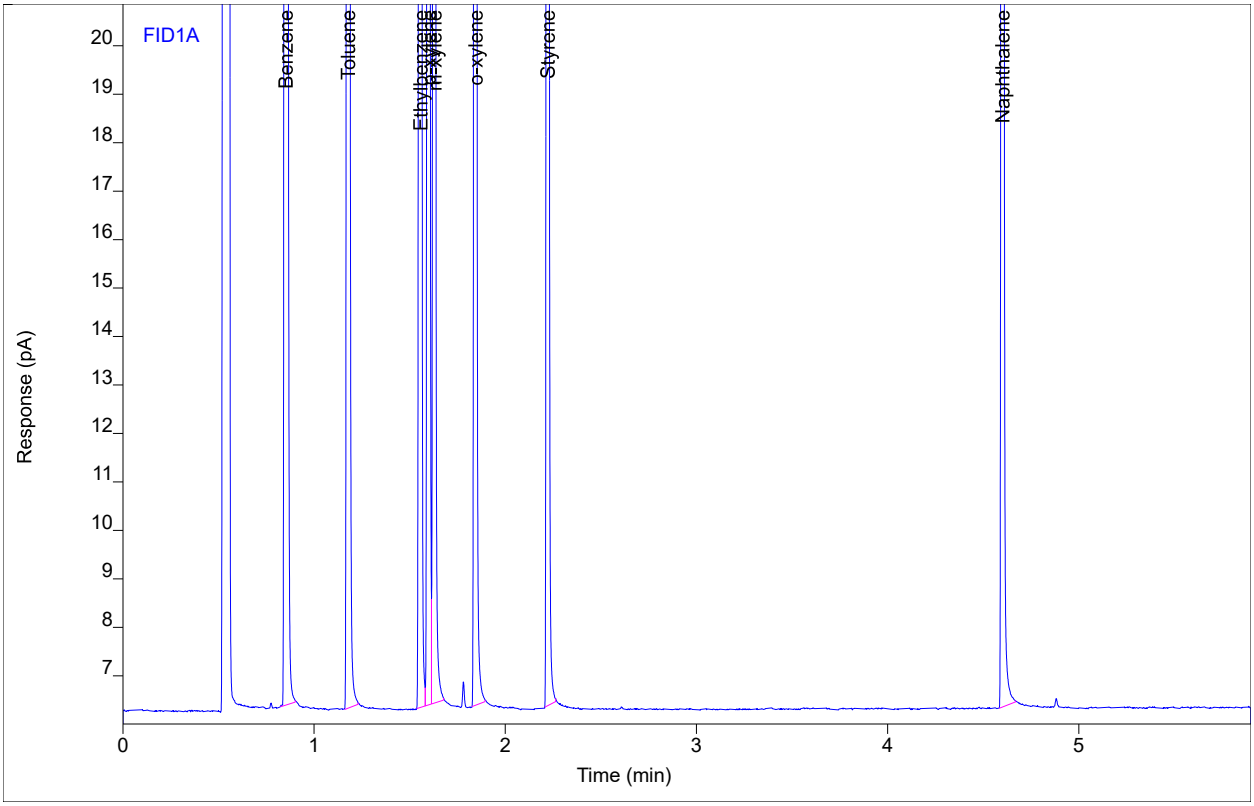
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	117.773	117.678	1031.23	1	1031.23	µg/mL
Toluene	BB	1.18	117.040	147.842	1021.23	1	1021.23	µg/mL
Ethylbenzene	BV	1.56	116.907	162.499	1011.43	1	1011.43	µg/mL
p-xylene	VV	1.60	115.608	169.965	1014.19	1	1014.19	µg/mL
m-xylene	VB	1.63	118.595	195.128	1009.08	1	1009.08	µg/mL
o-xylene	BB	1.85	118.965	185.375	1037.20	1	1037.20	µg/mL
Styrene	BB	2.22	125.214	206.751	1071.71	1	1071.71	µg/mL
Naphthalene	BB	4.60	118.584	184.587	971.949	1	971.949	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #6
Sequence Name	LUCY1068 ver.5
Inj Data File	066F0302.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 9:16 AM
File Modified	11/1/2021 10:52 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	66
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



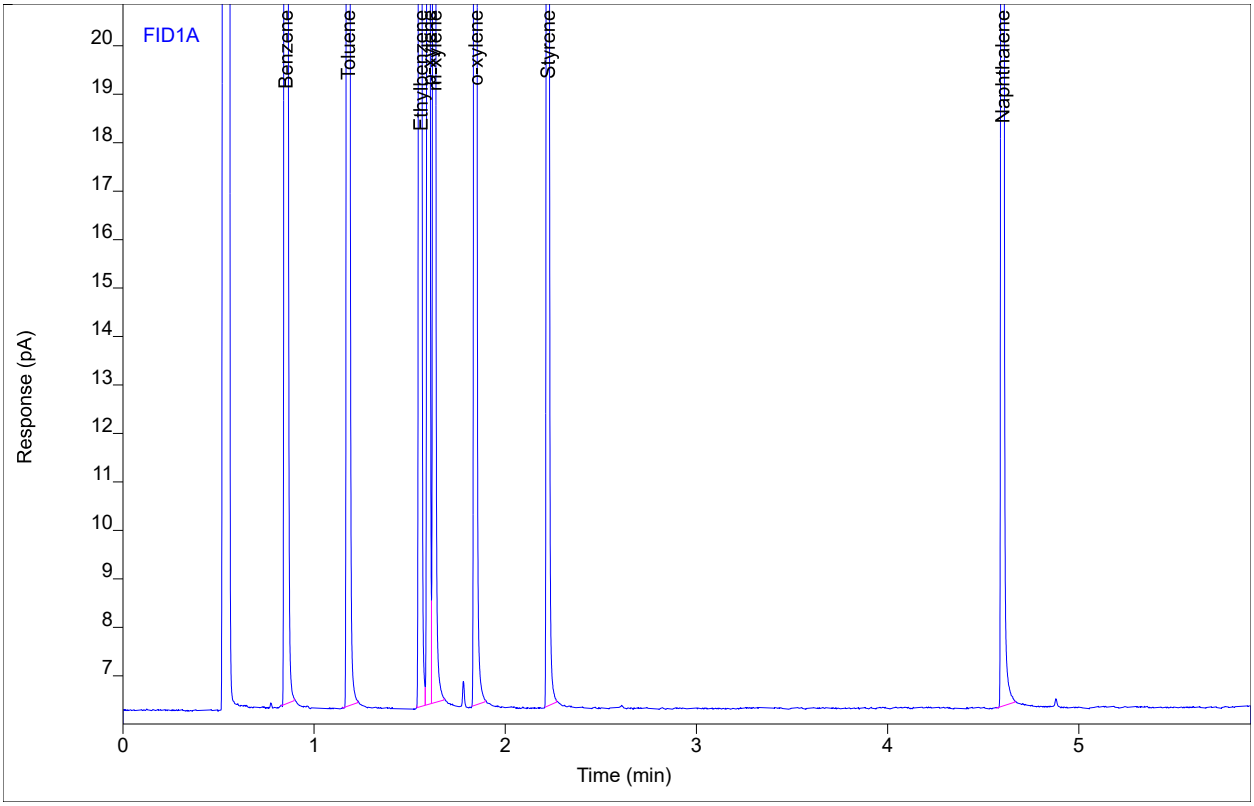
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	118.380	118.387	1036.55	1	1036.55	µg/mL
Toluene	BB	1.18	117.551	147.150	1025.69	1	1025.69	µg/mL
Ethylbenzene	BV	1.56	117.478	162.125	1016.37	1	1016.37	µg/mL
p-xylene	VV	1.60	116.133	173.105	1018.80	1	1018.80	µg/mL
m-xylene	VB	1.63	119.265	194.766	1014.78	1	1014.78	µg/mL
o-xylene	BB	1.84	119.533	189.227	1042.15	1	1042.15	µg/mL
Styrene	BB	2.22	125.759	209.574	1076.37	1	1076.37	µg/mL
Naphthalene	BB	4.60	119.404	186.118	978.667	1	978.667	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #6
Sequence Name	LUCY1068 ver.5
Inj Data File	066F0303.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 9:27 AM
File Modified	11/1/2021 10:53 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	66
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



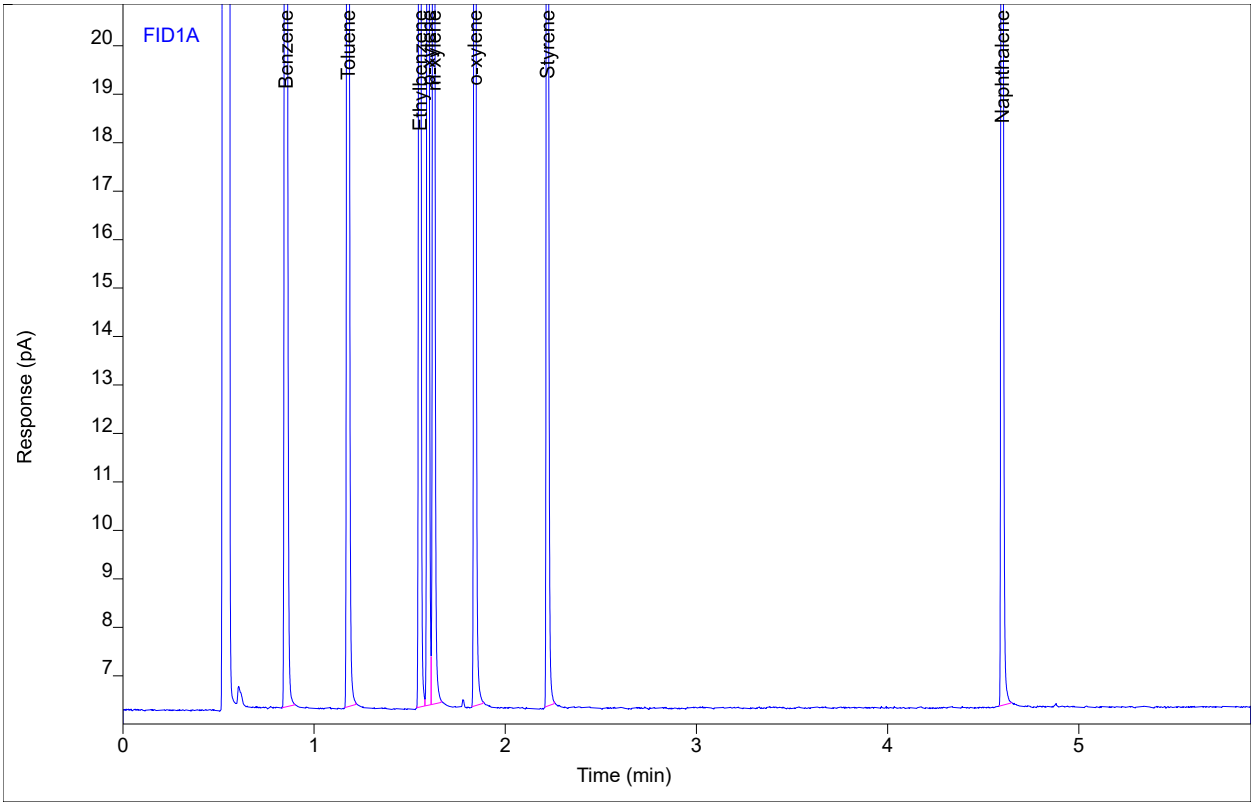
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	117.972	120.580	1032.98	1	1032.98	µg/mL
Toluene	BB	1.18	117.084	147.978	1021.62	1	1021.62	µg/mL
Ethylbenzene	BV	1.56	117.052	167.067	1012.69	1	1012.69	µg/mL
p-xylene	VV	1.60	115.749	174.880	1015.43	1	1015.43	µg/mL
m-xylene	VB	1.63	118.852	195.093	1011.27	1	1011.27	µg/mL
o-xylene	BB	1.85	119.126	186.456	1038.60	1	1038.60	µg/mL
Styrene	BB	2.22	125.352	208.174	1072.89	1	1072.89	µg/mL
Naphthalene	BB	4.60	118.978	176.518	975.175	1	975.175	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #5
Sequence Name	LUCY1068 ver.5
Inj Data File	065F0401.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 9:37 AM
File Modified	11/1/2021 10:53 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	65
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



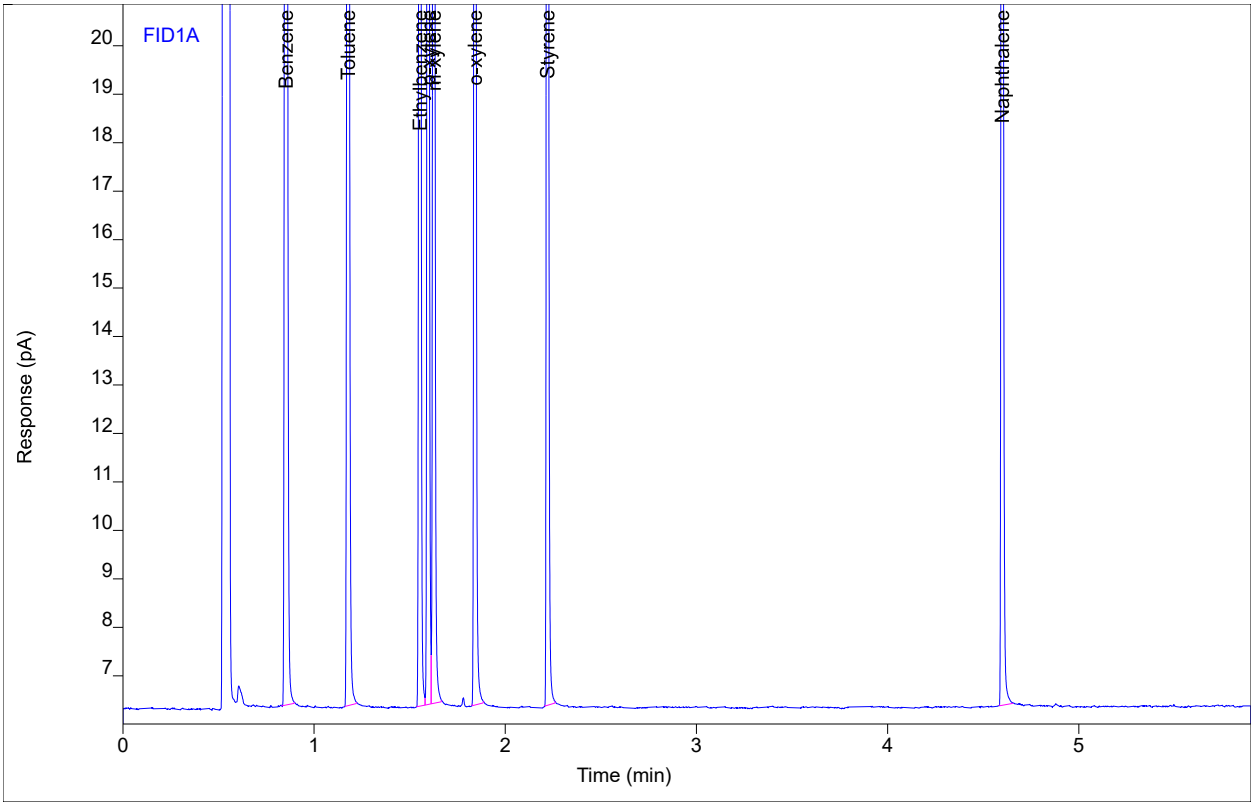
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	41.0218	42.0794	359.204	1	359.204	µg/mL
Toluene	BB	1.18	40.6670	52.7187	355.001	1	355.001	µg/mL
Ethylbenzene	BV	1.55	40.6767	62.6456	352.139	1	352.139	µg/mL
p-xylene	VV	1.60	40.1534	62.7970	352.494	1	352.494	µg/mL
m-xylene	VB	1.63	41.3771	66.2790	352.247	1	352.247	µg/mL
o-xylene	BB	1.84	41.3097	65.8425	360.374	1	360.374	µg/mL
Styrene	BB	2.22	43.4803	74.2582	372.423	1	372.423	µg/mL
Naphthalene	BB	4.60	41.3124	63.7992	338.766	1	338.766	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #5
Sequence Name	LUCY1068 ver.5
Inj Data File	065F0402.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 9:48 AM
File Modified	11/1/2021 10:53 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	65
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



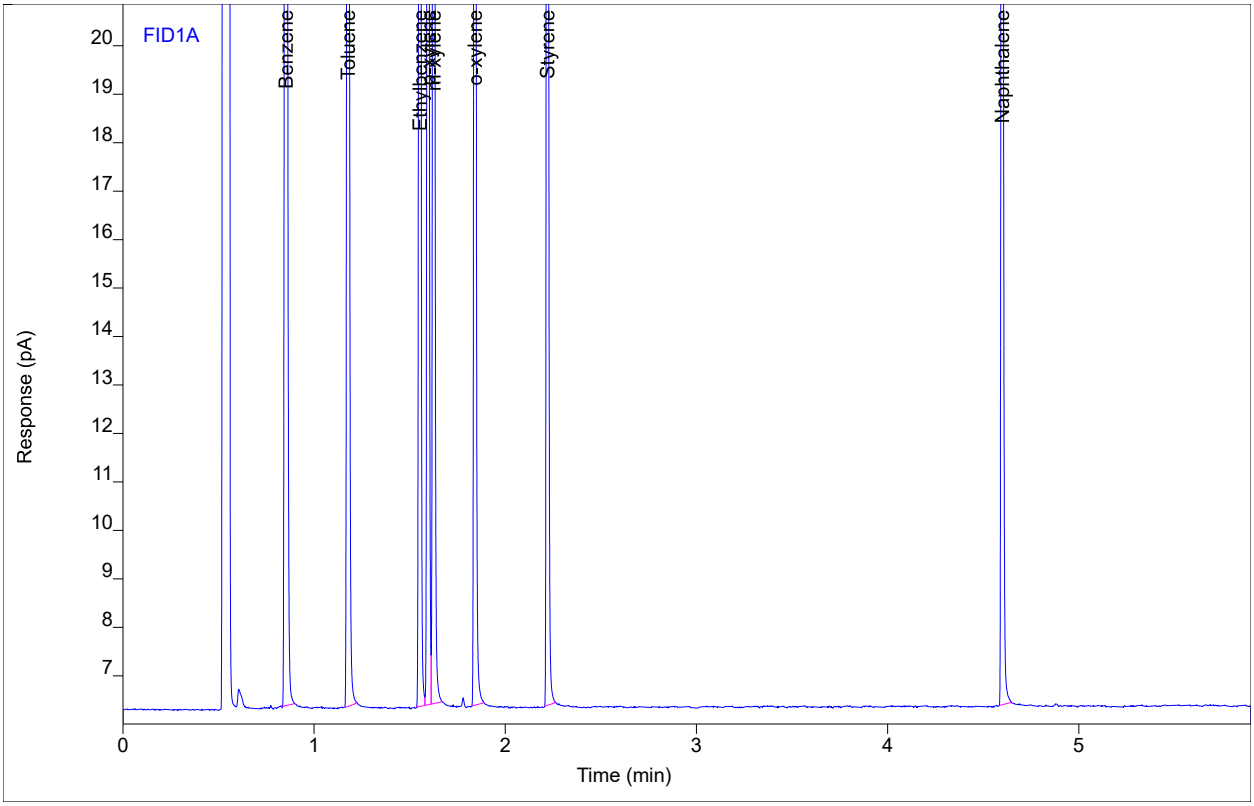
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	40.9204	41.6351	358.316	1	358.316	µg/mL
Toluene	BB	1.18	40.6120	52.4536	354.521	1	354.521	µg/mL
Ethylbenzene	BV	1.55	40.6420	62.4630	351.839	1	351.839	µg/mL
p-xylene	VV	1.60	40.1292	63.0744	352.282	1	352.282	µg/mL
m-xylene	VB	1.63	41.3789	66.3367	352.263	1	352.263	µg/mL
o-xylene	BB	1.84	41.3130	65.7210	360.403	1	360.403	µg/mL
Styrene	BB	2.22	43.4927	72.3592	372.530	1	372.530	µg/mL
Naphthalene	BB	4.60	41.3514	65.0235	339.085	1	339.085	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #5
Sequence Name	LUCY1068 ver.5
Inj Data File	065F0403.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 9:58 AM
File Modified	11/1/2021 10:53 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	65
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



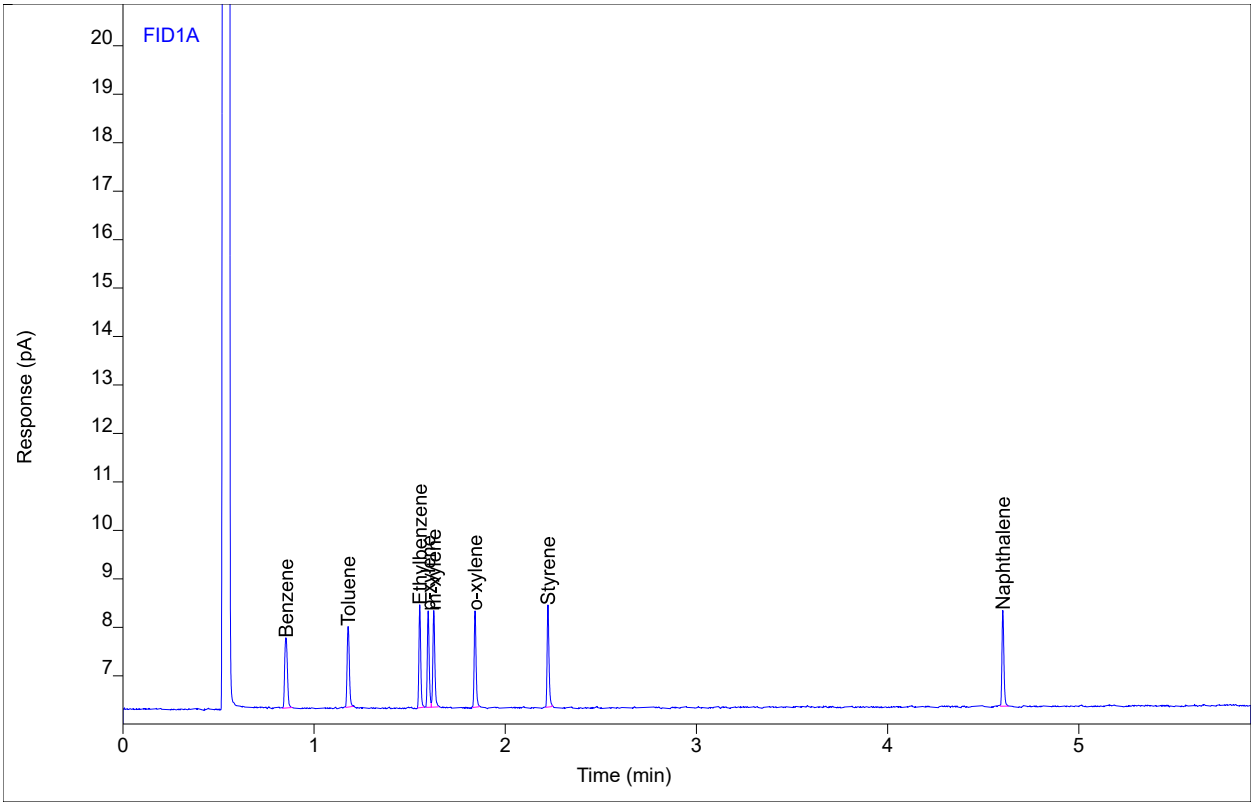
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	40.6349	40.3173	355.816	1	355.816	µg/mL
Toluene	BB	1.18	40.3658	50.8761	352.374	1	352.374	µg/mL
Ethylbenzene	BV	1.55	40.4101	61.5045	349.833	1	349.833	µg/mL
p-xylene	VV	1.60	39.9024	62.8464	350.292	1	350.292	µg/mL
m-xylene	VB	1.63	41.0984	64.2483	349.877	1	349.877	µg/mL
o-xylene	BB	1.84	41.0349	66.4226	357.979	1	357.979	µg/mL
Styrene	BB	2.22	43.2176	71.0376	370.176	1	370.176	µg/mL
Naphthalene	BB	4.60	41.0417	64.4149	336.547	1	336.547	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #3
Sequence Name	LUCY1068 ver.5
Inj Data File	063F0501.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 10:08 AM
File Modified	11/1/2021 10:53 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	63
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



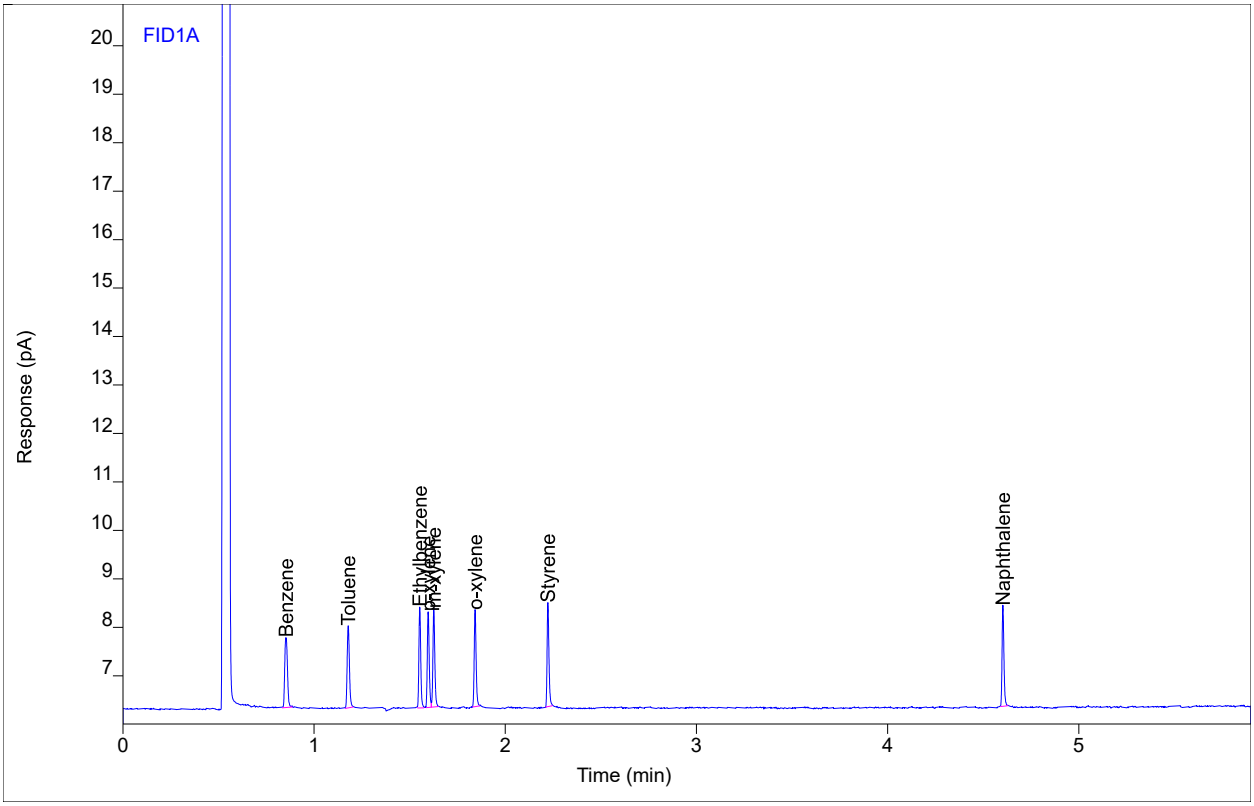
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	1.43873	1.45236	12.6184	1	12.6184	µg/mL
Toluene	BB	1.18	1.36988	1.67237	12.1955	1	12.1955	µg/mL
Ethylbenzene	BB	1.55	1.38300	2.12292	12.2982	1	12.2982	µg/mL
p-xylene	BV	1.60	1.35020	1.99304	12.2083	1	12.2083	µg/mL
m-xylene	VB	1.63	1.43463	2.00082	12.4853	1	12.4853	µg/mL
o-xylene	BB	1.84	1.37967	2.00178	12.3518	1	12.3518	µg/mL
Styrene	BB	2.22	1.42868	2.10343	12.6441	1	12.6441	µg/mL
Naphthalene	BB	4.60	1.41322	1.98572	11.8240	1	11.8240	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #3
Sequence Name	LUCY1068 ver.5
Inj Data File	063F0502.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 10:19 AM
File Modified	11/1/2021 10:53 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	63
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



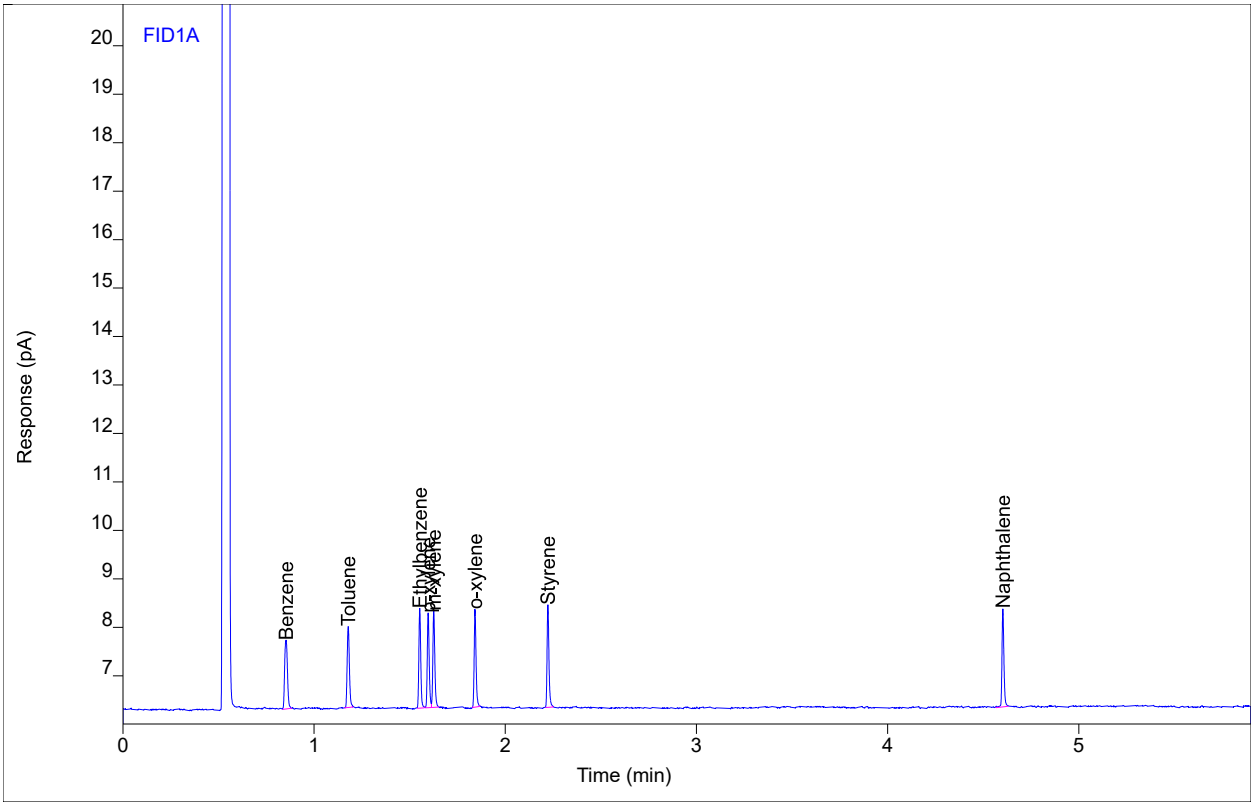
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	1.44266	1.44776	12.6529	1	12.6529	µg/mL
Toluene	BB	1.18	1.38619	1.69995	12.3378	1	12.3378	µg/mL
Ethylbenzene	BB	1.55	1.39714	2.08828	12.4205	1	12.4205	µg/mL
p-xylene	BV	1.60	1.36344	1.98029	12.3244	1	12.3244	µg/mL
m-xylene	VB	1.63	1.41800	2.03566	12.3438	1	12.3438	µg/mL
o-xylene	BB	1.84	1.37594	2.00102	12.3193	1	12.3193	µg/mL
Styrene	BB	2.22	1.43763	2.14828	12.7206	1	12.7206	µg/mL
Naphthalene	BB	4.60	1.40104	2.08423	11.7242	1	11.7242	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #3
Sequence Name	LUCY1068 ver.5
Inj Data File	063F0503.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 10:29 AM
File Modified	11/1/2021 10:53 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	63
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



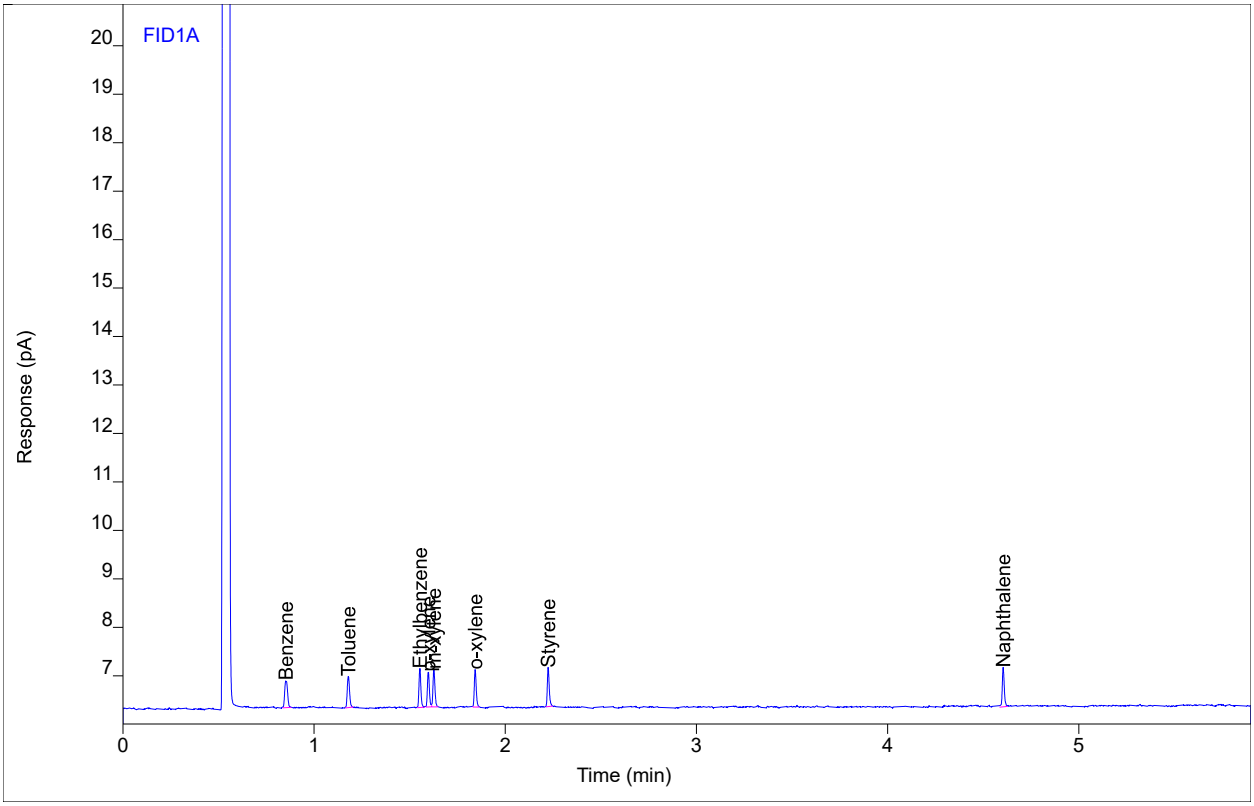
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	1.45381	1.42476	12.7505	1	12.7505	µg/mL
Toluene	BB	1.18	1.36457	1.68022	12.1492	1	12.1492	µg/mL
Ethylbenzene	BB	1.55	1.40193	2.05875	12.4619	1	12.4619	µg/mL
p-xylene	BV	1.60	1.35276	1.95709	12.2307	1	12.2307	µg/mL
m-xylene	VB	1.63	1.41517	1.99527	12.3198	1	12.3198	µg/mL
o-xylene	BB	1.84	1.37936	2.02308	12.3491	1	12.3491	µg/mL
Styrene	BB	2.22	1.44628	2.11060	12.7947	1	12.7947	µg/mL
Naphthalene	BB	4.60	1.42712	2.02801	11.9378	1	11.9378	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #2
Sequence Name	LUCY1068 ver.5
Inj Data File	062F0601.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 10:40 AM
File Modified	11/1/2021 10:53 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	62
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



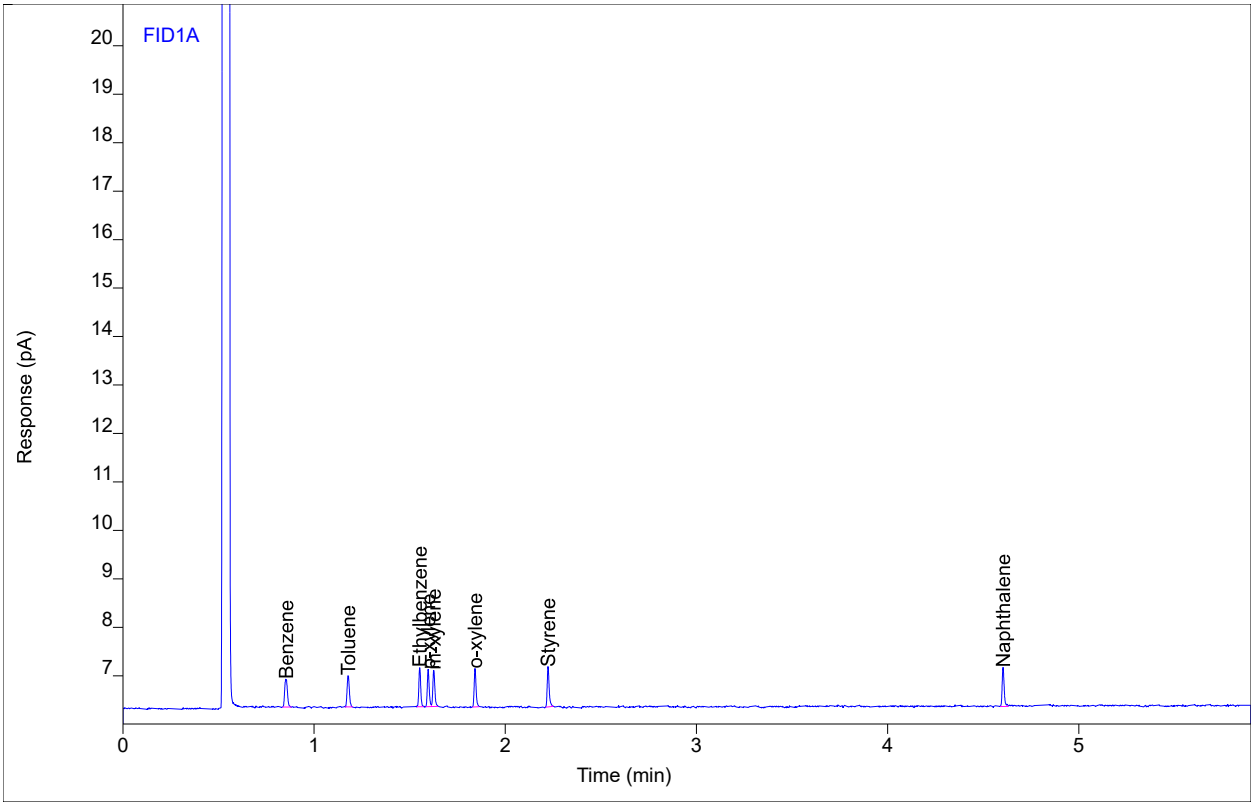
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	0.58552	0.56654	5.14780	1	5.14780	µg/mL
Toluene	BB	1.18	0.54925	0.65236	5.03678	1	5.03678	µg/mL
Ethylbenzene	BB	1.55	0.55894	0.80618	5.17110	1	5.17110	µg/mL
p-xylene	BV	1.60	0.52775	0.73234	4.99578	1	4.99578	µg/mL
m-xylene	VB	1.63	0.55761	0.78503	5.02516	1	5.02516	µg/mL
o-xylene	BB	1.84	0.54189	0.77344	5.04986	1	5.04986	µg/mL
Styrene	BB	2.22	0.56812	0.80793	5.28144	1	5.28144	µg/mL
Naphthalene	VV	4.60	0.59234	0.81369	5.09750	1	5.09750	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #2
Sequence Name	LUCY1068 ver.5
Inj Data File	062F0602.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 10:50 AM
File Modified	11/1/2021 10:53 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	62
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



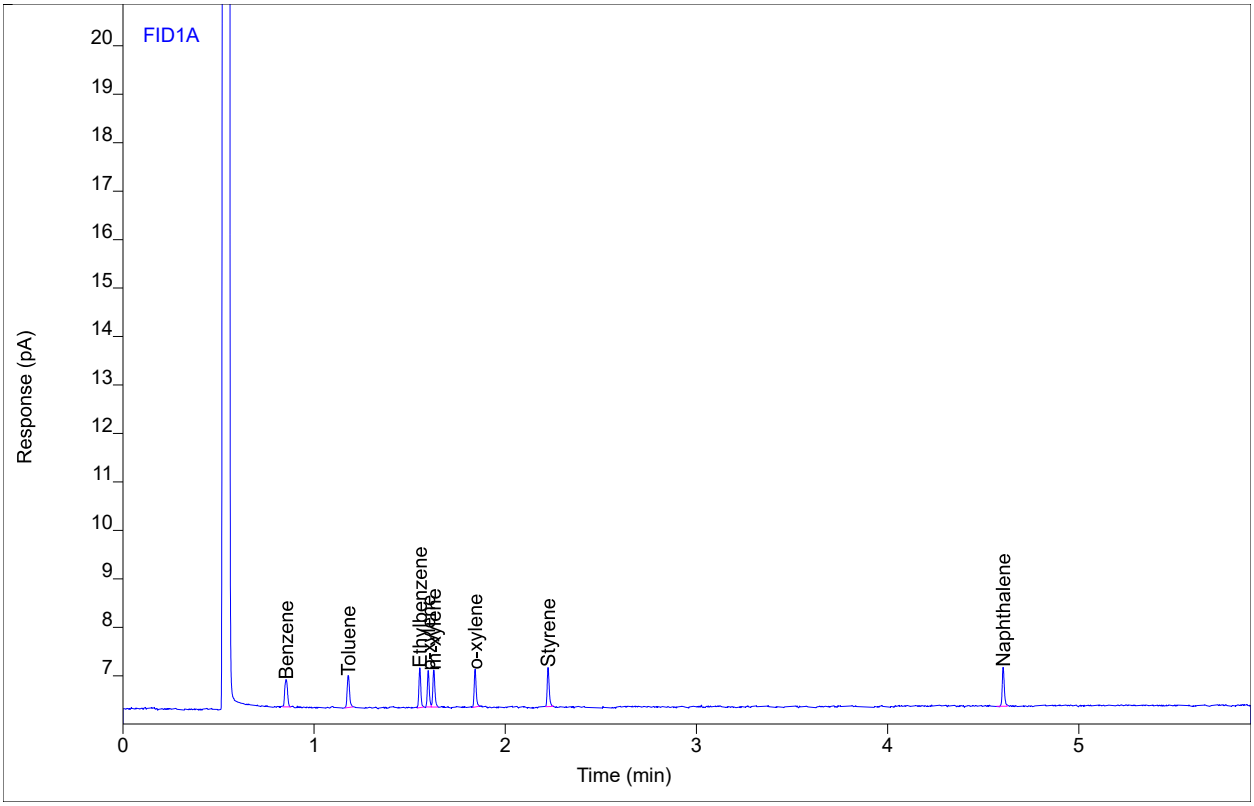
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	0.57774	0.58481	5.07969	1	5.07969	µg/mL
Toluene	BB	1.18	0.53535	0.65495	4.91553	1	4.91553	µg/mL
Ethylbenzene	BB	1.55	0.55415	0.82031	5.12969	1	5.12969	µg/mL
p-xylene	BV	1.60	0.53269	0.77171	5.03916	1	5.03916	µg/mL
m-xylene	VB	1.63	0.55291	0.76009	4.98513	1	4.98513	µg/mL
o-xylene	BB	1.84	0.54555	0.79069	5.08182	1	5.08182	µg/mL
Styrene	BB	2.22	0.58524	0.82367	5.42792	1	5.42792	µg/mL
Naphthalene	VB	4.60	0.59466	0.80994	5.11652	1	5.11652	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #2
Sequence Name	LUCY1068 ver.5
Inj Data File	062F0603.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 11:01 AM
File Modified	11/1/2021 10:53 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	62
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



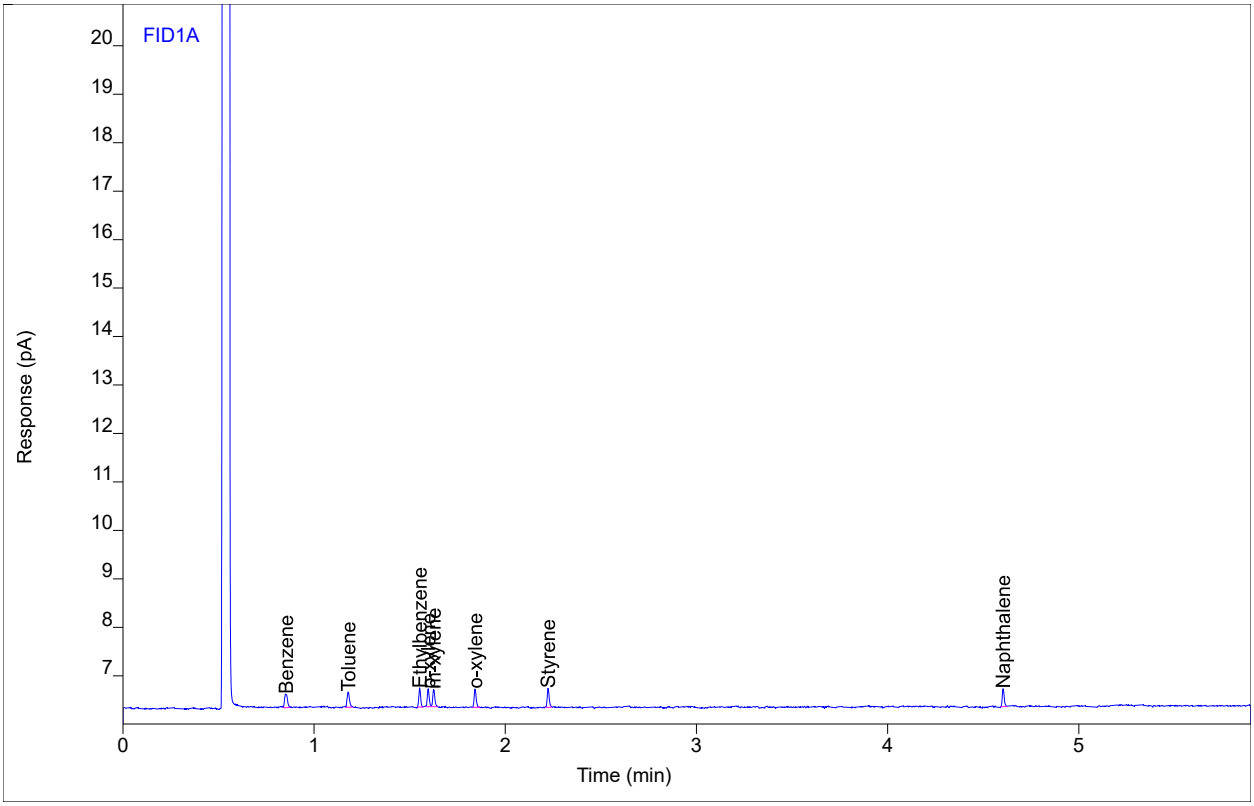
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	0.56996	0.57048	5.01163	1	5.01163	µg/mL
Toluene	BB	1.18	0.57403	0.65749	5.25292	1	5.25292	µg/mL
Ethylbenzene	BB	1.55	0.56876	0.82258	5.25611	1	5.25611	µg/mL
p-xylene	BV	1.60	0.52472	0.75367	4.96922	1	4.96922	µg/mL
m-xylene	VB	1.63	0.57367	0.77410	5.16174	1	5.16174	µg/mL
o-xylene	BB	1.84	0.55408	0.77609	5.15617	1	5.15617	µg/mL
Styrene	BB	2.22	0.59052	0.80708	5.47309	1	5.47309	µg/mL
Naphthalene	BB	4.60	0.61147	0.81230	5.25426	1	5.25426	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #1
Sequence Name	LUCY1068 ver.5
Inj Data File	061F0701.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 11:11 AM
File Modified	11/1/2021 10:53 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	61
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



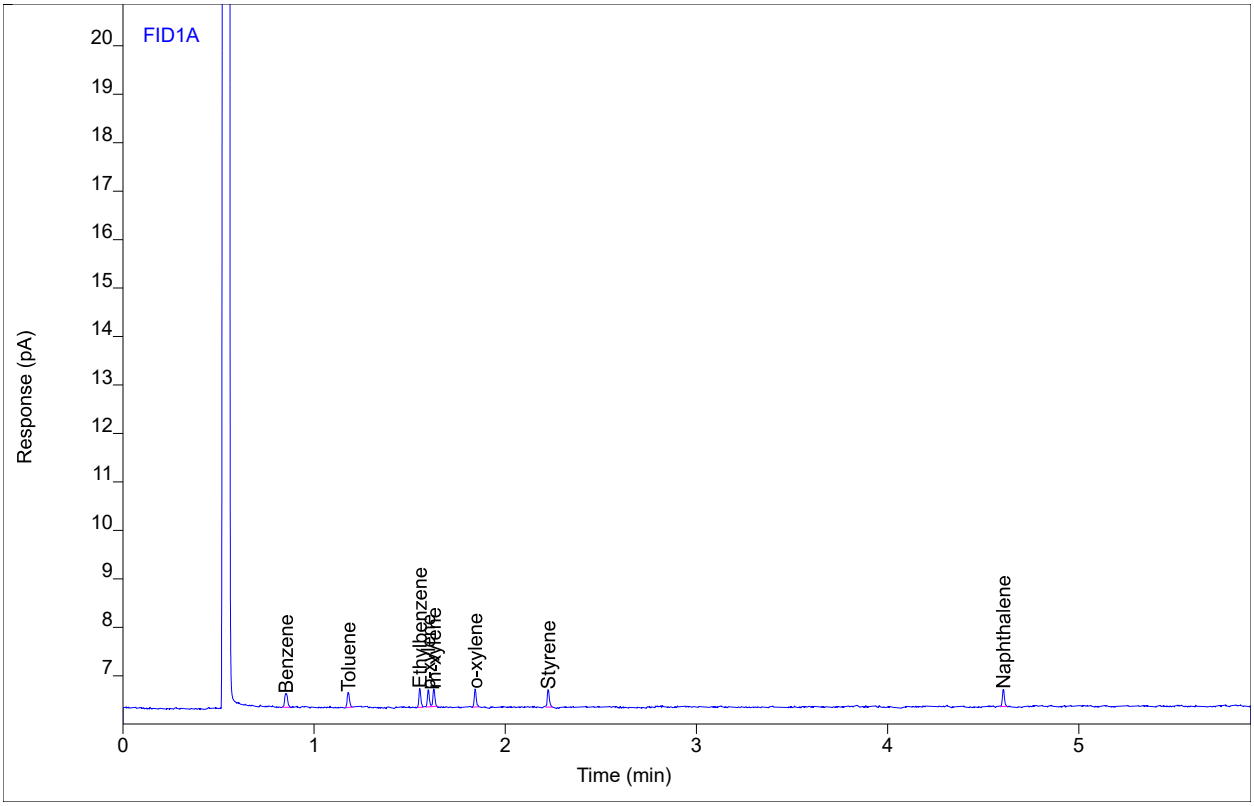
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	MM	0.85	0.29769	0.29116	2.62763	1	2.62763	µg/mL
Toluene	BB	1.18	0.27589	0.32837	2.65213	1	2.65213	µg/mL
Ethylbenzene	BB	1.55	0.26059	0.39063	2.59074	1	2.59074	µg/mL
p-xylene	BV	1.60	0.26000	0.37165	2.64781	1	2.64781	µg/mL
m-xylene	VB	1.63	0.27488	0.37244	2.62016	1	2.62016	µg/mL
o-xylene	BB	1.84	0.27870	0.38815	2.75602	1	2.75602	µg/mL
Styrene	BB	2.22	0.27559	0.39644	2.77862	1	2.77862	µg/mL
Naphthalene	MF	4.60	0.26683	0.37823	2.42330	1	2.42330	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #1
Sequence Name	LUCY1068 ver.5
Inj Data File	061F0702.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 11:22 AM
File Modified	11/1/2021 10:53 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	61
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



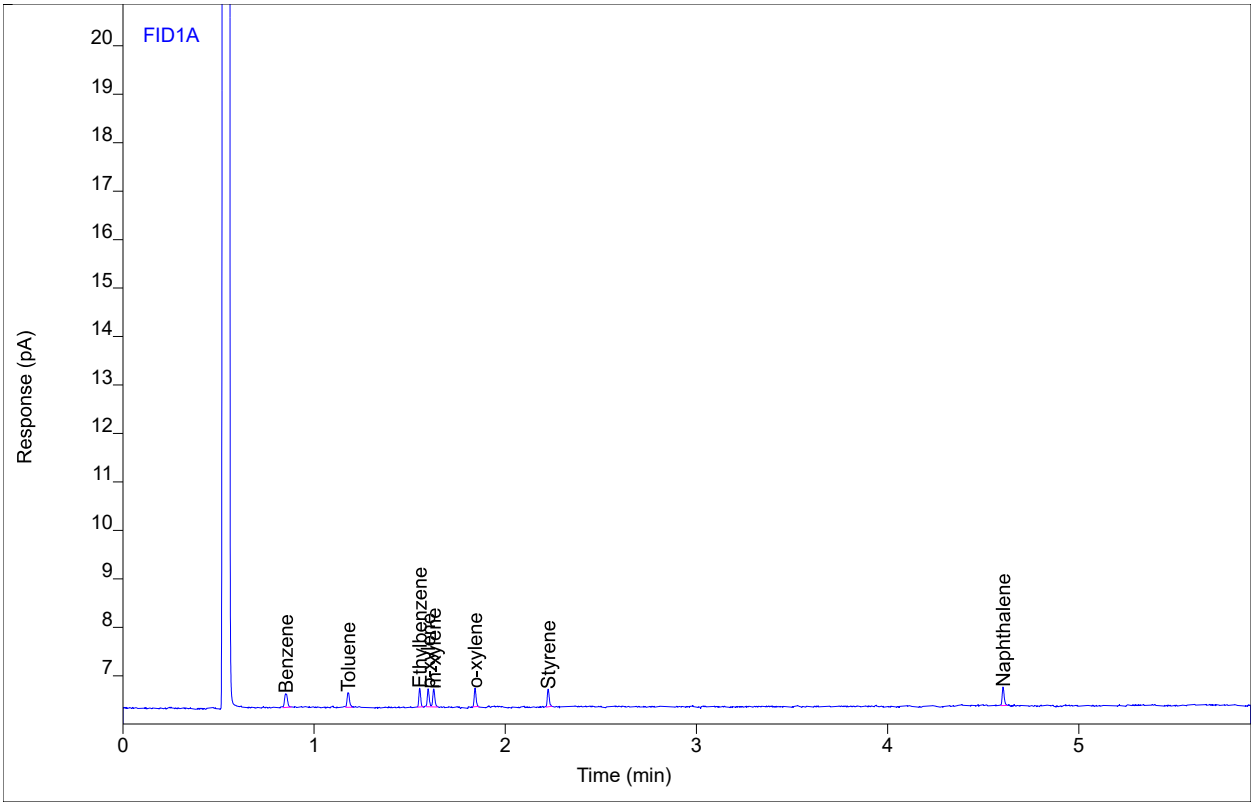
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	MM	0.85	0.31093	0.29215	2.74353	1	2.74353	µg/mL
Toluene	BB	1.18	0.26969	0.32310	2.59808	1	2.59808	µg/mL
Ethylbenzene	BB	1.55	0.27388	0.39068	2.70576	1	2.70576	µg/mL
p-xylene	MF	1.60	0.25481	0.35502	2.60224	1	2.60224	µg/mL
m-xylene	FM	1.63	0.27161	0.38054	2.59232	1	2.59232	µg/mL
o-xylene	BB	1.84	0.26527	0.37781	2.63893	1	2.63893	µg/mL
Styrene	BB	2.22	0.28182	0.37079	2.83197	1	2.83197	µg/mL
Naphthalene	MM	4.60	0.26803	0.36868	2.43422	1	2.43422	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1584 #1
Sequence Name	LUCY1068 ver.5
Inj Data File	061F0703.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 11:32 AM
File Modified	11/1/2021 10:53 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Calibration
Vial Number	61
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



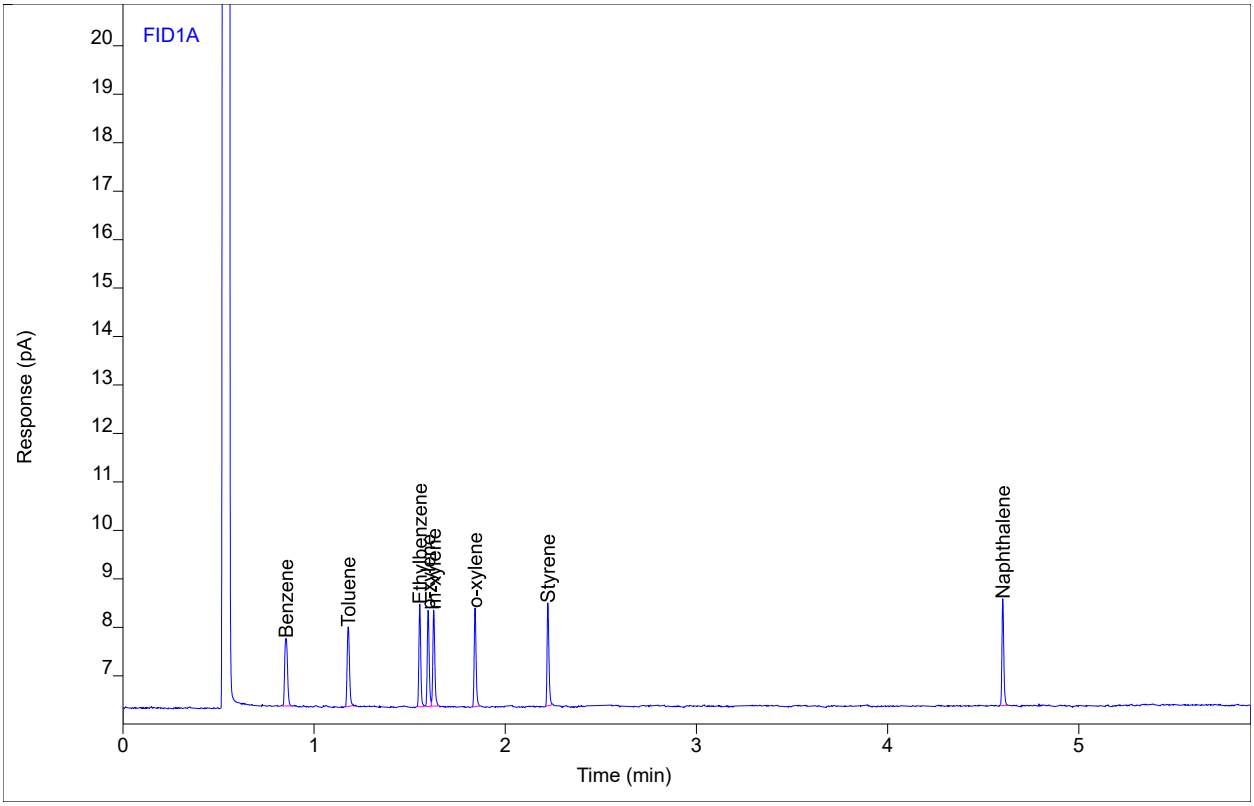
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	0.30241	0.29179	2.66892	1	2.66892	µg/mL
Toluene	BB	1.18	0.27462	0.31879	2.64111	1	2.64111	µg/mL
Ethylbenzene	BB	1.55	0.25032	0.39134	2.48868	1	2.48868	µg/mL
p-xylene	BV	1.60	0.25499	0.37274	2.60387	1	2.60387	µg/mL
m-xylene	VB	1.63	0.27720	0.37870	2.63989	1	2.63989	µg/mL
o-xylene	MM	1.84	0.26372	0.38462	2.62538	1	2.62538	µg/mL
Styrene	BB	2.22	0.25855	0.36729	2.61744	1	2.61744	µg/mL
Naphthalene	BB	4.60	0.27871	0.38785	2.52757	1	2.52757	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1550 #3
Sequence Name	LUCY1068 ver.5
Inj Data File	067F0801.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 11:43 AM
File Modified	11/1/2021 10:54 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Control
Vial Number	67
Injection Volume	1
Injection	1 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	1.43508	1.40458	12.5865	1	12.5865	µg/mL
Toluene	BB	1.18	1.38966	1.64513	12.3680	1	12.3680	µg/mL
Ethylbenzene	BB	1.55	1.41830	2.12206	12.6035	1	12.6035	µg/mL
p-xylene	BV	1.60	1.39013	1.99070	12.5585	1	12.5585	µg/mL
m-xylene	VB	1.63	1.42515	1.99768	12.4047	1	12.4047	µg/mL
o-xylene	BB	1.84	1.41135	2.03404	12.6280	1	12.6280	µg/mL
Styrene	BB	2.22	1.42635	2.12925	12.6241	1	12.6241	µg/mL
Naphthalene	BB	4.60	1.47544	2.19970	12.3338	1	12.3338	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1550 #3
Sequence Name	LUCY1068 ver.5
Inj Data File	067F0802.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 11:53 AM
File Modified	11/1/2021 10:54 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Control
Vial Number	67
Injection Volume	1
Injection	2 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
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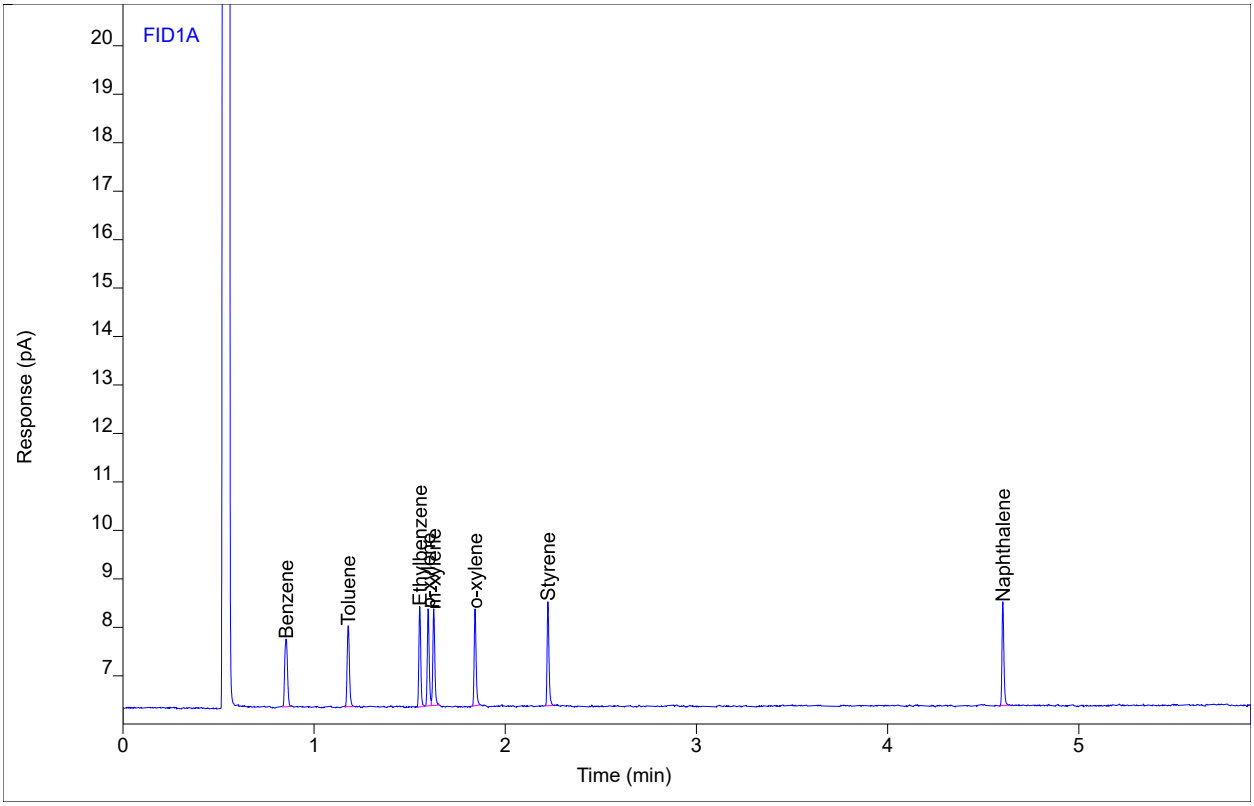


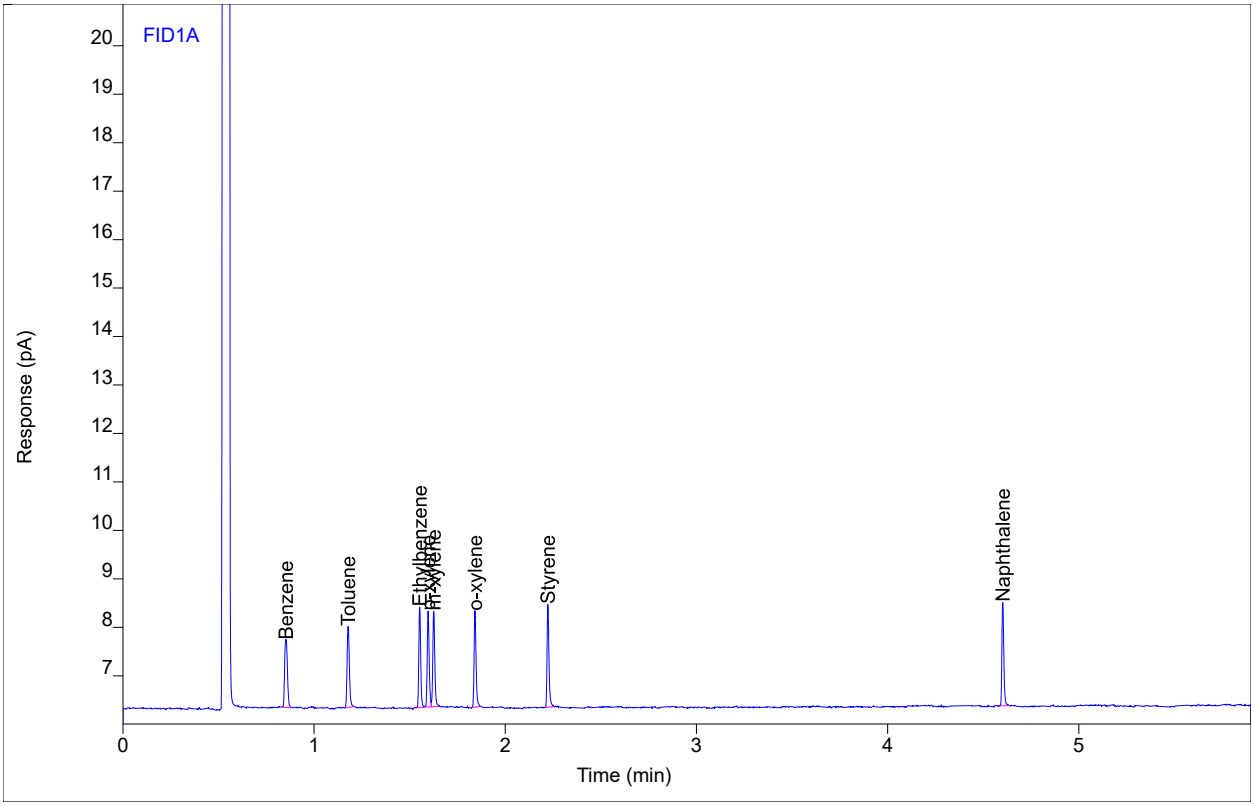
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	1.41083	1.40402	12.3741	1	12.3741	µg/mL
Toluene	BB	1.18	1.38479	1.67530	12.3256	1	12.3256	µg/mL
Ethylbenzene	BB	1.55	1.42248	2.08289	12.6397	1	12.6397	µg/mL
p-xylene	BV	1.60	1.37409	2.01341	12.4179	1	12.4179	µg/mL
m-xylene	VB	1.63	1.42234	1.98981	12.3807	1	12.3807	µg/mL
o-xylene	BB	1.84	1.41727	1.99874	12.6795	1	12.6795	µg/mL
Styrene	BB	2.22	1.45799	2.16083	12.8949	1	12.8949	µg/mL
Naphthalene	BB	4.60	1.49475	2.13981	12.4921	1	12.4921	µg/mL

Chromatogram Report

Enthalpy Analytical

Sample Name	GCstds1550 #3
Sequence Name	LUCY1068 ver.5
Inj Data File	067F0803.D
File Location	GC/2021/Lucy/Quarter 4
Injection Date	10/29/2021 12:04 PM
File Modified	11/1/2021 10:54 AM
Instrument	Lucy
Operator	Kim Maturo

Sample Type	Control
Vial Number	67
Injection Volume	1
Injection	3 of 3
Acquisition Method	LUCY0301B.M
Analysis Method	LUCY1068_F.M
Method Modified	11/1/2021 10:52 AM
Printed	11/1/2021 12:39 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Benzene	BB	0.85	1.41705	1.39503	12.4287	1	12.4287	µg/mL
Toluene	BB	1.18	1.40827	1.67904	12.5304	1	12.5304	µg/mL
Ethylbenzene	BB	1.55	1.42055	2.09090	12.6230	1	12.6230	µg/mL
p-xylene	BV	1.60	1.38306	1.98956	12.4965	1	12.4965	µg/mL
m-xylene	VB	1.63	1.42509	1.98879	12.4042	1	12.4042	µg/mL
o-xylene	BB	1.84	1.42758	1.99435	12.7694	1	12.7694	µg/mL
Styrene	BB	2.22	1.47300	2.13177	13.0233	1	13.0233	µg/mL
Naphthalene	BB	4.60	1.48567	2.14130	12.4176	1	12.4176	µg/mL

This Is The Last Page Of This Report.

Appendix D

QA Data

Location Energy Transfer - Howell, MI
Source Dehydration Unit
Project No. 2021-2950

Parameter	O_2 - Outlet	CO_2 - Outlet
Make	Servomex	Servomex
Model	4900	4900
S/N	653266	653266
Operating Range	0-25%	0-25%
Cylinder ID		
Zero	NA	NA
Low	NA	NA
Mid	SX64376	SX64376
High	SX46296	SX46296
Cylinder Certifed Values		
Low	NA	NA
Mid	10.99	11.04
High	19.91	19.70
Cylinder Expiration Date		
Zero	NA	NA
Low	NA	NA
Mid	8/19/28	8/19/28
High	5/26/29	5/26/29

Alliance SOURCE TESTING

Mass Flow Controller Usage

Location: Energy Transfer - Howell, MI
Source: Dehydration Unit
Project No.: 2021-2950

Parameter	O_2 - Outlet	CO_2 - Outlet
Zero Calibration		
Flow Rate, lpm	4.0	4.0
Balance Gas Mass Flow Controller	MFC #1	MFC #1
Low Calibration		
Flow Rate, lpm	4.0	4.0
Balance Gas Mass Flow Controller	MFC #1	MFC #1
Target Gas Mass Flow Controller	NA	NA
Mid Calibration		
Flow Rate, lpm	4.0	4.0
Balance Gas Mass Flow Controller	MFC #1	MFC #1
Target Gas Mass Flow Controller	MFC #2	MFC #2
High Calibration		
Flow Rate, lpm	4.0	4.0
Balance Gas Mass Flow Controller	MFC #1	MFC #1
Target Gas Mass Flow Controller	MFC #2	MFC #2
Run 1 Zero Pre-bias		
Flow Rate, lpm	8.0	8.0
Balance Gas Mass Flow Controller	MFC #1	MFC #1
Run 1 Mid Pre-bias		
Flow Rate, lpm	8.0	8.0
Balance Gas Mass Flow Controller	MFC #1	MFC #1
Target Gas Mass Flow Controller	MFC #2	MFC #2
Run 1 Zero Post-bias		
Flow Rate, lpm	8.0	8.0
Balance Gas Mass Flow Controller	MFC #1	MFC #1
Run 1 Mid Post-bias		
Flow Rate, lpm	8.0	8.0
Balance Gas Mass Flow Controller	MFC #1	MFC #1
Target Gas Mass Flow Controller	MFC #2	MFC #2
Run 2 Zero Post-bias		
Flow Rate, lpm	8.0	8.0
Balance Gas Mass Flow Controller	MFC #1	MFC #1
Run 2 Mid Post-bias		
Flow Rate, lpm	8.0	8.0
Balance Gas Mass Flow Controller	MFC #1	MFC #1
Target Gas Mass Flow Controller	MFC #2	MFC #2
Run 3 Zero Post-bias		
Flow Rate, lpm	8.0	8.0
Balance Gas Mass Flow Controller	MFC #1	MFC #1
Run 3 Mid Post-bias		
Flow Rate, lpm	8.0	8.0
Balance Gas Mass Flow Controller	MFC #1	MFC #1
Target Gas Mass Flow Controller	MFC #2	MFC #2

Alliance SOURCE TESTING

Calibration Data

Location: Energy Transfer - Howell, MI
Source: Dehydration Unit
Project No.: 2021-2950
Date: 12/16/21

Parameter	O_2 - Outlet	CO_2 - Outlet
Expected Average Concentration	10.0	10.0
Span Between		
Low	10.0	10.0
High	50.0	50.0
Desired Span	19.9	19.7
Low Range Gas		
Low	NA	NA
High	NA	NA
Mid Range Gas		
Low	8.0	7.9
High	11.9	11.8
High Range Gas		
Low	NA	NA
High	NA	NA
Actual Concentration (% or ppm)		
Zero	0.0	0.0
Low	NA	NA
Mid	10.99	11.04
High	19.91	19.70
Response Time (seconds)	60.0	60.0
Upscale Calibration Gas (C_{MA})	Mid	Mid
Instrument Response (% or ppm)		
Zero	0.0	0.0
Low	NA	NA
Mid	11.0	11.0
High	19.9	19.7
Performance (% of Span or Cal. Gas Conc.)		
Zero	0.0	0.0
Low	NA	NA
Mid	0.0	0.1
High	0.1	0.1
Status		
Zero	PASS	PASS
Low	NA	NA
Mid	PASS	PASS
High	PASS	PASS

Alliance SOURCE TESTING

Bias/Drift Determinations

Location: Energy Transfer - Howell, MI
Source: Dehydration Unit
Project No.: 2021-2950

Parameter	O_2 - Outlet	CO_2 - Outlet
Run 1 Date 12/16/21		
Span Value	19.9	19.7
Initial Instrument Zero Cal Response	0.0	0.0
Initial Instrument Upscale Cal Response	11.0	11.0
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.0
Pretest System Upscale Response	11.0	11.0
Posttest System Upscale Response	11.0	11.1
Bias (%)		
Pretest Zero	0.0	0.0
Posttest Zero	0.0	0.0
Pretest Span	-0.1	0.0
Posttest Span	-0.1	0.2
Drift (%)		
Zero	0.0	0.0
Mid	-0.1	0.2
Run 2 Date 12/16/21		
Span Value	19.9	19.7
Instrument Zero Cal Response	0.0	0.0
Instrument Upscale Cal Response	11.0	11.0
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.0
Pretest System Upscale Response	11.0	11.1
Posttest System Upscale Response	11.0	11.0
Bias (%)		
Pretest Zero	0.0	0.0
Posttest Zero	0.0	0.1
Pretest Span	-0.1	0.2
Posttest Span	-0.2	-0.1
Drift (%)		
Zero	0.0	0.1
Mid	-0.1	-0.2
Run 3 Date 12/16/21		
Span Value	19.9	19.7
Instrument Zero Cal Response	0.0	0.0
Instrument Upscale Cal Response	11.0	11.0
Pretest System Zero Response	0.0	0.0
Posttest System Zero Response	0.0	0.0
Pretest System Upscale Response	11.0	11.0
Posttest System Upscale Response	11.0	11.1
Bias (%)		
Pretest Zero	0.0	0.1
Posttest Zero	0.0	0.1
Pretest Span	-0.2	-0.1
Posttest Span	-0.1	0.1
Drift (%)		
Zero	0.0	-0.1
Mid	0.1	0.2

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1650 Enterprise Parkway
Twinsburg, OH 44087
215-648-4000

Certificate of Analysis – EPA Protocol Mixtures

Customer: MATHESON VALLEY
Cylinder Number: SX-64376
Cylinder pressure: 2000 psig
Last Analysis date: 8/21/2020
Expiration Date: 8/19/2028

Protocol:	Reference #	Lot #
G1	771739	109-96-43047

DO NOT USE THIS CYLINDER WHEN THE PRESSURE FALLS BELOW 100 PSIG

REPLICATE RESPONSES

Component : Oxygen
Certified Conc: 10.99% ± 0.02%

Date:	8/19/2020	Date:
	10.99%	
	10.98%	
	10.98%	

Component: Carbon Dioxide
Certified Conc: 11.04% ± 0.03%

Date:	8/21/2020	Date:
	11.03%	
	11.04%	
	11.06%	

BALANCE GAS: Nitrogen

REFERENCE STANDARDS

Component:	OXYGEN	CARBON DIOXIDE
Standard #:	PRM-O2	PRM-CO2
Sample #:	C1730310.03 EXP. 10/15/24	C3222872.01 EXP. 09/14/20
Cylinder #:	D791371	5604825
Concentration:	9.999% ± 0.01%	9.790% ± 0.010%

CERTIFICATION INSTRUMENTS

Component:	Oxygen	Carbon Dioxide
Make/Model:	Horiba MPA-510	Varian 3800 GC TCD
Serial Number:	9XUYXODW	LR-92489
Measurement Principle:	Paramagnetic	TCD
Last Calibration:	7/20/2020	8/13/2020

Notes: G2702714

The certification was performed according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards May 2012, using procedure G1 and/or G2. U.S EPA Vendor ID Number: D42020, PGVP Participation Date: 01/01/20, PGVP Renewal Date: 01/01/21. The expanded uncertainty listed for each component was calculated at a coverage factor of k=2 and at a level of confidence of 95%.

Analyst Philip D. Matt Date 8/21/2020

Accredited By:
ANAB
ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

MATHESON
The Gas Professionals

1700 Scepter Rd
Waverly, TN 37185
931-296-3357

Certificate of Analysis - EPA Protocol Mixtures

Customer: Matheson Valley
1055 Garden St
Greensburg, PA 15601

Customer PO#: K46-0046

Part # G2688369

Protocol: G1: Oxygen

Reference #: 800866-01

Lot#: 9301617805

G2: Carbon Dioxide

Cylinder Number: SX46296

Cylinder Pressure: 1700 psia

Certification Date: 5/26/2021

Certification Expiration Date: 5/26/2029

DO NOT USE THIS CYLINDER WHEN THE PRESSURE FALLS BELOW 100 PSIG

					REPLICATE RESPONSES
Component:	Carbon Dioxide			Date:	5/26/2021
					19.70
Certified Conc:	19.70 %	+/- 0.06 %	ABS		19.70
					19.70
Component:	Oxygen			Date:	5/26/2021
					19.91
Certified Conc:	19.91 %	+/- 0.03 %	ABS		19.91
					19.91

BALANCE GAS: Nitrogen

REFERENCE STANDARDS:

Component:	Carbon Dioxide	Component:	Oxygen
Reference Standard:	NTRM	Reference Standard:	SRM
Cylinder #:	AM11350	Cylinder #:	CAL016956
Concentration:	19.405 % +/- 0.058 % ABS	Concentration:	9.918 % +/- 0.022 % ABS
Exp. Date:	12/9/2022	Exp. Date:	2/3/2024
SRM or Cert #:	NA	SRM or Cert #:	2658a
Sample#	171101	Sample#	72-D-41

CERTIFICATION INSTRUMENTS

Component:	Carbon Dioxide	Component:	Oxygen
Make/Model:	CAI 700	Make/Model:	HORIBA MPA 510
Serial Number:	1908009	Serial Number:	SGU27SC4
Measurement Principle:	NDIR	Measurement Principle:	PARAMAGNETIC
Last Calibration:	5/4/2021	Last Calibration:	5/17/2021

Notes:

Location Energy Transfer - Howell, MI
Source Dehydration Unit
Project No. 2021-2950
Parameter(s): Benzene, Toluene, Ethylbenzene, Xylene (BTEX)

Field Balance Check				
Date	**12/15/21**	**12/16/21**		
Balance ID:	**5A2869991**	**5A2869991**		
Test Weight ID:	**PIT-1KG-3**	**PIT-1KG-3**		
Certifieid Weight (g):	**1000**	**1000**		
Measured Weight (g):	**999.9**	**999.9**		*Acceptable Balance Tolerance is measurement within +/- 0.5g of certifie*
Weight Difference (g):	**0.1**	**0.1**	--	

Date	Barometric Pressure	Evidence of damage?	Reading Verified	Calibration or Repair required?	Weather Station Location
12/15/21	Weather Station	NA	NA	NA	Howell, MI

Date	Meter Box ID	Positive Pressure Leak Check
12/15/21	Hg-220-2035	Pass

Reagent	Lot#	Field Prep performed	Field Lot	Date	By
DIUF	204004	No	NA	NA	NA

Alliance SOURCE TESTING

Location Energy Transfer - Howell, MI
Source Dehydration Unit
Project No. 2021-2950
Parameter(s): VFR

Date	Pitot ID	Evidence of damage?	Evidence of mis-alignment?	Calibration or Repair required?	
12/15/21	P-403-1	no	no	no	
Date	**Probe or Thermocouple ID**	**Reference Temp. (°F)**	**Indicated Temp. (°F)**	**Difference**	**Criteria**
12/15/21	P-403-1			--	± 1.5 %
Field Balance Check					
Date	**12/15/21**	**12/16/21**			
Balance ID:	**5A2869991**	**5A2869991**			
Test Weight ID:	**PIT-1KG-3**	**PIT-1KG-3**			
Certifieid Weight (g):	**1000.0**	**1000.0**			
Measured Weight (g):	**999.8**	**999.8**			
Weight Difference (g):	**0.2**	**0.2**	**--**	**--**	**--**

Acceptable Balance Tolerance is

Date	Barometric Pressure	Evidence of damage?	Reading Verified	Calibration or Repair required?	Weather Station Location
12/15/21	Weather Station	NA	NA	NA	Howell, MI

Date	Meter Box ID	Positive Pressure Leak Check
12/15/21	T13A	Pass

Equipment Detail - Dry Gas Meter

Console ID: T13A
Meter S/N: 3605105
Critical Orifice S/N: CO-1667s

Calibration Detail

Initial Barometric Pressure, in. Hg	(Pb_I)	30.06					
Final Barometric Pressure, in. Hg	(Pb_F)	30.02					
Average Barometric Pressure, in. Hg	(Pb)	30.04					
Critifcal Orifice ID	(Y)	7	7	19	19	28	28
K' Factor, $ft^3 \cdot R^{1/2}$ / in. WC·min	(K')	0.1839	0.1839	0.5111	0.511	0.7684	0.768
Vacuum Pressure, in. Hg	(V_P)	24.0	24.0	20.0	20.0	17.0	17.0
Initial DGM Volume, ft^3	(Vm_I)	0.000	6.001	0.000	6.597	0.000	10.121
Final DGM Volume, ft^3	(Vm_F)	5.902	11.804	6.597	13.237	10.121	20.319
Total DGM Volume, ft^3	(Vm)	5.902	5.803	6.597	6.640	10.121	10.198
Ambient Temperature, °F	(Ta)	75	75	75	75	75	75
Initial DGM Temperature, °F	(Tm_I)	76	76	86	88	92	95
Final DGM Temperature, °F	(Tm_F)	76	80	88	91	95	98
Average DGM Temperature, °F	(Tm)	76	78	87	90	94	97
Elapsed Time	(Θ)	25.00	25.00	10.00	10.00	10.00	10.00
Meter Orifice Pressure, in. WC	(ΔH)	0.18	0.18	1.40	1.40	3.40	3.40
Standard Meter volume, ft^3	(Vmstd)	5.8408	5.7215	6.4164	6.4288	9.7757	9.7969
Standard Critical Orifice Volume, ft^3	(Vcr)	5.9727	5.9727	6.6398	6.6398	9.9824	9.9824
Meter Correction Factor	(Y)	1.023	1.044	1.035	1.033	1.021	1.019
Tolerance	--	0.006	0.015	0.006	0.004	0.008	0.010
Orifice Calibration Value	(ΔH @)	1.756	1.749	1.737	1.729	1.854	1.844
Tolerance	--	0.023	0.029	0.041	0.049	0.076	0.066
Orifice Cal Check	--	1.29		1.35		1.33	
Meter Correction Factor	**(Y)**	**1.029**					
Orifice Calibration Value	**(ΔH @)**	**1.778**					
Positive Pressure Leak Check		**Yes**					

Equipment Detail - Thermocouple Sensor

Reference Calibrator Make: Omega
Reference Calibrator Model: CL3512A
Reference Calibrator S/N: 130010116V

Calibration Detail

Reference Temp.		Display Temp.		Accuracy	Difference
°F	°R	°F	°R	%	°F
0	460	0	460	0.0	0
68	528	68	528	0.0	0
100	560	100	560	0.0	0
223	683	223	683	0.0	0
248	708	248	708	0.0	0
273	733	273	733	0.0	0
300	760	300	760	0.0	0
400	860	400	860	0.0	0
500	960	500	960	0.0	0
600	1,060	600	1,060	0.0	0
700	1,160	700	1,160	0.0	0
800	1,260	800	1,260	0.0	0
900	1,360	900	1,360	0.0	0
1,000	1,460	1,000	1,460	0.0	0
1,100	1,560	1,100	1,560	0.0	0
1,200	1,660	1,200	1,660	0.0	0

Personnel

Calibration By: Samuel Hines
Calibration Date: 12/1/2021
Expiration Date: 6/1/2021

Appendix E

METHOD 21/VISUAL INSPECTION
LEAK DETECTION FIELD DATA SHEET

Location	**Howell C.S Howell, MI Contactor Absorber Tower**	**Date**	**12/16/21**
Project	**21-2950**	**Personnel**	**Tyler Branca**

Time	Component No.	Component Description	Visual Check Is leak visible	Ambient Reading	Maximum Reading	Maximum Ambient Reading	Leak Detected	Comments
14:35	LIT 100	Level transmitter/guage	No	0	0	0	No	Upper tap out Lower tap out Highpoint vent Drain valve
	LC 100	NA	No	0	0	0	No	Upper tap out Lower tap out Highpoint vent Drain valve
	NA	Lower manway	No	0	0	0	No	Large Flange
	NA	Upper manway	No	0	0	0	No	Large Flange
	PSV 100	Pressure surge valve	No	0	0	0	No	NA
	NA	Vapor to BTEX	No	0	0	0	No	NA
	NA	BTEX offgas to burner	No	0	0	0	No	NA

METHOD 21/VISUAL INSPECTION
LEAK DETECTION FIELD DATA SHEET

Location	**Howell C.S Howell, MI Dehydration Unit**	**Date**	**12/16/21**
Project	**21-2950**	**Personnel**	**Tyler Branca**

Time	Component No.	Component Description	Visual Check Is leak visible	Ambient Reading	Maximum Reading	Maximum Ambient Reading	Leak Detected	Comments
14:00	LC 201	Level control displacer	No	0	0	0	No	Upper tap out Lower tap out Drain valve
14:05	LG 201	Level site glass	No	0	0	0	No	Upper tap out Lower tap out Highpoint vent Drain valve
14:10	PSV 201	Pressure relief valve	No	0	0	0	No	Isolation Vent
14:15	LIT 201	NA	No	0	0	0	No	Upper tap out Lower tap out
14:20	LG 200	NA	No	0	0	0	No	Upper tap out Lower tap out Drain valve Highpoint vent
14:25	NA	Fuel gas supply assembly	No	0	0	0	No	9 valves
14:30	NA	Fuel gas control assembly	No	0	0	0	No	4 valves

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC

902 Parkway View Drive
Pittsburgh, PA 15205
Toll-free: (866) 750-PINE (7463)

Pine Environmental Services, Inc.

Instrument ID 28071
Description TVA 2020
Calibrated 12/9/2021 10:59:27AM

Manufacturer Thermo
Model Number TVA 2020
Serial Number/ Lot Number 202017052330
Location Pennsylvania
Department

State Certified
Status Pass
Temp °C 20
Humidity % 21

Calibration Specifications

Group # 1
Group Name ISOBUTYLENE (PID)
Stated Accy Pct of Reading

Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.0

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.0 / 0.0	PPM	0.0	PPM	3.2	0.0	0.00%	Pass
100.0 / 100.0	PPM	100.0	PPM	102.0	100.0	0.00%	Pass

Group # 2
Group Name METHANE (FID)
Stated Accy Pct of Reading

Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.0

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.0 / 0.0	PPM	0.0	PPM	0.0	0.0	0.00%	Pass
100.0 / 100.0	PPM	100.0	PPM	99.0	100.0	0.00%	Pass

Test Instruments Used During the Calibration

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	(As Of Cal Entry Date) Last Cal Date/ Opened Date	Next Cal Date / Expiration Date

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Matt Miller

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC

902 Parkway View Drive
Pittsburgh, PA 15205
Toll-free: (866) 750-PINE (7463)

Pine Environmental Services, Inc.

Instrument ID 28071
Description TVA 2020
Calibrated 12/9/2021 10:59:27AM

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

GASCO AFFILIATES, LLC.

320 Scarlet Blvd.
Oldsmar, FL 34677
(800) 910-0051
fax: (866) 755-8920
www.gascogas.com

CERTIFICATE OF ANALYSIS

Date: September 4, 2020
Order Number: 6054965
Lot Number: 304-401898324-1

Customer: Pine Environmental Services LLC

Use Before: 09/04/2024

Component	Specification (+/- 5%)	Analytical Result (+/- 2%)
Methane	500 PPM	504 PPM
Air	Balance	Balance

Cylinder Size: 1.2 Cu. Ft.
Contents: 34 Liter

Valve: CGA 600
Pressure: 500 psig

Product composition verified by direct comparison to calibration standards traceable to N.I.S.T. weights and/ or N.I.S.T.
Gas Mixture reference materials.

Analyst:

Glenn Velez

Appendix F

Location Energy Transfer - Howell, MI
Source Dehydration Unit
Project No. 2021-2950

Run Number	Run 1	Run 2	Run 3
Date	12/16/21	12/16/21	12/16/21
Start Time	10:25	12:17	14:24
Stop Time	11:25	13:17	15:24
Source Operational Data			
Combustion Zone Temperature (Degrees F)			
Time, 0 min	767.8	898.6	898.4
Time, 15 min	951.6	885.0	905.4
Time, 30 min	953.9	901.9	906.7
Time, 45 min	974.5	912.6	907.3
Time, 60 min	938.4	922.4	909.1
Average	917.2	904.1	905.4
Reboiler Temperature (Degreed F)			
Time, 0 min	388.1	383.6	384.2
Time, 15 min	380.0	383.8	384.7
Time, 30 min	380.0	384.0	385.1
Time, 45 min	383.0	384.6	385.3
Time, 60 min	388.9	384.5	385.7
Average	384.0	384.1	385.0
Fuel Flow (MMSCF)			
Time, 0 min	69	53	50
Time, 15 min	66	52	50
Time, 30 min	66	51	51
Time, 45 min	62	51	51
Time, 60 min	60	51	51
Average	65	52	51

Appendix g

Site Specific Test Plan

Panhandle Eastern Pipe Line
3990 Crooked Lake Rd
Howell, MI 48843

Source to be Tested: Dehydration Unit
Proposed Test Date: December 16, 2021

AST Project No. 2021-0000

Prepared By
Alliance Source Testing, LLC
1201 Parkway View Drive
Pittsburgh, PA 15205

CORPORATE OFFICE
255 Grant St. SE, Suite 600
Decatur, AL 35601
(256) 351-0121

SOURCE TESTING
stacktest.com

EMISSIONS MONITORING
alliance-em.com

ANALYTICAL SERVICES
allianceanalyticalservices.com

Regulatory Information

Permit No.(s)	Michigan Department of Environment, Great Lakes and Energy (EGLE) Permit No. PTI 72-20
Regulatory Citation	40 CFR 63, Subpart HHH

Source Information

Source Name	*Source ID*	*Target Parameters*
Dehydration Unit	N5572	BTEX, VOC Leaks

Contact Information

Test Location
Panhandle Eastern Pipe Line
3990 Crooked Lake Rd
Howell, MI 48843

Facility Contact
Kristin Bollerman
Senior Environmental Specialist
kristin.bollerman@energytransfer.com
(317) 879-3034

Test Company
Alliance Source Testing, LLC
1201 Parkway View Drive
Pittsburgh, PA 15205

Project Manager
Adam Robinson
adam.robinson@stacktest.com
(412) 668-4040

Field Team Leader
Leo Sullivan
leo.sullivan@stacktest.com
(732) 259-8500

QA/QC Manager
Heather Morgan
heather.morgan@stacktest.com
(256) 260-3972

Report Coordinator
Lauren Carney
lauren.carney@stacktest.com
(501) 681-2093

Analytical Laboratory
Enthalpy Analytical, Inc.
800-1 Capitola Drive
Durham, NC 27713
David Myers
david.myers@enthalpy.com
(919) 850-4392

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1.0 Introduction

Alliance Source Testing, LLC (AST) was retained by Panhandle Eastern Pipe Line (PEPL) to conduct compliance testing at the Howell, Michigan facility. Portions of the facility are subject to provisions of the 40 CFR Part 63 – National Emission Standards for Hazardous Air Pollutants from Natural Gas Storage facilities and the Michigan Department of Environmental, Great Lakes and Energy (EGLE) Air Permit No. PTI 72-20. Testing will be conducted to determine the emission rate of benzene, toluene, ethylbenzene and xylene (BTEX) at the exhaust of one (1) Dehydration Unit. Testing will also include volatile organic compound (VOC) leak detection.

This site-specific test plan (SSTP) has been prepared to address the notification and testing requirements of the MDEQ permit and the NESHAP.

1.1 Process/Control System Descriptions

The Howell Compressor Station is a natural gas gathering station where compressors and related auxiliary equipment are used for the agglomeration of natural gas in the production region.

1.2 Project Team

Personnel planned to be involved in this project are identified in the following table.

Table 1-1
Project Team

Facility Personnel	Kristin Bollerman
Regulatory Agency	MDEQ
AST Personnel	Jeremy Hutchens other field personnel assigned at time of testing event

1.3 Safety Requirements

Testing personnel will undergo site-specific safety training for all applicable areas upon arrival at the site. AST personnel will have current OSHA or MSHA safety training and be equipped with hard hats, safety glasses with side shields, steel-toed safety shoes, hearing protection, fire resistant clothing, and fall protection (including shock corded lanyards and full-body harnesses). AST personnel will conduct themselves in a manner consistent with Client and AST's safety policies.

A Job Safety Analysis (JSA) will be completed daily by the AST Field Team Leader.

2.0 Summary of Test Program

To satisfy the requirements of the MDEQ permit and the NESHAP, the facility will conduct a performance test program to determine the compliance status of the dehydration unit.

2.1 General Description

All testing will be performed in accordance with specifications stipulated in U.S. EPA Reference Test Methods 1A – 2C, 3/3A, 4, 18 and 21. Table 2-1 presents an outline and tentative schedule for the emissions testing program. The following is a summary of the test objectives.

- Testing will be performed to demonstrate compliance with the facility MDEQ permit and NESHAP.
- Emissions testing will be conducted on the exhaust of dehydration unit.
- Performance testing will be conducted at the maximum normal operation load for dehydration unit.
- Each of the three (3) test runs will be approximately 60 minutes in duration.

2.2 Process/Control System Parameters to be Monitored and Recorded

Plant personnel will collect operational and parametric data at least once every 15 minutes during the testing. The following list identifies the measurements, observations and records that will be collected during the testing program:

- Dehydration Unit throughput

2.3 Proposed Test Schedule

Table 2-1 presents an outline and tentative schedule for the emissions testing program.

Table 2-1
Program Outline and Tentative Test Schedule

Testing Location	Parameter	US EPA Method	No. of Runs	Run Duration	Est. Onsite Time
DAY 1 – December 15, 2021					
Equipment Setup & Pretest QA/QC Checks					6 hr
DAY 2 – December 16, 2021					
Dehydration Unit (Exhaust Only) *	VFR	1A-2C	3	60 min	8 hr
	O_2/CO_2	3/3A			
	BWS	4			
	BTEX	18			
	VOC Leaks	21	--	--	--
DAY 3 – December 17, 2021					
Contingency Day (if needed)					

2.4 Emission Limits

Emission limits for each pollutant are below.

Table 2-2
Emission Limits

Source	Pollutant	Citation
Dehydration Unit	Benzene / BTEX – Emissions will be determined in kg/hr for use in the annual emission calculations (kg/yr)	63, Subpart HHH; §63.1282(a)(2)(ii)
	VOC Leak Rate – 500 ppm (as CH_4)	63, Subpart HHH; §63.1282(b)(8)

2.5 Test Report

The final test report must be submitted within 60 days of the completion of the performance test and will include the following information.

- *Introduction* – Brief discussion of project scope of work and activities.
- *Results and Discussion* – A summary of test results and process/control system operational data with comparison to regulatory requirements or vendor guarantees along with a description of process conditions and/or testing deviations that may have affected the testing results.
- *Methodology* – A description of the sampling and analytical methodologies.
- *Sample Calculations* – Example calculations for each target parameter.
- *Field Data* – Copies of actual handwritten or electronic field data sheets.
- *Laboratory Data* – Copies of laboratory report(s) and chain of custody(s).
- *Quality Control Data* – Copies of all instrument calibration data and/or calibration gas certificates.
- *Process Operating/Control System Data* – Process operating and control system data (as provided by PEPL) to support the test results.

3.0 Testing Methodology

This section provides a description of the sampling and analytical procedures for each test method that will be employed during the test program. All equipment, procedures and quality assurance measures necessary for the completion of the test program meet or exceed the specifications of each relevant test method. The emission testing program will be conducted in accordance with the test methods listed in Table 3-1.

Table 3-1
Source Testing Methodology

Parameter	U.S. EPA Reference Test Methods	Notes/Remarks
Volumetric Flow Rate	1A, 2C	Full Velocity Traverses
Oxygen/Carbon Dioxide	3/3A	Integrated Bag/Instrumental Analysis
Moisture Content	4	Gravimetric Analysis
Benzene, Toluene, Ethylbenzene & Xylene	18	Constant Rate Sampling
LDAR (Positive Pressure Sources)	21	Portable FID – Photovac MicroFID

All stack diameters, depths, widths, upstream and downstream disturbance distances and nipple lengths will be measured on site with a verification measurement provided by the Field Team Leader.

3.1 U.S. EPA Reference Test Methods 1A and 2C – Volumetric Flow Rate of Small Ducts (4"-12")

The sampling location and number of traverse (sampling) points will be selected in accordance with U.S. EPA Reference Test Method 1A. The duct diameter is less than 12 inches, therefore the velocity measurement location may be located downstream of the sampling location or the velocity measurements will be taking before and after the sampling is completed. Pre-and post-run velocity measurements will be evaluated for the allowable deviation of 10%. The pitot tube and thermocouple will be removed from the sampling probe assembly.

Full velocity traverses will be conducted in accordance with U.S. EPA Reference Test Method 2C to determine the average stack gas velocity pressure, static pressure and temperature. The velocity and static pressure measurement system will consist of a pitot tube and inclined manometer. The stack gas temperature will be measured with a K-type thermocouple and pyrometer.

3.2 U.S. EPA Reference Test Method 3/3A – Oxygen and Carbon Dioxide

The oxygen (O_2) and carbon dioxide (CO_2) testing will be conducted in accordance with U.S. EPA Reference Test Method 3/3A. One (1) integrated Tedlar bag sample will be collected during each test run. The bag samples will be analyzed on site with a gas analyzer. The remaining stack gas constituent will be assumed to be nitrogen for the stack gas molecular weight determination. The quality control measures are described in Section 3.6.

3.3 U.S. EPA Reference Test Method 4 – Gas Moisture Content

The stack gas moisture content will be determined in accordance with U.S. EPA Reference Test Method 4. The gas conditioning train will consist of a series of chilled impingers. Prior to testing, each impinger will be filled with a known quantity of water or silica gel. Each impinger will be analyzed gravimetrically before and after each test run on the same analytical balance to determine the amount of moisture condensed.

3.4 U.S. EPA Reference Test Method 18 – BTEX

The BTEX testing will be conducted in accordance with U.S. EPA Reference Test Method 18. The stack gas will be withdrawn at a constant rate through a stainless sample probe, heated Teflon sample line and gas conditioning system (includes a chilled midget impinger as a moisture knockout) and collected in a leak-free Tedlar bag. All samples will be sealed and labeled for transport to the identified laboratory for analysis. The analytical lab once receiving the samples will analyze them using gas chromatography / flame ionization detector (GC/FID) following the analytical procedures outlined in U.S. EPA Reference Test Method 18. The quality control measures are described in Section 3.7. The samples will be analyzed in two (2) parts – (1) the moisture knockout, (2) Tedlar bag.

3.5 U.S. EPA Reference Test Methods 21 – Positive Pressure Sources

Leaks from any positive pressure sources will be determined using U.S. EPA Reference Test Method 21. The VOC detector will be a Photovac MicroFID portable analyzer with a flame ionization detector. The instrument will be calibrated prior to testing with ambient air and methane balanced air cylinder gas. The methane calibration gas concentration will be approximately equal to the applicable leak definition (500 ppm as methane). Each source will be evaluated by moving the instrument inlet probe along the potential leak area of each component. If a leak will be detected, the area of leakage will be monitored for two (2) times the instrument response time and the highest instrument reading recorded. If the instrument reading minus the background concentration will be greater than the leak definition, then the source will be considered leaking.

3.6 Quality Assurance/Quality Control – U.S. EPA Reference Test Method 3A

Cylinder calibration gases will meet EPA Protocol 1 (+/- 2%) standards. Copies of all calibration gas certificates will be included in the Quality Assurance/Quality Control Appendix of the report.

Low Level gas will be introduced directly to the analyzer. After adjusting the analyzer to the Low Level gas concentration and once the analyzer reading is stable, the analyzer value will be recorded. This process will be repeated for the High Level gas. For the Calibration Error Test, Low, Mid, and High Level calibration gases will be sequentially introduced directly to the analyzer. The Calibration Error for each gas must be within 2.0 percent of the Calibration Span or 0.5% absolute difference.

A Data Acquisition System with battery backup will be used to record the instrument response in one (1) minute averages. The data will be continuously stored as a *.CSV file in Excel format on the hard drive of a computer. At the completion of testing, the data will also be saved to the AST server. All data will be reviewed by the Field Team Leader before leaving the facility. Once arriving at AST's office, all written and electronic data will be relinquished to the report coordinator and then a final review will be performed by the Project Manager.

3.7 Quality Assurance/Quality Control – U.S. EPA Reference Test Method 18

The bag sample spike and recovery will be checked as per the procedures outlined in U.S. EPA Method 18 Section 8.4.2. After analyzing all three bag samples, one bag will be chosen and tagged as the spiked bag. This bag will be spiked with a known mixture (gaseous or liquid) of all the target pollutants. The amount that is spiked in the bag is targeted to be within 40 to 60 percent of the target pollutant concertation measured during the analysis. If the target compound is not detected in the bag samples, then a concentration of that compound is spiked at 5 times its limit of detection. The spiked bag, after spiking, is stored for the same period of the time as the bag samples collected in the field to their time of analysis. After the appropriate storage time, the spiked bags will be analyzed three times. The average fraction recovered of each spiked target compound is calculated as per equations outlined in U.S. EPA Method 18 section 12.7.

4.0 Quality Assurance Program

AST follows the procedures outlined in the Quality Assurance/Quality Control Management Plan to ensure the continuous production of useful and valid data throughout the course of this test program. The QC checks and procedures described in this section represent an integral part of the overall sampling and analytical scheme. Adherence to prescribed procedures is quite often the most applicable QC check.

4.1 Equipment

Field test equipment is assigned a unique, permanent identification number. Prior to mobilizing for the test program, equipment is inspected before being packed to detect equipment problems prior to arriving on site. This minimizes lost time on the job site due to equipment failure. Occasional equipment failure in the field is unavoidable despite the most rigorous inspection and maintenance procedures. Therefore, replacements for critical equipment or components are brought to the job site. Equipment returning from the field is inspected before it is returned to storage. During the course of these inspections, items are cleaned, repaired, reconditioned and recalibrated where necessary.

Calibrations are conducted in a manner, and at a frequency, which meets or exceeds U.S. EPA specifications. The calibration procedures outlined in the U.S. EPA Methods, and those recommended within the Quality Assurance Handbook for Air Pollution Measurement Systems: Volume III (EPA-600/R-94/038c, September 1994) are utilized. When these methods are inapplicable, methods such as those prescribed by the American Society for Testing and Materials (ASTM) or other nationally recognized agency may be used. Data obtained during calibrations is checked for completeness and accuracy. Copies of calibration forms are included in the report.

The following sections elaborate on the calibration procedures followed by AST for these items of equipment.

- Dry Gas Meter and Orifice. A full meter calibration using critical orifices as the calibration standard is conducted at least semi-annually, more frequently if required. The meter calibration procedure determines the meter correction factor (Y) and the meter's orifice pressure differential (ΔH@). AST uses approved Alternative Method 009 as a post-test calibration check to ensure that the correction factor has not changed more than 5% since the last full meter calibration. This check is performed after each test series.
- Pitot Tubes and Manometers. Type-S pitot tubes that meet the geometric criteria required by U.S. EPA Reference Test Method 2 are assigned a coefficient of 0.84 unless a specific coefficient has been determined from a wind tunnel calibration. If a specific coefficient from a wind tunnel calibration has been obtained that coefficient will be used in lieu of 0.84. Standard pitot tubes that meet the geometric criteria required by U.S. EPA Reference Test Method 2 are assigned a coefficient of 0.99. Any pitot tubes not meeting the appropriate geometric criteria are discarded and replaced. Manometers are verified to be level and zeroed prior to each test run and do not require further calibration.
- Temperature Measuring Devices. All thermocouple sensors mounted in Dry Gas Meter Consoles are calibrated semi-annually with a NIST-traceable thermocouple calibrator (temperature simulator) and verified during field use using a second NIST-traceable meter. NIST-traceable thermocouple calibrators are calibrated annually by an outside laboratory.
- Nozzles. Nozzles are measured three (3) times prior to initiating sampling with a caliper. The maximum difference between any two (2) dimensions is 0.004 in.
- Digital Calipers. Calipers are calibrated annually by AST by using gage blocks that are calibrated annually by an outside laboratory.

- Barometer. The barometric pressure is obtained from a nationally recognized agency or a calibrated barometer. Calibrated barometers are checked prior to each field trip against a mercury barometer. The barometer is acceptable if the values agree within ± 2 percent absolute. Barometers not meeting this requirement are adjusted or taken out of service.
- Balances and Weights. Balances are calibrated annually by an outside laboratory. A functional check is conducted on the balance each day it is use in the field using a calibration weight. Weights are re-certified every two (2) years by an outside laboratory or internally. If conducted internally, they are weighed on a NIST traceable balance. If the weight does not meet the expected criteria, they are replaced.
- Other Equipment. A mass flow controller calibration is conducted on each Environics system annually following the procedures in the Manufacturer's Operation manual. A methane/ethane penetration factor check is conducted on the total hydrocarbon analyzers equipped with non-methane cutters every six (6) months following the procedures in 40 CFR 60, Subpart JJJJ. Other equipment such as probes, umbilical lines, cold boxes, etc. are routinely maintained and inspected to ensure that they are in good working order. They are repaired or replaced as needed.

4.2 Field Sampling

Field sampling will be done in accordance with the Standard Operating Procedures (SOP) for the applicable test method(s). General QC measures for the test program include:

- Cleaned glassware and sample train components will be sealed until assembly.
- Sample trains will be leak checked before and after each test run.
- Appropriate probe, filter and impinger temperatures will be maintained.
- The sampling port will be sealed to prevent air from leaking from the port.
- Dry gas meter, ΔP, ΔH, temperature and pump vacuum data will be recorded during each sample point.
- An isokinetic sampling rate of 90-110% will be maintained, as applicable.
- All raw data will be maintained in organized manner.
- All raw data will be reviewed on a daily basis for completeness and acceptability.

4.3 Analytical Laboratory

Analytical laboratory selection for sample analyses is based on the capabilities, certifications and accreditations that the laboratory possesses. An approved analytical laboratory subcontractor list is maintained with a copy of the certificate and analyte list as evidence of compliance. AST assumes responsibility to the client for the subcontractor's work. AST maintains a verifiable copy of the results with chain of custody documentation.

November 29, 2021

VIA E-MAIL

Ms. Kristin Bollerman
Senior Environmental Specialist
Panhandle Eastern Pipe Line
3990 Crooked Lake Road
Howell, MI 48843

SRN: N5572

Dear Ms. Bollerman:

SUBJECT: Dehydration Unit Emission Test;
MI-ROP-N5572-2021

The Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), has completed the quality assurance review of the test protocol for benzene, toluene, ethylbenzene, and xylenes (BTEX) from one glycol dehydration unit (EUDEHY) operated at the Howell Compressor Station in Howell, Michigan, received on October 19, 2021. This testing is required by MI-ROP-N5572-2021. All sampling will be performed according to the United States Environmental Protection Agency (USEPA) methods found at epa.gov/emc. Any modification to a method must be approved by the AQD. Testing is scheduled for December 16, 2021.

Process

Emissions will be sampled at a minimum thermal oxidizer combustion zone temperature of 1400° F. The annual average BTEX concentration of the natural gas at the inlet to the glycol dehydration unit in ppmv is measured by Eastern Panhandle Pipe Line (Eastern) and will be used to calculate the BTEX emission limit established by Equation 2 in 40 CFR 63.1275(b)(1)(iii). The AQD requests that the following data is reported for each run:

- Thermal oxidizer combustion zone temperature
- Natural gas flowrate

During the test AQD district staff will coordinate the operation of the process and the collection of process data. If you have questions regarding the process, please contact Ms. Samantha Davis at daviss46@michigan.gov or 517-282-1373.

Sampling

BTEX will be sampled according to USEPA Methods 3, 4, and 18 and will consist of three (3), 60-minute test runs. Eastern will use adsorbent tubes to sample BTEX exhaust. The quality assurance requirements of each method will be met and recorded. Exhaust flow will be measured according to USEPA Methods 1A and 2C. In addition, leaks from any positive pressure sources will be determined using USEPA Method 21.

After a test has begun it shall continue and be completed within a 36-hour period. The test shall not be interrupted without the prior consent of the AQD unless there is a forced shutdown or circumstances occur that are beyond the operator's control, such as extreme meteorological conditions.

If you have any questions about the test procedures, please contact me at dziadoszm@michigan.gov or 586-854-1611.

Report

The report will include the test results, the operational data, the calibration record and quality assurance checks of the equipment used for this test, and all field notes for this project. The AQD requests that the report includes the minute average of the emission measurements. The emission measurement data may be submitted in electronic format. All aborted, failed, or repeated runs must be included in the report. Please submit a complete copy of the test report to both:

Mr. Brad Myott
EGLE-AQD
Constitution Hall, 1st Floor South
525 West Allegan Street
Lansing, Michigan 48933-7760

Ms. Karen Kajiya-Mills
EGLE-AQD
Constitution Hall, 2nd Floor South
525 West Allegan Street
Lansing, Michigan 48933-1502

Please notify both Ms. Davis and me if there is a change in schedule.

Sincerely,

Mark Dziadosz
Air Quality Division

cc: Mr. Adam Robinson, Alliance
Ms. Karen Kajiya-Mills, EGLE
Mr. Brad Myott, EGLE
Ms. Samantha Davis, EGLE

Last Page of Report

Howell Monthly Fuel Use **Reciprocating Engines Station Fuel Use** 2021 **ROP No.: MI-ROP-N5572-2015, FGENGINES Condition V.1**

Instructions

1. Enter the monthly station fuel usage from Meter 02803 (in mscf) into the appropriate cell (this data is used to calculate individual engine hp-hours and fuel usage).
2. Enter monthly operating hours for the engines into the appropriate cell (this data is used to calculate individual engine hp-hours and fuel usage).

Meter 02803 (mscf/month)

Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
1,937	5,156	3,429	7,110	15,150	10,945	8,685	499	7,730	7,137	1,601	9,205

Recorded engine hours

Engine	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	YTD
E01601	0	93	100	262	517	250	242	0	202	271	0	190	2,127
E01602	0	29	0	0	130.5	333	248	0	115	66	0	184	1,106
E01603	0	29	0	18.5	414	137	234	0	182.5	84	0	181	1,280
E01604	0	94	99	271	316	336	157	0	180	65	0	173	1,691

Calculated HP-Hours

HP	Engine	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	YTD
1000	E01601	0	93,000	100,000	262,000	517,000	250,000	242,000	0	202,000	271,000	0	190,000	2,127,000
1000	E01602	0	29,000	0	0	130,500	333,000	248,000	0	115,000	66,000	0	184,000	1,105,500
2000	E01603	0	58,000	0	37,000	828,000	274,000	468,000	0	365,000	168,000	0	362,000	2,560,000
2000	E01604	0	188,000	198,000	542,000	632,000	672,000	314,000	0	360,000	130,000	0	346,000	3,382,000
		0	368,000	298,000	841,000	2,107,500	1,529,000	1,272,000	0	1,042,000	635,000	0	1,082,000	9,174,500

Calculated Fuel Use (mcf)

Engine	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	YTD
E01601	--	1,303	1,151	2,215	3,717	1,790	1,652	--	1,499	3,046	--	1,616	17,988
E01602	--	406	0	0	938	2,384	1,693	--	853	742	--	1,565	8,582
E01603	--	813	0	313	5,952	1,961	3,195	--	2,708	1,888	--	3,080	19,910
E01604	--	2,634	2,278	4,582	4,543	4,810	2,144	--	2,671	1,461	--	2,944	28,067
	0	5,156	3,429	7,110	15,150	10,945	8,685	0	7,730	7,137	0	9,205	74,547