



Annual September 2022
Groundwater Monitoring Report
MPC Site #157575 (Speedway 5313
former TNS 101/IFC)

November 17, 2022

Prepared For



AUTHORIZATION TO SUBMIT REPORT

Stantec has been authorized by the client, Tesoro Refining & Marketing Company LLC (Tesoro) c/o Marathon Petroleum Company LP (MPC) (representative Danny Monson, Advanced HES Professional, ES&S-Waste and Remediation) to submit the enclosed report to the Alaska Department of Environmental Conservation. If you have any questions or need additional information concerning this groundwater monitoring report, please contact me at (907) 227-9883 or via email at bob.gilfilian@stantec.com.

Regards,

STANTEC CONSULTING SERVICES, INC.

A handwritten signature in cursive script that reads "Robert Gilfilian".

Robert (Bob) Gilfilian, P.E.

Project Technical Lead

Principal Senior Civil Engineer

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ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AK	Alaska Test Method
amsl	above mean sea level
BTEX	benzene, toluene, ethylbenzene, and xylenes
Chemox	chemical oxidation
DO	dissolved oxygen
DRO	diesel range organics
EIT	Engineer in Training
EPA	U.S. Environmental Protection Agency
GCL	groundwater cleanup level
GRO	gasoline range organics
hp	horsepower
LOQ	limit of quantization
mg/L	milligrams per liter
MW	monitoring well
NuWell®	pelletized sulfamic acid used to break down mineral buildup for well cleaning
PAH	polycyclic aromatic hydrocarbon
ORP	oxidation-reduction potential
QA	quality assurance
QC	quality control
RW	remediation well
Speedway	Speedway, LLC
Stantec	Stantec Consulting Services, Inc.
Tesoro	Tesoro Refining and Marketing Company
UST	underground storage tank
VOC	Volatile Organic Compounds

1.0 INTRODUCTION

This 2022 annual groundwater monitoring event report was prepared by Stantec Consulting Services Inc. (Stantec) on behalf of Tesoro Refining and Marketing Company (Tesoro) c/o Marathon Petroleum Company (MPC) for 7-Eleven Store #43004 (MPC Site #157575 - TNS101/IFC), located at the northeast corner of the intersection of South Cushman Street and Van Horn Road at 3569 South Cushman Street, Fairbanks, Alaska (**Figure 1**). The methods used for this annual monitoring event were conducted in accordance with the 2022 Alaska Department of Environmental Conservation (ADEC) approved Work Plan for this site.

2.0 SITE BACKGROUND

Background information is summarized in **Appendix A**.

3.0 FIELD ACTIVITIES

The groundwater monitoring event was conducted on September 19, 2022, by Stantec personnel Engineer-In-Training (EIT) Leslie Petre and EIT Geoff Moorhead. This monitoring event included:

- Measured the depth to groundwater in Monitoring Wells MW-3, MW-4, MW-8, MW-14, MW-17, MW-19-1, and MW-30.
- Collected water samples from Monitoring and Remediation Wells MW-3, MW-4, MW-8, MW-14, MW-17, MW-19-1, MW-30, CRW-2, and WRW-2020 as well as the effluent discharged from the treatment aeration tank. The samples were measured in the field for the following intrinsic water quality parameters: temperature, pH, dissolved oxygen (DO), oxidation-reduction potential (ORP), and specific conductivity (SC).
- Collected groundwater samples were submitted for laboratory analysis of the following test parameters:
 - Gasoline Range Organics (GRO) by Alaska Test Method (AK)101.
 - Diesel Range Organics (DRO) by AK102.
 - Alaska expanded list of Volatile Organic Compounds (VOCs) by U.S. Environmental Protection Agency Method (EPA) 8260C, reporting benzene, toluene, ethylbenzene, total xylenes, 1,2,4-trimethylbenzene (TMB), and 1,3,5-TMB.
 - Polynuclear Aromatic Hydrocarbons (PAHs) by EPA Method 8270D Selective Ion Monitoring (SIM), reporting naphthalene.
 - EPA Test Method 200.8 metals for sodium to establish a baseline for sodium levels in the effluent.

Field methods and procedures for this site are included in **Appendix B**.

4.0 GROUNDWATER MONITORING RESULTS

4.1 GROUNDWATER LEVELS

Table 1 presents groundwater elevations at this site based on the depths to static water levels measured during this monitoring event on September 19, 2022. Wells gauged during this monitoring event indicate that the groundwater north of the infiltrator trenches flows toward the drainage ditch in which monitoring wells MW-17, MW-19-1, MW-19-2, and MW-3 are situated. From there, the flow direction is out to the west-northwest, at approximately 303°.

Figure 3 shows a plot of the groundwater contours for this monitoring event. It is important to note the effectiveness of the area of influence from the operation of the drawdown well WRW-2020. The contour plot shows the capture of groundwater flow into WRW-2020 for the downgradient area located north of the property in the road easement right-of-way.

Table 1 Groundwater Elevations
Measurements taken on September 19, 2022

Monitoring Well Identification	Top of Casing Elevation (feet) ¹	Depth to Groundwater (feet)	Groundwater Elevation (feet)
MW-3	95.45	6.57 ²	88.88
MW-4	98.64	9.77	88.87
MW-8	101.16	12.19	88.97
MW-14	99.34	8.11	91.23
MW-17	97.62	8.76	88.86
MW-19-1	98.37	9.57	88.80
MW-19-2	97.83	9.52 ²	88.31
MW-30	97.63	8.94	88.69
CRW-2	101.37	12.45	88.92
WRW-2020	99.37	10.87	88.50

Key:

- 1 Based on a vertical control survey completed on July 20, 2021, based on an arbitrary datum of 100 feet
- 2 Free product detected in well

4.2 WATER SAMPLE INTRINSIC FIELD PARAMETERS

The results of intrinsic water quality parameter testing of the water samples collected during this monitoring event are presented in **Table 2**. Elevated DO levels in the aeration tank effluent indicate active aeration within the treatment tank. ORP concentrations were highest in WRW-2020. pH levels were slightly acidic, consistent with normal groundwater, in all monitoring wells but slightly basic in the effluent from the aeration tank.

Table 2 Field Tested Intrinsic Water Quality Parameters
Measured on September 19, 2022

Monitoring Well Identification	pH	SC (µs/cm°C)	Dissolved Oxygen (mg/L)	Temperature (°C)	ORP (mV)
MW-3	6.23	1090	1.17	6.6	34.3
MW-4	6.03	329	1.63	5.3	49.0
MW-8	6.46	507	1.88	7.9	72.8
MW-14	6.3	738	4.22	6.5	44.3
MW-17	5.99	228	1.35	6.3	50.7
MW-19-1	6.23	694	1.32	6.2	11.9
CRW-2	6.16	870	1.89	5.5	44.9
WRW-2020	6.18	514	2.6	6.9	112
Aeration Tank Effluent	7.45	479	11.8	6	74.7

Key:
 °C degrees Celsius
 µs/cm°C microSiemens per centimeter degrees Celsius
 mg/L milligrams per liter
 mV millivolts
 DO Dissolved Oxygen
 NM Not measured
 ORP oxidation-reduction potential
 pH log [H⁺]
 SC specific conductance corrected to 25 °C

Field methods and procedures are provided in **Appendix B**. Site visit field measurements, notes, and a hydraulic gradient plot are provided in **Appendix C**.

4.3 WATER SAMPLE LABORATORY ANALYTICAL RESULTS

Historical monitoring data for this site are presented in **Appendix D**. Laboratory analytical results for benzene, toluene, ethylbenzene, and xylenes (BTEX), GRO, DRO, naphthalene, 1,2,4-TMB, 1,3,5-TMB, and sodium are summarized in **Table 3**. The other VOCs and PAHs in the laboratory analytical report is provided in **Appendix E**. All monitoring/remediation wells and the effluent from the aeration tank were sampled in accordance with the 2022 Corrective Action Work Plan. Samples from MW-3 and MW-8 had an increase in detected exceedances compared to previous events, and MW-17 has less exceedances in this monitoring event compared to than past years.

Table 3 Groundwater Analytical Results for BTEX, GRO, DRO, TMBs, Naphthalene, and Sodium
 Samples collected on September 19, 2022

ID	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENE (TOTAL)	GRO	DRO	1,2,4-TMB	1,3,5-TMB	NAPHTHALENE ¹	SODIUM
UNITS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW-3	0.00325 J (0.00500)	0.0230	0.0430	0.638	1.87	5.91	0.168	0.0826	0.0358	NA
MW-4	U (0.00100)	0.0122	U (0.00100)	U (0.00300)	0.0433 J (0.0287)	U (0.840)	U (0.00100)	U (0.00100)	U (0.000250)	NA
MW-8	U (0.00500)	0.00407 J (0.00500)	0.0269	0.456	1.50	11.3	0.245	0.116	0.0509	NA
MW-14	0.0349	0.0300	0.532	3.37	6.86	2.72	0.565	0.174	0.331	NA
MW-17	0.000136 J (0.00100)	0.00260	0.000494 J (0.00100)	0.00327	0.226	3.40	0.00163	0.000709 J (0.00100)	0.000355	NA
MW-19-1	0.0210	0.00481 J (0.0100)	0.132	0.627	2.93	12.2	0.270	0.103	0.126	NA
CRW-2	0.000935 J (0.00100)	0.000641 J (0.00100)	0.0335	0.155	0.602	1.84	0.105	0.0305	0.00596	NA
DUP 1	0.000936 J (0.00100)	0.000609 J (0.00100)	0.0330	0.153	0.592	2.35	0.104	0.0302	0.00321	NA
WRW-2020	0.00217	U (0.00100)	0.0397	0.171	0.563	0.237 J (0.840)	0.0715	0.0220	0.0159	NA
EFFLUENT	0.000169 J (0.00100)	U (0.00100)	0.00292	0.0159	0.0700 J (0.100)	1.51	0.00796	0.00256	U (0.000250)	15.4
DUP 2	0.000161 J (0.00100)	U (0.00100)	0.00256	0.0141	0.0712 J (0.100)	U (0.840)	0.00732	0.00227	U (0.000250)	15.3
MW-30	0.00167	U (0.00100)	U (0.00100)	U (0.00300)	0.0289 J (0.100)	U (0.840)	U (0.00100)	U (0.00100)	U (0.000250)	NA
GCLS	0.0046	1.1	0.015	0.19	2.2	1.5	0.056	0.06	0.0017	NONE

Key:

- | | | | |
|-------------|---|-------|---|
| 1 | Results from EPA 8270C-SIM | GCLs | Groundwater cleanup levels |
| Blank | Trip Blank | GRO | Gasoline range organics analyzed by AK101 |
| Bold | indicates the concentration exceeds the GCL or the estimated quantitation limit exceeds the GCL | NA | Not analyzed |
| J | Detected below LOQ (in parentheses) | U () | Analyte not detected above LOQ (in parentheses) |
| DUP | Duplicate sample of the preceding sample (MW-3). | | |
| DRO | Diesel range organics analyzed by AK102. | | |

4.4 QUALITY ASSURANCE (QA)/QUALITY CONTROL (QC) REVIEW

Pace Analytical, Inc. did not meet all laboratory QA/QC criteria during the analysis of groundwater samples for this sampling event, as described in **Table 4**, which provides a summary of the laboratory QC objectives and outcomes for this monitoring event. Laboratory QC data and the ADEC Laboratory Data Review Checklist are included with the laboratory report in **Appendix E**.

Sample DUP 1 is a duplicate of Sample CRW-2. DUP 2 is a duplicate sample of the aeration tank effluent sample. The duplicate sample sets were collected to determine the precision of the field collection and laboratory analysis for this monitoring event. Data presented in **Table 4** show that the precision for the duplicate sample set was within the established QA criteria tolerances for benzene, toluene, total xylenes, GRO, 1-2-4 trimethylbenzene, and 1-3-5 trimethylbenzene for both duplicate sample sets. The laboratory precision tolerance was exceeded for naphthalene in

CRW-2. In addition, DRO was detected in the effluent sample above the ADEC GCL but was undetected in DUP 2; the relative percent difference between the two could not be calculated but is outside precision tolerances. The holding times for VOCs, PAHs, GRO and DRO were within established criteria for all samples except DRO in MW-4 and MW-8.

Table 4 Laboratory Quality Control Objectives

Quality Control Designation	Tolerance	Results for This Event	
Holding Times			
DRO/Water/to analyze	40 days	14 days	
DRO/Water/to extract	14 days	13 days	
GRO/Water/to analyze	14 days	3 to 8 days	
VOCs/Water/to analyze	14 days	6 to 9 days	
PAHs/Water/to extract	7 days	3 to 8 days ¹	
PAHs/Water/to analyze	40 days	4 to 10 days	
Field Duplicates – Precision		CRW-2	Effluent
Benzene/Water	30%	0.107%	4.85%
Toluene/Water	30%	5.12	NC
Ethylbenzene/Water	30%	1.50%	13.1%
Xylenes/Water	30%	1.30%	12.0%
GRO/Water	30%	1.68%	1.70%
DRO/Water	30%	24.3%	NC ²
1,2,4-TMB	30%	0.957%	8.38%
1,3,5-TMB	30%	0.989%	12.0%
Naphthalene	30%	60.0%	NC

Key:

- 1 PAHs in MW-4 and MW-8 were extracted 8 days after collection
- 2 DRO not detected in duplicate but above GCL in original sample; RPD could not be calculated but is outside precision tolerances
- % Percentage of variance in absolute value
- BOLD** Exceeds precision tolerance
- TMB trimethylbenzene
- DRO diesel range organics
- GRO gasoline range organics
- NC cannot be calculated
- PAH polynuclear aromatic hydrocarbon
- VOC volatile organic compound

5.0 REMEDIATION SYSTEM OPERATION AND PERFORMANCE MONITORING

5.1 FREE PRODUCT RECOVERY

Free product accumulation in CRW-2, MW 19-1 and MW 19-2 was monitored on a monthly basis and periodically removed with a peristaltic pump using a line attached to a water level meter to verify the free product presence above the water interface. The free product collected with the peristaltic pump from the above referenced wells is temporarily stored on-site in a 55-gallon drum that is contained in an over-pack drum (secondary containment). On September 19, 2022, US Ecology Alaska, LLC, picked up the 55 gallon drum of free product from the site and brought it to their North Pole facility for proper disposal. The drum had approximately 50 gallons in it.

5.2 CRW-2 DRAWDOWN SYSTEM

The 1.0-horsepower (hp) submersible drawdown pump in CRW-2 has been operating on a continuous basis (24-hours per day). The free product collected in CRW-2 is periodically removed with the peristaltic pump and then temporarily stored on-site in a 55-gallon drum. The drawdown pump has a constant discharge rate of 1.7 gallons per minute. The pumped drawdown groundwater is discharged to the on-site 1,500 gallon aeration tank for treatment. Treated effluent from the aeration tank flows by gravity into the replacement on-site drainfield that was installed last year in October 2021. During the past summer, CRW-2 well was dosed with NuWell® pellets to treat the iron precipitates that were accumulating in the well which improved groundwater flow into the well.

5.3 WRW-2020 DRAWDOWN SYSTEM

A ½-hp submersible pump is used to draw-down the groundwater table in WRW-2020 well as a means to control groundwater flow and free product in the general area in the easement right of way north of the Speedway store property. The flow from the draw-down pump is discharged to the 1,500 gallon aeration tank for treatment. The draw-down pump operates with a flow of 1.5-2 gpm on a continuous basis (24-hours per day). The draw-down pump discharges in an insulated/heat traced water line to the aeration tank.

5.4 SITE TREATMENT SYSTEM

The drawdown pumps CRW-2 and WRW-2020 discharge into separate insulated/heat traced water lines into the 1,500-gallon, double compartment Aeration Treatment Tank. The aerated, treated effluent from the aeration treatment tank discharges by gravity to an on-site drainfield that is located upgradient of the groundwater interceptor trench (see **Figure 4**). A replacement FUJI ½-hp regenerative blower that is used to aerate the treatment tank was installed in mid-August 2022. The blower delivers up to 98 cubic feet per minute of air to the tank and operates on a continuous basis (24-hour per day).

As indicated by the sample laboratory test results for the sample collected from the treatment tank “effluent” shown on **Table 3**, the aeration treatment system is discharging effluent that is significantly “cleaner” (below ADEC GCLs except for DRO that is slightly above the GCL) than the water entering the tank from the combined drawdown flow from the pumps in wells CRW-2 and WRW-2020. During August of this year Stantec hired US Ecology Alaska, LLC to pump out the contents (1,000 gallons) of the aeration tank which was found to be nearly 1/3 full of iron precipitates. US Ecology Alaska, LLC transported the tank contents to their facility in North Pole for treatment and disposal. The cleaning of the aeration tank should minimize carry-over of the iron sludge into the new drainfield.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for the monitoring wells sampled during the September 2022 monitoring event differed from those from the September 2021 annual monitoring event. Analyte concentrations were higher across the board in wells MW-3 and MW-8, while contaminate concentrations in MW-17 were generally lower.

Results of the analytical sampling showed the analytes detected above the ADEC groundwater cleanup levels (GCLs) were:

- Monitoring Well MW-3 and MW-8: ethylbenzene, total xylenes, DRO, naphthalene, 1,2,4-TMB, and 1,3,5-TMB.
 - In addition, the LOQ for benzene in well MW-8 was above ADEC GCLs.
- Monitoring Wells MW-14 and MW-19-1: benzene, ethylbenzene, total xylenes, GRO, DRO, naphthalene, 1,2,4-TMB, and 1,3,5-TMB.
- Monitoring well MW-17 and the Aeration Treatment Tank Effluent: DRO.
- Remediation Well CRW-2: ethylbenzene, DRO, naphthalene, and 1,2,4-TMB.
- Remediation Well WRW-2020: ethylbenzene, naphthalene, and 1,2,4-TMB.
- Monitoring Well MW-19-2 was not sampled due to the presence of free product which was actively measured and removed using a peristaltic pump on more than one occasion prior to this sampling event.

The laboratory results and report are provided in **Appendix E**.

Figure 3 shows the effectiveness of the area of influence from the operation of the drawdown well WRW-2020. The contour plot shows the capture of groundwater flow into WRW-2020 for the downgradient area located north of the property in the road easement right-of-way.

For the past year, Stantec has maintained the iMonnit telemetry equipment to monitor via the internet the operation of the following equipment: groundwater drawdown pumps in WRW-2020 and CRW-2, and the regenerative blower that provides aeration to the aeration treatment tank.

6.1 RECOMMENDATIONS AND PROPOSED ACTIVITIES

No anomalies were found during the September 2022 monitoring event that would require additional corrective action or changes to the approved year 2022 Corrective Action Work Plan for this site.

7.0 LIMITATIONS

Stantec conducted this monitoring event in accordance with the 2022 Corrective Action Work Plan approved by ADEC, and in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions. All sampling activities were completed in accordance with the ADEC *Underground Storage Tanks Procedures Manual – Standard Sampling Procedures* (March 22, 2017). The conclusions in this report are Stantec's professional opinion, as of the time of the report, and concerning the scope described in the report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. This report relates solely to the specific project for which Stantec was retained and the stated purpose for which the report was prepared. The report is not to be used or relied on for any variation or

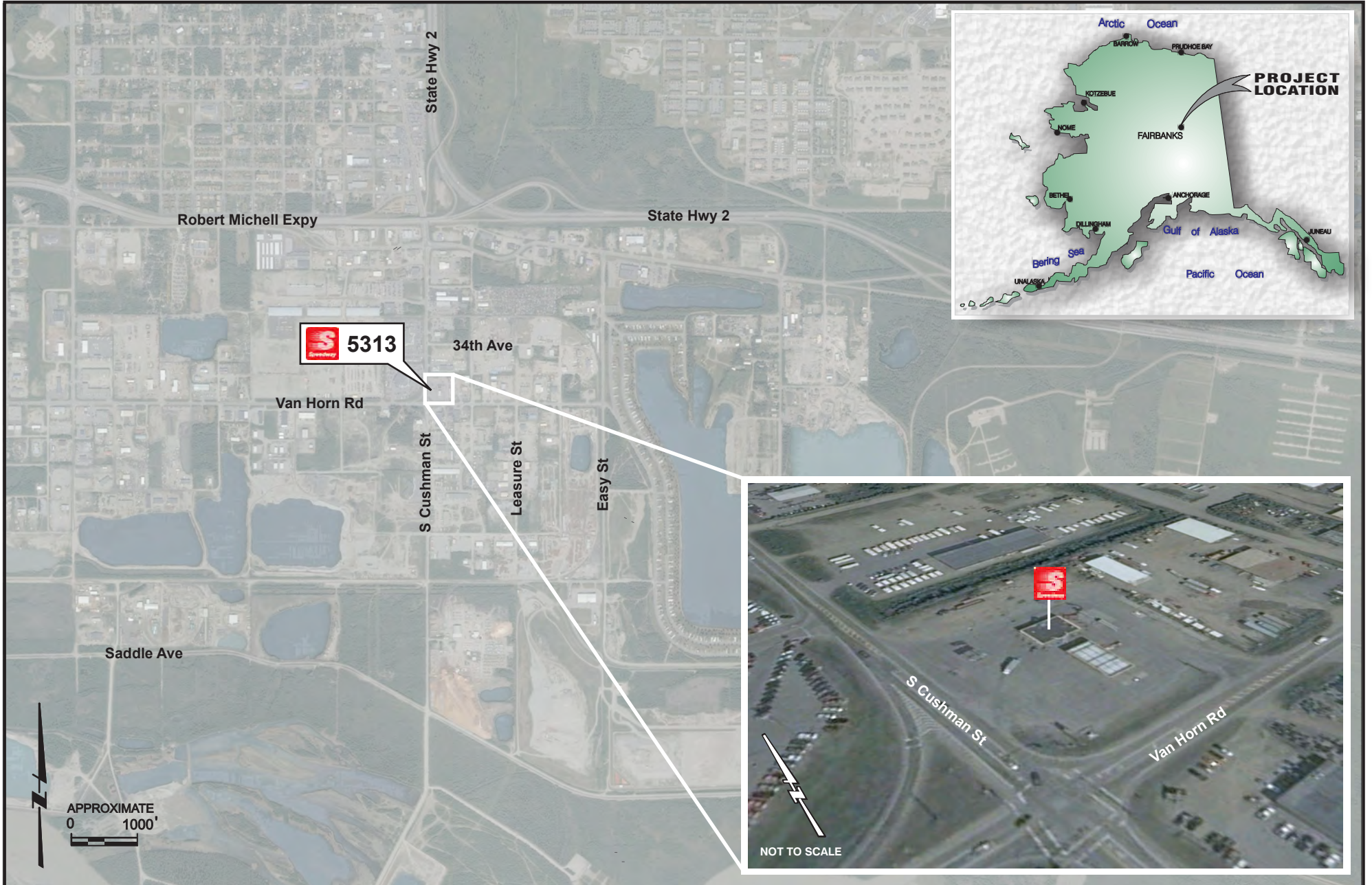
extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

This report is intended solely for use by the client in accordance with Stantec's contract with the client. While the report may be provided to applicable authorities having jurisdiction and others for whom the client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

FIGURES

- Figure 1 Location and Vicinity Map
Figure 2 Site Plan with Analytical Data Results

Figure 3 Groundwater Elevation Contours
-



MW-30

MW-30		9/19/22
124-TMB	U(0.00100)	
135-TMB	U(0.00100)	
BENZENE	0.00167	
DRO	U(0.840)	
ETHYLBENZENE	U(0.00100)	
GRO	0.0289	
NAPHTHALENE	U(0.000250)	
TOLUENE	U(0.00100)	
XYLENES	U(0.00300)	

MW-17		9/19/22
124-TMB	0.00163	
135-TMB	0.000709	
BENZENE	0.000136	
DRO	3.4	
ETHYLBENZENE	0.000494	
GRO	0.226	
NAPHTHALENE	0.000355	
TOLUENE	0.0026	
XYLENES	0.00327	

MW19-2		9/19/22
124-TMB	FP	
135-TMB	FP	
BENZENE	FP	
DRO	FP	
ETHYLBENZENE	FP	
GRO	FP	
NAPHTHALENE	FP	
TOLUENE	FP	
XYLENES	FP	

DW

MW-14

MW-14		9/19/22
124-TMB	0.565	
135-TMB	0.174	
BENZENE	0.0349	
DRO	2.72	
ETHYLBENZENE	0.532	
GRO	6.86	
NAPHTHALENE	0.331	
TOLUENE	0.03	
XYLENES	3.37	

MW19-1		9/19/22
124-TMB	0.27	
135-TMB	0.103	
BENZENE	0.021	
DRO	12.2	
ETHYLBENZENE	0.132	
GRO	2.93	
NAPHTHALENE	0.126	
TOLUENE	0.00481	
XYLENES	0.627	

MW-3		9/19/22
124-TMB	0.168	
135-TMB	0.0826	
BENZENE	0.00325	
DRO	5.91	
ETHYLBENZENE	0.043	
GRO	1.87	
NAPHTHALENE	0.0358	
TOLUENE	0.023	
XYLENES	0.638	

APPROXIMATE LOCATION 2021 DRAINFIELD THREE ROWS OF INFILTRATORS WITH OBSERVATION PIPE (6 TYP) (BOTTOM AREA 45' x 10')

2006 DRAINFIELD TWO ROWS OF INFILTRATORS WITH OBSERVATION PIPE (6 TYP) (BOTTOM AREA 100' x 6')

MW-4

MW-4		9/19/22
124-TMB	U(0.00100)	
135-TMB	U(0.00100)	
BENZENE	U(0.00100)	
DRO	U(0.840)	
ETHYLBENZENE	U(0.00100)	
GRO	0.0433	
NAPHTHALENE	U(0.000250)	
TOLUENE	0.0122	
XYLENES	U(0.00300)	

MW-17

MW19-2

MW19-1

MW-3

REMEDATION SHED WRW

CRW-2

CRW-2 SHED

OMW-2

OMW-1

WRW

MW-8

1/2 HP BLOWER

AERATION TREATMENT TANK

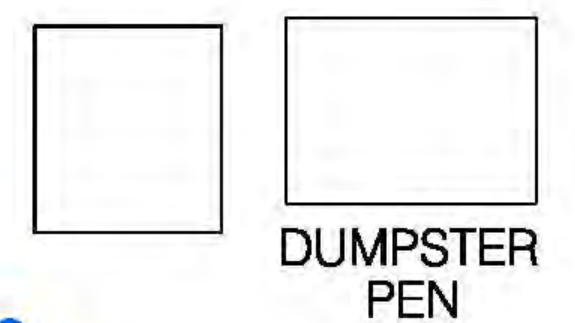
OMW-3

ERW

OMW-4

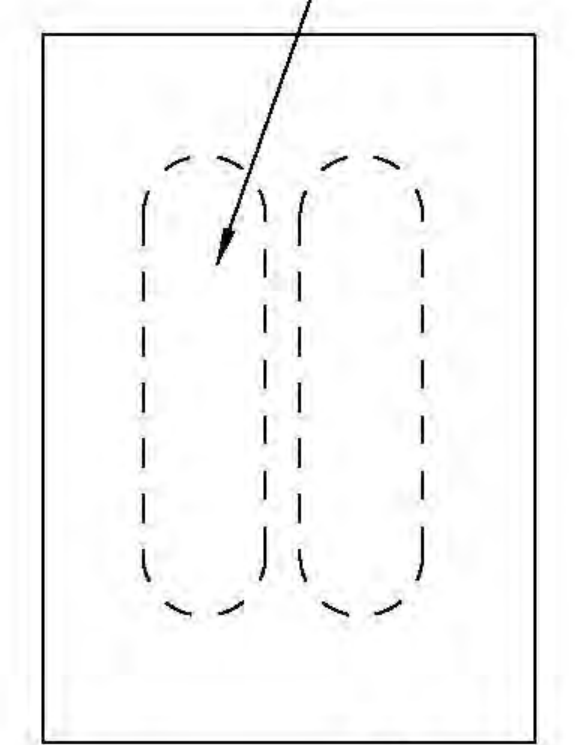
MW-24

WRW-2020		9/19/22
124-TMB	0.0715	
135-TMB	0.022	
BENZENE	0.00217	
DRO	0.237	
ETHYLBENZENE	0.0397	
GRO	0.563	
NAPHTHALENE	0.0159	
TOLUENE	U(0.00100)	
XYLENES	0.171	



MW-26

UNDERGROUND STORAGE TANKS (TYP OF 2)



STORAGE SHED

MW-23

CROWLEY PETROLEUM (FORMERLY INTERIOR FUELS COMPANY) BUILDING

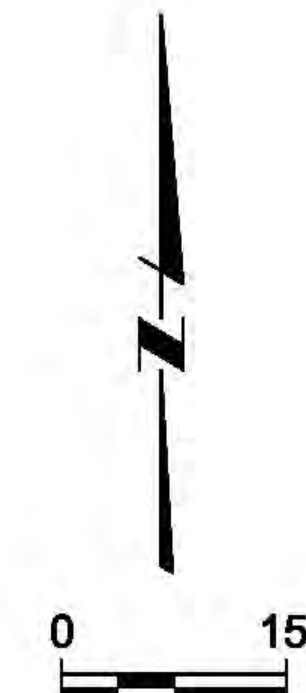
Effluent		9/19/22
124-TMB	0.00796	
135-TMB	0.00256	
BENZENE	0.000169	
DRO	1.51	
ETHYLBENZENE	0.00292	
GRO	0.0712	
NAPHTHALENE	U(0.000250)	
TOLUENE	U(0.00100)	
XYLENES	0.0159	

CRW-2		9/19/22
124-TMB	0.105	
135-TMB	0.0305	
BENZENE	0.000936	
DRO	2.35	
ETHYLBENZENE	0.0335	
GRO	0.602	
NAPHTHALENE	0.00596	
TOLUENE	0.000641	
XYLENES	0.155	

LEGEND:

- PROPERTY LINE
- - - 3 EA. 4" DIA. ENVIROFLEX SECONDARY PIPING
- INTERCEPTOR TRENCH
- FENCE
- ⊗ PROPOSED CSB/OIP
- OBSERVATION WELL
- ⊕ 6" RECOVERY WELL
- ⊕ 10" RECOVERY WELL
- ⊕ MONITORING WELL
- ⊕ PRIVATE INDUSTRIAL WELL
- CRW CENTRAL RECOVERY WELL
- ERW EAST RECOVERY WELL
- OMW OBSERVATION WELL
- OWE OBSERVATION WELL EAST
- WRW WEST RECOVERY WELL

SITE DATA COMPARED TO ADEC Groundwater Cleanup Levels (GCLs)			
ND	NOT DETECTED	124-TMB	0.056 mg/L
--	NOT SAMPLED	135-TMB	0.06 mg/L
50	SAMPLED & UNDER GCL	BENZENE	0.0046 mg/L
100	SAMPLED & OVER GCL	DRO	1.5 mg/L
FP	FREE PRODUCT DISPLAYED IN mg/L	ETHYLBENZENE	0.015 mg/L
		GRO	2.2 mg/L
		NAPHTHALENE	0.0017 mg/L
		TOLUENE	1.1 mg/L
		XYLENES	0.19 mg/L



TRUCK WEIGHT SCALE



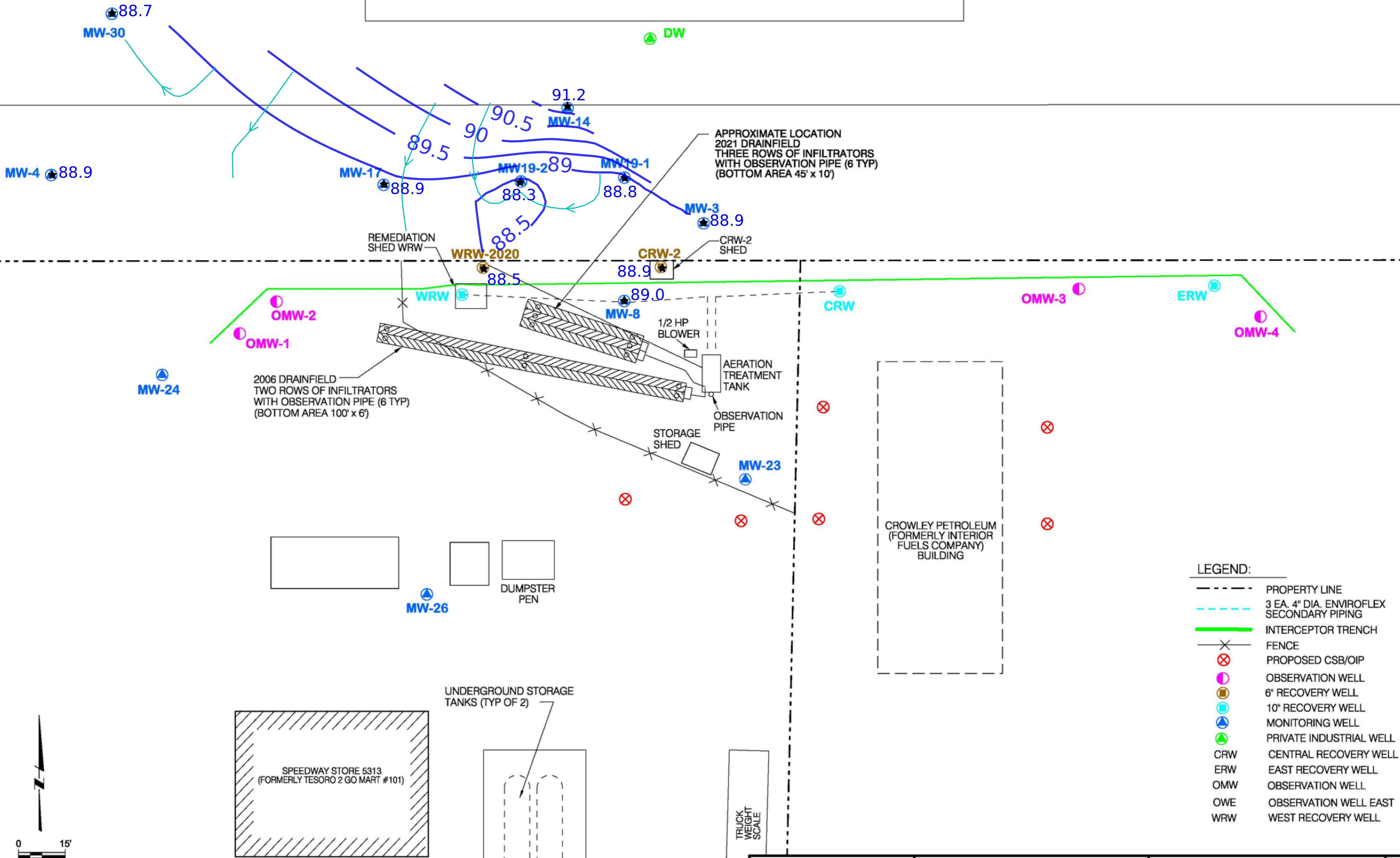
SPEEDWAY STORE 5313 (FORMER TESORO 2 GO MART #101 & IFC)

Site Plan With Analytical Data Results September 2022 Annual GWM Event

FIGURE

2

185705776



LEGEND:

---	PROPERTY LINE
---	3 EA. 4" DIA. ENVIROFLEX SECONDARY PIPING
---	INTERCEPTOR TRENCH
---	FENCE
⊗	PROPOSED CSB/OIP
●	OBSERVATION WELL
●	6" RECOVERY WELL
●	10" RECOVERY WELL
●	MONITORING WELL
●	PRIVATE INDUSTRIAL WELL
CRW	CENTRAL RECOVERY WELL
ERW	EAST RECOVERY WELL
OMW	OBSERVATION WELL
OWE	OBSERVATION WELL EAST
WRW	WEST RECOVERY WELL

APPENDIX A

Site Background

APPENDIX A – SITE BACKGROUND

Tesoro 2 Go Mart #101/ Interior Fuels Company ADEC Facility ID #2960; ADEC File #100.26.022

The Tesoro 2 Go Mart #101 is a retail gas service/convenience store and the former Interior Fuels Company (IFC) are located at the intersection of South Cushman Street and Van Horn Road in Fairbanks, Alaska. The site has a combined address of 170 East Van Horn Road and 3569 South Cushman Street.

The Tesoro 2 Go Mart #101 was formerly called the Tesoro Discount Truck Stop (DTS) Facility. The IFC was a former heating fuel distribution service company that was located on an adjacent lot next to the Tesoro 2 Go Mart #101 site. Due to their common history of ownership by Tesoro and their shared property lines, both sites are being managed as a single contaminated site. The legal description for these properties is Lot 3 and Lot 4, Block 26, Leisure Subdivision.

July 1991. A former underground storage tank (UST) system and a tanker truck loading rack was removed from the IFC site in July 1991. The UST system contained heating fuel oil and consisted of three 20,000-gallon tanks and a 15,000-gallon tank with a diesel fuel pump station connected the truck loading rack. A Site Assessment (SA) of the closure of the heating oil UST system and the loading rack was conducted by Dames & Moore. A significant amount of petroleum contamination was encountered. The excavation was lined with a reinforced polyethylene liner, and the excavated soil was placed within the liner subject to approval from the Alaska Department of Environmental Conservation (ADEC).

April 1992. Dames and Moore conducted a Release Investigation at IFC to assess the extent of contamination that was associated with the former heating oil USTs and truck loading rack facility. Seven soil borings were drilled and seven groundwater monitoring wells were installed on the IFC property. Extensive subsurface contamination was discovered and free phase petroleum product was found in three of the monitoring wells. The free product thickness ranged from 1.24 feet to 2.95 feet. A well search for domestic drinking water wells was completed around the IFC site.

August 1993. A release of petroleum contamination was discovered during the upgrade of the UST system serving the former DTS facility.

August 1994. Dames and Moore conducted a Release Assessment at the former DTS facility. The Release Assessment included installing three on-site groundwater monitoring wells. Contamination was detected in all three wells and the source of the contamination was assumed to be another off-site facility located upgradient (south of Van Horn Road) of the Tesoro site. A well search of domestic wells located within 0.5 miles of the site was completed.

April 1995. Gilfilian Engineering & Environmental Services, Inc. (GE2T) conducted a groundwater monitoring event of 10 monitoring wells associated with the combined IFC and DTS sites. Free product was found in three of the monitoring wells, with thickness that ranged from 2.68 feet to 5.97 feet. Delineation of the free phase contaminants and dissolved phase contaminants

in the groundwater table was estimated and noted to extend downgradient of the Tesoro site to surrounding private property.

July 1995. GE2T conducted a groundwater monitoring event and installed a new off-site, downgradient monitoring well (G-1). A total of 12 wells were surveyed and sampled. The new well was found to be free of contamination. The 6-inch diameter free product recovery well (MW-3) was found to be producing an average of 2.7 gallons of free product on a daily basis.

February 1998. GE2T completed a SA of the abandonment of two floor drain pits located inside the IFC garage. Contamination was discovered in the underlying soil and determined not to warrant clean up or removal. The floor drain system was upgraded by the installation of an aboveground oil/water separator.

March 1998. GE2T completed a well search of drinking water wells located within 0.25 miles of the IFC/DTS properties. A total of 24 wells were identified, of which the majority were located downgradient of the subject site.

June 1999. GE2T conducted a SA of the removal of a 1,000-gallon gasoline UST that served the IFC garage facility. No contamination was detected during the removal of the UST.

June 2001. The former UST system serving the DTS (renamed to Tesoro 2 Go Mart #101) was removed and replaced with a new UST fueling system. A SA for the UST System Closure was completed by GE2T. The former UST system consisted of two 20,000-gallon gasoline tanks and two 20,000-gallon diesel tanks. A 1,000-gallon heating oil tank was also removed during the upgrade of the convenience store. Approximately 1,500 tons of contaminated soil was excavated and shipped off-site for thermal remediation. The new UST system consisted of two 20,000-gallon USTs. An undetermined, small amount of contaminated soil was left in-place at the base of the new USTs and a soil vapor extraction (SVE) piping system was installed for future treatment of the in-situ contaminated soil.

September 2001. A fuel recovery system for the removal of floating fuel product from groundwater on the property of the Tesoro 2 Go Mart #101 and IFC was designed and installed under the direction of GE2T. The fuel recovery system consisted of a 12-foot deep by 350-foot long groundwater interceptor trench and three 12-inch diameter free product recovery wells. The recovery wells were equipped with Spillbuster™ pump systems that were connected to free product storage drums and underground piping to discharge dewatered groundwater to a 1,500-gallon treatment aeration and settling tank, with discharge to the upgradient groundwater via a subsurface infiltration (seepage) bed.

November 2001. GE2T drilled two soil borings and installed five new groundwater monitoring wells (MW-24, MW-25, MW-26, MW-27, and MW-28). Several of these wells were installed for the purpose of assessing the groundwater impact associated with the former seepage pits that served the IFC garage floors. The impact to the groundwater quality from the seepage pits was determined not to be contaminated above ADEC groundwater cleanup levels.

May 2002. GE2T conducted a SA during the removal of a log crib seepage pit that was previously used for the on-site disposal of floor drain waste collected in the IFC garage. A total of 23 tons of contaminated soil was excavated and taken off-site for thermal treatment. The underlying soil was found to have contamination concentration below the soil clean up levels.

August 2002. MWH Americas, Inc. (MWH) performed a SA at IFC for an excavation for the foundation of a new building (garage) located in the northwest corner of the IFC property. The building foundation covered an area that was 40 feet wide and 100 feet long and to a depth of 10 feet. The excavation area included former bulk fuel loading racks. A total of 3,999 tons of contaminated soil was excavated and transported for thermal remediation. A SVE system was installed at the base of the excavation to address the potential threat of hydrocarbon vapor migration into the new garage building.

October 2003. MWH conducted a Release Investigation (RI) that included replacing two downgradient monitoring wells and a seepage bed for the recirculation of groundwater that was pumped from the groundwater treatment recovery system. The purpose of the RI was to investigate the extent of soil contamination and to evaluate groundwater quality at the site. The RI involved drilling two soil borings downgradient and off-site of the Tesoro 2 Go Mart #101 property. These wells were completed as 2-inch diameter monitoring wells (MW-29 and MW-30). Petroleum hydrocarbon contamination was not detected in either soil or groundwater in the two, new off-site groundwater monitoring wells. The fuel recovery system was re-started on October 16, 2003, immediately following the installation of a replacement, expanded infiltration (seepage) bed that is used for the discharge of aerated and settled water pumped from the free product recovery wells. The free product recovery system recovered approximately 1,200 gallons of fuel, from November 2001 to 2003.

May 2007. The free product recovery system remains in operation, as does the dissolved phase groundwater treatment system. Free product is still present in several recovery wells and monitoring wells. Groundwater contaminant plume is stable. Twice yearly monitoring well sampling and quarterly treatment system operation and maintenance continue.

November 2011. MWH decommissioned eight groundwater monitoring wells (MW-2, MW-5, MW-9, MW-16, MW-18, MW-25, MW-27, and MW-28) and two observation wells (OWW and OWE).

July 2013. MWH conducted a SA for purpose of evaluating the characterization and extent of petroleum contamination in the shallow soil strata located on the Tesoro 2 Go Mart #101 and former IFC properties. Three shallow test pits were excavated on the #101 property and one soil test pit excavated on the former IFC property. All of the test holes were located in close proximity to the upgradient edge of the Interceptor Trench. Nearly all of the soil samples had a significant amount of petroleum contamination remaining in the soil strata. The extent of contamination was greatest at the groundwater table. Based on the relatively tight (fine grained) soil found in the test pits, it was recommended not to use chemical oxidation treatment methods, but to continue use of the existing Interceptor Trench. This trench has proven to be an effective means of controlling the flow of the contaminated groundwater and associated free product from moving downgradient (off-site) of the sites.

August 2013. Well CRW (Central Recovery Well) was added to the monitoring event sampling due to the recent findings during the excavation of test pits on July 23, 2013.

May 2015. MWH conducted a second quarter groundwater monitoring event on May 26, 2015. Monitoring Well MW-3 contained ice and could not be sampled. Monitoring Wells MW-8, MW-14, and MW-17 all exceeded the ADEC groundwater cleanup levels (GCLs) for GRO and DRO, with MW-14 also for benzene. The Aeration Tank exceeded the GCLs for both benzene and DRO. The product recovery system in Recovery Well WRW was not operational.

May 2016. MWH conducted a second quarter groundwater monitoring event on May 12, 2016. Free product was observed in Monitoring Well MW-3 (0.2124 feet thick) and CRW-2 (1.60185 feet thick). Monitoring Well MW-14 was not sampled because of the presence of an ice plug. The GCL was exceeded for DRO in Monitoring Well MW-8, GRO and DRO in MW-17, and benzene in the Aeration Tank. The product recovery system in Recovery Well WRW and CRW-2 were not operational, although the drawdown pump was operating as normal in CRW-2.

September 2017. Stantec conducted the annual groundwater monitoring event during the month of September 2017. Results of the analytical sampling found analytes detected above the ADEC GCLs in the following wells:

- Monitoring Well MW-3: benzene, xylene, ethylbenzene, GRO, DRO, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.
- Monitoring Well MW-8: benzene, ethylbenzene, and DRO.
- Monitoring Well MW-14: benzene, xylene, ethylbenzene, GRO, and DRO.
- Monitoring Well MW-17: benzene, xylene, ethylbenzene, GRO, DRO, naphthalene, 1,2,4-trimethylbenzene, and vinyl chloride.
- Remediation Well CRW-2: benzene, ethylbenzene, naphthalene, 1,2,4-trimethylbenzene, and vinyl chloride.

Analytes were detected above practical quantitation limits (PQLs), but below the GCLs, in all of the monitoring wells and effluent from the Aeration Treatment Tank. A new free product skimmer pump was installed in Recovery/Remediation Well CRW-2. Upgrades were also made to the aeration treatment tank including the water discharge line from the groundwater drawdown pump in CRW-2 and the aeration line from the blower to the treatment tank.

September 2018. The analytical results for the monitoring wells sampled during the September 2018 monitoring event were relatively consistent with the last groundwater monitoring event (September 2017). The effluent from the remediation aeration tank was found to have no contaminants of concern that exceeded the GCLs, which is an indication that effective treatment is being provided by the aeration tank.

Results of the analytical sampling showed the analytes detected above the ADEC GCLs were:

- Monitoring Well MW-3: ethylbenzene, xylenes, DRO, 1-methylnaphthalene, 2-methylnaphthalene, 1,2,4 trimethylbenzene, 1,3,5 trimethylbenzene, and naphthalene.

- Monitoring Well MW-8: DRO.
- Monitoring Well MW-14: benzene, ethylbenzene, xylenes, GRO, DRO, 1-methylnaphthalene, naphthalene, 2-methylnaphthalene, 1,2,4 trimethylbenzene, and 1,3,5-trimethylbenzene.
- Monitoring Well MW-17: benzene, ethylbenzene, xylenes, GRO, DRO, naphthalene, and 1,2,4-trimethylbenzene.
- Remediation Well CRW-2: benzene, ethylbenzene, xylenes, DRO, naphthalene, 1,2,4-trimethylbenzene, and 1-methylnaphthalene.

Several VOCs and PAHs were reported as undetected but had PQLs that equaled or exceeded their corresponding GCLs.

The free product skimmer and groundwater drawdown pump in CRW-2 are operating on a year-round basis. Stantec installed telemetry components to monitor the operation of the following equipment: free product skimmer, drawdown pump discharge line, and the blower aeration line to the aeration remediation tank.

October 2019. The analytical results for the monitoring wells sampled during the October 2019 monitoring event were relatively consistent with the last groundwater monitoring event (September 2018). The effluent from the remediation aeration tank was found to have no contaminants of concern that exceeded the GCLs, which is an indication that effective treatment is being provided by the aeration tank.

Results of the analytical sampling showed the analytes detected above the ADEC GCLs were:

- Monitoring Well MW-3: benzene, ethylbenzene, xylenes, GRO, DRO, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
- Monitoring Well MW-8: DRO.
- Monitoring Well MW-14: benzene, ethylbenzene, xylenes, GRO, DRO, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
- Monitoring Well MW-17: benzene, ethylbenzene, and DRO.
- Monitoring Well MW 19-1: benzene, ethylbenzene, xylenes, GRO, DRO, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
- Remediation Well CRW-2: benzene, ethylbenzene, xylenes, naphthalene, and 1,2,4-trimethylbenzene.

Several VOCs and PAHs were reported as undetected but had PQLs that exceeded their corresponding GCLs. The free product skimmer and groundwater drawdown pump in CRW-2 are operating on a year-round basis.

January thru July 2020. The free product skimmer and groundwater drawdown pump in CRW-2 were initially operating on a year-round basis. When large particulates of iron oxide blocked the skimmer screen, the skimmer was taken offline until maintenance could be completed. The site blower stopped working between April and June of 2020.. Once the depth of free product in the well exceeded 4' at the end of June, the drawdown pump was shut off until the skimmer could be pulled and completely cleaned.

Installation of WRW-2020 occurred on July 14, 2020 and has been previously document in November 24, 2020 Technical Memo "Speedway Store 5313 (Former Tesoro 2Go Mart 101/IFC) - Installation of 6" Diameter Product Recovery Well WRW 2020". Skimmer was turned off when the system was once again obstructed with iron oxide.

August and September 2020. The skimmer was removed in August and a repurposed blower was installed next to the aeration remediation tank in September 2020. During site review, free product was found in MW 19-1 and MW 19-2. The free product from CRW-2, MW 19-1 and MW 19-2 was monitored and removed periodically with a peristaltic pump. The repurposed blower stopped working and new blower was installed. A temporary influent line was installed from WRW-2020 to with minor adjustments of flow during regular site monitoring to balance the treatment system.

October 2020. The annual groundwater monitoring event included: measuring the depth to groundwater; measuring water quality intrinsic parameters; collecting and analyzing groundwater samples from Monitoring Wells MW-3, MW-4, MW-8, MW-14, and MW-17, as well as Drainfield (Aeration Tank effluent) and both Remediation Wells CRW-2 and WRW-2020(**Figure 2**). Monitoring Well MW 19-1 and 19-2 was not sampled due to the presence of free product in the well.

Results of the analytical sampling showed the analytes detected above the ADEC groundwater cleanup levels (GCLs) were:

- Monitoring Wells MW-3, MW-14, and MW-17: benzene, ethylbenzene, xylenes, diesel range organics (DRO), naphthalene, 1-2-4 trimethylbenzene, and 1-3-5 trimethylbenzene.
- Monitoring Well MW-8: DRO and naphthalene.
- Remediation Well CRW-2: benzene, ethylbenzene, naphthalene, and DRO.
- Remediation Well WRW-2020: ethylbenzene, total xylenes, naphthalene, and 1-2-4 trimethylbenzene.
- Drainfield: naphthalene. Sampling occurred last, with purge water from all other sampled wells having been disposed of in the aeration tank that discharges to the effluent line.
- Monitoring Wells MW 19-1 and 19-2 was not sampled due to the presence of free product which was actively measured and removed using a peristaltic pump on more than one occasion prior to this sampling event.

September 2021: The groundwater monitoring event was conducted on September 27, 2021, by Stantec personnel Engineer-In-Training (EIT) staff members Leslie Petre and Geoff Moorhead. This monitoring event included: measurement of the depth to groundwater; measurement of

water quality intrinsic parameters; collection and analyses of groundwater samples from Monitoring Wells MW-3, MW- 4, MW-8, MW-14, MW-17, and MW-19-1, as well as treated effluent from the Aeration Treatment Tank and both free product recovery wells CRW-2 and WRW-2020. Monitoring Well MW 19-2 was not sampled due to the presence of a thin layer (0.01-feet thick) of free product in the well. In response to a verbal request from the ADEC, a representative sample was collected and analyzed from MW-30.

Results of the analytical sampling showed the analytes detected above the ADEC groundwater cleanup levels (GCLs) were:

- MW-3: ethylbenzene, diesel range organics (DRO), 1-2-4 trimethylbenzene (TMB) and naphthalene.
- MW-14, and MW 19-1: benzene, ethylbenzene, xylenes, gasoline range organics (GRO), DRO, naphthalene, 1-2-4 TMB, and 1-3-5 TMB.
- MW-17: benzene, ethylbenzene, xylenes, GRO, DRO, naphthalene, and 1-2-4 TMB
- MW-8: DRO and naphthalene.
- Free Product Recovery Well CRW-2: ethylbenzene.
- Free Product Recovery Well WRW-2020: ethylbenzene, xylenes, naphthalene, and 1-2-4 TMB.

A peristaltic pump is used to remove/extract free product from the wells. No measurable free product was detected in the wells except for a thin layer (0.01-feet thick) in MW 19-2.

An aeration system is currently used for treating groundwater that is pumped from the groundwater drawdown pumps in Free Product Recovery Wells CRW-2 and WRW-2020. The drawdown pumps discharge at a combined rate of 3-4 gpm. The aerated effluent from the 1,500 gallon, double compartment Aeration Treatment Tank discharges to an on-site drainfield (Infiltrator System) that is located upgradient of the groundwater interceptor trench. Following the completion of the annual groundwater monitoring event, Stantec increased the size of the drainfield by adding a 450-square foot bottom area drainfield. **Figure 2** shows the layout of the site improvements consisting of the 100-foot long (600-square foot) drainfield installed in 2006, 450-square foot drainfield installed in 2021 and the groundwater interceptor trench installed in 2001.

September 2022: The groundwater monitoring event was conducted on September 19, 2022, by Stantec personnel Engineer-In-Training (EIT) Leslie Petre and EIT Geoff Moorhead. The analytical results for the monitoring wells sampled during the September 2022 monitoring event differed from those from the September 2021 annual monitoring event. Analyte concentrations were higher across the board in wells MW-3 and MW-8, while concentrations in MW-17 were generally lower.

Results of the analytical sampling showed the analytes detected above the ADEC groundwater cleanup levels (GCLs) were:

- Monitoring Well MW-3 and MW-8: ethylbenzene, total xylenes, DRO, naphthalene, 1,2,4-TMB, and 1,3,5-TMB.
 - In addition, the LOQ for benzene in well MW-8 was above ADEC GCLs.

- Monitoring Wells MW-14 and MW-19-1: benzene, ethylbenzene, total xylenes, GRO, DRO, naphthalene, 1,2,4-TMB, and 1,3,5-TMB.
- Monitoring well MW-17 and the Aeration Tank Effluent: DRO.
- Remediation Well CRW-2: ethylbenzene, DRO, naphthalene, and 1,2,4-TMB.
- Remediation Well WRW-2020: ethylbenzene, naphthalene, and 1,2,4-TMB.
- Monitoring Well MW-19-2 was not sampled due to the presence of free product which was actively measured and removed using a peristaltic pump on more than one occasion prior to this sampling event.

Wells gauged during this monitoring event indicate that the groundwater flow north of the infiltrator trenches flows south towards the groundwater drawdown well WRW-2020. North of this area, the groundwater flow direction is to the west-northwest, at approximately 303°.

Free product accumulation in CRW-2, MW 19-1 and MW 19-2 was monitored on a monthly basis and periodically removed with a peristaltic pump using a line attached to a water level meter to verify the free product presence above the water interface. The free product collected with the peristaltic pump from the above referenced wells is temporarily stored on-site in a 55-gallon drum that is contained in an over-pack drum (secondary containment). On September 19, 2022, US Ecology Alaska, LLC, picked up the 55 gallon drum of free product from the site and brought it to their North Pole facility for proper disposal.

During August of this year Stantec hired US Ecology Alaska, LLC to pump out the contents (1,000 gallons) of the aeration tank which was found to be nearly 1/3 full of iron precipitates. US Ecology Alaska, LLC transported the tank contents to their facility in North Pole for treatment and disposal. The cleaning of the aeration tank should minimize carry-over of the iron sludge into the new drainfield.

APPENDIX B

Field Methods and Procedures

APPENDIX B – FIELD METHODS AND PROCEDURES

The following table presents the tasks for the Alaska Department of Environmental Conservation (ADEC)-approved 2022 Corrective Action Work Plan. The scope of these tasks is based on the results and findings of the monitoring and remediation completed to date at Speedway Store 5313 [formally Tesoro 2 Go Mart #101/Interior Fuels Company (ADEC Facility ID #2960; ADEC File #100.26.022)].

2022 Work Plan Schedule for Speedway Store 5313 (former T2GM 101/IFC)

Work Plan Task		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Task 1	Monitoring Wells: MW-3, MW-4, MW-8, MW-14, MW-17, MW-19-1, MW-19-2, and Aeration Treatment Tank (influent from wells CRW-2 and WRW 2020 and effluent discharged to the drainfield)			V, G, D, P & I	
Task 2	O&M Free Product Recovery Systems in wells CRW-2 and WRW 2020. Includes pumping out sludge in Aeration Treatment Tank and Off-site treatment and disposal of sludge.	✓	✓	✓	✓
Task 3	The 40-cubic yard stockpile of contaminated soil generated from the construction of the new 2021 drainfield will be hauled to an ADEC approved off-site treatment facility for treatment and disposal.		✓	✓	
Task 4	Drill 6 Confirmation Soil Borings on IFC property and Speedway Store 5313.		✓	✓	
Task 5	Decommission 5 Abandoned Monitoring Wells.		✓	✓	

Key:

- AK – Alaska Test Method
- D – Diesel range organics by AK102.
- EPA – U.S. Environmental Protection Agency
- G – Gasoline range organics by AK101.
- I – Indicators, parameters tested include: dissolved oxygen, specific conductance, oxygen-reduction potential, pH, and temperature.
- O&M – Operation and Maintenance
- P – Polynuclear aromatic hydrocarbons (PAHs), i.e., semi-volatile organic compounds, by EPA Test Method 8270D Selective Ion Monitoring.
- V – Volatile organic compounds by EPA Test Method 8260C.

The Corrective Action Work Plan for the year 2022 will be implemented by Stantec on behalf of Marathon Petroleum Company. Groundwater monitoring will be conducted to track migration and trends of

contaminants that are present at the site. All sampling activities will be completed in accordance with ADEC's *Underground Storage Tanks Procedures Manual– Standard Sampling Procedures* (March 22, 2017). The methods that will be used for conducting a monitoring event, unless otherwise noted in the monitoring report, will include:

- The static water levels in the monitoring wells will be measured with respect to the top of each well casing. The elevation of the static water level will be based on an arbitrary datum established on-site during a vertical control survey that will be completed by Stantec on an annual basis. The survey will be performed during the summer after the seasonal frost layer thaws.
- The monitoring wells will be purged of a minimum of three well bore volumes prior to collecting the water samples. A new, disposable, Teflon® bailer will be used to sample each well. The first bail of water removed from each well will be examined for petroleum odor, sheen, and any other unique physical features.
- Water and vapor samples will be collected in laboratory-supplied sample containers. The samples will be delivered to an ADEC-approved laboratory in accordance with standard chain-of-custody procedures.
- Additional water samples will be collected from the monitoring wells after the well has been purged, as described above, and tested in the field for chemical and physical intrinsic parameters listed in the 2020 Work Plan Schedule shown above.

APPENDIX C

Field Measurements and Notes

MPC 157575 TNS 101

Date: 09/20/2022, 11:28 AM

Name(s): Remi Malenfant

Site Name: & IFC

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
CRW-2 - Influent	N/A	12.45	27.3
TOC	Well Dia. (in)	Screen Length (ft)	Well Material
445.48			
Latitude (decimal)		Longitude (decimal)	Weather

Analytical Parameters	Bottles to be filled
BTEX	3 X 40 mL Amber VOAs ✓
DRO	2 X 100 mL Amber Glass ✓
GRO	3 X 40 mL Amber VOAs ✓
PAH	2 X 40 mL Amber VOAs ✓

QA/QC: Duplicate #1

Type/Model Meter Used: _____
 Calibrated: (date) _____ (time) _____
 Cell Vol: _____
 Type/Model Pump Used: _____
 Pump Intake? _____ ft
 Above / Below Bottom / TOC

Time	Depth to Water (ft)	Flow Rate (ml/Min)	pH		Conductivity (ms/cm)		Turbidity (NTU)		Dissolved O2 (mg/l)		Temp. (Celsius)		Oxygen Reduction Potential (ORP) mv	
			Reading	Change* (±0.1)	Reading	Change* (±3%)	Reading	Change* (±10% or <5)	Reading	Change* (±10% or <0.5)	Reading	Change* (±3%)	Reading	Change* (±10mv)
09:41	12.45	X												

Sample Collected? Yes Time 11:28 Total Pumped from Well? 0 Gal

NOTES / COMMENTS:

*Minimum pumping time 15 Mins. - Collect data every 3 mins once flow through cell is full or once every volume of the flow through cell based on flow rate, which ever is longest. Indicator Parameters Have Stabilized When 3 Consecutive Readings Are Within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for ORP; and ± 10% for Turbidity (when Turbidity is above 5 NTUs) or 3 readings less than 5.0 NTUs; ± 10% mg/l Dissolved Oxygen (when Dissolved Oxygen is above 0.5mg/l) or 3 readings less than 0.5 mg/l.

MPC 157575 TNS 101

Date: 09/19/2022, 4:36 PM

Name(s): Remi Malenfant

Site Name: & IFC

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
MW19-1	N/A	9.57	17.58
TOC	Well Dia. (in)	Screen Length (ft)	Well Material
442.48			
Latitude (decimal)		Longitude (decimal)	Weather
64.8141784		-147.7090186	

Analytical Parameters	Bottles to be filled
GRO	3 X 40 mL Amber VOAs ✓
PAH	2 X 40 mL Amber VOAs ✓
BTEX	3 X 40 mL Amber VOAs ✓
DRO	2 X 100 mL Amber Glass ✓

Type/Model Meter Used: _____
 Calibrated: (date) _____ (time) _____
 Cell Vol: _____
 Type/Model Pump Used: _____
 Pump Intake? _____ ft
 Above / Below Bottom / TOC

Time	Depth to Water (ft)	Flow Rate (ml/Min)	pH		Conductivity (ms/cm)		Turbidity (NTU)		Dissolved O2 (mg/l)		Temp. (Celsius)		Oxygen Reduction Potential (ORP) mv	
			Reading	Change* (±0.1)	Reading	Change* (±3%)	Reading	Change* (±10% or <5)	Reading	Change* (±10% or <0.5)	Reading	Change* (±3%)	Reading	Change* (±10mv)
15:54	9.57	X												

Sample Collected? No Time 16:36 Total Pumped from Well? 4 Gal

NOTES / COMMENTS:

*Minimum pumping time 15 Mins. - Collect data every 3 mins once flow through cell is full or once every volume of the flow through cell based on flow rate, which ever is longest. Indicator Parameters Have Stabilized When 3 Consecutive Readings Are Within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for ORP; and ± 10% for Turbidity (when Turbidity is above 5 NTUs) or 3 readings less than 5.0 NTUs; ± 10% mg/l Dissolved Oxygen (when Dissolved Oxygen is above 0.5mg/l) or 3 readings less than 0.5 mg/l.

MPC 157575 TNS 101

Date: 09/21/2022

Name(s): _____

Site Name: & IFC

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
MW19-2	0.52	9.52	18.02
TOC	Well Dia. (in)	Screen Length (ft)	Well Material
441.94	2.0		
Latitude (decimal)		Longitude (decimal)	Weather
64.8141914		-147.7091598	

Analytical Parameters	Bottles to be filled
PAH	2 X 40 mL Amber VOAs ✓
DRO	2 X 100 mL Amber Glass ✓
BTEX	3 X 40 mL Amber VOAs ✓
GRO	3 X 40 mL Amber VOAs ✓

Type/Model Meter Used: _____
 Calibrated: (date) _____ (time) _____
 Cell Vol: _____
 Type/Model Pump Used: _____
 Pump Intake? _____ ft
 Above / Below Bottom / TOC

Time	Depth to Water (ft)	Flow Rate (ml/Min)	pH		Conductivity (ms/cm)		Turbidity (NTU)		Dissolved O2 (mg/l)		Temp. (Celsius)		Oxygen Reduction Potential (ORP) mv	
			Reading	Change* (±0.1)	Reading	Change* (±3%)	Reading	Change* (±10% or <5)	Reading	Change* (±10% or <0.5)	Reading	Change* (±3%)	Reading	Change* (±10mv)
15:50	9.52	X												

Sample Collected? No Time _____ Total Pumped from Well? 0 Gal

NOTES / COMMENTS:
 - Compromised - Over half a foot of free products.

*Minimum pumping time 15 Mins. - Collect data every 3 mins once flow through cell is full or once every volume of the flow through cell based on flow rate, which ever is longest. Indicator Parameters Have Stabilized When 3 Consecutive Readings Are Within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for ORP; and ± 10% for Turbidity (when Turbidity is above 5 NTUs) or 3 readings less than 5.0 NTUs; ± 10% mg/l Dissolved Oxygen (when Dissolved Oxygen is above 0.5mg/l) or 3 readings less than 0.5 mg/l.

MPC 157575 TNS 101

Date: 09/20/2022, 11:27 AM

Name(s): Remi Malenfant

Site Name: & IFC

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
MW-3	0.0	6.56	12.29
TOC	Well Dia. (in)	Screen Length (ft)	Well Material
439.56	2.0		
Latitude (decimal)		Longitude (decimal)	Weather
64.8142219		-147.708779	

Analytical Parameters	Bottles to be filled
PAH	2 X 40 mL Amber VOAs ✓
DRO	2 X 100 mL Amber Glass ✓
GRO	3 X 40 mL Amber VOAs ✓
BTEX	3 X 40 mL Amber VOAs ✓

Type/Model Meter Used: _____
 Calibrated: (date) _____ (time) _____
 Cell Vol: _____
 Type/Model Pump Used: _____
 Pump Intake? _____ ft
 Above / Below Bottom / TOC

Time	Depth to Water (ft)	Flow Rate (ml/Min)	pH		Conductivity (ms/cm)		Turbidity (NTU)		Dissolved O2 (mg/l)		Temp. (Celsius)		Oxygen Reduction Potential (ORP) mv	
			Reading	Change* (±0.1)	Reading	Change* (±3%)	Reading	Change* (±10% or <5)	Reading	Change* (±10% or <0.5)	Reading	Change* (±3%)	Reading	Change* (±10mv)
15:30	6.565	X												

Sample Collected? Yes Time 11:27 Total Pumped from Well? 6 Gal

NOTES / COMMENTS:

*Minimum pumping time 15 Mins. - Collect data every 3 mins once flow through cell is full or once every volume of the flow through cell based on flow rate, which ever is longest. Indicator Parameters Have Stabilized When 3 Consecutive Readings Are Within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for ORP; and ± 10% for Turbidity (when Turbidity is above 5 NTUs) or 3 readings less than 5.0 NTUs; ± 10% mg/l Dissolved Oxygen (when Dissolved Oxygen is above 0.5mg/l) or 3 readings less than 0.5 mg/l.

MPC 157575 TNS 101

Date: 10/03/2022, 1:08 PM

Name(s): Remi Malenfant

Site Name: & IFC

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
MW-4	N/A	9.77	14.57
TOC	Well Dia. (in)	Screen Length (ft)	Well Material
442.75			
Latitude (decimal)		Longitude (decimal)	Weather

Analytical Parameters	Bottles to be filled
PAH	2 X 40 mL Amber VOAs ✓
GRO	3 X 40 mL Amber VOAs ✓
BTEX	3 X 40 mL Amber VOAs ✓
DRO	2 X 100 mL Amber Glass ✓

--

Type/Model Meter Used: _____
 Calibrated: (date) _____ (time) _____
 Cell Vol: _____
 Type/Model Pump Used: _____
 Pump Intake? _____ ft
 Above / Below Bottom / TOC

Time	Depth to Water (ft)	Flow Rate (ml/Min)	pH		Conductivity (ms/cm)		Turbidity (NTU)		Dissolved O2 (mg/l)		Temp. (Celsius)		Oxygen Reduction Potential (ORP) mv	
			Reading	Change* (±0.1)	Reading	Change* (±3%)	Reading	Change* (±10% or <5)	Reading	Change* (±10% or <0.5)	Reading	Change* (±3%)	Reading	Change* (±10mv)
14:17	9.77	X												

Sample Collected? No Time 13:08 Total Pumped from Well? 2.34 Gal

NOTES / COMMENTS:

*Minimum pumping time 15 Mins. - Collect data every 3 mins once flow through cell is full or once every volume of the flow through cell based on flow rate, which ever is longest. Indicator Parameters Have Stabilized When 3 Consecutive Readings Are Within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for ORP; and ± 10% for Turbidity (when Turbidity is above 5 NTUs) or 3 readings less than 5.0 NTUs; ± 10% mg/l Dissolved Oxygen (when Dissolved Oxygen is above 0.5mg/l) or 3 readings less than 0.5 mg/l.

MPC 157575 TNS 101

Date: 09/20/2022, 11:27 AM

Name(s): Remi Malenfant

Site Name: & IFC

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
MW-8	N/A	12.19	19.94
TOC	Well Dia. (in)	Screen Length (ft)	Well Material
445.27			
Latitude (decimal)		Longitude (decimal)	Weather

Analytical Parameters	Bottles to be filled
GRO	3 X 40 mL Amber VOAs ✓
PAH	2 X 40 mL Amber VOAs ✓
BTEX	3 X 40 mL Amber VOAs ✓
DRO	2 X 100 mL Amber Glass ✓

Type/Model Meter Used: _____
 Calibrated: (date) _____ (time) _____
 Cell Vol: _____
 Type/Model Pump Used: Bailer
 Pump Intake? None ft
 Above / ✓ Below Bottom / ✓ TOC

--

Time	Depth to Water (ft)	Flow Rate (ml/Min)	pH		Conductivity (ms/cm)		Turbidity (NTU)		Dissolved O2 (mg/l)		Temp. (Celsius)		Oxygen Reduction Potential (ORP) mv	
			Reading	Change* (±0.1)	Reading	Change* (±3%)	Reading	Change* (±10% or <5)	Reading	Change* (±10% or <0.5)	Reading	Change* (±3%)	Reading	Change* (±10mv)
12:13	12.19	X												

Sample Collected? Yes Time 11:27 Total Pumped from Well? 0 Gal

NOTES / COMMENTS:

*Minimum pumping time 15 Mins. - Collect data every 3 mins once flow through cell is full or once every volume of the flow through cell based on flow rate, which ever is longest. Indicator Parameters Have Stabilized When 3 Consecutive Readings Are Within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for ORP; and ± 10% for Turbidity (when Turbidity is above 5 NTUs) or 3 readings less than 5.0 NTUs; ± 10% mg/l Dissolved Oxygen (when Dissolved Oxygen is above 0.5mg/l) or 3 readings less than 0.5 mg/l.

MPC 157575 TNS 101

Date: 09/19/2022, 3:17 PM

Name(s): Remi Malenfant

Site Name: & IFC

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
MW-14	N/A	8.11	12.93
TOC	Well Dia. (in)	Screen Length (ft)	Well Material
443.45			
Latitude (decimal)	Longitude (decimal)	Weather	
64.8142923	-147.7090837		

Analytical Parameters	Bottles to be filled
BTEX	3 X 40 mL Amber VOAs ✓
DRO	2 X 100 mL Amber Glass ✓
GRO	3 X 40 mL Amber VOAs ✓
PAH	2 X 40 mL Amber VOAs ✓

Type/Model Meter Used: _____
 Calibrated: (date) _____ (time) _____
 Cell Vol: _____
 Type/Model Pump Used: Bailer
 Pump Intake? None ft
 Above / ✓ Below Bottom / ✓ TOC

Time	Depth to Water (ft)	Flow Rate (ml/Min)	pH		Conductivity (ms/cm)		Turbidity (NTU)		Dissolved O2 (mg/l)		Temp. (Celsius)		Oxygen Reduction Potential (ORP) mv	
			Reading	Change* (±0.1)	Reading	Change* (±3%)	Reading	Change* (±10% or <5)	Reading	Change* (±10% or <0.5)	Reading	Change* (±3%)	Reading	Change* (±10mv)
14:17	8.11	X												

Sample Collected? Yes Time 15:17 Total Pumped from Well? 0 Gal

NOTES / COMMENTS:
 - Amber, light odor and no sheen

*Minimum pumping time 15 Mins. - Collect data every 3 mins once flow through cell is full or once every volume of the flow through cell based on flow rate, which ever is longest. Indicator Parameters Have Stabilized When 3 Consecutive Readings Are Within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for ORP; and ± 10% for Turbidity (when Turbidity is above 5 NTUs) or 3 readings less than 5.0 NTUs; ± 10% mg/l Dissolved Oxygen (when Dissolved Oxygen is above 0.5mg/l) or 3 readings less than 0.5 mg/l.

MPC 157575 TNS 101

Date: 09/19/2022, 4:01 PM

Name(s): Remi Malenfant

Site Name: & IFC

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
MW-17	N/A	8.76	12.89
TOC	Well Dia. (in)	Screen Length (ft)	Well Material
441.73			
Latitude (decimal)	Longitude (decimal)	Weather	
64.8142108	-147.709485		

Analytical Parameters	Bottles to be filled
PAH	2 X 40 mL Amber VOAs ✓
GRO	3 X 40 mL Amber VOAs ✓
DRO	2 X 100 mL Amber Glass ✓
BTEX	3 X 40 mL Amber VOAs ✓

Type/Model Meter Used: _____
 Calibrated: (date) _____ (time) _____
 Cell Vol: _____
 Type/Model Pump Used: Bailer
 Pump Intake? None ft
 Above / ✓ Below Bottom / ✓ TOC

Time	Depth to Water (ft)	Flow Rate (ml/Min)	pH		Conductivity (ms/cm)		Turbidity (NTU)		Dissolved O2 (mg/l)		Temp. (Celsius)		Oxygen Reduction Potential (ORP) mv	
			Reading	Change* (±0.1)	Reading	Change* (±3%)	Reading	Change* (±10% or <5)	Reading	Change* (±10% or <0.5)	Reading	Change* (±3%)	Reading	Change* (±10mv)
15:40	8.76	 												

Sample Collected? Yes Time 16:01 Total Pumped from Well? 0 Gal

NOTES / COMMENTS:

*Minimum pumping time 15 Mins. - Collect data every 3 mins once flow through cell is full or once every volume of the flow through cell based on flow rate, which ever is longest. Indicator Parameters Have Stabilized When 3 Consecutive Readings Are Within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for ORP; and ± 10% for Turbidity (when Turbidity is above 5 NTUs) or 3 readings less than 5.0 NTUs; ± 10% mg/l Dissolved Oxygen (when Dissolved Oxygen is above 0.5mg/l) or 3 readings less than 0.5 mg/l.

MPC 157575 TNS 101

Date: 09/20/2022, 11:25 AM

Name(s): Remi Malenfant

Site Name: & IFC

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
MW-30	N/A	8.94	11.92
TOC	Well Dia. (in)	Screen Length (ft)	Well Material
441.74	2.0		
Latitude (decimal)	Longitude (decimal)	Weather	
64.8143235	-147.7099531		

Analytical Parameters	Bottles to be filled
BTEX	3 X 40 mL Amber VOAs ✓
DRO	2 X 100 mL Amber Glass ✓
GRO	3 X 40 mL Amber VOAs ✓
PAH	2 X 40 mL Amber VOAs ✓

Type/Model Meter Used: _____
 Calibrated: (date) _____ (time) _____
 Cell Vol: _____
 Type/Model Pump Used: Bailer
 Pump Intake? None ft
 Above / ✓ Below Bottom / ✓ TOC

Time	Depth to Water (ft)	Flow Rate (ml/Min)	pH		Conductivity (ms/cm)		Turbidity (NTU)		Dissolved O2 (mg/l)		Temp. (Celsius)		Oxygen Reduction Potential (ORP) mv	
			Reading	Change* (±0.1)	Reading	Change* (±3%)	Reading	Change* (±10% or <5)	Reading	Change* (±10% or <0.5)	Reading	Change* (±3%)	Reading	Change* (±10mv)
14:34	8.94													

Sample Collected? Yes Time 11:25 Total Pumped from Well? 3 Gal

NOTES / COMMENTS:
 - Light grey, no Sheen or odor

*Minimum pumping time 15 Mins. - Collect data every 3 mins once flow through cell is full or once every volume of the flow through cell based on flow rate, which ever is longest. Indicator Parameters Have Stabilized When 3 Consecutive Readings Are Within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for ORP; and ± 10% for Turbidity (when Turbidity is above 5 NTUs) or 3 readings less than 5.0 NTUs; ± 10% mg/l Dissolved Oxygen (when Dissolved Oxygen is above 0.5mg/l) or 3 readings less than 0.5 mg/l.

MPC 157575 TNS 101

Date: 09/19/2022, 10:28 AM

Name(s): Remi Malenfant

Site Name: & IFC

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
Sediment Tank - Effluent	N/A	5.73	9.84
TOC	Well Dia. (in)	Screen Length (ft)	Well Material
Latitude (decimal)		Longitude (decimal)	Weather

Analytical Parameters	Bottles to be filled
DRO	2 X 100 mL Amber Glass ✓
GRO	3 X 40 mL Amber VOAs ✓
BTEX	3 X 40 mL Amber VOAs ✓
Sodium	1 X 250 mL Poly ✓
PAH	2 X 40 mL Amber VOAs ✓

--	--

QA/QC: Duplicate #2

Type/Model Meter Used: _____

Calibrated: (date) _____ (time) _____

Cell Vol: _____

Type/Model Pump Used: Bailer

Pump Intake? None ft

Above / Below Bottom / TOC

Time	Depth to Water (ft)	Flow Rate (ml/Min)	pH		Conductivity (ms/cm)		Turbidity (NTU)		Dissolved O ₂ (mg/l)		Temp. (Celsius)		Oxygen Reduction Potential (ORP) mv	
			Reading	Change* (±0.1)	Reading	Change* (±3%)	Reading	Change* (±10% or <5)	Reading	Change* (±10% or <0.5)	Reading	Change* (±3%)	Reading	Change* (±10mv)
09:59	5.73													

Sample Collected? Yes Time 10:28 Total Pumped from Well? 8.04 Gal

NOTES / COMMENTS:

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*Minimum pumping time 15 Mins. - Collect data every 3 mins once flow through cell is full or once every volume of the flow through cell based on flow rate, which ever is longest. Indicator Parameters Have Stabilized When 3 Consecutive Readings Are Within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for ORP; and ± 10% for Turbidity (when Turbidity is above 5 NTUs) or 3 readings less than 5.0 NTUs; ± 10% mg/l Dissolved Oxygen (when Dissolved Oxygen is above 0.5mg/l) or 3 readings less than 0.5 mg/l.

MPC 157575 TNS 101

Date: 09/19/2022, 9:56 AM

Name(s): Remi Malenfant

Site Name: & IFC

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
WRW-2020 Influent	N/A	10.87	28.28
TOC	Well Dia. (in)	Screen Length (ft)	Well Material
443.48			
Latitude (decimal)		Longitude (decimal)	Weather

Analytical Parameters	Bottles to be filled
DRO	2 X 100 mL Amber Glass ✓
BTEX	3 X 40 mL Amber VOAs ✓
PAH	2 X 40 mL Amber VOAs ✓
GRO	3 X 40 mL Amber VOAs ✓

Type/Model Meter Used: YSI 556
 Calibrated: (date) _____ (time) _____
 Cell Vol: None
 Type/Model Pump Used: Bailer
 Pump Intake? None ft
 Above / ✓ Below Bottom / ✓ TOC

Time	Depth to Water (ft)	Flow Rate (ml/Min)	pH		Conductivity (ms/cm)		Turbidity (NTU)		Dissolved O2 (mg/l)		Temp. (Celsius)		Oxygen Reduction Potential (ORP) mv	
			Reading	Change* (±0.1)	Reading	Change* (±3%)	Reading	Change* (±10% or <5)	Reading	Change* (±10% or <0.5)	Reading	Change* (±3%)	Reading	Change* (±10mv)
09:50	10.87	 												

Sample Collected? Yes Time 09:56 Total Pumped from Well? 0 Gal

NOTES / COMMENTS:

*Minimum pumping time 15 Mins. - Collect data every 3 mins once flow through cell is full or once every volume of the flow through cell based on flow rate, which ever is longest. Indicator Parameters Have Stabilized When 3 Consecutive Readings Are Within: ± 0.1 for pH; ± 3% for Specific Conductivity and Temperature; ± 10 mv for ORP; and ± 10% for Turbidity (when Turbidity is above 5 NTUs) or 3 readings less than 5.0 NTUs; ± 10% mg/l Dissolved Oxygen (when Dissolved Oxygen is above 0.5mg/l) or 3 readings less than 0.5 mg/l.

MPC 157575 TNS 101
Date: 09/20/2022, 11:28 AM
Name(s): Remi Malenfant
Site Name: & IFC

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
CRW-2 - Influent		
Field Data		
Sampler Names: None	Sheen/Odor?:	
pH:	Specific Conductance:	
DO:	Temperature (C):	
ORP:	Purge Volume (gal):	
Notes:		

MPC 157575 TNS 101
Date: 09/19/2022, 4:36 PM
Name(s): Remi Malenfant
Site Name: & IFC

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
MW19-1	64.8141784	-147.7090186
Field Data		
Sampler Names: Geoff Moorhead		Sheen/Odor?: Y/y
pH:		Specific Conductance:
DO:		Temperature (C):
ORP:		Purge Volume (gal): 4
Notes: Light grey		

MPC 157575 TNS 101
Date: 09/21/2022
Name(s): _____

Site Name: & IFC

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
MW19-2	64.8141914	-147.7091598
Field Data		
Sampler Names:	Sheen/Odor?:	
pH:	Specific Conductance:	
DO:	Temperature (C):	
ORP:	Purge Volume (gal):	
Notes:		

MPC 157575 TNS 101
Date: 09/20/2022, 11:27 AM
Name(s): Remi Malenfant
Site Name: & IFC

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
MW-3	64.8142219	-147.708779
Field Data		
Sampler Names: Geoff Moorhead		Sheen/Odor?: Y/y
pH:		Specific Conductance:
DO:		Temperature (C):
ORP:		Purge Volume (gal): 6
Notes: Dark initially. Went to clear with black balls floating in it.		

MPC 157575 TNS 101

Date: 10/03/2022, 1:08 PM

Name(s): Remi Malenfant

Site Name: & IFC

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
MW-4		
Field Data		
Sampler Names:	Sheen/Odor?:	
pH:	Specific Conductance:	
DO:	Temperature (C):	
ORP:	Purge Volume (gal): 2.34	
Notes: Dark grey		

MPC 157575 TNS 101

Date: 09/20/2022, 11:27 AM

Name(s): Remi Malenfant

Site Name: & IFC

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
MW-8		
Field Data		
Sampler Names: Geoff	Sheen/Odor?: Sheen	
pH:	Specific Conductance:	
DO:	Temperature (C):	
ORP:	Purge Volume (gal):	
Notes:		

MPC 157575 TNS 101
Date: 09/19/2022, 3:17 PM
Name(s): Remi Malenfant
Site Name: & IFC

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
MW-14	64.8142923	-147.7090837
Field Data		
Sampler Names:	Sheen/Odor?:	
pH:	Specific Conductance:	
DO:	Temperature (C):	
ORP:	Purge Volume (gal): 2.4	
Notes:		

MPC 157575 TNS 101
Date: 09/19/2022, 4:01 PM
Name(s): Remi Malenfant
Site Name: & IFC

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
MW-17	64.8142108	-147.709485
Field Data		
Sampler Names: Geoff Moorhead		Sheen/Odor?: N/n
pH:		Specific Conductance:
DO:		Temperature (C):
ORP:		Purge Volume (gal): 0.5
Notes: Well dry after 2 bailers. Let recharge then sampled.		

MPC 157575 TNS 101
Date: 09/20/2022, 11:25 AM
Name(s): Remi Malenfant
Site Name: & IFC

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
MW-30	64.8143235	-147.7099531
Field Data		
Sampler Names: Geoff Moorhead		Sheen/Odor?:
pH:		Specific Conductance:
DO:		Temperature (C):
ORP:		Purge Volume (gal): 1.5
Notes:		

MPC 157575 TNS 101

Date: 09/19/2022, 10:28 AM

Name(s): Remi Malenfant

Site Name: & IFC

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
Sediment Tank - Effluent		
Field Data		
Sampler Names: Geoff	Sheen/Odor?:	
pH:	Specific Conductance:	
DO:	Temperature (C):	
ORP:	Purge Volume (gal):	
Notes:		

MPC 157575 TNS 101

Date: 09/19/2022, 9:56 AM

Name(s): Remi Malenfant

Site Name: & IFC

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
WRW-2020 Influent		
Field Data		
Sampler Names:	Sheen/Odor?:	
pH:	Specific Conductance:	
DO:	Temperature (C):	
ORP:	Purge Volume (gal):	
Notes:		

APPENDIX D

Tables of Historical Monitoring Data

Analytical Data Results Table

MPC 157575 TNS 101 & IFC
 Marathon Petroleum - Danny Monson
 3569 S Cushman St
 Fairbanks, Alaska 99701

	Well Screen Interval	Ground Water Elevation	124-TMB	135-TMB	Benzene	DRO	Ethylbenzene	GRO	Naphtthalene	Toluene	Xylenes
Unit	ft	ft	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
GW Human Health Cleanup			0.056	0.06	0.0,046		0.015	2.2	0.0,017	1.1	0.19
CRW-2											
09/19/2022	--	--	0.105	0.0305	0.000936	2.35	0.0335	0.602	0.00596	0.000641	0.155
CRW-2 - Influent											
09/24/2013	--	--	—	—	U (0.0005)	U (0.439)	—	U (0.05)	—	—	—
05/07/2014	--	--	—	—	0.0014	1.2	—	0.05	—	—	—
09/07/2017	FP	438.4	FP	FP	FP	FP	FP	FP	FP	FP	FP
09/07/2018	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
10/23/2019	FP	429.8	FP	FP	FP	FP	FP	FP	FP	FP	FP
10/22/2020	--	--	—	—	0.00739	1.51	—	0.385	—	—	—
Effluent											
09/19/2022	--	--	0.00796	0.00256	0.000169	1.51	0.00292	0.0712	U(0.000250)	U(0.00100)	0.0159
G-1											
05/01/2001	--	--	—	—	U	U	—	U	—	—	—
11/30/2001	--	--	—	—	U	U	—	U	—	—	—
04/24/2002	--	--	—	—	U	U	—	U	—	—	—
08/20/2002	--	--	—	—	U	U	—	U	—	—	—
08/04/2003	--	--	—	—	U	U	—	U	—	—	—
MW19-1											
06/26/2019	--	--	—	—	0.048	2.0 H	—	5.2	—	—	—
10/23/2019	--	--	—	—	0.085	42 H	—	8.6	—	—	—
09/19/2022	--	432.91	0.27	0.103	0.021	12.2	0.132	2.93	0.126	0.00481	0.627
MW19-2											
06/26/2019	--	--	—	—	0.074	5.0 H	—	7.4	—	—	—
MW-1											
11/04/1991	--	--	—	—	0.278	—	—	—	—	—	—
10/13/1998	--	--	—	—	0.149	47.8	—	10	—	—	—
MW-2											
11/04/1991	--	--	—	—	U	—	—	—	—	—	—
04/23/1992	--	--	—	—	U	—	—	—	—	—	—
07/16/1992	--	--	—	—	U	—	—	—	—	—	—
08/11/1992	--	--	—	—	U	—	—	—	—	—	—
10/07/1992	--	--	—	—	U	—	—	—	—	—	—
12/21/1992	--	--	—	—	U	—	—	—	—	—	—
03/09/1993	--	--	—	—	U	—	—	—	—	—	—
06/16/1993	--	--	—	—	U	—	—	—	—	—	—
09/07/1993	--	--	—	—	U	—	—	—	—	—	—
12/13/1993	--	--	—	—	U	—	—	—	—	—	—
03/31/1994	--	--	—	—	U	—	—	—	—	—	—

Analytical Data Results Table

MPC 157575 TNS 101 & IFC
 Marathon Petroleum - Danny Monson
 3569 S Cushman St
 Fairbanks, Alaska 99701

		Well Screen Interval	Ground Water Elevation	124-TMB	135-TMB	Benzene	DRO	Ethylbenzene	GRO	Naphthalene	Toluene	Xylenes
Unit	ft	ft	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
GW Human Health Cleanup			0.056	0.06	0.0,046		0.015	2.2	0.0,017	1.1	0.19	
09/23/1994	--	--	—	—	U	—	—	—	—	—	—	—
12/12/1994	--	--	—	—	U	—	—	—	—	—	—	—
03/12/1995	--	--	—	—	U	—	—	—	—	—	—	—
04/13/1995	--	--	—	—	U	—	—	—	—	—	—	—
07/19/1995	--	--	—	—	U	—	—	—	—	—	—	—
10/25/1995	--	--	—	—	U	U	—	—	—	—	—	—
05/22/1996	--	--	—	—	U	—	—	—	—	—	—	—
11/06/1996	--	--	—	—	U	—	—	—	—	—	—	—
03/19/1997	--	--	—	—	U	—	—	—	—	—	—	—
11/17/1997	--	--	—	—	U	—	—	U	—	—	—	—
04/29/1998	--	--	—	—	U	0.203	—	U	—	—	—	—
10/13/1998	--	--	—	—	U	0.278	—	U	—	—	—	—
07/27/2000	--	--	—	—	U	0.314	—	U	—	—	—	—
06/04/2001	--	--	—	—	U	U	—	U	—	—	—	—
05/13/2009	--	--	—	—	U (0.0005)	U (0.467)	—	U (0.05)	—	—	—	—
MW-3												
04/13/1995	<i>FP</i>	437.656	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>
10/25/1995	<i>FP</i>	437.396	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>
05/22/1996	<i>FP</i>	438.144	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>
03/19/1997	<i>FP</i>	439.52	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>
11/17/1997	<i>FP</i>	436.616	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>
04/29/1998	<i>FP</i>	438.99	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>
05/06/2014	--	--	—	—	U (0.0005)	1.1	—	0.072	—	—	—	—
09/07/2017	<i>FP</i>	439.47	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>
09/07/2018	--	438.34	—	—	0.0033	60	—	1.3	—	—	—	—
10/23/2019	--	439.33	—	—	0.0047	210	—	3.1	—	—	—	—
10/21/2020	--	439.26	—	—	0.00735	2.67	—	1.37	—	—	—	—
09/19/2022	<i>FP</i>	432.995	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>	<i>FP</i>
MW-4												
11/04/1991	--	440.94	—	—	U (0.0005)	—	—	—	—	—	—	—
01/28/1992	--	440.83	—	—	—	—	—	U	—	—	—	—
04/23/1992	--	441.0	—	—	—	—	U	—	—	—	—	—
07/16/1992	--	442.46	—	—	U (0.0005)	—	—	—	—	—	—	—
08/11/1992	--	442.62	—	—	—	—	—	0.308	—	—	—	—
09/10/1992	--	442.08	—	—	—	0.581	—	—	—	—	—	—
10/07/1992	--	441.43	—	—	U (0.0005)	—	—	—	—	—	—	—
12/21/1992	--	440.31	—	—	—	—	—	U (0.05)	—	—	—	—
03/09/1993	--	440.36	—	—	—	U (0.417)	—	—	—	—	—	—
09/23/1994	--	441.72	—	—	U (0.0005)	—	—	—	—	—	—	—
03/12/1995	--	439.98	—	—	—	—	—	U (0.05)	—	—	—	—

Analytical Data Results Table

MPC 157575 TNS 101 & IFC
 Marathon Petroleum - Danny Monson
 3569 S Cushman St
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	Well Screen Interval	Ground Water Elevation	124-TMB	135-TMB	Benzene	DRO	Ethylbenzene	GRO	Naphtthalene	Toluene	Xylenes
Unit	ft	ft	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
GW Human Health Cleanup			0.056	0.06	0.0,046		0.015	2.2	0.0,017	1.1	0.19
04/13/1995	--	440.47	—	—	—	U (0.455)	—	—	—	—	—
07/19/1995	--	442.15	—	—	U (0.0005)	—	—	—	—	—	—
10/25/1995	--	441.53	—	—	—	—	U (0.05)	—	—	—	—
05/22/1996	--	440.64	—	—	—	0.439	—	—	—	—	—
11/06/1996	--	440.93	—	—	U (0.0005)	—	—	—	—	—	—
03/19/1997	--	439.15	—	—	—	—	U (0.05)	—	—	—	—
11/17/1997	--	440.61	—	—	—	0.565	—	—	—	—	—
04/29/1998	--	438.37	—	—	U (0.0005)	—	—	—	—	—	—
10/13/1998	--	440.78	—	—	—	—	U (0.05)	—	—	—	—
11/05/1999	--	440.16	—	—	—	U (0.400)	—	—	—	—	—
06/04/2001	--	440.81	—	—	U (0.0005)	—	—	—	—	—	—
11/30/2001	--	440.56	—	—	—	—	U (0.05)	—	—	—	—
08/20/2002	--	442.67	—	—	—	U (0.41)	—	—	—	—	—
08/04/2003	--	442.57	—	—	U (0.001)	—	—	—	—	—	—
05/03/2004	--	441.52	—	—	—	—	U (0.05)	—	—	—	—
05/16/2006	--	440.29	—	—	—	U (0.21)	—	—	—	—	—
09/14/2006	--	441.37	—	—	U (0.0020)	—	—	—	—	—	—
05/14/2007	--	441.86	—	—	—	—	U (0.1)	—	—	—	—
06/04/2008	--	440.46	—	—	—	0.78	—	—	—	—	—
05/13/2009	--	441.46	—	—	U (0.00040)	—	—	—	—	—	—
06/15/2010	--	439.0	—	—	—	—	U (0.150)	—	—	—	—
05/26/2011	--	440.81	—	—	—	0.59	—	—	—	—	—
05/24/2012	--	438.69	—	—	U (0.00040)	—	—	—	—	—	—
08/12/2013	--	438.95	—	—	—	—	U (0.150)	—	—	—	—
05/06/2014	--	438.8	—	—	—	U (0.28)	—	—	—	—	—
05/26/2015	--	438.6	—	—	U (0.003)	—	—	—	—	—	—
05/12/2016	--	438.17	—	—	—	—	U (0.25)	—	—	—	—
09/07/2017	--	439.5	—	—	—	0.33 H	—	—	—	—	—
09/07/2018	--	440.61	—	—	U(0.001)	—	—	—	—	—	—
10/23/2019	--	441.53	—	—	—	—	0.595	—	—	—	—
10/21/2020	--	--	—	—	—	0.95	—	—	—	—	—
09/19/2022	--	432.98	U(0.00100)	U(0.00100)	U(0.00100)	U(0.840)	U(0.00100)	0.0433	U(0.000250)	0.0122	U(0.00300)
MW-5											
11/04/1991	--	--	—	—	U	—	—	—	—	—	—
01/28/1992	--	--	—	—	U	—	—	—	—	—	—
04/23/1992	--	--	—	—	U	—	—	—	—	—	—
07/16/1992	--	--	—	—	U	—	—	—	—	—	—
08/11/1992	--	--	—	—	U	—	—	—	—	—	—
09/10/1992	--	--	—	—	U	—	—	—	—	—	—
10/07/1992	--	--	—	—	U	—	—	—	—	—	—

Analytical Data Results Table

MPC 157575 TNS 101 & IFC
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 3569 S Cushman St
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	Well Screen Interval	Ground Water Elevation	124-TMB	135-TMB	Benzene	DRO	Ethylbenzene	GRO	Naphthalene	Toluene	Xylenes
Unit	ft	ft	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
GW Human Health Cleanup			0.056	0.06	0.0,046		0.015	2.2	0.0,017	1.1	0.19
12/21/1992	--	--	--	--	U	--	--	--	--	--	--
03/09/1993	--	--	--	--	U	--	--	--	--	--	--
06/16/1993	--	--	--	--	U	--	--	--	--	--	--
09/07/1993	--	--	--	--	U	--	--	--	--	--	--
12/13/1993	--	--	--	--	U	--	--	--	--	--	--
03/31/1994	--	--	--	--	U	--	--	--	--	--	--
09/23/1994	--	--	--	--	U	--	--	--	--	--	--
12/12/1994	--	--	--	--	U	--	--	--	--	--	--
03/12/1995	--	--	--	--	U	--	--	--	--	--	--
04/13/1995	--	--	--	--	U	--	--	--	--	--	--
07/19/1995	--	--	--	--	U	--	--	--	--	--	--
10/25/1995	--	--	--	--	U	--	--	--	--	--	--
05/22/1996	--	--	--	--	U	--	--	--	--	--	--
11/06/1996	--	--	--	--	U	--	--	--	--	--	--
03/19/1997	--	--	--	--	U	--	--	--	--	--	--
11/17/1997	--	--	--	--	U	--	U	--	--	--	--
04/29/1998	--	--	--	--	U	0.106	U	--	--	--	--
10/13/1998	--	--	--	--	U	0.129	U	--	--	--	--
11/04/1999	--	--	--	--	U	U	U	--	--	--	--
11/30/2001	--	--	--	--	U	U	U	--	--	--	--
08/04/2003	--	--	--	--	U	U	U	--	--	--	--
MW-6											
01/28/1992	--	--	--	--	U	--	--	--	--	--	--
04/23/1992	--	--	--	--	U	--	--	--	--	--	--
07/16/1992	--	--	--	--	U	--	--	--	--	--	--
08/11/1992	--	--	--	--	U	--	--	--	--	--	--
09/10/1992	--	--	--	--	U	--	--	--	--	--	--
10/07/1992	--	--	--	--	U	--	--	--	--	--	--
12/21/1992	--	--	--	--	U	--	--	--	--	--	--
03/09/1993	--	--	--	--	U	--	--	--	--	--	--
06/16/1993	--	--	--	--	U	--	--	--	--	--	--
09/07/1993	--	--	--	--	U	--	--	--	--	--	--
12/12/1994	--	--	--	--	U	--	--	--	--	--	--
10/25/1995	--	--	--	--	U	U	--	--	--	--	--
05/22/1996	--	--	--	--	U	--	--	--	--	--	--
11/06/1996	--	--	--	--	U	--	--	--	--	--	--
03/19/1997	--	--	--	--	U	--	--	--	--	--	--
11/17/1997	--	--	--	--	U	--	U	--	--	--	--
04/29/1998	--	--	--	--	U	0.119	U	--	--	--	--
10/13/1998	--	--	--	--	U	0.151	U	--	--	--	--

Analytical Data Results Table

MPC 157575 TNS 101 & IFC
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	Well Screen Interval	Ground Water Elevation	124-TMB	135-TMB	Benzene	DRO	Ethylbenzene	GRO	Naphtthalene	Toluene	Xylenes
Unit	ft	ft	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
GW Human Health Cleanup			0.056	0.06	0.0,046		0.015	2.2	0.0,017	1.1	0.19
07/27/2000	--	--	--	--	U	0.331	--	U	--	--	--
11/30/2001	--	--	--	--	U	1.61	--	U	--	--	--
MW-7											
01/28/1992	--	--	--	--	U	--	--	--	--	--	--
04/23/1992	--	--	--	--	U	--	--	--	--	--	--
07/16/1992	--	--	--	--	U	--	--	--	--	--	--
08/11/1992	--	--	--	--	U	--	--	--	--	--	--
09/10/1992	--	--	--	--	U	--	--	--	--	--	--
10/07/1992	--	--	--	--	U	--	--	--	--	--	--
12/21/1992	--	--	--	--	U	--	--	--	--	--	--
03/09/1993	--	--	--	--	U	--	--	--	--	--	--
06/16/1993	--	--	--	--	U	--	--	--	--	--	--
09/07/1993	--	--	--	--	U	--	--	--	--	--	--
12/13/1993	--	--	--	--	U	--	--	--	--	--	--
03/31/1994	--	--	--	--	U	--	--	--	--	--	--
09/23/1994	--	--	--	--	U	--	--	--	--	--	--
03/12/1995	--	--	--	--	U	--	--	--	--	--	--
04/13/1995	--	--	--	--	U	--	--	--	--	--	--
07/19/1995	--	--	--	--	U	--	--	--	--	--	--
10/25/1995	--	--	--	--	U	U	--	--	--	--	--
05/22/1996	--	--	--	--	U	--	--	--	--	--	--
11/06/1996	--	--	--	--	U	--	--	--	--	--	--
03/19/1997	--	--	--	--	U	--	--	--	--	--	--
11/17/1997	--	--	--	--	U	--	--	U	--	--	--
04/29/1998	--	--	--	--	0.00223	0.132	--	U	--	--	--
MW-8											
08/30/2004	--	--	--	--	0.00516	1.69	--	0.329	--	--	--
09/27/2005	--	440.21	--	--	U (0.0005)	U (0.4)	--	U (0.05)	--	--	--
05/16/2006	--	440.59	--	--	0.000695	4.12	--	0.0766	--	--	--
09/14/2006	--	441.52	--	--	0.00645	0.956	--	0.284	--	--	--
06/04/2008	FP	440.61	FP	FP	FP	FP	FP	FP	FP	FP	FP
05/13/2009	--	440.98	--	--	0.00238	12.6	--	0.74	--	--	--
06/15/2010	--	438.96	--	--	0.00467	2.45	--	1.39	--	--	--
05/26/2011	--	441.01	--	--	0.00188	13.1	--	1.1	--	--	--
05/24/2012	--	438.91	--	--	0.00134	1.88	--	0.524	--	--	--
05/07/2014	--	438.42	--	--	0.00067	43	--	2.2	--	--	--
05/26/2015	--	438.87	--	--	0.0025	65	--	2.8	--	--	--
05/12/2016	--	438.34	--	--	0.00087	12	--	0.86	--	--	--
09/07/2017	--	439.69	--	--	0.016	27	--	0.39	--	--	--
09/07/2018	--	440.79	--	--	0.00067	20	--	0.28	--	--	--

Analytical Data Results Table

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	Well Screen Interval	Ground Water Elevation	124-TMB	135-TMB	Benzene	DRO	Ethylbenzene	GRO	Naphtthalene	Toluene	Xylenes
Unit	ft	ft	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
GW Human Health Cleanup			0.056	0.06	0.0,046		0.015	2.2	0.0,017	1.1	0.19
10/23/2019	--	439.39	—	—	U (0.003)	12	—	0.45	—	—	—
10/21/2020	--	439.3	—	—	0.000695	8.97	—	0.126	—	—	—
09/19/2022	--	433.08	0.245	0.116	U(0.00500)	11.3	0.0269	1.5	0.0509	0.00407	0.456
MW-13											
11/04/1999	--	--	—	—	0.00468	1.26	—	0.096	—	—	—
07/27/2000	--	--	—	—	0.012	0.848	—	0.32	—	—	—
06/04/2001	--	--	—	—	0.00276	0.831	—	U	—	—	—
MW-14											
04/01/2005	--	439.39	—	—	0.0162	22	—	2.16	—	—	—
09/27/2005	--	439.31	—	—	0.0194	4.34	—	1.07	—	—	—
09/14/2006	--	--	—	—	0.00323	1.51	—	0.457	—	—	—
06/04/2008	--	440.57	—	—	0.0128	3.02	—	0.964	—	—	—
05/13/2009	--	440.88	—	—	0.0267	1.77	—	2.18	—	—	—
06/15/2010	--	439.05	—	—	0.0119	1.89	—	1.15	—	—	—
05/26/2011	--	440.92	—	—	0.0103	3.78	—	1.23	—	—	—
05/24/2012	--	438.79	—	—	0.00271	2.72	—	0.284	—	—	—
08/12/2013	--	439.18	—	—	0.0442	120	—	3.77	—	—	—
05/06/2014	--	436.53	—	—	0.027	67	—	12	—	—	—
05/26/2015	--	436.47	—	—	0.02	6.4	—	3.6	—	—	—
09/07/2017	--	439.6	—	—	0.05	14	—	6.5	—	—	—
09/07/2018	--	440.73	—	—	0.074	26	—	U (7.5)	—	—	—
10/23/2019	--	439.64	—	—	0.054	15 H	—	12	—	—	—
10/21/2020	--	439.21	—	—	0.0585	4.75	—	6.68	—	—	—
09/19/2022	--	435.34	0.565	0.174	0.0349	2.72	0.532	6.86	0.331	0.03	3.37
MW-16											
11/04/1999	--	--	—	—	U	1.83	—	2.4	—	—	—
06/04/2001	--	--	—	—	U	1.61	—	U	—	—	—
08/20/2002	--	--	—	—	0.0006	1.22	—	1.63	—	—	—
05/16/2006	--	--	—	—	U (0.0005)	1.06	—	U (0.050)	—	—	—
09/14/2006	--	--	—	—	U (0.0005)	0.908	—	0.237	—	—	—
05/14/2007	--	--	—	—	U (0.0005)	1.12	—	U (0.050)	—	—	—
06/04/2008	--	--	—	—	U (0.0005)	U (0.4)	—	U (0.050)	—	—	—
MW-17											
07/27/2000	FP	441.448	FP	FP	FP	FP	FP	FP	FP	FP	FP
08/04/2003	--	439.83	—	—	0.0016	4.5	—	0.535	—	—	—
05/03/2004	--	441.26	—	—	0.0823	65.2	—	1.14	—	—	—
04/01/2005	--	440.61	—	—	0.0148	118	—	5.37	—	—	—
09/27/2005	--	440.92	—	—	0.00422	6.53	—	0.204	—	—	—
05/16/2006	--	440.95	—	—	0.000652	51.2	—	0.633	—	—	—

Analytical Data Results Table

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	Well Screen Interval	Ground Water Elevation	124-TMB	135-TMB	Benzene	DRO	Ethylbenzene	GRO	Naphtthalene	Toluene	Xylenes
Unit	ft	ft	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
GW Human Health Cleanup			0.056	0.06	0.0,046		0.015	2.2	0.0,017	1.1	0.19
09/14/2006	--	441.46	—	—	0.00634	9.33	—	0.642	—	—	—
05/14/2007	--	439.79	—	—	0.00182	74.1	—	0.467	—	—	—
06/04/2008	--	440.54	—	—	0.00054	3.49	—	0.213	—	—	—
05/13/2009	--	439.92	—	—	U (0.0005)	1.11	—	U (0.05)	—	—	—
06/15/2010	--	438.82	—	—	0.00384	3.7	—	0.148	—	—	—
05/26/2011	--	441.19	—	—	U (0.0005)	0.963	—	U (0.05)	—	—	—
05/24/2012	--	438.13	—	—	U (0.0005)	1.05	—	0.122	—	—	—
08/12/2013	--	439.15	—	—	U (0.0005)	114	—	1.68	—	—	—
05/06/2014	--	436.33	—	—	U (0.0005)	28	—	1.2	—	—	—
05/26/2015	--	436.17	—	—	U (0.0010)	32	—	3.9	—	—	—
05/12/2016	--	437.12	—	—	U (0.00026)	74	—	3.3	—	—	—
09/07/2017	--	439.61	—	—	0.0059	47	—	2.4	—	—	—
09/07/2018	--	440.6	—	—	0.0064	24	—	2.9	—	—	—
10/23/2019	--	439.31	—	—	0.0077	14	—	0.38	—	—	—
10/21/2020	--	439.28	—	—	0.0732	17.7	—	3.2	—	—	—
09/19/2022	--	432.97	0.00163	0.000709	0.000136	3.4	0.000494	0.226	0.000355	0.0026	0.00327
MW-18											
11/04/1999	--	--	—	—	U	24.6	—	3.4	—	—	—
07/27/2000	--	--	—	—	U	6.06	—	U	—	—	—
06/04/2001	--	--	—	—	U	11.6	—	1.42	—	—	—
MW-19											
07/27/2000	--	--	—	—	0.044	1.14	—	U	—	—	—
06/04/2001	--	--	—	—	0.00372	1.05	—	0.271	—	—	—
MW-20											
07/27/2000	--	--	—	—	U	0.997	—	U	—	—	—
MW-21											
07/27/2000	--	--	—	—	0.028	1.55	—	U	—	—	—
MW-22											
07/27/2000	--	--	—	—	U	0.00779	—	U	—	—	—
MW-24											
11/30/2001	--	--	—	—	0.0142	0.714	—	0.23	—	—	—
04/24/2002	--	--	—	—	0.0144	0.686	—	0.213	—	—	—
08/20/2002	--	--	—	—	U	U	—	U	—	—	—
08/04/2003	--	--	—	—	0.0007	U	—	0.115	—	—	—
05/03/2004	--	--	—	—	0.0342	4.32	—	1.12	—	—	—
04/01/2005	--	--	—	—	0.0147	17.6	—	2	—	—	—
09/27/2005	--	--	—	—	U (0.0005)	1.29	—	U (0.05)	—	—	—
09/14/2006	--	--	—	—	0.0027	1.15	—	0.052	—	—	—

Analytical Data Results Table

MPC 157575 TNS 101 & IFC
 Marathon Petroleum - Danny Monson
 3569 S Cushman St
 Fairbanks, Alaska 99701

	Well Screen Interval	Ground Water Elevation	124-TMB	135-TMB	Benzene	DRO	Ethylbenzene	GRO	Naphthalene	Toluene	Xylenes
Unit	ft	ft	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
GW Human Health Cleanup			0.056	0.06	0.0,046		0.015	2.2	0.0,017	1.1	0.19
MW-25 11/30/2001	--	--	—	—	U	U	—	U	—	—	—
MW-26 04/24/2002	--	--	—	—	0.0024	1.42	—	0.0909	—	—	—
MW-27 11/30/2001	--	--	—	—	U	U	—	U	—	—	—
04/24/2002	--	--	—	—	U	U	—	U	—	—	—
08/20/2002	--	--	—	—	U	0.54	—	U	—	—	—
08/04/2003	--	--	—	—	U	0.589	—	U	—	—	—
MW-28 11/30/2001	--	--	—	—	0.0031	0.747	—	U	—	—	—
04/24/2002	--	--	—	—	U	0.57	—	U	—	—	—
08/20/2002	--	--	—	—	0.004	0.878	—	U	—	—	—
MW-29 10/16/2003	--	--	—	—	U	U	—	U	—	—	—
05/03/2004	--	--	—	—	U	U	—	U	—	—	—
09/27/2005	--	--	—	—	U (0.0005)	U (0.403)	—	U (0.05)	—	—	—
MW-30 10/16/2003	--	441.5	—	—	U	U	—	U	—	—	—
05/03/2004	--	440.31	—	—	U	U	—	U	—	—	—
09/19/2022	--	432.8	U(0.00100)	U(0.00100)	0.00167	U(0.840)	U(0.00100)	0.0289	U(0.000250)	U(0.00100)	U(0.00300)
Sediment Tank - Effluent 05/24/2012	--	--	—	—	0.00486	0.478	—	0.532	—	—	—
05/26/2015	--	--	—	—	0.0065	21	—	0.59	—	—	—
05/12/2016	--	--	—	—	0.005	U (0.43)	—	0.21	—	—	—
09/07/2017	--	--	—	—	U (0.00040)	0.74	—	U (0.150)	—	—	—
09/07/2018	--	--	—	—	U (0.00040)	0.28	—	U (0.150)	—	—	—
10/23/2019	--	--	—	—	U (0.003)	0.37	—	U (0.25)	—	—	—
10/22/2020	--	--	—	—	0.000701	0.988	—	0.0861	—	—	—
WRW-2020 09/19/2022	--	--	0.0715	0.022	0.00217	0.237	0.0397	0.563	0.0159	U(0.00100)	0.171
WRW-2020 Influent 07/16/2020	--	--	—	—	10.6	—	—	—	—	—	—
10/22/2020	--	--	—	—	0.00339	1.05	—	0.588	—	—	—

APPENDIX E

*Laboratory Analytical Report and
ADEC Laboratory Data Review
Checklist*

October 04, 2022

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

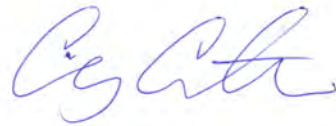
8 Al

9 Sc

Stantec - Anchorage, AK

Sample Delivery Group: L1537986
Samples Received: 09/21/2022
Project Number:
Description: Speedway 5313 TNS 101
Site: 0005313
Report To: Ms. Leslie Petre
725 E Fireweed Lane
Suite 200
Anchorage, AK 99503

Entire Report Reviewed By:



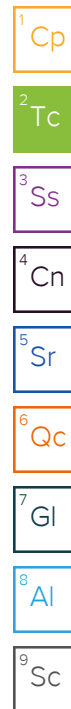
Craig Cothron
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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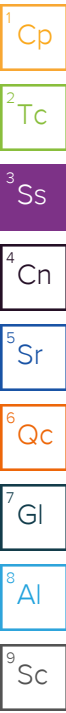


SAMPLE SUMMARY

MW-3 L1537986-01 GW

Collected by Geoff Moorhead Collected date/time 09/19/22 16:27 Received date/time 09/21/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1930639	1	09/22/22 19:02	09/22/22 19:02	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1933045	5	09/28/22 01:12	09/28/22 01:12	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1932059	1.05	10/02/22 09:45	10/03/22 07:38	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1930498	1	09/22/22 17:00	09/23/22 16:15	JRM	Mt. Juliet, TN



MW-4 L1537986-02 GW

Collected by Geoff Moorhead Collected date/time 09/19/22 14:30 Received date/time 09/21/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1930639	1	09/22/22 19:28	09/22/22 19:28	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1931982	1	09/25/22 00:27	09/25/22 00:27	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1932059	1.05	10/02/22 09:45	10/03/22 07:58	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1932775	1	09/27/22 05:55	09/28/22 00:56	AGW	Mt. Juliet, TN

MW-8 L1537986-03 GW

Collected by Geoff Moorhead Collected date/time 09/19/22 13:27 Received date/time 09/21/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1930639	1	09/22/22 19:55	09/22/22 19:55	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1933045	5	09/28/22 01:33	09/28/22 01:33	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1932059	1.05	10/02/22 09:45	10/03/22 08:18	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1932775	1	09/27/22 05:55	09/28/22 01:13	AGW	Mt. Juliet, TN

MW-14 L1537986-04 GW

Collected by Geoff Moorhead Collected date/time 09/19/22 15:17 Received date/time 09/21/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1930639	10	09/22/22 22:38	09/22/22 22:38	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1931982	1	09/25/22 00:46	09/25/22 00:46	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1933045	50	09/27/22 18:25	09/27/22 18:25	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1932059	1.05	10/02/22 09:45	10/03/22 08:39	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1930498	1	09/22/22 17:00	09/23/22 17:15	JRM	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1930498	50	09/22/22 17:00	09/29/22 06:28	JRM	Mt. Juliet, TN

MW-17 L1537986-05 GW

Collected by Geoff Moorhead Collected date/time 09/19/22 16:01 Received date/time 09/21/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1932679	1	09/27/22 05:20	09/27/22 05:20	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1931982	1	09/25/22 01:06	09/25/22 01:06	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1933045	1	09/27/22 18:47	09/27/22 18:47	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1932059	1.05	10/02/22 09:45	10/03/22 08:59	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1930498	1	09/22/22 17:00	09/23/22 17:35	JRM	Mt. Juliet, TN

MW-19-1 L1537986-06 GW

Collected by Geoff Moorhead Collected date/time 09/19/22 17:00 Received date/time 09/21/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1930639	10	09/22/22 23:30	09/22/22 23:30	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1933045	10	09/28/22 01:55	09/28/22 01:55	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1932059	1.05	10/02/22 09:45	10/03/22 09:19	DMG	Mt. Juliet, TN

SAMPLE SUMMARY

MW-19-1 L1537986-06 GW

Collected by Geoff Moorhead Collected date/time 09/19/22 17:00 Received date/time 09/21/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1931364	1	09/23/22 20:09	09/24/22 10:51	WAW	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1931364	5	09/23/22 20:09	09/29/22 00:43	JRM	Mt. Juliet, TN

CRW-2_AERATION TREATMENT TANK (INFLUENT) L1537986-07 GW

Collected by Geoff Moorhead Collected date/time 09/19/22 11:48 Received date/time 09/21/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1930639	1	09/22/22 20:22	09/22/22 20:22	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1931982	1	09/25/22 01:25	09/25/22 01:25	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1932059	1.05	10/02/22 09:45	10/03/22 21:56	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1931364	1	09/23/22 20:09	09/24/22 11:08	WAW	Mt. Juliet, TN

WRW-2020_AERATION TREATMENT TANK (INFLUE L1537986-08 GW

Collected by Geoff Moorhead Collected date/time 09/19/22 09:56 Received date/time 09/21/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1930639	1	09/22/22 20:48	09/22/22 20:48	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1931982	1	09/25/22 01:44	09/25/22 01:44	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1932059	1.05	10/02/22 09:45	10/03/22 10:00	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1931364	1	09/23/22 20:09	09/24/22 11:26	WAW	Mt. Juliet, TN

EFFLUENT L1537986-09 GW

Collected by Geoff Moorhead Collected date/time 09/19/22 10:28 Received date/time 09/21/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG1932219	1	10/01/22 06:56	10/01/22 17:55	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG1930639	1	09/22/22 21:18	09/22/22 21:18	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1931982	1	09/25/22 02:03	09/25/22 02:03	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1932059	1.05	10/02/22 09:45	10/03/22 10:20	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1931364	1	09/23/22 20:09	09/24/22 11:43	WAW	Mt. Juliet, TN

DUPLICATE 1 L1537986-10 GW

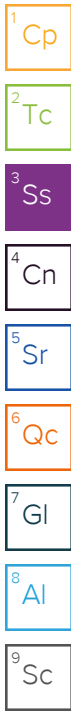
Collected by Geoff Moorhead Collected date/time 09/19/22 11:48 Received date/time 09/21/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1932679	1	09/27/22 05:55	09/27/22 05:55	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1931982	1	09/25/22 02:22	09/25/22 02:22	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1932059	1.05	10/02/22 09:45	10/03/22 10:40	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1931364	1	09/23/22 20:09	09/24/22 12:01	WAW	Mt. Juliet, TN

DUPLICATE 2 L1537986-11 GW

Collected by Geoff Moorhead Collected date/time 09/19/22 10:28 Received date/time 09/21/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG1932219	1	10/01/22 06:56	10/01/22 17:58	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG1930639	1	09/22/22 21:45	09/22/22 21:45	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1931982	1	09/25/22 02:41	09/25/22 02:41	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1932059	1.05	10/02/22 09:45	10/03/22 11:00	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1931364	1	09/23/22 20:09	09/24/22 12:18	WAW	Mt. Juliet, TN



SAMPLE SUMMARY

MW-30 L1537986-12 GW

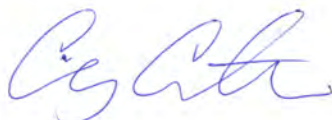
Collected by: Geoff Moorhead
 Collected date/time: 09/19/22 14:45
 Received date/time: 09/21/22 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1930639	1	09/22/22 22:11	09/22/22 22:11	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1931982	1	09/25/22 03:00	09/25/22 03:00	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1932059	1.05	10/02/22 09:45	10/03/22 11:21	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1931364	1	09/23/22 20:09	09/24/22 12:36	WAW	Mt. Juliet, TN

- 1
Cp
- 2
Tc
- 3
Ss
- 4
Cn
- 5
Sr
- 6
Qc
- 7
Gl
- 8
Al
- 9
Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Craig Cothron
Project Manager

Sample Delivery Group (SDG) Narrative

The following analysis were performed from an unpreserved, insufficiently or inadequately preserved sample.

<u>Lab Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
L1537986-01	MW-3	AK102
L1537986-02	MW-4	AK102
L1537986-03	MW-8	AK102
L1537986-04	MW-14	AK102
L1537986-05	MW-17	AK102
L1537986-06	MW-19-1	AK102
L1537986-07	CRW-2_AERATION TREATMENT TANK (INFLUENT)	AK102
L1537986-08	WRW-2020_AERATION TREATMENT TANK (INFLUE	AK102
L1537986-09	EFFLUENT	AK102
L1537986-10	DUPLICATE 1	AK102
L1537986-11	DUPLICATE 2	AK102
L1537986-12	MW-30	AK102

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
TPHGAK C6 to C10	1.87		0.0287	0.100	1	09/22/2022 19:02	WG1930639
(S)							
a,a,a-Trifluorotoluene(FID)	84.9			50.0-150		09/22/2022 19:02	WG1930639
(S)							
a,a,a-Trifluorotoluene(PID)	103			79.0-125		09/22/2022 19:02	WG1930639

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	0.00325	J	0.000471	0.00500	5	09/28/2022 01:12	WG1933045
n-Butylbenzene	0.00465	J	0.000785	0.00500	5	09/28/2022 01:12	WG1933045
sec-Butylbenzene	0.00523		0.000625	0.00500	5	09/28/2022 01:12	WG1933045
tert-Butylbenzene	0.000887	J	0.000635	0.00500	5	09/28/2022 01:12	WG1933045
Ethylbenzene	0.0430		0.000685	0.00500	5	09/28/2022 01:12	WG1933045
Isopropylbenzene	0.0109		0.000525	0.00500	5	09/28/2022 01:12	WG1933045
Naphthalene	0.0658	C3	0.00500	0.0250	5	09/28/2022 01:12	WG1933045
Toluene	0.0230		0.00139	0.00500	5	09/28/2022 01:12	WG1933045
1,2,4-Trimethylbenzene	0.168		0.00161	0.00500	5	09/28/2022 01:12	WG1933045
1,3,5-Trimethylbenzene	0.0826		0.000520	0.00500	5	09/28/2022 01:12	WG1933045
Total Xylenes	0.638		0.000870	0.0150	5	09/28/2022 01:12	WG1933045
(S) Toluene-d8	104			80.0-120		09/28/2022 01:12	WG1933045
(S) 4-Bromofluorobenzene	117			77.0-126		09/28/2022 01:12	WG1933045
(S) 1,2-Dichloroethane-d4	120			70.0-130		09/28/2022 01:12	WG1933045

Sample Narrative:

L1537986-01 WG1933045: Non-target and target compounds too high to run at a lower dilution.

Semi-Volatile Organic Compounds (GC) by Method AK102

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
AK102 DRO C10-C25	5.91		0.179	0.840	1.05	10/03/2022 07:38	WG1932059
(S) o-Terphenyl	57.7			50.0-150		10/03/2022 07:38	WG1932059

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Anthracene	U		0.0000190	0.0000500	1	09/23/2022 16:15	WG1930498
Acenaphthene	U		0.0000190	0.0000500	1	09/23/2022 16:15	WG1930498
Acenaphthylene	U		0.0000171	0.0000500	1	09/23/2022 16:15	WG1930498
Benzo(a)anthracene	U		0.0000203	0.0000500	1	09/23/2022 16:15	WG1930498
Benzo(a)pyrene	U		0.0000184	0.0000500	1	09/23/2022 16:15	WG1930498
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	09/23/2022 16:15	WG1930498
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	09/23/2022 16:15	WG1930498
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	09/23/2022 16:15	WG1930498
Chrysene	U		0.0000179	0.0000500	1	09/23/2022 16:15	WG1930498
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	09/23/2022 16:15	WG1930498
Fluoranthene	U		0.0000270	0.000100	1	09/23/2022 16:15	WG1930498
Fluorene	0.000849		0.0000169	0.0000500	1	09/23/2022 16:15	WG1930498
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	09/23/2022 16:15	WG1930498
Naphthalene	0.0358		0.0000917	0.000250	1	09/23/2022 16:15	WG1930498
Phenanthrene	0.000719		0.0000180	0.0000500	1	09/23/2022 16:15	WG1930498
Pyrene	U		0.0000169	0.0000500	1	09/23/2022 16:15	WG1930498
1-Methylnaphthalene	0.0259		0.0000687	0.000250	1	09/23/2022 16:15	WG1930498
2-Methylnaphthalene	0.0259		0.0000674	0.000250	1	09/23/2022 16:15	WG1930498
(S) Nitrobenzene-d5	50.5			31.0-160		09/23/2022 16:15	WG1930498

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
(S) 2-Fluorobiphenyl	56.0			48.0-148		09/23/2022 16:15	WG1930498
(S) p-Terphenyl-d14	24.8	J2		37.0-146		09/23/2022 16:15	WG1930498

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	0.0433	J	0.0287	0.100	1	09/22/2022 19:28	WG1930639
(S) a,a,a-Trifluorotoluene(FID)	87.9			50.0-150		09/22/2022 19:28	WG1930639
(S) a,a,a-Trifluorotoluene(PID)	103			79.0-125		09/22/2022 19:28	WG1930639

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.0000941	0.00100	1	09/25/2022 00:27	WG1931982
n-Butylbenzene	U	C3	0.000157	0.00100	1	09/25/2022 00:27	WG1931982
sec-Butylbenzene	U		0.000125	0.00100	1	09/25/2022 00:27	WG1931982
tert-Butylbenzene	U		0.000127	0.00100	1	09/25/2022 00:27	WG1931982
Ethylbenzene	U		0.000137	0.00100	1	09/25/2022 00:27	WG1931982
Isopropylbenzene	U		0.000105	0.00100	1	09/25/2022 00:27	WG1931982
Naphthalene	U	C3	0.00100	0.00500	1	09/25/2022 00:27	WG1931982
Toluene	0.0122		0.000278	0.00100	1	09/25/2022 00:27	WG1931982
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	09/25/2022 00:27	WG1931982
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	09/25/2022 00:27	WG1931982
Total Xylenes	U		0.000174	0.00300	1	09/25/2022 00:27	WG1931982
(S) Toluene-d8	110			80.0-120		09/25/2022 00:27	WG1931982
(S) 4-Bromofluorobenzene	97.9			77.0-126		09/25/2022 00:27	WG1931982
(S) 1,2-Dichloroethane-d4	111			70.0-130		09/25/2022 00:27	WG1931982

Semi-Volatile Organic Compounds (GC) by Method AK102

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		0.179	0.840	1.05	10/03/2022 07:58	WG1932059
(S) o-Terphenyl	36.5	J2		50.0-150		10/03/2022 07:58	WG1932059

Sample Narrative:

L1537986-02 WG1932059: Sample produced heavy emulsion during Extraction process, low surr/spike recoveries due to matrix

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	U	Q	0.0000190	0.0000500	1	09/28/2022 00:56	WG1932775
Acenaphthene	U	Q	0.0000190	0.0000500	1	09/28/2022 00:56	WG1932775
Acenaphthylene	U	Q	0.0000171	0.0000500	1	09/28/2022 00:56	WG1932775
Benzo(a)anthracene	U	Q	0.0000203	0.0000500	1	09/28/2022 00:56	WG1932775
Benzo(a)pyrene	U	Q	0.0000184	0.0000500	1	09/28/2022 00:56	WG1932775
Benzo(b)fluoranthene	U	Q	0.0000168	0.0000500	1	09/28/2022 00:56	WG1932775
Benzo(g,h,i)perylene	U	Q	0.0000184	0.0000500	1	09/28/2022 00:56	WG1932775
Benzo(k)fluoranthene	U	Q	0.0000202	0.0000500	1	09/28/2022 00:56	WG1932775
Chrysene	U	Q	0.0000179	0.0000500	1	09/28/2022 00:56	WG1932775
Dibenz(a,h)anthracene	U	Q	0.0000160	0.0000500	1	09/28/2022 00:56	WG1932775
Fluoranthene	U	Q	0.0000270	0.000100	1	09/28/2022 00:56	WG1932775
Fluorene	U	Q	0.0000169	0.0000500	1	09/28/2022 00:56	WG1932775
Indeno(1,2,3-cd)pyrene	U	Q	0.0000158	0.0000500	1	09/28/2022 00:56	WG1932775
Naphthalene	U	Q	0.0000917	0.000250	1	09/28/2022 00:56	WG1932775
Phenanthrene	U	Q	0.0000180	0.0000500	1	09/28/2022 00:56	WG1932775
Pyrene	U	Q	0.0000169	0.0000500	1	09/28/2022 00:56	WG1932775
1-Methylnaphthalene	U	Q	0.0000687	0.000250	1	09/28/2022 00:56	WG1932775
2-Methylnaphthalene	U	Q	0.0000674	0.000250	1	09/28/2022 00:56	WG1932775
(S) Nitrobenzene-d5	51.3			31.0-160		09/28/2022 00:56	WG1932775

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
(S) 2-Fluorobiphenyl	40.9	<u>J2</u>		48.0-148		09/28/2022 00:56	WG1932775
(S) p-Terphenyl-d14	27.2	<u>J2</u>		37.0-146		09/28/2022 00:56	WG1932775

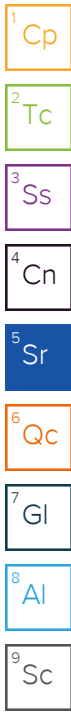
Sample Narrative:

L1537986-02 WG1932775: Sample produced emulsion during Extraction process, low surr/spike recoveries due to matrix.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
TPHGAK C6 to C10	1.50		0.0287	0.100	1	09/22/2022 19:55	WG1930639
(S) a,a,a-Trifluorotoluene(FID)	85.5			50.0-150		09/22/2022 19:55	WG1930639
(S) a,a,a-Trifluorotoluene(PID)	103			79.0-125		09/22/2022 19:55	WG1930639



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	U		0.000471	0.00500	5	09/28/2022 01:33	WG1933045
n-Butylbenzene	0.00709		0.000785	0.00500	5	09/28/2022 01:33	WG1933045
sec-Butylbenzene	0.00771		0.000625	0.00500	5	09/28/2022 01:33	WG1933045
tert-Butylbenzene	0.00142	J	0.000635	0.00500	5	09/28/2022 01:33	WG1933045
Ethylbenzene	0.0269		0.000685	0.00500	5	09/28/2022 01:33	WG1933045
Isopropylbenzene	0.0126		0.000525	0.00500	5	09/28/2022 01:33	WG1933045
Naphthalene	0.115	C3	0.00500	0.0250	5	09/28/2022 01:33	WG1933045
Toluene	0.00407	J	0.00139	0.00500	5	09/28/2022 01:33	WG1933045
1,2,4-Trimethylbenzene	0.245		0.00161	0.00500	5	09/28/2022 01:33	WG1933045
1,3,5-Trimethylbenzene	0.116		0.000520	0.00500	5	09/28/2022 01:33	WG1933045
Total Xylenes	0.456		0.000870	0.0150	5	09/28/2022 01:33	WG1933045
(S) Toluene-d8	104			80.0-120		09/28/2022 01:33	WG1933045
(S) 4-Bromofluorobenzene	111			77.0-126		09/28/2022 01:33	WG1933045
(S) 1,2-Dichloroethane-d4	122			70.0-130		09/28/2022 01:33	WG1933045

Sample Narrative:

L1537986-03 WG1933045: Non-target and target compounds too high to run at a lower dilution.

Semi-Volatile Organic Compounds (GC) by Method AK102

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
AK102 DRO C10-C25	11.3		0.179	0.840	1.05	10/03/2022 08:18	WG1932059
(S) o-Terphenyl	67.4			50.0-150		10/03/2022 08:18	WG1932059

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Anthracene	U	Q	0.0000190	0.0000500	1	09/28/2022 01:13	WG1932775
Acenaphthene	0.00151	Q	0.0000190	0.0000500	1	09/28/2022 01:13	WG1932775
Acenaphthylene	U	Q	0.0000171	0.0000500	1	09/28/2022 01:13	WG1932775
Benzo(a)anthracene	U	Q	0.0000203	0.0000500	1	09/28/2022 01:13	WG1932775
Benzo(a)pyrene	U	Q	0.0000184	0.0000500	1	09/28/2022 01:13	WG1932775
Benzo(b)fluoranthene	0.0000170	J Q	0.0000168	0.0000500	1	09/28/2022 01:13	WG1932775
Benzo(g,h,i)perylene	U	Q	0.0000184	0.0000500	1	09/28/2022 01:13	WG1932775
Benzo(k)fluoranthene	U	Q	0.0000202	0.0000500	1	09/28/2022 01:13	WG1932775
Chrysene	U	Q	0.0000179	0.0000500	1	09/28/2022 01:13	WG1932775
Dibenz(a,h)anthracene	U	Q	0.0000160	0.0000500	1	09/28/2022 01:13	WG1932775
Fluoranthene	0.0000347	J Q	0.0000270	0.000100	1	09/28/2022 01:13	WG1932775
Fluorene	0.00336	Q	0.0000169	0.0000500	1	09/28/2022 01:13	WG1932775
Indeno(1,2,3-cd)pyrene	U	Q	0.0000158	0.0000500	1	09/28/2022 01:13	WG1932775
Naphthalene	0.0509	Q	0.0000917	0.000250	1	09/28/2022 01:13	WG1932775
Phenanthrene	0.00220	Q	0.0000180	0.0000500	1	09/28/2022 01:13	WG1932775
Pyrene	0.0000307	J Q	0.0000169	0.0000500	1	09/28/2022 01:13	WG1932775
1-Methylnaphthalene	0.0554	Q	0.0000687	0.000250	1	09/28/2022 01:13	WG1932775
2-Methylnaphthalene	0.0390	Q	0.0000674	0.000250	1	09/28/2022 01:13	WG1932775
(S) Nitrobenzene-d5	41.5			31.0-160		09/28/2022 01:13	WG1932775

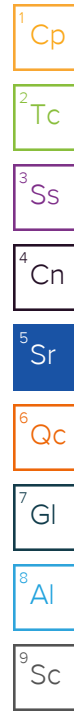
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
(S) 2-Fluorobiphenyl	90.5			48.0-148		09/28/2022 01:13	WG1932775
(S) p-Terphenyl-d14	72.6			37.0-146		09/28/2022 01:13	WG1932775

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
TPHGAK C6 to C10	6.86		0.287	1.00	10	09/22/2022 22:38	WG1930639
(S) a,a,a-Trifluorotoluene(FID)	87.5			50.0-150		09/22/2022 22:38	WG1930639
(S) a,a,a-Trifluorotoluene(PID)	103			79.0-125		09/22/2022 22:38	WG1930639



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	0.0349		0.0000941	0.00100	1	09/25/2022 00:46	WG1931982
n-Butylbenzene	0.0136	C3	0.000157	0.00100	1	09/25/2022 00:46	WG1931982
sec-Butylbenzene	0.0214		0.000125	0.00100	1	09/25/2022 00:46	WG1931982
tert-Butylbenzene	0.00231		0.000127	0.00100	1	09/25/2022 00:46	WG1931982
Ethylbenzene	0.532		0.00685	0.0500	50	09/27/2022 18:25	WG1933045
Isopropylbenzene	0.123		0.000105	0.00100	1	09/25/2022 00:46	WG1931982
Naphthalene	0.324	C3	0.0500	0.250	50	09/27/2022 18:25	WG1933045
Toluene	0.0300		0.000278	0.00100	1	09/25/2022 00:46	WG1931982
1,2,4-Trimethylbenzene	0.565		0.0161	0.0500	50	09/27/2022 18:25	WG1933045
1,3,5-Trimethylbenzene	0.174		0.00520	0.0500	50	09/27/2022 18:25	WG1933045
Total Xylenes	3.37		0.00870	0.150	50	09/27/2022 18:25	WG1933045
(S) Toluene-d8	108			80.0-120		09/25/2022 00:46	WG1931982
(S) Toluene-d8	103			80.0-120		09/27/2022 18:25	WG1933045
(S) 4-Bromofluorobenzene	104			77.0-126		09/25/2022 00:46	WG1931982
(S) 4-Bromofluorobenzene	109			77.0-126		09/27/2022 18:25	WG1933045
(S) 1,2-Dichloroethane-d4	108			70.0-130		09/25/2022 00:46	WG1931982
(S) 1,2-Dichloroethane-d4	121			70.0-130		09/27/2022 18:25	WG1933045

Semi-Volatile Organic Compounds (GC) by Method AK102

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
AK102 DRO C10-C25	2.72		0.179	0.840	1.05	10/03/2022 08:39	WG1932059
(S) o-Terphenyl	66.6			50.0-150		10/03/2022 08:39	WG1932059

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Anthracene	U		0.0000190	0.0000500	1	09/23/2022 17:15	WG1930498
Acenaphthene	U		0.0000190	0.0000500	1	09/23/2022 17:15	WG1930498
Acenaphthylene	U		0.0000171	0.0000500	1	09/23/2022 17:15	WG1930498
Benzo(a)anthracene	U		0.0000203	0.0000500	1	09/23/2022 17:15	WG1930498
Benzo(a)pyrene	U		0.0000184	0.0000500	1	09/23/2022 17:15	WG1930498
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	09/23/2022 17:15	WG1930498
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	09/23/2022 17:15	WG1930498
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	09/23/2022 17:15	WG1930498
Chrysene	U		0.0000179	0.0000500	1	09/23/2022 17:15	WG1930498
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	09/23/2022 17:15	WG1930498
Fluoranthene	0.0000273	J	0.0000270	0.000100	1	09/23/2022 17:15	WG1930498
Fluorene	0.000548		0.0000169	0.0000500	1	09/23/2022 17:15	WG1930498
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	09/23/2022 17:15	WG1930498
Naphthalene	0.331		0.00459	0.0125	50	09/29/2022 06:28	WG1930498
Phenanthrene	0.000180		0.0000180	0.0000500	1	09/23/2022 17:15	WG1930498
Pyrene	0.0000251	J	0.0000169	0.0000500	1	09/23/2022 17:15	WG1930498
1-Methylnaphthalene	0.0882		0.0000687	0.000250	1	09/23/2022 17:15	WG1930498
2-Methylnaphthalene	0.0966		0.0000674	0.000250	1	09/23/2022 17:15	WG1930498
(S) Nitrobenzene-d5	99.0	J7		31.0-160		09/29/2022 06:28	WG1930498

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Nitrobenzene-d5	88.5			31.0-160		09/23/2022 17:15	WG1930498
(S) 2-Fluorobiphenyl	65.0			48.0-148		09/23/2022 17:15	WG1930498
(S) 2-Fluorobiphenyl	71.5	J7		48.0-148		09/29/2022 06:28	WG1930498
(S) p-Terphenyl-d14	53.5	J7		37.0-146		09/29/2022 06:28	WG1930498
(S) p-Terphenyl-d14	63.5			37.0-146		09/23/2022 17:15	WG1930498

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
TPHGAK C6 to C10	0.226		0.0287	0.100	1	09/27/2022 05:20	WG1932679
(S)							
a,a,a-Trifluorotoluene(FID)	84.3			50.0-150		09/27/2022 05:20	WG1932679
(S)							
a,a,a-Trifluorotoluene(PID)	101			79.0-125		09/27/2022 05:20	WG1932679

1 Cp

2 Tc

3 Ss

4 Cn

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	0.000136	J	0.0000941	0.00100	1	09/25/2022 01:06	WG1931982
n-Butylbenzene	0.000578	C3 J	0.000157	0.00100	1	09/25/2022 01:06	WG1931982
sec-Butylbenzene	0.000569	J	0.000125	0.00100	1	09/25/2022 01:06	WG1931982
tert-Butylbenzene	U		0.000127	0.00100	1	09/25/2022 01:06	WG1931982
Ethylbenzene	0.000494	J	0.000137	0.00100	1	09/27/2022 18:47	WG1933045
Isopropylbenzene	0.000484	J	0.000105	0.00100	1	09/25/2022 01:06	WG1931982
Naphthalene	U	C3	0.00100	0.00500	1	09/27/2022 18:47	WG1933045
Toluene	0.00260		0.000278	0.00100	1	09/25/2022 01:06	WG1931982
1,2,4-Trimethylbenzene	0.00163		0.000322	0.00100	1	09/27/2022 18:47	WG1933045
1,3,5-Trimethylbenzene	0.000709	J	0.000104	0.00100	1	09/27/2022 18:47	WG1933045
Total Xylenes	0.00327		0.000174	0.00300	1	09/27/2022 18:47	WG1933045
(S) Toluene-d8	110			80.0-120		09/25/2022 01:06	WG1931982
(S) Toluene-d8	103			80.0-120		09/27/2022 18:47	WG1933045
(S) 4-Bromofluorobenzene	110			77.0-126		09/25/2022 01:06	WG1931982
(S) 4-Bromofluorobenzene	120			77.0-126		09/27/2022 18:47	WG1933045
(S) 1,2-Dichloroethane-d4	113			70.0-130		09/25/2022 01:06	WG1931982
(S) 1,2-Dichloroethane-d4	120			70.0-130		09/27/2022 18:47	WG1933045

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi-Volatile Organic Compounds (GC) by Method AK102

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
AK102 DRO C10-C25	3.40		0.179	0.840	1.05	10/03/2022 08:59	WG1932059
(S) o-Terphenyl	37.2	J2		50.0-150		10/03/2022 08:59	WG1932059

Sample Narrative:

L1537986-05 WG1932059: Sample produced heavy emulsion during Extraction process, low surr/spike recoveries due to matrix

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Anthracene	U		0.0000190	0.0000500	1	09/23/2022 17:35	WG1930498
Acenaphthene	U		0.0000190	0.0000500	1	09/23/2022 17:35	WG1930498
Acenaphthylene	U		0.0000171	0.0000500	1	09/23/2022 17:35	WG1930498
Benzo(a)anthracene	U		0.0000203	0.0000500	1	09/23/2022 17:35	WG1930498
Benzo(a)pyrene	U		0.0000184	0.0000500	1	09/23/2022 17:35	WG1930498
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	09/23/2022 17:35	WG1930498
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	09/23/2022 17:35	WG1930498
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	09/23/2022 17:35	WG1930498
Chrysene	U		0.0000179	0.0000500	1	09/23/2022 17:35	WG1930498
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	09/23/2022 17:35	WG1930498
Fluoranthene	U		0.0000270	0.000100	1	09/23/2022 17:35	WG1930498
Fluorene	0.000130		0.0000169	0.0000500	1	09/23/2022 17:35	WG1930498
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	09/23/2022 17:35	WG1930498
Naphthalene	0.000355		0.0000917	0.000250	1	09/23/2022 17:35	WG1930498
Phenanthrene	0.0000682		0.0000180	0.0000500	1	09/23/2022 17:35	WG1930498
Pyrene	U		0.0000169	0.0000500	1	09/23/2022 17:35	WG1930498

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
1-Methylnaphthalene	0.000519		0.0000687	0.000250	1	09/23/2022 17:35	WG1930498
2-Methylnaphthalene	0.000356		0.0000674	0.000250	1	09/23/2022 17:35	WG1930498
(S) Nitrobenzene-d5	0.000	J2		31.0-160		09/23/2022 17:35	WG1930498
(S) 2-Fluorobiphenyl	45.4	J2		48.0-148		09/23/2022 17:35	WG1930498
(S) p-Terphenyl-d14	35.8	J2		37.0-146		09/23/2022 17:35	WG1930498

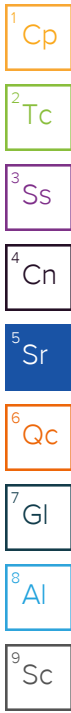
Sample Narrative:

L1537986-05 WG1930498: Sample produced emulsion during Extraction process, low surr/spike recoveries due to matrix.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
TPHGAK C6 to C10	2.93		0.287	1.00	10	09/22/2022 23:30	WG1930639
(S) a,a,a-Trifluorotoluene(FID)	87.2			50.0-150		09/22/2022 23:30	WG1930639
(S) a,a,a-Trifluorotoluene(PID)	102			79.0-125		09/22/2022 23:30	WG1930639



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	0.0210		0.000941	0.0100	10	09/28/2022 01:55	WG1933045
n-Butylbenzene	0.0116		0.00157	0.0100	10	09/28/2022 01:55	WG1933045
sec-Butylbenzene	0.0130		0.00125	0.0100	10	09/28/2022 01:55	WG1933045
tert-Butylbenzene	0.00181	J	0.00127	0.0100	10	09/28/2022 01:55	WG1933045
Ethylbenzene	0.132		0.00137	0.0100	10	09/28/2022 01:55	WG1933045
Isopropylbenzene	0.0353		0.00105	0.0100	10	09/28/2022 01:55	WG1933045
Naphthalene	0.153	C3	0.0100	0.0500	10	09/28/2022 01:55	WG1933045
Toluene	0.00481	J	0.00278	0.0100	10	09/28/2022 01:55	WG1933045
1,2,4-Trimethylbenzene	0.270		0.00322	0.0100	10	09/28/2022 01:55	WG1933045
1,3,5-Trimethylbenzene	0.103		0.00104	0.0100	10	09/28/2022 01:55	WG1933045
Total Xylenes	0.627		0.00174	0.0300	10	09/28/2022 01:55	WG1933045
(S) Toluene-d8	107			80.0-120		09/28/2022 01:55	WG1933045
(S) 4-Bromofluorobenzene	114			77.0-126		09/28/2022 01:55	WG1933045
(S) 1,2-Dichloroethane-d4	114			70.0-130		09/28/2022 01:55	WG1933045

Semi-Volatile Organic Compounds (GC) by Method AK102

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
AK102 DRO C10-C25	12.2		0.179	0.840	1.05	10/03/2022 09:19	WG1932059
(S) o-Terphenyl	73.6			50.0-150		10/03/2022 09:19	WG1932059

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Anthracene	U		0.0000190	0.0000500	1	09/24/2022 10:51	WG1931364
Acenaphthene	0.00171		0.0000190	0.0000500	1	09/24/2022 10:51	WG1931364
Acenaphthylene	U		0.0000171	0.0000500	1	09/24/2022 10:51	WG1931364
Benzo(a)anthracene	U		0.0000203	0.0000500	1	09/24/2022 10:51	WG1931364
Benzo(a)pyrene	U		0.0000184	0.0000500	1	09/24/2022 10:51	WG1931364
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	09/24/2022 10:51	WG1931364
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	09/24/2022 10:51	WG1931364
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	09/24/2022 10:51	WG1931364
Chrysene	U		0.0000179	0.0000500	1	09/24/2022 10:51	WG1931364
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	09/24/2022 10:51	WG1931364
Fluoranthene	U		0.0000270	0.000100	1	09/24/2022 10:51	WG1931364
Fluorene	0.00318		0.0000169	0.0000500	1	09/24/2022 10:51	WG1931364
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	09/24/2022 10:51	WG1931364
Naphthalene	0.126		0.000459	0.00125	5	09/29/2022 00:43	WG1931364
Phenanthrene	0.00214		0.0000180	0.0000500	1	09/24/2022 10:51	WG1931364
Pyrene	U		0.0000169	0.0000500	1	09/24/2022 10:51	WG1931364
1-Methylnaphthalene	0.100		0.000343	0.00125	5	09/29/2022 00:43	WG1931364
2-Methylnaphthalene	0.107		0.000337	0.00125	5	09/29/2022 00:43	WG1931364
(S) Nitrobenzene-d5	159			31.0-160		09/24/2022 10:51	WG1931364
(S) Nitrobenzene-d5	173	J1		31.0-160		09/29/2022 00:43	WG1931364
(S) 2-Fluorobiphenyl	71.5			48.0-148		09/29/2022 00:43	WG1931364
(S) 2-Fluorobiphenyl	79.0			48.0-148		09/24/2022 10:51	WG1931364

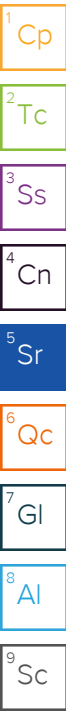
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	50.0			37.0-146		09/29/2022 00:43	WG1931364
(S) p-Terphenyl-d14	65.0			37.0-146		09/24/2022 10:51	WG1931364

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
TPHGAK C6 to C10	0.602		0.0287	0.100	1	09/22/2022 20:22	WG1930639
(S) a,a,a-Trifluorotoluene(FID)	84.8			50.0-150		09/22/2022 20:22	WG1930639
(S) a,a,a-Trifluorotoluene(PID)	102			79.0-125		09/22/2022 20:22	WG1930639



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	0.000935	J	0.0000941	0.00100	1	09/25/2022 01:25	WG1931982
n-Butylbenzene	0.00363	C3	0.000157	0.00100	1	09/25/2022 01:25	WG1931982
sec-Butylbenzene	0.00746		0.000125	0.00100	1	09/25/2022 01:25	WG1931982
tert-Butylbenzene	0.00102		0.000127	0.00100	1	09/25/2022 01:25	WG1931982
Ethylbenzene	0.0335		0.000137	0.00100	1	09/25/2022 01:25	WG1931982
Isopropylbenzene	0.0160		0.000105	0.00100	1	09/25/2022 01:25	WG1931982
Naphthalene	0.0213	C3	0.00100	0.00500	1	09/25/2022 01:25	WG1931982
Toluene	0.000641	J	0.000278	0.00100	1	09/25/2022 01:25	WG1931982
1,2,4-Trimethylbenzene	0.105		0.000322	0.00100	1	09/25/2022 01:25	WG1931982
1,3,5-Trimethylbenzene	0.0305		0.000104	0.00100	1	09/25/2022 01:25	WG1931982
Total Xylenes	0.155		0.000174	0.00300	1	09/25/2022 01:25	WG1931982
(S) Toluene-d8	114			80.0-120		09/25/2022 01:25	WG1931982
(S) 4-Bromofluorobenzene	104			77.0-126		09/25/2022 01:25	WG1931982
(S) 1,2-Dichloroethane-d4	111			70.0-130		09/25/2022 01:25	WG1931982

Semi-Volatile Organic Compounds (GC) by Method AK102

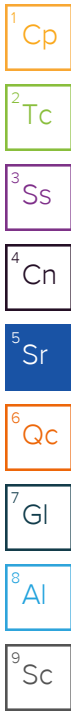
Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
AK102 DRO C10-C25	1.84		0.179	0.840	1.05	10/03/2022 21:56	WG1932059
(S) o-Terphenyl	78.8			50.0-150		10/03/2022 21:56	WG1932059

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Anthracene	U		0.0000190	0.0000500	1	09/24/2022 11:08	WG1931364
Acenaphthene	0.000685		0.0000190	0.0000500	1	09/24/2022 11:08	WG1931364
Acenaphthylene	U		0.0000171	0.0000500	1	09/24/2022 11:08	WG1931364
Benzo(a)anthracene	U		0.0000203	0.0000500	1	09/24/2022 11:08	WG1931364
Benzo(a)pyrene	U		0.0000184	0.0000500	1	09/24/2022 11:08	WG1931364
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	09/24/2022 11:08	WG1931364
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	09/24/2022 11:08	WG1931364
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	09/24/2022 11:08	WG1931364
Chrysene	U		0.0000179	0.0000500	1	09/24/2022 11:08	WG1931364
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	09/24/2022 11:08	WG1931364
Fluoranthene	U		0.0000270	0.000100	1	09/24/2022 11:08	WG1931364
Fluorene	0.00161		0.0000169	0.0000500	1	09/24/2022 11:08	WG1931364
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	09/24/2022 11:08	WG1931364
Naphthalene	0.00596		0.0000917	0.000250	1	09/24/2022 11:08	WG1931364
Phenanthrene	0.000598		0.0000180	0.0000500	1	09/24/2022 11:08	WG1931364
Pyrene	U		0.0000169	0.0000500	1	09/24/2022 11:08	WG1931364
1-Methylnaphthalene	0.0293		0.0000687	0.000250	1	09/24/2022 11:08	WG1931364
2-Methylnaphthalene	0.00588		0.0000674	0.000250	1	09/24/2022 11:08	WG1931364
(S) Nitrobenzene-d5	120			31.0-160		09/24/2022 11:08	WG1931364
(S) 2-Fluorobiphenyl	81.5			48.0-148		09/24/2022 11:08	WG1931364
(S) p-Terphenyl-d14	84.5			37.0-146		09/24/2022 11:08	WG1931364

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	0.563		0.0287	0.100	1	09/22/2022 20:48	WG1930639
(S) a,a,a-Trifluorotoluene(FID)	86.8			50.0-150		09/22/2022 20:48	WG1930639
(S) a,a,a-Trifluorotoluene(PID)	103			79.0-125		09/22/2022 20:48	WG1930639



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.00217		0.0000941	0.00100	1	09/25/2022 01:44	WG1931982
n-Butylbenzene	0.00415	C3	0.000157	0.00100	1	09/25/2022 01:44	WG1931982
sec-Butylbenzene	0.00912		0.000125	0.00100	1	09/25/2022 01:44	WG1931982
tert-Butylbenzene	0.00110		0.000127	0.00100	1	09/25/2022 01:44	WG1931982
Ethylbenzene	0.0397		0.000137	0.00100	1	09/25/2022 01:44	WG1931982
Isopropylbenzene	0.0153		0.000105	0.00100	1	09/25/2022 01:44	WG1931982
Naphthalene	0.0261	C3	0.00100	0.00500	1	09/25/2022 01:44	WG1931982
Toluene	U		0.000278	0.00100	1	09/25/2022 01:44	WG1931982
1,2,4-Trimethylbenzene	0.0715		0.000322	0.00100	1	09/25/2022 01:44	WG1931982
1,3,5-Trimethylbenzene	0.0220		0.000104	0.00100	1	09/25/2022 01:44	WG1931982
Total Xylenes	0.171		0.000174	0.00300	1	09/25/2022 01:44	WG1931982
(S) Toluene-d8	111			80.0-120		09/25/2022 01:44	WG1931982
(S) 4-Bromofluorobenzene	97.9			77.0-126		09/25/2022 01:44	WG1931982
(S) 1,2-Dichloroethane-d4	113			70.0-130		09/25/2022 01:44	WG1931982

Semi-Volatile Organic Compounds (GC) by Method AK102

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	0.237	J	0.179	0.840	1.05	10/03/2022 10:00	WG1932059
(S) o-Terphenyl	79.1			50.0-150		10/03/2022 10:00	WG1932059

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	U		0.0000190	0.0000500	1	09/24/2022 11:26	WG1931364
Acenaphthene	0.000374		0.0000190	0.0000500	1	09/24/2022 11:26	WG1931364
Acenaphthylene	U		0.0000171	0.0000500	1	09/24/2022 11:26	WG1931364
Benzo(a)anthracene	U		0.0000203	0.0000500	1	09/24/2022 11:26	WG1931364
Benzo(a)pyrene	U		0.0000184	0.0000500	1	09/24/2022 11:26	WG1931364
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	09/24/2022 11:26	WG1931364
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	09/24/2022 11:26	WG1931364
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	09/24/2022 11:26	WG1931364
Chrysene	U		0.0000179	0.0000500	1	09/24/2022 11:26	WG1931364
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	09/24/2022 11:26	WG1931364
Fluoranthene	U		0.0000270	0.000100	1	09/24/2022 11:26	WG1931364
Fluorene	0.000659		0.0000169	0.0000500	1	09/24/2022 11:26	WG1931364
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	09/24/2022 11:26	WG1931364
Naphthalene	0.0159		0.0000917	0.000250	1	09/24/2022 11:26	WG1931364
Phenanthrene	0.000110		0.0000180	0.0000500	1	09/24/2022 11:26	WG1931364
Pyrene	U		0.0000169	0.0000500	1	09/24/2022 11:26	WG1931364
1-Methylnaphthalene	0.0195		0.0000687	0.000250	1	09/24/2022 11:26	WG1931364
2-Methylnaphthalene	0.00832		0.0000674	0.000250	1	09/24/2022 11:26	WG1931364
(S) Nitrobenzene-d5	91.0			31.0-160		09/24/2022 11:26	WG1931364
(S) 2-Fluorobiphenyl	81.5			48.0-148		09/24/2022 11:26	WG1931364
(S) p-Terphenyl-d14	83.5			37.0-146		09/24/2022 11:26	WG1931364

EFFLUENT

Collected date/time: 09/19/22 10:28

SAMPLE RESULTS - 09

L1537986

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Sodium	15.4		0.504	3.00	1	10/01/2022 17:55	WG1932219

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
TPHGAK C6 to C10	0.0700	J	0.0287	0.100	1	09/22/2022 21:18	WG1930639
(S) a,a,a-Trifluorotoluene(FID)	84.7			50.0-150		09/22/2022 21:18	WG1930639
(S) a,a,a-Trifluorotoluene(PID)	104			79.0-125		09/22/2022 21:18	WG1930639

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	0.000169	J	0.0000941	0.00100	1	09/25/2022 02:03	WG1931982
n-Butylbenzene	0.000360	C3 J	0.000157	0.00100	1	09/25/2022 02:03	WG1931982
sec-Butylbenzene	0.000656	J	0.000125	0.00100	1	09/25/2022 02:03	WG1931982
tert-Butylbenzene	U		0.000127	0.00100	1	09/25/2022 02:03	WG1931982
Ethylbenzene	0.00292		0.000137	0.00100	1	09/25/2022 02:03	WG1931982
Isopropylbenzene	0.00110		0.000105	0.00100	1	09/25/2022 02:03	WG1931982
Naphthalene	0.00709	C3	0.00100	0.00500	1	09/25/2022 02:03	WG1931982
Toluene	U		0.000278	0.00100	1	09/25/2022 02:03	WG1931982
1,2,4-Trimethylbenzene	0.00796		0.000322	0.00100	1	09/25/2022 02:03	WG1931982
1,3,5-Trimethylbenzene	0.00256		0.000104	0.00100	1	09/25/2022 02:03	WG1931982
Total Xylenes	0.0159		0.000174	0.00300	1	09/25/2022 02:03	WG1931982
(S) Toluene-d8	112			80.0-120		09/25/2022 02:03	WG1931982
(S) 4-Bromofluorobenzene	101			77.0-126		09/25/2022 02:03	WG1931982
(S) 1,2-Dichloroethane-d4	113			70.0-130		09/25/2022 02:03	WG1931982

Semi-Volatile Organic Compounds (GC) by Method AK102

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
AK102 DRO C10-C25	1.51		0.179	0.840	1.05	10/03/2022 10:20	WG1932059
(S) o-Terphenyl	92.1			50.0-150		10/03/2022 10:20	WG1932059

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Anthracene	U		0.0000190	0.0000500	1	09/24/2022 11:43	WG1931364
Acenaphthene	U		0.0000190	0.0000500	1	09/24/2022 11:43	WG1931364
Acenaphthylene	U		0.0000171	0.0000500	1	09/24/2022 11:43	WG1931364
Benzo(a)anthracene	U		0.0000203	0.0000500	1	09/24/2022 11:43	WG1931364
Benzo(a)pyrene	U		0.0000184	0.0000500	1	09/24/2022 11:43	WG1931364
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	09/24/2022 11:43	WG1931364
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	09/24/2022 11:43	WG1931364
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	09/24/2022 11:43	WG1931364
Chrysene	U		0.0000179	0.0000500	1	09/24/2022 11:43	WG1931364
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	09/24/2022 11:43	WG1931364
Fluoranthene	U		0.0000270	0.000100	1	09/24/2022 11:43	WG1931364
Fluorene	U		0.0000169	0.0000500	1	09/24/2022 11:43	WG1931364
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	09/24/2022 11:43	WG1931364
Naphthalene	U		0.0000917	0.000250	1	09/24/2022 11:43	WG1931364
Phenanthrene	U		0.0000180	0.0000500	1	09/24/2022 11:43	WG1931364
Pyrene	U		0.0000169	0.0000500	1	09/24/2022 11:43	WG1931364
1-Methylnaphthalene	U		0.0000687	0.000250	1	09/24/2022 11:43	WG1931364

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

EFFLUENT

SAMPLE RESULTS - 09

Collected date/time: 09/19/22 10:28

L1537986

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
2-Methylnaphthalene	U		0.0000674	0.000250	1	09/24/2022 11:43	WG1931364
<i>(S)</i> Nitrobenzene-d5	91.5			31.0-160		09/24/2022 11:43	WG1931364
<i>(S)</i> 2-Fluorobiphenyl	76.5			48.0-148		09/24/2022 11:43	WG1931364
<i>(S)</i> p-Terphenyl-d14	83.0			37.0-146		09/24/2022 11:43	WG1931364

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

DUPLICATE 1

SAMPLE RESULTS - 10

Collected date/time: 09/19/22 11:48

L1537986

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
TPHGAK C6 to C10	0.592		0.0287	0.100	1	09/27/2022 05:55	WG1932679
(S) a,a,a-Trifluorotoluene(FID)	87.4			50.0-150		09/27/2022 05:55	WG1932679
(S) a,a,a-Trifluorotoluene(PID)	101			79.0-125		09/27/2022 05:55	WG1932679

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	0.000936	J	0.0000941	0.00100	1	09/25/2022 02:22	WG1931982
n-Butylbenzene	0.00331	C3	0.000157	0.00100	1	09/25/2022 02:22	WG1931982
sec-Butylbenzene	0.00737		0.000125	0.00100	1	09/25/2022 02:22	WG1931982
tert-Butylbenzene	0.00103		0.000127	0.00100	1	09/25/2022 02:22	WG1931982
Ethylbenzene	0.0330		0.000137	0.00100	1	09/25/2022 02:22	WG1931982
Isopropylbenzene	0.0156		0.000105	0.00100	1	09/25/2022 02:22	WG1931982
Naphthalene	0.0204	C3	0.00100	0.00500	1	09/25/2022 02:22	WG1931982
Toluene	0.000609	J	0.000278	0.00100	1	09/25/2022 02:22	WG1931982
1,2,4-Trimethylbenzene	0.104		0.000322	0.00100	1	09/25/2022 02:22	WG1931982
1,3,5-Trimethylbenzene	0.0302		0.000104	0.00100	1	09/25/2022 02:22	WG1931982
Total Xylenes	0.153		0.000174	0.00300	1	09/25/2022 02:22	WG1931982
(S) Toluene-d8	114			80.0-120		09/25/2022 02:22	WG1931982
(S) 4-Bromofluorobenzene	103			77.0-126		09/25/2022 02:22	WG1931982
(S) 1,2-Dichloroethane-d4	112			70.0-130		09/25/2022 02:22	WG1931982

Semi-Volatile Organic Compounds (GC) by Method AK102

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
AK102 DRO C10-C25	2.35		0.179	0.840	1.05	10/03/2022 10:40	WG1932059
(S) o-Terphenyl	76.1			50.0-150		10/03/2022 10:40	WG1932059

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Anthracene	U		0.0000190	0.0000500	1	09/24/2022 12:01	WG1931364
Acenaphthene	0.000662		0.0000190	0.0000500	1	09/24/2022 12:01	WG1931364
Acenaphthylene	U		0.0000171	0.0000500	1	09/24/2022 12:01	WG1931364
Benzo(a)anthracene	U		0.0000203	0.0000500	1	09/24/2022 12:01	WG1931364
Benzo(a)pyrene	U		0.0000184	0.0000500	1	09/24/2022 12:01	WG1931364
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	09/24/2022 12:01	WG1931364
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	09/24/2022 12:01	WG1931364
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	09/24/2022 12:01	WG1931364
Chrysene	U		0.0000179	0.0000500	1	09/24/2022 12:01	WG1931364
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	09/24/2022 12:01	WG1931364
Fluoranthene	U		0.0000270	0.000100	1	09/24/2022 12:01	WG1931364
Fluorene	0.00157		0.0000169	0.0000500	1	09/24/2022 12:01	WG1931364
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	09/24/2022 12:01	WG1931364
Naphthalene	0.00321		0.0000917	0.000250	1	09/24/2022 12:01	WG1931364
Phenanthrene	0.000592		0.0000180	0.0000500	1	09/24/2022 12:01	WG1931364
Pyrene	U		0.0000169	0.0000500	1	09/24/2022 12:01	WG1931364
1-Methylnaphthalene	0.0287		0.0000687	0.000250	1	09/24/2022 12:01	WG1931364
2-Methylnaphthalene	0.00306		0.0000674	0.000250	1	09/24/2022 12:01	WG1931364
(S) Nitrobenzene-d5	122			31.0-160		09/24/2022 12:01	WG1931364
(S) 2-Fluorobiphenyl	83.5			48.0-148		09/24/2022 12:01	WG1931364
(S) p-Terphenyl-d14	83.5			37.0-146		09/24/2022 12:01	WG1931364

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Sodium	15.3		0.504	3.00	1	10/01/2022 17:58	WG1932219

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
TPHGAK C6 to C10	0.0712	J	0.0287	0.100	1	09/22/2022 21:45	WG1930639
(S) a,a,a-Trifluorotoluene(FID)	87.7			50.0-150		09/22/2022 21:45	WG1930639
(S) a,a,a-Trifluorotoluene(PID)	104			79.0-125		09/22/2022 21:45	WG1930639

Volatile Organic Compounds (GC/MS) by Method 8260C

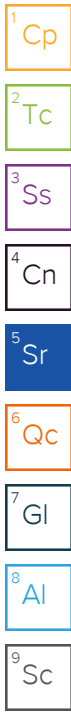
Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	0.000161	J	0.0000941	0.00100	1	09/25/2022 02:41	WG1931982
n-Butylbenzene	0.000351	C3 J	0.000157	0.00100	1	09/25/2022 02:41	WG1931982
sec-Butylbenzene	0.000654	J	0.000125	0.00100	1	09/25/2022 02:41	WG1931982
tert-Butylbenzene	U		0.000127	0.00100	1	09/25/2022 02:41	WG1931982
Ethylbenzene	0.00256		0.000137	0.00100	1	09/25/2022 02:41	WG1931982
Isopropylbenzene	0.000992	J	0.000105	0.00100	1	09/25/2022 02:41	WG1931982
Naphthalene	0.00657	C3	0.00100	0.00500	1	09/25/2022 02:41	WG1931982
Toluene	U		0.000278	0.00100	1	09/25/2022 02:41	WG1931982
1,2,4-Trimethylbenzene	0.00732		0.000322	0.00100	1	09/25/2022 02:41	WG1931982
1,3,5-Trimethylbenzene	0.00227		0.000104	0.00100	1	09/25/2022 02:41	WG1931982
Total Xylenes	0.0141		0.000174	0.00300	1	09/25/2022 02:41	WG1931982
(S) Toluene-d8	110			80.0-120		09/25/2022 02:41	WG1931982
(S) 4-Bromofluorobenzene	103			77.0-126		09/25/2022 02:41	WG1931982
(S) 1,2-Dichloroethane-d4	115			70.0-130		09/25/2022 02:41	WG1931982

Semi-Volatile Organic Compounds (GC) by Method AK102

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
AK102 DRO C10-C25	U		0.179	0.840	1.05	10/03/2022 11:00	WG1932059
(S) o-Terphenyl	62.1			50.0-150		10/03/2022 11:00	WG1932059

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Anthracene	U		0.0000190	0.0000500	1	09/24/2022 12:18	WG1931364
Acenaphthene	U		0.0000190	0.0000500	1	09/24/2022 12:18	WG1931364
Acenaphthylene	U		0.0000171	0.0000500	1	09/24/2022 12:18	WG1931364
Benzo(a)anthracene	U		0.0000203	0.0000500	1	09/24/2022 12:18	WG1931364
Benzo(a)pyrene	U		0.0000184	0.0000500	1	09/24/2022 12:18	WG1931364
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	09/24/2022 12:18	WG1931364
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	09/24/2022 12:18	WG1931364
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	09/24/2022 12:18	WG1931364
Chrysene	U		0.0000179	0.0000500	1	09/24/2022 12:18	WG1931364
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	09/24/2022 12:18	WG1931364
Fluoranthene	U		0.0000270	0.000100	1	09/24/2022 12:18	WG1931364
Fluorene	0.0000189	J	0.0000169	0.0000500	1	09/24/2022 12:18	WG1931364
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	09/24/2022 12:18	WG1931364
Naphthalene	U		0.0000917	0.000250	1	09/24/2022 12:18	WG1931364
Phenanthrene	U		0.0000180	0.0000500	1	09/24/2022 12:18	WG1931364
Pyrene	U		0.0000169	0.0000500	1	09/24/2022 12:18	WG1931364
1-Methylnaphthalene	U		0.0000687	0.000250	1	09/24/2022 12:18	WG1931364



DUPLICATE 2

SAMPLE RESULTS - 11

Collected date/time: 09/19/22 10:28

L1537986

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
2-Methylnaphthalene	U		0.0000674	0.000250	1	09/24/2022 12:18	WG1931364
(S) Nitrobenzene-d5	86.5			31.0-160		09/24/2022 12:18	WG1931364
(S) 2-Fluorobiphenyl	79.5			48.0-148		09/24/2022 12:18	WG1931364
(S) p-Terphenyl-d14	79.5			37.0-146		09/24/2022 12:18	WG1931364

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
TPHGAK C6 to C10	0.0289	J	0.0287	0.100	1	09/22/2022 22:11	WG1930639
(S)							
a,a,a-Trifluorotoluene(FID)	86.8			50.0-150		09/22/2022 22:11	WG1930639
(S)							
a,a,a-Trifluorotoluene(PID)	103			79.0-125		09/22/2022 22:11	WG1930639



Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	0.00167		0.0000941	0.00100	1	09/25/2022 03:00	WG1931982
n-Butylbenzene	U	C3	0.000157	0.00100	1	09/25/2022 03:00	WG1931982
sec-Butylbenzene	0.000647	J	0.000125	0.00100	1	09/25/2022 03:00	WG1931982
tert-Butylbenzene	0.000312	J	0.000127	0.00100	1	09/25/2022 03:00	WG1931982
Ethylbenzene	U		0.000137	0.00100	1	09/25/2022 03:00	WG1931982
Isopropylbenzene	0.00168		0.000105	0.00100	1	09/25/2022 03:00	WG1931982
Naphthalene	U	C3	0.00100	0.00500	1	09/25/2022 03:00	WG1931982
Toluene	U		0.000278	0.00100	1	09/25/2022 03:00	WG1931982
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	09/25/2022 03:00	WG1931982
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	09/25/2022 03:00	WG1931982
Total Xylenes	U		0.000174	0.00300	1	09/25/2022 03:00	WG1931982
(S) Toluene-d8	111			80.0-120		09/25/2022 03:00	WG1931982
(S) 4-Bromofluorobenzene	100			77.0-126		09/25/2022 03:00	WG1931982
(S) 1,2-Dichloroethane-d4	115			70.0-130		09/25/2022 03:00	WG1931982

Semi-Volatile Organic Compounds (GC) by Method AK102

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
AK102 DRO C10-C25	U		0.179	0.840	1.05	10/03/2022 11:21	WG1932059
(S) o-Terphenyl	11.8	J2		50.0-150		10/03/2022 11:21	WG1932059

Sample Narrative:

L1537986-12 WG1932059: Sample produced heavy emulsion during Extraction process, low surr/spike recoveries due to matrix

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Anthracene	U		0.0000190	0.0000500	1	09/24/2022 12:36	WG1931364
Acenaphthene	U		0.0000190	0.0000500	1	09/24/2022 12:36	WG1931364
Acenaphthylene	U		0.0000171	0.0000500	1	09/24/2022 12:36	WG1931364
Benzo(a)anthracene	U		0.0000203	0.0000500	1	09/24/2022 12:36	WG1931364
Benzo(a)pyrene	U		0.0000184	0.0000500	1	09/24/2022 12:36	WG1931364
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	09/24/2022 12:36	WG1931364
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	09/24/2022 12:36	WG1931364
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	09/24/2022 12:36	WG1931364
Chrysene	U		0.0000179	0.0000500	1	09/24/2022 12:36	WG1931364
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	09/24/2022 12:36	WG1931364
Fluoranthene	U		0.0000270	0.000100	1	09/24/2022 12:36	WG1931364
Fluorene	U		0.0000169	0.0000500	1	09/24/2022 12:36	WG1931364
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	09/24/2022 12:36	WG1931364
Naphthalene	U		0.0000917	0.000250	1	09/24/2022 12:36	WG1931364
Phenanthrene	U		0.0000180	0.0000500	1	09/24/2022 12:36	WG1931364
Pyrene	U		0.0000169	0.0000500	1	09/24/2022 12:36	WG1931364
1-Methylnaphthalene	U		0.0000687	0.000250	1	09/24/2022 12:36	WG1931364
2-Methylnaphthalene	U		0.0000674	0.000250	1	09/24/2022 12:36	WG1931364
(S) Nitrobenzene-d5	61.0			31.0-160		09/24/2022 12:36	WG1931364

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
(S) 2-Fluorobiphenyl	51.0			48.0-148		09/24/2022 12:36	WG1931364
(S) p-Terphenyl-d14	33.1	J2		37.0-146		09/24/2022 12:36	WG1931364

Sample Narrative:

L1537986-12 WG1931364: Surrogate failure due to matrix interference

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3843771-1 10/01/22 16:59

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Sodium	U		0.504	3.00

Laboratory Control Sample (LCS)

(LCS) R3843771-2 10/01/22 17:01

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sodium	10.0	10.1	101	80.0-120	

L1537926-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1537926-06 10/01/22 17:04 • (MS) R3843771-4 10/01/22 17:10 • (MSD) R3843771-5 10/01/22 17:13

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sodium	10.0	16.7	25.4	25.7	87.4	90.2	1	75.0-125			1.11	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3841443-2 09/22/22 18:14

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TPHGAK C6 to C10	U		0.0287	0.100
(S) a,a,a-Trifluorotoluene(FID)	83.3			60.0-120
(S) a,a,a-Trifluorotoluene(PID)	103			79.0-125

Laboratory Control Sample (LCS)

(LCS) R3841443-1 09/22/22 16:11

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPHGAK C6 to C10	5.00	4.11	82.2	60.0-120	
(S) a,a,a-Trifluorotoluene(FID)			95.2	60.0-120	
(S) a,a,a-Trifluorotoluene(PID)			116	79.0-125	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3842870-2 09/27/22 04:54

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TPHGAK C6 to C10	U		0.0287	0.100
(S) a,a,a-Trifluorotoluene(FID)	89.4			60.0-120
(S) a,a,a-Trifluorotoluene(PID)	102			79.0-125

Laboratory Control Sample (LCS)

(LCS) R3842870-1 09/27/22 03:45

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPHGAK C6 to C10	5.00	4.55	91.0	60.0-120	
(S) a,a,a-Trifluorotoluene(FID)			102	60.0-120	
(S) a,a,a-Trifluorotoluene(PID)			115	79.0-125	

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3841710-3 09/24/22 20:45

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
n-Butylbenzene	U		0.000157	0.00100
sec-Butylbenzene	U		0.000125	0.00100
tert-Butylbenzene	U		0.000127	0.00100
Ethylbenzene	U		0.000137	0.00100
Isopropylbenzene	U		0.000105	0.00100
Naphthalene	U		0.00100	0.00500
Toluene	U		0.000278	0.00100
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
Xylenes, Total	U		0.000174	0.00300
(S) Toluene-d8	114			80.0-120
(S) 4-Bromofluorobenzene	96.2			77.0-126
(S) 1,2-Dichloroethane-d4	112			70.0-130

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3841710-1 09/24/22 19:48 • (LCSD) R3841710-2 09/24/22 20:07

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.00500	0.00506	0.00511	101	102	70.0-123			0.983	20
n-Butylbenzene	0.00500	0.00382	0.00420	76.4	84.0	73.0-125			9.48	20
sec-Butylbenzene	0.00500	0.00487	0.00483	97.4	96.6	75.0-125			0.825	20
tert-Butylbenzene	0.00500	0.00502	0.00494	100	98.8	76.0-124			1.61	20
Ethylbenzene	0.00500	0.00473	0.00466	94.6	93.2	79.0-123			1.49	20
Isopropylbenzene	0.00500	0.00435	0.00443	87.0	88.6	76.0-127			1.82	20
Naphthalene	0.00500	0.00274	0.00313	54.8	62.6	54.0-135			13.3	20
Toluene	0.00500	0.00475	0.00475	95.0	95.0	79.0-120			0.000	20
1,2,4-Trimethylbenzene	0.00500	0.00475	0.00468	95.0	93.6	76.0-121			1.48	20
1,3,5-Trimethylbenzene	0.00500	0.00496	0.00493	99.2	98.6	76.0-122			0.607	20
Xylenes, Total	0.0150	0.0136	0.0140	90.7	93.3	79.0-123			2.90	20
(S) Toluene-d8				110	108	80.0-120				
(S) 4-Bromofluorobenzene				99.4	99.2	77.0-126				
(S) 1,2-Dichloroethane-d4				112	113	70.0-130				

Method Blank (MB)

(MB) R3842211-3 09/27/22 16:59

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
n-Butylbenzene	U		0.000157	0.00100
sec-Butylbenzene	U		0.000125	0.00100
tert-Butylbenzene	U		0.000127	0.00100
Ethylbenzene	U		0.000137	0.00100
Isopropylbenzene	U		0.000105	0.00100
Naphthalene	U		0.00100	0.00500
Toluene	U		0.000278	0.00100
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
Xylenes, Total	U		0.000174	0.00300
(S) Toluene-d8	111			80.0-120
(S) 4-Bromofluorobenzene	109			77.0-126
(S) 1,2-Dichloroethane-d4	116			70.0-130

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3842211-1 09/27/22 15:55 • (LCSD) R3842211-2 09/27/22 16:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.00500	0.00505	0.00501	101	100	70.0-123			0.795	20
n-Butylbenzene	0.00500	0.00438	0.00400	87.6	80.0	73.0-125			9.07	20
sec-Butylbenzene	0.00500	0.00458	0.00470	91.6	94.0	75.0-125			2.59	20
tert-Butylbenzene	0.00500	0.00461	0.00434	92.2	86.8	76.0-124			6.03	20
Ethylbenzene	0.00500	0.00502	0.00503	100	101	79.0-123			0.199	20
Isopropylbenzene	0.00500	0.00475	0.00491	95.0	98.2	76.0-127			3.31	20
Naphthalene	0.00500	0.00364	0.00349	72.8	69.8	54.0-135			4.21	20
Toluene	0.00500	0.00466	0.00477	93.2	95.4	79.0-120			2.33	20
1,2,4-Trimethylbenzene	0.00500	0.00471	0.00453	94.2	90.6	76.0-121			3.90	20
1,3,5-Trimethylbenzene	0.00500	0.00453	0.00467	90.6	93.4	76.0-122			3.04	20
Xylenes, Total	0.0150	0.0145	0.0144	96.7	96.0	79.0-123			0.692	20
(S) Toluene-d8				98.1	103	80.0-120				
(S) 4-Bromofluorobenzene				103	106	77.0-126				
(S) 1,2-Dichloroethane-d4				122	118	70.0-130				

Method Blank (MB)

(MB) R3844110-1 10/03/22 06:37

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
AK102 DRO C10-C25	U		0.170	0.800
<i>(S) o-Terphenyl</i>	75.5			60.0-120

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3844110-2 10/03/22 06:57 • (LCSD) R3844110-3 10/03/22 07:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
AK102 DRO C10-C25	6.00	5.27	5.42	87.8	90.3	75.0-125			2.81	20
<i>(S) o-Terphenyl</i>				79.5	81.4	60.0-120				

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3840783-3 09/23/22 09:37

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Anthracene	U		0.0000190	0.0000500
Acenaphthene	U		0.0000190	0.0000500
Acenaphthylene	U		0.0000171	0.0000500
Benzo(a)anthracene	U		0.0000203	0.0000500
Benzo(a)pyrene	U		0.0000184	0.0000500
Benzo(b)fluoranthene	U		0.0000168	0.0000500
Benzo(g,h,i)perylene	U		0.0000184	0.0000500
Benzo(k)fluoranthene	U		0.0000202	0.0000500
Chrysene	U		0.0000179	0.0000500
Dibenz(a,h)anthracene	U		0.0000160	0.0000500
Fluoranthene	U		0.0000270	0.000100
Fluorene	U		0.0000169	0.0000500
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500
Naphthalene	U		0.0000917	0.000250
Phenanthrene	U		0.0000180	0.0000500
Pyrene	U		0.0000169	0.0000500
1-Methylnaphthalene	U		0.0000687	0.000250
2-Methylnaphthalene	U		0.0000674	0.000250
<i>(S) Nitrobenzene-d5</i>	110			31.0-160
<i>(S) 2-Fluorobiphenyl</i>	91.0			48.0-148
<i>(S) p-Terphenyl-d14</i>	101			37.0-146

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3840783-1 09/23/22 08:57 • (LCSD) R3840783-2 09/23/22 09:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.00200	0.00178	0.00179	89.0	89.5	67.0-150			0.560	20
Acenaphthene	0.00200	0.00196	0.00199	98.0	99.5	65.0-138			1.52	20
Acenaphthylene	0.00200	0.00180	0.00182	90.0	91.0	66.0-140			1.10	20
Benzo(a)anthracene	0.00200	0.00173	0.00173	86.5	86.5	61.0-140			0.000	20
Benzo(a)pyrene	0.00200	0.00185	0.00182	92.5	91.0	60.0-143			1.63	20
Benzo(b)fluoranthene	0.00200	0.00194	0.00192	97.0	96.0	58.0-141			1.04	20
Benzo(g,h,i)perylene	0.00200	0.00187	0.00184	93.5	92.0	52.0-153			1.62	20
Benzo(k)fluoranthene	0.00200	0.00185	0.00182	92.5	91.0	58.0-148			1.63	20
Chrysene	0.00200	0.00191	0.00191	95.5	95.5	64.0-144			0.000	20
Dibenz(a,h)anthracene	0.00200	0.00182	0.00178	91.0	89.0	52.0-155			2.22	20
Fluoranthene	0.00200	0.00188	0.00187	94.0	93.5	69.0-153			0.533	20
Fluorene	0.00200	0.00195	0.00198	97.5	99.0	64.0-136			1.53	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3840783-1 09/23/22 08:57 • (LCSD) R3840783-2 09/23/22 09:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Indeno(1,2,3-cd)pyrene	0.00200	0.00183	0.00184	91.5	92.0	54.0-153			0.545	20
Naphthalene	0.00200	0.00186	0.00189	93.0	94.5	61.0-137			1.60	20
Phenanthrene	0.00200	0.00188	0.00188	94.0	94.0	62.0-137			0.000	20
Pyrene	0.00200	0.00193	0.00192	96.5	96.0	60.0-142			0.519	20
1-Methylnaphthalene	0.00200	0.00178	0.00183	89.0	91.5	66.0-142			2.77	20
2-Methylnaphthalene	0.00200	0.00184	0.00187	92.0	93.5	62.0-136			1.62	20
<i>(S) Nitrobenzene-d5</i>				112	114	31.0-160				
<i>(S) 2-Fluorobiphenyl</i>				84.5	91.0	48.0-148				
<i>(S) p-Terphenyl-d14</i>				99.5	101	37.0-146				

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3841433-2 09/24/22 10:34

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Anthracene	U		0.0000190	0.0000500
Acenaphthene	U		0.0000190	0.0000500
Acenaphthylene	U		0.0000171	0.0000500
Benzo(a)anthracene	U		0.0000203	0.0000500
Benzo(a)pyrene	U		0.0000184	0.0000500
Benzo(b)fluoranthene	U		0.0000168	0.0000500
Benzo(g,h,i)perylene	U		0.0000184	0.0000500
Benzo(k)fluoranthene	U		0.0000202	0.0000500
Chrysene	U		0.0000179	0.0000500
Dibenz(a,h)anthracene	U		0.0000160	0.0000500
Fluoranthene	U		0.0000270	0.000100
Fluorene	U		0.0000169	0.0000500
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500
Naphthalene	U		0.0000917	0.000250
Phenanthrene	U		0.0000180	0.0000500
Pyrene	U		0.0000169	0.0000500
1-Methylnaphthalene	U		0.0000687	0.000250
2-Methylnaphthalene	U		0.0000674	0.000250
<i>(S) Nitrobenzene-d5</i>	96.0			31.0-160
<i>(S) 2-Fluorobiphenyl</i>	88.0			48.0-148
<i>(S) p-Terphenyl-d14</i>	86.0			37.0-146

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R3841433-1 09/24/22 10:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.00200	0.00200	100	67.0-150	
Acenaphthene	0.00200	0.00197	98.5	65.0-138	
Acenaphthylene	0.00200	0.00198	99.0	66.0-140	
Benzo(a)anthracene	0.00200	0.00199	99.5	61.0-140	
Benzo(a)pyrene	0.00200	0.00196	98.0	60.0-143	
Benzo(b)fluoranthene	0.00200	0.00172	86.0	58.0-141	
Benzo(g,h,i)perylene	0.00200	0.00167	83.5	52.0-153	
Benzo(k)fluoranthene	0.00200	0.00173	86.5	58.0-148	
Chrysene	0.00200	0.00194	97.0	64.0-144	
Dibenz(a,h)anthracene	0.00200	0.00170	85.0	52.0-155	
Fluoranthene	0.00200	0.00204	102	69.0-153	
Fluorene	0.00200	0.00204	102	64.0-136	

Laboratory Control Sample (LCS)

(LCS) R3841433-1 09/24/22 10:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Indeno(1,2,3-cd)pyrene	0.00200	0.00184	92.0	54.0-153	
Naphthalene	0.00200	0.00182	91.0	61.0-137	
Phenanthrene	0.00200	0.00193	96.5	62.0-137	
Pyrene	0.00200	0.00197	98.5	60.0-142	
1-Methylnaphthalene	0.00200	0.00187	93.5	66.0-142	
2-Methylnaphthalene	0.00200	0.00192	96.0	62.0-136	
(S) Nitrobenzene-d5			100	31.0-160	
(S) 2-Fluorobiphenyl			93.0	48.0-148	
(S) p-Terphenyl-d14			91.0	37.0-146	

L1538673-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1538673-05 09/24/22 14:20 • (MS) R3841433-3 09/24/22 14:38 • (MSD) R3841433-4 09/24/22 14:55

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.00200	0.0000707	0.00206	0.00195	99.5	94.0	1	56.0-156			5.49	20
Acenaphthene	0.00200	0.000182	0.00214	0.00209	97.9	95.4	1	44.0-153			2.36	20
Acenaphthylene	0.00200	U	0.00193	0.00185	96.5	92.5	1	53.0-150			4.23	20
Benzo(a)anthracene	0.00200	U	0.00202	0.00191	101	95.5	1	47.0-151			5.60	20
Benzo(a)pyrene	0.00200	U	0.00203	0.00190	102	95.0	1	45.0-146			6.62	20
Benzo(b)fluoranthene	0.00200	U	0.00186	0.00175	93.0	87.5	1	43.0-142			6.09	20
Benzo(g,h,i)perylene	0.00200	U	0.00175	0.00165	87.5	82.5	1	40.0-147			5.88	20
Benzo(k)fluoranthene	0.00200	U	0.00184	0.00173	92.0	86.5	1	43.0-148			6.16	21
Chrysene	0.00200	U	0.00197	0.00187	98.5	93.5	1	50.0-148			5.21	20
Dibenz(a,h)anthracene	0.00200	U	0.00179	0.00168	89.5	84.0	1	37.0-151			6.34	20
Fluoranthene	0.00200	U	0.00210	0.00196	105	98.0	1	56.0-157			6.90	20
Fluorene	0.00200	U	0.00208	0.00197	104	98.5	1	48.0-148			5.43	20
Indeno(1,2,3-cd)pyrene	0.00200	U	0.00192	0.00181	96.0	90.5	1	41.0-148			5.90	20
Naphthalene	0.00200	0.000138	0.00192	0.00186	89.1	86.1	1	10.0-160			3.17	20
Phenanthrene	0.00200	U	0.00191	0.00180	95.5	90.0	1	47.0-147			5.93	20
Pyrene	0.00200	U	0.00203	0.00192	102	96.0	1	51.0-148			5.57	20
1-Methylnaphthalene	0.00200	U	0.00191	0.00184	95.5	92.0	1	21.0-160			3.73	20
2-Methylnaphthalene	0.00200	U	0.00192	0.00187	96.0	93.5	1	31.0-160			2.64	20
(S) Nitrobenzene-d5					94.5	88.0		31.0-160				
(S) 2-Fluorobiphenyl					87.0	83.0		48.0-148				
(S) p-Terphenyl-d14					92.5	87.0		37.0-146				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3842373-3 09/28/22 00:38

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Anthracene	U		0.0000190	0.0000500
Acenaphthene	U		0.0000190	0.0000500
Acenaphthylene	U		0.0000171	0.0000500
Benzo(a)anthracene	U		0.0000203	0.0000500
Benzo(a)pyrene	U		0.0000184	0.0000500
Benzo(b)fluoranthene	U		0.0000168	0.0000500
Benzo(g,h,i)perylene	U		0.0000184	0.0000500
Benzo(k)fluoranthene	U		0.0000202	0.0000500
Chrysene	U		0.0000179	0.0000500
Dibenz(a,h)anthracene	U		0.0000160	0.0000500
Fluoranthene	U		0.0000270	0.000100
Fluorene	U		0.0000169	0.0000500
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500
Naphthalene	U		0.0000917	0.000250
Phenanthrene	U		0.0000180	0.0000500
Pyrene	U		0.0000169	0.0000500
1-Methylnaphthalene	U		0.0000687	0.000250
2-Methylnaphthalene	U		0.0000674	0.000250
(S) Nitrobenzene-d5	113			31.0-160
(S) 2-Fluorobiphenyl	107			48.0-148
(S) p-Terphenyl-d14	99.0			37.0-146

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3842373-1 09/28/22 00:04 • (LCSD) R3842373-2 09/28/22 00:21

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.00200	0.00216	0.00217	108	108	67.0-150			0.462	20
Acenaphthene	0.00200	0.00218	0.00216	109	108	65.0-138			0.922	20
Acenaphthylene	0.00200	0.00212	0.00212	106	106	66.0-140			0.000	20
Benzo(a)anthracene	0.00200	0.00217	0.00216	108	108	61.0-140			0.462	20
Benzo(a)pyrene	0.00200	0.00220	0.00217	110	108	60.0-143			1.37	20
Benzo(b)fluoranthene	0.00200	0.00194	0.00195	97.0	97.5	58.0-141			0.514	20
Benzo(g,h,i)perylene	0.00200	0.00194	0.00194	97.0	97.0	52.0-153			0.000	20
Benzo(k)fluoranthene	0.00200	0.00194	0.00194	97.0	97.0	58.0-148			0.000	20
Chrysene	0.00200	0.00214	0.00215	107	107	64.0-144			0.466	20
Dibenz(a,h)anthracene	0.00200	0.00197	0.00196	98.5	98.0	52.0-155			0.509	20
Fluoranthene	0.00200	0.00224	0.00225	112	112	69.0-153			0.445	20
Fluorene	0.00200	0.00218	0.00217	109	108	64.0-136			0.460	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3842373-1 09/28/22 00:04 • (LCSD) R3842373-2 09/28/22 00:21

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Indeno(1,2,3-cd)pyrene	0.00200	0.00219	0.00213	109	106	54.0-153			2.78	20
Naphthalene	0.00200	0.00207	0.00205	104	103	61.0-137			0.971	20
Phenanthrene	0.00200	0.00209	0.00211	104	105	62.0-137			0.952	20
Pyrene	0.00200	0.00201	0.00203	100	102	60.0-142			0.990	20
1-Methylnaphthalene	0.00200	0.00209	0.00207	104	104	66.0-142			0.962	20
2-Methylnaphthalene	0.00200	0.00217	0.00214	108	107	62.0-136			1.39	20
<i>(S) Nitrobenzene-d5</i>				119	120	31.0-160				
<i>(S) 2-Fluorobiphenyl</i>				113	114	48.0-148				
<i>(S) p-Terphenyl-d14</i>				103	103	37.0-146				

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

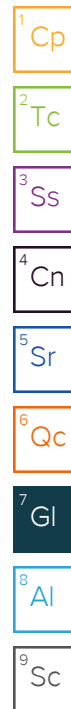
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.



ACCREDITATIONS & LOCATIONS

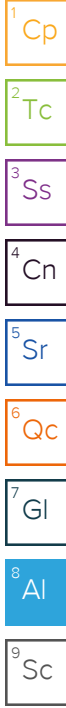
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Company Name/Address: **Stantec - Anchorage, AK**
 725 E Fireweed Lane
 Suite 200
 Anchorage, AK 99503

Billing Information:
 Accounts Payable
 725 E Fireweed Lane
 Suite 200
 Anchorage, AK 99503

Report to:
 Ms. Leslie Petre

Project Description:
 Speedway 5313 TNS 101

City/State Collected: *Fairbanks AK*

Pres Chk: *11 12*

Email To: *craig.cothron@pacelabs.com*

Project Description: *Speedway 5313 TNS 101*

City/State Collected: *Fairbanks AK*

Please Circle: *PF MT CT ET*

Phone: **907-266-1108**

Client Project #

Lab Project # **STAAAKSSA-5313**

Collected by (print): *G. M. Leslie*

Site/Facility ID # **0005313**

P.O. #

Collected by (signature): *G. M. Leslie*

Rush? (Lab MUST Be Notified)

Quote #

Immediately Packed on Ice N Y X

Date Results Needed

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	AK101 40mlAmb HCl	AK102 100ml Amb HCl	NAICP 250mlHDPE-HNO3	PAHSIMLVID 40mlAmb-NoPres-WT	V8260C 40mlAmb-HCl
MW-3	G	GW		9/19/22	1627	X	X		X	X
MW-4	G	GW		9/19/22	1430	X	X		X	X
MW-8	G	GW		9/19/22	1327	X	X		X	X
MW-14	G	GW		9/19/22	1517	X	X		X	X
MW-17	G	GW		9/19/22	11001	X	X		X	X
MW-19-1	G	GW		9/19/22	1700	X	X		X	X
MW-19-2		GW				X	X		X	X
CRW-2_AERATION TREATMENT TANK (INFLUENT)	G	GW		9/19/22	1048	X	X		X	X
WRW-2020_AERATION TREATMENT TANK (INFLUE EFFLUENT)	G	GW		9/19/22	956	X	X		X	X
	G	GW		9/19/22	1028	X	X	X	X	X

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	AK101 40mlAmb HCl	AK102 100ml Amb HCl	NAICP 250mlHDPE-HNO3	PAHSIMLVID 40mlAmb-NoPres-WT	V8260C 40mlAmb-HCl
MW-3	G	GW		9/19/22	1627	X	X		X	X
MW-4	G	GW		9/19/22	1430	X	X		X	X
MW-8	G	GW		9/19/22	1327	X	X		X	X
MW-14	G	GW		9/19/22	1517	X	X		X	X
MW-17	G	GW		9/19/22	11001	X	X		X	X
MW-19-1	G	GW		9/19/22	1700	X	X		X	X
MW-19-2		GW				X	X		X	X
CRW-2_AERATION TREATMENT TANK (INFLUENT)	G	GW		9/19/22	1048	X	X		X	X
WRW-2020_AERATION TREATMENT TANK (INFLUE EFFLUENT)	G	GW		9/19/22	956	X	X		X	X
	G	GW		9/19/22	1028	X	X	X	X	X

* Matrix: SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other

Remarks:

Samples returned via: UPS FedEx Courier

Tracking #

pH _____ Temp _____

Flow _____ Other _____

Relinquished by: (Signature) *[Signature]* Date: *9/20/22* Time: *12:00*

Received by: (Signature) *[Signature]* Trip Blank Received: Yes No
 HCl / MeOH
 TBR

Temp: _____ °C Bottles Received: *122*

Relinquished by: (Signature) *[Signature]* Date: _____ Time: _____

Received for lab by: (Signature) *[Signature]* Date: *9/21/22* Time: *9:15*

Hold: _____ Condition: NCF / OK

Chain of Custody Page ___ of ___

Pace
 PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at:
<https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>

SDG # *L1537986*

F024

Acctnum: **STAAAKSSA**
 Template: **T175449**
 Prelogin: **P945702**
 PM: *034 - Craig Cothron*
 PB: *[Signature]*

Shipped Via: **FedEX 2nd Day**

Remarks | Sample # (lab only)

Company Name/Address:
Stantec - Anchorage, AK
 725 E Fireweed Lane
 Suite 200
 Anchorage, AK 99503

Billing Information:
 Accounts Payable
 725 E Fireweed Lane
 Suite 200
 Anchorage, AK 99503

Report to:
Ms. Leslie Petre

Email To: craig.cothron@pacelabs.com

Project Description:
Speedway 5313 TNS 101

City/State Collected: **Fairbanks AK** Please Circle:
 VT MI CT ET

Phone: **907-266-1108**

Client Project #

Lab Project #
STAAAKSSA-5313

Collected by (print):
Craig M & Leslie P

Site/Facility ID #
0005313

P.O. #

Collected by (signature):
 Immediately Packed on Ice N Y


Rush? (Lab MUST Be Notified)
 Same Day Five Day
 Next Day 5 Day (Rad Only)
 Two Day 10 Day (Rad Only)
 Three Day

Quote #
 Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	AK101 40ml/Amb HCl	AK102 100ml Amb HCl	NAICP 250ml/HDPE-HNO3	PAHSIMLVID 40ml/Amb-NoPres-WT	V8260C 40ml/Amb-HCl						
DUPLICATE 1	G	GW		9/19/22	11:48	10	X	X		X	X						
DUPLICATE 2	G	GW		9/19/22	10:28	11	X	X	X	X	X						
MW-30	G	GW		9/19/22	1A:15	10	X	X		X	X						

Pres Chk		Analysis / Container / Preservative																		
	a																			
	a																			

Chain of Custody Page ___ of ___



MT JULIET, TN
 12065 Lebanon Rd Mount Juliet, TN 37122
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # **U537584**

Table #

Acctnum: **STAAAKSSA**
 Template: **T175449**
 Prelogin: **P945702**
 PM: **034 - Craig Cothron**
 PB: *[Signature]*

Shipped Via: **FedEX 2nd Day**

Remarks Sample # (lab only)

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other _____

Remarks:
 pH _____ Temp _____
 Flow _____ Other _____

Samples returned via:
 UPS FedEx Courier _____

Tracking # _____

Sample Receipt Checklist

COC Seal Present/Intact:	NP	1	N
COC Signed/Accurate:		1	N
Bottles arrive intact:		1	N
Correct bottles used:		1	N
Sufficient volume sent:		1	N
If Applicable			
VOA Zero Headspace:		1	N
Preservation Correct/Checked:		1	N
RAD Screen <0.5 mR/hr:		1	N

Relinquished by: (Signature)
[Signature]

Date: **9/20/22** Time: **12:00**

Received by: (Signature)
[Signature]

Trip Blank Received: Yes / No
 HCL / MeOH
 TBR

Temp: °C Bottles Received: If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date: Time:

Received by: (Signature)

Temp: °C Bottles Received:

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date: Time:

Received for lab by: (Signature)
[Signature]

Date: **9/21/22** Time: **9:15**

Hold: Condition: NCF / **OK**

61537986

<u>Tracking Numbers</u>	<u>Temperature</u>
5913 6273 4377	RRA7 5.7TD=5.7
4366	RRA7 4.4TD=4.4

Laboratory Data Review Checklist

Completed By:

Jeremiah Malenfant

Title:

Geologist-In-Training

Date:

11/7/2022

Consultant Firm:

Stantec Consulting Services, Inc.

Laboratory Name:

Pace Analytical

Laboratory Report Number:

L1537986

Laboratory Report Date:

10/4/2022

CS Site Name:

7-Eleven Store #43004 (Former Speedway Store #5313 TNS 101/IFC)

ADEC File Number:

100.26.022

Hazard Identification Number:

26295

L1537986

Laboratory Report Date:

10/4/2022

CS Site Name:

7-Eleven Store #43004 (Former Speedway Store #5313 TNS 101/IFC)

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes No N/A Comments:

b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes No N/A Comments:

Samples not transferred

2. Chain of Custody (CoC)

a. CoC information completed, signed, and dated (including released/received by)?

Yes No N/A Comments:

b. Correct analyses requested?

Yes No N/A Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes No N/A Comments:

4.4 °C

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes No N/A Comments:

Case Narrative indicates DRO (AK102) samples unpreserved. There is a mark in the preservative check field of the CoC which is not decipherable. An identical mark is made in the field for sodium samples.

L1537986

Laboratory Report Date:

10/4/2022

CS Site Name:

7-Eleven Store #43004 (Former Speedway Store #5313 TNS 101/IFC)

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes No N/A Comments:

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes No N/A Comments:

See above

e. Data quality or usability affected?

Comments:

Other DRO quality control measures outside tolerances as well. Irregularity with sample preservation may explain.

4. Case Narrative

a. Present and understandable?

Yes No N/A Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

Yes No N/A Comments:

DRO samples unpreserved.

c. Were all corrective actions documented?

Yes No N/A Comments:

None documented in narrative, but documented elsewhere in report.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

None in narrative.

L1537986

Laboratory Report Date:

10/4/2022

CS Site Name:

7-Eleven Store #43004 (Former Speedway Store #5313 TNS 101/IFC)

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes No N/A Comments:

b. All applicable holding times met?

Yes No N/A Comments:

PAHs in MW-4 and MW-8 were extracted 8 days from collection.

c. All soils reported on a dry weight basis?

Yes No N/A Comments:

No soil samples submitted to lab.

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes No N/A Comments:

Benzene in MW-8 and MW-3 LOQ above GCLs.

e. Data quality or usability affected?

Other analytes in MW-8 exceed GCLs, suggest benzene is above GCLs. J-flagged detection below LOQ in MW-3 estimates benzene below GCL. No marginal exceedances in naphthalene that may be affected by discrepancies in hold times.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes No N/A Comments:

L1537986

Laboratory Report Date:

10/4/2022

CS Site Name:

7-Eleven Store #43004 (Former Speedway Store #5313 TNS 101/IFC)

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

None.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

No samples affected.

v. Data quality or usability affected?

Comments:

No.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes No N/A Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes No N/A Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes No N/A Comments:

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v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No affected samples

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

No affected samples

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

No.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes No N/A Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes No N/A Comments:

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v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

None

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

No affected samples.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

No; see above.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes No N/A Comments:

Not included.

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes No N/A Comments:

Not included.

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

Not included.

iv. Data quality or usability affected?

Comments:

No affected samples.

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e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes No N/A Comments:

No trip blank submitted to lab.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes No N/A Comments:

No trip blank submitted to lab.

iii. All results less than LOQ and project specified objectives?

Yes No N/A Comments:

No trip blank submitted to lab.

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No affected samples.

v. Data quality or usability affected?

Comments:

No.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes No N/A Comments:

ii. Submitted blind to lab?

Yes No N/A Comments:

Time on CoC matched to sample

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iii. Precision – All relative percent differences (RPD) less than specified project objectives?
(Recommended: 30% water, 50% soil)

$$RPD (\%) = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2) / 2)} \times 100$$

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

Yes No N/A Comments:

Naphthalene precision in CRW-2 – DUP-1 pair out of tolerance. In addition, DRO in Effluent – DUP-2 sample pair could not be calculated, but was in excess of GCLs in the samples and not detected in the duplicate.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Naphthalene well above in CRW-2 – DUP-1 pair. DRO in effluent data unusable.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes No N/A Comments:

All disposable equipment.

i. All results less than LOQ and project specified objectives?

Yes No N/A Comments:

All disposable equipment.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

None.

iii. Data quality or usability affected?

Comments:

No.

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7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes No N/A

Comments: