7-Eleven Store #46745
(Speedway Store 5314 - TNS #76)

ADEC File #2265.26.037

4Q October 2022 GWM Event Report

Prepared For

Stantec

AUTHORIZATION TO SUBMIT REPORT

Stantec has been authorized by the client, 7-Eleven (representative Paula Sime, PG, Manager – Environmental Services) 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.

Robert Gilfilian

Robert (Bob) Gilfilian, P.E.

Project Technical Lead

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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
EPA	U.S. Environmental Protection Agency
GCL	groundwater cleanup level
gpm	gallons per minute
GRO	gasoline range organics
Klozur® One	Trademarked chemical oxidizer developed by PeroxyChem
LOQ	Limit of Quantization
mg/L	milligrams per liter
MW	monitoring well
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
TMB	Trimethylbenzene
UST	underground storage tank
VOC	Volatile Organic Compounds

1.0 SITE BACKGROUND

Background information for this site is summarized in **Appendix A**.

2.0 FIELD ACTIVITIES

On October 5 and 6, 2022, Stantec completed the following field activities as part of this groundwater monitoring event:

- Measured the depth to groundwater in Monitoring Wells MW-1, MW-2, MW-3, and MW-4. In addition, the pumping water level in the remediation well RW 19-1 was measured. Groundwater depth measurements were used by the SampleServe™ program to calculate the hydraulic gradient and direction of flow of the groundwater table. Groundwater depth measurements were taken on October 6.

- Measured the following intrinsic water quality parameters in all five monitoring/remediation wells: pH, temperature, dissolved oxygen (DO), oxidation-reduction potential (ORP), and specific conductance.

- Collected groundwater samples from all five monitoring/remediation wells and submitted them for laboratory analysis of: U.S. Environmental Protection Agency (EPA) Method 8260C for petroleum fuel associated volatile organic compounds including benzene, toluene, ethylbenzene, and xylenes (BTEX), as well as 1,2,4-trimethylbenzene (TMB) and 1,3,5-TMB; polycyclic aromatic hydrocarbons (PAHs) including naphthalene by EPA 8270D-SIM; Alaska Test Method (AK)101 for GRO; AK102 for DRO; and metals (ICP) by EPA 6010C for sodium.

- Collected a drinking water sample from Cameron Lot 7 from the tap inside the Speedway store and submitted the sample to PACE Laboratory for laboratory analysis of VOCs (BTEX) by EPA 524.2 and GRO by AK101.

On October 6 Stantec completed the monthly injection of chemical oxidation (chemox) treatment into the 3 remediation wells (RW-1, RW-2 and RW-3). Field methods and procedures are provided in **Appendix B**. Field measurements and notes are provided in **Appendix C**.

3.0 GROUNDWATER MONITORING RESULTS

3.1 GROUNDWATER ELEVATIONS

Table 1 presents groundwater elevations at this site based on the depths to static groundwater levels measured during this monitoring event. The recirculation pump in RW 19-1 was operating, with a discharge measured at approximately 2.25 gallons per minute (gpm). Flow from RW 19-1 was discharged on a continuous basis into injection well RW-2 located in the "footprint" of the former underground storage tank (UST) shown on the site plan presented on **Figure 2**. Between June 23 and July 20 of this year, the pump was turned off to protect the pump during low groundwater elevation conditions due to low rainfall in the early summer. On October 6 the remediation well was re-habilitated and the pump was cleaned, allowing the flow to be increased from about 1 to 2.25 gpm.

Table 1 Groundwater Elevations

Measured on October 6, 2022

Monitoring Well Identification	Top of Casing Elevation (feet relative to datum)[1]	Depth to Groundwater (feet btoc)	Groundwater Elevation (feet relative to datum)[1]
MW-1	94.73	18.85	75.88
MW-2	95.04	17.45	77.59
MW-3	94.52	16.69	77.83
MW-4	95.01	17.61	77.40
RW 19-1[2]	95.73	20.70	75.03

Key:
1 – Based on a vertical control survey of May 12, 2022, using an elevation datum of 100.00 feet established on the benchmark on the concrete base of the existing on-site drinking water well.
2 – Measured with the pump running, after well rehabilitation.
feet btoc – feet below top of monitoring well casing

The hydraulic gradient across the site was found to be approximately 0.14 feet per foot directed northwest at 307 degrees. The calculation of groundwater hydraulic flow was based on the static water levels in the five on-site wells measured with the groundwater recirculation pump on during the monitoring event on October 6. The groundwater flow direction is consistent with past monitoring events, while the gradient is much higher. The increased gradient is probably due to rehabilitation of recirculation well RW 19-1 which resulted in a higher pumping rate and greater gradient contours. A plot of groundwater elevation contours generated by the SampleServe software program is included in **Figure 3.** The program uses a combination of kriging and nearest-neighbor analyses to generate the contours.

Table 2 Historical Groundwater Direction of Flow and Gradient

Date	Groundwater Flow Direction (azimuth)	Gradient (ft/ft)
10/26/2018	358°	0.03
2/25/2019	66°	0.03
4/25/2019	290°	0.04
7/25/2019	22°	0.013
10/18/2019	353°	0.013
8/11/2020	47°	0.025
3/23/2021	340°	0.024
5/19/2021	59°	0.027
7/14/2021	59°	0.027
10/14/2021	105°	0.04
3/17/2021	312°	0.019
6/22/2022	343°	0.078
8/19/2022	298°	0.020
10/6/2022	307°	0.14

3.2 INTRINSIC WATER QUALITY PARAMETERS

Intrinsic water quality data collected during this monitoring event is presented in **Table 3**. ORP measurements ranged from 113.8 millivolts (mV) to 177.7 mV, consistent with past events. The pH values in all the wells were noted to be near neutral. Specific conductance readings ranged

from 228.2 micro-Siemens per centimeter (µS/cm) to 962 µS/cm which are typical of historical values measured at this site. High dissolved oxygen measurements in RW 19-1 are indicative of a short-circuit in the pump system which was remedied by the maintenance event on October 6.

Table 3 Intrinsic Water Quality Parameters
Measurements taken on October 5, 2022

Well ID	Volume Purged (gallons)	Sheen/ Odor	Temp. (˚C)	pH	Dissolved Oxygen (mg/L)	ORP (mV)	Specific Conductance (µs/cm °C)
MW-1	3	N/N	9.6	6.51	2.68	176.3	228.2
MW-2	3	N/N	9.1	6.70	1.65	177.7	836
MW-3	3	N/Y	9.7	7.13	2.76	116.8	962
MW-4	3	N/Y	9.5	6.85	1.97	113.8	943
RW19-1	3	N/Y	9.2	7.14	7.7	123	656.2

Key:
ºC – degrees Celsius
µS/cm°C – microSiemens per centimeter ºC
mg/L – milligrams per liter
mV – millivolts
N – no
NA – not applicable
ORP – oxidation-reduction potential
pH – -log [H+]
SC – specific conductance at 25ºC
Temp. – temperature
Y – yes
NM – Not Measured

3.3 ANALYTICAL WATER QUALITY DATA

Historical monitoring data for this site are tabulated in **Appendix D**. Laboratory analytical results for BTEX, GRO, DRO, sodium, naphthalene, 1,2,4-TMB and 1,3,5-TMB detected in groundwater samples collected during this monitoring event are summarized in **Tables 4a and 4b**. The complete laboratory analytical report and laboratory data review checklist is provided in **Appendix E**.

Table 4a Groundwater Analytical Results for BTEX, GRO, and DRO

Samples collected on October 5, 2022

Sample Identification	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)
MW-1	**0.0477**	U (0.00100)	U (0.00100)	U (0.00300)	0.0813 J (0.100)	U (0.800)
MW-2	**0.00781**	0.000291 J (0.00100)	0.00446	0.0105	0.117	U (0.800)
MW-3	**0.00849**	U (0.00500)	**0.0680**	**0.240**	0.707	0.920
DUP01 (dup. of MW-3)	**0.0200**	0.000379 J (0.00100)	**0.168**	**0.618**	**2.83**	0.901
MW-4	**0.0644**	U (0.00500)	**0.131**	**0.198**	0.885	0.565 J (0.800)
RW 19-1	**0.00737**	U (0.00100)	0.00678	0.00953	0.0632 J (0.100)	U (0.800)
Cameron Lot 7	U (0.000500)	U (0.000500)	U (0.000500)	U (0.000500)	NM	NM
Trip Blank	U (0.00100)	U (0.00100)	U (0.00100)	U (0.00300)	NM	NM
GCLs	**0.0046**	**1.1**	**0.015**	**0.19**	**2.2**	**1.5**

Table 4b Groundwater Analytical Results for Naphthalene, Trimethylbenzene (TMB) and Sodium

Samples collected on October 5, 2022

Sample Identification	Naphthalene[1] (mg/L)	1,2,4-TMB (mg/L)	1,3,5-TMB (mg/L)	Sodium (mg/L)
MW-1	U (0.000250)	U (0.00100)	U (0.00100)	54.8
MW-2	U (0.000250)	0.00907	0.00304	37.3
MW-3	**0.00420**	**0.131**	0.0398	54.9
DUP01 (dup. of MW-3)	**0.00344**	**0.343**	**0.0925**	56.0
MW-4	**0.00746**	**0.0908**	0.0428	66.2
RW 19-1	0.000239 J (0.000250)	0.00245	0.000995 J (0.00100)	33.6
Cameron Lot 7	NM	NM	NM	NM
Trip Blank	NM	U (0.00100)	U (0.00100)	NM
GCLs	**0.0017**	**0.056**	**0.060**	**NA**

Key:
1 – Analyzed by EPA Method 8270D-SIM
AK – Alaska Test Method
B – The same analyte is found in the associated blank.
BTEX – benzene, toluene, ethylbenzene, and xylenes
DRO – Diesel range organics, analyzed by AK102
DUP – Duplicate
GCLs – Groundwater cleanup levels, per ADEC 18 AAC 75.345, Table C, updated September 29, 2018.
GRO – Gasoline range organics, analyzed by AK101
mg/L – milligrams per liter
J – The identification of the analyte is acceptable; the reported value is an estimate.
J4 – The associated batch QC was outside the established quality control range for accuracy.
NA – Not applicable
NM – Not measured.
TMB – Trimethylbenzene.
U – Undetected above laboratory reporting limits shown in parentheses.
Bold indicates the concentration exceeds the GCL or, if not detected, the practical quantitation limit exceeds the GCL.

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

Pace analytical performed all analysis of groundwater samples for this sampling event. **Table 5** 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**.

A duplicate sample set was collected to determine the precision of the field collection and laboratory analyses for this sampling event. Sample DUP01 is a duplicate of sample MW-3. The data presented in **Table 5** shows that the precision for the duplicate sample set (analytes that were detected above the Limit of Quantization [LOQ]) was outside the established QA criteria for BTEX (precision for toluene could not be calculated), GRO, 1,2,4-TMB, and 1,3,5-TMB. The lab flagged sample emulsion in DRO samples from monitoring wells MW-3, MW-4, and the duplicate sample. In addition, GRO had RPDs above precision limits in the laboratory control sample/duplicate pair.

Table 5 Laboratory Quality Control Objectives

Quality Control Designation	Tolerance	Results for this Event
Holding Times		
DRO/Water/to analyze	40 days	8-14 days
DRO/Water/to extract	14 days	8-13 days
GRO/Water/to analyze	14 days	8 days
BTEX/Water/to analyze	14 days	8-12 days
Field Duplicates – Precision		
Benzene/Water	± 30%	**80.8%**
Toluene/Water	± 30%	NC
Ethylbenzene/Water	± 30%	**84.7%**
Xylenes/Water	± 30%	**88.1%**
GRO/Water	± 30%	**120%**
DRO/Water	± 30%	2.09%
1,2,4-TMB/Water	± 30%	**89.5%**
1,3,5-TMB/Water	± 30%	**79.7%**
Naphthalene/Water	± 30%	19.9%

Key:
% – percent
± – plus or minus
BTEX – benzene, toluene, ethylbenzene, and xylenes
DRO – diesel range organics
GRO – gasoline range organics
NC – Not computed due to non-detectable levels in original and/or duplicate samples

4.0 REMEDIATION SYSTEM

During the chemical oxidation (chemox) injection event on July 20, the pump in the recirculation well RW-19-1 was restarted and began discharging approximately 1 gallon per minute (gpm) into the on-site treatment/remediation (injection) well RW-2 that is located within the footprint of the former UST (**Figure 2**). On October 6, Stantec staff pulled the pump in RW-19 and cleaned the submersible pump and the pump discharge pipe. The well casing was purged and surged to clean iron flocculant off the well screen.

The submersible pump was placed back into operation with an improved pumping rate of approximately 2.5 gpm. The pump remains in operation to this day on a continuous basis (24 hours each day).

The re-circulation of pumped groundwater from RW 19-1 is coupled with periodic injection (typically on a quarterly basis and a monthly basis during the non-freeze time of year) of a chemox product that is injected into the three remediation wells. On October 6, 2022, Stantec completed groundwater remediation event that included the injection of chemox solution into the three treatment/remediation wells. The injection process involved the manual injection of a mixture of two 55-pound bags of Klozur One® product and 50 gallons of tap water into each of the three remediation wells (RW-1, RW-2 and RW-3) for a total of 100 gallons per well and 300 gallons of chemox solution total. It was noted that the chemox solution was accepted less readily in well RW-2 than the other wells. Following the injection of the chemox solution, Stantec injected an additional 100-200 gallons of tap water into each remediation well to hydraulically push the chemox mixture into the subsurface formation. Upon completion of the chemox injection process, the flow from the on-site recirculation well (RW 19-1) was reconnected to discharge constant flow into RW-2. The next scheduled monthly injection of chemox into the treatment wells is planned for the first quarter 2023.

5.0 DISCUSSION OF FINDINGS

Historical results for the current and previous monitoring events are presented in **Appendix D.** No contaminants of concern were detected by EPA Test Method 524.2 in the drinking water sample collected from the store' drinking water tap. The laboratory analytical sample results showed petroleum associated analytes were present at concentrations exceeding ADEC groundwater cleanup levels (GCLs) as listed in Alaska Administrative Code (AAC) 18AAC 75.345 Table C (9/18/2019) for the following monitoring wells:

- Monitoring Well MW-1: Benzene.
- Monitoring Well MW-2: Benzene.
- Monitoring well MW-3: Benzene, ethylbenzene, total xylenes, naphthalene, and 1,2,4-TMB. 1,3,5-TMB and GRO were also detected in the duplicate sample.
- Monitoring well MW-4: Benzene, ethylbenzene, xylenes, naphthalene, and 1,2,4-TMB.
- Remediation Well RW19-1: Benzene.

The hydraulic gradient across the site was found to be approximately 0.14 feet per foot directed north-northwest at 307 degrees. The increased gradient observed during this monitoring event is due to well rehabilitation in RW 19-1 that increased the cone of influence of the "pump and treat" remediation system. It is anticipated that the gradient will decrease over time as groundwater flow conditions adjust to the increased pumping level.

Increased levels of analytes found in MW-4 indicate that contamination is being pulled across the well towards RW 19-1, probably due to the recirculation of groundwater with the chemox solution. Low sodium levels across the site may reflect the longer treatment interval between the most recent chemox treatment and the monitoring event than in the third quarter of 2022.

6.0 CONCLUSIONS AND RECOMMENDATIONS

No anomalies were found during the 4Q October 2022 monitoring event at this site that would require additional corrective action or changes to the ADEC-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

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SPEEDWAY STORE 5314
(FORMER TESORO 2 GO MART #76)

4Q - October 2022 GWM EVENT REPORT

LOCATION AND VICINITY MAP

FIGURE

1

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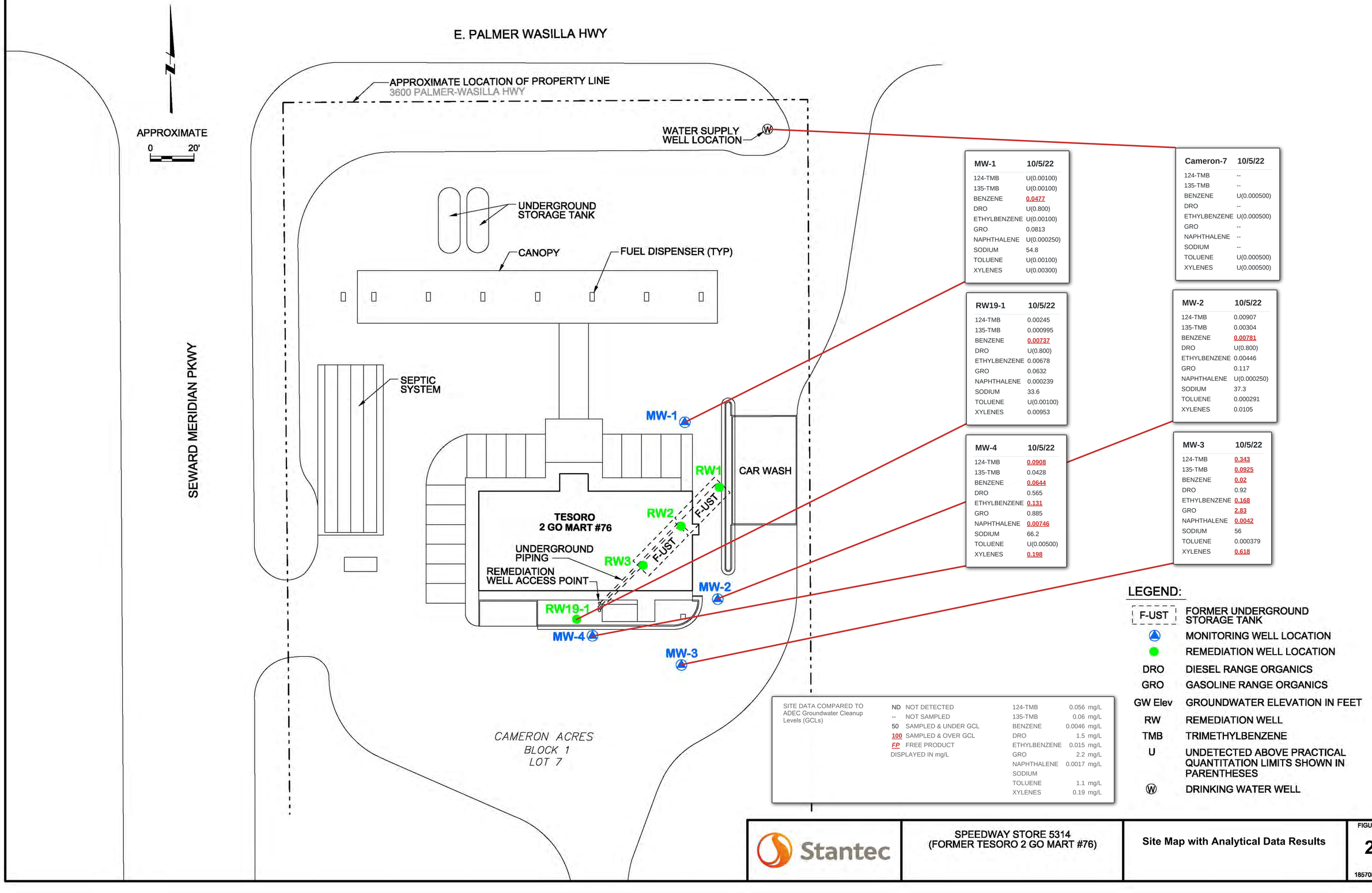

MW-1	10/5/22
124-TMB	U(0.00100)
135-TMB	U(0.00100)
BENZENE	0.0477
DRO	U(0.800)
ETHYLBENZENE	U(0.00100)
GRO	0.0813
NAPHTHALENE	U(0.000250)
SODIUM	54.8
TOLUENE	U(0.00100)
XYLENES	U(0.00300)

Cameron-7	10/5/22
124-TMB	--
135-TMB	--
BENZENE	U(0.000500)
DRO	--
ETHYLBENZENE	U(0.000500)
GRO	--
NAPHTHALENE	--
SODIUM	--
TOLUENE	U(0.000500)
XYLENES	U(0.000500)

RW19-1	10/5/22
124-TMB	0.00245
135-TMB	0.000995
BENZENE	0.00737
DRO	U(0.800)
ETHYLBENZENE	0.00678
GRO	0.0632
NAPHTHALENE	0.000239
SODIUM	33.6
TOLUENE	U(0.00100)
XYLENES	0.00953

MW-2	10/5/22
124-TMB	0.00907
135-TMB	0.00304
BENZENE	0.00781
DRO	U(0.800)
ETHYLBENZENE	0.00446
GRO	0.117
NAPHTHALENE	U(0.000250)
SODIUM	37.3
TOLUENE	0.000291
XYLENES	0.0105

MW-4	10/5/22
124-TMB	0.0908
135-TMB	0.0428
BENZENE	0.0644
DRO	0.565
ETHYLBENZENE	0.131
GRO	0.885
NAPHTHALENE	0.00746
SODIUM	66.2
TOLUENE	U(0.00500)
XYLENES	0.198

MW-3	10/5/22
124-TMB	0.343
135-TMB	0.0925
BENZENE	0.02
DRO	0.92
ETHYLBENZENE	0.168
GRO	2.83
NAPHTHALENE	0.0042
SODIUM	56
TOLUENE	0.000379
XYLENES	0.618

LEGEND:

F-UST	FORMER UNDERGROUND STORAGE TANK
▲	MONITORING WELL LOCATION
●	REMEDIATION WELL LOCATION
DRO	DIESEL RANGE ORGANICS
GRO	GASOLINE RANGE ORGANICS
GW Elev	GROUNDWATER ELEVATION IN FEET
RW	REMEDIATION WELL
TMB	TRIMETHYLBENZENE
U	UNDETECTED ABOVE PRACTICAL QUANTITATION LIMITS SHOWN IN PARENTHESES
Ⓦ	DRINKING WATER WELL

SITE DATA COMPARED TO ADEC Groundwater Cleanup Levels (GCLs)

ND	NOT DETECTED
--	NOT SAMPLED
50	SAMPLED & UNDER GCL
100	SAMPLED & OVER GCL
FP	FREE PRODUCT

DISPLAYED IN mg/L

124-TMB	0.056 mg/L
135-TMB	0.06 mg/L
BENZENE	0.0046 mg/L
DRO	1.5 mg/L
ETHYLBENZENE	0.015 mg/L
GRO	2.2 mg/L
NAPHTHALENE	0.0017 mg/L
SODIUM	
TOLUENE	1.1 mg/L
XYLENES	0.19 mg/L

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SPEEDWAY STORE 5314
(FORMER TESORO 2 GO MART #76)

Site Map with Analytical Data Results

FIGURE
2
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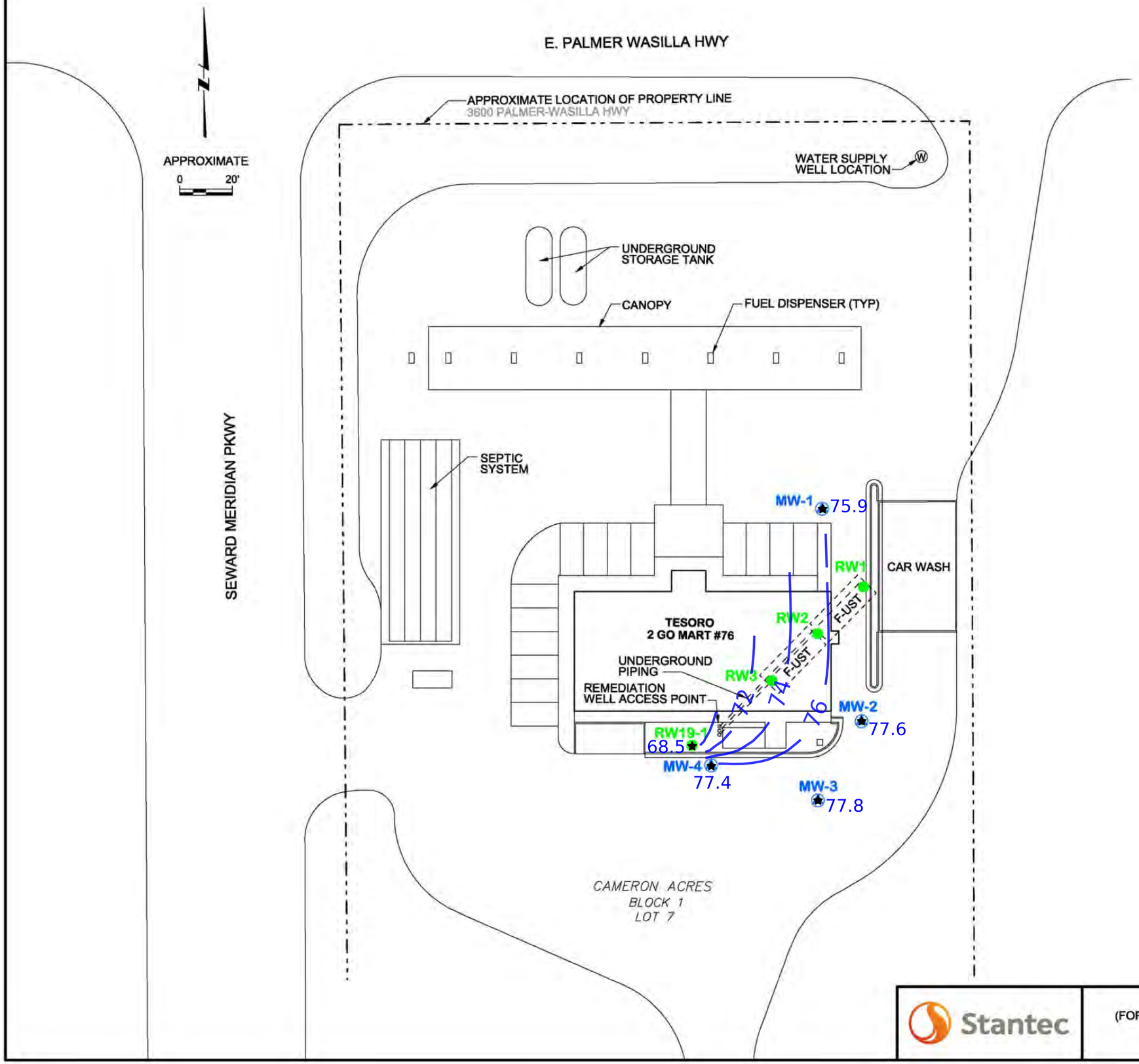

LEGEND:

F-UST	FORMER UNDERGROUND STORAGE TANK
▲	MONITORING WELL LOCATION
●	REMEDIATION WELL LOCATION
DRO	DIESEL RANGE ORGANICS
GRO	GASOLINE RANGE ORGANICS
GW Elev	GROUNDWATER ELEVATION IN FEET
RW	REMEDIATION WELL
TMB	TRIMETHYLBENZENE
U	UNDETECTED ABOVE PRACTICAL QUANTITATION LIMITS SHOWN IN PARENTHESES
Ⓦ	DRINKING WATER WELL

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SPEEDWAY STORE 5314
(FORMER TESORO 2 GO MART #76)

GROUNDWATER ELEVATION CONTOURS

FIGURE
3

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APPENDIX A

Site Background

APPENDIX A – SITE BACKGROUND

Speedway Store 5314 (former Tesoro 2 Go Mart #76) located at 3600 Palmer-Wasilla Highway, Wasilla, Alaska
ADEC File #100.26.159

Speedway Store 5314 (former Tesoro 2 Go Mart #76) is a retail fuel and convenience store facility located at 3600 Palmer-Wasilla Highway, Wasilla, Alaska (Figure 1). The legal description for the property is Lot 7, Block 1, Cameron Acres Subdivision, Matanuska-Susitna Borough.

Two 15,000-gallon underground storage tanks (USTs) were installed at the site in 1995. Based on historical records, this is the first retail fuel convenience store to occupy this location. The site is covered with asphalt paving with concrete in the area over the USTs and fuel dispenser islands. The former UST system and dispensing components were removed from September to October 2014 and replaced with a new UST fueling system. The new UST fueling system consists of two 15,000-gallon fiberglass-reinforced plastic, double-walled USTs installed on January 29, 2015, and seven fuel dispensers (six gasoline and one diesel). Distribution piping consists of 2-inch fiberglass primary and 3-inch fiberglass secondary.

In addition, the former convenience store was demolished and replaced with a new convenience store that was constructed at a different location on the property. The property is over 1 acre in size and is served with an on-site drinking water well and on-site septic tank and drainfield system.

October 2014. During the 2014 Site Assessment of the UST closure, a petroleum fuel release was discovered in the subsurface soils partially surrounding and underlying the USTs. At that time, a very deep test pit was excavated beneath the former USTs to the groundwater table. Field screening with a photoionization detector (PID) indicated that petroleum contamination was present throughout the vadose zone and extended to the underlying groundwater table. Due to site safety concerns with sloughing soils, it was not feasible to excavate all of the contaminated soil below the former USTs.

A Release Investigation (RI) was conducted by MWH Americas, Inc. (MWH) subsequent to the closure of the former USTs. The RI included the installation of a soil vapor extraction (SVE) remediation well and several groundwater monitoring wells. MWH completed a groundwater monitoring event after the monitoring wells were installed. Follow-up water samples were collected from the onsite drinking water well for appropriate laboratory analyses.

The findings of the RI indicated a significant amount of petroleum contamination had impacted the subsurface soils and shallow groundwater table at the site. The soil samples collected indicate higher concentrations of gasoline range organics (GRO) and benzene, toluene, ethylbenzene, and xylenes (BTEX) constituents directly below the location occupied by the former USTs at Remediation Wells RW-2 and RW-3. Benzene was detected above Alaska Department of Environmental Conservation (ADEC) groundwater cleanup level (GCL) in groundwater at monitoring wells installed at the site. GRO contaminants have also impacted the groundwater table. The system has been monitored on a quarterly basis since the completion of the RI.

February 2015. Benzene exceeded the GCL in Monitoring Well MW-2. BTEX, GRO, and diesel range organics (DRO) exceeded GCLs in Monitoring Well MW-3. Benzene, toluene, and GRO exceeded GCLs in Monitoring Well MW-4.

June 2015. MWH installed and placed into operation a SVE system at the site. Early results indicate that the system is effectively removing petroleum-related vapors from the subsurface. Additionally, a surface water sample was collected from an on-site nearby wetland surface water area. Xylenes and DRO were detected in the water sample; however, the concentrations were below the ADEC groundwater and surface water cleanup levels.

September 2015. Benzene and DRO exceeded GCLs in Monitoring Well MW-2. BTEX and DRO exceeded GCLs in Monitoring Well MW-3. Benzene exceeded GCL in Monitoring Well MW-4. The SVE remediation system blower was offline, requiring maintenance.

November 2015. Benzene exceeded GCL in Monitoring Well MW-1. Benzene, GRO, and DRO exceeded the GCL in Monitoring Well MW-2. Benzene, toluene, and GRO all remained above their GCLs, consistent with the past five monitoring events, at Monitoring Well MW-3.

December 2015. Maintenance was performed on the SVE system on December 31, 2015. A replacement SVE system blower was installed. The system was brought back online on the date of the replacement blower installation. A PID was used to monitor the system effluent after the initial 15 minutes of operation and indicated that 424 parts per million by volume were being removed by the system.

January 2016. Benzene exceeded the GCL in Monitoring Well MW-1. Benzene, toluene, ethylbenzene, and DRO exceeded their GCLs in Monitoring Well MW-2; and benzene, toluene, ethylbenzene, xylenes, GRO, and DRO exceeded their GCLs in Monitoring Well MW-3. The laboratory did not provide results for requested GRO analyses for samples from Monitoring Wells MW-2 and MW-4.

May 2016. In Monitoring Wells MW-1, MW-2, and MW-4, only benzene exceeded GCL. MW-3 exceeded GCLs for all analytes tested. There were no detections in the Carmen Lot 7 drinking water sample. An SVE effluent sample was collected to monitor SVE performance.

October 2016. In Monitoring Well MW-1, only benzene exceeded GCL. In Monitoring Well MW-2, all analytes but toluene and DRO exceeded GCLs. Monitoring Well MW-3 exceeded GCLs for all analytes tested. Monitoring Well MW-4 had no exceedances. There were no detections in the Carmen Lot 7 drinking water sample. An SVE effluent sample was collected to monitor SVE performance.

December 2016. In Monitoring Well MW-1, only benzene exceeded GCL. In Monitoring Well MW-2, all analytes but toluene exceeded GCLs. Monitoring Well MW-3 exceeded GCLs for benzene, GRO, and DRO. Monitoring Well MW-4 and the Carmen Lot 7 drinking water sample had no exceedances. Both Monitoring Wells MW-3 and MW-4 had insufficient sample volumes to complete all analytical testing. The SVE system observed for operation and performance.

February 2017. Benzene was the only analyte to exceed the GCL in Monitoring Wells MW-1 and MW-4. Benzene and ethylbenzene exceeded GCLs in Monitoring Well MW-2, and all analytes exceeded their GCLs in Monitoring Well MW-3. The SVE system was frozen due to record cold temperatures experienced during January 2017. A subsequent site visit on February 16, 2017, was made to thaw and restore the SVE system to normal operation.

April 2017. In addition to testing for BTEX, DRO, and GRO, expanded testing for volatile organic compounds (VOCs), and polynuclear aromatic hydrocarbons (PAHs) were conducted on all monitoring wells. Benzene was the only analyte to exceed the GCL in Monitoring Wells MW-1 and MW-4. BTEX (minus toluene) and GRO exceeded their GCLs in Monitoring Well MW-2, consistent with previous monitoring events. The expanded testing found 1,2,4-trimethlybenzene and naphthalene to also exceed GCLs. In Monitoring Well MW-3, BTEX and DRO exceeded their GCLs, also consistent with previous monitoring events. The expanded testing found 1,2,4-trimethlybenzene, 1,3,5-trimethlybenzene, and naphthalene to also exceed GCLs. Pilot Testing (conducted in May 2017) of air injection into remediation wells to volatize groundwater and smear zone contaminants indicated a slight increase of volatilization when air is injected into RW-2, and RW-3.

September 2017. Except for the following, all analytes were below GCLs in the wells sampled:

- Monitoring Well MW-1 – benzene exceeded the GCL.
- Monitoring Well MW-2 – benzene, ethylbenzene, xylenes and GRO exceeded their GCLs.
- Monitoring Well MW-3 – BTEX, GRO, and DRO were above their GCLs. The MW-3 duplicate sample provided results within established Quality Assurance/Quality Control (QA/QC) standards.
- Monitoring Well MW-4 – benzene, ethylbenzene, xylenes, and GRO exceeded their GCLs.

The SVE contaminant vapor mass removal was less than observed during pilot test in May 2017 and requires additional optimization.

February 2018. Except for the following, all analytes were below GCLs in the wells sampled:

- Monitoring Well MW-1 – benzene.
- Monitoring Well MW-2 – benzene, ethylbenzene, xylenes, and GRO (GRO was not detected, but the Reporting Limit exceeded the GCL).
- Monitoring Well MW-3 – BTEX and GRO (GRO was not detected, but the Reporting Limit exceeded the GCL). The MW-3 duplicate sample provided results within established QA/QC standards.
- Monitoring Well MW-4 – benzene, ethylbenzene, xylenes, and GRO.

The SVE contaminant vapor mass removal was less than previously observed on site. In addition, the field work included an assessment of the buried piping systems for the air sparging (AS) and SVE systems. The assessment was performed with a downhole camera capable of recording

photographs and video of the interior conditions of the piping system. The findings of the downhole camera assessment of the buried piping system was inconclusive.

June 2018. The results from the June 29, 2018, monitoring event supports the continued pattern that GRO contamination persists on site and is observed in Monitoring Wells MW-2 and MW-3. In addition, Monitoring Well MW-3 is consistently the most contaminated well. In summary, the results of the groundwater analytical sampling showed that analytes detected above the GCLs were:

- Monitoring Well MW-1: Benzene.
- Monitoring Well MW-2: Benzene, ethylbenzene, xylenes, GRO, and naphthalene.
- Monitoring Well MW-3: BTEX, GRO and naphthalene. Except for GRO, the duplicate sample provided results within established QA/QC standards.
- Monitoring Well MW-4: Benzene, ethylbenzene, and naphthalene.

A representative water sample from the on-site drinking water well serving the Tesoro 2 Go Mart was sampled and tested for VOCs. The water sample was found to have no detectable levels of contaminants of concern, except the laboratory reporting limits were over the GCLs for 1,1,2-trichloroethane (TCA) and vinyl chloride.

The SVE contaminant vapor mass removal is very low and based on the recent pattern of decline suggest that the SVE system performance requires additional optimization. Alternative treatment options are currently being evaluated and, if determine feasible, a new work plan will be presented to ADEC for review and approval prior to making any changes.

September 2018. Results of the groundwater analytical sampling showed that analytes detected above ADEC GCLs were:

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

Several analytes for VOCs were reported as undetected but had laboratory reporting limits that equaled or exceeded their corresponding GCLs. The results from this monitoring event supports the continued pattern that GRO contamination persists at the site and is observed in Monitoring Wells MW-2 and MW-3. In addition, Monitoring Well MW-3 is consistently the most contaminated well.

The approximate hydraulic gradient across the site was found to be approximately 0.03 feet per foot directed toward the north-northeast at 14 degrees. The groundwater flow direction and gradient are consistent with past monitoring events.

The SVE contaminant vapor mass removal is very low and, based on the recent pattern of decline, suggests that the SVE system performance requires additional optimization. Alternative treatment options are currently being evaluated and, if determine feasible, a new work plan will be presented to ADEC for review and approval prior to making any changes.

October 2018. Results of the groundwater analytical sampling showed that analytes detected above ADEC GCLs were:

- Monitoring Well MW-1: Benzene.
- Monitoring Wells MW-2 and MW-3: Benzene, ethylbenzene, xylenes, GRO, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
- Monitoring Well MW-4: Benzene.

Several VOCs were reported as undetected but had laboratory reporting limits that equaled or exceeded their corresponding GCLs. The results from this October 26, 2018, monitoring event supports the continued pattern that GRO contamination persists at the site and is observed in Monitoring Wells MW-2 and MW-3. In addition, Monitoring Well MW-3 is consistently the most contaminated on-site monitoring well.

The approximate hydraulic gradient across the site was found to be approximately 0.03 feet per foot directed toward the north at 358 degrees. The groundwater flow direction and gradient are consistent with past monitoring events.

The SVE contaminant vapor mass removal is very low and, based on the recent pattern of decline, suggests that the SVE system performance requires additional optimization. Alternative treatment options are currently being evaluated and, if determined to be feasible, a new work plan will be presented to ADEC in 2019 for review and approval prior to making any changes.

February 2019. Results of the groundwater analytical sampling showed that analytes detected above ADEC GCLs were:

- Monitoring Well MW-2: Benzene, ethylbenzene, xylenes, and GRO.
- Monitoring Well MW-3: Benzene, ethylbenzene, xylenes, and DRO.
- Monitoring Well MW-4: Benzene

The existing bio-sparge treatment system is not functional and will be replaced. In the 2nd quarter of 2019, Stantec plans to install a groundwater recirculation system based on pump and treat technology. The SVE contaminant vapor mass removal is very low and, based on the recent pattern of decline, suggests that the SVE system performance requires additional optimization. Alternative treatment options are currently being evaluated and, if determine feasible, a new work plan will be presented to ADEC for review and approval prior to making any changes.

April 2019. The monitoring event included: measuring the depth to groundwater; measuring water quality parameters; and collecting and analyzing groundwater samples from Monitoring Wells MW-1, MW-2, MW-3, and MW-4, as well as the on-site drinking water well.

Results of the groundwater analytical sampling showed that analytes detected above ADEC GCLs in the primary samples were:

- Monitoring Well MW-2: Benzene, xylenes, GRO, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and naphthalene.
- Monitoring Well MW-3: Benzene, GRO, and naphthalene.

A representative water sample from the on-site drinking water well serving the Tesoro 2Go Mart was sampled and tested for VOCs. The water sample was found to have no detectable levels of contaminants of concern, except the laboratory reporting limits were over the GCLs for 1,1,2-TCA, 1,2,3-trichloropropane, 1,2-dibromoethane, and vinyl chloride.

The groundwater hydraulic gradient across the site was found to be approximately 0.04 feet per foot directed toward the west-northwest at 290 degrees. The groundwater flow direction and gradient are inconsistent with past monitoring events in that the direction of flow is to the west rather than historically to the north with a slightly higher gradient.

July 2019. The monitoring event included: measuring the depth to groundwater; measuring water quality parameters; and collecting and analyzing groundwater samples from Monitoring Wells MW-1, MW-2, MW-3, and MW-4.

Results of the groundwater analytical sampling showed that analytes detected above ADEC GCLs in the primary samples were:

- Monitoring Well MW-1: Benzene.
- Monitoring Well MW-2: Benzene, ethylbenzene, xylenes, and GRO.
- Monitoring Well MW-3: BTEX, GRO, and DRO.
- Monitoring Well MW-4: Benzene.

The groundwater hydraulic gradient across the site was found to be approximately 0.013 feet per foot directed toward the north-northeast at 22 degrees. The groundwater flow direction and gradient are consistent with past monitoring events.

Stantec plans to drill a new 4” diameter remediation well and repurpose the current bio-sparge system. The new well and bio-sparge system will be converted into a groundwater recirculation system to allow injection of chemical oxidation products. The implementation of this change in the remediation system will occur in the 4th quarter of 2019.

October 2019. The monitoring event included: measuring the depth to groundwater; measuring water quality parameters; and collecting and analyzing groundwater samples from Monitoring Wells MW-1, MW-2, MW-3, and MW-4.

Results of the groundwater analytical sampling showed that analytes detected above ADEC GCLs in the primary samples were:

- Monitoring Well MW-2: Benzene and ethylbenzene.

- Monitoring Well MW-3: benzene, ethylbenzene, xylenes, and GRO.
- Monitoring Well MW-4: Benzene.

The groundwater hydraulic gradient across the site was found to be approximately 0.013 feet per foot directed toward the north at 350 degrees. The groundwater flow direction and gradient are consistent with past monitoring events.

Stantec plans to drill a new 4" diameter remediation well (RW 19-1) and repurpose the current bio-sparge system. The new well and bio-sparge system will be converted into a groundwater recirculation system to allow injection of chemical oxidation products. The implementation of this change in the remediation system will occur in the 2nd quarter of 2020.

August 2020. The 3rd quarter groundwater monitoring event included: measuring the depth to groundwater; measuring water quality parameters; and collecting and analyzing groundwater samples from Monitoring Wells MW-1, MW-2, MW-3, MW-4, and Remediation Well RW19-1.

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

- Monitoring Well MW-2: Benzene, ethylbenzene, and xylenes.
- Monitoring Well MW-3: Benzene, ethylbenzene, xylenes, gasoline range organics (GRO), and diesel range organics (DRO).
- Monitoring Well MW-4: Benzene.

The hydraulic gradient across the site was found to be approximately 0.025 feet per foot directed toward the north at 47 degrees. The groundwater flow direction and gradient are consistent with past monitoring events. A historical summary of the groundwater flow for the last 10 monitoring events is shown in the "rose diagram" presented on the Site Plan drawing.

In 2019 Stantec installed a groundwater recirculation system based on pump and treat technology. The 4" diameter remediation well (RW 19-1) that was installed in October 2019, is connected to the existing underground piping system (formerly used for the bio-sparge system) consisting of 3 vertical injection wells located under the northeast portion of the existing store building. Chemical oxidation injection of Klozur One® product directly into the 3 vertical injection wells was conducted during this monitoring event. A total of 330 pounds of Klozur One® and 750 gallons of water pumped from RW19-1 was injected into the in-situ groundwater treatment system.

October 2020. The 4th quarter groundwater monitoring event included: measuring the depth to groundwater; measuring intrinsic water quality parameters; and collecting and analyzing groundwater samples from monitoring wells MW-01, MW-02, MW-03, MW-04 and remediation well RW19-1.

Results of the groundwater analytical sampling showed that analytes detected above ADEC GCLs in the primary samples were:

- Monitoring well MW-1: Benzene

- Monitoring well MW-2: Benzene, ethylbenzene, and 1,2,4-trimethylbenzene.
- Monitoring well MW-3: Benzene, ethylbenzene, xylenes, gasoline range organics (GRO), diesel range organics (DRO), naphthalene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene.
- Monitoring well MW-4: Benzene.

No contaminants were detected in the drinking water sample collected from the water spigot in the store's utility sink.

The hydraulic gradient across the site was found to be approximately 0.032 feet per foot directed toward the north-east at 28 degrees. The groundwater flow direction and gradient are consistent with past monitoring events. A historical summary of the groundwater flow for the last 11 monitoring events is shown in the "rose diagram" presented on the Site Plan drawing.

On September 3, 2020 - prior to the 4th quarter groundwater monitoring event, Stantec completed an injection of chemox products. A chemox solution consisting of two 55-pound bags of Klozur One® product mixed with 50 gallons of water was injected into each of the three remediation wells of the former bio-sparge system (RW-1, RW-2, and RW-3). An additional 200 gallons of water from RW19-1 was injected directly into each remediation well (RW-1, RW-2, and RW-3) immediately after the injection of the chemox solution. In summary, a total of 330 pounds of Klozur One® and 750 gallons of water pumped from RW19-1 was injected into the in-situ groundwater treatment system.

March 2021. The 1st quarter 2021 groundwater monitoring event included: measuring the depth to groundwater; measuring intrinsic water quality parameters; and collecting and analyzing groundwater samples from monitoring wells MW-01, MW-02, MW-03, MW-04 and remediation well RW19-1.

Results of the groundwater analytical sampling showed that analytes detected above ADEC GCLs in the primary samples were:

- Monitoring well MW-2: Benzene.
- Monitoring well MW-3: Benzene, ethylbenzene, xylenes, toluene, gasoline range organics (GRO), and diesel range organics (DRO).
- Monitoring well MW-4: Benzene.

The hydraulic gradient across the site was found to be approximately 0.024 feet per foot directed toward the northwest at 340 degrees. The calculated groundwater gradient and flow direction do not account for the water table drawdown associated with remediation well RW19-1. The groundwater gradient and flow direction are consistent with past monitoring events.

The operation of the groundwater recirculation well (RW 19-1) was checked and noted to be operating within normal range. The submersible pump runs on a continuous basis and observed to discharge approximately a total flow rate of 1.5 gallons per minute into the three on-site injection wells (RW-1, RW-2 and RW-3) that are located within the "footprint" of the former underground storage tank (UST).

May 2021. The 2nd quarter 2021 groundwater monitoring event included: measuring the depth to groundwater; measuring intrinsic water quality parameters; and collecting and analyzing groundwater samples from monitoring wells MW-01, MW-02, MW-03, MW-04 and remediation well RW19-1.

Results of the groundwater analytical sampling showed that analytes detected above ADEC GCLs in the primary samples were:

- Monitoring well MW-2: Benzene.
- Monitoring well MW-3: Benzene, ethylbenzene, xylenes, toluene, GRO, DRO, naphthalene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene.
- Monitoring well MW-4: Benzene.

The approximate hydraulic gradient and direction of groundwater flow across the site was found to be approximately 0.027 feet per foot directed toward the northeast at 59 degrees. The calculated groundwater gradient and flow direction do not account for the water table drawdown associated with remediation well RW19-1. The groundwater gradient and flow direction are generally consistent with past monitoring events. The gradient and direction of flow was graphically calculated by triangulation method.

The operation of the groundwater recirculation well (RW 19-1) was checked and noted to be operating within normal range. The submersible pump runs on a continuous basis and observed to discharge approximately a total flow rate of 1 to 2 gallons per minute into the three on-site injection wells (RW-1, RW-2 and RW-3) that are located within the "footprint" of the former underground storage tank (UST).

Chemox injection via the three remediation wells took place on May 19, 2021, during the completion of the groundwater monitoring event. Stantec completed an injection of two 55-pound bags of Klozur One® product mixed with 50 gallons of water was injected into each of the three remediation wells of the former bio-sparge system (RW-1, RW-2, and RW-3) for a total 330 pounds of Klozur One® and 750 gallons of water pumped from RW19-1 was injected into the in-situ groundwater treatment system. The next scheduled injection of chemox into the treatment wells is planned for the third quarter of 2021.

July 2021. The 2nd quarter 2021 groundwater monitoring event included: measuring the depth to groundwater; measuring intrinsic water quality parameters; and collecting and analyzing groundwater samples from monitoring wells MW-01, MW-02, MW-03, MW-04 and remediation well RW19-1.

Results of the groundwater analytical sampling showed that analytes detected above ADEC GCLs in the samples were:

- Monitoring well MW-3: Benzene, ethylbenzene, xylenes, gasoline range organics (GRO), diesel range organics (DRO), 1,2,4-trimethylbenzene (TMB) and 1,3,5-TMB.

- Monitoring well MW-4: Benzene.

However, the laboratory reported the test results for naphthalene in all of the wells were non-detect but all of them were above the ADEC GCL for naphthalene. Consequently, are shown in this report as exceedance of the naphthalene GCL.

The hydraulic gradient across the site was found to be approximately 0.027 feet per foot directed toward the northeast at 59 degrees. The calculation by triangulation of groundwater hydraulic flow was based on the static water levels in the four on-site monitoring wells and the pumping water level in "pump and treat" well (RW 19-1). The groundwater gradient and flow direction are generally consistent with past monitoring events.

The operation of the groundwater recirculation "pump and treat" well (RW 19-1) was checked and noted to be operating within normal range. The well's submersible pump runs on a continuous basis (24 hours each day). Upon arrival to the site on July 28, 2021, the well pump was discharging approximately 1.4 gallons per minute (gpm) into the three on-site treatment/remediation (injection) wells (RW-1, RW-2 and RW-3) that are located within the "footprint" of the former underground storage tank (UST). The pumped groundwater is treated in-situ with a chemical oxidation (chemox) injection process.

On July 28, 2021, Stantec completed groundwater remediation event that included the injection of chemical oxidation (chemox) solution into the three treatment/remediation wells. The injection process involved the manual injection of a mixture of two 55-pound bags of Klozur One® product and 50 gallons of tap water into each of the three remediation wells. Following the injection of the chemox solution, Stantec injected additional 250 to 300 gallons of tap water to "hydraulically push" the chemox mixture into each remediation well.

October 2021: The fourth quarter 2021 monitoring event was conducted on October 14, 2021, and included the following field activities: measuring the depth to groundwater; measuring water quality parameters; and collecting and analyzing groundwater samples from Monitoring Wells MW-1, MW-2, MW-3, MW-4, and Remediation Well RW19-1. In addition, a representative water sample was collected for analysis for appropriate drinking water parameters from the store's on-site drinking water well. The laboratory analytical sample results showed petroleum associated analytes were present at concentrations exceeding ADEC groundwater cleanup levels (GCLs) for the following monitoring wells:

- Monitoring well MW-1: Benzene
- Monitoring well MW-2: Benzene and ethylbenzene.
- Monitoring well MW-3: Benzene, ethylbenzene, xylenes, gasoline range organics (GRO), diesel range organics (DRO), naphthalene, 1,2,4-trimethylbenzene (TMB) and 1,3,5-TMB.
- Monitoring well MW-4: Benzene.

No contaminants of concern were detected in the drinking water sample collected from the store.

The hydraulic gradient across the site was found to be approximately 0.04 feet per foot directed toward the west-northwest at 285 degrees. The calculation of groundwater hydraulic flow was performed by the "Surfer®" modeling software in conjunction with the static water levels in the four on-site monitoring wells and the pumping water level in "pump and treat" recirculation well (RW 19-1). Due to the operation of the recirculation well RW-19-1, the groundwater flow direction

was slightly altered to the west and the gradient was slightly higher compared to past monitoring events.

The well pump in RW-19-1 was discharging approximately 1.4 gallons per minute (gpm) into the three on-site treatment/remediation (injection) wells (RW-1, RW-2 and RW-3) that are located within the footprint of the former underground storage tank (UST). The well's submersible pump runs on a continuous basis (24 hours each day). The pumped groundwater is treated in-situ with the periodic dosing/injection of a chemical oxidant (chemox) product.

On October 1, 2021, Stantec completed groundwater remediation event that included the injection of chemox solution into the three treatment/remediation wells. The injection process involved the Speedway Store 5314 (former Tesoro 2 Go Mart #76) Page 2 October 2021 4Q Monitoring Event Report November 2021 manual injection of a mixture of two 55-pound bags of Klozur One® product and 50 gallons of tap water into each of the three remediation wells. Following the injection of the chemox solution, Stantec injected additional 250 to 300 gallons of tap water into each remediation well to hydraulically push the chemox mixture into the subsurface formation.

March 2022: This first quarter 2022 monitoring event report was conducted on March 17, 2022 and included the following field activities: measuring the depth to groundwater; measuring water quality parameters; and collecting and analyzing groundwater samples from Monitoring Wells MW-1, MW-2, MW-3, MW-4, and Remediation Well RW19-1.

The laboratory analytical sample results showed petroleum associated analytes were present at concentrations exceeding ADEC groundwater cleanup levels (GCLs) as listed in Alaska Administrative Code (AAC) 18AAC 75.345 Table C (9/18/2019) for the following monitoring wells:

- Monitoring Well MW-2: Benzene.
- Monitoring well MW-3: Benzene, ethylbenzene, xylenes, gasoline range organics (GRO), diesel range organics (DRO), naphthalene, 1,2,4-trimethylbenzene (TMB), and 1,3,5-TMB.
- Monitoring well MW-4: Benzene, ethylbenzene, xylenes, gasoline range organics (GRO), diesel range organics (DRO), naphthalene, 1,2,4-TMB, and 1,3,5-TMB.
- Remediation Well RW19-1: Benzene.

The hydraulic gradient across the site was found to be approximately 0.019 feet per foot directed northwest at 312 degrees. The calculation of groundwater hydraulic flow was based on the static water levels in the five on-site wells measured during the monitoring event on March 17. The groundwater gradient and flow direction are generally consistent with past monitoring events.

On March 25, 2022, Stantec completed groundwater remediation event that included the injection of chemical oxidation (chemox) solution into the three treatment/remediation wells. The injection process involved the manual injection of a mixture of two 55-pound bags of Klozur One® product and 50 gallons of tap water into each of the three remediation wells for a total of 100 gallons per well and 300 gallons of chemox solution total. Following the injection of the chemox solution,

Stantec injected an additional 100 gallons of tap water into each remediation well to hydraulically push the chemox mixture into the subsurface formation.

June 2022: This second quarter 2022 monitoring event report was conducted on June 22 and 23, 2022 and included the following field activities: measuring the depth to groundwater; measuring water quality parameters; and collecting and analyzing groundwater samples from Monitoring Wells MW-1, MW-2, MW-3, MW-4, and Remediation Well RW19-1.

The laboratory analytical sample results showed petroleum associated analytes were present at concentrations exceeding ADEC groundwater cleanup levels (GCLs) as listed in Alaska Administrative Code (AAC) 18AAC 75.345 Table C (9/18/2019) for the following monitoring wells:

- Monitoring Well MW-1: Benzene.
- Monitoring Well MW-2: Benzene.
- Monitoring well MW-3: Benzene, ethylbenzene, xylenes, gasoline range organics (GRO), diesel range organics (DRO), naphthalene, 1,2,4-trimethylbenzene (TMB), and 1,3,5-TMB.
- Monitoring well MW-4: Benzene, ethylbenzene, xylenes, GRO, naphthalene, 1,2,4-TMB, and 1,3,5-TMB.
- Remediation Well RW19-1: Benzene, ethylbenzene and 1,2,4-TMB.

The hydraulic gradient across the site was found to be approximately 0.078 feet per foot directed north-northwest at 343 degrees.

During the 2Q 2022, Stantec completed two groundwater remediation events that included the monthly injection of chemical oxidation (chemox) solution into the three treatment/remediation wells. The chemox was injected on May 16 and June 16, 2022. The chemox injection process involved the manual injection of a mixture of two 55-pound bags of Klozur One® product and 50 gallons of tap water into each of the three remediation wells (RW-1, RW-2 and RW-3) for a total of 100 gallons per well and 300 gallons of chemox solution total. Following the injection of the chemox solution, Stantec injected an additional one to two hundred gallons of tap water into each remediation well to hydraulically push the chemox mixture into the subsurface formation.

August 2022: This third quarter 2022 monitoring event report was conducted on August 19, 2022 and included the following field activities: measuring the depth to groundwater; measuring water quality parameters; and collecting and analyzing groundwater samples from Monitoring Wells MW-1, MW-2, MW-3, MW-4, and Remediation Well RW19-1.

The laboratory analytical sample results showed petroleum associated analytes were present at concentrations exceeding ADEC GCLs for the following monitoring wells:

- Monitoring Well MW-1: Benzene.
- Monitoring Well MW-2: Benzene.
- Monitoring well MW-3: Naphthalene, as well as benzene and naphthalene in the duplicate sample.

- Monitoring well MW-4: Benzene, ethylbenzene, and naphthalene.
- Remediation Well RW19-1: Benzene.

The hydraulic gradient across the site was found to be approximately 0.020 feet per foot directed northwest at 298 degrees. The calculation of groundwater hydraulic flow was based on the static water levels in the five on-site wells measured with the groundwater recirculation pump on during the monitoring event on August 19. The groundwater flow direction is more westerly than in past monitoring events, while the gradient is generally consistent.

Flow from RW 19-1 was discharged at approximately 1 gpm on a continuous basis into injection well RW-2 located in the footprint of the former UST. Between June 23 and July 20 of this year, the pump was turned off to protect the pump during low groundwater elevation conditions due to low rainfall in the early to mid summer.

October 2022: The fourth quarter monitoring event was completed on October 5, 2022. The laboratory analytical sample results showed petroleum associated analytes were present at concentrations exceeding ADEC groundwater cleanup levels (GCLs) as listed in Alaska Administrative Code (AAC) 18AAC 75.345 Table C (9/18/2019) for the following monitoring wells:

- Monitoring Well MW-1: Benzene.
- Monitoring Well MW-2: Benzene.
- Monitoring well MW-3: Benzene, ethylbenzene, total xylenes, naphthalene, and 1,2,4-TMB. 1,3,5-TMB was also detected in the duplicate sample.
- Monitoring well MW-4: Benzene, ethylbenzene, total xylenes, naphthalene, and 1,2,4-TMB.
- Remediation Well RW19-1: Benzene.

The hydraulic gradient across the site was found to be approximately 0.14 feet per foot directed north-northwest at 307 degrees. The increased gradient observed during this monitoring event is due to well rehabilitation in RW19-1 increasing the cone of influence of the remediation system. It is anticipated that the gradient will decrease over time as groundwater flow conditions adjust to the increased pumping level.

On October 6, Stantec staff pulled the pump and cleaned it and the drop tube, and purged the well to clean iron flocculant off the screen. The submersible pump in the recirculation well has since been operating on a continuous basis (24 hours each day).

On October 6, 2022, Stantec completed groundwater remediation event that included the injection of chemox solution into the three treatment/remediation wells. The injection process involved the manual injection of a mixture of two 55-pound bags of Klozur One® product and 50 gallons of tap water into each of the three remediation wells (RW-1, RW-2 and RW-3) for a total of 100 gallons per well and 300 gallons of chemox solution total. It was noted that the chemox solution was accepted less readily in well RW-2 than the other wells. Following the injection of the chemox solution, Stantec injected an additional 100-200 gallons of tap water into each remediation well to hydraulically push the chemox mixture into the subsurface formation. Upon completion of the

chemox injection process, the flow from the on-site recirculation well (RW 19-1) was reconnected to discharge constant flow into RW-2.

No contaminants of concern were detected by EPA Test Method 524.2 in the drinking water sample collected from the store' drinking water tap.

APPENDIX B

Field Methods & Procedures

APPENDIX B – FIELD METHODS AND PROCEDURES

7-11 Store 46745 (Speedway Store 5314 - former Tesoro 2 Go Mart 76) located at 3600 Palmer-Wasilla Highway, Fairbanks, Alaska
Lot 7, Block 1, Cameron Acres Subdivision, Matanuska-Susitna Borough
ADEC File #2265.26.037

The following table presents the proposed tasks for the Alaska Department of Environmental Conservation (ADEC)-approved 2022 Corrective Action Plan (CAP). The scope of these tasks is based on the results and findings of the monitoring and remediation completed to date at the site.

2022 Work Plan Schedule for 7-11 Store 46745 (Speedway Store 5314 - Former T2GM 76)

Work Plan Task		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Task 1	Monitoring Wells: MW-1, MW-2, MW-3, and MW-4 including Remediation/Recirculation Well RW 19-1	V, G, D, P, S & I	V, G, D, P, S & I	V, G, D, P, S & I	V, G, D, P, S & I
	On-site Domestic Drinking Water Well				D & E
Task 2	O&M Recirculation Groundwater Treatment System	✓	✓	✓	✓
Task 3	Chemical Oxidation Treatment	✓	✓	✓	✓

Key:
AK – Alaska Test Method
D – Diesel range organics by AK102.
EPA – U.S. Environmental Protection Agency
E – Drinking Water parameters by EPA Test Method 524.2.
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
V – Volatile organic compounds by EPA Test Method 8260C.
S – Sodium analyzed by Metals (ICP) Method 6010C.
P - Polynuclear aromatic hydrocarbons (PAHs), i.e., semi-volatile organic compounds, by EPA Test Method 8270D Selective Ion Monitoring (SIM).

The CAP for the year 2022 will be implemented by Stantec on behalf of Speedway. 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 2022 Schedule shown above.

APPENDIX C

Field Measurements

Speedway 5314 TNS Date: 10/06/2022 Name(s): _____

Site Name: 76

Well ID	Time of Day	Depth to Product	Depth to Water	Depth to Bottom	Product Thickness	Well Diameter	Well Material	Comment(s) on Condition of Well
MW-4								
MW-1								
MW-3								
Cameron-7								
RW19-1								
MW-2	11:56					2.0	PVC	

Site Name: Speedway 5314 TNS 76 Date: 10/07/2022, 9:51 AM Name(s): Remi Malenfant

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
Cameron-7	N/A		
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 ✓
VOCs (PCE & TCE, only)	3 X 40 mL Clear VOAs ✓

Purge water disposal: Pour on ground

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)

Sample Collected? Yes Time 09:51 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.

Speedway 5314 TNS Date: 10/05/2022, 12:35 PM Name(s): Remi Malenfant

Site Name: 76

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
MW-1	N/A		
TOC	Well Dia. (in)	Screen Length (ft)	Well Material
94.73	2.0		PVC
Latitude (decimal)	Longitude (decimal)	Weather	
61.5845298133	-149.358577633		

Type/Model Meter Used: _____

Calibrated: (date) _____ (time) _____

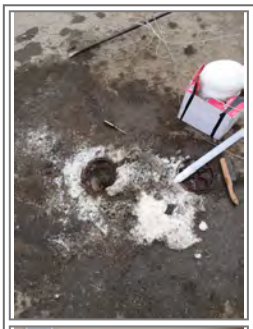
Cell Vol: _____

Type/Model Pump Used: _____

Pump Intake? _____ ft

Above / Below Bottom / TOC

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



Purge water disposal: Pour on ground

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	
		X	Reading	Change* (±0.1)	Reading	Change* (±3%)	Reading	Change* (±10% or <5)	Reading	Change* (±10% or <0.5)	Reading	Change* (±3%)	Reading	Change* (±10mv)

Sample Collected? Yes Time 12:35 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.

Speedway 5314 TNS Date: 10/07/2022, 9:47 AM Name(s): Remi Malenfant

Site Name: 76

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
MW-2	N/A		
TOC	Well Dia. (in)	Screen Length (ft)	Well Material
95.07	2.0		PVC
Latitude (decimal)		Longitude (decimal)	Weather
61.5843106137		-149.358489851	cloudy 45°F 5 mph ese

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

Purge water disposal: Pour on ground

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	
11:56			Reading	Change* (±0.1)	Reading	Change* (±3%)	Reading	Change* (±10% or <5)	Reading	Change* (±10% or <0.5)	Reading	Change* (±3%)	Reading	Change* (±10mv)

Sample Collected? Yes Time 09:47 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.

Speedway 5314 TNS Date: 10/05/2022, 2:12 PM Name(s): Remi Malenfant

Site Name: 76

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
MW-3	N/A		
TOC	Well Dia. (in)	Screen Length (ft)	Well Material
94.52	2.0		PVC
Latitude (decimal)		Longitude (decimal)	Weather
61.5842287396		-149.358589014	

Type/Model Meter Used: _____

Calibrated: (date) _____ (time) _____

Cell Vol: _____

Type/Model Pump Used: _____

Pump Intake? _____ ft

Above / Below Bottom / TOC

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 ✓
Sodium	1 X 250 mL Poly ✓
GRO	3 X 40 mL Amber VOAs ✓

Purge water disposal: Pour on ground **QA/QC: Duplicate #1**

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)

Sample Collected? Yes Time 14:12 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.

Speedway 5314 TNS Date: 10/05/2022, 1:46 PM Name(s): Remi Malenfant

Site Name: 76

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
MW-4	N/A		
TOC	Well Dia. (in)	Screen Length (ft)	Well Material
95.01	2.0		PVC
Latitude (decimal)		Longitude (decimal)	Weather
61.5842637859		-149.358822557	

Type/Model Meter Used: _____

Calibrated: (date) _____ (time) _____

Cell Vol: _____

Type/Model Pump Used: _____

Pump Intake? _____ ft

Above / Below Bottom / TOC

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 ✓
Sodium	1 X 250 mL Poly ✓

Purge water disposal: Pour on ground

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)

Sample Collected? Yes Time 13:46 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.

Site Name: Speedway 5314 TNS **Date:** 10/05/2022, 2:44 PM **Name(s):** Remi Malenfant 76

Well ID	Free Product (ft)	Water (ft)	Bottom (ft)
RW19-1	N/A		
TOC	Well Dia. (in)	Screen Length (ft)	Well Material
95.73			
Latitude (decimal)		Longitude (decimal)	Weather
61.5843002		-149.3588681	

Analytical Parameters	Bottles to be filled
Sodium	1 X 250 mL Poly ✓
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 ✓

Purge water disposal: Pour on ground

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)

Sample Collected? Yes Time 14:44 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.

Speedway 5314 TNS Date: 10/07/2022, 9:51 AM Name(s): Remi Malenfant

Site Name: 76

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
Cameron-7		

Field Data	
Sampler Names: Jm	Sheen/Odor?:
pH:	Specific Conductance:
DO:	Temperature (C):
ORP:	Purge Volume (gal): 0
Notes:	

Speedway 5314 TNS Date: 10/05/2022, 12:35 PM Name(s): Remi Malenfant

Site Name: 76

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
MW-1	61.5845298133	-149.358577633

Field Data	
Sampler Names: Jm/rm	Sheen/Odor?: N/N
pH: 6.51	Specific Conductance: 2282
DO: 2.68	Temperature (C): 9.6
ORP: 176.3	Purge Volume (gal): 3
Notes: Transparent light brown	

Speedway 5314 TNS Date: 10/07/2022, 9:47 AM Name(s): Remi Malenfant

Site Name: 76

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
MW-2	61.5843106137	-149.358489851

Field Data	
Sampler Names:	Sheen/Odor?:
pH:	Specific Conductance:
DO:	Temperature (C):
ORP:	Purge Volume (gal):
Notes:	

Speedway 5314 TNS Date: 10/05/2022, 2:12 PM Name(s): Remi Malenfant

Site Name: 76

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
MW-3	61.5842287396	-149.358589014

Field Data	
Sampler Names: JM/RM	Sheen/Odor?: N/Y
pH: 7.13	Specific Conductance: 962
DO: 2.76	Temperature (C): 9.7
ORP: 116.8	Purge Volume (gal): 3
Notes: Transparent light gray	

Speedway 5314 TNS Date: 10/05/2022, 1:46 PM Name(s): Remi Malenfant

Site Name: 76

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
MW-4	61.5842637859	-149.358822557

Field Data	
Sampler Names: JM/RM	Sheen/Odor?: N/Y
pH: 6.85	Specific Conductance: 943
DO: 1.97	Temperature (C): 9.5
ORP: 113.8	Purge Volume (gal): 3
Notes: Transparent light orange	

Speedway 5314 TNS Date: 10/05/2022, 2:44 PM Name(s): Remi Malenfant

Site Name: 76

Location ID	GPS Latitude (decimal)	GPS Longitude (decimal)
RW19-1	61.5843002	-149.3588681

Field Data	
Sampler Names: Rm, jm	Sheen/Odor?: Odor
pH: 7.14	Specific Conductance: 656.2
DO: 7.7	Temperature (C): 9.2
ORP: 123	Purge Volume (gal): 0
Notes: Voas foaming	

APPENDIX D

Tables of Historical Monitoring Data

Analytical Data Results Table

Speedway 5314 TNS 76
7-Eleven - Paula Sime
3600 E. Palmer Wasilla Highway
Wasilla, Alaska 99654

Unit	Well Screen Interval ft	Ground Water Elevation ft	124-TMB ppm	135-TMB ppm	Benzene ppm	DRO ppm	Ethylbenzene ppm	GRO ppm	Naphthalene ppm	Sodium ppm	Toluene ppm	Xylenes ppm
GW Human Health Cleanup			0.056	0.06	0.0,046	1.5	0.015	2.2	0.0,017		1.1	0.19
Cameron-7												
05/09/2016	--	--	—	—	U	U	U	—	—	—	U	U
10/13/2016	--	--	—	—	U	U	U	—	—	—	U	U
12/09/2016	--	--	—	—	U	U	U	—	—	—	U	U
06/29/2018	--	--	—	—	U	U	U	—	—	—	U	U
04/25/2019	--	--	—	—	U	U(0.26)	U	—	—	—	U	U
10/12/2020	--	--	—	—	U(0.000500)	U(0.186)	U(0.000500)	—	—	—	U(0.000100)	U(0.000500)
10/14/2021	--	--	—	—	U (0.0005)	0.37	U (0.0005)	—	—	—	U (0.001)	U (0.0005)
10/05/2022	--	--	—	—	U(0.000500)	—	U(0.000500)	—	—	—	U(0.000500)	U(0.000500)
MW-1												
11/06/2014	--	--	—	—	0.027	0.36	U (0.0005)	0.067	—	—	U (0.0005)	U (0.0015)
02/25/2015	--	--	—	—	0.0013	U (0.41)	U (0.0005)	U (0.05)	—	—	U (0.0005)	U (0.0015)
06/10/2015	--	--	—	—	U (0.002)	0.5	U (0.003)	U (0.060)	—	—	U (0.002)	U (0.002)
09/02/2015	--	--	—	—	0.0011	U (0.40)	U (0.001)	U (0.1)	—	—	U (0.001)	U (0.003)
11/12/2015	--	--	—	—	0.029	U (0.21)	U (0.003)	0.14	—	—	U (0.002)	U (0.002)
01/20/2016	--	--	—	—	0.071	0.22	U (0.003)	0.18	—	—	U (0.002)	U (0.002)
05/09/2016	--	--	—	—	0.026	U (0.45)	U (0.001)	0.1	—	—	U (0.001)	U (0.003)
10/13/2016	--	--	—	—	0.053	0.36	U (0.001)	0.84	—	—	U (0.001)	U (0.003)
12/09/2016	--	--	—	—	0.027	0.67	U (0.002)	0.067	—	—	U (0.002)	U (0.003)
02/08/2017	--	--	—	—	0.01	0.27	U (0.003)	0.057	—	—	U (0.002)	U (0.002)
04/24/2017	--	--	—	—	0.0096	U (0.0003)	U (0.003)	U (0.001)	—	—	U (0.002)	U (0.003)
09/01/2017	--	--	—	—	0.0068	0.25	U (0.003)	U (1.0)	—	—	U (0.002)	U (0.002)
02/15/2018	--	--	—	—	0.012	U (0.13)	U (0.003)	U (1.0)	—	—	U (0.002)	U (0.003)
06/29/2018	--	--	—	—	0.026	0.3	U (0.003)	U (0.25)	—	—	U (0.002)	U (0.003)
09/11/2018	--	--	—	—	0.01	U (0.27)	U (0.001)	U (0.15)	—	—	U (0.001)	U (0.002)
10/26/2018	--	--	—	—	0.015	0.31	U (0.003)	U (0.25)	—	—	U (0.002)	U (0.003)
02/25/2019	--	--	—	—	0.0037	0.19	U (0.003)	U (0.25)	—	—	U (0.002)	U (0.003)
04/25/2019	--	--	—	—	U (0.003)	U (0.27)	U (0.003)	U (0.25)	—	—	U (0.002)	U (0.003)
07/25/2019	--	--	—	—	0.0071	0.27	U (0.003)	U (0.25)	—	—	U (0.002)	U (0.003)
10/18/2019	--	--	—	—	U (0.003)	0.16	U (0.003)	U (0.25)	—	—	U (0.002)	U (0.003)
08/11/2020	--	73.27	—	—	0.00262	U (0.808)	U (0.001)	U (0.1)	—	35.8	U (0.001)	U (0.003)
10/12/2020	--	72.88	U (0.001)	U (0.001)	0.00548	0.369	U (0.001)	0.011	U (0.000250)	43.6	U (0.001)	U (0.002)
03/23/2021	--	73.38	—	—	0.000526	U (0.840)	U (0.001)	0.013	—	33.2	U (0.001)	U (0.001)
05/19/2021	--	73.17	U(0.00100)	U(0.00100)	0.00481	U (0.840)	U (0.001)	0.0302	U(0.00500)	35	U (0.001)	U (0.002)
07/14/2021	--	72.93	U (0.00100)	U (0.00100)	0.00177	0.317	U (0.001)	U (0.1)	U (0.00500)	32.2	U (0.001)	U (0.003)
10/14/2021	--	75.24	U(0.00100)	U(0.00100)	0.0167	0.427	U (0.001)	0.0669	U(0.000250)	59.7	U (0.001)	U (0.002)
03/17/2022	--	75.93	U(0.00100)	U(0.00100)	0.000111	0.263	U(0.00100)	U(0.100)	U(0.000250)	133	U(0.00100)	U(0.00300)
06/22/2022	--	73.67	U(0.00100)	U(0.00100)	0.00975	U(0.800)	U(0.00100)	0.0375	U(0.000250)	49.2	U(0.00100)	U(0.00300)
08/19/2022	--	75.72	U(0.00100)	0.000106	0.00606	U(0.800)	U(0.00100)	0.0509	U(0.000250)	85.3	U(0.00100)	0.000456
10/05/2022	--	--	U(0.00100)	U(0.00100)	0.0477	U(0.800)	U(0.00100)	0.0813	U(0.000250)	54.8	U(0.00100)	U(0.00300)

Analytical Data Results Table

Speedway 5314 TNS 76
7-Eleven - Paula Sime
3600 E. Palmer Wasilla Highway
Wasilla, Alaska 99654

Unit	Well Screen Interval ft	Ground Water Elevation ft	124-TMB ppm	135-TMB ppm	Benzene ppm	DRO ppm	Ethylbenzene ppm	GRO ppm	Naphthalene ppm	Sodium ppm	Toluene ppm	Xylenes ppm
GW Human Health Cleanup			0.056	0.06	0.0046	1.5	0.015	2.2	0.0017		1.1	0.19
MW-2												
11/06/2014	--	--	—	—	0.067	0.19	0.016	0.68	—	—	0.026	0.13
02/25/2015	--	--	—	—	0.022	U (0.41)	0.0034	0.13	—	—	0.0045	0.02
06/10/2015	--	--	—	—	U (0.002)	1.1	U (0.003)	6.1	—	—	U (0.002)	1.82
09/02/2015	--	--	—	—	0.089	1.8	0.065	U (10)	—	—	0.056	1.4
11/12/2015	--	--	—	—	0.091	1.8	0.13	22	—	—	0.11	0.179
01/20/2016	--	--	—	—	0.52	1.6	0.83	—	—	—	1.5	5.1
05/09/2016	--	--	—	—	0.41	0.95	0.35	U (10)	—	—	0.37	2.8
10/13/2016	--	--	—	—	0.42	0.98	0.48	9.2	—	—	0.63	2.62
12/09/2016	--	--	—	—	0.57	1.7	0.5	11	—	—	0.17	1.01
02/08/2017	--	--	—	—	0.053	0.2	0.021	0.58	—	—	U (0.002)	0.096
04/24/2017	--	--	—	—	0.036	0.94	0.035	2.6	—	—	0.012	0.66
09/01/2017	--	--	—	—	0.083	1.3	0.45	9.7	—	—	0.026	2.33
02/15/2018	--	--	—	—	0.067	0.98	0.14	U (10)	—	—	0.02	0.97
06/29/2018	--	--	—	—	0.17	1.2	0.59	6	—	—	0.25	3.3
09/11/2018	--	--	—	—	0.094	0.74	0.18	4.8	—	—	0.13	1.08
10/26/2018	--	--	—	—	0.17	1	0.48	11	—	—	0.28	3.01
02/25/2019	--	--	—	—	0.092	1.2	0.18	5.4	—	—	0.22	1.41
04/25/2019	--	--	—	—	0.051	0.93	U (0.003)	3.6	—	—	0.13	1.28
07/25/2019	--	--	—	—	0.079	0.89	0.2	5.4	—	—	0.13	1.47
10/18/2019	--	--	—	—	0.025	0.24	0.022	0.74	—	—	0.0065	0.101
08/11/2020	--	74.49	—	—	0.0599	0.553	0.0759	0.921	—	33.2	0.0107	0.465
10/12/2020	--	74.58	0.109	0.0329	0.16	0.409	0.0455	0.755	0.000405	55.2	U (0.001)	0.168
03/23/2021	--	73.53	—	—	0.00542	U (0.840)	U (0.001)	0.0227	—	48.1	U (0.001)	U (0.003)
05/19/2021	--	73.57	0.00278	0.0012	0.00338	U (0.840)	0.000461	0.0374	U(0.00500)	25.4	U (0.001)	0.00501
07/14/2021	--	73.97	0.00487	0.00107	0.00399	0.272	0.00193	0.0504	U (0.00500)	32.8	U (0.001)	0.00465
10/14/2021	--	76.78	0.0706	0.0185	0.0292	0.589	0.0176	0.628	0.000277	50.3	0.0109	0.1308
03/17/2022	--	76.98	0.0113	0.00335	0.0189	0.288	0.00723	0.249	U(0.000250)	180	0.000395	0.02313
06/22/2022	--	74.73	U(0.00100)	U(0.00100)	0.0203	0.38	0.00583	0.327	U(0.000250)	87.7	0.00567	0.00454
08/19/2022	--	77.77	U(0.00100)	U(0.00100)	0.023	0.198	0.00641	0.137	U(0.000250)	86.3	0.00171	0.00775
10/05/2022	--	--	0.00907	0.00304	0.00781	U(0.800)	0.00446	0.117	U(0.000250)	37.3	0.000291	0.0105
MW-3												
11/06/2014	--	--	—	—	5	3.5	37	240	—	—	7.4	39
02/25/2015	--	--	—	—	2.9	8.6	6.7	180	—	—	34	37
06/10/2015	--	--	—	—	5.2	9.5	8.2	210	—	—	38	48
09/02/2015	--	--	—	—	3.7	5.1	4.4	U (200)	—	—	24	28
11/12/2015	--	--	—	—	1.3	3.6	0.21	87	—	—	2.1	1.69
01/20/2016	--	--	—	—	3.8	4.1	4.2	120	—	—	13	25.3
05/09/2016	--	--	—	—	2.1	1.5	2.2	69	—	—	21	33
10/13/2016	--	--	—	—	1.2	2	2.9	46	—	—	4.2	14.6

Analytical Data Results Table

Speedway 5314 TNS 76
7-Eleven - Paula Sime
3600 E. Palmer Wasilla Highway
Wasilla, Alaska 99654

Unit	Well Screen Interval ft	Ground Water Elevation ft	124-TMB ppm	135-TMB ppm	Benzene ppm	DRO ppm	Ethylbenzene ppm	GRO ppm	Naphthalene ppm	Sodium ppm	Toluene ppm	Xylenes ppm
GW Human Health Cleanup			0.056	0.06	0.0046	1.5	0.015	2.2	0.0017		1.1	0.19
12/09/2016	--	--	—	—	0.17	3.3	—	100	—	—	—	0.54
02/08/2017	--	--	—	—	39	3.9	53	98	—	—	99	103
04/24/2017	--	--	—	—	2.5	6.7	5.2	U (200)	—	—	14	28.9
09/01/2017	--	--	—	—	0.61	1.9	3.7	75	—	—	9.3	21.4
02/15/2018	--	--	—	—	0.3	1.3	2.9	U (100)	—	—	3.8	15.6
06/29/2018	--	--	—	—	0.28	1.1	1.7	23	—	—	1.1	8.2
09/11/2018	--	--	—	—	0.29	0.91	1	14	—	—	0.53	5.6
10/26/2018	--	--	—	—	0.32	0.93	0.89	15	—	—	0.36	4.3
02/25/2019	--	--	—	—	0.95	4.6	2.3	U (1.3)	—	—	0.69	11.4
04/25/2019	--	--	—	—	0.14	0.64	U (1.5)	11	—	—	0.13	U (1.5)
07/25/2019	--	--	—	—	0.68	1.9	2.4	41	—	—	1.2	11.6
10/18/2019	--	--	—	—	0.21	1.2	1.7	21	—	—	0.66	9.7
08/11/2020	--	75.6	—	—	0.737	4.89	2.99	32.8	—	52.4	1.05	17
10/12/2020	--	76.2	2.91	0.764	0.32	5.22	2.46	29.4	0.0489	66.1	0.868	14.89
03/23/2021	--	75.12	—	—	0.45	U (0.840)	3.73	54.3	—	U(3.00)	1.21	21.6
05/19/2021	--	76.08	2.24	0.631	0.473	5.08	2.04	31.1	U(1.00)	47	0.186	11.1
07/14/2021	--	75.93	2.16	0.594	0.581	3.87	2.65	30.3	U (1.00)	49.8	0.156	12.87
10/14/2021	--	77.13	1.31	0.33	0.084	2.11	0.741	15.8	0.0109	41.2	0.13	4.147
03/17/2022	--	76.99	1.49	0.46	0.0642	3.44	0.0764	13.9	0.0238	110	0.0104	4.351
06/22/2022	--	77.52	1.9	0.62	0.0923	3.24	0.739	10.2	0.0262	74.8	0.0336	3.776
08/19/2022	--	77.96	0.028	0.00707	0.0119	1.49	0.0106	0.559	0.00315	68.9	U(0.00500)	0.2237
10/05/2022	--	--	0.343	0.0925	0.02	0.92	0.168	2.83	0.0042	56	0.000379	0.618
MW-4												
11/06/2014	--	--	—	—	0.94	0.45	0.3	13	—	—	1.9	1.5
02/25/2015	--	--	—	—	3.7	1	0.56	29	—	—	6.6	2.7
06/10/2015	--	--	—	—	1.1	0.99	0.54	14	—	—	2.3	2.7
09/02/2015	--	--	—	—	0.026	U (0.40)	0.007	0.3	—	—	U (0.001)	0.03
11/12/2015	--	--	—	—	—	U (0.21)	—	U (0.050)	—	—	—	—
01/20/2016	--	--	—	—	0.0043	0.15	U (0.003)	—	—	—	U (0.002)	U (0.002)
05/09/2016	--	--	—	—	0.0092	U (0.42)	U (0.001)	U (0.1)	—	—	U (0.001)	U (0.003)
10/13/2016	--	--	—	—	U (0.00020)	0.18	U (0.001)	U (0.1)	—	—	U (0.001)	U (0.003)
12/09/2016	--	--	—	—	—	0.18	—	U (0.05)	—	—	—	—
02/08/2017	--	--	—	—	0.017	0.18	U (0.003)	U (0.05)	—	—	U (0.002)	U (0.002)
04/24/2017	--	--	—	—	0.012	U (0.0003)	0.0049	U (0.001)	—	—	U (0.002)	U (0.003)
09/01/2017	--	--	—	—	0.55	0.48	0.38	5.1	—	—	U (0.050)	0.74
02/15/2018	--	--	—	—	0.19	0.29	0.26	3.3	—	—	U (0.10)	0.438
06/29/2018	--	--	—	—	0.09	0.19	0.022	0.52	—	—	U (0.002)	0.027
09/11/2018	--	--	—	—	0.0086	U (0.28)	0.0052	U (0.15)	—	—	U (0.001)	0.0062
10/26/2018	--	--	—	—	0.013	0.15	0.0045	U (0.25)	—	—	U (0.002)	0.0089
02/25/2019	--	--	—	—	0.026	0.2	0.0034	U (0.25)	—	—	U (0.002)	0.0089

Analytical Data Results Table

Speedway 5314 TNS 76
7-Eleven - Paula Sime
3600 E. Palmer Wasilla Highway
Wasilla, Alaska 99654

Unit	Well Screen Interval ft	Ground Water Elevation ft	124-TMB ppm	135-TMB ppm	Benzene ppm	DRO ppm	Ethylbenzene ppm	GRO ppm	Naphthalene ppm	Sodium ppm	Toluene ppm	Xylenes ppm
GW Human Health Cleanup			0.056	0.06	0.0046	1.5	0.015	2.2	0.0017		1.1	0.19
04/25/2019	--	--	—	—	U (0.003)	U (0.27)	U (0.003)	U (0.25)	—	—	U (0.002)	U (0.003)
07/25/2019	--	--	—	—	**0.051**	0.16	U (0.003)	U (0.25)	—	—	U (0.002)	0.0078
10/18/2019	--	--	—	—	**0.02**	U (0.12)	0.0059	U (0.25)	—	—	0.015	0.0277
08/11/2020	--	75.74	—	—	**0.054**	U (0.800)	0.000455	0.084	—	58.4	U (0.001)	0.00933
10/12/2020	--	76.05	0.0112	0.00174	**0.129**	U (0.800)	0.00699	0.313	0.000465	36.2	U (0.001)	0.0264
03/23/2021	--	73.83	—	—	**0.079**	0.266	**0.0178**	0.274	—	47.1	U (0.001)	0.0345
05/19/2021	--	75.89	0.0171	0.00423	**0.0307**	U (0.840)	0.00328	0.153	U(0.00500)	67.5	U (0.001)	0.0123
07/14/2021	--	75.81	0.00374	0.000529	**0.0176**	0.371	0.000375	0.0682	U (0.00500)	76.7	U (0.001)	0.00383
10/14/2021	--	75.05	0.00561	0.000233	**0.00564**	0.521	0.00318	0.105	0.000209	63.4	U (0.001)	0.00788
03/17/2022	--	76.92	**0.273**	**0.106**	**0.214**	0.683	**0.186**	**2.8**	**0.00334**	41.6	0.168	**0.857**
06/22/2022	--	76.2	**0.401**	**0.128**	**0.409**	0.816	**0.373**	**4.88**	**0.00941**	91	U(0.0500)	**1.49**
08/19/2022	--	77.72	U(0.00500)	U(0.00500)	**0.0921**	1.29	**0.0237**	0.638	**0.00657**	104	U(0.00500)	0.00253
10/05/2022	--	--	**0.0908**	0.0428	**0.0644**	0.565	**0.131**	0.885	**0.00746**	66.2	U(0.00500)	**0.198**
RW19-1												
08/11/2020	--	73.12	—	—	0.00126	U (0.848)	U (0.001)	U (0.100)	—	28.8	U (0.001)	0.000489
10/12/2020	--	70.87	U (0.001)	U (0.001)	0.000609	U (0.800)	U (0.001)	U (0.100)	U (0.000250)	28.6	U (0.001)	U (0.002)
03/23/2021	--	--	—	—	U (0.001)	U (0.840)	U (0.001)	0.0119	—	25.9	U (0.001)	U (0.003)
05/19/2021	--	--	U(0.00100)	U(0.00100)	U (0.001)	U (0.800)	U (0.001)	0.0158	U(0.00500)	28.8	U (0.001)	U (0.002)
07/14/2021	--	70.48	U (0.00100)	U (0.00100)	U (0.001)	0.297	U (0.001)	U (0.100)	U (0.00500)	28.8	U (0.001)	U (0.003)
10/14/2021	--	72.83	U(0.00100)	U(0.00100)	0.000506	0.387	U (0.001)	0.0426	U(0.000250)	32.3	U (0.001)	U (0.002)
03/17/2022	--	75.68	0.00702	0.00388	**0.00488**	U(0.888)	0.00311	0.147	0.000108	48.2	U(0.00100)	0.02812
06/23/2022	--	73.55	0.0169	0.00547	**0.0257**	U(0.800)	**0.019**	0.223	0.000452	36.9	0.00166	0.0822
08/19/2022	--	69.73	0.00173	0.000659	**0.0107**	0.443	0.00838	0.21	0.000186	36.9	0.00104	0.02244
10/05/2022	--	--	0.00245	0.000995	**0.00737**	U(0.800)	0.00678	0.0632	0.000239	33.6	U(0.00100)	0.00953

APPENDIX E

Laboratory Analytical Report and ADEC Laboratory Data Review Checklist

ANALYTICAL REPORT

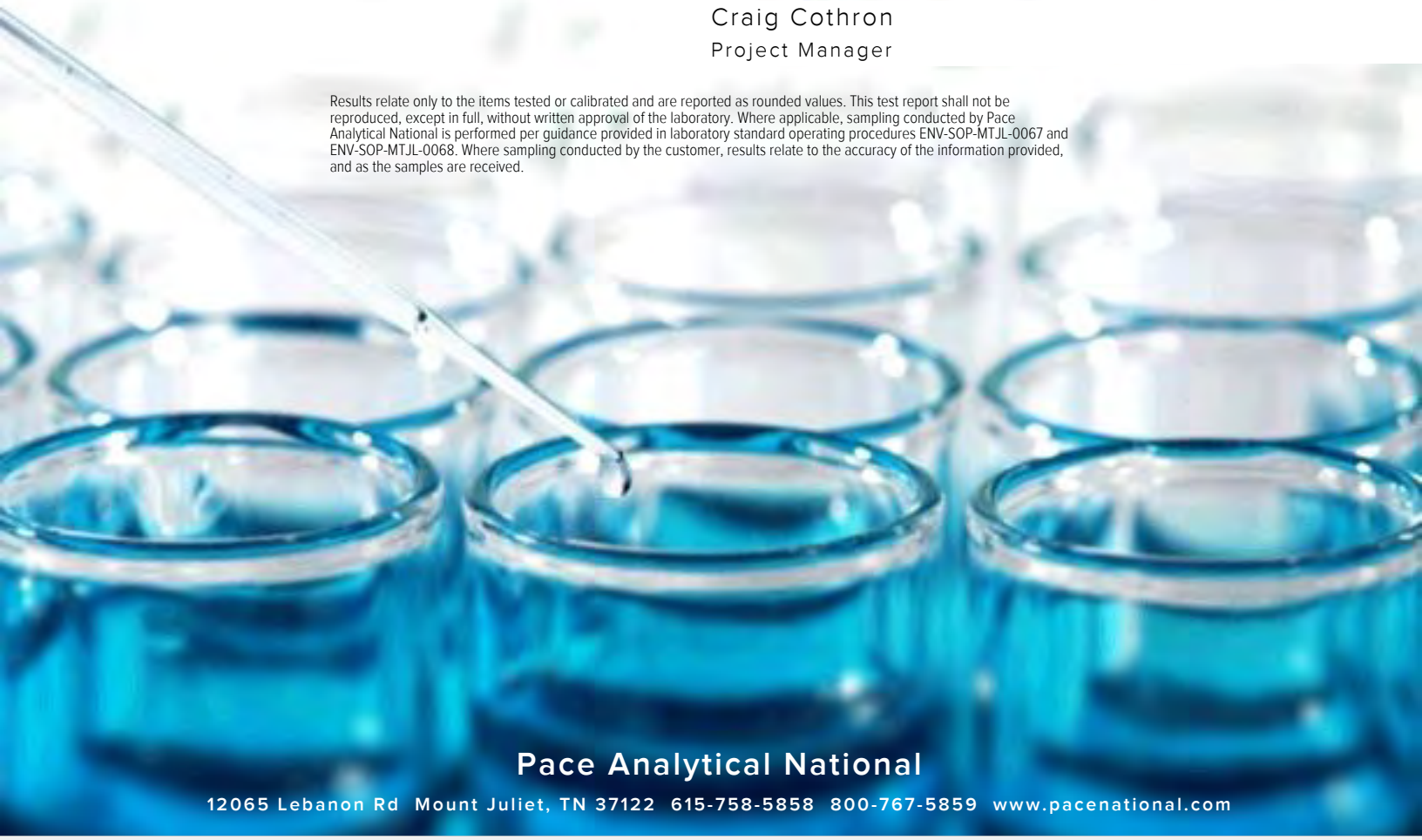
October 25, 2022

Stantec - Anchorage, AK

Sample Delivery Group:	L1544212
Samples Received:	10/07/2022
Project Number:	185705773
Description:	Speedway 5314
Site:	0005314
Report To:	Mr. John Marshall 725 E Fireweed Lane Suite 200 Anchorage, AK 99503

Entire Report Reviewed By:

Craig Cothron
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

MW-01 L1544212-01 GW

Collected by: Remi Malenfant | Collected date/time: 10/05/22 12:35 | Received date/time: 10/07/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG1943729	1	10/22/22 10:23	10/25/22 04:13	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG1941611	1	10/13/22 00:34	10/13/22 00:34	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1941840	1	10/13/22 00:05	10/13/22 00:05	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1941854	1	10/13/22 02:15	10/13/22 18:35	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1940099	1	10/11/22 06:27	10/11/22 17:14	AMG	Mt. Juliet, TN

MW-02 L1544212-02 GW

Collected by: Remi Malenfant | Collected date/time: 10/05/22 11:57 | Received date/time: 10/07/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG1943729	1	10/22/22 10:23	10/25/22 04:16	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG1941611	1	10/13/22 00:56	10/13/22 00:56	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1941840	1	10/13/22 00:24	10/13/22 00:24	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1941854	1	10/13/22 02:15	10/13/22 18:58	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1940099	1	10/11/22 06:27	10/11/22 17:32	AMG	Mt. Juliet, TN

MW-03 L1544212-03 GW

Collected by: Remi Malenfant | Collected date/time: 10/05/22 14:12 | Received date/time: 10/07/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG1943730	1	10/22/22 08:29	10/24/22 19:05	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG1941611	5	10/13/22 02:01	10/13/22 02:01	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1941840	5	10/13/22 04:58	10/13/22 04:58	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1941854	1.05	10/13/22 02:15	10/13/22 19:21	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1940099	1	10/11/22 06:27	10/11/22 21:59	AMG	Mt. Juliet, TN

MW-04 L1544212-04 GW

Collected by: Remi Malenfant | Collected date/time: 10/05/22 13:46 | Received date/time: 10/07/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG1943730	1	10/22/22 08:29	10/24/22 19:16	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG1941611	5	10/13/22 02:23	10/13/22 02:23	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1941840	5	10/13/22 05:18	10/13/22 05:18	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1941854	1	10/13/22 02:15	10/13/22 19:44	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1940099	1	10/11/22 06:27	10/11/22 17:49	AMG	Mt. Juliet, TN

RW19-01 L1544212-05 GW

Collected by: Remi Malenfant | Collected date/time: 10/05/22 14:44 | Received date/time: 10/07/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG1943730	1	10/22/22 08:29	10/24/22 19:19	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG1941611	1	10/13/22 01:17	10/13/22 01:17	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1941840	1	10/13/22 00:44	10/13/22 00:44	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1943589	1	10/18/22 13:53	10/19/22 10:55	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1940099	1	10/11/22 06:27	10/11/22 18:07	AMG	Mt. Juliet, TN

DUP1 L1544212-06 GW

Collected by: Remi Malenfant | Collected date/time: 10/05/22 14:15 | Received date/time: 10/07/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG1943730	1	10/22/22 08:29	10/24/22 19:22	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG1941611	1	10/13/22 01:39	10/13/22 01:39	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1941840	1	10/13/22 01:03	10/13/22 01:03	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1943669	10	10/17/22 04:58	10/17/22 04:58	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1941854	1	10/13/22 02:15	10/13/22 20:44	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1940099	1	10/11/22 06:27	10/11/22 18:25	AMG	Mt. Juliet, TN

TRIP BLANK L1544212-07 GW

Collected by: Remi Malenfant | Collected date/time: 10/05/22 00:00 | Received date/time: 10/07/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1941840	1	10/12/22 23:06	10/12/22 23:06	DWR	Mt. Juliet, TN

CAMERON LOT 7 L1544212-08 DW

Collected by: Remi Malenfant | Collected date/time: 10/05/22 14:40 | Received date/time: 10/07/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 524.2	WG1939917	1	10/10/22 01:34	10/10/22 01:34	JAH	Mt. Juliet, TN

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

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Sodium	54.8		0.504	3.00	1	10/25/2022 04:13	WG1943729

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	0.0813	J J3	0.0287	0.100	1	10/13/2022 00:34	WG1941611
(S) a,a,a-Trifluorotoluene(FID)	*78.9*			*50.0-150*		*10/13/2022 00:34*	WG1941611
(S) a,a,a-Trifluorotoluene(PID)	*0.000*	J2		*79.0-125*		*10/13/2022 00:34*	WG1941611

Volatile Organic Compounds (GC/MS) by Method 524.2/8260C

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.0477		0.0000941	0.00100	1	10/13/2022 00:05	WG1941840
n-Butylbenzene	U		0.000157	0.00100	1	10/13/2022 00:05	WG1941840
sec-Butylbenzene	U		0.000125	0.00100	1	10/13/2022 00:05	WG1941840
tert-Butylbenzene	U		0.000127	0.00100	1	10/13/2022 00:05	WG1941840
Ethylbenzene	U		0.000137	0.00100	1	10/13/2022 00:05	WG1941840
Isopropylbenzene	U		0.000105	0.00100	1	10/13/2022 00:05	WG1941840
Naphthalene	U		0.00100	0.00500	1	10/13/2022 00:05	WG1941840
Toluene	U		0.000278	0.00100	1	10/13/2022 00:05	WG1941840
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	10/13/2022 00:05	WG1941840
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	10/13/2022 00:05	WG1941840
m&p-Xylene	U		0.000430	0.00200	1	10/13/2022 00:05	WG1941840
o-Xylene	U		0.000174	0.00100	1	10/13/2022 00:05	WG1941840
(S) Toluene-d8	*106*			*80.0-120*		*10/13/2022 00:05*	WG1941840
(S) 4-Bromofluorobenzene	*92.8*			*77.0-126*		*10/13/2022 00:05*	WG1941840
(S) 1,2-Dichloroethane-d4	*99.2*			*70.0-130*		*10/13/2022 00:05*	WG1941840

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		0.170	0.800	1	10/13/2022 18:35	WG1941854
(S) o-Terphenyl	*61.0*			*50.0-150*		*10/13/2022 18:35*	WG1941854

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	10/11/2022 17:14	WG1940099
Acenaphthene	U		0.0000190	0.0000500	1	10/11/2022 17:14	WG1940099
Acenaphthylene	U		0.0000171	0.0000500	1	10/11/2022 17:14	WG1940099
Benzo(a)anthracene	U		0.0000203	0.0000500	1	10/11/2022 17:14	WG1940099
Benzo(a)pyrene	U		0.0000184	0.0000500	1	10/11/2022 17:14	WG1940099
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	10/11/2022 17:14	WG1940099
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	10/11/2022 17:14	WG1940099
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	10/11/2022 17:14	WG1940099
Chrysene	U		0.0000179	0.0000500	1	10/11/2022 17:14	WG1940099
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	10/11/2022 17:14	WG1940099
Fluoranthene	U		0.0000270	0.000100	1	10/11/2022 17:14	WG1940099
Fluorene	U		0.0000169	0.0000500	1	10/11/2022 17:14	WG1940099
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	10/11/2022 17:14	WG1940099
Naphthalene	U		0.0000917	0.000250	1	10/11/2022 17:14	WG1940099
Phenanthrene	U		0.0000180	0.0000500	1	10/11/2022 17:14	WG1940099
Pyrene	U		0.0000169	0.0000500	1	10/11/2022 17:14	WG1940099

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

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	
1-Methylnaphthalene	U		0.0000687	0.000250	1	10/11/2022 17:14	WG1940099
2-Methylnaphthalene	U		0.0000674	0.000250	1	10/11/2022 17:14	WG1940099
(S) Nitrobenzene-d5	*104*			*31.0-160*		*10/11/2022 17:14*	WG1940099
(S) 2-Fluorobiphenyl	*101*			*48.0-148*		*10/11/2022 17:14*	WG1940099
(S) p-Terphenyl-d14	*90.5*			*37.0-146*		*10/11/2022 17:14*	WG1940099

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Sodium	37.3		0.504	3.00	1	10/25/2022 04:16	WG1943729

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	0.117	J3	0.0287	0.100	1	10/13/2022 00:56	WG1941611
(S) a,a,a-Trifluorotoluene(FID)	*76.0*			*50.0-150*		*10/13/2022 00:56*	WG1941611
(S) a,a,a-Trifluorotoluene(PID)	*0.000*	J2		*79.0-125*		*10/13/2022 00:56*	WG1941611

Volatile Organic Compounds (GC/MS) by Method 524.2/8260C

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.00781		0.0000941	0.00100	1	10/13/2022 00:24	WG1941840
n-Butylbenzene	0.000461	J	0.000157	0.00100	1	10/13/2022 00:24	WG1941840
sec-Butylbenzene	0.000407	J	0.000125	0.00100	1	10/13/2022 00:24	WG1941840
tert-Butylbenzene	U		0.000127	0.00100	1	10/13/2022 00:24	WG1941840
Ethylbenzene	0.00446		0.000137	0.00100	1	10/13/2022 00:24	WG1941840
Isopropylbenzene	0.00184		0.000105	0.00100	1	10/13/2022 00:24	WG1941840
Naphthalene	U		0.00100	0.00500	1	10/13/2022 00:24	WG1941840
Toluene	0.000291	J	0.000278	0.00100	1	10/13/2022 00:24	WG1941840
1,2,4-Trimethylbenzene	0.00907		0.000322	0.00100	1	10/13/2022 00:24	WG1941840
1,3,5-Trimethylbenzene	0.00304		0.000104	0.00100	1	10/13/2022 00:24	WG1941840
m&p-Xylene	0.00891		0.000430	0.00200	1	10/13/2022 00:24	WG1941840
o-Xylene	0.00155		0.000174	0.00100	1	10/13/2022 00:24	WG1941840
(S) Toluene-d8	*104*			*80.0-120*		*10/13/2022 00:24*	WG1941840
(S) 4-Bromofluorobenzene	*97.9*			*77.0-126*		*10/13/2022 00:24*	WG1941840
(S) 1,2-Dichloroethane-d4	*95.6*			*70.0-130*		*10/13/2022 00:24*	WG1941840

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		0.170	0.800	1	10/13/2022 18:58	WG1941854
(S) o-Terphenyl	*50.3*			*50.0-150*		*10/13/2022 18:58*	WG1941854

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	10/11/2022 17:32	WG1940099
Acenaphthene	U		0.0000190	0.0000500	1	10/11/2022 17:32	WG1940099
Acenaphthylene	U		0.0000171	0.0000500	1	10/11/2022 17:32	WG1940099
Benzo(a)anthracene	U		0.0000203	0.0000500	1	10/11/2022 17:32	WG1940099
Benzo(a)pyrene	U		0.0000184	0.0000500	1	10/11/2022 17:32	WG1940099
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	10/11/2022 17:32	WG1940099
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	10/11/2022 17:32	WG1940099
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	10/11/2022 17:32	WG1940099
Chrysene	U		0.0000179	0.0000500	1	10/11/2022 17:32	WG1940099
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	10/11/2022 17:32	WG1940099
Fluoranthene	U		0.0000270	0.000100	1	10/11/2022 17:32	WG1940099
Fluorene	U		0.0000169	0.0000500	1	10/11/2022 17:32	WG1940099
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	10/11/2022 17:32	WG1940099
Naphthalene	U		0.0000917	0.000250	1	10/11/2022 17:32	WG1940099
Phenanthrene	U		0.0000180	0.0000500	1	10/11/2022 17:32	WG1940099
Pyrene	U		0.0000169	0.0000500	1	10/11/2022 17:32	WG1940099

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

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	U		0.0000687	0.000250	1	10/11/2022 17:32	WG1940099
2-Methylnaphthalene	U		0.0000674	0.000250	1	10/11/2022 17:32	WG1940099
(S) Nitrobenzene-d5	*108*			*31.0-160*		*10/11/2022 17:32*	WG1940099
(S) 2-Fluorobiphenyl	*101*			*48.0-148*		*10/11/2022 17:32*	WG1940099
(S) p-Terphenyl-d14	*93.2*			*37.0-146*		*10/11/2022 17:32*	WG1940099

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Sodium	54.9	O1	0.504	3.00	1	10/24/2022 19:05	WG1943730

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	0.707	J3	0.143	0.500	5	10/13/2022 02:01	WG1941611
(S) a,a,a-Trifluorotoluene(FID)	*103*			*50.0-150*		*10/13/2022 02:01*	WG1941611
(S) a,a,a-Trifluorotoluene(PID)	*0.000*	J2		*79.0-125*		*10/13/2022 02:01*	WG1941611

Volatile Organic Compounds (GC/MS) by Method 524.2/8260C

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.00849		0.000471	0.00500	5	10/13/2022 04:58	WG1941840
n-Butylbenzene	U		0.000785	0.00500	5	10/13/2022 04:58	WG1941840
sec-Butylbenzene	0.00116	J	0.000625	0.00500	5	10/13/2022 04:58	WG1941840
tert-Butylbenzene	U		0.000635	0.00500	5	10/13/2022 04:58	WG1941840
Ethylbenzene	0.0680		0.000685	0.00500	5	10/13/2022 04:58	WG1941840
Isopropylbenzene	0.00718		0.000525	0.00500	5	10/13/2022 04:58	WG1941840
Naphthalene	U		0.00500	0.0250	5	10/13/2022 04:58	WG1941840
Toluene	U		0.00139	0.00500	5	10/13/2022 04:58	WG1941840
1,2,4-Trimethylbenzene	0.131		0.00161	0.00500	5	10/13/2022 04:58	WG1941840
1,3,5-Trimethylbenzene	0.0398		0.000520	0.00500	5	10/13/2022 04:58	WG1941840
m&p-Xylene	0.221		0.00215	0.0100	5	10/13/2022 04:58	WG1941840
o-Xylene	0.0193		0.000870	0.00500	5	10/13/2022 04:58	WG1941840
(S) Toluene-d8	*102*			*80.0-120*		*10/13/2022 04:58*	WG1941840
(S) 4-Bromofluorobenzene	*98.6*			*77.0-126*		*10/13/2022 04:58*	WG1941840
(S) 1,2-Dichloroethane-d4	*97.6*			*70.0-130*		*10/13/2022 04:58*	WG1941840

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	0.920		0.179	0.840	1.05	10/13/2022 19:21	WG1941854
(S) o-Terphenyl	*46.4*	J2		*50.0-150*		*10/13/2022 19:21*	WG1941854

Sample Narrative:

L1544212-03 WG1941854: 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		0.0000190	0.0000500	1	10/11/2022 21:59	WG1940099
Acenaphthene	0.0000380	J	0.0000190	0.0000500	1	10/11/2022 21:59	WG1940099
Acenaphthylene	U		0.0000171	0.0000500	1	10/11/2022 21:59	WG1940099
Benzo(a)anthracene	U		0.0000203	0.0000500	1	10/11/2022 21:59	WG1940099
Benzo(a)pyrene	U		0.0000184	0.0000500	1	10/11/2022 21:59	WG1940099
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	10/11/2022 21:59	WG1940099
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	10/11/2022 21:59	WG1940099
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	10/11/2022 21:59	WG1940099
Chrysene	U		0.0000179	0.0000500	1	10/11/2022 21:59	WG1940099
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	10/11/2022 21:59	WG1940099
Fluoranthene	U		0.0000270	0.000100	1	10/11/2022 21:59	WG1940099
Fluorene	0.0000707		0.0000169	0.0000500	1	10/11/2022 21:59	WG1940099
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	10/11/2022 21:59	WG1940099

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	
Naphthalene	0.00420		0.0000917	0.000250	1	10/11/2022 21:59	WG1940099
Phenanthrene	0.0000222	J	0.0000180	0.0000500	1	10/11/2022 21:59	WG1940099
Pyrene	U		0.0000169	0.0000500	1	10/11/2022 21:59	WG1940099
1-Methylnaphthalene	0.00111		0.0000687	0.000250	1	10/11/2022 21:59	WG1940099
2-Methylnaphthalene	0.00147		0.0000674	0.000250	1	10/11/2022 21:59	WG1940099
(S) Nitrobenzene-d5	*98.9*			*31.0-160*		*10/11/2022 21:59*	WG1940099
(S) 2-Fluorobiphenyl	*109*			*48.0-148*		*10/11/2022 21:59*	WG1940099
(S) p-Terphenyl-d14	*99.5*			*37.0-146*		*10/11/2022 21:59*	WG1940099

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Sodium	66.2		0.504	3.00	1	10/24/2022 19:16	WG1943730

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	0.885	J3	0.143	0.500	5	10/13/2022 02:23	WG1941611
(S) a,a,a-Trifluorotoluene(FID)	*102*			*50.0-150*		*10/13/2022 02:23*	WG1941611
(S) a,a,a-Trifluorotoluene(PID)	*0.000*	J2		*79.0-125*		*10/13/2022 02:23*	WG1941611

Volatile Organic Compounds (GC/MS) by Method 524.2/8260C

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.0644		0.000471	0.00500	5	10/13/2022 05:18	WG1941840
n-Butylbenzene	0.00272	J	0.000785	0.00500	5	10/13/2022 05:18	WG1941840
sec-Butylbenzene	0.00325	J	0.000625	0.00500	5	10/13/2022 05:18	WG1941840
tert-Butylbenzene	U		0.000635	0.00500	5	10/13/2022 05:18	WG1941840
Ethylbenzene	0.131		0.000685	0.00500	5	10/13/2022 05:18	WG1941840
Isopropylbenzene	0.0276		0.000525	0.00500	5	10/13/2022 05:18	WG1941840
Naphthalene	0.00642	J	0.00500	0.0250	5	10/13/2022 05:18	WG1941840
Toluene	U		0.00139	0.00500	5	10/13/2022 05:18	WG1941840
1,2,4-Trimethylbenzene	0.0908		0.00161	0.00500	5	10/13/2022 05:18	WG1941840
1,3,5-Trimethylbenzene	0.0428		0.000520	0.00500	5	10/13/2022 05:18	WG1941840
m&p-Xylene	0.188		0.00215	0.0100	5	10/13/2022 05:18	WG1941840
o-Xylene	0.00954		0.000870	0.00500	5	10/13/2022 05:18	WG1941840
(S) Toluene-d8	*99.5*			*80.0-120*		*10/13/2022 05:18*	WG1941840
(S) 4-Bromofluorobenzene	*98.3*			*77.0-126*		*10/13/2022 05:18*	WG1941840
(S) 1,2-Dichloroethane-d4	*101*			*70.0-130*		*10/13/2022 05:18*	WG1941840

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	0.565	J	0.170	0.800	1	10/13/2022 19:44	WG1941854
(S) o-Terphenyl	*39.9*	J2		*50.0-150*		*10/13/2022 19:44*	WG1941854

Sample Narrative:

L1544212-04 WG1941854: Sample produced 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		0.0000190	0.0000500	1	10/11/2022 17:49	WG1940099
Acenaphthene	0.0000447	J	0.0000190	0.0000500	1	10/11/2022 17:49	WG1940099
Acenaphthylene	U		0.0000171	0.0000500	1	10/11/2022 17:49	WG1940099
Benzo(a)anthracene	U		0.0000203	0.0000500	1	10/11/2022 17:49	WG1940099
Benzo(a)pyrene	U		0.0000184	0.0000500	1	10/11/2022 17:49	WG1940099
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	10/11/2022 17:49	WG1940099
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	10/11/2022 17:49	WG1940099
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	10/11/2022 17:49	WG1940099
Chrysene	U		0.0000179	0.0000500	1	10/11/2022 17:49	WG1940099
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	10/11/2022 17:49	WG1940099
Fluoranthene	U		0.0000270	0.000100	1	10/11/2022 17:49	WG1940099
Fluorene	0.0000714		0.0000169	0.0000500	1	10/11/2022 17:49	WG1940099
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	10/11/2022 17:49	WG1940099

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
Naphthalene	0.00746		0.0000917	0.000250	1	10/11/2022 17:49	WG1940099
Phenanthrene	0.0000281	J	0.0000180	0.0000500	1	10/11/2022 17:49	WG1940099
Pyrene	U		0.0000169	0.0000500	1	10/11/2022 17:49	WG1940099
1-Methylnaphthalene	0.00186		0.0000687	0.000250	1	10/11/2022 17:49	WG1940099
2-Methylnaphthalene	0.00257		0.0000674	0.000250	1	10/11/2022 17:49	WG1940099
(S) Nitrobenzene-d5	*131*			*31.0-160*		*10/11/2022 17:49*	WG1940099
(S) 2-Fluorobiphenyl	*110*			*48.0-148*		*10/11/2022 17:49*	WG1940099
(S) p-Terphenyl-d14	*101*			*37.0-146*		*10/11/2022 17:49*	WG1940099

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Sodium	33.6		0.504	3.00	1	10/24/2022 19:19	WG1943730

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	0.0632	J J3	0.0287	0.100	1	10/13/2022 01:17	WG1941611
(S) a,a,a-Trifluorotoluene(FID)	*78.7*			*50.0-150*		*10/13/2022 01:17*	WG1941611
(S) a,a,a-Trifluorotoluene(PID)	*0.000*	J2		*79.0-125*		*10/13/2022 01:17*	WG1941611

Volatile Organic Compounds (GC/MS) by Method 524.2/8260C

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.00737		0.0000941	0.00100	1	10/13/2022 00:44	WG1941840
n-Butylbenzene	0.000435	J	0.000157	0.00100	1	10/13/2022 00:44	WG1941840
sec-Butylbenzene	U		0.000125	0.00100	1	10/13/2022 00:44	WG1941840
tert-Butylbenzene	U		0.000127	0.00100	1	10/13/2022 00:44	WG1941840
Ethylbenzene	0.00678		0.000137	0.00100	1	10/13/2022 00:44	WG1941840
Isopropylbenzene	0.000566	J	0.000105	0.00100	1	10/13/2022 00:44	WG1941840
Naphthalene	U		0.00100	0.00500	1	10/13/2022 00:44	WG1941840
Toluene	U		0.000278	0.00100	1	10/13/2022 00:44	WG1941840
1,2,4-Trimethylbenzene	0.00245		0.000322	0.00100	1	10/13/2022 00:44	WG1941840
1,3,5-Trimethylbenzene	0.000995	J	0.000104	0.00100	1	10/13/2022 00:44	WG1941840
m&p-Xylene	0.00859		0.000430	0.00200	1	10/13/2022 00:44	WG1941840
o-Xylene	0.000668	J	0.000174	0.00100	1	10/13/2022 00:44	WG1941840
(S) Toluene-d8	*101*			*80.0-120*		*10/13/2022 00:44*	WG1941840
(S) 4-Bromofluorobenzene	*97.9*			*77.0-126*		*10/13/2022 00:44*	WG1941840
(S) 1,2-Dichloroethane-d4	*100*			*70.0-130*		*10/13/2022 00:44*	WG1941840

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		0.170	0.800	1	10/19/2022 10:55	WG1943589
(S) o-Terphenyl	*85.3*			*50.0-150*		*10/19/2022 10:55*	WG1943589

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	10/11/2022 18:07	WG1940099
Acenaphthene	U		0.0000190	0.0000500	1	10/11/2022 18:07	WG1940099
Acenaphthylene	U		0.0000171	0.0000500	1	10/11/2022 18:07	WG1940099
Benzo(a)anthracene	U		0.0000203	0.0000500	1	10/11/2022 18:07	WG1940099
Benzo(a)pyrene	U		0.0000184	0.0000500	1	10/11/2022 18:07	WG1940099
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	10/11/2022 18:07	WG1940099
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	10/11/2022 18:07	WG1940099
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	10/11/2022 18:07	WG1940099
Chrysene	U		0.0000179	0.0000500	1	10/11/2022 18:07	WG1940099
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	10/11/2022 18:07	WG1940099
Fluoranthene	U		0.0000270	0.000100	1	10/11/2022 18:07	WG1940099
Fluorene	U		0.0000169	0.0000500	1	10/11/2022 18:07	WG1940099
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	10/11/2022 18:07	WG1940099
Naphthalene	0.000239	J	0.0000917	0.000250	1	10/11/2022 18:07	WG1940099
Phenanthrene	U		0.0000180	0.0000500	1	10/11/2022 18:07	WG1940099
Pyrene	U		0.0000169	0.0000500	1	10/11/2022 18:07	WG1940099

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	
1-Methylnaphthalene	U		0.0000687	0.000250	1	10/11/2022 18:07	WG1940099
2-Methylnaphthalene	0.0000994	J	0.0000674	0.000250	1	10/11/2022 18:07	WG1940099
(S) Nitrobenzene-d5	*102*			*31.0-160*		*10/11/2022 18:07*	WG1940099
(S) 2-Fluorobiphenyl	*98.4*			*48.0-148*		*10/11/2022 18:07*	WG1940099
(S) p-Terphenyl-d14	*96.8*			*37.0-146*		*10/11/2022 18:07*	WG1940099

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Sodium	56.0		0.504	3.00	1	10/24/2022 19:22	WG1943730

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	2.83	J3	0.0287	0.100	1	10/13/2022 01:39	WG1941611
(S) a,a,a-Trifluorotoluene(FID)	*95.4*			*50.0-150*		*10/13/2022 01:39*	WG1941611
(S) a,a,a-Trifluorotoluene(PID)	*0.000*	J2		*79.0-125*		*10/13/2022 01:39*	WG1941611

Volatile Organic Compounds (GC/MS) by Method 524.2/8260C

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.0200		0.0000941	0.00100	1	10/13/2022 01:03	WG1941840
n-Butylbenzene	0.00173		0.000157	0.00100	1	10/13/2022 01:03	WG1941840
sec-Butylbenzene	0.00157		0.000125	0.00100	1	10/13/2022 01:03	WG1941840
tert-Butylbenzene	U		0.000127	0.00100	1	10/13/2022 01:03	WG1941840
Ethylbenzene	0.168		0.00137	0.0100	10	10/17/2022 04:58	WG1943669
Isopropylbenzene	0.0166		0.000105	0.00100	1	10/13/2022 01:03	WG1941840
Naphthalene	0.00634		0.00100	0.00500	1	10/13/2022 01:03	WG1941840
Toluene	0.000379	J	0.000278	0.00100	1	10/13/2022 01:03	WG1941840
1,2,4-Trimethylbenzene	0.343		0.00322	0.0100	10	10/17/2022 04:58	WG1943669
1,3,5-Trimethylbenzene	0.0925		0.000104	0.00100	1	10/13/2022 01:03	WG1941840
m&p-Xylene	0.576		0.00430	0.0200	10	10/17/2022 04:58	WG1943669
o-Xylene	0.0415		0.000174	0.00100	1	10/13/2022 01:03	WG1941840
(S) Toluene-d8	*93.3*			*80.0-120*		*10/13/2022 01:03*	WG1941840
(S) Toluene-d8	*99.3*			*80.0-120*		*10/17/2022 04:58*	WG1943669
(S) 4-Bromofluorobenzene	*89.9*			*77.0-126*		*10/13/2022 01:03*	WG1941840
(S) 4-Bromofluorobenzene	*95.2*			*77.0-126*		*10/17/2022 04:58*	WG1943669
(S) 1,2-Dichloroethane-d4	*101*			*70.0-130*		*10/13/2022 01:03*	WG1941840
(S) 1,2-Dichloroethane-d4	*98.6*			*70.0-130*		*10/17/2022 04:58*	WG1943669

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	0.901		0.170	0.800	1	10/13/2022 20:44	WG1941854
(S) o-Terphenyl	*37.6*	J2		*50.0-150*		*10/13/2022 20:44*	WG1941854

Sample Narrative:

L1544212-06 WG1941854: Sample produced 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		0.0000190	0.0000500	1	10/11/2022 18:25	WG1940099
Acenaphthene	0.0000338	J	0.0000190	0.0000500	1	10/11/2022 18:25	WG1940099
Acenaphthylene	U		0.0000171	0.0000500	1	10/11/2022 18:25	WG1940099
Benzo(a)anthracene	U		0.0000203	0.0000500	1	10/11/2022 18:25	WG1940099
Benzo(a)pyrene	U		0.0000184	0.0000500	1	10/11/2022 18:25	WG1940099
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	10/11/2022 18:25	WG1940099
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	10/11/2022 18:25	WG1940099
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	10/11/2022 18:25	WG1940099
Chrysene	U		0.0000179	0.0000500	1	10/11/2022 18:25	WG1940099
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	10/11/2022 18:25	WG1940099

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
Fluoranthene	U		0.0000270	0.000100	1	10/11/2022 18:25	WG1940099
Fluorene	0.0000588		0.0000169	0.0000500	1	10/11/2022 18:25	WG1940099
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	10/11/2022 18:25	WG1940099
Naphthalene	0.00344		0.0000917	0.000250	1	10/11/2022 18:25	WG1940099
Phenanthrene	0.0000256	J	0.0000180	0.0000500	1	10/11/2022 18:25	WG1940099
Pyrene	U		0.0000169	0.0000500	1	10/11/2022 18:25	WG1940099
1-Methylnaphthalene	0.000953		0.0000687	0.000250	1	10/11/2022 18:25	WG1940099
2-Methylnaphthalene	0.00121		0.0000674	0.000250	1	10/11/2022 18:25	WG1940099
(S) Nitrobenzene-d5	*86.3*			*31.0-160*		*10/11/2022 18:25*	WG1940099
(S) 2-Fluorobiphenyl	*92.1*			*48.0-148*		*10/11/2022 18:25*	WG1940099
(S) p-Terphenyl-d14	*86.3*			*37.0-146*		*10/11/2022 18:25*	WG1940099

Volatile Organic Compounds (GC/MS) by Method 524.2/8260C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	U		0.0000941	0.00100	1	10/12/2022 23:06	WG1941840
n-Butylbenzene	U		0.000157	0.00100	1	10/12/2022 23:06	WG1941840
sec-Butylbenzene	U		0.000125	0.00100	1	10/12/2022 23:06	WG1941840
tert-Butylbenzene	U		0.000127	0.00100	1	10/12/2022 23:06	WG1941840
Ethylbenzene	U		0.000137	0.00100	1	10/12/2022 23:06	WG1941840
Isopropylbenzene	U		0.000105	0.00100	1	10/12/2022 23:06	WG1941840
Naphthalene	U		0.00100	0.00500	1	10/12/2022 23:06	WG1941840
Toluene	U		0.000278	0.00100	1	10/12/2022 23:06	WG1941840
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	10/12/2022 23:06	WG1941840
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	10/12/2022 23:06	WG1941840
m&p-Xylene	U		0.000430	0.00200	1	10/12/2022 23:06	WG1941840
o-Xylene	U		0.000174	0.00100	1	10/12/2022 23:06	WG1941840
(S) Toluene-d8	*105*			*80.0-120*		*10/12/2022 23:06*	WG1941840
(S) 4-Bromofluorobenzene	*97.3*			*77.0-126*		*10/12/2022 23:06*	WG1941840
(S) 1,2-Dichloroethane-d4	*108*			*70.0-130*		*10/12/2022 23:06*	WG1941840

Volatile Organic Compounds (GC/MS) by Method 524.2/8260C

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Benzene	U		0.0000490	0.000500	1	10/10/2022 01:34	WG1939917
Carbon tetrachloride	U		0.0000660	0.000500	1	10/10/2022 01:34	WG1939917
1,4-Dichlorobenzene	U		0.0000310	0.000500	1	10/10/2022 01:34	WG1939917
1,2-Dichloroethane	U		0.0000498	0.000500	1	10/10/2022 01:34	WG1939917
1,1-Dichloroethene	U		0.0000540	0.000500	1	10/10/2022 01:34	WG1939917
1,1,1-Trichloroethane	U		0.0000490	0.000500	1	10/10/2022 01:34	WG1939917
Trichloroethene	U		0.0000440	0.000500	1	10/10/2022 01:34	WG1939917
Vinyl chloride	U		0.0000260	0.000500	1	10/10/2022 01:34	WG1939917
1,2,4-Trichlorobenzene	U		0.0000530	0.000500	1	10/10/2022 01:34	WG1939917
cis-1,2-Dichloroethene	U		0.0000640	0.000500	1	10/10/2022 01:34	WG1939917
Xylenes, Total	U		0.000340	0.000500	1	10/10/2022 01:34	WG1939917
Methylene chloride	U		0.0000608	0.000500	1	10/10/2022 01:34	WG1939917
1,2-Dichlorobenzene	U		0.0000410	0.000500	1	10/10/2022 01:34	WG1939917
trans-1,2-Dichloroethene	U		0.000100	0.000500	1	10/10/2022 01:34	WG1939917
1,2-Dichloropropane	U		0.0000270	0.000500	1	10/10/2022 01:34	WG1939917
1,1,2-Trichloroethane	U		0.0000701	0.000500	1	10/10/2022 01:34	WG1939917
Tetrachloroethene	U		0.0000790	0.000500	1	10/10/2022 01:34	WG1939917
Chlorobenzene	U		0.0000370	0.000500	1	10/10/2022 01:34	WG1939917
Toluene	U		0.000412	0.000500	1	10/10/2022 01:34	WG1939917
Ethylbenzene	U		0.0000440	0.000500	1	10/10/2022 01:34	WG1939917
Styrene	U		0.0000360	0.000500	1	10/10/2022 01:34	WG1939917
Bromobenzene	U		0.0000490	0.000500	1	10/10/2022 01:34	WG1939917
Bromodichloromethane	U		0.0000810	0.000500	1	10/10/2022 01:34	WG1939917
Bromoform	U		0.0000800	0.000500	1	10/10/2022 01:34	WG1939917
Bromomethane	U		0.0000790	0.00100	1	10/10/2022 01:34	WG1939917
Chlorodibromomethane	U		0.0000930	0.000500	1	10/10/2022 01:34	WG1939917
Chloroethane	U		0.000190	0.000500	1	10/10/2022 01:34	WG1939917
Chloroform	U		0.0000800	0.000500	1	10/10/2022 01:34	WG1939917
Chloromethane	U		0.0000290	0.000500	1	10/10/2022 01:34	WG1939917
2-Chlorotoluene	U		0.0000480	0.000500	1	10/10/2022 01:34	WG1939917
4-Chlorotoluene	U		0.0000550	0.000500	1	10/10/2022 01:34	WG1939917
Dibromomethane	U		0.0000700	0.000500	1	10/10/2022 01:34	WG1939917
1,3-Dichlorobenzene	U		0.0000360	0.000500	1	10/10/2022 01:34	WG1939917
1,1-Dichloroethane	U		0.0000240	0.000500	1	10/10/2022 01:34	WG1939917
1,3-Dichloropropane	U		0.0000230	0.000500	1	10/10/2022 01:34	WG1939917
2,2-Dichloropropane	U		0.0000680	0.000500	1	10/10/2022 01:34	WG1939917
1,1-Dichloropropene	U		0.0000450	0.000500	1	10/10/2022 01:34	WG1939917
1,3-Dichloropropene	U		0.000150	0.000500	1	10/10/2022 01:34	WG1939917
1,1,1,2-Tetrachloroethane	U		0.0000700	0.000500	1	10/10/2022 01:34	WG1939917
1,1,2,2-Tetrachloroethane	U		0.0000790	0.000500	1	10/10/2022 01:34	WG1939917
1,2,3-Trichloropropane	U		0.0000720	0.000500	1	10/10/2022 01:34	WG1939917

Method Blank (MB)

(MB) R3852453-1 10/25/22 02:56

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) R3852453-2 10/25/22 02:59

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sodium	10.0	9.88	98.8	80.0-120	

L1544143-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544143-09 10/25/22 03:02 • (MS) R3852453-4 10/25/22 03:07 • (MSD) R3852453-5 10/25/22 03:10

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	8.21	18.0	18.0	97.5	98.1	1	75.0-125			0.363	20

Method Blank (MB)

(MB) R3852425-1 10/24/22 18:59

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) R3852425-2 10/24/22 19:02

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sodium	10.0	10.2	102	80.0-120	

L1544212-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544212-03 10/24/22 19:05 • (MS) R3852425-4 10/24/22 19:10 • (MSD) R3852425-5 10/24/22 19:13

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	54.9	64.6	64.7	96.8	98.6	1	75.0-125			0.280	20

Method Blank (MB)

(MB) R3848692-3 10/12/22 20:24

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)	*99.6*			*60.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*0.000*	J2		*79.0-125*

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

(LCS) R3848692-1 10/12/22 19:00 • (LCSD) R3848692-2 10/12/22 19:22

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 %
TPHGAK C6 to C10	5.00	3.83	4.85	76.6	97.0	60.0-120		J3	23.5	20
(S) a,a,a-Trifluorotoluene(FID)				*84.2*	*108*	*60.0-120*				
(S) a,a,a-Trifluorotoluene(PID)				*0.000*	*0.000*	*79.0-125*	J2	J2		

Method Blank (MB)

(MB) R3850072-2 10/09/22 21:46

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000490	0.000500
Carbon tetrachloride	U		0.0000660	0.000500
1,4-Dichlorobenzene	U		0.0000310	0.000500
1,2-Dichloroethane	U		0.0000498	0.000500
1,1-Dichloroethene	U		0.0000540	0.000500
1,1,1-Trichloroethane	U		0.0000490	0.000500
Trichloroethene	U		0.0000440	0.000500
Vinyl chloride	U		0.0000260	0.000500
1,2,4-Trichlorobenzene	U		0.0000530	0.000500
cis-1,2-Dichloroethene	U		0.0000640	0.000500
Xylenes, Total	U		0.000340	0.000500
Methylene chloride	U		0.0000608	0.000500
1,2-Dichlorobenzene	U		0.0000410	0.000500
trans-1,2-Dichloroethene	U		0.000100	0.000500
1,2-Dichloropropane	U		0.0000270	0.000500
1,1,2-Trichloroethane	U		0.0000701	0.000500
Tetrachloroethene	U		0.0000790	0.000500
Chlorobenzene	U		0.0000370	0.000500
Toluene	U		0.000412	0.000500
Ethylbenzene	U		0.0000440	0.000500
Styrene	U		0.0000360	0.000500
Bromobenzene	U		0.0000490	0.000500
Bromodichloromethane	U		0.0000810	0.000500
Bromoform	U		0.0000800	0.000500
Bromomethane	U		0.0000790	0.00100
Chlorodibromomethane	U		0.0000930	0.000500
Chloroethane	U		0.000190	0.000500
Chloroform	U		0.0000800	0.000500
Chloromethane	U		0.0000290	0.000500
2-Chlorotoluene	U		0.0000480	0.000500
4-Chlorotoluene	U		0.0000550	0.000500
Dibromomethane	U		0.0000700	0.000500
1,3-Dichlorobenzene	U		0.0000360	0.000500
1,1-Dichloroethane	U		0.0000240	0.000500
1,3-Dichloropropane	U		0.0000230	0.000500
2,2-Dichloropropane	U		0.0000680	0.000500
1,1-Dichloropropene	U		0.0000450	0.000500
1,3-Dichloropropene	U		0.000150	0.000500
1,1,1,2-Tetrachloroethane	U		0.0000700	0.000500
1,1,2,2-Tetrachloroethane	U		0.0000790	0.000500

Method Blank (MB)

(MB) R3850072-2 10/09/22 21:46

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,2,3-Trichloropropane	U		0.0000720	0.000500

Laboratory Control Sample (LCS)

(LCS) R3850072-1 10/09/22 19:53

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.00500	0.00499	99.8	70.0-130	
Carbon tetrachloride	0.00500	0.00465	93.0	70.0-130	
1,4-Dichlorobenzene	0.00500	0.00511	102	70.0-130	
1,2-Dichloroethane	0.00500	0.00466	93.2	70.0-130	
1,1-Dichloroethene	0.00500	0.00475	95.0	70.0-130	
1,1,1-Trichloroethane	0.00500	0.00475	95.0	70.0-130	
Trichloroethene	0.00500	0.00507	101	70.0-130	
Vinyl chloride	0.00500	0.00389	77.8	70.0-130	
1,2,4-Trichlorobenzene	0.00500	0.00519	104	70.0-130	
cis-1,2-Dichloroethene	0.00500	0.00523	105	70.0-130	
Xylenes, Total	0.0150	0.0146	97.3	70.0-130	
Methylene chloride	0.00500	0.00520	104	70.0-130	
1,2-Dichlorobenzene	0.00500	0.00509	102	70.0-130	
trans-1,2-Dichloroethene	0.00500	0.00480	96.0	70.0-130	
1,2-Dichloropropane	0.00500	0.00515	103	70.0-130	
1,1,2-Trichloroethane	0.00500	0.00516	103	70.0-130	
Tetrachloroethene	0.00500	0.00481	96.2	70.0-130	
Chlorobenzene	0.00500	0.00525	105	70.0-130	
Toluene	0.00500	0.00520	104	70.0-130	
Ethylbenzene	0.00500	0.00523	105	70.0-130	
Styrene	0.00500	0.00518	104	70.0-130	
Bromobenzene	0.00500	0.00506	101	70.0-130	
Bromodichloromethane	0.00500	0.00497	99.4	70.0-130	
Bromoform	0.00500	0.00505	101	70.0-130	
Bromomethane	0.00500	0.00421	84.2	70.0-130	
Chlorodibromomethane	0.00500	0.00485	97.0	70.0-130	
Chloroethane	0.00500	0.00466	93.2	70.0-130	
Chloroform	0.00500	0.00491	98.2	70.0-130	
Chloromethane	0.00500	0.00417	83.4	70.0-130	
2-Chlorotoluene	0.00500	0.00534	107	70.0-130	
4-Chlorotoluene	0.00500	0.00528	106	70.0-130	
Dibromomethane	0.00500	0.00482	96.4	70.0-130	

Laboratory Control Sample (LCS)

(LCS) R3850072-1 10/09/22 19:53

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,3-Dichlorobenzene	0.00500	0.00512	102	70.0-130	
1,1-Dichloroethane	0.00500	0.00497	99.4	70.0-130	
1,3-Dichloropropane	0.00500	0.00503	101	70.0-130	
2,2-Dichloropropane	0.00500	0.00547	109	70.0-130	
1,1-Dichloropropene	0.00500	0.00461	92.2	70.0-130	
1,3-Dichloropropene	0.0100	0.0102	102	70.0-130	
1,1,1,2-Tetrachloroethane	0.00500	0.00498	99.6	70.0-130	
1,1,2,2-Tetrachloroethane	0.00500	0.00494	98.8	70.0-130	
1,2,3-Trichloropropane	0.00500	0.00474	94.8	70.0-130	

Method Blank (MB)

(MB) R3848998-3 10/12/22 21:22

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
m&p-Xylenes	U		0.000430	0.00200
o-Xylene	U		0.000174	0.00100
(S) Toluene-d8	*109*			*80.0-120*
(S) 4-Bromofluorobenzene	*102*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*97.4*			*70.0-130*

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

(LCS) R3848998-1 10/12/22 20:24 • (LCSD) R3848998-2 10/12/22 20:43

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	0.00532	0.00536	106	107	70.0-123			0.749	20
n-Butylbenzene	0.00500	0.00433	0.00463	86.6	92.6	73.0-125			6.70	20
sec-Butylbenzene	0.00500	0.00520	0.00542	104	108	75.0-125			4.14	20
tert-Butylbenzene	0.00500	0.00527	0.00546	105	109	76.0-124			3.54	20
Ethylbenzene	0.00500	0.00526	0.00486	105	97.2	79.0-123			7.91	20
Isopropylbenzene	0.00500	0.00528	0.00536	106	107	76.0-127			1.50	20
Naphthalene	0.00500	0.00406	0.00430	81.2	86.0	54.0-135			5.74	20
Toluene	0.00500	0.00542	0.00540	108	108	79.0-120			0.370	20
1,2,4-Trimethylbenzene	0.00500	0.00484	0.00497	96.8	99.4	76.0-121			2.65	20
1,3,5-Trimethylbenzene	0.00500	0.00498	0.00511	99.6	102	76.0-122			2.58	20
m&p-Xylenes	0.0100	0.0106	0.0106	106	106	80.0-122			0.000	20
o-Xylene	0.00500	0.00523	0.00514	105	103	80.0-122			1.74	20
(S) Toluene-d8				*102*	*100*	*80.0-120*				
(S) 4-Bromofluorobenzene				*98.3*	*98.8*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*100*	*98.3*	*70.0-130*				

L1544523-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544523-02 10/13/22 01:42 • (MS) R3848998-4 10/13/22 05:37 • (MSD) R3848998-5 10/13/22 05:57

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 %
Benzene	0.00500	U	0.00606	0.00609	121	122	1	17.0-158			0.494	27
n-Butylbenzene	0.00500	U	0.00558	0.00576	112	115	1	31.0-150			3.17	30
sec-Butylbenzene	0.00500	U	0.00641	0.00647	128	129	1	33.0-155			0.932	29
tert-Butylbenzene	0.00500	U	0.00635	0.00663	127	133	1	34.0-153			4.31	28
Ethylbenzene	0.00500	U	0.00617	0.00610	123	122	1	30.0-155			1.14	27
Isopropylbenzene	0.00500	U	0.00629	0.00635	126	127	1	28.0-157			0.949	27
Naphthalene	0.00500	U	0.00477	0.00508	95.4	102	1	12.0-156			6.29	35
Toluene	0.00500	U	0.00624	0.00636	125	127	1	26.0-154			1.90	28
1,2,4-Trimethylbenzene	0.00500	0.000357	0.00588	0.00597	110	112	1	26.0-154			1.52	27
1,3,5-Trimethylbenzene	0.00500	U	0.00607	0.00616	121	123	1	28.0-153			1.47	27
m&p-Xylenes	0.0100	U	0.0119	0.0121	119	121	1	43.0-146			1.67	26
o-Xylene	0.00500	U	0.00595	0.00603	119	121	1	45.0-144			1.34	26
(S) Toluene-d8					*98.2*	*101*		*80.0-120*				
(S) 4-Bromofluorobenzene					*93.8*	*99.1*		*77.0-126*				
(S) 1,2-Dichloroethane-d4					*98.6*	*97.2*		*70.0-130*				

Method Blank (MB)

(MB) R3850838-2 10/16/22 21:08

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Ethylbenzene	U		0.000137	0.00100
1,2,4-Trimethylbenzene	U		0.000322	0.00100
m&p-Xylenes	U		0.000430	0.00200
(S) Toluene-d8	*101*			*80.0-120*
(S) 4-Bromofluorobenzene	*91.2*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*95.3*			*70.0-130*

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

(LCS) R3850838-1 10/16/22 20:10 • (LCSD) R3850838-3 10/16/22 22:40

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 %
Ethylbenzene	0.00500	0.00524	0.00500	105	100	79.0-123			4.69	20
1,2,4-Trimethylbenzene	0.00500	0.00523	0.00495	105	99.0	76.0-121			5.50	20
m&p-Xylenes	0.0100	0.0110	0.0104	110	104	80.0-122			5.61	20
(S) Toluene-d8				*101*	*100*	*80.0-120*				
(S) 4-Bromofluorobenzene				*95.1*	*96.1*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*95.0*	*96.0*	*70.0-130*				

Method Blank (MB)

(MB) R3848340-1 10/13/22 11:45

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
AK102 DRO C10-C25	U		0.170	0.800
(S) o-Terphenyl	*88.5*			*60.0-120*

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

(LCS) R3848340-2 10/13/22 12:08 • (LCSD) R3848340-3 10/13/22 12:31

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	6.04	6.11	101	102	75.0-125			1.15	20
(S) o-Terphenyl				*74.0*	*72.3*	*60.0-120*				

L1543164-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1543164-02 10/13/22 12:54 • (MS) R3848340-4 10/13/22 13:16 • (MSD) R3848340-5 10/13/22 13:39

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 %
AK102 DRO C10-C25	6.32	0.248	6.32	6.40	96.1	97.3	1.05	75.0-125			1.26	20
(S) o-Terphenyl					*65.5*	*69.3*		*50.0-150*				

L1544182-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544182-01 10/13/22 14:47 • (MS) R3848340-6 10/13/22 15:10 • (MSD) R3848340-7 10/13/22 15:33

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 %
AK102 DRO C10-C25	6.66	U	6.87	6.87	103	103	1.11	75.0-125			0.000	20
(S) o-Terphenyl					*72.9*	*73.1*		*50.0-150*				

Method Blank (MB)

(MB) R3850346-1 10/19/22 09:14

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
AK102 DRO C10-C25	U		0.170	0.800
(S) o-Terphenyl	*89.1*			*60.0-120*

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

(LCS) R3850346-2 10/19/22 09:34 • (LCSD) R3850346-3 10/19/22 09:54

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	6.99	6.90	117	115	75.0-125			1.30	20
(S) o-Terphenyl				*92.3*	*92.9*	*60.0-120*				

Method Blank (MB)

(MB) R3848091-3 10/11/22 16:02

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	*93.5*			*31.0-160*
(S) 2-Fluorobiphenyl	*91.5*			*48.0-148*
(S) p-Terphenyl-d14	*87.5*			*37.0-146*

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

(LCS) R3848091-1 10/11/22 15:27 • (LCSD) R3848091-2 10/11/22 15:45

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	0.00198	0.00216	99.0	108	67.0-150			8.70	20
Acenaphthene	0.00200	0.00209	0.00231	104	115	65.0-138			10.0	20
Acenaphthylene	0.00200	0.00213	0.00234	106	117	66.0-140			9.40	20
Benzo(a)anthracene	0.00200	0.00215	0.00225	107	112	61.0-140			4.55	20
Benzo(a)pyrene	0.00200	0.00238	0.00234	119	117	60.0-143			1.69	20
Benzo(b)fluoranthene	0.00200	0.00226	0.00230	113	115	58.0-141			1.75	20
Benzo(g,h,i)perylene	0.00200	0.00213	0.00203	106	102	52.0-153			4.81	20
Benzo(k)fluoranthene	0.00200	0.00220	0.00213	110	106	58.0-148			3.23	20
Chrysene	0.00200	0.00220	0.00231	110	115	64.0-144			4.88	20
Dibenz(a,h)anthracene	0.00200	0.00209	0.00191	104	95.5	52.0-155			9.00	20
Fluoranthene	0.00200	0.00222	0.00243	111	122	69.0-153			9.03	20
Fluorene	0.00200	0.00203	0.00230	102	115	64.0-136			12.5	20

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

(LCS) R3848091-1 10/11/22 15:27 • (LCSD) R3848091-2 10/11/22 15:45

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 %
Indeno(1,2,3-cd)pyrene	0.00200	0.00229	0.00214	115	107	54.0-153			6.77	20
Naphthalene	0.00200	0.00212	0.00237	106	118	61.0-137			11.1	20
Phenanthrene	0.00200	0.00199	0.00220	99.5	110	62.0-137			10.0	20
Pyrene	0.00200	0.00224	0.00244	112	122	60.0-142			8.55	20
1-Methylnaphthalene	0.00200	0.00213	0.00233	106	117	66.0-142			8.97	20
2-Methylnaphthalene	0.00200	0.00211	0.00230	105	115	62.0-136			8.62	20
(S) Nitrobenzene-d5				*112*	*117*	*31.0-160*				
(S) 2-Fluorobiphenyl				*103*	*109*	*48.0-148*				
(S) p-Terphenyl-d14				*107*	*105*	*37.0-146*				

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
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

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	LAO000356
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

Pres Chk

Report to:
Mr. John Marshall

Email To: craig.cothron@pacelabs.com

Project Description:
Speedway 5314

City/State Collected: Wasilla, AK

Please Circle: PT MT CT ET

Phone: 907-266-1108

Client Project #
185705773

Lab Project #
STAAAKSSA-5314

Collected by (print):
Remi Malenfant

Site/Facility ID #
0005314

P.O. #

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

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

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	AK101 40mlAmb HCl	AK102 100ml Amb HCl	NAICP 250mlHDPE-HNO3	PAHSIMLVID 40mlAmb-NoPres-WT	V8260C 40mlAmb-HCl	V8260C 40mlAmb-HCl-Blk	EPA 524.2 Drinking Water 3x HCl 40mL			Remarks	Sample # (lab only)
MW-01	G	GW		10/5/22	12:35	11	X	X	X	X	X						-01
MW-02		GW			11:57	11	X	X	X	X	X						-02
MW-03		GW			14:12	11	X	X	X	X	X						-03
MW-04		GW			13:46	11	X	X	X	X	X						-04
RW19-01		GW			14:44	11	X	X	X	X	X						-05
DUP1		GW			14:15	11	X	X	X	X	X						-06
TRIP BLANK		GW			N/A	1						X					-07
Cameron Lot 7	↓	GW		↓	1440	5		X					X				-08

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 # 1544212

J053

Acctnum: STAAAKSSA
Template: T175036
Prelogin: P943232
PM: 034 - Craig Cothron
PB: 8/11/22 mb
Shipped Via: FedEX 2nd Day

* 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 # 0221 5882 7550 3800

Sample Receipt Checklist
COC Seal Present/Intact: __NP X Y __N
COC Signed/Accurate: X Y __N
Bottles arrive intact: X Y __N
Correct bottles used: X Y __N
Sufficient volume sent: X Y __N
If Applicable
VOA Zero Headspace: X Y __N
Preservation Correct/Checked: X Y __N
RAD Screen <0.5 mR/hr: X Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCl / MeoH TBR	If preservation required by Login: Date/Time
	10/5/22	16:31		1	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:	
				5.9+0=5.9 7	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:	Hold: Condition: NCF / OK
				10/07/22 0900	

Laboratory Data Review Checklist

Completed By:

Jeremiah Malenfant

Title:

Geologist-In-Training

Date:

11/9/2022

Consultant Firm:

Stantec Consulting Services Inc.

Laboratory Name:

Pace Analytical

Laboratory Report Number:

L1544212

Laboratory Report Date:

10/25/2022

CS Site Name:

7-Eleven Store 46745 (Former Speedway 5314, T2GM #76)

ADEC File Number:

2265.56.037

Hazard Identification Number:

2986

L1544212

Laboratory Report Date:

10/25/2022

CS Site Name:

7-Eleven Store 46745 (Former Speedway 5314, T2GM #76)

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:

   5.9°C

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

   Yes☒ No☐ N/A☐ Comments:

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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:

e. Data quality or usability affected?

Comments:

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:

Case narrative documents no errors or discrepancies “unless qualified or notated within report.”

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions documented directly in case narrative.

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

Comments:

No effect on data quality/usability.

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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:

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:

e. Data quality or usability affected?

No.

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:

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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 affected samples

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:

GRO had RPD above limits

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

Comments:

GRO in all.

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

GRO precision also out in duplicate pair. Only the duplicate sample detected GRO above GCLs.

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

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:

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:

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

No affected samples.

v. Data quality or usability affected?

Comments:

No affected samples.

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:

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

RPD (%) = 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:

Precision out of acceptable range for all VOAs for which it could be calculated, as well as GRO

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

Comments:

Similar issues occurred during the last monitoring event. Makes data suspect.

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: