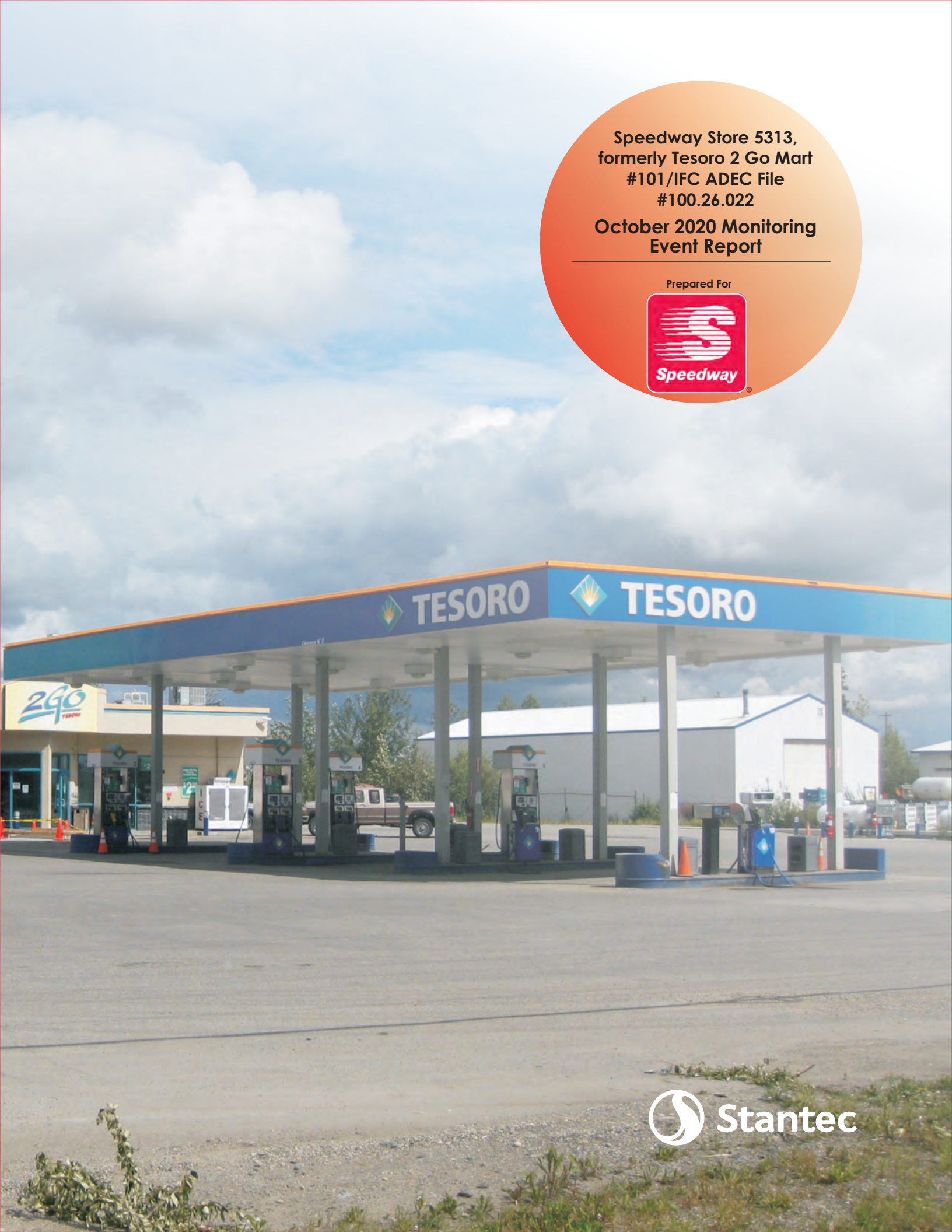
Speedway Store 5313, formerly Tesoro 2 Go Mart #101/IFC ADEC File #100.26.022

October 2020 Monitoring Event Report

Prepared For



Stantec

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ACRONYMS AND ABBREVIATIONS

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

1.0 EXECUTIVE SUMMARY

This 2020 annual groundwater monitoring event report was prepared by Stantec Consulting Services Inc. (Stantec) on behalf of Speedway LLC for Store #5313 (formerly known as Tesoro 2 Go Mart #101 and IFC), located at the northeast corner of the intersection of South Cushman Street and Van Horn Road at 3569 South Cushman Street, Fairbanks, Alaska (**Figure 1**). The methods that were used for this monitoring event were conducted in accordance with the 2020 Alaska Department of Environmental Conservation (ADEC) approved Work Plan for this site.

The groundwater monitoring event was conducted on October 21 and 22, 2020 by Stantec personnel Engineer-In-Training (EIT) Leslie Petre. This monitoring event included: measuring the depth to groundwater; measuring water quality intrinsic parameters; collecting and analyzing groundwater samples from Monitoring Wells MW-3, MW-4, MW-8, MW-14, and MW-17, as well as Drainfield (Aeration Tank effluent) and both Remediation Wells CRW-2 and WRW-2020 (**Figure 2**). Monitoring Well MW 19-1 and 19-2 were not sampled due to the presence of free product in the wells.

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

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

The free product recovery system (see **Figure 3**) consists of a free product skimmer in Remediation Well CRW-2. Due to equipment fouling from large, suspended particles (iron precipitates), the system was taken offline in July and a peristaltic pump was used to manually remove free product during the summer and fall. Measurable free product was also found in MW 19-1 and MW 19-2 that was also removed more than once using a peristaltic pump. New well WRW-2020 has developed 0.10 inches of measurable free product.

An aeration system is currently used for treating groundwater that is discharged from the groundwater drawdown pump in Remediation Well CRW-2 and WRW-2020 at a combined rate of 3-4 gpm. The aerated effluent from the 1,500 gallon Aeration Treatment Tank discharges to an on-site drainfield (Infiltrator System) that is located upgradient of the groundwater interceptor trench (see **Figure 4**).

2.0 SITE BACKGROUND

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

3.0 FIELD ACTIVITIES

The following field activities were conducted during this monitoring event:

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

Field activities outside of this event are summarized in section 5.0.

4.0 GROUNDWATER MONITORING RESULTS

Groundwater Levels. Table 1 presents groundwater elevations at this site based on the depths to static water levels measured during this monitoring event on October 21 and 22, 2020. Based on a polynomial regression, fitted to the water level observations measured, the average hydraulic gradient was approximately 0.001 feet per foot with flow direction to the northwest at 75 degrees. The flow direction and gradient for this monitoring event were somewhat inconsistent with the historical data for this site, as shown in the groundwater flow summary ("Rose Diagram") presented on **Figure 2**.

Table 1 Groundwater Elevations
Measurements taken on October 21 and 22, 2020

Monitoring Well Identification	Top of Casing Elevation (feet)[1]	Depth to Groundwater (feet)	Groundwater Elevation (feet)
MW-3	436.53	7.27	429.26
MW-4	438.31[2]	10.51	427.8
MW-8	442.23	12.93	429.3
MW-14	440.41	11.2	429.21
MW-17	438.75	9.47	429.28

Key:

1 Based on a vertical control survey completed on July 31, 2019, based on a topographic datum of 441.09 feet.

2 Casing repair has casing at a higher elevation than previous survey, numbers have not been adjusted

Water Sample Intrinsic Field Parameters. The results of intrinsic water quality parameter testing of the water samples collected during this monitoring event are presented in **Table 2**. DO levels indicates higher oxygen levels than 2019, with the drainfield having high levels from the active aeration within the treatment tank. ORP concentrations indicate the oxygen reduction potential is good at MW-4 and within neutral range for the rest of the site. Conductivity and pH were comparable at all locations within expected natural ranges for groundwater.

Table 2 Field Tested Intrinsic Water Quality Parameters
Measured on October 21 and 22, 2020

Monitoring Well Identification	Temperature (°C)	pH	Dissolved Oxygen (mg/L)	ORP (mV)	SC (µs/cm°C)
MW-3	3.22	6.44	2	18.2	369
MW-4	2.89	6.38	3.4	132.9	373
MW-8	2.19	6.34	2.05	-11.0	346
MW-14	3.81	6.45	2.54	27.1	677
MW-17	2.7	6.51	1.64	66.6	459
CRW-2	3.45	6.6	1.81	-1.7	350
WRW-2020	3.16	6.6	2	45.4	319
Drainfield	3.06	7.04	11.33	65.5	317

Key:

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

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

Water Sample Laboratory Analytical Results. Historical monitoring data for this site are presented in **Appendix D**. Laboratory analytical results for benzene, toluene, ethylbenzene, and xylenes (BTEX), GRO, DRO, naphthalene, 1-2-4 trimethylbenzene, 1-3-5 trimethylbenzene, and sodium are summarized in **Table 3**. The other VOCs and PAHs are in the laboratory analytical report is provided in **Appendix E.** All monitoring/remediation wells and the effluent from the aeration tank (Drainfield sample) were sampled in accordance with the 2020 Corrective Action Work Plan. It was noted that the sodium levels measured between 8-9 mg/L for all on-site samplings pulled; these levels are typical of untreated groundwater.

Table 3 Groundwater Analytical Results for BTEX, GRO, DRO, VOCs, and Sodium
Samples collected on October 21 and 22, 2020

ID	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENE (TOTAL)	GRO	DRO	1,2,4-TRIMETHYL-BENZENE	1,3,5-TRIMETHYL-BENZENE	NAPH-THALENE[1]	SODIUM
UNITS	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW-03	**0.00735**	*0.004*	**0.0511**	**0.51**	1.37	**2.67**	**0.203**	**0.0805**	**0.0893**	NA
MW-04	(0.001)	0.63	(0.001)	(0.003)	0.595	0.95	(0.001)	(0.001)	(0.005)	NA
MW-08	*0.000695*	0.00171	0.00352	0.0331	0.126	**8.97**	0.00997	0.00567	***0.00485***	8.33
DUP1	*0.000701*	0.00128	0.00488	0.0409	0.112	**8.79**	0.0115	0.006	**0.019**	NA
MW-14	**0.0585**	0.00968	**0.721**	**4.45**	**6.68**	**4.75**	**0.775**	**0.224**	**0.537**	NA
MW-17	**0.0732**	(0.001)	**0.354**	**1.87**	**3.2**	**17.7**	**0.217**	**0.0677**	***0.0144***	NA
CRW-2	**0.00739**	0.00198	**0.0244**	0.143	0.385	**1.51**	0.0531	0.0106	***0.0158***	8.78
WRW-2020	0.00339	*0.000618*	**0.0456**	**0.264**	0.588	1.05	**0.0668**	0.0216	***0.0367***	8.14
DRAINFIELD	*0.000701*	*0.000313*	0.00572	0.0392	*0.0861*	0.988	0.011	0.00273	***0.0154***	8.38
BLANK	(0.001)	(0.001)	(0.001)	(0.003)	(0.100)	(0.800)	(0.001)	(0.001)	(0.005)	(3.00)
GCLS	**0.0046**	**1.1**	**0.015**	**0.19**	**2.2**	**1.5**	**0.056**	**0.06**	**0.0017**	**NA**

Key:

1	Results from VOC Method 8260 C	GCLs	Groundwater cleanup levels, 18 AAC 75.345, Table C, (9/18/2019)
Blank	Trip Blank	GRO	Gasoline range organics analyzed by AK101.
Bold	indicates the concentration exceeds the GCL or the estimated quantitation limit exceeds the GCL	mg/L	milligrams per liter
italics	The identification of the analyte is acceptable; the reported value is an estimate.	NA	Not Applicable
DUP	Duplicate sample of the preceding sample (MW-3).	( )	Undetected above practical quantitation limits shown in parentheses.
DRO	Diesel range organics analyzed by AK102.		

Quality Assurance (QA)/Quality Control (QC) Review. Pace Analytical, Inc. met all laboratory QA/QC criteria during the analysis of groundwater samples for this sampling event, as described in **Table 4**, which provides a summary of the laboratory QC objectives and outcomes for this monitoring event. Laboratory QC data and the ADEC Laboratory Data Review Checklist are included with the laboratory report in **Appendix F**.

Sample DUP1 is a duplicate of Sample MW 8. The duplicate sample set was collected to determine the precision of the field collection and laboratory analysis for this monitoring event. Data presented in **Table 4** show that the precision for the duplicate sample set was within the established QA criteria tolerances for benzene, toluene, total xylenes, GRO, DRO, 1-2-4 trimethylbenzene, and 1-3-5 trimethylbenzene. Ethylbenzene shows a variance of 32.38% and Naphthalene shows a

variance of 118.66%. The holding times for VOCs, PAHs, GRO and DRO were within established criteria.

Table 4 Laboratory Quality Control Objectives

Quality Control Designation	Tolerance	Results for This Event
Holding Times		
DRO/Water/to analyze	40 days	14 to 15 days
DRO/Water/to extract	14 days	2 to 3 days
GRO/Water/to analyze	14 days	6 to 13 days
VOCs/Water/to analyze	14 days	12 to 14 days
PAHs/Water/to extract	7 days	2 to 3 days
PAHs/Water/to analyze	40 days	7 to 8 days
Field Duplicates – Precision		
Benzene/Water	30%	0.86%
Toluene/Water	30%	28.76%
Ethylbenzene/Water	30%	**32.38%**
Xylenes/Water	30%	21.08%
GRO/Water	30%	11.77%
DRO/Water	30%	2.03%
1,2,4-Trimethylbenzene	30%	14.25%
1,3,5-Trimethylbenzene	30%	5.66%
Naphthalene	30%	**118.66%**

Key:

%	Percentage of variance in absolute value	GRO	gasoline range organics
BOLD	Exceeds precision tolerance	NA	Not Applicable
BTEX	benzene, toluene, ethylbenzene, and xylenes	PAH	polynuclear aromatic hydrocarbon
DRO	diesel range organics	VOC	volatile organic compound

5.0 REMEDIATION SYSTEM OPERATION AND PERFORMANCE MONITORING

Free Product Recovery. The free product recovery system for this site included the operation of a new free product skimmer (skimmer) that was installed late 2017 in Remediation Well CRW-2. This skimmer consists of a "Sipper Pump and Skimmer" manufactured by Geotech and Xitech Instruments, Inc. The free product collected with the skimmer pump in CRW-2 is temporarily stored on-site in a 55-gallon drum that is contained in an over-pack drum (secondary containment). Summary tables of free product measurements/recovery for the site are in **Appendix F**.

In January 2020, the CRW-2 free product skimmer was turned off due to free product not being collected within the containment drum for the previous month. Regular field monitoring that was to occur in March and April 2020 was delayed due to Alaska State Health Mandates for Covid-19. Once Covid-19 approval for field work was given by the client in June 2020, monitoring levels of free product for CRW-2 resumed. The depth of free product was measured at more than 8 feet in the well at the end of June with the aeration system found to be offline. The drawdown pump

was shut off to prevent discharge of free product into the treatment system until both the skimmer pump and the aeration system could be repaired. When the skimmer was pulled on July 13, 2020, it was found that the intake screen and uptake lines were blocked with high levels of iron oxide based flocculate that had been interfering with the operation of the pump. At that time, the free product levels had decreased to 2.25 feet.

After cleaning, the skimmer was reinstalled on July 15, 2020 and was functioning correctly. Initially the pump skimmed enough free product in a three day period to increase the volume within the free product storage barrel 1.25" (~ 2 gallons) before the screen became clogged again and the sipper was shut off. The skimmer was pulled on August 5, 2020, and free product was pumped of 4.74 feet (~ 6.9 gallons of free product) was pumped with a peristaltic pump on site into the free product storage barrel. The well was noted to have a very high amount of black iron oxide flocculate at the interface. During a later site review, free product was documented in both MW 19-1 and MW 19-2. In September, free product from CRW-2, MW 19-1 and MW 19-2 was monitored and removed periodically with a peristaltic pump using a line attached to a water level meter to verify the free product presence above the water interface.

CRW-2 Drawdown System The 1.0-horsepower (hp) submersible drawdown pump in CRW-2 has been operating normally and pumps at a constant rate of 1.7 gallons per minute. The groundwater drawdown pump in CRW-2 was left on after the sipper pump was turned off in January 2020 to continue the on-site treatment. Site review at the end of June found the aeration blower had stopped working after the last site visit in January 2020. The blower was uninstalled and the storage knack box for it was relocated to have a closer proximity to the aeration tank prior to the installation of the new well WRW-2020. Operation of CRW-2 resumed with a drawdown rate of 1.7 gpm on July 22, 2020 after a temporary blower restored onsite aeration treatment. On August 5, 2020, the drawdown pump for CRW-2 was pulled for routine cleaning after the skimmer pump was removed from the well. Prior to reinstallation of the drawdown pump on August 20, 2020 a peristaltic pump was used to remove approximately 0.10 gallons of free product containing high amount of oxidize material at the interface surface. CRW-2 was dosed with NuWell® pellets on August 28, 2020 to treat the iron precipitates accumulating in the well.

WRW-2020 Drawdown System. On August 28, 2020, a new ½-hp submersible pump was installed for WRW-2020 and a temporary influent line from WRW-2020 to the aeration tank was installed. After field observation of the drainfield levels, WRW-2020 has been set with a flow of 1.5-2 gpm into the aeration tank and set to run on a continuous basis (24-hours per day). The drawdown pump discharges in an insulated/heat traced water line to the Aeration Treatment Tank.

Site Treatment System. The drawdown pumps CRW-2 and WRW-2020 discharge into separate insulated/heat traced water lines into one, 1,500-gallon, double compartment Aeration Treatment Tank. The aerated, treated effluent from the aeration treatment tank discharges by gravity to an on-site drainfield (Infiltrator System) that is located upgradient of the groundwater interceptor trench (see **Figure 4**). After the original blower was removed in July, an aeration blower from storage was installed and lasted approximately 5 weeks before it developed issues with overheating. A new Ametek ½-hp blower was permanently installed on September 18, 2020 and operates to date on a continuous basis (24-hour per day). The water levels in the drainfield are verified to monitor system performance when aeration (violent bubbling) in tank is noted to have decreased due to high water levels within the tank. As demonstrated by the sample results for the

drainfield reported herein, the aeration system is discharging effluent that is significantly "cleaner" than the water entering the tank from the combined drawdown of pumps from CRW-2 and WRW-2020.

CONCLUSIONS

The analytical results for the monitoring wells sampled during the October 2020 monitoring event were relatively consistent with the last groundwater monitoring event (October 2019). The effluent from the remediation aeration tank was found Naphthalene exceeded the GCLs and that DRO had increased from 0.37 mg/L to 0.998 mg/L and was still below GCLs. This change in analyte levels is attributed to high ground water levels and issues with the aeration blower during the summer that have been corrected. Naphthalene levels exceed GCLs for all samples except MW-4.

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

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

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

The free product skimmer pump for CRW-2 has been turned off due to high levels of iron precipitate interfering with its operation. Removal of free product from CRW-2, MW 19-1, and MW 19-2 occurred with the use of a peristaltic pump. The groundwater drawdown pump in CRW-2 and WRW-2020 are operating on a year-round basis. Stantec maintained the iMonnit telemetry equipment to monitor via the internet the operation of the following equipment: free product skimmer, drawdown pump discharge line, and the blower (compressor) that provides aeration to the aeration remediation tank. Summary tables of free product measurements/recovery for the site are in **Appendix F**.

6.0 RECOMMENDATIONS AND PROPOSED ACTIVITIES

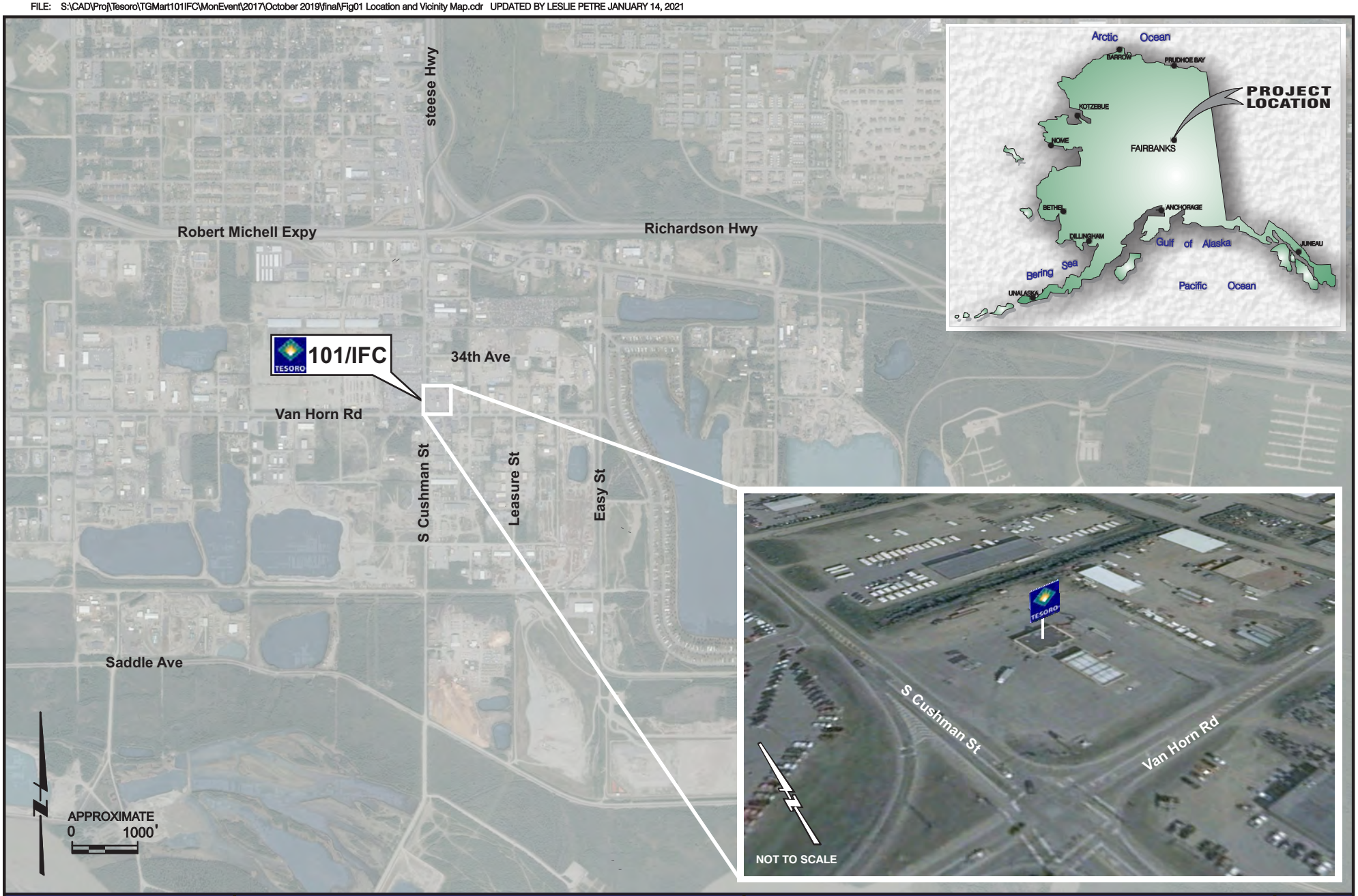
No anomalies were found during the October 2020 monitoring event that would require additional corrective action or changes to the approved year 2020 Corrective Action Work Plan for this site.

7.0 LIMITATIONS

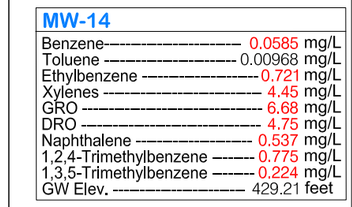
Stantec conducted this monitoring event in accordance with the Corrective Action Work Plan approved by ADEC, and in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions. All sampling activities were completed in accordance with the ADEC's *Underground Storage Tanks Procedures Manual– Standard Sampling Procedures* (March 22, 2017). No other warranty, expressed or implied, is made. Data and recommendations made herein were prepared for Speedway, LLC Store 5313, formally known as Tesoro 2 Go Mart #101/IFC and Tesoro Refining and Marketing Company. Information herein is for use at this site in accordance with the purpose of the report described.

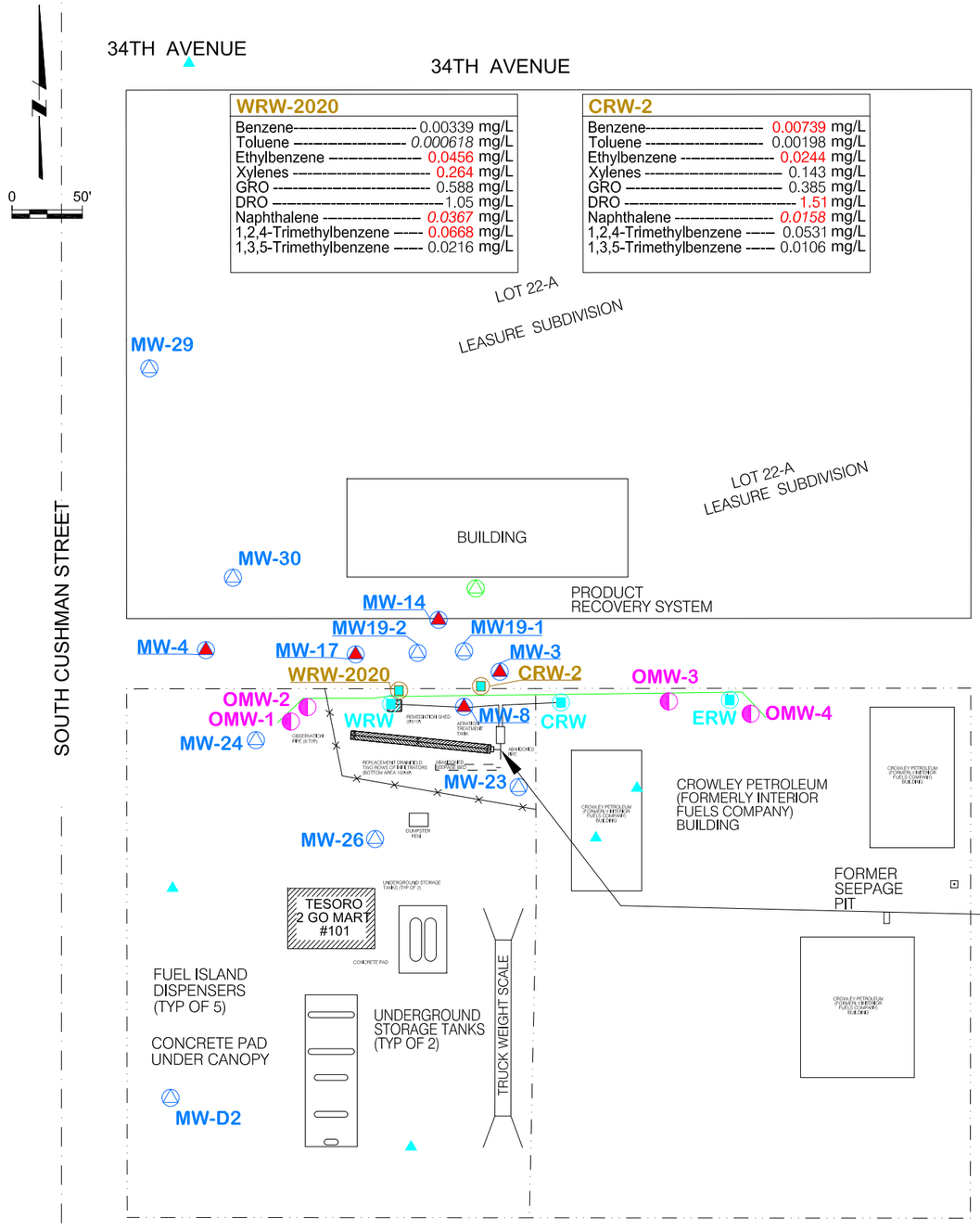
FIGURES

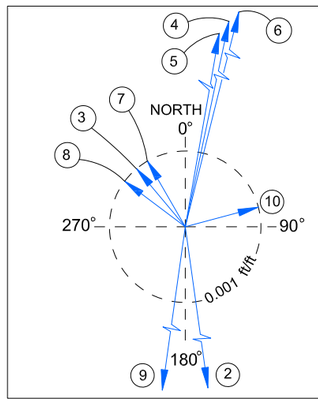
FILE: S:\CAD\Proj\Tesoro\TGMart101IFC\MonEvent\2017\October 2019\final\Fig01 Location and Vicinity Map.cdr UPDATED BY LESLIE PETRE JANUARY 14, 2021



Stantec	SPEEDWAY STORE 5313 FORMERLY TESORO 2 GO MART #101 & IFC OCTOBER 2020 MONITORING EVENT REPORT	LOCATION AND VICINITY MAP	FIGURE 1 185751324







GROUNDWATER FLOW SUMMARY

	DATE	BEARING	GRADIENT (ft/ft)
1	MAY 26, 2011	NC	NC
2	MAY 24, 2012	172 °	0.036
3	SEP. 24, 2013	320 °	0.001
4	MAY 7, 2014	12 °	0.037
5	MAY 26, 2015	10 °	0.035
6	MAY 12, 2016	14 °	0.119
7	JULY 18, 2017	330 °	0.001
8	SEP. 7, 2018	307 °	0.001
9	OCT. 23, 2019	188 °	0.045
10	OCT. 22, 2020	75 °	0.001

LEGEND:

- PROPERTY LINE
- INTERCEPTOR TRENCH
- ROAD CENTERLINE
- FENCE
- GROUNDWATER CONTOUR
- OBSERVATION WELL
- 10" RECOVERY WELL
- 6" RECOVERY WELL
- PRIVATE INDUSTRIAL WELL
- MONITORING WELL
- SAMPLED MONITORING WELL

CRW	CENTRAL RECOVERY WELL
DRO	DIESEL RANGE ORGANICS
DW	DRINKING WATER WELL
EFF	EFFLUENT SAMPLING WELL
ERW	EAST RECOVERY WELL
GRO	GASOLINE RANGE ORGANICS
GW ELEV.	GROUNDWATER ELEVATION IN FEET
MW	MONITORING WELL
mg/L	MILLIGRAMS PER LITER
NC	NOT CALCULATED
OMW	OBSERVATION WELL
WRW	WEST RECOVERY WELL
WRW-2020	WEST RECOVERY WELL 2020

MW-3
Benzene---------- 0.00735 mg/L
Toluene ---------- 0.004 mg/L
Ethylbenzene ---------- 0.0511 mg/L
Xylenes ---------- 0.51 mg/L
GRO ---------- 1.37 mg/L
DRO ---------- 2.67 mg/L
Naphthalene ---------- 0.0893 mg/L
1,2,4-Trimethylbenzene ------- 0.203 mg/L
1,3,5-Trimethylbenzene ------ 0.0805 mg/L
GW Elev. ---------- 429.26 feet

DRAINFIELD
Benzene----------0.000701 mg/L
Toluene ---------- 0.000313 mg/L
Ethylbenzene ---------- 0.00572 mg/L
Xylenes ---------- 0.0392 mg/L
GRO ---------- 0.0861 mg/L
DRO ---------- 0.988 mg/L
Naphthalene ---------- 0.0154 mg/L
1,2,4-Trimethylbenzene ------- 0.011 mg/L
1,3,5-Trimethylbenzene ----0.00273 mg/L

NOTES:

1. RESULTS ARE FOR SAMPLES COLLECTED ON OCTOBER 21 & 22, 2020.
2. **BOLD / RED** RESULTS INDICATE CONCENTRATION EXCEEDS THE CLEANUP LEVEL FOR THE SITE.
3. ITALICIZED VALUES ARE DETECTED AND ESTIMATED VALUES GIVEN.
4. NOT DETECT VALUES ARE WITHIN PARENTHESIS () .

Stantec

SPEEDWAY STORE 5313
FORMERLY TESORO 2 GO MART #101 & IFC

OCTOBER 2020
MONITORING EVENT REPORT

SITE PLAN WITH GROUNDWATER ANALYTICAL DETECTIONS AND EXCEEDANCES

FIGURE 2

185751324

MW-14

MW-4

MW-17

MW19-2

MW19-1

MW-3

WRW-2020

CRW-2

25'

OMW-2

OMW-1

WRW

MW-8

CRW

OMW-3

ERW

25'

OMW-4

REMEDIATION SHED (8'X10')

AERATION TREATMENT TANK

6'

A

A'

OBSERVATION PIPE (6 TYP)

MW-24

100'-0"

ABANDONED PIPE

REPLACEMENT DRAINFIELD
TWO ROWS OF INFILTRATORS
(BOTTOM AREA 100'x6')

ABANDONED SEEPAGE BED

MW-23

CROWLEY PETROLEUM (FORMERLY INTERIOR FUELS COMPANY) BUILDING

DUMPSTER PEN

MW-26

9'

6.5'

BACKFILL (NATIVE SOIL)

2" THICK HIGH DENSITY RIGID INSULATION

TWO ROWS OF INFILTRATOR CHAMBERS (12" HIGH)

12" SCREENED ROCK

GROUNDWATER TABLE @ 9'

SECTION A-A'

NOT TO SCALE

UNDERGROUND STORAGE TANKS (TYP OF 2)

TESORO
2 GO MART
#101

CONCRETE PAD

CONCRETE PAD UNDER CANOPY

FUEL ISLAND DISPENSERS (TYP OF 5)

TRUCK WEIGHT SCALE

LEGEND:

- 3 EA. 4" DIA. ENVIROFLEX SECONDARY PIPING
- INTERCEPTOR TRENCH
- FENCE
- OBSERVATION WELL
- 6" RECOVERY WELL
- 10" RECOVERY WELL
- MONITORING WELL
- CRW — CENTRAL RECOVERY WELL
- ERW — EAST RECOVERY WELL
- OMW — OBSERVATION WELL
- OWE — OBSERVATION WELL EAST
- WRW — WEST RECOVERY WELL

N

0 30'

Stantec

SPEEDWAY STORE 5313
FORMERLY TESORO 2 GO MART #101 & IFC

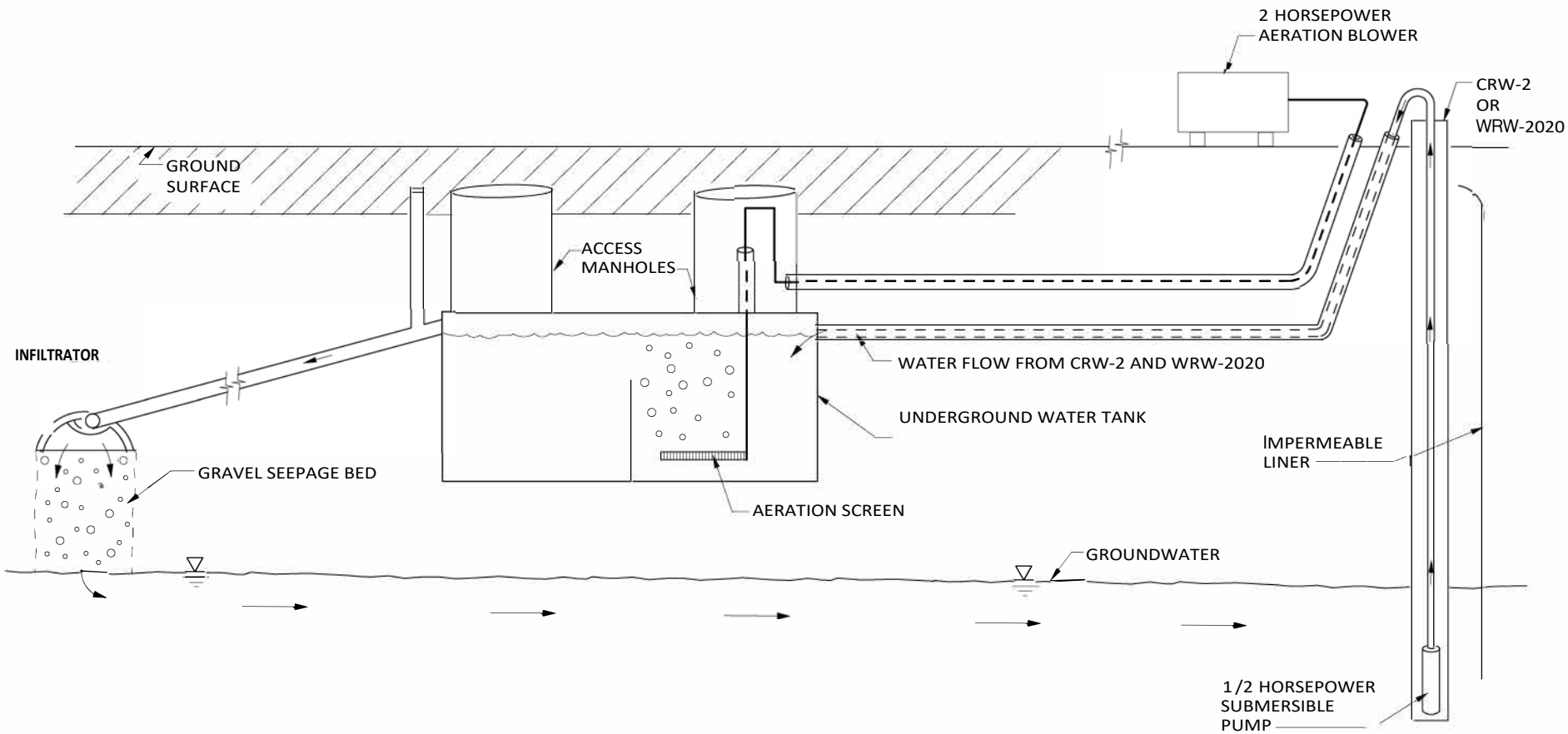
OCTOBER 2020
MONITORING EVENT REPORT

REMEDIATION SYSTEM LAYOUT

FIGURE
3
185751324

MONITORING EVENT FIGURE 3 DECMEBER 2019 REVISED JANUARY 14, 2021 BY LPETRE

TIME: 10-DEC-2019 15:49 FILE: C:\D\CAD\Proj\Tesoro\TGMart101IFC_185751218\MonEvent\2019\December 2019\FIG04 On-Site Groundwater Treatment System Layout.dgn EDITED BY LESLIE PETRE JANUARY 14, 2021



Stantec

SPEEDWAY STORE 5313
FORMERLY TESORO 2 GO MART #101 & IFC

OCTOBER 2020 MONITORING EVENT REPORT

ON-SITE GROUND WATER TREATMENT
SYSTEM LAYOUT

FIGURE
4
185751324

APPENDIX A

Site Background

APPENDIX A – SITE BACKGROUND

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

APPENDIX B

Field Methods and Procedures

APPENDIX B – FIELD METHODS AND PROCEDURES

The following table presents the tasks for the Alaska Department of Environmental Conservation (ADEC)-approved 2020 Corrective Action Work Plan. The scope of these tasks is based on the results and findings of the monitoring and remediation completed to date at Speedway Store 5313 [formally Tesoro 2 Go Mart #101/Interior Fuels Company (ADEC Facility ID #2960; ADEC File #100.26.022)]

2020 Work Plan Schedule

2020 Work Plan Schedule for Speedway Store 5313 (former T2GM 101/IFC)

Work Plan Task		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Task 1	Monitoring Wells: MW-3, MW-4, MW-8, MW-14, MW-17, MW-19-1, MW-19-2, and Aeration Treatment Tank (influent [CRW-2] and effluent discharged to the Drainfield)			D, G, V, P, I	
Task 2	Remediation System Operation and Maintenance	✓	✓	✓	✓
Task 3	Install and Operate 6-inch diameter Free Product Well downgradient of the existing Groundwater Interceptor Trench located North of Recovery Well WRW.	✓	✓	✓	✓

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

he Corrective Action Work Plan for the year 2020 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 2020 Work Plan Schedule shown above.

APPENDIX C

Field Measurements, Notes, and Hydraulic Gradient Plot

Speedway Store 5313
4th Quarter Sampling Event

Project: TNS #101 **Date:** October 21 and 22, 2020

Project number: 185751324 **Samplers:** Leslie Petre

Weather: 24 F and overcast with wind gusts 10/21/2020, 12F and clear 10/22/2020

Well ID	Volume Purged (gallons)	Sheen/ Odor	Temp. (°C)	pH	Dissolved Oxygen (mg/l)	ORP (mV)	Specific Conductance (µs/cm)	Top of Casing[1] (feet)	Depth to Groundwater (feet btoc)	Well Depth (feet)
MW-3	2.52	Y/Y	3.22	6.44	2	18.2	369	436.53	7.27	12.43
MW-4	2.0	N/N	2.89	6.38	3.4	132.9	373	438.31	10.51	14.69
MW-8	32.0	N/N	2.19	6.34	2.05	-11.0	346	442.23	12.93	20.21
MW-14	1.2	Y/Y	3.81	6.45	2.54	27.1	677	440.41	11.2	15.4
MW-17	1.7	Y/Y	2.7	6.51	1.64	66.6	459	438.75	9.47	12.81
MW 19-1	NA	NA								
MW 19-2	NA	NA								
CRW-2	PR	N/Y	3.45	6.6	1.81	-1.7	350	442.43	16.6 *	NM
WRW-2020	PR	N/Y	3.16	6.6	2	45.4	319	NM	11.68 *	NM
Drainfield (NE Obs Pipe)	2	N/N	3.06	7.04	11.33	65.5	317	441.89	5.18	9.72

1 - Based on a vertical control survey completed on July 21, 2017, using a topographic datum of 441.09 feet located at the intersection of South Cushman Road and Van Horn Road, as provided by Design Alaska on December 14, 1995 excluding MW 4 because of casing replacement September 2020.

NC - Not Calculated NM - Not Measured NP - Not Purged

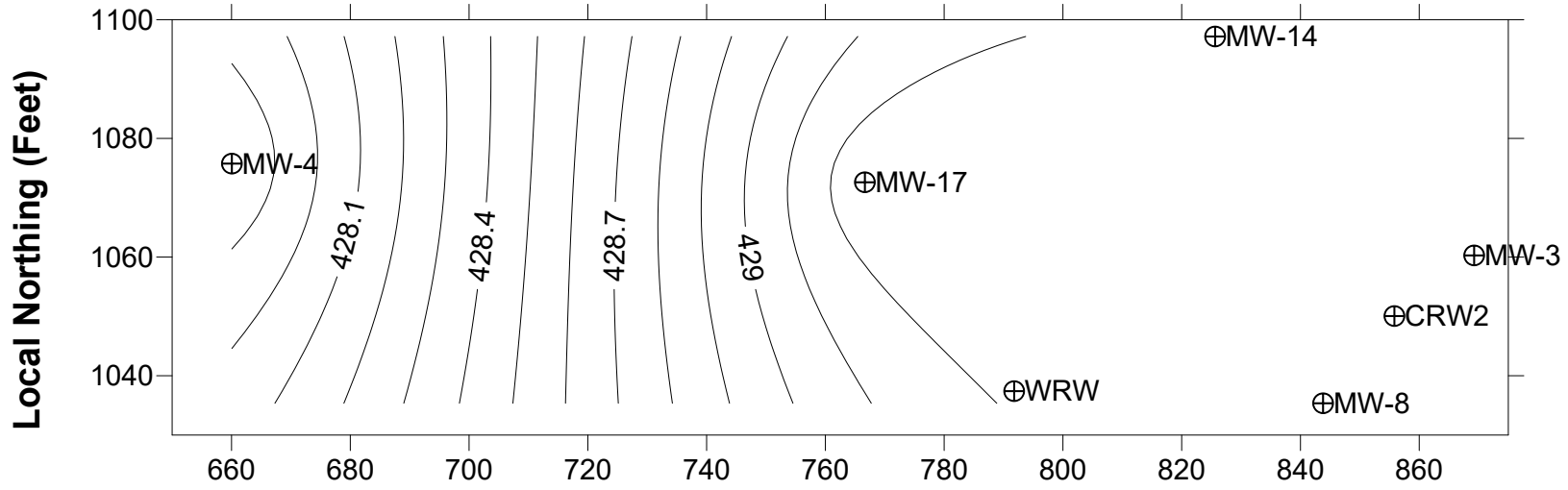
NA - Not applicable * - Measured 10/30/2020 not used for Surfer plot

Well ID	Notes	Well Dia.	Sample Date @Time
MW-3	Dark Grey water	2"	10/21/2020 @18:40
MW-4	Clear to dark, high organic with springtails	2"	10/21/20 @15:55
MW-8	Orange floc on surface	6"	10/21/20 @19:30
MW-14	Murky to clear, strong smell	1.25"	10/21/20 @17:35
MW-17	clear to dark, high sediment	2"	10/21/20 @16:25
MW 19-1	Not measured or sampled this event due to previous free product	2"	
MW 19-2		2"	
CRW-2	Clear with black floating strands, depth not meas	6"	10/22/20 @11:25
WRW-2020	Clear, depth not measured	6"	10/22/20 @10:59
Drainfield	Yellow to brown w/floc	4"	10/22/20 @12:10
TNS 101 Dup	of MW 8, excluding sodium	6"	10/21/20 @19:45

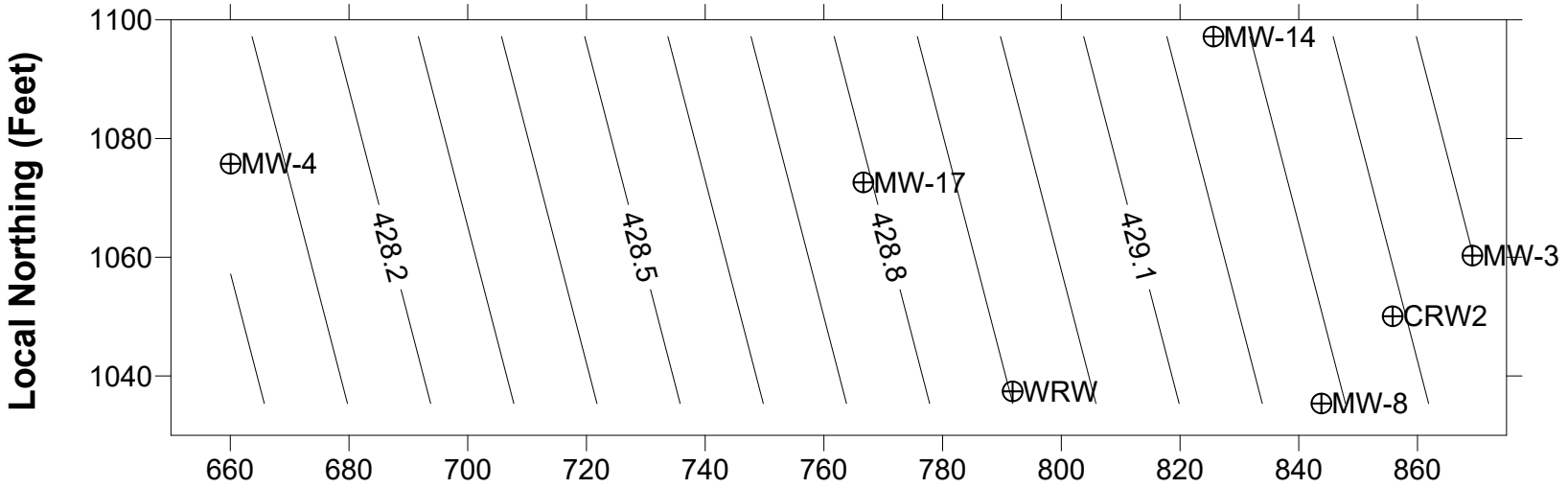
Instruments / methods used		Model
Static water level	Solinist	122
pH	YSI	556
Conductivity	YSI	556
Dissolved Oxygen	YSI	556
Temperature	YSI	556
ORP	YSI	556

Lab Analytical Methods:	
VOCs (8060)	ALL
GRO (AK101)	ALL
DRO (AK102)	ALL
PAHs (8270SIM)	ALL
Sodium	Onsite only

Speedway Store #5313 (Former Tesoro 2 Go Mart #101)- Groundwater Elevation Contours October 22, 2020



Linear Interpolation Method
Contour Interval 0.1 feet



Polynomial Regression Method
Contour Interval 0.1 feet

Elevation Datum is locally established at 441.09 feet

APPENDIX D

Tables of Historical Monitoring Data

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-1

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
04-Nov-91	**0.016**	NS	NS	431.01	430.91	430.99
29-Jan-92	NS	NS	NS	432.03	430.34	*431.69*
12-Apr-95	NS	NS	NS	432.17	426.20	*430.98*
19-Jul-95	**0.278**	NS	NS	NA	432.84	NA
22-May-96	NS	NS	NS	NA	NM	NA
06-Nov-96	NS	NS	NS	NA	NM	NA
29-Apr-98	NS	NS	NS	NA	NM	NA
13-Oct-98	**0.149**	**10**	**47.8**	NA	431.47	NA
28-Jan-00	NS	NS	NS	429.52	427.88	*429.19*
24-Apr-02	NS	NS	NS	NA	NM	NA
20-Aug-02	Well Destroyed					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Not sampled Jan. 29. 1992- April 12, 1995
Not Sampled Jan. 28, 2000 to April 24, 2002

Monitoring Well MW-2

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
04-Nov-91	U	NS	NS	NA	431.31	NA
17-Nov-97	U	U	NS	NA	431.01	NA
29-Apr-98	U	U	0.203	NA	428.85	NA
13-Oct-98	U	U	0.278	NA	431.18	NA
27-Jul-00	U	U	0.314	NA	431.71	NA
08-Mar-01	NS	NS	NS	NA	431.08	NA
04-Jun-01	U	U	U	NA	431.32	NA
30-Nov-01	NS	NS	NS	NA	NM	NA
04-Jun-08	NS	NS	NS	NA	NM	NA
13-May-09	U (0.0005)	U (0.05	U (0.467)	NA	NM	NA
15-Jun-10	NS	NS	NS	NA	NM	NA
04-Oct-11	Well Decommissioned					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Analytes undetected/Not Sampled Nov. 04, 1991 to Nov. 17, 1997
Not activity involving well Nov. 30, 2001- June 04, 2008

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-3

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
6-Nov-91	NS	NS	NS	431.53	428.98	*431.02*
12-Mar-95	NS	NS	NS	430.86	427.70	*430.23*
13-Apr-95	**0.090**	NS	NS	432.05	429.12	*431.46*
19-Jul-95	NS	NS	NS	432.76	430.53	*432.31*
25-Oct-95	**0.480**	NS	**200**	432.11	430.18	*431.72*
22-May-96	**0.050**	NS	NS	431.27	429.80	*430.98*
06-Nov-96	NS	NS	NS	430.86	427.68	*430.22*
19-Mar-97	**0.095**	NS	NS	430.22	426.72	429.52
17-Nov-97	**0.0421**	**2.2**	NS	432.89	430.96	432.50
29-Apr-98	**0.0273**	**2.3**	**118**	430.62	428.17	*430.13*
13-Oct-98	NS	NS	NS	432.25	431.07	*432.01*
08-Nov-04	NA	NA	NA	430.45	429.45	*430.25*
01-Apr-05	NS	NS	NS	NA	NM	NA
27-Sep-05	NS	NS	NS	432.46	431.08	*432.18*
16-May-06	NS	NS	NS	0.5 feet thick	NM	NA
14-Sep-06	NS	NS	NS	Several inches	NM	NA
14-May-07	NS	NS	NS	*430.10*	*429.70*	*430.02*
04-Jun-08	NS	NS	NS	*NM*	NM	NA
24-May-12	NS	NS	NS	NA	NM	NA
12-Aug-13	NS	NS	NS	0.6 feet thick	NM	NA
06-May-14	U (0.0005)	0.072	1.1	NA	NM	NA
26-May-15	NS	NS	NS	NA	Frozen	NA
12-May-16	NS	NS	NS	*428.32*	*428.08*	*428.27*
07-Sep-17	**0.024**	**3.7**	**160**	*429.65*	*429.64*	*429.65*
07-Sep-18	0.0033	1.3	**60**	NA	430.78	NA
23-Oct-19	**0.0047**	**3.1**	**210**	NA	429.33	NA
21-Oct-20	**0.00735**	1.37	**2.67**	NA	429.26	NA
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Free product evident, Not sampled Nov. 6, 1991 to March 12, 1995

Not monitored June 4, 2008 to May 24, 2012

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-4

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
04-Nov-91	**0.17**	NS	NS	NA	430.94	NA
03-Jan-92	NS	NS	NS	NA	430.70	NA
28-Jan-92	**0.16**	NS	NS	NA	430.83	NA
09-Mar-92	NS	NS	NS	NA	430.61	NA
23-Apr-92	**0.11**	NS	NS	NA	431.00	NA
16-Jul-92	U	NS	NS	NA	433.04	NA
11-Aug-92	**0.13**	NS	NS	NA	432.88	NA
10-Sep-92	**0.15**	NS	NS	NA	432.08	NA
07-Oct-92	**0.11**	NS	NS	NA	431.43	NA
21-Dec-92	**0.11**	NS	NS	NA	430.31	NA
09-Mar-93	**0.093**	NS	NS	NA	430.36	NA
23-Sep-94	U	NS	NS	NA	431.72	NA
17-Nov-97	U	U	NS	NA	430.61	NA
29-Apr-98	U	U	0.405	NA	428.37	NA
13-Oct-98	U	U	0.511	NA	430.78	NA
05-Nov-99	U	U	0.688	NA	430.16	NA
27-Jul-00	NS	NS	NS	NA	NM	NA
08-Mar-01	NS	NS	NS	NA	430.58	NA
04-Jun-01	U	U	0.915	NA	430.81	NA
30-Nov-01	U	U	0.955	NA	430.56	NA
24-Apr-02	NS	NS	NS	NA	430.28	NA
20-Aug-02	U	U	**3.31**	NA	432.83	NA
06-Nov-02	NS	NS	NS	NA	431.14	NA
27-Sep-05	NS	NS	NS	NA	NM	NA
16-May-06	U (0.0005)	U (0.050)	0.616	NA	430.29	NA
14-Sep-06	U (0.0005)	2.17	1.38	NA	431.37	NA
14-May-07	U (0.0005)	U	U	NA	431.86	NA
04-Jun-08	U (0.0005)	0.308	0.581	NA	430.46	NA
13-May-09	U (0.0005)	U (0.05)	U (0.417)	NA	431.46	NA
15-Jun-10	U (0.0005)	U (0.05)	U (0.455)	NA	429.00	NA
26-May-11	U (0.0005)	U (0.05)	0.439	NA	430.81	NA
24-May-12	U (0.0005)	U (0.05)	0.565	NA	428.69	NA
12-Aug-13	U (0.0005)	U (0.05)	U (0.400)	NA	428.95	NA
06-May-14	U (0.0005)	U (0.05)	U (0.41)	NA	428.80	NA
26-May-15	U (0.001)	U (0.05)	U (0.21)	NA	428.60	NA
12-May-16	U (0.0020)	U (0.1)	0.78	NA	428.17	NA
07-Sep-17	U (0.00040)	U (0.150)	0.59	NA	429.50	NA
07-Sep-18	U (0.00040)	U (0.150)	U (0.28)	NA	430.61	NA
23-Oct-19	U (0.003)	U (0.25)	0.33 H	NA	431.53	NA
21-Oct-20	U(0.001)	0.595	0.95	NA	NA	NA
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Undetected levels of Analytes September 23, 1994 to Nov. 17, 1997
Undetected levels of Analytes or Not Sampled Nov. 6, 2002 to Sept. 27, 2005

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-5

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
04-Nov-91	U	NS	NS	NA	431.47	NA
17-Nov-97	U	U	NS	NA	431.22	NA
29-Apr-98	U	U	0.106	NA	429.11	NA
13-Oct-98	U	U	0.129	NA	431.41	NA
04-Nov-99	U	U	U	NA	430.95	NA
26-May-11	NS	NS	NS	NA	NM	NA
04-Oct-11	Well Decommissioned					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Analytes Undetected/Not Sampled Nov. 4, 1991- Nov. 17, 1997
Analytes Undetected/Not Sampled Nov. 4, 1999- May. 26, 2011

Monitoring Well MW-6

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
28-Jan-92	U	NS	NS	NA	430.59	NA
17-Nov-97	U	U	NS	NA	430.37	NA
29-Apr-98	U	U	0.119	NA	427.95	NA
13-Oct-98	U	U	0.151	NA	430.33	NA
27-Jul-00	U	U	0.331	NA	431.15	NA
08-Mar-01	NS	NS	NS	NA	NM	NA
04-Jun-01	NS	NS	NS	NA	NM	NA
30-Nov-01	U	U	**1.61**	NA	430.13	NA
14-May-07	Well Destroyed					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Analytes Undetected/Not Sampled Jan. 28, 1992 to Nov. 17, 1997

Monitoring Well MW-7

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
28-Jan-92	U	NS	NS	NA	430.59	NA
17-Nov-97	U	U	NS	NA	430.43	NA
29-Apr-98	0.00223	U	0.132	NA	428.18	NA
13-Oct-98	NS	NS	NS	NA	NM	NA
07-Jun-00	Well Destroyed					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Analytes Undetected/Not Sampled Jan. 28, 1992 to Nov. 17, 1997

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-8

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
29-Jan-92	NS	NS	NS	431.54	428.79	*430.99*
18-Aug-04	NS	NS	NS	NA	431.86	NA
30-Aug-04	**0.00516**	0.329	**1.69**	NA	NM	NA
08-Nov-04	NS	NS	NS	NA	430.70	NA
01-Apr-05	NS	NS	NS	NA	NM	NA
27-Sep-05	U (0.0005)	U (0.05)	U (0.4)	NA	430.21	NA
16-May-06	0.000695	0.0766	**4.12**	*NA*	*430.59*	*NA*
14-Sep-06	**0.00645**	0.284	0.956	NA	431.52	NA
14-May-07	NS	NS	NS	*430.04*	*430.00*	*430.03*
04-Jun-08	0.00188	0.450	**5.81**	*430.61*	*430.60*	*430.61*
13-May-09	0.00238	0.740	**12.6**	NA	430.98	NA
15-Jun-10	**0.00467**	1.390	**2.45**	NA	428.96	NA
26-May-11	0.00188	1.10	**13.1**	NA	431.01	NA
24-May-12	0.00134	0.524	**1.88**	NA	428.91	NA
12-Aug-13	NS	NS	NS	*428.42*	*428.40*	*428.42*
07-May-14	0.00067	**2.2**	**43**	*NA*	428.42	NA
26-May-15	0.0025	**2.8**	**65**	*NA*	428.87	NA
12-May-16	0.00087	0.86	**12**	NA	428.34	NA
07-Sep-17	**0.016**	0.390	**27**	NA	429.69	NA
07-Sep-18	0.00067	0.280	**20**	NA	430.79	NA
23-Oct-19	U (0.003)	0.45	**12**	NA	429.39	NA
21-Oct-20	*0.000695*	0.126	**8.97**	NA	429.3	NA
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Anaylites undected/Not Sampled Jan. 29, 1992 to Aug. 18, 2004

Monitoring Well MW-9

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
16-May-03	NS	NS	NS	431.36	431.16	431.32
04-Aug-03	NS	NS	NS	NA	NM	NA
24-Nov-03	NS	NS	NS	NA	NM	NA
10-Feb-04	NS	NS	NS	NA	NM	NA
03-May-04	NS	NS	NS	430.87	429.21	*430.54*
18-Aug-04	NS	NS	NS	432.19	430.59	*431.87*
08-Nov-04	NS	NS	NS	430.09	430.04	430.08
01-Apr-05	NS	NS	NS	NA	NM	NA
26-May-11	NS	NS	NS	NA	NM	NA
04-Oct-11	Well Decommissioned					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Monitoring Wells MW-10, MW-11, and MW-12 consist of steel pipe casings, and are typically frozen. Monitoring Well MW-12 has been destroyed. Data for Monitoring Wells MW-10, MW-11, and MW-12 is not included.

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-13

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
04-Nov-99	**0.00468**	0.096	1.26	NA	NM	NA
27-Jul-00	**0.012**	0.32	0.848	NA	NM	NA
08-Mar-01	NS	NS	NS	NA	430.69	430.69
04-Jun-01	0.00276	U	0.831	NA	430.93	430.93
04-Oct-11	Well Decommissioned					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Monitoring Well MW-14

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
10-Apr-00	NS	NS	NS	NA	428.72	NA
08-Nov-04	NS	NS	NS	NA	428.18	NA
01-Apr-05	**0.0162**	2.16	**22**	NA	429.39	NA
27-Sep-05	**0.0194**	1.07	**4.34**	NA	429.31	NA
16-May-06	NS	NS	NS	NA	NM	NA
14-Sep-06	0.00323	0.457	**1.51**	NA	NR	NA
14-May-07	NS	NS	NS	NA	NM	NA
04-Jun-08	**0.0128**	0.964	**3.02**	NA	430.57	NA
13-May-09	**0.0267**	2.18	**1.77**	NA	430.88	NA
15-Jun-10	**0.0119**	1.15	**1.89**	NA	429.05	NA
26-May-11	**0.0103**	1.23	**3.78**	NA	430.92	NA
24-May-12	0.00271	0.284	**2.72**	NA	428.79	NA
12-Aug-13	**0.0442**	**3.77**	**120**	NA	429.18	NA
06-May-14	**0.027**	**12**	**67**	NA	426.53	NA
26-May-15	**0.020**	**3.6**	**6.4**	NA	426.47	NA
Ice Plug	**Ice Plug**					
07-Sep-17	**0.050**	**6.5**	**14**	NA	429.60	NA
07-Sep-18	**0.074**	**U (7.5)**	**26**	NA	430.73	NA
23-Oct-19	**0.054**	**12**	**15 H**	NA	429.64	NA
21-Oct-20	**0.0585**	**6.68**	**4.75**	NA	429.21	NA
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Not sampled April 10, 2000 to Nov. 8, 2004

Monitoring Well MW-15

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
04-Nov-99	**0.106**	**12.0**	**8.51**	NA	NM	NA
28-Jan-00	NS	NS	NS	NA	429.29	NA
27-Jul-00	NS	NS	NS	431.69	431.03	*431.56*
08-Mar-01	NS	NS	NS	431.04	430.44	430.88
04-Jun-01	NS	NS	NS	NA	Frozen	NA
30-Nov-01	Well Destroyed					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-16

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
04-Nov-99	U	**2.4**	**1.83**	NA	NS	NA
10-Apr-00	NS	NS	NS	429.23	428.88	*429.16*
27-Jul-00	NS	NS	NS	431.64	431.65	*431.64*
08-Mar-01	NS	NS	NS	431.03	430.62	430.92
04-Jun-01	U	U	**1.61**	NA	431.29	NA
30-Nov-01	NS	NS	NS	NA	430.98	NA
24-Apr-02	NS	NS	NS	NA	NM	NA
20-Aug-02	0.0006	1.63	1.22	NA	433.03	NA
06-Nov-02	NS	NS	NS	NA	431.36	NA
27-Sep-05	NS	NS	NS	NA	NM	NA
16-May-06	U (0.0005)	U (0.050)	1.06	NA	430.08	NA
14-Sep-06	U (0.0005)	0.237	0.908	NA	431.63	NA
14-May-07	U (0.0005)	U (0.050)	1.12	*429.56*	*429.20*	*429.24*
04-Jun-08	U (0.0005)	U (0.050)	U (0.4)	NA	430.74	NA
13-May-09	NS	NS	NS	NA	NM	NA
15-Jun-10	NS	NS	NS	NA	NM	NA
04-Oct-11	Well Decommissioned					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Not Sampled Nov. 6, 2002 to Sept. 27, 2005

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-17

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
04-Nov-99	NS	NS	NS	NA	NM	NA
28-Jan-00	NS	NS	NS	NA	429.08	NA
10-Apr-00	NS	NS	NS	429.97	427.06	*429.39*
27-Jul-00	**0.07**	**6.8**	**57.6**	431.45	431.44	431.45
08-Mar-01	NS	NS	NS	NA	430.41	NA
16-May-03	NS	NS	NS	NA	431.76	NA
04-Aug-03	0.0016	0.535	**4.5**	NA	433.63	NA
24-Nov-03	NS	NS	NS	NA	431.29	NA
10-Feb-04	NS	NS	NS	NA	430.53	NA
03-May-04	**0.0823**	1.14	**65.2**	NA	431.26	NA
18-Aug-04	NS	NS	NS	NA	432.18	NA
08-Nov-04	NS	NS	NS	NA	430.40	NA
01-Apr-05	**0.0148**	**5.37**	**118**	NA	430.61	NA
27-Sep-05	0.00422	0.204	**6.53**	NA	432.54	NA
16-May-06	0.000652	0.633	**51.2**	NA	430.95	NA
14-Sep-06	**0.00634**	0.642	**9.33**	NA	431.46	NA
14-May-07	0.00182	0.467	**74.1**	NA	*429.79*	NA
04-Jun-08	0.00054	0.213	**3.49**	NA	430.54	NA
13-May-09	U (0.0005)	U (0.05)	1.11	NA	433.54	NA
15-Jun-10	0.00384	0.148	**3.7**	NA	428.82	NA
26-May-11	U (0.0005)	U (0.05)	0.963	NA	431.19	NA
24-May-12	U (0.0005)	0.122	1.05	NA	428.13	NA
12-Aug-13	U (0.0005)	1.68	**114**	NA	429.15	NA
06-May-14	U (0.0005)	1.2	**28**	NA	426.33	NA
26-May-15	U (0.0010)	**3.9**	**32**	NA	426.17	NA
12-May-16	U (0.00026)	**3.3**	**74**	NA	427.12	NA
07-Sep-17	**0.0059**	**2.4**	**47**	NA	429.61	NA
07-Sep-18	**0.0064**	**2.9**	**24**	NA	430.60	NA
23-Oct-19	**0.0077**	0.38	**14**	NA	429.31	NA
21-Oct-20	0.0732	**3.2**	**17.7**	NA	429.28	NA
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Not Sampled Jun. 04, 2001 to May 16, 2003

Monitoring Well MW-18

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
04-Nov-99	U	**3.4**	**24.6**	NA	NM	NA
10-Apr-00	NS	NS	NS	429.21	429.12	*429.19*
27-Jul-00	U	U	**6.06**	NA	432.73	NA
08-Mar-01	NS	NS	NS	NA	430.95	NA
04-Jun-01	U	1.42	**11.6**	NA	431.29	NA
30-Nov-01	NS	NS	NS	NA	430.81	NA
26-May-11	NS	NS	NS	NA	NM	NA
04-Oct-11	Well Decommissioned					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Not Sampled Nov. 30, 2001 to May 26, 2011

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-19

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
27-Jul-00	**0.044**	U	1.14	NA	NST	NA
08-Mar-01	NS	NS	NS	NA	430.57	NA
04-Jun-01	0.0037	0.271	1.05	NA	430.82	NA
30-Nov-01	Well Destroyed					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Monitoring Well MW 19-1

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
23-Oct-19	**0.085**	**8.6**	**42 H**	NA	NC	NA
22-Oct-20	NS	NS	NS	NM	NM	NM
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Monitoring Well MW 19-2

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
23-Oct-19	NS	NS	NS	NC	NC	NC
22-Oct-20	NS	NS	NS	NM	NM	NM
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Monitoring Well MW-20

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
27-Jul-00	U	U	0.997	NA	NST	NA
08-Mar-01	NS	NS	NS	NA	NM	NA
04-Jun-01	NS	NS	NS	NA	NM	NA
30-Nov-01	Well Destroyed					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Monitoring Well MW-21

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
27-Jul-00	**0.028**	U	**1.55**	NA	NST	NA
08-Mar-01	NS	NS	NS	NA	NM	NA
04-Jun-01	NS	NS	NS	NA	NM	NA
30-Nov-01	Well Destroyed					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-22

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
27-Jul-00	U	U	0.008	NA	NST	NA
08-Mar-01	NS	NS	NS	NA	NM	NA
04-Jun-01	NS	NS	NS	NA	NM	NA
30-Nov-01	Well Destroyed					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Monitoring Well MW-23

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
30-Nov-01	NS	NS	NS	NA	NM	NA
24-Apr-02	NS	NS	NS	430.71	430.59	430.69
20-Aug-02	NS	NS	NS	NA	433.01	NA
06-Nov-02	NS	NS	NS	NA	431.59	NA
20-Mar-03	NS	NS	NS	NA	432.00	NA
16-May-03	NS	NS	NS	NA	432.06	NA
04-Aug-03	NS	NS	NS	NA	433.38	NA
16-Oct-03	Well damaged during site work and removed.					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Monitoring Well MW-24

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
30-Nov-01	**0.0142**	0.230	0.714	NA	NST	NA
24-Apr-02	**0.0144**	0.213	0.686	NA	430.35	NA
20-Aug-02	U	U	U	NA	433.01	NA
06-Nov-02	NS	NS	NS	NA	431.34	NA
20-Mar-03	NS	NS	NS	NA	430.92	NA
16-May-03	NS	NS	NS	NA	431.11	NA
04-Aug-03	0.0007	0.115	U	NA	432.99	NA
24-Nov-03	NS	NS	NS	NA	NM	NA
10-Feb-04	NS	NS	NS	NA	429.75	NA
03-May-04	**0.0342**	1.12	**4.32**	NA	430.11	NA
18-Aug-04	NS	NS	NS	NA	431.74	NA
08-Nov-04	NS	NS	NS	NA	429.94	NA
01-Apr-05	**0.0147**	2.0	**17.6**	NA	429.87	NA
27-Sep-05	U (0.0005)	U (0.05)	1.29	NA	431.88	NA
16-May-06	NS	NS	NS	NA	NM	NA
14-Sep-06	0.00270	0.0520	1.15	NA	431.46	NA
14-May-07	NS	NS	NS	NA	NM	NA
22-Oct-20	NS	NS	NS	NA	NM	NA
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Not sampled May 14, 2007 to October 22, 2020

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-25

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
30-Nov-01	U	U	U	NA	NST	NA
26-May-11	NS	NS	NS	NA	NM	NA
04-Oct-11	Well Decommissioned					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Historically frozen, not sampled since monitored since Nov. 30, 2001

Monitoring Well MW-26

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
30-Nov-01	NS	NS	NS	NA	NST	NA
24-Apr-02	0.0024	0.0909	1.42	NA	416.97	NA
01-Apr-05	NS	NS	NS	NA	NM	NA
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Historically frozen, not sampled since monitored since April 24, 2002

Monitoring Well MW-27

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
30-Nov-01	U	U	U	NA	NST	NA
24-Apr-02	U	U	U	NA	431.69	NA
20-Aug-02	U	U	0.54	NA	433.58	NA
06-Nov-02	NS	NS	NS	NA	432.9	NA
20-Mar-03	NS	NS	NS	NA	432.43	NA
16-May-03	NS	NS	NS	NA	432.75	NA
04-Aug-03	U	U	0.589	NA	434.62	NA
24-Nov-03	NS	NS	NS	NA	432.28	NA
26-May-11	NS	NS	NS	NA	NM	NA
04-Oct-11	Well Decommissioned					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Not Sampled Nov.24, 2003 to May 26, 2011

Monitoring Well MW-28

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
30-Nov-01	0.003	U	0.747	NA	NST	NA
24-Apr-02	U	U	0.570	NA	430.89	NA
20-Aug-02	0.004	U	0.878	NA	433.31	NA
06-Nov-02	NS	NS	NS	NA	431.64	NA
26-May-11	NS	NS	NS	NA	NM	NA
04-Oct-11	Well Decommissioned					
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Not Sampled Nov. 06, 2002 to May 26, 2011

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well G-1

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
Mar-01	NS	NS	NS	NA	NST	NA
May-01	U	U	U	NA	NST	NA
30-Nov-01	U	U	U	NA	429.16	NA
24-Apr-02	U	U	U	NA	430.30	NA
04-Jun-02	NS	NS	NS	NA	430.30	NA
20-Aug-02	U	U	U	NA	432.87	NA
06-Nov-02	NS	NS	NS	NA	431.12	NA
20-Mar-03	NS	NS	NS	NA	431.06	NA
16-May-03	NS	NS	NS	NA	431.26	NA
04-Aug-03	U	U	U	NA	433.22	*NA*
24-Nov-03	NS	NS	NS	NA	430.81	NA
22-Oct-20	NS	NS	NS	NA	NM	NA
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Not sampled Nov. 24, 2003 to October 22, 2020

Monitoring Well MW-29

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
16-Oct-03	U	U	U	NA	431.56	NA
24-Nov-03	NS	NS	NS	NA	430.49	NA
10-Feb-04	NS	NS	NS	NA	429.66	NA
03-May-04	U	U	U	NA	430.01	NA
18-Aug-04	NS	NS	NS	NA	NM	NA
08-Nov-04	NS	NS	NS	NA	NM	NA
01-Apr-05	NS	NS	NS	NA	NM	NA
27-Sep-05	U (0.0005)	U (0.05)	U (0.403)	NA	431.49	NA
16-May-06	NS	NS	NS	NA	NM	NA
22-Oct-20	NS	NS	NS	NA	NM	NA
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Not sampled May 16, 2006 to October 22, 2020

Monitoring Well MW-30

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
16-Oct-03	U	U	U	NA	431.98	NA
24-Nov-03	NS	NS	NS	NA	430.74	NA
10-Feb-04	NS	NS	NS	NA	429.98	NA
03-May-04	U	U	U	NA	430.31	NA
18-Aug-04	NS	NS	NS	NA	NM	NA
08-Nov-04	NS	NS	NS	NA	429.70	NA
01-Apr-05	NS	NS	NS	NA	428.69	NA
27-Sep-05	NS	NS	NS	NA	NM	NA
22-Oct-20	NS	NS	NS	NA	NM	NA
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Not sampled Sept. 27, 2005 to October 22, 2020

Appendix D
Tables of Historical Groundwater Monitoring Data

IFC Aeration Tank

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
24-May-12	**0.00486**	0.532	0.478	NA	NM	NA
12-Aug-13	NS	NS	NS	NA	NM	NA
06-May-14	NS	NS	NS	NA	NM	NA
26-May-15	**0.0065**	0.59	**21**	NA	NM	NA
12-May-16	**0.005**	0.21	U (0.43)	NA	NM	NA
07-Sep-17	U (0.00040)	U (0.150)	0.74	NA	430.91	NA
07-Sep-18	U (0.00040)	U (0.150)	0.28	NA	NM	NA
23-Oct-19	U (0.003)	U (0.25)	0.37	NA	NM	NA
22-Oct-20	*0.000701*	*0.0861*	0.988	NA	NM	NA
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

CRW-2

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
24-Sep-13	U (0.0005)	U (0.05)	U (0.439)	NA	NM	NA
07-May-14	0.0014	0.05	1.2	NA	NM	NA
26-May-15	NS	NS	NS	NA	NM	NA
12-May-16	NS	NS	NS	*426.91*	*425.10*	*426.55*
07-Sep-17	**0.016**	0.350	0.96	*429.60*	*423.60*	*428.40*
07-Sep-18	**0.013**	0.910	**2.8**	430.70	NM	NM
23-Oct-19	**0.011**	0.99	1.4	NA	NM	NA
22-Oct-20	**0.00739**	0.385	1.51	NA	NM	NA
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

WRW-2020

Date	Benzene (mg/L)	GRO (mg/L)	DRO (mg/L)	Product Elevation (feet)	Measured GW Elevation (feet)	Corrected GW Elevation (feet)
16-Jul-20	10.6	NS	NS	NA	NM	NA
22-Oct-20	0.00339	0.588	1.05	NA	NM	NA
GCL	**0.0046**	**2.2**	**1.5**	**NA**	**NA**	**NA**

Key:
DRO - diesel range organics
GCL - groundwater cleanup levels
GRO - gasoline range organics
GW - groundwater
H - Sampled was prepped or analyzed beyond the specific holding time
mg/L - milligrams per liter
NA - not applicable
NC - not calculated
NM - not measured
NS - not sampled
NST - Not surveyed at time of monitoring.
U - Undetected above practical quantitation limits (PQLs).
Density of product assumed 800 kg/m^3
Bold, shade indicates concentration exceeds the GCL or, if not detected, the PQL exceeds the GCL
italisized cells indicate lab estimated values

APPENDIX E

Laboratory Analytical Report and ADEC Laboratory Data Review Checklist

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 20, 2020

Stantec - Anchorage, AK - Speedway

Sample Delivery Group:	L1277825
Samples Received:	10/24/2020
Project Number:	185751324
Description:	Speedway 5313 TNS 101
Site:	0005313
Report To:	Ms. Leslie Petre 725 E Fireweed Lane Suite 200 Anchorage, AK 99503

Entire Report Reviewed By:

Craig Cothron
Project Manager

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

TABLE OF CONTENTS

MW-03 L1277825-01 GW

Collected by: Leslie Petre | Collected date/time: 10/21/20 18:40 | Received date/time: 10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1567165	1	10/28/20 18:55	10/28/20 18:55	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1570539	5	11/04/20 02:46	11/04/20 02:46	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1567796	1.08	11/02/20 17:59	11/04/20 23:54	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1566290	1	10/27/20 23:13	10/29/20 03:15	AO	Mt. Juliet, TN

MW-04 L1277825-02 GW

Collected by: Leslie Petre | Collected date/time: 10/21/20 15:55 | Received date/time: 10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1567165	1	10/28/20 19:19	10/28/20 19:19	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1569381	1	11/02/20 05:00	11/02/20 05:00	JCP	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1570539	10	11/04/20 03:06	11/04/20 03:06	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1567796	1.1	11/02/20 17:59	11/05/20 00:14	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1566290	1	10/27/20 23:13	10/29/20 03:37	AO	Mt. Juliet, TN

MW-08 L1277825-03 GW

Collected by: Leslie Petre | Collected date/time: 10/21/20 19:30 | Received date/time: 10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010C	WG1566842	1	10/30/20 16:33	10/31/20 10:20	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG1567165	1	10/28/20 19:43	10/28/20 19:43	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1569381	1	11/02/20 05:19	11/02/20 05:19	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1567796	1.14	11/02/20 17:59	11/05/20 00:34	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1566290	1	10/27/20 23:13	10/29/20 03:58	AO	Mt. Juliet, TN

MW-14 L1277825-04 GW

Collected by: Leslie Petre | Collected date/time: 10/21/20 17:35 | Received date/time: 10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1570197	10	11/03/20 15:45	11/03/20 15:45	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1569381	1	11/02/20 05:39	11/02/20 05:39	JCP	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1570539	20	11/04/20 03:27	11/04/20 03:27	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1567796	1.15	11/02/20 17:59	11/05/20 00:54	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1566290	1	10/27/20 23:13	10/29/20 05:46	AO	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1566290	10	10/27/20 23:13	10/29/20 07:34	AO	Mt. Juliet, TN

MW-17 L1277825-05 GW

Collected by: Leslie Petre | Collected date/time: 10/21/20 16:25 | Received date/time: 10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1567165	10	10/28/20 22:08	10/28/20 22:08	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1569381	50	11/02/20 08:54	11/02/20 08:54	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1567796	5	11/02/20 17:59	11/05/20 10:52	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1566290	1	10/27/20 23:13	10/29/20 05:03	AO	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1566290	5	10/27/20 23:13	10/29/20 06:51	AO	Mt. Juliet, TN

DUP1 L1277825-06 GW

Collected by: Leslie Petre | Collected date/time: 10/21/20 00:00 | Received date/time: 10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1570197	1	11/03/20 15:21	11/03/20 15:21	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1569381	1	11/02/20 05:59	11/02/20 05:59	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1567796	1.03	11/02/20 17:59	11/05/20 01:35	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1566290	1	10/27/20 23:13	10/29/20 04:20	AO	Mt. Juliet, TN

CRW-AERATION TANK INFLUENT L1277825-07 GW

Collected by: Leslie Petre | Collected date/time: 10/22/20 11:25 | Received date/time: 10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010C	WG1566842	1	10/30/20 16:33	10/31/20 10:22	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG1567165	1	10/28/20 20:56	10/28/20 20:56	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1569889	1	11/03/20 00:38	11/03/20 00:38	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1567796	1.09	11/02/20 17:59	11/05/20 02:16	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1567071	1	10/28/20 18:48	10/29/20 15:02	LEA	Mt. Juliet, TN

WRW-2020AERATION TANK I L1277825-08 GW

Collected by: Leslie Petre | Collected date/time: 10/22/20 10:59 | Received date/time: 10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010C	WG1566842	1	10/30/20 16:33	10/31/20 10:25	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG1567165	1	10/28/20 21:20	10/28/20 21:20	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1569889	1	11/03/20 00:59	11/03/20 00:59	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1567796	1.06	11/02/20 17:59	11/05/20 02:36	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1567071	1	10/28/20 18:48	10/29/20 15:19	LEA	Mt. Juliet, TN

DRAINFIELD L1277825-09 GW

Collected by: Leslie Petre | Collected date/time: 10/22/20 12:10 | Received date/time: 10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010C	WG1566842	1	10/30/20 16:33	10/31/20 10:28	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG1567165	1	10/28/20 21:44	10/28/20 21:44	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1569889	1	11/03/20 01:20	11/03/20 01:20	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102	WG1567796	1.16	11/02/20 17:59	11/05/20 02:56	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1567071	1	10/28/20 18:48	10/29/20 15:36	LEA	Mt. Juliet, TN

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

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	1.37		0.0100	0.100	1	10/28/2020 18:55	WG1567165
(S) a,a,a-Trifluorotoluene(FID)	*99.5*			*50.0-150*		*10/28/2020 18:55*	WG1567165
(S) a,a,a-Trifluorotoluene(PID)	*97.0*			*79.0-125*		*10/28/2020 18:55*	WG1567165

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.00735		0.000471	0.00500	5	11/04/2020 02:46	WG1570539
n-Butylbenzene	0.00934		0.000785	0.00500	5	11/04/2020 02:46	WG1570539
sec-Butylbenzene	0.00928		0.000625	0.00500	5	11/04/2020 02:46	WG1570539
tert-Butylbenzene	0.00136	J	0.000635	0.00500	5	11/04/2020 02:46	WG1570539
Ethylbenzene	0.0511		0.000685	0.00500	5	11/04/2020 02:46	WG1570539
Isopropylbenzene	0.0165		0.000525	0.00500	5	11/04/2020 02:46	WG1570539
Naphthalene	0.0893		0.00500	0.0250	5	11/04/2020 02:46	WG1570539
Toluene	0.00400	J	0.00139	0.00500	5	11/04/2020 02:46	WG1570539
1,2,4-Trimethylbenzene	0.203		0.00161	0.00500	5	11/04/2020 02:46	WG1570539
1,3,5-Trimethylbenzene	0.0805		0.000520	0.00500	5	11/04/2020 02:46	WG1570539
Total Xylenes	0.510		0.000870	0.0150	5	11/04/2020 02:46	WG1570539
(S) Toluene-d8	*99.7*			*80.0-120*		*11/04/2020 02:46*	WG1570539
(S) 4-Bromofluorobenzene	*105*			*77.0-126*		*11/04/2020 02:46*	WG1570539
(S) 1,2-Dichloroethane-d4	*108*			*70.0-130*		*11/04/2020 02:46*	WG1570539

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	2.67		0.247	0.864	1.08	11/04/2020 23:54	WG1567796
(S) o-Terphenyl	*87.2*			*50.0-150*		*11/04/2020 23:54*	WG1567796

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	10/29/2020 03:15	WG1566290
Acenaphthene	0.000185		0.0000190	0.0000500	1	10/29/2020 03:15	WG1566290
Acenaphthylene	U		0.0000171	0.0000500	1	10/29/2020 03:15	WG1566290
Benzo(a)anthracene	U		0.0000203	0.0000500	1	10/29/2020 03:15	WG1566290
Benzo(a)pyrene	U		0.0000184	0.0000500	1	10/29/2020 03:15	WG1566290
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	10/29/2020 03:15	WG1566290
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	10/29/2020 03:15	WG1566290
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	10/29/2020 03:15	WG1566290
Chrysene	U		0.0000179	0.0000500	1	10/29/2020 03:15	WG1566290
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	10/29/2020 03:15	WG1566290
Fluoranthene	U		0.0000270	0.000100	1	10/29/2020 03:15	WG1566290
Fluorene	0.000405		0.0000169	0.0000500	1	10/29/2020 03:15	WG1566290
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	10/29/2020 03:15	WG1566290
Naphthalene	0.0278		0.0000917	0.000250	1	10/29/2020 03:15	WG1566290
Phenanthrene	0.000202		0.0000180	0.0000500	1	10/29/2020 03:15	WG1566290
Pyrene	U		0.0000169	0.0000500	1	10/29/2020 03:15	WG1566290
1-Methylnaphthalene	0.0258		0.0000687	0.000250	1	10/29/2020 03:15	WG1566290
2-Methylnaphthalene	0.0189		0.0000674	0.000250	1	10/29/2020 03:15	WG1566290
(S) Nitrobenzene-d5	*34.3*			*31.0-160*		*10/29/2020 03:15*	WG1566290
(S) 2-Fluorobiphenyl	*29.1*	J2		*48.0-148*		*10/29/2020 03:15*	WG1566290
(S) p-Terphenyl-d14	*31.3*	J2		*37.0-146*		*10/29/2020 03:15*	WG1566290

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	

Sample Narrative:

L1277825-01 WG1566290: Sample produced heavy emulsion during Extraction process, low surr/spike recoveries due to matrix

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	0.595		0.0100	0.100	1	10/28/2020 19:19	WG1567165
(S) a,a,a-Trifluorotoluene(FID)	*98.8*			*50.0-150*		*10/28/2020 19:19*	WG1567165
(S) a,a,a-Trifluorotoluene(PID)	*95.3*			*79.0-125*		*10/28/2020 19:19*	WG1567165

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	U		0.0000941	0.00100	1	11/02/2020 05:00	WG1569381
n-Butylbenzene	U		0.000157	0.00100	1	11/02/2020 05:00	WG1569381
sec-Butylbenzene	U		0.000125	0.00100	1	11/02/2020 05:00	WG1569381
tert-Butylbenzene	U		0.000127	0.00100	1	11/02/2020 05:00	WG1569381
Ethylbenzene	U		0.000137	0.00100	1	11/02/2020 05:00	WG1569381
Isopropylbenzene	U		0.000105	0.00100	1	11/02/2020 05:00	WG1569381
Naphthalene	U		0.00100	0.00500	1	11/02/2020 05:00	WG1569381
Toluene	0.630		0.00278	0.0100	10	11/04/2020 03:06	WG1570539
1,2,4-Trimethylbenzene	U		0.000322	0.00100	1	11/02/2020 05:00	WG1569381
1,3,5-Trimethylbenzene	U		0.000104	0.00100	1	11/02/2020 05:00	WG1569381
Total Xylenes	U		0.000174	0.00300	1	11/02/2020 05:00	WG1569381
(S) Toluene-d8	*109*			*80.0-120*		*11/02/2020 05:00*	WG1569381
(S) Toluene-d8	*105*			*80.0-120*		*11/04/2020 03:06*	WG1570539
(S) 4-Bromofluorobenzene	*102*			*77.0-126*		*11/02/2020 05:00*	WG1569381
(S) 4-Bromofluorobenzene	*96.1*			*77.0-126*		*11/04/2020 03:06*	WG1570539
(S) 1,2-Dichloroethane-d4	*95.4*			*70.0-130*		*11/02/2020 05:00*	WG1569381
(S) 1,2-Dichloroethane-d4	*102*			*70.0-130*		*11/04/2020 03:06*	WG1570539

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	0.950		0.252	0.880	1.1	11/05/2020 00:14	WG1567796
(S) o-Terphenyl	*81.1*			*50.0-150*		*11/05/2020 00:14*	WG1567796

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	10/29/2020 03:37	WG1566290
Acenaphthene	U		0.0000190	0.0000500	1	10/29/2020 03:37	WG1566290
Acenaphthylene	U		0.0000171	0.0000500	1	10/29/2020 03:37	WG1566290
Benzo(a)anthracene	U		0.0000203	0.0000500	1	10/29/2020 03:37	WG1566290
Benzo(a)pyrene	U		0.0000184	0.0000500	1	10/29/2020 03:37	WG1566290
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	10/29/2020 03:37	WG1566290
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	10/29/2020 03:37	WG1566290
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	10/29/2020 03:37	WG1566290
Chrysene	U		0.0000179	0.0000500	1	10/29/2020 03:37	WG1566290
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	10/29/2020 03:37	WG1566290
Fluoranthene	U		0.0000270	0.000100	1	10/29/2020 03:37	WG1566290
Fluorene	U		0.0000169	0.0000500	1	10/29/2020 03:37	WG1566290
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	10/29/2020 03:37	WG1566290
Naphthalene	0.000206	J	0.0000917	0.000250	1	10/29/2020 03:37	WG1566290
Phenanthrene	U		0.0000180	0.0000500	1	10/29/2020 03:37	WG1566290
Pyrene	U		0.0000169	0.0000500	1	10/29/2020 03:37	WG1566290
1-Methylnaphthalene	U		0.0000687	0.000250	1	10/29/2020 03:37	WG1566290
2-Methylnaphthalene	U		0.0000674	0.000250	1	10/29/2020 03:37	WG1566290
(S) Nitrobenzene-d5	*115*			*31.0-160*		*10/29/2020 03:37*	WG1566290

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
(S) 2-Fluorobiphenyl	*85.5*			*48.0-148*		*10/29/2020 03:37*	WG1566290
(S) p-Terphenyl-d14	*74.5*			*37.0-146*		*10/29/2020 03:37*	WG1566290

Metals (ICP) by Method 6010C

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Sodium	8.33		0.504	3.00	1	10/31/2020 10:20	WG1566842

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	0.126		0.0100	0.100	1	10/28/2020 19:43	WG1567165
(S) a,a,a-Trifluorotoluene(FID)	*102*			*50.0-150*		*10/28/2020 19:43*	WG1567165
(S) a,a,a-Trifluorotoluene(PID)	*98.9*			*79.0-125*		*10/28/2020 19:43*	WG1567165

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.000695	J	0.0000941	0.00100	1	11/02/2020 05:19	WG1569381
n-Butylbenzene	U		0.000157	0.00100	1	11/02/2020 05:19	WG1569381
sec-Butylbenzene	U		0.000125	0.00100	1	11/02/2020 05:19	WG1569381
tert-Butylbenzene	U		0.000127	0.00100	1	11/02/2020 05:19	WG1569381
Ethylbenzene	0.00352		0.000137	0.00100	1	11/02/2020 05:19	WG1569381
Isopropylbenzene	0.00116		0.000105	0.00100	1	11/02/2020 05:19	WG1569381
Naphthalene	0.00485	J	0.00100	0.00500	1	11/02/2020 05:19	WG1569381
Toluene	0.00171		0.000278	0.00100	1	11/02/2020 05:19	WG1569381
1,2,4-Trimethylbenzene	0.00997		0.000322	0.00100	1	11/02/2020 05:19	WG1569381
1,3,5-Trimethylbenzene	0.00567		0.000104	0.00100	1	11/02/2020 05:19	WG1569381
Total Xylenes	0.0331		0.000174	0.00300	1	11/02/2020 05:19	WG1569381
(S) Toluene-d8	*98.4*			*80.0-120*		*11/02/2020 05:19*	WG1569381
(S) 4-Bromofluorobenzene	*96.9*			*77.0-126*		*11/02/2020 05:19*	WG1569381
(S) 1,2-Dichloroethane-d4	*99.3*			*70.0-130*		*11/02/2020 05:19*	WG1569381

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	8.97		0.261	0.912	1.14	11/05/2020 00:34	WG1567796
(S) o-Terphenyl	*92.5*			*50.0-150*		*11/05/2020 00:34*	WG1567796

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	10/29/2020 03:58	WG1566290
Acenaphthene	U		0.0000190	0.0000500	1	10/29/2020 03:58	WG1566290
Acenaphthylene	U		0.0000171	0.0000500	1	10/29/2020 03:58	WG1566290
Benzo(a)anthracene	U		0.0000203	0.0000500	1	10/29/2020 03:58	WG1566290
Benzo(a)pyrene	U		0.0000184	0.0000500	1	10/29/2020 03:58	WG1566290
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	10/29/2020 03:58	WG1566290
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	10/29/2020 03:58	WG1566290
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	10/29/2020 03:58	WG1566290
Chrysene	U		0.0000179	0.0000500	1	10/29/2020 03:58	WG1566290
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	10/29/2020 03:58	WG1566290
Fluoranthene	U		0.0000270	0.000100	1	10/29/2020 03:58	WG1566290
Fluorene	U		0.0000169	0.0000500	1	10/29/2020 03:58	WG1566290
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	10/29/2020 03:58	WG1566290
Naphthalene	0.00201		0.0000917	0.000250	1	10/29/2020 03:58	WG1566290
Phenanthrene	U		0.0000180	0.0000500	1	10/29/2020 03:58	WG1566290
Pyrene	U		0.0000169	0.0000500	1	10/29/2020 03:58	WG1566290
1-Methylnaphthalene	0.00204		0.0000687	0.000250	1	10/29/2020 03:58	WG1566290

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
2-Methylnaphthalene	0.000321		0.0000674	0.000250	1	10/29/2020 03:58	WG1566290
(S) Nitrobenzene-d5	*87.0*			*31.0-160*		*10/29/2020 03:58*	WG1566290
(S) 2-Fluorobiphenyl	*52.5*			*48.0-148*		*10/29/2020 03:58*	WG1566290
(S) p-Terphenyl-d14	*94.0*			*37.0-146*		*10/29/2020 03:58*	WG1566290

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	6.68		0.100	1.00	10	11/03/2020 15:45	WG1570197
(S) a,a,a-Trifluorotoluene(FID)	*105*			*50.0-150*		*11/03/2020 15:45*	WG1570197
(S) a,a,a-Trifluorotoluene(PID)	*102*			*79.0-125*		*11/03/2020 15:45*	WG1570197

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.0585		0.0000941	0.00100	1	11/02/2020 05:39	WG1569381
n-Butylbenzene	U		0.000157	0.00100	1	11/02/2020 05:39	WG1569381
sec-Butylbenzene	0.0180		0.000125	0.00100	1	11/02/2020 05:39	WG1569381
tert-Butylbenzene	U		0.000127	0.00100	1	11/02/2020 05:39	WG1569381
Ethylbenzene	0.721		0.00274	0.0200	20	11/04/2020 03:27	WG1570539
Isopropylbenzene	0.147		0.000105	0.00100	1	11/02/2020 05:39	WG1569381
Naphthalene	0.537		0.0200	0.100	20	11/04/2020 03:27	WG1570539
Toluene	0.00968		0.000278	0.00100	1	11/02/2020 05:39	WG1569381
1,2,4-Trimethylbenzene	0.775		0.00644	0.0200	20	11/04/2020 03:27	WG1570539
1,3,5-Trimethylbenzene	0.224		0.00208	0.0200	20	11/04/2020 03:27	WG1570539
Total Xylenes	4.45		0.00348	0.0600	20	11/04/2020 03:27	WG1570539
(S) Toluene-d8	*105*			*80.0-120*		*11/02/2020 05:39*	WG1569381
(S) Toluene-d8	*102*			*80.0-120*		*11/04/2020 03:27*	WG1570539
(S) 4-Bromofluorobenzene	*118*			*77.0-126*		*11/02/2020 05:39*	WG1569381
(S) 4-Bromofluorobenzene	*96.1*			*77.0-126*		*11/04/2020 03:27*	WG1570539
(S) 1,2-Dichloroethane-d4	*96.5*			*70.0-130*		*11/02/2020 05:39*	WG1569381
(S) 1,2-Dichloroethane-d4	*106*			*70.0-130*		*11/04/2020 03:27*	WG1570539

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	4.75		0.263	0.920	1.15	11/05/2020 00:54	WG1567796
(S) o-Terphenyl	*83.5*			*50.0-150*		*11/05/2020 00:54*	WG1567796

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	10/29/2020 05:46	WG1566290
Acenaphthene	0.000628		0.0000190	0.0000500	1	10/29/2020 05:46	WG1566290
Acenaphthylene	U		0.0000171	0.0000500	1	10/29/2020 05:46	WG1566290
Benzo(a)anthracene	U		0.0000203	0.0000500	1	10/29/2020 05:46	WG1566290
Benzo(a)pyrene	U		0.0000184	0.0000500	1	10/29/2020 05:46	WG1566290
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	10/29/2020 05:46	WG1566290
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	10/29/2020 05:46	WG1566290
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	10/29/2020 05:46	WG1566290
Chrysene	U		0.0000179	0.0000500	1	10/29/2020 05:46	WG1566290
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	10/29/2020 05:46	WG1566290
Fluoranthene	U		0.0000270	0.000100	1	10/29/2020 05:46	WG1566290
Fluorene	0.000957		0.0000169	0.0000500	1	10/29/2020 05:46	WG1566290
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	10/29/2020 05:46	WG1566290
Naphthalene	0.381		0.000917	0.00250	10	10/29/2020 07:34	WG1566290
Phenanthrene	0.000230		0.0000180	0.0000500	1	10/29/2020 05:46	WG1566290
Pyrene	U		0.0000169	0.0000500	1	10/29/2020 05:46	WG1566290
1-Methylnaphthalene	0.132		0.000687	0.00250	10	10/29/2020 07:34	WG1566290
2-Methylnaphthalene	0.140		0.000674	0.00250	10	10/29/2020 07:34	WG1566290
(S) Nitrobenzene-d5	*106*			*31.0-160*		*10/29/2020 05:46*	WG1566290

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Nitrobenzene-d5	*85.5*			*31.0-160*		*10/29/2020 07:34*	WG1566290
(S) 2-Fluorobiphenyl	*80.5*			*48.0-148*		*10/29/2020 07:34*	WG1566290
(S) 2-Fluorobiphenyl	*79.0*			*48.0-148*		*10/29/2020 05:46*	WG1566290
(S) p-Terphenyl-d14	*115*			*37.0-146*		*10/29/2020 07:34*	WG1566290
(S) p-Terphenyl-d14	*115*			*37.0-146*		*10/29/2020 05:46*	WG1566290

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	3.20		0.100	1.00	10	10/28/2020 22:08	WG1567165
(S) a,a,a-Trifluorotoluene(FID)	*102*			*50.0-150*		*10/28/2020 22:08*	WG1567165
(S) a,a,a-Trifluorotoluene(PID)	*98.7*			*79.0-125*		*10/28/2020 22:08*	WG1567165

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.0732		0.00471	0.0500	50	11/02/2020 08:54	WG1569381
n-Butylbenzene	U		0.00785	0.0500	50	11/02/2020 08:54	WG1569381
sec-Butylbenzene	U		0.00625	0.0500	50	11/02/2020 08:54	WG1569381
tert-Butylbenzene	U		0.00635	0.0500	50	11/02/2020 08:54	WG1569381
Ethylbenzene	0.354		0.00685	0.0500	50	11/02/2020 08:54	WG1569381
Isopropylbenzene	0.0468	J	0.00525	0.0500	50	11/02/2020 08:54	WG1569381
Naphthalene	0.144	J	0.0500	0.250	50	11/02/2020 08:54	WG1569381
Toluene	U		0.0139	0.0500	50	11/02/2020 08:54	WG1569381
1,2,4-Trimethylbenzene	0.217		0.0161	0.0500	50	11/02/2020 08:54	WG1569381
1,3,5-Trimethylbenzene	0.0677		0.00520	0.0500	50	11/02/2020 08:54	WG1569381
Total Xylenes	1.87		0.00870	0.150	50	11/02/2020 08:54	WG1569381
(S) Toluene-d8	*105*			*80.0-120*		*11/02/2020 08:54*	WG1569381
(S) 4-Bromofluorobenzene	*101*			*77.0-126*		*11/02/2020 08:54*	WG1569381
(S) 1,2-Dichloroethane-d4	*104*			*70.0-130*		*11/02/2020 08:54*	WG1569381

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	17.7		1.15	4.00	5	11/05/2020 10:52	WG1567796
(S) o-Terphenyl	*90.3*			*50.0-150*		*11/05/2020 10:52*	WG1567796

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	10/29/2020 05:03	WG1566290
Acenaphthene	U		0.0000190	0.0000500	1	10/29/2020 05:03	WG1566290
Acenaphthylene	U		0.0000171	0.0000500	1	10/29/2020 05:03	WG1566290
Benzo(a)anthracene	U		0.0000203	0.0000500	1	10/29/2020 05:03	WG1566290
Benzo(a)pyrene	U		0.0000184	0.0000500	1	10/29/2020 05:03	WG1566290
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	10/29/2020 05:03	WG1566290
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	10/29/2020 05:03	WG1566290
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	10/29/2020 05:03	WG1566290
Chrysene	U		0.0000179	0.0000500	1	10/29/2020 05:03	WG1566290
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	10/29/2020 05:03	WG1566290
Fluoranthene	U		0.0000270	0.000100	1	10/29/2020 05:03	WG1566290
Fluorene	0.0000881		0.0000169	0.0000500	1	10/29/2020 05:03	WG1566290
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	10/29/2020 05:03	WG1566290
Naphthalene	0.148		0.000459	0.00125	5	10/29/2020 06:51	WG1566290
Phenanthrene	U		0.0000180	0.0000500	1	10/29/2020 05:03	WG1566290
Pyrene	U		0.0000169	0.0000500	1	10/29/2020 05:03	WG1566290
1-Methylnaphthalene	0.0395		0.0000687	0.000250	1	10/29/2020 05:03	WG1566290
2-Methylnaphthalene	0.0301		0.0000674	0.000250	1	10/29/2020 05:03	WG1566290
(S) Nitrobenzene-d5	*102*			*31.0-160*		*10/29/2020 06:51*	WG1566290
(S) Nitrobenzene-d5	*271*	J1		*31.0-160*		*10/29/2020 05:03*	WG1566290
(S) 2-Fluorobiphenyl	*83.0*			*48.0-148*		*10/29/2020 05:03*	WG1566290
(S) 2-Fluorobiphenyl	*66.0*			*48.0-148*		*10/29/2020 06:51*	WG1566290

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	*88.5*			*37.0-146*		*10/29/2020 05:03*	WG1566290
(S) p-Terphenyl-d14	*88.0*			*37.0-146*		*10/29/2020 06:51*	WG1566290

Sample Narrative:

L1277825-05 WG1566290: Surrogate failure due to matrix interference

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	0.112		0.0100	0.100	1	11/03/2020 15:21	WG1570197
(S) a,a,a-Trifluorotoluene(FID)	*104*			*50.0-150*		*11/03/2020 15:21*	WG1570197
(S) a,a,a-Trifluorotoluene(PID)	*103*			*79.0-125*		*11/03/2020 15:21*	WG1570197

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.000701	J	0.0000941	0.00100	1	11/02/2020 05:59	WG1569381
n-Butylbenzene	U		0.000157	0.00100	1	11/02/2020 05:59	WG1569381
sec-Butylbenzene	0.000431	J	0.000125	0.00100	1	11/02/2020 05:59	WG1569381
tert-Butylbenzene	U		0.000127	0.00100	1	11/02/2020 05:59	WG1569381
Ethylbenzene	0.00488		0.000137	0.00100	1	11/02/2020 05:59	WG1569381
Isopropylbenzene	0.00141		0.000105	0.00100	1	11/02/2020 05:59	WG1569381
Naphthalene	0.0190		0.00100	0.00500	1	11/02/2020 05:59	WG1569381
Toluene	0.00128		0.000278	0.00100	1	11/02/2020 05:59	WG1569381
1,2,4-Trimethylbenzene	0.0115		0.000322	0.00100	1	11/02/2020 05:59	WG1569381
1,3,5-Trimethylbenzene	0.00600		0.000104	0.00100	1	11/02/2020 05:59	WG1569381
Total Xylenes	0.0409		0.000174	0.00300	1	11/02/2020 05:59	WG1569381
(S) Toluene-d8	*101*			*80.0-120*		*11/02/2020 05:59*	WG1569381
(S) 4-Bromofluorobenzene	*97.8*			*77.0-126*		*11/02/2020 05:59*	WG1569381
(S) 1,2-Dichloroethane-d4	*101*			*70.0-130*		*11/02/2020 05:59*	WG1569381

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	8.79		0.236	0.824	1.03	11/05/2020 01:35	WG1567796
(S) o-Terphenyl	*89.3*			*50.0-150*		*11/05/2020 01:35*	WG1567796

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	10/29/2020 04:20	WG1566290
Acenaphthene	U		0.0000190	0.0000500	1	10/29/2020 04:20	WG1566290
Acenaphthylene	U		0.0000171	0.0000500	1	10/29/2020 04:20	WG1566290
Benzo(a)anthracene	U		0.0000203	0.0000500	1	10/29/2020 04:20	WG1566290
Benzo(a)pyrene	U		0.0000184	0.0000500	1	10/29/2020 04:20	WG1566290
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	10/29/2020 04:20	WG1566290
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	10/29/2020 04:20	WG1566290
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	10/29/2020 04:20	WG1566290
Chrysene	U		0.0000179	0.0000500	1	10/29/2020 04:20	WG1566290
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	10/29/2020 04:20	WG1566290
Fluoranthene	U		0.0000270	0.000100	1	10/29/2020 04:20	WG1566290
Fluorene	U		0.0000169	0.0000500	1	10/29/2020 04:20	WG1566290
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	10/29/2020 04:20	WG1566290
Naphthalene	0.000856		0.0000917	0.000250	1	10/29/2020 04:20	WG1566290
Phenanthrene	U		0.0000180	0.0000500	1	10/29/2020 04:20	WG1566290
Pyrene	U		0.0000169	0.0000500	1	10/29/2020 04:20	WG1566290
1-Methylnaphthalene	0.000674		0.0000687	0.000250	1	10/29/2020 04:20	WG1566290
2-Methylnaphthalene	U		0.0000674	0.000250	1	10/29/2020 04:20	WG1566290
(S) Nitrobenzene-d5	*56.5*			*31.0-160*		*10/29/2020 04:20*	WG1566290
(S) 2-Fluorobiphenyl	*32.0*	J2		*48.0-148*		*10/29/2020 04:20*	WG1566290
(S) p-Terphenyl-d14	*41.8*			*37.0-146*		*10/29/2020 04:20*	WG1566290

Metals (ICP) by Method 6010C

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Sodium	8.78		0.504	3.00	1	10/31/2020 10:22	WG1566842

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	0.385		0.0100	0.100	1	10/28/2020 20:56	WG1567165
(S) a,a,a-Trifluorotoluene(FID)	*101*			*50.0-150*		*10/28/2020 20:56*	WG1567165
(S) a,a,a-Trifluorotoluene(PID)	*96.3*			*79.0-125*		*10/28/2020 20:56*	WG1567165

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.00739		0.0000941	0.00100	1	11/03/2020 00:38	WG1569889
n-Butylbenzene	U		0.000157	0.00100	1	11/03/2020 00:38	WG1569889
sec-Butylbenzene	0.00335		0.000125	0.00100	1	11/03/2020 00:38	WG1569889
tert-Butylbenzene	U		0.000127	0.00100	1	11/03/2020 00:38	WG1569889
Ethylbenzene	0.0244		0.000137	0.00100	1	11/03/2020 00:38	WG1569889
Isopropylbenzene	0.0136		0.000105	0.00100	1	11/03/2020 00:38	WG1569889
Naphthalene	0.0158	J0	0.00100	0.00500	1	11/03/2020 00:38	WG1569889
Toluene	0.00198		0.000278	0.00100	1	11/03/2020 00:38	WG1569889
1,2,4-Trimethylbenzene	0.0531		0.000322	0.00100	1	11/03/2020 00:38	WG1569889
1,3,5-Trimethylbenzene	0.0106		0.000104	0.00100	1	11/03/2020 00:38	WG1569889
Total Xylenes	0.143		0.000174	0.00300	1	11/03/2020 00:38	WG1569889
(S) Toluene-d8	*96.5*			*80.0-120*		*11/03/2020 00:38*	WG1569889
(S) 4-Bromofluorobenzene	*92.7*			*77.0-126*		*11/03/2020 00:38*	WG1569889
(S) 1,2-Dichloroethane-d4	*102*			*70.0-130*		*11/03/2020 00:38*	WG1569889

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	1.51		0.250	0.872	1.09	11/05/2020 02:16	WG1567796
(S) o-Terphenyl	*92.4*			*50.0-150*		*11/05/2020 02:16*	WG1567796

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	10/29/2020 15:02	WG1567071
Acenaphthene	0.000143		0.0000190	0.0000500	1	10/29/2020 15:02	WG1567071
Acenaphthylene	0.0000297	J	0.0000171	0.0000500	1	10/29/2020 15:02	WG1567071
Benzo(a)anthracene	U		0.0000203	0.0000500	1	10/29/2020 15:02	WG1567071
Benzo(a)pyrene	U		0.0000184	0.0000500	1	10/29/2020 15:02	WG1567071
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	10/29/2020 15:02	WG1567071
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	10/29/2020 15:02	WG1567071
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	10/29/2020 15:02	WG1567071
Chrysene	U		0.0000179	0.0000500	1	10/29/2020 15:02	WG1567071
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	10/29/2020 15:02	WG1567071
Fluoranthene	U		0.0000270	0.000100	1	10/29/2020 15:02	WG1567071
Fluorene	0.000280		0.0000169	0.0000500	1	10/29/2020 15:02	WG1567071
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	10/29/2020 15:02	WG1567071
Naphthalene	0.0102		0.0000917	0.000250	1	10/29/2020 15:02	WG1567071
Phenanthrene	0.000199		0.0000180	0.0000500	1	10/29/2020 15:02	WG1567071
Pyrene	U		0.0000169	0.0000500	1	10/29/2020 15:02	WG1567071
1-Methylnaphthalene	0.00742		0.0000687	0.000250	1	10/29/2020 15:02	WG1567071

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	
2-Methylnaphthalene	0.00392		0.0000674	0.000250	1	10/29/2020 15:02	WG1567071
(S) Nitrobenzene-d5	*96.8*			*31.0-160*		*10/29/2020 15:02*	WG1567071
(S) 2-Fluorobiphenyl	*73.7*			*48.0-148*		*10/29/2020 15:02*	WG1567071
(S) p-Terphenyl-d14	*58.9*			*37.0-146*		*10/29/2020 15:02*	WG1567071

Metals (ICP) by Method 6010C

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Sodium	8.14		0.504	3.00	1	10/31/2020 10:25	WG1566842

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	0.588		0.0100	0.100	1	10/28/2020 21:20	WG1567165
(S) a,a,a-Trifluorotoluene(FID)	*102*			*50.0-150*		*10/28/2020 21:20*	WG1567165
(S) a,a,a-Trifluorotoluene(PID)	*97.2*			*79.0-125*		*10/28/2020 21:20*	WG1567165

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.00339		0.0000941	0.00100	1	11/03/2020 00:59	WG1569889
n-Butylbenzene	0.00275		0.000157	0.00100	1	11/03/2020 00:59	WG1569889
sec-Butylbenzene	0.00333		0.000125	0.00100	1	11/03/2020 00:59	WG1569889
tert-Butylbenzene	U		0.000127	0.00100	1	11/03/2020 00:59	WG1569889
Ethylbenzene	0.0456		0.000137	0.00100	1	11/03/2020 00:59	WG1569889
Isopropylbenzene	0.0117		0.000105	0.00100	1	11/03/2020 00:59	WG1569889
Naphthalene	0.0367	J0	0.00100	0.00500	1	11/03/2020 00:59	WG1569889
Toluene	0.000618	J	0.000278	0.00100	1	11/03/2020 00:59	WG1569889
1,2,4-Trimethylbenzene	0.0668		0.000322	0.00100	1	11/03/2020 00:59	WG1569889
1,3,5-Trimethylbenzene	0.0216		0.000104	0.00100	1	11/03/2020 00:59	WG1569889
Total Xylenes	0.264		0.000174	0.00300	1	11/03/2020 00:59	WG1569889
(S) Toluene-d8	*98.0*			*80.0-120*		*11/03/2020 00:59*	WG1569889
(S) 4-Bromofluorobenzene	*97.2*			*77.0-126*		*11/03/2020 00:59*	WG1569889
(S) 1,2-Dichloroethane-d4	*103*			*70.0-130*		*11/03/2020 00:59*	WG1569889

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	1.05		0.243	0.848	1.06	11/05/2020 02:36	WG1567796
(S) o-Terphenyl	*88.7*			*50.0-150*		*11/05/2020 02:36*	WG1567796

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	10/29/2020 15:19	WG1567071
Acenaphthene	0.000179		0.0000190	0.0000500	1	10/29/2020 15:19	WG1567071
Acenaphthylene	U		0.0000171	0.0000500	1	10/29/2020 15:19	WG1567071
Benzo(a)anthracene	U		0.0000203	0.0000500	1	10/29/2020 15:19	WG1567071
Benzo(a)pyrene	U		0.0000184	0.0000500	1	10/29/2020 15:19	WG1567071
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	10/29/2020 15:19	WG1567071
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	10/29/2020 15:19	WG1567071
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	10/29/2020 15:19	WG1567071
Chrysene	U		0.0000179	0.0000500	1	10/29/2020 15:19	WG1567071
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	10/29/2020 15:19	WG1567071
Fluoranthene	U		0.0000270	0.000100	1	10/29/2020 15:19	WG1567071
Fluorene	0.000320		0.0000169	0.0000500	1	10/29/2020 15:19	WG1567071
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	10/29/2020 15:19	WG1567071
Naphthalene	0.0244		0.0000917	0.000250	1	10/29/2020 15:19	WG1567071
Phenanthrene	0.0000713		0.0000180	0.0000500	1	10/29/2020 15:19	WG1567071
Pyrene	U		0.0000169	0.0000500	1	10/29/2020 15:19	WG1567071
1-Methylnaphthalene	0.0132		0.0000687	0.000250	1	10/29/2020 15:19	WG1567071

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	
2-Methylnaphthalene	0.0109		0.0000674	0.000250	1	10/29/2020 15:19	WG1567071
(S) Nitrobenzene-d5	*101*			*31.0-160*		*10/29/2020 15:19*	WG1567071
(S) 2-Fluorobiphenyl	*80.5*			*48.0-148*		*10/29/2020 15:19*	WG1567071
(S) p-Terphenyl-d14	*72.1*			*37.0-146*		*10/29/2020 15:19*	WG1567071

Metals (ICP) by Method 6010C

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Sodium	8.38		0.504	3.00	1	10/31/2020 10:28	WG1566842

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	0.0861	J	0.0100	0.100	1	10/28/2020 21:44	WG1567165
(S) a,a,a-Trifluorotoluene(FID)	*101*			*50.0-150*		*10/28/2020 21:44*	WG1567165
(S) a,a,a-Trifluorotoluene(PID)	*109*			*79.0-125*		*10/28/2020 21:44*	WG1567165

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Benzene	0.000701	J	0.0000941	0.00100	1	11/03/2020 01:20	WG1569889
n-Butylbenzene	U		0.000157	0.00100	1	11/03/2020 01:20	WG1569889
sec-Butylbenzene	0.000308	J	0.000125	0.00100	1	11/03/2020 01:20	WG1569889
tert-Butylbenzene	U		0.000127	0.00100	1	11/03/2020 01:20	WG1569889
Ethylbenzene	0.00572		0.000137	0.00100	1	11/03/2020 01:20	WG1569889
Isopropylbenzene	0.00154		0.000105	0.00100	1	11/03/2020 01:20	WG1569889
Naphthalene	0.0154	J0	0.00100	0.00500	1	11/03/2020 01:20	WG1569889
Toluene	0.000313	J	0.000278	0.00100	1	11/03/2020 01:20	WG1569889
1,2,4-Trimethylbenzene	0.0110		0.000322	0.00100	1	11/03/2020 01:20	WG1569889
1,3,5-Trimethylbenzene	0.00273		0.000104	0.00100	1	11/03/2020 01:20	WG1569889
Total Xylenes	0.0392		0.000174	0.00300	1	11/03/2020 01:20	WG1569889
(S) Toluene-d8	*104*			*80.0-120*		*11/03/2020 01:20*	WG1569889
(S) 4-Bromofluorobenzene	*102*			*77.0-126*		*11/03/2020 01:20*	WG1569889
(S) 1,2-Dichloroethane-d4	*101*			*70.0-130*		*11/03/2020 01:20*	WG1569889

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	0.988		0.266	0.928	1.16	11/05/2020 02:56	WG1567796
(S) o-Terphenyl	*86.2*			*50.0-150*		*11/05/2020 02:56*	WG1567796

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	10/29/2020 15:36	WG1567071
Acenaphthene	0.0000285	J	0.0000190	0.0000500	1	10/29/2020 15:36	WG1567071
Acenaphthylene	U		0.0000171	0.0000500	1	10/29/2020 15:36	WG1567071
Benzo(a)anthracene	U		0.0000203	0.0000500	1	10/29/2020 15:36	WG1567071
Benzo(a)pyrene	U		0.0000184	0.0000500	1	10/29/2020 15:36	WG1567071
Benzo(b)fluoranthene	U		0.0000168	0.0000500	1	10/29/2020 15:36	WG1567071
Benzo(g,h,i)perylene	U		0.0000184	0.0000500	1	10/29/2020 15:36	WG1567071
Benzo(k)fluoranthene	U		0.0000202	0.0000500	1	10/29/2020 15:36	WG1567071
Chrysene	U		0.0000179	0.0000500	1	10/29/2020 15:36	WG1567071
Dibenz(a,h)anthracene	U		0.0000160	0.0000500	1	10/29/2020 15:36	WG1567071
Fluoranthene	U		0.0000270	0.000100	1	10/29/2020 15:36	WG1567071
Fluorene	0.0000734		0.0000169	0.0000500	1	10/29/2020 15:36	WG1567071
Indeno(1,2,3-cd)pyrene	U		0.0000158	0.0000500	1	10/29/2020 15:36	WG1567071
Naphthalene	0.000194	J	0.0000917	0.000250	1	10/29/2020 15:36	WG1567071
Phenanthrene	U		0.0000180	0.0000500	1	10/29/2020 15:36	WG1567071
Pyrene	0.0000234	J	0.0000169	0.0000500	1	10/29/2020 15:36	WG1567071
1-Methylnaphthalene	0.000285		0.0000687	0.000250	1	10/29/2020 15:36	WG1567071

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	
2-Methylnaphthalene	U		0.0000674	0.000250	1	10/29/2020 15:36	WG1567071
(S) Nitrobenzene-d5	*99.5*			*31.0-160*		*10/29/2020 15:36*	WG1567071
(S) 2-Fluorobiphenyl	*89.5*			*48.0-148*		*10/29/2020 15:36*	WG1567071
(S) p-Terphenyl-d14	*85.3*			*37.0-146*		*10/29/2020 15:36*	WG1567071

Method Blank (MB)

(MB) R3587896-1 10/31/20 09:37

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) R3587896-2 10/31/20 09:39

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sodium	10.0	9.61	96.1	80.0-120	

L1277600-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277600-04 10/31/20 09:42 • (MS) R3587896-4 10/31/20 09:47 • (MSD) R3587896-5 10/31/20 09:50

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	173	180	179	66.3	59.5	1	75.0-125	V	V	0.378	20

Method Blank (MB)

(MB) R3588806-2 10/28/20 14:04

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TPHGAK C6 to C10	U		0.0100	0.100
(S) a,a,a-Trifluorotoluene(PID)	*100*			*79.0-125*
(S) a,a,a-Trifluorotoluene(FID)	*99.2*			*60.0-120*

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

(LCS) R3588806-1 10/28/20 11:43 • (LCSD) R3588806-3 10/28/20 22:57

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	0.400	0.407	0.375	102	93.8	60.0-120			8.18	20
(S) a,a,a-Trifluorotoluene(PID)				*100*	*96.3*	*79.0-125*				
(S) a,a,a-Trifluorotoluene(FID)				*101*	*98.6*	*60.0-120*				

Method Blank (MB)

(MB) R3588995-3 11/03/20 11:42

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TPHGAK C6 to C10	U		0.0100	0.100
(S) a,a,a-Trifluorotoluene(PID)	*104*			*79.0-125*
(S) a,a,a-Trifluorotoluene(FID)	*103*			*60.0-120*

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

(LCS) R3588995-2 11/03/20 09:54 • (LCSD) R3588995-5 11/03/20 16:34

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	0.400	0.419	0.437	105	109	60.0-120			4.21	20
(S) a,a,a-Trifluorotoluene(PID)				*103*	*103*	*79.0-125*				
(S) a,a,a-Trifluorotoluene(FID)				*103*	*104*	*60.0-120*				

Method Blank (MB)

(MB) R3588988-4 11/02/20 03:24

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
n-Butylbenzene	U		0.000157	0.00100
sec-Butylbenzene	U		0.000125	0.00100
tert-Butylbenzene	U		0.000127	0.00100
Ethylbenzene	U		0.000137	0.00100
Isopropylbenzene	U		0.000105	0.00100
Naphthalene	U		0.00100	0.00500
Toluene	U		0.000278	0.00100
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
Xylenes, Total	U		0.000174	0.00300
(S) Toluene-d8	*113*			*80.0-120*
(S) 4-Bromofluorobenzene	*100*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*102*			*70.0-130*

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

(LCS) R3588988-1 11/02/20 01:26 • (LCSD) R3588988-2 11/02/20 01:45

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 %
Benzene	0.00500	0.00534	0.00519	107	104	70.0-123			2.85	20
n-Butylbenzene	0.00500	0.00507	0.00471	101	94.2	73.0-125			7.36	20
sec-Butylbenzene	0.00500	0.00507	0.00478	101	95.6	75.0-125			5.89	20
tert-Butylbenzene	0.00500	0.00495	0.00495	99.0	99.0	76.0-124			0.000	20
Ethylbenzene	0.00500	0.00485	0.00504	97.0	101	79.0-123			3.84	20
Isopropylbenzene	0.00500	0.00508	0.00512	102	102	76.0-127			0.784	20
Naphthalene	0.00500	0.00487	0.00490	97.4	98.0	54.0-135			0.614	20
Toluene	0.00500	0.00486	0.00503	97.2	101	79.0-120			3.44	20
1,2,4-Trimethylbenzene	0.00500	0.00481	0.00464	96.2	92.8	76.0-121			3.60	20
1,3,5-Trimethylbenzene	0.00500	0.00504	0.00468	101	93.6	76.0-122			7.41	20
Xylenes, Total	0.0150	0.0151	0.0146	101	97.3	79.0-123			3.37	20
(S) Toluene-d8				*99.1*	*106*	*80.0-120*				
(S) 4-Bromofluorobenzene				*92.6*	*97.4*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*99.2*	*102*	*70.0-130*				

Method Blank (MB)

(MB) R3589292-3 11/02/20 21:25

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
n-Butylbenzene	U		0.000157	0.00100
sec-Butylbenzene	U		0.000125	0.00100
tert-Butylbenzene	U		0.000127	0.00100
Ethylbenzene	U		0.000137	0.00100
Isopropylbenzene	U		0.000105	0.00100
Naphthalene	U		0.00100	0.00500
Toluene	U		0.000278	0.00100
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
Xylenes, Total	U		0.000174	0.00300
(S) Toluene-d8	*109*			*80.0-120*
(S) 4-Bromofluorobenzene	*106*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*104*			*70.0-130*

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

(LCS) R3589292-1 11/02/20 20:23 • (LCSD) R3589292-2 11/02/20 20:44

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	0.00449	0.00452	89.8	90.4	70.0-123			0.666	20
n-Butylbenzene	0.00500	0.00448	0.00460	89.6	92.0	73.0-125			2.64	20
sec-Butylbenzene	0.00500	0.00440	0.00449	88.0	89.8	75.0-125			2.02	20
tert-Butylbenzene	0.00500	0.00406	0.00414	81.2	82.8	76.0-124			1.95	20
Ethylbenzene	0.00500	0.00480	0.00452	96.0	90.4	79.0-123			6.01	20
Isopropylbenzene	0.00500	0.00449	0.00452	89.8	90.4	76.0-127			0.666	20
Naphthalene	0.00500	0.00342	0.00408	68.4	81.6	54.0-135			17.6	20
Toluene	0.00500	0.00452	0.00464	90.4	92.8	79.0-120			2.62	20
1,2,4-Trimethylbenzene	0.00500	0.00438	0.00446	87.6	89.2	76.0-121			1.81	20
1,3,5-Trimethylbenzene	0.00500	0.00417	0.00433	83.4	86.6	76.0-122			3.76	20
Xylenes, Total	0.0150	0.0141	0.0138	94.0	92.0	79.0-123			2.15	20
(S) Toluene-d8				*106*	*107*	*80.0-120*				
(S) 4-Bromofluorobenzene				*102*	*98.8*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*105*	*106*	*70.0-130*				

Method Blank (MB)

(MB) R3589125-2 11/03/20 19:38

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0000941	0.00100
n-Butylbenzene	U		0.000157	0.00100
sec-Butylbenzene	U		0.000125	0.00100
tert-Butylbenzene	U		0.000127	0.00100
Ethylbenzene	U		0.000137	0.00100
Isopropylbenzene	U		0.000105	0.00100
Naphthalene	U		0.00100	0.00500
Toluene	U		0.000278	0.00100
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
Xylenes, Total	U		0.000174	0.00300
(S) Toluene-d8	*108*			*80.0-120*
(S) 4-Bromofluorobenzene	*99.3*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*102*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3589125-1 11/03/20 18:58

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.00500	0.00503	101	70.0-123	
n-Butylbenzene	0.00500	0.00488	97.6	73.0-125	
sec-Butylbenzene	0.00500	0.00489	97.8	75.0-125	
tert-Butylbenzene	0.00500	0.00497	99.4	76.0-124	
Ethylbenzene	0.00500	0.00472	94.4	79.0-123	
Isopropylbenzene	0.00500	0.00462	92.4	76.0-127	
Naphthalene	0.00500	0.00508	102	54.0-135	
Toluene	0.00500	0.00496	99.2	79.0-120	
1,2,4-Trimethylbenzene	0.00500	0.00498	99.6	76.0-121	
1,3,5-Trimethylbenzene	0.00500	0.00478	95.6	76.0-122	
Xylenes, Total	0.0150	0.0146	97.3	79.0-123	
(S) Toluene-d8			*103*	*80.0-120*	
(S) 4-Bromofluorobenzene			*96.0*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*110*	*70.0-130*	

Method Blank (MB)

(MB) R3589561-1 11/04/20 21:33

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
AK102 DRO C10-C25	U		0.229	0.800
(S) o-Terphenyl	*81.3*			*60.0-120*

Laboratory Control Sample (LCS)

(LCS) R3589561-2 11/04/20 21:53

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
AK102 DRO C10-C25	3.00	2.76	92.0	75.0-125	
(S) o-Terphenyl			*119*	*60.0-120*	

L1277679-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277679-02 11/05/20 06:50 • (MS) R3589561-3 11/05/20 07:10 • (MSD) R3589561-4 11/05/20 07:30

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	2.97	0.246	2.95	2.86	91.0	87.1	1	75.0-125			3.10	20
(S) o-Terphenyl					*79.0*	*77.0*		*50.0-150*				

Sample Narrative:

OS: Dilution due to sample volume.

Method Blank (MB)

(MB) R3587334-3 10/29/20 00:01

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	*119*			*31.0-160*
(S) 2-Fluorobiphenyl	*90.5*			*48.0-148*
(S) p-Terphenyl-d14	*112*			*37.0-146*

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

(LCS) R3587334-1 10/28/20 23:18 • (LCSD) R3587334-2 10/28/20 23:40

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 %
Anthracene	0.00200	0.00203	0.00193	102	96.5	67.0-150			5.05	20
Acenaphthene	0.00200	0.00199	0.00191	99.5	95.5	65.0-138			4.10	20
Acenaphthylene	0.00200	0.00215	0.00203	108	102	66.0-140			5.74	20
Benzo(a)anthracene	0.00200	0.00225	0.00212	112	106	61.0-140			5.95	20
Benzo(a)pyrene	0.00200	0.00196	0.00185	98.0	92.5	60.0-143			5.77	20
Benzo(b)fluoranthene	0.00200	0.00174	0.00164	87.0	82.0	58.0-141			5.92	20
Benzo(g,h,i)perylene	0.00200	0.00186	0.00174	93.0	87.0	52.0-153			6.67	20
Benzo(k)fluoranthene	0.00200	0.00182	0.00176	91.0	88.0	58.0-148			3.35	20
Chrysene	0.00200	0.00213	0.00202	106	101	64.0-144			5.30	20
Dibenz(a,h)anthracene	0.00200	0.00199	0.00184	99.5	92.0	52.0-155			7.83	20
Fluoranthene	0.00200	0.00197	0.00189	98.5	94.5	69.0-153			4.15	20
Fluorene	0.00200	0.00198	0.00189	99.0	94.5	64.0-136			4.65	20

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

(LCS) R3587334-1 10/28/20 23:18 • (LCSD) R3587334-2 10/28/20 23:40

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 %
Indeno(1,2,3-cd)pyrene	0.00200	0.00198	0.00183	99.0	91.5	54.0-153			7.87	20
Naphthalene	0.00200	0.00201	0.00193	100	96.5	61.0-137			4.06	20
Phenanthrene	0.00200	0.00184	0.00178	92.0	89.0	62.0-137			3.31	20
Pyrene	0.00200	0.00214	0.00203	107	102	60.0-142			5.28	20
1-Methylnaphthalene	0.00200	0.00210	0.00203	105	102	66.0-142			3.39	20
2-Methylnaphthalene	0.00200	0.00198	0.00191	99.0	95.5	62.0-136			3.60	20
(S) Nitrobenzene-d5				*122*	*128*	*31.0-160*				
(S) 2-Fluorobiphenyl				*94.0*	*96.5*	*48.0-148*				
(S) p-Terphenyl-d14				*107*	*119*	*37.0-146*				

Method Blank (MB)

(MB) R3587269-3 10/29/20 07:47

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	*93.0*			*31.0-160*
(S) 2-Fluorobiphenyl	*91.5*			*48.0-148*
(S) p-Terphenyl-d14	*81.5*			*37.0-146*

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

(LCS) R3587269-1 10/29/20 07:12 • (LCSD) R3587269-2 10/29/20 07:29

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	0.00194	0.00196	97.0	98.0	67.0-150			1.03	20
Acenaphthene	0.00200	0.00184	0.00196	92.0	98.0	65.0-138			6.32	20
Acenaphthylene	0.00200	0.00210	0.00220	105	110	66.0-140			4.65	20
Benzo(a)anthracene	0.00200	0.00184	0.00189	92.0	94.5	61.0-140			2.68	20
Benzo(a)pyrene	0.00200	0.00176	0.00176	88.0	88.0	60.0-143			0.000	20
Benzo(b)fluoranthene	0.00200	0.00162	0.00165	81.0	82.5	58.0-141			1.83	20
Benzo(g,h,i)perylene	0.00200	0.00160	0.00161	80.0	80.5	52.0-153			0.623	20
Benzo(k)fluoranthene	0.00200	0.00170	0.00172	85.0	86.0	58.0-148			1.17	20
Chrysene	0.00200	0.00184	0.00190	92.0	95.0	64.0-144			3.21	20
Dibenz(a,h)anthracene	0.00200	0.00163	0.00165	81.5	82.5	52.0-155			1.22	20
Fluoranthene	0.00200	0.00191	0.00186	95.5	93.0	69.0-153			2.65	20
Fluorene	0.00200	0.00193	0.00198	96.5	99.0	64.0-136			2.56	20

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

(LCS) R3587269-1 10/29/20 07:12 • (LCSD) R3587269-2 10/29/20 07:29

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	0.00170	0.00169	85.0	84.5	54.0-153			0.590	20
Naphthalene	0.00200	0.00187	0.00194	93.5	97.0	61.0-137			3.67	20
Phenanthrene	0.00200	0.00177	0.00182	88.5	91.0	62.0-137			2.79	20
Pyrene	0.00200	0.00175	0.00184	87.5	92.0	60.0-142			5.01	20
1-Methylnaphthalene	0.00200	0.00184	0.00196	92.0	98.0	66.0-142			6.32	20
2-Methylnaphthalene	0.00200	0.00177	0.00186	88.5	93.0	62.0-136			4.96	20
(S) Nitrobenzene-d5				*109*	*106*	*31.0-160*				
(S) 2-Fluorobiphenyl				*95.5*	*97.5*	*48.0-148*				
(S) p-Terphenyl-d14				*88.5*	*88.5*	*37.0-146*				

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.
J0	J0: The identification of the analyte is acceptable, but the reported concentration is an estimate. The calibration met method criteria.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

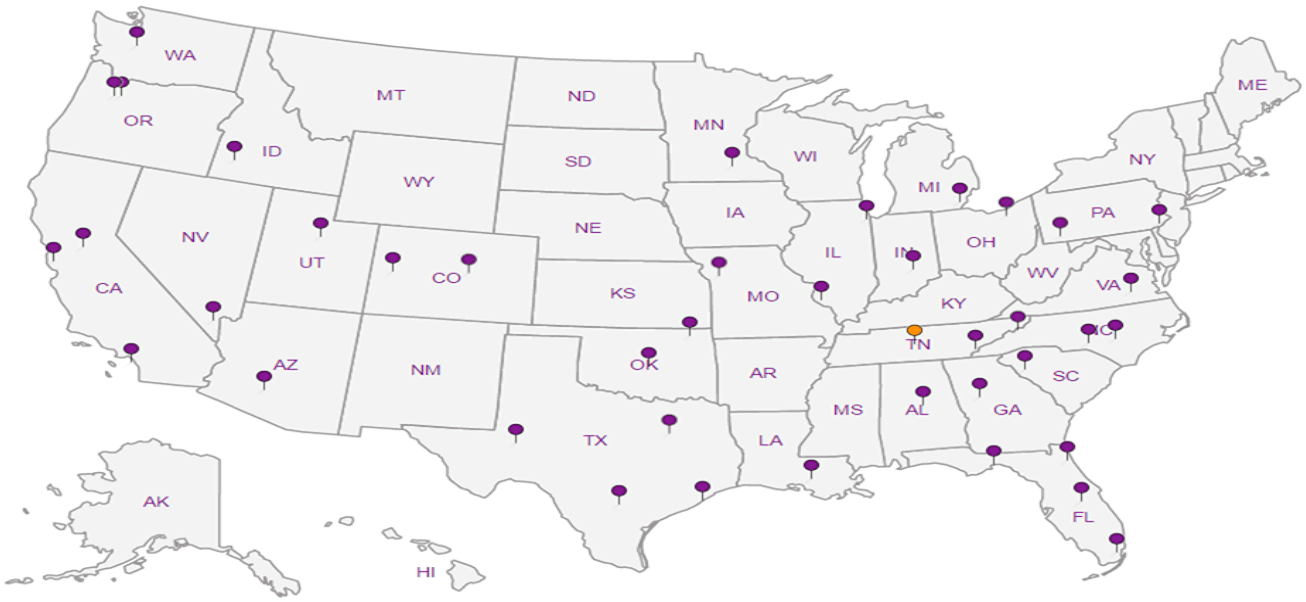
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Stantec - Anchorage, AK - Speedway

725 E Fireweed Lane
Suite 200
Anchorage, AK 99503

Billing Information:
Accounts Payable
PO Box 1510
Springfield, OH 45501

Pres Chk

Report to:
Ms. Leslie Petre

Email To: ccothron@pacenational.com

Project Description:
Speedway 5313 TNS 101

City/State Collected: Fairbanks, AK

Please Circle: (AK) PT MT CT ET

Phone: 907-~~266-1108~~ 450-1428

Client Project # 185751324

Lab Project # STAAAKSSA-5313

Collected by (print): Leslie Petre

Site/Facility ID # 0005313

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

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # L1277825

J219

Acctnum: STAAAKSSA

Template: T175449

Prelogin: P800983

PM: 034 - Craig Cothron

PB: TB 10-1-20

Shipped Via: FedEX 2nd Day

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	Remarks	Sample # (lab only)
MW-3	G	GW		10/21/20	18:40	10	X	X		X	X		-01
MW-4	G	GW		10/21/20	15:55	10	X	X		X	X		02
MW-8	G	GW		10/21/20	19:30	~~11~~ 10	X	X	X	X	X		03
MW-14	G	GW		10/21/20	17:35	10	X	X		X	X		04
MW-17	G	GW		10/21/20	16:25	10	X	X		X	X		05
~~MW-18~~ Duplicate	G	GW		10/21/20	19:45	10	X	X		X	X		06
~~MW-19-2~~		~~GW~~				~~10~~	~~X~~	~~X~~		~~X~~	~~X~~		
CRW-2_AERATION TREATMENT TANK (INFLUENT)	G	GW		10/22/20	11:25	11	X	X	X	X	X		07
WRW-2020_AERATION TREATMENT TANK (INFLUE	G	GW		10/22/20	10:59	11	X	X	X	X	X		08
EFFLUENT	G	GW		10/22/20	12:10	11	X	X	X	X	X		09

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

Remarks: 0710/24

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 918625058024

Sample Receipt Checklist

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

Relinquished by : (Signature) Leslie Petre	Date: 10/23/2020	Time: 11:00am	Received by: (Signature)	Trip Blank Received: Yes / (No) (HCl) MeoH TBR	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.9°C 2.0-.1=1.9	Bottles Received: 93
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 10/24/20	Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: (NCF) / OK

Matt Shacklock

Pace Analytical®
National Center for Testing & Innovation

Login #: L1277825	Client: STAAAKSSA	Date: 10/24/20	Evaluated by: Jeremy

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time		Login Clarification Needed		**If Broken Container:**
	Temperature not in range		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	pH not in range.		Please specify TCLP requested.		Improper handling by carrier (FedEx / UPS / Couri
	Insufficient sample volume.		Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace.		Trip Blank not received.		**If no Chain of Custody:**
	Broken container		Client did not "X" analysis.		Received by:
x	Broken container:		Chain of Custody is missing		Date/Time:
x	Sufficient sample remains				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments: 1 Vial broken for MW-8

Client informed by:		Call		Email	x	Voice Mail		Date:10/26/20	Time:900
TSR Initials: cc	Client Contact:Leslie Petre								

Client notified.

Laboratory Report Number	L1277825	CS Site Name	Speedway Store 5313
Laboratory Report Date	11/20/2020	ADEC File Number	100.26.022

Laboratory Data Review Checklist

Completed By:

Leslie Petre

Title:

Engineer in Training

Date:

January 15, 2021

Consultant Firm:

Stantec Consulting Service, Inc.

Laboratory Name:

Pace Analytical

Laboratory Report Number:

L1277825

Laboratory Report Date:

November 20, 2020

CS Site Name:

Speedway Store 5313, formally 2Go Mart 101/IFC

ADEC File Number:

100.26.022

Hazard Identification Number:

26295

Laboratory Report Number	L1277825	CS Site Name	Speedway Store 5313
Laboratory Report Date	11/20/2020	ADEC File Number	100.26.022

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:

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:

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

   Yes☒ No☐ N/A☐ Comments:

   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:

Data quality was retained and useable. One vial was broken for VOC on MW-8, there was still a sufficient amount for testing.

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:

c. Were all corrective actions documented?

Yes☒ No☐ N/A☐ Comments:

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

Comments:

Data quality was retained and useable.

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 Soils tested.

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?

Data quality was retained and useable.

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:

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

Comments:

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

Yes☒ No☐ N/A☐ Comments:

v. Data quality or usability affected?

Comments:

Data quality and usability is not affected.
Data flags of : V The sample concentration is too high to evaluate accurate spike recoveries.
J The identification of the analyte is acceptable; the reported value is an estimate.
JO The identification of the analyte is acceptable, but the reported concentration is an estimate. The calibration met method criteria.
J1 & J2 Surrogate recovery limits have been exceeded; values are outside upper control limits.

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:

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

Comments:

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:

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:

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

Comments:

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:

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:

MW-17 had surrogate failure due to matrix interference for the 8270D-SIM testing.
MW-3 produced emulsion during extraction resulting in low surrogate/spike recoveries due to matrix interference for 8270D-SIM testing.

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:

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:

iv. Data quality or usability affected?

Comments:

Data quality was retained and useable.

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:

v. Data quality or usability affected?

Comments:

f. Field Duplicate

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

Yes☐ No☒ N/A☐ Comments:

A QC sample was not submitted for Sodium as sodium is not actively monitored for this site.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

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:

RPD is exceeded for Ethylbenzene (32.38%) and Naphthalene (118.66%). RPD is met for Benzene, Toulene, Xylenes, GRO, DRO, 1-2-4 Trimethylbenzene, and 1-3-5 Trimethylbenzene.

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

Comments:

Data quality was retained and useable, as most of the samples met the RPD standards.

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

Yes☐ No☐ N/A☒ Comments:

All equipment used for each well sampling was either new and disposable or new and dedicated to the sampling of the well.

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

Yes☐ No☐ N/A☐ Comments:

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

Comments:

iii. Data quality or usability affected?

Comments:

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

a. Defined and appropriate?

Yes☒ No☐ N/A☐ Comments:

APPENDIX F

Historic Free Product Measurements

CRW-2 Historic Free Product Monitoring Records 2018-2020

		Depth to product	Water Level	Product Thickness	Recovery Drum Ht. 34"	Free Product available within Well Casing		Observe Cycle	Notes
Date	Well	feet	feet	feet	Wet Inches	Cubic Feet	~gallons	(Y/N)	
7/14/2018	CRW-2	12.65	14.8	2.15	5.2	0.422	3.16	on (Y)	Pump running 0psi- started cycle/did not adjust
7/15/2018	CRW-2	12.7	14.75	2.05		0.403	3.01	on (Y)	Raised Sipper ~18 in
9/7/2018	CRW-2	11.73	NC	null	4	null	null		Could not get probe passed sipper
10/31/2018	CRW-2	11.93	19.28	7.35		1.443	10.79	off (N)	pump off
10/31/2018	CRW-2	13.15	19.83	6.68		1.312	9.81	on (Y)	pump on
1/28/2018	CRW-2	14.85	25.05	10.2	6	2.003	14.98	off (N)	trouble shot. Clean float intake/tubing
1/28/2018	CRW-2	15.6	16.5	0.9		0.177	1.32	on (Y)	Running when left. Reset timer to 20 min cycle
3/14/2019	CRW-2	16.22	16.7	0.48	10	0.094	0.70	on (Y)	30 sec on/30 sec off cycle, 3.5 min delay
5/8/2019	CRW-2	16.4	16.65	0.25	12	0.049	0.37	on (Y)	
6/24/2019	CRW-2	15.52	16.6	1.08	12.5	0.212	1.59		32 sec on/30 sec off cycle, 30s delay
6/26/2019	CRW-2	NM	NM	NM	33.25	NM	NM		Turned off
7/29/2019	CRW-2	14.51	15.6	1.09	0	0.214	1.60		Off on arrive, removed 50 gal Napl from recovery drum
7/30/2019	CRW-2	14.6	15.3	0.7		0.137	1.03		
7/31/2019	CRW-2	14.6	15.36	0.8		0.157	1.17		
8/2/2019	CRW-2	14.55	15.35	2.44		0.479	3.58		
8/28/2019	CRW-2	12.71	15.15	2.44		0.479	3.58		
8/29/2019	CRW-2	12.7	15.4	2.7		0.530	3.97		
10/22/2019	CRW-2	14.5	15.7	1.2		0.236	1.76	on (Y)	
10/23/2019	CRW-2	14.52	15.68	1.16		0.228	1.70	on (Y)	
10/24/2019	CRW-2	14.5	15.44	0.94		0.185	1.38	on (Y)	
11/1/2019	CRW-2	14.85	16.11	1.26		0.247	1.85	on (Y)	
11/11/2019	CRW-2	15.27	16.47	1.2	6.375	0.236	1.76	on (Y)	
11/18/2019	CRW-2	15.42	16.73	1.31	6.875	0.257	1.92	on (Y)	
12/2/2019	CRW-2	15.43	17.74	2.31	7.5	0.454	3.39	on (Y)	
12/12/2019	CRW-2	15.54	16.81	1.27	6.375	0.249	1.87	on (Y)	
12/20/2019	CRW-2	15.65	16.95	1.3	6.25	0.255	1.91	on (Y)	
12/23/2019	CRW-2	NM	NM	NM	NM	NM	NM	on (Y)	
1/17/2020	CRW-2	16.09	17.27	1.18	6.125	0.232	1.73	off (N)	
6/29/2020	CRW-2	12.35	21.24	8.89	NM	1.746	13.06	off (N)	Shut drawdown pump off, blower not working
7/13/2020	CRW-2	11.12	12.65	1.53	NM	0.300	2.25	off (N)	
7/15/2020	CRW-2	11.08	12.65	1.57	NM	0.308	2.31	off (N)	LP's Electronic Note not on physical log
7/16/2020	CRW-2	12.1	13.2	1.1	7	0.216	1.62	off (N)	
7/17/2020	CRW-2	11.15	12.3	1.15	8.125	0.226	1.69	on (Y)	
7/22/2020	CRW-2	11.2	12.34	1.14	8.125	0.224	1.67	on (Y)	
8/3/2020	CRW-2	12.51	17.12	4.61	NM	0.905	6.77	off (N)	
8/5/2020	CRW-2	12.41	17.15	4.74	NM	0.931	6.96	off (N)	Free product was pumped with peri pump, took approximately 1.25 hours to complete, high levels of solids were noted when line reached interface.
8/17/2020	CRW-2					0.000	0.00	off (N)	
8/18/2020	CRW-2	11.36	11.48	0.12	10.5	0.024	0.18	off (N)	
8/19/2020	CRW-2	13.25	13.31	0.06	NM	0.012	0.09	off (N)	
8/20/2020	CRW-2	13.28	13.36	0.08	NM	0.016	0.12	off (N)	Free product pumped into bucket, high levels of black solids were noted.
8/28/2020	CRW-2	13.13	13.7	0.57	NM	0.112	0.84	off (N)	
9/2/2020	CRW-2	13.36	13.97	0.61	NM	0.120	0.90	off (N)	1.5" of 5 gal Can(0.6522 gal) with high amount of black solids, 4" from MW 19-1 and 19-2 (1.74 gal)
9/18/2020	CRW-2	13.5	14.8	1.3	14.75	0.255	1.91	off (N)	1.7 gpm , removed estimated 4.25" (1.8478 gal)
9/22/2020	CRW-2	13.73	14.3	0.57	NM	0.112	0.84	off (N)	1.7 gpm
9/25/2020	CRW-2	13.82	14.59	0.77	NM	0.151	1.13	off (N)	Pump on flow 1.8gpm
9/25/2020	CRW-2	11.95	12.64	0.69	NM	0.135	1.01	off (N)	Pump off for + 30 minutes to allow aeration tank levels to drop
9/29/2020	CRW-2	13.9	15.15	1.25	NM	0.245	1.84	off (N)	1.74 gpm
10/6/2020	CRW-2								Flow 1.62 gpm
10/28/2020	CRW-2	15.09	16.6	1.51	NM	0.296	2.22	off (N)	breaker tripped for pump, reset without issue

Notes: Gas can safe fill line 11.5", 0.4348 gallon/ I inch depth

WRW-2020 Historic Free Product Monitoring Records

		Depth to product	Water Level	Product Thickness	Free Product available within Well Casing		Notes
Date	Well	feet	feet	feet	Cubic Feet	~gallons	
7/15/2020	WRW-2020		9.45	0	0	0	
8/5/2020	WRW-2020	9.34	9.35	0.01	0.002	0.015	
8/28/2020	WRW-2020		9.36				
9/2/2020	WRW-2020	9.65	9.66	0.01	0.002	0.015	
9/18/2020	WRW-2020	10.13	10.13	0	0.000	0.000	1.5 gpm
9/22/2020	WRW-2020	10.19	10.2	0.01	0.002	0.015	intial 1.5 gpm 100 psi, adjusted to 3 gpm/ 95-98 psi
9/25/2020	WRW-2020	10.29	10.3	0.005	0.001	0.007	Pump on flow 4.6 gpm
9/25/2020	WRW-2020	10.1	10.11	0.01	0.002	0.015	Pump off for + 30 minutes to allow aeration tank levels to drop, system adjusted to 2.5 gpm
9/29/2020	WRW-2020	10.435	10.45	0.01	0.002	0.015	Flow 2 gpm
10/6/2020	WRW-2020						Flow to gpm, pressure ~105psi
10/28/2020	WRW-2020	11.67	11.68	0.01	0.002	0.015	Flow 1.25 gpm

MW 19-1 Historic Free Product Monitoring Records

		Depth to product	Water Level	Product Thickness	Free Product available within Well Casing		Notes
Date	Well	feet	feet	feet	Cubic Feet	~gallons	
10/23/2019	19-1	NA	9.87	0	0	0	slight sheen, Sampled
9/2/2020	19-1	8.39	8.92	0.53	0.012	0.086	pumped with peri pump dropping product to 8.94'
9/18/2020	19-1	8.1	9.04	0.94	0.082	0.614	MW 19-1 and 19.2 Combined removed 5.25" of 5 gallon can (2.28 gal)
9/22/2020	19-1	8.9	8.93	0.03	0.003	0.020	
9/25/2020	19-1	8.97	9.04	0.07	0.006	0.046	
9/29/2020	19-1	9.16	9.24	0.08	0.007	0.052	

MW 19-2 Historic Free Product Monitoring Records

		Depth to product	Water Level	Product Thickness	Free Product available within Well Casing		Notes
Date	Well	feet	feet	feet	Cubic Feet	~gallons	
10/23/2019	19-2	9.25	10.3	1.05	0.023	0.171	Sampling skipped
9/2/2020	19-2	7.66	9.25	1.59	0.035	0.259	pumped with peri pump dropping product to 7.96'
9/18/2020	19-2	8.75	9.01	0.26	0.006	0.042	Free product removed, see MW 19-1 record
9/22/2020	19-2	8.31	8.68	0.37	0.008	0.060	
9/25/2020	19-2	8.36	8.8	0.44	0.010	0.072	
9/29/2020	19-2	8.55	9.05	0.5	0.011	0.082	

Notes: Gas can safe fill line 11.5", 0.4348 gallon/ I inch depth