Tesoro 2 Go Mart #112
ADEC File #100.26.159

October 2019
Monitoring Event Report

Prepared For

TESORO

Stantec

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ACRONYMS AND ABBREVIATIONS

ADEC	Alaska Department of Environmental Conservation
AK	Alaska Test Method
BTEX	benzene, toluene, ethylbenzene, and xylenes
DRO	diesel range organics
DO	dissolved oxygen
EPA	U.S. Environmental Protection Agency
GCL	groundwater cleanup level
GRO	gasoline range organics
ORP	oxidation-reduction potential
QA	quality assurance
QC	quality control
Stantec	Stantec Consulting Services Inc.
UST	underground storage tank

1.0 EXECUTIVE SUMMARY

This semi-annual 2019 monitoring event report was prepared by Stantec Consulting Services Inc. (Stantec) on behalf of Tesoro Refining and Marketing Company for Tesoro 2 Go Mart #112, located at 3392 Badger Road, North Pole, Alaska (**Figure 1**). The monitoring event was conducted on October 22, 2019, by John Marshall (Environmental Scientist), Leslie Petre (Engineer-In-Training (EIT)) and Bob Gilfilian, Principal Engineer, all with Stantec.

This October 2019 groundwater monitoring event included measuring the depth to groundwater, measuring water quality parameters, and collecting and analyzing groundwater samples from Monitoring Wells MW-2, MW-3, MW-6, MW-10, MW17-2, and MW17-5 (**Figure 2**). The methods that were used for this monitoring event including the completion of a chemox injection were conducted in accordance with the Alaska Department of Environmental Conservation (ADEC) approved 2019 Corrective Action Work Plan for this site (see **Appendix B**).

Results from the groundwater depth measurements indicate the average hydraulic gradient was approximately 0.005 feet per foot with flow tending toward the northeast at 64 degrees. The flow direction and gradient for this monitoring event were consistent with the historical values for this site, as shown in the groundwater flow summary presented on **Figure 2**.

Results of the analytical sampling showed concentrations exceeding the ADEC groundwater cleanup levels (GCLs) for the following monitoring wells:

- Monitoring Well MW-2: ethylbenzene.
- Monitoring Well MW-3: benzene, ethylbenzene, xylenes, gasoline range organics (GRO), and diesel range organics (DRO).
- Monitoring Well MW17-2: ethylbenzene, xylenes, and GRO.
- Monitoring Well MW17-5: benzene, ethylbenzene, xylenes, and GRO.

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:

- Measuring depth to groundwater in Monitoring Wells MW-2, MW-3, MW-6, MW-10, MW17-2, and MW17-5.
- Collecting field measurements of the following intrinsic water quality parameters: temperature, pH, dissolved oxygen (DO), oxidation-reduction potential (ORP), and specific conductance.

- Collecting groundwater samples from Monitoring Wells MW-2, MW-3, MW-6, MW-10, MW17-2, and MW17-5, and submitted them for laboratory analysis of: U.S. Environmental Protection Agency (EPA) Method 8260C for benzene, toluene ethylbenzene, and xylenes (BTEX); Alaska Test Method (AK)101 for GRO; and AK102 for DRO.
- Completed chemox injection with Klozur One® into remediation wells RW 17-1, 17-3, 17-4 and 17-6. The remediation wells were installed in 2017 in the area of the petroleum-contaminated soil that was buried during the removal of the former underground storage tank (UST) system approximately 20 years ago.

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

4.0 GROUNDWATER MONITORING RESULTS

Groundwater Levels. Table 1 presents groundwater elevations at this site based on the depths to static groundwater levels measured during this monitoring event. When evaluated by a polynomial regression, fitted to the water level observations, the average hydraulic gradient was approximately 0.005 feet per foot with flow tending toward the northeast at 64 degrees (see hydraulic gradient plot in **Appendix C**). The flow direction and gradient for this monitoring event were consistent with the historical data for this site, as shown in the groundwater flow summary presented on **Figure 2**.

Table 1 Groundwater Elevations
Measurements taken on October 22, 2019

Monitoring Well Identification	Top of Casing Elevation (feet)[1]	Depth to Groundwater (feet)	Groundwater Elevation (feet)
MW-2	398.76	9.32	389.44
MW-3	398.80	9.38	389.42
MW-6	401.37	12.65	388.72
MW-10	401.52	13.15	388.37
MW17-2	398.28	8.78	389.50
MW17-5	398.60	9.13	389.47

Key:
1 – Based on vertical control survey of September 5, 2017, based on an arbitrary datum of 400 feet established at a local benchmark in 2003. The top of well casings for MW 17-2 and MW 17-5 were surveyed to the same benchmark on July 31 ,2019.
NC – Not Calculated
NM – Not Measured

Field Parameters. The results of water quality parameter testing of the water samples collected during this monitoring event are presented in **Table 2**. Temperature, pH, DO, ORP, and specific

conductance were measured. Specific conductance values were generally within an expected range and pH values were within an expected range at below neutral.

Table 2 Field Measured Intrinsic Water Quality Parameters
Measurements taken on October 22, 2019

Monitoring Well Identification	Purged Volume (gallons)	Temp. (ºC)	pH	DO (mg/L)	ORP (mV)	SC (µs/cm°C)
MW-2	4.3	6.4	5.76	0.09	79.7	546
MW-3	10.0	6.2	6.02	0.45	74.7	564
MW-6	2.20	5.6	5.25	0.55	67.3	346
MW-10	3.06	5.5	5.83	0.54	16.3	256
MW17-2	2.80	6.2	5.58	0.13	104.0	534
MW17-5	2.10	6.1	5.94	0.33	87.1	417

Key:
mV – millivolts
ºC – degrees Celsius
µS/cm°C – microSiemens per centimeter degrees Celsius
mg/L – milligrams per liter
DO – Dissolved Oxygen
ORP – oxidation-reduction potential
pH – -log [H^+]
SC – specific conductance corrected to 25 ºC
Temp. – Temperature

Water Sample Analytical Results. Historical monitoring data for this site are tabulated in **Appendix D**. Laboratory analytical results for BTEX, GRO, and DRO in the groundwater samples collected during this monitoring event are summarized in **Table 3**. The laboratory analytical report is provided in **Appendix E**. The laboratory report also includes select data for Tesoro 2 Go Mart #111 (BTEX, GRO, DRO, and sodium at Wells RM-1 and RM-2) that should be ignored for this report.

Table 1 Groundwater Analytical Results for BTEX, GRO, and DRO
Samples collected on October 22, 2019

Sample ID	Benzene[1] (mg/L)	Toluene[1] (mg/L)	Ethylbenzene[1] (mg/L)	Xylenes[1] (mg/L)	GRO (mg/L)	DRO[2] (mg/L)
MW-2	U (0.003)	U (0.002)	**0.017**	0.029	0.36	0.72
MW-3	**0.028**	0.150	**0.750**	**5.5**	**17**	**3.7 H**
MW-6	U (0.003)	U (0.002)	U (0.003)	U (0.003)	U (0.25)	U (0.12)
MW-10	U (0.003)	U (0.002)	U (0.003)	U (0.003)	U (0.25)	U (0.12)
MW17-2	U (0.003)	U (0.002)	**0.210**	**0.790**	**3.5**	1.4 H
MW17-5	**0.022**	0.360	**0.230**	**0.721**	**3.7**	0.47 H
2GM112 DUP (duplicate of MW-3)	**0.027**	0.170	**0.800**	**6.2**	**18**	**4.2 H**
Trip Blank	U (0.003)	U (0.002)	U (0.003)	U (0.003)	U (0.25)	NT

Sample ID	Benzene[1] (mg/L)	Toluene[1] (mg/L)	Ethylbenzene[1] (mg/L)	Xylenes[1] (mg/L)	GRO (mg/L)	DRO[2] (mg/L)
GCLs	**0.0046**	**1.1**	**0.015**	**0.19**	**2.2**	**1.5**

Key:
1 – Analyzed by U.S. Environmental Protection Agency Method 8260C
2 – Due to laboratory QC failure in the initial extraction, these samples were re-extracted out of holding time and re-analyzed. The re-extracted batch also contained laboratory QC failures. Both sets of data were reported by the laboratory. The higher of the two concentrations for each sample is listed in this table.
AK – Alaska Test Method
BTEX – benzene, toluene, ethylbenzene, and xylenes
DRO – Diesel range organics, analyzed by AK102
GCLs – Groundwater cleanup levels, per Alaska Department of Environmental Conservation 18 Alaska Administrative Code 75.345, Table C, updated September 29, 2018.
GRO – Gasoline range organics, analyzed by AK101
H – Sampled was prepped or analyzed beyond the specific holding time
mg/L – milligrams per liter
NT – Not tested
U – Undetected above practical quantitation limits shown in parentheses
Bold indicates the concentration exceeds the GCL or, if not detected, the practical quantitation limit exceeds the GCL

The GRO results for Monitoring Wells MW17-2 and MW17-5 were flagged by the laboratory with notes indicating detections for the samples were seen outside the AK101 range and the GRO concentrations reported were due to the presence of discrete peaks.

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

Table 4 Laboratory Quality Control Objectives

Quality Control Designation	Tolerance	Results for this Event
Holding Times		
DRO/Water/to analyze	40 days	15 to 19 days
DRO/Water/to extract	14 days	14 to 17 days
GRO/Water/to analyze	14 days	9 days
BTEX/Water/to analyze	14 days	8 to 9 days
Field Duplicates – Precision		
Benzene	± 30%	3.64%
Toluene	± 30%	-12.50%
Ethylbenzene	± 30%	-6.45%
Xylenes	± 30%	-11.97%

GRO	± 30%	-5.71%
DRO	± 30%	-12.66%

Key:
% – percent
± – plus or minus
BTEX – benzene, toluene, ethylbenzene, and xylenes
DRO – diesel range organics
GRO – gasoline range organics

Sample 2GM112 DUP is a quality control duplicate of Sample MW-3. The duplicate sample set was collected to determine the precision of the field collection and laboratory analyses for this sampling event. Data presented in **Table 4** show that the precision for the duplicate sample set was within the established QA criteria tolerances for all analytes. The holding times for GRO and BTEX were within established criteria but holding time issues were observed for DRO. Due to laboratory QC failures in the initial extraction, all of the DRO samples were re-extracted out of holding time and re-analyzed. The re-extracted batch also contained laboratory QC failures. Both sets of data were reported by the laboratory. The higher of the two reported values for each sample is listed in this quarterly report.

5.0 IN-SITU CHEMOX REMEDIATION

During this monitoring event, Stantec completed an injection of the chemox product, Klozur One®, into the four remediation wells (RW17-1, RW17-3, RW17-4, and RW17-6). Klozur One® is a granular product manufactured by PeroxyChem that consists primarily of sodium persulfate and patented activator reagents. A total of 220 pounds of Klozur One® product was mixed with 200 gallons of clean water and then injected as a solution into the contaminated source area by low pressure pump into the remediation wells.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Graphs of contaminant concentrations and groundwater elevations for Monitoring Wells MW-2 and MW-3 are presented on **Figure 4**.

The following summarizes laboratory test results that exceeded the GCLs for the October 2019 semi-annual groundwater monitoring event:

- Monitoring Well MW-2: ethylbenzene.
- Monitoring Well MW-3: benzene, ethylbenzene, xylenes, GRO, and DRO.
- Monitoring Well MW 17-2: ethylbenzene, xylenes, and GRO.
- Monitoring Well MW 17-5: benzene, ethylbenzene, xylenes, and GRO.

No anomalies were found during the October 2019 semi-annual monitoring event that would require additional corrective action or changes to the approved year 2019 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 *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 Tesoro 2 Go Mart #112 and Tesoro Refining and Marketing Company. Information herein is for use at this site in accordance with the purpose of the report described.

FIGURES

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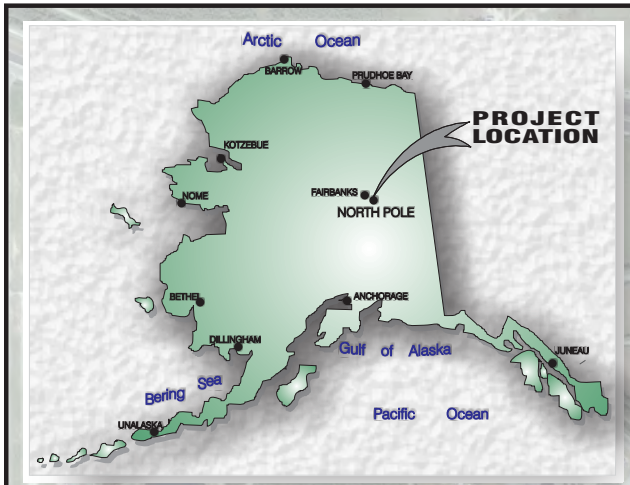


STATE HWY 2

BADGER ROAD

HURST ROAD

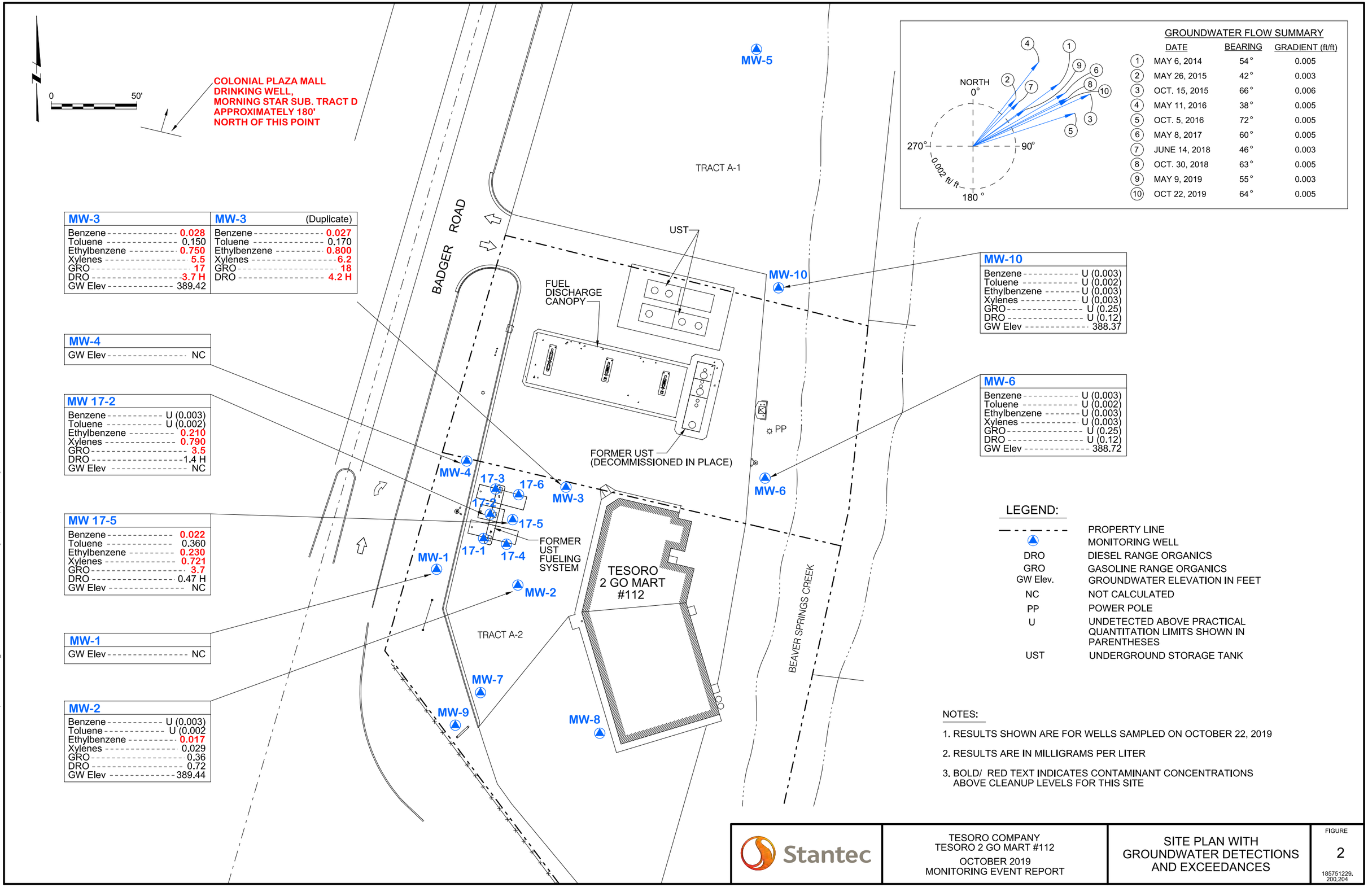
112

OLD RICHARDSON HWY

N SANTA CLAUS LN

0 500'

Stantec	TESORO COMPANY TESORO 2 GO MART #112 OCTOBER 2019 MONITORING EVENT REPORT	LOCATION AND VICINITY MAP	FIGURE 1 185751229. 200.204



MW-3

Benzene	0.028
Toluene	0.150
Ethylbenzene	0.750
Xylenes	5.5
GRO	17
DRO	3.7 H
GW Elev	389.42

MW-3 (Duplicate)

Benzene	0.027
Toluene	0.170
Ethylbenzene	0.800
Xylenes	6.2
GRO	18
DRO	4.2 H

MW-4

GW Elev	NC

MW 17-2

Benzene	U (0.003)
Toluene	U (0.002)
Ethylbenzene	0.210
Xylenes	0.790
GRO	3.5
DRO	1.4 H
GW Elev	NC

MW 17-5

Benzene	0.022
Toluene	0.360
Ethylbenzene	0.230
Xylenes	0.721
GRO	3.7
DRO	0.47 H
GW Elev	NC

MW-1

GW Elev	NC

MW-2

Benzene	U (0.003)
Toluene	U (0.002
Ethylbenzene	0.017
Xylenes	0.029
GRO	0.36
DRO	0.72
GW Elev	389.44

MW-10

Benzene	U (0.003)
Toluene	U (0.002)
Ethylbenzene	U (0.003)
Xylenes	U (0.003)
GRO	U (0.25)
DRO	U (0.12)
GW Elev	388.37

MW-6

Benzene	U (0.003)
Toluene	U (0.002)
Ethylbenzene	U (0.003)
Xylenes	U (0.003)
GRO	U (0.25)
DRO	U (0.12)
GW Elev	388.72

GROUNDWATER FLOW SUMMARY

	DATE	BEARING	GRADIENT (ft/ft)
1	MAY 6, 2014	54°	0.005
2	MAY 26, 2015	42°	0.003
3	OCT. 15, 2015	66°	0.006
4	MAY 11, 2016	38°	0.005
5	OCT. 5, 2016	72°	0.005
6	MAY 8, 2017	60°	0.005
7	JUNE 14, 2018	46°	0.003
8	OCT. 30, 2018	63°	0.005
9	MAY 9, 2019	55°	0.003
10	OCT 22, 2019	64°	0.005

LEGEND:

- - - - -	PROPERTY LINE
▲	MONITORING WELL
DRO	DIESEL RANGE ORGANICS
GRO	GASOLINE RANGE ORGANICS
GW Elev.	GROUNDWATER ELEVATION IN FEET
NC	NOT CALCULATED
PP	POWER POLE
U	UNDETECTED ABOVE PRACTICAL QUANTITATION LIMITS SHOWN IN PARENTHESES
UST	UNDERGROUND STORAGE TANK

NOTES:

1. RESULTS SHOWN ARE FOR WELLS SAMPLED ON OCTOBER 22, 2019
2. RESULTS ARE IN MILLIGRAMS PER LITER
3. BOLD/ RED TEXT INDICATES CONTAMINANT CONCENTRATIONS ABOVE CLEANUP LEVELS FOR THIS SITE

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OCTOBER 2019
MONITORING EVENT REPORT

SITE PLAN WITH GROUNDWATER DETECTIONS AND EXCEEDANCES

FIGURE 2

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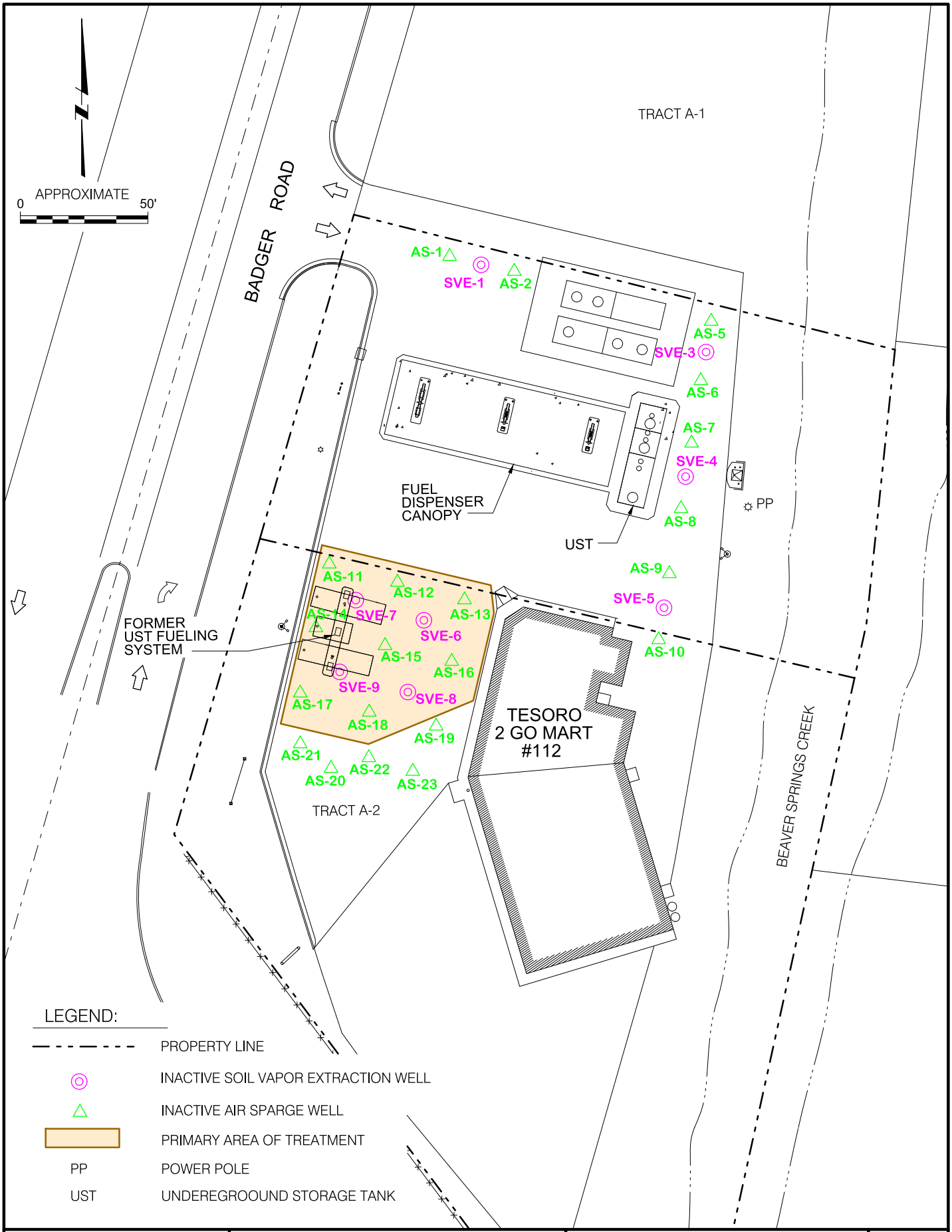

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TESORO 2 GO MART #112
OCTOBER 2019
MONITORING EVENT REPORT

REMEDIATION SYSTEM LAYOUT

FIGURE
3

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APPENDIX A

Site Background

APPENDIX A – SITE BACKGROUND

Tesoro 2 Go Mart #112 (3392 Badger Road, North Pole, Alaska)
ADEC Facility ID #1116; ADEC File #100.26.159

Tesoro 2 Go Mart #112 is a retail fuel service/convenience store located northeast of the Richardson Highway overpass on Badger Road in North Pole, Alaska. The property is approximately 1.9 acres in size and the legal description is Tract A-2, Morningstar Subdivision. The store is in the north end of a small strip mall. Beaver Springs Creek flows to the north immediately behind the strip mall. Three underground storage tanks (USTs) were initially installed to serve the original convenience store in December 1984.

November 1996. During field installation of a cathodic protection system on the USTs, a petroleum hydrocarbon release was discovered in several subsurface boreholes drilled around the perimeter of the USTs.

May 1997. Gilfilian Engineering and Environmental Testing, Inc. (GE^2T) completed a Phase 1 Release Investigation (RI) at the site and installed four groundwater monitoring wells. In addition, representative water samples were collected from the mall drinking water system (served by an on-site water well) and from Beaver Springs Creek. Petroleum contaminants were detected above Alaska Department of Environmental Conservation (ADEC) cleanup levels in samples collected from all four soil borings/monitoring wells. Petroleum contaminants were detected at very low concentrations in the creek water samples, and none in the drinking water sample.

September 1997. Free phase petroleum was discovered in two of the four groundwater monitoring wells at the site, and dissolved petroleum contaminants was detected above ADEC groundwater cleanup levels (GCLs) in the other two monitoring wells.

March 1998. A well search was conducted within a ¼-mile radius of the site. The findings of the well search noted there were approximately 24 domestic water supply wells within the search radius.

August/September 1998. GE^2T conducted a UST Closure Site Assessment (SA) at the site. Three USTs and associated piping and dispensers were removed from the site and a new UST system was installed on an adjacent downgradient lot (to the north) of the site on Tract A-1 Morning Star Subdivision. Petroleum hydrocarbon contamination was found in the monitoring wells constructed in the area of the former and new UST systems. Seven soil vapor extraction (SVE) wells and sixteen air sparge (AS) wells systems were installed at the site for remediation of contamination found in the vadose soil zone and groundwater table beneath the site. Additional AS and SVE wells were installed at a later date

September 1999. An SA was completed for the removal of the new UST that were installed in September 1998 and replace with a new UST. Soil contamination was discovered in the area of

the replacement UST system. Contaminated soil was removed and transported off-site for thermal treatment.

June 2000. GE^{2}T conducted a RI for installation of an additional monitoring well (MW-6) at the site. No contaminants were detected in soil samples from the boring.

March 2001. A Falco 300 Cat-Ox unit was installed as part of the remediation system to treat vapors captured in the SVE system.

September/October 2003. MWH Americas, Inc. (MWH) completed a RI that included the installation of additional AS and groundwater monitoring wells. The RI involved drilling five soil borings, of which four were completed as AS wells (AS-20, AS-21, AS-22, and AS-23) and one monitoring well (MW-7). Contaminants were detected in soil from borings MW-7, AS-20, and AS-21 and the water sample from MW-7.

March 2004. MWH completed a RI that involved the drilling two soil borings. These borings were completed as 2-inch diameter monitoring wells (MW-8 and MW-9). Laboratory results indicate that no contaminants were detected in the soil or groundwater samples collected.

September 2004. MWH completed a RI that involved the drilling of one soil boring. The boring that was completed as 2-inch diameter monitoring well (MW-10). Laboratory results indicate that no contaminants were detected in the soil samples collected. Benzene was detected above the GCL water sample collected from MW-10.

May 2005. Benzene, toluene, ethylbenzene, GRO, and DRO were detected above the ADEC GCLs in Monitoring Well MW-3. Benzene, GRO, and DRO were also detected above the GCLs in Monitoring Well MW-2. No analytes of concern were detected above the GCLs in any of the other tested wells. The AS and SVE systems remained in operation.

September 2005. Benzene, GRO, and DRO were detected above the ADEC GCLs in Monitoring Wells MW-2 and MW-3. Toluene was also detected above the GCL in Monitoring Well MW-3. No analytes of concern were detected above the GCLs in Monitoring Well MW-10. The AS and SVE systems remained in operation. The SVE exhaust vapor concentrations had decreased to a relatively low level that no longer necessitated the use of the catalytic oxidizer unit. Therefore, the catalytic oxidizer was disconnected from the SVE system in summer 2005.

May 2006. Benzene, toluene, ethylbenzene, xylenes, GRO, and DRO were detected above the ADEC GCLs in Monitoring Well MW-3. GRO and DRO were also detected above the GCLs in Monitoring Well MW-2. No analytes of concern were detected above the GCLs in Monitoring Wells MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, and MW-10. The AS and SVE system were shut down until system maintenance could be performed.

November 2006. Benzene, toluene, ethylbenzene, and gasoline range organics were detected above the ADEC GCLs in Monitoring Wells MW-2 and MW-3. Xylenes and diesel range organics

were also detected above the GCLs in Monitoring Well MW-3. No analytes of concern were detected above the GCLs in Monitoring Well MW-10. AS and SVE system were brought back online after system repair was performed.

May 2007. GRO and DRO were detected above the ADEC GCLs in Monitoring Wells MW-2 and MW-3. Benzene, toluene, ethylbenzene, and xylenes were detected above the practical quantitation limits (PQLs) in Monitoring Wells MW-2 and MW-3, but only benzene was above the GCL. DRO was detected above the PQL, but below the GCL, in Monitoring Wells MW-4 and MW-5. No analytes of concern were detected above the PQLs in Monitoring Wells MW-1, MW-6, MW-8, MW-9, and MW-10. AS and SVE system remain in operation.

April 2008. DRO was detected above the ADEC GCLs in Monitoring Wells MW-2, MW-3, and MW-4. GRO were detected above the ADEC GCLs in Monitoring Wells MW-3 and MW-4. Benzene was also detected above the GCLs in Monitoring Well MW-3. DRO in Monitoring Well MW-1; ethylbenzene, xylenes, and GRO in MW-2; toluene, ethylbenzene, and xylenes in Monitoring Well MW-3; and benzene, toluene, ethylbenzene, and xylenes in Monitoring Well MW-4 were detected above the PQLs, but below the GCLs. No analytes were detected above the PQLs in Monitoring Wells MW-5 through MW-10. AS and SVE system remain in operation.

October 2008. DRO were detected above the ADEC GCL in Monitoring Well MW-3. GRO were detected above the GCL in Monitoring Wells MW-2 and MW-3. All other analytes were detected above the PQLs, but below the GCLs, in Monitoring Wells MW-2 and MW-3. No analytes were detected above the PQLs in Monitoring Well MW-10. AS and SVE system remain in operation.

May 2009. Diesel range organics were detected above the ADEC GCLs in Monitoring Wells MW-1, MW-2, and MW-3. GRO were detected above the GCL in Monitoring Wells MW-2 and MW-3. Benzene was detected above the GCL in Monitoring Well MW-3. All other analytes were detected above the PQLs, but below the GCLs, in Monitoring Wells MW-2 and MW-3. Toluene in Monitoring Wells MW-1 through MW-4, and MW-8; ethylbenzene in Monitoring Wells MW-1 through MW-3, MW-7, and MW-8; xylenes in Monitoring Wells MW-1 through MW-4 and MW-7 through MW-9; and GRO in Monitoring Well MW-7 were detected above PQLs but below GCLs. All other analytes in the above wells sampled were not detected above the PQLs. No analytes were detected above the PQLs in Monitoring Wells MW-5, MW-6, and MW-10. AS and SVE system remain in operation.

October 2009. All analytes tested were detected above the ADEC GCLs in Monitoring Well MW-3. Ethylbenzene and gasoline range organics were detected above the GCLs in Monitoring Well MW-2. Benzene, toluene, xylenes, and diesel range organics were detected above the practical quantitation limits, but below the GCLs, in Monitoring Well MW-2. No analytes of concern were detected above the practical quantitation limits in Monitoring Well MW-10. AS and SVE system remain in operation.

June 2010. Benzene, GRO, and DRO were detected above the ADEC groundwater cleanup levels GCLs in Monitoring Well MW-3. Toluene, ethylbenzene, and xylenes were detected above the

PQLs, but below the GCLs, in Monitoring Well MW-3. Benzene, toluene, ethylbenzene, xylenes, and GRO were detected above the PQLs, but below the GCLs, in Monitoring Wells MW-1 and MW-2. DRO was also detected above the PQL, but below the GCL, in Monitoring Well MW-2. No analytes of concern were detected above the PQLs in Monitoring Wells MW-4, MW-6, or MW-10. AS and SVE system remain in operation. Measurements of the SVE exhaust with a PID indicated low amounts of volatile petroleum hydrocarbons are being removed from the vadose soil zone.

October 2010. Benzene, toluene, ethylbenzene, xylenes, GRO, and DRO were detected above the ADEC GCLs in Monitoring Well MW-3. GRO was detected above the GCL in Monitoring Well MW-2. Benzene, toluene, ethylbenzene, xylenes, and DRO were detected above the PQLs, but below the GCLs, in Monitoring Well MW-2. No analytes of concern were detected above the PQLs in Monitoring Well MW-10. AS and SVE system remain in operation.

May 2011. Benzene, toluene, ethylbenzene, xylenes, GRO, and DRO were detected above the ADEC GCLs in Monitoring Well MW-3. GRO and DRO were detected above the GCL in Monitoring Well MW-2. Benzene, toluene, ethylbenzene, and xylenes were detected above the PQLs, but below the GCLs, in Monitoring Well MW-2. Toluene, ethylbenzene, xylenes, GRO, and DRO were also detected above the PQLs, but below the GCLs, in Monitoring Well MW-1. Benzene was not detected above the PQL in Monitoring Well MW-1. No analytes of concern were detected above the PQLs in Monitoring Wells M-4, MW-6, and MW-10. AS and SVE system remain in operation.

October 2011. Benzene, toluene, ethylbenzene, xylenes, GRO, and DRO were detected above the ADEC GCLs in Monitoring Well MW-3. GRO was detected above the GCL in Monitoring Well MW-2. Ethylbenzene, xylenes, and DRO were detected above the PQLs, but below the GCLs, in Monitoring Well MW-2. Benzene and toluene were not detected above the PQLs in MW-2; however, the PQL for benzene is above the GCL and the result might exceed the GCL. No analytes of concern were detected above the PQLs in Monitoring Wells MW-6 and MW-10. The AS and SVE systems remain in operation on a full-time basis.

May 2012. Benzene, toluene, ethylbenzene, xylenes, GRO, and DRO were detected above GCLs in Monitoring Well MW-3. Benzene and GRO were detected above GCLs in Monitoring Well MW-2. Benzene, toluene, ethylbenzene, xylenes, and GRO were detected above PQLs and below GCLs in Monitoring Well MW-1. Toluene, ethylbenzene, and xylenes were detected above PQLs and below GCLs in Monitoring Well MW-2. No other analytes were detected above the PQLs in any of the samples collected during this monitoring event. The AS and SVE systems remained in operation on a full-time basis.

October 2012. Benzene and GRO were detected above GCLs in Monitoring Well MW-3. Benzene, toluene, ethylbenzene, xylenes, GRO, and DRO were detected above PQLs and below GCLs in Monitoring Well MW-2. Toluene, ethylbenzene, xylenes, and DRO were detected above PQLs and below GCLs in Monitoring Well MW-3. The AS and SVE systems were taken offline pending repairs and improvements. A total of 130 gallons of Klozur CR® was applied at the site

over two events. Approximately 10 gallons of Klozur CR was poured into SVE-7, and approximately 55 gallons into SVE-9 on August 29, 2012. Additionally, 65 gallons of Klozur CR were injected into Well SVE-9 on October 9, 2012.

May 2013. Benzene, toluene, ethylbenzene, xylenes, GRO, and DRO were detected above GCLs in Monitoring Well MW-3. Benzene, ethylbenzene, xylenes, GRO, and DRO were detected above PQLs but below GCLs in Monitoring Well MW-1. Benzene, toluene, ethylbenzene, xylenes, and GRO were detected above PQLs but below GCLs in Monitoring Well MW-2. The AS and SVE systems remain offline pending repairs and improvements.

September 2013. Benzene, toluene, ethylbenzene, xylenes, GRO, and DRO were detected above GCLs in Monitoring Well MW-3. GRO was detected above GCL in Monitoring Well MW-2. Benzene, toluene, ethylbenzene, xylenes, and DRO were detected above PQLs but below GCLs in Monitoring Well MW-2. The AS and SVE systems remain offline pending repairs and improvements.

May 2014. Benzene, GRO, and DRO were detected above GCLs in Monitoring Well MW-3. Ethylbenzene, xylenes, and DRO were detected above PQL and below GCLs in Monitoring Well MW-1. Benzene, ethylbenzene, xylenes, GRO, and DRO were detected above PQLs but below GCLs in Monitoring Well MW-2. Toluene, ethylbenzene, and xylenes were detected above PQLs and below GCLs in Monitoring Well MW-3. Xylenes were detected above PQLs but below GCLs in Monitoring Well MW-10. The AS and SVE systems remain offline pending repairs and improvements.

September 2014. Benzene, toluene, ethylbenzene, xylenes, GRO, and DRO were detected above GCLs in Monitoring Well MW-3. Benzene, toluene, ethylbenzene, xylenes, and GRO were detected above PQLs and below GCLs in Monitoring Well MW-2. The AS and SVE systems remain offline pending repairs and improvements.

May 2015. Benzene, toluene, ethylbenzene, xylenes, GRO, and DRO were detected above GCLs in Monitoring Well MW-3. DRO was detected above GCL in Monitoring Wells MW-1 and MW-2. Toluene, ethylbenzene, xylenes, and GRO were detected above PQLs but below GCLs in Monitoring Well MW-1. Benzene, ethylbenzene, xylenes, and GRO were detected above PQLs but below GCLs in Monitoring Well MW-2. DRO was detected above PQL but below GCL in Monitoring Well MW-4. The AS and SVE systems remain offline pending repairs and improvements.

October 2015. Benzene and GRO were detected above GCLs in Monitoring Well MW-2. Benzene, toluene, ethylbenzene, total xylenes, GRO, and DRO were detected above GCLs in Monitoring Well MW-3. One or more analytes were detected above the PQLs, but below the GCLs, in Monitoring Wells MW-2 (all analytes), MW-6 (DRO), and MW-10 (DRO). The AS and SVE systems remain offline pending repairs and improvements. Chemical oxidation of the groundwater at the site was conducted on October 6, 2015, with the injection of Klozur CR® into

Injection Well SVE-6 and well clusters SVE-7 and SVE-9 located at the footprint of the former underground storage tanks (USTs – Figure 3). Follow-up intrinsic measurements indicated negligible influence of the injection on groundwater at Monitoring Well MW-3.

May 2017. Results of analytical sampling showed concentrations exceeding the GCLs for:

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

One or more analytes were detected above the PQLs, but below the GCLs, in Monitoring Wells MW-1, MW-2, MW-3, MW-4, and MW-10.

September 2017: Results of the semi-annual groundwater monitoring event conducted in September 2017 showed concentrations exceeding the GCLs for ethylbenzene in Monitoring Well MW-2; and benzene, ethylbenzene, xylenes, GRO, and DRO in MW-3. Monitoring Wells MW-6 and MW-10 were found to be absent of contaminants of concern. These findings are similar to results found in previous monitoring events

June 2018. Results of analytical sampling showed concentrations exceeding the GCLs for:

- Monitoring Well MW-1: 1,2,4-trimethylbenzene.
- Monitoring Well MW-2: ethylbenzene, 1,2,4-trimethylbenzene, benzopyrene, and indenopyrene.
- Monitoring Well MW-3: benzene, ethylbenzene, xylenes, GRO, DRO, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and naphthalene.
- Monitoring Well MW 17-5: benzene, ethylbenzene, xylenes, and 1,2,4-trimethylbenzene.

One or more analytes were detected above the PQLs, but below the GCLs, in Monitoring Wells MW-1, MW-2, MW-3, MW-4, and MW-17-5.

October 2018. The following summarizes results exceeding the GCLs for the October 2018 semi-annual groundwater monitoring event:

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

One or more analytes were detected above the PQLs, but below the GCLs, in Monitoring Wells MW-2, MW-3, MW-6, and MW-17-5.

In addition, several volatile organic compounds (VOCs) were reported by the laboratory as undetected but had laboratory reporting limits that equaled or exceeded their corresponding GCLs.

The chemical oxidation (chemox) treatment process was delayed until the third quarter of 2018 due to replacement of the chemical oxidant. In September 2018, Stantec completed an injection of the replacement chemox product, Klozur One®, into the four remediation wells. Klozur One® is a granular product manufactured by PeroxyChem that consists primarily of sodium persulfate and patented activator reagents. A total of 220 pounds of Klozur One® product was mixed with clean water and then manually injected as a solution into the contaminated source area via Remediation Wells RM17-1, RM17-3, RM17-4, and RM17-6. Each of the four remediation wells received 55 pounds of Klozur One® that was prepared as a solution with 50 gallons of clean water. Following the injection of the chemox solution, a combined total of 550 gallons of clean water was injected in all the wells. It was noted that each of the remediation wells had different acceptance rates for delivery of the clean water that ranged from 55 to 210 gallons each.

May 2019. This May 2019 semi-annual groundwater monitoring event included measuring the depth to groundwater, measuring water quality parameters, and collecting and analyzing groundwater samples from Monitoring Wells MW-1, MW-2, MW-3, MW-4, MW-6, MW-10, MW 17-2, and MW 17-5. The methods that were used for this monitoring event were conducted in accordance with the Alaska Department of Environmental Conservation (ADEC) approved 2019 Corrective Action Work Plan for this site.

Results from the groundwater depth measurements indicate the average hydraulic gradient was approximately 0.003 feet per foot with flow tending toward the northeast at 55 degrees. The flow direction and gradient for this monitoring event were consistent with the historical values for this site.

Results of the analytical sampling showed concentrations exceeding the ADEC groundwater cleanup levels (GCLs) for the following monitoring wells:

- Monitoring Well MW-2: ethylbenzene.
- Monitoring Well MW-3: benzene, ethylbenzene, xylenes, gasoline range organics (GRO), and naphthalene.
- Monitoring Well MW 17-5: ethylbenzene.

October 2019. This October 2019 semi-annual groundwater monitoring event included measuring the depth to groundwater, measuring water quality parameters, and collecting and analyzing groundwater samples from Monitoring Wells MW-2, MW-3, MW-6, MW-10, MW 17-2, and MW 17-5. The methods that were used for this monitoring event were conducted in accordance with the ADEC approved 2019 Corrective Action Work Plan for this site.

Results from the groundwater depth measurements indicate the average hydraulic gradient was approximately 0.005 feet per foot with flow tending toward the northeast at 64 degrees. The flow direction and gradient for this monitoring event were consistent with the historical values for this site.

Results of the analytical sampling showed concentrations exceeding the ADEC GCLs for the following monitoring wells:

- Monitoring Well MW-2: ethylbenzene.
- Monitoring Well MW-3: benzene, ethylbenzene, xylenes, GRO, and DRO.
- Monitoring Well MW 17-2: ethylbenzene, xylenes, and GRO.
- Monitoring Well MW 17-5: benzene, ethylbenzene, xylenes, and GRO.

In addition, Stantec completed an injection of 220 pounds of the chemox product, Klozur One®, into the four remediation wells (RW17-1, RW17-3, RW17-4, and RW17-6).

APPENDIX B

Field Methods and Procedures

APPENDIX B – FIELD METHODS AND PROCEDURES

Tesoro 2 Go Mart #112 (3392 Badger Road, North Pole, Alaska)
Tract A-2, Morningstar Subdivision

The following table presents the proposed tasks for the Alaska Department of Environmental Conservation (ADEC)-approved 2018 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 Tesoro 2 Go Mart #112 (ADEC Facility ID #1116; ADEC File #100.26.159).

2018 Work Plan Schedule

Work Plan Task		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Task 1	Monitoring Wells: MW-2, MW-3, MW-6, MW-10, and Chem-Ox Injection Wells17-2 and 17-5.		D, G, V, P, I		B, D, G, I
	Monitoring Wells MW-1 and MW-4		D, G, V, P, I		
Task 2	Chemical Oxidation Treatment	✓	✓	✓	✓
Task 3	Repair Interior of Remediation Shed		✓		

Key:

AK – Alaska Test Method
B – Benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8021B.
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.
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.

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 each monitoring event, unless otherwise noted in the monitoring report, 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 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.

APPENDIX C

Field Measurements, Notes, and Hydraulic Gradient Plot

Appendix C
Field Measurements and Notes

Project: TNS #112 **Date:** 10/22/2019

Project number: 185751229 **Samplers:** J. Marshall/ B. Gilfilian

Weather: 30°F, calm, cloudy

Well ID	Volume Purged (gallons)	Sheen/ Odor	Temp. (°C)	pH	Dissolved Oxygen (mg/l)	ORP (mV)	Specific Conductance (µs/cm)	Top of Casing* (feet)	Depth to Groundwater (feet btoc)	Water Column (feet)	Groundwater Elevation (feet)	Depth to Bottom (feet btoc)
MW-1	Not sampled this event							398.39	NM	NC	NC	NM
MW-2	4.3	N/N	6.4	5.76	0.09	79.7	546	398.76	9.32	2.18	389.44	11.5
MW-3	10.0	Y/Y	6.2	6.02	0.45	74.7	564	398.80	9.38	5.12	389.42	14.5
MW-4	Not sampled this event							398.37	NM	NC	NC	NM
MW-6	2.20	N/N	5.6	5.25	0.55	67.3	346	401.37	12.65	4.50	388.72	17.15
MW-10	3.06	N/N	5.5	5.83	0.54	16.3	256	401.52	13.15	6.25	388.37	19.4
MW17-2	2.80	NM	6.2	5.58	0.13	104.0	534	NM	8.78	6.02	NC	14.80
MW17-5	2.10	N/Y	6.1	5.94	0.33	87.1	417	NM	9.13	4.12	NC	13.25

NC - Not Calculated

NM - Not Measured

NP - Not Purged

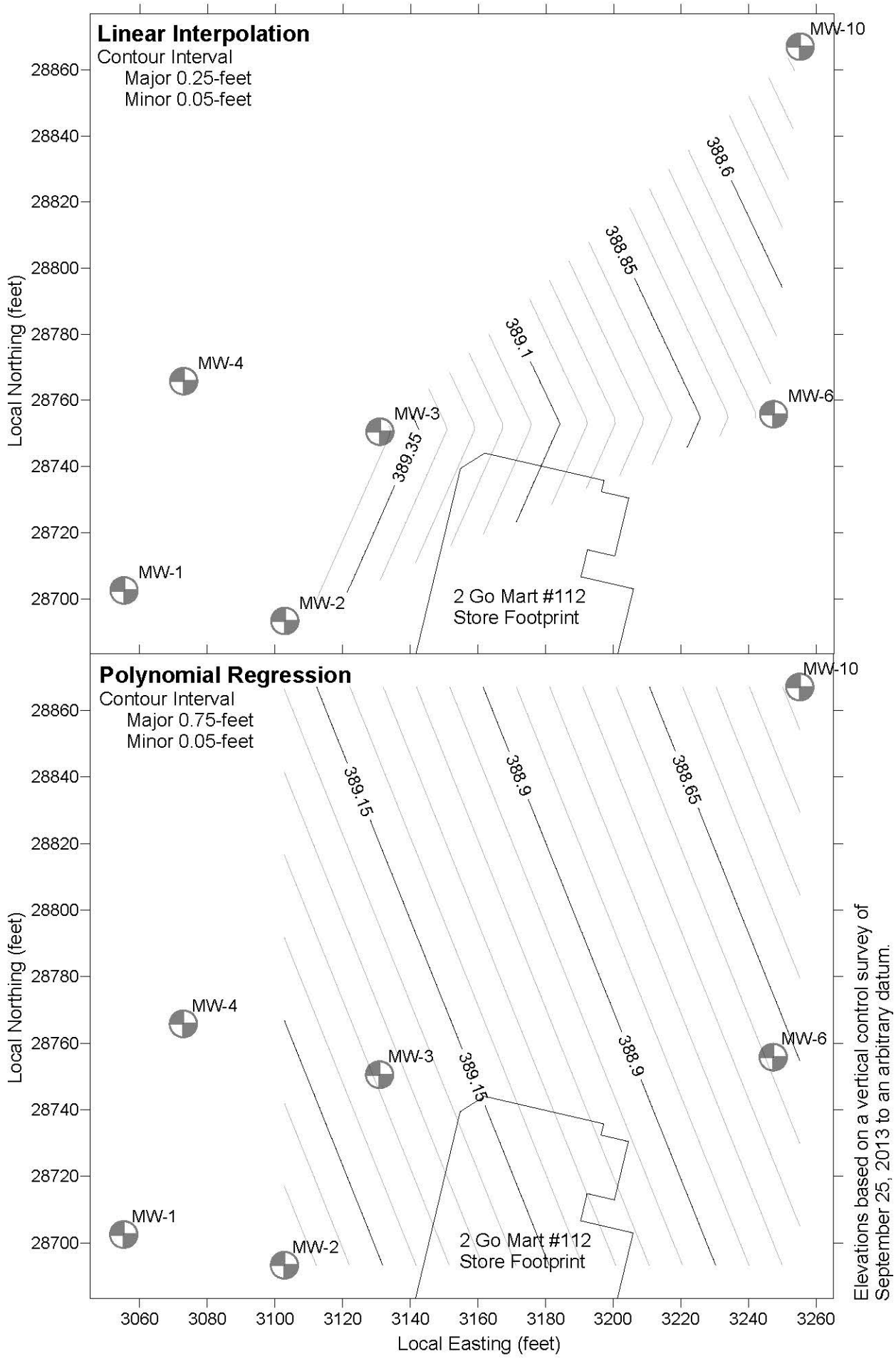
* Based on a vertical control survey of September 5, 2017, using an arbitrary datum.

Well ID	Notes	Well Dia.	Sample Time
MW-1	Not sampled this event	4"	--
MW-2	Transparent/Light grey	4"	1555
MW-3	Transparent/Dark grey	4"	1655
MW-4	Not sampled this event	4"	--
MW-6	Transparent/Light grey	2"	1405
MW-10	Transparent/Light grey	2"	1335
TNS 112 Dup	Duplicate of MW-3	--	1657
MW17-2	Transparent/Light grey	2"	1818
MW17-5	Clear	2"	1750

Instruments / methods used		Model
Static water level	Heron	H01L
pH	YSI	556
Conductivity	YSI	556
Dissolved Oxygen	YSI	556
Temperature	YSI	556
ORP	YSI	556

Lab Analytical Methods:	
VOCs (8260)	ALL
GRO (AK101)	ALL
DRO (AK102)	ALL
PAHs (8270SIM)	None

Tesoro 2 Go Mart #112 - October 22, 2019
Groundwater Elevation Contours



APPENDIX D

Tables of Historical Groundwater Monitoring Data

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-1

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
30-May-97	**0.310**	**9.00**	**2.30**	**10.0**	**42.0**	**8.5**	88.88
11-Sep-97	**0.571**	**12.60**	**2.00**	**9.37**	**55.0**	**6.05**	89.26
12-Mar-98	**0.220**	**4.90**	**1.30**	**6.0**	**37**	**5.1**	88.92
21-Jul-98	**0.143**	**4.29**	**0.84**	**3.92**	**22**	**7.59**	89.51
12-Oct-98	**0.277**	**4.36**	**0.458**	**1.929**	**16**	**5.98**	87.78
21-Jan-99	**0.036**	**1.08**	**0.24**	**1.208**	**6.8**	**2.46**	88.80
31-Mar-99	**0.015**	0.297	**0.151**	**0.703**	**3.3**	0.686	88.28
28-Jul-99	**0.087**	**10.80**	**1.96**	**9.38**	**46**	**3.89**	89.14
15-Oct-99	**0.174**	**2.97**	**0.503**	**2.334**	**15**	**3.74**	88.91
10-Mar-00	**0.0216**	0.718	**0.161**	**0.783**	**4.7**	0.81	88.52
21-Jun-00	**0.0220**	0.931	**0.284**	**1.321**	**7.6**	1.03	89.32
21-Sep-00	**0.0329**	0.471	**0.160**	**0.736**	**5.0**	**1.61**	89.26
25-Jan-01	**0.0170**	0.322	**0.110**	**0.523**	**3.69**	0.644	88.90
19-Apr-01	**0.0123**	0.097	**0.046**	**0.221**	**1.48**	0.920	88.87
24-Jul-01	**0.0119**	0.209	**0.104**	**0.409**	**2.07**	0.628	89.25
28-Jan-02	**0.1200**	**2.070**	**0.604**	**2.841**	**10.8**	0.778	89.16
30-Apr-02	**5.020**	**9.480**	**0.284**	**3.470**	**32.2**	**2.1**	89.65
30-Sep-02	**0.659**	0.209	**0.0551**	**0.736**	**3.87**	1.11	89.72
12-May-03	**0.538**	**3.14**	**0.814**	**20.42**	**44.5**	**4.84**	89.70
09-Oct-03	0.00437	0.00571	0.00189	0.0998	0.697	U (0.32)	389.08
16-Mar-04	NT	NT	NT	NT	NT	NT	NM
21-Apr-04	U (0.0005)	0.000709	U (0.0005)	0.00984	U (0.05)	U (0.5)	388.75
17-Sep-04	NT	NT	NT	NT	NT	NT	NM
21-Oct-04	**0.00544**	0.00284	0.00585	**1.46**	**3.52**	**2.41**	388.32
19-May-05	0.000943	0.00248	0.00272	0.0211	0.0709	0.48	389.26
26-Sep-05	NT	NT	NT	NT	NT	NT	NM
15-May-06	NT	NT	NT	NT	NT	NT	NM
07-Nov-06	NT	NT	NT	NT	NT	NT	NM
15-May-07	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.413)	388.45
16-Oct-07	NT	NT	NT	NT	NT	NT	NM
29-Apr-08	U (0.0005)	0.00088	U (0.0005)	U (0.0015)	U (0.05)	0.862	388.52
01-Oct-08	NT	NT	NT	NT	NT	NT	389.28
12-May-09	U (0.0005)	0.00427	0.00077	0.00586	U (0.05)	**1.77**	389.20
26-Oct-09	NT	NT	NT	NT	NT	NT	NM
15-Jun-10	0.00134	0.0297	**0.0357**	**0.249**	0.849	U (0.420)	389.00
14-Oct-10	NT	NT	NT	NT	NT	NT	NM
24-May-11	U (0.0005)	0.00056	0.00479	0.0377	0.0857	0.652	389.11
26-Oct-11	NT	NT	NT	NT	NT	NT	NM
22-May-12	0.000701	0.00284	**0.0765**	**0.407**	1.41	U (0.410)	388.89
11-Oct-12	NT	NT	NT	NT	NT	NT	NM
21-May-13	0.000845	U (0.0005)	**0.125**	**0.455**	1.21	0.587	389.20
25-Sep-13	NT	NT	NT	NT	NT	NT	389.30
06-May-14	U (0.0005)	U (0.0005)	0.0021	0.011	U (0.05)	0.64	389.34
17-Sep-14	NT	NT	NT	NT	NT	NT	NM
26-May-15	U (0.001)	0.0044	0.0045	0.031	0.21	**2.3**	389.72
06-Oct-15	NT	NT	NT	NT	NT	NT	NM
11-May-16	0.00055	0.0026	0.0053	0.029	U (0.1)	U (0.40)	389.18
05-Oct-16	NT	NT	NT	NT	NT	NT	NM
08-May-17	U (0.002)	U (0.002)	**0.034**	**0.285**	U (10)	**1.5**	389.46
05-Sep-17	NT	NT	NT	NT	NT	NT	NM
14-Jun-18	U (0.003)	0.0021	0.0086	0.071	0.028	0.43	389.56
30-Oct-18	NT	NT	NT	NT	NT	NT	NM
09-May-19	U (0.003)	U (0.002)	U (0.003)	0.0034	U (0.25)	0.42	388.94
22-Oct-19	NT	NT	NT	NT	NT	NT	NM
GCLs	**0.0046**	**1.1**	**0.015**	**0.19**	**2.2**	**1.5**	NA

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-2

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
30-May-97	**92**	**64**	**7.1**	**33**	**170**	**8.2**	88.86
11-Sep-97	NT	NT	NT	NT	NT	NT	89.26
12-Mar-98	**2.8**	**44**	**13**	**62**	**420**	**21**	88.90
21-Jul-98	NT	NT	NT	NT	NT	NT	89.51
12-Oct-98	NT	NT	NT	NT	NT	NT	89.11
21-Jan-99	NT	NT	NT	NT	NT	NT	NM
31-Mar-99	NT	NT	NT	NT	NT	NT	89.60
28-Jul-99	NT	NT	NT	NT	NT	NT	89.59
15-Oct-99	NT	NT	NT	NT	NT	NT	89.26
10-Mar-00	NT	NT	NT	NT	NT	NT	89.46
21-Jun-00	NT	NT	NT	NT	NT	NT	NM
21-Sep-00	NT	NT	NT	NT	NT	NT	89.32
25-Jan-01	NT	NT	NT	NT	NT	NT	88.92
19-Apr-01	**2.93**	**52.9**	**9.9**	**44.5**	**216**	**27.4**	88.85
24-Jul-01	**1.95**	**30.5**	**5.3**	**33.9**	**136**	**18.5**	89.24
28-Jan-02	**1.23**	**33.4**	**7.38**	**39.8**	**156**	**10.5**	89.14
30-Apr-02	**0.116**	**10.2**	**2.60**	**17.43**	**51.4**	**6.9**	89.66
30-Sep-02	**0.656**	**17.9**	**2.92**	**26.61**	**118**	**6.93**	89.29
12-May-03	**0.569**	**19.7**	**4.15**	**25.43**	**90.8**	**5.68**	89.74
09-Oct-03	**0.25**	**6.21**	**2.88**	**14.2**	**64.9**	U (0.32)	389.00
16-Mar-04	NT	NT	NT	NT	NT	NT	NM
21-Apr-04	U (0.005)	0.116	**0.114**	**1.21**	**5.42**	**7**	388.73
17-Sep-04	NT	NT	NT	NT	NT	NT	NM
21-Oct-04	**0.00518**	0.0824	**0.109**	**0.699**	**3.2**	**1.74**	388.03
19-May-05	**0.00681**	0.513	**0.376**	**1.61**	**7.88**	**5.49**	389.21
26-Sep-05	**0.0125**	0.58	**0.422**	**1.78**	**9.6**	**3.15**	388.93
15-May-06	0.00058	0.0273	**0.0533**	**0.223**	**1.5**	**1.87**	388.80
07-Nov-06	**0.0102**	**1.11**	**0.906**	**3.24**	**17**	1.35	388.64
15-May-07	0.00279	0.0199	**0.0356**	0.173	**1.99**	**1.9**	388.15
16-Oct-07	0.0032	0.173	**0.412**	1.03	**7.61**	**1.55**	388.15
29-Apr-08	U (0.0005)	U (0.0005)	0.0043	0.0131	0.453	**2.09**	388.82
01-Oct-08	0.00114	0.0194	**0.228**	**0.739**	**3.12**	1.38	389.24
12-May-09	0.00385	0.0114	**0.308**	**0.537**	**4.0**	**8.79**	389.14
26-Oct-09	0.00138	0.0108	**0.717**	**1.48**	**4.25**	0.738	388.76
15-Jun-10	0.00143	0.00135	**0.0205**	0.0729	1.32	0.510	388.99
14-Oct-10	0.00192	0.0136	**0.127**	**0.700**	**4.45**	1.49	388.66
24-May-11	0.00232	0.0313	**0.798**	**1.320**	**6.24**	**3.04**	388.96
26-Oct-11	U (0.010)	U (0.010)	**0.345**	**1.110**	**6.53**	0.744	388.59
22-May-12	**0.00566**	0.00275	**0.179**	**0.503**	**5.17**	NR	388.88
24-Jul-12	NT	NT	NT	NT	NT	U (0.410)	NM
11-Oct-12	0.000750	0.0197	0.00707	0.0614	0.687	0.655	389.13
21-May-13	0.001730	0.000638	**0.0190**	0.0325	0.388	U (0.397)	389.20
25-Sep-13	0.001300	0.00104	**0.269**	**0.481**	**2.61**	0.573	389.27
06-May-14	0.003800	U (0.0005)	**0.150**	**0.210**	1.80	0.670	389.28
17-Sep-14	0.000720	0.00068	**0.096**	0.150	1.30	U (0.38)	388.88
26-May-15	0.0018	U (0.003)	**0.092**	**0.21**	1.6	**2.5**	389.53
06-Oct-15	**0.036**	0.0039	**0.290**	**0.640**	**4.7**	0.76	389.86
11-May-16	0.0023	U (0.001)	**0.10**	0.14	1.2	0.73	389.13
05-Oct-16	U (0.020)	U (0.020)	**0.15**	**0.22**	1.7	1.4	389.51
08-May-17	U (0.002)	U (0.002)	**0.23**	**0.639**	**2.8**	0.68	389.42
05-Sep-17	0.0014	U (0.001)	**0.041**	0.081	1.000	0.9	389.34
14-Jun-18	U (0.003)	U (0.002)	**0.077**	0.1128	1.1	0.3	389.52
30-Oct-18	U (0.003)	U (0.002)	**0.042**	0.062	0.69	**2.4**	389.22
09-May-19	U (0.003)	U (0.002)	**0.023**	0.051	0.41	0.26	388.88
22-Oct-19	U (0.003)	U (0.002)	**0.017**	0.029	0.36	0.72	389.44
GCLs	**0.0046**	**1.1**	**0.015**	**0.19**	**2.2**	**1.5**	NA

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-3

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
30-May-97	**23**	**69**	**12**	**54**	**380**	**54**	88.79
11-Sep-97	NT	NT	NT	NT	NT	NT	89.2
12-Mar-98	NT	NT	NT	NT	NT	NT	88.84
21-Jul-98	NT	NT	NT	NT	NT	NT	89.45
12-Oct-98	NT	NT	NT	NT	NT	NT	88.39
21-Jan-99	NT	NT	NT	NT	NT	NT	NM
31-Mar-99	NT	NT	NT	NT	NT	NT	NM
28-Jul-99	NT	NT	NT	NT	NT	NT	88.54
15-Oct-99	NT	NT	NT	NT	NT	NT	88.10
10-Mar-00	NT	NT	NT	NT	NT	NT	88.36
21-Jun-00	NT	NT	NT	NT	NT	NT	NM
21-Sep-00	NT	NT	NT	NT	NT	NT	89.16
25-Jan-01	NT	NT	NT	NT	NT	NT	88.83
19-Apr-01	NT	NT	NT	NT	NT	NT	NM
24-Jul-01	NT	NT	NT	NT	NT	NT	89.18
28-Jan-02	NT	NT	NT	NT	NT	NT	89.09
30-Apr-02	NT	NT	NT	NT	NT	NT	89.61
30-Sep-02	**36.6**	**75.3**	**3.87**	**40.3**	**337**	**7.38**	89.15
12-May-03	**5.41**	**6.45**	**1.44**	**7.86**	**36.6**	**2.37**	89.68
09-Oct-03	**13.6**	**52.3**	**5.31**	**49.9**	**392**	U (0.32)	388.92
16-Mar-04	NT	NT	NT	NT	NT	NT	NM
21-Apr-04	**0.617**	**1.47**	**0.722**	**5.69**	**20.2**	**1.9**	389.34
17-Sep-04	NT	NT	NT	NT	NT	NT	NM
21-Oct-04	**9.38**	**29.5**	**3.68**	**24.3**	**157**	**4.96**	388.26
19-May-05	**0.846**	**5.38**	**1.04**	**8.9**	**37.3**	**2.03**	389.41
26-Sep-05	**0.0496**	**1.27**	**0.261**	**4.24**	**14.6**	**3.15**	389.12
15-May-06	**0.833**	**5.05**	**1.63**	**12.5**	**44.3**	**4.44**	388.90
07-Nov-06	**1.74**	**26.4**	**3.74**	**31.4**	**174**	**4.68**	388.87
15-May-07	**0.0124**	0.136	**0.0942**	**0.948**	**3.93**	**2.49**	388.37
16-Oct-07	**0.126**	**2.3**	**0.272**	**17.5**	**55.3**	**7.82**	387.31
29-Apr-08	**0.0063**	0.143	**0.0197**	**0.321**	**1.44**	**4.71**	388.74
01-Oct-08	0.00305	0.0238	**0.0572**	**0.913**	**2.4**	**3.2**	389.36
12-May-09	**0.056**	0.833	**0.624**	**5.7**	**17.2**	**5.95**	389.26
26-Oct-09	**0.0903**	**2.25**	**0.935**	**13.6**	**51.5**	**3.41**	388.70
15-Jun-10	**0.0428**	0.377	**0.449**	**4.2**	**12.8**	**2.86**	388.90
14-Oct-10	**0.113**	**9.24**	**2.48**	**25.6**	**137**	**7.56**	388.28
24-May-11	**0.205**	**2.53**	**1.31**	**20.9**	**62.4**	**7.72**	388.85
26-Oct-11	**0.104**	**2.09**	**1.39**	**20.7**	**47.0**	**12.0**	388.56
22-May-12	**0.131**	**1.99**	**0.751**	**12.9**	**41.3**	**5.22**	388.82
11-Oct-12	**0.0102**	0.373	**0.271**	**3.83**	**23.2**	1.35	389.05
21-May-13	**1.50**	**11.2**	**2.39**	**15.9**	**70.0**	**20.3**	389.13
25-Sep-13	**0.102**	**4.01**	**1.93**	**23.9**	**47.9**	**7.15**	389.18
06-May-14	**0.037**	0.470	**0.420**	**3.8**	**12.0**	**4.70**	389.10
17-Sep-14	**0.047**	**1.5**	**1.200**	**14.0**	**26.0**	**2.70**	388.75
26-May-15	**0.057**	**2.0**	**1.6**	**13.0**	**79.0**	**4.6**	389.50
06-Oct-15	**0.10**	**2.1**	**1.5**	**16.0**	**57.0**	**2.2**	389.77
11-May-16	0.00093	0.024	**0.034**	**0.34**	1.1	**1.6**	389.07
05-Oct-16	**0.054**	0.61	**0.92**	**7.9**	**21**	**2.5**	389.44
08-May-17	**0.021**	0.32	**0.63**	**6.6**	**19**	**4.4**	389.37
05-Sep-17	**0.040**	0.750	**1.000**	**12.000**	**30.000**	**2.000**	389.25
14-Jun-18	**0.027**	0.67	**1.1**	**11.6**	**U (25)**	**2.8**	389.44
30-Oct-18	**0.036**	0.37	**1.2**	**12**	**39**	**5.7**	389.14
10-May-19	**0.029**	0.200	**0.380**	**4.02**	**10**	0.66	388.84
22-Oct-19	**0.028**	0.150	**0.750**	**5.5**	**17**	**3.7 H**	389.42
GCLs	**0.0046**	**1.1**	**0.015**	**0.19**	**2.2**	**1.5**	NA

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-4

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
30-May-97	**0.85**	0.71	**0.160**	**0.64**	**3.8**	0.55	88.79
11-Sep-97	**8.41**	**14.5**	**1.150**	**5.57**	**64**	**1.71**	89.2
12-Mar-98	**2.30**	**3.3**	**0.420**	**1.80**	**15**	0.68	88.84
21-Jul-98	**3.71**	**3.69**	**0.485**	**2.09**	**21**	0.7	89.41
12-Oct-98	**1.95**	**1.99**	**0.360**	**1.58**	**12**	1.29	88.73
21-Jan-99	**0.94**	0.483	**0.127**	**0.579**	**4.3**	0.7	88.75
31-Mar-99	NT	NT	NT	NT	NT	NT	NM
28-Jul-99	**3.48**	**5.6**	**0.390**	**1.86**	**21**	**2.65**	89.03
15-Oct-99	**3.3**	**5.4**	**0.422**	**1.962**	**26**	**3.84**	88.81
10-Mar-00	**1.88**	**2.52**	**0.466**	**2.03**	**14**	**1.91**	88.45
21-Jun-00	**1.44**	**1.78**	**0.201**	**0.923**	**10**	0.660	89.24
21-Sep-00	U (0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.09)	0.838	89.18
25-Jan-01	**0.5330**	0.602	0.397	**1.464**	**7.27**	**1.71**	88.82
19-Apr-01	U (0.0005)	0.015	0.011	0.066	0.225	U(0.8)	88.78
24-Jul-01	0.001	U (0.002)	U (0.002)	U (0.002)	U (0.09)	0.869	89.17
28-Jan-02	**0.2710**	0.802	**0.631**	**2.646**	**9.580**	0.708	89.06
30-Apr-02	**0.0644**	U (0.002)	**0.509**	0.128	0.623	U (0.495)	89.66
30-Sep-02	**0.0157**	U (0.002)	0.00523	0.0114	0.0943	U (0.5)	89.22
12-May-03	**0.0138**	0.00268	0.00595	0.05252	0.167	U (0.3)	89.69
09-Oct-03	**0.0311**	U (0.0005)	0.00555	0.0657	0.266	**2.95**	388.92
16-Mar-04	NT	NT	NT	NT	NT	NT	NM
21-Apr-04	0.00295	U (0.0005)	0.00506	0.113	0.311	U (0.5)	388.65
17-Sep-04	NT	NT	NT	NT	NT	NT	NM
21-Oct-04	**0.0121**	U (0.0005)	U (0.0005)	0.00791	0.0646	0.455	387.82
19-May-05	0.00295	U (0.0005)	U (0.0005)	0.0167	0.067	U (0.391)	389.16
26-Sep-05	NT	NT	NT	NT	NT	NT	NM
15-May-06	0.000635	U (0.0005)	U (0.0005)	0.00919	0.051	U (0.403)	388.63
07-Nov-06	NT	NT	NT	NT	NT	NT	NM
15-May-07	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	0.782	387.97
16-Oct-07	NT	NT	NT	NT	NT	NT	386.87
29-Apr-08	0.00175	0.00338	0.00097	**1.2**	**1.75**	**3.78**	388.88
01-Oct-08	NT	NT	NT	NT	NT	NT	NM
12-May-09	U (0.0005)	0.00121	U (0.0005)	0.00189	U (0.05)	U (0.427)	388.98
26-Oct-09	NT	NT	NT	NT	NT	NT	NM
15-Jun-10	U (0.0005)	U (0.0005)	U (0.0005)	U (0.00976)	U (0.05)	U (0.410)	388.93
14-Oct-10	NT	NT	NT	NT	NT	NT	NM
24-May-11	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.403)	388.87
26-Oct-11	NT	NT	NT	NT	NT	NT	NM
22-May-12	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.417)	388.82
11-Oct-12	NT	NT	NT	NT	NT	NT	NM
21-May-13	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.403)	389.13
25-Sep-13	NT	NT	NT	NT	NT	NT	389.19
06-May-13	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.41)	389.23
17-Sep-14	NT	NT	NT	NT	NT	NT	NM
26-May-15	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.05)	0.23	389.50
06-Oct-15	NT	NT	NT	NT	NT	NT	NM
11-May-16	U (0.0020)	U (0.001)	U (0.001)	U (0.003)	U (0.1)	U (0.40)	389.09
05-Oct-16	NT	NT	NT	NT	NT	NT	NM
08-May-17	U (0.002)	U (0.002)	U (0.003)	U (0.002)	U (1)	0.14	389.41
05-Sep-17	NT	NT	NT	NT	NT	NT	NM
14-Jun-18	U (0.003)	U (0.002)	U (0.003)	U (0.002)	U (0.000054)	U (0.25)	389.49
30-Oct-18	NT	NT	NT	NT	NT	NT	NM
09-May-19	U (0.003)	U (0.002)	U (0.003)	U (0.003)	U (0.25)	0.51	393.87
22-Oct-19	NT	NT	NT	NT	NT	NT	NM
GCLs	**0.0046**	**1.1**	**0.015**	**0.19**	**2.2**	**1.5**	NA

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-5

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
12-Oct-98	**0.019**	U	U	0.002	0.045	0.110	85.78
21-Jan-99	**0.051**	U	U	U	0.110	0.127	86.04
31-Mar-99	**0.023**	U (0.001)	U (0.001)	0.0013	U (0.09)	U (0.297)	86.56
28-Jul-99	**0.008**	U (0.002)	U (0.002)	U (0.002)	U (0.09)	U (0.300)	88.23
15-Oct-99	**0.040**	U (0.002)	U (0.002)	U (0.002)	0.11	U (0.297)	88.17
10-Mar-00	**0.104**	0.003	U (0.002)	0.005	0.22	U (0.297)	88.17
21-Jun-00	**0.025**	U (0.002)	U (0.002)	U (0.002)	U (0.09)	U (0.297)	88.67
21-Sep-00	**0.025**	U (0.002)	U (0.002)	U (0.002)	U (0.09)	U (0.303)	88.39
25-Jan-01	**0.066**	0.003	0.002	0.007	0.19	U (0.300)	88.15
19-Apr-01	U(0.0005)	0.002	0.003	0.003	U (0.09)	U(0.816)	88.06
24-Jul-01	U(0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.09)	U (0.495)	88.37
28-Jan-02	0.0029	U (0.002)	U (0.002)	0.002	U (0.09)	U (0.521)	88.28
30-Apr-02	U(0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.09)	U (0.500)	88.85
30-Sep-02	U (0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.09)	U (0.5)	88.00
12-May-03	U (0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.09)	U (0.3)	87.94
09-Oct-03	U (0.0005)	U (0.0005)	U (0.0005)	U (0.001)	U (0.08)	U (0.32)	388.19
16-Mar-04	NT	NT	NT	NT	NT	NT	NM
21-Apr-04	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.5)	387.86
17-Sep-04	NT	NT	NT	NT	NT	NT	NM
21-Oct-04	U (0.0002)	U (0.0005)	U (0.0005)	U (0.001)	U (0.05)	U (0.4)	387.72
19-May-05	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.391)	388.12
26-Sep-05	NT	NT	NT	NT	NT	NT	NM
15-May-06	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.391)	387.69
07-Nov-06	NT	NT	NT	NT	NT	NT	NM
15-May-07	U (0.0005)	U (0.0005)	U (0.0005)	0.00154	U (0.05)	0.522	387.46
16-Oct-07	NT	NT	NT	NT	NT	NT	NM
29-Apr-08	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.435)	387.92
01-Oct-08	NT	NT	NT	NT	NT	NT	NM
12-May-09	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.450)	388.21
26-Oct-09	NT	NT	NT	NT	NT	NT	NM
15-Jun-10	NT	NT	NT	NT	NT	NT	NM
14-Oct-10	NT	NT	NT	NT	NT	NT	NM
24-May-11	NT	NT	NT	NT	NT	NT	NM
26-Oct-11	NT	NT	NT	NT	NT	NT	NM
22-May-12	NT	NT	NT	NT	NT	NT	NM
11-Oct-12	NT	NT	NT	NT	NT	NT	NM
21-May-13	NT	NT	NT	NT	NT	NT	NM
25-Sep-13	NT	NT	NT	NT	NT	NT	NM
06-May-14	NT	NT	NT	NT	NT	NT	NM
17-Sep-14	NT	NT	NT	NT	NT	NT	NM
26-May-15	NT	NT	NT	NT	NT	NT	NM
06-Oct-15	NT	NT	NT	NT	NT	NT	NM
11-May-16	NT	NT	NT	NT	NT	NT	NM
05-Oct-16	NT	NT	NT	NT	NT	NT	NM
08-May-17	NT	NT	NT	NT	NT	NT	NM
05-Sep-17	NT	NT	NT	NT	NT	NT	NM
14-Jun-18	NT	NT	NT	NT	NT	NT	NM
30-Oct-18	NT	NT	NT	NT	NT	NT	NM
09-May-19	NT	NT	NT	NT	NT	NT	NM
22-Oct-19	NT	NT	NT	NT	NT	NT	NM
GCLs	**0.0046**	**1.1**	**0.015**	**0.19**	**2.2**	**1.5**	NA

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-6

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
21-Jun-00	0.0012	U (0.002)	U (0.002)	U (0.002)	U (0.09)	U (0.3)	88.51
21-Sep-00	U (0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.09)	U (0.297)	88.47
25-Jan-01	0.00051	0.0026	U (0.002)	0.003	U (0.09)	U (0.3)	88.22
19-Apr-01	U (0.0005)	U (0.002)	U (0.002)	0.003	U (0.09)	U(0.808)	88.17
24-Jul-01	U (0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.09)	U (0.495)	88.48
28-Jan-02	U (0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.09)	U (0.500)	88.43
30-Apr-02	0.000565	0.00411	0.00203	0.01081	U (0.09)	U (0.500)	88.77
30-Sep-02	U (0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.09)	U (0.495)	88.40
12-May-03	U (0.0005)	U (0.002)	U (0.002)	U (0.002)	U (0.09)	U (0.3)	88.13
09-Oct-03	U (0.0005)	U (0.0005)	U (0.0005)	U (0.001)	U (0.08)	U (0.32)	388.30
16-Mar-04	NT	NT	NT	NT	NT	NT	NM
21-Apr-04	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.5)	387.99
17-Sep-04	NT	NT	NT	NT	NT	NT	NM
21-Oct-04	U (0.0002)	U (0.0005)	U (0.0005)	U (0.001)	U (0.05)	U (0.4)	387.21
19-May-05	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.391)	388.24
26-Sep-05	NT	NT	NT	NT	NT	NT	NM
15-May-06	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.397)	387.96
07-Nov-06	NT	NT	NT	NT	NT	NT	NM
15-May-07	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.417)	387.44
16-Oct-07	NT	NT	NT	NT	NT	NT	NM
29-Apr-08	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.481)	388.23
01-Oct-08	NT	NT	NT	NT	NT	NT	NM
12-May-09	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.400)	388.52
26-Oct-09	NT	NT	NT	NT	NT	NT	NM
15-Jun-10	U (0.0005)	U (0.0005)	U (0.0005)	U (0.00976)	U (0.05)	U (0.431)	NM
14-Oct-10	NT	NT	NT	NT	NT	NT	NM
24-May-11	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.385)	388.26
26-Oct-11	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.403)	388.12
22-May-12	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.417)	388.26
11-Oct-12	U (0.0005)	U (0.001)	U (0.001)	U (0.003)	U (0.05)	U (0.403)	388.44
21-May-13	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.417)	388.48
25-Sep-13	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.385)	388.63
06-May-14	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.42)	388.59
17-Sep-14	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0005)	U (0.05)	U (0.39)	389.46
26-May-15	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.05)	U (0.21)	389.20
06-Oct-15	U (0.001)	U (0.001)	U (0.001)	U (0.003)	U (0.01)	0.84	388.99
11-May-16	U (0.0020)	U (0.0020)	U (0.0020)	U (0.0020)	U (0.0020)	U (0.0020)	388.41
05-Oct-16	U (0.0020)	U (0.0020)	U (0.0030)	U (0.0020)	U (0.05)	U (0.12)	388.70
08-May-17	U (0.002)	U (0.002)	U (0.003)	U (0.002)	U (1)	U (0.11)	388.70
05-Sep-17	U (0004)	U (0.001)	U (0.001)	U (0.003)	U (0.150)	U (0.290)	388.64
14-Jun-18	U (0.003)	U (0.002)	U (0.003)	U (0.002)	U (025)	U (0.12)	388.77
30-Oct-18	U (0.003)	U (0.002)	U (0.003)	0.0084	U (0.25)	U (0.12)	388.53
09-May-19	U (0.003)	U (0.002)	U (0.003)	U (0.003)	U (0.25)	U (0.12)	388.30
22-Oct-19	U (0.003)	U (0.002)	U (0.003)	U (0.003)	U (0.25)	U (0.12)	388.72
GCLs	**0.0046**	**1.1**	**0.015**	**0.19**	**2.2**	**1.5**	NA

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-7

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
09-Oct-03	**0.0237**	0.00185	0.014	0.0877	**2.36**	U (0.32)	389.10
16-Mar-04	NT	NT	NT	NT	NT	NT	NM
21-Apr-04	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.5)	388.83
17-Sep-04	NT	NT	NT	NT	NT	NT	NM
21-Oct-04	0.00325	U (0.0005)	0.000934	0.00498	0.298	0.508	388.25
19-May-05	0.000909	U (0.0005)	0.000527	U (0.0015)	0.275	U (0.391)	389.29
26-Sep-05	NT	NT	NT	NT	NT	NT	NM
15-May-06	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	0.109	0.412	388.70
07-Nov-06	NT	NT	NT	NT	NT	NT	NM
15-May-07	NT	NT	NT	NT	NT	NT	NM
16-Oct-07	NT	NT	NT	NT	NT	NT	NM
29-Apr-08	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.413)	388.88
01-Oct-08	NT	NT	NT	NT	NT	NT	NM
12-May-09	U (0.0005)	U (0.0005)	0.00063	0.00231	1.16	U (0.442)	389.18
26-Oct-09	NT	NT	NT	NT	NT	NT	NM
15-Jun-10	NT	NT	NT	NT	NT	NT	NM
14-Oct-10	NT	NT	NT	NT	NT	NT	NM
24-May-11	NT	NT	NT	NT	NT	NT	NM
26-Oct-11	NT	NT	NT	NT	NT	NT	NM
22-May-12	NT	NT	NT	NT	NT	NT	NM
11-Oct-12	NT	NT	NT	NT	NT	NT	NM
21-May-13	NT	NT	NT	NT	NT	NT	NM
25-Sep-13	NT	NT	NT	NT	NT	NT	NM
06-May-14	NT	NT	NT	NT	NT	NT	NM
17-Sep-14	NT	NT	NT	NT	NT	NT	NM
26-May-15	NT	NT	NT	NT	NT	NT	NM
06-Oct-15	NT	NT	NT	NT	NT	NT	NM
11-May-16	NT	NT	NT	NT	NT	NT	NM
05-Oct-16	NT	NT	NT	NT	NT	NT	NM
08-May-17	NT	NT	NT	NT	NT	NT	NM
05-Sep-17	NT	NT	NT	NT	NT	NT	NM
14-Jun-18	NT	NT	NT	NT	NT	NT	NM
30-Oct-18	NT	NT	NT	NT	NT	NT	NM
09-May-19	NT	NT	NT	NT	NT	NT	NM
22-Oct-19	NT	NT	NT	NT	NT	NT	NM
GCLs	**0.0046**	**1.1**	**0.015**	**0.19**	**2.2**	**1.5**	NA

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-8

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
09-Oct-03	NT	NT	NT	NT	NT	NT	NM
16-Mar-04	U (0.0005)	U (0.0005)	U (0.0005)	U (0.001)	U (0.05)	U (0.37)	388.69
21-Apr-04	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.5)	388.79
17-Sep-04	NT	NT	NT	NT	NT	NT	NM
21-Oct-04	0.000298	U (0.0005)	U (0.0005)	U (0.001)	U (0.05)	U (0.4)	388.30
19-May-05	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.417)	389.26
26-Sep-05	NT	NT	NT	NT	NT	NT	NM
15-May-06	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.41)	388.73
07-Nov-06	NT	NT	NT	NT	NT	NT	NM
15-May-07	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.394)	388.41
16-Oct-07	NT	NT	NT	NT	NT	NT	NM
29-Apr-08	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.417)	388.87
01-Oct-08	NT	NT	NT	NT	NT	NT	NM
12-May-09	U (0.0005)	0.00062	0.00067	0.00199	U (0.05)	U (0.413)	389.22
26-Oct-09	NT	NT	NT	NT	NT	NT	NM
15-Jun-10	NT	NT	NT	NT	NT	NT	NM
14-Oct-10	NT	NT	NT	NT	NT	NT	NM
24-May-11	NT	NT	NT	NT	NT	NT	NM
26-Oct-11	NT	NT	NT	NT	NT	NT	NM
22-May-12	NT	NT	NT	NT	NT	NT	NM
11-Oct-12	NT	NT	NT	NT	NT	NT	NM
21-May-13	NT	NT	NT	NT	NT	NT	NM
25-Sep-13	NT	NT	NT	NT	NT	NT	NM
06-May-14	NT	NT	NT	NT	NT	NT	NM
17-Sep-14	NT	NT	NT	NT	NT	NT	NM
26-May-15	NT	NT	NT	NT	NT	NT	NM
06-Oct-15	NT	NT	NT	NT	NT	NT	NM
11-May-16	NT	NT	NT	NT	NT	NT	NM
05-Oct-16	NT	NT	NT	NT	NT	NT	NM
08-May-17	NT	NT	NT	NT	NT	NT	NM
9/5/2017	NT	NT	NT	NT	NT	NT	NM
6/14/2018	NT	NT	NT	NT	NT	NT	NM
30-Oct-18	NT	NT	NT	NT	NT	NT	NM
09-May-19	NT	NT	NT	NT	NT	NT	NM
22-Oct-19	NT	NT	NT	NT	NT	NT	NM
GCLs	**0.0046**	**1.1**	**0.015**	**0.19**	**2.2**	**1.5**	NA

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-9

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
09-Oct-03	NT	NT	NT	NT	NT	NT	NM
16-Mar-04	U (0.0005)	U (0.0005)	U (0.0005)	U (0.001)	U (0.05)	U (0.37)	388.27
21-Apr-04	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.5)	388.88
17-Sep-04	NT	NT	NT	NT	NT	NT	NM
21-Oct-04	U (0.0002)	U (0.0005)	U (0.0005)	U (0.001)	U (0.05)	U (0.4)	388.22
19-May-05	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.391)	389.41
26-Sep-05	NT	NT	NT	NT	NT	NT	NM
15-May-06	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.391)	388.83
07-Nov-06	NT	NT	NT	NT	NT	NT	NM
15-May-07	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.41)	388.33
16-Oct-07	NT	NT	NT	NT	NT	NT	NM
29-Apr-08	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.417)	388.94
01-Oct-08	NT	NT	NT	NT	NT	NT	NM
12-May-09	U (0.0005)	U (0.0005)	U (0.0005)	0.00182	U (0.05)	U (0.400)	389.33
26-Oct-09	NT	NT	NT	NT	NT	NT	NM
15-Jun-10	NT	NT	NT	NT	NT	NT	NM
14-Oct-10	NT	NT	NT	NT	NT	NT	NM
24-May-11	NT	NT	NT	NT	NT	NT	NM
26-Oct-11	NT	NT	NT	NT	NT	NT	NM
22-May-12	NT	NT	NT	NT	NT	NT	NM
11-Oct-12	NT	NT	NT	NT	NT	NT	NM
21-May-13	NT	NT	NT	NT	NT	NT	NM
25-Sep-13	NT	NT	NT	NT	NT	NT	NM
06-May-14	NT	NT	NT	NT	NT	NT	NM
17-Sep-14	NT	NT	NT	NT	NT	NT	NM
26-May-15	NT	NT	NT	NT	NT	NT	NM
06-Oct-15	NT	NT	NT	NT	NT	NT	NM
11-May-16	NT	NT	NT	NT	NT	NT	NM
05-Oct-16	NT	NT	NT	NT	NT	NT	NM
08-May-17	NT	NT	NT	NT	NT	NT	NM
05-Sep-17	NT	NT	NT	NT	NT	NT	NM
14-Jun-18	NT	NT	NT	NT	NT	NT	NM
30-Oct-18	NT	NT	NT	NT	NT	NT	NM
09-May-19	NT	NT	NT	NT	NT	NT	NM
22-Oct-19	NT	NT	NT	NT	NT	NT	NM
GCLs	**0.0046**	**1.1**	**0.015**	**0.19**	**2.2**	**1.5**	NA

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well MW-10

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
09-Oct-03	NT	NT	NT	NT	NT	NT	NM
17-Sep-04	**0.0103**	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.385)	NM
21-Oct-04	U (0.0002)	U (0.0005)	U (0.0005)	U (0.001)	U (0.05)	**2.19**	387.01
19-May-05	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.391)	387.92
26-Sep-05	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.397)	387.87
15-May-06	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.391)	387.69
07-Nov-06	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.442)	387.72
15-May-07	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.41)	387.31
16-Oct-07	U (0.0005)	0.000745	U (0.0005)	0.00843	U (0.05)	U (0.427)	387.31
29-Apr-08	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.424)	387.79
01-Oct-08	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.49)	388.12
12-May-09	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.403)	388.04
26-Oct-09	U (0.0005)	U (0.001)	U (0.001)	U (0.003)	U (0.05)	U (0.417)	387.77
15-Jun-10	U (0.0005)	U (0.0005)	U (0.0005)	U (0.00976)	U (0.05)	U (0.417)	387.95
14-Oct-10	U (0.0005)	U (0.001)	U (0.001)	U (0.003)	U (0.05)	U (0.397)	387.82
24-May-11	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.410)	387.92
26-Oct-11	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.410)	387.79
22-May-12	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.410)	387.87
11-Oct-12	U (0.0005)	U (0.001)	U (0.001)	U (0.003)	U (0.05)	U (0.413)	388.03
21-May-13	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.410)	388.09
25-Sep-13	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.403)	388.21
06-May-14	U (0.0005)	U (0.0005)	U (0.0005)	0.0027	U (0.05)	U (0.41)	388.19
17-Sep-14	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0015)	U (0.05)	U (0.41)	389.21
26-May-15	U (0.001)	U (0.001)	U (0.001)	U (0.001)	U (0.05)	U (0.22)	388.95
06-Oct-15	U (0.001)	U (0.001)	U (0.001)	U (0.003)	U (0.1)	0.41	388.59
11-May-16	U (0.0020)	U (0.001)	U (0.001)	U (0.003)	U (0.1)	U (0.42)	388.07
05-Oct-16	U (0.0020)	U (0.002)	U (0.003)	U (0.002)	U (0.05)	**2.6**	388.42
08-May-17	U (0.002)	U (0.002)	U (0.003)	0.0056	U (1)	U (0.11)	388.32
05-Sep-17	U (.0004)	U (0.001)	U (0.001)	U (0.003)	U (0.150)	U (0.280)	388.28
14-Jun-18	U (0.003)	U (0.002)	U (0.003)	U (0.002)	U (0.25)	U (0.12)	388.37
30-Oct-18	U (0.003)	U (0.002)	U (0.003)	U (0.003)	U (0.25)	U (0.12)	388.19
09-May-19	U (0.003)	U (0.002)	U (0.003)	U (0.003)	U (0.25)	U (0.12)	388.01
22-Oct-19	U (0.003)	U (0.002)	U (0.003)	U (0.003)	U (0.25)	U (0.12)	388.37
GCLs	**0.0046**	**1.1**	**0.015**	**0.19**	**2.2**	**1.5**	NA

Monitoring Well 17-2

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
30-Oct-18	U (0.003)	U (0.002)	**0.18**	**0.9**	**3.9**	**2.5**	NM
10-May-19	U (0.003)	U (0.002)	0.0051	0.012	U (0.25)	0.91	NM
22-Oct-19	U (0.003)	U (0.002)	**0.210**	**0.790**	**3.5**	1.4 H	NM
GCLs	**0.0046**	**1.1**	**0.015**	**0.19**	**2.2**	**1.5**	NA

Appendix D
Tables of Historical Groundwater Monitoring Data

Monitoring Well 17-5

Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)	GW Elev (feet)
14-Jun-18	**0.025**	0.52	**0.064**	**0.548**	1.7	0.17	NM
30-Oct-18	**0.055**	0.21	**0.15**	**0.505**	**3.7**	0.26	NM
09-May-19	0.0032	0.0026	**0.016**	0.048	0.31	0.92	NM
22-Oct-19	**0.022**	0.360	**0.230**	**0.721**	**3.7**	0.47 H	NM
GCLs	**0.0046**	**1.1**	**0.015**	**0.19**	**2.2**	**1.5**	NA

Key:
DRO - diesel range organics
GCL - ground water cleanup levels
GRO - gasoline range organics
GW Elev - ground water elevation
H - Sample was preppred or analyzed beyond the specified holding time
mg/L - milligrams per liter
NA - not applicable
NM - not measured
NR - Reported as an unreliable result by the laboratory.
NT - not tested
U - Undetected above practical quantitation limits.

Analytical data for the June 2010 Monitoring Event may have an associated low bias for some samples. See ADEC laboratory QC checklist for impacted analytes.

Bold, shade indicates concentration exceeds the GCL.

APPENDIX E

Laboratory Analytical Report and ADEC Laboratory Data Review Checklist

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-90398-1
Client Project/Site: Tesoro - 2Go Mart 112

For:
Stantec Consulting Services Inc
1835 S. Bragraw
Suite 350
Anchorage, Alaska 99508

Attn: Mike Zidek

M. Elaine Walker

Authorized for release by:
11/14/2019 3:48:50 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

Table of Contents

Job ID: 580-90398-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

(LCS out of Job Narrative
580-90398-1

Receipt
Ten samples were received on 10/28/2019 1:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.8º C.

Receipt Exceptions

The following sample was crossed off on the COC with a note in the special instructions that it was included. We have logged in all analysis pending client verification. RM-1 (580-90398-8)

GC/MS VOA
Method 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-3 (580-90398-2), MW17-2 (580-90398-5), MW17-5 (580-90398-6), 2GM112 DUP (580-90398-7), RM-1 (580-90398-8) and RM-2 (580-90398-9). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC VOA
Method AK101: The Gasoline Range Organics (GRO) concentration reported for the following samples is due to the presence of discrete peaks: MW17-2 (580-90398-5), MW17-5 (580-90398-6), RM-1 (580-90398-8) and RM-2 (580-90398-9). Gasoline Range Organics (GRO) -C6-C10

Method AK101: Detections were seen outside the AK101 range for samples MW17-2 (580-90398-5) and MW17-5 (580-90398-6).

Method AK101: The following sample required anti-foam:(MB 580-315586/9). Anti-foam was added to the associated MB.

Method AK101: Surrogate 4-Bromofluorobenzene (Surr) recovery for the following samples were outside control limits: MW-3 (580-90398-2) and 2GM112 DUP (580-90398-7). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method AK102 & 103: Surrogate recovery for the following sample was outside control limits: 2GM112 DUP (580-90398-7). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method AK102 & 103: The following sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: RM-2 (580-90398-9).

Method AK102 & 103: Samples were re-extracted outside of holding time and re-analyzed due to QC failure in the initial extraction (LCS/LCSD outside control limits). Both sets of data for these samples are reported. Affected samples: MW-2 (580-90398-1), MW-3 (580-90398-2), MW-6 (580-90398-3), MW-10 (580-90398-4), MW17-2 (580-90398-5), MW17-5 (580-90398-6) and 2GM112 DUP (580-90398-7).

Method AK102 & 103: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-2 (580-90398-1) and MW-3 (580-90398-2) at 5.0 and 5.0. Elevated reporting limits (RLs) are provided.

Method AK102 & 103: The laboratory control sample (LCS) for preparation batch 580-315972 and analytical batch 580-316161 recovered outside control limits for the following analytes: DRO (nC10-<nC25). The associated sample(s) was re-prepared and/or re-analyzed outside holding time. Both sets of data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 580-90398-1 (Continued)

Laboratory: Eurofins TestAmerica, Seattle (Continued)

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Stantec Consulting Services Inc
Project/Site: Tesoro - 2Go Mart 112

Job ID: 580-90398-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

GC Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
H	Sample was prepped or analyzed beyond the specified holding time
X	Surrogate is outside control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Stantec Consulting Services Inc
Project/Site: Tesoro - 2Go Mart 112

Job ID: 580-90398-1

Client Sample ID: MW-2

Date Collected: 10/22/19 15:55
Date Received: 10/28/19 13:25

Lab Sample ID: 580-90398-1

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			10/30/19 14:04	1
Toluene	ND		2.0	0.39	ug/L			10/30/19 14:04	1
Ethylbenzene	**17**		3.0	0.50	ug/L			10/30/19 14:04	1
m-Xylene & p-Xylene	**29**		3.0	0.75	ug/L			10/30/19 14:04	1
o-Xylene	ND		2.0	0.39	ug/L			10/30/19 14:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*80 - 120*		*10/30/19 14:04*	*1*
Trifluorotoluene (Surr)	*92*		*80 - 120*		*10/30/19 14:04*	*1*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*		*10/30/19 14:04*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*10/30/19 14:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 126*		*10/30/19 14:04*	*1*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**0.36**		0.25	0.10	mg/L			10/31/19 01:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*94*		*50 - 150*		*10/31/19 01:08*	*1*
4-Bromofluorobenzene (Surr)	*111*		*50 - 150*		*10/31/19 01:08*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	**0.72**	*	0.61	0.42	mg/L		11/05/19 09:25	11/06/19 20:58	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*77*		*50 - 150*	*11/05/19 09:25*	*11/06/19 20:58*	*5*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	**0.64**	H	0.61	0.42	mg/L		11/08/19 08:56	11/10/19 05:08	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*75*		*50 - 150*	*11/08/19 08:56*	*11/10/19 05:08*	*5*

Client Sample ID: MW-3

Date Collected: 10/22/19 16:55
Date Received: 10/28/19 13:25

Lab Sample ID: 580-90398-2

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	28		3.0	0.53	ug/L			10/30/19 14:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*80 - 120*		*10/30/19 14:29*	*1*
Trifluorotoluene (Surr)	*90*		*80 - 120*		*10/30/19 14:29*	*1*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*		*10/30/19 14:29*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*10/30/19 14:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*80 - 126*		*10/30/19 14:29*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	150		100	20	ug/L			10/31/19 21:53	50
Ethylbenzene	750		150	25	ug/L			10/31/19 21:53	50
m-Xylene & p-Xylene	4500		150	38	ug/L			10/31/19 21:53	50
o-Xylene	1000		100	20	ug/L			10/31/19 21:53	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*80 - 120*		*10/31/19 21:53*	*50*
Trifluorotoluene (Surr)	*91*		*80 - 120*		*10/31/19 21:53*	*50*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*		*10/31/19 21:53*	*50*
Dibromofluoromethane (Surr)	*93*		*80 - 120*		*10/31/19 21:53*	*50*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 126*		*10/31/19 21:53*	*50*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	17		0.25	0.10	mg/L			10/31/19 18:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*89*		*50 - 150*		*10/31/19 18:35*	*1*
4-Bromofluorobenzene (Surr)	*205*	*X*	*50 - 150*		*10/31/19 18:35*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	2.2	*	0.61	0.41	mg/L		11/05/19 09:25	11/06/19 21:18	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*50 - 150*	*11/05/19 09:25*	*11/06/19 21:18*	*5*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	3.7	H	0.64	0.44	mg/L		11/08/19 08:56	11/10/19 05:30	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*81*		*50 - 150*	*11/08/19 08:56*	*11/10/19 05:30*	*5*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	28		2.0	0.33	mg/L		11/11/19 07:58	11/11/19 17:50	1

Client Sample ID: MW-6

Date Collected: 10/22/19 14:05
Date Received: 10/28/19 13:25

Lab Sample ID: 580-90398-3

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			10/30/19 14:54	1
Toluene	ND		2.0	0.39	ug/L			10/30/19 14:54	1
Ethylbenzene	ND		3.0	0.50	ug/L			10/30/19 14:54	1
o-Xylene	ND		2.0	0.39	ug/L			10/30/19 14:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*80 - 120*		*10/30/19 14:54*	*1*
Trifluorotoluene (Surr)	*90*		*80 - 120*		*10/30/19 14:54*	*1*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*		*10/30/19 14:54*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*		*10/30/19 14:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*80 - 126*		*10/30/19 14:54*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			10/31/19 21:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*80 - 120*		*10/31/19 21:28*	*1*
Trifluorotoluene (Surr)	*91*		*80 - 120*		*10/31/19 21:28*	*1*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*		*10/31/19 21:28*	*1*
Dibromofluoromethane (Surr)	*99*		*80 - 120*		*10/31/19 21:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 126*		*10/31/19 21:28*	*1*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		0.25	0.10	mg/L			10/31/19 02:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*95*		*50 - 150*		*10/31/19 02:45*	*1*
4-Bromofluorobenzene (Surr)	*102*		*50 - 150*		*10/31/19 02:45*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	ND	*	0.12	0.084	mg/L		11/05/19 09:25	11/06/19 21:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*62*		*50 - 150*	*11/05/19 09:25*	*11/06/19 21:38*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	ND	H	0.13	0.086	mg/L		11/08/19 08:56	11/10/19 06:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*65*		*50 - 150*	*11/08/19 08:56*	*11/10/19 06:14*	*1*

Client: Stantec Consulting Services Inc
Project/Site: Tesoro - 2Go Mart 112

Job ID: 580-90398-1

Client Sample ID: MW-10

Date Collected: 10/22/19 13:35
Date Received: 10/28/19 13:25

Lab Sample ID: 580-90398-4

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			10/30/19 15:20	1
Toluene	ND		2.0	0.39	ug/L			10/30/19 15:20	1
Ethylbenzene	ND		3.0	0.50	ug/L			10/30/19 15:20	1
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			10/30/19 15:20	1
o-Xylene	ND		2.0	0.39	ug/L			10/30/19 15:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*80 - 120*		*10/30/19 15:20*	*1*
Trifluorotoluene (Surr)	*93*		*80 - 120*		*10/30/19 15:20*	*1*
4-Bromofluorobenzene (Surr)	*91*		*80 - 120*		*10/30/19 15:20*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*10/30/19 15:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 126*		*10/30/19 15:20*	*1*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		0.25	0.10	mg/L			10/31/19 03:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*92*		*50 - 150*		*10/31/19 03:08*	*1*
4-Bromofluorobenzene (Surr)	*101*		*50 - 150*		*10/31/19 03:08*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	ND	*	0.12	0.082	mg/L		11/05/19 09:25	11/06/19 21:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*64*		*50 - 150*	*11/05/19 09:25*	*11/06/19 21:58*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	ND	H	0.12	0.080	mg/L		11/08/19 08:56	11/10/19 06:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*70*		*50 - 150*	*11/08/19 08:56*	*11/10/19 06:36*	*1*

Client Sample ID: MW17-2

Date Collected: 10/22/19 18:18
Date Received: 10/28/19 13:25

Lab Sample ID: 580-90398-5

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			10/30/19 15:46	1
Toluene	ND		2.0	0.39	ug/L			10/30/19 15:46	1
o-Xylene	**140**		2.0	0.39	ug/L			10/30/19 15:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*80 - 120*		*10/30/19 15:46*	*1*
Trifluorotoluene (Surr)	*90*		*80 - 120*		*10/30/19 15:46*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/30/19 15:46*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*10/30/19 15:46*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*80 - 126*		*10/30/19 15:46*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	**210**		30	5.0	ug/L			10/31/19 22:43	10
m-Xylene & p-Xylene	**650**		30	7.5	ug/L			10/31/19 22:43	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*80 - 120*		*10/31/19 22:43*	*10*
Trifluorotoluene (Surr)	*91*		*80 - 120*		*10/31/19 22:43*	*10*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*		*10/31/19 22:43*	*10*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*10/31/19 22:43*	*10*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 126*		*10/31/19 22:43*	*10*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**3.5**		0.25	0.10	mg/L			10/31/19 03:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*106*		*50 - 150*		*10/31/19 03:33*	*1*
4-Bromofluorobenzene (Surr)	*131*		*50 - 150*		*10/31/19 03:33*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	**0.62**	*	0.13	0.086	mg/L		11/05/19 09:25	11/06/19 22:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*67*		*50 - 150*	*11/05/19 09:25*	*11/06/19 22:19*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	**1.4**	H	0.12	0.083	mg/L		11/08/19 08:56	11/10/19 06:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*78*		*50 - 150*	*11/08/19 08:56*	*11/10/19 06:57*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**31**		2.0	0.33	mg/L		11/11/19 07:58	11/11/19 18:16	1

Client Sample ID: MW17-5

Date Collected: 10/22/19 17:50
Date Received: 10/28/19 13:25

Lab Sample ID: 580-90398-6

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	22		3.0	0.53	ug/L			10/30/19 16:11	1
o-Xylene	61		2.0	0.39	ug/L			10/30/19 16:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*80 - 120*		*10/30/19 16:11*	*1*
Trifluorotoluene (Surr)	*90*		*80 - 120*		*10/30/19 16:11*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*10/30/19 16:11*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*10/30/19 16:11*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*80 - 126*		*10/30/19 16:11*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	360		20	3.9	ug/L			10/31/19 23:09	10
Ethylbenzene	230		30	5.0	ug/L			10/31/19 23:09	10
m-Xylene & p-Xylene	660		30	7.5	ug/L			10/31/19 23:09	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*80 - 120*		*10/31/19 23:09*	*10*
Trifluorotoluene (Surr)	*89*		*80 - 120*		*10/31/19 23:09*	*10*
4-Bromofluorobenzene (Surr)	*93*		*80 - 120*		*10/31/19 23:09*	*10*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*10/31/19 23:09*	*10*
1,2-Dichloroethane-d4 (Surr)	*96*		*80 - 126*		*10/31/19 23:09*	*10*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	3.7		0.25	0.10	mg/L			10/31/19 03:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*99*		*50 - 150*		*10/31/19 03:57*	*1*
4-Bromofluorobenzene (Surr)	*131*		*50 - 150*		*10/31/19 03:57*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	0.31	*	0.12	0.081	mg/L		11/05/19 09:25	11/06/19 22:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*76*		*50 - 150*	*11/05/19 09:25*	*11/06/19 22:59*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	0.47	H	0.12	0.081	mg/L		11/08/19 08:56	11/10/19 07:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*73*		*50 - 150*	*11/08/19 08:56*	*11/10/19 07:19*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	15		2.0	0.33	mg/L		11/11/19 07:58	11/11/19 18:19	1

Client Sample ID: 2GM112 DUP

Date Collected: 10/22/19 16:57
Date Received: 10/28/19 13:25

Lab Sample ID: 580-90398-7

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	27		3.0	0.53	ug/L			10/30/19 16:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*80 - 120*		*10/30/19 16:37*	*1*
Trifluorotoluene (Surr)	*92*		*80 - 120*		*10/30/19 16:37*	*1*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*10/30/19 16:37*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 120*		*10/30/19 16:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*80 - 126*		*10/30/19 16:37*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	170		100	20	ug/L			10/31/19 22:18	50
Ethylbenzene	800		150	25	ug/L			10/31/19 22:18	50
m-Xylene & p-Xylene	5000		150	38	ug/L			10/31/19 22:18	50
o-Xylene	1200		100	20	ug/L			10/31/19 22:18	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*80 - 120*		*10/31/19 22:18*	*50*
Trifluorotoluene (Surr)	*92*		*80 - 120*		*10/31/19 22:18*	*50*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*		*10/31/19 22:18*	*50*
Dibromofluoromethane (Surr)	*96*		*80 - 120*		*10/31/19 22:18*	*50*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 126*		*10/31/19 22:18*	*50*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	18		0.25	0.10	mg/L			10/31/19 18:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*86*		*50 - 150*		*10/31/19 18:59*	*1*
4-Bromofluorobenzene (Surr)	*209*	*X*	*50 - 150*		*10/31/19 18:59*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	0.61	*	0.12	0.079	mg/L		11/05/19 09:25	11/06/19 23:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*24*	*X*	*50 - 150*	*11/05/19 09:25*	*11/06/19 23:19*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	4.2	H	0.61	0.41	mg/L		11/08/19 08:56	11/10/19 07:41	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*75*		*50 - 150*	*11/08/19 08:56*	*11/10/19 07:41*	*5*

Client Sample ID: RM-1

Date Collected: 10/24/19 14:45
Date Received: 10/28/19 13:25

Lab Sample ID: 580-90398-8

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			10/30/19 17:03	1
Toluene	**38**		2.0	0.39	ug/L			10/30/19 17:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*80 - 120*		*10/30/19 17:03*	*1*
Trifluorotoluene (Surr)	*94*		*80 - 120*		*10/30/19 17:03*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*10/30/19 17:03*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*10/30/19 17:03*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 126*		*10/30/19 17:03*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	**150**		30	5.0	ug/L			11/02/19 09:08	10
m-Xylene & p-Xylene	**1300**		30	7.5	ug/L			11/02/19 09:08	10
o-Xylene	**190**		20	3.9	ug/L			11/02/19 09:08	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*80 - 120*		*11/02/19 09:08*	*10*
Trifluorotoluene (Surr)	*90*		*80 - 120*		*11/02/19 09:08*	*10*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*		*11/02/19 09:08*	*10*
Dibromofluoromethane (Surr)	*96*		*80 - 120*		*11/02/19 09:08*	*10*
1,2-Dichloroethane-d4 (Surr)	*96*		*80 - 126*		*11/02/19 09:08*	*10*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**4.3**		0.25	0.10	mg/L			10/31/19 04:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*97*		*50 - 150*		*10/31/19 04:45*	*1*
4-Bromofluorobenzene (Surr)	*124*		*50 - 150*		*10/31/19 04:45*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	**1.4**		0.12	0.080	mg/L		11/07/19 09:54	11/09/19 22:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*72*		*50 - 150*	*11/07/19 09:54*	*11/09/19 22:36*	*1*

Client Sample ID: RM-2

Date Collected: 10/24/19 16:05
Date Received: 10/28/19 13:25

Lab Sample ID: 580-90398-9

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	4.6		3.0	0.53	ug/L			10/30/19 17:27	1
Toluene	58		2.0	0.39	ug/L			10/30/19 17:27	1
Ethylbenzene	89		3.0	0.50	ug/L			10/30/19 17:27	1
o-Xylene	62		2.0	0.39	ug/L			10/30/19 17:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*80 - 120*		*10/30/19 17:27*	*1*
Trifluorotoluene (Surr)	*92*		*80 - 120*		*10/30/19 17:27*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*10/30/19 17:27*	*1*
Dibromofluoromethane (Surr)	*92*		*80 - 120*		*10/30/19 17:27*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*80 - 126*		*10/30/19 17:27*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m-Xylene & p-Xylene	280		30	7.5	ug/L			11/02/19 09:33	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*80 - 120*		*11/02/19 09:33*	*10*
Trifluorotoluene (Surr)	*90*		*80 - 120*		*11/02/19 09:33*	*10*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*		*11/02/19 09:33*	*10*
Dibromofluoromethane (Surr)	*95*		*80 - 120*		*11/02/19 09:33*	*10*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 126*		*11/02/19 09:33*	*10*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	2.0		0.25	0.10	mg/L			10/31/19 05:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*100*		*50 - 150*		*10/31/19 05:09*	*1*
4-Bromofluorobenzene (Surr)	*113*		*50 - 150*		*10/31/19 05:09*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	0.45		0.11	0.076	mg/L		11/07/19 09:54	11/09/19 22:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*76*		*50 - 150*	*11/07/19 09:54*	*11/09/19 22:58*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	32		2.0	0.33	mg/L		11/11/19 07:58	11/11/19 18:22	1

Client: Stantec Consulting Services Inc
Project/Site: Tesoro - 2Go Mart 112

Job ID: 580-90398-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 580-90398-10

Date Collected: 10/22/19 12:00

Matrix: Water

Date Received: 10/28/19 13:25

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			10/30/19 13:12	1
Toluene	ND		2.0	0.39	ug/L			10/30/19 13:12	1
Ethylbenzene	ND		3.0	0.50	ug/L			10/30/19 13:12	1
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			10/30/19 13:12	1
o-Xylene	ND		2.0	0.39	ug/L			10/30/19 13:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*80 - 120*		*10/30/19 13:12*	*1*
Trifluorotoluene (Surr)	*89*		*80 - 120*		*10/30/19 13:12*	*1*
4-Bromofluorobenzene (Surr)	*90*		*80 - 120*		*10/30/19 13:12*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 120*		*10/30/19 13:12*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 126*		*10/30/19 13:12*	*1*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		0.25	0.10	mg/L			10/31/19 02:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*103*		*50 - 150*		*10/31/19 02:21*	*1*
4-Bromofluorobenzene (Surr)	*103*		*50 - 150*		*10/31/19 02:21*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-315538/7
Matrix: Water
Analysis Batch: 315538

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			10/30/19 12:37	1
Toluene	ND		2.0	0.39	ug/L			10/30/19 12:37	1
Ethylbenzene	ND		3.0	0.50	ug/L			10/30/19 12:37	1
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			10/30/19 12:37	1
o-Xylene	ND		2.0	0.39	ug/L			10/30/19 12:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*109*		*80 - 120*		*10/30/19 12:37*	*1*
Trifluorotoluene (Surr)	*92*		*80 - 120*		*10/30/19 12:37*	*1*
4-Bromofluorobenzene (Surr)	*92*		*80 - 120*		*10/30/19 12:37*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*10/30/19 12:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 126*		*10/30/19 12:37*	*1*

Lab Sample ID: LCS 580-315538/4
Matrix: Water
Analysis Batch: 315538

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			10.0	9.74		ug/L		97	75 - 121		
Toluene			10.0	11.1		ug/L		111	80 - 120		
Ethylbenzene			10.0	10.9		ug/L		109	80 - 120		
m-Xylene & p-Xylene			10.0	10.4		ug/L		104	80 - 120		
o-Xylene			10.0	10.5		ug/L		105	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*80 - 120*
Trifluorotoluene (Surr)	*91*		*80 - 120*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*
Dibromofluoromethane (Surr)	*93*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*97*		*80 - 126*

Lab Sample ID: LCSD 580-315538/5
Matrix: Water
Analysis Batch: 315538

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			10.0	9.54		ug/L		95	75 - 121	2	14
Toluene			10.0	10.3		ug/L		103	80 - 120	8	19
Ethylbenzene			10.0	10.1		ug/L		101	80 - 120	7	14
m-Xylene & p-Xylene			10.0	9.81		ug/L		98	80 - 120	6	14
o-Xylene			10.0	9.82		ug/L		98	80 - 120	7	16

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*104*		*80 - 120*
Trifluorotoluene (Surr)	*92*		*80 - 120*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*
Dibromofluoromethane (Surr)	*97*		*80 - 120*

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

Lab Sample ID: LCSD 580-315538/5
Matrix: Water
Analysis Batch: 315538

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 126*

Lab Sample ID: MB 580-315621/7
Matrix: Water
Analysis Batch: 315621

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			10/31/19 14:43	1
Toluene	ND		2.0	0.39	ug/L			10/31/19 14:43	1
Ethylbenzene	ND		3.0	0.50	ug/L			10/31/19 14:43	1
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			10/31/19 14:43	1
o-Xylene	ND		2.0	0.39	ug/L			10/31/19 14:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*105*		*80 - 120*		*10/31/19 14:43*	*1*
Trifluorotoluene (Surr)	*90*		*80 - 120*		*10/31/19 14:43*	*1*
4-Bromofluorobenzene (Surr)	*91*		*80 - 120*		*10/31/19 14:43*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*		*10/31/19 14:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 126*		*10/31/19 14:43*	*1*

Lab Sample ID: LCS 580-315621/4
Matrix: Water
Analysis Batch: 315621

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.0		ug/L		100	75 - 121
Toluene	10.0	11.7		ug/L		117	80 - 120
Ethylbenzene	10.0	11.4		ug/L		114	80 - 120
m-Xylene & p-Xylene	10.0	10.9		ug/L		109	80 - 120
o-Xylene	10.0	10.9		ug/L		109	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*108*		*80 - 120*
Trifluorotoluene (Surr)	*93*		*80 - 120*
4-Bromofluorobenzene (Surr)	*91*		*80 - 120*
Dibromofluoromethane (Surr)	*96*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*97*		*80 - 126*

Lab Sample ID: LCSD 580-315621/5
Matrix: Water
Analysis Batch: 315621

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	9.64		ug/L		96	75 - 121	4	14
Toluene	10.0	10.7		ug/L		107	80 - 120	9	19
Ethylbenzene	10.0	10.8		ug/L		108	80 - 120	6	14
m-Xylene & p-Xylene	10.0	10.3		ug/L		103	80 - 120	5	14
o-Xylene	10.0	10.2		ug/L		102	80 - 120	7	16

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

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	*105*		*80 - 120*
Trifluorotoluene (Surr)	*90*		*80 - 120*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*
Dibromofluoromethane (Surr)	*97*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*97*		*80 - 126*

Lab Sample ID: MB 580-315794/7
Matrix: Water
Analysis Batch: 315794

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			11/02/19 00:26	1
Toluene	ND		2.0	0.39	ug/L			11/02/19 00:26	1
Ethylbenzene	ND		3.0	0.50	ug/L			11/02/19 00:26	1
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			11/02/19 00:26	1
o-Xylene	ND		2.0	0.39	ug/L			11/02/19 00:26	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*107*		*80 - 120*		*11/02/19 00:26*	*1*
Trifluorotoluene (Surr)	*91*		*80 - 120*		*11/02/19 00:26*	*1*
4-Bromofluorobenzene (Surr)	*91*		*80 - 120*		*11/02/19 00:26*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*		*11/02/19 00:26*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 126*		*11/02/19 00:26*	*1*

Lab Sample ID: LCS 580-315794/4
Matrix: Water
Analysis Batch: 315794

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.02		ug/L		90	75 - 121
Toluene	10.0	10.2		ug/L		102	80 - 120
Ethylbenzene	10.0	10.0		ug/L		100	80 - 120
m-Xylene & p-Xylene	10.0	9.51		ug/L		95	80 - 120
o-Xylene	10.0	9.60		ug/L		96	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	*104*		*80 - 120*
Trifluorotoluene (Surr)	*91*		*80 - 120*
4-Bromofluorobenzene (Surr)	*93*		*80 - 120*
Dibromofluoromethane (Surr)	*93*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*96*		*80 - 126*

Lab Sample ID: LCSD 580-315794/5
Matrix: Water
Analysis Batch: 315794

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	8.81		ug/L		88	75 - 121	2	14
Toluene	10.0	9.87		ug/L		99	80 - 120	4	19
Ethylbenzene	10.0	9.86		ug/L		99	80 - 120	2	14
m-Xylene & p-Xylene	10.0	9.40		ug/L		94	80 - 120	1	14

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

Lab Sample ID: LCSD 580-315794/5
Matrix: Water
Analysis Batch: 315794

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
o-Xylene			10.0	9.54		ug/L		95	80 - 120	1	16

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*104*		*80 - 120*
Trifluorotoluene (Surr)	*91*		*80 - 120*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*
Dibromofluoromethane (Surr)	*94*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*97*		*80 - 126*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Lab Sample ID: MB 580-315497/33
Matrix: Water
Analysis Batch: 315497

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		0.25	0.10	mg/L			10/30/19 21:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*88*		*50 - 150*		*10/30/19 21:55*	*1*
4-Bromofluorobenzene (Surr)	*100*		*50 - 150*		*10/30/19 21:55*	*1*

Lab Sample ID: LCS 580-315497/34
Matrix: Water
Analysis Batch: 315497

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10			1.00	0.893		mg/L		89	77 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Trifluorotoluene (Surr)	*90*		*50 - 150*
4-Bromofluorobenzene (Surr)	*105*		*50 - 150*

Lab Sample ID: LCSD 580-315497/35
Matrix: Water
Analysis Batch: 315497

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			1.00	0.874		mg/L		87	77 - 123	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Trifluorotoluene (Surr)	*89*		*50 - 150*
4-Bromofluorobenzene (Surr)	*105*		*50 - 150*

Method: AK101 - Alaska - Gasoline Range Organics (GC) (Continued)

Lab Sample ID: MB 580-315586/9
Matrix: Water
Analysis Batch: 315586

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		0.25	0.10	mg/L			10/31/19 12:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*86*		*50 - 150*		*10/31/19 12:10*	*1*
4-Bromofluorobenzene (Surr)	*104*		*50 - 150*		*10/31/19 12:10*	*1*

Lab Sample ID: LCS 580-315586/10
Matrix: Water
Analysis Batch: 315586

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	1.00	1.00		mg/L		100	77 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Trifluorotoluene (Surr)	*95*		*50 - 150*
4-Bromofluorobenzene (Surr)	*108*		*50 - 150*

Lab Sample ID: LCSD 580-315586/11
Matrix: Water
Analysis Batch: 315586

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	1.00	1.02		mg/L		102	77 - 123	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Trifluorotoluene (Surr)	*99*		*50 - 150*
4-Bromofluorobenzene (Surr)	*103*		*50 - 150*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Lab Sample ID: MB 580-315972/1-A
Matrix: Water
Analysis Batch: 316161

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 315972

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	ND		0.11	0.075	mg/L		11/05/19 09:25	11/06/19 15:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*83*		*50 - 150*	*11/05/19 09:25*	*11/06/19 15:35*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC) (Continued)

Lab Sample ID: LCS 580-315972/2-A
Matrix: Water
Analysis Batch: 316161

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 315972

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
DRO (nC10-<nC25)			2.00	1.41	*	mg/L		70	75 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*68*		*50 - 150*

Lab Sample ID: LCSD 580-315972/3-A
Matrix: Water
Analysis Batch: 316161

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 315972

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
DRO (nC10-<nC25)			2.00	1.28	*	mg/L		64	75 - 125	9	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*65*		*50 - 150*

Lab Sample ID: MB 580-316216/1-A
Matrix: Water
Analysis Batch: 316419

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316216

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	ND		0.11	0.075	mg/L		11/07/19 09:53	11/09/19 14:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*71*		*50 - 150*	*11/07/19 09:53*	*11/09/19 14:14*	*1*

Lab Sample ID: LCS 580-316216/2-A
Matrix: Water
Analysis Batch: 316419

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316216

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
DRO (nC10-<nC25)			2.00	1.87		mg/L		94	75 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*121*		*50 - 150*

Lab Sample ID: LCSD 580-316216/3-A
Matrix: Water
Analysis Batch: 316419

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 316216

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
DRO (nC10-<nC25)			2.00	1.81		mg/L		91	75 - 125	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*95*		*50 - 150*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC) (Continued)

Lab Sample ID: MB 580-316340/1-A
Matrix: Water
Analysis Batch: 316419

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316340

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	ND		0.11	0.075	mg/L		11/08/19 08:56	11/09/19 23:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*89*		*50 - 150*	*11/08/19 08:56*	*11/09/19 23:19*	*1*

Lab Sample ID: LCS 580-316340/2-A
Matrix: Water
Analysis Batch: 316419

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316340

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
DRO (nC10-<nC25)	2.00	1.82		mg/L		91	75 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*104*		*50 - 150*

Lab Sample ID: LCSD 580-316340/3-A
Matrix: Water
Analysis Batch: 316419

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 316340

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
DRO (nC10-<nC25)	2.00	1.79		mg/L		90	75 - 125	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*105*		*50 - 150*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 580-316453/11-A
Matrix: Water
Analysis Batch: 316544

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 316453

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		2.0	0.33	mg/L		11/11/19 07:58	11/11/19 17:41	1

Lab Sample ID: LCS 580-316453/12-A
Matrix: Water
Analysis Batch: 316544

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 316453

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sodium	20.0	20.0		mg/L		100	80 - 120

Lab Sample ID: LCSD 580-316453/13-A
Matrix: Water
Analysis Batch: 316544

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 316453

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sodium	20.0	20.2		mg/L		101	80 - 120	1	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 580-90398-2 MS
Matrix: Water
Analysis Batch: 316544

Client Sample ID: MW-3
Prep Type: Total/NA
Prep Batch: 316453

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sodium	28		20.0	49.0		mg/L		104	75 - 125		

Lab Sample ID: 580-90398-2 MSD
Matrix: Water
Analysis Batch: 316544

Client Sample ID: MW-3
Prep Type: Total/NA
Prep Batch: 316453

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sodium	28		20.0	49.5		mg/L		107	75 - 125	1	20

Lab Sample ID: 580-90398-2 DU
Matrix: Water
Analysis Batch: 316544

Client Sample ID: MW-3
Prep Type: Total/NA
Prep Batch: 316453

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sodium	28		29.3		mg/L		4	20

Lab Chronicle

Client: Stantec Consulting Services Inc
Project/Site: Tesoro - 2Go Mart 112

Job ID: 580-90398-1

Client Sample ID: MW-2
Date Collected: 10/22/19 15:55
Date Received: 10/28/19 13:25

Lab Sample ID: 580-90398-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	315538	10/30/19 14:04	TL1	TAL SEA
Total/NA	Analysis	AK101		1	315497	10/31/19 01:08	EML	TAL SEA
Total/NA	Prep	3510C	RE		316340	11/08/19 08:56	NRF	TAL SEA
Total/NA	Analysis	AK102 & 103	RE	5	316419	11/10/19 05:08	TL1	TAL SEA
Total/NA	Prep	3510C			315972	11/05/19 09:25	NRF	TAL SEA
Total/NA	Analysis	AK102 & 103		5	316161	11/06/19 20:58	T1W	TAL SEA

Client Sample ID: MW-3
Date Collected: 10/22/19 16:55
Date Received: 10/28/19 13:25

Lab Sample ID: 580-90398-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	315538	10/30/19 14:29	TL1	TAL SEA
Total/NA	Analysis	8260C	DL	50	315621	10/31/19 21:53	TL1	TAL SEA
Total/NA	Analysis	AK101		1	315586	10/31/19 18:35	DCV	TAL SEA
Total/NA	Prep	3510C	RE		316340	11/08/19 08:56	NRF	TAL SEA
Total/NA	Analysis	AK102 & 103	RE	5	316419	11/10/19 05:30	TL1	TAL SEA
Total/NA	Prep	3510C			315972	11/05/19 09:25	NRF	TAL SEA
Total/NA	Analysis	AK102 & 103		5	316161	11/06/19 21:18	T1W	TAL SEA
Total/NA	Prep	3010A			316453	11/11/19 07:58	A1B	TAL SEA
Total/NA	Analysis	6010C		1	316544	11/11/19 17:50	T1H	TAL SEA

Client Sample ID: MW-6
Date Collected: 10/22/19 14:05
Date Received: 10/28/19 13:25

Lab Sample ID: 580-90398-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	315538	10/30/19 14:54	TL1	TAL SEA
Total/NA	Analysis	8260C	RA	1	315621	10/31/19 21:28	TL1	TAL SEA
Total/NA	Analysis	AK101		1	315497	10/31/19 02:45	EML	TAL SEA
Total/NA	Prep	3510C	RE		316340	11/08/19 08:56	NRF	TAL SEA
Total/NA	Analysis	AK102 & 103	RE	1	316419	11/10/19 06:14	TL1	TAL SEA
Total/NA	Prep	3510C			315972	11/05/19 09:25	NRF	TAL SEA
Total/NA	Analysis	AK102 & 103		1	316161	11/06/19 21:38	T1W	TAL SEA

Client Sample ID: MW-10
Date Collected: 10/22/19 13:35
Date Received: 10/28/19 13:25

Lab Sample ID: 580-90398-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	315538	10/30/19 15:20	TL1	TAL SEA
Total/NA	Analysis	AK101		1	315497	10/31/19 03:08	EML	TAL SEA
Total/NA	Prep	3510C	RE		316340	11/08/19 08:56	NRF	TAL SEA
Total/NA	Analysis	AK102 & 103	RE	1	316419	11/10/19 06:36	TL1	TAL SEA

Lab Chronicle

Client: Stantec Consulting Services Inc
Project/Site: Tesoro - 2Go Mart 112

Job ID: 580-90398-1

Client Sample ID: MW-10

Lab Sample ID: 580-90398-4

Date Collected: 10/22/19 13:35

Matrix: Water

Date Received: 10/28/19 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			315972	11/05/19 09:25	NRF	TAL SEA
Total/NA	Analysis	AK102 & 103		1	316161	11/06/19 21:58	T1W	TAL SEA

Client Sample ID: MW17-2

Lab Sample ID: 580-90398-5

Date Collected: 10/22/19 18:18

Matrix: Water

Date Received: 10/28/19 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	315538	10/30/19 15:46	TL1	TAL SEA
Total/NA	Analysis	8260C	DL	10	315621	10/31/19 22:43	TL1	TAL SEA
Total/NA	Analysis	AK101		1	315497	10/31/19 03:33	EML	TAL SEA
Total/NA	Prep	3510C	RE		316340	11/08/19 08:56	NRF	TAL SEA
Total/NA	Analysis	AK102 & 103	RE	1	316419	11/10/19 06:57	TL1	TAL SEA
Total/NA	Prep	3510C			315972	11/05/19 09:25	NRF	TAL SEA
Total/NA	Analysis	AK102 & 103		1	316161	11/06/19 22:19	T1W	TAL SEA
Total/NA	Prep	3010A			316453	11/11/19 07:58	A1B	TAL SEA
Total/NA	Analysis	6010C		1	316544	11/11/19 18:16	T1H	TAL SEA

Client Sample ID: MW17-5

Lab Sample ID: 580-90398-6

Date Collected: 10/22/19 17:50

Matrix: Water

Date Received: 10/28/19 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	315538	10/30/19 16:11	TL1	TAL SEA
Total/NA	Analysis	8260C	DL	10	315621	10/31/19 23:09	TL1	TAL SEA
Total/NA	Analysis	AK101		1	315497	10/31/19 03:57	EML	TAL SEA
Total/NA	Prep	3510C	RE		316340	11/08/19 08:56	NRF	TAL SEA
Total/NA	Analysis	AK102 & 103	RE	1	316419	11/10/19 07:19	TL1	TAL SEA
Total/NA	Prep	3510C			315972	11/05/19 09:25	NRF	TAL SEA
Total/NA	Analysis	AK102 & 103		1	316161	11/06/19 22:59	T1W	TAL SEA
Total/NA	Prep	3010A			316453	11/11/19 07:58	A1B	TAL SEA
Total/NA	Analysis	6010C		1	316544	11/11/19 18:19	T1H	TAL SEA

Client Sample ID: 2GM112 DUP

Lab Sample ID: 580-90398-7

Date Collected: 10/22/19 16:57

Matrix: Water

Date Received: 10/28/19 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	315538	10/30/19 16:37	TL1	TAL SEA
Total/NA	Analysis	8260C	DL	50	315621	10/31/19 22:18	TL1	TAL SEA
Total/NA	Analysis	AK101		1	315586	10/31/19 18:59	DCV	TAL SEA
Total/NA	Prep	3510C	RE		316340	11/08/19 08:56	NRF	TAL SEA
Total/NA	Analysis	AK102 & 103	RE	5	316419	11/10/19 07:41	TL1	TAL SEA

Lab Chronicle

Client: Stantec Consulting Services Inc
Project/Site: Tesoro - 2Go Mart 112

Job ID: 580-90398-1

Client Sample ID: 2GM112 DUP
Lab Sample ID: 580-90398-7
Date Collected: 10/22/19 16:57
Matrix: Water
Date Received: 10/28/19 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			315972	11/05/19 09:25	NRF	TAL SEA
Total/NA	Analysis	AK102 & 103		1	316161	11/06/19 23:19	T1W	TAL SEA

Client Sample ID: RM-1
Lab Sample ID: 580-90398-8
Date Collected: 10/24/19 14:45
Matrix: Water
Date Received: 10/28/19 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	315538	10/30/19 17:03	TL1	TAL SEA
Total/NA	Analysis	8260C	DL	10	315794	11/02/19 09:08	TL1	TAL SEA
Total/NA	Analysis	AK101		1	315497	10/31/19 04:45	EML	TAL SEA
Total/NA	Prep	3510C			316216	11/07/19 09:54	NRF	TAL SEA
Total/NA	Analysis	AK102 & 103		1	316419	11/09/19 22:36	TL1	TAL SEA

Client Sample ID: RM-2
Lab Sample ID: 580-90398-9
Date Collected: 10/24/19 16:05
Matrix: Water
Date Received: 10/28/19 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	315538	10/30/19 17:27	TL1	TAL SEA
Total/NA	Analysis	8260C	DL	10	315794	11/02/19 09:33	TL1	TAL SEA
Total/NA	Analysis	AK101		1	315497	10/31/19 05:09	EML	TAL SEA
Total/NA	Prep	3510C			316216	11/07/19 09:54	NRF	TAL SEA
Total/NA	Analysis	AK102 & 103		1	316419	11/09/19 22:58	TL1	TAL SEA
Total/NA	Prep	3010A			316453	11/11/19 07:58	A1B	TAL SEA
Total/NA	Analysis	6010C		1	316544	11/11/19 18:22	T1H	TAL SEA

Client Sample ID: TRIP BLANK
Lab Sample ID: 580-90398-10
Date Collected: 10/22/19 12:00
Matrix: Water
Date Received: 10/28/19 13:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	315538	10/30/19 13:12	TL1	TAL SEA
Total/NA	Analysis	AK101		1	315497	10/31/19 02:21	EML	TAL SEA

Laboratory References:
TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Stantec Consulting Services Inc
Job ID: 580-90398-1
Project/Site: Tesoro - 2Go Mart 112

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-06-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20

Sample Summary

Client: Stantec Consulting Services Inc
Project/Site: Tesoro - 2Go Mart 112

Job ID: 580-90398-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-90398-1	MW-2	Water	10/22/19 15:55	10/28/19 13:25	
580-90398-2	MW-3	Water	10/22/19 16:55	10/28/19 13:25	
580-90398-3	MW-6	Water	10/22/19 14:05	10/28/19 13:25	
580-90398-4	MW-10	Water	10/22/19 13:35	10/28/19 13:25	
580-90398-5	MW17-2	Water	10/22/19 18:18	10/28/19 13:25	
580-90398-6	MW17-5	Water	10/22/19 17:50	10/28/19 13:25	
580-90398-7	2GM112 DUP	Water	10/22/19 16:57	10/28/19 13:25	
580-90398-8	RM-1	Water	10/24/19 14:45	10/28/19 13:25	
580-90398-9	RM-2	Water	10/24/19 16:05	10/28/19 13:25	
580-90398-10	TRIP BLANK	Water	10/22/19 12:00	10/28/19 13:25	

TestAmerica Anchorage
2000 W. International Airport Road
Suite A10
Anchorage, AK 99502
Phone: 907.563.9200 Fax: 907.563.9210

Chain of Custody Record

249748

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Mike Zidek	Site Contact:	Date: 10/24/19	COC No:
Company Name: Stantec	Tel/Fax:	Lab Contact:	Carrier:	1 of 1 COCs
Address: 725 E Fireweed Ln Suite 200	Analysis Turnaround Time			Sampler: JM
City/State/Zip: Anchorage, AK 99503	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 907-266-1108	TAT if different from Below			Walk-in Client:
Fax:	☒ 2 weeks			Lab Sampling:
Project Name: TNS 112	☐ 1 week			Job / SDG No.:
Site:	☐ 2 days			
PO # Send to Anne Duarte @ Speedway	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	AK101 / 8260 BTEX	AK102	Sodium	Sample Specific Notes:
MW-2	10/22/19	1555	G	W	8			X	X		
MW-3	10/22/19	1655			9			X	X	X	
MW-6	10/22/19	1405			8			X	X		
MW-10	10/22/19	1335			8			X	X		
MW17-2	10/22/19	1818			9			X	X	X	
MW17-5	10/22/19	1750			9			X	X	X	
2bMW12 Dup	10/22/19	1657			8			X	X		
~~RM-1~~	~~10/24/19~~	~~1445~~			~~8~~			X	X		RM-1 was included TNS 111
RM-2	10/24/19	1605			9			X	X	X	TNS 111
Trip Blank	10/22/19	1200			6			X			

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Special Instructions/QC Requirements & Comments:
Please Report DRO, GRO, BTEX only

580-90398 Chain of Custody

Therm. ID: 141 Cor: 1.8 ° Unc: 1.9 °
Cooler Dsc: Ice Blue
Packing: Bub
Cust. Seal: Yes ☒ No ☐
Blue Ice, Wet, Dry, None
FedEx:
UPS:
Lab Courier:
Other: 6.5.

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
John Marshall	Stantec	10/24/19 2218			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: B. Gill	Company: SEA TA	Date/Time: 10-28-19 1325

Login Sample Receipt Checklist

Client: Stantec Consulting Services Inc

Job Number: 580-90398-1

Login Number: 90398
List Number: 1
Creator: Vallelunga, Diana L

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Laboratory Data Review Checklist

Completed By:

Erin O'Malley

Title:

Environmental Engineer

Date:

11/26/2019

Consultant Firm:

Stantec Consulting Services Inc.

Laboratory Name:

TestAmerica Laboratories

Laboratory Report Number:

580-90398-1

Laboratory Report Date:

11/14/2019

CS Site Name:

Tesoro 2Go Mart 112

ADEC File Number:

100.26.159

Hazard Identification Number:

24476

580-90398-1

Laboratory Report Date:

11/14/2019

CS Site Name:

Tesoro 2Go Mart 112

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:

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

e. Data quality or usability affected?

Comments:

No.

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:

See below sections.

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5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☐ No☒ N/A☐ Comments:

Method AK102 & 103: The following samples were re-extracted outside of holding time and re-analyzed due to QC failure in the initial extraction (LCS/LCSD outside control limits): MW-2 (580-90398-1), MW-3 (580-90398-2), MW-6 (580-90398-3), MW-10 (580-90398-4), MW17-2 (580-90398-5), MW17-5 (580-90398-6) and 2GM112 DUP (580-90398-7). The LCS for the re-extracted preparation batch 580-315972 and analytical batch 580-316161 again recovered outside control limits for DRO (nC10-<nC25). Both sets of data for these samples are reported.

Quality control issues further described below.

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

No soil samples.

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?

The DRO results where the samples were extracted outside of analytical holding time are affected. However, both sets of DRO data were reported and the highest concentration for each sample was used in the project report. These concentrations are consistent with historical DRO data for each individual location.

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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:

No samples affected.

v. Data quality or usability affected?

Comments:

No.

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

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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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:

Method AK102 & 103: The following samples were re-extracted outside of holding time and re-analyzed due to QC failure in the initial extraction (LCS/LCSD outside control limits): MW-2 (580-90398-1), MW-3 (580-90398-2), MW-6 (580-90398-3), MW-10 (580-90398-4), MW17-2 (580-90398-5), MW17-5 (580-90398-6) and 2GM112 DUP (580-90398-7). The LCS for the re-extracted preparation batch 580-315972 and analytical batch 580-316161 again recovered outside control limits for DRO (nC10-<nC25). Both sets of data for these samples are reported.

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:

MW-2 (580-90398-1), MW-3 (580-90398-2), MW-6 (580-90398-3), MW-10 (580-90398-4), MW17-2 (580-90398-5), MW17-5 (580-90398-6) and 2GM112 DUP (580-90398-7

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:

No. Data usable as qualified based on LCS issues. Out of hold time extraction causes the data usability issues. However, the highest of the two sampling results for DRO is consistent with historical data for each individual location.

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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? (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 MS/MSD, 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:

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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:

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; all other analyses see the laboratory report pages)

Yes☐ No☒ N/A☐ Comments:

Method AK101: Surrogate 4-Bromofluorobenzene (Surr) recovery for the following samples were outside control limits: MW-3 (580-90398-2) and 2GM112 DUP (580-90398-7).

Method AK102 & 103: Surrogate recovery for the following sample was outside control limits: 2GM112 DUP (580-90398-7).

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:

No. Data usable as qualified based on surrogate percent recoveries. Evidence of matrix interference was present; therefore, re-extraction and/or re-analysis was not performed. Sampling results for GRO and DRO are consistent with historical data for each individual location.

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:

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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:

No.

f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

2GM112 DUP is a duplicate of MW-3

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

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

Comments:

No.

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

Yes☐ No☐ N/A☒ Comments:

No decontamination or equipment blanks were required for this project because no reusable (only disposable) equipment was used.

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

Yes☐ No☐ N/A☒ Comments:

No decontamination or equipment blanks submitted.

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

Comments:

No decontamination or equipment blanks submitted.

iii. Data quality or usability affected?

Comments:

No decontamination or equipment blanks submitted.

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

   a. Defined and appropriate?

      Yes☒ No☐ N/A☐ Comments: