MAUL FOSTER ALONGI

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May 31, 2017
Project No. 0714.03.01

Dale Myers, Site Manager
Washington State Department of Ecology—Northwest Region
Toxics Cleanup Program
3190 160th Avenue Southeast
Bellevue, WA 98008-5452

Re: Quarterly Groundwater Monitoring Event—May 2017
Former Truck City Truck Stop
3216 Old Highway 99 South, Mt. Vernon, Washington
Facility Site ID: 2673, Cleanup Site ID: 5176, UST ID: 5354

Dear Mr. Myers:

In May 2017, on behalf of Skagit County, Maul Foster & Alongi, Inc. (MFA) conducted the third post-remedial action quarterly monitoring event at the former Truck City Truck Stop site (the Site), located at 3216 Old Highway 99 South in Mount Vernon, Washington (refer to Figure 1). This event fulfills the quarterly groundwater monitoring requirement as specified in the Washington State Department of Ecology (Ecology)-approved Groundwater Monitoring Plan (GMP) included as Appendix N of the As-Built Construction Complete Report (MFA, 2016). Monitoring activities were conducted as described in the GMP (MFA, 2016) and in accordance with the monitoring requirements outlined in the Washington State Model Toxics Control Act (MTCA) (Washington Administrative Code 173-340-410). Quarterly monitoring activities are being performed to assess the effectiveness of a remedial action conducted in accordance with the prospective purchaser consent decree, No. 15-2-00056-2, executed between Ecology and Skagit County.

BACKGROUND

Between August and October 2015, MFA oversaw completion a remedial action at the Site involving the decommissioning and removal of the Site's four former fueling underground storage tanks (USTs) containing diesel and gasoline; excavation and removal of petroleum-contaminated soil (PCS); groundwater dewatering activities; treatment of dewatered fluids; and application of in-situ bioremediation products to clean backfill. These activities were completed to remove and remediate PCS and petroleum-contaminated groundwater at the Site. Figure 2 shows the estimated extent of the remedial action conducted in 2015. Performance groundwater monitoring was scheduled to begin fall of 2016 to allow for construction of the new Skagit County Jail on the Site and the necessary time for the in-situ bioremediation processes to occur with initial biodegradation of the impacted groundwater.

Groundwater-monitoring results will be evaluated on a quarterly basis to assess the performance and protectiveness of the remedial action by comparing the concentrations of the indicator hazardous substances (IHSs) at the Site's monitoring wells to MTCA Method A cleanup levels (CULs), as outlined in the GMP, and to evaluate ongoing groundwater quality conditions.

FIELD PROCEDURES

MFA used a water-level probe to measure static water levels in the wells (refer to Table 1). Light nonaqueous-phase liquid (LNAPL) was not encountered during the May 2017 monitoring event.

Groundwater-monitoring and –sampling activities were conducted in general accordance with industry standard sampling protocols and consistent with the sampling and analysis plan included in the GMP (MFA, 2016) with at least one pore volume extracted from the wells and field parameters stabilized before a sample was collected. A field duplicate was collected from monitoring well TC-5R. Depth-to-water measurements at all wells were conducted before groundwater-sampling activities began. Water-quality parameters were measured with a YSI meter (YSI 556MPS) and a turbidity meter (Hach 2100P) before sample collection and were recorded on field sampling data sheets (refer to Attachment A); final water-quality parameters are summarized in Table 2. Eight groundwater samples, including a field duplicate, were collected using low-flow sampling techniques using a peristaltic pump and disposable tubing.

Samples were submitted to Friedman & Bruya, Inc. of Seattle, Washington, under standard chain-of-custody procedures. The following analytical method were used to analyze samples for IHSs, in accordance with the GMP (MFA, 2016):

- Gasoline-range total petroleum hydrocarbons (TPH) by Northwest Total Petroleum Hydrocarbons Method Gx
- Diesel- and residual oil-range TPH by Northwest Total Petroleum Hydrocarbons Method Dx
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) by U.S. Environmental Protection Agency (USEPA) Method 8021B

The following analytical methods were also used to analyze groundwater samples for geochemical parameters at two selected well locations, TC-1R and TC-5R, in accordance with the GMP (MFA, 2016):

- Nitrate by USEPA Method 300.0
- Manganese by USEPA Method 200.8

- Sulfate by USEPA Method 300.0
- Methane by USEPA Method RSK 175

Ferrous iron was measured in the field using Hach test kit (Model IR-18C) at wells TC-1R and TC-5R.

Investigation-derived waste generated during the May 2017 sampling event was properly drummed and labeled, and is temporarily stored on the Site pending characterization for appropriate off-site disposal.

RESULTS AND DISCUSSION

Water-level measurements, final field parameters, groundwater analytical results, and groundwater geochemical parameters are summarized in Tables 1, 2, 3 and 4, respectively. The laboratory analytical report is included as Attachment B. A data validation memorandum, summarizing data evaluation procedures, usability of data, and deviations from field and/or laboratory method, is included as Attachment C. Analytical data and the laboratory's internal quality assurance and quality control data were reviewed to assess whether they met data quality objectives. The data were validated and are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

Depth-to-water measurements and groundwater elevations are summarized in Table 1. Water levels were approximately 0.1 to 0.2-foot higher than previously observed during the January 2017 event. Groundwater flow direction at the Site during the May 2017 event was generally to the southwest with tangents in the northwest area of the Site towards the southeast, as observed during the previous January 2017 and November 2016 events (refer to Figure 3).

Concentrations of IHSs were either non-detect or were detected below their respective MTCA Method A CULs at all monitoring wells sampled during the May 2017 monitoring event (refer to Table 3). Groundwater quality field parameters (refer to Table 2) at all monitoring wells and geochemical data from two selected monitoring wells located within the plume (TC-1R and TC-5R, refer to Table 4) were reviewed to assess the biodegradation of the dissolved phase petroleum hydrocarbon plume at the Site. Note: due to a delay in the analyses of nitrate by the laboratory, the reported concentrations of nitrate were from analysis performed outside of the holding time (refer to Table 4 and the DVM in Attachment C).

Field parameters (dissolved oxygen and oxygen reduction potential values) and geochemical parameters collected from these wells indicate a partial transition from an aerobic to anaerobic environment at the Site. Although the enhanced oxygen from the insitu bioremediation applied in September 2015 has appeared to have been sequentially used up (where dissolved oxygen values are now less than 1 mg/L – refer to Tables 2 and 4) by the indigenous microorganisms

(bacteria) during the biodegradation of petroleum hydrocarbons in the subsurface environment, the collective geochemical parameters (ferrous iron, manganese, and sulfate) indicate that natural attenuation processes (i.e., biological activities) are still ongoing at the Site.

SUMMARY

The following is a summary of findings and opinions:

- The direction of groundwater migration at the Site during the May 2017 event appeared to be generally to the southwest, similar to the previous events in January 2017 and November 2016.
- LNAPL was not encountered in any monitoring wells during this event's monitoring activities.
- Gasoline-range and residual-oil range TPH, and BTEX concentrations were not detected above method reporting limits in any monitoring network wells during this groundwater event.
- Diesel-range TPH concentrations were detected in four monitoring wells locations, but at concentrations well below the MTCA Method A CUL.
- Field parameters and geochemical data indicate a partial transition from an aerobic to anaerobic environment within the dissolved phase petroleum hydrocarbon plume at the Site.

The May 2017 groundwater event is the third quarterly monitoring event at the Site since the completion of the remedial action in October 2015. This is the third consecutive groundwater monitoring event without exceedances in any monitoring network wells. Additional quarterly monitoring events will continue to evaluate the ongoing biodegradation of the dissolved phase petroleum hydrocarbon plume and the hydrogeologic conditions at the Site.

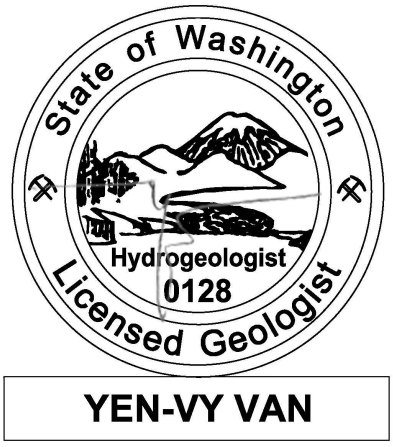
SCHEDULE

In accordance with the GMP (MFA, 2016), the next quarterly monitoring event is scheduled for August 2017.

If you have any questions regarding this letter, please feel free to contact either of us.

Sincerely,

Maul Foster & Alongi, Inc.



05-31-2017

Yen-Vy Van, LHG
Senior Hydrogeologist

Carolyn R. Wise, GIT
Staff Geologist

Attachments: Limitations
References
Figures
Tables
A—Water Field Sampling Data Sheets
B—Analytical Laboratory Report
C—Data Validation Memorandum

cc: Marc Estvold and Dan Fitting, Skagit County

LIMITATIONS

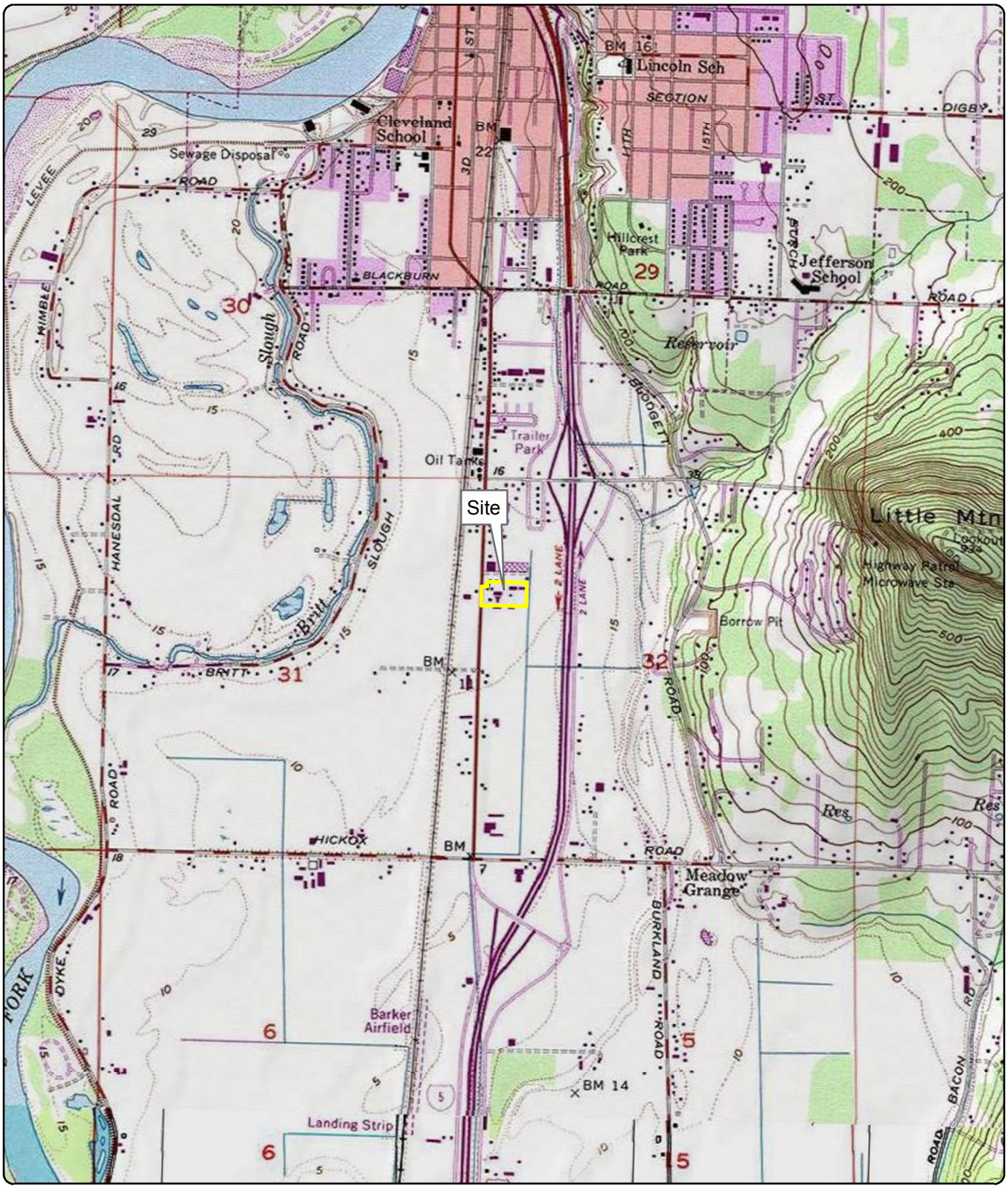
The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

REFERENCES

MFA. 2016. As-built construction complete report, former Truck City site, Mount Vernon, Washington. Maul Foster & Alongi, Inc., Bellingham, Washington. January.

FIGURES



Source: US Geological Survey (1990) 7.5-minute
topographic quadrangle: Mount Vernon
Section 32, Township 34 North, Range 4 East

Figure 1
Site Location

Skagit County
Former Truck City Site
Mount Vernon, Washington

0 1,000 2,000
Feet

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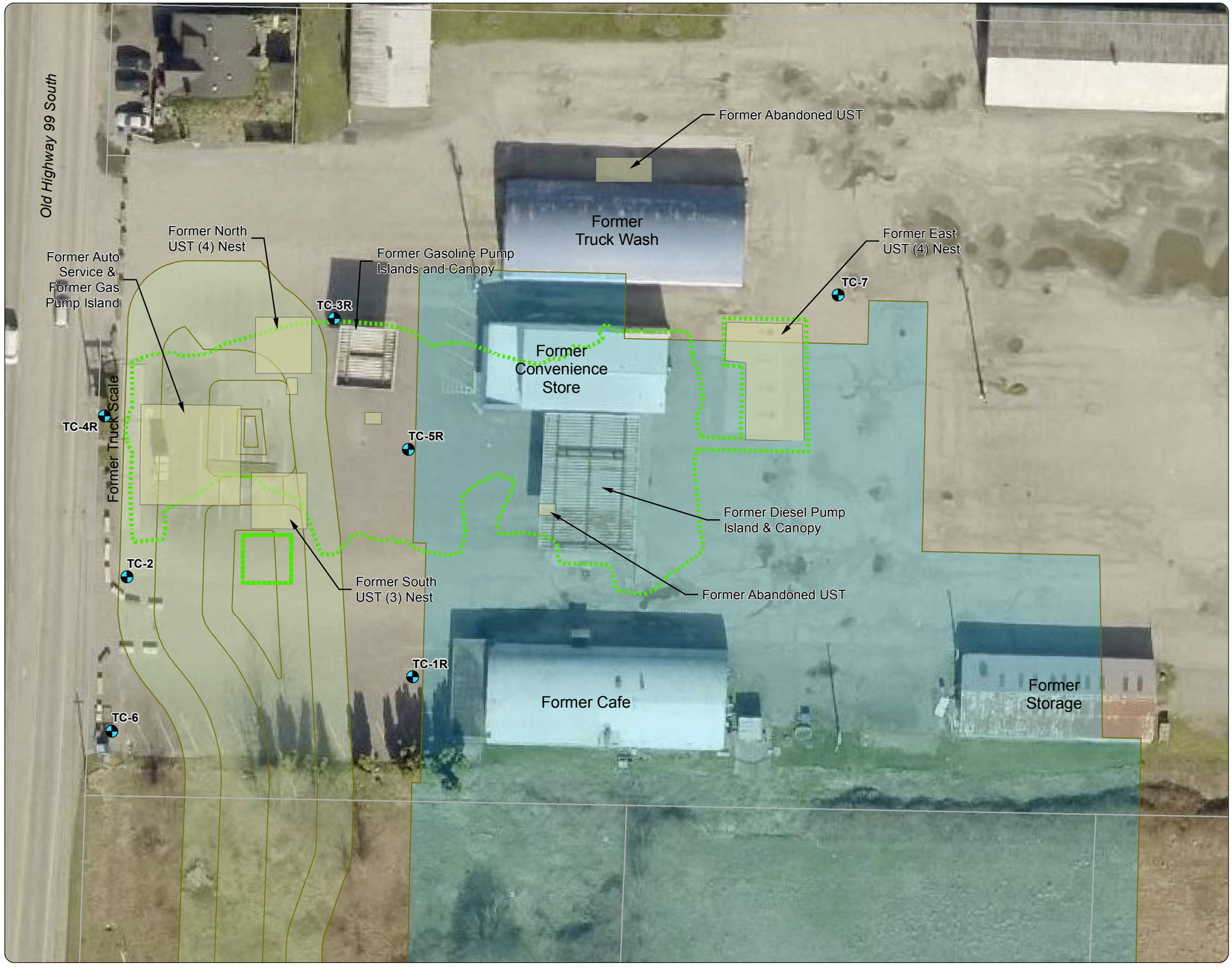
Project: 0714.03.01-04 Produced By: cwise Approved By: Yen-Vy Van Print Date: 12/22/2016 Path: X:\0714.03.01 Truck City Engineering Design Report\Projects\Quarterly GW Monitoring\Fig1_ Site Location.mxd

Figure 2
Groundwater Monitoring Well Network

Skagit County
Former Truck City Site
Mount Vernon, Washington



Legend

- Jail Building Footprint
- Jail Facility
- Approximate Remedial Action Extent, 2015
- Monitoring Well

Notes:
1. All features of the former Truck City Site have been demolished and removed. Current site feature is the Skagit County Jail building and asociated features.
2. Site features were digitized from figures prepared by Materials Testing & Consulting, Inc., Associated Environmental Group, LLC, and Applied Geotechnology, Inc.
3. Monitoring wells were professionally surveyed by Pacific Geomatic Services in November 2016.

0 20 40
Feet

Source: Aerial photograph (2015) and parcels obtained from Skagit County.

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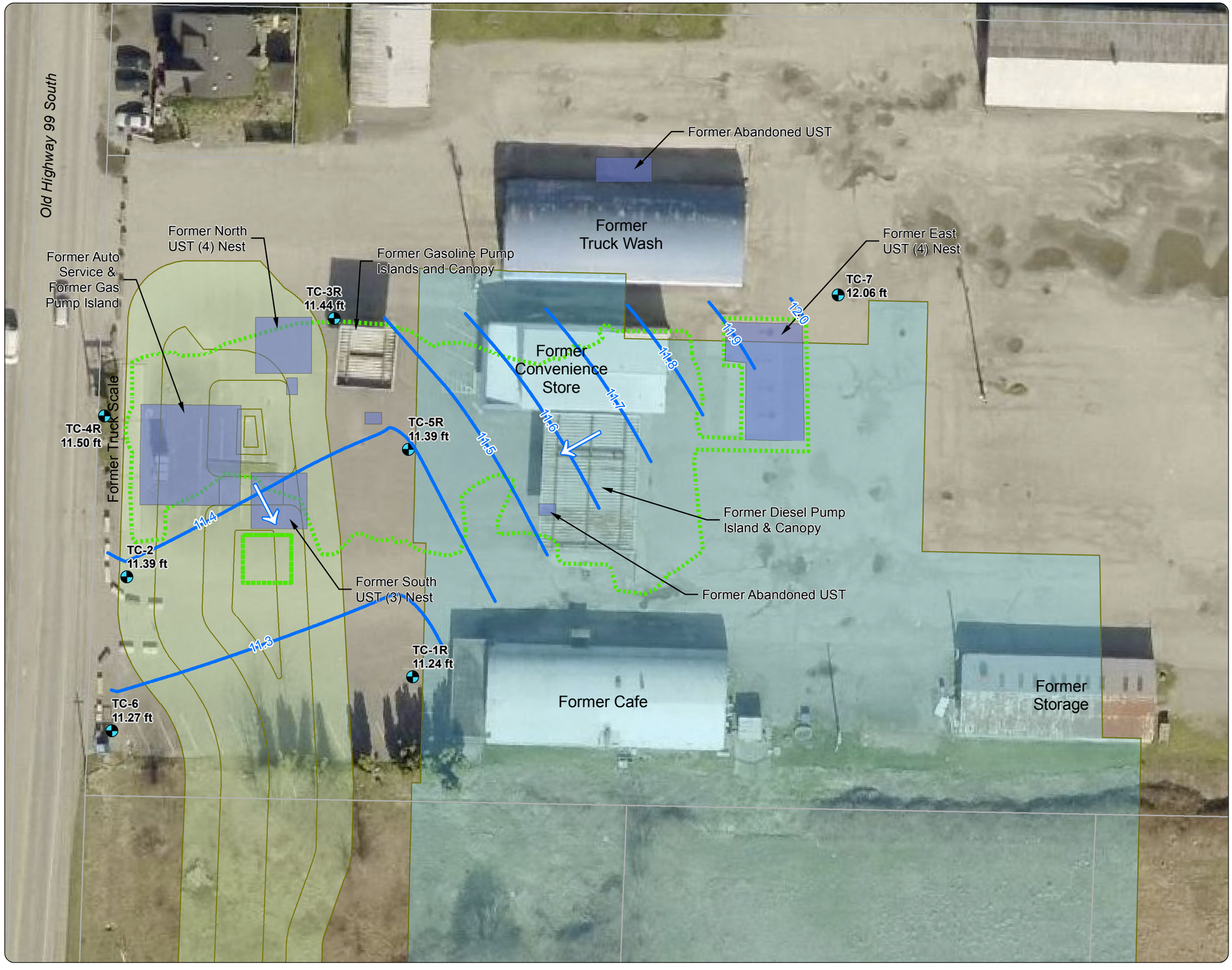
Print Date: 12/27/2016
Approved By: yvan
Produced By: njones
Project: 0714.03.01-04

Figure 3
Groundwater Potentiometric Surface
May 2017

Skagit County
Former Truck City Site
Mount Vernon, Washington



Legend

- Jail Building Footprint
- Stormwater Retention Pond
- Former Site Features
- Approximate Remedial Action Extent, 2015
- Water Level Contour
- Monitoring Well (with WLE)
- Groundwater Flow Direction

Notes:
1. All features of the former Truck City Site have been demolished and removed. Current site feature is the Skagit County Jail building and asociated features.
2. Site features were digitized from figures prepared by Materials Testing & Consulting, Inc., Associated Environmental Group, LLC, and Applied Geotechnology, Inc.
3. Monitoring wells were professionally surveyed by Pacific Geomatic Services in May 2017.
4. WLE = water level elevation.
5. UST = underground storage tank.

0 20 40
Feet

Source: Aerial photograph (2015) and parcels obtained from Skagit County.

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Print Date: 5/11/2017
Approved By: yxan
Produced By: rroberts
Project: 0714.03.01-04

TABLES

Table 1
Water Level Data
Former Truck City Truck Stop Site
Skagit County
Mount Vernon, Washington

Location	MP Elevation (feet, NAVD 88)	Measurement Date	Depth to Water (feet)	Change in Water Level (feet)[a]	Groundwater Elevation (feet, NAVD 88)
TC-1R	21.51	11/03/2016	10.88	--	10.63
		01/25/2017	10.33	0.55	11.18
		05/03/2017	10.27	0.06	11.24
TC-2	16.99	11/03/2016	6.16	--	10.83
		01/25/2017	5.74	0.42	11.25
		05/03/2017	5.6	0.14	11.39
TC-3R	18.02	11/03/2016	7.36	--	10.66
		01/25/2017	6.84	0.52	11.18
		05/03/2017	6.58	0.26	11.44
TC-4R	17.10	11/03/2016	6.11	--	10.99
		01/25/2017	5.65	0.46	11.45
		05/03/2017	5.60	0.05	11.50
TC-5R	21.62	11/03/2016	10.96	--	10.66
		01/25/2017	10.44	0.52	11.18
		05/03/2017	10.23	0.21	11.39
TC-6	16.53	11/03/2016	5.68	--	10.85
		01/25/2017	5.36	0.32	11.17
		05/03/2017	5.26	0.10	11.27
TC-7	19.58	11/03/2016	8.42	--	11.16
		01/25/2017	7.77	0.65	11.81
		05/03/2017	7.52	0.25	12.06

NOTES:

-- = not applicable.

MP = measuring point. Standard MP is on the north side of the well casing.

NAVD 88 = North American Vertical Datum of 1988.

[a]Change in water level is relative to two most recent sampling events.

Table 2
Final Water Quality Field Parameters
Former Truck City Truck Stop Site
Skagit County
Mount Vernon, Washington

Location	Date	pH	Temperature (degrees C)	Conductivity (uS/cm)	DO (mg/L)	ORP	Turbidity (NTU)
TC-1R	11/03/2016	6.76	16.48	1,161	1.22	-182.0	9.74
	01/25/2017	6.33	11.83	1,319	0.64	-55.2	6.82
	05/03/2017	7.06	12.72	1,201	0.28	-54.0	11.60
TC-2	11/03/2016	6.56	17.14	656	1.05	20.8	11.10
	01/25/2017	6.21	11.82	633	0.39	150.1	7.91
	05/03/2017	6.88	11.64	665	0.50	-51.4	8.96
TC-3R	11/03/2016	7.12	15.18	1,129	0.92	-106.1	19.90
	01/25/2017	6.99	9.21	901	0.36	-13.9	21.30
	05/03/2017	7.09	12.30	756	0.31	-32.4	22.70
TC-4R	11/03/2016	6.63	16.00	542	1.41	-13.8	6.17
	01/25/2017	6.50	9.92	505	0.45	187.3	6.82
	05/03/2017	7.07	11.90	492	0.83	-2.2	7.41
TC-5R	11/03/2016	7.49	16.09	842	0.57	-186.2	18.60
	01/25/2017	7.28	10.81	1,412	0.46	-7.0	20.60
	05/03/2017	7.21	12.95	883	0.20	-58.8	10.10
TC-6	11/03/2016	6.55	16.14	356	0.97	30.4	9.71
	01/25/2017	6.58	10.21	552	0.49	115.1	9.12
	05/03/2017	7.04	12.75	639	0.65	-54.7	9.84
TC-7	11/03/2016	6.66	13.39	401	1.58	-95.1	9.22
	01/25/2017	6.77	9.58	423	0.87	89.9	19.90
	05/03/2017	6.85	13.30	456	0.22	-7.7	22.40

NOTES:

C = Celsius.

DO = dissolved oxygen.

mg/L = milligrams per liter.

NTU = nephelometric turbidity unit.

ORP = oxygen reduction potential.

uS/cm = microsiemens per centimeter.

Table 3
Summary of Groundwater Analytical Results
Former Truck City Truck Stop Site
Skagit County
Mount Vernon, Washington

Location	Collection Date	Benzene	Ethylbenzene	Toluene	Xylenes, Total	Gasoline TPH[a]	Diesel TPH	Motor Oil TPH	Total TPH[b]
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MTCA Method A Cleanup Level (ug/L)		5	700	1000	1000	800[a]	500	500	500
TC-1R	11/03/2016	1 U	1 U	1 U	3 U	100 U	**270**	250 U	**395**
	1/25/2017	1 U	1 U	1 U	3 U	100 U	**140**	250 U	**265**
	5/3/2017	1 U	1 U	1 U	3 U	100 U	**120**	250 U	**245**
TC-2	11/03/2016	1 U	1 U	1 U	3 U	100 U	**54**	250 U	**179**
	1/25/2017	1 U	1 U	1 U	3 U	100 U	50 U	250 U	150 U
	5/3/2017	1 U	1 U	1 U	3 U	100 U	50 U	250 U	150 U
TC-3R	11/03/2016	1 U	1 U	1 U	3 U	100 U	**100**	250 U	**225**
	1/25/2017	1 U	1 U	1 U	3 U	100 U	50 U	250 U	150 U
	5/3/2017	1 U	1 U	1 U	3 U	100 U	**52**	250 U	**177**
TC-4R	11/03/2016	1 U	1 U	1 U	3 U	100 U	**55**	250 U	**180**
	1/25/2017	1 U	1 U	1 U	3 U	100 U	50 U	250 U	150 U
	5/3/2017	1 U	1 U	1 U	3 U	100 U	50 U	250 U	150 U
TC-5R	11/03/2016	1 U	1 U	1 U	3 U	100 U	**170**	250 U	**295**
	11/03/2016	1 U	1 U	1 U	3 U	100 U	**180**	250 U	**305**
	1/25/2017	1 U	1 U	1 U	3 U	100 U	**55**	250 U	**180**
	1/25/2017	1 U	1 U	1 U	3 U	100 U	**84**	250 U	**209**
	5/3/2017	1 U	1 U	1 U	3 U	100 U	**64**	250 U	**189**
	5/3/2017	1 U	1 U	1 U	3 U	100 U	**88**	250 U	**213**
TC-6	11/03/2016	1 U	1 U	1 U	3 U	100 U	**72**	250 U	**197**
	1/25/2017	1 U	1 U	1 U	3 U	100 U	50 U	250 U	150 U
	5/3/2017	1 U	1 U	1 U	3 U	100 U	50 U	250 U	150 U
TC-7	11/03/2016	1 U	1 U	1 U	3 U	100 U	**69**	250 U	**194**
	1/25/2017	1 U	1 U	1 U	3 U	100 U	**77**	250 U	**202**
	5/3/2017	1 U	1 U	1 U	3 U	100 U	**76**	250 U	**201**

NOTES:
Detected results are indicated by bold font.
MTCA = Model Toxics Control Act.
TPH = total petroleum hydrocarbons.
U = Result is non-detect.
ug/L = micrograms per liter.
[a]MTCA Method A cleanup level for gasoline with presence of benzene. Note: benzene was previously detected in groundwater at the Site.
[b]Sum of Diesel TPH and Motor Oil TPH. Non-detect values used at 1/2 the reporting limit value.

Table 4
Groundwater Geochemical Parameters
Former Truck City Truck Stop Site
Skagit County
Mount Vernon, Washington

Location:	TC-1R		TC-2		TC-3R		TC-4R		TC-5R		TC-6		TC-7	
Collection Date:	11/03/2016	05/03/2017	11/03/2016	05/03/2017	11/03/2016	05/03/2017	11/03/2016	05/03/2017	11/03/2016	05/03/2017	11/03/2016	05/03/2017	11/03/2016	05/03/2017
Geochemical Parameters														
Dissolved oxygen[a] (mg/L)	1.22	0.28	1.05	0.5	0.92	0.31	1.41	0.83	0.57	0.2	0.97	0.65	1.58	0.22
Oxidation reduction potential[a] (mV)	-182	-54	20.8	-51.4	-106.1	-32.4	-13.8	-2.2	-186.2	-58.8	30.4	-54.7	-95.1	-7.7
Ferrous Iron[a] (mg/L)	2.75	3.25	--	--	--	--	--	--	0.25	1.5	--	--	--	--
Manganese (mg/L)	1.680	2.95	--	--	--	--	--	--	0.434	0.817	--	--	--	--
Methane (mg/L)	0.11	0.1	--	--	--	--	--	--	0.016	0.027	--	--	--	--
Nitrate(as Nitrogen) (mg/L)	0.025 R	190 R	--	--	--	--	--	--	0.07 R	0.183	--	--	--	--
Sulfate (mg/L)	235	450	--	--	--	--	--	--	220	202	--	--	--	--

ATTACHMENT A

WATER FIELD SAMPLING DATA SHEETS

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	Skagit County	**Sample Location**	TC-1R
Project #	0714.03.01	**Sampler**	C. Wise
Project Name	Former Truck City	**Sampling Date**	5/3/2017
Sampling Event	May 2017	**Sample Name**	TC1R-GW-050317
Sub Area		**Sample Depth**	12
FSDS QA:	EMC 5/8/2017	**Easting**	**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
5/3/2017	14:05	14.53		10.27		4.26	0.69

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP	Turbidity
(2) Peristaltic Pump	2:25:00 PM	0.75	0.2	6.88	13.44	1200	0.8	-43.4	32.8
	2:29:00 PM	0.95	0.2	6.91	13.23	1200	0.58	-45.8	26
	2:33:00 PM	1.15	0.2	6.94	13.05	1200	0.46	-47.1	12
	2:37:00 PM	1.35	0.2	6.98	12.9	1201	0.36	-49.1	11.7
	2:41:00 PM	1.55	0.2	7	12.82	1200	0.31	-50.5	12.3
Final Field Parameters	2:45:00 PM	1.75	0.2	7.06	12.72	1201	0.28	-54	11.6

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations: Clear. Slight odor. Sheen.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	2:50:00 PM	VOA-Glass	5	No
			Amber Glass	2	No
			White Poly	2	No
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly		
			Total Bottles	10	

General Sampling Comments Began purge at 14:10. Field test for ferrous iron = 3.25 mg/L.

Signature _____

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	Skagit County	**Sample Location**	TC-2		
Project #	0714.03.01	**Sampler**	C. Wise		
Project Name	Former Truck City	**Sampling Date**	5/3/2017		
Sampling Event	May 2017	**Sample Name**	TC2-GW-050317		
Sub Area		**Sample Depth**	8		
FSDS QA:	EMC 5/8/2017	**Easting**		**Northing**		**TOC**	

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
5/3/2017	9:05	13.4		5.6		7.8	1.27

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	9:32:00 AM	1.9	0.2	6.82	11.61	685	0.64	-42.5	87.5
	9:36:00 AM	2.1	0.2	6.88	11.67	667	0.65	-45.7	32.3
	9:40:00 AM	2.3	0.2	6.87	11.65	668	0.62	-46.1	24.1
	9:44:00 AM	2.5	0.2	6.87	11.65	667	0.58	-48.3	11.3
	9:48:00 AM	2.7	0.2	6.88	11.66	665	0.54	-51.1	9.87
	9:52:00 AM	2.9	0.2	6.87	11.65	666	0.52	-52.3	8.71
Final Field Parameters	9:56:00 AM	3.1	0.2	6.88	11.64	665	0.5	-51.4	8.96

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Lots of red flakes in purge water. Cloudy to clear. No odor or sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	10:00:00 AM	VOA-Glass	3	No
			Amber Glass	1	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	4	

General Sampling Comments

Began purge at 9:10.

Signature _____

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	Skagit County	**Sample Location**	TC-3R
Project #	0714.03.01	**Sampler**	C. Wise
Project Name	Former Truck City	**Sampling Date**	5/3/2017
Sampling Event	May 2017	**Sample Name**	TC3R-GW-050317
Sub Area		**Sample Depth**	9
FSDS QA:	EMC 5/8/2017	**Easting**	**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
5/3/2017	11:30	14.51		6.58		7.93	1.29

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	11:50:00 AM	1.25	0.2	6.99	12.2	718	0.54	-23.3	34.1
	11:54:00 AM	1.45	0.2	7.01	12.17	726	0.49	-24.9	28.7
	11:58:00 AM	1.65	0.2	7.03	12.24	727	0.42	-26.9	25.9
	12:02:00 PM	1.85	0.2	7.05	12.27	738	0.37	-28	26.1
	12:06:00 PM	2.05	0.2	7.06	12.28	735	0.36	-28.5	24.3
	12:10:00 PM	2.25	0.2	7.09	12.32	754	0.33	-31.4	23.3
Final Field Parameters	12:14:00 PM	2.45	0.2	7.09	12.3	756	0.31	-32.4	22.7

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear. Slight odor. No sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	12:30:00 PM	VOA-Glass	3	No
			Amber Glass	1	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	4	

General Sampling Comments

Began purge at 11:35.

Signature _____

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	Skagit County	**Sample Location**	TC-4R
Project #	0714.03.01	**Sampler**	C. Wise
Project Name	Former Truck City	**Sampling Date**	5/3/2017
Sampling Event	May 2017	**Sample Name**	TC4R-GW-050317
Sub Area		**Sample Depth**	9
FSDS QA:	EMC 5/8/2017	**Easting**	**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
5/3/2017	8:00	14.81		5.6		9.21	1.5

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP	Turbidity
(2) Peristaltic Pump	8:20:00 AM	1.5	0.2	7.12	11.91	487	1.23	-3.1	8.83
	8:24:00 AM	1.7	0.2	7.09	11.89	490	1.05	-2.6	7.76
	8:28:00 AM	1.9	0.2	7.09	11.9	491	1	-2.5	7.41
	8:32:00 AM	2.1	0.2	7.08	11.9	492	0.89	-2.3	7.13
	8:36:00 AM	2.3	0.2	7.08	11.89	492	0.87	-2.2	7.33
Final Field Parameters	8:40:00 AM	2.5	0.2	7.07	11.9	492	0.83	-2.2	7.41

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations: Clear. No sheen or odor. Some red flakes present in purge water.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	8:45:00 AM	VOA-Glass	3	No
			Amber Glass	1	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	4	

General Sampling Comments Began purge at 8:10.

Signature _____

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	Skagit County	**Sample Location**	TC-5R		
Project #	0714.03.01	**Sampler**	C. Wise		
Project Name	Former Truck City	**Sampling Date**	5/3/2017		
Sampling Event	May 2017	**Sample Name**	TC5R-GW-050317		
Sub Area		**Sample Depth**	12.5		
FSDS QA:	EMC 5/8/2017	**Easting**		**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
5/3/2017	12:40	14.43		10.23		4.2	0.68

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	12:55:00 PM	0.75	0.2	7.08	12.95	907	0.75	-38.7	53
	12:59:00 PM	0.95	0.2	7.11	12.91	904	0.6	-42.7	39.6
	1:03:00 PM	1.15	0.2	7.16	12.93	898	0.36	-50.2	25.7
	1:07:00 PM	1.35	0.2	7.2	12.94	889	0.27	-56.7	11.3
	1:11:00 PM	1.55	0.2	7.21	12.96	886	0.25	-57.9	10.7
	1:15:00 PM	1.75	0.2	7.21	12.94	884	0.2	-58.3	9.8
Final Field Parameters	1:19:00 PM	1.95	0.2	7.21	12.95	883	0.2	-58.8	10.1

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Clear. No sheen. Slight odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	1:20:00 PM	VOA-Glass	7	No
			Amber Glass	2	No
			White Poly	2	No
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly		
			Total Bottles	12	

General Sampling Comments

Began purge at 12:40. Collected TCDUP-GW-050317. Field test of ferrous iron = 1.5 mg/L.

Signature _____

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	Skagit County	**Sample Location**	TC-6		
Project #	0714.03.01	**Sampler**	C. Wise		
Project Name	Former Truck City	**Sampling Date**	5/3/2017		
Sampling Event	May 2017	**Sample Name**	TC6-GW-050317		
Sub Area		**Sample Depth**	9		
FSDS QA:	EMC 5/8/2017	**Easting**		**Northing**		**TOC**	

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
5/3/2017	10:25	14.76		5.26		9.5	1.54

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP	Turbidity
(2) Peristaltic Pump	10:45:00 AM	1.5	0.2	6.99	12.87	636	2.15	-52	34.4
	10:49:00 AM	1.7	0.2	7.01	12.79	638	1.03	-53.3	22.1
	10:53:00 AM	1.9	0.2	7.02	12.74	638	0.91	-53.5	12.1
	10:57:00 AM	2.1	0.2	7.03	12.73	638	0.69	-54.4	10.3
	11:01:00 AM	2.3	0.2	7.03	12.72	638	0.67	-54.6	9.71
Final Field Parameters	11:05:00 AM	2.5	0.2	7.04	12.75	639	0.65	-54.7	9.84

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations: Clear. No odor or sheen.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	11:10:00 AM	VOA-Glass	3	No
			Amber Glass	1	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	4	

General Sampling Comments Began purge at 10:30.

Signature _____

Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

Water Field Sampling Data Sheet

Client Name	Skagit County	**Sample Location**	TC-7
Project #	0714.03.01	**Sampler**	C. Wise
Project Name	Former Truck City	**Sampling Date**	5/3/2017
Sampling Event	May 2017	**Sample Name**	TC7-GW-050317
Sub Area		**Sample Depth**	10
FSDS QA:	EMC 5/8/2017	**Easting**	**Northing**	**TOC**

Hydrology/Level Measurements

					(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
Date	**Time**	**DT-Bottom**	**DT-Product**	**DT-Water**	**DTP-DTW**	**DTB-DTW**	**Pore Volume**
5/3/2017	15:30	14.5		7.52		6.98	1.13

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	**Time**	**Purge Vol (gal)**	**Flowrate l/min**	**pH**	**Temp (C)**	**E Cond (uS/cm)**	**DO (mg/L)**	**ORP**	**Turbidity**
(2) Peristaltic Pump	3:55:00 PM	1	0.2	6.7	12.77	467	0.57	-1.4	56.1
	3:59:00 PM	1.2	0.2	6.73	12.71	463	0.39	-1.8	51.2
	4:03:00 PM	1.4	0.2	6.77	12.86	460	0.27	-2.9	36.5
	4:07:00 PM	1.6	0.2	6.79	13.04	459	0.25	-4.3	31.9
	4:11:00 PM	1.8	0.2	6.81	13.19	458	0.25	-5.9	22.2
	4:15:00 PM	2	0.2	6.83	13.26	457	0.22	-6.6	21.7
Final Field Parameters	4:19:00 PM	2.2	0.2	6.85	13.3	456	0.22	-7.7	22.4

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations: Some red flakes initially present in purge water. Cloudy. No odor or sheen.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	4:30:00 PM	VOA-Glass	3	No
			Amber Glass	1	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	4	

General Sampling Comments Began purge at 15:40.

Signature _____

ATTACHMENT B

ANALYTICAL LABORATORY REPORT

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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Seattle, WA 98119-2029
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www.friedmanandbruya.com

May 18, 2017

Yen-Vy Van, Project Manager
Maul Foster Alongi
2815 2nd Ave, Suite 540
Seattle, WA 98121

Dear Ms Van:

Included are the results from the testing of material submitted on May 4, 2017 from the Truck City, PO 0714.03.01-04, F&BI 705081 project. There are 14 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
MFA0518R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on May 4, 2017 by Friedman & Bruya, Inc. from the Maul Foster Alongi Truck City, PO 0714.03.01-04, F&BI 705081 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
705081 -01	TC4R-GW-050317
705081 -02	TC2-GW-050317
705081 -03	TC6-GW-050317
705081 -04	TC3R-GW-050317
705081 -05	TC5R-GW-050317
705081 -06	TCDUP-GW-050317
705081 -07	TC1R-GW-050317
705081 -08	TC7-GW-050317

Samples TC5R-GW-050317 and TC1R-GW-050317 were sent to Amtest for nitrate and sulfate analyses. The report generated by Amtest will be forwarded to your office upon receipt.

The 6020A manganese matrix spike and matrix spike duplicate did not pass the acceptance criteria. In addition, the relative percent differences exceeded the acceptance criteria. The laboratory control sample met the acceptance criteria, therefore the results were likely due to matrix effect.

All other quality control requirements were acceptable.

Date of Report: 05/18/17
Date Received: 05/04/17
Project: Truck City, PO 0714.03.01-04, F&BI 705081
Date Extracted: 050/05/17
Date Analyzed: 05/05/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
TC4R-GW-050317 705081-01	<1	<1	<1	<3	<100	85
TC2-GW-050317 705081-02	<1	<1	<1	<3	<100	84
TC6-GW-050317 705081-03	<1	<1	<1	<3	<100	80
TC3R-GW-050317 705081-04	<1	<1	<1	<3	<100	83
TC5R-GW-050317 705081-05	<1	<1	<1	<3	<100	82
TCDUP-GW-050317 705081-06	<1	<1	<1	<3	<100	82
TC1R-GW-050317 705081-07	<1	<1	<1	<3	<100	81
TC7-GW-050317 705081-08	<1	<1	<1	<3	<100	82
Method Blank 07-783 MB	<1	<1	<1	<3	<100	84

Date of Report: 05/18/17
Date Received: 05/04/17
Project: Truck City, PO 0714.03.01-04, F&BI 705081
Date Extracted: 05/05/17
Date Analyzed: 05/05/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
TC4R-GW-050317 705081-01	<50	<250	103
TC2-GW-050317 705081-02	<50	<250	100
TC6-GW-050317 705081-03	<50	<250	101
TC3R-GW-050317 705081-04	52 x	<250	95
TC5R-GW-050317 705081-05	64 x	<250	94
TCDUP-GW-050317 705081-06	88 x	<250	103
TC1R-GW-050317 705081-07	120 x	<250	96
TC7-GW-050317 705081-08	76 x	<250	86
Method Blank 07-967 MB	<50	<250	84

Analysis For Total Metals By EPA Method 6020A

Client ID:	TC5R-GW-050317	Client:	Maul Foster Alongi
Date Received:	05/04/17	Project:	Truck City, PO 0714.03.01-04
Date Extracted:	05/05/17	Lab ID:	705081-05 x10
Date Analyzed:	05/09/17	Data File:	705081-05 x10.045
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Manganese	817

Analysis For Total Metals By EPA Method 6020A

Client ID:	TC1R-GW-050317	Client:	Maul Foster Alongi
Date Received:	05/04/17	Project:	Truck City, PO 0714.03.01-04
Date Extracted:	05/05/17	Lab ID:	705081-07 x10
Date Analyzed:	05/09/17	Data File:	705081-07 x10.046
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Manganese	2,950

Analysis For Total Metals By EPA Method 6020A

Client ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	NA	Project:	Truck City, PO 0714.03.01-04
Date Extracted:	05/05/17	Lab ID:	I7-242 mb2
Date Analyzed:	05/09/17	Data File:	I7-242 mb2.028
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Manganese	<1

Analysis For Dissolved Gasses By RSK 175

Client Sample ID:	TC5R-GW-050317	Client:	Maul Foster Alongi
Date Received:	05/04/17	Project:	Truck City, PO 0714.03.01-04
Date Extracted:	05/10/17	Lab ID:	705081-05
Date Analyzed:	05/10/17	Data File:	009F0901.D
Matrix:	Water	Instrument:	GC8
Units:	ug/L (ppb)	Operator:	JS

Compounds:	Concentration ug/L (ppb)
Methane	27

Analysis For Dissolved Gasses By RSK 175

Client Sample ID:	TC1R-GW-050317	Client:	Maul Foster Alongi
Date Received:	05/04/17	Project:	Truck City, PO 0714.03.01-04
Date Extracted:	05/10/17	Lab ID:	705081-07
Date Analyzed:	05/10/17	Data File:	010F1001.D
Matrix:	Water	Instrument:	GC8
Units:	ug/L (ppb)	Operator:	JS

Compounds:	Concentration ug/L (ppb)
Methane	100

Analysis For Dissolved Gasses By RSK 175

Client Sample ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	05/04/17	Project:	Truck City, PO 0714.03.01-04
Date Extracted:	05/10/17	Lab ID:	07-1012 mb
Date Analyzed:	05/10/17	Data File:	008F0801.D
Matrix:	Water	Instrument:	GC8
Units:	ug/L (ppb)	Operator:	JS

Compounds:	Concentration ug/L (ppb)
Methane	<4

Date of Report: 05/18/17
Date Received: 05/04/17
Project: Truck City, PO 0714.03.01-04, F&BI 705081

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 705087-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	107	65-118
Toluene	ug/L (ppb)	50	108	72-122
Ethylbenzene	ug/L (ppb)	50	112	73-126
Xylenes	ug/L (ppb)	150	105	74-118
Gasoline	ug/L (ppb)	1,000	95	69-134

Date of Report: 05/18/17
Date Received: 05/04/17
Project: Truck City, PO 0714.03.01-04, F&BI 705081

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	93	91	61-133	2

Date of Report: 05/18/17
Date Received: 05/04/17
Project: Truck City, PO 0714.03.01-04, F&BI 705081

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020A

Laboratory Code: 705074-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Manganese	ug/L (ppb)	20	560	157 b	10 b	75-125	176 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Manganese	ug/L (ppb)	20	100	80-120

Date of Report: 05/18/17
Date Received: 05/04/17
Project: Truck City, PO 0714.03.01-04, F&BI 705081

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR DISSOLVED GASSES USING METHOD RSK 175

Laboratory Code: 705082-02 (Duplicate)05/10/17

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Methane	ug/L (ppb)	34	32	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methane	ug/L (ppb)	59	81	69	50-150	16

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

705081

SAMPLE CHAIN OF CUSTODY

ME 05-04-17

Page # 1 of 1

Report To Yen-Vy Van

Company Maul Foster Alongi

Address ~~1329~~ 2815 2nd Ave Ste 540

City, State, ZIP Seattle, WA 98121

Phone 2533205378 Email yvan@maulfoster.com

SAMPLERS (*signature*) Carolyn Wise

PROJECT NAME Truck City

PO # 0714.03.01-04

REMARKS

INVOICE TO Y. Van

TURNAROUND TIME
- [X] Standard Turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [X] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	Nitrate 353.2	Mn 6020A (total)	Sulfate PSEP-02	Methane RSK 175	Notes
TC4R-GW-050317	01 A-C	5/3/17	845	W	4		X	X	X								
TC2-GW-050317	02 A-D		1000	W	4		X	X	X								
TC6-GW-050317	03 A-D		1110	W	4		X	X	X								
TC3R-GW-050317	04 A-D		1230	W	4 DUP		X	X	X								
TC5R-GW-050317	05 A-J		1320	W	~~3~~ 12		X	X	X				X	X	X	X	Received 10
TCDUP-GW-050317	06 A-B ~~C~~		1320	W	~~2~~ 3	DUP	X	X	X								Received ~~2~~ 3
TC1R-GW-050317	07 A-J		1450	W	10		X	X	X				X	X	X	X	
TC7-GW-050317	08 A-D		1630	W	4		X	X	X								
																	Samples received at 4 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Carolyn Wise	Carolyn Wise	MFA	5/3/17	1745
Received by: Nham Phan	Nham Phan	FEBI	5/4/17	1302
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

Am Test Inc.
13600 NE 126TH PL
Suite C
Kirkland, WA 98034
(425) 885-1664

Professional Analytical Services

May 23 2017
Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Attention: MICHAEL ERDAHL

Dear MICHAEL ERDAHL:

Enclosed please find the analytical data for your 705081 project.

The following is a cross correlation of client and laboratory identifications for your convenience.

CLIENT ID	MATRIX	AMTEST ID	TEST
TC5R-GW-050317	Water	17-A006562	NUT, MIN
TC1R-GW-050317	Water	17-A006563	NUT, MIN

Your samples were received on Thursday, May 4, 2017. At the time of receipt, the samples were logged in and properly maintained prior to the subsequent analysis.

The analytical procedures used at AmTest are well documented and are typically derived from the protocols of the EPA, USDA, FDA or the Army Corps of Engineers.

Following the analytical data you will find the Quality Control (QC) results.

Please note that the detection limits that are listed in the body of the report refer to the Practical Quantitation Limits (PQL's), as opposed to the Method Detection Limits (MDL's).

If you should have any questions pertaining to the data package, please feel free to conact me.

Sincerely,

Aaron W. Young
Laboratory Manager

PO Number: E-623

BACT = Bacteriological
CONV = Conventionals
MET = Metals
ORG = Organics
NUT=Nutrients
DEM=Demand
MIN=Minerals

Am Test Inc.
13600 NE 126TH PL
Suite C
Kirkland, WA 98034
(425) 885-1664
www.amtestlab.com

Professional Analytical Services

ANALYSIS REPORT

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Attention: MICHAEL ERDAHL
Project Name: 705081
PO Number: E-623
All results reported on an as received basis.

Date Received: 05/04/17
Date Reported: 5/23/17

AMTEST Identification Number **17-A006562**
Client Identification **TC5R-GW-050317**
Sampling Date **05/03/17, 13:20**

Minerals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Sulfate	202.	mg/l		0.1	EPA 300.0	JC	05/18/17

Nutrients

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Nitrate	0.183	mg/l		0.025	EPA 300.0	SW	05/04/17

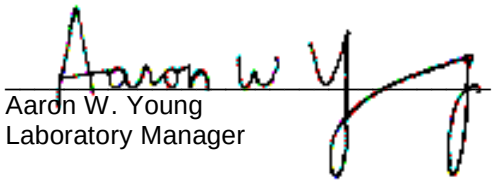
AMTEST Identification Number **17-A006563**
Client Identification **TC1R-GW-050317**
Sampling Date **05/03/17, 14:50**

Minerals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Sulfate	450.	mg/l		0.1	EPA 300.0	JC	05/15/17

Nutrients

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Nitrate	190.	mg/l		0.025	EPA 300.0	JC	05/15/17



Aaron W. Young
Laboratory Manager

Am Test Inc.
13600 NE 126th PL
Suite C
Kirkland, WA, 98034
(425) 885-1664
www.amtestlab.com

Professional Analytical Services

QC Summary for sample numbers: 17-A006562 to 17-A006563

DUPLICATES

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	DUP VALUE	RPD
17-A006409	Nitrate	mg/l	< 0.025	< 0.025	
17-A006422	Nitrate	mg/l	1.70	1.70	0.00
17-A006542	Nitrate	mg/l	< 0.025	0.028	
17-A006596	Sulfate	mg/l	3.40	3.10	9.2

MATRIX SPIKES

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	SMPL+ SPK	SPK AMT	RECOVERY
17-A006409	Nitrate	mg/l	< 0.025	1.82	2.00	91.00 %
17-A006422	Nitrate	mg/l	1.70	3.70	2.00	100.00 %
17-A006542	Nitrate	mg/l	< 0.025	1.93	2.00	96.50 %
17-A006596	Sulfate	mg/l	3.40	5.50	2.00	105.00 %

STANDARD REFERENCE MATERIALS

ANALYTE	UNITS	TRUE VALUE	MEASURED VALUE	RECOVERY
Nitrate	mg/l	5.00	4.60	92.0 %
Nitrate	mg/l	5.00	4.70	94.0 %
Sulfate	mg/l	5.00	4.55	91.0 %
Sulfate	mg/l	5.00	4.48	89.6 %
Sulfate	mg/l	5.00	4.82	96.4 %
Sulfate	mg/l	5.00	4.99	99.8 %

BLANKS

ANALYTE	UNITS	RESULT
Nitrate	mg/l	< 0.025
Nitrate	mg/l	< 0.025
Nitrate	mg/l	< 0.025
Sulfate	mg/l	< 0.1
Sulfate	mg/l	< 0.1
Sulfate	mg/l	< 0.1
Sulfate	mg/l	< 0.1

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Sflew Fedex 5/4/17 10.2°C

Page # 1 of 1

P.5

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER Amtest

PROJECT NAME/NO. 705081

PO # E-623

REMARKS

Please Email Results

TURNAROUND TIME

☒ Standard (2 Weeks)

☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☒ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

						ANALYSES REQUESTED										
Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins/Furans	EPH	VPH	Nitrate	Sulfate	Alkalinity	TOC-9060M				Notes
TC5R-GW-050317	65562	5/3/17	1320	w	1				X	X						
TC1R-GW-050317	65563	5/3/17	1450	w	1				X	X						

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman and Bruya	5/4/17	1330
Received by:	Sflew	Suzanne Weber	AmTest	5/4/17	Fedex
Relinquished by:					
Received by:					

ATTACHMENT C

DATA VALIDATION MEMORANDUM

DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. 0714.03.01 | MAY 31, 2017 | SKAGIT COUNTY

Maul Foster & Alongi, Inc. (MFA) conducted an independent review of the quality of analytical results for groundwater samples collected at the former Truck City Truck Stop site in Mount Vernon, Washington. The samples were collected on May 3, 2017.

Friedman & Bruya, Inc. (FB) and Am Test Laboratories (AM) performed the analyses. FB report number 705081 was reviewed. Two samples' analyses (nitrate and sulfate) were subcontracted to AM and are reported in the 705081_Sub report. The analyses performed and samples analyzed are listed below.

Analysis	Reference
BTEX	USEPA 8021B
Diesel and Motor Oil Range Hydrocarbons	NWTPH-Dx
Dissolved Gases	RSK-175
Gasoline Range Hydrocarbons	NWTPH-Gx
Nitrate as Nitrogen and Sulfate	USEPA 300.0
Total Metals	USEPA 6020A

BTEX = benzene, toluene, ethylbenzene, xylenes.
NWTPH = Northwest Total Petroleum Hydrocarbons.
RSK = USEPA National Risk Management Research Laboratory.
USEPA = U.S. Environmental Protection Agency.

Samples Analyzed	
Report 705081/705081_Sub	
TC4R-GW-050317	TC5R-GW-050317
TC2-GW-050317	TCDUP-GW-050317
TC6-GW-050317	TC1R-GW-050317
TC3R-GW-050317	TC7-GW-050317

DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of USEPA procedures (USEPA, 2017a,b) and appropriate laboratory and method-specific guidelines (FB, 2015; USEPA, 1986).

Data validation procedures were modified, as appropriate, to accommodate quality-control requirements for methods not specifically addressed by the USEPA procedures (e.g., NWTPH-Dx).

In report 705081, all detected NWTPH-Dx diesel range hydrocarbon results were flagged by FB due to chromatographic patterns that did not match the diesel standard used for

quantitation. The results are reported as diesel range hydrocarbons within the carbon range of C_{10} to C_{25}. No qualification is required.

The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

Holding Times

In the AM report 705081_Sub, the USEPA Method 300.0 nitrate as nitrogen analysis of sample TC1R-GW-050317 was performed 10 days after the 48-hour holding time. The reviewer confirmed with the laboratory that the sample was initially analyzed within the holding time with a high concentration that exceeded the instrument calibration range, and that the re-analyzed dilution had a similar high concentration. However, due to the significant holding time exceedance, the result has been qualified by the reviewer with an "R" as rejected.

Report	Sample	Component	Original Result (mg/L)	Qualified Result (mg/L)
705081	TC1R-GW-050317	Nitrate as Nitrogen	190	190 R

NOTES:
mg/L = milligrams per liter.
R = Result is rejected.

The remaining extractions and analyses were performed within recommended holding times.

Preservation and Sample Storage

The samples were preserved and stored appropriately.

BLANKS

Method Blanks

Laboratory method blank analyses were performed at the required frequencies. For purposes of data qualification, the method blanks were associated with all samples prepared in the analytical batch. All laboratory method blanks were non-detect at method reporting limits.

Trip Blanks

Trip blanks were not submitted for analysis. All samples were non-detect for USEPA Method 8021B volatile organic compounds; thus, no action was required.

Equipment Rinsate Blanks

Equipment rinsate blanks were not required for this sampling event.

SURROGATE RECOVERY RESULTS

The samples were spiked with surrogate compounds to evaluate laboratory performance on individual samples. All surrogate recoveries were within acceptance limits.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

Matrix spike/matrix spike duplicate (MS/MSD) results are used to evaluate laboratory precision and accuracy. In report 705081, the USEPA Method 6020A MS/MSD total manganese exceeded percent recovery and RPD acceptance criteria due to a high concentration of total manganese present in the sample. The MS/MSD was prepared with a sample from an unrelated project and the remaining batch quality control samples met acceptance criteria; thus, no results were qualified.

LABORATORY DUPLICATE RESULTS

Duplicate results are used to evaluate laboratory precision. All duplicate samples were extracted and analyzed at the required frequency. All RPDs were within acceptance limits.

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

An LCS/LCSD is spiked with target analytes to provide information on laboratory precision and accuracy. The LCS/LCSD samples were extracted and analyzed at the required frequency. All LCS/LCSD analytes were within acceptance limits for percent recovery and RPD.

FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. One field duplicate was submitted for analysis (TC5R-GW-050317/TCDUP-GW-050317). MFA uses acceptance criteria of 100 percent RPD for results that are less than five times the MRL, or 50 percent RPD for results that are greater than five times the MRL. Non-detect data are not used in the evaluation of field duplicate results. All analytes were within the acceptance criteria.

REPORTING LIMITS

FB used routine reporting limits for non-detect results, except for samples requiring dilutions because of high analyte concentrations and/or matrix interferences.

DATA PACKAGE

Laboratory report 705081 was reviewed for transcription errors, omissions, and anomalies. No issues were found.

REFERENCES

AM. 2015. Quality manual. Am Test Laboratories. Kirkland, Washington. August.

FB. 2015. Quality assurance manual. Revision 15. Friedman & Bruya, Inc. Seattle, Washington. December 23.

USEPA. 1986. Test methods for evaluating solid waste: physical/chemical methods. EPA-530/SW-846. Update V. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. September (revision 1, July 2014).

USEPA. 2017a. USEPA contract laboratory program, national functional guidelines for inorganic Superfund methods data review. EPA 540-R-2017-001. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. January.

USEPA. 2017b. USEPA contract laboratory program, national functional guidelines for Superfund organic methods data review. EPA 540-R-2017-002. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. January.