MAUL FOSTER ALONGI

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September 7, 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—August 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 August 2017, on behalf of Skagit County, Maul Foster & Alongi, Inc. (MFA) conducted the fourth 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 were to 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 August 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 total xylenes (BTEX) by U.S. Environmental Protection Agency (USEPA) Method 8021B

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

RESULTS AND DISCUSSION

Water-level measurements, final field parameters, and groundwater analytical results are summarized in Tables 1, 2, and 3, 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 0.98 to 1.23-feet lower than previously observed during the May 2017 event. Groundwater flow direction at the Site during the August 2017 event was generally to the southwest with tangents in the northwest area of the Site towards the southeast, as observed during the previous November 2016, and January and May 2017 events (refer to Figure 3). Groundwater quality field parameters (refer to Table 2) at all monitoring wells were reviewed to assess the biodegradation of the dissolved phase petroleum hydrocarbon plume at the Site.

Concentrations of IHSs were either non-detect or were detected below their respective MTCA Method A CULs at all monitoring wells sampled during the August 2017 monitoring event (refer to Table 3).

SUMMARY

The following is a summary of findings and opinions:

- The direction of groundwater migration at the Site during the August 2017 event appeared to be generally to the southwest, similar to the previous three quarterly groundwater events.
- 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, but at concentrations well below the MTCA Method A CUL.

The August 2017 groundwater event is the fourth quarterly monitoring event at the Site since the completion of the remedial action in October 2015. This is the fourth consecutive groundwater monitoring event without exceedances of IHSs in any monitoring network wells.

Based on the completion, findings, and laboratory analytical results from the remedial action phase and subsequent four consecutive quarterly groundwater events, MFA concludes that the Site has met Ecology's MTCA Method A cleanup criteria for soil and groundwater media.

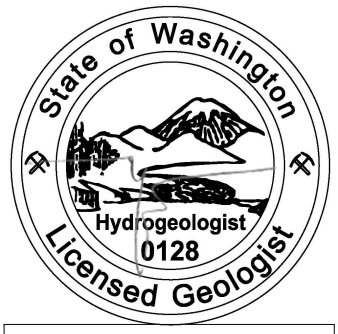
RECOMMENDATIONS

We recommend petitioning Ecology for removal of the Site from Ecology's Hazardous Sites List and issuance of a Satisfaction of Consent Decree for the Site.

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

Sincerely,

Maul Foster & Alongi, Inc.



Yen-Vy Van, LHG
Senior Hydrogeologist

Carolyn R. Wise, GIT
Staff Geologist

Attachments: Limitations
References
Tables
Figures
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.

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
		08/08/2017	11.45	-1.18	10.06
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
		08/08/2017	6.82	-1.22	10.17
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
		08/08/2017	7.75	-1.17	10.27
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
		08/08/2017	6.78	-1.18	10.32
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
		08/08/2017	11.46	-1.23	10.16
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
		08/08/2017	6.45	-1.19	10.08
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
		08/08/2017	8.50	-0.98	11.08

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
	08/08/2017	8.01	17.43	1,264	0.78	-61.4	1.81
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
	08/08/2017	7.06	17.01	544	1.12	91.9	24.10
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
	08/08/2017	7.51	20.26	1,003	1.98	102.8	1.03
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
	08/08/2017	6.90	18.80	515	1.19	115.8	2.11
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
	08/08/2017	7.98	18.13	1,387	1.16	18.9	14.30
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
	08/08/2017	7.00	16.84	537	0.91	-0.2	6.23
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
	08/08/2017	6.60	15.50	415	0.70	98.9	19.40

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**
	8/8/2017	1 U	1 U	1 U	3 U	100 U	**380**	200 U	**480**
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
	8/8/2017	1 U	1 U	1 U	3 U	100 U	50 U	200 U	125 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**
	8/8/2017	1 U	1 U	1 U	3 U	100 U	**55**	200 U	**155**
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
	8/8/2017	1 U	1 U	1 U	3 U	100 U	50 U	200 U	125 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**
	8/8/2017	1 U	1 U	1 U	3 U	100 U	**120**	200 U	**220**
	8/8/2017	1 U	1 U	1 U	3 U	100 U	**120**	200 U	**220**
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
	8/8/2017	1 U	1 U	1 U	3 U	100 U	50 U	200 U	125 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**
	8/8/2017	1 U	1 U	1 U	3 U	100 U	**110**	200 U	**210**

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

NOTES:

Detected results are indicated by bold font.

MTCA = Model Toxics Control Act.

TPH = total petroleum hydrocarbons.

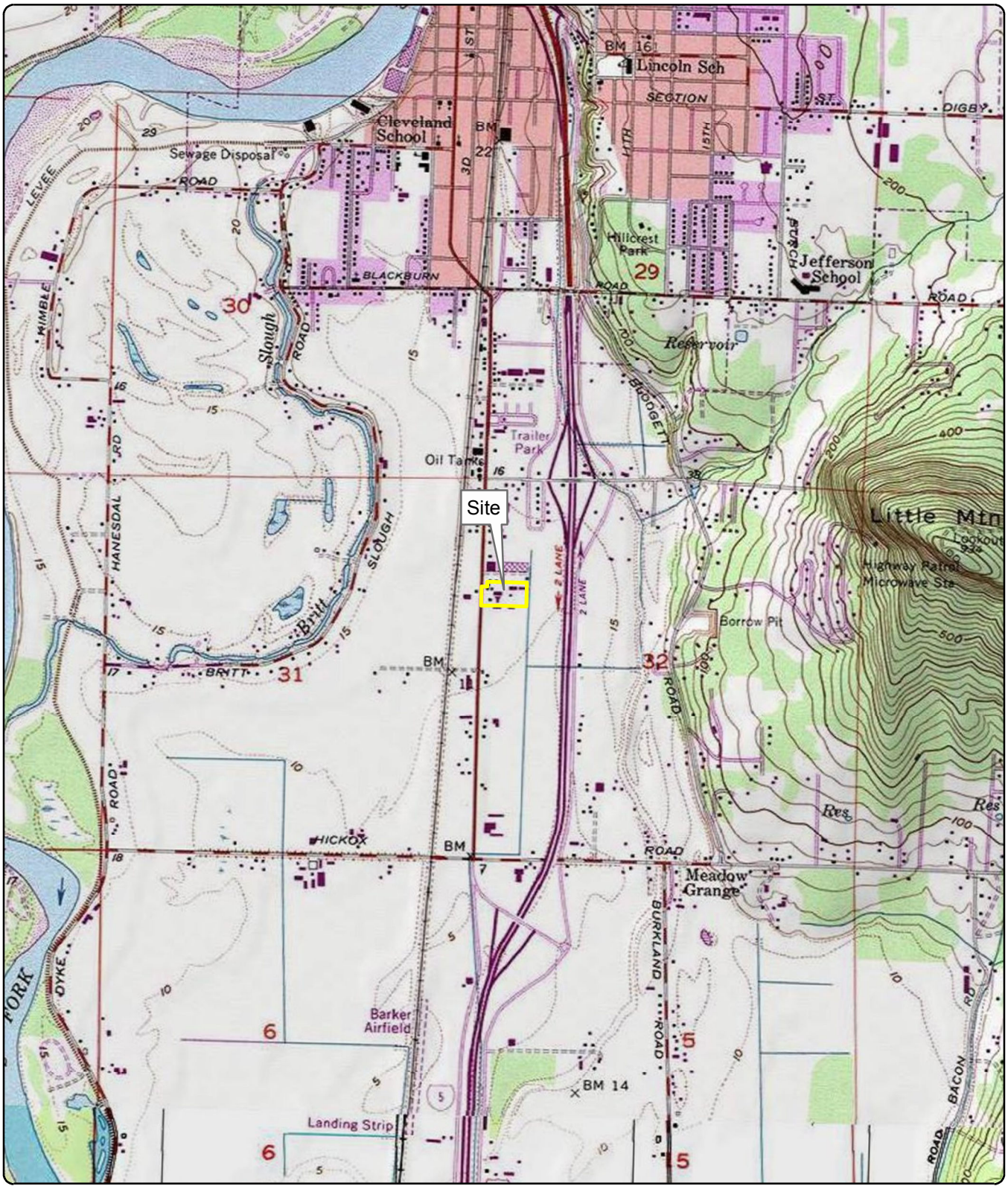
U = Result is non-detect.

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.

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
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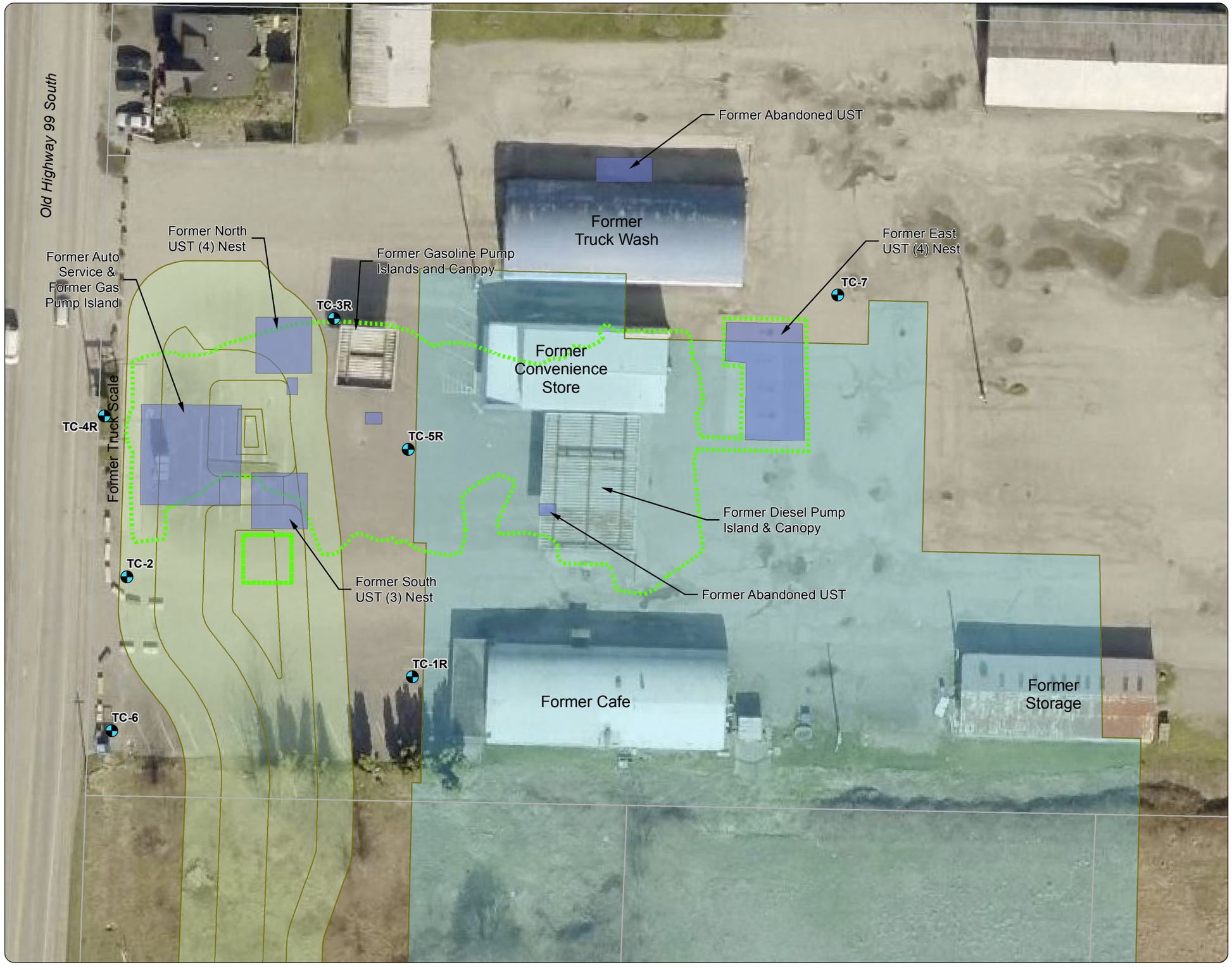
Figure 2
Groundwater Monitoring Well Network

Skagit County
Former Truck City Site
Mount Vernon, Washington



Legend

- Jail Building Footprint
- Stormwater Retention Pond
- Former Site Features
- 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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Project: 0714.03.01.04 Produced By: cwise Approved By: yvan Print Date: 2/23/2017

Figure 3
Groundwater Potentiometric Surface
August 2017

Skagit County
Former Truck City Site
Mount Vernon, Washington

Old Highway 99 South

Former Abandoned UST

Former North UST (4) Nest

Former Auto Service & Former Gas Pump Island

Former Gasoline Pump Islands and Canopy

Former Truck Wash

Former East UST (4) Nest

TC-3R 10.27 ft

TC-7 11.08 ft

Former Convenience Store

TC-4R 10.32 ft

Former Truck Scale

TC-5R 10.16 ft

Former Diesel Pump Island & Canopy

Former South UST (3) Nest

Former Abandoned UST

TC-2 10.17 ft

TC-1R 10.06 ft

TC-6 10.08 ft

Former Cafe

Former Storage

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: 8/9/2017
Approved By: yvan
Produced By: rroberts
Project: 0714.03.01-04

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**	8/8/2017		
Sampling Event	August 2017	**Sample Name**	TC1R-GW-080817		
Sub Area		**Sample Depth**	12.5		
FSDS QA:	EMC 8/9/2017	**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**
8/8/2017	6:50	14.52		11.45		3.07	0.5

(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	3:00:00 PM	0.5	0.15	7.93	17.47	1258	1.58	-49.5	7.67
	3:04:00 PM	0.66	0.15	7.77	17.39	1260	1.35	-51.5	2.84
	3:08:00 PM	0.82	0.15	7.76	17.44	1262	1.08	-55.1	2.35
	3:12:00 PM	0.98	0.15	7.93	17.24	1264	0.83	-58.5	2.67
	3:16:00 PM	1.14	0.15	7.97	17.44	1264	0.83	-59.4	2.39
Final Field Parameters	3:20:00 PM	1.3	0.15	8.01	17.43	1264	0.78	-61.4	1.81

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	3:30:00 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 2:40:00 PM.

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**	8/8/2017				
Sampling Event	August 2017	**Sample Name**	TC2-GW-080817				
Sub Area		**Sample Depth**	10				
FSDS QA:	EMC 8/9/2017	**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**
8/8/2017	7:15	14.4		6.82		7.58	1.24

(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	10:36:00 AM	1.25	0.2	7.06	16.79	548	1.92	93.1	45
	10:40:00 AM	1.45	0.2	7.04	16.79	547	1.64	95.8	35.9
	10:44:00 AM	1.65	0.2	7.03	16.88	546	1.36	96.4	34.2
	10:48:00 AM	1.85	0.2	7.04	16.93	546	1.31	96.2	27
	10:52:00 AM	2.05	0.2	7.03	17.03	545	1.22	95.1	25.1
	10:56:00 AM	2.25	0.2	7.05	17.05	545	1.14	92.7	24.6
Final Field Parameters	11:00:00 AM	2.45	0.2	7.06	17.01	544	1.12	91.9	24.1

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:

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

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	11:00:00 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 10:10:00 AM.

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**	8/8/2017				
Sampling Event	August 2017	**Sample Name**	TC3R-GW-080817				
Sub Area		**Sample Depth**	10.5				
FSDS QA:	EMC 8/9/2017	**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**
8/8/2017	7:00	14.51		7.75		6.76	1.1

(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	12:56:00 PM	1	0.2	7.55	19.41	998	2.29	114.1	3.87
	1:00:00 PM	1.2	0.2	7.49	19.75	1000	2.1	108.1	2.88
	1:04:00 PM	1.4	0.2	7.49	20.09	1002	2.03	104.9	1.81
Final Field Parameters	1:08:00 PM	1.6	0.2	7.51	20.26	1003	1.98	102.8	1.03

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	1:10:00 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 12:30:00 PM.

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**	8/8/2017
Sampling Event	August 2017	**Sample Name**	TC4R-GW-080817
Sub Area		**Sample Depth**	10
FSDS QA:	EMC 8/9/2017	**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**
8/8/2017	7:10	14.81		6.78		8.03	1.31

(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	12:00:00 PM	1.25	0.2	6.96	17.69	515	1.56	112.3	6.24
	12:04:00 PM	1.45	0.2	6.9	18.31	516	1.28	113.5	1.22
	12:08:00 PM	1.65	0.2	6.9	18.51	516	1.21	113.8	1.78
Final Field Parameters	12:12:00 PM	1.85	0.2	6.9	18.8	515	1.19	115.8	2.11

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.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	12:15:00 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 11:30:00 AM.

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**	8/8/2017				
Sampling Event	August 2017	**Sample Name**	TC5R-GW-080817				
Sub Area		**Sample Depth**	12.5				
FSDS QA:	EMC 8/9/2017	**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**
8/8/2017	6:55	14.45		11.46		2.99	0.49

(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	1:45:00 PM	0.5	0.2	7.77	18.4	1627	1.47	73.8	24.6
	1:49:00 PM	0.7	0.2	7.82	18.31	1573	1.34	59.4	20.2
	1:53:00 PM	0.9	0.2	7.85	18.35	1522	1.26	46.4	16.8
	1:57:00 PM	1.1	0.2	7.89	18.25	1456	1.17	35.1	15.2
	2:01:00 PM	1.3	0.2	7.92	18.18	1407	1.26	24.3	14.8
	2:05:00 PM	1.5	0.2	7.99	18.14	1389	1.18	20.1	13.7
Final Field Parameters	2:09:00 PM	1.7	0.2	7.98	18.13	1387	1.16	18.9	14.3

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	2:15:00 PM	VOA-Glass	6	No
			Amber Glass	2	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	8	

General Sampling Comments Began purge at 1:30:00 PM. Collected TCDUP-GW-080817.

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**	8/8/2017
Sampling Event	August 2017	**Sample Name**	TC6-GW-080817
Sub Area		**Sample Depth**	10
FSDS QA:	EMC 8/9/2017	**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**
8/8/2017	7:20	14.76		6.45		8.31	1.35

(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	9:30:00 AM	1.25	0.2	7.04	17.07	541	1.37	4.8	8.31
	9:34:00 AM	1.45	0.2	7.01	16.9	538	1.06	4.2	6.63
	9:38:00 AM	1.65	0.2	7	16.89	537	0.98	3.1	6.51
	9:42:00 AM	1.85	0.2	6.99	16.87	538	0.94	2.1	6.14
Final Field Parameters	9:46:00 AM	2.05	0.2	7	16.84	537	0.91	-0.2	6.23

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	9:50:00 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 9:05:00 AM.

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**	8/8/2017		
Sampling Event	August 2017	**Sample Name**	TC7-GW-080817		
Sub Area		**Sample Depth**	11		
FSDS QA:	EMC 8/9/2017	**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**
8/8/2017	7:30	14.3		8.5		5.8	0.94

(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	8:00:00 AM	1	0.15	6.48	15.05	420	1.18	134.9	29.2
	8:04:00 AM	1.16	0.15	6.53	15.02	418	0.98	119.8	24.9
	8:08:00 AM	1.32	0.15	6.55	15.18	417	0.87	113.5	21.3
	8:12:00 AM	1.48	0.15	6.57	15.31	416	0.75	106.1	20.6
	8:16:00 AM	1.64	0.15	6.59	15.44	415	0.73	102.1	20.3
Final Field Parameters	8:20:00 AM	1.8	0.15	6.6	15.5	415	0.7	98.9	19.4

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 sheen or odor.

Sample Information

Sampling Method	**Sample Type**	**Sampling Time**	**Container Code/Preservative**	**#**	**Filtered**
(2) Peristaltic Pump	Groundwater	8:30:00 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 7:35:00 AM.

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.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

August 16, 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 August 9, 2017 from the Truck City, PO 0714.03.01-04, F&BI 708168 project. There are 6 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
MFA0816R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 9, 2017 by Friedman & Bruya, Inc. from the Maul Foster Alongi Truck City, PO 0714.03.01-04, F&BI 708168 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
708168 -01	TC7-GW-080817
708168 -02	TC6-GW-080817
708168 -03	TC2-GW-080817
708168 -04	TC4R-GW-080817
708168 -05	TC3R-GW-080817
708168 -06	TC5R-GW-080817
708168 -07	TCDUP-GW-080817
708168 -08	TC1R-GW-080817
708168 -09	Trip Blank

All quality control requirements were acceptable.

Date of Report: 08/16/17
Date Received: 08/09/17
Project: Truck City, PO 0714.03.01-04, F&BI 708168
Date Extracted: 08/14/17
Date Analyzed: 08/14/17

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)
TC7-GW-080817 708168-01	<1	<1	<1	<3	<100	111
TC6-GW-080817 708168-02	<1	<1	<1	<3	<100	116
TC2-GW-080817 708168-03	<1	<1	<1	<3	<100	96
TC4R-GW-080817 708168-04	<1	<1	<1	<3	<100	109
TC3R-GW-080817 708168-05	<1	<1	<1	<3	<100	114
TC5R-GW-080817 708168-06	<1	<1	<1	<3	<100	110
TCDUP-GW-080817 708168-07	<1	<1	<1	<3	<100	108
TC1R-GW-080817 708168-08	<1	<1	<1	<3	<100	109
Method Blank 07-1694 MB	<1	<1	<1	<3	<100	115

Date of Report: 08/16/17
Date Received: 08/09/17
Project: Truck City, PO 0714.03.01-04, F&BI 708168
Date Extracted: 08/11/17
Date Analyzed: 08/11/17

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)
TC7-GW-080817 708168-01	110 x	<200	84
TC6-GW-080817 708168-02	<50	<200	104
TC2-GW-080817 708168-03	<50	<200	85
TC4R-GW-080817 708168-04	<50	<200	101
TC3R-GW-080817 708168-05	55 x	<200	99
TC5R-GW-080817 708168-06	120 x	<200	107
TCDUP-GW-080817 708168-07	120 x	<200	110
TC1R-GW-080817 708168-08	380 x	<200	101
Method Blank 07-1714 MB	<50	<200	94

Date of Report: 08/16/17
Date Received: 08/09/17
Project: Truck City, PO 0714.03.01-04, F&BI 708168

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: 708168-01 (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	104	65-118
Toluene	ug/L (ppb)	50	105	72-122
Ethylbenzene	ug/L (ppb)	50	113	73-126
Xylenes	ug/L (ppb)	150	104	74-118
Gasoline	ug/L (ppb)	1,000	96	69-134

Date of Report: 08/16/17
Date Received: 08/09/17
Project: Truck City, PO 0714.03.01-04, F&BI 708168

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	96	112	61-133	15

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.

708168

SAMPLE CHAIN OF CUSTODY

ME 08/09/17 VWV/EOY

Page # 1 of 1

Report To Yen-Vy Van

Company Maul Foster Alongi

Address 2815 2nd Ave Ste 540

City, State, ZIP Seattle, WA 98121

Phone 2533205318 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					Notes
						ANALYSES REQUESTED											
TC7-GW-080817	01A-D	8/8/17	830	W	4		X	X	X								
TC6-GW-080817	02	8/8/17	950	W	4		X	X	X								
TC2-GW-080817	03	8/8/17	1100	W	4		X	X	X								
TC4R-GW-080817	04	8/8/17	1215	W	4		X	X	X								
TC3R-GW-080817	05	8/8/17	1310	W	4		X	X	X								
TC5R-GW-080817	06	8/8/17	1415	W	4		X	X	X								
TCDUP-GW-080817	07	8/8/17	1415	W	4		X	X	X								
TC1R-GW-080817	09	8/8/17	1530	W	4		X	X	X								
Trip Blank	09A-B	—	—	W	2												added TB

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Carolyn Wise	Carolyn Wise	MFA	8/8/17	1630
Received by: Nhan Phan	Nhan Phan	FCBI	8/9/17	1300
Relinquished by:				
Received by:		Samples received at 3 °C		

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

ATTACHMENT C

DATA VALIDATION MEMORANDUM

DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. 0714.03.01 | SEPTEMBER 7, 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 August 8, 2017.

Friedman & Bruya, Inc. (FB) performed the analyses. FB report number 708168 was reviewed. The analyses performed and samples analyzed are listed below.

Analysis	Reference
BTEX	USEPA 8021B
Diesel and Motor Oil Range Hydrocarbons	NWTPH-Dx
Gasoline Range Hydrocarbons	NWTPH-Gx

BTEX = benzene, toluene, ethylbenzene, total xylenes.
NWTPH = Northwest Total Petroleum Hydrocarbons.
USEPA = U.S. Environmental Protection Agency.

Samples Analyzed	
Report 708168	
TC7-GW-080817	TC5R-GW-080817
TC6-GW-080817	TCDUP-GW-080817
TC2-GW-080817	TC1R-GW-080817
TC4R-GW-080817	Trip Blank
TC3R-GW-080817	-

DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of USEPA procedures (USEPA, 2017) 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 708168, 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 was required.

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

HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

Holding Times

The 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 reporting limits.

Trip Blanks

A trip blank sample was submitted on hold and was not analyzed. 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. MS/MSD results were not reported; batch precision and accuracy was evaluated with laboratory duplicates and laboratory control samples (LCSs).

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-080817/TCDUP-GW-080817). 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 708168 was reviewed for transcription errors, omissions, and anomalies. No issues were found.

REFERENCES

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. 2017. 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.