February 1, 2020

Nick Acklam, Toxics Cleanup Program
Department of Ecology
P.O Box 47600
Olympia, WA 98504-7600

Subject: 2020 Annual Status Report
Bud Clary Subaru
961 Commerce Way, Longview, Washington
VCP # SW1706

Dear Mr. Acklam

This report presents the 2020 quarterly groundwater monitoring at the Bud Clary Subaru dealership in Longview, Washington (Site). In addition, the report summarizes Site background, field activities, analytical reports, and results of quarterly monitoring. Due to COVID-19 19 restrictions on travel and personal distancing, sampling groundwater was only accomplished in the 3rd and 4th quarters of 2020.

Site Background

Below is a summary of the environmental actions completed at the Site. A complete background of the Site is discussed in the Blue Sage Environmental (BSE) *Site Investigation Interim Cleanup Action Report*, dated January 8, 2019.

The Site is located in a commercial and retail area of Longview, Washington. with other auto dealerships, businesses, and the offices of the Cowlitz County Public Utilities Division located nearby (***Figure 1***). In early 2018, the dealership building was demolished to make way for the construction of a new showroom and service building. Construction of this building was completed in May 2019 The 2018 redevelopment initiated a cycle of site investigations, remedial excavations, and other cleanup actions on the property, which are summarized below.

In April 2018, Cowlitz Clean Sweep, Inc. (CCS), completed several test pits across the north end of the Site, and discovered soils with petroleum odors and an oily sludge. In July 2018, CCS and Environmental Partners, Inc. (EPI)

completed additional test pits and exploratory borings to characterize the discovered contaminants on the property (***Figure 2***).

In August 2018, Blue Sage Environmental (BSE) planned and directed a remedial excavation to a depth of 11 feet in the area of contamination identified by EPI. Confirmation soil samples were collected from five test pits and four borings (B1, B2, B3 & B4) across the excavated area on August 22 & 29, 2018.

Soil sample analytical methods included:

- Gasoline by Northwest Method NWTPH-Gx;
- Diesel & Heavy Oils by Northwest Method NWTPH-Dx;
- Benzene, toluene, ethylbenzene and total xylenes (BTEX) by EPA Method 8260.

Soil samples collected from the five test pits across the floor area of the excavation contained concentrations of lube oil above the MTCA Method A Cleanup Level (CUL). Soil samples collected from 4 borings around the east end of the excavated area did not contain detectable concentrations of diesel and lube oils or gasoline range organics.

In May 2019, soil samples were collected from five borings advanced inside and around the excavated area. The five borings were completed as monitoring wells. Borings B6 (/MW-1), B9 (MW-4), and B10 (MW-5) did not contain detectable concentrations of diesel, lube oil or gasoline range organics. However, soil samples collected from borings B7 (MW-2) and B8 (MW-3) contained concentrations of gasoline, benzene, diesel, and heavy oils above CULs.

Boring	Sample Depth (ft)	Gasoline (mg/kg)	Diesel (mg/kg)	Heavy Oil (mg/kg)	Benzene (mg/kg)
B7	13	5,700	14,000	370,000	0.09
	15	11	210	30,000	0.08
B8	11	5,900	4,200	210,000	<0.02
	MTCA CUL -	*30*	*2000*	*2000*	*0.03*

Blue Sage Environmental, Inc. | 198007 E 30th Avenue | Kennewick, WA 99337 | (509) 947-4059

Boring locations are shown in ***Figure 3***. Analytical results for 2018/2019 soil samples are summarized in ***Table 1***.

In August 2018, BSE coordinated with BB&A of Wilsonville, Oregon to inject 4,350 gallons of Boss 200, an activated carbon and biological culture mixture with nutrients to implement an in-situ biological remediation of petroleum compounds.

Soil Borings/Monitoring Wells

As discussed in the January 8, 2019 *Site Investigation Interim Cleanup Action Report* (Blue Sage, 2019), the progress of bioremediation is being monitored with quarterly groundwater monitoring. To accomplish this, five additional groundwater monitoring wells, MW-6 through MW-10, were installed in April 2019. BSE directed the drilling of five soil borings with each boring being completed as a groundwater monitoring well (***Figure 4***). BB&A Environmental of Wilsonville, Oregon, a Washington State licensed driller, installed the monitoring wells. Each monitoring well was constructed of 2" diameter, schedule 40 PVC slotted screen and blank pipe. The screened interval of each well was from four feet below ground surface (bgs) to 14 feet bgs, which straddled the water table.

Monitoring Well Survey

BSE coordinated with Gibbs & Olson Civil Engineers and Land Surveyors (Gibbs & Olson) to obtain NAVD88 elevation information for the newly installed monitoring wells.

Groundwater Sampling Procedures

Prior to sampling the monitoring wells, depth to water referenced to the top of the well casing were measured and recorded. The static water level was measured in each monitoring well using a Slope Indicator Company, model 51453 water level indicator. The water level probe was lowered into the well until the instrument detected water. The cable on the indicator is laser-marked in 0.01-foot graduations with labels at 0.1-foot and 1.0-foot intervals.

Groundwater was sampled in each well using a peristaltic pump in accordance with the following protocol:

- The height of the water column within the well was calculated by subtracting the depth to water from the total depth of the well.

- Groundwater samples were collected from the well casing following EPA low stress and purging procedures.
- Purge water was collected for proper disposal (based on analytical results).
- The contract laboratory prepared the sample containers to conform to Ecology preservation techniques for the analytes of concern.
- Groundwater samples were collected with a peristaltic pump. Sample containers were open only as long as necessary to collect the samples.
- New dedicated tubing was used at each sampling location.
- Prior to sampling each monitoring well, the well was purged at a nominal discharge rate of <500 ml/minute to affect limited draw-down. The discharge rate is noted in the purge logs included in ***Appendix A***. Pumping continued at the low constant-rate throughout sampling at each monitoring well (*USEPA*, *November 1992*).

Quality Assurance/Quality Control (QA/QC)

Quality Assurance/Quality Control (QA/QC) included generally accepted procedures for sample collection, storage, tracking, documentation, and analysis. Disposable sampling equipment was used to the extent practicable. Reused sampling equipment was decontaminated with an anionic, biodegradable detergent wash and water rinse before sampling each well. Samples were collected into laboratory supplied containers. Each container was labeled with a sample number, date of sampling, project identifier, and analytical method. Sample bottles were placed inside zip-lock™ bags, and stored inside a cooler/shipping container packed with ice. Samples were delivered to an Ecology-certified analytical laboratory under chain-of-custody (COC) within 24-hours of being collected.

Laboratory Analysis

The analytical protocols followed for groundwater samples collected at the Site include the required testing for petroleum releases for gasoline range organics (GRO), diesel and heavy oil range organics (DRO), and Waste Oil as described in Table 830-1, MTCA Cleanup Regulations, Chapter 173-340 WAC.

Analytical methods used for select groundwater samples included:

- Gasoline by Northwest Method NWTPH-Gx;

- Diesel & Heavy Oils by Northwest Method NWTPH-Dx;
- Volatile Organic Compounds by EPA Method 8260;
- Polynuclear Aromatic Hydrocarbons (PAH's) by EPA Method 8270
- Polychlorinated Biphenyls (PCB's) by EPA Method 8082
- Lead by EPA Method 6020

Groundwater Sample Analytical Results

Laboratory analytical results from the groundwater monitoring events were compared to applicable MTCA Method A CULs for groundwater.

In 2020 groundwater samples were collected and analyzed from each of the five monitoring wells in September, and December. Site contaminants of concern (COC) were not detected above laboratory reporting limits in any of the samples collected. These results are consistent with the four previous monitoring events. The analytical results are summarized in ***Table 2***

Data Quality Review

A QA/QC review of the analytical results was completed by the ESN Northwest laboratory. Samples were accepted at the laboratory within 48 hours of collection under chain of custody protocol. The quality control criteria were acceptable for the samples; therefore, the analytical results are usable to meet the project objectives. Copies of the 2020 laboratory reports are provided in ***Appendix B***.

Groundwater Contours

Using the measured depths to groundwater from each sampling event, and the Gibbs & Olson survey information, groundwater elevations (mean sea level) were calculated as shown in Table 2. Groundwater contours were inferred and are presented on ***Figures WC-4,*** and ***WC-5***.

The groundwater flow direction varies seasonally. Specifically, the flow direction was observed to be to the north/northwest in September, and to the south in December. The water table across the Site is very flat. The greatest difference between the highest and lowest elevations was 0.09 feet in September 2020, and 0.11 feet in December 2020.

Summary of Findings

Elevated concentrations of gasoline, diesel/heavy oil, and benzene in soil were detected in borings B-7 and B-8 between 11 to 15 feet bgs. There is a layer of petroleum contamination consisting of diesel/heavy oil, and gasoline that extends down to 15 feet bgs across the eastern half of the excavated area (***Figure 5***). COCs in soil are gasoline, BTEX, diesel, and heavy oil.

Groundwater samples obtained from monitoring wells located on the property have not contained detectable concentrations of Site COCs (gasoline, diesel/heavy oil, and BTEX). No concentrations of cPAHs, or PCBs have been detected above laboratory reporting limits. COCs in groundwater continue to be DRO, GRO, and BTEX. The injection of BOS 200 has further immobilized Site COCs within its activated carbon matrix. COCs have not been detected in groundwater samples in five quarters (Table 2). Since June 2019 through December 2020, there has been no evidence of off-site migration of COCs in groundwater.

Recommendations

Remediation strategies will continue to be developed to address the mixture of petroleum contamination in soil that remains between 11 feet to approximately 15 feet bgs (Figure 5). This may involve adding additional nutrients to stimulate biological degradation of residual contamination in soil, oxidation methodologies, or establishing site specific Method B CULs.

The following actions will be accomplished in 2021:

- Quarterly groundwater monitoring;
- Installation of two soil vapor sampling wells;
- Collection of soil vapor samples for analysis;
- Collection of soil samples from the petroleum layer for EPH/VPH analysis.

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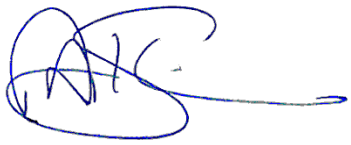
Limitations

This report has been prepared for the exclusive use of Bud Clary Subaru, Kelly and Bryce Clary, and their designated representatives for specific application to the Bud Clary Subaru Longview dealership. Reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Blue Sage Environmental/Hayman Environmental, shall be at the user's sole risk. Within the limitations of scope, schedule, and budget, this report was completed in a manner consistent with that level of care and skill exercised by members of the profession currently practicing in the same locality under similar conditions as this project. No warranty is either express or implied.

Sincerely,

Blue Sage Environmental, Inc./Hayman Environmental, LLC



Alexander H. Koch
Project Manager

Glenn A. Hayman, LHg No. 1904
Senior Hydrogeologist

cc: Kelly Clary
Bryce Clary

ATTACHMENTS

Figures

Tables

Appendices

REFERENCES

Washington Department of Ecology, ***Guidance for Remediation of Petroleum Contaminated Soils***, Publication No. 10-09-057, September 2011.

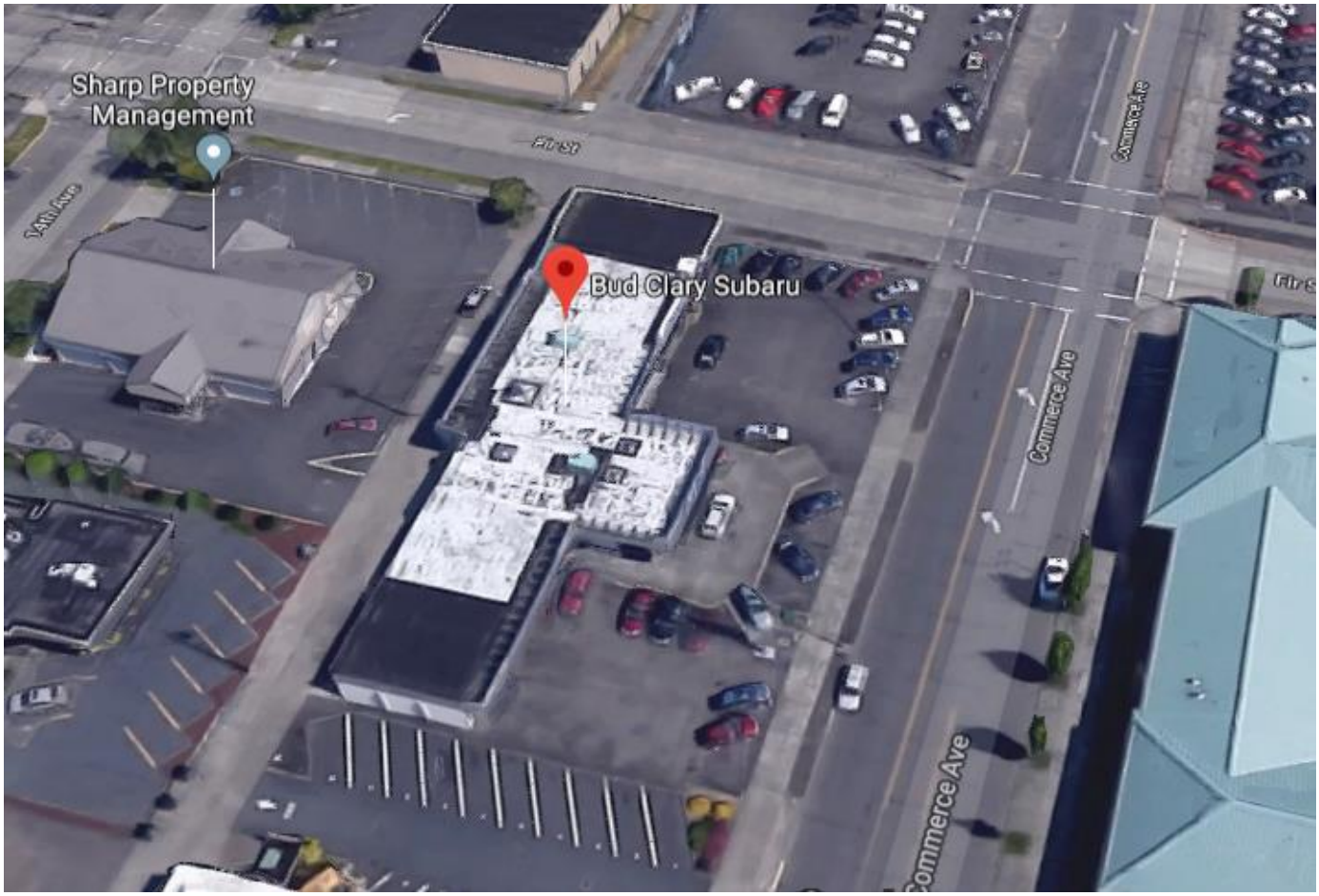
Washington Department of Ecology, Toxics Cleanup Program, ***Model Toxics Control Act Cleanup Regulation, Chapter 173-340 WAC***, Publication No. 94-06, Revised 2013, Olympia, Washington.

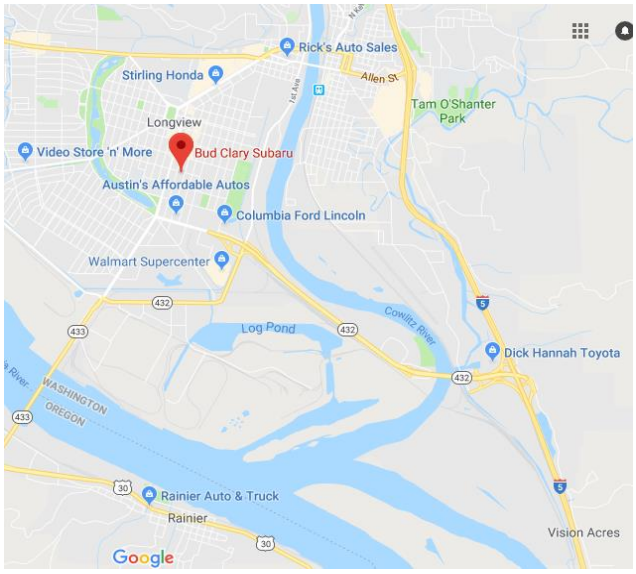
Blue Sage Environmental, Inc., January 8, 2019, ***Site Investigation/Interim Cleanup Action Report***, Kennewick, Washington, Consultants Report to Client.

Blue Sage Environmental, Inc., February 3, 2020, ***2019 Groundwater Report***, Kennewick, Washington, Consultants Report to Client

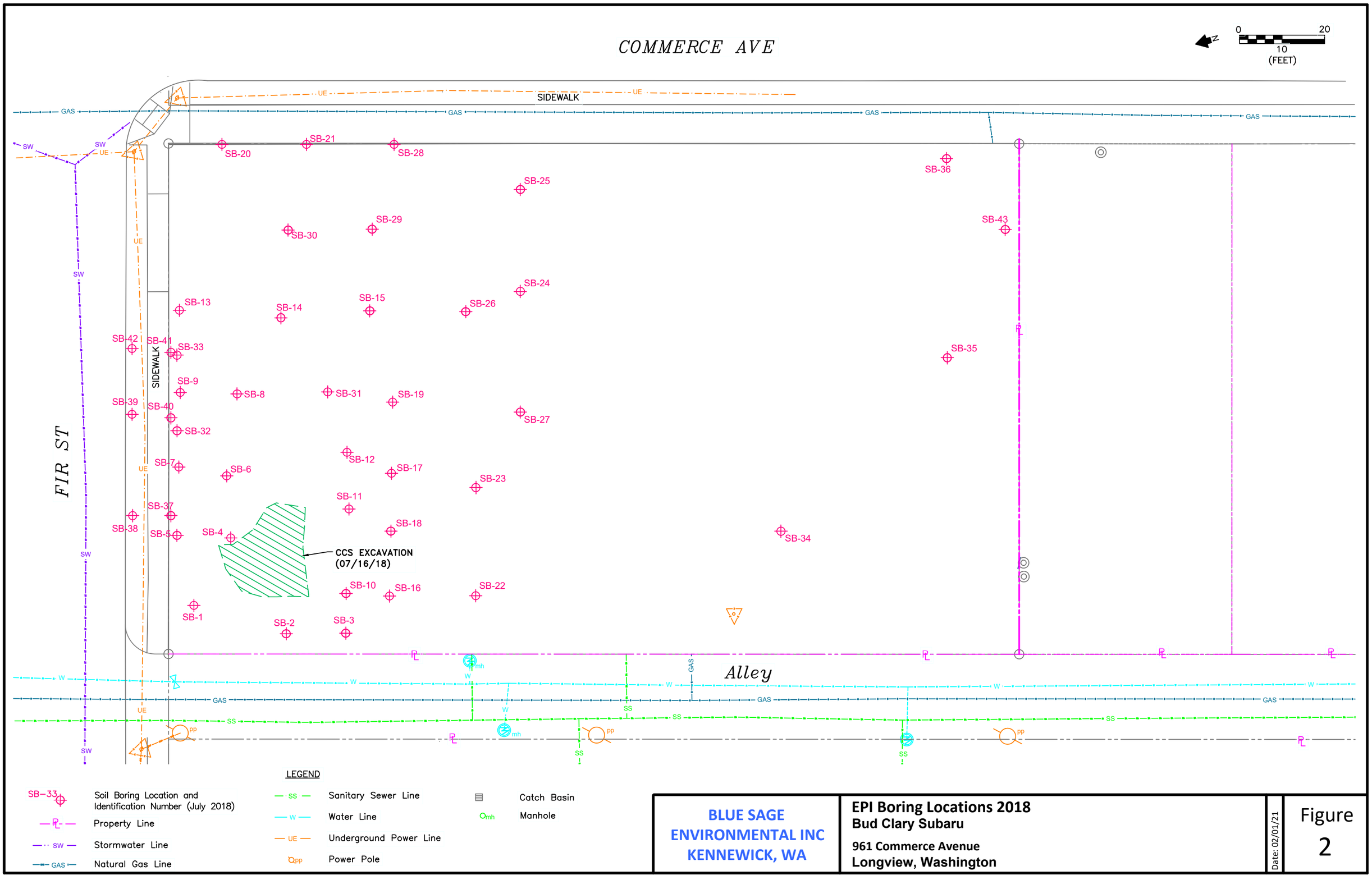
FIGURES

Bud Clary Subaru
961 Commerce Avenue
Longview, WA





BLUE SAGE ENVIRONMENTAL, INC. KENNEWICK, WA	TITLE: Bud Clary Subaru 961 Commerce Avenue Longview, WA 98632	**Figure 1**



BLUE SAGE ENVIRONMENTAL INC
KENNEWICK, WA

EPI Boring Locations 2018
Bud Clary Subaru

961 Commerce Avenue
Longview, Washington

Date: 02/01/21

Figure 2

COMMERCE AVE

0 20
10
(FEET)

SIDEWALK

Excavated Area
August 2018

NEW DEALERSHIP BUILDING
(Completed 2019)

B1
B2
B3
B4
B6/MW1
B7/MW2
B8/MW3
B9/MW4
B10/MW5

EX EAST Sidewall
EX East Floor
EX SE Floor
EX NE Floor
EX CNTR West

FIR ST

Alley

LEGEND

B7/MW2	BSE May 2019 Soil Boring/Monitoring Well Location and Identification Number	SS	Sanitary Sewer Line
PL	Property Line	W	Water Line
SW	Stormwater Line	UE	Underground Power Line
GAS	Natural Gas Line	pp	Power Pole
			Catch Basin
		mh	Manhole
		B1	BSE Aug. 2018 Soil Boring Location and Identification Number
		NE	BSE Aug. 2018 Test Pit Location and Identification Number

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BSE Test Pits & Soil Borings 2018/2019
Bud Clary Subaru
961 Commerce Avenue
Longview, Washington

Date: 02/01/21

Figure
3

COMMERCE AVE

N

0 20
10
(FEET)

SIDEWALK

GAS

UE

SW

Excavated Area

MW-1 (B6)

MW-2 (B7)

MW-3 (B8)

MW-4 (B9)

MW-5 (B10)

NEW DEALERSHIP BUILDING (Completed 2019)

FIR ST

SIDEWALK

Alley

W

SS

PP

mh

PL

LEGEND

MW-1 Monitoring Well Location and Identification Number (By BSE 5/14/2019)

PL Property Line

SW Stormwater Line

GAS Natural Gas Line

SS Sanitary Sewer Line

W Water Line

UE Underground Power Line

PP Power Pole

Catch Basin

mh Manhole

BLUE SAGE ENVIRONMENTAL INC
KENNEWICK, WA

BSE Monitoring Well Locations 2019
Bud Clary Subaru

961 Commerce Avenue
Longview, Washington

Date: 02/01/21

Figure 4

COMMERCE AVE

N

0 20
10
(FEET)

SIDEWALK

GAS

UE

SW

B4

B6/MW1

B3

B2

EX EAST Sidewall

EX East Floor

EX SE Floor

B7/MW2

Excavated Area

EX NE Floor

B1

NEW DEALERSHIP BUILDING (Completed 2019)

EX CNTR West

ESTIMATED EXTENT OF SOIL CONTAMINATION FROM 11'–15'BGS

B8/MW3

FIR ST

B9/MW4

B10/MW5

Alley

W

SS

pp

mh

PL

LEGEND

B7/MW2 — BSE May 2019 Soil Boring/Monitoring Well Location and Identification Number	SS — Sanitary Sewer Line
PL — Property Line	W — Water Line
SW — Stormwater Line	UE — Underground Power Line
GAS — Natural Gas Line	pp — Power Pole
Catch Basin	
mh — Manhole	
B1 — BSE Aug. 2018 Soil Boring Location and Identification Number	
NE — BSE Aug. 2018 Test Pit Location and Identification Number	

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ESTIMATED EXTENT OF SOIL CONTAMINATION
Bud Clary Subaru
961 Commerce Avenue
Longview, Washington

Date: 02/01/21

Figure 5

COMMERCE AVE

N

0 20
10
(FEET)

SIDEWALK

GAS

UE

SW

Excavated Area

MW-1 (7.76)

MW-2 (7.83)

MW-3 (7.80)

MW-4 (7.74)

MW-5 (7.74)

NEW DEALERSHIP BUILDING

7.80

7.75

FIR ST

SIDEWALK

PL

Alley

W

SS

pp

mh

LEGEND

General Direction of Groundwater Flow	Monitoring Well Location and Identification Number (By BSE 5/14/2019)
8.00 – Groundwater Elevation Contour Line Feet Above Arbitrary Datum	Sanitary Sewer Line
(7.96) Groundwater Elevation at Well	Water Line
	Underground Power Line
	Power Pole
	Catch Basin
	Manhole
	Property Line
	Stormwater Line
	Natural Gas Line

BLUE SAGE ENVIRONMENTAL INC
KENNEWICK, WA

GROUNDWATER ELEVATION CONTOUR MAP, SEPT. 25, 2020
Bud Clary Subaru
961 Commerce Avenue
Longview, Washington

Date: 02/01/21

Figure
WC-4

COMMERCE AVE

0 20
10
(FEET)

SIDEWALK

Excavated Area

MW-1 (8.98)

8.95

8.90

MW-2 (8.87)

NEW DEALERSHIP BUILDING

MW-3 (8.87)

MW-4 (8.92)

MW-5 (8.87)

SIDEWALK

FIR ST

Alley

LEGEND

General Direction of Groundwater Flow	Monitoring Well Location and Identification Number (By BSE 5/14/2019)
8.00 Groundwater Elevation Contour Line Feet Above Arbitrary Datum	Sanitary Sewer Line
(7.96) Groundwater Elevation at Well	Water Line
	Underground Power Line
	Power Pole
	Catch Basin
	Manhole
	Property Line
	Stormwater Line
	Natural Gas Line

BLUE SAGE ENVIRONMENTAL INC
KENNEWICK, WA

GROUNDWATER ELEVATION CONTOUR MAP, DEC. 19, 2020
Bud Clary Subaru
961 Commerce Avenue
Longview, Washington

Date: 02/01/21

Figure
WC-5

TABLES

Bud Clary Subaru
961 Commerce Avenue
Longview, WA

TABLE 1
BSE Soil Analytical Data - Borings and Test Pits
Bud Clary Subaru
961 Commerce Avenue, Longview, WA

Sample Date	Sample Type	Sample Number	Monitoring Well	Depth (ft)	Diesel mg/kg	Lube Oil mg/kg	Gasoline mg/kg	Benzene mg/kg	Toluene mg/kg	Ethyl-benzene mg/kg	Xylenes mg/kg	Total Lead mg/kg
MTCA Method A Cleanup Level (mg/kg)					*2000*	*2000*	*30/100*	*0.03*	*7*	*6*	*9*	*250*
08/22/18	Test pit	EX CTR West		12	**480**	**74,000**	-	-	-	-	-	-
08/22/18	Test pit	EX NE Floor		12	<50	**8,300**	-	-	-	-	-	-
08/22/18	Test pit	EX SE Floor		12	**60**	**66,000**	-	-	-	-	-	-
08/22/18	Test pit	EX East Floor		12	**540**	**81,000**	-	-	-	-	-	-
08/22/18	Test pit	EX East Sidewall		10	<50	<100	<10	<0.02	<0.05	<0.05	<0.15	-
08/29/18	Boring	B1-10		10	<50	<100	<10	<0.02	<0.05	<0.05	<0.15	<10
08/29/18	Boring	B1-15		15	<50	<100	<10	<0.02	<0.05	<0.05	<0.15	-
08/29/18	Boring	B2-10		10	<50	<100	<10	<0.02	<0.05	<0.05	<0.15	<10
08/29/18	Boring	B2-15		15	<50	<100	<10	<0.02	<0.05	<0.05	<0.15	-
08/29/18	Boring	B3-10		10	<50	<100	<10	<0.02	<0.05	<0.05	<0.15	<10
08/29/18	Boring	B3-15		15	<50	<100	<10	<0.02	<0.05	<0.05	<0.15	-
08/29/18	Boring	B4-10		10	<50	<100	<10	<0.02	<0.05	<0.05	<0.15	<10
08/29/18	Boring	B4-15		15	<50	<100	<10	<0.02	<0.05	<0.05	<0.15	-
05/01/19	Boring	B6-15	MW-1	15	<50	<100	<10	<0.02	<0.05	<0.05	<0.15	-
05/01/19	Boring	B7-13	MW-2	13	**14000**	**370,000**	**5,700**	**0.09**	**0.48**	**1.4**	**5.8**	-
05/01/19	Boring	B7-15		15	**210**	**30,000**	**11**	**0.08**	**0.05**	<0.05	<0.15	-
05/01/19	Boring	B8-11	MW-3	11	**4200**	**210,000**	**5,900**	<0.02	<0.05	<0.05	<0.15	-
05/01/19	Boring	B8-15		15	<50	<100	<10	<0.02	<0.05	<0.05	<0.15	-
05/01/19	Boring	B9-11	MW-4	11	<50	<100	<10	<0.02	<0.05	<0.05	<0.15	-
05/01/19	Boring	B10-15	MW-5	15	<50	<100	<10	<0.02	<0.05	<0.05	<0.15	-

Notes:

-	Contaminant not analyzed
5.9	Bold number(s) indicate contaminant detected
31	Bold and shaded number(s) indicate concentration above MTCA Method A cleanup level

TABLE 2
BSE Groundwater Analytical Data
Bud Clary Subaru
961 Commerce Avenue, Longview, WA

Sample Date	Monitoring Well	Diesel µg/L	Lube Oil µg/L	Gasoline µg/L	Benzene µg/L	Toluene µg/L	Ethyl-benzene µg/L	Xylenes µg/L	Total Lead µg/L	MTBE µg/L	EDB µg/L	EDC µg/L	c-PAH µg/L	PCB µg/L	Elevation TOC (MSL)	Depth to Water	GW Elevation (MSL)
MTCA Method A Cleanup Level		*500*	*500*	*800*	*50*	*1000*	*700*	*1000*	*15*	*20*	*0.01*	*5*	*0.1*	*0.1*	ft	ft	ft
06/27/19	MW-1	<250	<250	<100	<1	<1	<1	<3	<1	<1	<1	<1	<0.1	-	16.95	8.94	8.01
09/06/19		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	<0.1	16.95	9.65	7.30
12/02/19		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	<0.1	16.95	9.36	7.59
09/25/20		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	-	16.95	9.19	7.76
12/19/20		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	-	16.95	7.97	8.98
06/27/19	MW-2	<250	<250	<100	<1	<1	<1	<3	<1	<1	<1	<1	<0.1	-	17.20	9.15	8.05
09/06/19		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	<0.1	17.20	9.90	7.30
12/02/19		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	<0.1	17.20	9.60	7.60
09/25/20		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	-	17.20	9.37	7.83
12/19/20		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	-	17.20	8.33	8.87
06/27/19	MW-3	<250	<250	<100	<1	<1	<1	<3	<1	<1	<1	<1	<0.1	-	17.32	9.28	8.04
09/06/19		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	<0.1	17.32	10.02	7.30
12/02/19		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	<0.1	17.32	9.76	7.56
09/25/20		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	-	17.32	9.52	7.80
12/19/20		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	-	17.32	8.45	8.87
06/27/19	MW-4	<250	<250	<100	<1	<1	<1	<3	<1	<1	<1	<1	<0.1	-	17.30	9.29	8.01
09/06/19		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	<0.1	17.30	10.00	7.30
12/02/19		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	<0.1	17.30	9.73	7.57
09/25/20		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	-	17.30	9.56	7.74
12/19/20		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	-	17.30	8.38	8.92
06/27/19	MW-5	<250	<250	<100	<1	<1	<1	<3	<1	<1	<1	<1	<0.1	-	17.16	9.20	7.96
09/06/19		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	<0.1	17.16	9.88	7.28
12/02/19		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	<0.1	17.16	9.63	7.53
09/25/20		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	-	17.16	9.42	7.74
12/19/20		<250	<250	<100	<1	<1	<1	<3	-	-	-	-	-	-	17.16	8.29	8.87

Notes:

<250 value less than laboratory reporting limit

APPENDIX A

Purge Logs

Bud Clary Subaru
961 Commerce Avenue
Longview, Washington

Well Purge and Development Form			**Client:**	Clary Subaru	**Location**	Longview
Bluestone Environmental			**Well Name**	MW-1	**Date**	9/25/2020

Well depth (ft)	14.25	**Initial Depth to Water**	9.19	**Tubing/Pump Depth**	11	
Well diameter (in):	2	**Time of measurement**	11:50	**Purging method**	**perasaltic**	
Water column or well screen submerged length:		**Volume per foot:**	1"=0.041 // 2"= 0.163 // 3"=0.367 // 4"=0.653			
Water quality meter used:	YSI 556 Multimeter with flow cell			**Well volumn purged:**		

Time	Volume Purged (gal) Increment / Total	pH	Conductivity ms/cm^2	µS/cm	Temperature (C)	Dissolved Oxygen %	mg/L	ORP (mv)	Water Level
10:55	0 0	6.70	0.375	300	16.55	60.1	4.82	61.6	9.19
11:00	1/8 1/8	5.93	0.370	308	16.28	14.1	1.44	33.8	9.19
11:05	1/8 1/4	6.00	0.396	330	16.15	10.1	1.08	26.8	9.19
11:10	1/8 3/8	6.06	0.402	334	16.14	7.6	0.74	32.1	9.19
11:15	1/8 1/2	6.08	0.404	335	16.14	8.4	0.81	42.5	9.19
11:20	1/8 5/8	6.09	0.404	336	16.15	8.4	0.81	41.3	9.19
	sampled 11:20								
	Color	Odor	Particulate		Sheen				
10:55	Clear	no	no		no				
11:00	Clear	no	no		no				
11:05	Clear	no	no		no				
11:10	Clear	no	no		no				
11:15	Clear	no	no		no				
11:20	Clear	no	no		no				

Well Purge and Development Form			**Client:**	Clary Subaru	**Location**	Longview
Bluestone Environmental			**Well Name**	MW-2	**Date**	9/25/2020

Well depth (ft)	14.25	**Initial Depth to Water**	9.37	**Tubing/Pump Depth**	11.5'	
Well diameter (in):	2	**Time of measurement**	11:30	**Purging method**	**Peristalic**	
Water column or well screen submerged length:		**Volume per foot:**	1"=0.041 // 2"= 0.163 // 3"=0.367 // 4"=0.653			
Water quality meter used:	YSI 556 Multimeter with flow cell			**Well volumn purged:**		

Time	Volume Purged (gal) Increment / Total	pH	Conductivity ms/cm^2	µS/cm	Temperature (C)	Dissolved Oxygen %	mg/L	ORP (mv)	Water Level
11;35	0 0	6.56	1.813	1556	17.54	16.1	1.52	-36.7	9.66
11:40	1/8 1/8	6.55	1.829	1569	17.57	11.8	1.11	-43.9	9.68
11;45	1/8 1/4	6.55	1.849	1591	17.64	8.3	0.78	-51.2	9.68
11:50	1/8 3/8	6.57	1.874	1632	18.24	7.6	0.72	-61.2	9.68
11:55	1/8 1/2	6.57	1.878	1637	18.24	6.6	0.68	-65.2	9.68
	Sampled 11:55								
	Color	Odor	Particulate		Sheen				
11:35	Clear	No	Yes		No	Organic-similar to Iron bacteria			
11:40	Clear	No	Yes		No	Organic-similar to Iron bacteria			
11:45	Clear	No	Yes		No	Organic-similar to Iron bacteria			
11:50	Clear	No	Yes		No	Organic-similar to Iron bacteria			
11:55	Clear	No	Yes		No	Organic-similar to Iron bacteria			

Well Purge and Development Form			**Client:**	Clary Subaru	**Location**	Longview
Bluestone Environmental			**Well Name**	MW-3	**Date**	9/25/2020
Well depth (ft)	14.5		**Initial Depth to Water**	9.52	**Tubing/Pump Depth**	11.5'
Well diameter (in):	2		**Time of measurement**	12:05	**Purging method**	
Water column or well screen submerged length:			**Volume per foot:**		1"=0.041 // 2"= 0.163 // 3"=0.367 // 4"=0.653	
Water quality meter used:	YSI 556 Multimeter with flow cell				**Well volumn purged:**	

Time	Volume Purged (gal) Increment / Total	pH	Conductivity ms/cm^2 µS/cm	Temperature (C)	Dissolved Oxygen % mg/L	ORP (mv)	Water Level
12:15	0 0	6.58	2.078 1728	16.18	74.2 6.73	7.1	9.67
12:20	1/8 1/8	6.45	2.093 1740	16.14	24.1 2.35	-6.5	9.67
12:25	1/8 1/4	6.47	2.117 1756	16.08	13.1 1.28	-17.4	9.67
12:30	1/8 3/8	6.47	2.124 1762	16.07	11.2 1.10	-20.6	9.67
12:35	1/8 1/2	6.47	2.123 1762	16.06	10.9 1.10	-28.3	9.67
	Sampled 12:35						
	Color	Odor	Particulate	Sheen			
12:15	Cloudy	NO	Yes	Slight Sheen			
12:20	Slightly Cloudy	No	Yes	Slight Sheen			
12:25	Slightly Cloudy	No	Yes	Slight Sheen			
12:30	Slightly Cloudy	No	Yes	Slight Sheen			
12:35	Slightly Cloudy	No	Yes	Slight Sheen			

Well Purge and Development Form			Client:	Clary Subaru	Location		Longview	
Bluestone Environmental			Well Name	MW-4		Date	9/25/2020	
Well depth (ft)	14.2		**Initial Depth to Water**		**9.56**	**Tubing/Pump Depth**		**11.5"**
Well diameter (in):	2		**Time of measurement**		12:45	**Purging method**		**Peristalic**
Water column or well screen submerged length:				**Volume per foot:**		1"=0.041 // 2"= 0.163 // 3"=0.367 // 4"=0.653		
Water quality meter used:	YSI 556 Multimeter with flow cell					**Well volumn purged:**		

Time	Volume Purged (gal) Increment / Total	pH	Conductivity ms/cm^2	µS/cm	Temperature (C)	Dissolved Oxygen %	mg/L	ORP (mv)	Water Level
12:50	0 0	6.32	0.804	665	15.91	48.1	4.58	12.0	9.56
12:55	1/8 1/8	6.25	0.806	666	15.91	29.2	2.87	12.3	9.56
13:00	1/8 1/4	6.22	0.810	669	15.89	20.5	2.02	11.9	9.56
13:05	1/8 3/8	6.20	0.814	672	15.85	18.2	1.97	11.0	9.56
13:10	1/8 1/2	6.20	0.813	672	15.81	18.1	1.96	13.6	9.56
	Sampled 13:10								
	Color	Odor	Particulate		Sheen				
12:50	Cloudy	No	Yes		Slight-Sheen	Organic-Similar to iron bacteria			
12:55	Cloudy	No	Yes		Slight-Sheen	Organic-Similar to iron bacteria			
13:00	Slightly Cloudy	No	Yes		Slight-Sheen	Organic-Similar to iron bacteria			
13:05	Slightly Cloudy	No	Yes		Slight-Sheen	Organic-Similar to iron bacteria			
13:10	Slightly Cloudy	No	Yes		Slight-Sheen	Organic-Similar to iron bacteria			

Well Purge and Development Form			**Client:**	Clary Subaru	**Location**	Longview
Bluestone Environmental			**Well Name**	MW-5	**Date**	9/25/2020

Well depth (ft)	14.5	**Initial Depth to Water**	9.42	**Tubing/Pump Depth**	11.5	
Well diameter (in):	2	**Time of measurement**	13:20	**Purging method**	**Peristalic**	
Water column or well screen submerged length:		**Volume per foot:**	1"=0.041 // 2"= 0.163 // 3"=0.367 // 4"=0.653			
Water quality meter used:	YSI 556 Multimeter with flow cell			**Well volumn purged:**		

Time	Volume Purged (gal) Increment / Total	pH	Conductivity ms/cm^2	µS/cm	Temperature (C)	Dissolved Oxygen %	mg/L	ORP (mv)	Water Level
13:25	0 0	6.67	0.753	634	16.72	105.4	10.16	-22.8	9.42
13:30	1/8 1/8	6.38	0.742	621	16.45	14.0	1.35	-39.8	9.42
13:35	1/8 1/4	6.43	0.740	617	16.35	5.6	0.54	-56.4	9.42
13:40	1/8 3/8	6.47	0.739	616	16.35	3.8	0.36	-65.6	9.42
13:45	1/8 1/2	6.49	0.739	616	16.28	3.2	0.32	-72.0	9.42
	Samples 13:45								
	Color	Odor	Particulate		Sheen				
13:25	Cloudy/Orange	No	Yes		Slight-Sheen	Organic-Similar to iron bacteria			
13:30	Cloudy/Orange	No	Yes		Slight-Sheen	Organic-Similar to iron bacteria			
13:35	Cloudy/Orange	No	Yes		Slight-Sheen	Organic-Similar to iron bacteria			
13:40	Cloudy/Orange	No	Yes		Slight-Sheen	Organic-Similar to iron bacteria			
13:45	Cloudy/Orange	No	Yes		Slight-Sheen	Organic-Similar to iron bacteria			

Well Purge and Development Form
Bluestone Environmental

Client:	Clary Subaru	**Location**	Longview
Well Name:	MW-1	**Date**	12/19/2020

Well depth (ft):	14' 3"	**Initial Depth to Water:**	**7.97**	**Tubing/Pump Depth**	**11'**	
Well diameter (in):	2	**Time of measurement:**	11:40	**Purging method**	**Peristaltic**	
Water column or well screen submerged length:		**Volume per foot:**		1"=0.041 // 2"= 0.163 // 3"=0.367 // 4"=0.653		
Water quality meter used:	YSI 556 Multimeter with flow cell			**Well volumn purged:**		

Time	Purge Rate (ml/min)	Purge Volume (Gallon)	Temperature (C)	Conductivity ms/cm2	Conductivity µS/cm	Dissolved Oxygen %	Dissolved Oxygen mg/L	pH	ORP (mv)	Water Level
11:43	80.00		12.76	0.364	279	58.50	6.15	6.57	73.6	7.99
11:47	80.00		13.09	0.361	279	39.00	4.09	6.51	71.3	7.99
11:50	80.00		13.30	0.359	279	330.70	3.21	6.43	68.8	7.99
11:53	80.00		13.42	0.358	279	29.20	3.04	6.39	68.0	7.99
11:56	80.00		13.42	0.358	279	29.10	2.99	6.38	67.8	7.99
12:00	80.00		13.42	0.358	279	29.10	2.99	6.38	67.2	7.99

	Color	Odor	Particulate	Sheen	Notes
11:43	clear	no	some light yellow organics	no	Weather: cloudy, upper 40s
11:47	clear	no	some light yellow organics	no	Sampled at: 12:00
11:50	clear	no	some light yellow organics	no	Sample Bottles:
11:53	clear	no	no	no	1 500ml amber
11:56	clear	no	no	no	2 HCL VOAs
12:00	clear	no	no	no	
0:00					
0:00					
0:00					
0:00					

Well Purge and Development Form
Bluestone Environmental

Client:	Clary Subaru	**Location**	Longview
Well Name:	MW-2	**Date**	12/19/2020

Well depth (ft):	14' 3"		**Initial Depth to Water:**	**8.33**	**Tubing/Pump Depth**	**11.5**
Well diameter (in):	2		**Time of measurement:**	12:15	**Purging method**	**Peristaltic**
Water column or well screen submerged length:			**Volume per foot:**		1"=0.041 // 2"= 0.163 // 3"=0.367 // 4"=0.653	
Water quality meter used:	YSI 556 Multimeter with flow cell				**Well volumn purged:**	

Time	Purge Rate (ml/min)	Purge Volume (Gallon)	Temperature (C)	Conductivity ms/cm2	Conductivity µS/cm	Dissolved Oxygen %	Dissolved Oxygen mg/L	pH	ORP (mv)	Water Level
12:19	80.00		13.71	0.680	533	34.10	3.40	6.49	93.9	8.37
12:22	80.00		13.88	0.676	533	24.60	2.53	6.48	87.1	8.37
12:25	80.00		14.16	0.667	530	18.80	1.91	6.47	83.8	8.37
12:28	80.00		14.42	0.685	548	17.20	1.76	6.45	83.5	8.37
12:31	80.00		14.43	0.685	548	17.10	1.74	6.45	83.3	8.37
12:35	80.00		14.42	0.685	548	17.10	1.74	6.45	82.9	8.37

	Color	Odor	Particulate	Sheen	Notes
12:19	clear	petroleum	no	no	Weather: cloudy, upper 40s
12:22	clear	petroleum	no	no	Sampled at: 12:35
12:25	clear	petroleum	no	no	Sample Bottles:
12:28	clear	petroleum	no	no	1 500ml amber
12:31	clear	petroleum	no	no	2 HCL VOAs
12:35	clear	petroleum	no	no	
0:00					
0:00					
0:00					
0:00					

Well Purge and Development Form
Bluestone Environmental

Client:	Clary Subaru	**Location**	Longview
Well Name:	MW-3	**Date**	12/19/2020

Well depth (ft):	14' 6"		**Initial Depth to Water:**	**8.45**	**Tubing/Pump Depth**	**11' 6"**
Well diameter (in):	2		**Time of measurement:**	11:05	**Purging method**	**Peristaltic**
Water column or well screen submerged length:			**Volume per foot:**		1"=0.041 // 2"= 0.163 // 3"=0.367 // 4"=0.653	
Water quality meter used:	YSI 556 Multimeter with flow cell				**Well volumn purged:**	

Time	Purge Rate (ml/min)	Purge Volume (Gallon)	Temperature (C)	Conductivity ms/cm2	Conductivity µS/cm	Dissolved Oxygen %	Dissolved Oxygen mg/L	pH	ORP (mv)	Water Level
11:09	80.00		13.04	0.613	473	43.50	4.49	6.48	68.7	8.48
11:12	80.00		13.15	0.594	459	22.10	2.31	6.46	67.8	8.48
11:15	80.00		13.32	0.599	465	21.10	2.20	6.47	67.3	8.48
11:18	80.00		13.35	0.601	468	20.50	2.11	6.47	65.3	8.48
11:22	80.00		13.36	0.601	468	20.40	2.10	6.47	64.7	8.48
11:25	80.00		13.36	0.601	468	20.10	2.00	6.47	63.6	9.48

	Color	Odor	Particulate	Sheen	Notes
11:09	clear	organic	some light yellow organics	no	Weather: cloudy, light rain upper 40s
11:12	clear	organic	some light yellow organics	no	Sampled at: 11:25
11:15	clear	organic	some light yellow organics	no	Sample Bottles:
11:18	clear	organic	some light yellow organics	no	1 500ml amber
11:22	clear	organic	some light yellow organics	no	2 HCL VOAs
11:25	clear	organic	some light yellow organics	no	
0:00					
0:00					
0:00					
0:00					

Well Purge and Development Form
Bluestone Environmental

Client:	Clary Subaru	**Location**	Longview		
Well Name:	MW-4			**Date**	12/19/2020

Well depth (ft):	14' 3"	**Initial Depth to Water:**	**8.38**	**Tubing/Pump Depth**	**11' 6'**
Well diameter (in):	2	**Time of measurement:**	10:30	**Purging method**	**Peristaltic**
Water column or well screen submerged length:		**Volume per foot:**		1"=0.041 // 2"= 0.163 // 3"=0.367 // 4"=0.653	
Water quality meter used:	YSI 556 Multimeter with flow cell			**Well volumn purged:**	

Time	Purge Rate (ml/min)	Purge Volume (Gallon)	Temperature (C)	Conductivity ms/cm2	Conductivity µS/cm	Dissolved Oxygen %	Dissolved Oxygen mg/L	pH	ORP (mv)	Water Level
10:33	80.00		12.09	0.146	110	83.40	8.82	6.77	36.4	8.40
10:36	80.00		12.22	0.146	111	63.30	6.65	6.74	34.2	8.40
10:39	80.00		12.35	0.147	111	55.70	5.96	6.71	32.1	8.40
10:42	80.00		12.40	0.147	111	53.90	5.74	6.71	30.9	8.40
10:45	80.00		12.40	0.147	111	53.40	5.71	6.71	30.9	8.40
10:48	80.00		12.40	0.147	111	53.10	5.69	6.71	30.9	8.40

	Color	Odor	Particulate	Sheen	Notes
10:33	clear	no	some light orange organics	no	Weather: cloudy, upper 40s
10:36	clear	no	some light orange organics	no	Sampled at: 10:48
10:39	clear	no	some light orange organics	no	Sample Bottles:
10:42	clear	no	some light orange organics	no	1 500ml amber
10:45	clear	no	some light orange organics	no	2 HCL VOAs
10:48	clear	no	some light orange organics	no	
0:00					
0:00					
0:00					
0:00					

Well Purge and Development Form
Bluestone Environmental

Client:	Clary Subaru	**Location**	Longview
Well Name:	MW-5	**Date**	12/19/2020

Well depth (ft):	14' 6"	**Initial Depth to Water:**	**8.29**	**Tubing/Pump Depth**	**11' 6"**	
Well diameter (in):	2	**Time of measurement:**	9:45	**Purging method**	**Peristaltic**	
Water column or well screen submerged length:		**Volume per foot:**		1"=0.041 // 2"= 0.163 // 3"=0.367 // 4"=0.653		
Water quality meter used:	YSI 556 Multimeter with flow cell			**Well volumn purged:**		

Time	Purge Rate (ml/min)	Purge Volume (Gallon)	Temperature (C)	Conductivity ms/cm2	Conductivity µS/cm	Dissolved Oxygen %	Dissolved Oxygen mg/L	pH	ORP (mv)	Water Level
9:55	80.00		13.19	0.646	500	45.50	4.67	6.22	135.0	8.29
9:58	80.00		13.32	0.636	494	26.40	2.73	6.32	136.0	8.29
10:01	80.00		13.48	0.629	491	20.10	2.07	6.40	118.2	8.29
10:04	80.00		13.50	0.628	490	189.20	2.01	6.41	115.9	8.29
10:07	80.00		13.59	0.627	490	17.70	1.82	6.45	99.5	8.29
10:10	80.00		13.60	0.625	489	16.90	1.78	6.49	98.6	8.29
10:14	80.00		13.60	0.625	489	16.91	1.79	6.49	97.5	8.29

	Color	Odor	Particulate	Sheen	Notes
9:55	clear	petroleum	some light orange organics	no	Weather: cloudy, upper 40s
9:58	clear	petroleum	some light orange organics	no	Sampled at: 10:14
10:01	clear	petroleum	some light orange organics	no	Sample Bottles:
10:04	clear	petroleum	some light orange organics	no	1 500ml amber
10:07	clear	petroleum	some light orange organics	no	2 HCL VOAs
10:10	clear	petroleum	some light orange organics	no	
10:14	clear	petroleum	some light orange organics	no	
0:00					
0:00					
0:00					

APPENDIX B

Laboratory Reports 2020

Bud Clary Subaru
961 Commerce Avenue
Longview, Washington

ESN NORTHWEST
Environmental
Services Network

October 5, 2020

Alex Koch
Blue Sage Environmental
198007 E 30th Ave
Kennewick, WA 99337

Dear Mr. Koch:

Please find enclosed the analytical data reports for the Bud Clary Subaru Project in Longview, Washington. Water samples were analyzed for Diesel and Oil by Method NWTPH-Dx and for Gasoline & BTEX by Method NWTPH-Gx/8260D on September 28-29, 2020

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. A copy of the invoice for this work is enclosed for your records.

ESN Northwest appreciates the opportunity to have provided these services to Blue Sage Environmental for this project. If you have any further questions about the data report, please give us a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Patty Bowe
Office Manager

1210 Eastside Street SE, Suite 200 ■ Olympia, Washington 98501 ■ 360.459.4670 ■ FAX 360.459.3432
Web Site: *www.esnnw.com* E-Mail: *info@esnnw.com*

ESN NORTHWEST CHEMISTRY LABORATORY

Bud Clary Subaru (BSE)
BUD CLARY SUBARU PROJECT
Longview, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Diesel Range Organics & Lube Oil Range Organics in Water by Method NWTPH-Dx

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Diesel Range Organics (ug/L)	Lube Oil Range Organics (ug/L)
Method Blank	9/28/2020	9/28/2020	70	nd	nd
LCS	9/28/2020	9/28/2020	82	82%	---
MW-1	9/28/2020	9/28/2020	64	nd	nd
MW-2	9/28/2020	9/28/2020	90	nd	nd
MW-3	9/28/2020	9/28/2020	77	nd	nd
MW-4	9/28/2020	9/28/2020	87	nd	nd
MW-5	9/28/2020	9/28/2020	89	nd	nd
Reporting Limits				100	250

"---" Indicates not tested for component.
"nd" Indicates not detected at the listed detection limits.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

ESN NORTHWEST CHEMISTRY LABORATORY

Bud Clary Subaru (BSE)
BUD CLARY SUBARU PROJECT
Longview, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Gasoline Range Organics & BTEX in Water by Method NWTPH-Gx/8260D

Sample Number	Date Analyzed	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	Gasoline Range Organics (ug/L)	Surrogate Recovery (%)
Method Blank	9/29/2020	nd	nd	nd	nd	nd	122
LCS	9/29/2020	121%	123%	113%	125%	125%	94
LCSD	9/29/2020	124%	113%	114%	119%	---	91
MW-1	9/29/2020	nd	nd	nd	nd	nd	126
MW-1 Duplicate	9/29/2020	nd	nd	nd	nd	nd	109
MW-2	9/29/2020	nd	nd	nd	nd	nd	113
MW-3	9/29/2020	nd	nd	nd	nd	nd	111
MW-4	9/29/2020	nd	nd	nd	nd	nd	124
MW-5	9/29/2020	nd	nd	nd	nd	nd	108
Reporting Limits		1.0	1.0	1.0	3.0	100	

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Bromoflurorbenzene) & LCS: 65% TO 135%

ESN NORTHWEST Environmental Services Network

CHAIN-OF-CUSTODY RECORD

CLIENT: BUD CLARY SUBARU (BSE)

ADDRESS: LONGVIEW

PHONE: _____ EMAIL _____

CLIENT PROJECT #: _____ PROJECT MANAGER: A KOCH

DATE: 9/25/20 PAGE 1 OF 1

PROJECT NAME: GROUNDWATER

LOCATION: SUBARU OF LONGVIEW

COLLECTOR: Dan Matchett DATE OF COLLECTION: 9/25/20

Sample Number	Depth	Time	Sample Type	Container Type	TPH-HCID	TPH-DIESEL AND OIL	TPH-GASOLINE	BTEX 8260	VOC 8260CL	VOC 8260	SEMIVOC 8270	PAH's 8270	PCB's 8082	CL PESTICIDES 8081	RCRA 8 Metals	MTCA 5 Metals	Pb	ASBESTOS PLM	GRO Suite 830-1	DRO Suite 830-1	WO Suite 830-1	
1. MW-1	11:20	~~1120~~	H2O	VOA		X	X	X														Time 11:20
2. MW-2		1155		AMBER		X	X	X														
3. MW-3		1235				X	X	X														
4. MW-4		1310				X	X	X														
5. MW-5		1345				X	X	X														
6.																						
7.																						
8.																						
9.																						
10.																						
11.																						
12.																						
13.																						
14.																						
15.																						
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SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR (5 DAY)

1210 Eastside Street SE, Suite 200
Olympia, Washington 98501
Phone: 360-459-4670
Fax: 360-459-3432
Website: www.esnnw.com
E-Mail: lab@esnnw.com

ESN NORTHWEST | Environmental Services Network

December 30, 2020

Alex Koch
Blue Sage Environmental
198007 E 30th Ave
Kennewick, WA 99337

Dear Mr. Koch:

Please find enclosed the analytical data reports for the Longview Subaru in Longview, Washington. Water samples were analyzed for Diesel and Oil by Method NWTPH-Dx, Gasoline and BTEX by Method NWTPH-Gx/8260 on December 22-29, 2020.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. A copy of the invoice for this work is enclosed for your records.

ESN Northwest appreciates the opportunity to have provided these services to Blue Sage Environmental for this project. If you have any further questions about the data report, please give us a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Patty Bowe
Office Manager

1210 Eastside Street SE, Suite 200 ■ Olympia, Washington 98501 ■ 360.459.4670 ■ FAX 360.459.3432
Web Site: *www.esnnw.com* E-Mail: *info@esnnw.com*

ESN NORTHWEST CHEMISTRY LABORATORY

ESN Northwest
1210 Eastside Street SE Suite 200
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(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Bud Clary (BSE)
LONGVIEW SUBARU PROJECT
Longview, Washington

Analysis of Gasoline Range Organics & BTEX in Water by Method NWTPH-Gx/8260

Sample Number	Date Analyzed	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	Gasoline Range Organics (ug/L)	Surrogate Recovery (%)
Method Blank	12/29/2020	nd	nd	nd	nd	nd	102
LCS	12/29/2020	111%	108%	102%	103%	71%	100
LCSD	12/29/2020	112%	97%	96%	97%	---	103
MW-1	12/29/2020	nd	nd	nd	nd	nd	101
MW-1 Duplicate	12/29/2020	nd	nd	nd	nd	nd	101
MW-2	12/29/2020	nd	nd	nd	nd	nd	105
MW-3	12/29/2020	nd	nd	nd	nd	nd	103
MW-4	12/29/2020	nd	nd	nd	nd	nd	88
MW-5		nd	nd	nd	nd	nd	85
Reporting Limits		1.0	1.0	1.0	3.0	100	

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Bromoflurorbenzene) & LCS: 65% TO 135%

ESN NORTHWEST CHEMISTRY LABORATORY

Bud Clary (BSE)
LONGVIEW SUBARU PROJECT
Longview, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Diesel Range Organics & Lube Oil Range Organics in Water by Method NWTPH-Dx

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Diesel Range Organics (ug/L)	Lube Oil Range Organics (ug/L)
Method Blank	12/22/2020	12/22/2020	119	nd	nd
LCS	12/22/2020	12/22/2020	114	107%	---
MW-1	12/22/2020	12/22/2020	124	nd	nd
MW-2	12/22/2020	12/22/2020	142	nd	nd
MW-3	12/22/2020	12/22/2020	135	nd	nd
MW-4	12/22/2020	12/22/2020	127	nd	nd
MW-5	12/22/2020	12/22/2020	137	nd	nd
Reporting Limits				100	250

"---" Indicates not tested for component.
"nd" Indicates not detected at the listed detection limits.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

ESN NORTHWEST | Environmental Services Network

CHAIN-OF-CUSTODY RECORD

CLIENT: Clary - BSE (Bud Clary)

ADDRESS:

PHONE: EMAIL

CLIENT PROJECT #: PROJECT MANAGER: Alex Koch

DATE: 12/19/20 PAGE 1 OF 1

PROJECT NAME: Longview Subaru

LOCATION: Longview

COLLECTOR: DH DATE OF COLLECTION: 12/19/20

Sample Number	Depth	Time	Sample Type	Container Type	TPH-HCID	TPH-DIESEL AND OIL	TPH-GASOLINE	BTEX 8260	VOC 8260CL	VOC 8260	SEMIVOC 8270	PAH's 8270	PCB's 8082	CL PESTICIDES 8081	RCRA 8 Metals	MTCA 5 Metals	Pb	ASBESTOS PLM	GRO Suite 830-1	DRO Suite 830-1	WO Suite 830-1
1. MW-1		12:00				X	X	X													
2. MW-2		1235				X	X	X													
3. MW-3		11:25				X	X	X													
4. MW-4		1048				X	X	X													
5. MW-5		1014				X	X	X													
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RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR (5 DAY)

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