2023 Annual Groundwater Monitoring Report

Frito-Lay, Inc.

Frito-Lay Vancouver Facility
4808 NW Fruit Valley Road
Vancouver, Washington 98660

Facility Site No. 81587474
VCP No. SW1024

September 26, 2023

→ **The Power of Commitment**

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

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1. Introduction

GHD Services Inc. (GHD) prepared this 2023 Annual Groundwater Monitoring Report on behalf of Frito-Lay, Inc. (Frito-Lay) for the Frito-Lay Vancouver facility located at 4808 NW Fruit Valley Road in Vancouver, Clark County, Washington (Property). The Property is in southwestern Vancouver, south of Vancouver Lake and north of the Columbia River, on approximately 40 acres of land (Figure 1).

The purpose of this annual report is to present the results of the 2023 groundwater monitoring event conducted at the Property. The Property is enrolled in the Washington State Department of Ecology's (Ecology) Voluntary Cleanup Program (VCP) and assigned Facility Site ID 81587474 and VCP number SW1024.

1.1 Site Background and Current Conditions

The Property consists of an active Frito-Lay wholesale facility. The Property is relatively flat and at an approximate elevation of 40 feet above mean sea level with most of its surface consisting of impervious cover, apart from the westernmost areas. Frito-Lay's facility produces, warehouses, and distributes various snack products for commercial sale.

In 1991, a lift (located west of the warehouse building) collapsed causing a release of approximately 150 gallons of hydraulic fluid and 100 gallons of diesel fuel. A subsequent subsurface investigation identified petroleum-contaminated soil (PCS) in the vicinity of the lift. Approximately 248 tons of PCS were removed from the vicinity of the lift for off-site disposal. However, PCS remains in-place beneath the structural concrete slab of the hydraulic lift. Following the completion of the excavation, a 10-inch-wide bentonite slurry wall was installed along the east wall of the excavation against the remaining PCS. Subsequently, three monitoring wells (FL-MW1 through FL-MW3) were installed west and downgradient of the remaining PCS to evaluate groundwater conditions.

2. Groundwater Monitoring Activities

Groundwater monitoring activities completed in 2023 included gauging and sampling the three existing monitoring wells. Monitoring well locations and site features are illustrated on Figure 2.

2.1 Hydraulic Monitoring and Groundwater Sampling

GHD completed groundwater monitoring activities on June 28, 2023. Depth-to-groundwater was measured from the existing monitoring wells. Groundwater levels were measured from the monitoring well top of casing (TOC) using an electronic water level meter and were recorded on the groundwater monitoring field data sheets included in Appendix A. Groundwater elevations for each monitoring well were calculated from the surveyed TOC elevations and are shown on Figure 1.

Subsequent to gauging the monitoring wells, GHD collected groundwater samples using standard low-flow sampling techniques. Low-flow sampling was accomplished using a bladder pump and disposable tubing. The wells were purged at a rate of 350 milliliters per minute. Water quality measurements, including temperature, conductivity, turbidity, dissolved oxygen, pH, and oxidation/reduction potential, were collected during the purging process when sufficient water was present using a YSI water quality meter and a turbidity meter. Water quality parameters were taken every 3 to 5 minutes to ensure stabilization had been achieved within at least three consecutive measurements and a representative groundwater formation sample was collected. Samples were collected from the discharge tube in sample containers, sealed, labeled, and immediately placed in a cooler on ice. Samples collected during the 2023

sampling event were transported to ALS Environmental in Everett, Washington under standard chain-of-custody procedures.

Groundwater samples were collected using dedicated and single-use equipment. Dedicated equipment included polyethylene and silicone tubing. Single-use sampling equipment included nitrile gloves and laboratory-provided sample containers. Sampling equipment included a water level indicator, bladder pump, and water quality parameter meters, all of which were decontaminated prior to and after use at each well.

Groundwater samples collected during the 2023 monitoring event were analyzed for one or more of the following:

- Volatile organic compounds (VOCs) per Environmental Protection Agency (EPA) Method 8260
- Polycyclic aromatic hydrocarbons (PAHs) per EPA Method 8270 SIM
- Total petroleum hydrocarbons (TPH) as gasoline-range (TPHg) per Method NWTPH-Gx
- TPH as diesel-range (TPHd) per Method NWTPH-Dx
- TPH as oil-range (TPHo) per Method NWTPH-Dx
- Resource Conservation and Recovery Act (RCRA) 8 metals per EPA Methods 200.8 and 245.1

Groundwater analytical results were compared to Model Toxics Control Act (MTCA) Method A groundwater cleanup levels.

Data collected during the June 28, 2023 sampling event indicates depth-to-groundwater ranged from 33.34 feet below TOC in monitoring well FL-MW1 to 35.06 feet below TOC in monitoring well FL-MW3. Less than 6 inches of water was measured in monitoring well FL-MW2, which is likely incidental water in the well and not representative of the Property's groundwater. Because groundwater elevations were only measured from the two remaining wells, a groundwater flow direction and gradient were not calculated for this event.

Due to the insufficient amount of groundwater in monitoring well FL-MW2, a groundwater sample was not collected during this event. Additionally, monitoring well FL-MW1 did not contain sufficient water to complete low-flow purging during this event. Therefore, GHD obtained a grab groundwater sample from monitoring well FL-MW1 and noted high turbidity within the sample due to lack of groundwater recharge.

In monitoring well FL-MW1, total arsenic was detected at 7.9 micrograms per liter (ug/L), which is above the MTCA Method A cleanup level of 5 ug/L. This is likely due to the high turbidity (>200 NTU) of the grab groundwater sample. Based on the arsenic concentrations below the MTCA Method A cleanup levels during previous events, arsenic is not considered a contaminant of concern (COC) for this site; therefore, this well was not resampled. The remaining COC concentrations in wells sampled during the 2023 sampling event were non-detect or were below MTCA Method A cleanup levels.

A summary of groundwater elevation and analytical results are presented in Table 1. Copies of groundwater monitoring field data sheets are included in Appendix A. The laboratory analytical report is provided in Appendix B.

2.2 Investigation Derived Waste

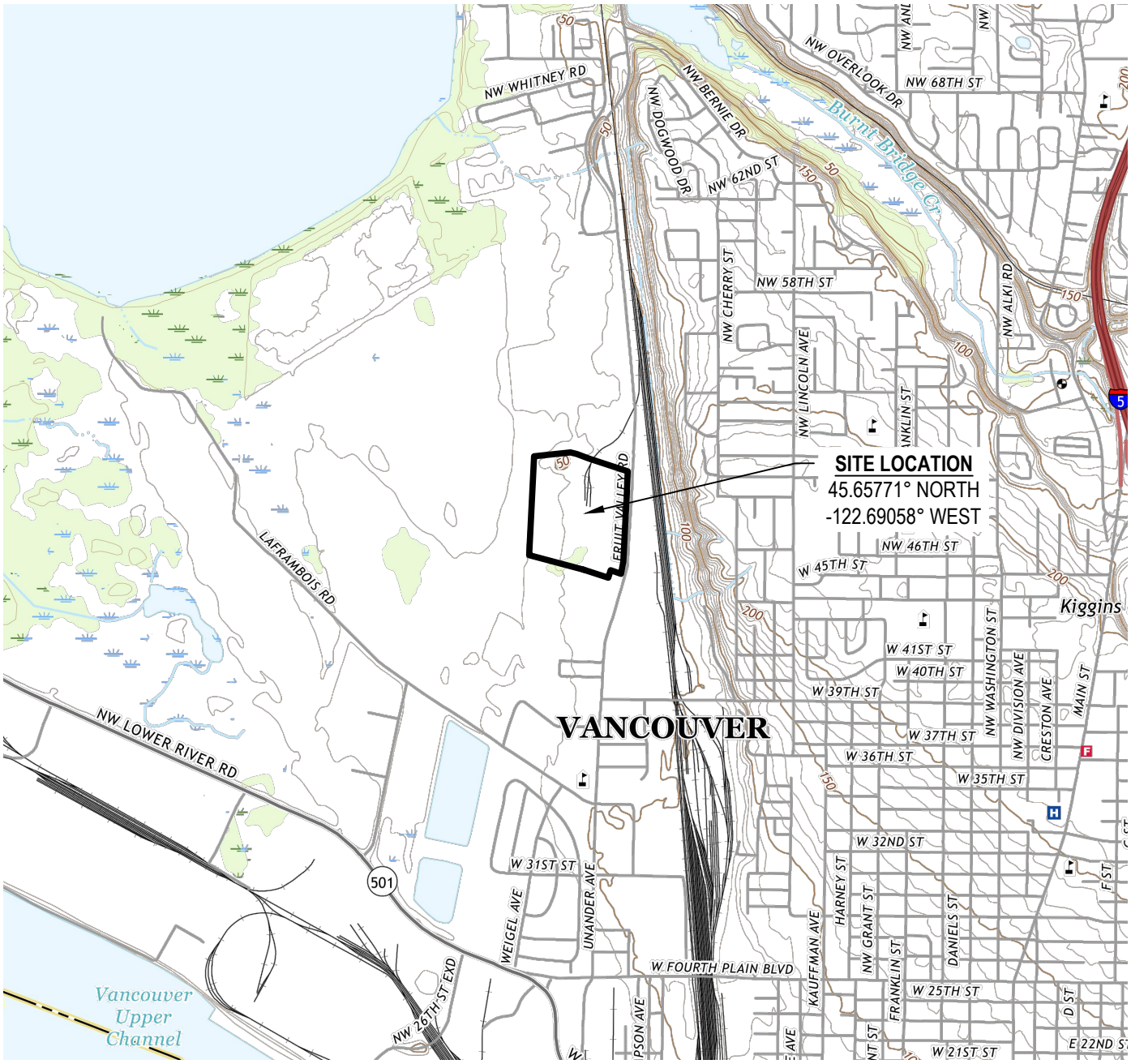
All investigation derived waste, including decontamination and purge water, was placed in a labeled drum and stored on-Property for later disposal. Disposable equipment and personal protection equipment (PPE) were rinsed with potable water and disposed of in the trash.

3. Summary

Groundwater flow direction and gradient could not be calculated for the June 2023 monitoring event. It is noted that the groundwater elevations measured were at the lowest elevations based on the historic monitoring well sampling events at the Property.

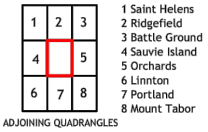
A concentration of arsenic above the MTCA Method A cleanup level was detected in monitoring well FL-MW1 groundwater sample. This is likely due to insufficient groundwater recharge and high turbidity within the sample. Arsenic is not considered a COC for this Property but will be included in the analysis (both total and dissolved) during future sampling events. No other concentrations of COCs were detected in the groundwater samples above laboratory method reporting limits or MTCA Method A cleanup level exceedances during this sampling event.

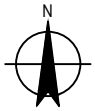
Figures

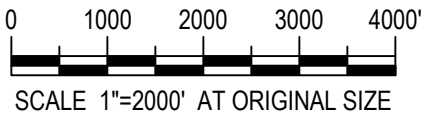


Contour Interval: 10 Feet

Map Taken From: USGS 7.5 Minute Series
Topographic Quadrangle;
Vancouver, WA, OR (2020)
(U.S. Geological Survey)







NOTES:
1. Site boundary is approximate and based on information taken from the Clark County, Washington Maps Online GIS database.

GHD

FRITO-LAY, INC.
VANCOUVER FACILITY
4808 NW FRUIT VALLEY ROAD, VANCOUVER, WA

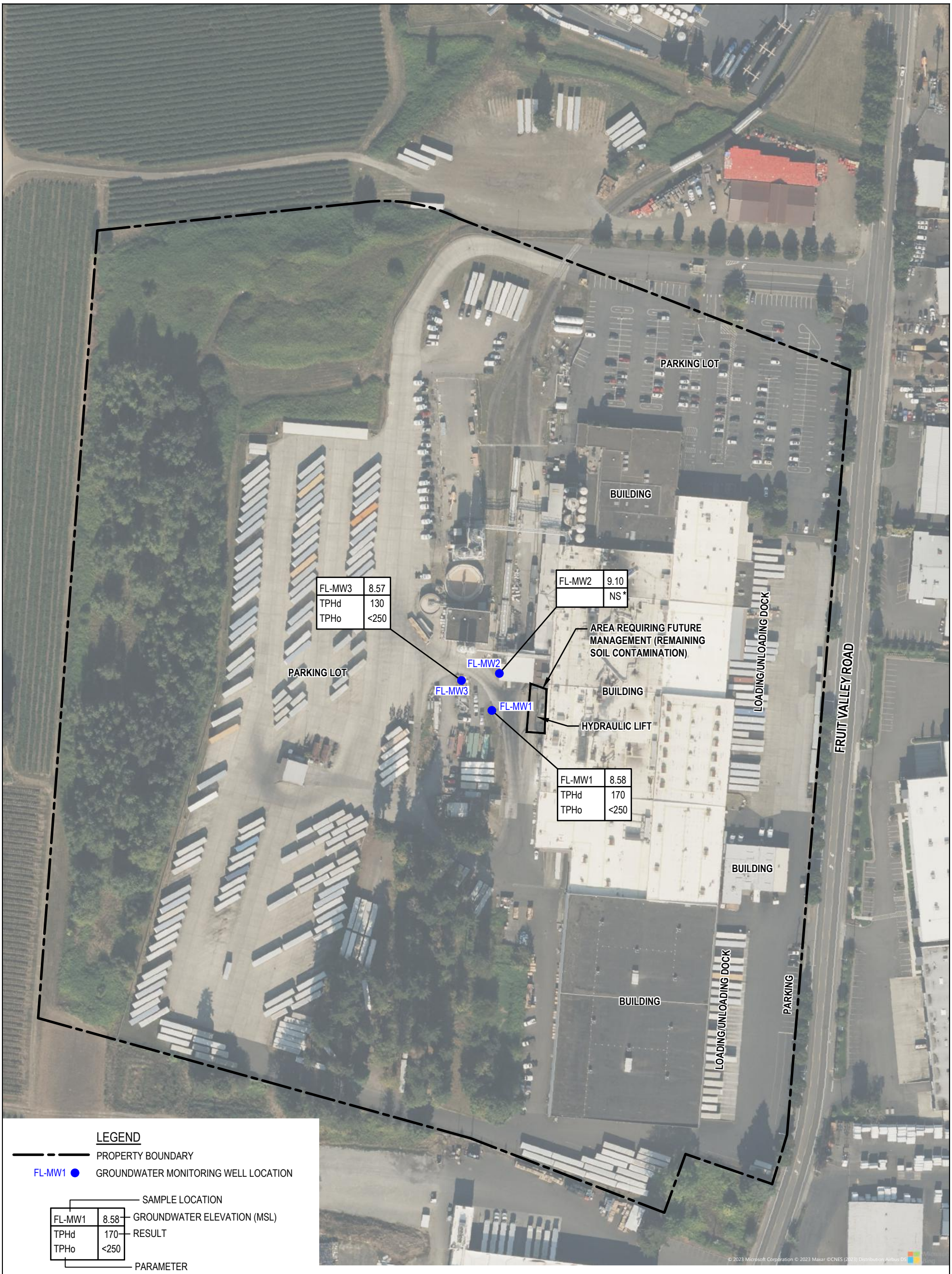
SITE LOCATION MAP

Project No. **12570621**
Date **02.22.2022**

FIGURE 1

Filename: G:\Projects\564\12570621\Digital_Design\Figures\12570621-RPT01-FIG01-Site Location.dwg
Plot Date: 11 February 2022 3:10 PM

Data Source



NOTES:

1. ALL CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER (µg/L).
2. BOLD = EXCEEDANCE ABOVE MODEL TOXICS CONTROL ACT (MTCA) METHOD A CLEANUP LEVEL.
3. TPHd = TOTAL PETROLEUM HYDROCARBONS AS DIESEL RANGE.
4. TPHo = TOTAL PETROLEUM HYDROCARBONS AS CRUDE OIL RANGE.
5. NS* = THERE WAS INSUFFICIENT GROUNDWATER IN THIS WELL TO SAMPLE.

0 75 150 ft

1" = 150 ft

Coordinate System: WA83-SF

N

GHD

FRITO-LAY, INC.
VANCOUVER FACILITY
4808 NW FRUIT VALLEY ROAD, VANCOUVER, WA

GROUNDWATER ELEVATION AND CHEMICAL CONCENTRATION MAP - JUNE 28, 2023

Project No. **12570621**
Date **September 2023**

FIGURE 2

Filename: N:\US\Cazenovia\Projects\564\12570621\Digital_Design\ACAD\Figures\PRE002\12570621-GHD-00-00-PRE-EN-D101_SO-002.dwg
Plot Date: 22 September 2023 3:37 PM

Data Source: Clark County, WA. GIS - http://gis.clark.wa.gis.gov parcel map. Otak Survey dated 5/27/2020.

Table

Table 1

Groundwater Monitoring Data
Frito-Lay Vancouver Facility
4808 NW Fruit Valley Rd
Vancouver, Washington

					Hydrocarbons			Primary VOCs				PAHs			Arsenic		Water Quality Parameters					
Sample ID	**Sample Date**	**TOC**	**DTW**	**GWE**	**TPHg**	**TPHd**	**TPHo**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes [a]**	**Naphthalenes [b]**	**cPAHs [c]**	**Others**	**Total**	**Dissolved**	**Turbidity**	**pH**	**Temperature**	**Specific Conductance**	**Dissolved Oxygen**	**ORP**
	Model Toxics Control Act Method A Cleanup Levels				1,000	500		5	1,000	700	1,000	160	0.1	Varies	5	5	--	--	--	--	--	--
		feet	feet	feet	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	NTU	--	Deg. F	us/cm	ppm	mV
FL-MW1	6/29/2011	41.81	23.87	17.94	<100	<77.7	<194	<0.300	<1.00	<1.00	--	<0.0475	0.012	<0.0475	1.77	--	0.08	5.35	61	2210	6.1	232
FL-MW1	12/13/2012	41.81	28.83	12.98	<100	<75.8	<189	<0.300	<1.00	<1.00	--	<0.0472	<0.0472	<0.0472	<20.00	--	1.3	5.99	55.5	391	4.9	220
FL-MW1	6/20/2014	41.81	29.56	12.25	<100	<75.8	<189	<0.300	<1.00	<1.00	--	<0.0472	<0.0472	<0.0472	<20.00	--	0.42	5.46	62.6	232	5.9	195
FL-MW1	5/27/2020	41.92	28.61	13.31	<50	<130	<250	<2.0	<2.0	<2.0	--	<0.020	<0.020	<0.020	2.0	1.6	1.8	6.25	62.8	325	6.02	122
FL-MW1	12/16/2021	41.92	30.67	11.25	<50	<130	<250	<2	<2	<2	<2	<0.020	<0.02	<0.02	1.4	--	4.06	6.08	59	247.7	5.68	118.4
FL-MW1	6/28/2023	41.92	33.34	8.58	<50	170	<250	<2.0	<2.0	<2.0	<2.0	<0.020	ND	ND	**7.9**	--	>200	--	--	--	--	--
FL-MW2	6/29/2011	43.45	25.05	18.40	<100	<77.7	<194	<0.300	<1.00	<1.00	--	<0.0475	<0.0475	<0.0475	1.17	--	0.13	5.68	61.3	2640	6.1	233
FL-MW2	12/13/2012	43.45	30.98	12.47	<100	87.8	<189	<0.300	<1.00	<1.00	--	<0.0473	<0.0473	<0.0473	<20.00	--	1.32	5.92	54.6	436	5	251
FL-MW2	6/20/2014	43.45	31.34	12.11	<100	<75.3	<188	<0.300	<1.00	<1.00	--	<0.0473	<0.0473	<0.0473	<20.00	--	0.32	5.47	61.4	273	6.7	257
FL-MW2	5/27/2020	43.56	30.82	12.74	<50	<130	<0.250	<2.0	<2.0	<2.0	--	<0.020	<0.020	<0.020	1.3	1.3	4.5	6.33	69.7	402	5.47	123
FL-MW2	12/16/2021	43.56	33.87	9.69	Insufficint water to sample			--	--	--	--	--	--	--	--	--	8.05	7.2	58.8	6.95	5.97	97.4
FL-MW2	6/28/2023	43.56	34.46	9.10	Insufficint water to sample			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FL-MW3	12/13/2012	43.53	30.55	12.98	<100	<75.5	<189	<0.300	<1.00	<1.00	--	<0.0472	<0.0472	<0.0472	<20.00	--	0.96	6.01	56.6	431	5.1	239
FL-MW3	6/20/2014	43.53	31.61	11.92	<100	<75.8	<190	<0.300	<1.00	<1.00	--	<0.0471	<0.0471	<0.0471	<20.00	--	0.24	5.46	60.1	135	6.9	280
FL-MW3	5/27/2020	43.63	30.32	13.31	<50	<130	<250	<2.0	<2.0	<2.0	--	<0.020	<0.020	<0.020	1.8	2.1	4.7	6.48	71.1	279	4.4	131
FL-MW3	12/16/2021	43.63	32.53	11.10	<50	<130	<250	<2	<2	<2	<2	<0.020	<0.02	<0.02	1.6	--	14.8	6.13	58.6	371	5.55	111.1
FL-MW3	6/28/2023	43.63	35.06	8.57	<50	130	<250	<2.0	<2.0	<2.0	<2.0	<0.020	ND	ND	1.7	--	28	6.03	62.2	387	9.25	200.1

Note:

Bold values exceed Department of Ecology Model Toxics Control Act (MTCA) Method A Cleanup Level, per Cleanup Level and Risk Calculation (CLARC) data tables.

Samples were additionally analyzed for the full suite of volatile organic compounds (VOCs), barium, cadmium, chromium, lead, selenium, silver, and mercury (dissolved and total), extractable petroleum hydrocarbons (EPH), and/or volatile petroleum hydrocarbons (VPH). Analytes were not detected above the MTCA Method A Cleanup Levels; refer to the laboratory reports for further details.

Arsenic analyzed by Method 200.8

DTW = Depth to Water in feet below top of well casing

GWE = Groundwater Elevation in feet above mean sea level.

Naphthalene analyzed by EPA Method 8270.

ND or <x = Not detected at laboratory reporting limit x

NE = MTCA Method A cleanup level is not established.

PAHs = Polycyclic aromatic hydrocarbons analyzed by the Environmental Protection Agency (EPA) Method 8270.

TOC = Top of Casing in feet above mean sea level.

TPHg = Total petroleum hydrocarbons as gasoline analyzed by Northwest Method NWTPH-Gx.

TPHd = Total petroleum hydrocarbons as diesel analyzed by Northwest Method NWTPH-Dx.

TPHo = Total petroleum hydrocarbons as oil analyzed by Northwest Method NWTPH-Dx.

VOCs = by EPA Method 8260.

µg/L = micrograms per liter

Deg. F = degrees Fahrenheit

mV = millivolts

NTU = nephelometric turbidity unit

ORP = oxidation-reduction potential

uS/cm = microsiemens per centimeter

ppm = parts per million

-- = Not analyzed

a - total of m-, p-, and o-Xylenes

b - total of 1-Methylnaphthalene, 2-Methylnaphthalene, and Naphthalene

c - total of all carcinogenic PAHs adjusted by individual toxicity equivalency factors

Appendices

Appendix A

Groundwater Monitoring Field Data Sheets

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

Project Name: Vancouver Frito-Lay
Ref. No.: 1257062l

Date: 6.28.23
Personnel: N. Adamowski

Monitoring Well Data:

Well No.: MW-1
Vapour PID (ppm): 0.1 ppm
Measurement Point:
Constructed Well Depth (m/ft): 35'
Measured Well Depth (m/ft): 34.90
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft): 1.66'
Depth to Pump Intake (m/ft)[1]: 34.90'
Well Diameter, D (cm/in): 2"
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 33.34'

Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]	
Precision Required[5]:				±3 %	±0.005 or 0.01[6]	±10 %	±10 %	±0.1 Units	±10 mV			
1152	250	33.34										Begin purge
1155	250											

Sample ID: GW-1257062l-062823-NA-MW1 Sample Time: 1152

Notes: Insufficient water for purging, Grab sample only

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:

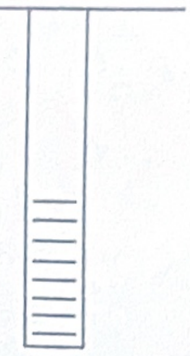
Project Name: Vancouver Frito-Lay
Ref. No.: 12570621

Date: 6-28-23
Personnel: N. Adamowski

Monitoring Well Data:

Well No.: MW-3
Vapour PID (ppm): 0.1 ppm
Measurement Point:
Constructed Well Depth (m/ft): 45'
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft): 10'
Depth to Pump Intake (m/ft)[1]: 40'
Well Diameter, D (cm/in): 2"
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 35.06



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required[5]:				±3 %	±0.005 or 0.01[6]	±10 %	±10 %	±0.1 Units	±10 mV		
1040	250	35.06									Begin Purge
1100	↓	35.10		16.8	386.4	27.62	9.35	6.02	199.8		
1105		35.10		16.8	386.5	28.12	9.28	6.02	200.0		
1110		35.10		16.8	386.5	28.00	9.25	6.03	200.1		

Sample ID: GW-12570621-062823-NA-MW3

Sample Time: 1112

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches
(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.
(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.
(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

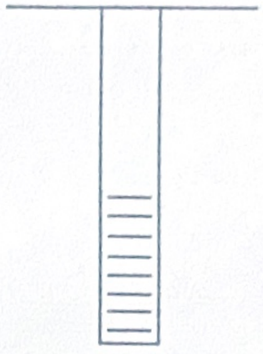
Monitoring Well Record for Low-Flow Purging
(Form SP-09)

Project Data:
Project Name: Vancouver Frito-Lay
Ref. No.: 12570621

Date: 6-28-23
Personnel: N. Adamowski

Monitoring Well Data:
Well No.: MW-2
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft): 35'
Measured Well Depth (m/ft): 34.62
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, V_s (L)[2]:
Initial Depth to Water (m/ft): 34.46



Time	Pumping Rate (mL/min)	Depth to Water (m/ft)	Drawdown from Initial Water Level[3] (m/ft)	Temperature °C	Conductivity (mS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)	Volume Purged, Vp (L)	No. of Well Screen Volumes Purged[4]
Precision Required[5]:				±3 %	±0.005 or 0.01[6]	±10 %	±10 %	±0.1 Units	±10 mV		
0950	—	34.46									

Sample ID: ~~GW-12570621-062823-NA-MW2~~

Sample Time: —

Notes: Insufficient water for sample

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

Appendix B

Laboratory Analytical Reports

July 26, 2023

Ms. Emily Blakeway
GHD Services
9725 - 3rd Ave NE, Suite 204
Seattle, WA 98115

Dear Ms. Blakeway,

On June 29th, 2 samples were received by our laboratory and assigned our laboratory project number EV23060184. The project was identified as your 12570621. The sample identification and requested analyses are outlined on the attached chain of custody record.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information.

Please do not hesitate to call me if you have any questions or if I can be of further assistance.

Sincerely,

ALS Laboratory Group

Rob Greer
Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

CLIENT:	GHD Services 9725 - 3rd Ave NE, Suite 204 Seattle, WA 98115	DATE:	7/26/2023
		ALS JOB#:	EV23060184
		WDOE ACCREDITATION:	C601
CLIENT CONTACT:	Emily Blakeway		
CLIENT PROJECT:	12570621		

CASE NARRATIVE

Due to the discovery of failures when conforming to method EPA-8270, this report is being reissued. Please see the attatched NCR summary for further details.

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CERTIFICATE OF ANALYSIS

CLIENT:	GHD Services 9725 - 3rd Ave NE, Suite 204 Seattle, WA 98115	DATE:	7/26/2023
		ALS JOB#:	EV23060184
		ALS SAMPLE#:	EV23060184-01
CLIENT CONTACT:	Emily Blakeway	DATE RECEIVED:	06/29/2023
CLIENT PROJECT:	12570621	COLLECTION DATE:	6/28/2023 11:12:00 AM
CLIENT SAMPLE ID	GW-12570621-062823-NA-MW3	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	50	1	UG/L	06/30/2023	MNC
TPH-Diesel Range	NWTPH-DX	**130**	130	1	UG/L	07/14/2023	DHM
TPH-Oil Range	NWTPH-DX	U	250	1	UG/L	07/14/2023	DHM
Dichlorodifluoromethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Chloromethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Vinyl Chloride	EPA-8260	U	0.20	1	UG/L	07/06/2023	DLC
Bromomethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Chloroethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Carbon Tetrachloride	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Trichlorofluoromethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Carbon Disulfide	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Acetone	EPA-8260	U	25	1	UG/L	07/06/2023	DLC
1,1-Dichloroethene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Methylene Chloride	EPA-8260	U	5.0	1	UG/L	07/06/2023	DLC
Acrylonitrile	EPA-8260	U	10	1	UG/L	07/06/2023	DLC
Methyl T-Butyl Ether	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Trans-1,2-Dichloroethene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,1-Dichloroethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
2-Butanone	EPA-8260	U	10	1	UG/L	07/06/2023	DLC
Cis-1,2-Dichloroethene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
2,2-Dichloropropane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Bromochloromethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Chloroform	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,1,1-Trichloroethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,1-Dichloropropene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,2-Dichloroethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Benzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Trichloroethene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,2-Dichloropropane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Dibromomethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Bromodichloromethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Trans-1,3-Dichloropropene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
4-Methyl-2-Pentanone	EPA-8260	U	10	1	UG/L	07/06/2023	DLC
Toluene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Cis-1,3-Dichloropropene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,1,2-Trichloroethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
2-Hexanone	EPA-8260	U	10	1	UG/L	07/06/2023	DLC
1,3-Dichloropropane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC

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CERTIFICATE OF ANALYSIS

CLIENT:	GHD Services 9725 - 3rd Ave NE, Suite 204 Seattle, WA 98115	DATE: ALS JOB#: ALS SAMPLE#:	7/26/2023 EV23060184 EV23060184-01
CLIENT CONTACT:	Emily Blakeway	DATE RECEIVED:	06/29/2023
CLIENT PROJECT:	12570621	COLLECTION DATE:	6/28/2023 11:12:00 AM
CLIENT SAMPLE ID	GW-12570621-062823-NA-MW3	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Tetrachloroethylene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Dibromochloromethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,2-Dibromoethane	EPA-8260	U	0.010	1	UG/L	07/06/2023	DLC
Chlorobenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,1,1,2-Tetrachloroethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Ethylbenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Styrene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Bromoform	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Isopropylbenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,1,2,2-Tetrachloroethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,2,3-Trichloropropane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Bromobenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
N-Propyl Benzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
2-Chlorotoluene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,3,5-Trimethylbenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
4-Chlorotoluene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
T-Butyl Benzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,2,4-Trimethylbenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
S-Butyl Benzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
P-Isopropyltoluene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,3-Dichlorobenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,4-Dichlorobenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
N-Butylbenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,2-Dichlorobenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,2-Dibromo 3-Chloropropane	EPA-8260	U	10	1	UG/L	07/06/2023	DLC
1,2,4-Trichlorobenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Hexachlorobutadiene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Naphthalene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,2,3-Trichlorobenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Xylenes	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Naphthalene	EPA-8270 SIM	U	0.020	1	UG/L	07/21/2023	DBA
2-Methylnaphthalene	EPA-8270 SIM	U	0.020	1	UG/L	07/21/2023	DBA
1-Methylnaphthalene	EPA-8270 SIM	U	0.020	1	UG/L	07/21/2023	DBA
Acenaphthylene	EPA-8270 SIM	U	0.029	1	UG/L	07/21/2023	DBA
Acenaphthene	EPA-8270 SIM	U	0.042	1	UG/L	07/21/2023	DBA
Fluorene	EPA-8270 SIM	U	0.020	1	UG/L	07/21/2023	DBA
Phenanthrene	EPA-8270 SIM	U	0.025	1	UG/L	07/21/2023	DBA
Anthracene	EPA-8270 SIM	U	0.032	1	UG/L	07/21/2023	DBA
Fluoranthene	EPA-8270 SIM	U	0.020	1	UG/L	07/21/2023	DBA

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CERTIFICATE OF ANALYSIS

CLIENT:	GHD Services 9725 - 3rd Ave NE, Suite 204 Seattle, WA 98115	DATE: ALS JOB#: ALS SAMPLE#:	7/26/2023 EV23060184 EV23060184-01
CLIENT CONTACT:	Emily Blakeway	DATE RECEIVED:	06/29/2023
CLIENT PROJECT:	12570621	COLLECTION DATE:	6/28/2023 11:12:00 AM
CLIENT SAMPLE ID	GW-12570621-062823-NA-MW3	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Pyrene	EPA-8270 SIM	U	0.020	1	UG/L	07/21/2023	DBA
Benzo[A]Anthracene	EPA-8270 SIM	U	0.020	1	UG/L	07/21/2023	DBA
Chrysene	EPA-8270 SIM	U	0.024	1	UG/L	07/21/2023	DBA
Benzo[B]Fluoranthene	EPA-8270 SIM	U	0.035	1	UG/L	07/21/2023	DBA
Benzo[K]Fluoranthene	EPA-8270 SIM	U	0.057	1	UG/L	07/21/2023	DBA
Benzo[A]Pyrene	EPA-8270 SIM	U	0.027	1	UG/L	07/21/2023	DBA
Indeno[1,2,3-Cd]Pyrene	EPA-8270 SIM	U	0.022	1	UG/L	07/21/2023	DBA
Dibenz[A,H]Anthracene	EPA-8270 SIM	U	0.041	1	UG/L	07/21/2023	DBA
Benzo[G,H,I]Perylene	EPA-8270 SIM	U	0.023	1	UG/L	07/21/2023	DBA
Mercury	EPA-245.1	U	0.20	1	UG/L	07/06/2023	RAL
Arsenic	EPA-200.8	**1.7**	1.0	1	UG/L	07/04/2023	RAL
Barium	EPA-200.8	**42**	1.0	1	UG/L	07/04/2023	RAL
Cadmium	EPA-200.8	U	1.0	1	UG/L	07/04/2023	RAL
Chromium	EPA-200.8	U	2.0	1	UG/L	07/04/2023	RAL
Lead	EPA-200.8	U	1.0	1	UG/L	07/04/2023	RAL
Selenium	EPA-200.8	U	4.0	1	UG/L	07/04/2023	RAL
Silver	EPA-200.8	U	1.0	1	UG/L	07/04/2023	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	**82.1**	06/30/2023	MNC
C25	NWTPH-DX	**105**	07/14/2023	DHM
1,2-Dichloroethane-d4	EPA-8260	**95.7**	07/06/2023	DLC
Toluene-d8	EPA-8260	**104**	07/06/2023	DLC
4-Bromofluorobenzene	EPA-8260	**96.4**	07/06/2023	DLC
Terphenyl-d14	EPA-8270 SIM	**162 S**	07/21/2023	DBA

U - Analyte analyzed for but not detected at level above reporting limit.
S - Outside of control limits.
Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.

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CERTIFICATE OF ANALYSIS

CLIENT:	GHD Services 9725 - 3rd Ave NE, Suite 204 Seattle, WA 98115	DATE:	7/26/2023
		ALS JOB#:	EV23060184
		ALS SAMPLE#:	EV23060184-02
CLIENT CONTACT:	Emily Blakeway	DATE RECEIVED:	06/29/2023
CLIENT PROJECT:	12570621	COLLECTION DATE:	6/28/2023 11:52:00 AM
CLIENT SAMPLE ID	GW-12570621-062823-NA-MW1	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	50	1	UG/L	06/30/2023	MNC
TPH-Diesel Range	NWTPH-DX	**170**	130	1	UG/L	07/14/2023	DHM
TPH-Oil Range	NWTPH-DX	U	250	1	UG/L	07/14/2023	DHM
Dichlorodifluoromethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Chloromethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Vinyl Chloride	EPA-8260	U	0.20	1	UG/L	07/06/2023	DLC
Bromomethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Chloroethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Carbon Tetrachloride	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Trichlorofluoromethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Carbon Disulfide	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Acetone	EPA-8260	U	25	1	UG/L	07/06/2023	DLC
1,1-Dichloroethene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Methylene Chloride	EPA-8260	U	5.0	1	UG/L	07/06/2023	DLC
Acrylonitrile	EPA-8260	U	10	1	UG/L	07/06/2023	DLC
Methyl T-Butyl Ether	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Trans-1,2-Dichloroethene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,1-Dichloroethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
2-Butanone	EPA-8260	U	10	1	UG/L	07/06/2023	DLC
Cis-1,2-Dichloroethene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
2,2-Dichloropropane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Bromochloromethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Chloroform	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,1,1-Trichloroethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,1-Dichloropropene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,2-Dichloroethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Benzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Trichloroethene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,2-Dichloropropane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Dibromomethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Bromodichloromethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Trans-1,3-Dichloropropene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
4-Methyl-2-Pentanone	EPA-8260	U	10	1	UG/L	07/06/2023	DLC
Toluene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Cis-1,3-Dichloropropene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,1,2-Trichloroethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
2-Hexanone	EPA-8260	U	10	1	UG/L	07/06/2023	DLC
1,3-Dichloropropane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Tetrachloroethylene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC

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CERTIFICATE OF ANALYSIS

CLIENT:	GHD Services 9725 - 3rd Ave NE, Suite 204 Seattle, WA 98115	DATE:	7/26/2023
		ALS JOB#:	EV23060184
		ALS SAMPLE#:	EV23060184-02
CLIENT CONTACT:	Emily Blakeway	DATE RECEIVED:	06/29/2023
CLIENT PROJECT:	12570621	COLLECTION DATE:	6/28/2023 11:52:00 AM
CLIENT SAMPLE ID	GW-12570621-062823-NA-MW1	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Dibromochloromethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,2-Dibromoethane	EPA-8260	U	0.010	1	UG/L	07/06/2023	DLC
Chlorobenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,1,1,2-Tetrachloroethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Ethylbenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Styrene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Bromoform	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Isopropylbenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,1,2,2-Tetrachloroethane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,2,3-Trichloropropane	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Bromobenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
N-Propyl Benzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
2-Chlorotoluene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,3,5-Trimethylbenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
4-Chlorotoluene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
T-Butyl Benzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,2,4-Trimethylbenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
S-Butyl Benzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
P-Isopropyltoluene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,3-Dichlorobenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,4-Dichlorobenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
N-Butylbenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,2-Dichlorobenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,2-Dibromo 3-Chloropropane	EPA-8260	U	10	1	UG/L	07/06/2023	DLC
1,2,4-Trichlorobenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Hexachlorobutadiene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Naphthalene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
1,2,3-Trichlorobenzene	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Xylenes	EPA-8260	U	2.0	1	UG/L	07/06/2023	DLC
Naphthalene	EPA-8270 SIM	U	0.020	1	UG/L	07/21/2023	DBA
2-Methylnaphthalene	EPA-8270 SIM	U	0.021	1	UG/L	07/21/2023	DBA
1-Methylnaphthalene	EPA-8270 SIM	U	0.020	1	UG/L	07/21/2023	DBA
Acenaphthylene	EPA-8270 SIM	U	0.030	1	UG/L	07/21/2023	DBA
Acenaphthene	EPA-8270 SIM	U	0.044	1	UG/L	07/21/2023	DBA
Fluorene	EPA-8270 SIM	U	0.020	1	UG/L	07/21/2023	DBA
Phenanthrene	EPA-8270 SIM	U	0.025	1	UG/L	07/21/2023	DBA
Anthracene	EPA-8270 SIM	U	0.033	1	UG/L	07/21/2023	DBA
Fluoranthene	EPA-8270 SIM	U	0.020	1	UG/L	07/21/2023	DBA
Pyrene	EPA-8270 SIM	U	0.020	1	UG/L	07/21/2023	DBA

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CERTIFICATE OF ANALYSIS

CLIENT:	GHD Services 9725 - 3rd Ave NE, Suite 204 Seattle, WA 98115	DATE:	7/26/2023
		ALS JOB#:	EV23060184
		ALS SAMPLE#:	EV23060184-02
CLIENT CONTACT:	Emily Blakeway	DATE RECEIVED:	06/29/2023
CLIENT PROJECT:	12570621	COLLECTION DATE:	6/28/2023 11:52:00 AM
CLIENT SAMPLE ID	GW-12570621-062823-NA-MW1	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Benzo[A]Anthracene	EPA-8270 SIM	U	0.020	1	UG/L	07/21/2023	DBA
Chrysene	EPA-8270 SIM	U	0.025	1	UG/L	07/21/2023	DBA
Benzo[B]Fluoranthene	EPA-8270 SIM	U	0.036	1	UG/L	07/21/2023	DBA
Benzo[K]Fluoranthene	EPA-8270 SIM	U	0.058	1	UG/L	07/21/2023	DBA
Benzo[A]Pyrene	EPA-8270 SIM	U	0.027	1	UG/L	07/21/2023	DBA
Indeno[1,2,3-Cd]Pyrene	EPA-8270 SIM	U	0.022	1	UG/L	07/21/2023	DBA
Dibenz[A,H]Anthracene	EPA-8270 SIM	U	0.043	1	UG/L	07/21/2023	DBA
Benzo[G,H,I]Perylene	EPA-8270 SIM	U	0.024	1	UG/L	07/21/2023	DBA
Mercury	EPA-245.1	U	0.20	1	UG/L	07/06/2023	RAL
Arsenic	EPA-200.8	**7.9**	1.0	1	UG/L	07/04/2023	RAL
Barium	EPA-200.8	**200**	1.0	1	UG/L	07/04/2023	RAL
Cadmium	EPA-200.8	U	1.0	1	UG/L	07/04/2023	RAL
Chromium	EPA-200.8	**41**	2.0	1	UG/L	07/04/2023	RAL
Lead	EPA-200.8	**7.2**	1.0	1	UG/L	07/04/2023	RAL
Selenium	EPA-200.8	U	4.0	1	UG/L	07/04/2023	RAL
Silver	EPA-200.8	U	1.0	1	UG/L	07/04/2023	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	**86.4**	06/30/2023	MNC
C25	NWTPH-DX	**113**	07/14/2023	DHM
1,2-Dichloroethane-d4	EPA-8260	**96.0**	07/06/2023	DLC
Toluene-d8	EPA-8260	**104**	07/06/2023	DLC
4-Bromofluorobenzene	EPA-8260	**94.6**	07/06/2023	DLC
Terphenyl-d14	EPA-8270 SIM	**103**	07/21/2023	DBA

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Chromatogram indicates that it is likely that sample contains an unidentified diesel range product.

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CERTIFICATE OF ANALYSIS

CLIENT: GHD Services
9725 - 3rd Ave NE, Suite 204
Seattle, WA 98115

CLIENT CONTACT: Emily Blakeway
CLIENT PROJECT: 12570621

DATE: 7/26/2023
ALS SDG#: EV23060184
WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MBG-062923W2 - Batch 197273 - Water by NWTPH-GX

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	UG/L	50	06/30/2023	MNC

U - Analyte analyzed for but not detected at level above reporting limit.

MB-070523W - Batch 197209 - Water by NWTPH-DX

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range	NWTPH-DX	U	UG/L	130	07/14/2023	DHM
TPH-Oil Range	NWTPH-DX	U	UG/L	250	07/14/2023	DHM

U - Analyte analyzed for but not detected at level above reporting limit.

MB-070623W - Batch 197414 - Water by EPA-8260

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Chloromethane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Vinyl Chloride	EPA-8260	U	UG/L	0.20	07/06/2023	DLC
Bromomethane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Chloroethane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Carbon Tetrachloride	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Trichlorofluoromethane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Carbon Disulfide	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Acetone	EPA-8260	U	UG/L	25	07/06/2023	DLC
1,1-Dichloroethene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Methylene Chloride	EPA-8260	U	UG/L	5.0	07/06/2023	DLC
Acrylonitrile	EPA-8260	U	UG/L	10	07/06/2023	DLC
Methyl T-Butyl Ether	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Trans-1,2-Dichloroethene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
1,1-Dichloroethane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
2-Butanone	EPA-8260	U	UG/L	10	07/06/2023	DLC
Cis-1,2-Dichloroethene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
2,2-Dichloropropane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Bromochloromethane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Chloroform	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
1,1,1-Trichloroethane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
1,1-Dichloropropene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
1,2-Dichloroethane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Benzene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Trichloroethene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC

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9725 - 3rd Ave NE, Suite 204
Seattle, WA 98115

CLIENT CONTACT: Emily Blakeway
CLIENT PROJECT: 12570621

DATE: 7/26/2023
ALS SDG#: EV23060184
WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-070623W - Batch 197414 - Water by EPA-8260

1,2-Dichloropropane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Dibromomethane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Bromodichloromethane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Trans-1,3-Dichloropropene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
4-Methyl-2-Pentanone	EPA-8260	U	UG/L	10	07/06/2023	DLC
Toluene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Cis-1,3-Dichloropropene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
1,1,2-Trichloroethane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
2-Hexanone	EPA-8260	U	UG/L	10	07/06/2023	DLC
1,3-Dichloropropane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Tetrachloroethylene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Dibromochloromethane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
1,2-Dibromoethane	EPA-8260	U	UG/L	0.010	07/06/2023	DLC
Chlorobenzene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
1,1,1,2-Tetrachloroethane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Ethylbenzene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Styrene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Bromoform	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Isopropylbenzene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
1,1,2,2-Tetrachloroethane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
1,2,3-Trichloropropane	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Bromobenzene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
N-Propyl Benzene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
2-Chlorotoluene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
1,3,5-Trimethylbenzene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
4-Chlorotoluene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
T-Butyl Benzene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
1,2,4-Trimethylbenzene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
S-Butyl Benzene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
P-Isopropyltoluene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
1,3-Dichlorobenzene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
1,4-Dichlorobenzene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
N-Butylbenzene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
1,2-Dichlorobenzene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
1,2-Dibromo 3-Chloropropane	EPA-8260	U	UG/L	10	07/06/2023	DLC
1,2,4-Trichlorobenzene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Hexachlorobutadiene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Naphthalene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
1,2,3-Trichlorobenzene	EPA-8260	U	UG/L	2.0	07/06/2023	DLC
Xylenes	EPA-8260	U	UG/L	2.0	07/06/2023	DLC

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CLIENT CONTACT: Emily Blakeway
CLIENT PROJECT: 12570621

DATE: 7/26/2023
ALS SDG#: EV23060184
WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-070623W - Batch 197414 - Water by EPA-8260

U - Analyte analyzed for but not detected at level above reporting limit.

MBLK-R441202 - Batch R441202 - Water by EPA-245.1

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Mercury	EPA-245.1	U	UG/L	0.20	07/06/2023	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

MB-070123W - Batch 197101 - Water by EPA-200.8

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-200.8	U	UG/L	1.0	07/04/2023	RAL
Barium	EPA-200.8	U	UG/L	1.0	07/04/2023	RAL
Cadmium	EPA-200.8	U	UG/L	1.0	07/04/2023	RAL
Chromium	EPA-200.8	U	UG/L	2.0	07/04/2023	RAL
Lead	EPA-200.8	U	UG/L	1.0	07/04/2023	RAL
Selenium	EPA-200.8	U	UG/L	4.0	07/04/2023	RAL
Silver	EPA-200.8	U	UG/L	1.0	07/04/2023	RAL

U - Analyte analyzed for but not detected at level above reporting limit.

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DATE: 7/26/2023
ALS SDG#: EV23060184
WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 197273 - Water by NWTPH-GX

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range - BS	NWTPH-GX	**86.7**			66.5	122.7	06/30/2023	MNC
TPH-Volatile Range - BSD	NWTPH-GX	**83.6**	**4**		66.5	122.7	06/30/2023	MNC

ALS Test Batch ID: 197209 - Water by NWTPH-DX

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
TPH-Diesel Range - BS	NWTPH-DX	**116**			67	125.2	07/14/2023	DHM
TPH-Diesel Range - BSD	NWTPH-DX	**116**	**0**		67	125.2	07/14/2023	DHM

ALS Test Batch ID: 197414 - Water by EPA-8260

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane - BS	EPA-8260	**110**			50	150	07/06/2023	DLC
Dichlorodifluoromethane - BSD	EPA-8260	**104**	**5**		50	150	07/06/2023	DLC
Chloromethane - BS	EPA-8260	**101**			50	150	07/06/2023	DLC
Chloromethane - BSD	EPA-8260	**96.7**	**4**		50	150	07/06/2023	DLC
Vinyl Chloride - BS	EPA-8260	**108**			50	150	07/06/2023	DLC
Vinyl Chloride - BSD	EPA-8260	**101**	**7**		50	150	07/06/2023	DLC
Bromomethane - BS	EPA-8260	**125**			50	150	07/06/2023	DLC
Bromomethane - BSD	EPA-8260	**126**	**1**		50	150	07/06/2023	DLC
Chloroethane - BS	EPA-8260	**106**			50	150	07/06/2023	DLC
Chloroethane - BSD	EPA-8260	**102**	**4**		50	150	07/06/2023	DLC
Carbon Tetrachloride - BS	EPA-8260	**109**			50	150	07/06/2023	DLC
Carbon Tetrachloride - BSD	EPA-8260	**104**	**4**		50	150	07/06/2023	DLC
Trichlorofluoromethane - BS	EPA-8260	**116**			50	150	07/06/2023	DLC
Trichlorofluoromethane - BSD	EPA-8260	**111**	**5**		50	150	07/06/2023	DLC
Carbon Disulfide - BS	EPA-8260	**99.5**			50	150	07/06/2023	DLC
Carbon Disulfide - BSD	EPA-8260	**94.6**	**5**		50	150	07/06/2023	DLC
Acetone - BS	EPA-8260	**65.5**			50	150	07/06/2023	DLC
Acetone - BSD	EPA-8260	**107**	**48**	SR1	50	150	07/06/2023	DLC
1,1-Dichloroethene - BS	EPA-8260	**109**			72.5	136	07/06/2023	DLC
1,1-Dichloroethene - BSD	EPA-8260	**104**	**5**		72.5	136	07/06/2023	DLC
Methylene Chloride - BS	EPA-8260	**78.0**			50	150	07/06/2023	DLC
Methylene Chloride - BSD	EPA-8260	**79.3**	**2**		50	150	07/06/2023	DLC
Acrylonitrile - BS	EPA-8260	**106**			50	150	07/06/2023	DLC
Acrylonitrile - BSD	EPA-8260	**101**	**5**		50	150	07/06/2023	DLC
Methyl T-Butyl Ether - BS	EPA-8260	**98.9**			50	150	07/06/2023	DLC
Methyl T-Butyl Ether - BSD	EPA-8260	**97.3**	**2**		50	150	07/06/2023	DLC
Trans-1,2-Dichloroethene - BS	EPA-8260	**104**			50	150	07/06/2023	DLC

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DATE: 7/26/2023
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WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Trans-1,2-Dichloroethene - BSD	EPA-8260	**100**	**4**		50	150	07/06/2023	DLC
1,1-Dichloroethane - BS	EPA-8260	**102**			50	150	07/06/2023	DLC
1,1-Dichloroethane - BSD	EPA-8260	**95.5**	**7**		50	150	07/06/2023	DLC
2-Butanone - BS	EPA-8260	**86.0**			50	150	07/06/2023	DLC
2-Butanone - BSD	EPA-8260	**108**	**23**		50	150	07/06/2023	DLC
Cis-1,2-Dichloroethene - BS	EPA-8260	**103**			50	150	07/06/2023	DLC
Cis-1,2-Dichloroethene - BSD	EPA-8260	**98.8**	**4**		50	150	07/06/2023	DLC
2,2-Dichloropropane - BS	EPA-8260	**124**			50	150	07/06/2023	DLC
2,2-Dichloropropane - BSD	EPA-8260	**116**	**7**		50	150	07/06/2023	DLC
Bromochloromethane - BS	EPA-8260	**105**			50	150	07/06/2023	DLC
Bromochloromethane - BSD	EPA-8260	**101**	**4**		50	150	07/06/2023	DLC
Chloroform - BS	EPA-8260	**95.2**			50	150	07/06/2023	DLC
Chloroform - BSD	EPA-8260	**90.7**	**5**		50	150	07/06/2023	DLC
1,1,1-Trichloroethane - BS	EPA-8260	**108**			50	150	07/06/2023	DLC
1,1,1-Trichloroethane - BSD	EPA-8260	**103**	**4**		50	150	07/06/2023	DLC
1,1-Dichloropropene - BS	EPA-8260	**109**			50	150	07/06/2023	DLC
1,1-Dichloropropene - BSD	EPA-8260	**104**	**5**		50	150	07/06/2023	DLC
1,2-Dichloroethane - BS	EPA-8260	**104**			50	150	07/06/2023	DLC
1,2-Dichloroethane - BSD	EPA-8260	**100**	**3**		50	150	07/06/2023	DLC
Benzene - BS	EPA-8260	**101**			74.7	143	07/06/2023	DLC
Benzene - BSD	EPA-8260	**96.0**	**5**		74.7	143	07/06/2023	DLC
Trichloroethene - BS	EPA-8260	**104**			74.4	141	07/06/2023	DLC
Trichloroethene - BSD	EPA-8260	**101**	**3**		74.4	141	07/06/2023	DLC
1,2-Dichloropropane - BS	EPA-8260	**100**			50	150	07/06/2023	DLC
1,2-Dichloropropane - BSD	EPA-8260	**96.2**	**4**		50	150	07/06/2023	DLC
Dibromomethane - BS	EPA-8260	**99.3**			50	150	07/06/2023	DLC
Dibromomethane - BSD	EPA-8260	**97.2**	**2**		50	150	07/06/2023	DLC
Bromodichloromethane - BS	EPA-8260	**101**			50	150	07/06/2023	DLC
Bromodichloromethane - BSD	EPA-8260	**96.6**	**4**		50	150	07/06/2023	DLC
Trans-1,3-Dichloropropene - BS	EPA-8260	**104**			50	150	07/06/2023	DLC
Trans-1,3-Dichloropropene - BSD	EPA-8260	**101**	**3**		50	150	07/06/2023	DLC
4-Methyl-2-Pentanone - BS	EPA-8260	**95.0**			50	150	07/06/2023	DLC
4-Methyl-2-Pentanone - BSD	EPA-8260	**95.2**	**0**		50	150	07/06/2023	DLC
Toluene - BS	EPA-8260	**101**			71.7	139	07/06/2023	DLC
Toluene - BSD	EPA-8260	**97.4**	**4**		71.7	139	07/06/2023	DLC
Cis-1,3-Dichloropropene - BS	EPA-8260	**106**			50	150	07/06/2023	DLC
Cis-1,3-Dichloropropene - BSD	EPA-8260	**102**	**4**		50	150	07/06/2023	DLC
1,1,2-Trichloroethane - BS	EPA-8260	**104**			50	150	07/06/2023	DLC
1,1,2-Trichloroethane - BSD	EPA-8260	**101**	**2**		50	150	07/06/2023	DLC
2-Hexanone - BS	EPA-8260	**91.2**			50	150	07/06/2023	DLC

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WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
2-Hexanone - BSD	EPA-8260	**104**	**13**		50	150	07/06/2023	DLC
1,3-Dichloropropane - BS	EPA-8260	**103**			50	150	07/06/2023	DLC
1,3-Dichloropropane - BSD	EPA-8260	**101**	**3**		50	150	07/06/2023	DLC
Tetrachloroethylene - BS	EPA-8260	**88.7**			50	150	07/06/2023	DLC
Tetrachloroethylene - BSD	EPA-8260	**96.1**	**8**		50	150	07/06/2023	DLC
Dibromochloromethane - BS	EPA-8260	**111**			50	150	07/06/2023	DLC
Dibromochloromethane - BSD	EPA-8260	**108**	**3**		50	150	07/06/2023	DLC
1,2-Dibromoethane - BS	EPA-8260	**105**			50	150	07/06/2023	DLC
1,2-Dibromoethane - BSD	EPA-8260	**103**	**2**		50	150	07/06/2023	DLC
Chlorobenzene - BS	EPA-8260	**111**			73	131	07/06/2023	DLC
Chlorobenzene - BSD	EPA-8260	**106**	**4**		73	131	07/06/2023	DLC
1,1,1,2-Tetrachloroethane - BS	EPA-8260	**112**			50	150	07/06/2023	DLC
1,1,1,2-Tetrachloroethane - BSD	EPA-8260	**108**	**4**		50	150	07/06/2023	DLC
Ethylbenzene - BS	EPA-8260	**112**			50	150	07/06/2023	DLC
Ethylbenzene - BSD	EPA-8260	**107**	**4**		50	150	07/06/2023	DLC
Styrene - BS	EPA-8260	**112**			50	150	07/06/2023	DLC
Styrene - BSD	EPA-8260	**108**	**4**		50	150	07/06/2023	DLC
Bromoform - BS	EPA-8260	**106**			50	150	07/06/2023	DLC
Bromoform - BSD	EPA-8260	**105**	**1**		50	150	07/06/2023	DLC
Isopropylbenzene - BS	EPA-8260	**115**			50	150	07/06/2023	DLC
Isopropylbenzene - BSD	EPA-8260	**110**	**5**		50	150	07/06/2023	DLC
1,1,2,2-Tetrachloroethane - BS	EPA-8260	**110**			50	150	07/06/2023	DLC
1,1,2,2-Tetrachloroethane - BSD	EPA-8260	**107**	**3**		50	150	07/06/2023	DLC
1,2,3-Trichloropropane - BS	EPA-8260	**105**			50	150	07/06/2023	DLC
1,2,3-Trichloropropane - BSD	EPA-8260	**104**	**1**		50	150	07/06/2023	DLC
Bromobenzene - BS	EPA-8260	**106**			50	150	07/06/2023	DLC
Bromobenzene - BSD	EPA-8260	**102**	**4**		50	150	07/06/2023	DLC
N-Propyl Benzene - BS	EPA-8260	**104**			50	150	07/06/2023	DLC
N-Propyl Benzene - BSD	EPA-8260	**99.1**	**5**		50	150	07/06/2023	DLC
2-Chlorotoluene - BS	EPA-8260	**100**			50	150	07/06/2023	DLC
2-Chlorotoluene - BSD	EPA-8260	**95.3**	**5**		50	150	07/06/2023	DLC
1,3,5-Trimethylbenzene - BS	EPA-8260	**103**			50	150	07/06/2023	DLC
1,3,5-Trimethylbenzene - BSD	EPA-8260	**99.0**	**4**		50	150	07/06/2023	DLC
4-Chlorotoluene - BS	EPA-8260	**101**			50	150	07/06/2023	DLC
4-Chlorotoluene - BSD	EPA-8260	**97.1**	**4**		50	150	07/06/2023	DLC
T-Butyl Benzene - BS	EPA-8260	**106**			50	150	07/06/2023	DLC
T-Butyl Benzene - BSD	EPA-8260	**100**	**5**		50	150	07/06/2023	DLC
1,2,4-Trimethylbenzene - BS	EPA-8260	**103**			50	150	07/06/2023	DLC
1,2,4-Trimethylbenzene - BSD	EPA-8260	**98.6**	**5**		50	150	07/06/2023	DLC
S-Butyl Benzene - BS	EPA-8260	**107**			50	150	07/06/2023	DLC

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT: GHD Services
9725 - 3rd Ave NE, Suite 204
Seattle, WA 98115

CLIENT CONTACT: Emily Blakeway
CLIENT PROJECT: 12570621

DATE: 7/26/2023
ALS SDG#: EV23060184
WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
S-Butyl Benzene - BSD	EPA-8260	**102**	**5**		50	150	07/06/2023	DLC
P-Isopropyltoluene - BS	EPA-8260	**111**			50	150	07/06/2023	DLC
P-Isopropyltoluene - BSD	EPA-8260	**105**	**5**		50	150	07/06/2023	DLC
1,3-Dichlorobenzene - BS	EPA-8260	**111**			50	150	07/06/2023	DLC
1,3-Dichlorobenzene - BSD	EPA-8260	**107**	**4**		50	150	07/06/2023	DLC
1,4-Dichlorobenzene - BS	EPA-8260	**110**			50	150	07/06/2023	DLC
1,4-Dichlorobenzene - BSD	EPA-8260	**106**	**4**		50	150	07/06/2023	DLC
N-Butylbenzene - BS	EPA-8260	**112**			50	150	07/06/2023	DLC
N-Butylbenzene - BSD	EPA-8260	**106**	**5**		50	150	07/06/2023	DLC
1,2-Dichlorobenzene - BS	EPA-8260	**110**			50	150	07/06/2023	DLC
1,2-Dichlorobenzene - BSD	EPA-8260	**106**	**4**		50	150	07/06/2023	DLC
1,2-Dibromo 3-Chloropropane - BS	EPA-8260	**98.5**			50	150	07/06/2023	DLC
1,2-Dibromo 3-Chloropropane - BSD	EPA-8260	**96.8**	**2**		50	150	07/06/2023	DLC
1,2,4-Trichlorobenzene - BS	EPA-8260	**111**			50	150	07/06/2023	DLC
1,2,4-Trichlorobenzene - BSD	EPA-8260	**107**	**4**		50	150	07/06/2023	DLC
Hexachlorobutadiene - BS	EPA-8260	**121**			50	150	07/06/2023	DLC
Hexachlorobutadiene - BSD	EPA-8260	**116**	**4**		50	150	07/06/2023	DLC
Naphthalene - BS	EPA-8260	**98.7**			50	150	07/06/2023	DLC
Naphthalene - BSD	EPA-8260	**96.5**	**2**		50	150	07/06/2023	DLC
1,2,3-Trichlorobenzene - BS	EPA-8260	**109**			50	150	07/06/2023	DLC
1,2,3-Trichlorobenzene - BSD	EPA-8260	**106**	**3**		50	150	07/06/2023	DLC
Xylenes - BS	EPA-8260	**112**			50	150	07/06/2023	DLC
Xylenes - BSD	EPA-8260	**108**	**4**		50	150	07/06/2023	DLC

SR1 - RPD outside of control limits.

ALS Test Batch ID: R441202 - Water by EPA-245.1

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Mercury - BS	EPA-245.1	**101**			80.6	118	07/06/2023	RAL
Mercury - BSD	EPA-245.1	**102**	**1**		80.6	118	07/06/2023	RAL

ALS Test Batch ID: 197101 - Water by EPA-200.8

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Arsenic - BS	EPA-200.8	**100**			89.1	110	07/04/2023	RAL
Arsenic - BSD	EPA-200.8	**101**	**1**		89.1	110	07/04/2023	RAL
Barium - BS	EPA-200.8	**103**			88.5	108	07/04/2023	RAL
Barium - BSD	EPA-200.8	**103**	**0**		88.5	108	07/04/2023	RAL
Cadmium - BS	EPA-200.8	**104**			89.4	110	07/04/2023	RAL
Cadmium - BSD	EPA-200.8	**105**	**1**		89.4	110	07/04/2023	RAL

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CERTIFICATE OF ANALYSIS

CLIENT:	GHD Services 9725 - 3rd Ave NE, Suite 204 Seattle, WA 98115	DATE:	7/26/2023
		ALS SDG#:	EV23060184
		WDOE ACCREDITATION:	C601
CLIENT CONTACT:	Emily Blakeway		
CLIENT PROJECT:	12570621		

LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Chromium - BS	EPA-200.8	**99.3**			88.3	110.2	07/04/2023	RAL
Chromium - BSD	EPA-200.8	**99.9**	**1**		88.3	110.2	07/04/2023	RAL
Lead - BS	EPA-200.8	**97.2**			87.5	107	07/04/2023	RAL
Lead - BSD	EPA-200.8	**97.9**	**1**		87.5	107	07/04/2023	RAL
Selenium - BS	EPA-200.8	**103**			90.2	113	07/04/2023	RAL
Selenium - BSD	EPA-200.8	**104**	**1**		90.2	113	07/04/2023	RAL
Silver - BS	EPA-200.8	**102**			80	120	07/04/2023	RAL
Silver - BSD	EPA-200.8	**103**	**1**		80	120	07/04/2023	RAL

APPROVED BY

Rob Greer
Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

CORRECTIVE ACTION REPORT

07/25/2023

Prepared By:  Date: 07/25/2023

QA Generalist, Preston Medley

Approved By:  Date: 07/25/2023

Lab Director, Rob Greer

1) Nonconformance or Failure

1.1 **Date of Nonconformance or Failure:**

07/02/2023 – 07/16/2023

1.2 **Nature of Nonconformance or Failure:**

Multiple jobs were reported with non-conforming quality control data.

1.3 **Details:**

Most, if not all PAH jobs by EPA Method 8270 were reported to clients with continuing calibration verification (CCV) sample recoveries outside of acceptable ranges. Most CCV recoveries were high, though some were low.

2) Root Cause Analysis

2.1 **Person(s) Performing RCA:**

Daniel Anderson, Carl Nott, Rob Greer

2.2 **Date(s) RCA Performed:**

07/17/2023 – 07/24/2023

2.3 **Root Cause:**

While the primary analyst responsible for PAH analysis by EPA Method 8270 was out of the lab for two weeks, an analyst with prior experience in the method was chosen to fill in. During this period, the fill-in analyst reported PAH jobs without subjecting the data to secondary review. Although CCV results are typically not included in peer review of data, it is apparent that the analyst was reporting results with no data review at all, thus not noticing the failing CCV recoveries.

3) Corrective Actions Taken

Upon returning to the lab and noticing the errors, the primary analyst immediately began re-analyzing all affected samples to ensure that the failing CCV recoveries did not impact the quality of the data. Any sample data that is impacted will be re-reported following secondary analysis with passing QC.

The fill-in analyst who is responsible for these errors has been let go.

4) Follow-up Actions

Moving forward, CCV recoveries will be included in the data sent for peer review, mitigating the possibility of similar errors. It should be noted that reporting samples with no form of secondary review is not accepted procedure at ALS and is not tolerated.

ALS Environmental
8620 Holly Drive, Suite 100
Everett, WA 98208
Phone (425) 356-2600
Fax (425) 356-2626
http://www.alsglobal.com

Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only)

EV2306018 4

Date 6.29.23 Page 1 Of 1

PROJECT ID:	12570621
REPORT TO COMPANY:	GHD
PROJECT MANAGER:	Emily Blakeway
ADDRESS:	9725 3rd Ave NE Ste 204
PHONE:	425.563.6502 P.O. #: 340.012651
E-MAIL:	Emily.Blakeway@GHD.com
INVOICE TO COMPANY:	GHD
ATTENTION:	-
ADDRESS:	-

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	NWTPH-HCID	NWTPH-DX	NWTPH-GX	BTEX by EPA 8021	BTEX by EPA 8260	MTBE by EPA 8021	MTBE by EPA 8260	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semivolatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA 8270 SIM	PCB by EPA 8082	Pesticides by EPA 8081	Metals-MTCA-5	Pri Pol	RCRA-8	TAL	Metals Other (Specify)	TCLP-Metals	VOA	Semi-Vol	Pest	Herbs	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. GW-12570621-062823-MW3	6.28.23	1112	GW	1		X	X						X				X			X										8	
2. GW-12570621-062823-MW1		1152		2		X	X						X				X			X											
3.																															
4.																															
5.																															
6.																															
7.																															
8.																															
9.																															
10.																															

OTHER (Specify)

SPECIAL INSTRUCTIONS SSOW#: 12570621-2023-01

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: Nicky Manowski GHD 6.29.23 1230
   Received By: AFREESE, ALS, 06-29-23 1230
2. Relinquished By: _____
   Received By: _____

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis: 10 Standard | 5 | 3 | 2 | 1 | SAME DAY

Fuels & Hydrocarbon Analysis: 5 Standard | 3 | 1 | SAME DAY

OTHER:

Specify: 2.8°C on ice

*Turnaround request less than standard may incur Rush Charges

ghd.com

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