WORK PLAN FOR ADDITIONAL SITE CHARACTERIZATION

Cascade Laundry
205 Prospect Street
Bellingham, Washington 98225
Facility Site ID #21786898
VCP Project No# NW3076

Prepared For:

Sonja Max
EcoBloom Inc

By:

PO Box 2546
Bellingham, WA 98227
(360) 714-9409

November 1, 2024

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PO Box 2546, Bellingham, WA 98227
Phone: (360) 714-9409

November 1, 2024

Sonja Max
EcoBloom Inc.

Re: Report
Work Plan for Additional Site Characterization
Cascade Laundry
205 Prospect Street
Bellingham, Washington 98225
Ecology FS ID: 21786898
VPC Project No: NW3076

Dear Sonja Max and EcoBloom Inc:

This document presents a summary of environmental sampling and vapor intrusion mitigation work that has taken place since 2021, as well as a work plan to further our understanding of subsurface conditions at the Cascade Laundry site in Bellingham, Washington. The intent of the work plan is to fill in data gaps associated with subsurface contamination in the soil and groundwater, which serves as the next step toward the goal of achieving a no further action with a restrictive covenant on the site. This work plan is an update of the March 12, 2024 draft work plan, following review and comment by the Department of Ecology.

Should you have any questions concerning this work plan, please do not hesitate to contact us at (360) 714-9409.

Sincerely,
Stratum Group

Kim Ninnemann, B.Sc., L.G.
Licensed Geologist

State of Washington
2690
Licensed Geologist
KIM N NINNEMANN

1.0 INTRODUCTION

This work plan documents the air sampling, vapor intrusion mitigation, and groundwater monitoring work that has taken place since 2021, and provides recommendations for further site characterization work on the site to fill in data gaps in our understanding the subsurface conditions at the Cascade Laundry property.

Environmental work completed since 2021 and this work plan were completed in response to an Opinion Letter dated June 24, 2021 completed by Michael Warfel with the Department of Ecology (Ecology) and review and comment by the site project manager through the Voluntary Cleanup Program, Kim Vik .

2.0 GENERAL SITE INFORMATION

The Cascade Laundry property is developed with one mixed-use commercial building. Asphalt pavement surrounds most of the building, and a vegetated slope covers the western edge of the site. The building includes a basement, a main floor and a 2nd story. The current occupants include:

- Bellingham Cider Company (basement and main floor)
- New Prospect Theater (main floor)
- The Upfront Theater (main floor)
- Raven Bakery (main floor)
- Sharon Kingston Fine Art (main floor annex)
- Opus Performing Arts (2nd story)

The basement is used by Bellingham Cider Company as a storage area and for some office work. A walk-in cooler occupies a portion of the basement. Only Bellingham Cider Company employees utilize the basement. The Bellingham Cider Company utilizes the main floor as their kitchen and customer dining area. Additionally, the cider company has an outdoor dining area near the southwest corner of the building. The outdoor dining area is on a concrete patio and is supported by a retaining wall to the west.

2.1 Property Location

The Cascade Laundry property is located along the west side of Prospect Street between Flora Street and Central Avenue in the downtown area of Bellingham, Washington. Cascade Laundry occupies one tax parcel (Whatcom County Parcel 380330111249) that utilizes the address of 205 Prospect Street. The location of the subject property is presented in Figure 1 in Appendix I.

The subject property covers 0.54 acres and is zoned commercial. The property is located along a

commercially developed roadway within downtown Bellingham. Maritime Heritage Park, formerly part of the Holly Street landfill, bounds the property to the west.

An annotated aerial photograph of the property and vicinity is provided in Figure 2 in Appendix I.

2.2 Development and Use History

The subject property and vicinity were initially developed as a sawmill in approximately the 1850s as part of the earliest area of development along Bellingham Bay. An 1892 photograph of the site and vicinity indicates that a home was located on the subject property at that time.

The main structure of the existing building on the site was constructed in 1922. The southern portion of the subject property was utilized as a car sales lot until approximately 1935.

Cascade Laundry began to utilize the subject property by at least 1932. An addition was added to the south side of the building in 1966 (referred to as the annex). Cascade Laundry utilized the building for cleaning clothing, rugs, and miscellaneous goods, dry cleaning, and dyeing fabric. The year that dry cleaning operations began is unknown but these activities are believed to have ended by 1971. The site remained in use as a commercial laundry facility through the early 2000s.

The building interior was fully remodeled into a multi-tenant commercial building in the mid-2010s. The site has since been utilized by a mix of theaters, a restaurant, retail sales businesses, galleries, and dance companies.

2.3 Geology and Soils

The following descriptions of the surficial deposits in the vicinity of the subject property were interpreted from the *Geologic Map of the Bellingham 1:100,000 Quadrangle, Washington* (Lapen, 2000). According to Lapen (2000), the subject property is underlain by Bellingham glaciomarine drift. The Bellingham drift was deposited by melting glacial ice near the end of the last glacial period when the area was submerged below sea level. The Bellingham drift generally consists of dense silty clay.

Numerous environmental borings have been completed on the subject property to depths of up to 30 feet below the ground surface (bgs). Boring logs for the environmental drilling indicates that the site is underlain by silty clay, clayey silt, sandy clay and sandy silt to depths of up to 30 feet bgs. Chuckanut sandstone bedrock was encountered between 26 and 32 feet bgs. Layers of sand were identified in numerous borings. The sand units vary from 1 to 10 feet thick, and some sandy zones have lenses of clay.

Fill material has been identified in some of the borings on the west side of the property, which included organic material and pieces of glass and charcoal. Fill is also located at the southwestern corner of the building, east of a concrete retaining wall. The fill material at this location was

largely comprised of loose brown silty sand. Some bricks, pipes, and other miscellaneous debris were observed within the fill material. Organic material, woody debris, and some brick fragments have been identified in the upper 7 feet along the top of the slope, near the western property boundary.

2.4 Hydrology

No surface water features are located on the subject property. The property is located approximately 550 feet east of the Whatcom Waterway and includes the upper portion of the former shoreline bluff above the creek estuary. No groundwater seeps have been observed along the bluff.

The direction of shallow groundwater flow is generally a function of topography. The property is located on topography that slopes moderately to the west-southwest, toward Bellingham Bay. Based on topography, shallow groundwater beneath the subject property is expected to flow to the west, toward Bellingham Bay and Whatcom Creek.

Previously completed environmental investigations on the property identified groundwater to be present in discontinuous and inconsistent lenses of sandy soil below approximately 12 feet bgs. Based on site observations, previous investigations in the vicinity, and review of well logs recorded in Ecology's database, this groundwater is not likely representative of a regional groundwater table. Groundwater was identified in three of the five borings completed in 2018 in narrow sandy lenses between 12 and 28 feet bgs. Three monitoring wells are located onsite; however, a survey of the wells has not been completed due to the very limited presence of water in two of the three wells. Data collected to date indicates that groundwater in the two wells along the western boundary have low recharge rates with water present only near the soil-bedrock interface.

Our review of groundwater sampling reports for the adjacent Maritime Heritage Park site, located on the adjacent property to the west (also known as Holly Street landfill) indicates that groundwater is present on the park site at approximately 20 feet bgs. Based upon the park being located approximately 24 feet below the basement level of the Cascade Laundry building, groundwater would be located approximately 44 feet below the subject property. Additional evaluation will help to determine if the groundwater continues to flow along the native soil-bedrock boundary to this depth. Flow direction of groundwater at the monitoring wells within the park indicates flow to the northwest, toward Whatcom Creek (Landau, 1993).

3.0 SUMMARY OF PREVIOUS INVESTIGATIONS

Several environmental investigations have taken place on the site, including tank removals, soil and groundwater investigations, and an indoor air quality sampling event. The site's environmental history is described in the following documents in chronological order:

- **1992:** *Underground Storage Tank Site Check/Site Assessment Checklist (Welch)*
  Documents the removal of a 500-gallon gasoline UST. No contamination identified.

- **2006:** *Phase I and Phase II Environmental Site Assessment (Stratum Group)*
  Phase I report identified site's former use as a dry cleaner as a recognized environmental condition. Five test pits were completed around the south and west sides of the building. One tetrachloroethylene (PCE) UST and PCE contaminated soil was identified near the southwest corner of the building.

- **2007:** *Phase II Environmental Borings (GeoEngineers)*
  Four borings were completed to depths of 29 feet bgs. No petroleum contamination was found in the soil or groundwater of the southeast corner of the property, closest to the adjacent former gasoline station across Prospect Street. Gasoline-range petroleum, diesel/oil, and PCE was found in soil above the MTCA Method A cleanup standards between 15 and 29 feet deep along the top of the slope, west of the building.

- ***2010**: Tank Removal Report (Whatcom Environmental Services)*
  Documents the removal of a 3,200-gallon heating oil tank and a 300-gallon PCE tank. No contamination was identified around the heating oil tank. Gasoline-range petroleum, xylenes, and PCE were identified at concentrations that exceed the MTCA Method A cleanup standards in the bottom and sidewalls of the excavation around the dry cleaning tank.

- **2011:** *Site Characterization Report (Whatcom Environmental Services)*
  Five borings were completed around the exterior of the building to depths of up 30 feet bgs. Gasoline-range petroleum, benzene, xylenes and PCE were identified in the fill soil near the southwestern corner of the property at depths between 14 and 25 feet. Groundwater was encountered between 12 and 17 feet. Gasoline-range petroleum, benzene, and PCE were detected in soil above the MTCA Method A cleanup standards.

- **2012:** *Site Characterization Report – Building Interior Soil Borings (Whatcom Environmental Services)*
  Four borings were extended through the floor of the Cascade Laundry building. One boring, located in the southern building addition, had exceedances of gasoline-range petroleum, benzene, ethylbenzene, and xylenes in the soil at 14.5-15.5 feet bgs. PCE was detected above the cleanup standard in the groundwater within the two borings in the southern building addition.

- **2015:** *Environmental Baseline (Stratum Group*)
  Compilation of soil and groundwater data and maps completed for the Cascade Laundry site. Report includes samples of soil and water within an interior sump and results from an indoor air quality test. Soil in bottom of sump in the southwestern corner of the building had diesel and oil concentrations above the state cleanup standards. Some volatile organic compounds (VOCs) were detected in the air inside the building.

- **2018:** *Underground Storage Tank Removal and Hazardous Waste Generator Identification (Stratum Group)*
  Documents the removal of one 600-gallon Stoddard solvent UST previously located near the southwest corner of the building. Approximately 300 gallons of fluid was pumped out of the tank prior to removal. Disposal of the fluid required registering the property as a Hazardous Waste Generator with the Department of Ecology. The site was assigned the RCRA Site ID of WAH000054560. Gasoline contamination was identified at concentrations above MTCA cleanup standards in the base of the tank excavation. VOCs were detected but at levels below MTCA Method A state cleanup standards.

- **2019:** *Remedial Investigation / Site Characterization (Stratum Group)*
  Documents the findings from five environmental borings, three of which were completed as groundwater monitoring wells. Twenty-three soil samples were collected and analyzed. Petroleum and dry-cleaning solvents were detected, but only exceeded MTCA Method A cleanup standards in one sample for gasoline-range petroleum and one for diesel and oil-range petroleum. Groundwater was only productive enough in one monitoring well for sampling (MW-1), completed through the patio into fill near the southwest corner of the building. Groundwater quality in MW-1 exceeded the cleanup standards for gasoline, diesel, benzene, vinyl chloride and three additional VOCs at concentrations above the MTCA Method A cleanup standards.

All of these documents have been previously submitted to Ecology and reviewed as part of the Opinion Letter provided by Ecology dated June 24, 2021.

Our site history review indicates that four underground storage tanks (USTs) are known to have been located on the site. A summary of the known USTs is provided in Table 1, below.

Table 1. Summary of USTs

Tank Size (gallons)	Tank Contents	Tank Status	Installation Date	Removal Date
300	PCE (dry cleaning tank)	Removed	Unknown	2010
3,200	Bunker C fuel oil	Removed	Unknown	2010
500	Gasoline	Closed-in-Place	1978	1992
600	Stoddard solvent (gasoline-range petroleum)	Removed	Unknown	2018

4.0 CONCEPTUAL SITE MODEL

A conceptual site model for the Cascade Laundry site is provided in Figure 3 of Appendix I. The model indicates the potential contamination sources, the media which could be impacted by the releases, the potential migration pathways in the environment, and the potential receptors.

4.1 Potential Contamination Sources

Potential contamination sources at the site include releases from USTs and associated piping, suspected surface dumping, and/or contaminant migration from an off-site and up gradient former gasoline station.

4.2 Contaminants of Concern

The documented releases on the site include petroleum products and dry cleaning products. This remedial investigation will help to evaluate for additional potential contaminants of concern (COCs).

The known and potential COCs at the site include:

- Gasoline-range petroleum
- BTEX (benzene, toluene, ethylbenzene, xylenes)
- Diesel and oil-range petroleum
- Tetrachloroethene (PCE)
- Trichloroethylene (TCE)
- Vinyl chloride
- cis- and trans-1,2-dichloroethylene
- 1,2-dichloropropane
- Metals (copper, hexavalent chromium, trivalent chromium, nickel, lead, zinc)

- Cyanide

4.3 Potential Exposure Pathways & Receptors

Potential exposure pathways to releases on the site include direct contact with contaminated soil, direct contact with contaminated groundwater, soil to groundwater impacts, groundwater to surface water impacts, and soil vapor and groundwater to air (vapor intrusion).

At present, potential receptors include commercial and construction workers, visitors to the onsite commercial businesses, and wildlife. Based upon WAC 173-360-7490, industrial and commercial properties need only to be evaluated for risk to wildlife, not plants or soil biota.

Direct Contact with Soil Pathway: Incomplete

The entire site, aside from the vegetated slope along the western portion of the property, is covered by building, concrete or asphalt. The building and pavement form a physical barrier between the soil and site occupants and workers, preventing direct access to the soil. Based upon the presence of the physical barrier, the direct contact pathway is incomplete.

Ecology requires a restrictive covenant on parcels where contaminated soil remains in place and is capped, to reduce the potential for future exposure during property construction and/or redevelopment activities.

Direct Contact with Groundwater Pathway: Incomplete

No drinking water wells are known to be present on the property and water is delivered to the property from the City of Bellingham public utility.

Additionally, the site is located within 1,000-feet of a landfill. The Whatcom County Health Department requires drinking water wells to be located outside of a 1,000-foot buffer from landfills, unless site specific conditions are presented and approved for a variance.

Based upon the lack of drinking water wells and limitations on well construction due to the proximity to the adjacent landfill, the groundwater ingestion pathway is not complete.

Soil-to-Groundwater Pathway: Complete

Groundwater contamination has been documented on the Cascade Laundry site. The contamination is suspected to be due to leaching from contaminated soils. Therefore, the pathway between soil and groundwater is complete.

Groundwater-to-Surface Water Pathway: Likely incomplete

The nearest surface water features are Whatcom Creek and Whatcom Waterway. Whatcom Creek is located approximately 315 feet northwest of the subject property. The creek becomes known as the Whatcom Waterway as it nears Bellingham Bay. Whatcom Waterway is located approximately 540 feet west of the subject property.

No seeps have been observed on the vegetated slope along the western boundary of the subject property. The groundwater beneath the west-adjacent park is located approximately 20 feet below the ground surface, so groundwater on the subject property is assumed to follow the interface of sediment and bedrock, which slopes beneath the park; however, observation of the slopes has not been systematic and additional assessment should be conducted to observe the slope (monthly), particularly during the spring and winter months.

Vapor Intrusion Pathway (Soil Vapor and Groundwater to Air): Mitigated

Sub-slab air samples and numerous indoor air sampling events within the basement of the Cascade Laundry building identified levels of PCE and TCE above Ecology's screening levels, which indicated a complete pathway for vapors to enter the building.

To mitigate this risk, the property owners installed a passive venting system in the floor of the basement (see details in Section 5.2 of this report). Indoor air sampling events completed after the installation of the venting system indicate that the air quality within the basement is below the action threshold for air quality. Based upon the mitigation work completed, the vapor intrusion pathway is no longer complete.

5.0 INTERIM SAMPLING AND MITIGATION WORK

Following receipt of the 2021 opinion letter, additional indoor air sampling, vapor intrusion mitigation work, and groundwater sampling was conducted. Details of these activities have not been previously reported.

Stratum Group's environmental sampling procedures were followed for collection, handling, storage, and transport of samples, per the Stratum Group Field Procedures provided in Appendix III.

5.1 Sub-slab and Indoor Air Sampling (September 2021)

The September 2021 round of air sampling was completed to further evaluate the air quality in the building and to determine if mitigation was warranted. Previous sampling events had identified elevated benzene, TCE, PCE, and chloroform in the indoor air at concentrations above the screening level for unrestricted land use indoor air quality, and TCE and PCE concentrations

in the basement had previously exceeded the commercial worker screening levels.

Three air samples and one sub-slab sample were collected as part of the September 2021 sampling event.

Indoor air samples were collected over two days including collection of indoor air from the basement on September 12, 2021, and collection of indoor air from the main floor of the building, above the basement (occupied by Bellingham Cider Company) and an outdoor ambient air sample on September 13, 2021. The basement air sample was collected on Sunday, September 12, 2021, as other days were deemed to have too much activity in the basement (i.e., door openings). The indoor samples were collected over an 8-hour period into 6L Summa canisters.

The indoor air and ambient air samples were analyzed for benzene, TCE, PCE, chloroform, and vinyl chloride.

The results of the September 2021 sampling event are presented in Table 2, below, along with the three applicable screening levels. The laboratory report is provided in Appendix II. A complete summary of air sample results from the Cascade Laundry site is provided in Appendix II.

Table 2. Indoor Air Sample Results (September 2021)

Contaminants of Concern	**Indoor Air Concentrations ($\mu g/m^3$)$_a$**		***Ecology Indoor Screening Level ($\mu g/m^3$)***	***Ecology Short-Term Exposure Action Level ($\mu g/m^3$)***	***Commercial Worker ($\mu g/m^3$)***
	Basement	Main Floor			
Benzene$_b$	**0.63**	**22.81**	*0.32*	--	*1.5*
Trichloroethene (TCE)	**0.96**	0.17	*0.37*	*7.5*	*2.85*
Tetrachloroethene (PCE)	**14**	2.8	*9.6*	--	*44.9*
Chloroform	**4.2**	**1.4**	*0.11*	--	
Vinyl Chloride	U<0.15	U<0.15	*0.28*	--	

a = concentrations are the indoor air sample results at each location minus the ambient air concentrations; b = benzene was the only COC detected in the ambient air sample at 0.19 $\mu g/m^3$; U = analyte was not detected at indicated reporting limits; shaded boxes = concentration exceeds screening level for commercial worker use; bold type indicates that concentrations exceeded the screening level for unrestricted land use indoor air quality.

One grab sample of sub-slab air was collected from the permanent vapor pin present in the concrete floor of the basement. The sub-slab sample was collected following collection of the indoor air sample from the basement to reduce potential cross-contamination. Air was purged

from the vapor pin and then a grab sample was collected using a five-minute flow regulator into a 1L summa canister.

The sub-slab basement sample was analyzed for benzene, TCE, PCE, chloroform, and vinyl chloride.

The results of the September 2021 sampling event are presented in Table 3, below, along with the two applicable screening levels. The laboratory report is provided in Appendix II. A complete summary of air sample results from the Cascade Laundry site is provided in Appendix II.

Table 3. Sub-Slab Soil Gas Sample Results (September 2021)

Contaminants of Concern	Basement Sub-Slab Soil Gas Concentrations (µg/m^3)	*Ecology's Sub-Slab Screening Level for unrestricted land use (µg/m3)*	*Ecology's Sub-Slab Screening Level for Commercial Worker (µg/m^3)*
Benzene	U<93	*11*	*50*
Trichloroethene (TCE)	**690**	*11*	*95*
Tetrachloroethene (PCE)	**15,000**	*320*	*1,500*
Chloroform	U<100	*3.6*	*17*
Vinyl Chloride	U<96	*9.5*	*44*

U = analyte was not detected at reporting limits; shaded boxes = concentration exceeds screening level for commercial workers; bold type indicates that the concentration exceeds the screening level for unrestricted land use.

5.1.1 September 2021 Results Discussion

The sub-slab concentrations of TCE and PCE continued to significantly exceed both the unrestricted and commercial worker screening levels. Due to the high level of TCE and PCE in the sub-slab air, the reporting limits for benzene, chloroform and vinyl chloride were elevated such that they were well above their respective screening levels.

The indoor air within the basement exceeded the air quality levels for unrestricted land use; however, the concentrations were below the screening level for an 8-hour commercial worker site use. The concentration of TCE in the indoor air did not exceed Ecology's short term action level.

The presence of TCE and PCE in the indoor air indicated that the vapor intrusion pathway was complete. Due to the potential for continuing vapor intrusion, mitigation was recommended.

Benzene and chloroform were detected above indoor air quality standards in both the basement and main floor air samples; however, these chemicals were not detected in the sub-slab sample. The benzene and chloroform are therefore not suspected to be present as a result of vapor

intrusion but due to an indoor source. Benzene concentrations were particularly elevated in the main floor restaurant space. The benzene is suspected to a byproduct of burned natural gas (used to heat the building and ovens/cook tops), incomplete combustion of natural gas, and/or charcoal creation during cooking activities. Chloroform is suspected to be off-gassing from building materials used in the structure. Recommendations were made to have the building evaluated for natural gas leaks.

Cascade Natural Gas conducted an assessment of the building on December 6, 2021 to inspect for natural gas leaks. Two pilot lights were out in the kitchen equipment, one grill needed maintenance, and two fittings on natural gas hot water heat in the basement were suspected to have very minor leaks. Property owners notified Bellingham Cider Company to repair the grill and check the pilot lights as a part of daily operations.

5.2 Vapor Mitigation Installation

To mitigate apparent vapor intrusion into the building, a passive vapor mitigation system was installed in the basement of the Cascade Laundry building in May 2022. The vapor mitigation installation included excavation of trenches to approximately 1-foot depth through the floor of the building and placement of a perforated PVC pipe surrounded by pea gravel into the trenches. The piping transitioned to solid PVC piping, which extended up the wall of the building and discharged to the building exterior. The trenches were backfilled with gravel and capped with concrete. The system is passive and does not include any active fans.

Subsurface materials removed from the trenches largely consisted of non-native pea gravel fill; however, native brown silty sand soils with minor gravel was encountered at the south end of the basement, east extent of the trenches, and near the west wall where the piping transitioned above ground.

Two soil samples were collected from the native soil to evaluate the soil conditions for proper disposal of the excavated soil material. Kim Ninnemann of Stratum Group visited the site on May 10, 2022. One sample was collected from the soil to the north of the cooler (sample 051022-1) and one was collected near the south wall of the basement, west of the cooler (sample 050122-2). Each sample was collected from approximately 0.5 foot depth, placed in an ice-chilled cooler, and delivered to ALS Laboratory for analysis of a full suite of volatile organic compounds (VOCs). Both samples were non-detect for all VOCs, except for PCE detected in 051022-2 at a concentration of 0.37 mg/kg, above the MTCA Method A cleanup level of 0.05 mg/kg.

Based upon the presence of PCE, the soil was placed in one-ton tote bags provided by Clean Harbors and removed as hazardous material. A total of 4,000 pounds was removed from the site for disposal at Clean Harbors Environmental Services in Kimball, Maine in July 2022.

Supporting documentation for the vapor intrusion installation is provided in Appendix III,

including a map that shows the location of the passive vapor system in the basement and the soil sample locations. A copy of the full laboratory report for the soil samples and soil disposal manifest is provided in Appendix II.

5.3 Follow up Indoor Air Sampling (December 2022, February 2023, September 2023)

Three air sampling events have taken place since the installation of the passive venting system: December 2022, February 2023, and September 2023. Since vapor intrusion was expected to be most significant in the partially below-ground basement space, the follow-up sampling work focused only on the basement.

The December 2022 event included samples from the basement indoor air, basement sub-slab air, and an ambient air sample. Two additional sample locations were added for the February 2023 sampling event including behind the drywall along the south wall of the basement and from the passive vent discharge pipe from the vapor mitigation system in February 2023. An ambient air sample and basement indoor air sample were collected in September 2023.

The December 2022 sampling event was completed using Summa canisters. The canisters were not available during the February 2023 sampling event so sorbent tubes were used to collect the air sample. The sorbent tubes were connected to a flow regulator (BIOS Defender 510) and pump (Gilian dual mode low flow sampler).

A summary of the basement air sample data collected between December 2022 and September 2023) is provided in Table 4. A summary of sub-slab sample data through the basement floor between December 2022 and February 2023 is provided in Table 5. A summary of the data collected from the discharge pipe from the vapor mitigation system is provided in Table 6. Ambient air results were only collected in December 2022 and were non-detect for all the halogenated VOCs analyzed.

Table 4. Basement Indoor Air Sample Results

Contaminants of Concern	**Indoor Air Concentrations In Basement ($\mu g/m^3$)[a]**			***Ecology Indoor Screening Level ($\mu g/m^3$)***	***Ecology Short-Term Exposure Action Level ($\mu g/m^3$)***	***Commercial Worker ($\mu g/m^3$)***
	12/19/2022	2/20/2023	9/11/2023			
Benzene	--	--	--	*0.321*	--	*1.5*
Trichloroethene (TCE)	**4.2**	0.014	U<0.12	*0.334*	*7.5*	*2.85*
Tetrachloroethene (PCE)	**58**	0.16	1.3	*9.62*	--	*44.9*
Vinyl Chloride	U<0.26	<0.032	U<0.6	*0.28*	--	*1.33*
1,2DCE - cis	1.1	<0.032	U<0.6	*Not available*	--	*156*
1,2DCE - trans	U<0.4	<0.032	U<0.6	*0.96*	--	*156*
Sample Collection Type	6L Summa	Sorbent tubes	Sorbent tubes			
Sample Time	8-hr	1-hr	8-hr			

a = concentrations are the indoor air sample results at each location minus the ambient air concentrations; U = analyte was not detected at reporting limits
shaded boxes = concentration exceeds screening level for commercial worker; bold text = sample exceeds concentration for unrestricted land use;
-- = analyte not tested

Table 5. Basement Sub-Slab Air Sample Results

Contaminants of Concern	**Sub-Slab Air Concentrations (µg/m³)a**		***Ecology's Sub-Slab Screening Level for unrestricted land use (µg/m3)***	***Ecology's Sub-Slab Screening Level for Commercial Worker (µg/m³)***
	Permanent Vapor Pin			
	12/19/2022	2/20/2023		
Benzene	--	U<0.034	*11*	*50*
Trichloroethene (TCE)	3.9	1.2	*11*	*95*
Tetrachloroethene (PCE)	54	2.8	*320*	*1,500*
Vinyl Chloride	U<1.8	U<0.034	*9.5*	*44*
1,2DCE - cis	U<2.8	0.12	*610*	*5,200*
1,2DCE - trans	U<2.8	U<0.034	*610*	*5,200*
Sample Collection Type	1L Summa	1L Summa		
Sample Time	5-min	5-min		

a = concentrations are the indoor air sample results at each location minus the ambient air concentrations; U = analyte was not detected at reporting limits; shaded boxes = concentration exceeds screening level for commercial worker; bold text = sample exceeds concentration for unrestricted land use; -- = analyte not tested

Table 6. Vapor Mitigation System Outflow Air Sample Results

Contaminants of Concern	**Vented Air Concentrations (µg/m³)a**
	2/20/2023
Trichloroethene (TCE)	5.0
Tetrachloroethene (PCE)	47
Vinyl Chloride	U<0.065
1,2DCE - cis	1.6
1,2DCE - trans	U<0.065
Sample Collection Type	Sorbent Tube
Sample Time	1-hr

a = concentrations are the indoor air sample results at each location minus the ambient air concentrations; U = analyte was not detected at reporting limits; shaded boxes = concentration exceeds screening level for commercial worker; bold text = sample exceeds concentration for unrestricted land use; -- = analyte not tested

5.3.1 Results Discussion of Air Sampling – Post Vapor Mitigation Installation

Basement Indoor Air

The Cascade Laundry basement's indoor air quality exceeded commercial worker levels during the December 2022 air sampling event. The results were not anticipated, based upon the operation of the passive vapor mitigation system for more than 6 months. We noted in our

review that the indoor air sample results were unusually similar to the sub-slab results. We hypothesized that the results could have been the result of leaks through the concrete floor, from a different source than the floor (i.e., south wall that abuts fill zone with known soil and water contamination), or from sampling errors during collection.

To assess these hypotheses, a thorough evaluation was conducted of the basement to identify every pipe and potential access into the room. Foam sealant was used around some piping that entered the basement to ensure the air flow was blocked. Additionally, it was determined that the next round of air sampling should include a sample from the vapor mitigation outflow vent to verify it was operating appropriately, and from behind the drywall along the south wall of the basement, as solvent tanks and releases to the environment are known to have been present in the fill material on the opposite side of the wall to the south.

The February 2023 sampling event found that no PCE or TCE was detected in the air sample collected from between the concrete and drywall along the south wall of the basement. This result indicates that vapors are not migrating through the south wall into the building's interior air.

The February 2023 and September 2023 indoor air samples from the basement met both the unrestricted land use values for indoor air as well as the commercial worker values. The samples from these events were collected with sorbent tubes, a commonly used sampling method for VOCs. Based upon these two sampling events, the mitigation system has been successful in passively reducing vapor intrusion to well below screening levels for unrestricted land use.

Basement Sub-Slab

Basement sub-slab air samples collected during the December 2022 and February 2023 events found the sub-slab air to meet the screening levels for unrestricted land use. PCE and TCE were detected in the sub-slab samples, but at an order of magnitude below the screening levels. Based upon these results, it was determined that vapor mitigation activities were successful and additional sub-slab samples were no longer needed.

Vapor Mitigation Vent

A sample collected from the outflow vent for the passive vapor mitigation system was analyzed from February 20, 2023. The sample had notable detections of PCE (5.0 µg/m^3) and PCE (47 µg/m^3). These results indicate that the passive venting system is effectively functioning to move solvent-impacted air from below the basement floor to the building exterior.

5.4 Groundwater Sample Results (Sept 2023)

Three groundwater monitoring wells are located on the Cascade Laundry site (MW-1, MW-2, and MW-3). The locations of the monitoring wells are presented in Figure 1, Appendix IV.

Depths to water in the wells were collected on September 11, September 14 (prior to purging) and again on September 18, 2023 (sampling day). Purging and sampling were completed on separate days due to the low recharge in two of the wells. The measured depth to water levels are presented in Table 7.

Table 7. Depth-to-Water

Monitoring Well	Depth-to-Water (feet)		
	Sept 11, 2023	Sept 14, 2023	Sept 18, 2024
MW-1	20.33	20.33	20.80
MW-2	19.34	24.55	21.75
MW-3	24.54	19.33	24.63

*measurements taken from location marked on the casing

MW-1 was purged dry on September 14, 2023, then allowed to recharge for one hour, before additional purging was completed. More than 3 well volumes of water were purged from MW-1. The purge water on September 14, 2023 had a yellowish color, significant petroleum sheens, and a very strong petroleum odor. Upon purging the well dry, water trickling into the base of the well contained even stronger odors and sheens.

MW-2 was purged dry with less than 0.5L on September 14, 2023. The well had no recoverable water after one hour.

MW-3 was purged dry after removal of 1.5L. The well was allowed to recharge for one hour. Less than 0.5L was removed after one hour of recharge.

Due to the slow recharge observed from all three wells, Stratum Group returned to the site in on September 18, 2023 to try to collect samples. No water was purged prior to sample collection. Water within MW-1 was clear, with no sign of turbidity or free product. MW-2 ran dry after filling four VOA containers. The water in MW-2 was clear with no turbidity. MW-3 ran dry after filling five VOA containers. The water had a slight yellow tinge and no turbidity.

The samples were placed in an ice-filled cooler and delivered to Friedman and Bruya for analysis via Fed Ex.

5.4.1 Groundwater Sample Results

Each groundwater sample was analyzed for gasoline-range petroleum (NWTPH-GX) benzene, toluene, ethylbenzene, and xylenes (BTEX), and halogenated VOCs. There was insufficient water to test MW-2 and MW-3 for diesel and oil-range petroleum. MW-1 was further analyzed for diesel and oil-range petroleum, cyanide, metals (copper, hexavalent chromium, total chromium, nickel, lead, and zinc), and for carbon fractionization for diesel and oil-range petroleum (EPH method) and gasoline-range petroleum (VPH method).

The results of the sampling event are presented in Tables 8 through 10. Table 8 includes petroleum results from all three wells. Table 9 includes the metals and VOC results for all three wells, and Table 10 includes the carbon fractionization results for groundwater from MW-1. Only VOCs that were detected in each sample are presented in Table 9. If an analyte is not shown in the table, it was not detected in the sample. The results in Table 8 and 9 are compared to MTCA Method A cleanup standards, as a screening level, when available, or Method B. Screening levels will be utilized for the site until site-specific cleanup levels are developed.

A copy of the complete laboratory report and chain of custody is provided in Appendix IV.

Table 8. Groundwater Sample Results: Petroleum (September 2023)

Sample ID	Concentration of Contaminants (µg/L)						
	Gas	**Diesel**	**Oil**	**Benzene**	**Toluene**	**Ethyl-benzene**	**Xylenes**
MW-1	**4,900**	**32,000**	**3,100**	**9.2**	5.0	8.4	38
MW-2	370	--	--	3.5	U<1	3.6	U<3
MW-3	U<100	--	--	U<1	U<1	U<1	U<3
MTCA Method A Screening Levels (µg/L)[a]	*1,000/800*[a]	*500*	*500*	*5*	*1,000*	*700*	*1,000*

a = The lower clean up value is used if benzene is present, otherwise, the higher clean up number is used; U = sample analyzed, but not detected at laboratory provided reporting limits; -- = contaminant not tested; bold shaded text indicates sample exceeds the screening levels

Table 9. Groundwater Sample Results: VOCs, Metals, Cyanide (September 2023)

Sample ID	Concentration of Contaminants (µg/L)									
	VOCs[a]			Metals						
	Vinyl Chloride	Trans 1,2-DCE	Cis 1,2-DCE	Chromium		Copper	Lead	Nickel	Zinc	Cyanide
				Total	Hexavalent					
MW-1	**110**	8.7	1.5	1.41	U<50	U<5	U<1	28.3	15.5	U<50
MW-2	**0.98**	U<1	U<1	--	--	--	--	--	--	
MW-3	0.11	U<1	2.1	--	--	--	--	--	--	
Method A or B Screening Levels (µg/L)[a]	*0.20*	*160*	*16*	*50*	*48*	*640*	*15*	*320*	*4,800*	*5*

a= only VOCs detected in the samples, based upon analysis of 11 halogenated compounds are presented, as all other VOCs were not identified above reporting limits; bold shaded text indicates sample exceeds the screening levels; -- = analytes not sampled

Table 10. Petroleum Carbon Fractionization in MW-1

Analytes	Laboratory Analysis Method	Concentration (µg/L)
		MW-1
C8-C10 Aliphatics	NWEPH	100
C10-C12 Aliphatics		46.6
C12-C16 Aliphatics		U<39.8
C16-C21 Aliphatics		U<39.8
C21-C34 Aliphatics		U<39.8
C8-C10 Aromatics		666
C10-C12 Aromatics		460
C12-C16 Aromatics		70.6
C16-C21 Aromatics		U<39.8
C21-C34 Aromatics		54.9
C5-C6 Aliphatics	NWVPH	U<40
C6-C8 Aliphatics		53.7
C8-C10 Aliphatics		193
C10-C12 Aliphatics		983
C10-C12 Aliphatics		767
C8-C10 Aromatics		1,120
C10-C12 Aromatics		774
C12-C13Aromatics		U<40

5.4.2 Results Discussion of Groundwater Sampling (September 2023 event)

Our groundwater sampling event found low recovery rates in MW-2 and MW-3, located on the west edge of the developed portion of the site. The groundwater monitoring wells were installed at the top of the groundwater table. It is hypothesized that groundwater may flow at a slow rate along the soil-bedrock interface. A survey has not been completed on the monitoring wells, so groundwater flow directions cannot be verified; however, topography of the site indicates a suspected westerly flow and contaminant levels, particularly of vinyl chloride in the water, indicate a likely west-southwesterly flow at the site, with concentrations decreasing to the west. An elevation survey will be needed to confirm groundwater flow direction.

MW-1

MW-1, placed through the fill area along the southwestern end of the building, was found to exceed the MTCA Method A screening levels for gasoline-range petroleum, benzene, diesel, oil,

and vinyl chloride. Other petroleum products and VOCs were detected, but at concentrations well below the screening levels. None of the metals analyzed in the sample from MW-1 exceeded the screening levels. No hexavalent chromium or cyanide were detected; however, the reporting limits for both analytes were above the cleanup/screening levels and therefore will require additional testing with lower reporting limits to properly evaluate.

The carbon fraction data from the water sample was entered into MTCATPH-V12.0, Ecology's calculator for determining groundwater cleanup levels. The total measured petroleum concentration in the sample from MW-1 was calculated to be 3,306.3 µg/L. Based upon the calculator, the overall TPH Method B potable groundwater protective cleanup level for the site would be 140 µg/L. This concentration is considered an estimate, as n-hexane and naphthalene concentrations were not included in the original analysis. The sample results for MW-1 exceed the calculated site specific groundwater cleanup value for petroleum.

We noted yellowish fluid entering the base of the well after the well had been purged dry on September 14, 2023. The water with the yellow fluid had a strong odor that was suspected to be petroleum. Additional assessment should take place to determine if the fluid is a light nonaqueous phase liquid (LNAPL) or dense nonaqueous phase liquid (DNAPL).

MW-2

Water quality in MW-2 had detections of gasoline-range petroleum, benzene, and ethylbenzene; however, all the concentrations were found to be below the screening levels. Vinyl chloride was detected in the groundwater at a concentration of 0.98 µg/L, which exceeds the screening level for vinyl chloride. No other VOCs of concern were detected.

MW-3

No VOC or petroleum contaminants exceeded the screening levels in MW-3, located west of the northern end of the building. Vinyl chloride was detected in the sample at 0.11 µg/L; however, this concentration was below the screening level of 0.2 µg/L. Additional sampling from this well will be needed to determine if there is seasonal fluctuations in the water quality.

5.5 Evaluation of Potential Off-Site Groundwater Monitoring Well Locations

Monitoring wells have been installed on two adjacent properties in association with previous environmental work: Holly Street Landfill (aka Maritime Heritage Park) and 401 Central Ave LUST.

Three monitoring wells are mapped as being located south of the western end of the subject property within Maritime Heritage Park. Stratum Group personnel located one well monument, approximately 3' high; however, it was missing a cap on both the casing and the PVC well and was stuffed with wood chips and debris. The other two mapped monitoring wells in the vicinity

were not identified. The observed well is not an option for potential off-site sampling; however, additional communication could take place with the City of Bellingham to determine the other well locations as potential sampling locations, if needed.

Two monitoring wells were identified north of the western end of the subject property at the 401 Central LUST site (address is 401 Central). The wells are two properties north of the subject property and look to be functional, if additional water quality data is needed north of the Cascade Laundry property.

6.0 IDENTIFIED DATA GAPS

Several data gaps remain to characterize the nature and extent of contamination at Cascade Laundry. The data gaps include:

- Lateral extent of petroleum and VOCs in soil and groundwater not determined to the south and west of the site.
- Assessment of potential surface water seeps in vegetated slope along western property boundary is needed.
- Assessment of potential COCs associated with previous hide tanning activities (e.g., metals and cyanide); COCs should be analyzed in future soil and groundwater samples.
- Site-specific cleanup levels (need to propose preliminary values for approval by Ecology)
- Determine if site meets requirements for non-potable groundwater, which could impact the groundwater cleanup standard for the site.
- Update site maps to include all tank locations, subsurface soil sample locations, groundwater sample locations, air sample locations, and a detailed cross-section (details provided in 2021 Opinion Letter)

7.0 PROPOSED WORK PLAN

The work plan proposed herein was designed to address the identified data gaps and further characterize the nature and extent of contamination associated with the Cascade Laundry property. We propose a combination of additional soil sampling, groundwater monitoring well installation (both on and off-site), and quarterly groundwater sampling to determine the nature and extent of petroleum contaminated groundwater. This data will be used to evaluate whether contamination boundaries have been identified and to develop site specific cleanup levels for soil, groundwater, and indoor air. A well survey of the monitoring wells will be needed, once new wells are installed so that groundwater flow direction can be determined. The goal of these proposed activities is to further and/or complete our understanding of contamination and provide a baseline for evaluating potential cleanup options.

Stratum Group personnel will coordinate and be onsite to oversee subcontractors, collect soil

samples, develop monitoring wells, and collect groundwater samples. Subcontractors will be utilized, as needed, during the project including well drilling professionals, Ecology accredited laboratories for sample analysis, ground penetrating radar and private utility locate professionals, and a professional survey company.

We recommend one primary mobilization for drilling and installation of four new groundwater monitoring wells, followed by quarterly groundwater sampling events of wells for one year, and monthly inspections of the western slope of the site to observe for groundwater seeps.

All fieldwork and sampling activities will be completed in accordance with Stratum Group's standard field procedures, provided in Appendix II.

The work plan will be implemented upon the completion of Ecology's review and comment, and with approval from the property owner.

7.1 Well Installation Preparatory Activities

Four groundwater monitoring wells are proposed within this work plan: two wells proposed on the Cascade Laundry site and two wells proposed on adjacent properties.

Off-site groundwater monitoring wells are proposed on the adjacent property to the south (MW6) and west (MW7). The south and west adjacent properties are owned by the City of Bellingham. Letters will be written to request access to install groundwater monitoring wells on these properties, as well as a request for access for the installation, development, and sampling of the groundwater monitoring wells. Permits will be applied for, if needed, for these off-site wells.

At least two business days prior to scheduled completion of ground disturbing activities, proposed monitoring well locations will be marked with white paint and the One-Call Utility Notification Service will be notified.

A professional private utility locating service will be engaged to do a conductible locate and a ground penetrating radar (GPR) to further identify any underground utilities, objects, or tanks. GPR is a non-destructive technique that uses radar to create images of the subsurface. Buried objects (e.g., tanks) and other anomalies are identified based on the imagery developed during the investigation. This type of investigation will not determine if contamination is present but will assist in determining if utility lines or tanks are present or may have previously been located. This information can direct where soil and groundwater samples should/should not be collected. GPR will also further clear our proposed sampling locations to provide extra certainty that no obvious obstructions are present. The utilities identified through the private locate company will be marked with paint on the ground surface and flagged.

We proposed that the GPR survey be conducted around each proposed well installation.

7.2 Groundwater Monitoring Well Installation

We propose completion of four borings to be completed as groundwater monitoring wells. Wells will be installed by a licensed well driller and all drilling and well installation activities will be conducted in accordance with Ecology's *Minimum Standards for Construction and Maintenance of Wells* (WAC 173-360).

The locations of the proposed groundwater monitoring wells are provided in Figure 4-1, Appendix I. The rationale for each sample location is provided in Table 11.

Table 11. Monitoring Well Location Rationale

Well ID	Location	Rationale
MW4	East side of property	Evaluate for potential contamination migration along the soil-bedrock interface from former adjacent gas station
MW5	West of MW-1, below the retaining wall	Down gradient of known contaminated area around MW-1, potentially to identify a western contaminant boundary
MW6	South of southwestern portion of the site, on City of Bellingham Whatcom Museum property.	Potentially identify a southern boundary of contamination (off-site well)
MW7	West of subject property	Down gradient of subject property (off-site well), potentially to identify a western contaminant boundary

Because site groundwater is expected to be flowing along the soil/bedrock interface, we recommend that sonic drilling techniques be utilized so that the monitoring wells can be extended approximately one foot into the bedrock. Previous environmental sampling work using a push probe drill rig has encountered bedrock and hit refusal.

Soil will be collected continuously through the boring with a 4"-ID core barrel and will be collected for visual analysis, field testing, and collection of samples for laboratory analysis. Stratum Group personnel will conduct field testing for obvious indications of contamination including discoloration, odors, and sheens. Field personnel will also utilize a photoionization detector (PID) to scan for volatile vapors.

Borings will be advanced to depths of approximately 30-35 feet bgs or until we are approximately one foot into the bedrock. A casing is pushed forward following each five-foot length of soil collection, which is removed upon completion of the well.

Stratum Group will be onsite to collect soil samples during drilling of the permanent monitoring wells. At least four soil samples will be collected from each boring location:

- One sample near surface (~1-1.5) to evaluate for potential surface releases

- Two samples within sandy layers throughout the middle of the boring, where previous sampling indicated higher concentrations of contaminants
- One sample from the native soil-bedrock interface zone

Field indications of contamination may be used to adjust sampling depths during field activities.

The wells will be created with 2" PVC pipe with a 10' screen. We anticipate that the base of the screen will be set at the bottom of the well. Sand will be placed around the pre-pack well to fill the boring annulus, with bentonite clay placed above the sand pack to act as a seal. A flush mounted well casing, at the same elevation as the ground surface, will be placed around the monitoring well to provide protection to the monitoring well and allow easier future access to the area.

If a shallower zone of groundwater is encountered during the sonic drilling, then the drilling will be temporarily halted so that a water sample can be collected prior to continued drilling to just below the bedrock interface.

Stratum Group will return to the site within one week of completion of well drilling activities to develop the monitoring wells. Development will be completed according to Stratum Group standard field procedures.

Stratum Group will return to the site at least 24 hours after well development to sample the wells.

7.2.1 Well Survey

Following installation of the monitoring wells, Stratum Group will engage a professional surveying contractor to survey the locations of the wells. The survey will be completed on all the monitoring wells (MW-1 through MW-7). The survey should include determination of the ground surface of the monitoring well monuments and the tops of the well casings (top of the PVC pipe). Survey data collected from this survey will be used with field collected depth to water measurements to determine the groundwater table elevation in each well.

The groundwater level elevations will be used to create a groundwater elevation contour map, so that groundwater flow at the site can be determined using depth-to-water measurements from each groundwater sampling event.

7.3 Groundwater Sampling

7.3.1 Quarterly Groundwater Monitoring

We recommend that quarterly groundwater monitoring take place, beginning with the initial groundwater sampling event of all seven wells. Quarterly monitoring should take place for a minimum of four quarters.

All seven wells associated with the Cascade Laundry well network should be sampled. Permanent marker should be used to mark the location on the PVC casing where the depth-to-water measurements are collected.

Upon arrival, field personnel will open each well and remove the cap on the casing to allow the water table to equilibrate with atmospheric pressure. Measurements of the depth to groundwater from the top of casing will be completed initially and then again at least 30 minutes after the initial measurement, but prior to sampling. An interface depth-to-water meter will be used to determine if LNAPL or DNAPL are present in the wells, particularly in MW-1 and MW-5. If the difference in the two depth-to-water measurements in a given well is greater than 0.05 feet, additional measurements will be taken at approximately 30-minute intervals until the difference is less than 0.05 feet.

Wells will be purged and sampled using low flow sampling techniques. Sample tubing will be placed approximately 1 to 2 feet below the top of the water table and will be adjusted as needed to account for drawdown. Prior to sampling, well water will be purged until field parameters including temperature, pH, dissolved oxygen, ORP, and/or conductivity stabilize and the water is visually free of turbidity or the well has been purged dry. A record of field measurements collected during well purging will be written down in the field and retained as part of the general project file.

After field parameters have stabilized, groundwater samples will be collected from the permanent wells. In wells where limited groundwater recharge is present, as previously noted in MW-2 and MW-3, samples may need to be collected 1-2 days after purging to have enough water to fill sample containers.

7.3.2 Off-Site Well Sampling

If groundwater sampling data from the Cascade Laundry well network indicates that additional sampling is needed to characterize the site, efforts will be made to identify and communicate with adjacent property owners (Maritime Heritage Park or 401 Central) to get permission for a groundwater sampling event from off-site wells that are already installed, if the well locations are positioned and/or drilled to depths that would provide useful information for the Cascade Laundry assessment.

7.3.3 Slope Inspections

We recommend that observation of the western slope of the subject property be completed once per month during the months of November, December, January, February, March, April, and May. The goal of the inspection is to observe the hillside to verify whether any groundwater springs are present. If present, photos should be taken and the location marked on a map, and a water sample should be collected and analyzed for the contaminants of concern at the Cascade Laundry site.

This data along with groundwater sample data will be used to determine if the exposure pathway from groundwater-to-surface water is complete or incomplete.

7.4 Sample Analysis Plan

Environmental samples analyzed as part of this work plan will be delivered or mailed to a Department of Ecology accredited laboratory for analysis. The proposed sample analysis to be completed on the soil and groundwater collected during the well installation and groundwater sampling events from wells installed to evaluate Cascade Laundry site is provided in Table 12.

Table 12. Sample Analysis Plan

Well	Sample Description	Contaminants of Concern	Analytical Method
MW-1 **MW-2** **MW-3** **MW-4** **MW-5** **MW-6** **MW-7**	• 4 soil samples will be sampled during installation of the new monitoring wells (MW4-MW7) • Quarterly groundwater samples from all monitoring wells associated with the site for one year	Diesel & Oil	NWTPH-Dx
		Gasoline	NWTPH-Gx
		BTEX	EPA 8021B
		Halogenated VOCs	EPA 8260D
		Metals	EPA 6020B
		Cyanide	SM 4500-CN C,E
		Hexavalent Chromium	SM 3500 Cr B

If sampling of additional off-site monitoring wells is determined to be needed (i.e. from already installed wells to the west within Maritime Heritage Park or to the north at 401 Central), or groundwater seeps on the hillside are identified, then water collected from these locations will be analyzed for all the contaminants of concern identified in Table 12.

Groundwater samples analyzed for metals will be initially analyzed for total metals. If elevated metals concentrations are detected from these analyses, the samples will be laboratory filtered and re-analyzed for dissolved metals.

7.5 Timeline

An estimated timetable of proposed work activities is provided in Table 13, below.

We will begin preparatory steps for a groundwater monitoring well installation once Ecology's review has been completed and the work plan has been finalized.

This timetable assumes that standard turnaround times for sample analysis will be used. Timetable dates are subject to subcontractor availability for drilling and survey portions of the project.

Table 13. Project Timetable

Task	Approximate Date of Completion
Submittal of draft work plan to Ecology for review	Mid-March 2024
Edits made to work plan based upon Ecology comments; final work plan submitted to Ecology	November 2024
Submit request for off-site monitoring wells to City of Bellingham	November 2024
GPR & private utility locate	Dec 2024-January 2025
Install four monitoring wells	Dec 2024 -January 2025
Survey monitoring wells	February 2025
Quarterly groundwater monitoring	February 2025 May 2025 August 2025 November 2025
Monthly slope inspections	November 2024 – May 2025
Sample additional off-site wells/seeps, if needed	During quarterly monitoring event, if needed
Remedial Investigation report	January 2026

7.6 Reporting

Results will be reported to the property owner following each sampling event.

Upon completion of the above remedial investigation tasks, Stratum Group will compile a Remedial Investigation report in compliance with Department of Ecology guidance and WAC 173-340-350(7). This report will document and summarize the results of environmental sampling, including photographs, sample maps and data, well logs, site conceptual model, and conclusions. The Remedial Investigation report will include details requested in the June 24, 2021 opinion letter. This report will also include a re-evaluation of contaminants of concern and propose preliminary cleanup levels based upon the findings of the remedial investigation. The findings may allow us to limit the number of wells needed for further assessment and/or the analyses needed in each monitoring well. We recommend that this report be submitted to Ecology for review and comment. A formal opinion letter can be requested. All supporting data will be entered into Ecology's Environmental Information Management (EIM) system.
If, in our professional opinion, sample results from the soil sampling during well installation or

water sampling from the monitoring wells indicate that site characterization remains incomplete, Stratum Group will prepare an interim remedial investigation report and work plan. The interim report will include a table of the analysis results obtained to date, a map showing the spatial distribution of the results, and a short narrative summarizing the results and providing detailed recommendations for additional samples to complete site characterization. We recommend this interim report be submitted to Ecology for review and comments prior to completion of any additional sampling that is beyond the scope of work described herein. An interim report will not be prepared if, in our professional opinion, initial sampling results indicate that site characterization is complete.

7.7 Management of Investigation Derived Waste (IDW)

All soil and water generated from boring and monitoring well installation activities that is not used for sample analysis purposes will be placed in properly labeled 55-gallon drums and stored on-site pending characterization. We anticipate this waste will be stored on-site until cleanup activities commence, at which time the soil and water will be properly profiled and disposed of off-site along with soil and water removed during remediation. If no cleanup is anticipated in the short-term, then disposal of the soil and water will be handled separately by a hazardous waste disposal company. Disposal receipts will be obtained to verify proper disposal.

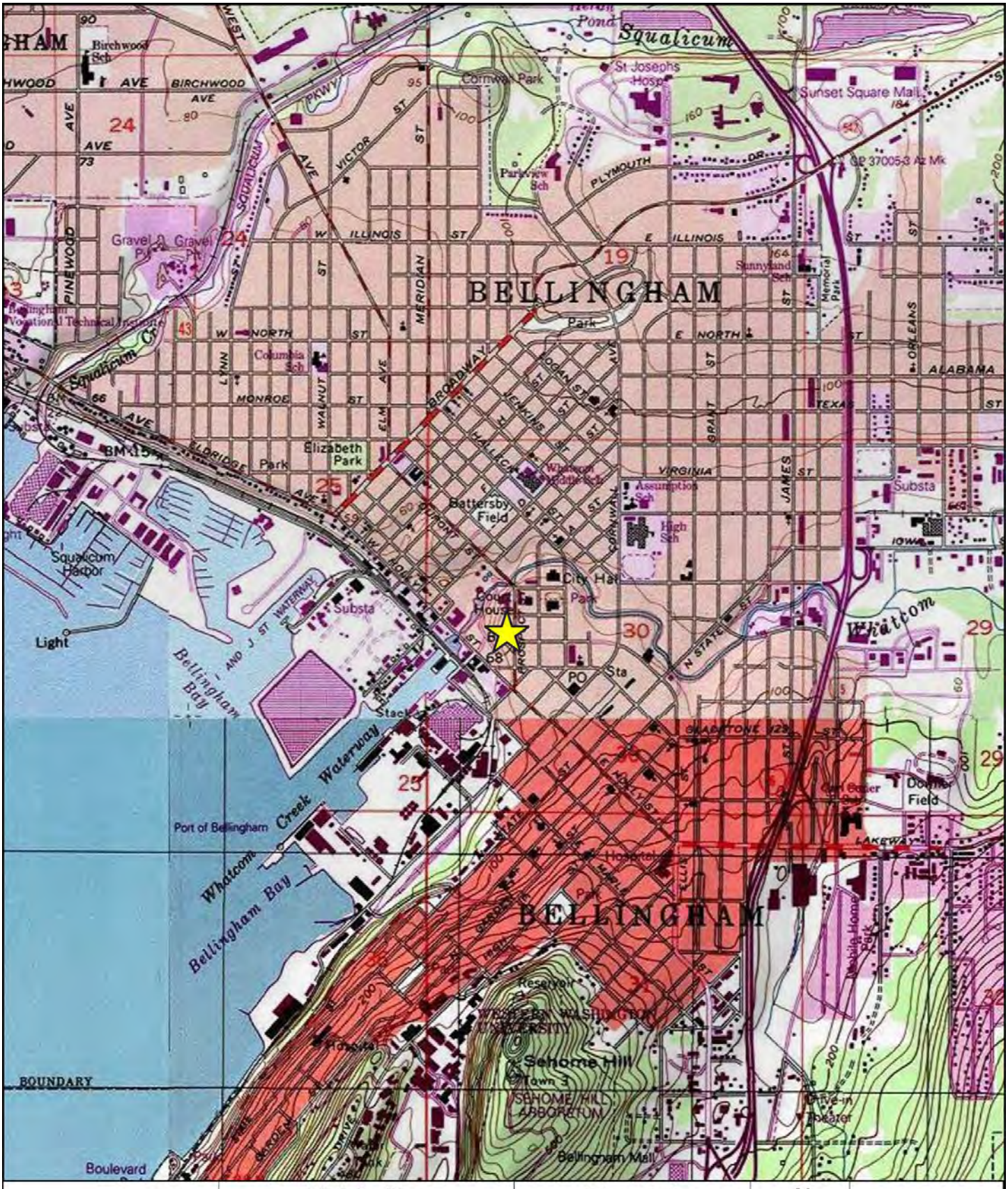
APPENDIX I

Figure 1-1 – Site Vicinity Map

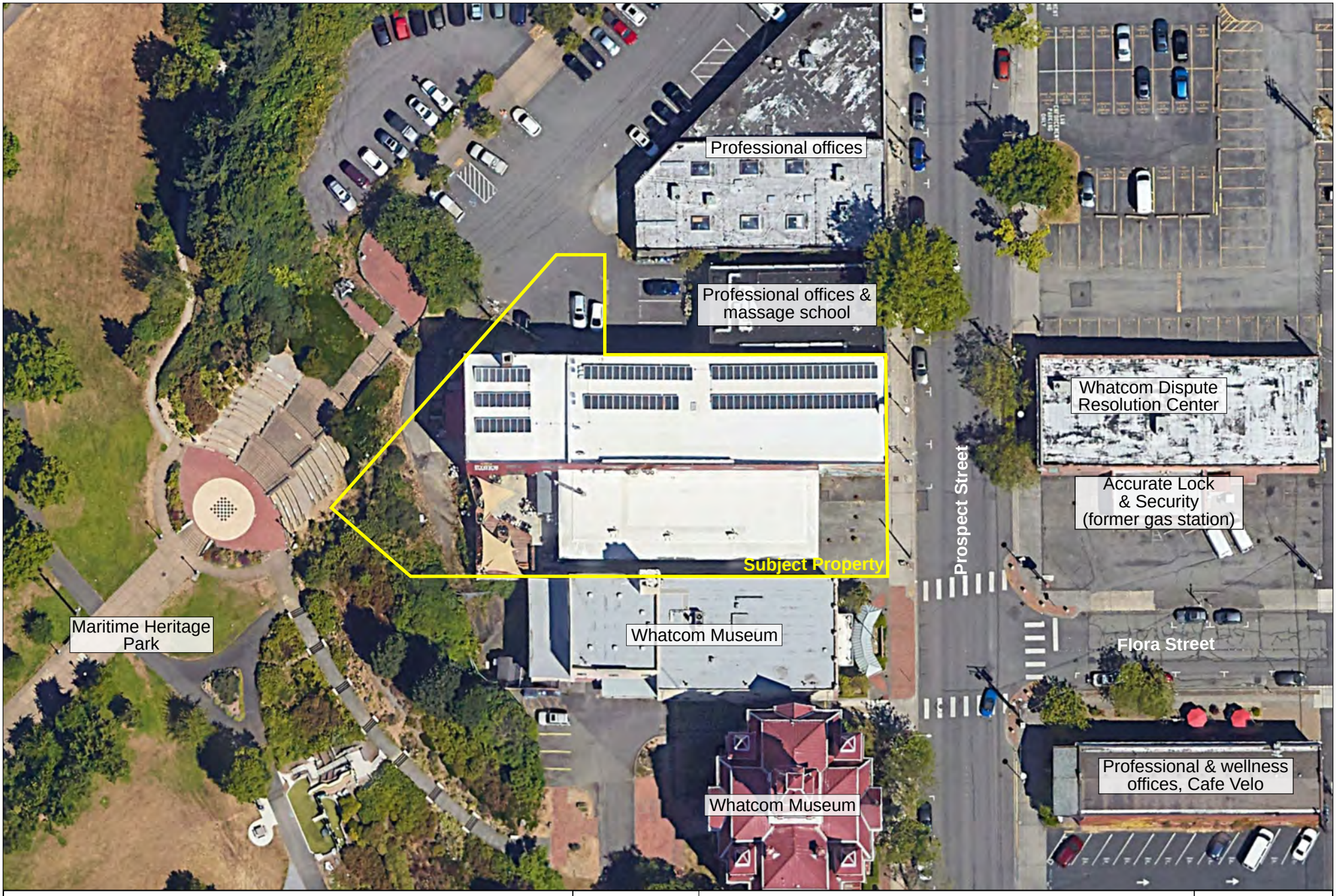
Figure 2-1 – Annotated Aerial Photograph

Figure 3-1 – Conceptual Site Model

Figure 4-1 – Proposed Groundwater Monitoring and Sampling Locations



★ Subject Property	Vicinity Map	**Figure 1-1**	N
	Cascade Laundry 205 Prospect Street Bellingham, Washington 98225	0 0.25 0.5 mi	STRATUM GROUP



Annotated Aerial Photo of Site & Vicinity

Cascade Laundry
205 Prospect Street
Bellingham, Washington 98225

Figure 2-1

0 40 80 160 Feet

N

STRATUM GROUP

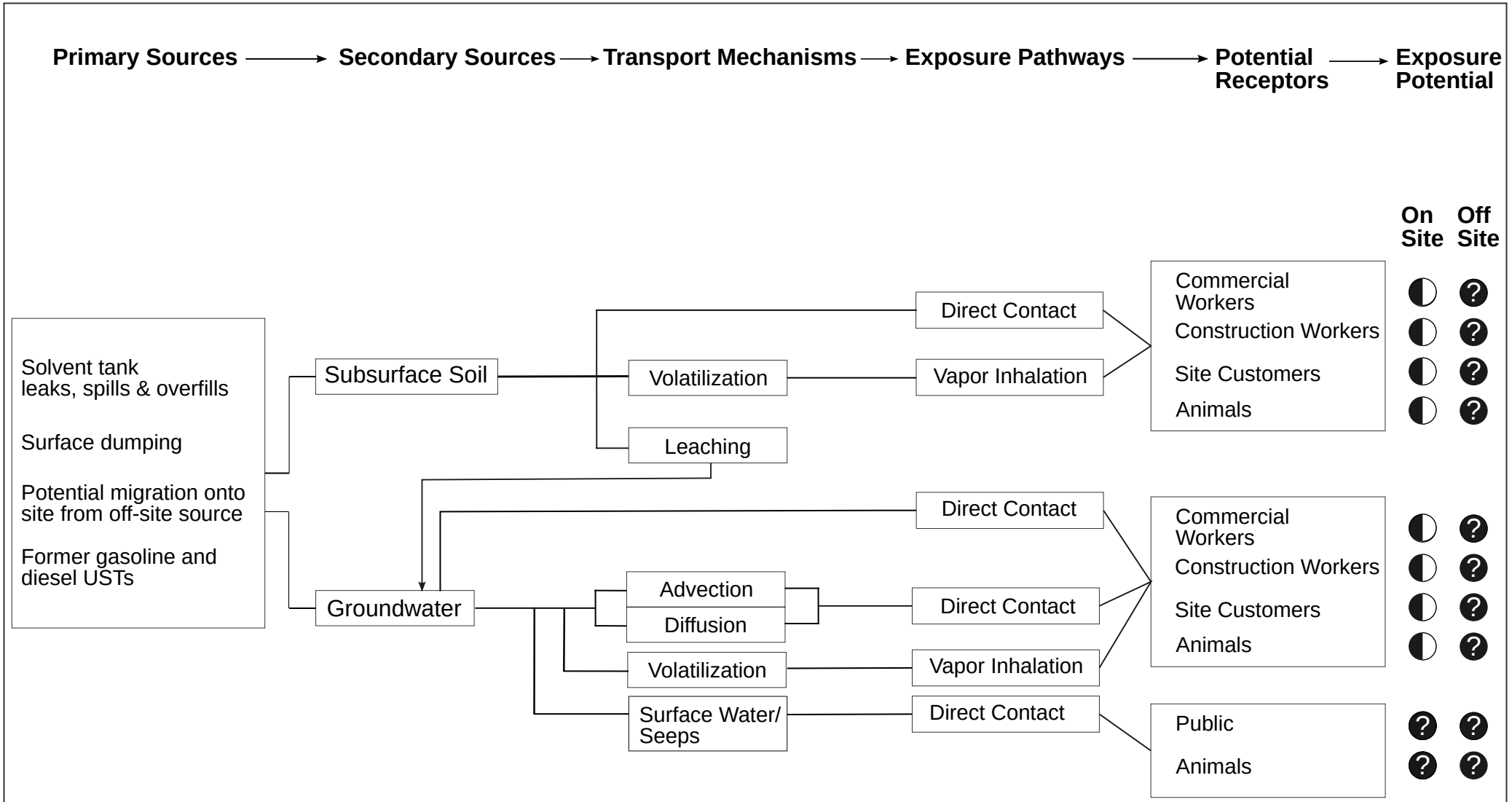


Figure 3-1

Schematic Conceptual Site Model

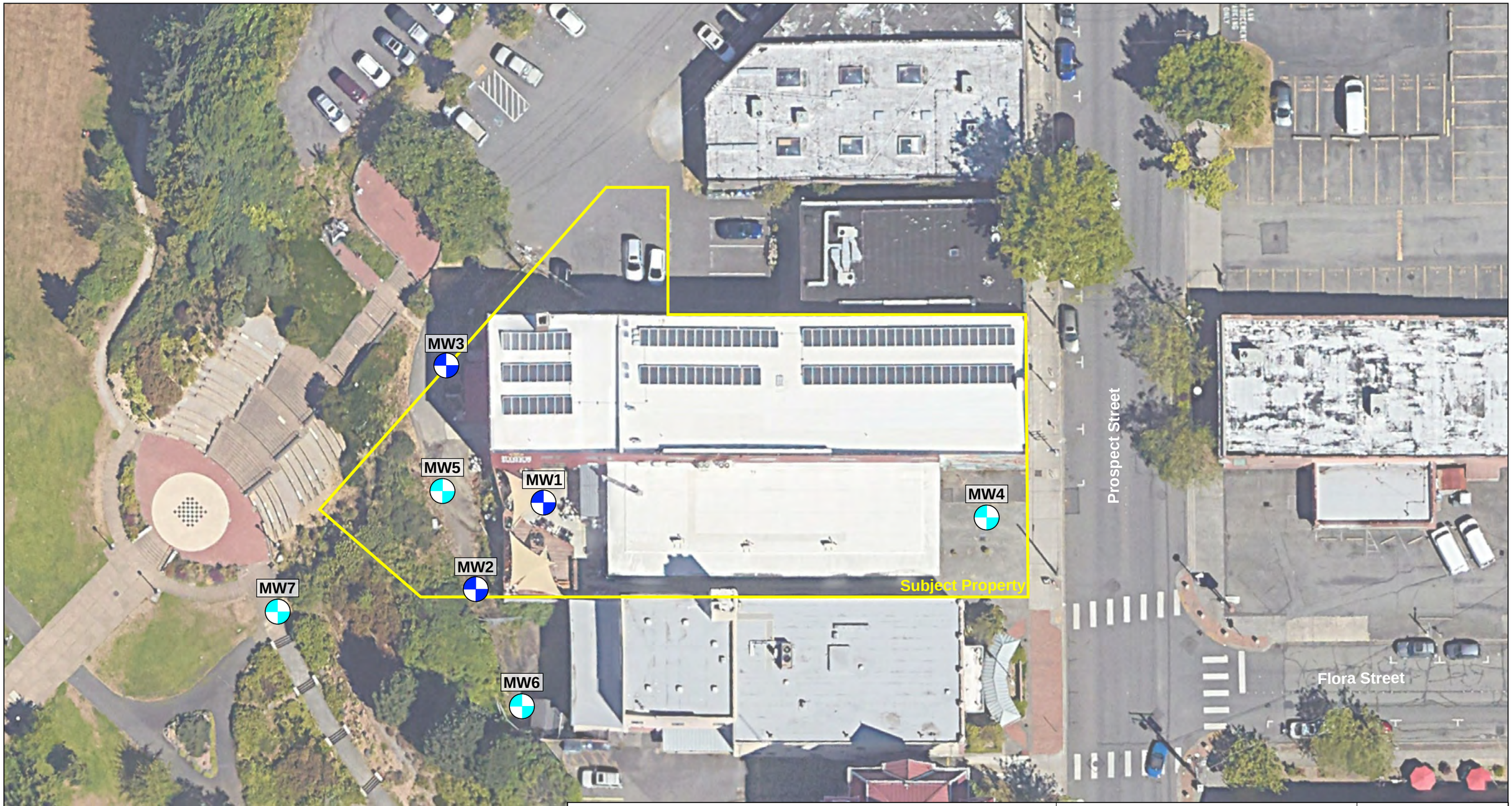
Former Cascade Laundry
205 Prospect Street
Bellingham, WA 98225

STRATUM GROUP

Key

◐ Exposure pathway mitigated (requires restrictive covenant)

? Exposure pathway needs further assessment



Key

- Existing monitoring well
- Proposed monitoring well
- **MW6** Monitoring well identification

Existing & Proposed
Monitoring Well Locations

Figure 4-1

Cascade Laundry
205 Prospect Street
Bellingham, Washington 98225

0 20 40 80 Feet

N

STRATUM GROUP

APPENDIX II

Indoor Air and Sub-Slab Air Sampling (2012-2023)

- Indoor Air & Subslab Sample Map
- September 2021 laboratory results
- December 2022 laboratory results
- February 2023 laboratory results
- September 2023 laboratory results
- Summary of Indoor Air & Sub-Slab Air Sample Results (2018-2023)

Sub-Slab Vent	
Date	2/20/2023
Benzene	U<0.26
TCE	5.0
PCE	47
Chloroform	--
Carbon Tetrachloride	--
Vinyl Chloride	U<0.065
cis-1,2 DCE	1.6
trans-1,2DCE	U<0.065

NWmain-air (main floor restaurant)			
Date	1/8/2018	4/29/2019	9/12/2021
	Before sub-slab venting		
Benzene	**9.23**	**12**	**22.81**
TCE	1.5	0.79	0.17
PCE	15	11	2.8
Chloroform	0	--	1.4
Carbon Tetrachloride	0.06	--	--
Vinyl Chloride	--	0	0
cis-1,2 DCE	--	0.35	--
trans-1,2DCE	--	--	--

Behind South Basement Wall	
Date	2/20/2023
Benzene	U<0.13
TCE	U<0.0066
PCE	U<0.05
Chloroform	--
Carbon Tetrachloride	--
Vinyl Chloride	U<0.033
cis-1,2 DCE	U<0.033
trans-1,2DCE	U<0.033

basement-air						
Date	1/8/2018	4/29/2019	9/12/2021	12/19/2022	2/20/2023	9/11/2023
	Before sub-slab venting			**After** sub-slab venting		
Benzene	0.42	0.83	0.63	--	U<0.13	--
TCE	**6.8**	**3.5**	0.96	**4.2**	0.014	U<0.12
PCE	**66**	**49**	14	**58**	0.16	1.3
Chloroform	0.29	--	**4.2**	--	--	--
Carbon	0.02	--	--	--	--	--
Vinyl Chloride	--	U<0.035	0	U<0.26	U<0.032	U<0.6
cis-1,2 DCE	--	1.6	--	1.1	U<0.032	U<0.6
trans-1,2DCE	--	--	--	U<0.4	U<0.032	U<0.6

basement-subslab				
Date	1/8/2018	9/16/2021	12/19/2022	2/20/2023
	Before sub-slab venting		**After** sub-slab venting	
Benzene	U<46	U<93	--	U<0.14
TCE	**1,200**	**690**	3.9	1.2
PCE	**11,000**	**15,000**	54	2.8
Chloroform	U<46	U<100	--	--
Carbon	U<46	--	--	--
Vinyl Chloride	--	--	U<1.8	U<0.034
cis-1,2 DCE	--	--	U<2.8	0.12
trans-1,2DCE	--	--	U<2.8	U<0.034

Commercial Worker Screening Levels (µg/L)		
	Subslab	Indoor Air
Benzene	5	1.5
TCE	9.5	2.85
PCE	1,500	44.9
Chloroform	17	0.508
Carbon Tetrachloride	65	1.95
Vinyl Chloride	44	1.33
cis-1,2 DCE	5,200	156
trans-1,2DCE	5,200	156

Parcel boundary

Exterior vapor vent

Stairs from main floor

Basement

Pea gravel trench with sub-slab vapor collection piping

Door

Walk-in cooler

Retaining Wall

Patio

Key

- Sub-slab vapor sampling location
- Indoor air sampling location
- Additional air sample location

Indoor Air, Subslab Vapor, and Vented Air Sample Results

Figure 1-2

Cascade Laundry
205 Prospect Street
Bellingham, Washington 98225

0 5 10 20 Feet

N

STRATUM GROUP

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

LABORATORY REPORT

October 11, 2021

Kim Ninnemann
Stratum Group, Inc.
P.O. Box 2546
Bellingham, WA 98227

RE: Cascade Laundry

Dear Kim:

Your report P2104922 has been amended for the samples submitted to our laboratory on September 17, 2021. Sample for NW main-air (P2104922-002) was re-processed to report dimethyl sulfide as a tentatively identified compound. The change has been indicated by the "Added Page" footer located at the bottom right corner each additional page.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 6:45 pm, Oct 11, 2021

Sue Anderson
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: Stratum Group, Inc. Service Request No: P2104922
Project: Cascade Laundry

CASE NARRATIVE

The samples were received intact under chain of custody on September 17, 2021 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.3 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

Sulfur Analysis

Sample NW main-air (P2104922-002) was analyzed for twenty sulfur compounds per ASTM D 5504-12 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). All compounds with the exception of hydrogen sulfide and carbonyl sulfide are quantitated against the initial calibration curve for methyl mercaptan. This method is included on the laboratory's NELAP scope of accreditation, however it is not part of the DoD-ELAP accreditation.

The analysis was added past the hold time; therefore, the data has been flagged accordingly.

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-008
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Stratum Group, Inc. Service Request: P2104922

Project ID: Cascade Laundry

Date Received: 9/17/2021

Time Received: 10:00

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans
basement-air	P2104922-001	Air	9/12/2021	17:01	AC02286	0.57	3.98	X
NW main-air	P2104922-002	Air	9/13/2021	15:14	AS01344	-0.80	3.70	X
Ambient-air	P2104922-003	Air	9/13/2021	15:16	AS01371	-0.72	3.67	X
basement-subslab	P2104922-004	Air	9/16/2021	09:15	1SC00005	0.20	7.42	X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

ALS Project No. R2104922

ALS Contact:

Company Name & Address (Reporting Information)	Project Name	Analysis Method	Comments
Stratum Group P.O. Box 2546, Bellingham WA 98227	Cascade Laundry Project Number: Cascade	TO-15	e.g. Actual Preservative or specific instructions
Project Manager: Kim Ninnemann	P.O. # / Billing Information: bill to company (Stratum Group)		
Phone: 360-714-9409 Fax: n/a			
Email Address for Result Reporting: kim@stratumgroup.net	Sampler (Print & Sign): Kim Ninnemann Kim		

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	Analysis Method		Comments
basement-air	1	9/12/21	7hr, 55min 5:04	AC02286	SFC00312	30	[redacted]	6L	Benzene		
NW Main - air	2	9/13/21	8hr 1min 15:14	AS01344	SFC00523	31	3.9	6L	chloroform	*methane	thol in NW Main-Air
Ambient - air	3	9/13/21	8 hr 1min 15:16	AS01371	SFC00264	31	3.2	6L	PCE, TCE		
basement-subslab	4	9/16/21	9:15am	ISC00005	—	23	0	1L	Vinylchloride		
									all 4 samples		

5 of 13

Report Tier Levels - please select

Tier I - Results (Default if not specified) _____ Tier III (Results + QC & Calibration Summaries) _____
Tier II (Results + QC Summaries) _____ Tier IV (Data Validation Package) 10% Surcharge _____

EDD required Yes / No
Type: _____ Units: _____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Kim	9/13/21	6pm		9/13/21	6pm
	9/16/21	3:30pm		9-17-21	1000

Cooler / Blank Temperature ____ °C

ALS Environmental
Sample Acceptance Check Form

Client: Stratum Group, Inc. Work order: P2104922

Project: Cascade Laundry

Sample(s) received on: 9/17/21 Date opened: 9/17/21 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2104922-001.01	6.0 L Ambient Can					
P2104922-002.01	6.0 L Silonite Can					
P2104922-003.01	6.0 L Silonite Can					
P2104922-004.01	1.0 L Source Can					

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stratum Group, Inc.**
Client Sample ID: **basement-air** ALS Project ID: P2104922
Client Project ID: **Cascade Laundry** ALS Sample ID: P2104922-001

Test Code: EPA TO-15 Date Collected: 9/12/21
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/17/21
Analyst: Wida Ang Date Analyzed: 9/28/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02286

Initial Pressure (psig): 0.57 Final Pressure (psig): 3.98

Canister Dilution Factor: 1.22

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.13	ND	0.053	
67-66-3	Chloroform	**4.2**	0.13	**0.87**	0.027	
71-43-2	Benzene	**0.82**	0.13	**0.26**	0.042	
79-01-6	Trichloroethene	**0.96**	0.13	**0.18**	0.025	
127-18-4	Tetrachloroethene	**14**	0.13	**2.0**	0.020	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stratum Group, Inc.**
Client Sample ID: **NW main-air** ALS Project ID: P2104922
Client Project ID: **Cascade Laundry** ALS Sample ID: P2104922-002

Test Code: EPA TO-15 Date Collected: 9/13/21
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/17/21
Analyst: Wida Ang Date Analyzed: 9/28/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01344

Initial Pressure (psig): -0.80 Final Pressure (psig): 3.70

Canister Dilution Factor: 1.32

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.15	ND	0.057	
67-66-3	Chloroform	**1.4**	0.15	**0.29**	0.030	
71-43-2	Benzene	**23**	0.15	**7.3**	0.045	
79-01-6	Trichloroethene	**0.17**	0.15	**0.031**	0.027	
127-18-4	Tetrachloroethene	**2.8**	0.15	**0.41**	0.021	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stratum Group, Inc.**
Client Sample ID: **Ambient-air** ALS Project ID: P2104922
Client Project ID: **Cascade Laundry** ALS Sample ID: P2104922-003

Test Code: EPA TO-15 Date Collected: 9/13/21
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/17/21
Analyst: Wida Ang Date Analyzed: 9/28/21
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01371

Initial Pressure (psig): -0.72 Final Pressure (psig): 3.67

Canister Dilution Factor: 1.31

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.14	ND	0.056	
67-66-3	Chloroform	ND	0.14	ND	0.030	
71-43-2	Benzene	**0.19**	0.14	**0.059**	0.045	
79-01-6	Trichloroethene	ND	0.14	ND	0.027	
127-18-4	Tetrachloroethene	ND	0.14	ND	0.021	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stratum Group, Inc.**
Client Sample ID: **basement-subslab** ALS Project ID: P2104922
Client Project ID: **Cascade Laundry** ALS Sample ID: P2104922-004

Test Code: EPA TO-15 Date Collected: 9/16/21
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 9/17/21
Analyst: Wida Ang Date Analyzed: 9/28/21
Sample Type: 1.0 L Summa Canister Volume(s) Analyzed: 0.0080 Liter(s)
Test Notes:
Container ID: 1SC00005

Initial Pressure (psig): 0.20 Final Pressure (psig): 7.42

Canister Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	96	ND	38	
67-66-3	Chloroform	ND	100	ND	20	
71-43-2	Benzene	ND	93	ND	29	
79-01-6	Trichloroethene	**690**	96	**130**	18	
127-18-4	Tetrachloroethene	**15,000**	96	**2,200**	14	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stratum Group, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P2104922
Client Project ID: **Cascade Laundry** ALS Sample ID: P210927-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 9/27/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.11	ND	0.043	
67-66-3	Chloroform	ND	0.11	ND	0.023	
71-43-2	Benzene	ND	0.11	ND	0.034	
79-01-6	Trichloroethene	ND	0.11	ND	0.020	
127-18-4	Tetrachloroethene	ND	0.11	ND	0.016	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stratum Group, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P2104922
Client Project ID: **Cascade Laundry** ALS Sample ID: P210928-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 9/28/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.52	ND	0.20	
67-66-3	Chloroform	ND	0.54	ND	0.11	
71-43-2	Benzene	ND	0.50	ND	0.16	
79-01-6	Trichloroethene	ND	0.52	ND	0.097	
127-18-4	Tetrachloroethene	ND	0.52	ND	0.077	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **Stratum Group, Inc.**
Client Project ID: **Cascade Laundry** ALS Project ID: P2104922

Test Code: EPA TO-15 Date(s) Collected: 9/12 - 9/16/21
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date(s) Received: 9/17/21
Analyst: Wida Ang Date(s) Analyzed: 9/27 - 9/28/21
Sample Type: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s) / 1.0 L Summa Canister(s)
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P210927-MB	**105**	**97**	**90**	70-130	
Method Blank	P210928-MB	**104**	**98**	**89**	70-130	
Lab Control Sample	P210927-LCS	**113**	**91**	**90**	70-130	
Lab Control Sample	P210928-LCS	**111**	**90**	**87**	70-130	
Duplicate Lab Control Sample	P210927-DLCS	**110**	**91**	**89**	70-130	
Duplicate Lab Control Sample	P210928-DLCS	**111**	**90**	**88**	70-130	
basement-air	P2104922-001	**102**	**97**	**90**	70-130	
NW main-air	P2104922-002	**101**	**96**	**88**	70-130	
Ambient-air	P2104922-003	**103**	**96**	**88**	70-130	
basement-subslab	P2104922-004	**110**	**97**	**89**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Stratum Group, Inc.**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2104922
Client Project ID: **Cascade Laundry** ALS Sample ID: P210927-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 9/28/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
75-01-4	Vinyl Chloride	208	213	207	**102**	**100**	63-123	2	25	
67-66-3	Chloroform	210	227	221	**108**	**105**	71-114	3	25	
71-43-2	Benzene	208	213	210	**102**	**101**	72-113	1	25	
79-01-6	Trichloroethene	204	199	198	**98**	**97**	74-115	1	25	
127-18-4	Tetrachloroethene	212	172	176	**81**	**83**	63-130	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **Stratum Group, Inc.**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2104922
Client Project ID: **Cascade Laundry** ALS Sample ID: P210928-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 9/28/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
75-01-4	Vinyl Chloride	208	210	209	**101**	**100**	63-123	1	25	
67-66-3	Chloroform	210	224	221	**107**	**105**	71-114	2	25	
71-43-2	Benzene	208	212	207	**102**	**100**	72-113	2	25	
79-01-6	Trichloroethene	204	198	194	**97**	**95**	74-115	2	25	
127-18-4	Tetrachloroethene	212	171	169	**81**	**80**	63-130	1	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stratum Group, Inc.**

Client Sample ID: **NW main-air** ALS Project ID: P2104922

Client Project ID: **Cascade Laundry** ALS Sample ID: P2104922-002

Tentatively Identified Compounds

Test Code:	EPA TO-15	Date Collected:	9/13/21
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13	Date Received:	9/17/21
Analyst:	Wida Ang	Date Analyzed:	9/28/21
Sample Type:	6.0 L Silonite Canister	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:	**T**		
Container ID:	AS01344		

Initial Pressure (psig): -0.80 Final Pressure (psig): 3.70

Canister Dilution Factor: 1.32

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
8.32	Dimethyl Sulfide	**1.9**	

T = Analyte is a tentatively identified compound, result is estimated.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Stratum Group, Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P2104922
Client Project ID: **Cascade Laundry** ALS Sample ID: P210927-MB

Tentatively Identified Compounds

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Wida Ang Date Analyzed: 9/27/21
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
	No Compounds Detected		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

January 4, 2023

Kim Ninnemann, Project Manager
Stratum Group
2102 Young St
Bellingham, WA 98225

Dear Ms Ninnemann:

Included are the results from the testing of material submitted on December 23, 2022 from the Cascade Laundry 207 Prospect St, Bellingham WA, F&BI 212356 project. There are 7 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
STG0104R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on December 23, 2022 by Friedman & Bruya, Inc. from the Stratum Group Cascade Laundry 207 Prospect St, Bellingham WA project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Stratum Group
212356 -01	basement-air
212356 -02	ambient-air
212356 -03	basement-subslab

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	basement-air	Client:	Stratum Group
Date Received:	12/23/22	Project:	Cascade Laundry 207 Prospect St
Date Collected:	12/19/22	Lab ID:	212356-01
Date Analyzed:	12/28/22	Data File:	122814.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	88	70	130

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
cis-1,2-Dichloroethene	1.1	0.28
Trichloroethene	4.2	0.78
Tetrachloroethene	58	8.6

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	ambient-air	Client:	Stratum Group
Date Received:	12/23/22	Project:	Cascade Laundry 207 Prospect St
Date Collected:	12/19/22	Lab ID:	212356-02
Date Analyzed:	12/28/22	Data File:	122813.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	82	70	130

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
Trichloroethene	<0.11	<0.02
Tetrachloroethene	<6.8	<1

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	basement-subslab	Client:	Stratum Group
Date Received:	12/23/22	Project:	Cascade Laundry 207 Prospect St
Date Collected:	12/19/22	Lab ID:	212356-03 1/7.1
Date Analyzed:	12/28/22	Data File:	122815.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	83	70	130

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<1.8	<0.71
trans-1,2-Dichloroethene	<2.8	<0.71
cis-1,2-Dichloroethene	<2.8	<0.71
Trichloroethene	3.9	0.72
Tetrachloroethene	54	8.0

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Stratum Group
Date Received:	Not Applicable	Project:	Cascade Laundry 207 Prospect St
Date Collected:	Not Applicable	Lab ID:	02-2987 MB
Date Analyzed:	12/28/22	Data File:	122812.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	85	70	130

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
Trichloroethene	<0.11	<0.02
Tetrachloroethene	<6.8	<1

Date of Report: 01/04/23
Date Received: 12/23/22
Project: Cascade Laundry 207 Prospect St, Bellingham WA, F&BI 212356

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 212316-01 1/7.1 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Vinyl chloride	ug/m3	<1.8	<1.8	nm
trans-1,2-Dichloroethene	ug/m3	<2.8	<2.8	nm
cis-1,2-Dichloroethene	ug/m3	<2.8	<2.8	nm
Trichloroethene	ug/m3	<0.76	<0.76	nm
Tetrachloroethene	ug/m3	<48	<48	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Vinyl chloride	ug/m3	35	97	70-130
trans-1,2-Dichloroethene	ug/m3	54	98	70-130
cis-1,2-Dichloroethene	ug/m3	54	94	70-130
Trichloroethene	ug/m3	73	109	70-130
Tetrachloroethene	ug/m3	92	120	70-130

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

ip - Recovery fell outside of control limits due to sample matrix effects.

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

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

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

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

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

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

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

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

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

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

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

SAMPLE CHAIN OF CUSTODY 12/23/22

212356

Report To Kim Ninnemann
Company Stratum Group
Address 2102 Yang St
City, State, ZIP Bellingham, WA 98225
Phone 360-714-9409 Email kim@stratumgroup.net

SAMPLERS (signature)

PROJECT NAME & ADDRESS: Cascade Laundry, 207 Prospect St, Bellingham, WA
PO # CASinde

NOTES:

INVOICE TO: Stratum Group

Page # 1 of 1

TURNAROUND TIME
(Standard)
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
(Default: Clean following final report delivery)
Hold (Fee may apply):

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
basement-air	01	23231	07871	(IA) / SG	12/19/22	26.25	0740	6	1542			X				TCE, PCE, VC, 1,2DCE
ambient-air	02	21440	07845	(IA) / SG		29	0741	6	1543			X				
basement-subslab	03	8526	224	IA / (SG)		31.5	1620	3	1647			X				1,2 cis DCE
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

Friedman & Bruya, Inc.
5500 4th Avenue South
Seattle, WA 98108
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kim Ninnemann	Stratum Group	12/19/22	1642
Received by:	ANH PHAN	FSB	12/23/22	09:07
Relinquished by:				
Received by:		Samples received at 16 °C		

FORMS\COC\COCTO-15.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

March 6, 2023

Kim Ninnemann, Project Manager
Stratum Group
2102 Young St
Bellingham, WA 98225

Dear Ms Ninnemann:

Included are the results from the testing of material submitted on February 22, 2023 from the Cascade Laundry, F&BI 302315 project. There are 8 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
STG0306R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 22, 2023 by Friedman & Bruya, Inc. from the Stratum Group Cascade Laundry, F&BI 302315 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Stratum Group
302315 -01	basement-air
302315 -02	subslab vent
302315 -03	basement-southwall
302315 -04	basement-subslab

The tetrachloroethene concentration in sample subslab vent exceeded the calibration range of the instrument. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	basement-air	Client:	Stratum Group
Date Received:	02/22/23	Project:	Cascade Laundry, F&BI 302315
Date Collected:	02/20/23	Lab ID:	302315-01 1/0.0065
Date Analyzed:	02/24/23	Data File:	022322.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Vinyl chloride	<0.032
trans-1,2-Dichloroethene	<0.032
cis-1,2-Dichloroethene	<0.032
Benzene	<0.13
Trichloroethene	0.014
Tetrachloroethene	0.16

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	subslab vent	Client:	Stratum Group
Date Received:	02/22/23	Project:	Cascade Laundry, F&BI 302315
Date Collected:	02/20/23	Lab ID:	302315-02 1/0.013
Date Analyzed:	02/24/23	Data File:	022329.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Vinyl chloride	<0.065
trans-1,2-Dichloroethene	<0.065
cis-1,2-Dichloroethene	1.6
Benzene	<0.26
Trichloroethene	5.0
Tetrachloroethene	47 ve

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	basement-southwall	Client:	Stratum Group
Date Received:	02/22/23	Project:	Cascade Laundry, F&BI 302315
Date Collected:	02/20/23	Lab ID:	302315-03 1/0.0066
Date Analyzed:	02/24/23	Data File:	022324.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Vinyl chloride	<0.033
trans-1,2-Dichloroethene	<0.033
cis-1,2-Dichloroethene	<0.033
Benzene	<0.13
Trichloroethene	<0.0066
Tetrachloroethene	<0.05

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	basement-subslab	Client:	Stratum Group
Date Received:	02/22/23	Project:	Cascade Laundry, F&BI 302315
Date Collected:	02/20/23	Lab ID:	302315-04 1/0.0068
Date Analyzed:	02/24/23	Data File:	022325.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Vinyl chloride	<0.034
trans-1,2-Dichloroethene	<0.034
cis-1,2-Dichloroethene	0.12
Benzene	<0.14
Trichloroethene	1.2
Tetrachloroethene	2.8
Ethane, 1,1-difluoro-	3.2 L

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	Method Blank	Client:	Stratum Group
Date Received:	Not Applicable	Project:	Cascade Laundry, F&BI 302315
Date Collected:	Not Applicable	Lab ID:	03-0351 mb
Date Analyzed:	02/23/23	Data File:	022307.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Vinyl chloride	<5
trans-1,2-Dichloroethene	<5
cis-1,2-Dichloroethene	<5
Benzene	<20
Trichloroethene	<1
Tetrachloroethene	<1
Ethane, 1,1-difluoro-	<50 L

Date of Report: 03/06/23
Date Received: 02/22/23
Project: Cascade Laundry, F&BI 302315

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-17

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Vinyl chloride	37 vo	50	79	70-130
trans-1,2-Dichloroethene	ng/tube	50	105	70-130
cis-1,2-Dichloroethene	ng/tube	50	108	70-130
Benzene	ng/tube	50	102	70-130
Trichloroethene	ng/tube	50	107	70-130
Tetrachloroethene	ng/tube	50	103	70-130

Data Qualifiers & Definitions

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

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

ca - The calibration results for the analyte were outside of acceptance criteria, biased high; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

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

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

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

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

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

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

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

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

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

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

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

302315

SAMPLE CHAIN OF CUSTODY

02/22/23 N1

Page # 1 of 1

Report To Kim Ninnemann
Company Stratum Grp
Address PO Box 2546
City, State, ZIP Bellingham WA 98227
Phone 360 714 9909 Email Kim@stratumgrp.net

SAMPLERS (signature) [signature]
PROJECT NAME Cascade Laundry
PO # Cascade
REMARKS
INVOICE TO Stratum Grp

TURNAROUND TIME
~~Standard Turnaround~~
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Archive Samples
Other

Sample Name	Lab ID	Tube ID	Collection Information: Sample Date	Pre-Flow Rate	Post-Flow Rate	Start Time	End Time	Volume Sampled	TO-17 Analytes Requested: Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	TPH-DRO	2-Propanol	TCE, PCE	VC, cis 1,2 DCE, 1,2 DCE + benzene	Notes
basement - air	01	152845	2/20/23	100.33	103.23	0854	0954									X		
subslab vent	02	302040	↓	100.59	105.21	0845	0942									X		Tube ID 333881 (NP) 2/22/23
~~sub-slab~~ basement - sentinel	03	311379		103.28	104.10	1018	1030									X		
basement - subslab	04	322141	↓	99.54	103.86	1007	1019									X		+ 1,1 difluoroethane per KN 2/22/23 mb
																		Samples received at 4°C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Kim Ninnemann	Stratum Grp	2/21/23	1258
Received by: [signature]	Nhan Phan	FedEx	2/22/23	1417
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
5500 4th Avenue South
Seattle, WA 98108
Ph. (206) 285-8282
Fax (206) 283-5044

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 25, 2023

Kim Ninnemann, Project Manager
Stratum Group
2102 Young St
Bellingham, WA 98225

Dear Ms Ninnemann:

Included are the results from the testing of material submitted on September 14, 2023 from the Cascade Laundry, F&BI 309182 project. There are 6 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
STG0925R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 14, 2023 by Friedman & Bruya, Inc. from the Stratum Group Cascade Laundry, F&BI 309182 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Stratum Group
309182 -01	Cascade-IA basement
309182 -02	Cascade-AA

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	Cascade-IA basement	Client:	Stratum Group
Date Received:	09/14/23	Project:	Cascade Laundry, F&BI 309182
Date Collected:	09/11/23	Lab ID:	309182-01 1/0.12
Date Analyzed:	09/22/23	Data File:	092114.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Vinyl chloride	<0.6
trans-1,2-Dichloroethene	<0.6
cis-1,2-Dichloroethene	<0.6
Trichloroethene	<0.12
Tetrachloroethene	1.3

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	Cascade-AA	Client:	Stratum Group
Date Received:	09/14/23	Project:	Cascade Laundry, F&BI 309182
Date Collected:	09/11/23	Lab ID:	309182-02 1/0.10
Date Analyzed:	09/22/23	Data File:	092113.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Vinyl chloride	<0.5
trans-1,2-Dichloroethene	<0.5
cis-1,2-Dichloroethene	<0.5
Trichloroethene	<0.1
Tetrachloroethene	<0.1

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	Method Blank	Client:	Stratum Group
Date Received:	Not Applicable	Project:	Cascade Laundry, F&BI 309182
Date Collected:	09/21/23	Lab ID:	03-2152 mb
Date Analyzed:	09/22/23	Data File:	092112.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3
Vinyl chloride	<5
trans-1,2-Dichloroethene	<5
cis-1,2-Dichloroethene	<5
Trichloroethene	<1
Tetrachloroethene	<1

Date of Report: 09/25/23
Date Received: 09/14/23
Project: Cascade Laundry, F&BI 309182

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-17

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Vinyl chloride	ng/tube	50	89	70-130
trans-1,2-Dichloroethene	ng/tube	50	102	70-130
cis-1,2-Dichloroethene	ng/tube	50	103	70-130
Trichloroethene	ng/tube	50	98	70-130
Tetrachloroethene	ng/tube	50	107	70-130

Data Qualifiers & Definitions

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

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

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

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

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

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

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

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

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

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

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

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

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

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

309182

SAMPLE CHAIN OF CUSTODY

09/14/23 N1

Page # 1 of 1

Report To Kim Ninnemann
Company Stratum Grp
Address PO Box 2546
City, State, ZIP Bellingham WA 98227
Phone 360 714-9409 Email Kime stratumgroup.net

SAMPLERS (signature)

PROJECT NAME: Cascade Laundry
PO #: Cascade Laundry
REMARKS
INVOICE TO: Stratum

TURNAROUND TIME
Standard Turnaround
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Archive Samples
Other

Sample Name	Lab ID	Tube ID	Collection Information: Sample Date	Pre-Flow Rate	Post-Flow Rate	Start Time	End Time	Volume Sampled	TO-17 Analytes Requested: Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	TPH-DRO	2-Propanol	VOCs*	Notes*
Cascade - 1A basement	01	311347	9/11/23	19.156	16.588	1035	1836									X	TCE
Cascade - AA	02	234316	↓	20.496	21.135	1048	1842									X	PCE
																	VC
																	1,2 DCE
																	Cis 1,2 DCE
										Samples received at ___ °C							

Friedman & Bruya, Inc.
5500 4th Avenue South
Seattle, WA 98108
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Kim Ninnemann	Stratum Grp	9/12/23	1245
Received by:		ANHPHAN	FSB	09/14/23	10:46
Relinquished by:					
Received by:					

FORMS\COC\COC.DOC

Sample Location	Sample ID	Sample Collection Date		Sampling Method	Contaminants of Concern (µg/m3) Benzene	Trichloroethylene (TCE)	Tetrachloroethylene (PCE)	Chloroform	Carbon Tetrachloride	Vinyl Chloride	cis-1,2 DCE	trans-1,2DCE	1,2-DCE	Ethane, 1,1-difluoro
Basement	Subslab-2	1/8/2018	**Before** Sub	Air canisters (TO-15)	U<46	**1,200**	**11,000**	U<46	U<46	--	--	--	--	--
	basement-subslab	9/16/2021	Slab Venting	Air canisters (TO-15)	U<93	**690**	**15,000**	U<100	--	--	--	--	--	--
	basement-subslab	12/19/2022	**After** Sub Slab	Air canisters (TO-15)	--	3.9	54	--	--	U<1.8	U<2.8	U<2.8	--	--
	basement-subslab	2/20/2023	Venting	Sorbent tubes (TO-17)	U<0.14	1.2	2.8	--	--	U<0.034	0.12	U<0.034	--	3.2
	MTCA Method B Commercial Worker Screening Levels				***50***	***95***	***1,500***	***17***	***65***	***44***	***5,200***	***5,200***		

Cascade Laundry - Summary of Indoor Air Samples

CORRECTED CONCENTRATIONS ONLY

					Contaminants of Concern (µg/m3)									
Sample Location Specific	Sample ID	Sample Collection Date		Sampling Method	Benzene	Trichloroethylene (TCE)	Tetrachloroethylene (PCE)	Chloroform	Carbon Tetrachloride	Vinyl Chloride	cis-1,2 DCE	trans-1,2DCE	1,2-DCE	Ethane, 1,1-difluoro
1st Story - Bham Cider Co.	B3	1/8/2018	**Before** Sub Slab Venting	Air canisters (TO-15)	**9.23**	1.5	15	0	0.06	--	--	--	--	--
	041919-2	4/29/2019			**12**	0.79	11	--	--	0	0.35	--	0.085	--
	NW main-air	9/13/2021			**22.81**	0.17	2.8	1.4	--	0	--	--	--	--
MTCA Method B Commercial Worker Screening Levels					***1.5***	***2.85***	***44.9***	***0.508***	***1.95***	***1.33***	***156***	***156***		

CORRECTED CONCENTRATIONS ONLY

					Contaminants of Concern (µg/m3)									
Sample Location Specific	Sample ID	Sample Collection Date		Sampling Method	Benzene	Trichloroethylene (TCE)	Tetrachloroethylene (PCE)	Chloroform	Carbon Tetrachloride	Vinyl Chloride	cis-1,2 DCE	trans-1,2DCE	1,2-DCE	Ethane, 1,1-difluoro
Basement	B7	1/8/2018	**Before** Sub Slab Venting	Air canisters (TO-15)	0.42	**6.8**	**66**	0.29	0.02	--	--	--	--	--
	041919-1	4/29/2019			0.83	**3.5**	**49**	--	--	U<0.035	1.6	--	0.083	--
	basement-air	9/12/2021			0.63	0.96	14	**4.2**	--	0	--	--	--	--
	basement-air	12/19/2022			--	**4.2**	**58**	--	--	U<0.26	1.1	U<0.4	--	
	basement-air	2/20/2023	**After** Sub Slab Venting	Sorbent tubes (TO-17)	U<0.13	0.014	0.16	--	--	U<0.032	U<0.032	U<0.032	--	--
	Cascade-IA basement	9/11/2023			--	U<0.12	1.3	--	--	U<0.6	U<0.6	U<0.6	--	--
MTCA Method B Commercial Worker Screening Levels					***1.5***	***2.85***	***44.9***	***0.508***	***1.95***	***1.33***	***156***	***156***		

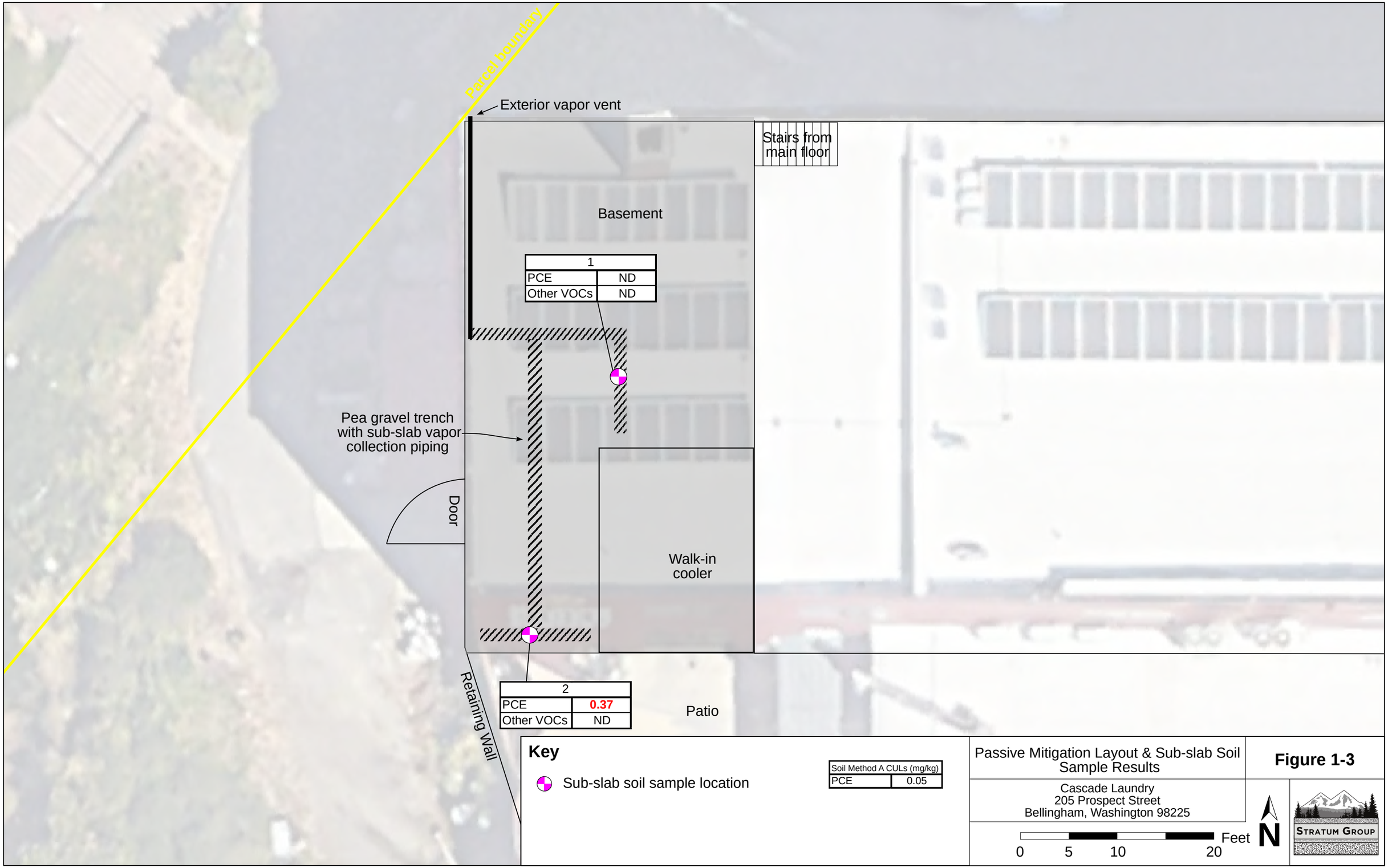
						Contaminants of Concern (µg/m3)																		
Sample Location	Sample Type	Sample ID	Sample Collection Date	Time Period	Sampling Method	Benzene	Trichloroethylene (TCE)	Tetrachloroethylene (PCE)	Chloroform	Carbon Tetrachloride	Vinyl Chloride	cis-1,2 DCE	trans-1,2DCE	1,2-DCE	Ethane, 1,1-difluoro	Dichlorodifluoromethane	Trichlorofluoromethane	Trichlorotrifluoroethane	Toluene	Ethyl Acetate	Propene	2-Propanol	Chlorobenzene	Chloromethane
1st Story - Bathroom	Sub-slab	Subslab-1	1/8/2018	**Before** Sub Slab Venting	Air canisters (TO-15)	U<1.9	U<1.9	100	U<1.9	U<1.9	--	--	--	--	--									
1st Story - Building Center		Subslab-3	1/8/2018			2.6	U<1.9	42	U<1.9	U<1.9	--	--	--	--	--									
1st Story - Staff Room		Subslab-4	1/8/2018			U<1.8	U<1.8	160	U<1.8	U<1.8	--	--	--	--	--									
Subslab Vent		subslab vent	2/20/2023	**After** Sub Slab Venting	Sorbent tubes (TO-17)	U<0.26	5.0	47	--	--	U<0.065	1.6	U<0.065											
Basement Behind South Wall	Behind wall	basement-southwall	2/20/2023		Sorbent tubes (TO-17)	U<0.13	U<0.0066	U<0.05	--	--	U<0.033	U<0.033	U<0.033											
MTCA Method B Commercial Worker Screening Levels						***5***	***9.5***	***1,500***	***17***	***65***	***44***	***5,200***	***5,200***											
2nd Story - West	Indoor Air	A1	10/21/2014	**Before** Sub Slab Venting	Air canisters (TO-15)	0.38	U<0.12	0.83	U<0.12	0.57	U<0.12	U<0.12	U<0.12			2.4	1.4	0.53	0.68					
2nd Story - East		A2	10/21/2014			0.3	0.22	2.3	U<0.12	0.58	U<0.12	U<0.12	U<0.12			2.4	1.4	0.52	0.78	1.6				
1st Story - West		A3	10/21/2014			2.6	0.66	6.4	0.24	0.65	U<0.12	0.39	U<0.12			2.5	1.4	0.57	0.74	1.8	3.2	6.1	0.22	
1st Story - Southwest		A4	10/21/2014			0.32	0.4	4.1	0.13	0.54	U<0.12	0.23	U<0.12			2.4	1.4	0.51	0.85	4.3				0.36
1st Story - Center		A5	10/21/2014			0.33	0.72	6.9	0.12	0.59	U<0.12	0.41	U<0.12			2.4	1.4	0.58	1.1	2.1				
1st Story - Southeast		A6	10/21/2014			0.57	0.39	2.8	U<0.12	0.59	U<0.12	U<0.12	U<0.12			2.4	1.5	0.58	0.79	2.1	0.81			
2nd Story - West Room		B1	1/8/2018			**3.83**	0.45	5	0.62	0.02	--	--	--	--	--									
2nd Story - East Room		B2	1/8/2018			**3.53**	0.38	4.5	0.6	0.01	--	--	--	--	--									
1st Story - SW (Theater Space)		B4	1/8/2018			**1.33**	0.17	6.3	0.36	0.02	--	--	--	--	--									
1st Story - Building Center		B5	1/8/2018			**2.83**	0.33	3.7	0.49	0	--	--	--	--	--									
1st Story - SE		B6	1/8/2018			**1.73**	0.21	4.2	0.52	0.01	--	--	--	--	--									
MTCA Method B Commercial Worker Screening Levels						***1.5***	***2.85***	***44.9***	***0.508***	***1.95***	***1.33***	***156***	***156***											

*Indoor air concentrations are corrected values

APPENDIX III

Vapor Mitigation Installation (2022)

- Passive Vapor Mitigation Layout and Soil Sample Map
- Photograph of Vapor Mitigation Location
- May 2022 Soil Sample Laboratory results
- Soil Disposal Manifest


Parcel boundary
Exterior vapor vent
Stairs from main floor
Basement
1
PCE ND
Other VOCs ND
Pea gravel trench with sub-slab vapor collection piping
Door
Walk-in cooler
Retaining Wall
2
PCE 0.37
Other VOCs ND
Patio
Key
Sub-slab soil sample location
Soil Method A CULs (mg/kg)
PCE 0.05
Passive Mitigation Layout & Sub-slab Soil Sample Results
Figure 1-3
Cascade Laundry
205 Prospect Street
Bellingham, Washington 98225
Feet
0 5 10 20
N
Stratum Group

Photograph of Cascade Laundry basement (December 2022). Lighter color pavement indicates the location of the buried vapor mitigation piping locations.

May 23, 2022

Ms. Kim Ninnemann
Stratum Group
P.O. Box 2546
Bellingham, WA 98227

Dear Ms. Ninnemann,

On May 10th, 3 samples were received by our laboratory and assigned our laboratory project number EV22050049. The project was identified as your Cascade Laundry. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

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

Sincerely,

ALS Laboratory Group

Glen Perry
Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	Stratum Group P.O. Box 2546 Bellingham, WA 98227	DATE: ALS JOB#: ALS SAMPLE#:	5/23/2022 EV22050049 EV22050049-01
CLIENT CONTACT:	Kim Ninnemann	DATE RECEIVED:	05/10/2022
CLIENT PROJECT:	Cascade Laundry	COLLECTION DATE:	5/10/2022 10:46:00 AM
CLIENT SAMPLE ID	051022-1	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Chloromethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Vinyl Chloride	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Bromomethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Chloroethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Carbon Tetrachloride	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Trichlorofluoromethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Carbon Disulfide	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Acetone	EPA-8260	U	50	1	UG/KG	05/10/2022	DLC
1,1-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Methylene Chloride	EPA-8260	U	20	1	UG/KG	05/10/2022	DLC
Acrylonitrile	EPA-8260	U	50	1	UG/KG	05/10/2022	DLC
Methyl T-Butyl Ether	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Trans-1,2-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,1-Dichloroethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
2-Butanone	EPA-8260	U	50	1	UG/KG	05/10/2022	DLC
Cis-1,2-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
2,2-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Bromochloromethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Chloroform	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,1,1-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,1-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,2-Dichloroethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Benzene	EPA-8260	U	5.0	1	UG/KG	05/10/2022	DLC
Trichloroethene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,2-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Dibromomethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Bromodichloromethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Trans-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
4-Methyl-2-Pentanone	EPA-8260	U	50	1	UG/KG	05/10/2022	DLC
Toluene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Cis-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,1,2-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
2-Hexanone	EPA-8260	U	50	1	UG/KG	05/10/2022	DLC
1,3-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Tetrachloroethylene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Dibromochloromethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,2-Dibromoethane	EPA-8260	U	5.0	1	UG/KG	05/10/2022	DLC

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	Stratum Group P.O. Box 2546 Bellingham, WA 98227	DATE: ALS JOB#: ALS SAMPLE#:	5/23/2022 EV22050049 EV22050049-01
CLIENT CONTACT:	Kim Ninnemann	DATE RECEIVED:	05/10/2022
CLIENT PROJECT:	Cascade Laundry	COLLECTION DATE:	5/10/2022 10:46:00 AM
CLIENT SAMPLE ID	051022-1	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Chlorobenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,1,1,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Ethylbenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
m,p-Xylene	EPA-8260	U	20	1	UG/KG	05/10/2022	DLC
Styrene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
o-Xylene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Bromoform	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Isopropylbenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,1,2,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,2,3-Trichloropropane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Bromobenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
N-Propyl Benzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
2-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,3,5-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
4-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
T-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,2,4-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
S-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
P-Isopropyltoluene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,3-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,4-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
N-Butylbenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,2-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,2-Dibromo 3-Chloropropane	EPA-8260	U	50	1	UG/KG	05/10/2022	DLC
1,2,4-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Hexachlorobutadiene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Naphthalene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,2,3-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
1,2-Dichloroethane-d4	EPA-8260	**101**	05/10/2022	DLC
Toluene-d8	EPA-8260	**104**	05/10/2022	DLC
4-Bromofluorobenzene	EPA-8260	**98.4**	05/10/2022	DLC

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

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	Stratum Group P.O. Box 2546 Bellingham, WA 98227	DATE: ALS JOB#: ALS SAMPLE#:	5/23/2022 EV22050049 EV22050049-02
CLIENT CONTACT:	Kim Ninnemann	DATE RECEIVED:	05/10/2022
CLIENT PROJECT:	Cascade Laundry	COLLECTION DATE:	5/10/2022 10:52:00 AM
CLIENT SAMPLE ID	051022-2	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Chloromethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Vinyl Chloride	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Bromomethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Chloroethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Carbon Tetrachloride	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Trichlorofluoromethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Carbon Disulfide	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Acetone	EPA-8260	U	50	1	UG/KG	05/10/2022	DLC
1,1-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Methylene Chloride	EPA-8260	U	20	1	UG/KG	05/10/2022	DLC
Acrylonitrile	EPA-8260	U	50	1	UG/KG	05/10/2022	DLC
Methyl T-Butyl Ether	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Trans-1,2-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,1-Dichloroethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
2-Butanone	EPA-8260	U	50	1	UG/KG	05/10/2022	DLC
Cis-1,2-Dichloroethene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
2,2-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Bromochloromethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Chloroform	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,1,1-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,1-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,2-Dichloroethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Benzene	EPA-8260	U	5.0	1	UG/KG	05/10/2022	DLC
Trichloroethene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,2-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Dibromomethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Bromodichloromethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Trans-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
4-Methyl-2-Pentanone	EPA-8260	U	50	1	UG/KG	05/10/2022	DLC
Toluene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Cis-1,3-Dichloropropene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,1,2-Trichloroethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
2-Hexanone	EPA-8260	U	50	1	UG/KG	05/10/2022	DLC
1,3-Dichloropropane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Tetrachloroethylene	EPA-8260	**370**	21	1	UG/KG	05/11/2022	DLC
Dibromochloromethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,2-Dibromoethane	EPA-8260	U	5.0	1	UG/KG	05/10/2022	DLC
Chlorobenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

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CERTIFICATE OF ANALYSIS

CLIENT:	Stratum Group P.O. Box 2546 Bellingham, WA 98227	DATE: ALS JOB#: ALS SAMPLE#:	5/23/2022 EV22050049 EV22050049-02
CLIENT CONTACT:	Kim Ninnemann	DATE RECEIVED:	05/10/2022
CLIENT PROJECT:	Cascade Laundry	COLLECTION DATE:	5/10/2022 10:52:00 AM
CLIENT SAMPLE ID	051022-2	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
1,1,1,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Ethylbenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
m,p-Xylene	EPA-8260	U	20	1	UG/KG	05/10/2022	DLC
Styrene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
o-Xylene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Bromoform	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Isopropylbenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,1,2,2-Tetrachloroethane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,2,3-Trichloropropane	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Bromobenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
N-Propyl Benzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
2-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,3,5-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
4-Chlorotoluene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
T-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,2,4-Trimethylbenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
S-Butyl Benzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
P-Isopropyltoluene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,3-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,4-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
N-Butylbenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,2-Dichlorobenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,2-Dibromo 3-Chloropropane	EPA-8260	U	50	1	UG/KG	05/10/2022	DLC
1,2,4-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Hexachlorobutadiene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
Naphthalene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC
1,2,3-Trichlorobenzene	EPA-8260	U	10	1	UG/KG	05/10/2022	DLC

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
1,2-Dichloroethane-d4	EPA-8260	**99.5**	05/10/2022	DLC
1,2-Dichloroethane-d4	EPA-8260	**98.7**	05/11/2022	DLC
Toluene-d8	EPA-8260	**97.8**	05/10/2022	DLC
Toluene-d8	EPA-8260	**95.6**	05/11/2022	DLC
4-Bromofluorobenzene	EPA-8260	**102**	05/10/2022	DLC
4-Bromofluorobenzene	EPA-8260	**101**	05/11/2022	DLC

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

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

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CERTIFICATE OF ANALYSIS

CLIENT:	Stratum Group P.O. Box 2546 Bellingham, WA 98227	DATE: ALS JOB#: ALS SAMPLE#:	5/23/2022 EV22050049 EV22050049-03
CLIENT CONTACT:	Kim Ninnemann	DATE RECEIVED:	05/10/2022
CLIENT PROJECT:	Cascade Laundry	COLLECTION DATE:	5/10/2022 10:52:00 AM
CLIENT SAMPLE ID	Composite 051022-1, -2	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	3.0	1	MG/KG	05/13/2022	KLS
Pyridine	EPA-8270	U	200	1	UG/KG	05/19/2022	JMK
N-Nitrosodimethylamine	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Phenol	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Aniline	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Bis(2-Chloroethyl)Ether	EPA-8270	U	250	1	UG/KG	05/19/2022	JMK
2-Chlorophenol	EPA-8270	U	250	1	UG/KG	05/19/2022	JMK
1,3-Dichlorobenzene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
1,4-Dichlorobenzene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Benzyl Alcohol	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
1,2-Dichlorobenzene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
2-Methylphenol	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Bis(2-Chloroisopropyl)Ether	EPA-8270	U	250	1	UG/KG	05/19/2022	JMK
3&4-Methylphenol	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
N-Nitroso-Di-N-Propylamine	EPA-8270	U	250	1	UG/KG	05/19/2022	JMK
Hexachloroethane	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Nitrobenzene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Isophorone	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
2-Nitrophenol	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
2,4-Dimethylphenol	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Benzoic Acid	EPA-8270	U	1000	1	UG/KG	05/19/2022	JMK
Bis(2-Chloroethoxy)Methane	EPA-8270	U	250	1	UG/KG	05/19/2022	JMK
2,4-Dichlorophenol	EPA-8270	U	500	1	UG/KG	05/19/2022	JMK
1,2,4-Trichlorobenzene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Naphthalene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
4-Chloroaniline	EPA-8270	U	1000	1	UG/KG	05/19/2022	JMK
2,6-Dichlorophenol	EPA-8270	U	250	1	UG/KG	05/19/2022	JMK
Hexachlorobutadiene	EPA-8270	U	500	1	UG/KG	05/19/2022	JMK
4-Chloro-3-Methylphenol	EPA-8270	U	500	1	UG/KG	05/19/2022	JMK
2-Methylnaphthalene	EPA-8270	U	250	1	UG/KG	05/19/2022	JMK
1-Methylnaphthalene	EPA-8270	U	250	1	UG/KG	05/19/2022	JMK
Hexachlorocyclopentadiene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
2,4,6-Trichlorophenol	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
2,4,5-Trichlorophenol	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
2-Chloronaphthalene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
2-Nitroaniline	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Acenaphthylene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Dimethylphthalate	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
2,6-Dinitrotoluene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK

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CERTIFICATE OF ANALYSIS

CLIENT:	Stratum Group P.O. Box 2546 Bellingham, WA 98227	DATE: ALS JOB#: ALS SAMPLE#:	5/23/2022 EV22050049 EV22050049-03
CLIENT CONTACT:	Kim Ninnemann	DATE RECEIVED:	05/10/2022
CLIENT PROJECT:	Cascade Laundry	COLLECTION DATE:	5/10/2022 10:52:00 AM
CLIENT SAMPLE ID	Composite 051022-1, -2	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Acenaphthene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
3-Nitroaniline	EPA-8270	U	1000	1	UG/KG	05/19/2022	JMK
2,4-Dinitrophenol	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
4-Nitrophenol	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Dibenzofuran	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
2,4-Dinitrotoluene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
2,3,4,6-Tetrachlorophenol	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Diethylphthalate	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Fluorene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
4-Chlorophenyl-Phenylether	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
4-Nitroaniline	EPA-8270	U	250	1	UG/KG	05/19/2022	JMK
4,6-Dinitro-2-Methylphenol	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
N-Nitrosodiphenylamine	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Azobenzene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
4-Bromophenyl-Phenylether	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Hexachlorobenzene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Pentachlorophenol	EPA-8270	U	500	1	UG/KG	05/19/2022	JMK
Phenanthrene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Anthracene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Carbazole	EPA-8270	U	250	1	UG/KG	05/19/2022	JMK
Di-N-Butylphthalate	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Fluoranthene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Pyrene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Butylbenzylphthalate	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
3,3-Dichlorobenzidine	EPA-8270	U	250	1	UG/KG	05/19/2022	JMK
Benzo[A]Anthracene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Chrysene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Bis(2-Ethylhexyl)Phthalate	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Di-N-Octylphthalate	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Benzo[B]Fluoranthene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Benzo[K]Fluoranthene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Benzo[A]Pyrene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Indeno[1,2,3-Cd]Pyrene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Dibenz[A,H]Anthracene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Benzo[G,H,I]Perylene	EPA-8270	U	100	1	UG/KG	05/19/2022	JMK
Mercury	EPA-7471	**0.069**	0.020	1	MG/KG	05/13/2022	RAL
Arsenic	EPA-6020	**4.9**	0.20	1	MG/KG	05/12/2022	RAL
Barium	EPA-6020	**99**	0.10	1	MG/KG	05/12/2022	RAL
Cadmium	EPA-6020	**0.16**	0.10	1	MG/KG	05/12/2022	RAL

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CERTIFICATE OF ANALYSIS

CLIENT:	Stratum Group P.O. Box 2546 Bellingham, WA 98227	DATE: ALS JOB#: ALS SAMPLE#:	5/23/2022 EV22050049 EV22050049-03
CLIENT CONTACT:	Kim Ninnemann	DATE RECEIVED:	05/10/2022
CLIENT PROJECT:	Cascade Laundry	COLLECTION DATE:	5/10/2022 10:52:00 AM
CLIENT SAMPLE ID	Composite 051022-1, -2	WDOE ACCREDITATION:	C601

SAMPLE DATA RESULTS

ANALYTE	METHOD	RESULTS	REPORTING LIMITS	DILUTION FACTOR	UNITS	ANALYSIS DATE	ANALYSIS BY
Chromium	EPA-6020	**44**	0.10	1	MG/KG	05/12/2022	RAL
Copper	EPA-6020	**35**	0.10	1	MG/KG	05/12/2022	RAL
Lead	EPA-6020	**11**	0.20	1	MG/KG	05/12/2022	RAL
Nickel	EPA-6020	**43**	0.10	1	MG/KG	05/12/2022	RAL
Selenium	EPA-6020	U	1.0	1	MG/KG	05/12/2022	RAL
Silver	EPA-6020	U	0.10	1	MG/KG	05/12/2022	RAL
Zinc	EPA-6020	**58**	0.50	1	MG/KG	05/12/2022	RAL

SURROGATE	METHOD	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	**87.8**	05/13/2022	KLS
2-Fluorophenol	EPA-8270	**66.5**	05/19/2022	JMK
Phenol-d5	EPA-8270	**88.7**	05/19/2022	JMK
Nitrobenzene-d5	EPA-8270	**90.1**	05/19/2022	JMK
2-Fluorobiphenyl	EPA-8270	**88.0**	05/19/2022	JMK
2,4,6-Tribromophenol	EPA-8270	**95.5**	05/19/2022	JMK
Terphenyl-d14	EPA-8270	**105**	05/19/2022	JMK

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

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CERTIFICATE OF ANALYSIS

CLIENT: Stratum Group
P.O. Box 2546
Bellingham, WA 98227

CLIENT CONTACT: Kim Ninnemann
CLIENT PROJECT: Cascade Laundry

DATE: 5/23/2022
ALS SDG#: EV22050049
WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MBG-051322S - Batch 178868 - Soil by NWTPH-GX

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	U	MG/KG	3.0	05/13/2022	KLS

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

MB-051022S - Batch 178820 - Soil by EPA-8260

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Chloromethane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Vinyl Chloride	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Bromomethane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Chloroethane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Carbon Tetrachloride	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Trichlorofluoromethane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Carbon Disulfide	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Acetone	EPA-8260	U	UG/KG	50	05/10/2022	DLC
1,1-Dichloroethene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Methylene Chloride	EPA-8260	U	UG/KG	20	05/10/2022	DLC
Acrylonitrile	EPA-8260	U	UG/KG	50	05/10/2022	DLC
Methyl T-Butyl Ether	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Trans-1,2-Dichloroethene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,1-Dichloroethane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
2-Butanone	EPA-8260	U	UG/KG	50	05/10/2022	DLC
Cis-1,2-Dichloroethene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
2,2-Dichloropropane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Bromochloromethane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Chloroform	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,1,1-Trichloroethane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,1-Dichloropropene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,2-Dichloroethane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Benzene	EPA-8260	U	UG/KG	5.0	05/10/2022	DLC
Trichloroethene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,2-Dichloropropane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Dibromomethane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Bromodichloromethane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Trans-1,3-Dichloropropene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
4-Methyl-2-Pentanone	EPA-8260	U	UG/KG	50	05/10/2022	DLC
Toluene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Cis-1,3-Dichloropropene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,1,2-Trichloroethane	EPA-8260	U	UG/KG	10	05/10/2022	DLC

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CERTIFICATE OF ANALYSIS

CLIENT: Stratum Group
P.O. Box 2546
Bellingham, WA 98227

CLIENT CONTACT: Kim Ninnemann
CLIENT PROJECT: Cascade Laundry

DATE: 5/23/2022
ALS SDG#: EV22050049
WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-051022S - Batch 178820 - Soil by EPA-8260

2-Hexanone	EPA-8260	U	UG/KG	50	05/10/2022	DLC
1,3-Dichloropropane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Tetrachloroethylene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Dibromochloromethane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,2-Dibromoethane	EPA-8260	U	UG/KG	5.0	05/10/2022	DLC
Chlorobenzene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,1,1,2-Tetrachloroethane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Ethylbenzene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
m,p-Xylene	EPA-8260	U	UG/KG	20	05/10/2022	DLC
Styrene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
o-Xylene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Bromoform	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Isopropylbenzene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,1,2,2-Tetrachloroethane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,2,3-Trichloropropane	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Bromobenzene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
N-Propyl Benzene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
2-Chlorotoluene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,3,5-Trimethylbenzene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
4-Chlorotoluene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
T-Butyl Benzene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,2,4-Trimethylbenzene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
S-Butyl Benzene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
P-Isopropyltoluene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,3-Dichlorobenzene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,4-Dichlorobenzene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
N-Butylbenzene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,2-Dichlorobenzene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,2-Dibromo 3-Chloropropane	EPA-8260	U	UG/KG	50	05/10/2022	DLC
1,2,4-Trichlorobenzene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Hexachlorobutadiene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
Naphthalene	EPA-8260	U	UG/KG	10	05/10/2022	DLC
1,2,3-Trichlorobenzene	EPA-8260	U	UG/KG	10	05/10/2022	DLC

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

MB-051922S - Batch 179118 - Soil by EPA-8270

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Pyridine	EPA-8270	U	UG/KG	200	05/19/2022	JMK
N-Nitrosodimethylamine	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Phenol	EPA-8270	U	UG/KG	100	05/19/2022	JMK

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CERTIFICATE OF ANALYSIS

CLIENT: Stratum Group
P.O. Box 2546
Bellingham, WA 98227

CLIENT CONTACT: Kim Ninnemann
CLIENT PROJECT: Cascade Laundry

DATE: 5/23/2022
ALS SDG#: EV22050049
WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-051922S - Batch 179118 - Soil by EPA-8270

Aniline	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Bis(2-Chloroethyl)Ether	EPA-8270	U	UG/KG	250	05/19/2022	JMK
2-Chlorophenol	EPA-8270	U	UG/KG	250	05/19/2022	JMK
1,3-Dichlorobenzene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
1,4-Dichlorobenzene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Benzyl Alcohol	EPA-8270	U	UG/KG	100	05/19/2022	JMK
1,2-Dichlorobenzene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
2-Methylphenol	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Bis(2-Chloroisopropyl)Ether	EPA-8270	U	UG/KG	250	05/19/2022	JMK
3&4-Methylphenol	EPA-8270	U	UG/KG	100	05/19/2022	JMK
N-Nitroso-Di-N-Propylamine	EPA-8270	U	UG/KG	250	05/19/2022	JMK
Hexachloroethane	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Nitrobenzene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Isophorone	EPA-8270	U	UG/KG	100	05/19/2022	JMK
2-Nitrophenol	EPA-8270	U	UG/KG	100	05/19/2022	JMK
2,4-Dimethylphenol	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Benzoic Acid	EPA-8270	U	UG/KG	1000	05/19/2022	JMK
Bis(2-Chloroethoxy)Methane	EPA-8270	U	UG/KG	250	05/19/2022	JMK
2,4-Dichlorophenol	EPA-8270	U	UG/KG	500	05/19/2022	JMK
1,2,4-Trichlorobenzene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Naphthalene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
4-Chloroaniline	EPA-8270	U	UG/KG	1000	05/19/2022	JMK
2,6-Dichlorophenol	EPA-8270	U	UG/KG	250	05/19/2022	JMK
Hexachlorobutadiene	EPA-8270	U	UG/KG	500	05/19/2022	JMK
4-Chloro-3-Methylphenol	EPA-8270	U	UG/KG	500	05/19/2022	JMK
2-Methylnaphthalene	EPA-8270	U	UG/KG	250	05/19/2022	JMK
1-Methylnaphthalene	EPA-8270	U	UG/KG	250	05/19/2022	JMK
Hexachlorocyclopentadiene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
2,4,6-Trichlorophenol	EPA-8270	U	UG/KG	100	05/19/2022	JMK
2,4,5-Trichlorophenol	EPA-8270	U	UG/KG	100	05/19/2022	JMK
2-Chloronaphthalene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
2-Nitroaniline	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Acenaphthylene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Dimethylphthalate	EPA-8270	U	UG/KG	100	05/19/2022	JMK
2,6-Dinitrotoluene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Acenaphthene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
3-Nitroaniline	EPA-8270	U	UG/KG	1000	05/19/2022	JMK
2,4-Dinitrophenol	EPA-8270	U	UG/KG	100	05/19/2022	JMK
4-Nitrophenol	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Dibenzofuran	EPA-8270	U	UG/KG	100	05/19/2022	JMK
2,4-Dinitrotoluene	EPA-8270	U	UG/KG	100	05/19/2022	JMK

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CLIENT CONTACT: Kim Ninnemann
CLIENT PROJECT: Cascade Laundry

DATE: 5/23/2022
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WDOE ACCREDITATION: C601

LABORATORY BLANK RESULTS

MB-051922S - Batch 179118 - Soil by EPA-8270

2,3,4,6-Tetrachlorophenol	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Diethylphthalate	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Fluorene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
4-Chlorophenyl-Phenylether	EPA-8270	U	UG/KG	100	05/19/2022	JMK
4-Nitroaniline	EPA-8270	U	UG/KG	250	05/19/2022	JMK
4,6-Dinitro-2-Methylphenol	EPA-8270	U	UG/KG	290	05/19/2022	JMK
N-Nitrosodiphenylamine	EPA-8270	U	UG/KG	500	05/19/2022	JMK
Azobenzene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
4-Bromophenyl-Phenylether	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Hexachlorobenzene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Pentachlorophenol	EPA-8270	U	UG/KG	500	05/19/2022	JMK
Phenanthrene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Anthracene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Carbazole	EPA-8270	U	UG/KG	250	05/19/2022	JMK
Di-N-Butylphthalate	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Fluoranthene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Pyrene	EPA-8270	U	UG/KG	150	05/19/2022	JMK
Butylbenzylphthalate	EPA-8270	U	UG/KG	100	05/19/2022	JMK
3,3-Dichlorobenzidine	EPA-8270	U	UG/KG	250	05/19/2022	JMK
Benzo[A]Anthracene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Chrysene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Bis(2-Ethylhexyl)Phthalate	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Di-N-Octylphthalate	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Benzo[B]Fluoranthene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Benzo[K]Fluoranthene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Benzo[A]Pyrene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Indeno[1,2,3-Cd]Pyrene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Dibenz[A,H]Anthracene	EPA-8270	U	UG/KG	100	05/19/2022	JMK
Benzo[G,H,I]Perylene	EPA-8270	U	UG/KG	100	05/19/2022	JMK

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MBLK-R408551 - Batch R408551 - Soil by EPA-7471

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Mercury	EPA-7471	U	MG/KG	0.020	05/13/2022	RAL

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

MB-051222S - Batch 178783 - Soil by EPA-6020

ANALYTE	METHOD	RESULTS	UNITS	REPORTING LIMITS	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6020	U	MG/KG	0.20	05/12/2022	RAL

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CLIENT:	Stratum Group P.O. Box 2546 Bellingham, WA 98227	DATE:	5/23/2022
		ALS SDG#:	EV22050049
		WDOE ACCREDITATION:	C601
CLIENT CONTACT:	Kim Ninnemann		
CLIENT PROJECT:	Cascade Laundry		

LABORATORY BLANK RESULTS

MB-051222S - Batch 178783 - Soil by EPA-6020

Barium	EPA-6020	U	MG/KG	0.12	05/12/2022	RAL
Cadmium	EPA-6020	U	MG/KG	0.10	05/12/2022	RAL
Chromium	EPA-6020	U	MG/KG	0.10	05/12/2022	RAL
Copper	EPA-6020	U	MG/KG	0.10	05/12/2022	RAL
Lead	EPA-6020	U	MG/KG	0.20	05/12/2022	RAL
Nickel	EPA-6020	U	MG/KG	0.10	05/12/2022	RAL
Selenium	EPA-6020	U	MG/KG	1.0	05/12/2022	RAL
Silver	EPA-6020	U	MG/KG	0.10	05/12/2022	RAL
Zinc	EPA-6020	U	MG/KG	0.88	05/12/2022	RAL

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LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 178868 - Soil by NWTPH-GX

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range - BS	NWTPH-GX	**77.5**			66.5	122.7	05/13/2022	KLS
TPH-Volatile Range - BSD	NWTPH-GX	**77.5**	**0**		66.5	122.7	05/13/2022	KLS

ALS Test Batch ID: 178820 - Soil by EPA-8260

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Dichlorodifluoromethane - BS	EPA-8260	**94.3**			50	150	05/10/2022	DLC
Dichlorodifluoromethane - BSD	EPA-8260	**97.9**	**4**		50	150	05/10/2022	DLC
Chloromethane - BS	EPA-8260	**96.3**			50	150	05/10/2022	DLC
Chloromethane - BSD	EPA-8260	**103**	**6**		50	150	05/10/2022	DLC
Vinyl Chloride - BS	EPA-8260	**109**			50	150	05/10/2022	DLC
Vinyl Chloride - BSD	EPA-8260	**108**	**1**		50	150	05/10/2022	DLC
Bromomethane - BS	EPA-8260	**108**			50	150	05/10/2022	DLC
Bromomethane - BSD	EPA-8260	**113**	**4**		50	150	05/10/2022	DLC
Chloroethane - BS	EPA-8260	**109**			50	150	05/10/2022	DLC
Chloroethane - BSD	EPA-8260	**110**	**2**		50	150	05/10/2022	DLC
Carbon Tetrachloride - BS	EPA-8260	**114**			50	150	05/10/2022	DLC
Carbon Tetrachloride - BSD	EPA-8260	**116**	**2**		50	150	05/10/2022	DLC
Trichlorofluoromethane - BS	EPA-8260	**108**			50	150	05/10/2022	DLC
Trichlorofluoromethane - BSD	EPA-8260	**110**	**1**		50	150	05/10/2022	DLC
Carbon Disulfide - BS	EPA-8260	**102**			50	150	05/10/2022	DLC
Carbon Disulfide - BSD	EPA-8260	**105**	**2**		50	150	05/10/2022	DLC
Acetone - BS	EPA-8260	**112**			50	150	05/10/2022	DLC
Acetone - BSD	EPA-8260	**120**	**7**		50	150	05/10/2022	DLC
1,1-Dichloroethene - BS	EPA-8260	**107**			70	130	05/10/2022	DLC
1,1-Dichloroethene - BSD	EPA-8260	**109**	**2**		70	130	05/10/2022	DLC
Methylene Chloride - BS	EPA-8260	**80.7**			50	150	05/10/2022	DLC
Methylene Chloride - BSD	EPA-8260	**89.2**	**10**		50	150	05/10/2022	DLC
Acrylonitrile - BS	EPA-8260	**114**			50	150	05/10/2022	DLC
Acrylonitrile - BSD	EPA-8260	**115**	**1**		50	150	05/10/2022	DLC
Methyl T-Butyl Ether - BS	EPA-8260	**110**			50	150	05/10/2022	DLC
Methyl T-Butyl Ether - BSD	EPA-8260	**115**	**5**		50	150	05/10/2022	DLC
Trans-1,2-Dichloroethene - BS	EPA-8260	**115**			50	150	05/10/2022	DLC
Trans-1,2-Dichloroethene - BSD	EPA-8260	**116**	**1**		50	150	05/10/2022	DLC
1,1-Dichloroethane - BS	EPA-8260	**109**			50	150	05/10/2022	DLC
1,1-Dichloroethane - BSD	EPA-8260	**113**	**4**		50	150	05/10/2022	DLC
2-Butanone - BS	EPA-8260	**98.6**			50	150	05/10/2022	DLC
2-Butanone - BSD	EPA-8260	**101**	**3**		50	150	05/10/2022	DLC
Cis-1,2-Dichloroethene - BS	EPA-8260	**112**			50	150	05/10/2022	DLC

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DATE: 5/23/2022
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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
Cis-1,2-Dichloroethene - BSD	EPA-8260	**114**	**2**		50	150	05/10/2022	DLC
2,2-Dichloropropane - BS	EPA-8260	**114**			50	150	05/10/2022	DLC
2,2-Dichloropropane - BSD	EPA-8260	**115**	**1**		50	150	05/10/2022	DLC
Bromochloromethane - BS	EPA-8260	**105**			50	150	05/10/2022	DLC
Bromochloromethane - BSD	EPA-8260	**107**	**2**		50	150	05/10/2022	DLC
Chloroform - BS	EPA-8260	**106**			50	150	05/10/2022	DLC
Chloroform - BSD	EPA-8260	**109**	**2**		50	150	05/10/2022	DLC
1,1,1-Trichloroethane - BS	EPA-8260	**114**			50	150	05/10/2022	DLC
1,1,1-Trichloroethane - BSD	EPA-8260	**115**	**0**		50	150	05/10/2022	DLC
1,1-Dichloropropene - BS	EPA-8260	**115**			50	150	05/10/2022	DLC
1,1-Dichloropropene - BSD	EPA-8260	**118**	**3**		50	150	05/10/2022	DLC
1,2-Dichloroethane - BS	EPA-8260	**98.8**			50	150	05/10/2022	DLC
1,2-Dichloroethane - BSD	EPA-8260	**99.5**	**1**		50	150	05/10/2022	DLC
Benzene - BS	EPA-8260	**99.7**			75	138	05/10/2022	DLC
Benzene - BSD	EPA-8260	**100**	**1**		75	138	05/10/2022	DLC
Trichloroethene - BS	EPA-8260	**103**			75	136	05/10/2022	DLC
Trichloroethene - BSD	EPA-8260	**103**	**0**		75	136	05/10/2022	DLC
1,2-Dichloropropane - BS	EPA-8260	**99.4**			50	150	05/10/2022	DLC
1,2-Dichloropropane - BSD	EPA-8260	**104**	**5**		50	150	05/10/2022	DLC
Dibromomethane - BS	EPA-8260	**101**			50	150	05/10/2022	DLC
Dibromomethane - BSD	EPA-8260	**98.6**	**3**		50	150	05/10/2022	DLC
Bromodichloromethane - BS	EPA-8260	**106**			50	150	05/10/2022	DLC
Bromodichloromethane - BSD	EPA-8260	**103**	**3**		50	150	05/10/2022	DLC
Trans-1,3-Dichloropropene - BS	EPA-8260	**104**			50	150	05/10/2022	DLC
Trans-1,3-Dichloropropene - BSD	EPA-8260	**100**	**3**		50	150	05/10/2022	DLC
4-Methyl-2-Pentanone - BS	EPA-8260	**98.9**			50	150	05/10/2022	DLC
4-Methyl-2-Pentanone - BSD	EPA-8260	**99.5**	**1**		50	150	05/10/2022	DLC
Toluene - BS	EPA-8260	**100**			71.6	122.1	05/10/2022	DLC
Toluene - BSD	EPA-8260	**102**	**1**		71.6	122.1	05/10/2022	DLC
Cis-1,3-Dichloropropene - BS	EPA-8260	**103**			50	150	05/10/2022	DLC
Cis-1,3-Dichloropropene - BSD	EPA-8260	**104**	**1**		50	150	05/10/2022	DLC
1,1,2-Trichloroethane - BS	EPA-8260	**101**			50	150	05/10/2022	DLC
1,1,2-Trichloroethane - BSD	EPA-8260	**93.8**	**7**		50	150	05/10/2022	DLC
2-Hexanone - BS	EPA-8260	**99.7**			50	150	05/10/2022	DLC
2-Hexanone - BSD	EPA-8260	**96.2**	**4**		50	150	05/10/2022	DLC
1,3-Dichloropropane - BS	EPA-8260	**98.3**			50	150	05/10/2022	DLC
1,3-Dichloropropane - BSD	EPA-8260	**99.7**	**1**		50	150	05/10/2022	DLC
Tetrachloroethylene - BS	EPA-8260	**109**			50	150	05/10/2022	DLC
Tetrachloroethylene - BSD	EPA-8260	**103**	**6**		50	150	05/10/2022	DLC
Dibromochloromethane - BS	EPA-8260	**107**			50	150	05/10/2022	DLC

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LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Dibromochloromethane - BSD	EPA-8260	**105**	**2**		50	150	05/10/2022	DLC
1,2-Dibromoethane - BS	EPA-8260	**102**			50	150	05/10/2022	DLC
1,2-Dibromoethane - BSD	EPA-8260	**99.9**	**2**		50	150	05/10/2022	DLC
Chlorobenzene - BS	EPA-8260	**103**			79	128	05/10/2022	DLC
Chlorobenzene - BSD	EPA-8260	**102**	**1**		79	128	05/10/2022	DLC
1,1,1,2-Tetrachloroethane - BS	EPA-8260	**103**			50	150	05/10/2022	DLC
1,1,1,2-Tetrachloroethane - BSD	EPA-8260	**97.5**	**5**		50	150	05/10/2022	DLC
Ethylbenzene - BS	EPA-8260	**103**			50	150	05/10/2022	DLC
Ethylbenzene - BSD	EPA-8260	**101**	**2**		50	150	05/10/2022	DLC
m,p-Xylene - BS	EPA-8260	**101**			50	150	05/10/2022	DLC
m,p-Xylene - BSD	EPA-8260	**97.4**	**3**		50	150	05/10/2022	DLC
Styrene - BS	EPA-8260	**98.4**			50	150	05/10/2022	DLC
Styrene - BSD	EPA-8260	**97.1**	**1**		50	150	05/10/2022	DLC
o-Xylene - BS	EPA-8260	**99.0**			50	150	05/10/2022	DLC
o-Xylene - BSD	EPA-8260	**97.2**	**2**		50	150	05/10/2022	DLC
Bromoform - BS	EPA-8260	**97.8**			50	150	05/10/2022	DLC
Bromoform - BSD	EPA-8260	**99.1**	**1**		50	150	05/10/2022	DLC
Isopropylbenzene - BS	EPA-8260	**102**			50	150	05/10/2022	DLC
Isopropylbenzene - BSD	EPA-8260	**99.0**	**3**		50	150	05/10/2022	DLC
1,1,2,2-Tetrachloroethane - BS	EPA-8260	**100**			50	150	05/10/2022	DLC
1,1,2,2-Tetrachloroethane - BSD	EPA-8260	**96.7**	**4**		50	150	05/10/2022	DLC
1,2,3-Trichloropropane - BS	EPA-8260	**99.7**			50	150	05/10/2022	DLC
1,2,3-Trichloropropane - BSD	EPA-8260	**97.1**	**3**		50	150	05/10/2022	DLC
Bromobenzene - BS	EPA-8260	**102**			50	150	05/10/2022	DLC
Bromobenzene - BSD	EPA-8260	**101**	**2**		50	150	05/10/2022	DLC
N-Propyl Benzene - BS	EPA-8260	**102**			50	150	05/10/2022	DLC
N-Propyl Benzene - BSD	EPA-8260	**97.1**	**5**		50	150	05/10/2022	DLC
2-Chlorotoluene - BS	EPA-8260	**103**			50	150	05/10/2022	DLC
2-Chlorotoluene - BSD	EPA-8260	**99.0**	**4**		50	150	05/10/2022	DLC
1,3,5-Trimethylbenzene - BS	EPA-8260	**103**			50	150	05/10/2022	DLC
1,3,5-Trimethylbenzene - BSD	EPA-8260	**98.5**	**4**		50	150	05/10/2022	DLC
4-Chlorotoluene - BS	EPA-8260	**104**			50	150	05/10/2022	DLC
4-Chlorotoluene - BSD	EPA-8260	**99.4**	**4**		50	150	05/10/2022	DLC
T-Butyl Benzene - BS	EPA-8260	**110**			50	150	05/10/2022	DLC
T-Butyl Benzene - BSD	EPA-8260	**105**	**5**		50	150	05/10/2022	DLC
1,2,4-Trimethylbenzene - BS	EPA-8260	**101**			50	150	05/10/2022	DLC
1,2,4-Trimethylbenzene - BSD	EPA-8260	**99.1**	**2**		50	150	05/10/2022	DLC
S-Butyl Benzene - BS	EPA-8260	**104**			50	150	05/10/2022	DLC
S-Butyl Benzene - BSD	EPA-8260	**100**	**3**		50	150	05/10/2022	DLC
P-Isopropyltoluene - BS	EPA-8260	**109**			50	150	05/10/2022	DLC

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CLIENT CONTACT: Kim Ninnemann
CLIENT PROJECT: Cascade Laundry

DATE: 5/23/2022
ALS SDG#: EV22050049
WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
P-Isopropyltoluene - BSD	EPA-8260	**104**	**5**		50	150	05/10/2022	DLC
1,3-Dichlorobenzene - BS	EPA-8260	**109**			50	150	05/10/2022	DLC
1,3-Dichlorobenzene - BSD	EPA-8260	**104**	**4**		50	150	05/10/2022	DLC
1,4-Dichlorobenzene - BS	EPA-8260	**105**			50	150	05/10/2022	DLC
1,4-Dichlorobenzene - BSD	EPA-8260	**100**	**4**		50	150	05/10/2022	DLC
N-Butylbenzene - BS	EPA-8260	**105**			50	150	05/10/2022	DLC
N-Butylbenzene - BSD	EPA-8260	**99.9**	**5**		50	150	05/10/2022	DLC
1,2-Dichlorobenzene - BS	EPA-8260	**103**			50	150	05/10/2022	DLC
1,2-Dichlorobenzene - BSD	EPA-8260	**100**	**2**		50	150	05/10/2022	DLC
1,2-Dibromo 3-Chloropropane - BS	EPA-8260	**102**			50	150	05/10/2022	DLC
1,2-Dibromo 3-Chloropropane - BSD	EPA-8260	**99.7**	**2**		50	150	05/10/2022	DLC
1,2,4-Trichlorobenzene - BS	EPA-8260	**107**			50	150	05/10/2022	DLC
1,2,4-Trichlorobenzene - BSD	EPA-8260	**102**	**5**		50	150	05/10/2022	DLC
Hexachlorobutadiene - BS	EPA-8260	**107**			50	150	05/10/2022	DLC
Hexachlorobutadiene - BSD	EPA-8260	**102**	**5**		50	150	05/10/2022	DLC
Naphthalene - BS	EPA-8260	**102**			50	150	05/10/2022	DLC
Naphthalene - BSD	EPA-8260	**97.0**	**5**		50	150	05/10/2022	DLC
1,2,3-Trichlorobenzene - BS	EPA-8260	**104**			50	150	05/10/2022	DLC
1,2,3-Trichlorobenzene - BSD	EPA-8260	**97.7**	**7**		50	150	05/10/2022	DLC

ALS Test Batch ID: 179118 - Soil by EPA-8270

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Pyridine - BS	EPA-8270	**73.7**			20	150	05/19/2022	JMK
Pyridine - BSD	EPA-8270	**71.9**	**2**		20	150	05/19/2022	JMK
N-Nitrosodimethylamine - BS	EPA-8270	**72.4**			20	150	05/19/2022	JMK
N-Nitrosodimethylamine - BSD	EPA-8270	**72.5**	**0**		20	150	05/19/2022	JMK
Phenol - BS	EPA-8270	**87.9**			36.1	131	05/19/2022	JMK
Phenol - BSD	EPA-8270	**89.0**	**1**		36.1	131	05/19/2022	JMK
Aniline - BS	EPA-8270	**76.4**			20	150	05/19/2022	JMK
Aniline - BSD	EPA-8270	**74.6**	**2**		20	150	05/19/2022	JMK
Bis(2-Chloroethyl)Ether - BS	EPA-8270	**88.3**			20	150	05/19/2022	JMK
Bis(2-Chloroethyl)Ether - BSD	EPA-8270	**85.3**	**3**		20	150	05/19/2022	JMK
2-Chlorophenol - BS	EPA-8270	**84.8**			59.9	111	05/19/2022	JMK
2-Chlorophenol - BSD	EPA-8270	**86.9**	**2**		59.9	111	05/19/2022	JMK
1,3-Dichlorobenzene - BS	EPA-8270	**95.0**			20	150	05/19/2022	JMK
1,3-Dichlorobenzene - BSD	EPA-8270	**94.7**	**0**		20	150	05/19/2022	JMK
1,4-Dichlorobenzene - BS	EPA-8270	**99.0**			44.3	122	05/19/2022	JMK
1,4-Dichlorobenzene - BSD	EPA-8270	**99.2**	**0**		44.3	122	05/19/2022	JMK
Benzyl Alcohol - BS	EPA-8270	**106**			20	150	05/19/2022	JMK

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LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Benzyl Alcohol - BSD	EPA-8270	**112**	**6**		20	150	05/19/2022	JMK
1,2-Dichlorobenzene - BS	EPA-8270	**96.6**			20	150	05/19/2022	JMK
1,2-Dichlorobenzene - BSD	EPA-8270	**96.9**	**0**		20	150	05/19/2022	JMK
2-Methylphenol - BS	EPA-8270	**105**			20	150	05/19/2022	JMK
2-Methylphenol - BSD	EPA-8270	**108**	**3**		20	150	05/19/2022	JMK
Bis(2-Chloroisopropyl)Ether - BS	EPA-8270	**119**			20	150	05/19/2022	JMK
Bis(2-Chloroisopropyl)Ether - BSD	EPA-8270	**116**	**3**		20	150	05/19/2022	JMK
3&4-Methylphenol - BS	EPA-8270	**101**			20	150	05/19/2022	JMK
3&4-Methylphenol - BSD	EPA-8270	**103**	**3**		20	150	05/19/2022	JMK
N-Nitroso-Di-N-Propylamine - BS	EPA-8270	**92.2**			31.6	134	05/19/2022	JMK
N-Nitroso-Di-N-Propylamine - BSD	EPA-8270	**88.3**	**4**		31.6	134	05/19/2022	JMK
Hexachloroethane - BS	EPA-8270	**98.7**			20	150	05/19/2022	JMK
Hexachloroethane - BSD	EPA-8270	**98.5**	**0**		20	150	05/19/2022	JMK
Nitrobenzene - BS	EPA-8270	**94.9**			20	150	05/19/2022	JMK
Nitrobenzene - BSD	EPA-8270	**93.7**	**1**		20	150	05/19/2022	JMK
Isophorone - BS	EPA-8270	**81.7**			20	150	05/19/2022	JMK
Isophorone - BSD	EPA-8270	**82.0**	**0**		20	150	05/19/2022	JMK
2-Nitrophenol - BS	EPA-8270	**78.6**			20	150	05/19/2022	JMK
2-Nitrophenol - BSD	EPA-8270	**82.2**	**4**		20	150	05/19/2022	JMK
2,4-Dimethylphenol - BS	EPA-8270	**93.1**			20	150	05/19/2022	JMK
2,4-Dimethylphenol - BSD	EPA-8270	**95.3**	**2**		20	150	05/19/2022	JMK
Bis(2-Chloroethoxy)Methane - BS	EPA-8270	**93.9**			20	150	05/19/2022	JMK
Bis(2-Chloroethoxy)Methane - BSD	EPA-8270	**94.2**	**0**		20	150	05/19/2022	JMK
2,4-Dichlorophenol - BS	EPA-8270	**85.1**			20	150	05/19/2022	JMK
2,4-Dichlorophenol - BSD	EPA-8270	**85.8**	**1**		20	150	05/19/2022	JMK
1,2,4-Trichlorobenzene - BS	EPA-8270	**90.1**			44.6	122	05/19/2022	JMK
1,2,4-Trichlorobenzene - BSD	EPA-8270	**87.8**	**3**		44.6	122	05/19/2022	JMK
Naphthalene - BS	EPA-8270	**90.7**			20	150	05/19/2022	JMK
Naphthalene - BSD	EPA-8270	**88.0**	**3**		20	150	05/19/2022	JMK
4-Chloroaniline - BS	EPA-8270	**45.5**			20	150	05/19/2022	JMK
4-Chloroaniline - BSD	EPA-8270	**65.1**	**35**	SR1	20	150	05/19/2022	JMK
Hexachlorobutadiene - BS	EPA-8270	**93.5**			20	150	05/19/2022	JMK
Hexachlorobutadiene - BSD	EPA-8270	**90.0**	**4**		20	150	05/19/2022	JMK
4-Chloro-3-Methylphenol - BS	EPA-8270	**88.0**			49.2	135	05/19/2022	JMK
4-Chloro-3-Methylphenol - BSD	EPA-8270	**89.1**	**1**		49.2	135	05/19/2022	JMK
2-Methylnaphthalene - BS	EPA-8270	**87.9**			20	150	05/19/2022	JMK
2-Methylnaphthalene - BSD	EPA-8270	**88.6**	**1**		20	150	05/19/2022	JMK
1-Methylnaphthalene - BS	EPA-8270	**89.4**			20	150	05/19/2022	JMK
1-Methylnaphthalene - BSD	EPA-8270	**90.3**	**1**		20	150	05/19/2022	JMK
Hexachlorocyclopentadiene - BS	EPA-8270	**76.1**			20	150	05/19/2022	JMK

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LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Hexachlorocyclopentadiene - BSD	EPA-8270	**77.9**	**2**		20	150	05/19/2022	JMK
2,4,6-Trichlorophenol - BS	EPA-8270	**84.8**			20	150	05/19/2022	JMK
2,4,6-Trichlorophenol - BSD	EPA-8270	**89.1**	**5**		20	150	05/19/2022	JMK
2,4,5-Trichlorophenol - BS	EPA-8270	**86.4**			20	150	05/19/2022	JMK
2,4,5-Trichlorophenol - BSD	EPA-8270	**90.7**	**5**		20	150	05/19/2022	JMK
2-Chloronaphthalene - BS	EPA-8270	**88.4**			20	150	05/19/2022	JMK
2-Chloronaphthalene - BSD	EPA-8270	**92.4**	**4**		20	150	05/19/2022	JMK
2-Nitroaniline - BS	EPA-8270	**84.7**			20	150	05/19/2022	JMK
2-Nitroaniline - BSD	EPA-8270	**93.1**	**9**		20	150	05/19/2022	JMK
Acenaphthylene - BS	EPA-8270	**85.5**			20	150	05/19/2022	JMK
Acenaphthylene - BSD	EPA-8270	**88.4**	**3**		20	150	05/19/2022	JMK
Dimethylphthalate - BS	EPA-8270	**91.6**			20	150	05/19/2022	JMK
Dimethylphthalate - BSD	EPA-8270	**96.3**	**5**		20	150	05/19/2022	JMK
2,6-Dinitrotoluene - BS	EPA-8270	**97.4**			20	150	05/19/2022	JMK
2,6-Dinitrotoluene - BSD	EPA-8270	**101**	**4**		20	150	05/19/2022	JMK
Acenaphthene - BS	EPA-8270	**90.2**			49.3	117	05/19/2022	JMK
Acenaphthene - BSD	EPA-8270	**95.2**	**5**		49.3	117	05/19/2022	JMK
3-Nitroaniline - BS	EPA-8270	**616**		SQ1	20	150	05/19/2022	JMK
3-Nitroaniline - BSD	EPA-8270	**825**	**29**	SQ1	20	150	05/19/2022	JMK
2,4-Dinitrophenol - BS	EPA-8270	**73.3**			20	150	05/19/2022	JMK
2,4-Dinitrophenol - BSD	EPA-8270	**78.6**	**7**		20	150	05/19/2022	JMK
4-Nitrophenol - BS	EPA-8270	**81.6**			29.8	137	05/19/2022	JMK
4-Nitrophenol - BSD	EPA-8270	**87.3**	**7**		29.8	137	05/19/2022	JMK
Dibenzofuran - BS	EPA-8270	**88.9**			20	150	05/19/2022	JMK
Dibenzofuran - BSD	EPA-8270	**93.9**	**5**		20	150	05/19/2022	JMK
2,4-Dinitrotoluene - BS	EPA-8270	**90.5**			55.3	130	05/19/2022	JMK
2,4-Dinitrotoluene - BSD	EPA-8270	**94.1**	**4**		55.3	130	05/19/2022	JMK
2,3,4,6-Tetrachlorophenol - BS	EPA-8270	**85.0**			20	150	05/19/2022	JMK
2,3,4,6-Tetrachlorophenol - BSD	EPA-8270	**90.6**	**6**		20	150	05/19/2022	JMK
Diethylphthalate - BS	EPA-8270	**92.8**			20	150	05/19/2022	JMK
Diethylphthalate - BSD	EPA-8270	**96.3**	**4**		20	150	05/19/2022	JMK
Fluorene - BS	EPA-8270	**83.5**			20	150	05/19/2022	JMK
Fluorene - BSD	EPA-8270	**88.5**	**6**		20	150	05/19/2022	JMK
4-Chlorophenyl-Phenylether - BS	EPA-8270	**78.6**			20	150	05/19/2022	JMK
4-Chlorophenyl-Phenylether - BSD	EPA-8270	**83.6**	**6**		20	150	05/19/2022	JMK
4-Nitroaniline - BS	EPA-8270	**123**			20	150	05/19/2022	JMK
4-Nitroaniline - BSD	EPA-8270	**130**	**6**		20	150	05/19/2022	JMK
4,6-Dinitro-2-Methylphenol - BS	EPA-8270	**84.5**			20	150	05/19/2022	JMK
4,6-Dinitro-2-Methylphenol - BSD	EPA-8270	**92.5**	**9**		20	150	05/19/2022	JMK
Azobenzene - BS	EPA-8270	**101**			20	150	05/19/2022	JMK

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LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Azobenzene - BSD	EPA-8270	**102**	**2**		20	150	05/19/2022	JMK
4-Bromophenyl-Phenylether - BS	EPA-8270	**80.3**			20	150	05/19/2022	JMK
4-Bromophenyl-Phenylether - BSD	EPA-8270	**84.8**	**5**		20	150	05/19/2022	JMK
Hexachlorobenzene - BS	EPA-8270	**95.0**			20	150	05/19/2022	JMK
Hexachlorobenzene - BSD	EPA-8270	**97.3**	**2**		20	150	05/19/2022	JMK
Pentachlorophenol - BS	EPA-8270	**85.5**			41.3	113	05/19/2022	JMK
Pentachlorophenol - BSD	EPA-8270	**92.5**	**8**		41.3	113	05/19/2022	JMK
Phenanthrene - BS	EPA-8270	**89.9**			20	150	05/19/2022	JMK
Phenanthrene - BSD	EPA-8270	**92.7**	**3**		20	150	05/19/2022	JMK
Anthracene - BS	EPA-8270	**90.1**			20	150	05/19/2022	JMK
Anthracene - BSD	EPA-8270	**93.5**	**4**		20	150	05/19/2022	JMK
Carbazole - BS	EPA-8270	**103**			20	150	05/19/2022	JMK
Carbazole - BSD	EPA-8270	**113**	**9**		20	150	05/19/2022	JMK
Di-N-Butylphthalate - BS	EPA-8270	**90.8**			20	150	05/19/2022	JMK
Di-N-Butylphthalate - BSD	EPA-8270	**92.8**	**2**		20	150	05/19/2022	JMK
Fluoranthene - BS	EPA-8270	**100**			20	150	05/19/2022	JMK
Fluoranthene - BSD	EPA-8270	**103**	**3**		20	150	05/19/2022	JMK
Pyrene - BS	EPA-8270	**87.6**			57.4	145	05/19/2022	JMK
Pyrene - BSD	EPA-8270	**89.4**	**2**		57.4	145	05/19/2022	JMK
Butylbenzylphthalate - BS	EPA-8270	**89.6**			20	150	05/19/2022	JMK
Butylbenzylphthalate - BSD	EPA-8270	**90.1**	**1**		20	150	05/19/2022	JMK
Benzo[A]Anthracene - BS	EPA-8270	**89.5**			20	150	05/19/2022	JMK
Benzo[A]Anthracene - BSD	EPA-8270	**91.3**	**2**		20	150	05/19/2022	JMK
Chrysene - BS	EPA-8270	**50.7**			20	150	05/19/2022	JMK
Chrysene - BSD	EPA-8270	**52.2**	**3**		20	150	05/19/2022	JMK
Bis(2-Ethylhexyl)Phthalate - BS	EPA-8270	**89.3**			20	150	05/19/2022	JMK
Bis(2-Ethylhexyl)Phthalate - BSD	EPA-8270	**91.0**	**2**		20	150	05/19/2022	JMK
Di-N-Octylphthalate - BS	EPA-8270	**85.9**			20	150	05/19/2022	JMK
Di-N-Octylphthalate - BSD	EPA-8270	**87.2**	**2**		20	150	05/19/2022	JMK
Benzo[B]Fluoranthene - BS	EPA-8270	**90.7**			20	150	05/19/2022	JMK
Benzo[B]Fluoranthene - BSD	EPA-8270	**88.3**	**3**		20	150	05/19/2022	JMK
Benzo[K]Fluoranthene - BS	EPA-8270	**104**			20	150	05/19/2022	JMK
Benzo[K]Fluoranthene - BSD	EPA-8270	**98.5**	**5**		20	150	05/19/2022	JMK
Benzo[A]Pyrene - BS	EPA-8270	**89.1**			20	150	05/19/2022	JMK
Benzo[A]Pyrene - BSD	EPA-8270	**87.3**	**2**		20	150	05/19/2022	JMK
Indeno[1,2,3-Cd]Pyrene - BS	EPA-8270	**79.6**			20	150	05/19/2022	JMK
Indeno[1,2,3-Cd]Pyrene - BSD	EPA-8270	**77.6**	**2**		20	150	05/19/2022	JMK
Dibenz[A,H]Anthracene - BS	EPA-8270	**42.1**			20	150	05/19/2022	JMK
Dibenz[A,H]Anthracene - BSD	EPA-8270	**40.3**	**5**		20	150	05/19/2022	JMK
Benzo[G,H,I]Perylene - BS	EPA-8270	**38.4**			20	150	05/19/2022	JMK

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	Stratum Group P.O. Box 2546 Bellingham, WA 98227	DATE:	5/23/2022
		ALS SDG#:	EV22050049
		WDOE ACCREDITATION:	C601
CLIENT CONTACT:	Kim Ninnemann		
CLIENT PROJECT:	Cascade Laundry		

LABORATORY CONTROL SAMPLE RESULTS

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Benzo[G,H,I]Perylene - BSD	EPA-8270	**36.4**	**5**		20	150	05/19/2022	JMK

SQ1 - Spike outside of control limits with a high bias. Associated compounds non-detect. No corrective action taken.
SR1 - RPD outside of control limits.

ALS Test Batch ID: R408551 - Soil by EPA-7471

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Mercury - BS	EPA-7471	**107**			81.8	117	05/13/2022	RAL
Mercury - BSD	EPA-7471	**106**	**1**		81.8	117	05/13/2022	RAL

ALS Test Batch ID: 178783 - Soil by EPA-6020

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	LIMITS MIN	LIMITS MAX	ANALYSIS DATE	ANALYSIS BY
Arsenic - BS	EPA-6020	**93.6**			80	120	05/12/2022	RAL
Arsenic - BSD	EPA-6020	**96.7**	**3**		80	120	05/12/2022	RAL
Barium - BS	EPA-6020	**96.5**			80	120	05/12/2022	RAL
Barium - BSD	EPA-6020	**99.3**	**3**		80	120	05/12/2022	RAL
Cadmium - BS	EPA-6020	**96.3**			80	120	05/12/2022	RAL
Cadmium - BSD	EPA-6020	**101**	**5**		80	120	05/12/2022	RAL
Chromium - BS	EPA-6020	**91.5**			80	120	05/12/2022	RAL
Chromium - BSD	EPA-6020	**95.3**	**4**		80	120	05/12/2022	RAL
Copper - BS	EPA-6020	**96.2**			80	120	05/12/2022	RAL
Copper - BSD	EPA-6020	**100**	**4**		80	120	05/12/2022	RAL
Lead - BS	EPA-6020	**92.9**			80	120	05/12/2022	RAL
Lead - BSD	EPA-6020	**95.9**	**3**		80	120	05/12/2022	RAL
Nickel - BS	EPA-6020	**98.3**			80	120	05/12/2022	RAL
Nickel - BSD	EPA-6020	**103**	**5**		80	120	05/12/2022	RAL
Selenium - BS	EPA-6020	**91.9**			80	120	05/12/2022	RAL
Selenium - BSD	EPA-6020	**96.4**	**5**		80	120	05/12/2022	RAL
Silver - BS	EPA-6020	**83.9**			80	120	05/12/2022	RAL
Silver - BSD	EPA-6020	**88.2**	**5**		80	120	05/12/2022	RAL
Zinc - BS	EPA-6020	**96.2**			80	119	05/12/2022	RAL
Zinc - BSD	EPA-6020	**100**	**4**		80	119	05/12/2022	RAL

APPROVED BY

Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 9820 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Group USA, Corp dba ALS Environmental

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): EV2205049

Date 5/10/22 Page 1 Of 1

PROJECT ID:	Cascade Laundry
REPORT TO COMPANY:	Kim Nienemann
PROJECT MANAGER:	Stratum Group
ADDRESS:	Po Box 2546
	Bellingham WA 98226
PHONE:	360 7149489 P.O. #: Cascade
E-MAIL:	Kim@stratumgroup.net
INVOICE TO COMPANY:	
ATTENTION:	Same as above
ADDRESS:	

ANALYSIS REQUESTED

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 ☐ RCRA-8 ☒ Pri Pol ☐ TAL ☐	Metals Other (Specify) + Cu, Ni, Zn	TCLP-Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herbs ☐	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. 05|022-1	5/10/22	1046	Soil	1							X									4	
2. 05|022-2	↓	1052	Soil	2							X									4	
3. Composite-1,-2 CS 10 22	↓	1052	Soil	3			X							X			X	X			
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					

SPECIAL INSTRUCTIONS 5/11/22 ⊗ - Kim wants samples 1+2 composited + then analyze for Gx, SVOC, RCRA-8+ Cu, Ni, Zn on

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: Kim Stratum Group 5/10/22
   Received By: Kristin Timms Stratum Group 5/10/22
2. Relinquished By: Kristin Timms Stratum Group 5/10/22 1:28
   Received By: Shirley ALS 5/10/22 1128

TURNAROUND REQUESTED in Business Days* Std TAT.

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

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

OTHER: Specify:

*Turnaround request less than standard may incur Rush Charges

Generator acknowledges that no material change has occurred either in the characteristics or in the process generating the material.

Please print or type. Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	WAH000054560	1	(800) 483-3718	017218061 FLE

GENERATOR

5. Generator's Name and Mailing Address
Former Cascade Laundry
205 Prospect Street
Bellingham, WA 98225
Generator's Phone:

Generator's Site Address (if different than mailing address)
SAME
VA8080021

6. Transporter 1 Company Name
Clean Harbors Environmental Services, Inc.
U.S. EPA ID Number
MAD039322250

7. Transporter 2 Company Name
Tri-State Motor Transit, CO.
U.S. EPA ID Number
MOD095038998

8. Designated Facility Name and Site Address
Clean Harbors Environmental Services, Inc.
2247 South Highway 71
Kimball, NE 69145
Facility's Phone: (308) 235-4012
U.S. EPA ID Number
NED981723513

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit WL/Vol.	13. Waste Codes
X	1. RQ, NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (TETRACHLOROETHYLENE), 9, PG III (F002 = 10LBS)	004	BA	4000	P	F002
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.CH2450431 ERG#171 4XFDIM

Contract retained by generator confers agency authority on initial transporter to add or substitute additional transporters on generator's behalf for purposes of transportation efficiency convenience or safety

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Sonja Max
Signature:
Month 7 Day 20 Year 22

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Jim Reddish
Signature:
Month 7 Day 20 Year 22

Transporter 2 Printed/Typed Name: Quentin I Ross
Signature: Quentin I Ross
Month 7 Day 21 Year 22

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H040			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Thomas Clark
Signature:
Month 8 Day 1 Year 22

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

DI 2110055563 PPW

CleanHarbors
ENVIRONMENTAL SERVICES®

Land Disposal Restriction Notification Form

Printed Date :Jul 15, 2022

MANIFEST INFORMATION

Generator : Former Cascade Laundry

Address: 205 Prospect Street
Bellingham,WA 98225

EPA ID #: WAH000054560

Manifest Tracking Info.

017218061FLE

Sales Order No: 2110055563

Certification	Applies to Manifest Line Items
This waste is not restricted as specified in 40 CFR 268 Subpart D.	1.

Waste analysis data, where available, is attached.

Signature : _____ Print Name Sonja Max

Title : _____ Date : 7/20/22

Clean Harbors Manifest Addendum

Generator ID Number:		Sales Order Number:
WAH000054560	017218061FLE	2110055563

Former Cascade Laundry
205 Prospect Street
Bellingham, WA98225

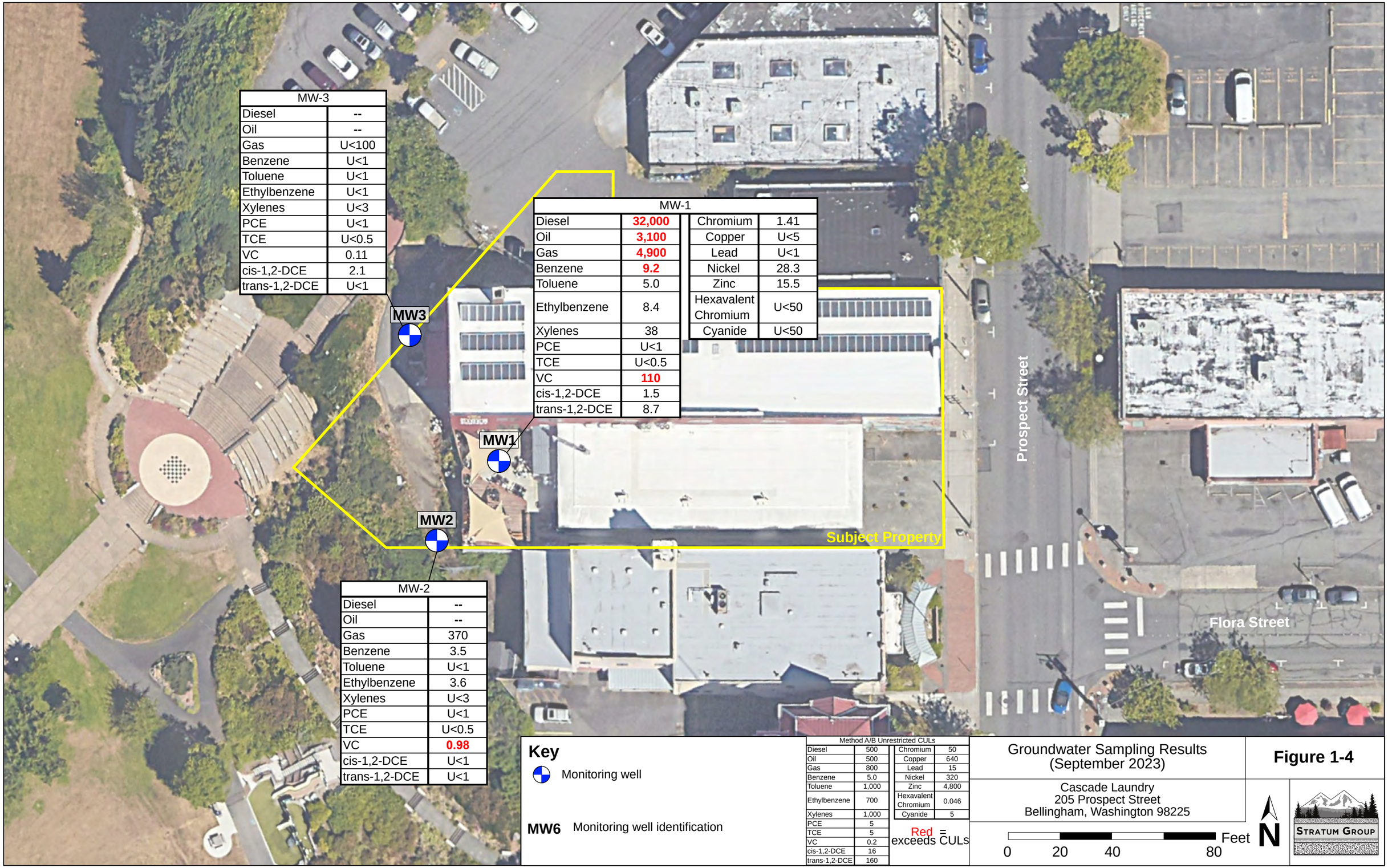
Line #:	Profile No:	Profile Description:	Waste Codes:
1.	CH2450431	SOIL - FORMER LAUNDROMAT SITE	

CH Container #	Customer Container #
C000000002	
C000000003	
C000000004	
C000000005	

APPENDIX IV

Groundwater Sampling (2023)

- Groundwater sample map
- September 2023 Water Sample Laboratory results
- Summary of groundwater sample results (2018-2023)



Groundwater Sampling Results (September 2023)

Figure 1-4

Cascade Laundry
205 Prospect Street
Bellingham, Washington 98225

STRATUM GROUP

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 6, 2023

Kim Ninnemann, Project Manager
Stratum Group
2102 Young St
Bellingham, WA 98225

Dear Ms Ninnemann:

Included are the results from the testing of material submitted on September 20, 2023 from the Cascade Laundry, F&BI 309284 project. There are 14 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
STG1006R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 20, 2023 by Friedman & Bruya, Inc. from the Stratum Group Cascade Laundry, F&BI 309284 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Stratum Group
309284 -01	MW-1
309284 -02	MW-2
309284 -03	MW-3

Sample MW-1 was sent to Fremont Analytical for EPH, VPH, cyanide, and hexavalent chromium analyses. The report is enclosed.

All quality control requirements were acceptable.

Date of Report: 10/06/23
Date Received: 09/20/23
Project: Cascade Laundry, F&BI 309284
Date Extracted: 09/25/23
Date Analyzed: 09/25/23 and 09/26/23

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW-1 309284-01	9.2	5.0	8.4	38	4,900	95
MW-2 309284-02	3.5	<1	3.6	<3	370	89
MW-3 309284-03	<1	<1	<1	<3	<100	83
Method Blank 03-2189 MB	<1	<1	<1	<3	<100	85

Date of Report: 10/06/23
Date Received: 09/20/23
Project: Cascade Laundry, F&BI 309284
Date Extracted: 09/21/23
Date Analyzed: 09/21/23

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
MW-1 309284-01	32,000 x	3,100	127
Method Blank 03-2275 MB	<50	<250	110

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-1	Client:	Stratum Group
Date Received:	09/20/23	Project:	Cascade Laundry, F&BI 309284
Date Extracted:	09/21/23	Lab ID:	309284-01
Date Analyzed:	09/22/23	Data File:	309284-01.261
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	1.41
Copper	<5
Lead	<1
Nickel	28.3
Zinc	15.5

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Stratum Group
Date Received:	NA	Project:	Cascade Laundry, F&BI 309284
Date Extracted:	09/21/23	Lab ID:	I3-730 mb
Date Analyzed:	09/21/23	Data File:	I3-730 mb.106
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Copper	<5
Lead	<1
Nickel	<1
Zinc	<5

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW-1	Client:	Stratum Group
Date Received:	09/20/23	Project:	Cascade Laundry, F&BI 309284
Date Extracted:	09/22/23	Lab ID:	309284-01
Date Analyzed:	09/22/23	Data File:	092221.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	71	132
Toluene-d8	105	68	139
4-Bromofluorobenzene	104	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	110
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	8.7
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	1.5
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW-2	Client:	Stratum Group
Date Received:	09/20/23	Project:	Cascade Laundry, F&BI 309284
Date Extracted:	09/22/23	Lab ID:	309284-02
Date Analyzed:	09/22/23	Data File:	092219.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	71	132
Toluene-d8	100	68	139
4-Bromofluorobenzene	98	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	0.98
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW-3	Client:	Stratum Group
Date Received:	09/20/23	Project:	Cascade Laundry, F&BI 309284
Date Extracted:	09/22/23	Lab ID:	309284-03
Date Analyzed:	09/22/23	Data File:	092220.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	71	132
Toluene-d8	94	68	139
4-Bromofluorobenzene	97	62	136

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	0.11
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	2.1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Stratum Group
Date Received:	Not Applicable	Project:	Cascade Laundry, F&BI 309284
Date Extracted:	09/22/23	Lab ID:	03-2151 mb
Date Analyzed:	09/22/23	Data File:	092208.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)
Vinyl chloride	<0.02
Chloroethane	<1
1,1-Dichloroethene	<1
Methylene chloride	<5
trans-1,2-Dichloroethene	<1
1,1-Dichloroethane	<1
cis-1,2-Dichloroethene	<1
1,2-Dichloroethane (EDC)	<0.2
1,1,1-Trichloroethane	<1
Trichloroethene	<0.5
Tetrachloroethene	<1

Date of Report: 10/06/23
Date Received: 09/20/23
Project: Cascade Laundry, F&BI 309284

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

Laboratory Code: 309284-03 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	96	70-130
Toluene	ug/L (ppb)	50	92	70-130
Ethylbenzene	ug/L (ppb)	50	94	70-130
Xylenes	ug/L (ppb)	150	93	70-130
Gasoline	ug/L (ppb)	1,000	100	70-130

Date of Report: 10/06/23
Date Received: 09/20/23
Project: Cascade Laundry, F&BI 309284

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	116	128	72-139	10

Date of Report: 10/06/23
Date Received: 09/20/23
Project: Cascade Laundry, F&BI 309284

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

Laboratory Code: 309286-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Chromium	ug/L (ppb)	20	1.05	97	95	75-125	2
Copper	ug/L (ppb)	20	8.79	85 b	82 b	75-125	4 b
Lead	ug/L (ppb)	10	<1	93	92	75-125	1
Nickel	ug/L (ppb)	20	1.13	93	92	75-125	1
Zinc	ug/L (ppb)	50	46.0	91 b	86 b	75-125	6 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	ug/L (ppb)	20	94	80-120
Copper	ug/L (ppb)	20	94	80-120
Lead	ug/L (ppb)	10	94	80-120
Nickel	ug/L (ppb)	20	91	80-120
Zinc	ug/L (ppb)	50	95	80-120

Date of Report: 10/06/23
Date Received: 09/20/23
Project: Cascade Laundry, F&BI 309284

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 309320-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Vinyl chloride	ug/L (ppb)	10	<0.02	102	50-150
Chloroethane	ug/L (ppb)	10	<1	102	50-150
1,1-Dichloroethene	ug/L (ppb)	10	<1	105	50-150
Methylene chloride	ug/L (ppb)	10	<5	101	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	102	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	108	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	106	10-211
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	116	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	105	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	112	35-149
Tetrachloroethene	ug/L (ppb)	10	8.2	118 b	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Vinyl chloride	ug/L (ppb)	10	106	103	64-142	3
Chloroethane	ug/L (ppb)	10	110	101	70-130	9
1,1-Dichloroethene	ug/L (ppb)	10	113	106	64-140	6
Methylene chloride	ug/L (ppb)	10	109	104	43-134	5
trans-1,2-Dichloroethene	ug/L (ppb)	10	109	103	70-130	6
1,1-Dichloroethane	ug/L (ppb)	10	112	104	70-130	7
cis-1,2-Dichloroethene	ug/L (ppb)	10	114	105	70-130	8
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	112	102	70-130	9
1,1,1-Trichloroethane	ug/L (ppb)	10	109	102	70-130	7
Trichloroethene	ug/L (ppb)	10	109	98	70-130	11
Tetrachloroethene	ug/L (ppb)	10	107	108	70-130	1

Data Qualifiers & Definitions

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

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

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the standard reporting limit. The value reported is an estimate.

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

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

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

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

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

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

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

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

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

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

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

SAMPLE CHAIN OF CUSTODY 09/20/23

309284 I4/VW3

Page # 1 of 1

Report To Kim Ninnemann
Company Stratum Group
Address Po Box 2546
City, State, ZIP Bellingham WA 98227
Phone 360 714 9409 Email Kim@stratumgroup.net

SAMPLERS (signature)

PROJECT NAME: Cascade Laundry
PO #: Cascade Laundry
REMARKS
Project specific RLs? - Yes / No
INVOICE TO: Stratum Group

TURNAROUND TIME
X Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	hVOC	cyanide	VPH, EPH	metals*	Notes
MW-1	01A-I	9/18/2023	1540	H2O	10	X	X	X					X	X	X	X	* copper
MW-2	02A-D	↓	1710	↓	5		X	X					X				hexchromium
MW-3	03A-E	↓	1648	↓	4		X	X					X				trichromium
																	nickel
																	lead
																	zinc
						Samples received at 4 °C											

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kim Ninnemann	StratumGroup	9/18/23	1145
Received by:	ANHPHAN	FSC	09/20/23	12:12
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
Ph. (206) 285-8282

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
5500 4th Ave S
Seattle, WA 98108

RE: 309284
Work Order Number: 2309246

October 04, 2023

Attention Michael Erdahl:

Fremont Analytical, Inc. received 1 sample(s) on 9/20/2023 for the analyses presented in the following report.

Cyanide by SM 4500-CN C, E
Extractable Petroleum Hydrocarbons by NWEPH
Hexavalent Chromium by SM 3500 Cr B
Volatile Petroleum Hydrocarbons by NWVPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *10/04/2023*

CLIENT: Friedman & Bruya
Project: 309284
Work Order: 2309246

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2309246-001	MW-1	09/18/2023 3:40 PM	09/20/2023 1:18 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **2309246**
Date: **10/4/2023**

CLIENT: Friedman & Bruya
Project: 309284

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Note: Original results for Aliphatic Hydrocarbon (C10-C12) exceeded calibration range of the instrument. Subsequent dilution and reanalysis occurred outside of method holding time. Both results are presented for review.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

CLIENT: Friedman & Bruya
Project: 309284

Lab ID: 2309246-001 **Collection Date:** 9/18/2023 3:40:00 PM
Client Sample ID: **MW-1** **Matrix:** Water

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 41503		Analyst: AP
Aliphatic Hydrocarbon (C8-C10)	100	79.6		µg/L	1	10/3/2023 10:52:12 AM
Aliphatic Hydrocarbon (C10-C12)	46.6	39.8		µg/L	1	10/3/2023 10:52:12 AM
Aliphatic Hydrocarbon (C12-C16)	ND	39.8		µg/L	1	10/3/2023 10:52:12 AM
Aliphatic Hydrocarbon (C16-C21)	ND	39.8		µg/L	1	10/3/2023 10:52:12 AM
Aliphatic Hydrocarbon (C21-C34)	ND	39.8		µg/L	1	10/3/2023 10:52:12 AM
Aromatic Hydrocarbon (C8-C10)	666	79.6		µg/L	1	10/2/2023 7:02:36 PM
Aromatic Hydrocarbon (C10-C12)	460	39.8		µg/L	1	10/2/2023 7:02:36 PM
Aromatic Hydrocarbon (C12-C16)	70.6	39.8		µg/L	1	10/2/2023 7:02:36 PM
Aromatic Hydrocarbon (C16-C21)	ND	39.8		µg/L	1	10/2/2023 7:02:36 PM
Aromatic Hydrocarbon (C21-C34)	54.9	39.8		µg/L	1	10/2/2023 7:02:36 PM
Surr: 1-Chlorooctadecane	45.1	50 - 150	S	%Rec	1	10/3/2023 10:52:12 AM
Surr: o-Terphenyl	73.4	50 - 150		%Rec	1	10/2/2023 7:02:36 PM

NOTES:
S - Outlying surrogate recovery(ies) observed.

Volatile Petroleum Hydrocarbons by NWVPH				Batch ID: 41585		Analyst: MS
Aliphatic Hydrocarbon (C5-C6)	ND	40.0		µg/L	1	9/27/2023 6:22:00 AM
Aliphatic Hydrocarbon (C6-C8)	53.7	40.0		µg/L	1	9/27/2023 6:22:00 AM
Aliphatic Hydrocarbon (C8-C10)	193	40.0	Q	µg/L	1	9/27/2023 6:22:00 AM
Aliphatic Hydrocarbon (C10-C12)	983	40.0	E	µg/L	1	9/27/2023 6:22:00 AM
Aliphatic Hydrocarbon (C10-C12)	767	400	DH	µg/L	10	10/3/2023 9:04:00 PM
Aromatic Hydrocarbon (C8-C10)	1,120	40.0		µg/L	1	9/27/2023 6:22:00 AM
Aromatic Hydrocarbon (C10-C12)	774	40.0		µg/L	1	9/27/2023 6:22:00 AM
Aromatic Hydrocarbon (C12-C13)	ND	40.0		µg/L	1	9/27/2023 6:22:00 AM
Surr: 2,5-dibromotoluene	103	60 - 140		%Rec	1	9/27/2023 6:22:00 AM

NOTES:
Q - Associated calibration verification is above acceptance criteria (124%, nominal 80-120). Result may be high-biased.

Cyanide by SM 4500-CN C, E				Batch ID: 41608		Analyst: ME
Cyanide, Total	ND	0.0500		mg/L	1	9/28/2023 1:24:00 PM
Hexavalent Chromium by SM 3500 Cr B				Batch ID: R86635		Analyst: ME
Chromium, Hexavalent	ND	0.0500	H	mg/L	1	9/20/2023 4:41:00 PM

Work Order: 2309246
CLIENT: Friedman & Bruya
Project: 309284

QC SUMMARY REPORT

Cyanide by SM 4500-CN C, E

Sample ID: **LCS-41608**	SampType: **LCS**	Units: **mg/L**	Prep Date: **9/27/2023**	RunNo: **86824**
Client ID: **LCSW**	Batch ID: **41608**		Analysis Date: **9/28/2023**	SeqNo: **1811853**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	0.267	0.0500	0.2500	0	107	76.2	141				

Sample ID: **MB-41608**	SampType: **MBLK**	Units: **mg/L**	Prep Date: **9/27/2023**	RunNo: **86824**
Client ID: **MBLKW**	Batch ID: **41608**		Analysis Date: **9/28/2023**	SeqNo: **1811855**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	ND	0.0500									

Sample ID: **2309239-001ADUP**	SampType: **DUP**	Units: **mg/L**	Prep Date: **9/27/2023**	RunNo: **86824**
Client ID: **BATCH**	Batch ID: **41608**		Analysis Date: **9/28/2023**	SeqNo: **1811858**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	0.0819	0.0500						0.07430	9.73	20	

Sample ID: **2309239-001AMS**	SampType: **MS**	Units: **mg/L**	Prep Date: **9/27/2023**	RunNo: **86824**
Client ID: **BATCH**	Batch ID: **41608**		Analysis Date: **9/28/2023**	SeqNo: **1811859**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	0.377	0.0500	0.2500	0.07430	121	53.7	149				

Sample ID: **2309239-001AMSD**	SampType: **MSD**	Units: **mg/L**	Prep Date: **9/27/2023**	RunNo: **86824**
Client ID: **BATCH**	Batch ID: **41608**		Analysis Date: **9/28/2023**	SeqNo: **1811860**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	0.355	0.0500	0.2500	0.07430	112	53.7	149	0.3770	5.98	30	

Work Order: 2309246
CLIENT: Friedman & Bruya
Project: 309284

QC SUMMARY REPORT

Hexavalent Chromium by SM 3500 Cr B

Sample ID: **MB-86635**	SampType: **MBLK**			Units: **mg/L**		Prep Date: **9/20/2023**		RunNo: **86635**		
Client ID: **MBLKW**	Batch ID: **R86635**					Analysis Date: **9/20/2023**		SeqNo: **1807579**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.0500									

Sample ID: **LCS-86635**	SampType: **LCS**			Units: **mg/L**		Prep Date: **9/20/2023**		RunNo: **86635**		
Client ID: **LCSW**	Batch ID: **R86635**					Analysis Date: **9/20/2023**		SeqNo: **1807580**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	0.242	0.0500	0.2500	0	96.7	87.9	108				

Sample ID: **2309246-001DDUP**	SampType: **DUP**			Units: **mg/L**		Prep Date: **9/20/2023**		RunNo: **86635**		
Client ID: **MW-1**	Batch ID: **R86635**					Analysis Date: **9/20/2023**		SeqNo: **1807582**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.0500						0		20	H

Sample ID: **2309246-001DMS**	SampType: **MS**			Units: **mg/L**		Prep Date: **9/20/2023**		RunNo: **86635**		
Client ID: **MW-1**	Batch ID: **R86635**					Analysis Date: **9/20/2023**		SeqNo: **1807583**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	0.242	0.0500	0.2500	0	96.7	74.8	115				H

Sample ID: **2309246-001DMSD**	SampType: **MSD**			Units: **mg/L**		Prep Date: **9/20/2023**		RunNo: **86635**		
Client ID: **MW-1**	Batch ID: **R86635**					Analysis Date: **9/20/2023**		SeqNo: **1807584**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	0.244	0.0500	0.2500	0	97.7	74.8	115	0.2417	1.03	20	H

Work Order: 2309246
CLIENT: Friedman & Bruya
Project: 309284

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **LCS-41503**	SampType: **LCS**	Units: **µg/L**	Prep Date: **9/18/2023**	RunNo: **86771**
Client ID: **LCSW**	Batch ID: **41503**		Analysis Date: **9/26/2023**	SeqNo: **1810484**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	189	79.2	990.5	0	19.1	15.3	130				
Aliphatic Hydrocarbon (C10-C12)	189	39.6	495.3	0	38.2	32.2	130				
Aliphatic Hydrocarbon (C12-C16)	271	39.6	495.3	0	54.8	41	106				
Aliphatic Hydrocarbon (C16-C21)	323	39.6	495.3	0	65.3	47.9	103				
Aliphatic Hydrocarbon (C21-C34)	347	39.6	495.3	0	70.0	33.4	142				
Surr: 1-Chlorooctadecane	308		396.2		77.7	50	150				

Sample ID: **LCS-41503**	SampType: **LCS**	Units: **µg/L**	Prep Date: **9/18/2023**	RunNo: **86772**
Client ID: **LCSW**	Batch ID: **41503**		Analysis Date: **9/26/2023**	SeqNo: **1810491**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	303	79.2	990.5	0	30.6	23.9	130				
Aromatic Hydrocarbon (C10-C12)	242	39.6	495.3	0	48.8	41.8	130				
Aromatic Hydrocarbon (C12-C16)	244	39.6	495.3	0	49.4	36.7	113				
Aromatic Hydrocarbon (C16-C21)	433	39.6	495.3	0	87.3	52.2	124				
Aromatic Hydrocarbon (C21-C34)	497	39.6	495.3	0	100	50.5	139				
Surr: o-Terphenyl	343		396.2		86.5	50	150				

Sample ID: **LCSD-41503**	SampType: **LCSD**	Units: **µg/L**	Prep Date: **9/18/2023**	RunNo: **86771**
Client ID: **LCSW02**	Batch ID: **41503**		Analysis Date: **9/26/2023**	SeqNo: **1810485**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	199	79.4	991.9	0	20.1	15.3	130	188.8	5.38	20	
Aliphatic Hydrocarbon (C10-C12)	209	39.7	496.0	0	42.2	32.2	130	189.1	10.2	20	
Aliphatic Hydrocarbon (C12-C16)	293	39.7	496.0	0	59.0	41	106	271.4	7.49	20	
Aliphatic Hydrocarbon (C16-C21)	342	39.7	496.0	0	68.9	47.9	103	323.3	5.51	20	
Aliphatic Hydrocarbon (C21-C34)	373	39.7	496.0	0	75.2	33.4	142	346.6	7.30	20	
Surr: 1-Chlorooctadecane	292		396.8		73.5	50	150		0		

Work Order: 2309246
CLIENT: Friedman & Bruya
Project: 309284

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **LCSD-41503** SampType: **LCSD** Units: **µg/L** Prep Date: **9/18/2023** RunNo: **86772**
Client ID: **LCSW02** Batch ID: **41503** Analysis Date: **9/26/2023** SeqNo: **1810492**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	382	79.4	991.9	0	38.5	23.9	130	302.7	23.2	20	R
Aromatic Hydrocarbon (C10-C12)	299	39.7	496.0	0	60.3	41.8	130	241.8	21.2	20	R
Aromatic Hydrocarbon (C12-C16)	309	39.7	496.0	0	62.4	36.7	113	244.4	23.4	20	R
Aromatic Hydrocarbon (C16-C21)	454	39.7	496.0	0	91.5	52.2	124	432.6	4.75	20	
Aromatic Hydrocarbon (C21-C34)	463	39.7	496.0	0	93.3	50.5	139	497.2	7.18	20	
Surr: o-Terphenyl	371		396.8		93.5	50	150		0		

NOTES:
R - High RPD observed. Samples are non-detect for this analyte; result meets QC requirements.

Sample ID: **MB-41503** SampType: **MBLK** Units: **µg/L** Prep Date: **9/18/2023** RunNo: **86771**
Client ID: **MBLKW** Batch ID: **41503** Analysis Date: **9/27/2023** SeqNo: **1811475**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	ND	79.5		0	0						
Aliphatic Hydrocarbon (C10-C12)	ND	39.8		0	0						
Aliphatic Hydrocarbon (C12-C16)	ND	39.8		0	0						
Aliphatic Hydrocarbon (C16-C21)	ND	39.8		0	0						
Aliphatic Hydrocarbon (C21-C34)	ND	39.8		0	0						
Surr: 1-Chlorooctadecane	247		397.7		62.2	50	150				

Sample ID: **MB-41503** SampType: **MBLK** Units: **µg/L** Prep Date: **9/18/2023** RunNo: **86771**
Client ID: **MBLKW** Batch ID: **41503** Analysis Date: **9/27/2023** SeqNo: **1811480**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	ND	79.5		0	0						
Aromatic Hydrocarbon (C10-C12)	ND	39.8		0	0						
Aromatic Hydrocarbon (C12-C16)	ND	39.8		0	0						
Aromatic Hydrocarbon (C16-C21)	ND	39.8		0	0						
Aromatic Hydrocarbon (C21-C34)	ND	39.8		0	0						
Surr: o-Terphenyl	268		397.7		67.3	50	150				

Work Order: 2309246
CLIENT: Friedman & Bruya
Project: 309284

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **LCS-41585**	SampType: **LCS**	Units: **µg/L**	Prep Date: **9/26/2023**	RunNo: **86901**
Client ID: **LCSW**	Batch ID: **41585**		Analysis Date: **9/27/2023**	SeqNo: **1813783**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	376	40.0	400.0	0	93.9	70	130				
Aliphatic Hydrocarbon (C6-C8)	216	40.0	200.0	0	108	70	130				
Aliphatic Hydrocarbon (C8-C10)	249	40.0	200.0	0	125	70	130				
Aliphatic Hydrocarbon (C10-C12)	203	40.0	200.0	0	101	70	130				
Aromatic Hydrocarbon (C8-C10)	994	40.0	1,000	0	99.4	70	130				
Aromatic Hydrocarbon (C10-C12)	230	40.0	200.0	0	115	70	130				
Aromatic Hydrocarbon (C12-C13)	222	40.0	200.0	0	111	70	130				
Surr: 2,5-dibromotoluene	48.0		50.00		96.0	60	140				

Sample ID: **MB-41585**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **9/26/2023**	RunNo: **86901**
Client ID: **MBLKW**	Batch ID: **41585**		Analysis Date: **9/27/2023**	SeqNo: **1813765**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	ND	40.0		0	0						
Aliphatic Hydrocarbon (C6-C8)	ND	40.0		0	0						
Aliphatic Hydrocarbon (C8-C10)	ND	40.0		0	0						
Aliphatic Hydrocarbon (C10-C12)	ND	40.0		0	0						
Aromatic Hydrocarbon (C8-C10)	ND	40.0		0	0						
Aromatic Hydrocarbon (C10-C12)	ND	40.0		0	0						
Aromatic Hydrocarbon (C12-C13)	ND	40.0		0	0						
Surr: 2,5-dibromotoluene	42.2		50.00		84.3	60	140				

Sample ID: **2309296-005ADUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **9/26/2023**	RunNo: **86901**
Client ID: **BATCH**	Batch ID: **41585**		Analysis Date: **9/27/2023**	SeqNo: **1813775**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	ND	40.0		0	0			0		25	
Aliphatic Hydrocarbon (C6-C8)	ND	40.0		0	0			0		25	
Aliphatic Hydrocarbon (C8-C10)	ND	40.0		0	0			0		25	
Aliphatic Hydrocarbon (C10-C12)	ND	40.0		0	0			0		25	
Aromatic Hydrocarbon (C8-C10)	ND	40.0		0	0			0		25	

Work Order: 2309246
CLIENT: Friedman & Bruya
Project: 309284

QC SUMMARY REPORT

Volatile Petroleum Hydrocarbons by NWVPH

Sample ID: **2309296-005ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **9/26/2023** RunNo: **86901**
Client ID: **BATCH** Batch ID: **41585** Analysis Date: **9/27/2023** SeqNo: **1813775**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C10-C12)	ND	40.0		0	0			0		25	
Aromatic Hydrocarbon (C12-C13)	ND	40.0		0	0			0		25	
Surr: 2,5-dibromotoluene	27.9		50.00		55.8	60	140		0	0	S

NOTES:
S - Outlying surrogate recovery(ies) observed.

Sample ID: **2309296-007AMS** SampType: **MS** Units: **µg/L** Prep Date: **9/26/2023** RunNo: **86901**
Client ID: **BATCH** Batch ID: **41585** Analysis Date: **9/27/2023** SeqNo: **1813780**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C5-C6)	313	40.0	400.0	0	78.3	70	130				
Aliphatic Hydrocarbon (C6-C8)	144	40.0	200.0	0	72.2	70	130				
Aliphatic Hydrocarbon (C8-C10)	163	40.0	200.0	0	81.5	70	130				
Aliphatic Hydrocarbon (C10-C12)	206	40.0	200.0	0	103	70	130				
Aromatic Hydrocarbon (C8-C10)	941	40.0	1,000	0	94.1	70	130				
Aromatic Hydrocarbon (C10-C12)	193	40.0	200.0	0	96.5	70	130				
Aromatic Hydrocarbon (C12-C13)	176	40.0	200.0	0	87.9	70	130				
Surr: 2,5-dibromotoluene	43.3		50.00		86.6	60	140				

Fremont Analytical
An Alliance Technical Group Company

Sample Log-In Check List

Client Name:	FB	Work Order Number:	2309246
Logged by:	Morgan Wilson	Date Received:	9/20/2023 1:18:00 PM

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Present ☑
4.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5.	Were all items received at a temperature of >2°C to 6°C *	Yes ☑	No ☐	NA ☐
6.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
7.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8.	Are samples properly preserved?	Yes ☑	No ☐	
9.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
11.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
12.	Does paperwork match bottle labels?	Yes ☑	No ☐	
13.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14.	Is it clear what analyses were requested?	Yes ☑	No ☐	
15.	Were all holding times able to be met?	Yes ☐	No ☑	

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☑ No ☐ NA ☐

Person Notified:	Michael Erdahl	Date:	9/20/2023
By Whom:	Morgan Wilson	Via:	☑ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:	Hexavalent Chromium out of hold		
Client Instructions:	Okay to proceed		

17. Additional remarks:

Item Information

Item #	Temp ºC
Sample	2.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2309246

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 5500 4th Ave S

City, State, ZIP Seattle, WA 98108

Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont	
PROJECT NAME/NO. 309284	PO # D-456
REMARKS EIM	

TURNAROUND TIME
☒ Standard TAT
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

						ANALYSES REQUESTED										
Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	EPH	VPH	cyanide	hexavalent Cr							Notes
MW-1		9/18/2023	1540	water	5	x	x	x	x							

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

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	9/20/23	1234
Received by:		Kelli Miller	FAI	9/20/23	1318
Relinquished by:					
Received by:					

Cacade Laundry

Summary of Depth to Water

Date	Depth to Water (ft)	Top of Casing Elevation (ft)	Water Table Elevation (ft)	Notes
MW-1				
7/12/2018	19.99			
7/24/2018	19.68			
9/11/2023	20.33			
9/14/2023	20.33			
9/18/2023	20.80			
MW-2				
7/12/2018	24.76			
7/24/2018	24.43			
9/11/2023	24.54			
9/14/2023	24.55			
9/18/2023	24.63			
MW-3				
7/12/2018	18.98			
7/24/2018	19.30			
9/11/2023	19.34			
9/14/2023	19.33			
9/18/2023	21.75			

Cascade Laundry - Summary of Groundwater Sampling Results - Petroleum

Date	Contaminant Concentration (µg/L)						
	Diesel	Oil	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes
CULs	*500*	*500*	*800/1,000*	*5*	*1,000*	*700*	*1,000*
MW-1							
7/24/2018	**2,400**	U<250	**2,100**	**6.3**	1.3	6.1	9
9/14/2023	**32,000**	**3,100**	**4,900**	**9.2**	5.0	8.4	38
MW-2							
7/24/2018	--	--	--	--	--	--	--
9/14/2023	--	--	370	3.5	U<1	3.6	U<3
MW-3							
7/24/2018	--	--	--	--	--	--	--
9/14/2023	--	--	U<100	U<1	U<1	U<1	U<3

Cascade Laundry - Summary of Groundwater Sampling Results - VOCs

Date	Contaminant Concentration (µg/L)						
	PCE	TCE	Vinyl Chloride	cis-1,2-Dichloroethylene	trans-1,2-Dichloroethylene	1,2-Dichloropropane	1,2-Dichlorobenzene
CULs	*5*	*5*	*0.2*	*16*	*160*	*1.2*	*720*
MW-1							
7/24/2018	U<2	U<2	**460**	**160**	14	**17**	3.5
9/14/2023	U<1	U<0.5	**110**	1.5	8.7	--	--
MW-2							
7/24/2018	--	--	--	--	--	--	--
9/14/2023	U<1	U<0.5	**0.98**	U<1	U<1	--	--
MW-3							
7/24/2018	--	--	--	--	--	--	--
9/14/2023	U<1	U<0.5	0.11	2.1	U<1	--	--

Cascade Laundry - Summary of Groundwater Sampling Results - Metals

	Contaminant Concentration (µg/L)						
Date	Chromium	Copper	Lead	Nickel	Zinc	Hexavalent Chromium	Cyanide
CULs	*50*	*640*	*15*	*320*	*4,800*	*0.046*	*5*
MW-1							
9/14/2023	1.41	U<5	U<1	28.3	15.5	U<50	U<50
MW-2							
9/14/2023	--	--	--	--	--	--	--
MW-3							
9/14/2023	--	--	--	--	--	--	--

APPENDIX V

Stratum Group Field Procedures

STRATUM GROUP FIELD PROCEDURES

Site Preparatory Activities

Prior to the completion of subsurface exploration activities on the subject property, Stratum Group obtains approval for planned activities from the property owner and obtains or facilitates the public agency permits required for the desired work. Stratum Group marks the location of planned excavations or borings on the subject property with white paint and contacts the local one-call utility locating service at least two business days prior to the onset of exploration activities. Stratum Group also engages the services of a professional private utility locating company to survey the proposed exploration area(s) and conduct ground penetrating radar services to minimize the potential for exploration activities to encounter and/or damage buried utilities or objects.

Soil Borings & Soil Sampling

Stratum Group engages a licensed professional drilling company to complete subsurface soil borings with a drill rig, unless hand auguring or hand-dug test pits are proposed for the site. Continuous soil cores are typically collected using Geoprobe/push probe samplers. The boring method(s) selected are indicated on the boring logs completed for the project. Stratum Group chooses the sample locations based upon researched site history and project goals with some variability based upon utility locate/GPR findings and/or conditions identified in the field.

Field Screening

Soils recovered from the borehole are examined and field screened for odor, hydrocarbon sheen, discoloration, or other obvious indications of contamination. Any such obvious indicators, if observed, are recorded on the boring logs.

A MiniRAE 3000 photoionization detector (PID) equipped with a 10.6eV lamp is utilized to field scan samples for volatile organic compounds (VOCs). To evaluate for VOCs with the PID, soil is placed into a sealed plastic bag and allowed to sit for approximately 5 minutes. The PID sampler tip is then inserted into the headspace of the plastic bag to retrieve a parts per million (ppm) concentration of VOCs. Measurements obtained from the PID are recorded on the boring log. The PID is calibrated regularly in accordance with the manufacturer's specifications using a hexane or isobutylene standard.

Soils collected from the borings are described according to the Unified Soil Classification System (USCS), with particular note to presence of colors, moisture content, presence of debris and/or indicators of contamination. These descriptions are recorded on the boring log.

Soil Sampling (from borehole)

Soil collected via soil cores from push probe equipment is sampled where contaminants are determined to be most likely based on field indications and background knowledge, such as sample depths where discoloration or odors were noted, the top of the groundwater table, or at depths associated with the suspected base of tanks or piping. Soil samples are labeled with the boring number followed by the depth of the sample. For example, sample B1-5 would have been collected from Boring B1 at 5 feet bgs (below ground surface).

Soil samples are placed into labeled laboratory supplied containers. Sample container selection is based upon laboratory recommendations for volume, container type, and preservation, if necessary. Sampling equipment is either disposable or washed with Alconox and triple-rinsed between samples. Samples are placed into an ice-chilled cooler immediately after sampling and delivered to a Washington State Department of Ecology approved laboratory for analysis. The samples are transferred under chain-of-custody protocol.

Borehole Completion

If no temporary or permanent monitoring well is going to be installed, the soil boring is backfilled with bentonite chips to approximately 1 foot below the ground surface (bgs). The rest of the hole is filled and finished to the surface with material to match the surrounding surface (e.g., asphalt, concrete, dirt, etc.). The borehole is backfilled by the licensed well driller consistent with WAC 173-360 and overseen by Stratum Group.

Soil Sampling (from excavation)

Stratum group engages a licensed excavation contractor to complete excavation activities. As in borehole sampling, soils from the sidewalls and base of the excavation area are regularly examined and field screened for obvious indications of contamination (e.g., odor, hydrocarbon sheen, discoloration, etc.). This field examination in combination with PID screening is used to direct excavation activities.

When field screening indicates that contaminant concentrations in residual soils have fallen below the cleanup standards established for the subject property, soil samples are collected from the base and sidewalls of the excavation. Where possible, samples are collected directly using hand tools that are washed with Alconox and triple-rinsed between each sample. For deeper samples, where the excavation depth is too great for Stratum Group personnel to access directly, samples are collected from the excavator bucket. Overburden slough material that collects on top of soils in the bucket is removed prior to sampling so sampled soils are representative of the desired sampling location. Samples are subsequently handled according to procedures outlined above for borehole samples.

Monitoring Well Construction & Groundwater Sampling

If groundwater is encountered during soil boring completion, samples may be collected as either a grab sample from a temporary well or from a permanent monitoring well. Prior to well purging or sample collection, the depth of the groundwater table in the borehole or monitoring well is measured using a depth-to-water meter. Prior to sample collection, water is purged from the well. For a temporary well, water is purged until the water becomes clear or turbidity is significantly reduced. For a developed monitoring well, at least three well volumes are purged prior to sampling or until field parameters as measured with a field meter (e.g., temperature, dissolved oxygen, pH, conductivity) stabilize. If low water levels or low conductivity aquifers result in the wells pumping dry during purging, purging is halted and the well is allowed to recharge until it can be purged again. Multiple rounds of purging and recharging may be completed to allow for turbidity to decrease significantly, in the case of a temporary well, or for field parameters to stabilize, in the case of a permanent monitoring well. For a developed monitoring well, at least three well volumes are purged prior to sampling or until field parameters stabilize. Total well purge volumes prior to sampling may only be reduced (i.e., less than three well volumes) if several rounds of purging and recharge do not result in sufficient purge volume within a reasonable time frame. In such cases, the reduced purge volumes will be documented. Obvious indications of contamination observed in purge water such as odors or petroleum sheens are noted on the boring logs.

In the event of low water volumes or slow recharge of the wells, less water may be purged to allow for sample collection within reasonable time frames. Obvious indications of contamination observed in purge water such as odors or petroleum sheens are noted on the boring logs.

Both well purging and subsequent water sampling are accomplished using a low-flow, peristaltic pump, as recommended by the U.S. EPA. Low-flow pumping is utilized because it is more likely to produce a sample representative of actual groundwater conditions due to its relatively low impact on aquifer characteristics and chemistry. Tubing used for well purging and sample collection is single-use and is discarded after sample collection is complete.

Groundwater samples are placed into labeled laboratory supplied containers. Sample container selection is based upon laboratory recommendations for volume, container type, and preservation, if necessary. Samples are immediately placed into an ice-chilled cooler for storage until delivery to a Washington State Department of Ecology approved laboratory.

Temporary & Monitoring Well Construction

Temporary wells are constructed using single-use slotted PVC pipe placed in the depth range of desired groundwater sampling. Blank pipe rises from the top of the screen to the surface. The screen length and placement depth are noted on the boring logs or within report text. Any reusable materials are washed and triple rinsed between uses.

Permanent monitoring wells are similarly constructed with a slotted PVC screen placed at the

desired sampling depth with non-slotted PVC to the surface. The annular space between the PVC and the borehole is filled with a silica sand filter pack, which extends approximately one to two feet above the screen. Hydrated bentonite is used to fill the annular space from the filter pack to approximately one to two feet below the ground surface to form a seal. The surface is finished with concrete surrounding a steel flush-mount or above-grade monument to protect the well and protect against surface water infiltration or placement of substances down the well casing. Well construction details are noted in the boring logs.

After construction, Stratum Group recommends engaging the services of a licensed professional land surveyor to establish the location and elevation of permanent monitoring wells. Markings are made on the north side of the well casing to establish a consistent point for collecting depth-to-water measurements. Established well casing elevations combined with depth-to-water measurements collected during groundwater sampling may then be used to model groundwater flow directions.

Well Development

After construction of a permanent monitoring well, the well is developed using either a submersible pump or disposable bailer. An agitation apparatus that consists of a stainless-steel rod with neoprene washers the diameter of the inside of the well casing is periodically dropped into the well casing to generate additional pressure and suction through the sand filter pack and further remove fine-grained sediment from the well and surrounding filter. The submersible pump and agitator rod are thoroughly washed and rinsed between wells. Well pumping and agitation proceed until purge water turbidity has reduced and stabilized. The volume of water purged during development is recorded.

Air Sampling

Air samples are commonly collected to help assess the vapor intrusion pathway for contamination into nearby structures. Air samples may be collected either as subsurface soil gas, sub-slab air, or indoor air. Sampling equipment including tubing and valve assemblies are single-use and disposable. After sampling collection, samples are delivered to a Washington State Department of Ecology approved laboratory for analysis. The samples are transferred under chain-of-custody protocol.

Sub-slab Vapor Sampling

Stratum Group engages a professional drilling contractor to install permanent and temporary sub-slab vapor pins. For a permanent pin with a flush-mount installation, first a 1.5-inch hole is drilled approximately 1.75 inches into the concrete slab of the structure. A 5/8-inch diameter hole is then drilled through the bottom of the slab and approximately 1 inch into the underlying soil. The vapor pin is then hammered into the open hole. At least 20 minutes is allowed to pass before beginning the sample collection process to allow for equilibration. Prior to assembling the sampling apparatus, the laboratory supplied and cleaned 1L Summa canister and ~5-minute flow

controller used for sample collection are subjected to a shut-in test to look for leaks in the sampling equipment setup and the initial vacuum is recorded.

To collect a sample, tubing recommended by the vapor pin manufacturer is attached to the barb on the pin and attached to a valve assembly provided by the laboratory. Tubing also runs from the valve assembly to the Summa canister assembly. Prior to sample collection, a leak test and shut-in test are conducted on the sampling apparatus. The leak test is conducted using either a water dam (temporary pin) or by pouring water directly into the flush-mount hole (permanent) and looking for bubbling around the vapor pin or intrusion of water into the sample tubing. A shut-in test of the sampling apparatus involves manually applying a vacuum to the canister via the purge line of the apparatus and verifying that no leaks are allowing the vacuum to rapidly disappear.

Immediately before sampling, the sampling apparatus is purged using a manually applied vacuum sufficiently to remove ambient air from the tubing. The canister valve is then opened and the sample is collected over approximately 5 minutes or until the vacuum reading on the canister is approximately 5 in/Hg, being sure to not allow the vacuum to reach zero. The canister is then closed, and the vapor pin is either removed (temporary) and the hole patched or the pin is capped and covered (permanent) for future sampling.

Indoor Air Sampling

Indoor air samples are collected using laboratory-supplied and cleaned 6L Summa canister attached to either an 8-hour or 24-hour flow controller, depending upon whether the site's use is residential or commercial, per Department of Ecology guidance. Prior to sampling, the canisters and flow controllers are subjected to a shut-in test to look for leaks in the sampling equipment setup and the initial vacuum is recorded. Sampling canisters are placed within the general breathing height zone (4 to 6 feet above the ground surface).

At the same time as indoor air sampling collection, at least one outdoor (ambient) air sample is collected of the same time period as the indoor sample(s). Contaminant concentrations detected in the ambient air samples are subtracted from contaminant concentrations detected in the indoor air samples to assess the contribution of vapor intrusion into site structures more directly.

Sampling Results Quality Assurance

The laboratory that conducts analysis of the samples collected by Stratum Group conducts their own quality assurance procedures, which typically include surrogate recovery, method blank, laboratory blank, and blank spike duplicate tests. The results of these test are reviewed by Stratum Group and any significant non-conformances or problems identified that limit our ability to use the data is addressed in the body of this report.