REMEDIAL INVESTIGATION REPORT AND FEASIBILITY STUDY

Swinomish Market & Deli
Facility Site ID: 28128528
Cleanup Site ID: 16636

Prepared for: Swinomish Indian Tribal Community

Project No. 220230 • February 28, 2024 FINAL (REVISED)

Aspect
A Geosyntec Company

earth + water

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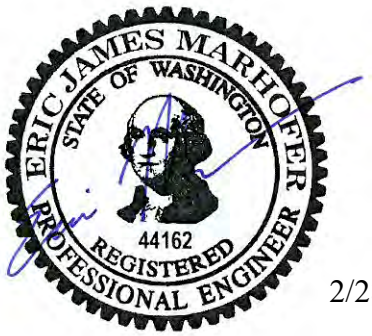

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Executive Summary

Aspect Consulting (Aspect) prepared this Remedial Investigation (RI) Report and Feasibility Study (FS) for the Swinomish Market site (Site) located at 12515 Christianson Road in Anacortes, Washington (Property). The purpose of this report is to document Site investigation activities undertaken to date to define and delineate the source of contamination, present a conceptual site model, propose cleanup standards, evaluate cleanup alternatives, and select a preferred remedy to clean up the Site.

A series of investigations was completed in 2023 to characterize the nature and extent of petroleum impacts in soil and groundwater at the Site. The primary contaminants of concern (COCs) were determined to be gasoline-range organics (GRO) and benzene from historical releases of gasoline related to underground storage tanks (USTs) formerly located in the northwest corner of the Property. The vertical extent of contamination ranges from 4 and 12 feet below ground surface (bgs) in the former UST area. The horizontal extent is limited by a general lack of groundwater outside of the perched zone within the former UST basin and the low permeability glacial till clay unit that lies below the fill material in the former UST area.

An analysis of potential exposure pathways for risk to human health and the environment did not find an acute risk for exposure to soil, groundwater, or vapor contamination. The soil contamination is currently capped in place. In addition to the groundwater contamination being limited to the perched water within the former UST area, there are no drinking water sources nearby. While there is a potential for vapor intrusion for the building on the Property based on physical distance from the source area, the current use of the Property as a gas station makes it unlikely that subsurface soil gas poses an additional risk to indoor air quality. Pending the timeframe for cleanup of soil and groundwater impacts, and the outcome of the cleanup action, further vapor assessment may be warranted to evaluate the vapor intrusion pathway.

Model Toxics Control Action (MTCA) Method A cleanup levels and standard points of compliance for unrestricted land use have been proposed for this Site. The FS and screening of potential cleanup technologies indicates that excavation and off-site disposal of soil and groundwater is the preferred cleanup alternative for this Site. The estimated cost for the recommended remedy is approximately $688,000. The excavation should be completed during the summer months to minimize costs for dewatering, soil disposal (weight), and stormwater management. The pump islands and convenience store will generally remain open and accessible during the construction.

The nature and extent of soil and groundwater contamination at this Site has been sufficiently characterized to select excavation and off-site disposal of petroleum contaminated soil as the preferred remedy. Preparation of a draft cleanup action plan (dCAP) and engineering design report (EDR), including plans and specifications for the excavation, is recommended as the next step in the MTCA cleanup process.

This Executive Summary should only be used in the context of the full report.

1 Introduction

Aspect Consulting (Aspect) prepared this Remedial Investigation (RI) Report and Feasibility Study (FS) for the Swinomish Market site (Site) located at 12515 Christianson Road in Anacortes, Washington (Property). The Site location is shown of Figure 1. The Site is listed in the Washington State Department of Ecology's (Ecology) Confirmed and Suspected Contaminated Sites List (CSCSL) as Cleanup Site ID 16636.

Under the Washington State Model Toxics Control Act (MTCA), a Site is defined as "any area where a hazardous substance…has been deposited, stored, disposed of, or placed, or otherwise come to be located as the result of a release" (Washington Administrative Code [WAC] 173-340-200). This Site is primarily defined by the extent of gasoline contamination in soil and groundwater, as delineated during RI activities and described in this report.

The Swinomish Indian Tribal Community (the Tribe) purchased the Swinomish Market in May 2016. A Phase I Environmental Site Assessment (ESA) conducted by Element Solutions (Element) prior to the purchase of the Property did not identify historical releases or sources of contamination at the Property (Element, 2016a). However, in 2022, Element recommended and conducted a *Targeted Environmental Soil and Groundwater Sampling* investigation, which identified petroleum hydrocarbon contamination in both soil and groundwater beneath the Property (Element, 2022). The Tribe informed Ecology of these results in a *Release Report* letter dated May 24, 2022 (Tribe, 2022)[1].

1.1 Purpose

The purpose of this report is to document Site investigation activities undertaken to date to define and delineate the source of contamination, present a conceptual site model, propose cleanup standards, evaluate cleanup alternatives, and select a preferred remedy to clean up the Site.

This work is being performed on behalf of the Tribe and this document was prepared in general accordance with the requirements of the MTCA Cleanup Regulations as adopted by Ecology in Chapter 173-340 of the WAC.

[1] The letter states that it *"shall not be construed as or deemed a waiver of the sovereign immunity of the Tribe, which is expressly retained. Similarly, the Tribe does not concede to the jurisdiction of Washington state or Department of Ecology despite the submittal of this information"*.

2 Background

This section describes the project location and a summary of ownership and operational history, including available information regarding present and historical UST systems.

2.1 General Site Information

The Property is located at 12515 Christianson Road in Anacortes, Washington and consists of a single tax parcel (Skagit County parcel no. P19843) totaling 0.6993 acres (Skagit County Assessor, accessed 10/15/2022). The Property is bounded on the north by the Washington State Route 20 (SR-20) right-of-way, on the east by a commercial property (currently Blue Cow Carwash), a commercial property to the south (currently Bastion Bay Brewing Company and surrounding improvements), and Christianson Road to the west. Current property improvements include a Shell Service Station (two separate pump islands), retail convenience store (Swinomish Market & Deli), and asphalt driveways and parking lot.

Neighboring properties consist primarily of commercial uses, including: the Swinomish Golf Links to the west, the Marathon Anacortes Refinery to the north, commercial properties to the east, and various commercial and residential properties to the south.

The Property-specific topography is flat with an elevation of approximately 14-feet above sea level, with surrounding topography (within 1 mile) sloping towards the Property (EDR, 2022). Apart from a landscaped grass area along the northern perimeter, the Property is entirely covered by hardscape asphalt or building improvements (the Swinomish Market building and fueling station infrastructure).

2.1.1 Underground Storage Tank System Components

The current Shell fueling station UST system consists of the following: one 6,000-gallon capacity UST storing premium gasoline, two 10,000-gallon capacity gasoline USTs storing regular and mid octane gasoline (respectively), and one 10,000-gallon capacity diesel UST (Element, 2016a). The current UST locations are shown on Figure 2. Element reported that these tanks were installed in 1989, constructed of dielectric-coated steel with single walled construction and sacrificial anode corrosion protection. The UST system is reportedly equipped with automatic tank gauging and leak detection devices and tested annually using a line tightness test. Conveyance piping for the UST system consists of single-wall fiberglass (Element, 2016a).

Element also reported that a historical UST system was present between 1964 and 1989 on the northwest portion of the Property associated with the former Texaco fuel station (shown on Figure 2). The former UST system reportedly consisted of five USTs with capacities between 500-1,000 gallons each. The tanks were decommissioned and removed in 1989 by Lee Morse General Contractors (Lee Morse). The Lee Morse UST removal letter, dated July 7, 1989, indicated that a “visual inspection for the soils showed it to be in good condition”. A copy of the Lee Morse Report is provided in Appendix A for reference. No additional documentation related to the former Texaco UST system operation or removal was available for review.

As shown on Figure 2, a historical Shell fuel service station was present just north of the Property, in the present-day SR-20 right-of-way. A Washington State Highway Commission Department of Highways Right of Way and Limited Access Plan shows a "Tanks" location immediately north of the Property consisting of two cylindrical tanks. Further to the northeast, "Gas Tanks" are identified. A copy of this plan sheet is provided in Appendix A for reference. No other information regarding the historical Shell fueling station operation or decommissioning was available for review.

2.2 Site History

The history presented herein is reflective of Element reports between 2016 and 2022, a current Environmental Data Resources (EDR) report acquired by Aspect and dated September 28, 2022, and historical files and aerial photographs from Washington State Department of Transportation (WSDOT) and Washington state Department of Natural Resources (DNR).

A 1941 aerial photograph indicates the Property and immediate vicinity were undeveloped. By 1943, a historical topographic map shows the Property improved with a single structure (EDR, 2022). No additional records were available for review detailing the earliest uses of the Property in the 1940s and early 1950s.

The earliest record reviewed detailing use of the Property and adjacent property to the north is a Memorandum of Lease between 1956 and 1963 between George D. and Clara E. Sullivan and Shell Oil Company (provided in Appendix A). Historical WSDOT records dated December 21, 1960, indicate that Shell (during the lease period identified above) used the adjacent property to the north as a fueling station (see SR-20 Plans provided in Appendix A). Portions of the historical Shell fueling station improvements encroached into the current Property boundaries prior to the SR-20 redevelopment between 1960 and 1963. The historical Shell fueling station was removed as part of SR-20 construction and the northern Property boundary was redrawn to its current location as part of SR-20 development. The Property was redeveloped for the Texaco fueling station in 1964 (Element, 2016a), including a UST system beneath the northwestern portion of the Property (Figure 2). The redevelopment configuration is confirmed on EDR aerial photographs from 1972 and 1981 (EDR, 2022).

The Property was further redeveloped between 1987 and 1990 into its current configuration, including decommissioning of the former Texaco fueling station USTs and redevelopment of the building as it exists today. The current USTs were installed on the south side of the Property during this redevelopment period (Figure 2). Except for ownership and fueling station entity changes, no significant Property reconfigurations have occurred following the redevelopment between 1987 and 1990.

2.3 Site Use

The Property and surrounding properties are situated in an area zoned Commercial in the City of Anacortes (City of Anacortes Zoning Map dated August 5, 2019). Access to the Property is from the west via Christianson Road. The Property is currently operating as a fuel service station and retail convenience market (Swinomish Market and Deli).

2.3.1 Surrounding Property Use

The Property is situated within a mixed commercial use area. Surrounding property uses are shown on Figure 2 and include the following:

- **North.** The Property is bound to the north by SR-20 right-of-way. The Marathon Anacortes Refinery and Fidalgo Bay are further to the north, across SR-20.
- **East.** The Property is bound to the east by a commercial carwash business (Blue Cow Carwash). Additional commercial/retail businesses are present to the northeast, across SR-20.
- **South.** The Property is bound to the south by Bastion Bay Brewing Company. Additional commercial/retail establishments are present in the commercial building south of the Property.
- **West.** The Property is bound to the west by Christianson Road. Further west, across Christianson Road, is the Swinomish Golf Links.

Prior to the SR-20 development between 1960 and 1963, an east-west county road (State Route 536, Junction SSH - 1-D) existed north of the Property according to the earliest historical topographic maps and aerial photographs reviewed from 1940 and 1943 (EDR, 2022). An aerial photograph from 1956 shows Christianson Road and a building associated with the current Swinomish Golf Links clubhouse were developed to the west of the Property. By 1972, the commercial building to the south of the Property is developed. An aerial photograph from 1998 shows the land to east of the Property cleared, and development of the current Blue Cow Carwash by 2006. No significant development of adjacent properties was observed between 2005 and present day.

2.4 Geologic and Hydrologic Setting

Based on area geologic mapping, the Property is mapped as nearshore estuarine or tidal flat deposits composed of fine sand, silt, and clay (DNR, 2000). Field explorations on the Property identified fill (consisting of silty sand) and/or native nearshore deposits (consisting of silts and clays with trace fine sand and wood fibers) extending to depths up to 5 feet below ground surface (bgs). The fill and nearshore deposits appeared soft to medium stiff during Site investigation activities. A gray-brown clay unit, identified as glacial till, was observed beneath the fill and nearshore deposits extending to the maximum depth explored of 15 feet bgs. The glacial till appeared stiff to very stiff as compared to the overlaying fill and nearshore deposits. The glacial till clay unit is interspersed with a thin layer of silt or silty sand between 10 and 12 feet bgs in locations on the northern side of the Property (AMW-2 and AMW-3). The glacial till clay unit was also noticeably dry. There were two exceptions to this geologic profile as follows:

1. Nearshore deposits extended to a depth of 13 feet bgs at one boring location in the southwest corner of the Property (AMW-4). The nearshore deposits consist of softer clay and silt and are directly underlain by the glacial till clay unit.
2. Fill soil extended to a depth of 12 feet bgs within the former Texaco UST area in the northwest corner of the Property (AMW-1). The fill consists of poorly graded silty sand with gravel and is directly underlain by the glacial till clay unit. This fill is distinctive from the shallow fill deposits elsewhere at the Property and is

inferred to be the material used to backfill the excavation associated with removal of the former Texaco USTs, as described previously in the Site history.

The depth to water at the Site ranged from less than a foot to over 5 feet bgs as measured in March and September 2023. While the static groundwater elevation measurements suggest a flow gradient toward the northeast, the observed geology and extremely slow rates of recharge during groundwater sampling (outside of the former Texaco UST fill area) suggest that the presence of water is not indicative of a contiguous groundwater table. Rather, the occurrence of groundwater presents as discontiguous areas of perched water that accumulate as a result of precipitation, infiltration, and interflow through the shallow unsaturated subsurface.

2.4.1 Surface Water

The nearest surface water body is Fidalgo Bay located approximately 800 feet to the northwest of the Property. Shallow seasonal drainage swales are also located to the north of the Property along SR-20 and on the other side of Christianson Road to the west.

2.4.2 Nearby Water Supply Wells

A search of Ecology's well log database (Ecology, 2023) and the Washington State Department of Health (DOH) database for public water systems (DOH, 2023) did not find any public water supply wells or systems within a 0.5-mile radius of the Property. The Property is served by a municipal water supply.

3 Field Investigations

This section describes previous investigations, identified data gaps, and subsequent investigations completed as part of the Site characterization.

3.1 Previous Investigations by Others

The following provides a summary of the previous environmental investigations completed by Element.

3.1.1 Environmental Site Assessments (2016)

Element produced three environmental assessment reports in 2016. Conclusions and recommendations presented in the reports are summarized below. The reports are as follows:

- Phase I ESA dated January 28, 2016 (Element, 2016a)
- Phase I ESA Continued Viability Update (Update) dated December 6, 2016 (Element, 2016b)
- Phase I ESA/Phase I ESA Update – Vapor Intrusion Potential Letter dated December 14, 2016 (Element, 2016c)

3.1.1.1 Phase I ESA

The 2016 Phase I ESA (Element, 2016a) identified the development of the Texaco fueling station between 1964 to 1969 as the first documented use of the Property. Element's description of Property use associated with fueling stations between 1969 and present day, including the location and description of UST systems, is consistent with the Background (Section 2) presented herein. Element did not identify any recognized environmental conditions (RECs) during their 2015 field visit to the Property and did not identify any RECs associated with records review and personal interviews.

Based on all research conducted as part of the Phase I ESA, Element stated "the risk of contamination at the subject property is relatively low and no further investigation is warranted." Because of the age of the current UST system (approximately 30 years old), Element recommended the installation of groundwater and/or soil gas monitoring well systems in the vicinity of the current USTs, and preemptive replacement of the UST system to minimize the risk of a release to subsurface soil and groundwater.

3.1.1.2 Phase I ESA Update

A Phase I ESA Update (Element, 2016b) was performed by Element in November and December 2016, following the Tribe's acquisition of the Property on May 4, 2016. The Phase I Update consisted of a Property visit/inspection, updated Environmental Data Resources (EDR) report acquisition and review, review of government regulatory records, and personal interviews.

The Phase I Update noted that an Ecology Notice of Non-Compliance (NONC) was issued for the Property on October 26, 2016, due to the presence of rainwater and product (sheen) in UST full-port spill buckets. However, Element noted that the violations identified in the NONC did not pose an *"imminent threat to the environment, and no evidence of spills, leaks, or environmental contamination was contained in the inspection notes or other WDOE records for the site."*

Consistent with the findings of the Phase I ESA, the Update did not identify any RECs in connection with the Swinomish Market and Deli and noted that the "risk of environmental contamination at the subject property is low and no further investigation is warranted." Element recommended that UST spill buckets be replaced by a qualified UST provider and inspected regularly. Element also recommended that the applicable Ecology inspector be contacted to ensure compliance with all elements of the NONC.

3.1.1.3 Vapor Intrusion Letter

Element prepared an update to the Phase I ESA to address the potential for vapor intrusion in December 2016 (Element, 2016c). The assessment was based on desktop records review, interviews, and visual site inspections in December 2015 and November 2016. Element stated that they did not specifically inspect the building foundation and that subsurface conditions beneath the building were unknown.

The assessment indicates that Element did not review any records that would suggest the presence or likely presence of contaminated soil or groundwater beneath the Property. Element did not review any records indicating a leak, spill or uncontrolled release related to the current USTs. Based on the sources reviewed above, Element concluded that "risk of environmental contamination related to vapor intrusion at the subject property is low and no further investigation is warranted."

3.1.2 Targeted Environmental Soil & Groundwater Sampling (2022)

During preliminary review of additional information discovered in preparation for an update to the ESA in 2021, it was speculated that other historical tanks may have been present in the right-of-way to the north of the Property that were not previously recognized. As a result, Element recommended conducted a *Targeted Environmental Soil and Groundwater Sampling* investigation in February 2022 (Element, 2022).

3.1.2.1 Investigation Overview

The investigation consisted of seven exploration locations (B1-B7). The approximate locations of these borings are shown on Figure 2. Soil samples were collected from each location at select depths; grab-groundwater samples were collected from boring locations B3, B6, and B7. Borings were advanced using direct-push technology with continuous soil sample retrieval using acetate sleeves. Grab-groundwater samples were collected using 1.0-inch inner-diameter Schedule 40 screened PVC[2].

Element indicated that three locations (B2, B3 and B4) were advanced on the northwestern portion of the Property, near the historical Texaco UST system and as "close as feasible" to the off-Property former Shell UST system (see Figure 2). Aspect understands that Element determined exploration locations could not be performed further to the north, near the northern Property boundary and in closer proximity to the historical Shell UST locations that prompted the investigation, due to significant utility concerns[3]. Element noted that exploration locations beneath the southern portion of the Property were located near the current UST system to assess whether modern-era fueling station operations affected soil and groundwater quality.

Soil and groundwater samples collected by Element were submitted to ALS Environmental Laboratory in Everett, WA and analyzed for all or a subset of the following:

- Gasoline-range organics (GRO) by Northwest Method NWTPH-Gx.
- Benzene, toluene, ethylbenzene and xylenes (BTEX) and Methyl tertiary-butyl ether (MTBE) by United States Environmental Protection Agency (EPA) Method 8021.
- Diesel- and oil-range organics (DRO and ORO, respectively) by Northwest Method NWTPH-Dx.
- Polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270.

3.1.2.2 Soil Sampling Analytical Results

As summarized in the Element Investigation Report (Element, 2022), GRO was detected at locations B2, B3, B4 and B7. Detections at B2 and B4 ranged from 4.4 to 8.5 milligrams per kilogram (mg/kg), below the MTCA Method A Unrestricted Land Use

[2] Screen interval, slot size, and methodology for sealing the temporary well screen interval off from potential surface runoff or shallow perched zones (if used) were not described in the Element report.
[3] Per phone conversation between Aspect and Elissa Kalla (Tribe) on October 19th, 2022.

cleanup level (CUL) of 100 mg/kg. At location B3, GRO was detected at 4,000 mg/kg at 4.5 bgs, significantly exceeding the MTCA Method A CUL. A sample collected from 11 feet bgs at B3 had a GRO concentration of 15 mg/kg.

Benzene was detected at locations B2, B3 and B4 at concentrations ranging from 0.032 to 4.9 mg/kg, all exceeding the MTCA Method A CUL of 0.03 mg/kg. The highest benzene detection of 4.9 mg/kg occurred at B3-4.5, coinciding with the highest GRO detection. Ethylbenzene was only detected at location B3-4.5, at a concentration of 33 mg/kg, exceeding the MTCA Method A CUL of 6 mg/kg.

DRO and ORO were detected at location B3 (B3-4.5) at concentrations of 300 and 63 mg/kg, respectively. DRO was also detected at location B2 (B2-7) at 74 mg/kg. The detections were all below the MTCA Method A CUL of 2,000 mg/kg for both diesel and motor oil.

Concentrations of MTBE, xylenes and toluene were not detected in soil samples above laboratory reporting limits (RLs) at all locations and depths.

A single soil sample from location B3 at 4.5-feet bgs (B3-4.5) was submitted for PAH analysis. Element reported that carcinogenic PAHs (cPAHs) were not detected above laboratory detection limits. Total naphthalene (considered a non-carcinogenic PAH) was detected at 45 mg/kg in B3-4.5, exceeding the MTCA Method A CUL of 5 mg/kg.

3.1.2.3 Grab Groundwater Analytical Results

Groundwater grab samples collected from locations B3, B6 and B7 had detections of contaminants above MTCA Method A CULs. As summarized in the Element Investigation Report (Element 2022), GRO was detected at B3 and B7 at 5,300 and 400 micrograms per liter (µg/L), respectively. The groundwater concentration at B3 (B3-GW) exceeded the MTCA Method CUL of 1,000 µg/L.

Element reported MTBE detections at B3 and B6 at concentrations of 96 and 12 µg/L, respectively. The MTBE concentration in the B3-GW sample exceeded the MTCA Method A CUL of 20 µg/L. For reference, MTBE was phased out of use in gasoline by 2006.

All BTEX compounds were detected in the B3-GW sample at the following concentrations: benzene at 4,100 µg/L, toluene at 50 µg/L, ethylbenzene at 110 µg/L, and xylenes at 140 µg/L. The benzene concentration at B3 (4,100 µg/L) exceeded the MTCA Method A CUL of 5 µg/L. The only other BTEX detection occurred at B7, with a benzene concentration of 2.1 µg/L, below the CUL.

DRO and ORO were detected at all three locations. Concentrations of DRO were 990 (B6-GW), 4,400 (B7-GW) and 4,600 µg/L (B3-GW), respectively. Concentrations of ORO were 620 (B6-GW), 500 (B7-GW) and 2000 µg/L (B3-GW), respectively. All DRO and ORO concentrations exceeded the MTCA Method A CULs of 500 µg/L (for both DRO and ORO).

One sample, B3-GW, was submitted for PAH analysis. Element reported that cPAHs were detected, however total cPAH concentrations (0.035 µg/L) were below the MTCA toxicity equivalent (TEQ) of 0.1 µg/L. Naphthalene was detected in B3-GW at 242 µg/L, exceeding the Method A CUL of 160 µg/L.

3.1.3 Data Gaps

Based on review of available environmental data from the previous investigations by Element, the following data gaps were identified:

- The source of subsurface contamination had not been determined.
- Contaminants and media of concern needed to be confirmed for soil and groundwater.
- The horizontal and vertical extent of soil contamination had not been determined.
- The extent of groundwater contamination and groundwater flow direction had not been determined.
- The potential for subsurface soil gas impacts and petroleum vapor intrusion had not been assessed.

Additionally, it was recommended that groundwater quality be assessed using permanent monitoring wells installed and developed with surface seals because grab samples collected via temporary well screens are typically biased high due to turbidity and lack of stabilization. Also, without a surface seal, it is not possible to determine whether the water sampled from temporary well points is from surface runoff or shallow perched zones, which would not necessarily be indicative of groundwater or aquifer conditions.

3.2 Site Characterization

To begin addressing identified data gaps, Aspect completed a series of field investigations as part of the RI to characterize the nature and extent of petroleum impacts in soil, groundwater, and vapor at the Site, including:

- Utility location and mapping to evaluate the potential for preferential contaminant migration pathways.
- Advancing 20 soil borings to assess the vertical and lateral extent of soil impacts.
- Installing 5 monitoring wells to assess groundwater quality and flow direction.
- Performing an initial petroleum vapor intrusion (PVI) assessment based on the results of soil and groundwater investigation results.

The rationale and methodologies for the RI activities conducted to date can be referenced in the Remedial Investigation Work Plan (RIWP; Aspect 2023a) and RIWP Addendum (Aspect 2023b). The investigations and results of Site characterization are summarized in the follow sections.

3.2.1 Utility Locating and Mapping

A public and a private conductible utility locate were completed prior to drilling activities to clear locations for subsurface utilities and aid in evaluation of the potential for preferential vapor migration pathways at the Site. A search of publicly available data sets for utility information was also completed. Identified subsurface utilities are shown on Figure 2 and include:

- Potable water enters the Property from Christianson Road, at the northwest corner of the Property. The water main feeds at least five individually metered lateral service connections. The connections serve the Swinomish Market building, the adjacent Blue Cow Carwash to the east, and at least three connections to the commercial building and associated businesses to the south of the Property. A private utility locating service was not able to trace the water lines beyond the meters, likely because the lines are plastic and there is no tracer conductible wire.
- Electrical power was identified in the following locations: (1) along the northern perimeter of the Property, paralleling the Property line, (2) a diagonal electrical line, off the perimeter line noted above, appearing to service the electrical signage in the northwest corner of the Property, and (3) electrical emanating from the northwestern corner of the Property boundary terminating at the Property building. Electrical power and control connections from the Swinomish Market Building to the pump islands were not established.
- Other non-conductible utilities (e.g., plastic or concrete sanitary sewer) were not marked by public or private locators, but a sanitary sewer main was identified in the City of Anacortes GIS interactive map[4], with inferred locations shown on Figure 2. The sanitary sewer main runs east-west across the north side of the Property with lateral side sewer connections to the Swinomish Market and Deli building and Bastion brewing Company building further south.

Based on the utility mapping effort, the potable water and electrical utility network at the Site does not currently present a preferential vapor intrusion pathway. Water and electric utilities present a low risk for transport of petroleum vapors into buildings because they are not open conduits, and the utility corridors are not suspected of having significantly higher permeability than the surrounding soil. The sanitary side sewer connections are not located in an area with documented subsurface contamination. Therefore, the sewer also presents a low risk for transport of petroleum vapors into buildings.

3.2.2 Soil Investigation

The objective of the soil investigation was to identify likely sources of petroleum impacts in soil, confirm the chemicals of concern, and begin to define the lateral and vertical extents of the impacts. The soil investigation was conducted in a series of two mobilizations, as follows:

- Between March 14 and 15, 2023, six soil borings (AMW-1 through AMW-5, and AB-1) were advanced using direct-push drilling equipment.
- Between September 11 and 12, 2023, fourteen soil borings (AB-2 through AB-11 and HA-1 through HA-4) were advanced using direct-push drilling equipment.

Soil boring locations are shown on Figure 2. Drilling equipment was operated by Cascade Drilling LP of Woodinville, Washington. Some drilling locations were shifted or added in the field and relative to proposed locations in the RIWP and RIWP addendum to avoid

[4] https://www.arcgis.com/apps/webappviewer

subsurface utilities and/or provide additional data points in an effort to bound soil contamination.

Soil samples were collected and logged continuously to depths of up to 15 feet. Soil samples were field screened for signs of petroleum impacts using field observations and by headspace analysis using a photoionization detector (PID). The geology was logged in general accordance with the ASTM International (ASTM) standard ASTM D2488 for visual classification of soils using the Unified Soil Classification System (USCS). Boring logs are provided in Appendix B.

A total of 32 analytical soil samples were collected from soil borings as follows based on field screening and observations. Soil and field screening observations are recorded on the boring logs included as Appendix B.

Soil samples were collected directly into preserved laboratory-supplied sample containers, placed on ice in a cooler, and maintained under chain-of-custody procedures until they were delivered to Friedman and Bruya (F&B) of Seattle, Washington, and analyzed for one or more of the following:

- GRO by Northwest Method NWTPH-Gx.
- Samples from the first mobilization were analyzed for DRO and ORO by Northwest Method NWTPH-Dx; however, given a lack of detection in soil during all previous investigations, this analysis was discontinued for the second mobilization.
- Petroleum-related volatile organic chemicals (VOCs): BTEX, naphthalene, MTBE, dibromoethane 1-2 (EDB), and dichloroethane 1-2 (EDC) by Environmental Protection Agency (EPA) Method 8260.
- Lead by EPA Method 6020 in two samples that exhibited the strongest petroleum impacts based on field screening (AMW-1-6.5-7 and AMW-3-4.5-5).

The soil investigation results are presented in Section 3.3.1. Laboratory analytical reports are provided in Appendix C.

Following completion, soil borings were abandoned using bentonite per Chapter 173-160 of WAC (unless otherwise completed as a monitoring well). The horizontal location of each boring location was surveyed with respect to the Washington State Plane Coordinate System using the 2011 North American Datum (NAD83[2011]) using a handheld global positioning system (GPS) device with submeter accuracy.

3.2.3 Groundwater Investigation

The objective of the groundwater investigation was to identify likely sources of petroleum impacts in groundwater, confirm the chemicals of concern, begin to define the lateral and vertical extents of the impacts, and evaluate groundwater presence and potential flow direction.

3.2.3.1 Monitoring Well Installation, Development, and Survey

Five of the soil borings described in Section 3.2.2 were completed as groundwater monitoring wells to assess groundwater quality and flow direction at the Site (AMW-1 through AMW-5). Monitoring well locations are shown on Figure 2.

Monitoring wells were installed in accordance with WAC 173-160 and as outlined in the RIWP. Each well was constructed using 10 feet of screen between 3 and 13 feet bgs. Well construction details are included on the boring logs in Appendix B.

Soil boring location AB-1 was not completed as a monitoring well as originally planned because water was not observed in the continuous soil cores or within the bore hole[5]. Clay was encountered in boring AB-1 at approximately 2.5 feet bgs; indications of groundwater were not encountered to the maximum depth explored of 15 feet bgs.

Permanent monitoring well locations on the northwestern portion of the Property (AMW-1 and AMW-2) were installed to evaluate subsurface water conditions near both the former off-Property Shell fuel station USTs, and near the USTs associated with the former Texaco fuel station (see Figure 2). Monitoring well locations on the southern portion of the Property (AMW-4 and AMW-5) were installed to evaluate conditions near the current UST system and to evaluate former groundwater grab sampling results from temporary boring locations previously completed by others (B6 and B7). Monitoring well location AMW-3 was selected to evaluate conditions near the western fuel pumps/canopy and provide delineation between the north and south side of the Property.

Following installation, the monitoring wells were developed to remove fine-grained material from inside the well casing and filter pack and to improve hydraulic communication between the well screen and the surrounding water-bearing formation. Cascade Drilling conducted development activities using a 12-volt submersible pump. During development, the pump was surged along the entire length of submerged well screen. At wells AMW-1 and AMW-2, development continued until 10 casing volumes of water had been removed. Turbidity readings at the 10-casing volume stage were between 600 and 800 Nephelometric Turbidity Units (NTU)[6]. Development of wells AMW-3 through AMW-5 could not be completed due to a lack of recharge during development.

Following installation, the monitoring wells were surveyed for top-of-casing elevations using the North American Vertical Datum of 1988 (NAVD88) by Wilson Engineering, LLC of Bellingham, Washington. The horizontal location of each well was also surveyed with respect to the Washington State Plane Coordinate System using the NAD83(2011).

3.2.3.2 Groundwater Sampling

Groundwater monitoring events were conducted on March 27 and September 13, 2023. Groundwater sampling was performed using a peristaltic pump, dedicated tubing, and standard low-flow groundwater sampling techniques. Prior to groundwater sampling, a full round of depth-to-groundwater measurements were collected from monitoring wells at the Property using a water level meter, and all wells contained water; however, monitoring wells AMW-3, AMW-4, and AMW-5 went dry during low-flow purging in

[5] Aspect field personnel noted they waited up to 3 hours following drilling and water was not present.
[6] The fine-grained lithology across the Property results in high turbidity measurements.

March and did not recharge during the site visit. During the September event these wells were purged the evening before the sampling event and only had recharged between 22 and 71 percent over a period of 18 hours by the time field staff had returned to sample; therefore, collection of groundwater samples is not considered feasible nor representative of a groundwater condition at these locations.

Groundwater samples were collected at AMW-1 and AMW-2 following stabilization of low-flow sampling field parameters (temperature, specific conductance, dissolved oxygen, pH, oxidation-reduction potential, and turbidity). Field parameters, including the water level, did not stabilize at AMW-2 during the September sampling event. Therefore, a sample was collected before the well went dry given the slow recharge rates observed elsewhere at the Site.

Groundwater samples from AMW-1 and AMW-2 were collected directly into preserved laboratory-supplied sample containers from the pump tubing discharge, placed on ice in a cooler, and maintained under chain-of-custody procedures until they were delivered to F&B. Groundwater samples were analyzed as follows:

- GRO by Northwest Method NWTPH-Gx
- Samples from the March sampling event were analyzed for DRO and ORO by Northwest Method NWTPH-Dx; however, given a lack of detection in soil during all previous investigations and laboratory flags indicating that detections in groundwater were likely a result of overlap for weathered gasoline, this analysis was discontinued for the September sampling event.
- BTEX, naphthalene, MTBE, EDC, and EDB by EPA Method 8260
- Dissolved lead by EPA Method 6020B in March only. Given the lack of detection above the MTCA Method A CUL this analysis was discontinued for the September sampling event.

The groundwater investigation results are presented in Section 3.3.2. Laboratory analytical reports are provided in Appendix C.

3.2.4 Initial Petroleum Vapor Intrusion Assessment

According to Ecology's *Process for Initially Assessing the Potential for Petroleum Vapor Intrusion* (Ecology, 2022), and based on the extent of the petroleum impacts delineated during the soil and groundwater investigations, the Swinomish Market building appears to be within Ecology's prescribed 30-foot lateral inclusion zone from documented soil and groundwater contamination exceeding MTCA Method A CULs.

There are no other buildings or structures within Ecology's prescribed screening distances from documented soil and groundwater contamination exceeding MTCA Method A CULs. In addition, there are no apparent "precluding factors", such as preferential pathways via subsurface utilities, that would justify greater separation distances.

Ecology guidance indicates that the next step for PVI assessment is a Tier II vapor assessment, which includes sampling soil gas below the Swinomish Market building and comparing those results to MTCA Method B commercial screening levels; however,

given the current use of the Property as a gas station it is unlikely that subsurface soil gas poses an additional risk to indoor air quality.

3.2.5 Quality Assurance/Quality Control

Data presented in this report meet data quality objectives in accordance with MTCA requirements (WAC 173-340-350). Sample collection, handling, and chain-of-custody protocols were followed to achieve representative data for a given matrix, in accordance with industry-standard practices. Chemical analysis of the samples was conducted by a laboratory accredited by Ecology, using MTCA-required analytical methods (Ecology methods for petroleum mixtures and EPA Standard Methods for other analytes). Those analytical methods, in conjunction with a Contract Laboratory Program, specify quality control (QC) procedures (lab method blanks, spikes, internal standards, etc.) to ensure the analytical results are of known quality and acceptable to achieve project objectives.

The laboratory conducted an internal quality assurance (QA) review of the generated results, and qualified results to identify QC concerns in accordance with their standard operating procedures for each analytical method. The laboratory also defined additional data qualifiers to explain QC concerns more completely regarding particular sample results, when necessary, such as when a sample was diluted prior to analysis, or if sample chromatograph patterns did not resemble the fuel standard used for quantitation.

Upon receipt of the data, Aspect reviewed the analytical results and laboratory report. Qualifiers were assigned to results as applicable, based on laboratory flagging and report notes. Laboratory results were loaded and managed in a controlled database environment, with assorted data-entry QC procedures, ensuring data integrity and consistency.

3.3 Remedial Investigation Results

A review of analytical sampling results from the RI is provided in the following sections below. A summary of geologic and hydrologic findings is provided in Section 2.4 and soil boring logs are provided in Appendix B.

3.3.1 Soil Analytical Results

Soil analytical results were compared with MTCA Method A CULs for unrestricted land use. Soil analytical results are summarized in Table 1 and illustrated on Figures 3 and 4, and further summarized as follows:

- The highest concentrations of GRO and benzene detected were at AMW-1, within the former Texaco UST area. GRO, benzene, and total xylenes were detected above Method A CULs at a depth of 6.5 to 7 feet bgs. There were no detections of petroleum-related compounds above laboratory reporting limits[7] (RLs) at 12 feet bgs.
- GRO and benzene were detected above MTCA Method A CULs at AB-5, AB-7, and AB-11 at a depth of 2 feet bgs. There were no detections of petroleum-related compounds above CULs at these borings below 2 feet bgs.

[7] Laboratory reporting limits for all analytes were below respective MTCA Method A CULs

- GRO only was detected above the Method A CUL at AB-1 at a depth of 0.5 to 1 feet bgs. There were no detections of petroleum-related compounds above RLs at 3 feet bgs.
- EDB, EDC, and MTBE were not detected at the Site above RLs.
- Lead was detected at normal background concentrations for the Puget Sound region in the subset of samples that were analyzed, and well below the MTCA Method A CUL.
- There were no detections of petroleum-related compounds above MTCA Method A CULs at the remaining soil boring locations.

The nature and extent of soil impacts are discussed in further detail in the conceptual site model (CSM) presented in Section 4.2.1.

3.3.2 Groundwater Analytical Results

Groundwater analytical results were compared to MTCA Method A CULs for unrestricted land use. Analytical results from groundwater samples collected in March and September 2023 are summarized in Table 2 and illustrated on Figures 5 and 6, and further interpreted as follows:

- GRO, DRO, and benzene were detected above Method A CULs at AMW-1, within the former Texaco UST area. ORO, ethylbenzene, and total xylenes were detected below CULs.
- DRO and dissolved lead were detected below Method A CULs at AMW-2. There were no other detections of petroleum or petroleum related VOCs above RLs.
- As discussed in Section 3.2.3.2, the remaining monitoring wells went dry at the time of sampling and did not recharge sufficiently for sample collection.

The nature and extent of groundwater impacts are discussed in further detail in the conceptual site model (CSM) presented in Section 4.2.2.

3.3.3 Data Quality Review

Aspect reviewed laboratory data and analytical results in accordance with internal QA/QC procedures. The data presented in this report meet data quality objectives in accordance with MTCA requirements (WAC 173-340-350). Laboratory reports and chain-of-custody documentation are included as Appendix B. Items flagged or noted by the lab were identified and qualified as follows.

3.3.3.1 Soil

The DRO results at AB-1 and AMW-1 did not match the chromatographic pattern for the fuel standard used for quantitation. These results are flagged with an “X” in Table 1.

Further laboratory assessment of the chromatograms for the DRO results at AB-1 (0.5 to 1 feet bgs) and AMW-1 (6.5 to 7 feet bgs) indicates that the DRO detections are the likely result of overlap from weathered gasoline. Therefore, these results are not considered indicative of a diesel release at those locations.

Further laboratory assessment of the chromatogram for the DRO result at AMW-1 (0.5 to 1 feet bgs) indicates that the DRO detection is likely the result of naturally occurring organic material in the soil. Therefore, this result is not considered indicative of a diesel release at this location.

3.3.3.2 Water

The DRO and ORO results at AMW-1 and AMW-2 did not match the chromatographic pattern for the fuel standard used for quantitation. These results are flagged with an "X" in Table 2.

Further laboratory assessment of the chromatogram for the DRO and ORO result at AMW-1 indicates that the detections are likely the result of overlap from weathered gasoline. Therefore, this result is not considered indicative of a diesel release at this location.

Further laboratory assessment of the chromatogram for the DRO result at AMW-2 indicates that the detections are likely the result of overlap from weathered gasoline and naturally occurring organic material in the soil. Therefore, this result is not considered indicative of a diesel release at this location.

4 Conceptual Site Model

This section summarizes contaminants of concern (COCs), summarizes the nature and extent of environmental impacts, discusses contaminant fate and transport, and presents an exposure pathway assessment for potential receptors based on available data.

4.1 Chemicals of Concern and Affected Media

The COCs identified for the Site are based on the occurrence of chemicals exceeding unrestricted cleanup levels in soil and groundwater during remedial investigation activities. The COCs and affected media based on these criteria are as follows:

- GRO and benzene in soil and groundwater
- Xylenes in soil

Toluene, ethylbenzene, naphthalene, MTBE, EDB, EDC and lead are not retained as COCs, as they were either not detected or detected below their respective MTCA Method A cleanup levels.

DRO and ORO are not retained as COCs given the lack of detection of these constituents during the RI. As discussed in Section 3.3.3, detections of DRO and ORO are not considered indicative of diesel or oil and are likely the result of a highly weathered gasoline release.

As discussed in Section 3.2.4, air is retained as a potential media of concern based on current guidance for initial assessment of the potential of petroleum vapor intrusion (Ecology, 2022); however, given the current use of the Property as a gas station it is unlikely that subsurface soil gas poses an additional risk to indoor air quality.

4.2 Nature and Extent of Contamination

This section describes the nature and extent of contamination at the Site based on the results of investigations described in Section 3. A source area is the location where a release has occurred at a Site. The source area for the GRO, benzene, and xylene contamination at this Site is the result of a historical release in the former Texaco UST area.

4.2.1 Soil Impacts

The soil investigation results indicate that soil impacts have been sufficiently delineated for purposes of the RI. The soil sampling results indicate that contamination exceeding Method A CULs primarily exists within the former Texaco UST area and adjacent shallow soil to the south and west. There was also a slight detection of GRO above the CUL on the east side of the Property in shallow soil.

Within the former Texaco UST basin, the vertical extent of contamination is located within the upper 12 feet of the subsurface and confined by the clay unit that underlies the poorly graded fill. To the south and west of the former UST basin (soil borings AB-5, -7, and -11), the vertical extent of contamination is limited to the shallow fill in the upper two-feet of the subsurface. The vertical profile of contamination within the fill unit is shown on the geologic cross section on Figure 4.

The horizontal extent of contamination in the former Texaco UST area is bound to the north/northwest by AB-6/AB-8 (respectively), to the east by AB-3, and to the south/southwest by AMW-3/AB-10 (respectively). The horizontal extent of soil contamination is illustrated on Figure 3.

The shallow soil sample from AB-1 (0.5 to 1 feet bgs) is the only location outside of the former Texaco UST area with a detection of GRO marginally exceeding the Method A CUL (with no benzene present). The horizontal extent of contamination was bound by step-out samples to the north, east, south and west (5-foot lateral step-outs at borings HA-1, -2, -3, and -4). COCs were not detected in any of the step-out samples. The limited vertical and horizontal extent of contamination at AB-1 is considered de minimis and incidental to the Property use and runoff from the adjacent car wash.

4.2.2 Groundwater Impacts

The groundwater investigation results indicate that the dissolved phase groundwater plume has been sufficiently characterized for purposes of the RI. The groundwater sampling results indicate that contamination exceeding Method A CULs is limited to the former Texaco UST basin. The horizontal extent of contamination is bound to the north by AMW-2. Light nonaqueous phase liquids (LNAPL) have not been detected at the Site and are not expected to be present, based on the documented concentrations of GRO in soil and groundwater.

Groundwater samples have not been collected from AMW-3, located south of the Texaco UST area. Extremely slow rates of recharge observed during well development and attempted groundwater sampling suggest that the presence of water is not indicative of a contiguous groundwater table between AMW-1 and AMW-3 and is instead perched and

discontinuous. Due to the conditions noted above during well development and attempted sampling, groundwater samples have also not been collected from AMW-4 and AMW-5.

Groundwater or evidence of saturated soil was not observed at locations AB-5 (south of the former UST area) and AB-7 (west of the former UST area) at the maximum depth of exploration (12 feet bgs). As noted above, soil contamination at these locations was limited to the upper 2-feet; Aspect did not find evidence of groundwater and/or contaminated groundwater extending to the south or west of the former Texaco UST area. Groundwater monitoring results are illustrated on Figures 5 and 6.

4.2.3 Vapor Impacts

The extent of potential vapor impacts has not been fully evaluated. As discussed in Section 3.2.4, soil impacts exceeding Method A cleanup levels are documented within the lateral and vertical screening distances of the building on the Property. However, there are no other buildings within the lateral inclusion zone of 30 feet from documented soil impacts above the water table. Given the current use of the Property as a gas station it is unlikely that subsurface soil gas poses an additional risk to indoor air quality. Pending the timeframe for cleanup of soil and groundwater impacts, and the outcome of the cleanup action, a Tier II vapor assessment may be required to evaluate the vapor intrusion pathway.

4.3 Contaminant Fate and Transport

This section describes the fate and transport of COCs at the Site. Transport mechanisms for petroleum impacts include adsorption to soil following the initial release, desorption and dissolution in groundwater, and advection through groundwater table fluctuation. As noted in Section 2.1.1, Lee Morse did not document petroleum impacts to groundwater or soil during removal of the former Texaco USTs, but they did not conduct any sampling and no additional documentation was available for review. Investigation data indicate that petroleum impacts to soil and groundwater are focused on the former Texaco UST area.

GRO impacts within the former Texaco UST area initially adsorbed into the soil matrix adjacent to and below the USTs because of releases prior to their removal. The vertical distribution of these releases was driven by gravity and facilitated by capillary forces through soil pore space. Seasonal fluctuations in the groundwater table due to the infiltration of surface water aid in desorption and dissolution of COCs into the perched water zone within the UST basin.

Subsurface investigations have determined that backfill material from the former UST excavation is a highly permeable, poorly graded sand. This sand backfill area is confined vertically and laterally (at depths below 3 feet bgs) by the surrounding low permeability glacial till clay unit. This combination of coarse-grained sand and confining glacial till unit has resulted in a perched zone of water within the former UST basin that fills up with precipitation from surrounding surface infiltration and shallow interflow during the wet season. As a result, the fill within the UST basin is contaminated with the residual soil and groundwater impacts left behind from the former USTs. The vertical transport of contamination is limited by the glacial till.

The horizontal distribution of the release in the shallow vadose zone to the south and east is facilitated by water table fluctuations within the former UST basin and perched water

escaping during periods of high water table events in the wet season. GRO and benzene impacts in shallow soil at AB-5, -7 and -11 are considered to be the result of perched water escaping from the former UST basin into the shallow surrounding permeable fill through advection and desorption. Low concentrations of contaminants adsorb onto the shallow soil and persist after seasonal recession of the perched water table.

Diffusion of petroleum impacts from soil and groundwater to the vapor phase is also considered a transport mechanism for COCs. However, soil gas is not considered likely to pose a risk to indoor air (Section 4.2.3).

4.4 Exposure Pathway Assessment

The two primary exposures associated with the presence of the COCs at the Site are human health and terrestrial ecological risk. The nature and extent of COCs in the affected media determines the potential exposure scenarios for both.

The potential exposure pathways that may affect human health are through contact with soil, groundwater, and vapor. The following sections provide a description of the potential exposure pathways for each media considered in this assessment.

4.4.1 Soil Exposure Pathway

Two potential soil exposure pathways, direct contact and leaching to groundwater, have been identified for the Site, as follows:

- **Direct-contact exposure pathway:** The direct-contact exposure pathway considers both dermal contact and ingestion of soil from beneath the Site, to a maximum depth of 15 feet bgs. Soil quality data indicate GRO and benzene concentrations are present at the Site above 15 feet bgs, but these soil impacts are currently capped below the asphalt surface. Therefore, the direct-contact pathway is considered incomplete.
- **Soil leaching-to-groundwater transport pathway:** The soil leaching-to-groundwater transport pathway requires consideration of the highest beneficial use of groundwater at the Site in accordance with WAC 173-340-357(3)(d). The highest potential beneficial use of groundwater at the Site is drinking water. Based on the groundwater sampling events at the Site, groundwater is impacted above MTCA Method A cleanup levels. Therefore, the soil leaching-to-groundwater pathway is considered complete; however, the risk of exposure via the groundwater pathway is considered low, as discussed below.

4.4.2 Groundwater Exposure Pathway

Two groundwater exposure pathways, groundwater ingestion and groundwater to surface water, have been considered for the Site as follows:

- **Groundwater-ingestion exposure pathway:** This exposure pathway considers ingestion of groundwater at the Site. Based on a review of nearby water supply wells (Section 2.4.2), there are no supply wells located within 0.5 miles of the Site; therefore, the potential for exposure to groundwater is considered low, and the pathway is currently incomplete.

- **Groundwater-to-surface water transport pathway:** This transport pathway considers groundwater discharges to surface water at the Site. Fidalgo Bay is over 800 feet away from the Site and is not considered a potential receptor based on the limited nature and extent of contamination (Section 4.2). There are also shallow seasonal drainage swales located to the north of the Property along SR-20 and across Christianson Road to the west. However, the lack of shallow groundwater presence outside the former Texaco UST area indicates a lack of connectivity between the former UST basin and those drainage swales (Section 4.2.2); therefore, the groundwater-to-surface water transport pathway is considered incomplete.

4.4.3 Vapor Exposure Pathway

The vapor pathway includes exposure to volatized soil gas from contaminants dissolved in groundwater, sorbed to soil particles, and separate nonaqueous-phase liquids (free product) in the subsurface. Current nature and extent of soil and groundwater contamination indicate a potential risk for vapor intrusion for the building on the Property. Therefore, the vapor exposure pathway is considered potentially complete. However, given the current use of the Property as a gas station it is unlikely that subsurface soil gas poses an additional risk to indoor air quality.

4.5 Terrestrial Ecological Evaluation

The purpose of the Terrestrial Ecological Evaluation (TEE) is to assess the potential risk to terrestrial plants and/or animals that live entirely or primarily on affected land. This Site qualifies for a TEE exclusion under WAC 173-340-7491 (1)(b); "*All soil contamination is covered by physical barriers (asphalt pavement) that prevent exposure to plant and wildlife…*" A copy of the TEE form documenting this exclusion is provided in Appendix D.

5 Proposed Cleanup Standards

This section presents the proposed cleanup standards by which evaluation of remedial action(s) will be measured and the areas to be addressed by remedial actions(s).

5.1 Applicable or Relevant and Appropriate Requirements

The most applicable or relevant and appropriate requirement (ARAR) for the Site is Ecology's MTCA cleanup levels and regulations that address the implementation of a cleanup under MTCA (Chapter 173.105D Revised Code of Washington [RCW]; Chapter 173-340 WAC). Other potentially ARARs include:

- Federal Clean Water Act (33 United States Congress [USC] 1251)
- Federal Water Quality Standards (40 Code of Federal Regulations [CFR] Part 131)
- Occupational Safety and Health Act (29 CFR Subpart 1910.120)
- Water Pollution Control (Chapter 90.48 RCW)

- Water Resources Act of 1971 (Chapter 90.54 RCW)
- Water Quality Standards for Surface Waters of the State of Washington (Chapter 178-201A WAC)
- Hazardous Waste Management (Chapter 70.105 RCW)
- Dangerous Waste Regulations (Chapter 173-303 WAC)
- Solid Waste Management Reduction and Recycling (Chapter 70.95 RCW)
- Washington Industrial Safety and Health Act (Chapter 49.17 RCW)
- Archaeological Sites and Resources (Chapter 27.53 RCW)
- Washington Clean Air Act (Chapter 70.94 RCW)
- Washington State Department of Health, Group A Public Water Supplies (Chapter 246-290 WAC)
- State Environmental Policy Act (Chapter 43.21C RCW, Chapter 173-802 WAC, and Chapter 197-11 WAC)
- Minimum Standards for Construction and Maintenance of Wells (Chapter 173-160 WAC)
- Permits from local municipalities, as required, for activities at the Site, examples include grading and street-use or right-of-way permits.

5.2 Cleanup Standards

Cleanup actions conducted in accordance with MTCA must comply with cleanup standards for the identified COCs and affected media, as well as ARARs based on federal and state laws (WAC 173-340-710). Cleanup standards for the Site include establishing cleanup levels and the points of compliance at which those cleanup levels will be attained in soil, groundwater, and air. The following sections present the preliminary cleanup levels and points of compliance for the Site based on the nature and extent of contamination and the exposure pathway assessment presented in Section 4.

5.2.1 Cleanup Levels

Recommended cleanup levels for the Site are as follows:

- **Soil:** MTCA Method A cleanup levels for unrestricted land use.
- **Groundwater:** MTCA Method A cleanup levels for protection of drinking water as beneficial use.
- **Air:** MTCA Method B cleanup levels for unrestricted use. This cleanup level may be adjusted for a commercial scenario in accordance with WAC 173-340-750 as appropriate for the current use.

5.2.2 Points of Compliance

The standard points of compliance for the Site are as follows:

- Soil
    - *Protection from direct contact* – Ground surface to a depth of 15 feet.
    - *Protection of leaching to groundwater* – Throughout the Site.
- Groundwater
    - *Protection of drinking water* – Extending vertically from the uppermost level of the saturated zone to the lowest level potentially affected.
- Ambient and Indoor Air
    - *Protection from inhalation* – Throughout the Site.

When it is not practicable to achieve cleanup levels in soil at the standard points of compliance, the cleanup action may involve containment of hazardous substances. In accordance with WAC 173-340-740(6)(f), remedies involving containment may still be determined to comply with cleanup standards, provided:

1. The selected remedy is permanent to the maximum extent practicable.
2. The cleanup action is protective of human health and the environment.
3. Appropriate institutional controls, including compliance monitoring and periodic reviews, are implemented.

5.3 Areas Requiring Remediation

The areas to be addressed by a remedy for this Site have been sufficiently delineated based on the nature and extent of contamination and cleanup standards described in the previous sections. These areas include:

- The extents of soil and groundwater contamination on the Property within the former Texaco UST excavation.
- Shallow soil adjacent to the former Texaco USTs to the south (AB-5) and west (adjacent and west of the Property boundary, AB-7 and AB-11).

6 Feasibility Study

The FS considers the requirements under 173-340-350 WAC, Site-specific conditions, and the criteria defined in 173-340-360 WAC for screening and evaluation of potentially feasible remedial alternatives for the Site.

6.1 Remedial Action Objectives

Remedial Action Objectives (RAOs) established for the Site are intended to comply with applicable environmental regulations and protect human health and the environment. The Site-specific RAOs include the following:

- Protection from direct contact with contaminated soil.
- Protection from contaminated soil leaching to groundwater.
- Protection of indoor air quality.

Protection of groundwater for drinking water use is not considered to be an RAO based on the analysis provided in Section 4.4.2. The perched water-bearing zone at this Site is not considered potable. Monitoring wells outside of the former Texaco UST area do not exhibit sufficient recharge or yield for a drinking water supply. Additionally, potential deeper water-bearing units would be separated from the perched water-bearing zone by the glacial till clay unit.

6.2 Identification and Evaluation of Technologies

Potential remedial technologies for addressing petroleum impacts in soil and groundwater impacts at the Site include:

- **Institutional Controls (ICs).** Measures to limit or prohibit activities that may interfere with the integrity of a cleanup action or result in exposure to hazardous substances (e.g., limitations on the use of the property or resources, such as an environmental covenant or maintenance requirements for engineering controls).
- **Engineering Controls (ECs).** Containment and/or mitigation systems designed to prevent or limit the movement of, or the exposure to, hazardous substances (e.g., paving/capping, vapor barriers).
- **Monitored Natural Attenuation (MNA).** Monitoring the reduction of contaminants through natural processes over time (e.g., biodegradation).
- **Soil Vapor Extraction (SVE).** Extracting contaminants in the form of soil vapor and introducing oxygen into the unsaturated zone to enhance microbial activity.
- **Air Sparging (AS).** Injecting air into contaminated groundwater to volatilize contaminants (typically collected with an SVE system). This technology also introduces oxygen into the subsurface that stimulates microbial biodegradation of contaminants.
- **Dual-Phase Extraction (DPE).** Extracting and treating contaminated groundwater and vapor.

- **Enhanced Biodegradation (EB).** Introducing oxygen (aerobic) or other electron acceptors (anaerobic) into the subsurface to stimulate microbial biodegradation of contaminants (e.g., injecting a soil amendment or bioventing).
- ***In Situ* Chemical Oxidation (ISCO).** Injecting or mixing an oxidant, such as potassium permanganate or sodium persulfate, into the subsurface to react with and destroy contaminants.
- **Sorption/Immobilization.** Injecting a carbon substrate into the subsurface to absorb dissolved-phase contaminants from groundwater to retain them for treatment via biodegradation.
- **Excavation and Off-Site Disposal.** Removal of impacted soil, followed by off-site disposal.

6.2.1 Remedial Technology Screening

Each of these remedial technologies have been applied at sites with similar conditions and chemical occurrences. Preliminary screening of these potential remedial technologies based on effectiveness, implementability, and comparative cost at this Site is summarized in Table 3. Institutional and engineering controls, MNA, and excavation were retained as potentially applicable technologies for this Site. The remaining technologies were not retained for the following reasons:

- SVE and AS are not considered effective in the low permeability glacial till and nearshore deposits at this Site. Additionally, the shallow water table is prohibitive for SVE.
- DPE has significant technical challenges for implementation and high costs associated with treatment and discharge of water generated during operation.
- EB, ISCO, and sorption/immobilization are not considered effective for the shallow unsaturated soil impacts at this Site. Additionally, shallow injections are difficult to implement without "daylighting" or short-circuiting of the reagents at the surface, further reducing the effectiveness of treatment.

Additionally, while institutional and engineering controls and MNA are considered potentially applicable technologies for this Site, source control is still required before these technologies may be considered; therefore, the only remaining cleanup alternative is excavation and off-site disposal of contaminated soil.

This effectively ends the feasibility study for this Site. Further development and evaluation of cleanup alternatives for comparison with MTCA criteria, including a disproportionate cost analysis (DCA), is not considered necessary.

6.2.2 Applicability of Model Remedies

Model remedies are preapproved remedies developed by Ecology for cleanup of a petroleum-contaminated site, if that site meets certain criteria. Model remedies are intended to streamline and accelerate the selection of cleanup actions that protect human health and the environment, with preference for permanent solutions to the maximum extent practicable. Based on the Ecology guidance for model remedies for petroleum contaminated sites (Ecology, 2017a and 2017b), model remedies are not applicable for this Site because there are off-Property impacts to soil above Method A cleanup levels.

6.3 Recommended Remedial Action

As a result of the evaluation of applicable remedial technologies in the previous section, excavation and off-site disposal of contaminated soil is the recommended cleanup action for the Site. The objective of this remedy is to physically remove soil contamination exceeding cleanup levels to the extent practicable, providing the most permanent remedial solution in the shortest amount of time.

A conceptual excavation plan is shown on Figure 7. Specific design details, specifications, and plans will be provided as part of the draft cleanup action plan (dCAP) and engineering design report (EDR) for the excavation. The cleanup action will include the following elements:

- Decommissioning monitoring well AMW-1 within the proposed excavation area.
- Removal of asphalt pavement in the northwest corner of the Property to facilitate excavation activities.
- Temporary removal and rerouting of subsurface electrical and water service in the planned excavation area. Power and water service will be maintained during construction.
- Excavation of approximately 1,000 cubic yards of soil from the area shown on Figure 7. The excavation will initially be benched down to 4 feet bgs and subsequently excavated to 12 feet bgs until the clean glacial till clay unit is encountered.
- Off-site disposal of approximately 1,000 cubic yards of petroleum-contaminated soil from the excavation.
- Dewatering and off-site disposal of up to 25,000 gallons of petroleum-contaminated water within the former UST basin during excavation.
- Confirmation soil sampling and analysis during the excavation.
- Application of an oxygen release compound (ORC) to facilitate attenuation of residual soil and groundwater impacts.
- Restoration of the Property including backfilling with clean material, replacing curbs and parking areas, landscaping, and restoring power and water service.

The excavation should be completed during the summer months to minimize costs for dewatering, soil disposal (weight), and stormwater management. It is assumed that construction will be phased to limit impacts to business activities. The pump islands and convenience store will generally remain open and accessible during the construction. The use of certain pump islands may be limited at times.

While this remedy offers a high degree of certainty, it should be noted that if off-Property soil impacts are not accessible (i.e., soil impacts extend beyond the Property boundary into the roadway or are embedded within sensitive utilities under the roadway and cannot be removed), then institutional controls may be required for remaining impacts in the right-of-way.

6.3.1 Remedial Action Costs and Timeline

A feasibility-level cost estimate (+50/-30 percent) for the excavation and off-site disposal of soil was developed in accordance with U.S. Environmental Protection Agency (EPA) cost estimating guidance (EPA, 2000) and professional experience with similar projects. The estimated cost for the recommended remedy is approximately $688,000. Cost estimate details and assumptions are provided in Table 4. The expected duration of the construction activities is 4 weeks.

7 Conclusions and Recommendations

The nature and extent of soil and groundwater contamination at this Site has been sufficiently characterized to select excavation and off-site disposal of petroleum contaminated soil as the preferred remedy. Preparation of a dCAP and EDR, including plans and specifications for the excavation, is recommended as the next step in the MTCA cleanup process.

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9 Limitations

Work for this project was performed for the Swinomish Indian Tribal Community (Client), and this report was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

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Please refer to Appendix E titled "Report Limitations and Guidelines for Use" for additional information governing the use of this report.

TABLES

Table 1. Soil Analytical Results

Project No. 220230, Swinomish Market Deli, Anacortes, Washington

				Total Petroleum Hydrocarbons			Petroleum Related Volatile Organic Chemicals								Metals
			Analyte	GRO	DRO	ORO	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	EDB	EDC	MTBE	Lead
			Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
			MTCA Method A Cleanup Level	30 | 100	2000	2000	0.03	7	6	9	5	0.005		0.1	250
Location	Date	Sample	Depth												
AB-01	03/15/2023	AB-01-0.5-1	0.5 - 1 ft	**150**	**200 X**	< 250 U	< 0.001 U	**0.0025**	**0.013**	**0.073**	**0.19**	< 0.005 U	< 0.002 U	< 0.001 U	--
	03/15/2023	AB-01-3-3.5	3 - 3.5 ft	< 5 U	< 50 U	< 250 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.002 U	< 0.005 U	< 0.005 U	< 0.002 U	< 0.001 U	--
AB-02	09/11/2023	AB-02-3.5	3.5 ft	**11**	--	--	< 0.001 U	**0.0017**	< 0.001 U	**0.0173**	--	< 0.005 U	< 0.002 U	< 0.002 U	--
	09/11/2023	AB-02-5.5	5.5 ft	< 5 U	--	--	< 0.001 U	< 0.001 U	< 0.001 U	< 0.002 U	--	< 0.005 U	< 0.002 U	< 0.002 U	--
AB-03	09/11/2023	AB-03-2	2 ft	< 5 U	--	--	**0.0016**	**0.0037**	< 0.001 U	**0.0125**	--	< 0.005 U	< 0.002 U	< 0.002 U	--
	09/11/2023	AB-03-5	5 ft	< 5 U	--	--	< 0.001 U	< 0.001 U	< 0.001 U	< 0.002 U	--	< 0.005 U	< 0.002 U	< 0.002 U	--
AB-04	09/11/2023	AB-04-2	2 ft	< 5 U	--	--	**0.0022**	**0.0055**	**0.0011**	**0.0129**	--	< 0.005 U	< 0.002 U	< 0.002 U	--
	09/11/2023	AB-04-5	5 ft	< 5 U	--	--	< 0.001 U	< 0.001 U	< 0.001 U	< 0.002 U	--	< 0.005 U	< 0.002 U	< 0.002 U	--
AB-05	09/11/2023	AB-05-2	2 ft	**110**	--	--	**1.5**	**0.043**	**1.4**	**3.36**	--	< 0.005 U	< 0.002 U	< 0.002 U	--
	09/11/2023	AB-05-5.5	5.5 ft	< 5 U	--	--	< 0.001 U	< 0.001 U	< 0.001 U	< 0.002 U	--	< 0.005 U	< 0.002 U	< 0.002 U	--
AB-06	09/11/2023	AB-06-4.5	4.5 ft	**7.2**	--	--	**0.027**	**0.0066**	**0.012**	**0.0591**	--	< 0.005 U	< 0.002 U	< 0.002 U	--
	09/12/2023	AB-06-7.5	7.5 ft	< 5 U	--	--	< 0.001 U	**0.013**	**0.0024**	**0.017**	--	< 0.005 U	< 0.002 U	< 0.002 U	--
AB-07	09/11/2023	AB-07-2	2 ft	**310**	--	--	**0.31**	**0.049**	**0.052**	**0.472**	--	< 0.005 U	< 0.002 U	< 0.002 U	--
	09/11/2023	AB-07-4.5	4.5 ft	< 5 U	--	--	**0.0055**	**0.0091**	< 0.001 U	**0.091**	--	< 0.005 U	< 0.002 U	< 0.002 U	--
AB-08	09/11/2023	AB-08-2	2 ft	< 5 U	--	--	< 0.001 U	**0.001**	< 0.001 U	**0.0078**	--	< 0.005 U	< 0.002 U	< 0.002 U	--
	09/11/2023	AB-08-5.5	5.5 ft	< 5 U	--	--	< 0.001 U	< 0.001 U	< 0.001 U	< 0.002 U	--	< 0.005 U	< 0.002 U	< 0.002 U	--
AB-10	09/12/2023	AB-10-3	3 ft	< 5 U	--	--	**0.0017**	**0.022**	**0.0059**	**0.0344**	--	< 0.005 U	< 0.002 U	< 0.002 U	--
AB-11	09/12/2023	AB-11-2	2 ft	**74**	--	--	**0.84**	**0.095**	**0.15**	**2.25**	--	< 0.005 U	< 0.002 U	< 0.002 U	--
	09/12/2023	AB-11-4	4 ft	< 5 U	--	--	**0.0077**	**0.031**	**0.013**	**0.254**	--	< 0.005 U	< 0.002 U	< 0.002 U	--
HA-01	09/11/2023	HA-1-1.5	1.5 ft	< 5 U	--	--	< 0.001 U	< 0.001 U	< 0.001 U	< 0.002 U	--	< 0.005 U	< 0.002 U	< 0.002 U	--
HA-02	09/11/2023	HA-2-2	2 ft	< 5 U	--	--	< 0.001 U	**0.011**	**0.0032**	**0.0204**	--	< 0.005 U	< 0.002 U	< 0.002 U	--
HA-03	09/11/2023	HA-3-2	2 ft	< 5 U	--	--	< 0.001 U	**0.0076**	**0.0017**	**0.0122**	--	< 0.005 U	< 0.002 U	< 0.002 U	--
HA-04	09/11/2023	HA-4-2	2 ft	< 5 U	--	--	< 0.001 U	< 0.001 U	< 0.001 U	< 0.002 U	--	< 0.005 U	< 0.002 U	< 0.002 U	--
AMW-01	03/14/2023	AMW-01-0.5-1	0.5 - 1 ft	< 5 U	**70 X**	< 250 U	**0.019**	**0.0022**	< 0.001 U	**0.0096**	< 0.005 U	< 0.005 U	< 0.002 U	< 0.001 U	--
	03/14/2023	AMW-01-6.5-7	6.5 - 7 ft	**800**	**410 X**	< 250 U	**2.2**	**0.12**	**4.2**	**15.1**	**4.3**	< 0.02 U	< 0.008 U	< 0.004 U	**5.53**
	03/14/2023	AMW-01-12-12.5	12 - 12.5 ft	< 5 U	< 50 U	< 250 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.002 U	< 0.005 U	< 0.005 U	< 0.002 U	< 0.001 U	--
AMW-02	03/14/2023	AMW-02-7-7.5	7 - 7.5 ft	< 5 U	< 50 U	< 250 U	< 0.001 U	**0.0014**	< 0.001 U	< 0.002 U	< 0.005 U	< 0.005 U	< 0.002 U	< 0.001 U	--
AMW-03	03/14/2023	AMW-03-4.5-5	4.5 - 5 ft	< 5 U	< 50 U	< 250 U	**0.0033**	**0.0017**	< 0.001 U	**0.0094**	< 0.005 U	< 0.005 U	< 0.002 U	< 0.001 U	**4.45**
	03/14/2023	AMW-03-13-13.5	13 - 13.5 ft	< 5 U	< 50 U	< 250 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.002 U	< 0.005 U	< 0.005 U	< 0.002 U	< 0.001 U	--
AMW-04	03/14/2023	AMW-04-13-13.5	13 - 13.5 ft	< 5 U	< 50 U	< 250 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.002 U	< 0.005 U	< 0.005 U	< 0.002 U	< 0.001 U	--
AMW-05	03/14/2023	AMW-05-3-3.5	3 - 3.5 ft	< 5 U	< 50 U	< 250 U	**0.0012**	**0.0024**	< 0.001 U	**0.0166**	**0.0059**	< 0.005 U	< 0.002 U	< 0.001 U	--
	03/14/2023	AMW-05-5-5.5	5 - 5.5 ft	< 5 U	< 50 U	< 250 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.002 U	< 0.005 U	< 0.005 U	< 0.002 U	< 0.001 U	--

Notes:

Bold - detected

Blue Shaded - Detected result exceeded screening level

GRO = Gasoline Range Organics

DRO = Diesel Range Organics

ORO = Oil Range Organics

EDB = 1,2-Dibromoethane

EDC = 1,2-Dichloroethane

MTBE = Methyl tert-butyl ether

U - Analyte not detected at or above Reporting Limit (RL) shown

X - Chromatographic pattern does not match fuel standard used for quantitation

"--" - not analyzed

Table 2. Groundwater Analytical Results

Project No. 220230, Swinomish Market Deli, Anacortes, Washington

						Total Petroleum Hydrocarbons			Petroleum Related Volatile Organic Chemicals								Metals
					Analyte	GRO	DRO	ORO	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	EDB	EDC	MTBE	Dissolved Lead
					Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
					MTCA Method A Cleanup Level	800 | 1000	500	500	5	1000	700	1000	160	0.01	5	20	15
Location	TOC Elevation (ft NAVD88)	Sample	Date	Depth to Water (ft btoc)	Groundwater Elevation (ft NAVD88)												
AMW-01	8.66	AMW-1-032723	03/27/2023	2.37	6.29	**9800**	**1800 X**	**450 X**	**2100**	< 100 U	**110**	**230**	< 100 U	< 100 U	< 20 U	< 100 U	< 1 U
		AMW-1-091323	09/12/2023	3.41	5.25	**13000**	--	--	**3300**	< 100 U	**140**	**270**	--	< 1 U	< 20 U	< 100 U	--
AMW-02	8.39	AMW-2-032723	03/27/2023	2.00	6.39	< 100 U	**64 X**	< 250 U	< 0.35 U	< 1 U	< 1 U	< 2 U	< 1 U	< 1 U	< 0.2 U	< 1 U	**1.7**
		AMW-2-091323*	09/12/2023	5.04	3.35	< 100 U	--	--	< 0.35 U	< 1 U	< 1 U	< 2 U	--	< 0.01 U	< 0.2 U	< 1 U	--
AMW-03	8.91	--	03/27/2023	1.19	7.72	Wells went dry during purging and did not recharge											
		--	09/12/2023	1.88	7.03												
AMW-04	7.61	--	03/27/2023	0.17	7.44												
		--	09/12/2023	1.19	6.42												
AMW-05	8.94	--	03/27/2023	0.78	8.16												
		--	09/12/2023	1.46	7.48												

Notes:
Bold - detected
Blue Shaded - Detected result exceeded screening level
GRO = Gasoline Range Organics
DRO = Diesel Range Organics
ORO = Oil Range Organics
EDB = 1,2-Dibromoethane
EDC = 1,2-Dichloroethane
MTBE = Methyl tert-butyl ether
TOC = Top of Casing
U - Analyte not detected at or above Reporting Limit (RL) shown
X - Chromatographic pattern does not match fuel standard used for quantitation
"--" = not analyzed
* = water level did not stabilize during purging, sample should be considered a grab and not necessarily representive of aquifer conditions

Table 3. Preliminary Screening of Remedial Technologies

Project No. 220230, Swinomish Market, Anacortes, Washington

Remedial Technology	Effectiveness	Implementability	Comparative Cost	Screening Result
Institutional Controls	low[1]	high	low	Retained
Engineering Controls	low[1]	high	low	Retained
Monitored Natural Attenuation	medium	high	medium	Retained
Soil Vapor Extraction	low	low	medium	Not Retained
Air Sparging	low	low	medium	Not Retained
Dual Phase Extraction	low	low	high	Not Retained
Enhanced Aerobic Biodegradation	low[2]	low	medium	Not Retained
In Situ Chemical Oxidation	low	low	medium	Not Retained
Sorption/Immobilization	low[2]	low	medium	Not Retained
Soil Excavation	high	high	medium	Retained

Notes:

[1] - Effective in preventing unacceptable exposures, but does not reduce contaminant mass.

[2] - Not an effective technology for source control, must be paired with ISCO for treatment.

Table 4 - Cost Estimate - Excavation and Off-Site Disposal

Project No.220230, Swinomish Market and Deli, Anacortes, Washington

Site:	Swinomish Market and Deli
Remedial Action Description:	Excavation and Off-Site Disposal
Cost Estimate Accuracy:	Feasibility Study Level (+50/-30 percent)

Key Assumptions and Quantities:

Quantities		
3,137	ft^2	total excavation area
4	ft	bench to 4-feet over entire excavation area
465	cy	PCS excavation volume - upper bench
1,373	ft^2	Approximate Area of deeper excavation
12	ft	base depth
610	cy	PCS Excavation volume - below 4-feet
1,075	cy	Total PCS
3,137	ft^2	asphalt area
1.7	ton/cy	soil density
10	gpm	dewatering rate

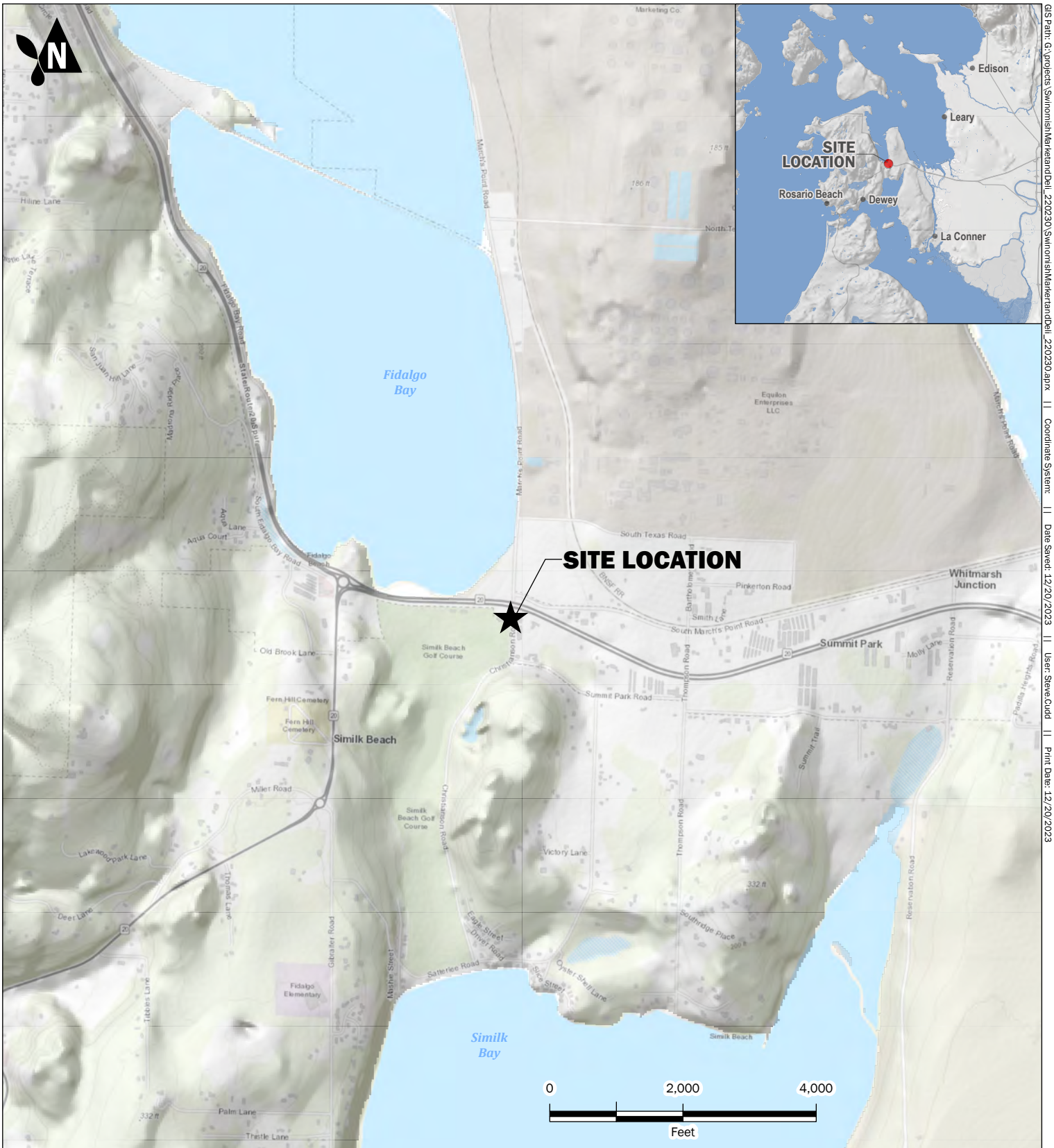
CONSTRUCTION COSTS

Item	Quantity	Unit	Unit Cost	Total Cost	Notes
Excavation					
Mobilization/demobilization	1	LS	$ 15,000	$ 15,000	
Monitoring well decommissioning	5	each	$ 1,200	$ 6,000	
Asphalt demolition, hauling, and disposal	57	ton	$ 80	$ 4,549	assumes approx 3,100 sq ft asphalt removal, 145lb per cu. ft.
Utility Locating/Protection/Temporary Disconnection	1	LS	$ 7,500	$ 7,500	
Excavate, direct load, haul and disposal of soil	1,828	ton	$ 110	$ 201,042	
Water management equipment	1	LS	$ 10,000	$ 10,000	water storage tank mobilization, rental, and management
Petroleum impacted water disposal	25,000	gal	$ 1	$ 25,000	
Analytical fees for soil confirmation sampling	46	ea	$ 200	$ 9,140	sample every 10' of sidewall and every 100ft2 of bottom, 24hr TAT, GRO/BTEX
Apply oxygen release compound	2,000	lb	$ 15	$ 30,000	
Import, place, and compact fill	1,828	ton	$ 35	$ 63,968	
Replace asphalt, hot mix	3,200	sf	$ 5	$ 16,000	
Landscape restoration	1	LS	$ 5,000	$ 5,000	for potential repair/replacement of vegetation and curbing
Monitoring well replacement (AMW-1)	1	LS	$ 2,500	$ 2,500	
Subtotal Excavation				*$ 395,699*	
Professional Services					
Cleanup Action Plan/Engineering Design Report	1	LS	$ 30,000	$ 30,000	Includes contruction plan set and specifications for competative bidding
Cleanup Action Permitting	1	LS	$ 20,000	$ 20,000	assume SEPA and grading permit
Bidding and Contractor Selection	1	LS	$ 10,000	$ 10,000	bid package preparation, site walk
Project management, construction oversight and monitoring	1	LS	$ 40,000	$ 40,000	4 weeks of constuction monitoring and oversight
Cleanup Action Report	1	LS	$ 25,000	$ 25,000	
Subtotal Professional Services				*$ 125,000*	
Tax	8.7%		$ 395,699	$ 34,426	
Contingency	20%		$ 555,124	$ 111,025	10% scope + 10% bid contigency
ESTIMATED CONSTRUCTION COST				$ 666,000	

MONITORING COSTS

Item	Quantity	Unit	Unit Cost	Total Cost	Notes
Quarterly Confirmation Groundwater Monitoring (1 well, 4 quarters)					
Groundwater sampling, equipment, and analytical	4	per event	$ 2,500	$ 10,000	
Data management, analysis, and reporting	4	per event	$ 3,000	$ 12,000	summary table update and transmittal memo
Subtotal Quarterly Confirmation Groundwater Monitoring (1 well, 4 quarters)				*$ 22,000*	
TOTAL MONITORING COSTS (4 quarters)				$ 22,000	
TOTAL ESTIMATED COST:				**$ 688,000**	

FIGURES



Site Location Map

Remedial Investigation Report and Feasibility Study
Swinomish Market and Deli
12515 Christianson Road
Anacortes, Washington

Aspect CONSULTING	DEC-2023	BY: MRE / SCC	FIGURE NO. 1
	PROJECT NO. 220230	REVISED BY: EJM / SCC	

Basemap Layer Credits || World Light Gray Canvas Base: Esri, © OpenStreetMap contributors, HERE, Garmin, USGS, EPA, NPS, NRCan
Topographic: County of Skagit, Bureau of Land Management, Province of British Columbia, Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA, AAFC, NRCan
World Hillshade: Esri, USGS

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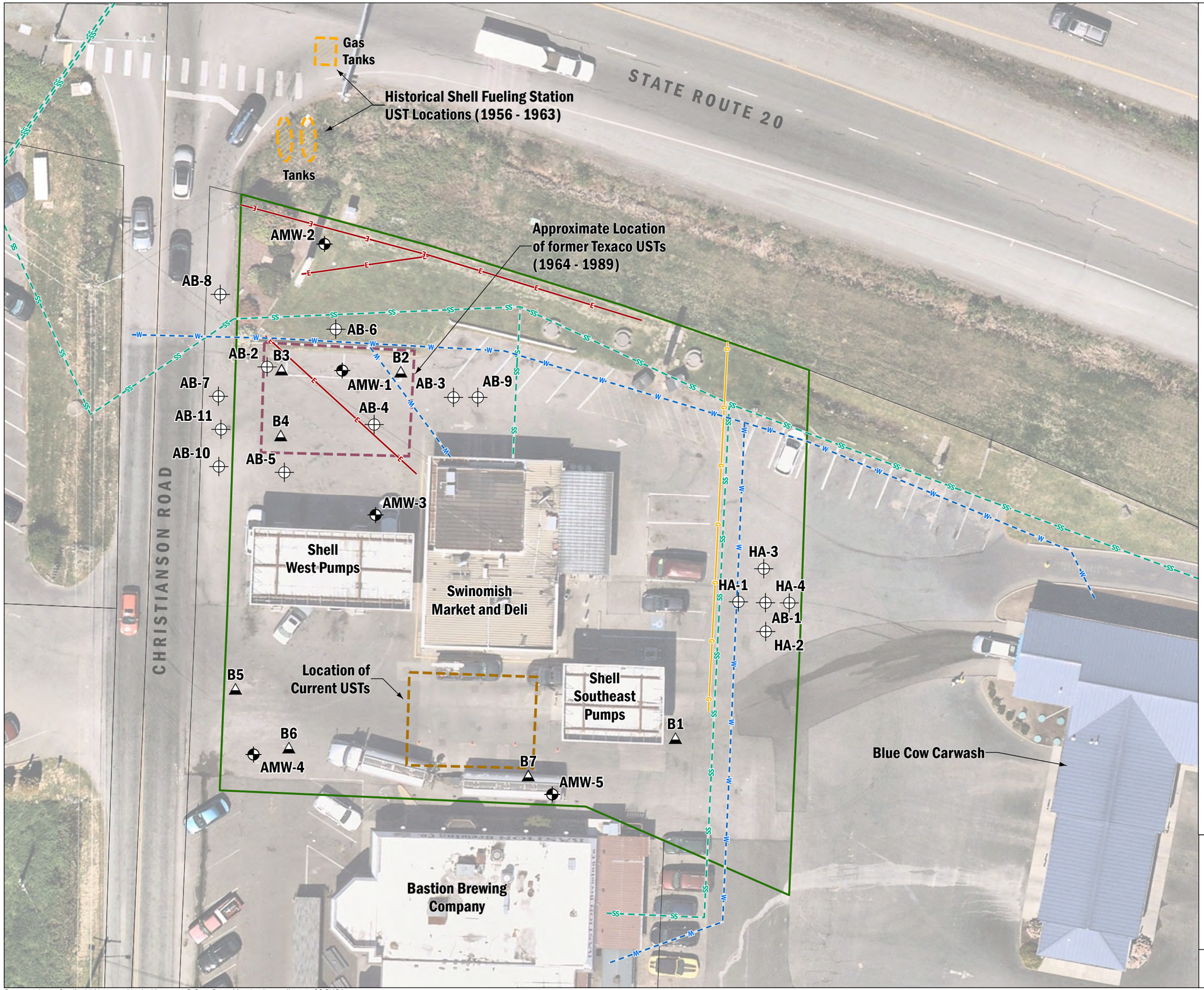


- Monitoring Well Location (Aspect 2023)
- Soil Boring Location (Aspect 2023)
- Soil Boring Location (Element 2022)
- Electric Line
- Dormant Gas Line
- Water Line (Inferred)*
- Sanitary Sewer Line (Inferred)*
- Subject Property
- Skagit County Property Parcel

Sources:
Aerial Imagery from Nearmap
Property Parcels from Skagit County, Washington GIS

** Inferred utilities are based on information provided by City of Anacortes Online GIS Services (https://www.anacorteswa.gov/635/GIS-Mapping) and field observations.*

N

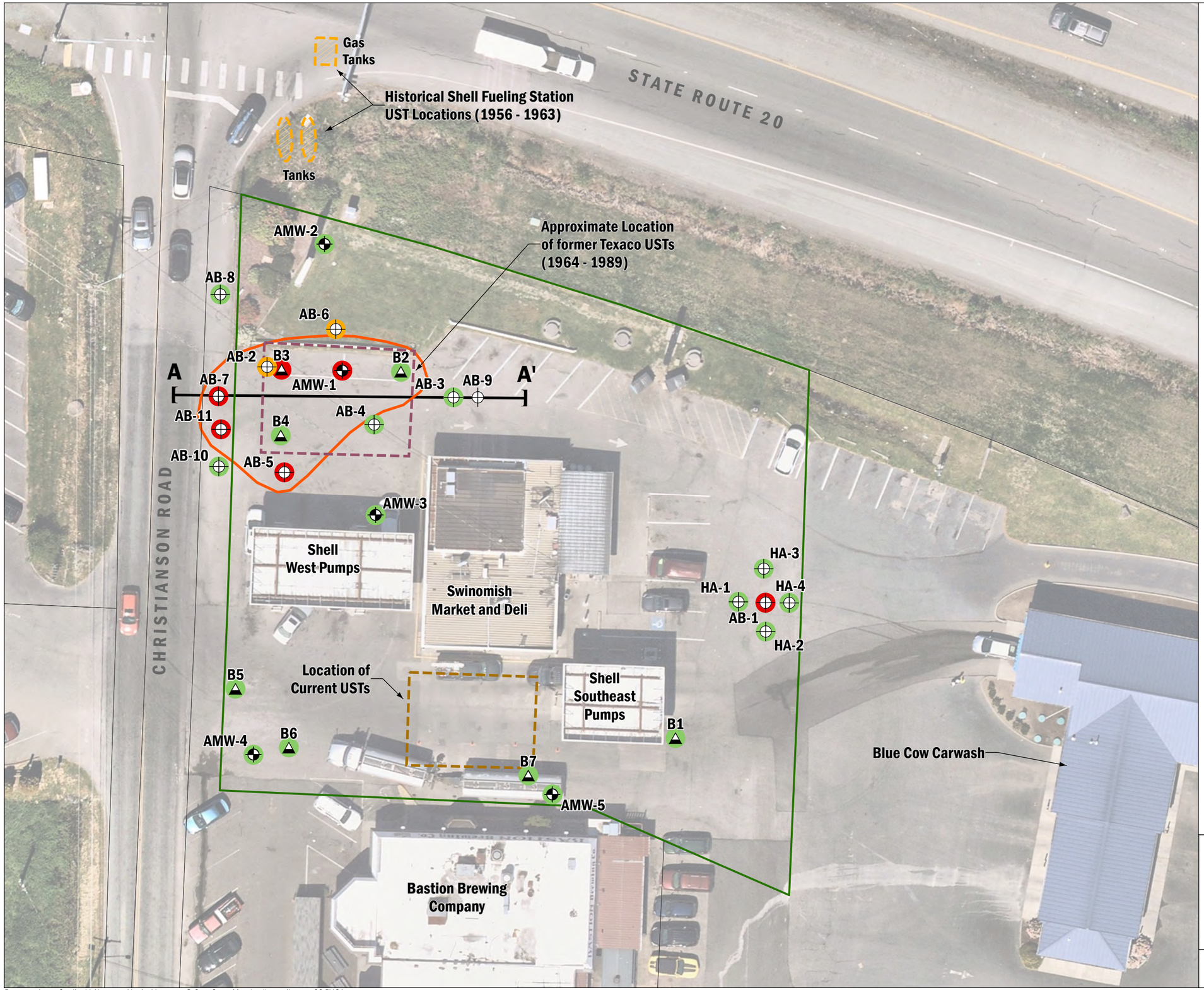
0 30 60
Feet

Site Layout and Exploration Locations

Remedial Investigation Report and Feasibility Study
Swinomish Market and Deli
12515 Christianson Road
Anacortes, Washington

Aspect Consulting	DEC-2023	BY: EJM / SCC	FIGURE NO. 2
	PROJECT NO. 220230	REVISED BY: -	

GIS Path: G:\projects\SwinomishMarketandDeli_220230\SwinomishMarketandDeli_220230.aprx || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 12/20/2023 || User: Steve.Cudd || Print Date: 12/20/2023



- Monitoring Well Location (Aspect 2023)
- Soil Boring Location (Aspect 2023)
- Soil Boring Location (Element 2022)
- GRO detected at concentrations greater than the MTCA Method A cleanup level
- GRO detected at concentrations less than the MTCA Method A cleanup level
- GRO not detected above laboratory reporting limit
- Subject Property
- Skagit County Property Parcel
- Inferred Extent of GRO
- Cross Section Location

Sources:
Aerial Imagery from Nearmap
Property Parcels from Skagit County, Washington GIS

Notes
- MTCA = Model Toxics Control Act
- GRO = Gasoline-range Organics
- UST = Underground storage tank

N

0 30 60
Feet

Soil Sample Results

Remedial Investigation Report and Feasibility Study
Swinomish Market and Deli
12515 Christianson Road
Anacortes, Washington

Aspect Consulting	DEC-2023	BY: MRE / SCC	FIGURE NO. 3
	PROJECT NO. 220230	REVISED BY: EJM / SCC	

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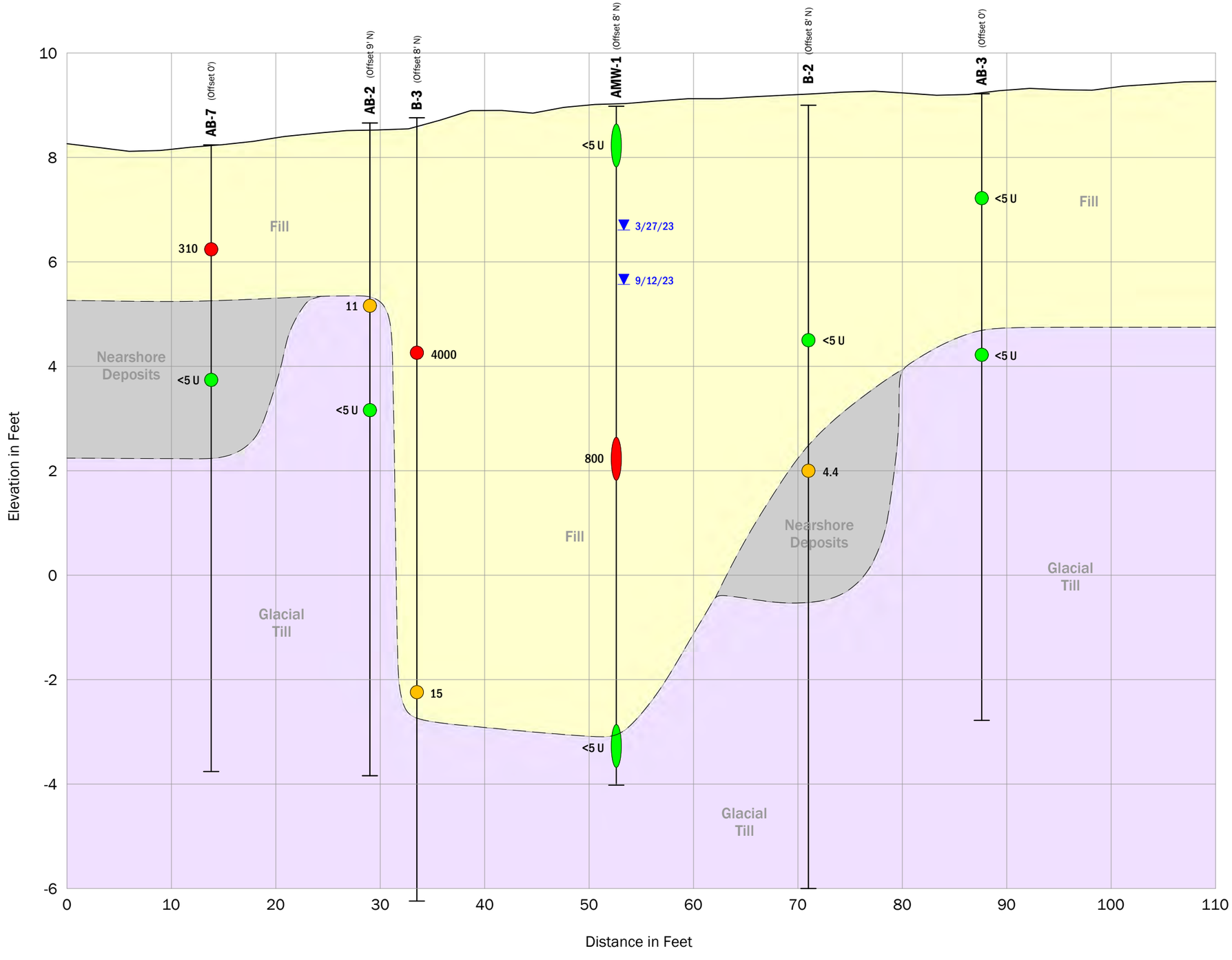


Legend

(Offset 8' N)
AMW-01
<5 U

- Offset Distance and Direction from Profile
- Boring Identification
- Analytical Sample Location and GRO concentration in milligrams/kilogram
- 10/19/19 — Water Level and Date Measured
- Screened Interval

- Estimated Geologic Contact
- Fill
- Nearshore Deposits
- Glacial Till

Soil Analytical Results

- GRO detected at a concentration greater than the MTCA Method A cleanup level.
- GRO detected at a concentration less than the MTCA Method A cleanup level.
- GRO not detected above laboratory reporting limit.

Horizontal Scale: 1" = 10'
Vertical Scale: 1" = 2'
Vertical Exaggeration 5x

0 10 20 Feet

Geologic Cross Section A-A'

Remedial Investigation Report and Feasibility Study
Swinomish Market and Deli
12515 Christianson Road
Anacortes, Washington

Aspect Consulting	Dec-2023	BY: DJM/SCC	FIGURE NO. 4
	PROJECT NO. 220230	REVISED BY: -	

CAD Path: Q:\Swinomish Market and Deli\220230 RI-FS\2023-12 Cross Section\220230-AA.dwg 04 Geologic Cross Section A-A' || Date Saved: Dec 20, 2023 12:12pm || User: Steve.Cudd

Monitoring Well Location (Aspect 2023)

Groundwater Grab Sample Location (Element 2022)

GRO detected at concentrations greater than the MTCA Method A cleanup level

GRO not detected above laboratory reporting limit

Subject Property

Skagit County Property Parcel

(5.25) Water Level Elevation

Notes
- MTCA = Model Toxics Control Act
- GRO = Gasoline-range Organics
- UST = Underground storage tank

N

0 30 60
Feet

Groundwater Sample Results March 2023

Remedial Investigation Report and Feasibility Study
Swinomish Market and Deli
12515 Christianson Road
Anacortes, Washington

Aspect Consulting	DEC-2023	BY: MRE / SCC	FIGURE NO. 5
	PROJECT NO. 220230	REVISED BY: EJM / SCC	

Basemap Layer Credits || Nearmap Vertical Imagery: © OpenStreetMap (and) contributors, CC-BY-SA

GIS Path: G:\projects\SwinomishMarketandDeli_220230\SwinomishMarketandDeli_220230.aprx || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 12/20/2023 || User: Steve.Gudd || Print Date: 12/20/2023

Monitoring Well Location (Aspect 2023)

Groundwater Grab Sample Location (Element 2022)

GRO detected at concentrations greater than the MTCA Method A cleanup level

GRO not detected above laboratory reporting limit

Subject Property

Skagit County Property Parcel

(5.25) Water Level Elevation

Notes
- *MTCA = Model Toxics Control Act*
- *GRO = Gasoline-range Organics*
- *UST = Underground storage tank*

N

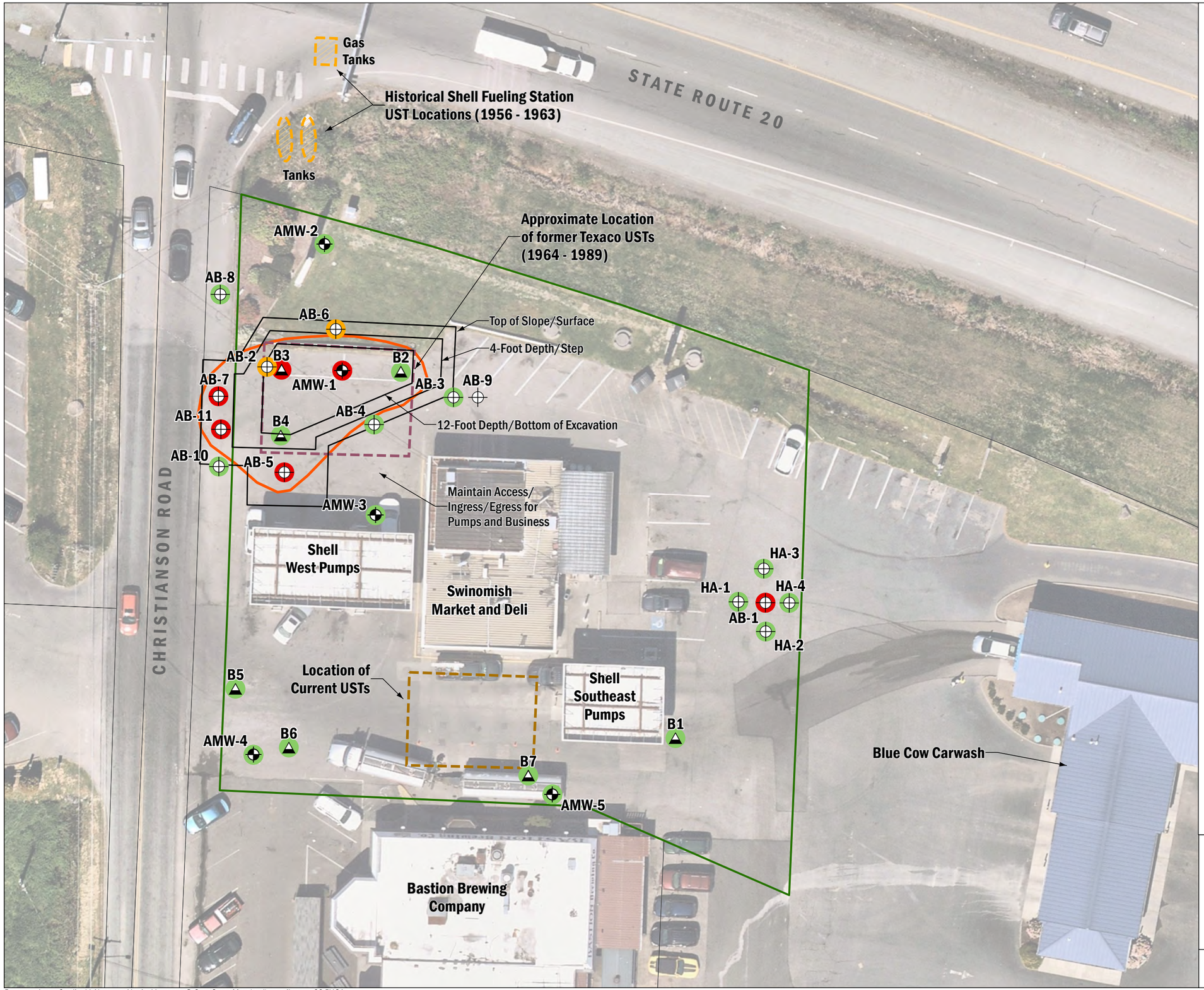
0 30 60
Feet

Groundwater Sample Results September 2023

Remedial Investigation Report and Feasibility Study
Swinomish Market and Deli
12515 Christianson Road
Anacortes, Washington

Aspect Consulting	DEC-2023	BY: MRE / SCC	FIGURE NO. 6
	PROJECT NO. 220230	REVISED BY: EJM / SCC	

GIS Path: G:\projects\SwinomishMarketandDeli_220230\SwinomishMarketandDeli_220230.aprx || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 12/20/2023 || User: Steve.Cudd || Print Date: 12/20/2023



Excavation Outline
Monitoring Well Location (Aspect 2023)
Soil Boring Location (Aspect 2023)
Soil Boring Location (Element 2022)
GRO detected at concentrations greater than the MTCA Method A cleanup level
GRO detected at concentrations less than the MTCA Method A cleanup level
GRO not detected above laboratory reporting limit
Subject Property
Skagit County Property Parcel
Inferred Extent of GRO

Sources:
Aerial Imagery from Nearmap
Property Parcels from Skagit County, Washington GIS

Notes
- MTCA = Model Toxics Control Act
- GRO = Gasoline-range Organics
- UST = Underground storage tank

N

0 30 60
Feet

Conceptual Excavation Plan

Remedial Investigation Report and Feasibility Study
Swinomish Market and Deli
12515 Christianson Road
Anacortes, Washington

Aspect Consulting	DEC-2023	BY: MRE / SCC	FIGURE NO. 7
	PROJECT NO. 220230	REVISED BY: EJM / SCC	

Basemap Layer Credits || Nearmap Vertical Imagery: © OpenStreetMap (and) contributors, CC-BY-SA

GIS Path: G:\projects\SwinomishMarketandDeli_220230\SwinomishMarketandDeli_220230.aprx || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 12/20/2023 || User: SteveCudd || Print Date: 12/20/2023

APPENDIX A

Select Historical Records

LEE MORSE
GENERAL CONTRACTOR, INC.
Phone (206) 763-8956

July 7, 1989

Reisner Distributor, Inc.
310 Commercial Ave
Anacortes, WA 98221

Attn: Del Reisner

Dear Del,

This letter is to verify that the tanks at your station on Christenson road were pumped down to zero product and inerted with CO2 and removed from the ground approx. June 1, 1989. The tanks were disposed of by Lee Morse General Contractor, Inc. for scrap purposes. The visual inspection for the soils showed it to be in good condition.

Sincerely,

Lee Morse
Lee Morse General Contractor, Inc.

Please check all of the information on this page to make sure it is correct. Make any changes on this page, and fill in any missing or incorrect information in the corrected information column.

TANK OWNER INFORMATION

	Current Information	Corrected Information (PRINT OR TYPE)
A. OWNER NUMBER:	U0009181	
OWNER NAME:	CHRISTIANSON CORP	
OWNER ADDRESS:	310 COMMERCIAL AVE / P O BOX 409 ANACORTES, WA 98221-0409	
OWNER PHONE:	(206) 293-2197	[A] [B] [C] [D] [E] [F] [O]_____
B. OWNER TYPE:	-	

TANK SITE INFORMATION

	Current Information	Corrected Information (PRINT OR TYPE)
A. SITE NUMBER:	100857	
SITE NAME:	REFINERY TEXACO	
SITE ADDRESS:	1247 CHRISTIANSON ROAD ANACORTES, WA 98221-0409	
B. CONTACT PERSON:	TED REISNER	
CONTACT PHONE:	293-7822	
C. SITE TYPE:	~~A - SERVICE STATION~~	[A] [B] [C] [D] [E] [F] [G] [H] [I] [J] [K] [L] [M] [N] [P] [Q] [R] [S] [T] [O]:_____

TANK INFORMATION

	Current Information	Corrected Information
		Mark out the correct choice for each item by coloring between the brackets. If the Current Information is correct, you do not need to fill in that item. See the example and instruction booklet for more information on using this form.
A. TANK ID: 6 SUPER UNLEADE FEE PAID: YES		
B. TANK STATUS:	A - OPERATIONAL	[A] [B] 8/1/89
C. INSTALLATION DATE:		
D. TANK SIZE:	D - 5000-9999 GALLONS	[A] [B] [C] [D] [E] [F] [G] [H]
E. TANK MATERIAL:	~~A - STEEL UNPROTECTED~~	[A] [B] [C] [D] [E] [O]:_____
F. TANK CONSTRUCTION:	-	[B] [C] [D]:_____
G. COMPARTMENTS:		[1] [2] [3] [4] [O]:_____
H. TANK RELEASE DETECTION:	-	[A] [B] [C] [D] [E] [F] [G] [H] [O]:_____
I. TANK CORROSION PROTECTION:	A - COATED W/SAC. ANODES	[A] [B] [C] [D] [E] [O]:_____
J. SPILL PREVENTION:	-	[A] [B] [C] [O]:_____
K. OVERFILL PREVENTION:	-	[A] [B] [C] [D] [E] [O]:_____
L. PIPING MATERIAL:	C - FIBERGLASS	[A] [B] [C] [D] [E] [O]:_____
M. PIPING CONSTRUCTION:	-	[A] [B] [C] [D] [E] [O]:_____
N. PRODUCT DELIVERY METHOD:	-	[A] [B] [C] [D] [E] [O]:_____
O. PIPING RELEASE DETECTION:	-	[A] [B] [C] [D] [E] [F] [G] [O]:_____
P. PIPING CORROSION PROTECTION:	-	[A] [B] [C] [D] [E] [O]:_____
Q. SUBSTANCE STORED:	B - UNLEADED GASOLINE	[A] [B] [C] [D] [E] [F] [G] [H] [I] [O]:_____
R. SUBSTANCE USE:	-	[A] [B] [C] [D] [E] [O]:_____
S. FIN. RESP. CLASS:	-	[A] [B] [C] [D] [E] [F] [G] [H] [I]
T. FIN. RESP. METHOD:	-	[A] [B] [C] [D] [E] [F] [G] [H] [I] [J]

SWORN STATEMENT: I hereby swear under penalty of law that, based on my review of the underground storage tank self-certification of compliance and tank information update and my knowledge of the tank identified by the above tank id number, this tank is in compliance with applicable state requirements. Also, any new or corrected information required on this form has been entered accurately. I understand that false statement may result in this permit being immediately revoked and I may be subject to penalties under Chapter 173-360 WAC.

PRINT OR TYPE: Del Reisner Pres

Name and Official Title of UST Owner or UST Owners's Authorized Representative

Del Reisner — 5-11-92 — 293-2197

Signature of UST Owner or Authorized Representative | Date Signed | Telephone Number

(DO NOT DETACH. RETURN BOTH PARTS TO ECOLOGY.)

R'S NAME = DELBERT REISNER
R'S ADDR = 310 COMMERCIAL AVE PO BOX 409
, ST ZIP = ANACORTES , WA 98221

PLEASE EXAMINE THIS INFORMATION CAREFULLY!

#	SITE NAME AND ADDRESS	# OF TANKS REPORTED	TANK ID #	TANK SIZE (000'S)	YEAR INSTLD	TANK STATUS
35	32ND STREET TEXACO 3119 COMMERCIAL AVE ANACORTES WA 98221	5				
			1	5 - 10	68	ACTIVE
			2	5 - 10	68	ACTIVE
			3	1 - 5	73	ACTIVE
			4	1 - 5	68	ACTIVE
			5	0 - .5	73	ACTIVE
36	REFINERY TEXACO 2147 CHRISTINSEN ROAD ANACORTES WA 98221	5				
			1	5 - 10	73	ACTIVE
			2	5 - 10	73	ACTIVE
			3	1 - 5	78	ACTIVE
			4	10 - 20	78	ACTIVE
			5	.5 - 1	73	TEMP OUT
137	COLLAGE WAY SERV U 2120 EAST COLLAGE WAY MOUNT VERNON WA 98273	3				
			1	1 - 5	73	ACTIVE
			2	1 - 5	73	ACTIVE
			3	1 - 5	82	ACTIVE
158	DANDI DELI 2091 STATE HWY 20 SEDRO WOOLLEY WA 98284	4				
			1	10 - 20	85	ACTIVE
			2	10 - 20	68	ACTIVE
			3	1 - 5	68	ACTIVE
			4	5 - 10	78	ACTIVE
159		2				
			1	1 - 5	82	ACTIVE
			2	1 - 5	82	ACTIVE

Handwritten notes (site 35): ALL Tanks, Interior lined March 1989; catchment Basins; Suction Piping; stopped to tanks; Kit for vapor monitoring

Handwritten notes (site 36): ALL Tanks Removed + Replaced by June 1989; 3-10000; 1-6000; ALL Tank STIP3 with overfill catch Basins; Automatic • Tank Gauge • Vapor Monitoring • interstitial Monitoring

Del Reisner

6/9/89

UNDERGROUND STORAGE TANK INFORMATION UPDATE

Please check all of the information on this page to make sure it is correct. Make any changes on this page, and fill in any missing or incorrect information in the corrected information column.

TANK OWNER INFORMATION

	Current Information	Corrected Information (PRINT OR TYPE)
A. OWNER NUMBER:	U0009181	
OWNER NAME:	CHRISTIANSON CORP	
OWNER ADDRESS:	310 COMMERCIAL AVE / P O BOX 409 ANACORTES, WA 98221-0409	
OWNER PHONE:	(206) 293-2197	
B. OWNER TYPE:	-	[A] [B] [C] [D] [E] [F] [G]_____

TANK SITE INFORMATION

	Current Information	Corrected Information (PRINT OR TYPE)
A. SITE NUMBER:	100857	
SITE NAME:	REFINERY TEXACO	
SITE ADDRESS:	1247 CHRISTIANSON ROAD ANACORTES, WA 98221-0409	
B. CONTACT PERSON:	TED REISNER	
CONTACT PHONE:	293-7272	
C. SITE TYPE:	A - SERVICE STATION	[A] [B] [C] [D] [E] [F] [G] [H] [I] [J] [K] [L] [M] [N] [P] [Q] [R] [S] [T] [U]:_____

TANK INFORMATION

	Current Information	Corrected Information
		Mark out the correct choice for each item by coloring between the brackets. If the Current Information is correct, you do not need to fill in that item. See the example and instruction booklet for more information on using this form.
A. TANK ID: 7 UNLEADED	FEE PAID: YES	
B. TANK STATUS:	A - OPERATIONAL	[A] [B] 9/15/89
C. INSTALLATION DATE:		[A] [B] [C] [D] [E] [F] [G] [H]
D. TANK SIZE:	E - 10000-19999 GALLONS	[A] [D] [C] [D] [E] [O]:_____
E. TANK MATERIAL:	A - STEEL UNPROTECTED	[A] [B] [C] [O]:_____
F. TANK CONSTRUCTION:	-	[1] [2] [3] [4] [O]:_____
G. COMPARTMENTS:		[A] [B] [C] [D] [E] [F] [G] [H] [O]:_____
H. TANK RELEASE DETECTION:	-	[A] [B] [C] [D] [E] [O]:_____
I. TANK CORROSION PROTECTION:	A - COATED W/SAC. ANODES	[A] [B] [C] [O]:_____
J. SPILL PREVENTION:	-	[A] [B] [C] [D] [E] [O]:_____
K. OVERFILL PREVENTION:	-	[A] [B] [C] [D] [E] [O]:_____
L. PIPING MATERIAL:	C - FIBERGLASS	[A] [B] [C] [D] [E] [O]:_____
M. PIPING CONSTRUCTION:	-	[A] [B] [C] [D] [E] [O]:_____
N. PRODUCT DELIVERY METHOD:	-	[A] [B] [C] [D] [E] [F] [G] [O]:_____
O. PIPING RELEASE DETECTION:	-	[A] [B] [C] [D] [E] [O]:_____
P. PIPING CORROSION PROTECTION:	-	[A] [B] [C] [D] [E] [F] [G] [H] [I] [O]:_____
Q. SUBSTANCE STORED:	B - UNLEADED GASOLINE	[A] [B] [C] [D] [E] [O]:_____
R. SUBSTANCE USE:	-	[A] [B] [C] [D] [E] [F] [G] [H] [I] [A] [B] [C] [D] [E] [F] [G] [H] [I] [J]
S. FIN. RESP. CLASS:	-	
T. FIN. RESP. METHOD:	-	

SWORN STATEMENT: I hereby swear under penalty of law that, based on my review of the underground storage tank self-certification of compliance and tank information update and my knowledge of the tank identified by the above tank id number, this tank is in compliance with applicable state requirements. Also, any new or corrected information required on this form has been entered accurately. I understand that false statement may result in this permit being immediately revoked and I may be subject to penalties under Chapter 173-360 WAC.

PRINT OR TYPE: Del Reisner Pres
Name and Official Title of UST Owner or UST Owners's Authorized Representative

Del Reisner — 5-11-92 — 293-2197
Signature of UST Owner or Authorized Representative | Date Signed | Telephone Number

(DO NOT DETACH. RETURN BOTH PARTS TO ECOLOGY.)

Please check all of the information on this page to make sure it is correct. Make any changes on this page, and fill in any missing or incorrect information in the corrected information column.

TANK OWNER INFORMATION

	Current Information	Corrected Information (PRINT OR TYPE)
A. OWNER NUMBER:	U0009181	
OWNER NAME:	CHRISTIANSON CORP	
OWNER ADDRESS:	310 COMMERCIAL AVE / P O BOX 409 ANACORTES, WA 98221-0409	
OWNER PHONE:	(206) 293-2197	
B. OWNER TYPE:	-	[●] [B] [C] [D] [E] [F] [O]_____

TANK SITE INFORMATION

	Current Information	Corrected Information (PRINT OR TYPE)
A. SITE NUMBER:	100857	
SITE NAME:	REFINERY TEXACO	
SITE ADDRESS:	1247 CHRISTIANSON ROAD ANACORTES, WA 98221-0409	
B. CONTACT PERSON:		
CONTACT PHONE:		
C. SITE TYPE:	A - SERVICE STATION	[A] [B] [C] [●] [E] [F] [G] [H] [I] [J] [K] [L] [M] [N] [P] [Q] [R] [S] [T] [O]:_____

TANK INFORMATION

	Current Information	Corrected Information
A. TANK ID: 8 REGULAR	FEE PAID: YES	
B. TANK STATUS:	A - OPERATIONAL	[A] [B]
C. INSTALLATION DATE:		8/15/89
D. TANK SIZE:	E - 10000-19999 GALLONS	[A] [B] [C] [D] [E] [F] [G] [H]
E. TANK MATERIAL:	A - STEEL UNPROTECTED	[A] [●] [C] [D] [E] [O]:_____
F. TANK CONSTRUCTION:	-	[●] [B] [C] [O]:_____
G. COMPARTMENTS:		[●] [2] [3] [4] [O]:_____
H. TANK RELEASE DETECTION:	-	[A] [B] [●] [●] [●] [F] [G] [H] [O]:_____
I. TANK CORROSION PROTECTION:	A - COATED W/SAC. ANODES	[●] [B] [C] [D] [E] [O]:_____
J. SPILL PREVENTION:	-	[●] [B] [C] [O]:_____
K. OVERFILL PREVENTION:	-	[A] [B] [●] [D] [E] [O]:_____
L. PIPING MATERIAL:	C - FIBERGLASS	[A] [B] [●] [D] [E] [O]:_____
M. PIPING CONSTRUCTION:	-	[●] [B] [C] [D] [E] [O]:_____
N. PRODUCT DELIVERY METHOD:	-	[●] [B] [C] [D] [E] [O]:_____
O. PIPING RELEASE DETECTION:	-	[●] [B] [C] [D] [E] [F] [G] [O]:_____
P. PIPING CORROSION PROTECTION:	-	[A] [B] [●] [D] [E] [O]:_____
Q. SUBSTANCE STORED:	A - LEADED GASOLINE	[A] [B] [C] [D] [E] [F] [G] [H] [I] [O]:_____
R. SUBSTANCE USE:	-	[●] [B] [C] [D] [E] [O]:_____
S. FIN. RESP. CLASS:	-	[A] [B] [C] [●] [E] [F] [G] [H] [I]
T. FIN. RESP. METHOD:	-	[A] [B] [C] [D] [E] [F] [G] [H] [●] [J]

Mark out the correct choice for each item by coloring between the brackets. If the Current Information is correct, you do not need to fill in that item. See the example and instruction booklet for more information on using this form.

SWORN STATEMENT: I hereby swear under penalty of law that, based on my review of the underground storage tank self-certification of compliance and tank information update and my knowledge of the tank identified by the above tank id number, this tank is in compliance with applicable state requirements. Also, any new or corrected information required on this form has been entered accurately. I understand that false statement may result in this permit being immediately revoked and I may be subject to penalties under Chapter 173-360 WAC.

PRINT OR TYPE: Del Reisner Pres

Name and Official Title of UST Owner or UST Owners's Authorized Representative

Del Reisner 5-11-92 293-2197

Signature of UST Owner or Authorized Representative | Date Signed | Telephone Number

(DO NOT DETACH. RETURN BOTH PARTS TO ECOLOGY.)

Please check all of the information on this page to make sure it is correct. Make any changes on this page, and fill in any missing or incorrect information in the corrected information column.

TANK OWNER INFORMATION

Current Information	Corrected Information (PRINT OR TYPE)
A. OWNER NUMBER: U0009181 OWNER NAME: CHRISTIANSON CORP OWNER ADDRESS: 310 COMMERCIAL AVE / P O BOX 409 ANACORTES, WA 98221-0409 OWNER PHONE: (206) 293-2197 B. OWNER TYPE: -	[ ] [B] [C] [D] [E] [F] [O]_____

TANK SITE INFORMATION

Current Information	Corrected Information (PRINT OR TYPE)
A. SITE NUMBER: 100857 SITE NAME: REFINERY TEXACO SITE ADDRESS: 1247 CHRISTIANSON ROAD ANACORTES, WA 98221-0409 B. CONTACT PERSON: CONTACT PHONE: C. SITE TYPE: A - SERVICE STATION	[A] [B] [C] [ ] [E] [F] [G] [H] [I] [J] [K] [L] [M] [N] [P] [Q] [R] [S] [T] [O]:_____

TANK INFORMATION

Current Information	Corrected Information
	Mark out the correct choice for each item by coloring between the brackets. If the Current Information is correct, you do not need to fill in that item. See the example and instruction booklet for more information on using this form.
A. TANK ID: 9 DIESEL FEE PAID: YES	[A] [B] 8/15/89
B. TANK STATUS: A - OPERATIONAL	[A] [B] [C] [D] [E] [F] [G] [H]
C. INSTALLATION DATE:	[A] [ ] [C] [D] [E] [O]:_____
D. TANK SIZE: E - 10000-19999 GALLONS	[ ] [B] [C] [D]:_____
E. TANK MATERIAL: A - STEEL UNPROTECTED	[ ] [2] [3] [4] [O]:_____
F. TANK CONSTRUCTION: -	[A] [B] [ ] [ ] [ ] [F] [G] [H]
G. COMPARTMENTS:	[O]:_____
H. TANK RELEASE DETECTION: -	[ ] [B] [C] [D] [E]
I. TANK CORROSION PROTECTION: A - COATED W/SAC. ANODES	[O]:_____
J. SPILL PREVENTION: -	[ ] [B] [C] [D]:_____
K. OVERFILL PREVENTION: -	[A] [B] [ ] [D] [E] [O]:_____
L. PIPING MATERIAL: C - FIBERGLASS	[A] [B] [ ] [D] [E] [O]:_____
M. PIPING CONSTRUCTION: -	[ ] [B] [C] [D] [E] [O]:_____
N. PRODUCT DELIVERY METHOD: -	[ ] [B] [C] [D] [E]
O. PIPING RELEASE DETECTION: -	[O]:_____
P. PIPING CORROSION PROTECTION: -	[ ] [B] [C] [D] [E] [F] [G]
Q. SUBSTANCE STORED: D - DIESEL FUEL	[O]:_____
R. SUBSTANCE USE: -	[A] [B] [C] [D] [E] [O]:_____
S. FIN. RESP. CLASS: -	[A] [B] [C] [D] [E] [F] [G] [H] [I] [J] [O]:_____
T. FIN. RESP. METHOD: -	[A] [B] [C] [ ] [E] [F] [G] [H] [I] [A] [B] [C] [D] [E] [F] [G] [H] [ ] [J]

SWORN STATEMENT: I hereby swear under penalty of law that, based on my review of the underground storage tank self-certification of compliance and tank information update and my knowledge of the tank identified by the above tank id number, this tank is in compliance with applicable state requirements. Also, any new or corrected information required on this form has been entered accurately. I understand that false statement may result in this permit being immediately revoked and I may be subject to penalties under Chapter 173-360 WAC.

PRINT OR TYPE: Dick Reisner Pres
Name and Official Title of UST Owner or UST Owner's Authorized Representative

Signature of UST Owner or Authorized Representative — Date Signed: 5-11-92 — Telephone Number: 293-2197

(DO NOT DETACH. RETURN BOTH PARTS TO ECOLOGY.)

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	WASH.				

T.34 N. R. 2E. W.M.

LEGEND

Access To Be Prohibited Shown Thus ▬

Property Ownership Numbers (1-607)

Property Lines —

Coordinate System Used Lambert North Zone

ALL PLANS ARE SUBJECT TO CHANGE. OWNERSHIP SHOULD BE VERIFIED. PROPOSED PROPERTY RIGHTS SHOWN MAY NOT HAVE BEEN ACQUIRED. ENCUMBRANCES MAY OR MAY NOT BE SHOWN. PARTIES SEEKING CURRENT PLAN INFORMATION SHOULD CONSULT THE DEPARTMENT OF TRANSPORTATION HEADQUARTERS RIGHT OF WAY PLANS OFFICE FOR THE OFFICIAL PLAN ON FILE. FOR ENCUMBRANCE INFORMATION CONSULT THE DEPARTMENT OF TRANSPORTATION HEADQUARTERS REAL ESTATE SERVICES OFFICE.

OWNERSHIPS

PARCEL Nº	NAME	TOTAL AREA	TAKE	LT. REMAINDER	RT.
1-141-B	YOUNG	0.50 Ac.	—	0.50 Ac.	
1-141-C	YOUNG	2,995 Sq. Ft.	1,485 Sq. Ft.	1,510 Sq. Ft.	
1-129	TURNER G.	399.5 Ac.	2.76 Ac.	5.98 Ac.	390.76 Ac.
1-133-A	SULLIVAN	15,075 Sq. Ft.	5,780 Sq. Ft.		9,295 Sq. Ft.
1-133-B	SULLIVAN	1.91 Ac.	0.11 Ac.		1.80 Ac.
1-134	CORBIN	5.23 Ac.	1.01 Ac.		4.22 Ac.
1-135-A	STAFLIN, N.B.	1.00 Ac.	0.93 Ac.	0.04 Ac.	0.03 Ac.
1-135-B	STAFLIN, N.B.	2.61 Ac.	1.64 Ac.	0.24 Ac.	0.73 Ac.
1-136	CITY OF ANACORTES	7000 Sq. Ft.	2900 Sq. Ft.	4,100 Sq. Ft.	
1-137	NORTHERN REALTY CO.	4.08 Ac.	1.29 Ac.	2.79 Ac.	
1-138	DONAHEY	21,720 Sq. Ft.	4000 Sq. Ft.	17,720 Sq. Ft.	
1-139	FLANAGAN	1.09 Ac.	0.59 Ac.	0.49 Ac.	0.01 Ac.
1-140	GLASCOE	1.33 Ac.	0.53 Ac.	0.80 Ac.	
1-141-A	YOUNG	0.50 Ac.	—	0.50 Ac.	
1-142	ARMSTRONG	0.62 Ac.	0.42 Ac.	0.20 Ac.	
1-143	STAFLIN W.W.	7.24 Ac.	0.05 Ac.		7.19 Ac.
1-144	ERLANDSON	0.61 Ac.	0.21 Ac.		0.40 Ac.
1-145	BRANDT	1.69 Ac.	0.50 Ac.		1.19 Ac.
1-146	MATTERS	7.91 Ac.	2.97 Ac.	4.53 Ac.	0.41 Ac.
1-147	ZIEBARTH	5.74 Ac.	0.21 Ac.	5.53 Ac.	
1-148	MATSON	4.75 Ac.	0.05 Ac.		4.70 Ac.
1-149	SEE SHEET NO. 3				
1-150	WHITE	4,741 Sq. Ft.	2233 Sq. Ft.	2508 Sq. Ft.	
1-181	SANDYGREN	Access	Only		

CURVE DATA / SPIRALS BACK AND AHEAD

P.I. STATION	Δ	CΔ	D	R	T	L	a	DE	Ls
123+76.8	24° 17'	18° 53'	3° 00'	1910.0'	501.0'	629.4'	1⅔	2° 42'	1.8
324+05.8	42° 56'	37° 32'	3° 00'	1910.0'	841.3'	1251.1'	1⅔	2° 42'	1.8
M 1+10.0	25°00'		30°00'	191.0'	42.3'	83.3'			
M 4+84.4	26°03'30"		13°00'	440.7'	102.0'	200.4'			
132+66.1	20°58'		4°00'	1432.5'	265.1'	524.2'			

ACCESS NOTES:

* THIS APPROACH IS TO BE USED TO SERVE MORE THAN ONE OWNER AND/OR UTILITY, FOR ONLY THOSE OWNERSHIPS LISTED ON THE ACCESS APPROACH SCHEDULE.

TYPE C APPROACH IS AN OFF AND ON APPROACH IN LEGAL MANNER, FOR SPECIAL PURPOSE AND WIDTH TO BE AGREED UPON. IT MAY BE SPECIFIED AT A POINT SATISFACTORY TO THE STATE AT OR BETWEEN DESIGNATED HIGHWAY STATIONS.

Type A approach is an Off and On approach in legal manner not to exceed 14 feet in width for sole purpose of serving a single family residence. It may be reserved by abutting owner for specified use at a point satisfactory to the state at or between designated highway stations.
No. 2
This approach is to be used to serve two families.

▲ COACHMAN INN OF AMERICA INC.'S (BILLBOARD SIGN) USE OF THE APPROACH EXPIRES PURSUANT TO TERMS SET FORTH IN THE EASEMENT RESERVATION.

PEDESTRIAN AND BICYCLE TRAFFIC WILL BE PERMITTED USE OF THE TRAIL DESIGNATED ON THE LEFT BETWEEN STA. 124+15± AND STA. 144+10.

SPECIFIED USER	STATION ON ROADWAY	TYPE
COACHMAN INNS OF AMERICA INC.'S	126+60 RT.	C-*-▲
WSDOT	126+60 RT.	C-*

ROAD APPROACH SCHEDULE

SPECIFIED USER	STATION ON ROADWAY	TYPE
OWNER	CHRISTANSEN RD. 7+60 ON LT.	C
OWNERS	307+70 ON RT.	A2

AUTHORITY	DATE	SUBSEQUENT APPROVAL	BY
Letter 8-12-16	9-6-16	Added Pedestrian/Bicycle Trail on Rt. Vic. Sta. 124+00 to 130+00; Added Pedestrian and Bicycle Access Note; Added SR Designation; Added Ownership Verification Note	STW
Letter 3-1-07	3-14-07	ADDED CROSS REFERENCE NOTE; ADDED TYPE C-* AND TYPE C-*-▲ APPROACH STA. 126+60 RT.; REVISED STA. 125+80	cv
	2-7-61	Parcel No. 1-133A Total & Remainder Areas Revised	D.W.H.
	8-23-60	Owernerships added	A.L.B.

Note: Approved per State Highway Commission Order Dec. 21, 1960.

EXHIBIT A
SR20
~~PRIMARY STATE HIGHWAY NO. 1 (SR 536)~~
JCT. SSH NO. 1-D TO SWINOMISH SLOUGH
SKAGIT COUNTY

RIGHT OF WAY AND LIMITED ACCESS PLAN
PARTIAL CONTROL
Station 130+00 to Station 118+75.8 Bk.=
Station 300+00 Ahd. to Station 320+00

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

H. E. MORGAN E. J. KETCHAM, CHAIRMAN R. A. MOISIO
J. E. STONE E. A. COWELL

WILLIAM A. BUGGE

W. Bugge
DIRECTOR OF HIGHWAYS

APPROVED: August 2, 1960

SHEET 2 OF 8 SHEETS

Sta. 301+15 to Sta. 320+00 established by Commision Res. No. 1000 August 16, 1960

DO 465 5-60 PRINTED IN U.S.A.

540881

VOL 280 PAGE 553

MEMORANDUM OF LEASE

THIS INDENTURE, made and entered into this 10th day of August, 1956, by and between GEORGE D. SULLIVAN and CLARA E. SULLIVAN, husband and wife, of Washington, hereinafter called the Lessor (whether one or more) and SHELL OIL COMPANY, a Corporation, hereinafter called "Shell."

WITNESSETH

That for the term and upon the terms and conditions set forth in Service Station Lease bearing date August 10, 1956, from the Lessor to Shell, the Lessor has leased, demised and let, and does hereby lease, demise and let unto Shell the following described real property, situated, lying and being in the City of..... County of Skagit, State of Washington, more particularly described as follows, to-wit:

(See rider hereto attached)

Together with all of Lessor's buildings, improvements, equipment and other property now or hereafter located thereon.

IN WITNESS WHEREOF, the parties hereto have caused their respective names to be hereunto subscribed, as of the day and year first above written.

George D. Sullivan

Clara E. Sullivan

SHELL OIL COMPANY

By J. O. Underwood

VP

STATE OF WASHINGTON }
COUNTY OF SKAGIT } ss.

On this 10th day of August, in the year nineteen hundred and Fifty-six, A. D., before me the undersigned, a Notary Public in and for said County and State, residing therein, duly commissioned and sworn, personally appeared GEORGE D. SULLIVAN and CLARA E. SULLIVAN, husband and wife, personally known to me to be the person s whose names are subscribed to the within instrument, and they acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunder set my hand and affixed my official seal in said county the day and year in this certificate first above written.

Harwood Bannister

Notary Public in and for ..... County, State of Washington

residing at Mount Vernon

My commission expires Jan. 3, 1958

HAROLD BANNISTER NOTARY PUBLIC STATE OF WASHINGTON COMMISSION EXPIRES JAN. 3, 1958

PROPERTY DESCRIPTION REFERRED TO IN ARTICLE 1 HEREOF:

The West 75 feet of the North 125 feet of the following described property:

Beginning at a point 15 feet east of West Section line of Section 4-34-2 on south line of Anacortes-Mt. Vernon Highway, thence south 201 feet, thence east at right angles 75 feet, thence north at right angles 201 feet to highway, then west along south line of said highway to point of beginning;

Beginning at a point 15 feet east of west 1/4 corner of Section 4-34-2, thence south 580 feet, thence easterly along the north line of County Road 125 feet, thence north 792 feet more or less to the south line of Anacortes-Mt. Vernon highway, thence west 50 feet along south line of said highway, thence south 201 feet more or less to the east of west 1/4 line of said Section, thence west 75 feet to point of beginning.

Together with easements over and across the following described parts of lessor's land adjoining the leased land on the east, designated parcel (a) and adjoining the leased land on the south, designated parcel (b):

(a) Beginning at a point 15 feet east of the west section line of Section 4-34-2 on south line of Anacortes-Mt. Vernon Highway, thence easterly along said highway 75 feet to a point which is the true point of beginning of this description, thence south at right angles 125 feet, thence east at right angles 25 feet; thence northerly to a point on the south line of the Anacortes-Mt. Vernon Highway 25 feet east of the point of beginning; thence west 25 feet to the point of beginning;

(b) Beginning at a point 15 feet east of the west 1/4 corner of Section 4-34-2 on the south line of the Anacortes-Mt. Vernon Highway, thence south 125 feet to the true point of beginning; thence south 25 feet; thence at right angles 75 feet; thence north at right angles 25 feet, thence westerly at right angles 75 feet to the true point of beginning;

to be used in common with lessor and for ingress and egress to and from the leased land by Shell and its sublessees and the licensees and invitees of either, with the right in Shell to install and maintain a driveway thereon; and neither lessor nor Shell ever to cause or permit any obstruction of the easement area or access thereto.

RECEIVED FOR RECORD AT
2:33 P Aug 30 1956
at request of Shell Oil Co.
EDW. DANIELSON, Auditor
Skagit Co., Washington

D-284-21 (Rev. 4-54) Printed in U.S.A.
(Formerly SR 1711-3)

SS 1578

VOL 330 D PAGE 524

635692

TERMINATION AGREEMENT

(Lease to Shell)

THIS AGREEMENT, dated March 7, 1963, between GEORGE D. SULLIVAN & CLARA E. SULLIVAN, Husband and wife of Route 2, Box 241 in Anacortes, Washington (herein called "Lessor", whether one or more), and SHELL OIL COMPANY, a Delaware corporation, with offices at 1219 Westlake Avenue North in Seattle 11, Washington (herein called "Shell");

WITNESSETH:

In consideration of One Dollar ($1.00) and other valuable consideration, receipt whereof is hereby acknowledged, Lessor and Shell hereby: (1) Agree that the lease dated August 10, 1956, as amended, supplemented or extended, which (or a memorandum of which) is recorded in Book 280 of Deeds, Page 553, in the Office of Skagit County Auditor, Auditor's File #540881, and by which Lessor leased to Shell (or to Shell's predecessor) certain premises situated at P.S.H. #1 and Baxter Road, in Anacortes, County of Skagit, State of Washington, and fully described in the lease, shall be and is hereby terminated, effective as of April 20, 1963; and (2) Release each other from all claims which either now has against the other under or by virtue of the lease, as amended, supplemented or extended, reserving, however, to Shell its rights thereunder to remove its property from the premises.

IN WITNESS WHEREOF, this Agreement is executed as of the date first herein written.

Witnesses to execution by Lessor:

Vina M. Schmandt .... George Sullivan (Seal)
GEORGE D. SULLIVAN

Dorothy L. Cook .... Clara E. Sullivan (Seal)
"Lessor"
CLARA E. SULLIVAN

Witnesses to execution by Shell:

SHELL OIL COMPANY

By H. J. Smith

(Add Acknowledgments)

STATE OF WASHINGTON } SS.
COUNTY OF SKAGIT }

On this day personally appeared before me, GEORGE D. SULLIVAN & CLARA E. SULLIVAN, Husband & Wife, to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that he signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

Given under my hand and official seal this 1st day of April, 19[illegible].

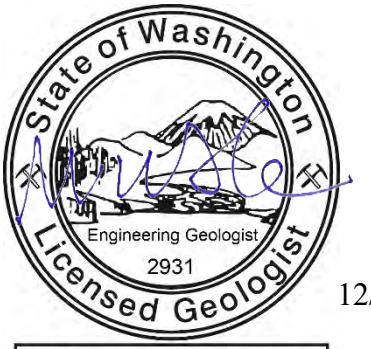
My commission expires: July 28, 1963

[Signature] Schmandt
Notary Public in and for the State of Washington, residing at:

[illegible] 9 1963 11:06 AM
[illegible] Shell Oil Co.
[illegible] Skagit Co., Washington

APPENDIX B

Boring Logs and Well Construction Diagrams



12/28/23

Matthew A. von der Ahe

Matthew von der Ahe, LG Project
Engineering Geologist
mvonderahe@aspectconsulting.com

Coarse-Grained Soils - More than 50%[1] Retained on No. 200 Sieve	Gravels - More than 50%[1] of Coarse Fraction Retained on No. 4 Sieve	≤5% Fines	GW	Well-graded GRAVEL Well-graded GRAVEL WITH SAND
			GP	Poorly-graded GRAVEL Poorly-graded GRAVEL WITH SAND
		≥15% Fines	GM	SILTY GRAVEL SILTY GRAVEL WITH SAND
			GC	CLAYEY GRAVEL CLAYEY GRAVEL WITH SAND
	Sands - 50%[1] or More of Coarse Fraction Passes No. 4 Sieve	≤5% Fines	SW	Well-graded SAND Well-graded SAND WITH GRAVEL
			SP	Poorly-graded SAND Poorly-graded SAND WITH GRAVEL
		≥15% Fines	SM	SILTY SAND SILTY SAND WITH GRAVEL
			SC	CLAYEY SAND CLAYEY SAND WITH GRAVEL
Fine-Grained Soils - 50%[1] or More Passes No. 200 Sieve	Silts and Clays Liquid Limit Less than 50%		ML	SILT SANDY or GRAVELLY SILT SILT WITH SAND SILT WITH GRAVEL
			CL	LEAN CLAY SANDY or GRAVELLY LEAN CLAY LEAN CLAY WITH SAND LEAN CLAY WITH GRAVEL
			OL	ORGANIC SILT SANDY or GRAVELLY ORGANIC SILT ORGANIC SILT WITH SAND ORGANIC SILT WITH GRAVEL
	Silts and Clays Liquid Limit 50% or More		MH	ELASTIC SILT SANDY or GRAVELLY ELASTIC SILT ELASTIC SILT WITH SAND ELASTIC SILT WITH GRAVEL
			CH	FAT CLAY SANDY or GRAVELLY FAT CLAY FAT CLAY WITH SAND FAT CLAY WITH GRAVEL
			OH	ORGANIC CLAY SANDY or GRAVELLY ORGANIC CLAY ORGANIC CLAY WITH SAND ORGANIC CLAY WITH GRAVEL
Highly Organic Soils			PT	PEAT and other mostly organic soils

"WITH SILT" or "WITH CLAY" means 5 to 15% silt and clay, denoted by a "-" in the group name; e.g., SP-SM • "SILTY" or "CLAYEY" means >15% silt and clay • "WITH SAND" or "WITH GRAVEL" means 15 to 30% sand and gravel. • "SANDY" or "GRAVELLY" means >30% sand and gravel. • "Well-graded" means approximately equal amounts of fine to coarse grain sizes • "Poorly graded" means unequal amounts of grain sizes • Group names separated by "/" means soil contains layers of the two soil types; e.g., SM/ML.

Soils were described and identified in the field in general accordance with the methods described in ASTM D2488. Where indicated in the log, soils were classified using ASTM D2487 or other laboratory tests as appropriate. Refer to the report accompanying these exploration logs for details.

1. Estimated or measured percentage by dry weight
2. (SPT) Standard Penetration Test (ASTM D1586)
3. Determined by SPT, DCPT (ASTM STP399) or other field methods. See report text for details.

GEOTECHNICAL LAB TESTS

MC	=	Natural Moisture Content
PS	=	Particle Size Distribution
FC	=	Fines Content (% < 0.075 mm)
GH	=	Hydrometer Test
AL	=	Atterberg Limits
C	=	Consolidation Test
Str	=	Strength Test
OC	=	Organic Content (% Loss by Ignition)
Comp	=	Proctor Test
K	=	Hydraulic Conductivity Test
SG	=	Specific Gravity Test

CHEMICAL LAB TESTS

Organic Chemicals

BTEX	=	Benzene, Toluene, Ethylbenzene, Xylenes
TPH-Dx	=	Diesel and Oil-Range Petroleum Hydrocarbons
TPH-G	=	Gasoline-Range Petroleum Hydrocarbons
VOCs	=	Volatile Organic Compounds
SVOCs	=	Semi-Volatile Organic Compounds
PAHs	=	Polycyclic Aromatic Hydrocarbon Compounds
PCBs	=	Polychlorinated Biphenyls

Metals

RCRA8	=	As, Ba, Cd, Cr, Pb, Hg, Se, Ag, (d = dissolved, t = total)
MTCA5	=	As, Cd, Cr, Hg, Pb (d = dissolved, t = total)
PP-13	=	Ag, As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Sb, Se, Tl, Zn (d=dissolved, t=total)

FIELD TESTS

PID	=	Photoionization Detector
Sheen	=	Oil Sheen Test
SPT[2]	=	Standard Penetration Test
NSPT	=	Non-Standard Penetration Test
DCPT	=	Dynamic Cone Penetration Test

COMPONENT DEFINITIONS

Descriptive Term		*Size Range and Sieve Number*
Boulders	=	Larger than 12 inches
Cobbles	=	3 inches to 12 inches
Coarse Gravel	=	3 inches to 3/4 inches
Fine Gravel	=	3/4 inches to No. 4 (4.75 mm)
Coarse Sand	=	No. 4 (4.75 mm) to No. 10 (2.00 mm)
Medium Sand	=	No. 10 (2.00 mm) to No. 40 (0.425 mm)
Fine Sand	=	No. 40 (0.425 mm) to No. 200 (0.075 mm)
Silt and Clay	=	Smaller than No. 200 (0.075 mm)

ESTIMATED[1] PERCENTAGE

% by Weight		*Modifier*	*% by Weight*		*Modifier*
<1	=	Subtrace	15 to 25	=	Little
1 to <5	=	Trace	30 to 45	=	Some
5 to 10	=	Few	>50	=	Mostly

MOISTURE CONTENT

Dry	=	Absence of moisture, dusty, dry to the touch
Slightly Moist	=	Perceptible moisture
Moist	=	Damp but no visible water
Very Moist	=	Water visible but not free draining
Wet	=	Visible free water, usually from below water table

RELATIVE DENSITY

Non-Cohesive or Coarse-Grained Soils

Density[3]		*SPT*[2] *Blows/Foot*	*Penetration with 1/2" Diameter Rod*
Very Loose	=	0 to 4	≥ 2'
Loose	=	5 to 10	1' to 2'
Medium Dense	=	11 to 30	3" to 1'
Dense	=	31 to 50	1" to 3"
Very Dense	=	> 50	< 1"

CONSISTENCY

Cohesive or Fine-Grained Soils

Consistency[3]		*SPT*[2] *Blows/Foot*	*Manual Test*
Very Soft	=	0 to 1	Penetrated >1" easily by thumb. Extrudes between thumb & fingers.
Soft	=	2 to 4	Penetrated 1/4" to 1" easily by thumb. Easily molded.
Medium Stiff	=	5 to 8	Penetrated >1/4" with effort by thumb. Molded with strong pressure.
Stiff	=	9 to 15	Indented ~1/4" with effort by thumb.
Very Stiff	=	16 to 30	Indented easily by thumbnail.
Hard	=	> 30	Indented with difficulty by thumbnail.

GEOLOGIC CONTACTS

Observed and Distinct ——— Observed and Gradual ——— Inferred - - - -

Aspect CONSULTING

Exploration Log Key

Aspect CONSULTING	Swinomish Market and Deli - 220230		Environmental Exploration Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, East side of Property		*Coordinates (Lat,Lon WGS84)* 48.4621, -122.5702 (est)	*Exploration Number* **AB-01**
Contractor Cascade Environmental	*Equipment* Geoprobe 7822DT	*Sampling Method* Percussion hammer	*Ground Surface Elev. (NAVD88)* 9' (est)	
Operator Scott Busby	*Exploration Method(s)* Direct push	*Work Start/Completion Dates* 3/15/2023	*Top of Casing Elev. (NAVD88)* NA	*Depth to Water (Below GS)* No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Patched with cold mix asphalt					ASPHALT; with base course.	
				AB-01-0.5-1	PID=15.6 Sheen=None		**NEARSHORE DEPOSITS** SILT WITH SAND (ML); soft, moist, dark gray; low plasticity; fine to medium sand; no petroleum-like odor.	
		Borehole backfilled with bentonite chips						
				AB-01-3-3.5	PID=0.0 Sheen=None		**GLACIAL TILL** CLAY (CL); medium to very stiff, slightly moist, gray brown; low plasticity; trace, fine sand; no petroleum-like odor.	
5	5							5
					PID=0.0 Sheen=None			
10	0							10
15	-5						Bottom of exploration at 15 ft. bgs.	15
	-10							

Legend

Sample Type
- Continuous core 1.125" ID
- Grab sample

Water Level
- No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: MRE
Approved by: MvA 2023-12-27

Exploration Log AB-01
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING	Swinomish Market and Deli - 220230		Environmental Exploration Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, West of former Texaco USTs		*Coordinates (Lat,Lon WGS84)* 48.4623, -122.5708 (est)	*Exploration Number* **AB-02**
Contractor Cascade Environmental	*Equipment* Geoprobe 7822DT	*Sampling Method* Percussion hammer	*Ground Surface Elev. (NAVD88)* 9' (est)	
Operator Scott Busby	*Exploration Method(s)* Direct push	*Work Start/Completion Dates* 9/11/2023	*Top of Casing Elev. (NAVD88)* NA	*Depth to Water (Below GS)* No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Patched with cold mix asphalt					ASPHALT; with base course.	
		Excavated with air knife and vacuum to 5ft					**FILL** SILTY SAND WITH GRAVEL (SM); moist, very dark gray brown; fine to coarse sand; fine to coarse, subangular to subrounded gravel; slight petroleum-like odor.	
		Borehole backfilled with bentonite chips		AB-02-2	PID=2.4 Sheen=None			
				AB-02-3.5	PID=1.1 Sheen=None		**GLACIAL TILL** SANDY SILT WITH GRAVEL (ML); slightly moist, dark gray; medium plasticity; fine to coarse sand; fine to coarse, subangular to subrounded gravel; trace mica; no petroleum-like odor.	
5	5				PID=0.5 Sheen=None			5
				AB-02-5.5	PID=0.0 Sheen=None			
					PID=0.1 Sheen=None			
					PID=0.0 Sheen=None		SANDY CLAY (CL); hard, slightly moist, brown with gray mottling; medium plasticity; fine to coarse sand; few fine to coarse, subangular to subrounded gravel; no petroleum-like odor.	
	0				PID=0.0 Sheen=None			
10							Becomes brown with trace wood fibers.	10
					PID=0.1 Sheen=None			
					PID=0.0 Sheen=None			
					PID=0.0 Sheen=None		Bottom of exploration at 12.5 ft. bgs.	
	-5							
15								15
	-10							

Legend

Sample Type
- No Soil Sample Recovery
- Grab sample
- Continuous core 1.85" ID

Water Level
- No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-22

Exploration Log AB-02
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING	Swinomish Market and Deli - 220230		Environmental Exploration Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, North of Market		*Coordinates (Lat,Lon WGS84)* 48.4622, -122.5706 (est)	*Exploration Number* **AB-03**
Contractor Cascade Environmental	*Equipment* Geoprobe 7822DT	*Sampling Method* Percussion hammer	*Ground Surface Elev. (NAVD88)* 9' (est)	
Operator Scott Busby	*Exploration Method(s)* Direct push	*Work Start/Completion Dates* 9/11/2023	*Top of Casing Elev. (NAVD88)* NA	*Depth to Water (Below GS)* No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Patched with cold mix asphalt					ASPHALT; with base course.	
		Excavated with air knife and vacuum to 3ft					**FILL** SILTY SAND WITH GRAVEL (SM); moist, very dark gray brown; fine to coarse sand; fine to coarse, subangular to subrounded gravel; slight petroleum-like odor.	
		Borehole backfilled with bentonite chips		AB-03-2	PID=2.4 Sheen=None			
					PID=0.9 Sheen=None			
	5			AB-03-4	PID=0.5 Sheen=None			
5				AB-03-5	PID=0.0 Sheen=None		**GLACIAL TILL** CLAY (CL); stiff, slightly moist, gray with brown mottling; medium plasticity; trace fine to coarse sand; trace fine to coarse, subrounded gravel; no petroleum-like odor.	5
					PID=0.0 Sheen=None			
					PID=0.0 Sheen=None		Becomes brown.	
	0				PID=0.0 Sheen=None			
10					PID=0.0 Sheen=None			10
					PID=0.0 Sheen=None			
					PID=0.0 Sheen=None		Bottom of exploration at 12 ft. bgs.	
	-5							
15								15
	-10							

Legend

Sample Type
- ◯ No Soil Sample Recovery
- Grab sample
- Continuous core 1.85" ID

Water Level
- No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-22

Exploration Log AB-03
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING	Swinomish Market and Deli - 220230		Environmental Exploration Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, Northwest of Market		*Coordinates (Lat,Lon WGS84)* 48.4622, -122.5707 (est)	*Exploration Number* **AB-04**
Contractor Cascade Environmental	*Equipment* Geoprobe 7822DT	*Sampling Method* Percussion hammer	*Ground Surface Elev. (NAVD88)* 9' (est)	
Operator Scott Busby	*Exploration Method(s)* Direct push	*Work Start/Completion Dates* 9/11/2023	*Top of Casing Elev. (NAVD88)* NA	*Depth to Water (Below GS)* No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0	5	Patched with cold mix asphalt					ASPHALT; with base course.	0
		Excavated with air knife and vacuum to 3ft					**FILL** SILTY SAND WITH GRAVEL (SM); moist, dark gray brown; fine to coarse sand; fine to coarse, subangular to subrounded gravel; slight petroleum-like odor.	
		Borehole backfilled with bentonite chips		AB-04-2	PID=0.3 Sheen=None			
					PID=6.0 Sheen=None		**GLACIAL TILL** SILT (ML); moist, gray; low plasticity; no petroleum-like odor.	
5	0			AB-04-3.5	PID=0.0 Sheen=None		SILTY SAND (SM); very moist, gray brown; fine to coarse sand; trace gravel; no petroleum-like odor.	5
				AB-04-5	PID=0.0 Sheen=None		SANDY CLAY WITH GRAVEL (CL); stiff, slightly moist, gray with brown mottling; medium plasticity; fine to coarse sand; fine to coarse, subrounded gravel; no petroleum-like odor.	
10	-5				PID=0.0 Sheen=None		CLAY (CL); stiff, slightly moist, brown; medium plasticity; trace fine to coarse sand; trace fine to coarse, subrounded gravel; no petroleum-like odor.	10
					PID=0.0 Sheen=None			
					PID=0.0 Sheen=None			
					PID=0.0 Sheen=None			
15	-10				PID=0.0 Sheen=None		Bottom of exploration at 12 ft. bgs.	15

Legend

Sample Type
- ◯ No Soil Sample Recovery
- Grab sample
- Continuous core 1.85" ID

Water Level
- No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-22

Exploration Log AB-04
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING	Swinomish Market and Deli - 220230		Environmental Exploration Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, North of West pumping station		*Coordinates (Lat,Lon WGS84)* 48.4622, -122.5708 (est)	*Exploration Number* **AB-05**
Contractor Cascade Environmental	*Equipment* Geoprobe 7822DT	*Sampling Method* Percussion hammer	*Ground Surface Elev. (NAVD88)* 9' (est)	
Operator Scott Busby	*Exploration Method(s)* Direct push	*Work Start/Completion Dates* 9/11/2023	*Top of Casing Elev. (NAVD88)* NA	*Depth to Water (Below GS)* No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Patched with cold mix asphalt					ASPHALT; with base course.	
		Excavated with air knife and vacuum to 3ft					**FILL** SILTY SAND WITH GRAVEL (SM); moist, dark brown; fine to coarse sand; fine to coarse, subangular to subrounded gravel; petroleum-like odor.	
		Borehole backfilled with bentonite chips		AB-05-2	PID=165.0 Sheen=Slight			
					PID=3.1 Sheen=None		**NEARSHORE DEPOSITS** SILT WITH SAND (ML); moist, gray to dark gray; low plasticity; few roots/wood fibers with black mottling; sulfur-like odor.	
5	5			AB-05-4	PID=3.8 Sheen=None		Becomes very moist with fine to coarse sand; fine to coarse gravel at base.	5
				AB-05-5.5	PID=0.0 Sheen=None		**GLACIAL TILL** CLAY (CL); very stiff, slightly moist, gray brown; medium plasticity; trace fine to coarse sand; trace fine to coarse gravel; no petroleum-like odor.	
					PID=0.0 Sheen=None			
	0				PID=0.0 Sheen=None			
10					PID=0.0 Sheen=None			10
							Bottom of exploration at 12 ft. bgs.	
	-5							
15								15
	-10							

Legend

Sample Type
- No Soil Sample Recovery
- Grab sample
- Continuous core 1.85" ID

Water Level
- No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-27

Exploration Log AB-05
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING	Swinomish Market and Deli - 220230		Environmental Exploration Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, North of former Texaco USTs		*Coordinates (Lat,Lon WGS84)* 48.4623, -122.5708 (est)	*Exploration Number* **AB-06**
Contractor Cascade Environmental	*Equipment* Geoprobe 7822DT	*Sampling Method* Percussion hammer	*Ground Surface Elev. (NAVD88)* 9' (est)	
Operator Scott Busby	*Exploration Method(s)* Direct push	*Work Start/Completion Dates* 9/11/2023	*Top of Casing Elev. (NAVD88)* NA	*Depth to Water (Below GS)* No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Topped with topsoil					**FILL** SAND WITH SILT (SP-SM); slightly moist, brown to brown yellow; fine to coarse sand; few fine to coarse, subrounded gravel; few subrounded cobbles; no petroleum-like odor.	
		Excavated with air knife and vacuum to 5ft			PID=0.0 Sheen=None			
	5	Borehole backfilled with bentonite chips			PID=0.4 Sheen=None			
5				AB-06-4.5			SILTY SAND WITH GRAVEL AND COBBLES (SM); wet, brown to brown yellow; fine to coarse sand; fine to coarse, subrounded gravel; subrounded cobbles; no petroleum-like odor.	5
				AB-06-5.5	PID=0.0 Sheen=None		**GLACIAL TILL** CLAY WITH GRAVEL (CL); stiff, slightly moist, gray with brown mottling; low to medium plasticity; trace, fine to coarse sand; fine to coarse, subrounded gravel; no petroleum-like odor.	
					PID=0.0 Sheen=None			
				AB-06-7.5	PID=0.0 Sheen=None		Becomes gray brown.	
	0				PID=0.0 Sheen=None		Becomes brown and very stiff.	
10					PID=0.0 Sheen=None			10
					PID=0.0 Sheen=None			
					PID=0.0 Sheen=None			
	-5						Bottom of exploration at 12.5 ft. bgs.	
15								15
	-10							

Legend

Sample Type
- No Soil Sample Recovery
- Grab sample
- Continuous core 1.85" ID

Water Level
- No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-27

Exploration Log AB-06
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING	Swinomish Market and Deli - 220230		Environmental Exploration Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, On West property boundary		*Coordinates (Lat,Lon WGS84)* 48.4622, -122.5709 (est)	*Exploration Number* **AB-07**
Contractor Cascade Environmental	*Equipment* Geoprobe 7822DT	*Sampling Method* Percussion hammer	*Ground Surface Elev. (NAVD88)* 9' (est)	
Operator Scott Busby	*Exploration Method(s)* Direct push	*Work Start/Completion Dates* 9/11/2023	*Top of Casing Elev. (NAVD88)* NA	*Depth to Water (Below GS)* No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Patched with cold mix asphalt					ASPHALT; with base course.	
		Excavated with air knife and vacuum to 3ft					**FILL** SILTY SAND WITH GRAVEL (SM); moist, very dark gray brown; fine to coarse sand; fine to coarse, angular gravel; strong petroleum-like and sulfur-like odor.	
		Borehole backfilled with bentonite chips		AB-07-2	PID=225 Sheen=Slight			
					PID=0.6 Sheen=None		**NEARSHORE DEPOSITS** SILT (ML); soft, moist, gray to dark gray; medium plasticity; high organic content; black mottling along roots; sulfur-like odor.	
5	5			AB-07-4	PID=0.8 Sheen=None			5
					PID=0.4 Sheen=None			
				AB-07-6	PID=0.0 Sheen=None		**GLACIAL TILL** CLAY WITH SAND (CL); stiff, slightly moist, dark gray to brown; low to medium plasticity; fine-coarse sand; trace fine, subangular to subrounded gravel; trace mica; no petroleum-like odor.	
					PID=0.0 Sheen=None		Becomes gray brown with less gravel.	
10	0				PID=0.0 Sheen=None			10
					PID=0.0 Sheen=None			
	-5						Bottom of exploration at 12 ft. bgs.	15
15								
	-10							

Legend

Sample Type
- ◯ No Soil Sample Recovery
- Grab sample
- Continuous core 1.85" ID

Water Level
- No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-27

Exploration Log AB-07
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING	Swinomish Market and Deli - 220230		Environmental Exploration Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, North of former Texaco USTs on West property boundary		*Coordinates (Lat,Lon WGS84)* 48.4623, -122.5709 (est)	*Exploration Number* **AB-08**
Contractor Cascade Environmental	*Equipment* Geoprobe 7822DT	*Sampling Method* Percussion hammer	*Ground Surface Elev. (NAVD88)* 9' (est)	
Operator Scott Busby	*Exploration Method(s)* Direct push	*Work Start/Completion Dates* 9/11/2023	*Top of Casing Elev. (NAVD88)* NA	*Depth to Water (Below GS)* No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0	9	Patched with cold mix asphalt					ASPHALT; with base course.	0
							FILL SILTY SAND WITH GRAVEL (SM); moist, dark brown; fine to coarse sand; fine to coarse, subangular to subrounded gravel; no petroleum-like odor.	
		Excavated with air knife and vacuum to 5.5ft			PID=0.4 Sheen=None			
		Borehole backfilled with bentonite chips		AB-08-2				
	5				PID=0.4 Sheen=None		**GLACIAL TILL** SILT (ML); medium stiff, moist, gray; low to medium plasticity; trace fine to coarse sand; trace fine, subrounded gravel; no petroleum-like odor.	
5					PID=0.0 Sheen=None			5
				AB-08-5.5			CLAY (CL); very stiff, slightly moist, gray; medium plasticity; no petroleum-like odor.	
					PID=0.0 Sheen=None			
					PID=0.0 Sheen=None			
	0				PID=0.0 Sheen=None		Becomes very stiff, brown.	
10					PID=0.0 Sheen=None			10
					PID=0.0 Sheen=None			
					PID=0.0 Sheen=None			
	-5						Bottom of exploration at 12.5 ft. bgs.	
15								15
	-10							

Legend

Sample Type
- ◯ No Soil Sample Recovery
- Grab sample
- Continuous core 1.85" ID

Water Level
- No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-27

Exploration Log AB-08
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING	Swinomish Market and Deli - 220230		Environmental Exploration Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, North of Market east of AB-03		*Coordinates (Lat,Lon WGS84)* 48.4622, -122.5706 (est)	*Exploration Number* **AB-09**
Contractor Cascade Environmental	*Equipment* Vacuum excavator	*Sampling Method* Hand Auger	*Ground Surface Elev. (NAVD88)* 9' (est)	
Operator Scott Busby	*Exploration Method(s)* Air knife	*Work Start/Completion Dates* 9/11/2023	*Top of Casing Elev. (NAVD88)* NA	*Depth to Water (Below GS)* No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Patched with cold mix asphalt					ASPHALT; with base course.	
							FILL SILTY SAND WITH GRAVEL (SM); moist, dark brown; fine to coarse sand; fine to coarse, subangular to subrounded gravel; no petroleum-like odor.	
		Borehole backfilled with bentonite chips		AB-09-2	PID=2.4 Sheen=None			
	5						Bottom of exploration at 3 ft. bgs.	
5								5
	0							
10								10
	-5							
15								15
	-10							

Legend

Sample Type: Grab sample

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-27

Exploration Log AB-09
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING	Swinomish Market and Deli - 220230		Environmental Exploration Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, On West property boundary		*Coordinates (Lat,Lon WGS84)* 48.4622, -122.5709 (est)	*Exploration Number* **AB-10**
Contractor Cascade Environmental	*Equipment* Hand	*Sampling Method* Hand Auger	*Ground Surface Elev. (NAVD88)* 9' (est)	
Operator Scott Busby	*Exploration Method(s)* Hand tools	*Work Start/Completion Dates* 9/12/2023	*Top of Casing Elev. (NAVD88)* NA	*Depth to Water (Below GS)* No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0	9	Patched with cold mix asphalt					ASPHALT; with base course.	0
							FILL SILTY SAND WITH GRAVEL (SM); moist, dark brown; fine to coarse sand; fine to coarse, subangular to subrounded gravel; no petroleum-like odor.	
				AB-10-1	PID=0.8 Sheen=None			
		Borehole backfilled with bentonite chips					**GLACIAL TILL** SILTY CLAY (CL-ML); moist, gray; medium plasticity; trace fine to coarse sand; trace fine to coarse, subangular to subrounded gravel; no petroleum-like odor.	
					PID=0.0 Sheen=None			
				AB-10-3	PID=0.1 Sheen=None			
3.5	5.5						Bottom of exploration at 3.5 ft. bgs.	3.5
5	4							5
10	-1							10
15	-6							15
	-11							

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ☑ Grab sample

Water Level
- No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-27

Exploration Log AB-10
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING	Swinomish Market and Deli - 220230		Environmental Exploration Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, On West property boundary		*Coordinates (Lat,Lon WGS84)* 48.4622, -122.5709 (est)	*Exploration Number* **AB-11**
Contractor Cascade Environmental	*Equipment* Hand	*Sampling Method* Hand Auger	*Ground Surface Elev. (NAVD88)* 9' (est)	
Operator Scott Busby	*Exploration Method(s)* Hand tools	*Work Start/Completion Dates* 9/12/2023	*Top of Casing Elev. (NAVD88)* NA	*Depth to Water (Below GS)* No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Patched with cold mix asphalt					ASPHALT; with base course.	
					PID=69 Sheen=Slight		**FILL** SILTY SAND WITH GRAVEL (SM); moist, very dark brown; fine to coarse sand; fine to coarse, subangular to subrounded gravel; strong petroleum-like odor.	
		Borehole backfilled with bentonite chips		AB-11-2	PID=58 Sheen=None			
					PID=1.8 Sheen=None		**NEARSHORE DEPOSITS** SILT (ML); soft, moist, gray with black mottling; medium plasticity; black mottling around roots/wood fibers; very strong sulfur-like odor.	
	5			AB-11-4	PID=0.4 Sheen=None			
5							Bottom of exploration at 4.25 ft. bgs.	5
	0							
10								10
	-5							
15								15
	-10							

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ☑ Grab sample

Water Level
- No Water Encountered

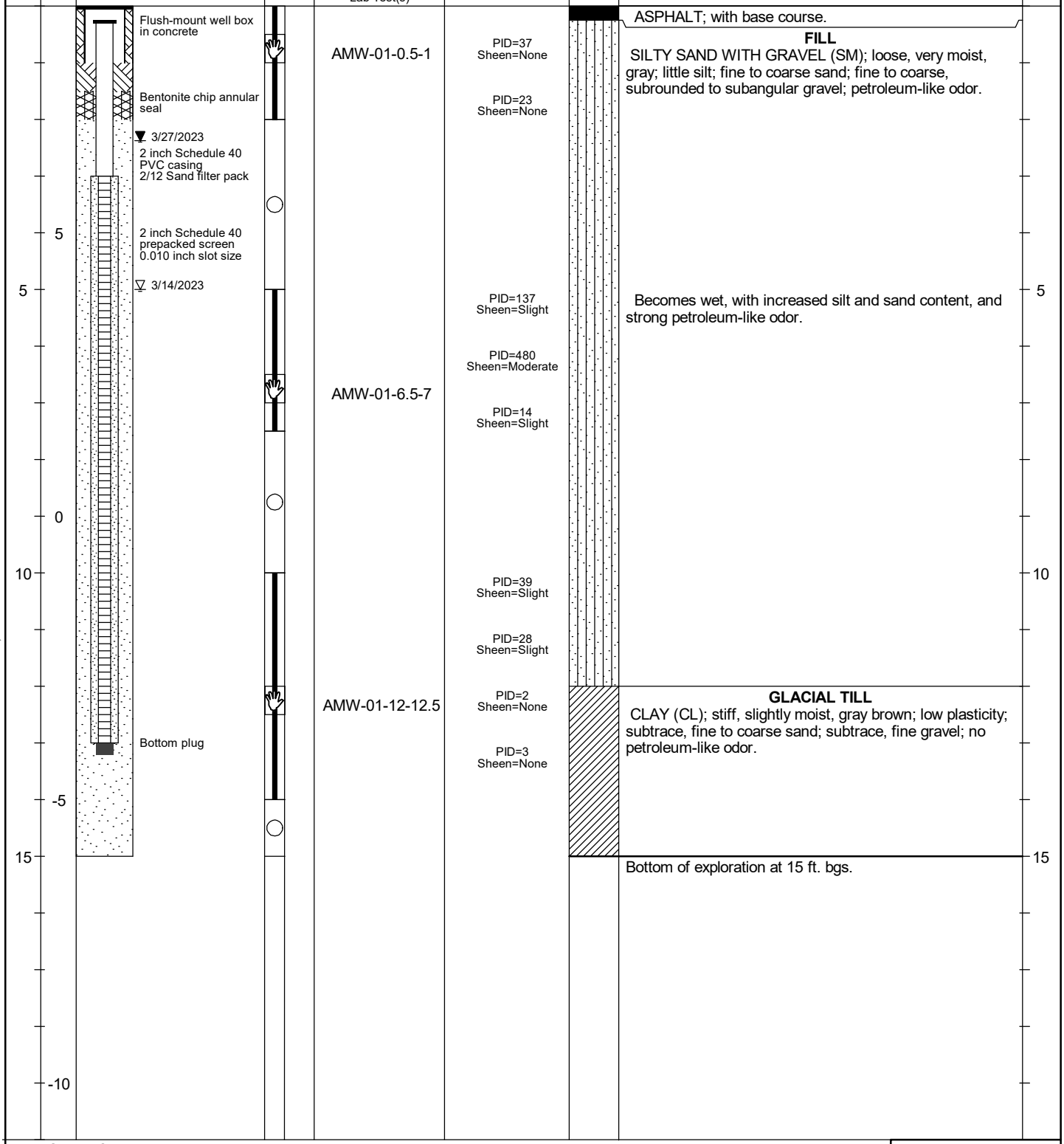
See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-27

Exploration Log AB-11
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING	Swinomish Market and Deli - 220230		Monitoring Well Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, North side of former Texaco USTs		*Coordinates (SPN NAD83 ft)* E:1218909.00 N:538154.70	*Exploration Number* **AMW-01**
Contractor Cascade Environmental	*Equipment* Geoprobe 7822DT	*Sampling Method* Percussion hammer	*Ground Surface Elev. (NAVD88)* 9'	Ecology Well Tag No. BPR-129
Operator Scott Busby	*Exploration Method(s)* Hand tools	*Work Start/Completion Dates* 3/14/2023	*Top of Casing Elev. (NAVD88)* 8.66'	*Depth to Water (Below GS)* 5' (ATD)



Legend

Sample Type
- No Soil Sample Recovery
- Continuous core 1.125" ID
- Grab sample

Water Level
- Static Water Level
- Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-27

Exploration Log AMW-01
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING	Swinomish Market and Deli - 220230		Monitoring Well Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, Northwest corner of property		*Coordinates (SPN NAD83 ft)* E:1218907.40 N:538189.30	*Exploration Number* **AMW-02**
Contractor Cascade Environmental	*Equipment* Geoprobe 7822DT	*Sampling Method* Percussion hammer	*Ground Surface Elev. (NAVD88)* 8.69'	Ecology Well Tag No. BPR-130
Operator Scott Busby	*Exploration Method(s)* Direct push	*Work Start/Completion Dates* 3/14/2023	*Top of Casing Elev. (NAVD88)* 8.39'	*Depth to Water (Below GS)* 10' (ATD)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Flush-mount well box in concrete Excavated with air knife and vacuum to 3.5ft Bentonite chip annular seal ▼ 3/27/2023 2 inch Schedule 40 PVC casing 2/12 Sand filter pack					**FILL** SILTY SAND (SM); Silty Sand observed during vacuum clearing.	
	5	2 inch Schedule 40 prepacked screen 0.010 inch slot size			PID=0.0 Sheen=None		**GLACIAL TILL** CLAY (CL); stiff, slightly moist, gray brown with orange mottling; low plasticity; trace, fine to coarse sand; subtrace, fine, subrounded gravel; no petroleum-like odor.	
5					PID=0.0 Sheen=None			5
					PID=0.0 Sheen=None			
					PID=0.0 Sheen=None		Becomes very stiff.	
				AMW-02-7-7.5	PID=0.0 Sheen=None			
	0				PID=0.0 Sheen=None			
		▽ 3/14/2023			PID=0.0 Sheen=None			
10					PID=0.0 Sheen=None			10
					PID=0.0 Sheen=None		SILTY SAND WITH GRAVEL (SM); gray brown, wet; fine to coarse sand; fine to coarse gravel; no petroleum-like odor.	
					PID=0.0 Sheen=None		CLAY (CL); stiff to very stiff, slightly moist, gray brown; low plasticity; subtrace sand and gravel; no petroleum-like odor.	
	-5	Bottom plug			PID=0.0 Sheen=None			
15							Bottom of exploration at 15 ft. bgs.	15
	-10							

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ▮▯ Continuous core 1.125" ID
- ▩ Grab sample

Water Level
- ▼ Static Water Level
- ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-27

Exploration Log AMW-02
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING	Swinomish Market and Deli - 220230		Monitoring Well Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, Northeast of west pumps		*Coordinates (SPN NAD83 ft)* E:1218915.80 N:538111.90	*Exploration Number* **AMW-03**
Contractor Cascade Environmental	*Equipment* Geoprobe 7822DT	*Sampling Method* Percussion hammer	*Ground Surface Elev. (NAVD88)* 9.29'	Ecology Well Tag No. BPR-131
Operator Scott Busby	*Exploration Method(s)* Direct push	*Work Start/Completion Dates* 3/14/2023	*Top of Casing Elev. (NAVD88)* 8.91'	*Depth to Water (Below GS)* 4' (ATD)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Flush-mount well box in concrete Excavated with air knife and vacuum to 4 ft ▽ 3/27/2023					ASPHALT; with base course.	
		Bentonite chip annular seal					**FILL** SILTY SAND (SM); Silty Sand observed during vacuum clearing.	
		2 inch Schedule 40 PVC casing 2/12 Sand filter pack						
		▽ 3/14/2023						
	5						SILT WITH SAND (ML); wet, dark brown; low plasticity; little, fine to medium sand; slight petroleum-like odor.	
5		2 inch Schedule 40 prepacked screen 0.010 inch slot size		AMW-03-4.5-5	PID=1.1 Sheen=None		**GLACIAL TILL** CLAY (CL); stiff slightly moist, gray brown with orange mottling; low plasticity; trace, fine to medium sand; trace fine gravel; no petroleum-like odor.	5
					PID=0.0 Sheen=None			
					PID=0.0 Sheen=None			
					PID=0.0 Sheen=None			
					PID=0.0 Sheen=None			
	0				PID=0.0 Sheen=None			
10					PID=0.0 Sheen=None		SANDY SILT (ML); soft, wet, dark gray; low plasticity; fine to medium sand; no petroleum-like odor.	10
					PID=0.0 Sheen=None			
					PID=0.0 Sheen=None		CLAY (CL); medium stiff, moist, gray brown; low plasticity; trace fine sand; no petroleum-like odor.	
		Bottom plug		AMW-03-12.5-13	PID=0.0 Sheen=None			
					PID=0.0 Sheen=None			
	-5				PID=0.0 Sheen=None			
15							Bottom of exploration at 15 ft. bgs.	15
	-10							

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ▮▯ Continuous core 1.125" ID
- ▩ Grab sample

Water Level
- ▼ Static Water Level
- ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-27

Exploration Log AMW-03
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING	Swinomish Market and Deli - 220230		Monitoring Well Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, Southwest corner of property		*Coordinates (SPN NAD83 ft)* E:1218883.20 N:538034.00	*Exploration Number* **AMW-04**
Contractor Cascade Environmental	*Equipment* Geoprobe 7822DT	*Sampling Method* Percussion hammer	*Ground Surface Elev. (NAVD88)* 7.96'	Ecology Well Tag No. BPR-132
Operator Scott Busby	*Exploration Method(s)* Direct push	*Work Start/Completion Dates* 3/14/2023	*Top of Casing Elev. (NAVD88)* 7.61'	*Depth to Water (Below GS)* 10' (ATD)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		3/27/2023 Flush-mount well box in concrete			PID=0 Sheen=None		ASPHALT; with base course.	
		Bentonite chip annular seal			PID=0 Sheen=None		**NEARSHORE DEPOSITS** CLAY (CL); medium stiff, moist, gray to dark gray; low plasticity; few, fine to coarse sand; few, fine gravel; trace to twigs and wood fibers; no petroleum-like odor.	
	5	2 inch Schedule 40 PVC casing 2/12 Sand filter pack						
5		2 inch Schedule 40 prepacked screen 0.010 inch slot size					No Recovery 5-10 ft. Drill action suggests very soft.	5
	0							
		3/14/2023						
10					PID=0.2 Sheen=None		SILT (ML); soft, very moist, dark brown; low plasticity; trace to few wood fibers; slight sulfur-like odor.	10
					PID=0 Sheen=None			
					PID=0 Sheen=None			
	-5	Bottom plug		AMW-04-13-13.5	PID=0 Sheen=None		**GLACIAL TILL** CLAY (CL); very stiff, slightly moist, gray; low to medium plasticity; subtrace, fine to coarse sand; subtrace fine gravel; no petroleum-like odor.	
15							Bottom of exploration at 15 ft. bgs.	15
	-10							

Legend

Sample Type
- No Soil Sample Recovery
- Continuous core 1.125" ID
- Grab sample

Water Level
- Static Water Level
- Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-27

Exploration Log AMW-04
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING	Swinomish Market and Deli - 220230		Monitoring Well Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, Southeast of current USTs		*Coordinates (SPN NAD83 ft)* E:1218979.50 N:538021.80	*Exploration Number* **AMW-05**
Contractor Cascade Environmental	*Equipment* Geoprobe 7822DT	*Sampling Method* Percussion hammer	*Ground Surface Elev. (NAVD88)* 9.33'	Ecology Well Tag No. BPR-133
Operator Scott Busby	*Exploration Method(s)* Direct push	*Work Start/Completion Dates* 3/14/2023	*Top of Casing Elev. (NAVD88)* 8.94'	*Depth to Water (Below GS)* 3.5' (ATD)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Flush-mount well box in concrete					ASPHALT; with base course	
		▼ 3/27/2023 Excavated with air knife and vacuum to 2.5ft Bentonite chip annular seal					**NEARSHORE DEPOSITS** SILT WITH SAND (ML); Silt with Sand observed during vacuum clearing.	
		2 inch Schedule 40 PVC casing 2/12 Sand filter pack					SILT WITH SAND (ML); soft, moist to very moist, dark gray; low plasticity; little, fine to medium sand; no petroleum-like odor.	
		▽ 3/14/2023		AMW-05-3-3.5	PID=0.2 Sheen=None			
	5	2 inch Schedule 40 prepacked screen 0.010 inch slot size			PID=0.3 Sheen=None		**GLACIAL TILL** CLAY (CL); stiff, moist, gray brown with orange mottling; low plasticity; trace, fine to coarse sand; no petroleum-like odor.	
5				AMW-05-5-5.5	PID=0.2 Sheen=None			5
	0							
10					PID=0.0 Sheen=None			10
					PID=0.0 Sheen=None			
					PID=0.0 Sheen=None			
		Bottom plug			PID=0.0 Sheen=None			
	-5				PID=0.0 Sheen=None			
15							Bottom of exploration at 15 ft. bgs.	15
	-10							

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ▮▯ Continuous core 1.125" ID
- ▩ Grab sample

Water Level
- ▼ Static Water Level
- ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-27

Exploration Log AMW-05
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING	Swinomish Market and Deli - 220230		Environmental Exploration Log	
	Project Address & Site Specific Location 12515 Christianson Rd, Anacortes, WA 98221, East of AB-01		*Coordinates (Lat,Lon WGS84)* 48.4621, 122.5702 (est)	*Exploration Number* **HA-01**
Contractor Cascade Environmental	*Equipment* Hand	*Sampling Method* Hand Auger	*Ground Surface Elev. (NAVD88)* 9' (est)	
Operator Scott Busby	*Exploration Method(s)* Hand tools	*Work Start/Completion Dates* 9/12/2023	*Top of Casing Elev. (NAVD88)* NA	*Depth to Water (Below GS)* No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Patched with cold mix asphalt Backfilled with quick set concrete					ASPHALT; with base course. **FILL** SAND WITH SILT AND GRAVEL (SP-SM); slightly moist, brown; fine to coarse sand, fine to coarse, subrounded gravel, no petroleum-like odor.	
				HA-1-1.5	PID=0.0 Sheen=None			
							Bottom of exploration at 2 ft. bgs.	
5	5							5
	0							
10								10
	-5							
15								15
	-10							

Legend

Sample Type: Grab sample

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-27

Exploration Log HA-01
Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Aspect CONSULTING

Swinomish Market and Deli - 220230

Monitoring Well Log

Project Address & Site Specific Location	Coordinates (Lat,Lon WGS84)	Exploration Number
12515 Christianson Rd, Anacortes, WA 98221, South of AB-01	48.4621, -122.5702 (est)	**HA-02**

Contractor	Equipment	Sampling Method	Ground Surface Elev. (NAVD88)	
Cascade Environmental	Hand	Hand Auger	9' (est)	
Operator	**Exploration Method(s)**	**Work Start/Completion Dates**	**Top of Casing Elev. (NAVD88)**	**Depth to Water (Below GS)**
Scott Busby	Hand tools	9/12/2023	NA	No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0	5	Patched with cold mix asphalt Backfilled with bentonite chips					ASPHALT; with base course. **FILL** SILTY SAND WITH GRAVEL (SM); slightly moist, brown; fine to coarse sand, fine to coarse, subrounded gravel, no petroleum-like odor.	0
2	3			HA-2-2	PID=0.1 Sheen=None		Bottom of exploration at 2 ft. bgs.	2
5	0							5
10	-5							10
15	-10							15

Legend

Sample Type: Grab sample

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-27

Exploration Log HA-02

Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Swinomish Market and Deli - 220230

Monitoring Well Log

Aspect CONSULTING

Project Address & Site Specific Location	Coordinates (Lat,Lon WGS84)	Exploration Number
12515 Christianson Rd, Anacortes, WA 98221, North of AB-01	48.4621, -122.5702 (est)	**HA-03**

Contractor	Equipment	Sampling Method	Ground Surface Elev. (NAVD88)	
Cascade Environmental	Hand	Hand Auger	9' (est)	
Operator	**Exploration Method(s)**	**Work Start/Completion Dates**	**Top of Casing Elev. (NAVD88)**	**Depth to Water (Below GS)**
Scott Busby	Hand tools	9/12/2023	NA	No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Patched with cold mix asphalt					ASPHALT; with base course	
		Backfilled with bentonite chips					**FILL** SILTY SAND (SM); moist, gray brown; fine to coarse sand, no petroleum-like odor.	
			HA-3-2		PID=0.5 Sheen=None			
							Bottom of exploration at 2 ft. bgs.	
5	5							5
	0							
10								10
	-5							
15								15
	-10							

Legend

Sample Type: Grab sample

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-27

Exploration Log HA-03

Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

Swinomish Market and Deli - 220230

Monitoring Well Log

Aspect CONSULTING

Project Address & Site Specific Location	Coordinates (Lat,Lon WGS84)	Exploration Number
12515 Christianson Rd, Anacortes, WA 98221, West of AB-01	48.4621, -122.5702 (est)	**HA-04**

Contractor	Equipment	Sampling Method	Ground Surface Elev. (NAVD88)	
Cascade Environmental	Hand	Hand Auger	9' (est)	
Operator	**Exploration Method(s)**	**Work Start/Completion Dates**	**Top of Casing Elev. (NAVD88)**	**Depth to Water (Below GS)**
Scott Busby	Hand tools	9/12/2023	NA	No Water Encountered

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0	9	Patched with cold mix asphalt					ASPHALT; with base course.	0
		Backfilled with bentonite chips					**FILL** SILTY SAND (SM); moist, gray brown; fine to coarse sand, no petroleum-like odor.	
2	7		HA-4-2		PID=0.2 Sheen=None		Bottom of exploration at 2 ft. bgs.	2
5	5							5
10	0							10
15	-5							15
	-10							

Legend

Sample Type: Grab sample

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: DJM
Approved by: MvA 2023-12-27

Exploration Log HA-04

Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINTW\PROJECTS\220230 - SWINOMISH MARKET AND DELI.GPJ December 27, 2023

APPENDIX C

Laboratory Analytical Reports

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.

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March 24, 2023

Matthew Eddy, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Eddy:

Included are the results from the testing of material submitted on March 17, 2023 from the Swinomish Market 220230-B, F&BI 303297 project. There are 24 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 have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Aspect Data, Eric Marhofer
ASP0324R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 17, 2023 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Swinomish Market 220230-B, F&BI 303297 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
303297 -01	AMW-01-0.5-1
303297 -02	AMW-01-6.5-7
303297 -03	AMW-01-12-12.5
303297 -04	AMW-02-7-7.5
303297 -05	AMW-03-4.5-5
303297 -06	AMW-03-13-13.5
303297 -07	AMW-04-13-13.5
303297 -08	AMW-05-3-3.5
303297 -09	AMW-05-5-5.5
303297 -10	AB-01-0.5-1
303297 -11	AB-01-3-3.5

All quality control requirements were acceptable.

Date of Report: 03/24/23
Date Received: 03/17/23
Project: Swinomish Market 220230-B, F&BI 303297
Date Extracted: 03/20/23
Date Analyzed: 03/20/23

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 58-139)
AMW-01-0.5-1 303297-01	<5	94
AMW-01-6.5-7 303297-02 1/5	800	119
AMW-01-12-12.5 303297-03	<5	87
AMW-02-7-7.5 303297-04	<5	88
AMW-03-4.5-5 303297-05	<5	88
AMW-03-13-13.5 303297-06	<5	90
AMW-04-13-13.5 303297-07	<5	75
AMW-05-3-3.5 303297-08	<5	88
AMW-05-5-5.5 303297-09	<5	85
AB-01-0.5-1 303297-10 1/10	150	109

Date of Report: 03/24/23
Date Received: 03/17/23
Project: Swinomish Market 220230-B, F&BI 303297
Date Extracted: 03/20/23
Date Analyzed: 03/20/23

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 58-139)
AB-01-3-3.5 303297-11	<5	89
Method Blank 03-583 MB	<5	76

Date of Report: 03/24/23
Date Received: 03/17/23
Project: Swinomish Market 220230-B, F&BI 303297
Date Extracted: 03/20/23
Date Analyzed: 03/20/23

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

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
AMW-01-0.5-1 303297-01	70 x	<250	98
AMW-01-6.5-7 303297-02	410 x	<250	98
AMW-01-12-12.5 303297-03	<50	<250	100
AMW-02-7-7.5 303297-04	<50	<250	100
AMW-03-4.5-5 303297-05	<50	<250	97
AMW-03-13-13.5 303297-06	<50	<250	98
AMW-04-13-13.5 303297-07	<50	<250	98
AMW-05-3-3.5 303297-08	<50	<250	101
AMW-05-5-5.5 303297-09	<50	<250	94
AB-01-0.5-1 303297-10	200 x	<250	94
AB-01-3-3.5 303297-11	<50	<250	95
Method Blank 03-636 MB	<50	<250	102

Analysis For Total Metals By EPA Method 6020B

Client ID:	AMW-01-6.5-7	Client:	Aspect Consulting, LLC
Date Received:	03/17/23	Project:	Swinomish Market 220230-B
Date Extracted:	03/20/23	Lab ID:	303297-02
Date Analyzed:	03/20/23	Data File:	303297-02.100
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	MG

Analyte:	Concentration mg/kg (ppm)
Lead	5.53

Analysis For Total Metals By EPA Method 6020B

Client ID:	AMW-03-4.5-5	Client:	Aspect Consulting, LLC
Date Received:	03/17/23	Project:	Swinomish Market 220230-B
Date Extracted:	03/20/23	Lab ID:	303297-05
Date Analyzed:	03/20/23	Data File:	303297-05.101
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	MG

Analyte:	Concentration mg/kg (ppm)
Lead	4.45

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	Swinomish Market 220230-B
Date Extracted:	03/20/23	Lab ID:	I3-207 mb
Date Analyzed:	03/20/23	Data File:	I3-207 mb.038
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	MG

Analyte:	Concentration mg/kg (ppm)
Lead	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AMW-01-0.5-1	Client:	Aspect Consulting, LLC
Date Received:	03/17/23	Project:	Swinomish Market 220230-B
Date Extracted:	03/22/23	Lab ID:	303297-01 1/0.25
Date Analyzed:	03/22/23	Data File:	032209.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	84	120
Toluene-d8	103	73	128
4-Bromofluorobenzene	101	57	146

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.001
1,2-Dichloroethane (EDC)	<0.002
Benzene	0.019
Toluene	0.0022
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	0.0085
o-Xylene	0.0011
Naphthalene	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AMW-01-6.5-7	Client:	Aspect Consulting, LLC
Date Received:	03/17/23	Project:	Swinomish Market 220230-B
Date Extracted:	03/20/23	Lab ID:	303297-02
Date Analyzed:	03/20/23	Data File:	032031.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	84	120
Toluene-d8	116	73	128
4-Bromofluorobenzene	109	57	146

Compounds:	Concentration mg/kg (ppm)
Hexane	7.9
Methyl t-butyl ether (MTBE)	<0.004
1,2-Dichloroethane (EDC)	<0.008
Benzene	2.2
Toluene	0.12
1,2-Dibromoethane (EDB)	<0.02
Ethylbenzene	4.2
m,p-Xylene	14
o-Xylene	1.1
Naphthalene	4.3

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AMW-01-12-12.5	Client:	Aspect Consulting, LLC
Date Received:	03/17/23	Project:	Swinomish Market 220230-B
Date Extracted:	03/22/23	Lab ID:	303297-03 1/0.25
Date Analyzed:	03/22/23	Data File:	032210.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	84	120
Toluene-d8	92	73	128
4-Bromofluorobenzene	100	57	146

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.001
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	<0.001
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	<0.002
o-Xylene	<0.001
Naphthalene	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AMW-02-7-7.5	Client:	Aspect Consulting, LLC
Date Received:	03/17/23	Project:	Swinomish Market 220230-B
Date Extracted:	03/22/23	Lab ID:	303297-04 1/0.25
Date Analyzed:	03/22/23	Data File:	032211.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	84	120
Toluene-d8	102	73	128
4-Bromofluorobenzene	100	57	146

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.001
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	0.0014
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	<0.002
o-Xylene	<0.001
Naphthalene	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AMW-03-4.5-5	Client:	Aspect Consulting, LLC
Date Received:	03/17/23	Project:	Swinomish Market 220230-B
Date Extracted:	03/20/23	Lab ID:	303297-05 1/0.25
Date Analyzed:	03/20/23	Data File:	032034.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	84	120
Toluene-d8	105	73	128
4-Bromofluorobenzene	97	57	146

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.001
1,2-Dichloroethane (EDC)	<0.002
Benzene	0.0033
Toluene	0.0017
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	0.0083
o-Xylene	0.0011
Naphthalene	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AMW-03-13-13.5	Client:	Aspect Consulting, LLC
Date Received:	03/17/23	Project:	Swinomish Market 220230-B
Date Extracted:	03/20/23	Lab ID:	303297-06 1/0.25
Date Analyzed:	03/20/23	Data File:	032035.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	84	120
Toluene-d8	103	73	128
4-Bromofluorobenzene	101	57	146

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.001
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	<0.001
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	<0.002
o-Xylene	<0.001
Naphthalene	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AMW-04-13-13.5	Client:	Aspect Consulting, LLC
Date Received:	03/17/23	Project:	Swinomish Market 220230-B
Date Extracted:	03/20/23	Lab ID:	303297-07 1/0.25
Date Analyzed:	03/20/23	Data File:	032036.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	84	120
Toluene-d8	104	73	128
4-Bromofluorobenzene	100	57	146

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.001
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	<0.001
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	<0.002
o-Xylene	<0.001
Naphthalene	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AMW-05-3-3.5	Client:	Aspect Consulting, LLC
Date Received:	03/17/23	Project:	Swinomish Market 220230-B
Date Extracted:	03/20/23	Lab ID:	303297-08 1/0.25
Date Analyzed:	03/20/23	Data File:	032037.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	84	120
Toluene-d8	107	73	128
4-Bromofluorobenzene	101	57	146

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.001
1,2-Dichloroethane (EDC)	<0.002
Benzene	0.0012
Toluene	0.0024
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	0.014
o-Xylene	0.0026
Naphthalene	0.0059

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AMW-05-5-5.5	Client:	Aspect Consulting, LLC
Date Received:	03/17/23	Project:	Swinomish Market 220230-B
Date Extracted:	03/20/23	Lab ID:	303297-09 1/0.25
Date Analyzed:	03/20/23	Data File:	032038.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	84	120
Toluene-d8	106	73	128
4-Bromofluorobenzene	100	57	146

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.001
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	<0.001
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	<0.002
o-Xylene	<0.001
Naphthalene	<0.005

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-01-0.5-1	Client:	Aspect Consulting, LLC
Date Received:	03/17/23	Project:	Swinomish Market 220230-B
Date Extracted:	03/20/23	Lab ID:	303297-10 1/0.25
Date Analyzed:	03/20/23	Data File:	032039.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	84	120
Toluene-d8	100	73	128
4-Bromofluorobenzene	103	57	146

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.001
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	0.0025
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	0.013
m,p-Xylene	0.057
o-Xylene	0.016
Naphthalene	0.19

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-01-3-3.5	Client:	Aspect Consulting, LLC
Date Received:	03/17/23	Project:	Swinomish Market 220230-B
Date Extracted:	03/20/23	Lab ID:	303297-11 1/0.25
Date Analyzed:	03/20/23	Data File:	032040.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	lm

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	84	120
Toluene-d8	105	73	128
4-Bromofluorobenzene	102	57	146

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.001
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	<0.001
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	<0.002
o-Xylene	<0.001
Naphthalene	<0.005

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Swinomish Market 220230-B
Date Extracted:	03/20/23	Lab ID:	03-0622 mb
Date Analyzed:	03/20/23	Data File:	032005.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	90	109
Toluene-d8	99	89	112
4-Bromofluorobenzene	101	84	115

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.001
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	<0.001
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	<0.002
o-Xylene	<0.001
Naphthalene	<0.005

Date of Report: 03/24/23
Date Received: 03/17/23
Project: Swinomish Market 220230-B, F&BI 303297

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 303297-11 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	40	77	61-153

Date of Report: 03/24/23
Date Received: 03/17/23
Project: Swinomish Market 220230-B, F&BI 303297

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

Laboratory Code: 303304-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	4,600	98 b	78 b	70-130	23 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	84	70-130

Date of Report: 03/24/23
Date Received: 03/17/23
Project: Swinomish Market 220230-B, F&BI 303297

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

Laboratory Code: 303300-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/kg (ppm)	50	<5	106	106	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/kg (ppm)	50	105	80-120

Date of Report: 03/24/23
Date Received: 03/17/23
Project: Swinomish Market 220230-B, F&BI 303297

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

Laboratory Code: 303297-11 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Hexane	mg/kg (ppm)	2	<0.25	48	40	10-137	18
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2	<0.05	78	77	21-145	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2	<0.05	78	76	12-160	3
Benzene	mg/kg (ppm)	2	<0.03	80	78	29-129	3
Toluene	mg/kg (ppm)	2	<0.05	82	82	35-130	0
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2	<0.05	87	85	28-142	2
Ethylbenzene	mg/kg (ppm)	2	<0.05	87	86	32-137	1
m,p-Xylene	mg/kg (ppm)	4	<0.1	87	86	34-136	1
o-Xylene	mg/kg (ppm)	2	<0.05	88	88	33-134	0
Naphthalene	mg/kg (ppm)	2	<0.05	82	84	14-157	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Hexane	mg/kg (ppm)	2	87	43-142
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2	92	60-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2	91	56-135
Benzene	mg/kg (ppm)	2	94	71-118
Toluene	mg/kg (ppm)	2	90	66-126
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2	93	74-132
Ethylbenzene	mg/kg (ppm)	2	92	64-123
m,p-Xylene	mg/kg (ppm)	4	92	78-122
o-Xylene	mg/kg (ppm)	2	94	77-124
Naphthalene	mg/kg (ppm)	2	90	63-140

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.

303297

SAMPLE CHAIN OF CUSTODY 03/17/23

N3

Page # 1 of 2

Report To Matt Eddy, Eric Markoter
Company Aspect Consulting
Address 710 2nd Ave, #550
City, State, ZIP Seattle, WA 98104
Phone 415-497-2741 Email meddy@aspectconsulting.com & emarkoter@aspectconsulting.com

SAMPLERS (signature)

PROJECT NAME Swinomish Market

PO # 220230-B

REMARKS

INVOICE TO M. Eddy

Project specific RLs? - Yes / (No)

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	Gasoline Target VOCs	Lead 6020B			Notes
AMW-01-0.5-1	01 A-E	3/14/23	0855	Soil	5	X	X						X				
AMW-01-6.5-7	02		0900											X			
AMW-01-12-12.5	03		0910														
AMW-02-7-7.5	04		1050														
AMW-03-4.5-5	05		1125											X			
AMW-03-13-13.5	06		1145														
AMW-04-13-13.5	07		1330														
AMW-05-3-3.5	08		1530														
AMW-05-5-5.5	09	↓	1445														Samples received at 4 °C
AB-01-0.5-1	10	3/15/23	0930	↓	↓	↓	↓						↓				

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Matt Eddy	Aspect	3/17/23	
Received by:	Nhan Phan	FedEx	3/17/23	1155
Relinquished by:				
Received by:				

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

303297

SAMPLE CHAIN OF CUSTODY 03/17/23 N3

Report To Matt Eddy, Eric Markeler
Company Aspect Consulting
Address 710 2nd Ave, #550
City, State, ZIP Seattle, WA, 98104
Phone 415-947-2741 Email see pg 1.

SAMPLERS (*signature*)

PROJECT NAME: Swinomish Market
PO #: 220230 B

REMARKS
Project specific RLs? - Yes / (No)

INVOICE TO: M. Eddy

TURNAROUND TIME
☒ 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	Gasoline Target VOCs				Notes
						ANALYSES REQUESTED											
AB-01 - ~~0.5~~ 3.-3.5 (ME 3/17/23)	11A-E	3/15/23	1000	Soil	5	X	X						X				

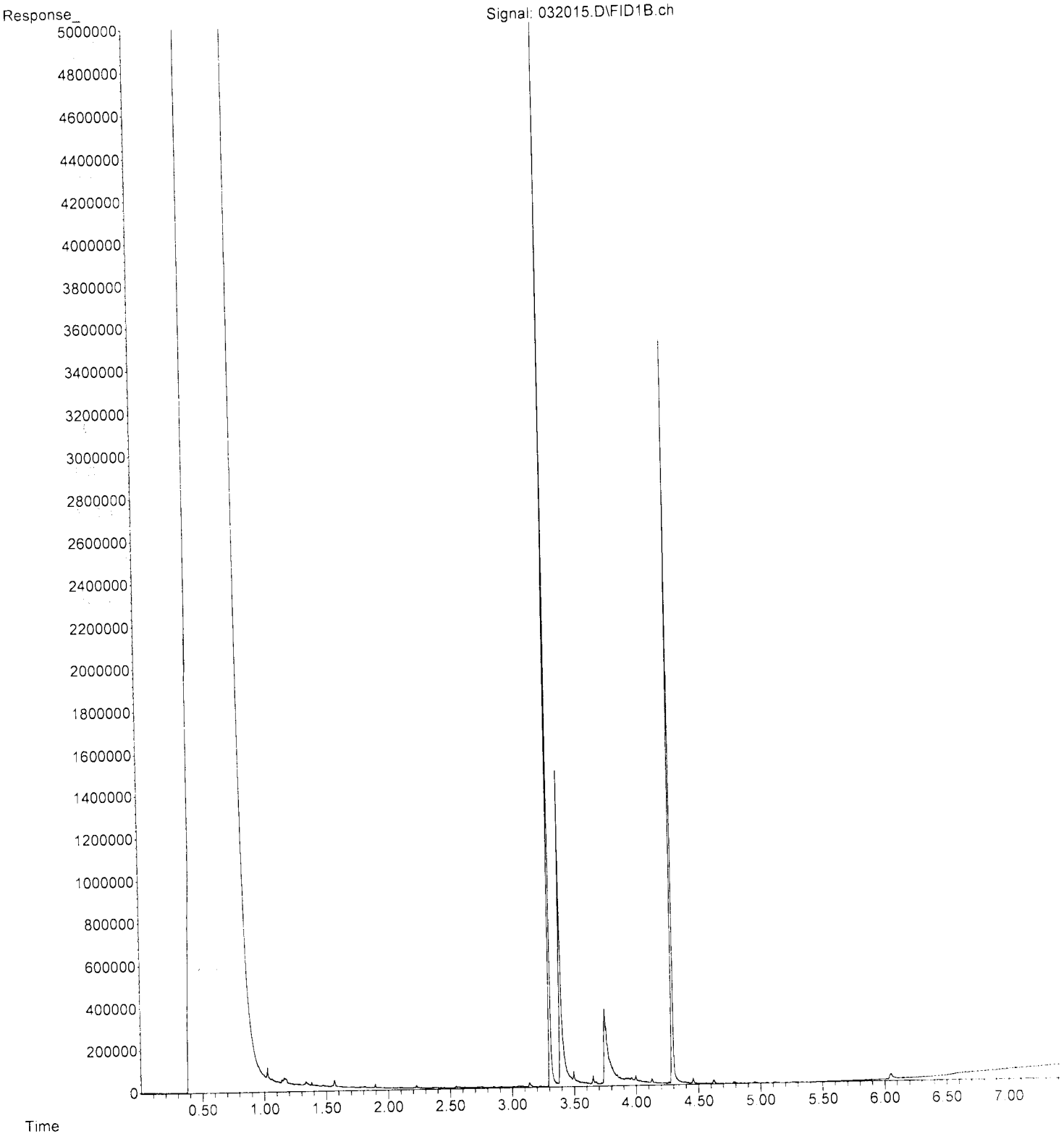
Samples received at 4 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Matt Eddy	Aspect	3/17/23	
Received by:	Nhan Phan	FedEx	3/18/23	1152
Relinquished by:				
Received by:				

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

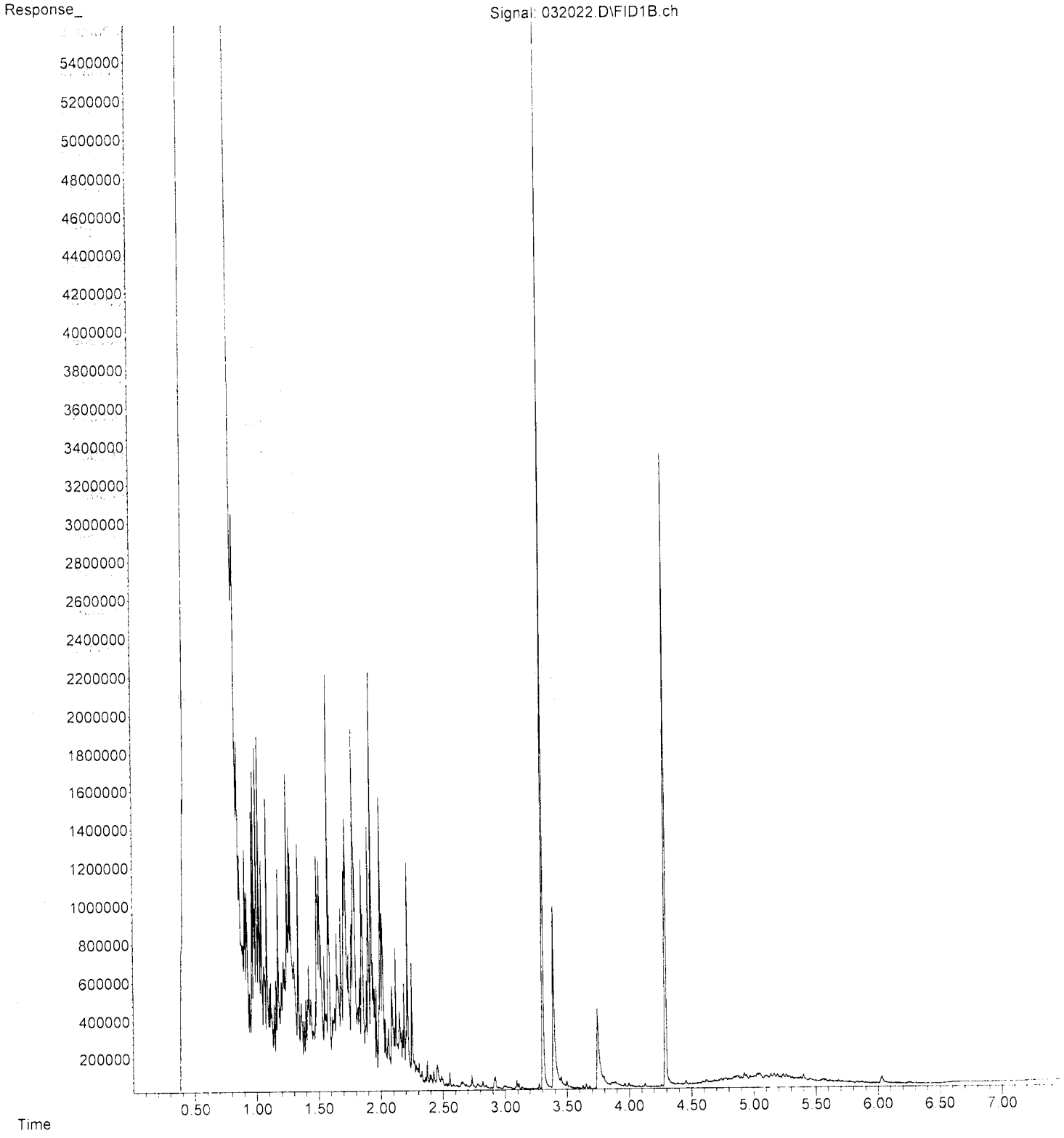
File :P:\Proc_GC14\03-20-23\032015.D
Operator : TL
Acquired : 20 Mar 2023 10:56 am using AcqMethod DX.M
Instrument : GC14
Sample Name: 303297-01
Misc Info :
Vial Number: 15

ERR



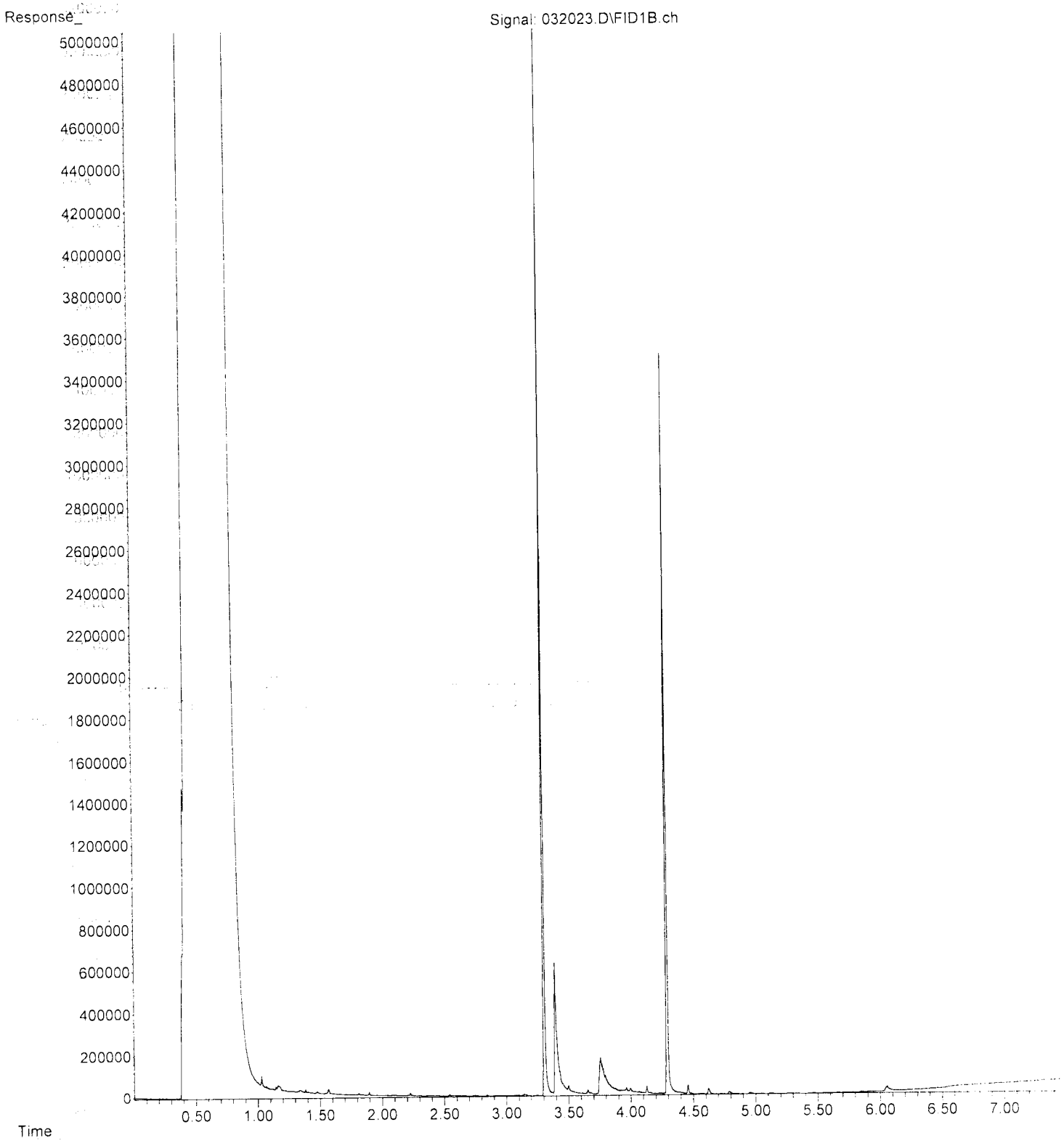
File :P:\Proc_GC14\03-20-23\032022.D
Operator : TL
Acquired : 20 Mar 2023 12:17 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 303297-02
Misc Info :
Vial Number: 16

ERR



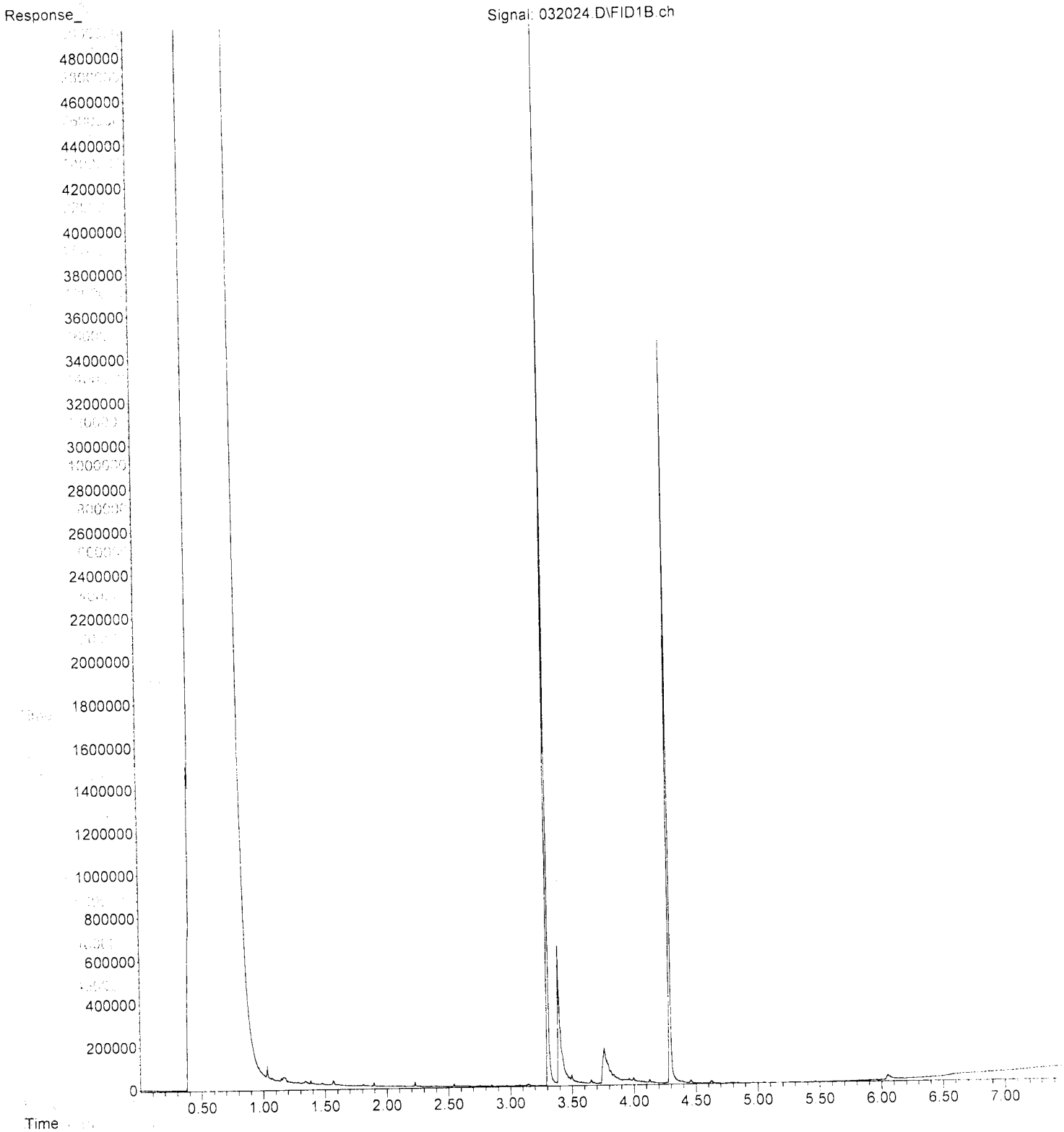
File :P:\Proc_GC14\03-20-23\032023.D
Operator : TL
Acquired : 20 Mar 2023 12:29 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 303297-03
Misc Info :
Vial Number: 17

ERR



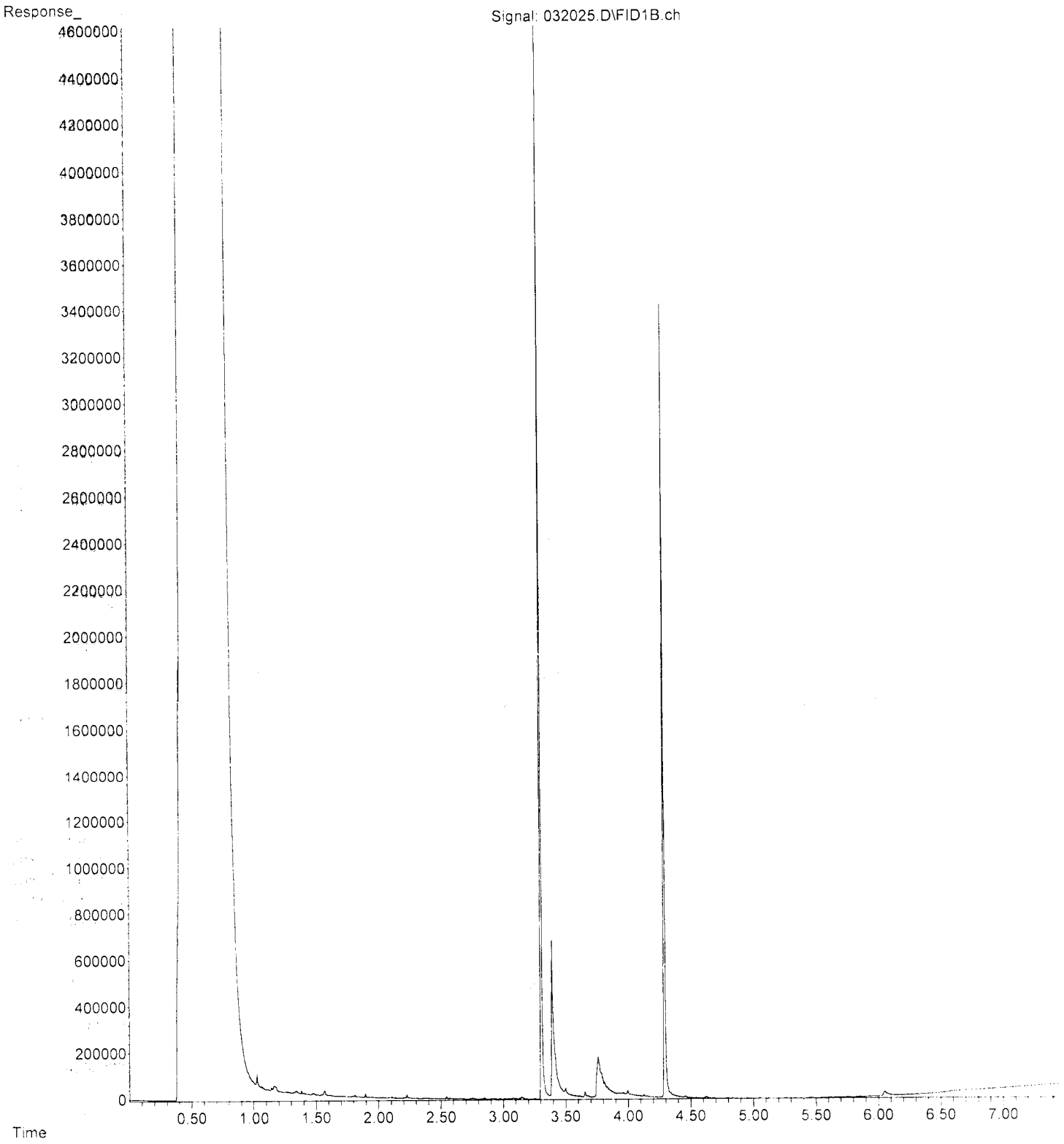
File :P:\Proc_GC14\03-20-23\032024.D
Operator : TL
Acquired : 20 Mar 2023 12:41 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 303297-04
Misc Info :
Vial Number: 18

ERR

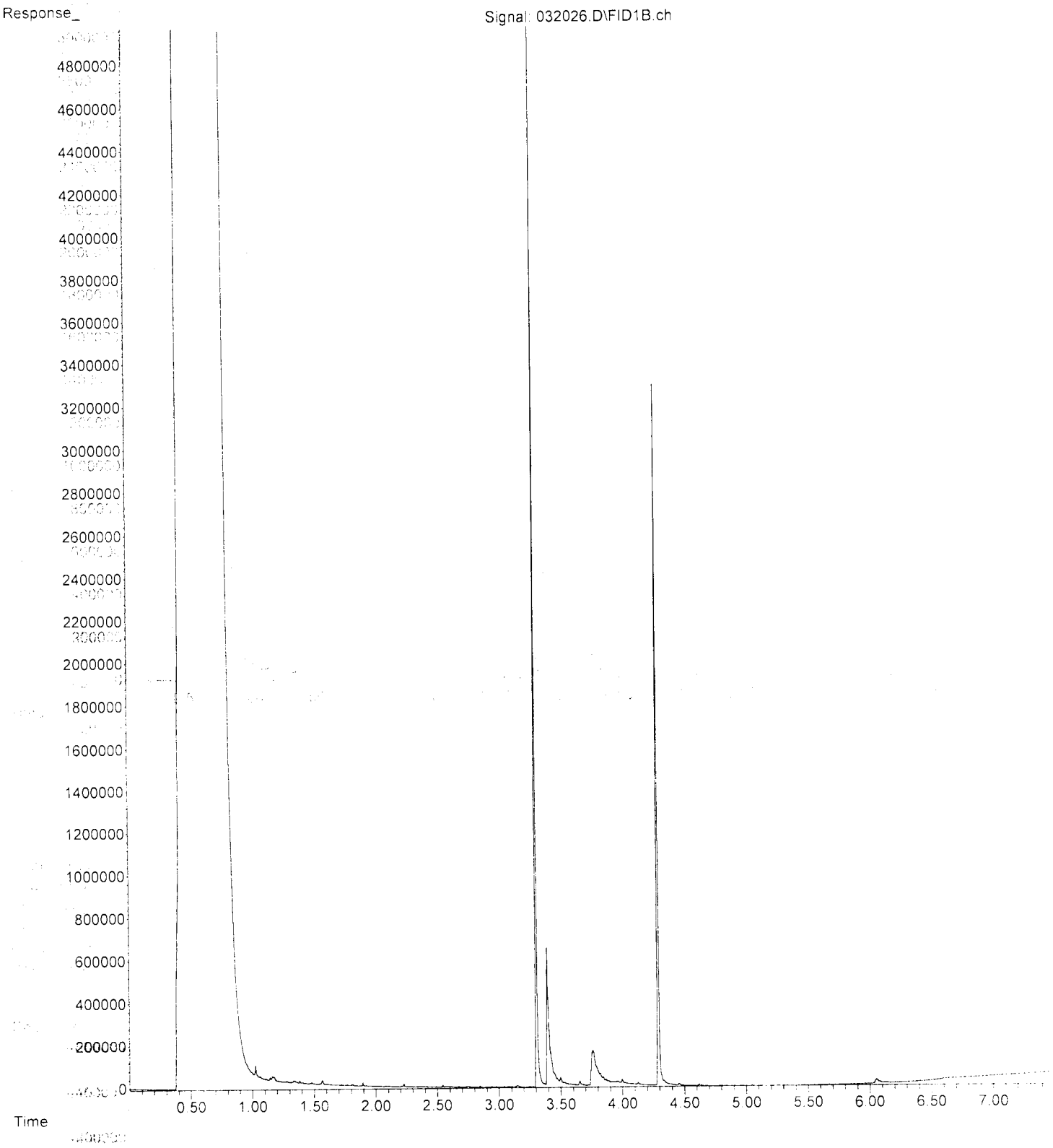


File :P:\Proc_GC14\03-20-23\032025.D
Operator : TL
Acquired : 20 Mar 2023 12:52 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 303297-05
Misc Info :
Vial Number: 19

ERR

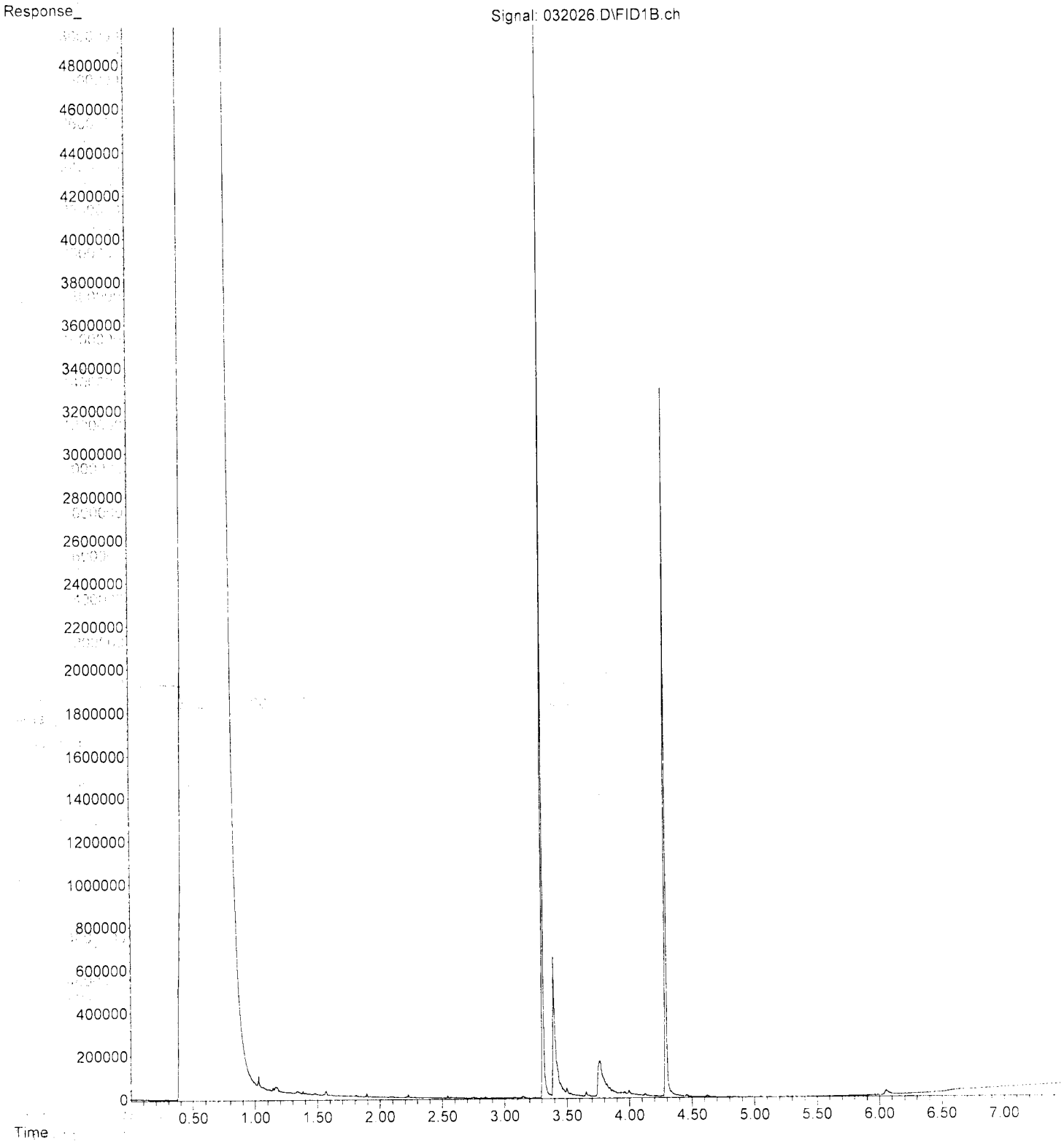


File :P:\Proc_GC14\03-20-23\032026.D
Operator : TL
Acquired : 20 Mar 2023 01:04 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 303297-06
Misc Info : ERR
Vial Number: 20



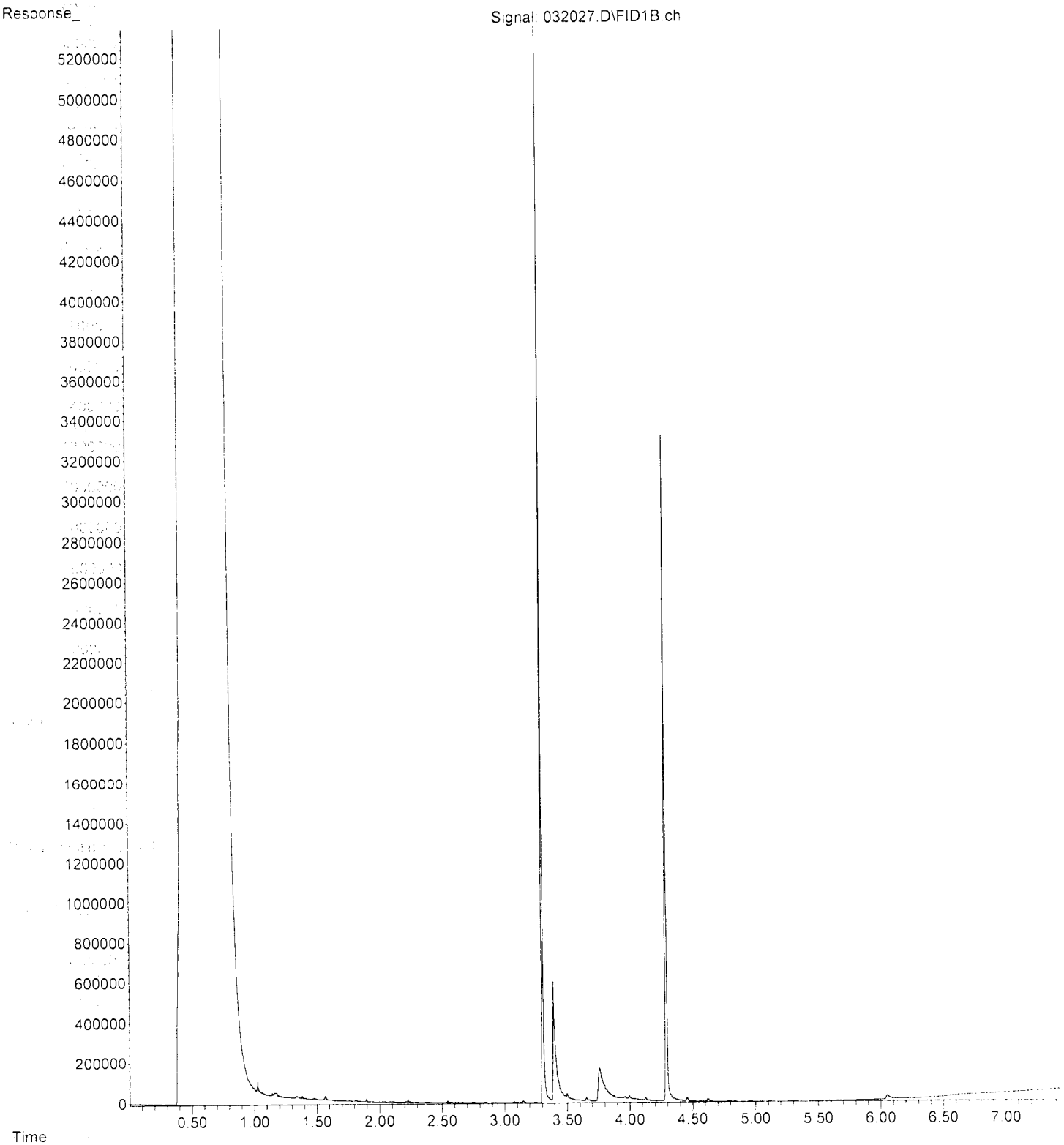
File :P:\Proc_GC14\03-20-23\032026.D
Operator : TL
Acquired : 20 Mar 2023 01:04 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 303297-06
Misc Info :
Vial Number: 20

ERR



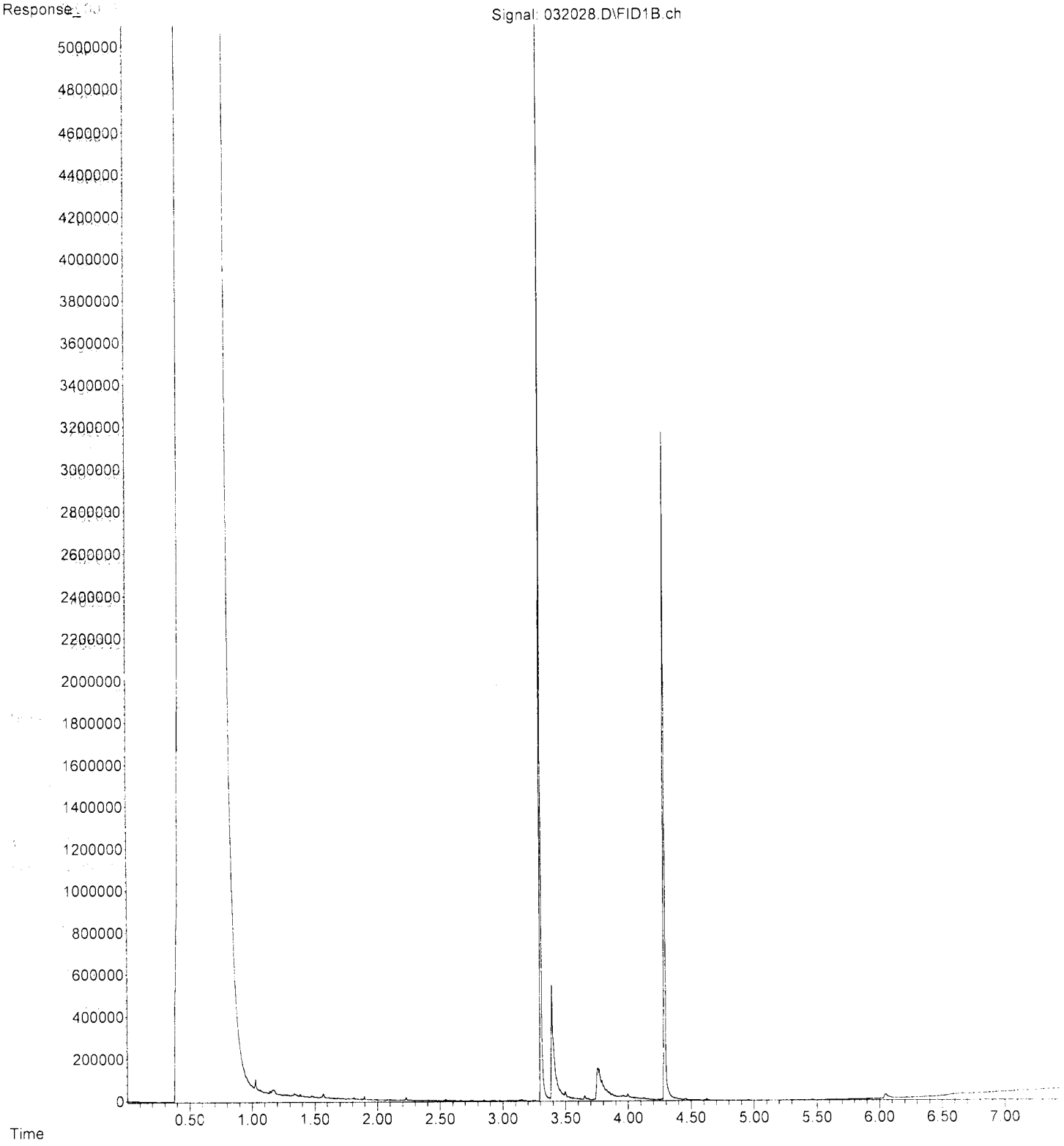
File :P:\Proc_GC14\03-20-23\032027.D
Operator : TL
Acquired : 20 Mar 2023 01:15 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 303297-07
Misc Info :
Vial Number: 21

ERR



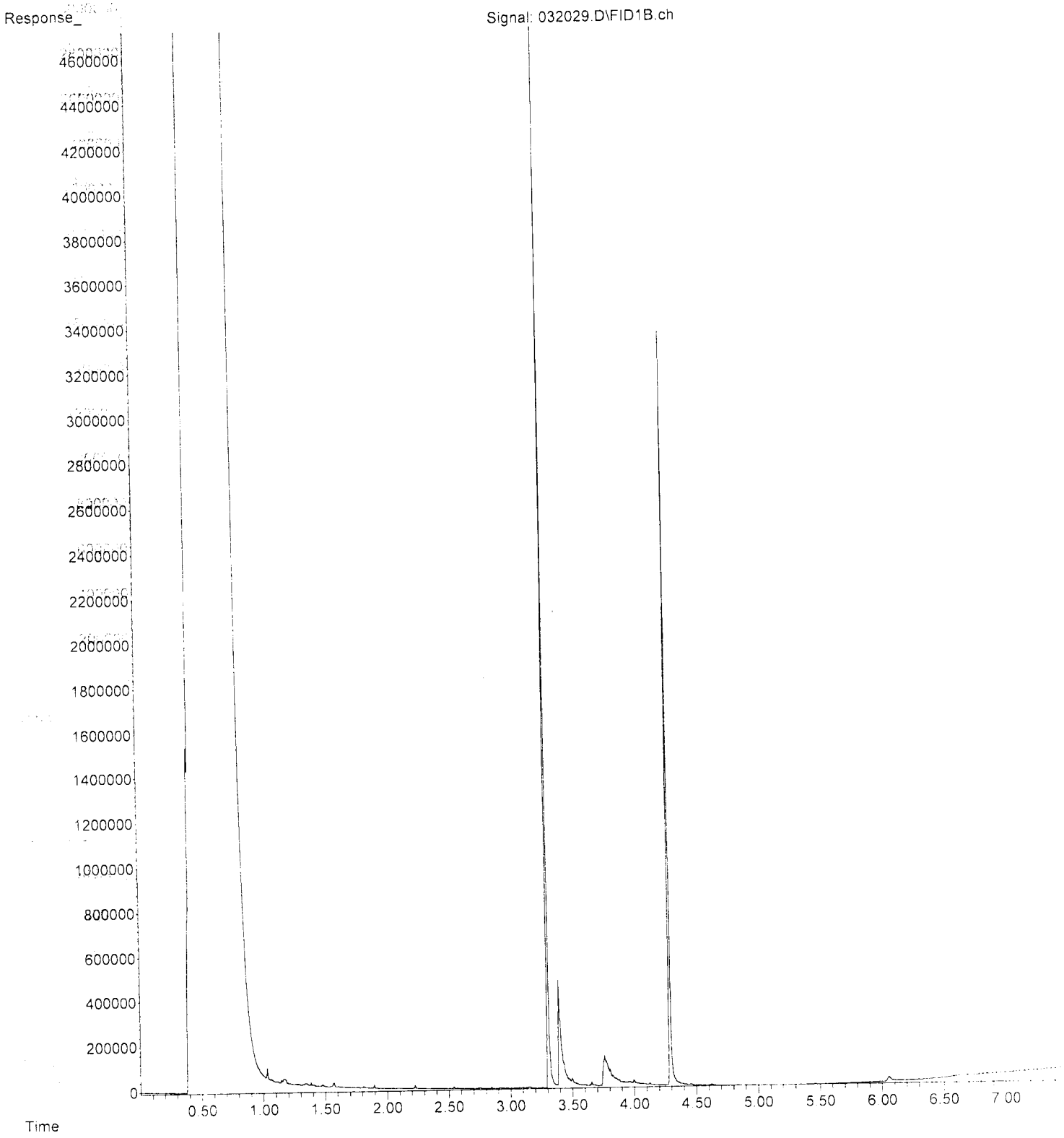
File :P:\Proc_GC14\03-20-23\032028.D
Operator : TL
Acquired : 20 Mar 2023 01:27 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 303297-08
Misc Info :
Vial Number: 22

ERR



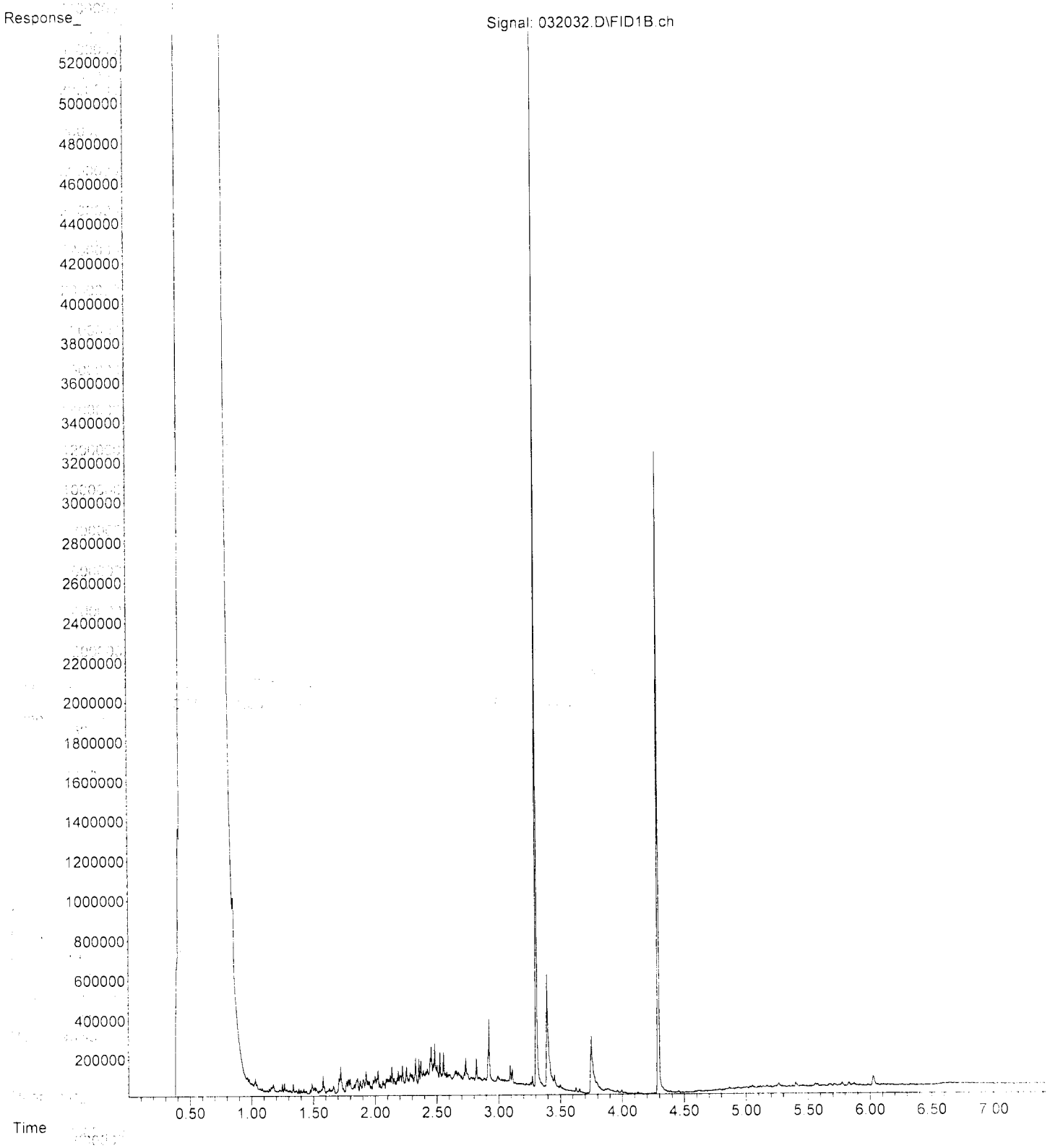
File :P:\Proc_GC14\03-20-23\032029.D
Operator : TL
Acquired : 20 Mar 2023 01:39 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 303297-09
Misc Info :
Vial Number: 23

ERR



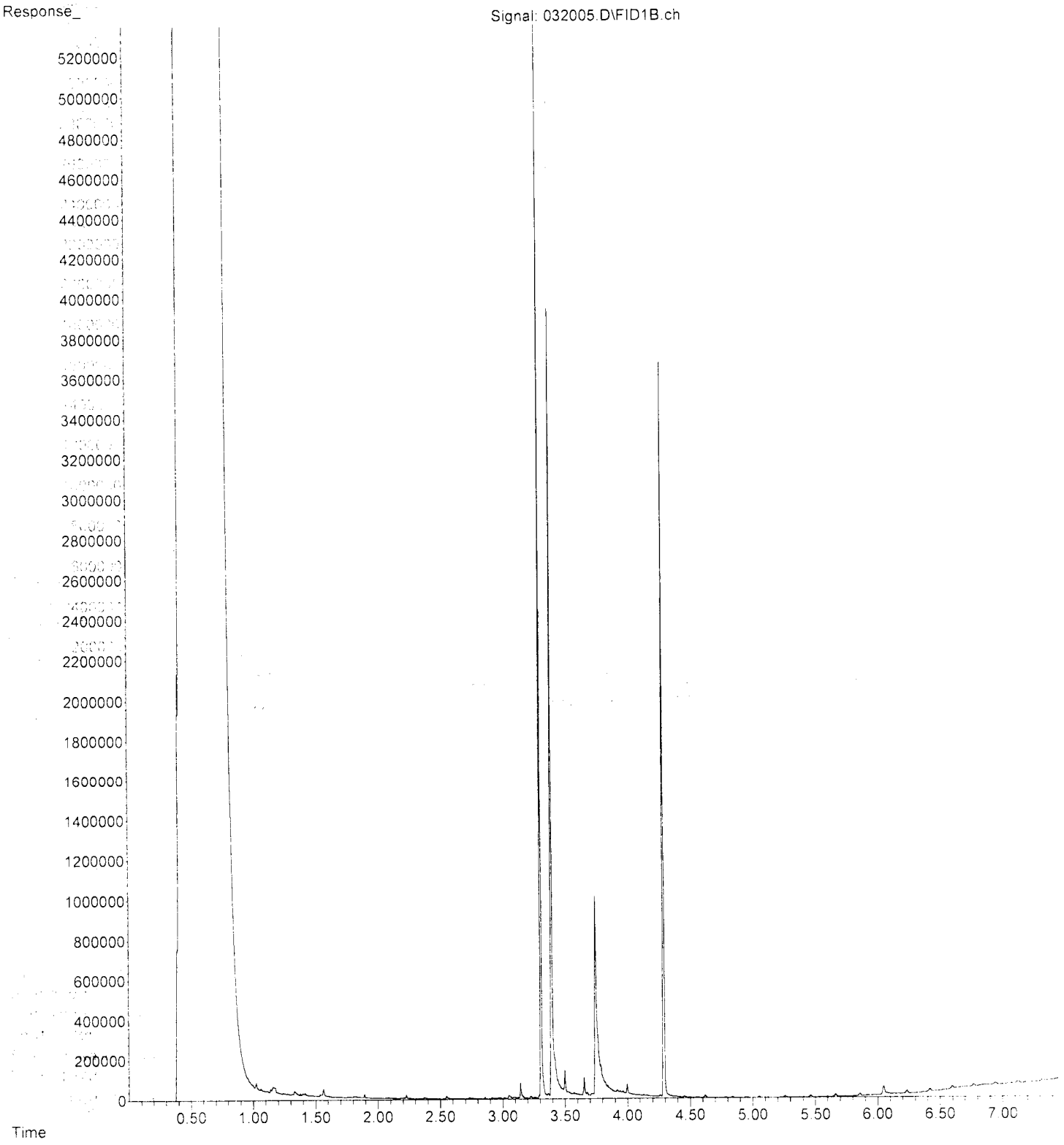
File : P:\Proc_GC14\03-20-23\032032.D
Operator : TL
Acquired : 20 Mar 2023 02:14 pm using AcqMethod DX.M
Instrument : GC14
Sample Name: 303297-10
Misc Info :
Vial Number: 24

ERR

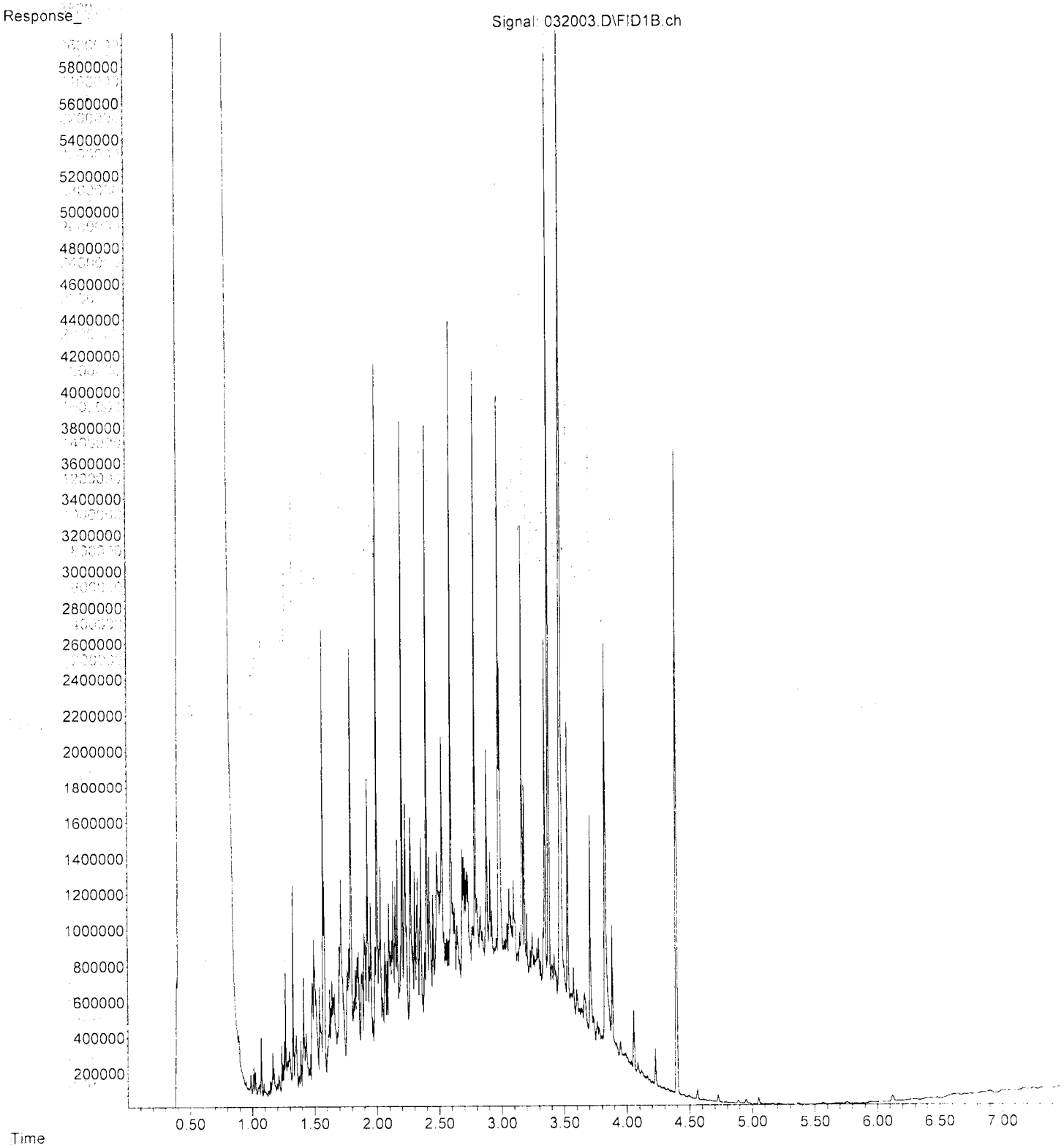


File :P:\Proc_GC14\03-20-23\032005.D
Operator : TL
Acquired : 20 Mar 2023 09:00 am using AcqMethod DX.M
Instrument : GC14
Sample Name: 03-636 mb
Misc Info :
Vial Number: 7

ERR



File :P:\Proc_GC14\03-20-23\032003.D
Operator : TL
Acquired : 20 Mar 2023 08:30 am using AcqMethod DX.M
Instrument : GC14
Sample Name: 500 Dx 68-66C
Misc Info : ERR
Vial Number: 3



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

April 5, 2023

Matthew Eddy, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Eddy:

Included are the results from the testing of material submitted on March 29, 2023 from the Swinomish Market and Deli 220230, F&BI 303478 project. There are 15 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 have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Aspect Data, Eric Marhofer
ASP0405R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 29, 2023 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Swinomish Market and Deli 220230, F&BI 303478 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
303478 -01	AMW-1-032723
303478 -02	AMW-2-032723
303478 -03	Trip Blank

All quality control requirements were acceptable.

Date of Report: 04/05/23
Date Received: 03/29/23
Project: Swinomish Market and Deli 220230, F&BI 303478
Date Extracted: 03/31/23
Date Analyzed: 04/03/23

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
AMW-1-032723 303478-01 1/10	9,800	99
AMW-2-032723 303478-02	<100	93
Trip Blank 303478-03	<100	77
Method Blank 03-754 MB	<100	105

Date of Report: 04/05/23
Date Received: 03/29/23
Project: Swinomish Market and Deli 220230, F&BI 303478
Date Extracted: 03/30/23
Date Analyzed: 03/30/23

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)
AMW-1-032723 303478-01	1,800 x	450 x	91
AMW-2-032723 303478-02	64 x	<250	87
Method Blank 03-830 MB	<50	<250	77

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	AMW-1-032723	Client:	Aspect Consulting, LLC
Date Received:	03/29/23	Project:	Swinomish Market and Deli 220230
Date Extracted:	03/30/23	Lab ID:	303478-01
Date Analyzed:	03/30/23	Data File:	303478-01.158
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

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

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	AMW-2-032723	Client:	Aspect Consulting, LLC
Date Received:	03/29/23	Project:	Swinomish Market and Deli 220230
Date Extracted:	03/30/23	Lab ID:	303478-02
Date Analyzed:	03/30/23	Data File:	303478-02.161
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	1.70

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	Swinomish Market and Deli 220230
Date Extracted:	03/30/23	Lab ID:	I3-245 mb
Date Analyzed:	03/30/23	Data File:	I3-245 mb.066
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

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

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AMW-1-032723	Client:	Aspect Consulting, LLC
Date Received:	03/29/23	Project:	Swinomish Market and Deli 220230
Date Extracted:	03/31/23	Lab ID:	303478-01 1/100
Date Analyzed:	03/31/23	Data File:	033121.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	71	132
Toluene-d8	102	68	139
4-Bromofluorobenzene	102	62	136

Compounds:	Concentration ug/L (ppb)
Hexane	<500
Methyl t-butyl ether (MTBE)	<100
1,2-Dichloroethane (EDC)	<20
Benzene	2,100
Toluene	<100
1,2-Dibromoethane (EDB)	<100
Ethylbenzene	110
m,p-Xylene	230
o-Xylene	<100
Naphthalene	<100

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AMW-2-032723	Client:	Aspect Consulting, LLC
Date Received:	03/29/23	Project:	Swinomish Market and Deli 220230
Date Extracted:	03/31/23	Lab ID:	303478-02
Date Analyzed:	03/31/23	Data File:	033120.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	106	68	139
4-Bromofluorobenzene	99	62	136

Compounds:	Concentration ug/L (ppb)
Hexane	<5
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Trip Blank	Client:	Aspect Consulting, LLC
Date Received:	03/29/23	Project:	Swinomish Market and Deli 220230
Date Extracted:	03/31/23	Lab ID:	303478-03
Date Analyzed:	03/31/23	Data File:	033109.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	71	132
Toluene-d8	91	68	139
4-Bromofluorobenzene	102	62	136

Compounds:	Concentration ug/L (ppb)
Hexane	<5
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Swinomish Market and Deli 220230
Date Extracted:	03/31/23	Lab ID:	03-0698 mb
Date Analyzed:	03/31/23	Data File:	033107.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	71	132
Toluene-d8	92	68	139
4-Bromofluorobenzene	98	62	136

Compounds:	Concentration ug/L (ppb)
Hexane	<5
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1
Naphthalene	<1

Date of Report: 04/05/23
Date Received: 03/29/23
Project: Swinomish Market and Deli 220230, F&BI 303478

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 303480-06 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	120	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	100	70-130

Date of Report: 04/05/23
Date Received: 03/29/23
Project: Swinomish Market and Deli 220230, F&BI 303478

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	96	112	70-130	15

Date of Report: 04/05/23
Date Received: 03/29/23
Project: Swinomish Market and Deli 220230, F&BI 303478

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

Laboratory Code: 303478-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	ug/L (ppb)	10	<1	77	79	75-125	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	ug/L (ppb)	10	93	80-120

Date of Report: 04/05/23
Date Received: 03/29/23
Project: Swinomish Market and Deli 220230, F&BI 303478

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

Laboratory Code: 303478-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Hexane	ug/L (ppb)	10	<5	64	49-161
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	81	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	82	50-150
Benzene	ug/L (ppb)	10	<0.35	83	50-150
Toluene	ug/L (ppb)	10	<1	72	50-150
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	79	50-150
Ethylbenzene	ug/L (ppb)	10	<1	73	50-150
m,p-Xylene	ug/L (ppb)	20	<2	71	50-150
o-Xylene	ug/L (ppb)	10	<1	73	50-150
Naphthalene	ug/L (ppb)	10	<1	71	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Hexane	ug/L (ppb)	10	103	107	50-161	4
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	106	110	70-130	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	101	106	70-130	5
Benzene	ug/L (ppb)	10	104	108	70-130	4
Toluene	ug/L (ppb)	10	94	95	70-130	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	101	102	70-130	1
Ethylbenzene	ug/L (ppb)	10	98	99	70-130	1
m,p-Xylene	ug/L (ppb)	20	96	98	70-130	2
o-Xylene	ug/L (ppb)	10	97	99	70-130	2
Naphthalene	ug/L (ppb)	10	98	101	70-130	3

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.

303478

SAMPLE CHAIN OF CUSTODY

03/29/23 VW3/L1/I3

Page # 1 of 1

Report To Matt Eddy, Eric Markoter

Company Aspect Consulting

Address

City, State, ZIP

Phone 425 744 453 Email meddy@aspectconsulting.com emarkoter@aspectconsulting.com

SAMPLERS (*signature*) Paul Mackay

PROJECT NAME Swinomish Market and Rel

PO # 220230

REMARKS Gasoline Target VOCs including * run for BTEX, Napthalene MTBE, EOC, and EOB

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME

☒ Standard turnaround

☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Archive samples

☐ Other

Default: Dispose after 30 days

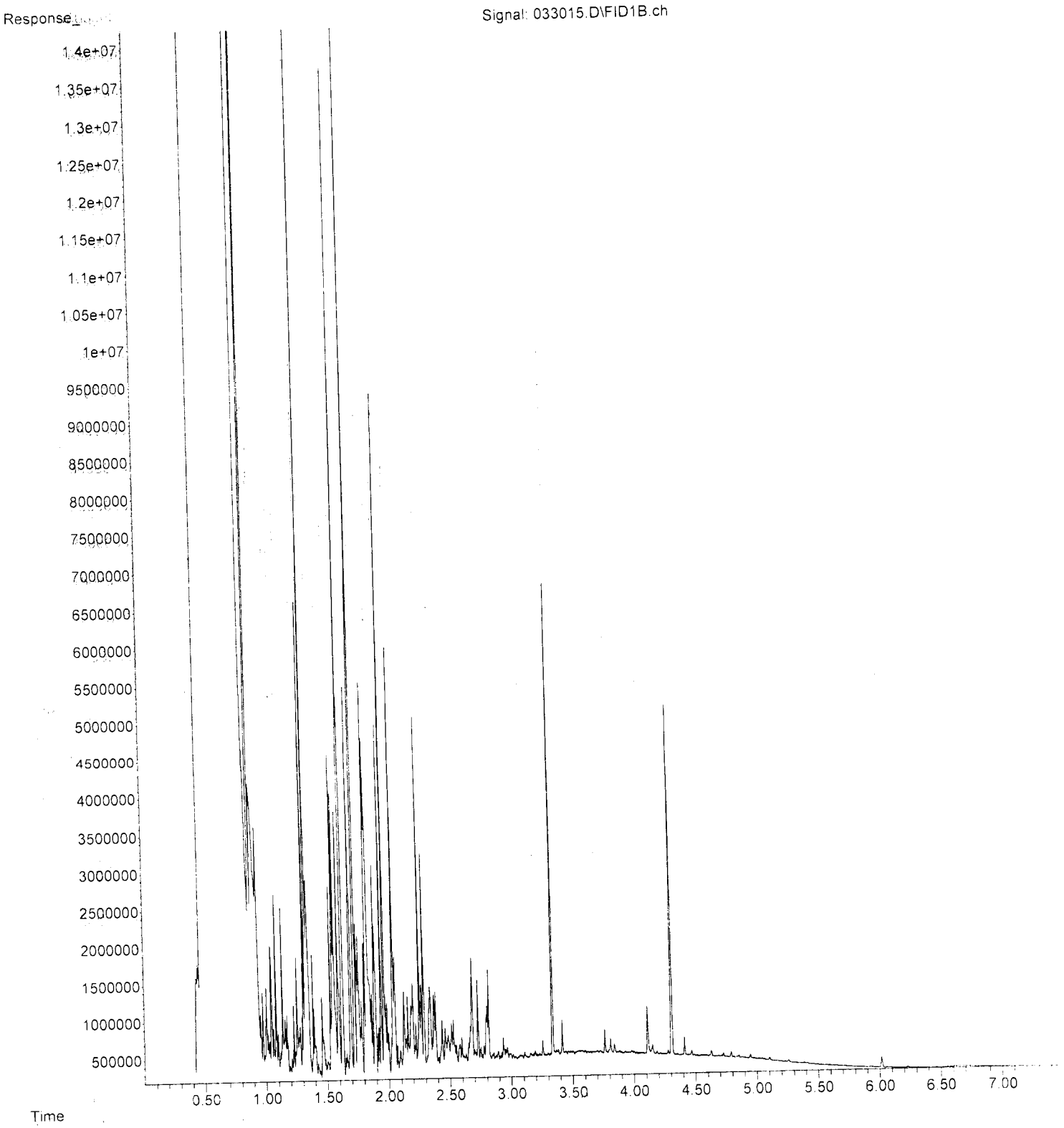
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260 *	PAHs EPA 8270	PCBs EPA 8082	Dissolved Metals Lead 6020B				Notes
						ANALYSES REQUESTED											Dissolved metals field filtered
AMW-1-032723	01 A-H	3/27/23	1410	W	8	X	X			X			X				VOA's Effervesced while filling. ↓
AMW-2-032723	02 A-H	3/27/23	1605	W	8	X	X			X			X				
Trip Blank	03 A-B						X			X							

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Paul Mackay	David Mackay	Aspect	3/29/23	1800
Received by:	JOE MOHAMMED	FBI	3/29/23	1800
Relinquished by:	Samples received at 4 °C			
Received by:				

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

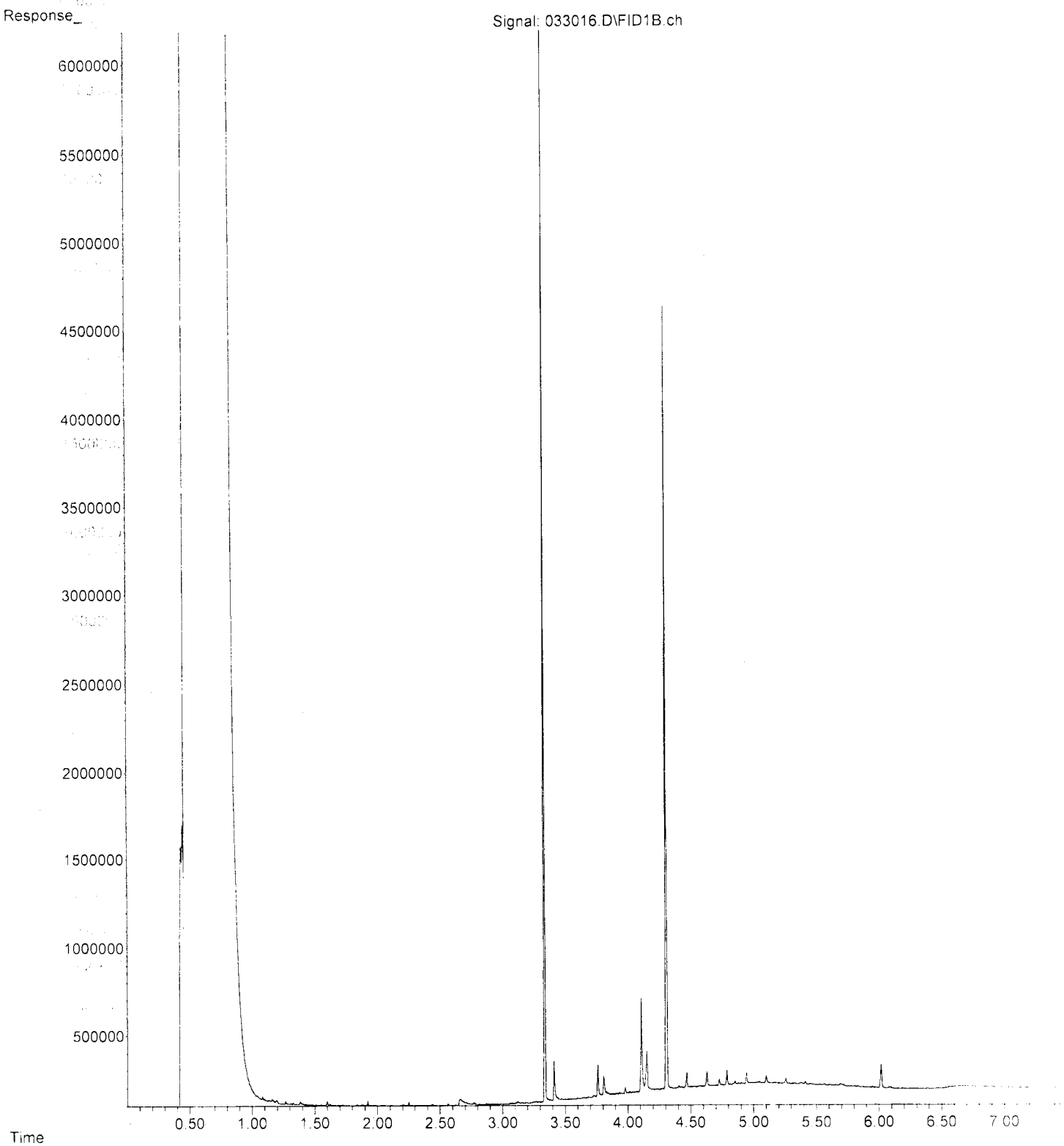
File : P:\Proc_GC13\03-30-23\033015.D
Operator : TL
Acquired : 30 Mar 2023 11:37 am using AcqMethod Dx.M
Instrument : GC13
Sample Name: 303478-01
Misc Info :
Vial Number: 15

ERR



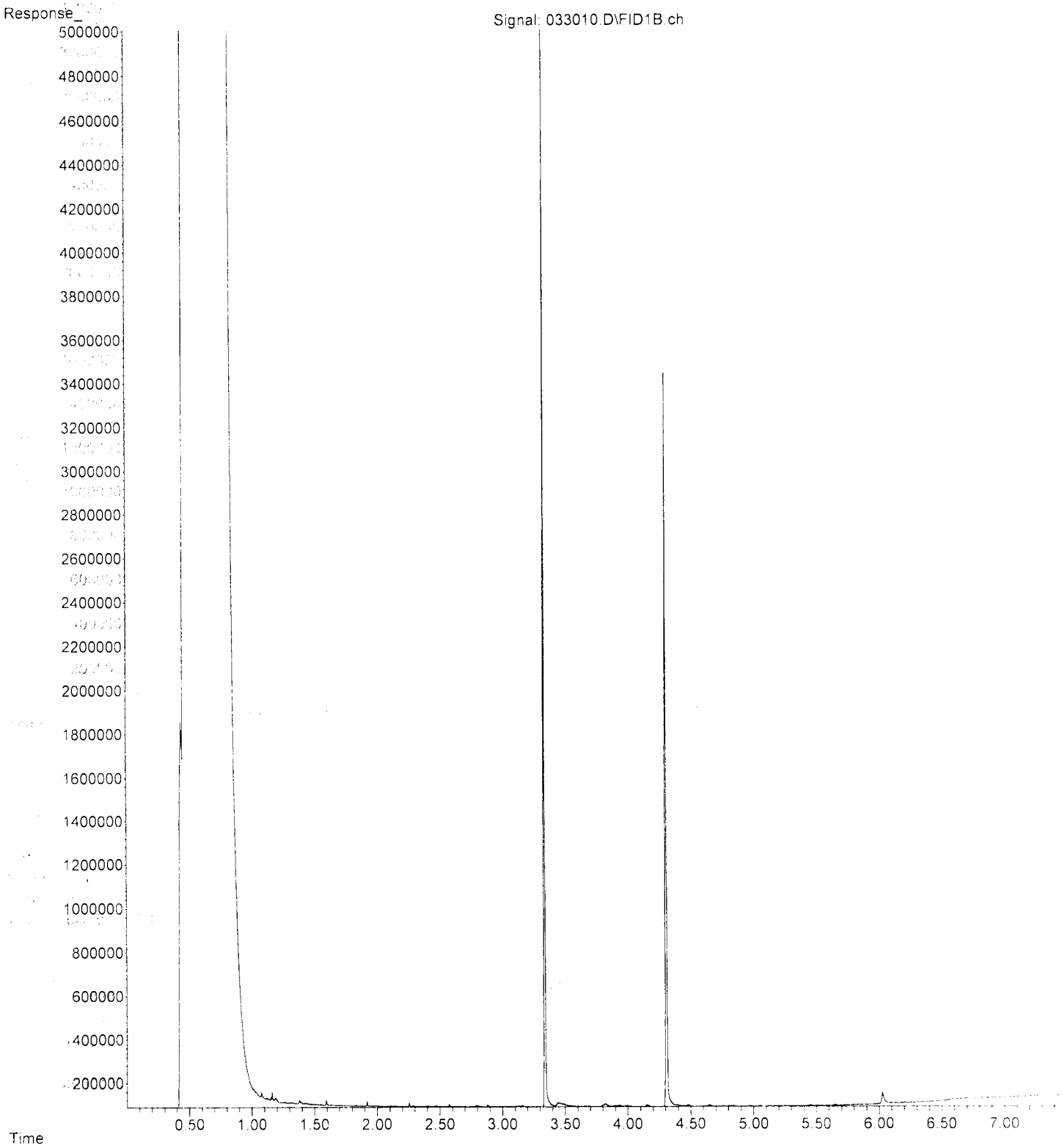
File :P:\Proc_GC13\03-30-23\033016.D
Operator : TL
Acquired : 30 Mar 2023 11:48 am using AcqMethod Dx.M
Instrument : GC13
Sample Name: 303478-02
Misc Info :
Vial Number: 16

ERR

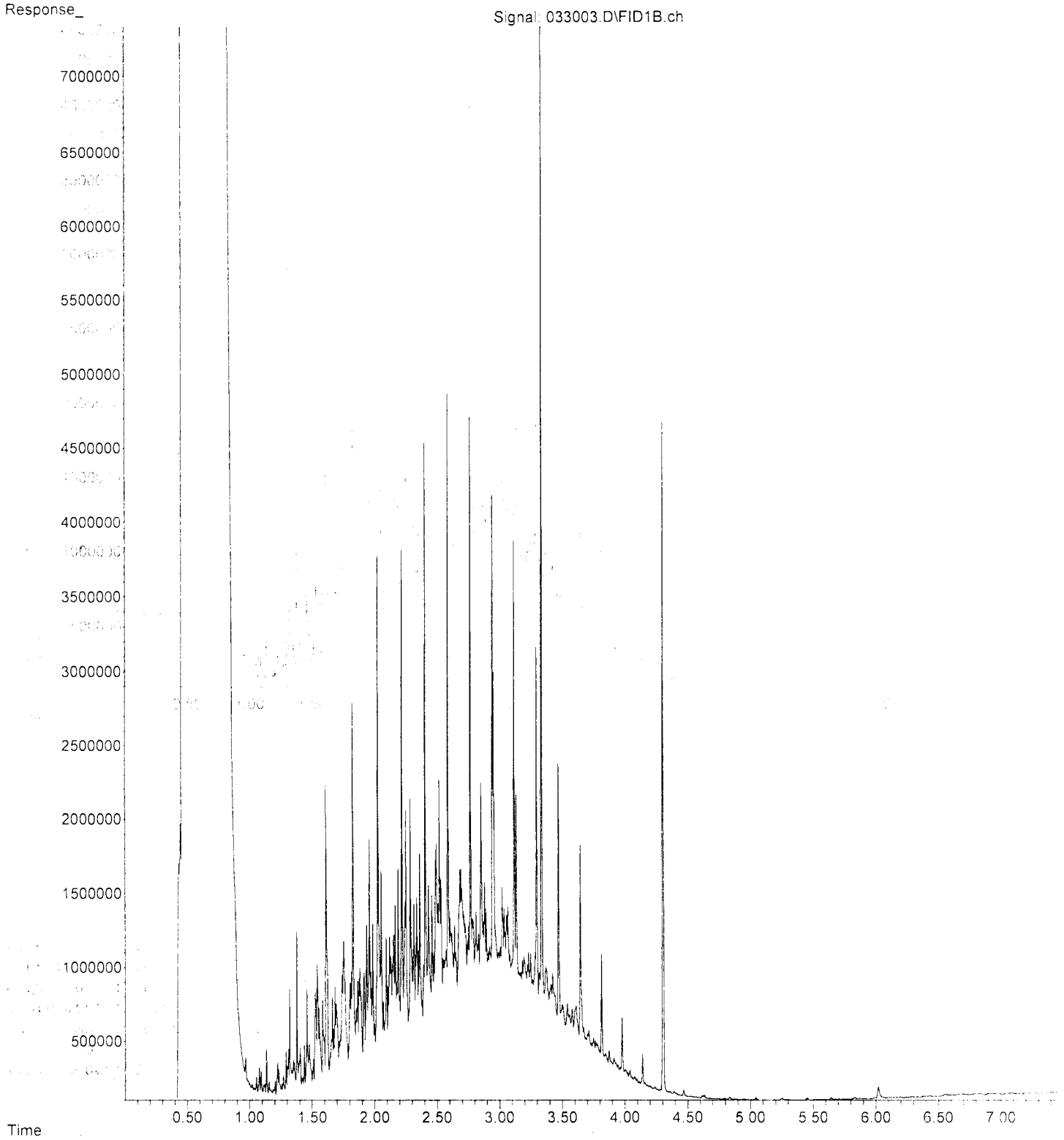


File : P:\Proc_GC13\03-30-23\033010.D
Operator : TL
Acquired : 30 Mar 2023 10:42 am using AcqMethod Dx.M
Instrument : GC13
Sample Name: 03-830 mb
Misc Info :
Vial Number: 10

ERR



File :P:\Proc_GC13\03-30-23\033003.D
Operator : TL
Acquired : 30 Mar 2023 08:20 am using AcqMethod Dx.M
Instrument : GC13
Sample Name: 500 Dx 68-66C
Misc Info : ERR
Vial Number: 3



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.

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Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 22, 2023

Matthew Eddy, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Eddy:

Included are the results from the testing of material submitted on September 13, 2023 from the Swinomish Market 220230, F&BI 309171 project. There are 38 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 have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Aspect Data, Eric Marhofer
ASP0922R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 13, 2023 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Swinomish Market 220230, F&BI 309171 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
309171 -01	AB-02-2
309171 -02	AB-02-3.5
309171 -03	AB-02-5.5
309171 -04	AB-03-2
309171 -05	AB-03-4
309171 -06	AB-03-5
309171 -07	AB-04-2
309171 -08	AB-04-3.5
309171 -09	AB-04-5
309171 -10	AB-05-2
309171 -11	AB-05-4
309171 -12	AB-05-5.5
309171 -13	AB-06-4.5
309171 -14	AB-06-5.5
309171 -15	AB-06-7.5
309171 -16	AB-07-2
309171 -17	AB-07-4.5
309171 -18	AB-07-6
309171 -19	AB-08-2
309171 -20	AB-08-5.5
309171 -21	AB-09-2
309171 -22	AB-10-1
309171 -23	AB-10-3
309171 -24	AB-11-2
309171 -25	AB-11-4
309171 -26	HA-1-1.5
309171 -27	HA-2-2
309171 -28	HA-3-2
309171 -29	HA-4-2
309171 -30	AMW-1-091323
309171 -31	AMW-2-091323*
309171 -32	TB-091323

All quality control requirements were acceptable.

Date of Report: 09/22/23
Date Received: 09/13/23
Project: Swinomish Market 220230, F&BI 309171
Date Extracted: 09/14/23
Date Analyzed: 09/15/23

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
AB-02-3.5 309171-02	11	117
AB-02-5.5 309171-03	<5	108
AB-03-2 309171-04	<5	115
AB-03-5 309171-06	<5	110
AB-04-2 309171-07	<5	111
AB-04-5 309171-09	<5	110
AB-05-2 309171-10 1/5	110	119
AB-05-5.5 309171-12	<5	117
AB-06-4.5 309171-13	7.2	113
AB-06-7.5 309171-15	<5	116
AB-07-2 309171-16 1/5	310	132

Date of Report: 09/22/23
Date Received: 09/13/23
Project: Swinomish Market 220230, F&BI 309171
Date Extracted: 09/14/23
Date Analyzed: 09/15/23

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
AB-07-4.5 309171-17	<5	113
AB-08-2 309171-19	<5	115
AB-08-5.5 309171-20	<5	112
AB-10-3 309171-23	<5	113
AB-11-2 309171-24	74	122
AB-11-4 309171-25	<5	113
HA-1-1.5 309171-26	<5	108
HA-2-2 309171-27	<5	113
HA-3-2 309171-28	<5	108
HA-4-2 309171-29	<5	110
Method Blank 03-2173 MB	<5	113
Method Blank 03-2175 MB	<5	110

Date of Report: 09/22/23
Date Received: 09/13/23
Project: Swinomish Market 220230, F&BI 309171
Date Extracted: 09/15/23
Date Analyzed: 09/18/23

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
AMW-1-091323 309171-30 1/10	13,000	101
AMW-2-091323* 309171-31	<100	93
TB-091323 309171-32	<100	95
Method Blank 03-2172 MB	<100	101

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-02-3.5	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-02 1/0.5
Date Analyzed:	09/15/23	Data File:	091541.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	79	128
Toluene-d8	100	84	121
4-Bromofluorobenzene	102	84	116

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	0.0017
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	0.015
o-Xylene	0.0023

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-02-5.5	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-03 1/0.5
Date Analyzed:	09/15/23	Data File:	091518.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	84	120
Toluene-d8	101	73	128
4-Bromofluorobenzene	99	57	146

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	<0.001
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	<0.002
o-Xylene	<0.001

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-03-2	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-04 1/0.5
Date Analyzed:	09/15/23	Data File:	091519.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	84	120
Toluene-d8	100	73	128
4-Bromofluorobenzene	101	57	146

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	0.0016
Toluene	0.0037
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	0.010
o-Xylene	0.0025

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-03-5	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-06 1/0.5
Date Analyzed:	09/15/23	Data File:	091520.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	84	120
Toluene-d8	101	73	128
4-Bromofluorobenzene	102	57	146

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	<0.001
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	<0.002
o-Xylene	<0.001

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-04-2	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-07 1/0.5
Date Analyzed:	09/15/23	Data File:	091521.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	84	120
Toluene-d8	100	73	128
4-Bromofluorobenzene	99	57	146

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	0.0022
Toluene	0.0055
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	0.0011
m,p-Xylene	0.010
o-Xylene	0.0029

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-04-5	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-09 1/0.5
Date Analyzed:	09/15/23	Data File:	091522.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	84	120
Toluene-d8	102	73	128
4-Bromofluorobenzene	101	57	146

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	<0.001
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	<0.002
o-Xylene	<0.001

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-05-2	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-10 1/0.5
Date Analyzed:	09/19/23	Data File:	091854.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	79	128
Toluene-d8	101	84	121
4-Bromofluorobenzene	103	84	116

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	1.5
Toluene	0.043
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	1.4
m,p-Xylene	3.3
o-Xylene	0.058

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-05-5.5	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-12 1/0.5
Date Analyzed:	09/15/23	Data File:	091523.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	84	120
Toluene-d8	101	73	128
4-Bromofluorobenzene	96	57	146

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	<0.001
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	<0.002
o-Xylene	<0.001

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-06-4.5	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-13 1/0.5
Date Analyzed:	09/15/23	Data File:	091524.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	84	120
Toluene-d8	102	73	128
4-Bromofluorobenzene	103	57	146

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	0.027
Toluene	0.0066
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	0.012
m,p-Xylene	0.051
o-Xylene	0.0081

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-06-7.5	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-15 1/0.5
Date Analyzed:	09/15/23	Data File:	091531.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	79	128
Toluene-d8	100	84	121
4-Bromofluorobenzene	102	84	116

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	0.013
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	0.0024
m,p-Xylene	0.014
o-Xylene	0.0030

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-07-2	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-16 1/0.5
Date Analyzed:	09/19/23	Data File:	091855.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	79	128
Toluene-d8	110	84	121
4-Bromofluorobenzene	112	84	116

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	0.31
Toluene	0.049
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	0.052
m,p-Xylene	0.40
o-Xylene	0.072

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-07-4.5	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-17 1/0.5
Date Analyzed:	09/15/23	Data File:	091532.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	79	128
Toluene-d8	99	84	121
4-Bromofluorobenzene	102	84	116

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	0.0055
Toluene	0.0091
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	0.081
o-Xylene	0.010

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-08-2	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-19 1/0.5
Date Analyzed:	09/15/23	Data File:	091533.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	79	128
Toluene-d8	100	84	121
4-Bromofluorobenzene	101	84	116

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	0.0010
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	0.0059
o-Xylene	0.0019

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-08-5.5	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-20 1/0.5
Date Analyzed:	09/15/23	Data File:	091534.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	79	128
Toluene-d8	100	84	121
4-Bromofluorobenzene	103	84	116

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	<0.001
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	<0.002
o-Xylene	<0.001

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-10-3	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-23 1/0.5
Date Analyzed:	09/15/23	Data File:	091535.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	79	128
Toluene-d8	98	84	121
4-Bromofluorobenzene	103	84	116

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	0.0017
Toluene	0.022
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	0.0059
m,p-Xylene	0.026
o-Xylene	0.0084

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-11-2	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-24 1/0.5
Date Analyzed:	09/19/23	Data File:	091856.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	79	128
Toluene-d8	102	84	121
4-Bromofluorobenzene	104	84	116

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	0.84
Toluene	0.095
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	0.15
m,p-Xylene	2.1
o-Xylene	0.15

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	AB-11-4	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-25 1/0.5
Date Analyzed:	09/15/23	Data File:	091536.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	79	128
Toluene-d8	99	84	121
4-Bromofluorobenzene	99	84	116

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	0.0077
Toluene	0.031
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	0.013
m,p-Xylene	0.22
o-Xylene	0.034

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	HA-1-1.5	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-26 1/0.5
Date Analyzed:	09/15/23	Data File:	091537.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	79	128
Toluene-d8	98	84	121
4-Bromofluorobenzene	103	84	116

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	<0.001
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	<0.002
o-Xylene	<0.001

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	HA-2-2	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-27 1/0.5
Date Analyzed:	09/15/23	Data File:	091538.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	79	128
Toluene-d8	99	84	121
4-Bromofluorobenzene	103	84	116

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	0.011
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	0.0032
m,p-Xylene	0.016
o-Xylene	0.0044

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	HA-3-2	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-28 1/0.5
Date Analyzed:	09/15/23	Data File:	091539.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	79	128
Toluene-d8	93	84	121
4-Bromofluorobenzene	103	84	116

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	0.0076
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	0.0017
m,p-Xylene	0.010
o-Xylene	0.0022

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	HA-4-2	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-29 1/0.5
Date Analyzed:	09/15/23	Data File:	091540.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	79	128
Toluene-d8	101	84	121
4-Bromofluorobenzene	100	84	116

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	<0.001
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	<0.002
o-Xylene	<0.001

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	03-2133 mb 1/0.5
Date Analyzed:	09/15/23	Data File:	091509.D
Matrix:	Soil	Instrument:	GCMS11
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	79	128
Toluene-d8	100	84	121
4-Bromofluorobenzene	99	84	116

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	<0.001
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	<0.002
o-Xylene	<0.001

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition LL

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	03-2136 mb 1/0.5
Date Analyzed:	09/15/23	Data File:	091514.D
Matrix:	Soil	Instrument:	GCMS13
Units:	mg/kg (ppm) Dry Weight	Operator:	MD

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	84	120
Toluene-d8	102	73	128
4-Bromofluorobenzene	95	57	146

Compounds:	Concentration mg/kg (ppm)
Methyl t-butyl ether (MTBE)	<0.002
1,2-Dichloroethane (EDC)	<0.002
Benzene	<0.001
Toluene	<0.001
1,2-Dibromoethane (EDB)	<0.005
Ethylbenzene	<0.001
m,p-Xylene	<0.002
o-Xylene	<0.001

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AMW-1-091323	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-30 1/100
Date Analyzed:	09/15/23	Data File:	091517.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	101	84	115
4-Bromofluorobenzene	104	72	130

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<100
1,2-Dichloroethane (EDC)	<20
Benzene	3,300
Toluene	<100
1,2-Dibromoethane (EDB)	<1
Ethylbenzene	140
m,p-Xylene	270
o-Xylene	<100

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	AMW-2-091323*	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-31
Date Analyzed:	09/15/23	Data File:	091516.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	101	84	115
4-Bromofluorobenzene	105	72	130

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<0.01
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TB-091323	Client:	Aspect Consulting, LLC
Date Received:	09/13/23	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	309171-32
Date Analyzed:	09/15/23	Data File:	091510.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<0.01
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Swinomish Market 220230
Date Extracted:	09/15/23	Lab ID:	03-2134 mb
Date Analyzed:	09/15/23	Data File:	091508.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	100	84	115
4-Bromofluorobenzene	100	72	130

Compounds:	Concentration ug/L (ppb)
Methyl t-butyl ether (MTBE)	<1
1,2-Dichloroethane (EDC)	<0.2
Benzene	<0.35
Toluene	<1
1,2-Dibromoethane (EDB)	<0.01
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Date of Report: 09/22/23
Date Received: 09/13/23
Project: Swinomish Market 220230, F&BI 309171

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 309169-07 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	40	100	70-130

Date of Report: 09/22/23
Date Received: 09/13/23
Project: Swinomish Market 220230, F&BI 309171

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 309185-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	40	102	70-130

Date of Report: 09/22/23
Date Received: 09/13/23
Project: Swinomish Market 220230, F&BI 309171

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 309173-10 Matrix Spike

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	12,000	116	112	50-150	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	99	70-130

Date of Report: 09/22/23
Date Received: 09/13/23
Project: Swinomish Market 220230, F&BI 309171

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

Laboratory Code: 309109-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2	<0.05	86	85	21-145	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2	<0.05	91	89	12-160	2
Benzene	mg/kg (ppm)	2	<0.03	91	90	29-129	1
Toluene	mg/kg (ppm)	2	<0.05	95	94	35-130	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2	<0.05	93	88	28-142	6
Ethylbenzene	mg/kg (ppm)	2	<0.05	93	91	32-137	2
m,p-Xylene	mg/kg (ppm)	4	<0.1	98	97	34-136	1
o-Xylene	mg/kg (ppm)	2	<0.05	94	94	33-134	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2	91	60-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2	98	56-135
Benzene	mg/kg (ppm)	2	98	65-136
Toluene	mg/kg (ppm)	2	98	66-126
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2	98	66-129
Ethylbenzene	mg/kg (ppm)	2	95	64-123
m,p-Xylene	mg/kg (ppm)	4	101	68-128
o-Xylene	mg/kg (ppm)	2	99	67-129

Date of Report: 09/22/23
Date Received: 09/13/23
Project: Swinomish Market 220230, F&BI 309171

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

Laboratory Code: 309206-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2	<0.05	78	74	21-145	5
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2	<0.05	78	76	12-160	3
Benzene	mg/kg (ppm)	2	<0.03	80	77	29-129	4
Toluene	mg/kg (ppm)	2	<0.05	82	79	35-130	4
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2	<0.05	82	80	28-142	2
Ethylbenzene	mg/kg (ppm)	2	<0.05	80	78	32-137	3
m,p-Xylene	mg/kg (ppm)	4	<0.1	85	82	34-136	4
o-Xylene	mg/kg (ppm)	2	<0.05	83	80	33-134	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2	93	60-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2	95	56-135
Benzene	mg/kg (ppm)	2	99	65-136
Toluene	mg/kg (ppm)	2	101	66-126
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2	96	66-129
Ethylbenzene	mg/kg (ppm)	2	96	64-123
m,p-Xylene	mg/kg (ppm)	4	101	68-128
o-Xylene	mg/kg (ppm)	2	97	67-129

Date of Report: 09/22/23
Date Received: 09/13/23
Project: Swinomish Market 220230, F&BI 309171

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

Laboratory Code: 309170-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	99	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	110	50-150
Benzene	ug/L (ppb)	10	<0.35	112	50-150
Toluene	ug/L (ppb)	10	<1	111	50-150
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<0.01	109	50-150
Ethylbenzene	ug/L (ppb)	10	<1	112	50-150
m,p-Xylene	ug/L (ppb)	20	<2	107	50-150
o-Xylene	ug/L (ppb)	10	<1	107	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	101	103	70-130	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	111	111	70-130	0
Benzene	ug/L (ppb)	10	113	113	70-130	0
Toluene	ug/L (ppb)	10	110	110	70-130	0
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	108	109	70-130	1
Ethylbenzene	ug/L (ppb)	10	112	113	70-130	1
m,p-Xylene	ug/L (ppb)	20	107	109	70-130	2
o-Xylene	ug/L (ppb)	10	107	111	70-130	4

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.

309171

SAMPLE CHAIN OF CUSTODY 09/13/23

VW1/VS-A2/N2

Report To Matt Eddy, Eric Marhofer

Company Aspect Consulting

Address

City, State, ZIP

Phone 435 714 4531 Email meddy@aspectconsulting.com emarhofer@aspectconsulting.com

SAMPLERS (signature) [signature]

PROJECT NAME Swinomish Market

PO # 220230

REMARKS

Project specific RLs? - Yes / No

INVOICE TO Aspect

TURNAROUND TIME
- ☒ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

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

ANALYSES REQUESTED

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	BTEX (EPA 8260)	OTM Include ADD EDC, EDB	MTBE in 8260 analysis		Notes
AB-02-~~02~~ OTM	01 A-D	9/11/23	0930	S	4		~~X~~ OTM						~~X~~ OTM				Hold
AB-02-~~03.5~~ OTM	02	↓	0940	↓	↓		X						X				
AB-02-~~05.5~~ OTM	03		1045				X						X				
AB-03-2	04		1230				X						X				
AB-03-4	05		1410														Hold
AB-03-5	06		1420				X						X				
~~AB-04~~ OTM AB-04-2	07		1205	S	4		X						X				
AB-04-3.5	08		1340														Hold
AB-04-5	09		1350				X						X				
AB-05-2	10	↓	1140	↓	↓		X						X				

Samples received at 2 °C

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

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	David Mackay	Aspect	9/13/23	1645
Received by:	Wesley [signature]	Wesley Eland	FBI	09/13/23	1645
Relinquished by:					
Received by:					

309171

SAMPLE CHAIN OF CUSTODY

09/13/23 VW1/VS-A2/N2

Page # 2 of 4

Report To Matt Eddy, Eric Markoter

Company Aspect

Address

City, State, ZIP

Phone 4257144537 Email meddy@aspectconsulting.com emarkoter@aspectconsulting.com

SAMPLERS (*signature*)

PROJECT NAME: Swinomish Market

PO #: 220230

REMARKS: Project specific RLs? - Yes / No

INVOICE TO: Aspect

TURNAROUND TIME
- ☒ 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	BTEX (EPA 8260) Include EDC, EDB, MTBE in 8260 analysis			Notes
AB-05-4	11 A-D	9/11/23	1310	S	4		~~X~~									Hold
AB-05-5.5	12	9/11/23	1320				X						X			
AB-06-4.5	13	9/11/23	1330				X						X			
AB-06-5.5	14	9/12/23	1020													Hold
AB-06-7.5	15	9/12/23	1030				X						X			
AB-07-2	16	9/11/23	1010				X						X			
AB-07-4.5	17		1110				X						X			
AB-07-6	18		1120													Hold
AB-08-2	19		1125				X						X			
AB-08-5.5	20		1220				X						X			

Samples received at 2

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	David Mackay	Aspect	9/13/23	1645
Received by:	Wesley Ind	FBI	09/13/23	1645
Relinquished by:				
Received by:				

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SAMPLE CHAIN OF CUSTODY 09/13/23

VW1/VS-A2/N2

Page # 3 of 4

Report To Matt Eddy, Eric Markofer

Company Aspect

Address

City, State, ZIP

Phone 435 714 4531 Email meddy@aspectconsulting.com emarkofer@aspectconsulting.com

SAMPLERS (signature) [redacted]

PROJECT NAME: Swinomish Market

PO #: 220230

REMARKS: Project specific RLs? - Yes / No

INVOICE TO: Aspect

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	BTEX (EPA 8260 Include EDC, EDB, MTBE in 8260 analysis				Notes
AB-09-2	21 A-D	9/11/23	1350	S	4												Hold
AB-10-1	22	9/12/23	0940														Hold
AB-10-3	23		1000				X						X				
~~AB-10~~ DFM AB-11-2	24		1125				X						X				
AB-11-4	25		1145				X						X				
HA-1-1.5	26	~~AB~~ DFM 9/11/23	1420				X						X				
~~HA~~ HA-2-2	27		1430				X						X				
HA-3-2	28		1440				X						X				
~~HA~~ HA-4-2	29		1450				X						X				
AMW-1-091323	30 A-C	9/13/23	1350	W	3		X						X				

Samples received at 2 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [redacted]	David Mackay	Aspect	9/13/23	1645
Received by: [redacted]	Wesley Eand	FBI	09/13/23	1645
Relinquished by:				
Received by:				

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309171

SAMPLE CHAIN OF CUSTODY 09/13/23

VW1/VS-A2/N2

Page # 4 of 4

Report To Matt Eddy, Eric Marhoter

Company Aspect

Address

City, State, ZIP

Phone 435 714 4531 Email meddy@aspectconsulting.com emarhoter@aspectconsulting.com

SAMPLERS (signature)

PROJECT NAME: Swinomish Market

PO #: 220230

REMARKS

Project specific RLs? - Yes / No

INVOICE TO: Aspect

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	BTEX (EPA 8260)	Include EDC EDB MTBE in 8260 analysis	Notes
AMW-2-091323*	31 A-B	9/13/23	1250	W	2		X						X		keep star in sample name
TB-091323	32 ↓			W	2		X						X		Trip Blank

Samples received at 2 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	David Mackay	Aspect	9/13/23	1645
Received by:	Wesley Ball	FBI	09/13/23	1645
Relinquished by:				
Received by:				

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

APPENDIX D

Terrestrial Ecological Evaluation

Voluntary Cleanup Program

Washington State Department of Ecology
Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

Under the Model Toxics Control Act (MTCA), a terrestrial ecological evaluation is necessary if hazardous substances are released into the soils at a Site. In the event of such a release, you must take one of the following three actions as part of your investigation and cleanup of the Site:

1. Document an exclusion from further evaluation using the criteria in WAC 173-340-7491.
2. Conduct a simplified evaluation as set forth in WAC 173-340-7492.
3. Conduct a site-specific evaluation as set forth in WAC 173-340-7493.

When requesting a written opinion under the Voluntary Cleanup Program (VCP), you must complete this form and submit it to the Department of Ecology (Ecology). The form documents the type and results of your evaluation.

Completion of this form is not sufficient to document your evaluation. You still need to document your analysis and the basis for your conclusion in your cleanup plan or report.

If you have questions about how to conduct a terrestrial ecological evaluation, please contact the Ecology site manager assigned to your Site. For additional guidance, please refer to https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Terrestrial-ecological-evaluation.

Step 1: IDENTIFY HAZARDOUS WASTE SITE	
Please identify below the hazardous waste site for which you are documenting an evaluation.	
Facility/Site Name: Swinomish Market & Deli	
Facility/Site Address: 12515 Christianson Road, Anacortes, WA	
Facility/Site No: 28128528	VCP Project No.: N/A

Step 2: IDENTIFY EVALUATOR			
Please identify below the person who conducted the evaluation and their contact information.			
Name: Eric Marhofer			Title: Environmental Engineer
Organization: Aspect Consulting			
Mailing address: 710 2nd Avenue, Suite 550			
City: Seattle		State: WA	Zip code: 98104
Phone: 206-838-6582	Fax:	E-mail: eric.marhofer@aspectconsulting.com	

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS

A. Exclusion from further evaluation.

1. Does the Site qualify for an exclusion from further evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 2**.*

☐ No or Unknown *If you answered **"NO" or "UNKNOWN,"** then skip to **Step 3B** of this form.*

2. What is the basis for the exclusion? *Check all that apply. Then skip to **Step 4** of this form.*

Point of Compliance: WAC 173-340-7491(1)(a)

☐ All soil contamination is, or will be,* at least 15 feet below the surface.

☐ All soil contamination is, or will be,* at least 6 feet below the surface (or alternative depth if approved by Ecology), and institutional controls are used to manage remaining contamination.

Barriers to Exposure: WAC 173-340-7491(1)(b)

☒ All contaminated soil, is or will be,* covered by physical barriers (such as buildings or paved roads) that prevent exposure to plants and wildlife, and institutional controls are used to manage remaining contamination.

Undeveloped Land: WAC 173-340-7491(1)(c)

☐ There is less than 0.25 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.

☐ For sites not containing any of the chemicals mentioned above, there is less than 1.5 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site.

Background Concentrations: WAC 173-340-7491(1)(d)

☐ Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709.

* An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology.

[±] "Undeveloped land" is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil.

[#] "Contiguous" undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife.

B. Simplified evaluation.

1. Does the Site qualify for a simplified evaluation?

☐ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No or Unknown *If you answered **"NO"** or **"UNKNOWN,"** then skip to **Step 3C** of this form.*

2. Did you conduct a simplified evaluation?

☐ Yes *If you answered **"YES,"** then answer **Question 3** below.*

☐ No *If you answered **"NO,"** then skip to **Step 3C** of this form.*

3. Was further evaluation necessary?

☐ Yes *If you answered **"YES,"** then answer **Question 4** below.*

☐ No *If you answered **"NO,"** then answer **Question 5** below.*

4. If further evaluation was necessary, what did you do?

☐ Used the concentrations listed in Table 749-2 as cleanup levels. *If so, then skip to **Step 4** of this form.*

☐ Conducted a site-specific evaluation. *If so, then skip to **Step 3C** of this form.*

5. If no further evaluation was necessary, what was the reason? *Check all that apply. Then skip to **Step 4** of this form.*

Exposure Analysis: WAC 173-340-7492(2)(a)

☐ Area of soil contamination at the Site is not more than 350 square feet.

☐ Current or planned land use makes wildlife exposure unlikely. Used Table 749-1.

Pathway Analysis: WAC 173-340-7492(2)(b)

☐ No potential exposure pathways from soil contamination to ecological receptors.

Contaminant Analysis: WAC 173-340-7492(2)(c)

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations that exceed the values listed in Table 749-2.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations that exceed the values listed in Table 749-2, and institutional controls are used to manage remaining contamination.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays, and institutional controls are used to manage remaining contamination.

C. Site-specific evaluation. A site-specific evaluation process consists of two parts: (1) formulating the problem, and (2) selecting the methods for addressing the identified problem. Both steps require consultation with and approval by Ecology. *See* WAC 173-340-7493(1)(c).

1. Was there a problem? *See* WAC 173-340-7493(2).

☐ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No *If you answered **"NO,"** then identify the reason here and then skip to **Question 5** below:*

- ☐ No issues were identified during the problem formulation step.
- ☐ While issues were identified, those issues were addressed by the cleanup actions for protecting human health.

2. What did you do to resolve the problem? *See* WAC 173-340-7493(3).

- ☐ Used the concentrations listed in Table 749-3 as cleanup levels. *If so, then skip to **Question 5** below.*
- ☐ Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. *If so, then answer **Questions 3 and 4** below.*

3. If you conducted further site-specific evaluations, what methods did you use?
Check all that apply. See WAC 173-340-7493(3).

- ☐ Literature surveys.
- ☐ Soil bioassays.
- ☐ Wildlife exposure model.
- ☐ Biomarkers.
- ☐ Site-specific field studies.
- ☐ Weight of evidence.
- ☐ Other methods approved by Ecology. If so, please specify:

4. What was the result of those evaluations?

- ☐ Confirmed there was no problem.
- ☐ Confirmed there was a problem and established site-specific cleanup levels.

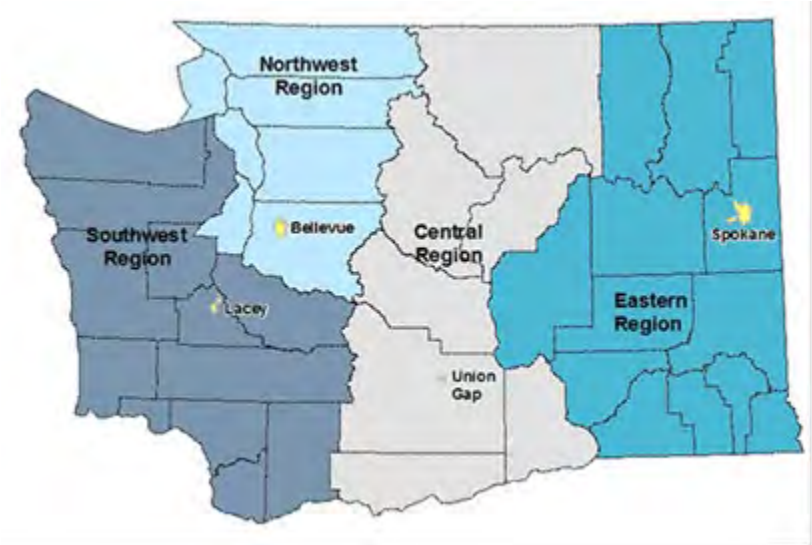
5. Have you already obtained Ecology's approval of both your problem formulation and problem resolution steps?

☐ Yes If so, please identify the Ecology staff who approved those steps:

☐ No

Step 4: SUBMITTAL

Please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.



Northwest Region: Attn: VCP Coordinator 3190 160th Ave. SE Bellevue, WA 98008-5452	**Central Region:** Attn: VCP Coordinator 1250 West Alder St. Union Gap, WA 98903-0009
Southwest Region: Attn: VCP Coordinator P.O. Box 47775 Olympia, WA 98504-7775	**Eastern Region:** Attn: VCP Coordinator N. 4601 Monroe Spokane WA 99205-1295

If you need this publication in an alternate format, please call the Toxics Cleanup Program at 360-407-7170. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call 877-833-6341.

APPENDIX E

Report Limitations and Guidelines for Use

REPORT LIMITATIONS AND USE GUIDELINES

Reliance Conditions for Third Parties

This report was prepared for the exclusive use of the Client. No other party may rely on this report or the product of our services without the express written consent of Aspect Consulting (Aspect). This limitation is to provide our firm with reasonable protection against liability claims by third parties with whom there would otherwise be no contractual conditions or limitations and guidelines governing their use of the report. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and recognized standards of professionals in the same locality and involving similar conditions.

Services for Specific Purposes, Persons and Projects

Aspect has performed the services in general accordance with the scope and limitations of our Agreement. This report has been prepared for the exclusive use of the Client and their authorized third parties, approved in writing by Aspect. This report is not intended for use by others, and the information contained herein is not applicable to other properties.

This report is not, and should not, be construed as a warranty or guarantee regarding the presence or absence of hazardous substances or petroleum products that may affect the subject property. The report is not intended to make any representation concerning title or ownership to the subject property. If real property records were reviewed, they were reviewed for the sole purpose of determining the subject property's historical uses. All findings, conclusions, and recommendations stated in this report are based on the data and information provided to Aspect, current use of the subject property, and observations and conditions that existed on the date and time of the report.

Aspect structures its services to meet the specific needs of our clients. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and subject property. This report should not be applied for any purpose or project except the purpose described in the Agreement.

This Report Is Project-Specific

Aspect considered a number of unique, project-specific factors when establishing the Scope of Work for this project and report. You should not rely on this report if it was:

- Not prepared for you
- Not prepared for the specific purpose identified in the Agreement
- Not prepared for the specific real property assessed
- Completed before important changes occurred concerning the subject property, project or governmental regulatory actions

If changes are made to the project or subject property after the date of this report, Aspect should be retained to assess the impact of the changes with respect to the conclusions contained in the report.

Geoscience Interpretations

The geoscience practices (geotechnical engineering, geology, and environmental science) require interpretation of spatial information that can make them less exact than other engineering and natural science disciplines. It is important to recognize this limitation in evaluating the content of the report. If you are unclear how these "Report Limitations and Use Guidelines" apply to your project or site, you should contact Aspect.

Discipline-Specific Reports Are Not Interchangeable

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually address any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding the subject property.

Environmental Regulations Are Not Static

Some hazardous substances or petroleum products may be present near the subject property in quantities or under conditions that may have led, or may lead, to contamination of the subject property, but are not included in current local, state or federal regulatory definitions of hazardous substances or petroleum products or do not otherwise present potential liability. Changes may occur in the standards for appropriate inquiry or regulatory definitions of hazardous substance and petroleum products; therefore, this report has a limited useful life.

Property Conditions Change Over Time

This report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time (for example, Phase I ESA reports are applicable for 180 days), by events such as a change in property use or occupancy, or by natural events, such as floods, earthquakes, slope failure or groundwater fluctuations. If more than six months have passed since issuance of our report, or if any of the described events may have occurred following the issuance of the report, you should contact Aspect so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Phase I ESAs – Uncertainty Remains After Completion

Aspect has performed the services in general accordance with the scope and limitations of our Agreement and the current version of the "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process", ASTM E1527, and U.S. Environmental Protection Agency (EPA)'s Federal Standard 40 CFR Part 312 "Innocent Landowners, Standards for Conducting All Appropriate Inquiries".

No ESA can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with subject property. Performance of an ESA study is intended to reduce, but not eliminate, uncertainty regarding the potential for environmental conditions affecting the subject property. There is always a potential that areas with contamination that were not identified during this ESA exist at the subject property or in the study area. Further evaluation of such potential would require additional research, subsurface exploration, sampling and/or testing.

Historical Information Provided by Others

Aspect has relied upon information provided by others in our description of historical conditions and in our review of regulatory databases and files. The available data does not provide definitive information with regard to all past uses, operations or incidents affecting the subject property or adjacent properties. Aspect makes no warranties or guarantees regarding the accuracy or completeness of information provided or compiled by others.

Exclusion of Mold, Fungus, Radon, Lead, and HBM

Aspect's services do not include the investigation, detection, prevention or assessment of the presence of molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detection, assessment, prevention or abatement of molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts. Aspect's services also do not include the investigation or assessment of hazardous building materials (HBM) such as asbestos, polychlorinated biphenyls (PCBs) in light ballasts, lead based paint, asbestos-containing building materials, urea-formaldehyde insulation in on-site structures or debris or any other HBMs. Aspect's services do not include an evaluation of radon or lead in drinking water, unless specifically requested.