



SOURCE CONTROL EVALUATION REPORT



Industrial Facility

4000 NW St. Helens Road
Portland, Oregon

Agency Information

ODEQ ESCI Site No. 6148
ODEQ UIC No. 16205

Prepared for:

HDNGR NW Industrial LLC

1750 NW Front Avenue #106
Portland, Oregon 97209

Issued on:

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This

Source Control Evaluation Report

For the:

Intrepid Marble and Granite

4000 NW St. Helens Road
Portland, Oregon

Has been prepared for the sole benefit and use of our Client:

HDNGR NW Industrial LLC

1750 NW Front Avenue #106
Portland, Oregon 97209

and its assignees

Issued April 11, 2023 by:



EXP. 2/1/2024

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List of Acronyms and Abbreviations

Adapt	Adapt Engineering
Amec	Amec Foster Wheeler
BES	Bureau of Environmental Services
bgs	below ground surface
BMPs	best management practices
CFS	cubic feet per second
Client	HDNGR NW Industrial LLC
CoC	constituent of concern
COI	constituent of interest
DRO	diesel-range organics
ECSI	Environmental Cleanup Site Information
ENW	EVREN Northwest, Inc.
EPA	US Environmental Protection Agency
ESA	Environmental Site Assessment
JSCS	Joint Source Control Strategy
LUST	Leaking Underground Storage Tank
mg/Kg	milligrams per Kilogram
MRLs	method reporting limits
NPDES	National Pollutant Discharge Elimination System
ODEQ	Oregon Department of Environmental Quality
PAHs	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyl
ROD	Record of Decision
RRO	residual(oil)-range organics
SCE	Source Control Evaluation
SF	square foot
SLV	screening level value
TSS	total suspended solids
UIC	underground injection control
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOC	volatile organic constituent

1.0 Introduction

At the request of HDNGR NW Industrial, LLC (Client), EVREN Northwest, Inc. (ENW) has prepared this **Source Control Evaluation** (SCE) report for the property located at 4000 NW St. Helens Road in Portland, Oregon (project site; see Figures 1 and 2). This SCE was requested by the Oregon Department of Environmental Quality (ODEQ) as part of ongoing remedial investigations at the site.

1.1 Purpose

The purpose of the SCE was to identify, evaluate, and control any sources of contamination on the project site with the potential to discharge to the Willamette River. ENW understands the findings will support decision making by ODEQ in their overall evaluation of site conditions.

1.2 Source Control Objectives

The objective of this stormwater SCE is to demonstrate that existing and potential sources of contamination at the site have been and no additional characterization or source control measures are needed at the site. This work is in support of issuance by ODEQ and other governing bodies/agencies of a source control determination and subsequent no further action (NFA) determination.

1.3 Regulatory Framework

The ODEQ has identified the subject site as subject to the Portland Harbor Source Control Program. Therefore, this SCE conforms with the requirements of the Portland Harbor Joint Source Control Strategy (JSCS).

The storm water SCE follows ENW's revised *Stormwater Source Control Evaluation Work Plan*¹, which was approved by ODEQ. The SCE was completed in general accordance with ODEQ guidance² and relied upon the following references:

- ODEQ's *Guidance for Evaluating the Stormwater Pathway at Upland Sites*, dated January 2009 (updated October 2010).
- ODEQ/EPA's *Portland Harbor Joint Source Control Strategy* (JSCS), dated December 2005.
- EPA *Record of Decision, Portland Harbor Superfund Site*, dated January 2017.

The SCE is intended to provide supporting documentation to assist ODEQ in completing an uplands source control decision for the project site to satisfy the JSCS SCE requirements.

1.4 Report Organization

This report is organized to be generally consistent with ODEQ's *Template for a Stormwater Source Control Evaluation Report*.³ Specifically, this report includes: an introduction, a discussion of the site background,

¹ ENW. November 22, 2021. Stormwater Source Control Evaluation Work Plan

² <https://www.oregon.gov/deq/Hazards-and-Cleanup/env-cleanup/Pages/Stormwater-Guidance.aspx>

³ <https://www.oregon.gov/deq/FilterDocs/cu-stormwaterSitesAppC.pdf>

an examination of potential sources and contaminants of interest, an evaluation of discharge pathways, presentation of ongoing stormwater management measures, the results of the source control evaluation, and findings and conclusions.

2.0 Site Background

2.1 Site Description

The project site is located at 4000 NW St. Helens Road in Multnomah County within the City of Portland (see Figures 1 and 2) and consists of one tax lot (SECTION 19 1N 1E, TL 1100), totaling 1.77 acres in area. The majority of the site is covered by a large warehouse building (69,293 square feet⁴ in area). The subject site and surrounding property area zoned Heavy Industrial (IH) by the City of Portland .

The exterior areas of the facility are limited to the east side of the building and primarily consist of asphalt-paved area except for several landscaped islands around the front entrance. Warehouse access bay doors are located at the south, middle, and north ends of the building. A gravel strip is present just off-site along the southern property margin. Exterior areas are used for vehicle parking and loading and unloading of product. Refuse is stored in closed receptacles located in the northeast corner of the site.

The site lies on the north corner of the intersection of NW St Helens Road and NW Express Avenue. The subject site is shown relative to surrounding physical features on Figure 1. The subject site layout and adjacent properties are shown on Figure 2. Underground sanitary and storm utilities are shown on Figure 3.

The project site is bounded to the southwest by NW St Helens Road with Bridge City Steel and Tahoe Corporation across the street, to the southeast by NW Express Avenue with Shell Oil bulk storage across the street, and to the northwest and northeast by the Western Group. The project site is located over 2000 feet from the Willamette River.

The subject site lies at an elevation of approximately 35 to 40 feet above mean sea level.⁵ The subject site and vicinity are generally level with regional topography sloping to the northeast toward the Willamette River. According to the USGS Oregon Water Science Center, depth to ground water at the subject site is expected to be approximately 10 feet below ground surface. According to well logs pertaining to nearby properties, ground water was typically encountered around 10 feet below ground surface.

The direction of shallow ground-water flow in the subject area is generally expected to be to the northeast based on local topography and location southwest of the Willamette River.

2.2 Description of Stormwater Conveyance System

Please refer to Figure 3 – Storm System.

⁴ Portlandmaps.com

⁵ USGS. 2017, Portland 7.5 Minute Topographic Map, Oregon-Washington: USGS 7.5-Minute Series, scale 1:24,000.

All storm water at the site is collected and directed to a treatment vault with associated drywell. During larger storm events, drywell overflow discharges to an adjacent manhole which pumps treated storm water to the City of Portland storm sewer. The two drainage basins shown on Figure 3 represent:

- Drainage Basin A: Primarily roof drainage; however, includes some drainage from a trench drain (TD03) present in a building bay door located in near the northwest corner of the building (door no longer used) as well as storm water run on from the adjacent NW Express Avenue.
- Drainage Basin B: Mixed roof and asphalt-paved area drainage. This includes:
 - Trench drains present in front (southern face) of building bay doors in the center of the building (TD01) and at the southwest corner of the building (TD02).
 - Asphalt-paved area catch basins located near the southeast corner of the building (CB01), south central portion of the building (CB02), and near the center bay door of the building (CB03).

Both drainage basins discharge to a 4-foot x 12-foot pre-cast concrete PerkFilter™ vault (VAULT) outfitted with seven treatment cartridges, which provide filtration and sediment detention.

Treated storm water discharges by gravity flow to a 48-inch diameter, approximately 8-foot-deep dry well manhole (DW01), constructed of pre-formed perforated concrete rings.

Overflow from DW01 (during saturated conditions and/or large rainfall events) discharges south to a 48-inch diameter, approximately 10-foot-deep manhole (PUMP-MH) constructed of pre-formed solid concrete rings outfitted with a duplex pump system rated up to 125 gallons per minute. When activated, this system pumps storm water to the City of Portland storm (only) sewer located in NW Yeon Avenue, which eventually discharges to the Willamette River.

The storm water treatment system on site, including primary source control measures and best management practices, are described in detail in the Storm Water Injection Management Plan provided by ENW to ODEQ.

2.3 Site Ownership and Operating History

Historically, the subject site was occupied by the Rushlight Steel Works Foundry and The Steel Products Company. This land use continued to at least 1940. The original buildings were expanded, and additional buildings were constructed on the site by 1948. By 1980, the site was developed with the current structure and has remained as such to present day. Occupants of the site have included the Rushlight Steel Works Foundry, The Steel Products Company, LaGrand Steel Company, LaGrand Chain Corporation, GTS Interior Supply, McDowell Welding & Pipe Fitting, Inc., Omega Locksmith, and Intrepid Marble and Granite (most recent occupant).

2.4 Environmental Regulatory Review

2.4.1 Underground Injection Control

In 2021, a dry well on site (DW01 on Figure 3) was registered with ODEQ's Underground Injection Control (UIC) program under Facility ID 16205. Storm water discharges to DW01 are managed according to a Storm Water Injection Management Plan.

2.5 Previous Investigations

Multiple previous investigations have been performed on site. The following is a summary of investigative history at the subject site, as reported in the following documents:

- Adapt Engineering, *Phase I Environmental Site Assessment, American Industries, 4000 NW St Helens Road, Portland, Oregon 97210*. Dated December 16, 2015.
- Adapt Engineering, *Limited Phase II Environmental Site Assessment, Intrepid Marble and Granite, 4000 NW St Helens Road, Portland, Oregon 97216*. Dated February 17, 2016.
- Adapt Engineering, *Extended Limited Phase II Environmental Site Assessment, Intrepid Marble and Granite, 4000 NW St Helens Road, Portland, Oregon 97216*. Dated June 13, 2016.
- Amec Foster Wheeler, *Closure Report, 1.77-acre Commercial/Industrial Property, 4000 NW St Helens Road, Portland, Oregon, DEQ ECSI File # 6148*. Dated March 22, 2017.
- Amec Foster Wheeler, *Closure Report Addendum, American Industries, 4000 NW St Helens Road, Portland, Oregon, DEQ ECSI File # 6148*. Dated February 18, 2018.

In 1993, a 5,000-gallon diesel underground storage tank (UST) and a 2,000-gallon gasoline UST were removed from the southeast area of the subject site. Evidence of petroleum release was observed during the tank removal and approximately 48 cubic yards of petroleum impacted soil were removed from the tank excavation pit. Reportedly, ground water was not encountered during decommissioning or soil removal activities. Post-soil removal confirmation samples were collected, and laboratory analysis was non-detect for diesel. ODEQ issued a No Further Action determination for this incident (Leaking Underground Storage Tank [LUST] ID 26-94-0001) in December 1995.

From December 2015 through June 2016, several investigations were performed on site by Adapt Engineering (Adapt) that included a Phase I Environmental Site Assessment (ESA), a Limited Phase II ESA, and an Extended Limited Phase II ESA. In the Phase I ESA, Adapt stated that portions of the former foundry on site had earthen floors and concluded that historical foundry operations had the potential to release metals, petroleum products, phenols, polynuclear aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) at the subject site. To further evaluate site conditions, Adapt collected soil and reconnaissance ground water samples from four temporary soil borings (GP1 through GP4; see Figure 4 for sample locations) and analyzed them selectively for suspected contaminants (except phenols) as part of the Limited Phase II ESA. This investigation identified diesel-range organics (DRO), residual-range organics (RRO) and PAHs in soils (collected between 2 to 7 feet) and low-level residual concentrations of DRO, petroleum-related VOCs and PAHs in ground water. Total arsenic in soil was the only RCRA 8 metal exceeding its respective background concentration for the Portland Metropolitan region. PCBs were not detected in soil or ground water samples above laboratory method reporting limits. Based on the detected concentrations in soil and ground water, Adapt conducted their Expanded Limited Phase II ESA that included advancement of 14 additional soil borings (GP5 through GP18) and analyzing select soil and ground water samples, with the stated objective of further investigating the vertical and lateral extent of contaminant impacts to soil and ground water. This additional investigation revealed the presence of DRO, PAHs, and petroleum-related VOC detections in soil samples GP8, GP12, GP13, and GP18, located in the presumed down gradient direction from the former diesel UST. DRO and selected PAHs were detected in reconnaissance ground water samples from borings GP-5 and GP-12. No VOCs were detected in any of the reconnaissance ground water samples. Adapt concluded that the contamination appeared to be aged and was likely released a significant time before their investigation. The most elevated impacts in soil and ground water were isolated near the place of original discovery (boring GP1) near the south side of the

subject site, east of the retail sales office near NW Express Avenue. According to Adapt's estimates, the external footprint of soil impacts measured about 500 to 600 square feet in area. Available data indicated ground water impacts extend northeast from GP1 and possibly beneath NW Express Avenue.

On October 13, 2016, the subject site was enrolled in the Voluntary Cleanup Program (VCP) with intent to pursue a determination of No Further Action determination for the petroleum release on site.

In March 2017, Amec Foster Wheeler (Amec) submitted a Site Closure Report to ODEQ for the subject site. The report included a summary of site history and environmental investigations, a data review of ground water results from two wells located east of NW Express Avenue on property owned by Shell Oil Terminal (ECSI 169), a screening level human health risk assessment, and discussion of the potential for risk to ecological receptors. Both ground water monitoring wells on the Shell Terminal Property were "non-detect" for petroleum impacts based on most recent data collected in February 2012. Since these wells appeared unimpacted, AMEC concluded that ground water impacts likely do not extend beyond the public right-of-way (ROW). Amec requested risk-based closure for the site, based on their risk assessment. In a May 31, 2017 correspondence letter, ODEQ identified the following data gaps and administrative issues that would need be addressed prior to issuance of closure:

1. Completion of the delineation of the extent of diesel impacts in shallow groundwater related to the decommissioned UST.
2. Evaluation of available records regarding former historical foundry activities on site and evaluation of the potential for ground water impacts to have resulted from these activities.
3. Completion of an upland storm water source control evaluation for the site to evaluate whether the site requires cleanup or control measures or is not a source of contamination to the Portland Harbor Superfund site.

In February 2018, Amec completed a Limited Subsurface Investigation following an ODEQ-approved work plan in order to characterize the nature and extent of soil and ground water contaminants of interest (COIs) related to the former diesel UST release and historical foundry and plating shop operations at the site. Amec selectively sampled soil and reconnaissance ground water samples from six borings (AB-01 through AB-06, see Figure 4), four of which were advanced in the adjacent right-of-way beneath NW Express Avenue and one of which was placed down gradient of the former foundry and plating operations. RRO and trace levels of PAHs were reported in soil from three borings (borings AB-1, AB-2, and AB-5) at the sampled depth between 5.5-6.5 feet bgs. All RCRA 8 metals in soil were below background levels for the Portland Metro region. Reconnaissance ground water samples from five borings samples did not contain DRO or RRO above their respective laboratory method reporting limits (MRLs), and all RCRA 8 metals were either not detected or were below applicable occupational cleanup levels. Amec concluded that petroleum hydrocarbons and PAHs in soil and ground water decreased with distance from the source area, and that DRO and RRO extended a limited distance beneath NW Express Avenue; however, attenuated to non-detect at approximately 75 feet (see Figure 4 for estimate extent of impacts in ground water). Based on results from boring AB-05, which did not contain elevated metals normally associated with plating and foundry activities, AMEC concluded that historical operations at the subject property did not result in significant or widespread impacts to soil or ground water. AMEC further concluded that soil and ground water samples were below RBCs for applicable and complete exposure pathways and that COIs in soil and ground water do not pose unacceptable risk to current and future human receptors. Amec

requested ODEQ issue a No Further Action determination for the subsurface impact concerns identified in ODEQ's May 31, 2017 Closure Letter.

In May 2018, ODEQ responded to the Client that the work recently documented by Amec UST) supports ODEQ's previous No Further Action determination regarding the former diesel fuel UST at the site.⁶

3.0 Potential Sources and Contaminants of Interest

3.1 Potential On-Site Sources

An inventory of hazardous substances stored on site was performed on September 15, 2021. It should be noted that the subject site is currently vacant and that these materials have been subsequently removed from the site. Substances noted on site at that time are as follows:

- Hydraulic oil
- Other various oils (gear, pump, vacuum seal pump, motor)
- Brake cleaner
- Paint
- Primer
- Isopropyl grease
- WD-40
- Gasoline
- Enamel
- Propane
- Diesel
- Polyester adhesive
- Grout
- Brake fluid
- Caulk
- General cleaners (glass, all purpose)
- Bleach
- Magiclean soap
- Mapelastic

All of the above materials arrived in original containers with no container exceeding 5-gallons in capacity. The materials were unloaded from delivery vehicles at covered loading docks then stored over concrete inside the shop building. No drains were noted within the shop building during the inventory; therefore, it is unlikely that a spill of any of these materials inside the shop building would result in contact with storm water. ENW has concluded that the above materials do not represent significant materials because they are unlikely to come into contact with storm water.

Based on ENW's understanding of historical and current land use and site characteristics, the sources for potential project site-related contaminants are as follows:

- Parking Lots, Drives: typical parking lot and roadway pollutants (total suspended solids [TSS], oil and grease, copper, and zinc from truck traffic on site.
- Petroleum-related VOCs, PAHs, DRO, RRO and arsenic from former releases on site.
- The facility buildings have metal roofs that have the potential to leach metals, including zinc, into storm water.

3.2 Potential Off-Site Sources of Contaminants of Interest

The subject site is located in an industrial area of northwest Portland at the eastern boundary of City of Portland Basin 19. Adjacent properties are industrial in use and include a bulk fuel storage facility (Shell

⁶ ODEQ. May 3, 2018. Letter to American Industries, Inc. regarding Closure Report Addendum, ECSI # 6148

Oil Terminal) across NW Express Road to the southeast, a wire mesh and perforated plate manufacturer (Western Wire Works) to the north and west, and a steel fabrication company (Bridge City Steel) to the south, across NW St Helens Road. The Shell Terminal lies within a different drainage basin (discharging storm water to City of Portland Outfall 18) and is unlikely to directly impact discharges to Outfall 19. Western Wire Works, Bridge City Steel and other industrial properties along NW St. Helens Road are contributors of storm water discharges at OF19.

3.3 Contaminants of Interest

Based on current and historical site use, and potential COIs previously identified by the City of Portland for Outfall 19, COIs in storm water discharging from the subject site include the following.

- PCBs
- PAHs
- Phthalates
- Petroleum-related VOCs (specifically: benzene, toluene, ethylbenzene, total xylenes)
- Selected metals: copper, lead, nickel, and zinc
- TPH by NWTPH-Gx and NWTPH-Dx and
- TSS.

ENW does not believe it necessary to include the remaining PCOIs associated with off-site sources identified in Section 3.2, or remaining Portland Harbor surface water and/or sediment COCs present on Table 17 of the Portland Harbor Record of Decision due to the site's current configuration and because the potential for impacts to the subject site from historical uses has been evaluated through previous environmental site assessments conducted by others (see section 2.4). Historical releases have been characterized and no areas of highly impacted soil or ground water have been identified. Since ground water is shallow and can occasionally comeingle with storm water, historical and current industrial use of the site is identified as a potential source of some but not all of the storm water COI identified by the Portland Harbor ROD. Furthermore, the current site configuration is simple. Most of the site is roofed, and thus most of the storm water from the subject site is from roof runoff. There is a very small area of asphalt drive surface discharging storm water to the storm water system, and no significant landscaping. As previously discussed, there are no significant materials currently onsite, and characteristics of discharge from the limited asphalt surfaces are expected to be similar to typical parking lot storm water discharge. Hence, ENW believes the COIs listed above are sufficient to characterize storm-water discharges from the site, including from its historical industrial use, and ongoing roof and drive surface runoff.

4.0 Evaluation of Storm Water Pathways

Only one complete pathway for potential sources of contaminants from the subject site to impact Portland Harbor sediments was identified:

- Discharge of contaminants via storm water conveyance lines to the Willamette River.

This potential storm-water pathway is discussed in more detail below.

4.1 Storm Water Discharges to City Conveyance Lines

As described in Section 2.2, all storm water is collected at the site and directed to a treatment vault and drywell. During large storm events, drywell overflow discharges to an adjacent manhole which pumps treated storm water to the City of Portland storm sewer.

According to utility as-built drawings provided by City of Portland ⁷ and based on observations during a recent emergency vault replacement action, storm water from the subject property enters a 3-inch pipe that flows north to a City storm-only sewer connection on NW Yeon Avenue. From there, storm water flows northwest to the intersection of NW St. Helens Road and NW Kittridge Avenue, joining additional inflow from several industrial properties along NW Yeon Avenue before discharging to City manhole AAT496 at the intersections of NW St. Helens Road, NW Yeon Avenue, and NW Kittridge Avenue. The flow is combined with three additional storm water pipes at manhole AAT496, including a storm line from the southeast serving industrial properties along NW St Helens Avenue, a storm line from the west beneath Highway 30 and another storm line from Forest Park. From manhole AAT496, the combined storm water flows north beneath Kittridge Avenue to manhole AAP918, where storm water flow is joined by additional storm pipes from the east and west beneath NW Front Avenue. There are no additional inlets downstream of manhole AAP918 before storm water is discharged to the Willamette River at outfall 19.

The storm water from the subject site that enters the City storm system is not likely to come in contact with facility activities (which are almost entirely conducted inside the building). Additionally, no current sources of COIs have been identified at the subject site (see Section 3.1) with the exception of the building roof area (sheet metal) and limited areas of asphalt paving.

5.0 Ongoing Storm Water Management Measures

The following best management practices (BMPs) are employed to minimize pollutant contact with storm water runoff:

- Storage of product is exclusively indoors.
- Recycling/waste dumpsters are covered and located away from catch basins.
- Truck cleaning, maintenance, and repair activities are prohibited for loading/unloading vehicles.
- Routine inspection of truck parking/waiting areas to collect refuse and identify excessive oil and grease accumulation.
- Monthly sweeping to remove sediment and debris that might otherwise be transported to the storm water system including vacuuming of paved surfaces in and near truck-travelled areas.
- Routine cleaning of storm water features to prevent buildup of silt, leaves, and other debris. Cartridge filters are regularly inspected and maintained.
- Routine inspections to identify, contain, report, and remove accidental spills.
- Annual training of employees in BMPs.

These practices are outlined in the ODEQ-approved Storm Water Injection Management Plan⁸ for the facility and is referenced in lease terms.

⁷ Portlandmaps.com

⁸ ENW. February 26, 2021. Storm Water Injection Management Plan: Intrepid Marple and Granite

5.1.1 Maintenance of the Storm Water Treatment System

As outlined in the ODEQ-approved Storm Water Injection Management Plan,⁸ the storm water treatment system is maintained following City of Portland recommended BMPs for catch basins and drywells, and the Perkfilter™ Inspection and Maintenance Guide provided by the filter vault manufacturer (see Attachment B). Sediment accumulation within the treatment vault, if any, is removed and disposed of following these BMPs.

6.0 Data Collection and Interpretation

6.1 Conveyance Line Cleaning

Conveyance line cleaning was performed by Storm Water Services of Bend, Oregon (SWS) on November 16, 2021, as part of an emergency vault replacement project, which included cleaning all trench drains (TD01 through TD03), onsite catch basins CB01 through CB03, and newly installed Perkfilter treatment vault. Rinse water and sediments removed from the system were disposed at Patriot Environmental Services in Portland, Oregon for disposal.

6.2 Storm Water Sampling

6.2.1 Overview and Rationale

The project site has three catch basins and three trench drains. Storm water captured by these features along with roof drain discharge from the onsite building constitute all the storm water being conveyed and discharged to the storm water treatment vault, dry well and (periodically) to the city of Portland storm sewer system.

Storm water samples were collected and analyzed following the methodology described in the Work Plan. The outflow pipe from the dry well to the downstream pump manhole was designated as the sampling point (ML001) as this flow, when it occurs, represents treated storm water discharge entering the City of Portland storm sewer system.

Storm event criteria provided in Appendix A of ODEQ's Source Control Evaluation Guidance document were used to select the storm events to be sampled:

- Antecedent dry period of at least 24 hours preceding the sample event (as defined by <0.1 inch precipitation over the previous 24 hours).
- Minimum predicted rainfall volume of 0.2 inch per storm event.
- Expected duration of storm event of at least three hours.

In addition, an attempt was made to collect two samples representative of "first-flush" conditions (i.e., within the first 30 minutes of storm water discharge), and all samples within the first three hours of storm water discharge, to the extent practicable.

6.2.2 SCE Storm Water Sampling

Storm-water sampling events related to the SCE process were completed on November 18, 2021, November 22, 2021, May 18, 2022, June 10, 2022, November 29, 2022, and February 13, 2023. All samples

were collected at the proposed sampling point indicated in the ODEQ approved Work Plan.¹ Stormwater samples were collected from Storm Water Monitoring Location 1 (ML001) during a period when storm water was overflowing from the dry well into the secondary sump. Samples were collected using a decontaminated sampling “scoop” lowered into the central portion of the flow stream (as shown on Figure 2). The sampling location is shown on Figure 3. Chemical analytical data from the sampling events are summarized in Table 1.

A total of six stormwater samples were collected. ODEQ requires collection of four stormwater samples. An additional two samples were collected following limited roof replacement, repair, and recoating work in a portion of the subject building. Maximum detected concentrations from the six sampling events were used for comparison to CULs and SLVs.

All storm-water samples represent grab samples. Samples were temporarily stored on ice until transported to the laboratory under chain-of-custody documentation.

7.0 Data Summary

7.1 Storm Event Data

According to rainfall data gathered from City of Portland’s Hydra Network, the six storm events lasted between 5 and 13 hours in duration and produced between 0.17 inches and 0.55 inches of total measurable precipitation. Storm data for each event, including time of onset, duration, total precipitation, and sample times are summarized below in Table 6-1.

Table 6-1. Storm Event Data

Storm Event No.	Beginning of Storm Event ¹		Duration (hrs)	Total Precip (in)	Sample		Notes/Observations
	Date	Time			Date	Time	
#1	11/18/2021	14:30	18	0.52	11/18/2021	15:20	First discharge observed @ 15:09am
#2	11/22/2021	20:00	13	0.55	11/23/2021	8:48	Storm water discharging upon arrival
#3	5/18/2022	3:00	5	0.17	5/18/2022	5:45	Storm water discharging upon arrival
#4	6/9/2022	16:00	12	0.5	6/10/2022	12:15	Storm water discharging upon arrival
#5	11/29/2022	7:00	13	0.31	11/29/2022	10:35	Storm water discharging upon arrival
#6	2/13/2023	6:00	22	0.35	2/13/2023	8:40	Storm water discharging upon arrival
Notes:							
¹ Based on data from Yeon Rain Gauge, 3395 NW Yeon Avenue, Portland, OR							

A brief summary of the nature of each of the sampling storm events regarding storm event criteria is presented below.

- **Storm event #1 (November 18, 2021).** The storm event began with steady precipitation at 2:30 pm in the afternoon of November 18, 2021, and lasted 18 hours. A total of 0.52 inches of rain was produced during the storm event. The sample was collected at 3:20 pm approximately 11 minutes following first observed discharge.
- **Storm Event #2 (November 23, 2021).** Storm event #2 began the evening of November 22, 2021, after 08:00 pm. The storm event lasted 13 hours and produced 0.55 inches of rain. Storm water sampling was conducted at 8:48 am the following morning.

- **Storm Event #3 (May 18, 2022).** Storm event #3 followed a 55-day dry period and lasted 5 hours with a total precipitation count of 0.17 inches. ENW collected the sample within the first 30 minutes of observable precipitation.
- **Storm Event #4 (June 10, 2022).** Storm event #4 actually consisted of two rain events separated by a dry period lasting 7 hours. The sample was collected at 12:15 pm in the afternoon on June 10, 2022, immediately following the onset of the second rain event. The storm water sample was collected at the onset of the second rain event at 12:15 pm.
- **Storm Event #5 (November 29, 2022).** Storm event #5 began the morning of November 29, 2022 after 07:00 am. The storm event lasted 13 hours and produced 0.31 inches of rain. Storm water sampling was conducted at 10:35 am on November 29, 2022.
- **Storm Event #6 (February 13, 2023).** Storm event #6 actually consisted of several rain events separated by dry periods lasting 1 to 2 hours. The sample was collected at 08:40 am on February 13, 2023, immediately following the onset of the second rain event.

In general, storm and sampling criteria were met during the sampling events, except for Storm Event #3, which saw slightly less rainfall than the required 0.2 inches per storm event. Sampling during Event #4 was not preceded by a full 24-hour dry period. Based on sample time, Samples #1 and #3 are considered to represent first flush conditions and samples #2, #4, #5, and #6 represent stabilized storm water flow conditions.

During each sampling event, the paved areas of the project site were generally free of debris. Storage, parking, and traveled areas appeared generally clean and in order. Rainfall was significant during the sampling activities and stormwater conveyances were observed to have active flow. Before sample collection, the antecedent dry period (less than 0.1 inch of rain in the 24 hours preceding the sampling storm) was met during all five of the six events.

7.2 Storm Water Sample Analytical Results

Stormwater sampling analytical results are summarized in Table 1. Laboratory analytical reports are presented as Appendix E. The analytical results for storm-water samples were compared to the EPA Portland Harbor ROD CULs. If an EPA Portland Harbor ROD CUL was not established for a particular analyte, the JSCS SLVs were used. The following is a brief summary of analytical results from the last four sampling events.

7.2.1 Total Petroleum Hydrocarbons

Diesel-range organics and RRO were both detected during two sampling events; however, DRO and RRO concentrations were flagged as not being indicative of the fuel standard used for quantitation. These data suggest initial sample results may have been biased high by biogenic effects (i.e., decaying leaves and other organic matter in contact with storm water).

There are no screening levels established for DRO and RRO. The highest residual levels of DRO and RRO detected in samples (370 micrograms per liter [$\mu\text{g/L}$] and 550 $\mu\text{g/L}$, respectively) are not elevated above the NPDES 1200Z permit benchmarks for oil and grease.

7.2.2 Total Metals

Laboratory analysis by EPA 6020 reported the following total metals results:

- Copper was detected at up to 7.62 µg/L, exceeding both its ROD CUL and JSCS SLV during “first-flush” sample from Event #3 and stabilized storm water samples from Events #5 and #6. Copper was below both screening levels in the stabilized storm water sample from Event #4.
- Lead was detected at up to 4.71 µg/L, exceeding its JSCS SLV during three of the four sampling events.
- Nickel was detected at up to 2.54 µg/L, below its JSCS SLV during all four sampling events.
- Zinc was detected at up to 2850 µg/L, exceeding both its ROD CUL and JSCS SLV during all four sampling events.

7.2.3 Polynuclear Aromatic Hydrocarbons

PAH constituents were detected in all four storm water samples collected between May 2022 and February 2023. Several PAH constituents exceeded their respective EPA Portland Harbor ROD CULs. The concentrations in the sample from Event #5 were the highest concentrations detected, with the next highest concentrations reported in the sample from Event #6.

The following PAH constituents exceeded their respective CULs and SLVs:

- Benz(a)anthracene was detected during Event #5 only at 0.015 µg/L, exceeding its ROD CUL of 0.0012 µg/L.
- Benzo(a)pyrene was detected at up to 0.027 µg/L, exceeding its ROD CUL of 0.00012 µg/L during both Events #5 and #6. Benzo(a)pyrene exceeded its JSCS SLV of 0.018 µg/L during Event #5 only.
- Benzo(b)fluoranthene was detected at up to 0.052 µg/L, exceeding its ROD CUL of 0.0012 µg/L and JSCS SLV of 0.018 µg/L during both Events #5 and #6.
- Benzo(k)fluoranthene was detected during Event #5 only at 0.013 µg/L, exceeding its ROD CUL of 0.00013 µg/L.
- Chrysene was detected at up to 0.041 µg/L, exceeding its JSCS SLV of 0.018 µg/L during both Events #5 and #6.
- Indeno(1,2,3-cd)pyrene was detected during Event #5 only at 0.02 µg/L, exceeding its ROD CUL of 0.0012 µg/L and its JSCS SLV of 0.018 µg/L.
- All other constituents were either non-detect or detected below their respective ROD CULs and JSCS SLVs.

7.2.4 Phthalate Esters

Only dimethylphthalate was detected in the sample from Event #6. Its concentration did not exceed its JSCS SLV.

7.2.5 Total Suspended Solids

TSS was measured in stormwater samples at between 6.0 mg/L and 34 mg/L.

8.0 Source Control Evaluation

The following sections summarize the evidence used to support our opinion that the storm-water source control at the project site is adequate with prescribed replacement, repair, and recoating of the remaining portion of the roof and that the site does not represent a significant current or future source of contaminant to the Willamette River. Data evaluation and other lines of evidence are discussed below.

It is our opinion that the analytical data are appropriate for the intended purpose. Data quality exceptions are noted in Appendix E. These limited exceptions do not interfere with the evaluation of source control because consistent and replicated data are available with respect to the COIs.

8.1 Data Evaluation

The environmental site assessments conducted at the subject property by others, in combination with site inspections as part of the development of the source control evaluation work plan have led to the development of the list of COIs for this assessment. Based on these prior assessments, the site does not appear to have been significantly impacted by any historical releases or site operations. Additionally, the recent SCE stormwater sampling shows that the source control measures already implemented at the subject property (including the recently replaced storm-water filtration vault) are providing effective control of typical potential pollutants from industrial site parking lots; however, the building's roof area is the likely primary source of zinc in storm water exceeding screening levels.

8.1.1 Evaluation of Current Storm Water Data with DEQ's *Tool for Evaluating Storm Water*

ENW compared the analytical data from the 2022 and 2023 storm-water sampling activities to the charts presented in Appendix E of the Upland Guidance document to evaluate if the concentrations of contaminants were representative of typical industrial stormwater. Of the 13 constituents with charts, six of the constituents (copper, lead, nickel, zinc, total PAHs, and total suspended solids) were detected in two or more of the four storm water samples five constituents (arsenic, cadmium, chromium, mercury, and silver) were not identified as COIs.

Charts are provided in the tool to evaluate contaminant concentrations at industrial sites in the Portland Harbor area. The concentrations are charted in a curve, which includes a flat portion and a steep portion. The transition area is called the "knee" of the curve. Concentrations within the flat area of the curve are considered typical of industrial sites, while concentrations higher than the knee may represent elevated concentrations.

In the case of five of the six detected constituents, the detected concentrations were in the low range of the lower/flatter portions of the curves suggesting that storm water is not being unusually impacted by contaminants at the site and is therefore representative of "typical" industrial storm water. The comparison of project site stormwater sample analytical results to other industrial sites using the ODEQ tool is presented in Appendix D.

Zinc was the only constituent measured in project site stormwater above the typical industrial range in the Portland Harbor vicinity. Constituents detected above the CULs/SLVs during the source control sampling can sometimes be associated with particulate deposition from vehicles, which may be an intermittent source to subject site storm water. In any event, the data already collected with respect to storm water at the project site are sufficient to establish that it is highly unlikely that an on-site source of

these constituents is present at the project site connected to current or historic site operations, with the exception of zinc.

As confirmed by data collected directly from the roof drains by ENW, elevated concentrations of zinc in subject site storm water is likely the result of roof runoff. The property owner has replaced, repaired, and recoated a large portion of the roof already and based on the favorable data from roof discharge in those areas (RD02 and RD04), is planning to do the same in the remaining roof areas during the summer of 2023. See Table 2 for roof drain sampling data and Appendix B for laboratory analytical reports.

8.2 Other Lines of Evidence

The subject property most recently operated as a business that has no known significant usage of copper, lead, zinc, or PAHs currently at the project site. Recent storm water sampling (December 2021 and March 2022) under the Storm Water Injection Management Plan shows that current source control measures are effectively managing any potential pollutants in storm water. The owner and future tenants will continue to use Best Management Practices including sweeping efforts, use of catch basin inserts, and routine maintenance of storm-water conveyance features to prevent the buildup or discharge of COIs in storm water. Ongoing implementation of the BMPs described by the SWIMP and the vault/filtration system's O&M plan should continue to effectively control the site's current, typical industrial storm water contaminant sources. If new operations at the subject property have the potential to impact storm water, the application for and operation under a new NPDES permit would ensure appropriate storm water source control measures are in place.

9.0 Findings and Conclusions

ENW has conducted SCE activities (including reviews of site storm-water source control measures) at the project site located at 4000 NW St Helens Road in Portland, Oregon. These activities were performed in accordance with an ODEQ work plan, ODEQ's *Guidance for Evaluating the Stormwater Pathway at Upland Sites*, dated January 2009 (updated October 2010); ODEQ/EPA's *Portland Harbor Joint Source Control Strategy*, dated December 2005; and the *EPA Record of Decision, Portland Harbor Superfund Site*, dated January 2017. The results of the SCE activities indicate the following:

1. Existing and potential facility-related contaminant sources have been identified and characterized:
 - a. The potential sources to impact river sediments are constituents in storm water. This potential source has been fully characterized by investigations performed pursuant to DEQ-approved work plans.
 - i. Substances detected and the basis for deciding that all sources have been identified and characterized are as follows:
 - a) In storm-water samples, some metals and PAHs were detected at concentrations exceeding the most conservative CULs or SLVs. However, with the exception of zinc, all of these contaminants are present at concentrations below "typical industrial stormwater concentrations" per ODEQ's *Tool for Evaluating Stormwater Data* (see Appendix D).

- b) In storm water, zinc has been detected exceeding its ROD CUL and JSCS SLV and also exceed what are considered typical of industrial storm water. The source of elevated levels of zinc in storm water was further investigated and determined to likely related to roof runoff. To mitigate zinc in storm water, the property owner has begun to repair, replace and recoat building roof areas. Based on additional testing for roof water discharge following replacement efforts in some areas of roofing, the concentrations of zinc in roof water discharge are below “typical industrial stormwater concentrations” per ODEQ’s *Tool for Evaluating Stormwater Data*, and is in the lower part of the flat portion of the curve (see Appendix D).
 - c) For other constituents evaluated as part of this SCE, the discharge of contaminants via storm water conveyance lines pathway is considered controlled and insignificant for the migration of contaminants to the Willamette River.
2. Potential storm-water contaminant sources are being controlled to the extent feasible:
- a. Particulate matter on paved surfaces is controlled by regular site sweeping and good housekeeping practices. Buildup of catch basin sediments is controlled by regular cleaning of catch basins and catch basin filters are maintained and/or replaced as needed.
 - b. Recent and future tenants minimize exposure of pollutants to storm water by implementing the above-mentioned BMPs and also by storing all significant materials indoors. Except for loading and unloading of raw and finished products at the facility loading docks, industrial activities are entirely conducted indoors.
 - c. Additional source control measures are being implemented to control pollutants in roof runoff that exceed SLVs. The selected control measures include completing the roof replacement, repair, and recoating work in remaining areas of building roofing in the Summer of 2023 to eliminate leaching of zinc into storm water on site.
3. The remaining contaminants in stormwater (metals and PAHs) that continue to exceed CULs/SLVs, in spite of current source control measures and storm-water management measures are not likely to result in sediment contamination in the Willamette River or contribute to unacceptable risk:
- a. Stormwater contaminants may occasionally exceed the CULs/SLVs; however, are generally in the typical range of industrial storm water in Portland Harbor, with the exception of zinc, which the Client is in the process of mitigating.
 - b. It is estimated that approximately 20 percent of storm water falling on the site infiltrates into the ground surface via the dry well on site and is never discharged to the Willamette River. The remaining 80 percent is treated before it is discharged to the City’s storm sewer and subsequently to the Willamette River. With the exception of zinc, constituents in treated storm water are present at concentrations below “typical industrial stormwater concentrations” per ODEQ’s *Tool for Evaluating Stormwater Data* (see Appendix D).

After additional source control measures related to the roof are implemented, and based on the findings of this SCE, no further investigation and/or remedial action are anticipated to be needed at this time. Therefore, based on ongoing management of both onsite storm water facilities and impacted media, we request that ODEQ issue a formal Source Control Decision and subsequent determination of No Further

Action Required for this facility, considering that (1) the site has been adequately characterized, sources and pathways for mobilization of contaminants have been addressed, and sufficient monitoring has been completed to confirm that contaminants are not leaving the site at levels presenting unacceptable risk; and (2) the site is eligible for a determination that it is not a past, current or reasonably likely future source of contamination to the Willamette River and that additional source control measures are not required.

10.0 Limitations

The scope of this report is limited to observations made during on-site work; interviews with knowledgeable sources; and review of readily available published and unpublished reports and literature. As a result, these conclusions are based on information supplied by others as well as interpretations by qualified parties.

The focus of the work does not extend to the presence of the following conditions:

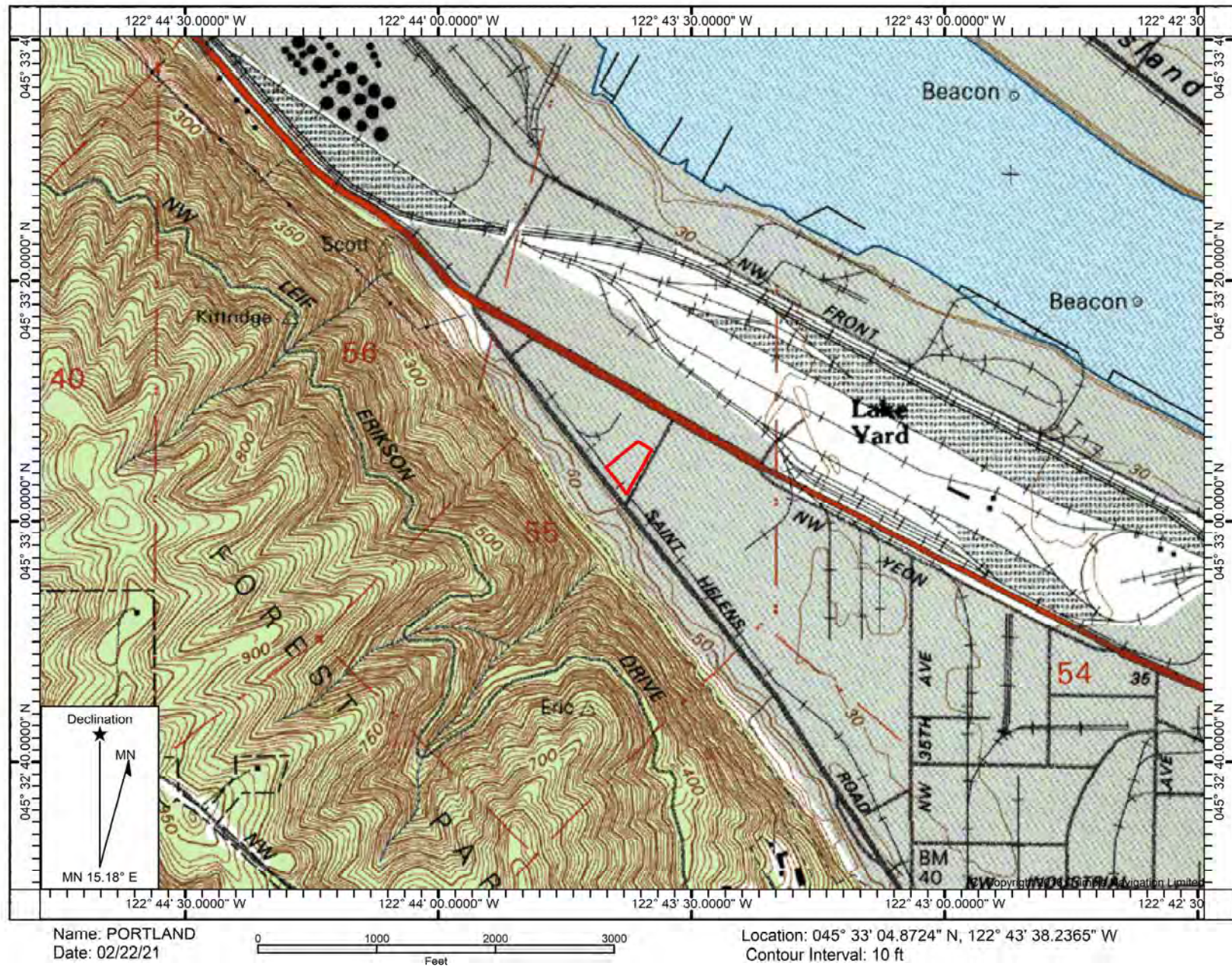
1. Naturally occurring toxic or hazardous substances in the subsurface soils, geology and water,
2. Toxicity of substances common in current habitable environments, such as stored chemicals, products, building materials and consumables,
3. Contaminants or contaminant concentrations that are not a concern now but may be under future regulatory standards,
4. Unpredictable events that may occur after ENW's site work, such as illegal dumping or accidental spillage.

There is no practice that is thorough enough to absolutely identify the presence of all hazardous substances that may be present at a given site. ENW's investigation has been focused only on the potential for contamination that was specifically identified in the Scope of Work. Therefore, if contamination other than that specifically mentioned is present and not identified as part of a limited Scope of Work, ENW's environmental investigation shall not be construed as a guaranteed absence of such materials. ENW has endeavored to collect representative analytical samples for the locations and depths indicated in this report. However, no sampling program can thoroughly identify all variations in contaminant distribution.

We have performed our services for this project in accordance with our agreement and understanding with the client. This document and the information contained herein have been prepared solely for the use of the client.

ENW performed this study under a limited scope of services per our agreement. ENW assumes no responsibility for conditions that we did not specifically evaluate or conditions that were not generally recognized as environmentally unacceptable at the time this report was prepared.

Figures

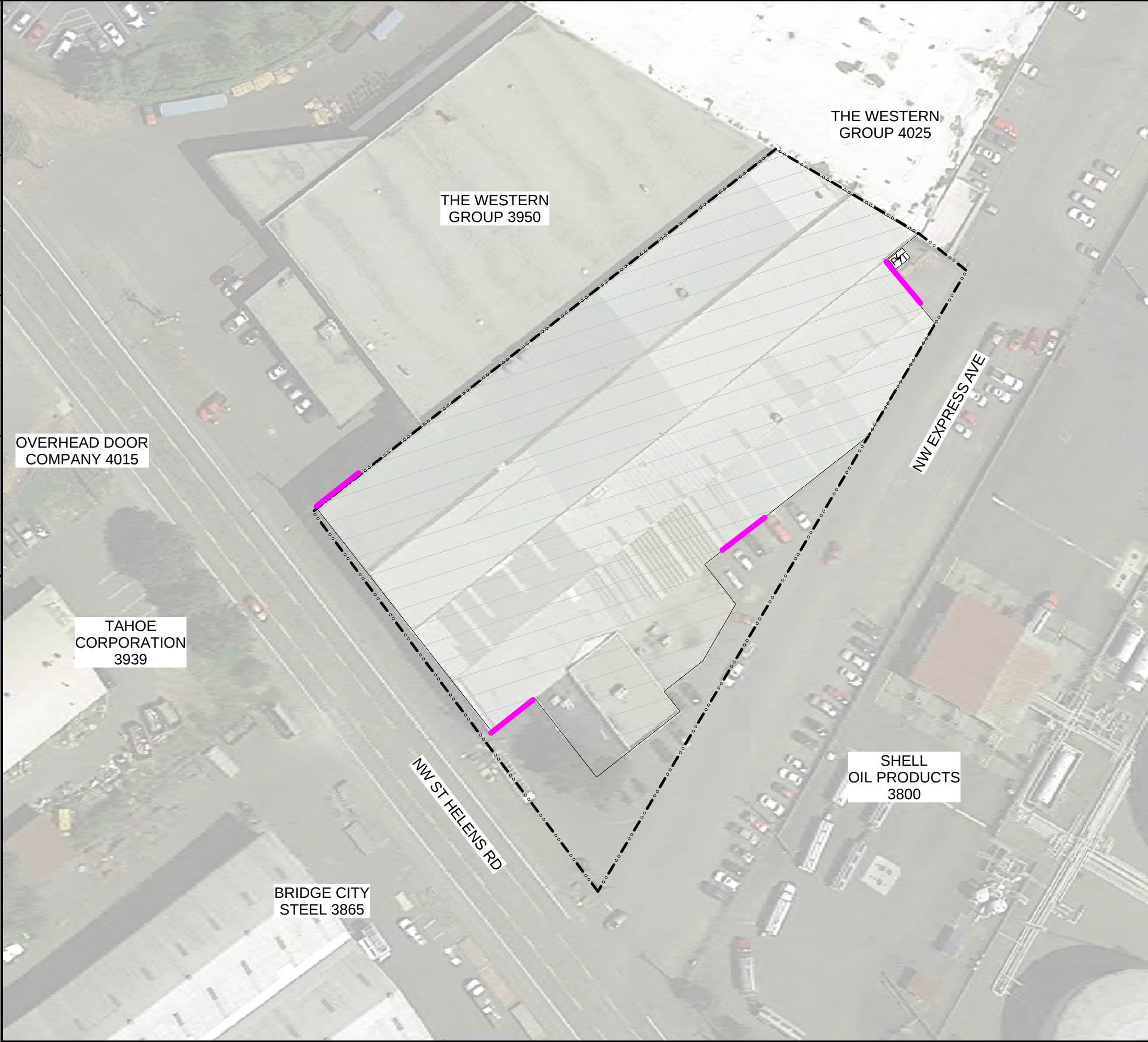


Date Drawn: 2/22/2021
CAD File Name: 1206-19001-04_fig1sv_map
Drawn By: CLR
Approved By: LDG

Intrepid Marble and Granite
4000 NW St Helens Road
Portland, Oregon

Site Vicinity Map

Project No.
1260-19001
Figure No.
1



LEGEND:

SUBJECT BUILDINGS

SUBJECT PROPERTY BOUNDARIES

ROLL UP DOOR

PAD TRANSFORMER

- NOTES:
1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2018 AND ENW FIELD NOTES.

2. ALL BUILDING, STREET, AND FEATURE LOCATIONS ARE APPROXIMATE.

3. SYMBOLS REPRESENT LOCATION AND DO NOT ALWAYS REPRESENT EXACT SHAPE, SIZE, OR ORIENTATION.

APPROXIMATE SCALE

0

60

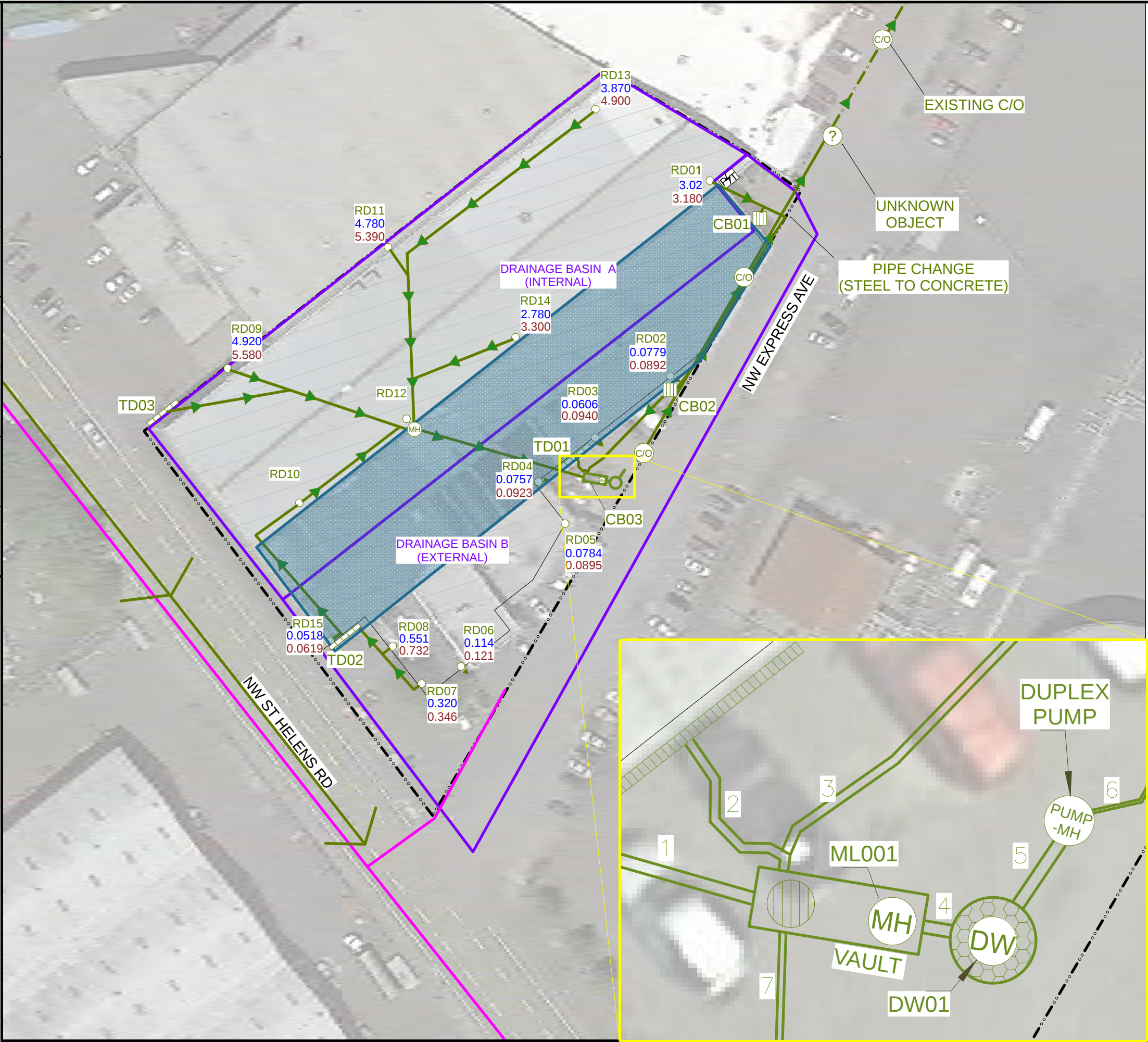
120FEET

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FIGURE 2

SITE PLAN

INTREPID MARBLE AND GRANITE
4000 NW ST HELENS ROAD
PORTLAND, OREGON



LEGEND:

SUBJECT BUILDINGS

SUBJECT PROPERTY BOUNDARIES

DRAINAGE BASIN BOUNDARY

REPLACED ROOF

PAD TRANSFORMER

MANHOLE

TRENCH DRAIN

ML001

CATCH BASIN

RD

STORM SYSTEM

DRYWELL

C/O

FLOOR DRAIN

1

12" INNER DIAMETER PVC

2

8" INNER DIAMETER STEEL

3

8" INNER DIAMETER CONCRETE

4

12" INNER DIAMETER PVC

5

12" INNER DIAMETER PVC

6

3" INNER DIAMETER PIPE TO CITY STORM SEWER

7

6" INNER DIAMETER PVC

VAULT DIMENSIONS:
LENGTH: 11'
WIDTH: 4'
DEPTH: 6'9"

SANITARY SEWER PIPE
(PER PORTLAND MAPS)

3.02

DISSOLVED METALS (mg/L)

3.08

TOTAL METALS (mg/L)

- NOTES:
1.

BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2018 AND ENW FIELD NOTES.
2.

ALL BUILDING, STREET, AND FEATURE LOCATIONS ARE APPROXIMATE.
3.

SYMBOLS REPRESENT LOCATION AND DO NOT ALWAYS REPRESENT EXACT SHAPE, SIZE, OR ORIENTATION.

APPROXIMATE SCALE

0

60

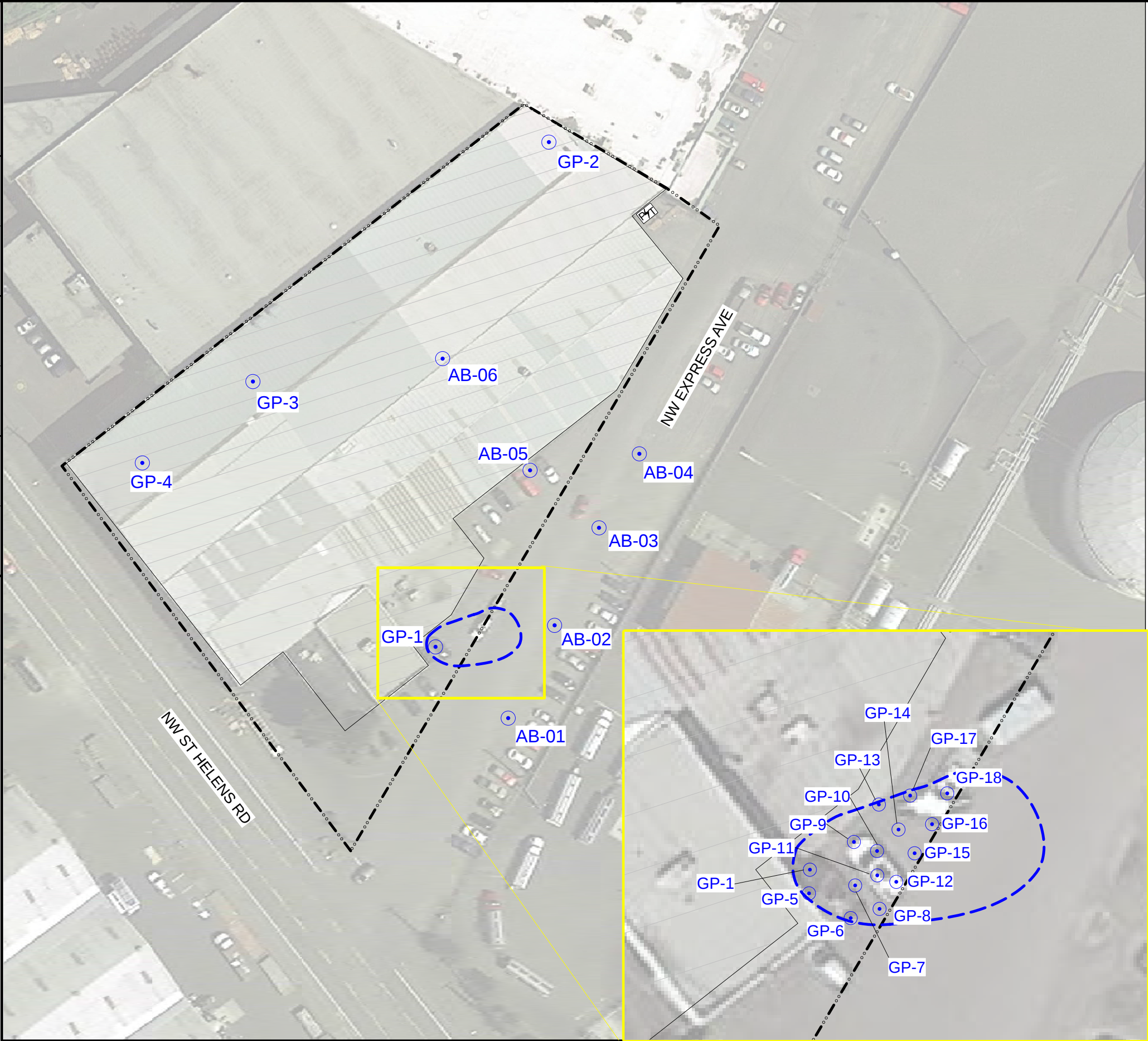
120 FEET

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FIGURE 3

STORM SYSTEM

INTREPID MARBLE AND GRANITE
4000 NW ST HELENS ROAD
PORTLAND, OREGON



LEGEND:

	SUBJECT BUILDINGS
	SUBJECT PROPERTY BOUNDARIES
	PAD TRANSFORMER
	GP-01 FORMER BORING LOCATION PER AMERICAN INDUSTRIES 2018
	ESTIMATED EXTENT OF IMPACTS

- NOTES:
1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2018 AND ENW FIELD NOTES.
 2. ALL BUILDING, STREET, AND FEATURE LOCATIONS ARE APPROXIMATE.
 3. SYMBOLS REPRESENT LOCATION AND DO NOT ALWAYS REPRESENT EXACT SHAPE, SIZE, OR ORIENTATION.

APPROXIMATE SCALE

0 60 120 FEET

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FIGURE 4
SAMPLE LOCATION DIAGRAM
INTREPID MARBLE AND GRANITE
4000 NW ST HELENS ROAD
PORTLAND, OREGON



LEGEND:

SUBJECT PROPERTY BOUNDARIES

STORM SYSTEM

OUTFALL (AS IDENTIFIED BY PORTLAND MAPS)

- NOTES:
- 1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP DATED 2018 AND ENW FIELD NOTES.
 - 2. ALL BUILDING, STREET, AND FEATURE LOCATIONS ARE APPROXIMATE.
 - 3. SYMBOLS REPRESENT LOCATION AND DO NOT ALWAYS REPRESENT EXACT SHAPE, SIZE, OR ORIENTATION.

APPROXIMATE SCALE

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FIGURE 5

STORM WATER OUTFALL

INTREPID MARBLE AND GRANITE
4000 NW ST HELENS ROAD
PORTLAND, OREGON

Table 1 - Summary of Analytical Data, Storm Water

Sample Event ID	Event #1	Event #2	Event #3	Event #4	Event #5	Event #6	Maxumum Detected Concentration (last 4 sampling events)	EPA Portland Harbor ROD Cleanup Levels (µg/L)	JSCS SLV (µg/L)	Maximum detected concentration exceed ROD Cleanup Level or JSCS SLV?
Sample ID	SW-DISCH-211118	SW-Disch-211123	DW01-220518	DW01-220610	ML001-SW-221129	ML001-SW-230213				
Date Collected	11/18/2021	11/23/2021	5/18/2022	6/10/2022	11/29/2022	2/13/23				
Time Collected	15:20	8:48	5:45	12:15	10:35	8:40				
Sampled by	ENW	ENW	ENW	ENW	ENW	ENW				
Sample Location	ML001									TRUE OR Y FALSE OR N
Analyte	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	
Gasoline-, Diesel- and Residual(Oil)-Range Petroleum Hydrocarbons										
Gasoline-range	<100 (ND)	<100 (ND)		<100 (ND)	<100 (ND)	<100 (ND)	<100 (ND)	NE	NE	N
Diesel-range	<50 (ND) sg	26 sg	<50 (ND) sg	<50 (ND)	370 x	270 x	370 x	NE	NE	N
Oil-range	57 sg j	<120 (ND) sg	<250 (ND) sg	<250 (ND)	550 x	390 x	550 x	NE	NE	N
Total Metals										
Copper	3.93	2.34	3.96	1.78	7.62	5.01	7.62	2.74	2.7	Y
Lead	4.1	1.10	1.97	0.54	4.71	3.1	4.71	NE	0.54	Y
Nickel	1.2	<1 (ND)	1.31	1.14	2.54	1.62	2.54	NE	16	N
Zinc	2970	1880	2850	2240	2780	2660	2850	36.5	36	Y
PCBs										
Aroclor 1016	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.0019 (ND) j	<0.01 (ND)	<0.01 (ND)	NE	0.96	N
Aroclor 1221	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.0019 (ND) j	<0.01 (ND)	<0.01 (ND)	NE	0.034	N
Aroclor 1232	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.0019 (ND) j	<0.01 (ND)	<0.01 (ND)	NE	0.034	N
Aroclor 1242	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.0019 (ND) j	<0.01 (ND)	<0.01 (ND)	NE	0.034	N
Aroclor 1248	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.0019 (ND) j	<0.01 (ND)	<0.01 (ND)	NE	0.034	N
Aroclor 1254	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.0019 (ND) j	<0.01 (ND)	<0.01 (ND)	NE	0.034	N
Aroclor 1260	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	0.0045	0.017	0.017	NE	0.034	N
Aroclor 1262	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.0019 (ND) j	<0.01 (ND)	<0.01 (ND)	NE	0.034	N
Aroclor 1268	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	<0.0019 (ND) j	<0.01 (ND)	<0.01 (ND)	NE	0.034	N
Phthalate Esters										
Dimethylphthalate	0.87	<1 (ND)	<0.5 (ND)	<0.5 (ND)	<1 (ND)	1.2	1.2	NE	3	N
Diethylphthalate	<0.5 (ND)	<1 (ND)	<0.5 (ND)	<0.5 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	NE	3	N
Di-n-butylphthalate	<0.5 (ND)	<1 (ND)	<0.5 (ND)	<0.5 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	NE	3	N
Butylbenzylphthalate	<0.5 (ND)	<1 (ND)	<0.5 (ND)	<0.5 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	NE	3	N
Di-n-octylphthalate	<0.5 (ND)	<1 (ND)	<0.5 (ND)	<0.5 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	NE	3	N
bis(2-Ethylhexyl)phthalate	<0.8 (ND)	<1.6 (ND)	<0.8 (ND)	<0.8 (ND)	<1.6 (ND)	<1.6 (ND)	<1.6 (ND)	NE	2.2	N
Semi-Volatile Organic Constituents/Polycyclic Aromatic Hydrocarbons										
Acenaphthene	<0.005 (ND)	<0.004 (ND) j	<0.005 (ND)	<0.005 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	NE	0.2	N
Acenaphthylene	<0.005 (ND)	<0.004 (ND) j	<0.005 (ND)	<0.005 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	NE	0.2	N
Anthracene	<0.005 (ND)	<0.004 (ND) j	<0.005 (ND)	<0.005 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	NE	0.2	N
Fluorene	<0.005 (ND)	<0.004 (ND) j	<0.005 (ND)	<0.005 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	NE	0.2	N
1-Methylnapthalene	<0.05 (ND)	<0.01 (ND) j	<0.05 (ND)	<0.05 (ND)	<0.1 (ND)	<0.1 (ND)	<0.1 (ND)	NE	NE	N
2-Methylnapthalene	<0.05 (ND)	<0.01 (ND)	<0.05 (ND)	<0.05 (ND)	<0.1 (ND)	<0.1 (ND)	<0.1 (ND)	NE	0.2	N
Naphthalene	<0.05 (ND)	<0.01 (ND)	<0.05 (ND)	<0.05 (ND)	<0.1 (ND)	<0.1 (ND)	<0.1 (ND)	NE	0.2	N
Phenanthrene	0.013 fb	0.020	0.0073	<0.005 ND	0.039	0.023	0.039	NE	0.2	N
Benz(a)anthracene	0.0060	<0.01 (ND)	<0.005 (ND)	<0.005 (ND)	0.015	<0.01 (ND)	0.015	0.0012	0.018	Y
Benzo(a)pyrene	0.0073	0.010	<0.005 (ND)	<0.005 (ND)	0.027	0.012	0.027	0.00012	0.018	Y
Benzo(b)fluoranthene	0.011	0.012	<0.005 (ND)	<0.005 (ND)	0.052	0.02	0.052	0.0012	0.018	Y
Benzo(k)fluoranthene	<0.005 (ND)	<0.004 (ND) j	<0.005 (ND)	<0.005 (ND)	0.013	<0.01 (ND)	0.013	0.0013	0.018	Y
Benzo(g,h,i)perylene	<0.01 (ND)	0.015	<0.01 (ND)	<0.01 (ND)	0.029	<0.02 (ND)	0.029	NE	0.2	N
Chrysene	0.0073	0.017	<0.005 (ND)	<0.005 (ND)	0.041	0.02	0.041	0.0013	0.018	Y
Dibenz(a,h)anthracene	<0.005 (ND)	0.004 J fb	<0.005 (ND)	<0.005 (ND)	<0.01 (ND)	<0.01 (ND)	<0.01 (ND)	0.00012	0.018	(Y)
Fluoranthene	0.012	0.012	0.0061	<0.005 (ND)	0.050	0.029	0.050	NE	0.2	N
Indeno(1,2,3-cd)pyrene	0.0065	0.008 J	<0.005 (ND)	<0.005 (ND)	0.020	<0.01 (ND)	0.020	0.0012	0.018	Y
Pyrene	0.020	0.027	0.0071	<0.005 (ND)	0.092 ca	0.044	0.092 ca	NE	0.2	N
Volatile Organic Constituents										
Benzene	<0.35 (ND)	<0.35 (ND)	<0.35 (ND)	<0.35 (ND)	<0.35 (ND)	<0.35 (ND)	<0.35 (ND)	NE	5	N
Ethylbenzene	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	7.3	700	N
Toluene	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	<1 (ND)	1.1	1.1	NE	1,000	N
Total Xylenes	<2 (ND)	<2 (ND)	<1 (ND)	<1 (ND)	<2 (ND)	3.6	3.6	NE	10,000	N
Total Suspended Solids										
TSS	8000	9600	6500	6000	30,000	34,000	34000	NE	NE	N

Notes:
ug/L = micrograms per Liter or parts per billion (ppb).
<# (ND) = not detected at or above the laboratory method reporting limit shown.
(YES) indicates analyte not detected, but detection limit is above screening concentration.
x = the pattern of peaks is not indicative of the fuel standard used for quantitation.
fb = the analyte was detected in the method blank.
sg = sample extract cleaned up using silica gel

Table 2 - Summary of Analytical Data, Roof Drains

Sample Event ID	RD02		RD04		Maximum Detected Concentration Pre-Roof Replacement	Maximum Detected Concentration Post Roof Replacement	EPA Portland Harbor ROD Cleanup Levels (µg/L)	JSCS SLV (µg/L)	Maximum detected post-roof replacment concentration exceed ROD Cleanup Level or JSCS SLV?
Sample ID	RD02-SW-220130	RD02-SW-221129	RD04-SW-220130	RD04-SW-221129					
Date Collected	1/30/2022	11/29/2022	1/30/2022	11/29/2022					
Sampled by	ENW	ENW	ENW	ENW					
Sample Location	Roof drain #2	Roof drain #2	Roof drain #4	Roof drain #4					TRUE OR Y FALSE OR N
Analyte	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	
Metals									
Total Zinc	8050	89.2	620	92.3	8050	92.3	NE	0.12	Y
Dissolved Zinc	7590	77.9	592	75.7	7590	78	36.5	36	Y

Notes:

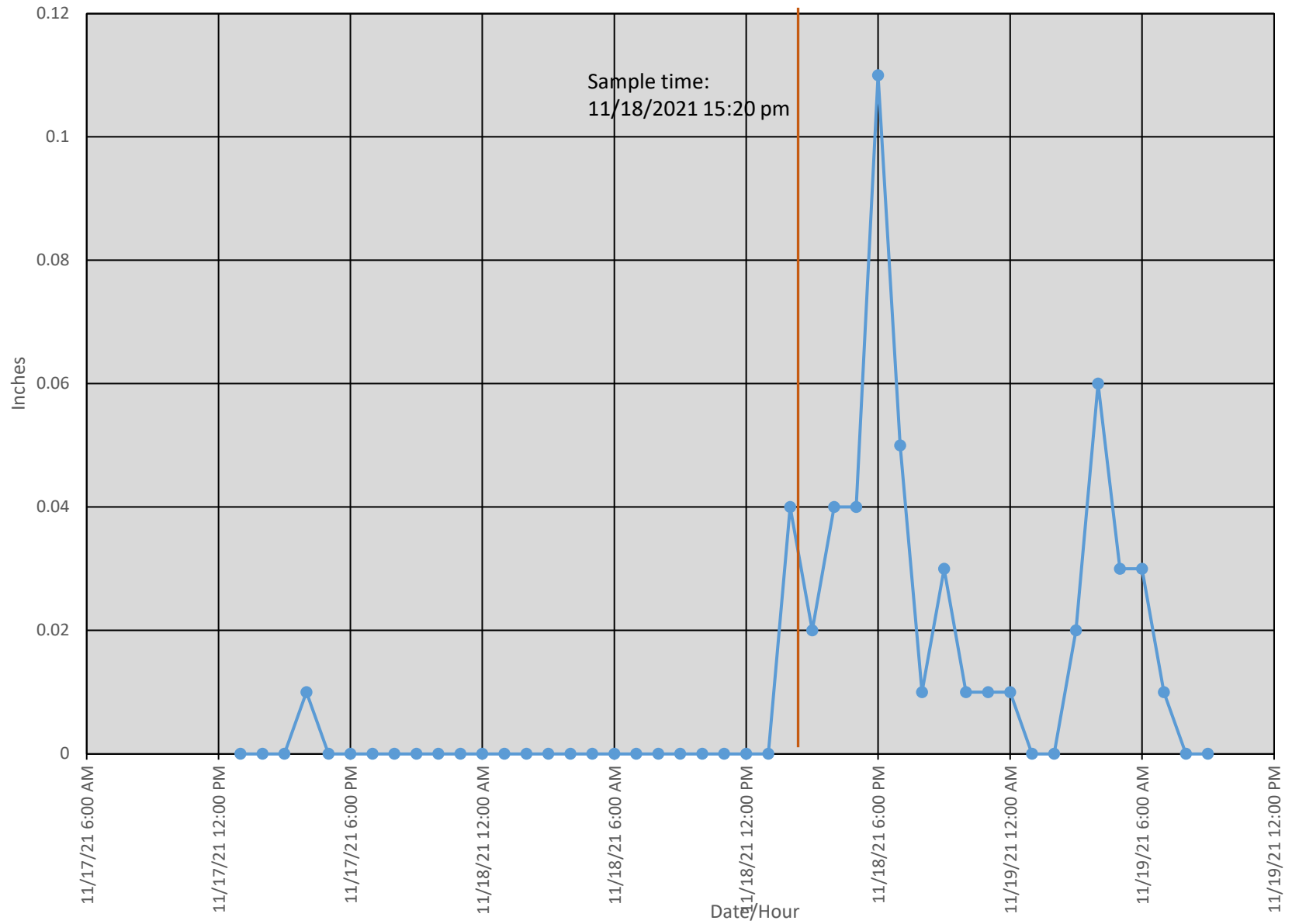
ug/L = micrograms per Liter or parts per billion (ppb)

Appendix A

Precipitation Hydrographs

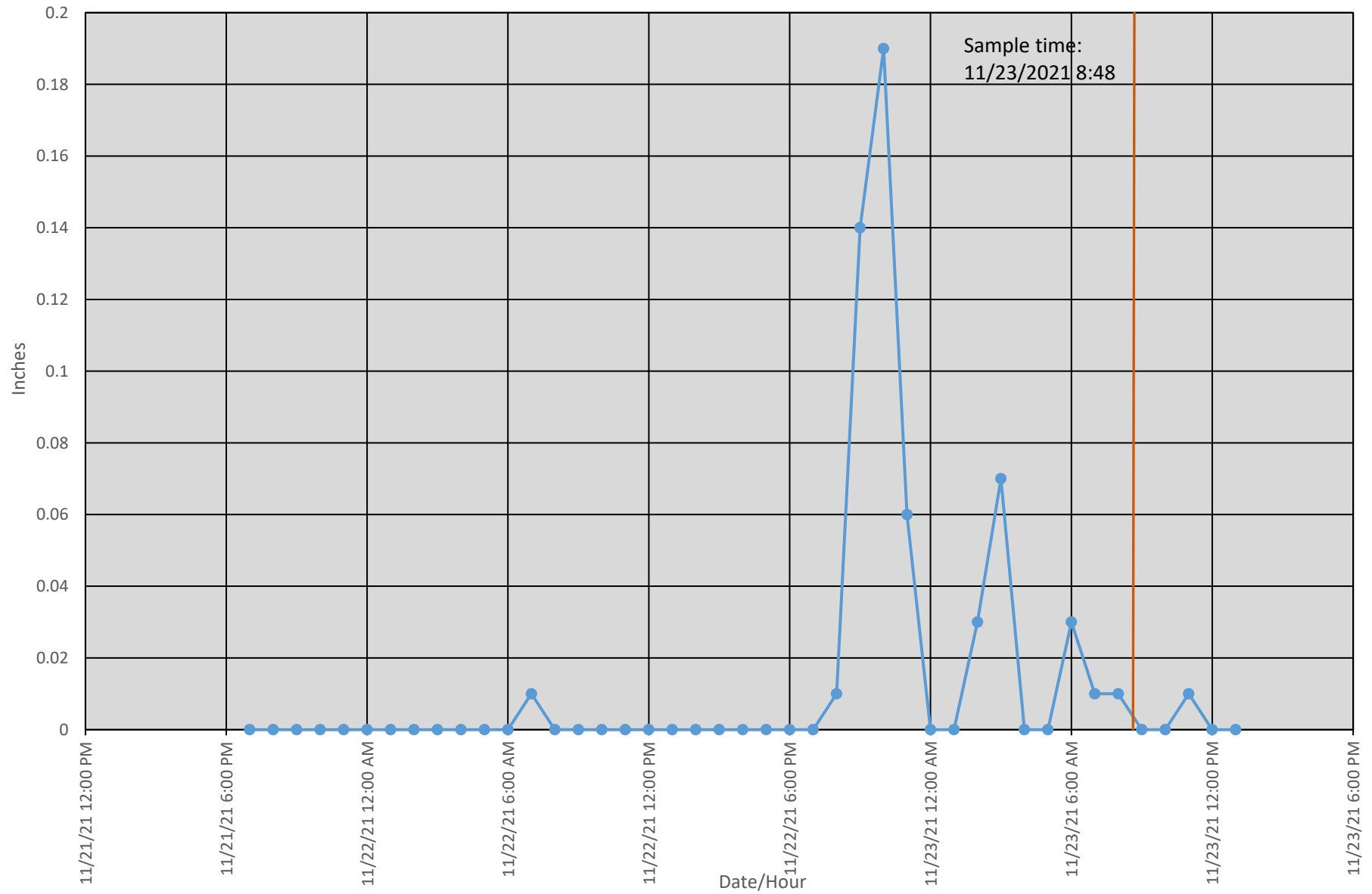
Hydrograph for November 17 - 18, 2021

NW Yeon Avenue Weather Station, Portland, Oregon

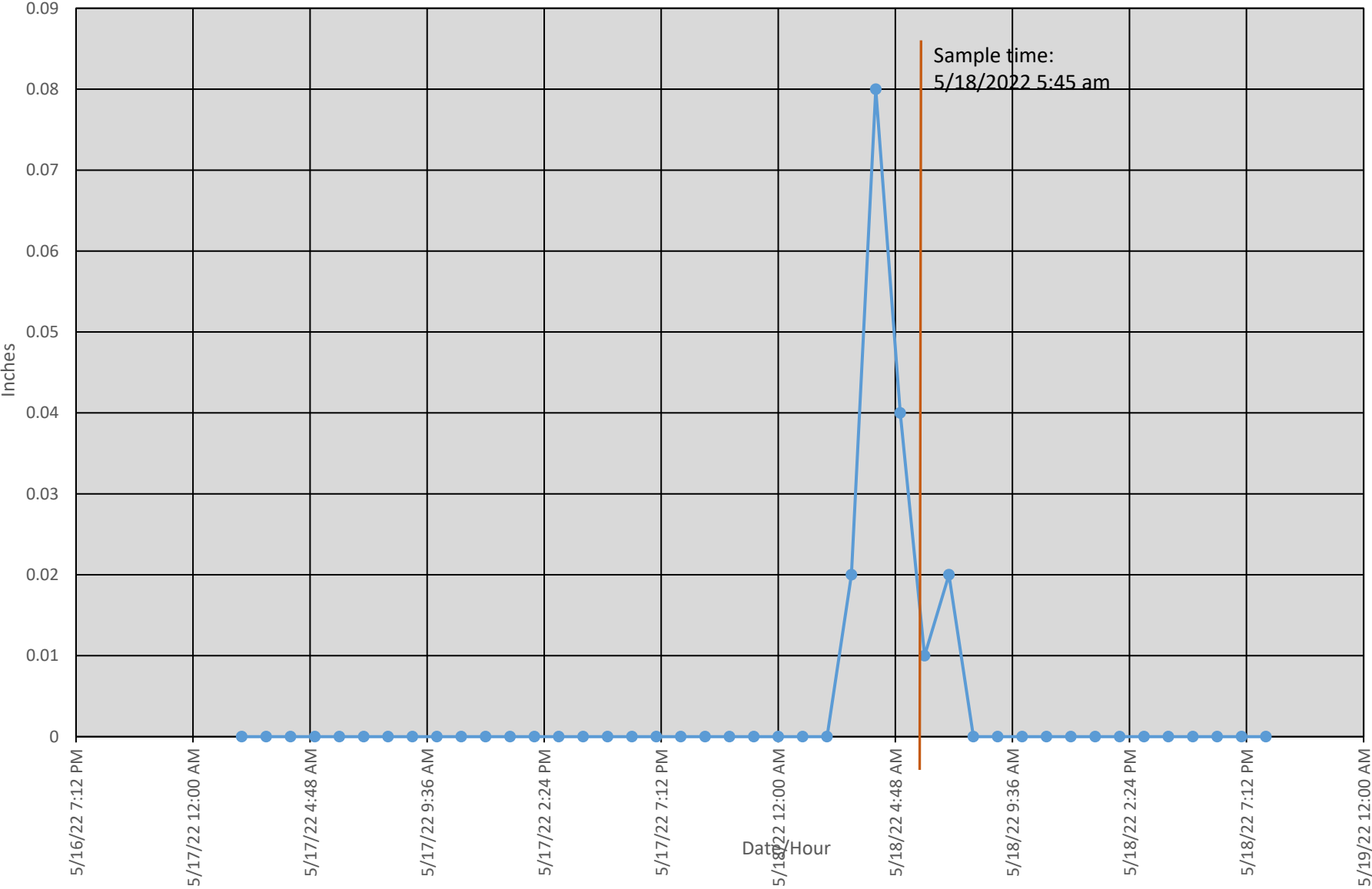


Hydrograph for November 21-23, 2021

NW Yeon Ave Weather Station, Portland, Oregon

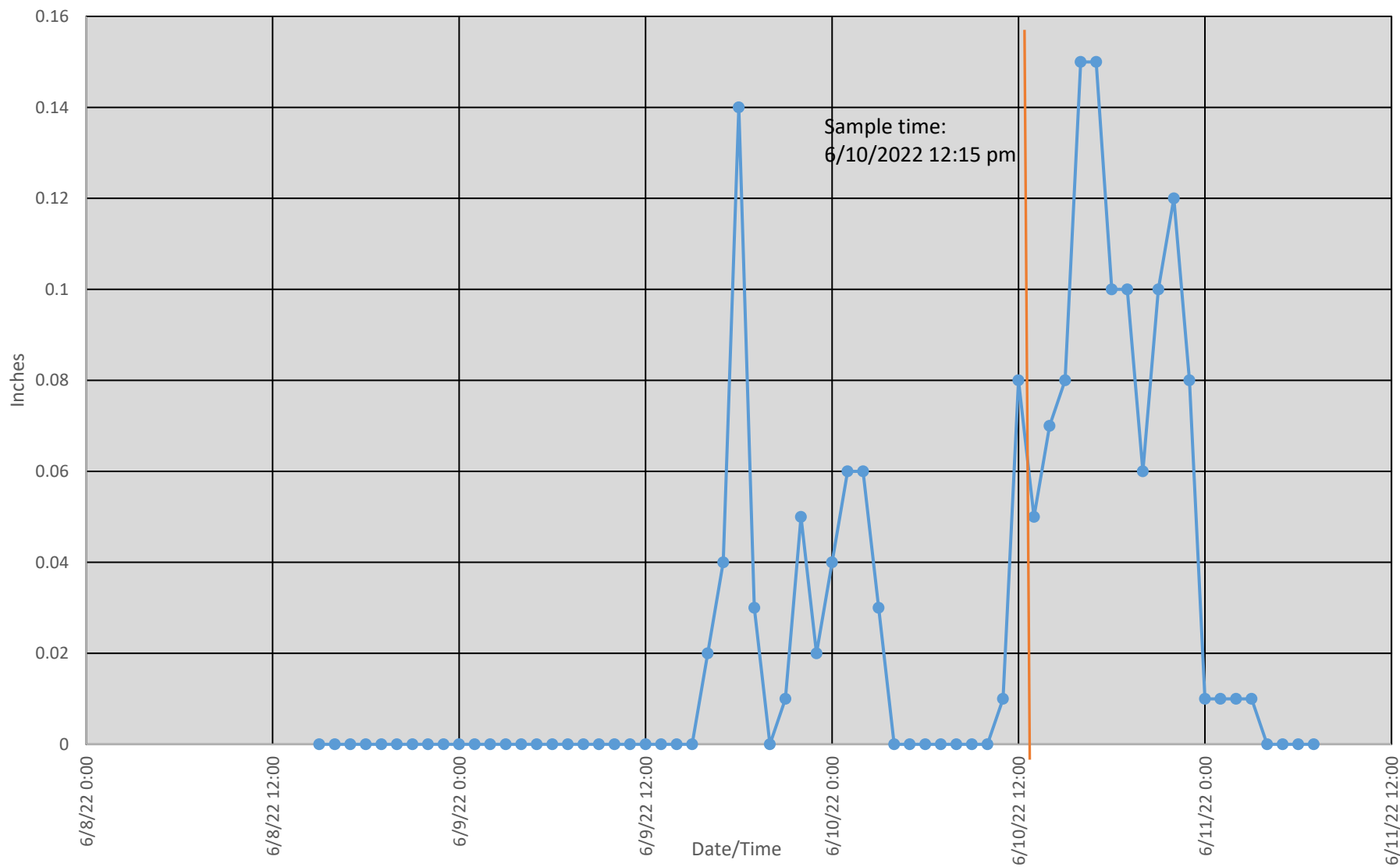


Hydrograph for March 28-29, 2017
Airport Way Weather Station, Portland, Oregon

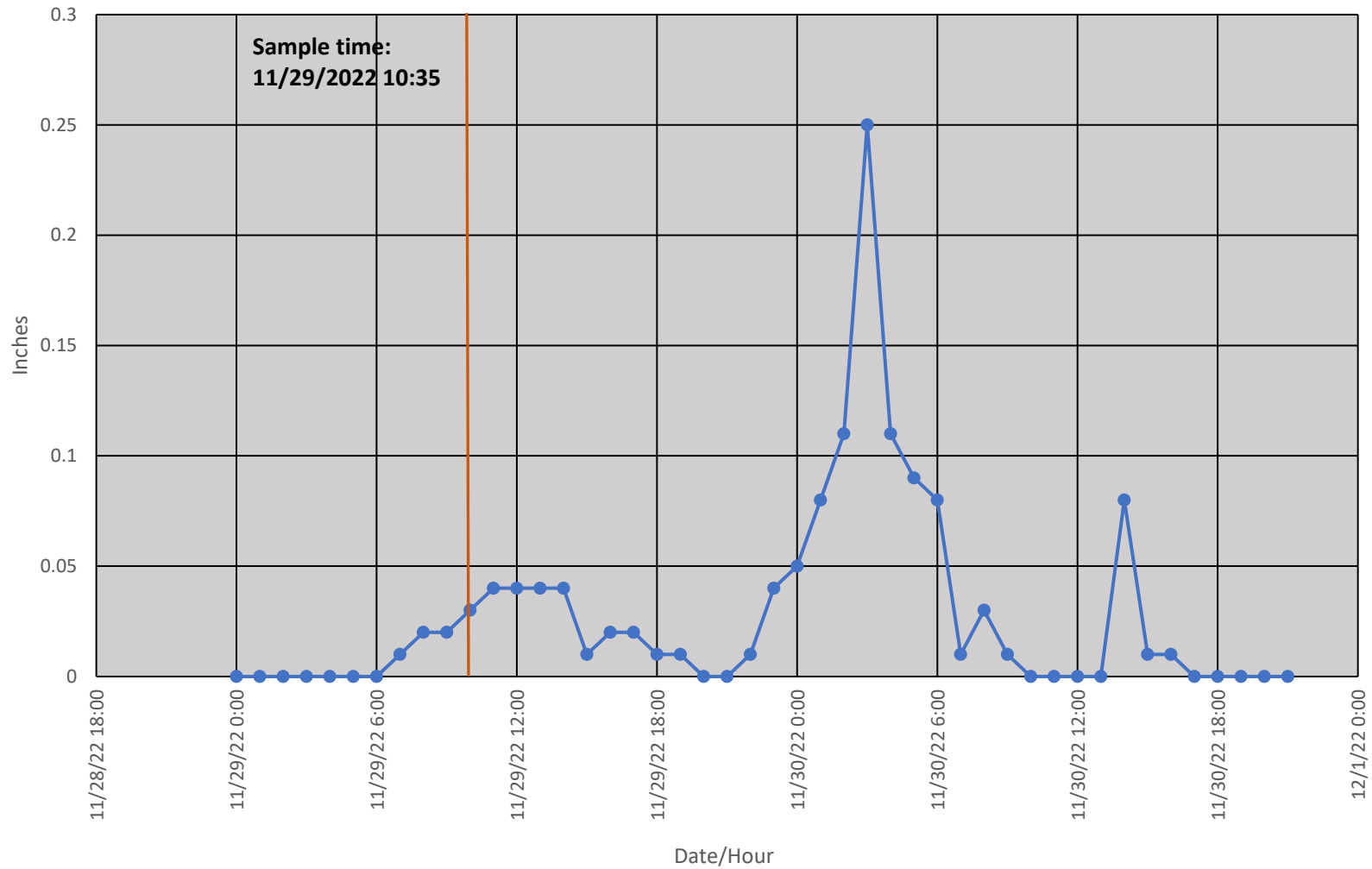


Hydrograph for June 8-11, 2022

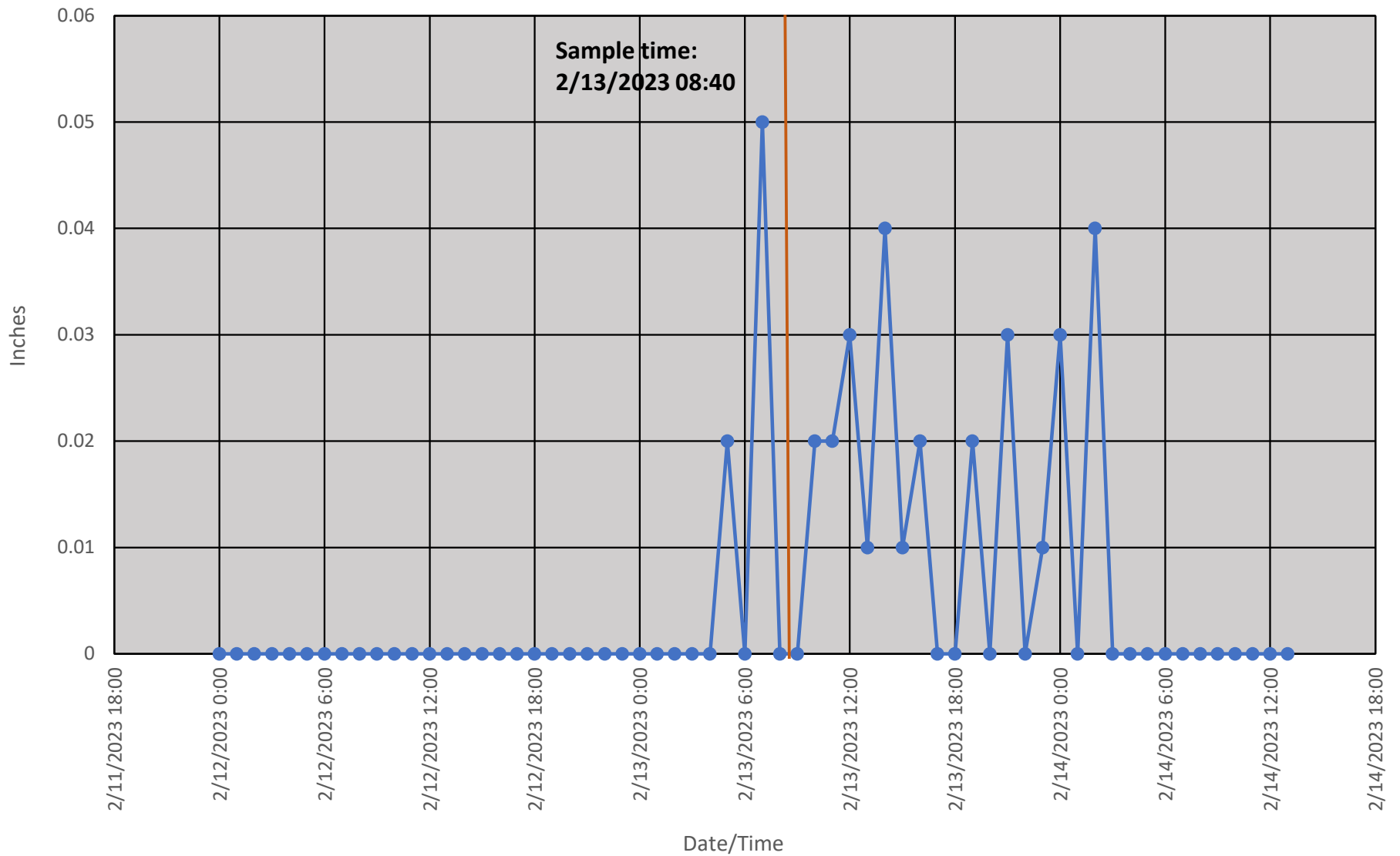
NW Yeon Ave Weather Station, Portland, Oregon



Hydrograph for November 28 - 30, 2022
NW Yeon Avenue Weather Station, Portland, Oregon



Hydrograph for February 12 - 14, 2023
NW Yeon Avenue Weather Station, Portland, Oregon



Appendix B

Laboratory Analytical Results

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West
Seattle, WA 98119-2029
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fbi@isomedia.com
www.friedmanandbruya.com

December 2, 2021

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

Dear Mr Green:

Included are the results from the testing of material submitted on November 19, 2021 from the 1260-19001-03, F&BI 111390 project. There are 21 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: Neil Woller, Paul Trone, Evan Bruggeman
ENW1202R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 19, 2021 by Friedman & Bruya, Inc. from the Evren Northwest 1260-19001-03, F&BI 111390 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
111390 -01	SW-DISCH-211118

Several compounds in the 8270E laboratory control sample and laboratory control sample duplicate failed the acceptance criteria. In addition, the 8270E calibration standard did not pass the acceptance criteria for 2,4-dinitrophenol. The data were flagged accordingly.

Phenanthrene was detected in the 8270E method blank at a level greater than one tenth the concentration detected in the sample. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/02/21
Date Received: 11/19/21
Project: 1260-19001-03, F&BI 111390
Date Extracted: 11/24/21
Date Analyzed: 11/29/21

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-G_x**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate <u>(% Recovery)</u> (Limit 51-134)
SW-DISCH-211118 111390-01	<100	91
Method Blank 01-2642 MB	<100	94

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/02/21
Date Received: 11/19/21
Project: 1260-19001-03, F&BI 111390
Date Extracted: 11/22/21
Date Analyzed: 11/22/21

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND RESIDUAL RANGE
USING METHOD NWTPH-D_x**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Residual Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 41-152)
SW-DISCH-211118 111390-01	170 x	160 x	120
Method Blank 01-2738 MB	<25 j	<50 j	122

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	SW-DISCH-211118	Client:	Evren Northwest
Date Received:	11/19/21	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/22/21	Lab ID:	111390-01
Date Analyzed:	11/22/21	Data File:	111390-01.135
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Copper	3.93
Lead	4.10
Nickel	1.18

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	SW-DISCH-211118	Client:	Evren Northwest
Date Received:	11/19/21	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/22/21	Lab ID:	111390-01 x100
Date Analyzed:	11/23/21	Data File:	111390-01 x100.155
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	2,970
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/22/21	Lab ID:	I1-770 mb
Date Analyzed:	11/22/21	Data File:	I1-770 mb.107
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Copper	<0.4
Lead	<0.15
Nickel	<1
Zinc	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	SW-DISCH-211118	Client:	Evren Northwest
Date Received:	11/19/21	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/22/21	Lab ID:	111390-01
Date Analyzed:	11/22/21	Data File:	112239.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	98	87	115
4-Bromofluorobenzene	96	92	112

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/22/21	Lab ID:	01-2714 mb
Date Analyzed:	11/22/21	Data File:	112207.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	98	87	115
4-Bromofluorobenzene	100	92	112

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	SW-DISCH-211118	Client:	Evren Northwest
Date Received:	11/19/21	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/23/21	Lab ID:	111390-01 1/0.25
Date Analyzed:	11/23/21	Data File:	112310.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	12	11	65
Phenol-d6	7 ip	11	65
Nitrobenzene-d5	84	50	150
2-Fluorobiphenyl	82	44	108
2,4,6-Tribromophenol	91	10	140
Terphenyl-d14	96	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<0.5 jl	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05	3-Nitroaniline	<5
2-Chlorophenol	<0.5	Acenaphthene	<0.005
1,3-Dichlorobenzene	<0.05	2,4-Dinitrophenol	<1.5 ca
1,4-Dichlorobenzene	<0.05	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5	4-Nitrophenol	<1.5
2,2'-Oxybis(1-chloropropane)	<0.05	Diethyl phthalate	<0.5
2-Methylphenol	<0.5	Fluorene	<0.005
Hexachloroethane	<0.05	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	0.062	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5 jl	Phenanthrene	0.013 fb
Bis(2-chloroethoxy)methane	<0.05	Anthracene	<0.005
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	<0.05	Fluoranthene	0.012
Hexachlorobutadiene	<0.05	Pyrene	0.020
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	0.0060
2-Methylnaphthalene	<0.05	Chrysene	0.0073
1-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	0.0073
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	0.011
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.005
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	0.0065
Dimethyl phthalate	0.87	Dibenz(a,h)anthracene	<0.005
Acenaphthylene	<0.005	Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/23/21	Lab ID:	01-2740 mb 1/0.25
Date Analyzed:	11/23/21	Data File:	112308.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	13	11	65
Phenol-d6	8 vo	11	65
Nitrobenzene-d5	77	50	150
2-Fluorobiphenyl	78	44	108
2,4,6-Tribromophenol	81	10	140
Terphenyl-d14	85	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<0.5 js jl	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05 js	3-Nitroaniline	<5
2-Chlorophenol	<0.5 js	Acenaphthene	<0.005
1,3-Dichlorobenzene	<0.05 js	2,4-Dinitrophenol	<1.5 ca
1,4-Dichlorobenzene	<0.05 js	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05 js	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5 js	4-Nitrophenol	<1.5
2,2'-Oxybis(1-chloropropane)	<0.05 js	Diethyl phthalate	<0.5
2-Methylphenol	<0.5 js	Fluorene	<0.005
Hexachloroethane	<0.05 js	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05 js	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1 js	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5 jl	Phenanthrene	0.004 lc
Bis(2-chloroethoxy)methane	<0.05	Anthracene	<0.005
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	<0.05	Fluoranthene	<0.005
Hexachlorobutadiene	<0.05	Pyrene	<0.005
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	<0.005
2-Methylnaphthalene	<0.05	Chrysene	<0.005
1-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	<0.005
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	<0.005
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.005
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	<0.005
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	<0.005
Acenaphthylene	<0.005	Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	SW-DISCH-211118	Client:	Evren Northwest
Date Received:	11/19/21	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/23/21	Lab ID:	111390-01 1/0.5
Date Analyzed:	11/23/21	Data File:	112310.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	21 ip	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.01
Aroclor 1232	<0.01
Aroclor 1016	<0.01
Aroclor 1242	<0.01
Aroclor 1248	<0.01
Aroclor 1254	<0.01
Aroclor 1260	<0.01
Aroclor 1262	<0.01
Aroclor 1268	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/23/21	Lab ID:	01-2745 mb 1/0.5
Date Analyzed:	11/23/21	Data File:	112309.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	44	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.01
Aroclor 1232	<0.01
Aroclor 1016	<0.01
Aroclor 1242	<0.01
Aroclor 1248	<0.01
Aroclor 1254	<0.01
Aroclor 1260	<0.01
Aroclor 1262	<0.01
Aroclor 1268	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/02/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

Date Extracted: 11/23/21

Date Analyzed: 11/23/21

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL SUSPENDED SOLIDS
BY METHOD 2540D**

Results Reported as mg/L (ppm)

<u>Sample ID</u> Laboratory ID	Total Suspended <u>Solids</u>
SW-DISCH-211118 111390-01	8.0
Method Blank	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/02/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

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

Laboratory Code: 111428-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	96	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/02/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	116	116	63-142	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/02/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 111404-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Copper	ug/L (ppb)	20	<5	96	98	70-130	2
Lead	ug/L (ppb)	10	<1	95	98	70-130	3
Nickel	ug/L (ppb)	20	<1	96	98	70-130	2
Zinc	ug/L (ppb)	50	24.8	89	93	70-130	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Copper	ug/L (ppb)	20	106	85-115
Lead	ug/L (ppb)	10	98	85-115
Nickel	ug/L (ppb)	20	102	85-115
Zinc	ug/L (ppb)	50	99	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/02/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

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

Laboratory Code: 111357-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance Criteria
				Recovery MS	
Benzene	ug/L (ppb)	10	<0.35	104	50-150
Toluene	ug/L (ppb)	10	<1	103	50-150
Ethylbenzene	ug/L (ppb)	10	<1	106	50-150
m,p-Xylene	ug/L (ppb)	20	<2	109	50-150
o-Xylene	ug/L (ppb)	10	<1	111	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Benzene	ug/L (ppb)	10	96	98	70-130	2
Toluene	ug/L (ppb)	10	96	99	70-130	3
Ethylbenzene	ug/L (ppb)	10	95	98	70-130	3
m,p-Xylene	ug/L (ppb)	20	97	101	70-130	4
o-Xylene	ug/L (ppb)	10	98	101	70-130	3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/02/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample 1/0.25

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Phenol	ug/L (ppb)	1.3	9 vo	9 vo	10-86	0
Bis(2-chloroethyl) ether	ug/L (ppb)	1.3	85	84	60-88	1
2-Chlorophenol	ug/L (ppb)	1.3	54	53	10-89	2
1,3-Dichlorobenzene	ug/L (ppb)	1.3	74	72	48-91	3
1,4-Dichlorobenzene	ug/L (ppb)	1.3	73	71	48-91	3
1,2-Dichlorobenzene	ug/L (ppb)	1.3	74	72	52-92	3
Benzyl alcohol	ug/L (ppb)	3.8	29	30	10-72	3
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	1.3	81	81	59-86	0
2-Methylphenol	ug/L (ppb)	1.3	37	37	10-75	0
Hexachloroethane	ug/L (ppb)	1.3	73	74	47-92	1
N-Nitroso-di-n-propylamine	ug/L (ppb)	1.3	89	90	70-130	1
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	1.3	27	28	10-66	4
Nitrobenzene	ug/L (ppb)	1.3	90	78	60-90	14
Isophorone	ug/L (ppb)	1.3	95	95	70-130	0
2-Nitrophenol	ug/L (ppb)	1.3	84	84	27-104	0
2,4-Dimethylphenol	ug/L (ppb)	1.3	66	71	10-84	7
Benzoic acid	ug/L (ppb)	10	4 vo	4 vo	10-102	0
Bis(2-chloroethoxy)methane	ug/L (ppb)	1.3	94	96	55-103	2
2,4-Dichlorophenol	ug/L (ppb)	1.3	82	83	23-103	1
1,2,4-Trichlorobenzene	ug/L (ppb)	1.3	78	79	56-93	1
Naphthalene	ug/L (ppb)	1.3	78	78	62-90	0
Hexachlorobutadiene	ug/L (ppb)	1.3	75	76	48-85	1
4-Chloroaniline	ug/L (ppb)	3.8	68	71	35-108	4
4-Chloro-3-methylphenol	ug/L (ppb)	1.3	66	69	18-109	4
2-Methylnaphthalene	ug/L (ppb)	1.3	79	78	64-93	1
1-Methylnaphthalene	ug/L (ppb)	1.3	78	76	64-93	3
Hexachlorocyclopentadiene	ug/L (ppb)	1.3	74	82	49-112	10
2,4,6-Trichlorophenol	ug/L (ppb)	1.3	91	93	16-112	2
2,4,5-Trichlorophenol	ug/L (ppb)	1.3	89	92	26-113	3
2-Chloronaphthalene	ug/L (ppb)	1.3	88	89	67-97	1
2-Nitroaniline	ug/L (ppb)	3.8	77	80	31-168	4
Dimethyl phthalate	ug/L (ppb)	1.3	96	98	70-130	2
Acenaphthylene	ug/L (ppb)	1.3	92	92	70-130	0
2,6-Dinitrotoluene	ug/L (ppb)	1.3	91	98	70-130	7
3-Nitroaniline	ug/L (ppb)	3.8	75	83	33-120	10
Acenaphthene	ug/L (ppb)	1.3	86	88	70-130	2
2,4-Dinitrophenol	ug/L (ppb)	2.5	71	60	10-120	17
Dibenzofuran	ug/L (ppb)	1.3	81	93	67-107	14
2,4-Dinitrotoluene	ug/L (ppb)	1.3	77	82	53-132	6
4-Nitrophenol	ug/L (ppb)	2.5	14	14	10-89	0
Diethyl phthalate	ug/L (ppb)	1.3	89	93	70-130	4
Fluorene	ug/L (ppb)	1.3	89	90	70-130	1
4-Chlorophenyl phenyl ether	ug/L (ppb)	1.3	87	90	70-130	3
N-Nitrosodiphenylamine	ug/L (ppb)	1.3	91	95	70-130	4
4-Nitroaniline	ug/L (ppb)	3.8	68	73	32-122	7
4,6-Dinitro-2-methylphenol	ug/L (ppb)	1.3	88	77	10-139	13
4-Bromophenyl phenyl ether	ug/L (ppb)	1.3	92	93	70-130	1
Hexachlorobenzene	ug/L (ppb)	1.3	73	75	65-95	3
Pentachlorophenol	ug/L (ppb)	1.3	78	70	10-129	11
Phenanthrene	ug/L (ppb)	1.3	91	92	70-130	1
Anthracene	ug/L (ppb)	1.3	91	91	70-130	0
Carbazole	ug/L (ppb)	1.3	97	98	70-130	1
Di-n-butyl phthalate	ug/L (ppb)	1.3	107	107	28-147	0
Fluoranthene	ug/L (ppb)	1.3	93	96	70-130	3
Pyrene	ug/L (ppb)	1.3	98	96	70-130	2
Benzyl butyl phthalate	ug/L (ppb)	1.3	78	81	34-142	4
Benz(a)anthracene	ug/L (ppb)	1.3	93	94	70-130	1
Chrysene	ug/L (ppb)	1.3	94	95	70-130	1
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	1.3	88	86	53-133	2
Di-n-octyl phthalate	ug/L (ppb)	1.3	95	99	49-119	4
Benzo(a)pyrene	ug/L (ppb)	1.3	97	99	70-130	2
Benzo(b)fluoranthene	ug/L (ppb)	1.3	97	101	70-130	4
Benzo(k)fluoranthene	ug/L (ppb)	1.3	96	96	70-130	0
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1.3	96	95	70-130	1
Dibenz(a,h)anthracene	ug/L (ppb)	1.3	95	94	70-130	1
Benzo(g,h,i)perylene	ug/L (ppb)	1.3	93	93	70-130	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/02/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
POLYCHLORINATED BIPHENYLS AS
AROCOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	0.13	64	61	25-165	5
Aroclor 1260	ug/L (ppb)	0.13	71	71	25-163	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/02/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
TOTAL SUSPENDED SOLIDS BY METHOD 2540D**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
TSS	mg/L (ppm)	20	120	108	35-146	11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
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December 15, 2021

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

Dear Mr Green:

Included are the additional results from the testing of material submitted on November 19, 2021 from the 1260-19001-03, F&BI 111390 project. There are 23 pages included in this report.

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: Neil Woller, Paul Trone, Evan Bruggeman
ENW1215R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 19, 2021 by Friedman & Bruya, Inc. from the Evren Northwest 1260-19001-03, F&BI 111390 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
111390 -01	SW-DISCH-211118

Several compounds in the 8270E laboratory control sample and laboratory control sample duplicate failed the acceptance criteria. In addition, the 8270E calibration standard did not pass the acceptance criteria for 2,4-dinitrophenol. The data were flagged accordingly.

Phenanthrene was detected in the 8270E method blank at a level greater than one tenth the concentration detected in the sample. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/15/21
Date Received: 11/19/21
Project: 1260-19001-03, F&BI 111390
Date Extracted: 11/24/21
Date Analyzed: 11/29/21

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-G_x**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate <u>(% Recovery)</u> (Limit 51-134)
SW-DISCH-211118 111390-01	<100	91
Method Blank 01-2642 MB	<100	94

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/15/21
Date Received: 11/19/21
Project: 1260-19001-03, F&BI 111390
Date Extracted: 11/22/21
Date Analyzed: 11/22/21

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND RESIDUAL RANGE
USING METHOD NWTPH-D_x**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Residual Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 41-152)
SW-DISCH-211118 111390-01	170 x	160 x	120
Method Blank 01-2738 MB	<25 j	<50 j	122

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/15/21
Date Received: 11/19/21
Project: 1260-19001-03, F&BI 111390
Date Extracted: 11/22/21
Date Analyzed: 12/03/21

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx
Sample Extracts Passed Through a
Silica Gel Column Prior to Analysis
Results Reported as ug/L (ppb)**

<u>Sample ID</u>	<u>Diesel Range</u>	<u>Motor Oil Range</u>	<u>Surrogate</u>
Laboratory ID	(C ₁₀ -C ₂₅)	(C ₂₅ -C ₃₆)	(% Recovery)
			(Limit 41-152)
SW-DISCH-211118	<50	57 j	93
111390-01			
Method Blank	<50	<52 j	119
01-2738 MB			

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	SW-DISCH-211118	Client:	Evren Northwest
Date Received:	11/19/21	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/22/21	Lab ID:	111390-01
Date Analyzed:	11/22/21	Data File:	111390-01.135
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Copper	3.93
Lead	4.10
Nickel	1.18

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	SW-DISCH-211118	Client:	Evren Northwest
Date Received:	11/19/21	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/22/21	Lab ID:	111390-01 x100
Date Analyzed:	11/23/21	Data File:	111390-01 x100.155
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	2,970
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/22/21	Lab ID:	I1-770 mb
Date Analyzed:	11/22/21	Data File:	I1-770 mb.107
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Copper	<0.4
Lead	<0.15
Nickel	<1
Zinc	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	SW-DISCH-211118	Client:	Evren Northwest
Date Received:	11/19/21	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/22/21	Lab ID:	111390-01
Date Analyzed:	11/22/21	Data File:	112239.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	98	87	115
4-Bromofluorobenzene	96	92	112

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/22/21	Lab ID:	01-2714 mb
Date Analyzed:	11/22/21	Data File:	112207.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	98	87	115
4-Bromofluorobenzene	100	92	112

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	SW-DISCH-211118	Client:	Evren Northwest
Date Received:	11/19/21	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/23/21	Lab ID:	111390-01 1/0.25
Date Analyzed:	11/23/21	Data File:	112310.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	12	11	65
Phenol-d6	7 ip	11	65
Nitrobenzene-d5	84	50	150
2-Fluorobiphenyl	82	44	108
2,4,6-Tribromophenol	91	10	140
Terphenyl-d14	96	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.05
2-Methylnaphthalene	<0.05
1-Methylnaphthalene	<0.05
Acenaphthylene	<0.005
Acenaphthene	<0.005
Fluorene	<0.005
Phenanthrene	0.013 fb
Anthracene	<0.005
Fluoranthene	0.012
Pyrene	0.020
Benz(a)anthracene	0.0060
Chrysene	0.0073
Benzo(a)pyrene	0.0073
Benzo(b)fluoranthene	0.011
Benzo(k)fluoranthene	<0.005
Indeno(1,2,3-cd)pyrene	0.0065
Dibenz(a,h)anthracene	<0.005
Benzo(g,h,i)perylene	<0.01
Dimethyl phthalate	0.87
Diethyl phthalate	<0.5
Di-n-butyl phthalate	<0.5
Benzyl butyl phthalate	<0.5
Bis(2-ethylhexyl) phthalate	<0.8
Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/23/21	Lab ID:	01-2740 mb 1/0.25
Date Analyzed:	11/23/21	Data File:	112308.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	13	11	65
Phenol-d6	8 vo	11	65
Nitrobenzene-d5	77	50	150
2-Fluorobiphenyl	78	44	108
2,4,6-Tribromophenol	81	10	140
Terphenyl-d14	85	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.05
2-Methylnaphthalene	<0.05
1-Methylnaphthalene	<0.05
Acenaphthylene	<0.005
Acenaphthene	<0.005
Fluorene	<0.005
Phenanthrene	0.004 lc
Anthracene	<0.005
Fluoranthene	<0.005
Pyrene	<0.005
Benz(a)anthracene	<0.005
Chrysene	<0.005
Benzo(a)pyrene	<0.005
Benzo(b)fluoranthene	<0.005
Benzo(k)fluoranthene	<0.005
Indeno(1,2,3-cd)pyrene	<0.005
Dibenz(a,h)anthracene	<0.005
Benzo(g,h,i)perylene	<0.01
Dimethyl phthalate	<0.5
Diethyl phthalate	<0.5
Di-n-butyl phthalate	<0.5
Benzyl butyl phthalate	<0.5
Bis(2-ethylhexyl) phthalate	<0.8
Di-n-octyl phthalate	<0.5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	SW-DISCH-211118	Client:	Evren Northwest
Date Received:	11/19/21	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/23/21	Lab ID:	111390-01 1/0.5
Date Analyzed:	11/23/21	Data File:	112310.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	21 ip	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.01
Aroclor 1232	<0.01
Aroclor 1016	<0.01
Aroclor 1242	<0.01
Aroclor 1248	<0.01
Aroclor 1254	<0.01
Aroclor 1260	<0.01
Aroclor 1262	<0.01
Aroclor 1268	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 111390
Date Extracted:	11/23/21	Lab ID:	01-2745 mb 1/0.5
Date Analyzed:	11/23/21	Data File:	112309.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	44	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.01
Aroclor 1232	<0.01
Aroclor 1016	<0.01
Aroclor 1242	<0.01
Aroclor 1248	<0.01
Aroclor 1254	<0.01
Aroclor 1260	<0.01
Aroclor 1262	<0.01
Aroclor 1268	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/15/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

Date Extracted: 11/23/21

Date Analyzed: 11/23/21

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL SUSPENDED SOLIDS
BY METHOD 2540D**

Results Reported as mg/L (ppm)

<u>Sample ID</u> Laboratory ID	Total Suspended <u>Solids</u>
SW-DISCH-211118 111390-01	8.0
Method Blank	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/15/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

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

Laboratory Code: 111428-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	96	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/15/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

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

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	108	120	63-142	11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/15/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 111404-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Copper	ug/L (ppb)	20	<5	96	98	70-130	2
Lead	ug/L (ppb)	10	<1	95	98	70-130	3
Nickel	ug/L (ppb)	20	<1	96	98	70-130	2
Zinc	ug/L (ppb)	50	24.8	89	93	70-130	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Copper	ug/L (ppb)	20	106	85-115
Lead	ug/L (ppb)	10	98	85-115
Nickel	ug/L (ppb)	20	102	85-115
Zinc	ug/L (ppb)	50	99	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/15/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

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

Laboratory Code: 111357-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance Criteria
				Recovery MS	
Benzene	ug/L (ppb)	10	<0.35	104	50-150
Toluene	ug/L (ppb)	10	<1	103	50-150
Ethylbenzene	ug/L (ppb)	10	<1	106	50-150
m,p-Xylene	ug/L (ppb)	20	<2	109	50-150
o-Xylene	ug/L (ppb)	10	<1	111	50-150

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/15/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Benzene	ug/L (ppb)	10	96	98	70-130	2
Toluene	ug/L (ppb)	10	96	99	70-130	3
Ethylbenzene	ug/L (ppb)	10	95	98	70-130	3
m,p-Xylene	ug/L (ppb)	20	97	101	70-130	4
o-Xylene	ug/L (ppb)	10	98	101	70-130	3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/15/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample 1/0.25

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1.3	78	78	62-90	0
2-Methylnaphthalene	ug/L (ppb)	1.3	79	78	64-93	1
1-Methylnaphthalene	ug/L (ppb)	1.3	78	76	64-93	3
Dimethyl phthalate	ug/L (ppb)	1.3	96	98	70-130	2
Acenaphthylene	ug/L (ppb)	1.3	92	92	70-130	0
Acenaphthene	ug/L (ppb)	1.3	86	88	70-130	2
Diethyl phthalate	ug/L (ppb)	1.3	89	93	70-130	4
Fluorene	ug/L (ppb)	1.3	89	90	70-130	1
Phenanthrene	ug/L (ppb)	1.3	91	92	70-130	1
Anthracene	ug/L (ppb)	1.3	91	91	70-130	0
Di-n-butyl phthalate	ug/L (ppb)	1.3	107	107	28-147	0
Fluoranthene	ug/L (ppb)	1.3	93	96	70-130	3
Pyrene	ug/L (ppb)	1.3	98	96	70-130	2
Benzyl butyl phthalate	ug/L (ppb)	1.3	78	81	34-142	4
Benz(a)anthracene	ug/L (ppb)	1.3	93	94	70-130	1
Chrysene	ug/L (ppb)	1.3	94	95	70-130	1
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	1.3	88	86	53-133	2
Di-n-octyl phthalate	ug/L (ppb)	1.3	95	99	49-119	4
Benzo(a)pyrene	ug/L (ppb)	1.3	97	99	70-130	2
Benzo(b)fluoranthene	ug/L (ppb)	1.3	97	101	70-130	4
Benzo(k)fluoranthene	ug/L (ppb)	1.3	96	96	70-130	0
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1.3	96	95	70-130	1
Dibenz(a,h)anthracene	ug/L (ppb)	1.3	95	94	70-130	1
Benzo(g,h,i)perylene	ug/L (ppb)	1.3	93	93	70-130	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/15/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
POLYCHLORINATED BIPHENYLS AS
AROCOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	0.13	64	61	25-165	5
Aroclor 1260	ug/L (ppb)	0.13	71	71	25-163	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/15/21

Date Received: 11/19/21

Project: 1260-19001-03, F&BI 111390

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
TOTAL SUSPENDED SOLIDS BY METHOD 2540D**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
TSS	mg/L (ppm)	20	120	108	35-146	11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ME 11-19-21

SAMPLERS (signature)	PO #
<i>[Signature]</i>	

PROJECT NAME	PO #
10-2-3	

19001-03	per	THYATIN MO
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INVOICE TO	REMARKS
	11/18/21 PE
	See Attached form

Project specific RIs? - Yes / No

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

ME 11-19-21

SAMPLERS (signature)	PO #
<i>[Signature]</i>	

PROJECT NAME	PO #
10-2-3	

19001-03	per	THYATIN MO
----------	-----	------------

INVOICE TO	REMARKS
	11/18/21 PE
	See Attached form

Project specific RIs? - Yes / No

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

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: 	Bailey Tanner	EMV	11-18-11	17:00
Received by: 	James Broys	F&B	11/17	1234
Relinquished by:				
Received by:				
Samples received at 20°C				

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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www.friedmanandbruya.com

December 8, 2021

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

Dear Mr Green:

Included are the results from the testing of material submitted on November 26, 2021 from the 1260-19001-03, F&BI 111503 project. There are 22 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: Neil Woller, Paul Trone, Evan Bruggeman
ENW1208R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 26, 2021 by Friedman & Bruya, Inc. from the Evren Northwest 1260-19001-03, F&BI 111503 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
111503 -01	SW-Disch-211123
111503 -02	Trip Blank

Dibenz(a,h)anthracene was detected in the 8270 method blank at a level greater than one tenth the concentration detected in the sample. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/08/21

Date Received: 11/26/21

Project: 1260-19001-03, F&BI 111503

Date Extracted: 12/02/21

Date Analyzed: 12/02/21

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-G_x**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 51-134)
SW-Disch-211123 111503-01	<100	90
Trip Blank 111503-02	<100	91
Method Blank 01-2648 MB	<100	94

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/08/21

Date Received: 11/26/21

Project: 1260-19001-03, F&BI 111503

Date Extracted: 11/29/21

Date Analyzed: 11/29/21

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND RESIDUAL RANGE
USING METHOD NWTPH-D_x**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Residual Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 41-152)
SW-Disch-211123 111503-01 1/0.5	110 x	170	131
Method Blank 01-2753 MB 1/0.5	<25	<125	116

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	SW-Disch-211123	Client:	Evren Northwest
Date Received:	11/26/21	Project:	1260-19001-03, F&BI 111503
Date Extracted:	12/02/21	Lab ID:	111503-01
Date Analyzed:	12/03/21	Data File:	111503-01.256
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Copper	2.34
Lead	1.10
Nickel	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	SW-Disch-211123	Client:	Evren Northwest
Date Received:	11/26/21	Project:	1260-19001-03, F&BI 111503
Date Extracted:	12/02/21	Lab ID:	111503-01 x100
Date Analyzed:	12/04/21	Data File:	111503-01 x100.285
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	1,880
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	1260-19001-03, F&BI 111503
Date Extracted:	12/02/21	Lab ID:	I1-801 mb
Date Analyzed:	12/02/21	Data File:	I1-801 mb.184
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Copper	<0.6
Lead	<0.15 j
Nickel	<1
Zinc	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	SW-Disch-211123	Client:	Evren Northwest
Date Received:	11/26/21	Project:	1260-19001-03, F&BI 111503
Date Extracted:	11/30/21	Lab ID:	111503-01
Date Analyzed:	11/30/21	Data File:	113034.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	78	126
Toluene-d8	100	87	115
4-Bromofluorobenzene	96	92	112

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Trip Blank	Client:	Evren Northwest
Date Received:	11/26/21	Project:	1260-19001-03, F&BI 111503
Date Extracted:	11/30/21	Lab ID:	111503-02
Date Analyzed:	11/30/21	Data File:	113033.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	78	126
Toluene-d8	99	87	115
4-Bromofluorobenzene	95	92	112

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 111503
Date Extracted:	11/30/21	Lab ID:	01-2729 mb
Date Analyzed:	11/30/21	Data File:	113007.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	78	126
Toluene-d8	103	87	115
4-Bromofluorobenzene	99	92	112

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID: SW-Disch-211123	Client: Evren Northwest
Date Received: 11/26/21	Project: 1260-19001-03, F&BI 111503
Date Extracted: 11/29/21	Lab ID: 111503-01 1/0.5
Date Analyzed: 11/29/21	Data File: 112911.D
Matrix: Water	Instrument: GCMS12
Units: ug/L (ppb)	Operator: VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	16	11	65
Phenol-d6	10 ip	11	65
Nitrobenzene-d5	60	50	150
2-Fluorobiphenyl	71	44	108
2,4,6-Tribromophenol	99	10	140
Terphenyl-d14	108	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01j
Acenaphthylene	<0.004 j
Acenaphthene	<0.004 j
Fluorene	<0.004 j
Phenanthrene	0.020
Anthracene	<0.004 j
Fluoranthene	0.012
Pyrene	0.027
Benz(a)anthracene	<0.01
Chrysene	0.017
Benzo(a)pyrene	0.010
Benzo(b)fluoranthene	0.012
Benzo(k)fluoranthene	<0.004 j
Indeno(1,2,3-cd)pyrene	0.008 j
Dibenz(a,h)anthracene	0.004 j fb
Benzo(g,h,i)perylene	0.015
Dimethyl phthalate	<1
Diethyl phthalate	<1
Di-n-butyl phthalate	<1
Benzyl butyl phthalate	<1
Bis(2-ethylhexyl) phthalate	<1.6
Di-n-octyl phthalate	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 111503
Date Extracted:	11/29/21	Lab ID:	01-2752 mb2 1/0.5
Date Analyzed:	11/29/21	Data File:	112910.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	23	11	65
Phenol-d6	15	11	65
Nitrobenzene-d5	79	50	150
2-Fluorobiphenyl	80	44	108
2,4,6-Tribromophenol	72	10	140
Terphenyl-d14	94	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01j
Acenaphthylene	<0.004 j
Acenaphthene	<0.004 j
Fluorene	<0.004 j
Phenanthrene	<0.01
Anthracene	<0.004 j
Fluoranthene	<0.004 j
Pyrene	<0.005 j
Benz(a)anthracene	<0.004 j
Chrysene	<0.004 j
Benzo(a)pyrene	<0.004 j
Benzo(b)fluoranthene	<0.004 j
Benzo(k)fluoranthene	<0.004 j
Indeno(1,2,3-cd)pyrene	<0.004 j
Dibenz(a,h)anthracene	<0.004 j
Benzo(g,h,i)perylene	<0.004 j
Dimethyl phthalate	<1
Diethyl phthalate	<1
Di-n-butyl phthalate	<1
Benzyl butyl phthalate	<1
Bis(2-ethylhexyl) phthalate	<1.6
Di-n-octyl phthalate	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	SW-Disch-211123	Client:	Evren Northwest
Date Received:	11/26/21	Project:	1260-19001-03, F&BI 111503
Date Extracted:	12/01/21	Lab ID:	111503-01 1/0.5
Date Analyzed:	12/02/21	Data File:	120210.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	38	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.01
Aroclor 1232	<0.01
Aroclor 1016	<0.01
Aroclor 1242	<0.01
Aroclor 1248	<0.01
Aroclor 1254	<0.01
Aroclor 1260	<0.01
Aroclor 1262	<0.01
Aroclor 1268	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 111503
Date Extracted:	12/01/21	Lab ID:	01-2786 mb 1/0.25
Date Analyzed:	12/02/21	Data File:	120206.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	37	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.005
Aroclor 1232	<0.005
Aroclor 1016	<0.005
Aroclor 1242	<0.005
Aroclor 1248	<0.005
Aroclor 1254	<0.005
Aroclor 1260	<0.005
Aroclor 1262	<0.005
Aroclor 1268	<0.005

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/08/21

Date Received: 11/26/21

Project: 1260-19001-03, F&BI 111503

Date Extracted: 11/30/21

Date Analyzed: 11/30/21

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL SUSPENDED SOLIDS
BY METHOD 2540D**

Results Reported as mg/L (ppm)

<u>Sample ID</u> Laboratory ID	Total Suspended <u>Solids</u>
SW-Disch-211123 111503-01	9.6
Method Blank	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/08/21

Date Received: 11/26/21

Project: 1260-19001-03, F&BI 111503

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

Laboratory Code: 112013-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	97	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/08/21

Date Received: 11/26/21

Project: 1260-19001-03, F&BI 111503

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

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	100	104	63-142	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/08/21

Date Received: 11/26/21

Project: 1260-19001-03, F&BI 111503

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 111514-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Copper	ug/L (ppb)	20	<5	89	89	70-130	0
Lead	ug/L (ppb)	10	<1	87	86	70-130	1
Nickel	ug/L (ppb)	20	3.15	93	93	70-130	0
Zinc	ug/L (ppb)	50	<5	89	88	70-130	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Copper	ug/L (ppb)	20	98	85-115
Lead	ug/L (ppb)	10	94	85-115
Nickel	ug/L (ppb)	20	101	85-115
Zinc	ug/L (ppb)	50	99	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/08/21

Date Received: 11/26/21

Project: 1260-19001-03, F&BI 111503

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

Laboratory Code: 111514-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance Criteria
				Recovery MS	
Benzene	ug/L (ppb)	10	<0.35	100	50-150
Toluene	ug/L (ppb)	10	<1	97	50-150
Ethylbenzene	ug/L (ppb)	10	<1	102	50-150
m,p-Xylene	ug/L (ppb)	20	<2	108	50-150
o-Xylene	ug/L (ppb)	10	<1	104	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Benzene	ug/L (ppb)	10	96	97	70-130	1
Toluene	ug/L (ppb)	10	97	95	70-130	2
Ethylbenzene	ug/L (ppb)	10	98	99	70-130	1
m,p-Xylene	ug/L (ppb)	20	104	105	70-130	1
o-Xylene	ug/L (ppb)	10	102	106	70-130	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/08/21

Date Received: 11/26/21

Project: 1260-19001-03, F&BI 111503

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	5	78	80	62-90	3
2-Methylnaphthalene	ug/L (ppb)	5	80	83	64-93	4
1-Methylnaphthalene	ug/L (ppb)	5	78	81	64-93	4
Dimethyl phthalate	ug/L (ppb)	5	91	95	70-130	4
Acenaphthylene	ug/L (ppb)	5	89	92	70-130	3
Acenaphthene	ug/L (ppb)	5	84	86	70-130	2
Diethyl phthalate	ug/L (ppb)	5	90	94	70-130	4
Fluorene	ug/L (ppb)	5	88	90	70-130	2
Phenanthrene	ug/L (ppb)	5	91	93	70-130	2
Anthracene	ug/L (ppb)	5	90	93	70-130	3
Di-n-butyl phthalate	ug/L (ppb)	5	95	105	28-147	10
Fluoranthene	ug/L (ppb)	5	93	98	70-130	5
Pyrene	ug/L (ppb)	5	102	102	70-130	0
Benzyl butyl phthalate	ug/L (ppb)	5	88	91	34-142	3
Benz(a)anthracene	ug/L (ppb)	5	95	96	70-130	1
Chrysene	ug/L (ppb)	5	97	99	70-130	2
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	5	83	90	53-133	8
Di-n-octyl phthalate	ug/L (ppb)	5	90	97	49-119	7
Benzo(a)pyrene	ug/L (ppb)	5	101	102	70-130	1
Benzo(b)fluoranthene	ug/L (ppb)	5	101	102	70-130	1
Benzo(k)fluoranthene	ug/L (ppb)	5	98	99	70-130	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	99	104	70-130	5
Dibenz(a,h)anthracene	ug/L (ppb)	5	96	100	70-130	4
Benzo(g,h,i)perylene	ug/L (ppb)	5	95	98	70-130	3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/08/21

Date Received: 11/26/21

Project: 1260-19001-03, F&BI 111503

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
POLYCHLORINATED BIPHENYLS AS
AROCOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: Laboratory Control Sample 1/0.25

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	0.063	55	60	25-111	9
Aroclor 1260	ug/L (ppb)	0.063	67	72	23-123	7

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/08/21

Date Received: 11/26/21

Project: 1260-19001-03, F&BI 111503

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
TOTAL SUSPENDED SOLIDS BY METHOD 2540D**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
TSS	mg/L (ppm)	20	86	82	35-146	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SAMPLE CHAIN OF CUSTODY ME 11-126/21

$$V_{A01}/A_{T3}/(F)3$$

Phone # 503-482-7669 Fax # _____

Page # 11 of 11

TURNABOUT TIME

~~X~~ Strain 6290 (2 Weeks)

Discussed and agreed upon by

SAVING THE DISPOSAL

☐ Disapprove with 10. 1. days

☐ **Definitely Samples**

☐ **Video card: video productions**

ANALYSES REQUIRED

[illegible]

OLIVER AXN

Revised and issued by:

1

...and the End...

415 m

11/26/21

1130

Doc (2185) 283-5044

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

December 23, 2021

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

Dear Mr Green:

Included are the additional results from the testing of material submitted on November 26, 2021 from the 1260-19001-03, F&BI 111503 project. There are 4 pages included in this report.

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: Neil Woller, Paul Trone, Evan Bruggeman
ENW1223R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 26, 2021 by Friedman & Bruya, Inc. from the Evren Northwest 1260-19001-03, F&BI 111503 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
111503 -01	SW-Disch-211123
111503 -02	Trip Blank

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/23/21

Date Received: 11/26/21

Project: 1260-19001-03, F&BI 111503

Date Extracted: 11/29/21

Date Analyzed: 12/21/21

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND RESIDUAL RANGE
USING METHOD NWTPH-D_x
Sample Extracts Passed Through a
Silica Gel Column Prior to Analysis
Results Reported as ug/L (ppb)**

<u>Sample ID</u>	<u>Diesel Range</u>	<u>Residual Range</u>	<u>Surrogate</u>
Laboratory ID	(C ₁₀ -C ₂₅)	(C ₂₅ -C ₃₆)	(% Recovery)
			(Limit 41-152)
SW-Disch-211123	26 x	<120	103
111503-01 1/0.5			
Method Blank	<25	<120	118
01-2753 MB2			

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/23/21

Date Received: 11/26/21

Project: 1260-19001-03, F&BI 111503

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

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	104	112	63-142	7

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

111503

SAMPLE CHAIN OF CUSTODY ME 11-26/21

WV/HF3/En3

Send Report To Lynn GreenCompany Enviro NWAddress PO 11488City, State, ZIP Portland, OR 97213Phone # 503-482-7629 Fax #

Page #

of

SAMPLES (signature) Bailey R

PROJECT NUMBER

1260-9001-03TURNAROUND TIME
Standard (2 weeks)

Each charges authorized by:

SAMPLER IS DISPOSAL

☐ Disposed after 60 days☐ Return samples☐ Will call with instructions

REMARKS

See Attached form

ANALYSES REQUESTED

Sample ID

Lab ID

Date

Time

Sample Type

of containers

TPH-Diesel

TPH-Gasoline

BTEX by 8021B

VOCs by 8020

SVOCs by 8270

HPS

TSS

PCB

PAH

Total metals
Cu, Pb, Ni, Zn

Dr. WISC

Notes

SIG-0, SCL-211123

01 A-H

11-23-21

8:48

Water

8

X

X

X

X

X

X

X

X

X

X

X

X

X

X

TRIP BANK

02 AB

—

—

Water

2

X

X

X

X

X

X

X

X

X

X

X

X

X

X

pH 7.5/1 ME

Samples received at 4 °C

Frederick & Bryant, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-2282

Fax (206) 283-5044

SIGNATURE

Requested by:

Bailey R

PRINT NAME

Bailey R

COMPANY

ENVI

DATE

11-24-21

TIME

17:00

Requested by:

Michael E. AllenFAIR11/25/2111:30

Received by:

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.

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

June 8, 2022

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

Dear Mr Green:

Included are the results from the testing of material submitted on May 19, 2022 from the 1260-19001-03, F&BI 205325 project. There are 23 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: Neil Woller, Paul Trone, Evan Bruggeman
ENW0608R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 19, 2022 by Friedman & Bruya, Inc. from the Evren Northwest 1260-19001-03, F&BI 205325 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
205325 -01	DW01-220518

The 8270E laboratory control sample and laboratory control sample duplicate failed the relative percent difference for several compounds. The analytes were not detected therefore the data were acceptable.

Benzoic acid in the 8270E laboratory control sample and laboratory control sample duplicate failed the acceptance criteria. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/08/22

Date Received: 05/19/22

Project: 1260-19001-03, F&BI 205325

Date Extracted: 05/20/22

Date Analyzed: 05/20/22

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

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate <u>(% Recovery)</u> (Limit 51-134)
DW01-220518 205325-01	<100	87
Method Blank 02-1125 MB	<100	91

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/08/22

Date Received: 05/19/22

Project: 1260-19001-03, F&BI 205325

Date Extracted: 05/20/22

Date Analyzed: 06/03/22

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND MOTOR OIL
USING METHOD NWTPH-Dx
Sample Extracts Passed Through a
Silica Gel Column Prior to Analysis
Results Reported as ug/L (ppb)**

<u>Sample ID</u>	<u>Diesel Range</u>	<u>Motor Oil Range</u>	<u>Surrogate</u>
Laboratory ID	(C ₁₀ -C ₂₅)	(C ₂₅ -C ₃₆)	(% Recovery)
			(Limit 41-152)
DW01-220518	<50	<250	108
205325-01			
Method Blank	<50	<250	114
02-1253 MB2			

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/08/22

Date Received: 05/19/22

Project: 1260-19001-03, F&BI 205325

Date Extracted: 05/20/22

Date Analyzed: 05/20/22

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND RESIDUAL RANGE
USING METHOD NWTPH-D_x**

Results Reported as ug/L (ppb)

<u>Sample ID</u>	<u>Diesel Range</u>	<u>Residual Range</u>	<u>Surrogate</u>
Laboratory ID	(C ₁₀ -C ₂₅)	(C ₂₅ -C ₃₆)	(% Recovery)
			(Limit 41-152)
DW01-220518	160 x	<250	139
205325-01 1/0.2			
Method Blank	<50	<250	133
02-1253 MB2			

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DW01-220518	Client:	Evren Northwest
Date Received:	05/19/22	Project:	1260-19001-03, F&BI 205325
Date Extracted:	05/25/22	Lab ID:	205325-01
Date Analyzed:	05/25/22	Data File:	205325-01.064
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Copper	3.96
Lead	1.97
Nickel	1.31

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DW01-220518	Client:	Evren Northwest
Date Received:	05/19/22	Project:	1260-19001-03, F&BI 205325
Date Extracted:	05/25/22	Lab ID:	205325-01 x100
Date Analyzed:	05/26/22	Data File:	205325-01 x100.037
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Zinc	2,850
------	-------

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	1260-19001-03, F&BI 205325
Date Extracted:	05/25/22	Lab ID:	I2-376 mb
Date Analyzed:	05/25/22	Data File:	I2-376 mb.047
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	DW01-220518	Client:	Evren Northwest
Date Received:	05/19/22	Project:	1260-19001-03, F&BI 205325
Date Extracted:	05/28/30	Lab ID:	205325-01
Date Analyzed:	05/29/22	Data File:	052909.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	78	126
Toluene-d8	104	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 205325
Date Extracted:	05/28/22	Lab ID:	02-1296 mb
Date Analyzed:	05/29/22	Data File:	052844.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	78	126
Toluene-d8	113	84	115
4-Bromofluorobenzene	99	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	DW01-220518	Client:	Evren Northwest
Date Received:	05/19/22	Project:	1260-19001-03, F&BI 205325
Date Extracted:	05/23/22	Lab ID:	205325-01 1/0.25
Date Analyzed:	05/24/22	Data File:	052412.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	8 ip	10	60
Phenol-d6	7 ip	10	49
Nitrobenzene-d5	40	15	144
2-Fluorobiphenyl	45	25	128
2,4,6-Tribromophenol	73	10	142
Terphenyl-d14	62	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<0.5	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05	3-Nitroaniline	<5
2-Chlorophenol	<0.5	Acenaphthene	<0.005
1,3-Dichlorobenzene	<0.05	2,4-Dinitrophenol	<1.5
1,4-Dichlorobenzene	<0.05	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5	4-Nitrophenol	<1.5
2,2'-Oxybis(1-chloropropane)	<0.05	Diethyl phthalate	<0.5
2-Methylphenol	<0.5	Fluorene	<0.005
Hexachloroethane	<0.05	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5	Phenanthrene	0.0073
Bis(2-chloroethoxy)methane	<0.05	Anthracene	<0.005
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	<0.05	Fluoranthene	0.0061
Hexachlorobutadiene	<0.05	Pyrene	0.0071
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	<0.005
2-Methylnaphthalene	<0.05	Chrysene	<0.005
1-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	<0.005
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	<0.005
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.005
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	<0.005
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	<0.005
Acenaphthylene	<0.005	Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 205325
Date Extracted:	05/23/22	Lab ID:	02-1261 mb 1/0.25
Date Analyzed:	05/24/22	Data File:	052411.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	15	10	60
Phenol-d6	13	10	49
Nitrobenzene-d5	72	15	144
2-Fluorobiphenyl	73	25	128
2,4,6-Tribromophenol	94	10	142
Terphenyl-d14	85	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<0.5	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05	3-Nitroaniline	<5
2-Chlorophenol	<0.5	Acenaphthene	<0.005
1,3-Dichlorobenzene	<0.05	2,4-Dinitrophenol	<1.5
1,4-Dichlorobenzene	<0.05	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5	4-Nitrophenol	<1.5
2,2'-Oxybis(1-chloropropane)	<0.05	Diethyl phthalate	<0.5
2-Methylphenol	<0.5	Fluorene	<0.005
Hexachloroethane	<0.05	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5	Phenanthrene	0.0052
Bis(2-chloroethoxy)methane	<0.05	Anthracene	<0.005
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	<0.05	Fluoranthene	<0.005
Hexachlorobutadiene	<0.05	Pyrene	<0.005
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	<0.005
2-Methylnaphthalene	<0.05	Chrysene	<0.005
1-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	<0.005
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	<0.005
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.005
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	<0.005
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	<0.005
Acenaphthylene	<0.005	Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	DW01-220518	Client:	Evren Northwest
Date Received:	05/19/22	Project:	1260-19001-03, F&BI 205325
Date Extracted:	05/23/22	Lab ID:	205325-01 1/.05
Date Analyzed:	05/24/22	Data File:	052407.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	2 ip	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.01
Aroclor 1232	<0.01
Aroclor 1016	<0.01
Aroclor 1242	<0.01
Aroclor 1248	<0.01
Aroclor 1254	<0.01
Aroclor 1260	<0.01
Aroclor 1262	<0.01
Aroclor 1268	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 205325
Date Extracted:	05/23/22	Lab ID:	02-1262 mb 1/0.5
Date Analyzed:	05/24/22	Data File:	052404.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	18 vo	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.005 js
Aroclor 1232	<0.005 js
Aroclor 1016	<0.005 js
Aroclor 1242	<0.005 js
Aroclor 1248	<0.005 js
Aroclor 1254	<0.005 js
Aroclor 1260	<0.005 js
Aroclor 1262	<0.005 js
Aroclor 1268	<0.005 js

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/08/22

Date Received: 05/19/22

Project: 1260-19001-03, F&BI 205325

Date Extracted: 05/23/22

Date Analyzed: 05/24/22

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL SUSPENDED SOLIDS
BY METHOD 2540D**

Results Reported as mg/L (ppm)

<u>Sample ID</u> Laboratory ID	Total Suspended <u>Solids</u>
DW01-220518 205325-01	6.5
Method Blank	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/08/22

Date Received: 05/19/22

Project: 1260-19001-03, F&BI 205325

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

Laboratory Code: 205325-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	116	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/08/22

Date Received: 05/19/22

Project: 1260-19001-03, F&BI 205325

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

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	132	132	63-142	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/08/22

Date Received: 05/19/22

Project: 1260-19001-03, F&BI 205325

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

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	140	140	63-142	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/08/22

Date Received: 05/19/22

Project: 1260-19001-03, F&BI 205325

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 205379-01 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Copper	ug/L (ppb)	20	<10	94	96	70-130	2
Lead	ug/L (ppb)	10	<10	93	93	70-130	0
Nickel	ug/L (ppb)	20	<10	93	94	70-130	1
Zinc	ug/L (ppb)	50	<50	87	89	70-130	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Copper	ug/L (ppb)	20	104	85-115
Lead	ug/L (ppb)	10	99	85-115
Nickel	ug/L (ppb)	20	102	85-115
Zinc	ug/L (ppb)	50	100	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/08/22

Date Received: 05/19/22

Project: 1260-19001-03, F&BI 205325

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

Laboratory Code: 205325-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance Criteria
				Recovery MS	
Benzene	ug/L (ppb)	10	<0.35	99	50-150
Toluene	ug/L (ppb)	10	<1	95	50-150
Ethylbenzene	ug/L (ppb)	10	<1	95	50-150
m,p-Xylene	ug/L (ppb)	20	<2	91	50-150
o-Xylene	ug/L (ppb)	10	<1	93	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Benzene	ug/L (ppb)	10	98	102	70-130	4
Toluene	ug/L (ppb)	10	96	98	70-130	2
Ethylbenzene	ug/L (ppb)	10	97	99	70-130	2
m,p-Xylene	ug/L (ppb)	20	96	98	70-130	2
o-Xylene	ug/L (ppb)	10	95	96	70-130	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/08/22

Date Received: 05/19/22

Project: 1260-19001-03, F&BI 205325

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample 1/0.25

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Phenol	ug/L (ppb)	1.3	13	12	10-27	8
Bis(2-chloroethyl) ether	ug/L (ppb)	1.3	65	63	44-118	3
2-Chlorophenol	ug/L (ppb)	1.3	43	42	21-97	2
1,3-Dichlorobenzene	ug/L (ppb)	1.3	64	63	50-95	2
1,4-Dichlorobenzene	ug/L (ppb)	1.3	66	65	53-94	2
1,2-Dichlorobenzene	ug/L (ppb)	1.3	69	67	54-96	3
Benzyl alcohol	ug/L (ppb)	6.3	34	34	14-82	0
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	1.3	68	73	63-101	7
2-Methylphenol	ug/L (ppb)	1.3	33	32	19-74	3
Hexachloroethane	ug/L (ppb)	1.3	64	64	52-96	0
N-Nitroso-di-n-propylamine	ug/L (ppb)	1.3	78	81	70-130	4
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	1.3	30	28	16-60	7
Nitrobenzene	ug/L (ppb)	1.3	71	72	63-109	1
Isophorone	ug/L (ppb)	1.3	83	84	67-114	1
2-Nitrophenol	ug/L (ppb)	1.3	63	72	41-117	13
2,4-Dimethylphenol	ug/L (ppb)	1.3	35	46	23-105	27 vo
Benzoic acid	ug/L (ppb)	10	7 vo	5 vo	10-21	33 vo
Bis(2-chloroethoxy)methane	ug/L (ppb)	1.3	71	77	67-130	8
2,4-Dichlorophenol	ug/L (ppb)	1.3	60	62	34-113	3
1,2,4-Trichlorobenzene	ug/L (ppb)	1.3	68	73	58-97	7
Naphthalene	ug/L (ppb)	1.3	69	72	60-97	4
Hexachlorobutadiene	ug/L (ppb)	1.3	71	73	51-100	3
4-Chloroaniline	ug/L (ppb)	6.3	40	44	40-141	10
4-Chloro-3-methylphenol	ug/L (ppb)	1.3	50	57	34-111	13
2-Methylnaphthalene	ug/L (ppb)	1.3	76	80	63-103	5
1-Methylnaphthalene	ug/L (ppb)	1.3	75	79	64-101	5
Hexachlorocyclopentadiene	ug/L (ppb)	1.3	76	76	34-126	0
2,4,6-Trichlorophenol	ug/L (ppb)	1.3	74	76	28-125	3
2,4,5-Trichlorophenol	ug/L (ppb)	1.3	79	83	39-120	5
2-Chloronaphthalene	ug/L (ppb)	1.3	76	78	65-130	3
2-Nitroaniline	ug/L (ppb)	6.3	84	89	51-146	6
Dimethyl phthalate	ug/L (ppb)	1.3	94	97	70-130	3
Acenaphthylene	ug/L (ppb)	1.3	82	85	70-130	4
2,6-Dinitrotoluene	ug/L (ppb)	1.3	97	91	70-130	6
3-Nitroaniline	ug/L (ppb)	6.3	64	66	42-134	3
Acenaphthene	ug/L (ppb)	1.3	78	81	66-130	4
2,4-Dinitrophenol	ug/L (ppb)	2.5	90	92	10-171	2
Dibenzofuran	ug/L (ppb)	1.3	70	73	56-114	4
2,4-Dinitrotoluene	ug/L (ppb)	1.3	76	75	63-127	1
4-Nitrophenol	ug/L (ppb)	2.5	22	21	10-46	5
Diethyl phthalate	ug/L (ppb)	1.3	94	100	70-130	6
Fluorene	ug/L (ppb)	1.3	88	91	70-130	3
4-Chlorophenyl phenyl ether	ug/L (ppb)	1.3	83	88	70-130	6
N-Nitrosodiphenylamine	ug/L (ppb)	1.3	82	85	70-130	4
4-Nitroaniline	ug/L (ppb)	6.3	68	67	42-150	1
4,6-Dinitro-2-methylphenol	ug/L (ppb)	1.3	89	96	13-148	8
4-Bromophenyl phenyl ether	ug/L (ppb)	1.3	84	90	70-130	7
Hexachlorobenzene	ug/L (ppb)	1.3	88	87	67-130	1
Pentachlorophenol	ug/L (ppb)	1.3	96	99	13-133	3
Phenanthrene	ug/L (ppb)	1.3	83	87	70-130	5
Anthracene	ug/L (ppb)	1.3	88	91	70-130	3
Carbazole	ug/L (ppb)	1.3	92	96	70-130	4
Di-n-butyl phthalate	ug/L (ppb)	1.3	84	88	43-133	5
Fluoranthene	ug/L (ppb)	1.3	93	97	70-130	4
Pyrene	ug/L (ppb)	1.3	82	82	70-130	0
Benzyl butyl phthalate	ug/L (ppb)	1.3	91	94	56-128	3
Benz(a)anthracene	ug/L (ppb)	1.3	87	90	70-130	3
Chrysene	ug/L (ppb)	1.3	87	89	70-130	2
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	1.3	93	101	57-124	8
Di-n-octyl phthalate	ug/L (ppb)	1.3	74	79	43-132	7
Benzo(a)pyrene	ug/L (ppb)	1.3	89	91	70-130	2
Benzo(b)fluoranthene	ug/L (ppb)	1.3	99	104	62-130	5
Benzo(k)fluoranthene	ug/L (ppb)	1.3	84	88	70-130	5
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1.3	112	111	70-130	1
Dibenzo(a,h)anthracene	ug/L (ppb)	1.3	120	116	70-130	3
Benzo(g,h,i)perylene	ug/L (ppb)	1.3	114	115	67-124	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/08/22

Date Received: 05/19/22

Project: 1260-19001-03, F&BI 205325

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
POLYCHLORINATED BIPHENYLS AS
AROCOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	0.25	66	66	25-111	0
Aroclor 1260	ug/L (ppb)	0.25	81	69	23-123	16

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/08/22

Date Received: 05/19/22

Project: 1260-19001-03, F&BI 205325

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
TOTAL SUSPENDED SOLIDS BY METHOD 2540D**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
TSS	mg/L (ppm)	20	104	94	35-146	10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

205325

SAMPLE CHAIN OF CUSTODY

05/14/22

Page # 01 of 01 v03

A13 403
E02

Report To Lynn Green

Company EVREN-NW

Address 40 SE 24th Ave

City, State, ZIP Portland, Oregon 97214

Phone 503-452-5561 Email lynn@g-evren-nw.com

SAMPLES (signature)

PROJECT NAME

PO #

1260-V001-03

REMARKS

INVOICE TO

See Attached form

Project Specific RLS - Yes / No

Other

TURNAROUND TIME
Standard Turnaround
RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

Dispose after 30 days

Archive Samples

ANALYSES REQUESTED

NWTPH-Dx
NWTPH-Gx
BTEX EPA 8021
VOCs EPA 8260
PAHs EPA 8270
PCBs EPA 8082

TSS

Metals Comp, P

Select VOCs

PCBS

Dr 4/56

Select VOCs

Notes

6/1/22

6/1/22

6/1/22

6/1/22

6/1/22

DWO-220518

A-M

05-12-22

5:45

Water

13

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

X

Sample ID

Lab ID

Date Sampled

Time Sampled

Sample Type

of Jars

NWTPH-Dx

NWTPH-Gx

BTEX EPA 8021

VOCs EPA 8260

PAHs EPA 8270

PCBs EPA 8082

TSS

Metals Comp, P

Select VOCs

PCBS

Dr 4/56

Select VOCs

Notes

6/1/22

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6/1/22

6/1/22

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Relinquished by:

Lynn Green

Bobby Hamill

ENL

05-16-22

1100

Friedman & Bruya, Inc.

Received by:

miller

Dhan Pham

FERT

5/19/22

1100

Seattle, WA 98119-2029

Ph. (206) 285-8282

IN

Samples received at 3 °C

6/1/22 ac

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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.

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

June 24, 2022

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

Dear Mr Green:

Included are the results from the testing of material submitted on June 14, 2022 from the 1260-19001-03, F&BI 206257 project. There are 21 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: Neil Woller, Paul Trone, Evan Bruggeman
ENW0624R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on June 14, 2022 by Friedman & Bruya, Inc. from the Evren Northwest 1260-19001-03, F&BI 206257 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
206257 -01	DW01-SW-220610

An 8270E surrogate failed the laboratory acceptance criteria in sample DW01-SW-220610. The data were flagged accordingly.

Several compounds in the 8270E laboratory control sample and laboratory control sample duplicate failed the acceptance criteria. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/24/22

Date Received: 06/14/22

Project: 1260-19001-03, F&BI 206257

Date Extracted: 06/16/22

Date Analyzed: 06/17/22

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

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate <u>(% Recovery)</u> (Limit 51-134)
DW01-SW-220610 206257-01	<100	53
Method Blank 02-1159 MB	<100	91

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/24/22

Date Received: 06/14/22

Project: 1260-19001-03, F&BI 206257

Date Extracted: 06/15/22

Date Analyzed: 06/15/22

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND RESIDUAL RANGE
USING METHOD NWTPH-D_x**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Residual Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 41-152)
DW01-SW-220610 206257-01 1/0.2	<50	<250	96
Method Blank 02-1411 MB2	<50	<250	103

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DW01-SW-220610	Client:	Evren Northwest
Date Received:	06/14/22	Project:	1260-19001-03, F&BI 206257
Date Extracted:	06/15/22	Lab ID:	206257-01
Date Analyzed:	06/15/22	Data File:	206257-01.142
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Copper	1.78
Lead	0.536
Nickel	1.14

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	DW01-SW-220610	Client:	Evren Northwest
Date Received:	06/14/22	Project:	1260-19001-03, F&BI 206257
Date Extracted:	06/15/22	Lab ID:	206257-01 x100
Date Analyzed:	06/16/22	Data File:	206257-01 x100.072
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	2,240
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	1260-19001-03, F&BI 206257
Date Extracted:	06/15/22	Lab ID:	I2-421 mb
Date Analyzed:	06/16/22	Data File:	I2-421 mb.062
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Copper	<0.2
Lead	<0.2
Nickel	<1
Zinc	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	DW01-SW-220610	Client:	Evren Northwest
Date Received:	06/14/22	Project:	1260-19001-03, F&BI 206257
Date Extracted:	06/15/22	Lab ID:	206257-01
Date Analyzed:	06/20/22	Data File:	062014.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	71	132
Toluene-d8	92	68	139
4-Bromofluorobenzene	99	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 206257
Date Extracted:	06/15/22	Lab ID:	02-1389 mb
Date Analyzed:	06/15/22	Data File:	061507.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	78	126
Toluene-d8	114	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	DW01-SW-220610	Client:	Evren Northwest
Date Received:	06/14/22	Project:	1260-19001-03, F&BI 206257
Date Extracted:	06/15/22	Lab ID:	206257-01 1/0.25
Date Analyzed:	06/16/22	Data File:	061611.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	4 vo	11	65
Phenol-d6	5 vo	11	65
Nitrobenzene-d5	59	50	150
2-Fluorobiphenyl	74	44	108
2,4,6-Tribromophenol	57	10	140
Terphenyl-d14	89	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<0.5 js jl	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05 js	3-Nitroaniline	<5
2-Chlorophenol	<0.5 js	Acenaphthene	<0.005
1,3-Dichlorobenzene	<0.05 js	2,4-Dinitrophenol	<1.5
1,4-Dichlorobenzene	<0.05 js	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05 js	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5 js	4-Nitrophenol	<1.5 jl
2,2'-Oxybis(1-chloropropane)	<0.05 js	Diethyl phthalate	<0.5
2-Methylphenol	<0.5 js	Fluorene	<0.005
Hexachloroethane	<0.05 js	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05 js	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1 js	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5 jl	Phenanthrene	<0.005
Bis(2-chloroethoxy)methane	<0.05	Anthracene	<0.005
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	<0.05	Fluoranthene	<0.005
Hexachlorobutadiene	<0.05	Pyrene	<0.005
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	<0.005
2-Methylnaphthalene	<0.05	Chrysene	<0.005
1-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	<0.005
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	<0.005
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.005
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	<0.005
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	<0.005
Acenaphthylene	<0.005	Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 206257
Date Extracted:	06/15/22	Lab ID:	02-1414 mb 1/0.25
Date Analyzed:	06/16/22	Data File:	061610.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	13	11	65
Phenol-d6	9	11	65
Nitrobenzene-d5	85	50	150
2-Fluorobiphenyl	83	44	108
2,4,6-Tribromophenol	72	10	140
Terphenyl-d14	101	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<0.5 js jl	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05 js	3-Nitroaniline	<5
2-Chlorophenol	<0.5 js	Acenaphthene	<0.005
1,3-Dichlorobenzene	<0.05 js	2,4-Dinitrophenol	<1.5
1,4-Dichlorobenzene	<0.05 js	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05 js	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5 js	4-Nitrophenol	<1.5 jl
2,2'-Oxybis(1-chloropropane)	<0.05 js	Diethyl phthalate	<0.5
2-Methylphenol	<0.5 js	Fluorene	<0.005
Hexachloroethane	<0.05 js	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05 js	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1 js	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5 jl	Phenanthrene	<0.005
Bis(2-chloroethoxy)methane	<0.05	Anthracene	<0.005
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	<0.05	Fluoranthene	<0.005
Hexachlorobutadiene	<0.05	Pyrene	<0.005
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	<0.005
2-Methylnaphthalene	<0.05	Chrysene	<0.005
1-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	<0.005
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	<0.005
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.005
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	<0.005
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	<0.005
Acenaphthylene	<0.005	Benzo(g,h,i)perylene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	DW01-SW-220610	Client:	Evren Northwest
Date Received:	06/14/22	Project:	1260-19001-03, F&BI 206257
Date Extracted:	06/15/22	Lab ID:	206257-01 1/0.5
Date Analyzed:	06/15/22	Data File:	061515.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	31	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.01
Aroclor 1232	<0.01
Aroclor 1016	<0.01
Aroclor 1242	<0.01
Aroclor 1248	<0.01
Aroclor 1254	<0.01
Aroclor 1260	<0.01
Aroclor 1262	<0.01
Aroclor 1268	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 206257
Date Extracted:	06/15/22	Lab ID:	02-1415 mb 1/0.5
Date Analyzed:	06/15/22	Data File:	061512.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	33	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.01
Aroclor 1232	<0.01
Aroclor 1016	<0.01
Aroclor 1242	<0.01
Aroclor 1248	<0.01
Aroclor 1254	<0.01
Aroclor 1260	<0.01
Aroclor 1262	<0.01
Aroclor 1268	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/24/22

Date Received: 06/14/22

Project: 1260-19001-03, F&BI 206257

Date Extracted: 06/17/22

Date Analyzed: 06/17/22

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL SUSPENDED SOLIDS
BY METHOD 2540D**

Results Reported as mg/L (ppm)

<u>Sample ID</u> Laboratory ID	Total Suspended <u>Solids</u>
DW01-SW-220610 206257-01	6.0
Method Blank	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/24/22

Date Received: 06/14/22

Project: 1260-19001-03, F&BI 206257

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

Laboratory Code: 206264-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	95	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/24/22

Date Received: 06/14/22

Project: 1260-19001-03, F&BI 206257

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

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	100	61-133	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/24/22

Date Received: 06/14/22

Project: 1260-19001-03, F&BI 206257

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 206215-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Copper	ug/L (ppb)	20	2.22	99	96	70-130	3
Lead	ug/L (ppb)	10	<1	95	96	70-130	1
Nickel	ug/L (ppb)	20	1.54	100	98	70-130	2
Zinc	ug/L (ppb)	50	<5	97	95	70-130	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Copper	ug/L (ppb)	20	105	85-115
Lead	ug/L (ppb)	10	95	85-115
Nickel	ug/L (ppb)	20	102	85-115
Zinc	ug/L (ppb)	50	101	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/24/22

Date Received: 06/14/22

Project: 1260-19001-03, F&BI 206257

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

Laboratory Code: 206257-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent	Acceptance Criteria
				Recovery MS	
Benzene	ug/L (ppb)	10	<0.35	104	50-150
Toluene	ug/L (ppb)	10	1.3	101	50-150
Ethylbenzene	ug/L (ppb)	10	<1	101	50-150
m,p-Xylene	ug/L (ppb)	20	<2	101	50-150
o-Xylene	ug/L (ppb)	10	<1	98	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Percent	Acceptance Criteria	RPD (Limit 20)
			Recovery LCS	Recovery LCSD		
Benzene	ug/L (ppb)	10	98	96	70-130	2
Toluene	ug/L (ppb)	10	111	108	70-130	3
Ethylbenzene	ug/L (ppb)	10	99	101	70-130	2
m,p-Xylene	ug/L (ppb)	20	99	101	70-130	2
o-Xylene	ug/L (ppb)	10	98	98	70-130	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/24/22

Date Received: 06/14/22

Project: 1260-19001-03, F&BI 206257

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample 1/0.25

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCS D	Acceptance Criteria	RPD (Limit 20)
Phenol	ug/L (ppb)	5	9 vo	9 vo	10-86	0
Bis(2-chloroethyl) ether	ug/L (ppb)	5	77	74	60-88	4
2-Chlorophenol	ug/L (ppb)	5	41	40	10-89	2
1,3-Dichlorobenzene	ug/L (ppb)	5	71	75	48-91	5
1,4-Dichlorobenzene	ug/L (ppb)	5	70	74	48-91	6
1,2-Dichlorobenzene	ug/L (ppb)	5	72	74	52-92	3
Benzyl alcohol	ug/L (ppb)	25	30	31	10-72	3
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	5	81	78	59-86	4
2-Methylphenol	ug/L (ppb)	5	31	32	10-75	3
Hexachloroethane	ug/L (ppb)	5	69	73	47-92	6
N-Nitroso-di-n-propylamine	ug/L (ppb)	5	87	87	70-130	0
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	5	25	27	10-66	8
Nitrobenzene	ug/L (ppb)	5	79	78	60-90	1
Isophorone	ug/L (ppb)	5	86	91	70-130	6
2-Nitrophenol	ug/L (ppb)	5	67	58	27-104	14
2,4-Dimethylphenol	ug/L (ppb)	5	30	31	10-84	3
Benzoic acid	ug/L (ppb)	40	3 vo	3 vo	10-102	0
Bis(2-chloroethoxy)methane	ug/L (ppb)	5	86	88	55-103	2
2,4-Dichlorophenol	ug/L (ppb)	5	58	57	23-103	2
1,2,4-Trichlorobenzene	ug/L (ppb)	5	73	75	56-93	3
Naphthalene	ug/L (ppb)	5	80	80	62-90	0
Hexachlorobutadiene	ug/L (ppb)	5	74	75	48-85	1
4-Chloroaniline	ug/L (ppb)	25	66	71	35-108	7
4-Chloro-3-methylphenol	ug/L (ppb)	5	55	61	18-109	10
2-Methylnaphthalene	ug/L (ppb)	5	85	87	64-93	2
1-Methylnaphthalene	ug/L (ppb)	5	84	86	64-93	2
Hexachlorocyclopentadiene	ug/L (ppb)	5	86	79	49-112	8
2,4,6-Trichlorophenol	ug/L (ppb)	5	55	43	16-112	24 vo
2,4,5-Trichlorophenol	ug/L (ppb)	5	67	59	26-113	13
2-Chloronaphthalene	ug/L (ppb)	5	86	87	67-97	1
2-Nitroaniline	ug/L (ppb)	25	96	104	31-168	8
Dimethyl phthalate	ug/L (ppb)	5	92	101	70-130	9
Acenaphthylene	ug/L (ppb)	5	91	94	70-130	3
2,6-Dinitrotoluene	ug/L (ppb)	5	93	96	70-130	3
3-Nitroaniline	ug/L (ppb)	25	75	85	33-120	12
Acenaphthene	ug/L (ppb)	5	89	92	70-130	3
2,4-Dinitrophenol	ug/L (ppb)	10	18	15	10-120	18
Dibenzofuran	ug/L (ppb)	5	90	95	67-107	5
2,4-Dinitrotoluene	ug/L (ppb)	5	89	99	53-132	11
4-Nitrophenol	ug/L (ppb)	10	8 vo	7 vo	10-89	13
Diethyl phthalate	ug/L (ppb)	5	94	107	70-130	13
Fluorene	ug/L (ppb)	5	92	99	70-130	7
4-Chlorophenyl phenyl ether	ug/L (ppb)	5	90	96	70-130	6
N-Nitrosodiphenylamine	ug/L (ppb)	5	86	92	70-130	7
4-Nitroaniline	ug/L (ppb)	25	69	77	32-122	11
4,6-Dinitro-2-methylphenol	ug/L (ppb)	5	46	36	10-139	24 vo
4-Bromophenyl phenyl ether	ug/L (ppb)	5	87	90	70-130	3
Hexachlorobenzene	ug/L (ppb)	5	85	91	65-95	7
Pentachlorophenol	ug/L (ppb)	5	45	35	10-129	25 vo
Phenanthrene	ug/L (ppb)	5	88	97	70-130	10
Anthracene	ug/L (ppb)	5	91	97	70-130	6
Carbazole	ug/L (ppb)	5	97	106	70-130	9
Di-n-butyl phthalate	ug/L (ppb)	5	101	106	28-147	5
Fluoranthene	ug/L (ppb)	5	94	102	70-130	8
Pyrene	ug/L (ppb)	5	97	100	70-130	3
Benzyl butyl phthalate	ug/L (ppb)	5	99	106	34-142	7
Benz(a)anthracene	ug/L (ppb)	5	93	97	70-130	4
Chrysene	ug/L (ppb)	5	94	100	70-130	6
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	5	91	95	53-133	4
Di-n-octyl phthalate	ug/L (ppb)	5	113	126 vo	49-119	11
Benzo(a)pyrene	ug/L (ppb)	5	97	106	70-130	9
Benzo(b)fluoranthene	ug/L (ppb)	5	98	106	70-130	8
Benzo(k)fluoranthene	ug/L (ppb)	5	95	109	70-130	14
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	96	100	70-130	4
Dibenz(a,h)anthracene	ug/L (ppb)	5	101	101	70-130	0
Benzo(g,h,i)perylene	ug/L (ppb)	5	93	93	70-130	0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/24/22

Date Received: 06/14/22

Project: 1260-19001-03, F&BI 206257

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
POLYCHLORINATED BIPHENYLS AS
AROCOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	0.25	41	42	25-111	2
Aroclor 1260	ug/L (ppb)	0.25	48	52	23-123	8

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/24/22

Date Received: 06/14/22

Project: 1260-19001-03, F&BI 206257

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
TOTAL SUSPENDED SOLIDS BY METHOD 2540D**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
TSS	mg/L (ppm)	20	106	108	35-146	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

January 31, 2023

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

Dear Mr Green:

Included are the additional results from the testing of material submitted on November 30, 2022 from the 1260-19001-03, F&BI 211413 project. There are 4 pages included in this report.

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: Neil Woller, Paul Trone, Evan Bruggeman
ENW0131R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 30, 2022 by Friedman & Bruya, Inc. from the Evren Northwest 1260-19001-03, F&BI 211413 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID

211413 -01

Evren Northwest

M1001-SW-221129

The NWTPH-Dx with silica gel analysis was performed outside of the method recommended holding time. The data were qualified accordingly.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/31/23

Date Received: 11/30/22

Project: 1260-19001-03, F&BI 211413

Date Extracted: 12/01/22

Date Analyzed: 01/25/23

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND RESIDUAL RANGE
USING METHOD NWTPH-D_x
Sample Extracts Passed Through a
Silica Gel Column Prior to Analysis
Results Reported as ug/L (ppb)**

<u>Sample ID</u>	<u>Diesel Range</u>	<u>Residual Range</u>	<u>Surrogate</u>
Laboratory ID	(C ₁₀ -C ₂₅)	(C ₂₅ -C ₃₆)	(% Recovery)
			(Limit 41-152)
M1001-SW-221129 ht	100 x	370	106
211413-01			
Method Blank	<50	<250	104
02-2891 MB			

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/31/23

Date Received: 11/30/22

Project: 1260-19001-03, F&BI 211413

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

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	1,000	92	91	70-130	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

B4/M2/vw1

Page # 01 of 01
 TURNAROUND TIME
 Standard Turnaround
 RUSH _____
 Rush charges authorized by: _____
 SAMPLE DISPOSAL
 Dispose after 30 days
 Archive Samples
 Other _____

[illegible]

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Reinquished by: 	BAILEY FAWCETT	ENW	11-29-22	17:00
Received by: 	ANH PHAN	F8B	11/30/22	11:06
Relinquished by:				
Received by:				

Examiner received at 1900

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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fbi@isomedia.com
www.friedmanandbruya.com

December 9, 2022

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

Dear Mr Green:

Included are the results from the testing of material submitted on November 30, 2022 from the 1260-19001-03, F&BI 211413 project. There are 21 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: Neil Woller, Paul Trone, Evan Bruggeman
ENW1209R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 30, 2022 by Friedman & Bruya, Inc. from the Evren Northwest 1260-19001-03, F&BI 211413 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
211413 -01	M1001-SW-221129

The 8270E calibration standard failed the acceptance criteria for pyrene. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/09/22

Date Received: 11/30/22

Project: 1260-19001-03, F&BI 211413

Date Extracted: 12/06/22

Date Analyzed: 12/06/22

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-G_x**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate <u>(% Recovery)</u> (Limit 50-150)
M1001-SW-221129 211413-01	<100	101
Method Blank 02-2740 MB	<100	108

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/09/22

Date Received: 11/30/22

Project: 1260-19001-03, F&BI 211413

Date Extracted: 12/01/22

Date Analyzed: 12/01/22

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL10 AND MOTOR OIL
USING METHOD NWTPH-D_x
Results Reported as ug/L (ppb)**

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
M1001-SW-221129 211413-01 1/0.4	370 x	550 x	116
Method Blank 02-2891 MB	<50	<250	110

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M1001-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211413
Date Extracted:	12/05/22	Lab ID:	211413-01
Date Analyzed:	12/06/22	Data File:	211413-01.450
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Copper	7.62
Lead	4.71
Nickel	2.54

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M1001-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211413
Date Extracted:	12/05/22	Lab ID:	211413-01 x100
Date Analyzed:	12/06/22	Data File:	211413-01 x100.116
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	2,780
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	1260-19001-03, F&BI 211413
Date Extracted:	12/05/22	Lab ID:	I2-865 mb
Date Analyzed:	12/05/22	Data File:	I2-865 mb.232
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Copper	<5
Lead	<1
Nickel	<1
Zinc	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	M1001-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211413
Date Extracted:	12/01/22	Lab ID:	211413-01
Date Analyzed:	12/01/22	Data File:	120123.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	71	132
Toluene-d8	95	68	139
4-Bromofluorobenzene	102	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 211413
Date Extracted:	12/01/22	Lab ID:	02-2831 mb
Date Analyzed:	12/01/22	Data File:	120107.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	71	132
Toluene-d8	94	68	139
4-Bromofluorobenzene	98	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID: M1001-SW-221129	Client: Evren Northwest
Date Received: 11/30/22	Project: 1260-19001-03, F&BI 211413
Date Extracted: 12/01/22	Lab ID: 211413-01 1/0.5
Date Analyzed: 12/02/22	Data File: 120215.D
Matrix: Water	Instrument: GCMS9
Units: ug/L (ppb)	Operator: VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	69	15	144
2-Fluorobiphenyl	79	25	128
2,4,6-Tribromophenol	98	10	142
Terphenyl-d14	117	41	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
2-Methylnaphthalene	<0.1
1-Methylnaphthalene	<0.1
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.039
Anthracene	<0.01
Fluoranthene	0.050
Pyrene	0.092 ca
Benz(a)anthracene	0.015
Chrysene	0.041
Benzo(a)pyrene	0.027
Benzo(b)fluoranthene	0.052
Benzo(k)fluoranthene	0.013
Indeno(1,2,3-cd)pyrene	0.020
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	0.029
Dibenz(a,h)anthracene	<0.01
Dimethyl phthalate	<1
Diethyl phthalate	<1
Di-n-butyl phthalate	<1
Benzyl butyl phthalate	<1
Bis(2-ethylhexyl) phthalate	<1.6
Di-n-octyl phthalate	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 211413
Date Extracted:	12/01/22	Lab ID:	02-2892 mb 1/0.5
Date Analyzed:	12/02/22	Data File:	120208.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	93	15	144
2-Fluorobiphenyl	92	25	128
2,4,6-Tribromophenol	65	10	142
Terphenyl-d14	113	41	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
2-Methylnaphthalene	<0.1
1-Methylnaphthalene	<0.1
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.02
Dibenz(a,h)anthracene	<0.01
Dimethyl phthalate	<1
Diethyl phthalate	<1
Di-n-butyl phthalate	<1
Benzyl butyl phthalate	<1
Bis(2-ethylhexyl) phthalate	<1.6
Di-n-octyl phthalate	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	M1001-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211413
Date Extracted:	12/01/22	Lab ID:	211413-01 1/0.5
Date Analyzed:	12/02/22	Data File:	120206.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	46	29	154

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0019 j
Aroclor 1232	<0.0019 j
Aroclor 1016	<0.0019 j
Aroclor 1242	<0.0019 j
Aroclor 1248	<0.0019 j
Aroclor 1254	<0.0019 j
Aroclor 1260	0.0045 j
Aroclor 1262	<0.0019 j
Aroclor 1268	<0.0019 j

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 211413
Date Extracted:	12/01/22	Lab ID:	02-2888 mb2 1/0.5
Date Analyzed:	12/02/22	Data File:	120204.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	53	29	154

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0019 j
Aroclor 1232	<0.0019 j
Aroclor 1016	<0.0019 j
Aroclor 1242	<0.0019 j
Aroclor 1248	<0.0019 j
Aroclor 1254	<0.0019 j
Aroclor 1260	<0.0019 j
Aroclor 1262	<0.0019 j
Aroclor 1268	<0.0019 j

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/09/22

Date Received: 11/30/22

Project: 1260-19001-03, F&BI 211413

Date Extracted: 12/01/22

Date Analyzed: 12/08/22

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL SUSPENDED SOLIDS
BY METHOD 2540D**

Results Reported as mg/L (ppm)

<u>Sample ID</u> Laboratory ID	Total Suspended <u>Solids</u>
M1001-SW-221129 211413-01	30
Method Blank 02-2894 MB	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/09/22

Date Received: 11/30/22

Project: 1260-19001-03, F&BI 211413

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

Laboratory Code: 212013-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	190	190	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	110	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/09/22

Date Received: 11/30/22

Project: 1260-19001-03, F&BI 211413

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

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)	1,000	82	84	70-130	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/09/22

Date Received: 11/30/22

Project: 1260-19001-03, F&BI 211413

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 211400-15 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Copper	ug/L (ppb)	20	<5	91	92	70-130	1
Lead	ug/L (ppb)	10	<1	97	98	70-130	1
Nickel	ug/L (ppb)	20	5.28	92	88	70-130	4
Zinc	ug/L (ppb)	50	5.47	95	95	70-130	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Copper	ug/L (ppb)	20	112	85-115
Lead	ug/L (ppb)	10	95	85-115
Nickel	ug/L (ppb)	20	102	85-115
Zinc	ug/L (ppb)	50	103	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/09/22

Date Received: 11/30/22

Project: 1260-19001-03, F&BI 211413

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Benzene	ug/L (ppb)	10	105	116	70-130	10
Toluene	ug/L (ppb)	10	101	105	70-130	4
Ethylbenzene	ug/L (ppb)	10	106	107	70-130	1
m,p-Xylene	ug/L (ppb)	20	105	107	70-130	2
o-Xylene	ug/L (ppb)	10	103	104	70-130	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/09/22

Date Received: 11/30/22

Project: 1260-19001-03, F&BI 211413

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	2.5	74	82	50-104	10
2-Methylnaphthalene	ug/L (ppb)	2.5	75	82	54-109	9
1-Methylnaphthalene	ug/L (ppb)	2.5	74	81	55-108	9
Dimethyl phthalate	ug/L (ppb)	2.5	96	106	64-118	10
Acenaphthylene	ug/L (ppb)	2.5	90	99	60-114	10
Acenaphthene	ug/L (ppb)	2.5	86	95	57-110	10
Diethyl phthalate	ug/L (ppb)	2.5	98	108	63-118	10
Fluorene	ug/L (ppb)	2.5	90	99	61-115	10
Phenanthrene	ug/L (ppb)	2.5	89	100	63-113	12
Anthracene	ug/L (ppb)	2.5	90	100	65-117	11
Di-n-butyl phthalate	ug/L (ppb)	2.5	80	94	37-135	16
Fluoranthene	ug/L (ppb)	2.5	98	110	68-121	12
Pyrene	ug/L (ppb)	2.5	108	114	66-125	5
Benzyl butyl phthalate	ug/L (ppb)	2.5	121	133 vo	56-128	9
Benz(a)anthracene	ug/L (ppb)	2.5	107	116	70-130	8
Chrysene	ug/L (ppb)	2.5	101	109	67-119	8
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	2.5	91	106	57-124	15
Di-n-octyl phthalate	ug/L (ppb)	2.5	90	100	43-132	11
Benzo(a)pyrene	ug/L (ppb)	2.5	101	109	68-126	8
Benzo(b)fluoranthene	ug/L (ppb)	2.5	106	117	62-130	10
Benzo(k)fluoranthene	ug/L (ppb)	2.5	105	108	67-125	3
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2.5	105	113	63-131	7
Dibenz(a,h)anthracene	ug/L (ppb)	2.5	108	117	62-133	8
Benzo(g,h,i)perylene	ug/L (ppb)	2.5	101	110	57-133	9

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/09/22

Date Received: 11/30/22

Project: 1260-19001-03, F&BI 211413

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
POLYCHLORINATED BIPHENYLS AS
AROCOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	0.25	74	76	25-111	3
Aroclor 1260	ug/L (ppb)	0.25	85	88	23-123	3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/09/22

Date Received: 11/30/22

Project: 1260-19001-03, F&BI 211413

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
TOTAL SUSPENDED SOLIDS BY METHOD 2540D**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
TSS	mg/L (ppm)	20	94	96	35-146	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

B4/M2/vw1

Page # 61 of 61

~~TURNAROUND TIME~~
Standard Turnaround
RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

Other _____

Page # 01 of 01
TURNAROUND TIME
Standard Turnaround
RUSH
 Rush charges authorized by: _____

SAMPLE DISPOSAL
 Dispose after 30 days
 Archive Samples
 Other _____

[illegible]

1735

11:00

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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January 24, 2023

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

Dear Mr Green:

Included are the results from the testing of material submitted on January 5, 2023 from the 1260-19001-03, F&BI 301041 project. There are 23 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: Neil Woller, Paul Trone, Evan Bruggeman
ENW0124R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on January 5, 2023 by Friedman & Bruya, Inc. from the Evren Northwest 1260-19001-03, F&BI 301041 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
301041 -01	M1001-SW-230104

Several compounds in the 8270E laboratory control sample and laboratory control sample duplicate failed the acceptance criteria. The data were flagged accordingly.

Several 8270E compounds were detected in sample M1001-SW-230104 at a level greater than one tenth the concentration detected in the samples. The affected data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/24/23
Date Received: 01/05/23
Project: 1260-19001-03, F&BI 301041
Date Extracted: 01/10/23
Date Analyzed: 01/10/23

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
USING METHOD NWTPH-G_x**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate <u>(% Recovery)</u> (Limit 50-150)
M1001-SW-230104 301041-01 1/10	20,000	120
Method Blank 03-0016 MB	<100	113

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/24/23
Date Received: 01/05/23
Project: 1260-19001-03, F&BI 301041
Date Extracted: 01/05/23
Date Analyzed: 01/05/23

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS
DIESEL AND RESIDUAL RANGE
USING METHOD NWTPH-D_x**
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Residual Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
M1001-SW-230104 301041-01	5,500 x	<250	90
Method Blank 03-112 MB2	<50	<250	103

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M1001-SW-230104	Client:	Evren Northwest
Date Received:	01/05/23	Project:	1260-19001-03, F&BI 301041
Date Extracted:	01/05/22	Lab ID:	301041-01
Date Analyzed:	01/05/23	Data File:	301041-01.120
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Copper	5.13
Lead	2.34
Nickel	2.10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M1001-SW-230104	Client:	Evren Northwest
Date Received:	01/05/23	Project:	1260-19001-03, F&BI 301041
Date Extracted:	01/05/23	Lab ID:	301041-01 x100
Date Analyzed:	01/06/23	Data File:	301041-01 x100.051
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	2,770
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	NA	Project:	1260-19001-03, F&BI 301041
Date Extracted:	01/05/23	Lab ID:	I3-06 mb
Date Analyzed:	01/05/23	Data File:	I3-06 mb.109
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Copper	<0.5
Lead	<0.15 j
Nickel	<1
Zinc	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	M1001-SW-230104	Client:	Evren Northwest
Date Received:	01/05/23	Project:	1260-19001-03, F&BI 301041
Date Extracted:	01/09/23	Lab ID:	301041-01 1/200
Date Analyzed:	01/09/23	Data File:	010911.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	98	84	115
4-Bromofluorobenzene	98	72	130

Compounds:	Concentration ug/L (ppb)
Benzene	<70
Toluene	1,300
Ethylbenzene	490
m,p-Xylene	2,000
o-Xylene	930

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 301041
Date Extracted:	01/09/23	Lab ID:	03-0057 mb
Date Analyzed:	01/09/23	Data File:	010916.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	71	132
Toluene-d8	100	68	139
4-Bromofluorobenzene	97	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID: M1001-SW-230104	Client: Evren Northwest
Date Received: 01/05/23	Project: 1260-19001-03, F&BI 301041
Date Extracted: 01/06/23	Lab ID: 301041-01 1/0.5
Date Analyzed: 01/06/23	Data File: 010611.D
Matrix: Water	Instrument: GCMS9
Units: ug/L (ppb)	Operator: VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	21	10	60
Phenol-d6	25	10	49
Nitrobenzene-d5	71	15	144
2-Fluorobiphenyl	81	25	128
2,4,6-Tribromophenol	87	10	142
Terphenyl-d14	110	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	0.045 jl
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1 jl	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1 jl	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1 jl	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1 jl
N-Nitroso-di-n-propylamine	<0.1 jl	N-Nitrosodiphenylamine	<0.1 jl
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10 jl
Nitrobenzene	<0.1 jl	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1 jl	4-Bromophenyl phenyl ether	<0.1 jl
2-Nitrophenol	<1	Hexachlorobenzene	<0.1 jl
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	0.14 fb jl
Bis(2-chloroethoxy)methane	<0.1 jl	Anthracene	0.049 jl
2,4-Dichlorophenol	<1	Carbazole	<0.1 jl
1,2,4-Trichlorobenzene	<0.1 jl	Di-n-butyl phthalate	<1 ca
Naphthalene	63 ve jl	Fluoranthene	0.028 fb jl
Hexachlorobutadiene	<0.1	Pyrene	0.047 fb jl
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	0.020 jl
2-Methylnaphthalene	24 ve jl	Chrysene	0.015 jl
1-Methylnaphthalene	15 jl	Bis(2-ethylhexyl) phthalate	<1.6
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1 ca
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	0.015 fb jl
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	0.016 fb jl
2-Chloronaphthalene	<0.1 jl	Benzo(k)fluoranthene	<0.01 jl
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	0.012 jl
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01 jl
Acenaphthylene	<0.01 jl	Benzo(g,h,i)perylene	<0.02 jl

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID: M1001-SW-230104	Client: Evren Northwest
Date Received: 01/05/23	Project: 1260-19001-03, F&BI 301041
Date Extracted: 01/06/23	Lab ID: 301041-01 1/5
Date Analyzed: 01/06/23	Data File: 010616.D
Matrix: Water	Instrument: GCMS9
Units: ug/L (ppb)	Operator: VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	27 d	10	60
Phenol-d6	27 d	10	49
Nitrobenzene-d5	64 d	15	144
2-Fluorobiphenyl	77 d	25	128
2,4,6-Tribromophenol	99 d	10	142
Terphenyl-d14	102 d	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<10	2,6-Dinitrotoluene	<5
Bis(2-chloroethyl) ether	<1	3-Nitroaniline	<100
2-Chlorophenol	<10	Acenaphthene	<0.1 jl
1,3-Dichlorobenzene	<1	2,4-Dinitrophenol	<30
1,4-Dichlorobenzene	<1 jl	Dibenzofuran	<1
1,2-Dichlorobenzene	<1 jl	2,4-Dinitrotoluene	<5
Benzyl alcohol	<10	4-Nitrophenol	<30
2,2'-Oxybis(1-chloropropane)	<1 jl	Diethyl phthalate	<10
2-Methylphenol	<10	Fluorene	<0.1
Hexachloroethane	<1	4-Chlorophenyl phenyl ether	<1 jl
N-Nitroso-di-n-propylamine	<1 jl	N-Nitrosodiphenylamine	<1 jl
3-Methylphenol + 4-Methylphenol	<20	4-Nitroaniline	<100 jl
Nitrobenzene	<1 jl	4,6-Dinitro-2-methylphenol	<30
Isophorone	<1 jl	4-Bromophenyl phenyl ether	<1 jl
2-Nitrophenol	<10	Hexachlorobenzene	<1 jl
2,4-Dimethylphenol	<10	Pentachlorophenol	<5
Benzoic acid	<50	Phenanthrene	0.15 fb jl
Bis(2-chloroethoxy)methane	<1 jl	Anthracene	<0.1 jl
2,4-Dichlorophenol	<10	Carbazole	<1 jl
1,2,4-Trichlorobenzene	<1 jl	Di-n-butyl phthalate	<10 ca
Naphthalene	81 jl	Fluoranthene	<0.1 jl
Hexachlorobutadiene	<1	Pyrene	<0.1 jl
4-Chloroaniline	<100	Benzyl butyl phthalate	<10
4-Chloro-3-methylphenol	<10	Benz(a)anthracene	<0.1 jl
2-Methylnaphthalene	26 jl	Chrysene	<0.1 jl
1-Methylnaphthalene	17 jl	Bis(2-ethylhexyl) phthalate	<16
Hexachlorocyclopentadiene	<3	Di-n-octyl phthalate	<10 ca
2,4,6-Trichlorophenol	<10	Benzo(a)pyrene	<0.1 jl
2,4,5-Trichlorophenol	<10	Benzo(b)fluoranthene	<0.1
2-Chloronaphthalene	<1 jl	Benzo(k)fluoranthene	<0.1 jl
2-Nitroaniline	<5	Indeno(1,2,3-cd)pyrene	<0.1 jl
Dimethyl phthalate	<10	Dibenz(a,h)anthracene	<0.1 jl
Acenaphthylene	<0.1 jl	Benzo(g,h,i)perylene	<0.2 j 1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 301041
Date Extracted:	01/06/23	Lab ID:	03-114 mb 1/0.5
Date Analyzed:	01/06/23	Data File:	010613.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	36	10	60
Phenol-d6	24	10	49
Nitrobenzene-d5	64	15	144
2-Fluorobiphenyl	70	25	128
2,4,6-Tribromophenol	79	10	142
Terphenyl-d14	96	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01 jl
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1 jl	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1 jl	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1 jl	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	0.033 lc jl
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1 jl
N-Nitroso-di-n-propylamine	<0.1 jl	N-Nitrosodiphenylamine	<0.1 jl
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10 jl
Nitrobenzene	<0.1 jl	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1 jl	4-Bromophenyl phenyl ether	<0.1 jl
2-Nitrophenol	<1	Hexachlorobenzene	<0.1 jl
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	0.065 lc jl
Bis(2-chloroethoxy)methane	<0.1 jl	Anthracene	<0.01 jl
2,4-Dichlorophenol	<1	Carbazole	<0.1 jl
1,2,4-Trichlorobenzene	<0.1 jl	Di-n-butyl phthalate	<1 ca
Naphthalene	<0.1 jl	Fluoranthene	0.011 lc jl
Hexachlorobutadiene	<0.1	Pyrene	0.016 lc jl
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01 jl
2-Methylnaphthalene	0.12 lc jl	Chrysene	<0.01 jl
1-Methylnaphthalene	<0.1 jl	Bis(2-ethylhexyl) phthalate	<1.6
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1 ca
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01 jl
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1 jl	Benzo(k)fluoranthene	<0.01 jl
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01 jl
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01 jl
Acenaphthylene	<0.01 jl	Benzo(g,h,i)perylene	<0.02 jl

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	M1001-SW-230104	Client:	Evren Northwest
Date Received:	01/05/23	Project:	1260-19001-03, F&BI 301041
Date Extracted:	01/09/23	Lab ID:	301041-01 1/0.5
Date Analyzed:	01/09/23	Data File:	010910.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	31	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0019 j
Aroclor 1232	<0.0019 j
Aroclor 1016	<0.0019 j
Aroclor 1242	<0.0019 j
Aroclor 1248	<0.0019 j
Aroclor 1254	<0.0019 j
Aroclor 1260	0.011 j
Aroclor 1262	<0.0019 j
Aroclor 1268	<0.0019 j

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 301041
Date Extracted:	01/09/22	Lab ID:	03-122 mb 1/0.5
Date Analyzed:	01/09/23	Data File:	010907.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	36	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0019 j
Aroclor 1232	<0.0019 j
Aroclor 1016	<0.0019 j
Aroclor 1242	<0.0019 j
Aroclor 1248	<0.0019 j
Aroclor 1254	<0.0019 j
Aroclor 1260	<0.0019 j
Aroclor 1262	<0.0019 j
Aroclor 1268	<0.0019 j

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/24/23

Date Received: 01/05/23

Project: 1260-19001-03, F&BI 301041

Date Extracted: 01/10/23

Date Analyzed: 01/11/23

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL SUSPENDED SOLIDS
BY METHOD 2540D**

Results Reported as mg/L (ppm)

<u>Sample ID</u> Laboratory ID	Total Suspended <u>Solids</u>
M1001-SW-230104 301041-01	18
Method Blank 03-131 mb	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/24/23

Date Received: 01/05/23

Project: 1260-19001-03, F&BI 301041

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

Laboratory Code: 301008-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	120	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/24/23

Date Received: 01/05/23

Project: 1260-19001-03, F&BI 301041

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

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	112	100	70-130	11

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/24/23

Date Received: 01/05/23

Project: 1260-19001-03, F&BI 301041

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 301041-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Copper	ug/L (ppb)	20	5.13	102	100	70-130	2
Lead	ug/L (ppb)	10	2.34	91	91	70-130	0
Nickel	ug/L (ppb)	20	2.10	100	100	70-130	0
Zinc	ug/L (ppb)	50	2,670	<5	35 b	70-130	

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Copper	ug/L (ppb)	20	106	85-115
Lead	ug/L (ppb)	10	104	85-115
Nickel	ug/L (ppb)	20	105	85-115
Zinc	ug/L (ppb)	50	102	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/24/23

Date Received: 01/05/23

Project: 1260-19001-03, F&BI 301041

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

Laboratory Code: 301070-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Benzene	ug/L (ppb)	10	<0.35	73	50-150
Toluene	ug/L (ppb)	10	2.3	81 b	50-150
Ethylbenzene	ug/L (ppb)	10	<1	78	50-150
m,p-Xylene	ug/L (ppb)	20	2.5	79	50-150
o-Xylene	ug/L (ppb)	10	1.0	74	50-150

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/24/23

Date Received: 01/05/23

Project: 1260-19001-03, F&BI 301041

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Benzene	ug/L (ppb)	10	109	99	70-130	10
Toluene	ug/L (ppb)	10	106	108	70-130	2
Ethylbenzene	ug/L (ppb)	10	106	107	70-130	1
m,p-Xylene	ug/L (ppb)	20	106	108	70-130	2
o-Xylene	ug/L (ppb)	10	103	105	70-130	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/24/23

Date Received: 01/05/23

Project: 1260-19001-03, F&BI 301041

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCS/D	Acceptance Criteria	RPD (Limit 20)
Phenol	ug/L (ppb)	2.5	25	19	10-30	27 vo
Bis(2-chloroethyl) ether	ug/L (ppb)	2.5	61	46	43-117	28 vo
2-Chlorophenol	ug/L (ppb)	2.5	59	44	21-97	29 vo
1,3-Dichlorobenzene	ug/L (ppb)	2.5	61	39	39-102	44 vo
1,4-Dichlorobenzene	ug/L (ppb)	2.5	64	40 vo	41-103	46 vo
1,2-Dichlorobenzene	ug/L (ppb)	2.5	65	41 vo	43-105	45 vo
Benzyl alcohol	ug/L (ppb)	13	59	42	14-82	34 vo
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	2.5	70	49 vo	51-110	35 vo
2-Methylphenol	ug/L (ppb)	2.5	54	39	19-77	32 vo
Hexachloroethane	ug/L (ppb)	2.5	62	40	39-104	43 vo
N-Nitroso-di-n-propylamine	ug/L (ppb)	2.5	75	56 vo	60-114	29 vo
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	2.5	50	38	14-63	27 vo
Nitrobenzene	ug/L (ppb)	2.5	63	50 vo	53-114	23 vo
Isophorone	ug/L (ppb)	2.5	73	56 vo	62-113	26 vo
2-Nitrophenol	ug/L (ppb)	2.5	69	56	41-117	21 vo
2,4-Dimethylphenol	ug/L (ppb)	2.5	34	24	23-105	34 vo
Benzoic acid	ug/L (ppb)	20	16	15	10-25	6
Bis(2-chloroethoxy)methane	ug/L (ppb)	2.5	68	53 vo	56-111	25 vo
2,4-Dichlorophenol	ug/L (ppb)	2.5	68	53	34-113	25 vo
1,2,4-Trichlorobenzene	ug/L (ppb)	2.5	62	44 vo	48-104	34 vo
Naphthalene	ug/L (ppb)	2.5	63	46 vo	50-104	31 vo
Hexachlorobutadiene	ug/L (ppb)	2.5	65	41	40-107	45 vo
4-Chloroaniline	ug/L (ppb)	13	57	43	34-120	28 vo
4-Chloro-3-methylphenol	ug/L (ppb)	2.5	73	56	34-111	26 vo
2-Methylnaphthalene	ug/L (ppb)	2.5	68	48 vo	54-109	34 vo
1-Methylnaphthalene	ug/L (ppb)	2.5	73	52 vo	55-108	34 vo
Hexachlorocyclopentadiene	ug/L (ppb)	2.5	70	55	34-126	24 vo
2,4,6-Trichlorophenol	ug/L (ppb)	2.5	74	61	28-125	19
2,4,5-Trichlorophenol	ug/L (ppb)	2.5	82	65	39-120	23 vo
2-Chloronaphthalene	ug/L (ppb)	2.5	70	54 vo	57-130	26 vo
2-Nitroaniline	ug/L (ppb)	13	77	63	51-146	20
Dimethyl phthalate	ug/L (ppb)	2.5	85	66	64-118	25 vo
Acenaphthylene	ug/L (ppb)	2.5	74	58 vo	60-114	24 vo
2,6-Dinitrotoluene	ug/L (ppb)	2.5	90	70	66-121	25 vo
3-Nitroaniline	ug/L (ppb)	13	68	57	42-134	18
Acenaphthene	ug/L (ppb)	2.5	72	56 vo	57-110	25 vo
2,4-Dinitrophenol	ug/L (ppb)	5	64	60	10-171	6
Dibenzofuran	ug/L (ppb)	2.5	73	56	52-116	26 vo
2,4-Dinitrotoluene	ug/L (ppb)	2.5	81	63	55-127	25 vo
4-Nitrophenol	ug/L (ppb)	5	28	25	10-46	11
Diethyl phthalate	ug/L (ppb)	2.5	85	66	63-118	25 vo
Fluorene	ug/L (ppb)	2.5	77	59 vo	61-115	26 vo
4-Chlorophenyl phenyl ether	ug/L (ppb)	2.5	78	60 vo	61-112	26 vo
N-Nitrosodiphenylamine	ug/L (ppb)	2.5	76	56 vo	63-116	30 vo
4-Nitroaniline	ug/L (ppb)	13	65	54	42-150	18
4,6-Dinitro-2-methylphenol	ug/L (ppb)	2.5	74	62	13-152	18
4-Bromophenyl phenyl ether	ug/L (ppb)	2.5	82	61 vo	62-115	29 vo
Hexachlorobenzene	ug/L (ppb)	2.5	80	59 vo	60-113	30 vo
Pentachlorophenol	ug/L (ppb)	2.5	81	66	14-137	20
Phenanthrene	ug/L (ppb)	2.5	76	56 vo	63-113	30 vo
Anthracene	ug/L (ppb)	2.5	77	59 vo	65-117	26 vo
Carbazole	ug/L (ppb)	2.5	82	61 vo	67-131	29 vo
Di-n-butyl phthalate	ug/L (ppb)	2.5	72	53	37-135	30 vo
Fluoranthene	ug/L (ppb)	2.5	85	63 vo	68-121	30 vo
Pyrene	ug/L (ppb)	2.5	81	61 vo	66-125	28 vo
Benzyl butyl phthalate	ug/L (ppb)	2.5	90	68	56-128	28 vo
Benz(a)anthracene	ug/L (ppb)	2.5	86	64 vo	70-130	29 vo
Chrysene	ug/L (ppb)	2.5	89	65 vo	67-119	31 vo
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	2.5	88	62	57-124	35 vo
Di-n-octyl phthalate	ug/L (ppb)	2.5	100	75	43-132	29 vo
Benzo(a)pyrene	ug/L (ppb)	2.5	84	63 vo	68-126	29 vo
Benzo(b)fluoranthene	ug/L (ppb)	2.5	88	65	62-130	30 vo
Benzo(k)fluoranthene	ug/L (ppb)	2.5	89	66 vo	67-125	30 vo
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2.5	72	58 vo	63-131	22 vo
Dibenz(a,h)anthracene	ug/L (ppb)	2.5	71	55 vo	62-133	25 vo
Benzo(g,h,i)perylene	ug/L (ppb)	2.5	70	54 vo	57-133	26 vo

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/24/23

Date Received: 01/05/23

Project: 1260-19001-03, F&BI 301041

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
POLYCHLORINATED BIPHENYLS AS
AROCOR 1016/1260 BY EPA METHOD 8082A**

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	0.25	70	74	25-111	6
Aroclor 1260	ug/L (ppb)	0.25	87	88	23-123	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 01/24/23

Date Received: 01/05/23

Project: 1260-19001-03, F&BI 301041

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES FOR
TOTAL SUSPENDED SOLIDS BY METHOD 2540D**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
TSS	mg/L (ppm)	20	98	88	35-146	10

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

51/vw1/c4

Page # 71 of 71

Phone (563) 461-5561 Email lynne@Ewen-WJ.com

Default: Dispose after 30 days

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: 	Bailey Fowler	EWU	01/09/23	17:06
Received by: 	Nathan Phan	FRBT	01/05/23	10:45
Relinquished by:				
Received by:				

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
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Eric Young, B.S.

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February 9, 2022

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

Dear Mr Green:

Included are the results from the testing of material submitted on February 1, 2022 from the 1260-19001-04, F&BI 202010 project. There are 10 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: Neil Woller, Paul Trone, Evan Bruggeman
ENW0209R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 1, 2022 by Friedman & Bruya, Inc. from the Evren Northwest 1260-19001-04, F&BI 202010 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
202010 -01	RD04-SW-220130
202010 -02	RD02-SW-220130

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	RD04-SW-220130	Client:	Evren Northwest
Date Received:	02/01/22	Project:	1260-19001-04, F&BI 202010
Date Extracted:	02/02/22	Lab ID:	202010-01
Date Analyzed:	02/02/22	Data File:	202010-01.141
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	592
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	RD02-SW-220130	Client:	Evren Northwest
Date Received:	02/01/22	Project:	1260-19001-04, F&BI 202010
Date Extracted:	02/02/22	Lab ID:	202010-02 x100
Date Analyzed:	02/03/22	Data File:	202010-02 x100.047
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	7,590
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-04, F&BI 202010
Date Extracted:	02/02/22	Lab ID:	I2-94 mb
Date Analyzed:	02/02/22	Data File:	I2-94 mb.041
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	<5
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	RD04-SW-220130	Client:	Evren Northwest
Date Received:	02/01/22	Project:	1260-19001-04, F&BI 202010
Date Extracted:	02/03/22	Lab ID:	202010-01 x100
Date Analyzed:	02/03/22	Data File:	202010-01 x100.128
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	620
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	RD02-SW-220130	Client:	Evren Northwest
Date Received:	02/01/22	Project:	1260-19001-04, F&BI 202010
Date Extracted:	02/03/22	Lab ID:	202010-02 x100
Date Analyzed:	02/03/22	Data File:	202010-02 x100.129
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	8,050
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-04, F&BI 202010
Date Extracted:	02/03/22	Lab ID:	I2-99 mb
Date Analyzed:	02/03/22	Data File:	I2-99 mb.094
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	<5
------	----

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/09/22

Date Received: 02/01/22

Project: 1260-19001-04, F&BI 202010

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8**

Laboratory Code: 201370-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Zinc	ug/L (ppb)	50	<5	91	90	70-130	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Zinc	ug/L (ppb)	50	98	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 02/09/22

Date Received: 02/01/22

Project: 1260-19001-04, F&BI 202010

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 202015-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Zinc	ug/L (ppb)	50	5.29	98	90	70-130	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Zinc	ug/L (ppb)	50	101	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ATI

Default: Dispose after 30 days

Page # 01 of C1

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	Total Zinc	dissolved Zinc	Notes
R004-SL-22C130	01 A-B	01-30-22	18:36	water	2								X	X	
R002-SL-22C130	02 A-B	01-30-22	19:00	water	2								X	X	
R006-SL-22C130	03	1/30/21	1900	W	1										only 1 sample received Aug 21 Aug 21

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: <i>[Signature]</i>	Bailly FOUVE	ENJ	01-31-21	NOG
Received by: <i>[Signature]</i>	Annalya	FRB	2/1/22	1045
Relinquished by:				
Received by:				
Samples received at <u>6</u> °C				

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

December 8, 2022

Lynn Green, Project Manager
Evren Northwest, Inc.
PO Box 14488
Portland, OR 97293

Dear Mr Green:

Included are the results from the testing of material submitted on November 30, 2022 from the 1260-19001-03, F&BI 211414 project. There are 32 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: Neil Woller, Paul Trone, Evan Bruggeman
ENW1208R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 30, 2022 by Friedman & Bruya, Inc. from the Evren Northwest 1260-19001-03, F&BI 211414 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Evren Northwest</u>
211414 -01	RD01-SW-221129
211414 -02	RD02-SW-221129
211414 -03	RD03-SW-221129
211414 -04	RD04-SW-221129
211414 -05	RD05-SW-221129
211414 -06	RD06-SW-221129
211414 -07	RD07-SW-221129
211414 -08	RD08-SW-221129
211414 -09	RD09-SW-221129
211414 -10	RD11-SW-221129
211414 -11	RD13-SW-221129
211414 -12	RD14-SW-221129
211414 -13	RD15-SW-221129

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	RD01-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/06/22	Lab ID:	211414-01 x10
Date Analyzed:	12/06/22	Data File:	211414-01 x10.120
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	3,020
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	RD02-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/06/22	Lab ID:	211414-02
Date Analyzed:	12/06/22	Data File:	211414-02.121
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	77.9
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	RD03-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/06/22	Lab ID:	211414-03
Date Analyzed:	12/06/22	Data File:	211414-03.122
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	60.6
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	RD04-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/06/22	Lab ID:	211414-04
Date Analyzed:	12/06/22	Data File:	211414-04.123
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	75.7
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	RD05-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/06/22	Lab ID:	211414-05
Date Analyzed:	12/06/22	Data File:	211414-05.124
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	78.4
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	RD06-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/06/22	Lab ID:	211414-06
Date Analyzed:	12/06/22	Data File:	211414-06.125
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	114
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	RD07-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/06/22	Lab ID:	211414-07
Date Analyzed:	12/06/22	Data File:	211414-07.126
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	320
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	RD08-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/06/22	Lab ID:	211414-08
Date Analyzed:	12/06/22	Data File:	211414-08.127
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	551
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	RD09-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/06/22	Lab ID:	211414-09 x10
Date Analyzed:	12/06/22	Data File:	211414-09 x10.132
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	4,920
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	RD11-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/06/22	Lab ID:	211414-10 x10
Date Analyzed:	12/06/22	Data File:	211414-10 x10.133
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	4,780
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	RD13-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/06/22	Lab ID:	211414-11 x10
Date Analyzed:	12/06/22	Data File:	211414-11 x10.134
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	3,870
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	RD14-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/06/22	Lab ID:	211414-12 x10
Date Analyzed:	12/06/22	Data File:	211414-12 x10.135
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Zinc	2,780
------	-------

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	RD15-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/06/22	Lab ID:	211414-13
Date Analyzed:	12/06/22	Data File:	211414-13.136
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	51.8
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/06/22	Lab ID:	I2-870 mb
Date Analyzed:	12/06/22	Data File:	I2-870 mb.077
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	<5
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	RD01-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/05/22	Lab ID:	211414-01 x100
Date Analyzed:	12/06/22	Data File:	211414-01 x100.109
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	3,180
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	RD02-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/05/22	Lab ID:	211414-02
Date Analyzed:	12/06/22	Data File:	211414-02.110
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Zinc	89.2
------	------

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	RD03-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/05/22	Lab ID:	211414-03
Date Analyzed:	12/05/22	Data File:	211414-03.357
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	94.0
------	------

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	RD04-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/05/22	Lab ID:	211414-04
Date Analyzed:	12/05/22	Data File:	211414-04.358
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
----------	-----------------------------

Zinc	92.3
------	------

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	RD05-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/05/22	Lab ID:	211414-05
Date Analyzed:	12/05/22	Data File:	211414-05.359
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	89.5
------	------

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	RD06-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/05/22	Lab ID:	211414-06
Date Analyzed:	12/05/22	Data File:	211414-06.360
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	121
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	RD07-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/05/22	Lab ID:	211414-07
Date Analyzed:	12/06/22	Data File:	211414-07.367
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	346
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	RD08-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/05/22	Lab ID:	211414-08
Date Analyzed:	12/06/22	Data File:	211414-08.368
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	732
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	RD09-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/05/22	Lab ID:	211414-09 x100
Date Analyzed:	12/06/22	Data File:	211414-09 x100.111
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	5,580
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	RD11-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/05/22	Lab ID:	211414-10 x100
Date Analyzed:	12/06/22	Data File:	211414-10 x100.112
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	5,390
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	RD13-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/05/22	Lab ID:	211414-11 x100
Date Analyzed:	12/06/22	Data File:	211414-11 x100.113
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	4,900
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	RD14-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/05/22	Lab ID:	211414-12 x100
Date Analyzed:	12/06/22	Data File:	211414-12 x100.114
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	3,300
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	RD15-SW-221129	Client:	Evren Northwest
Date Received:	11/30/22	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/05/22	Lab ID:	211414-13
Date Analyzed:	12/06/22	Data File:	211414-13.115
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	61.9
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Evren Northwest
Date Received:	Not Applicable	Project:	1260-19001-03, F&BI 211414
Date Extracted:	12/05/22	Lab ID:	I2-865 mb
Date Analyzed:	12/05/22	Data File:	I2-865 mb.232
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
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Zinc	<5
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/08/22

Date Received: 11/30/22

Project: 1260-19001-03, F&BI 211414

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR DISSOLVED METALS USING EPA METHOD 200.8**

Laboratory Code: 212040-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Zinc	ug/L (ppb)	50	9.97	90	85	70-130	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Zinc	ug/L (ppb)	50	98	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/08/22

Date Received: 11/30/22

Project: 1260-19001-03, F&BI 211414

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF WATER SAMPLES
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 211400-15 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Zinc	ug/L (ppb)	50	5.47	95	95	70-130	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Zinc	ug/L (ppb)	50	103	85-115

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

211414

Report To: Lynn Green

Company: EVREN-NW

Address: 40 SE 24th Ave

City, State, ZIP: Portland, Oregon 97214

Phone: 503-452-5561 Email: lynn@evren-nw.com

SAMPLE CHAIN OF CUSTODY

SAMPLERS (signature)

PROJECT NAME

1260-19001-03

REMARKS

See Attached Form for VOCs
Project Specific RIs - Yes / No

PO #

INVOICE TO

11/30/22

Page # 01 of 02

TURNAROUND TIME
Standard Turnaround
RUSH

Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Archive Samples
Other

						ANALYSES REQUESTED												
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	TSS	Total Cu, Pb, Ni, Zn	PCBs	Select VOCs	Total Zn	Dissolved Zn	Notes
19001-SW-221129		11-29-22	10:35	water	13	X	X	X		X		X	X	X	X			
19001-SW-221129	01 A-B	11-29-22	12:50	water	2												X	X
19002-SW-221129	02	11-29-22	12:30	water	2												X	X
19003-SW-221129	03	11-29-22	12:45	water	2												X	X
19004-SW-221129	04	11-29-22	12:20	water	2												X	X
19005-SW-221129	05	11-29-22	12:31	water	2												X	X
19006-SW-221129	06	11-29-22	12:00	water	2												X	X
19007-SW-221129	07	11-29-22	11:54	water	2												X	X
19008-SW-221129	08	11-29-22	11:44	water	2												X	X
19009-SW-221129	09	11-29-22	13:40	water	2												X	X

Friedmann & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Bolton Fawcett	ENR	11-29-22	17:00
Received by:	ANH PHAM	ENR	11/30/22	11:06
Relinquished by:				
Received by:				

Samples received at 1°C

hw

117
6

of 04

Rush charges authorized by:

SAMPLE DISPOSAL

Dispose after 30 days
Archive Samples
Other_____

ANALYSES REQUESTED

[illegible]

Appendix C

Storm Water System Maintenance BMPs

Environmentally Responsible Best Management Practices

17 Maintaining Catch Basins

A catch basin is an inlet to a storm drain system that typically includes a grate where stormwater enters the catch basin, and a basin to capture sediment, debris, and associated pollutants. The purpose of the basin is to help prevent the downstream pipes from becoming clogged and to reduce the amount of sediment and debris being discharged into our rivers and streams. Many catch basins are installed with a downturned elbow or tee to trap floatable material. Storm drain inlets that do not contain basins or outlet traps are not effective in reducing pollutants in stormwater.

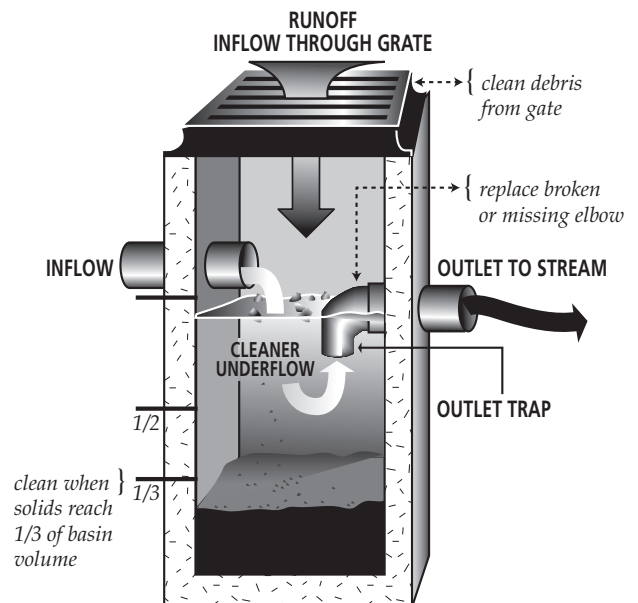
Catch basins must be cleaned periodically to maintain their ability to trap sediment and provide drainage for stormwater. The removal of sediment, decaying debris, and associated pollutants from catch basins has aesthetic and water quality benefits. The benefits include reducing foul odors, solids, and other pollutants that reach receiving waters.

Grates:

- Remove leaves and trash so the grate doesn't clog.
- Consider marking the message "Dump No Waste, Drains to Stream" next to your grates in areas that may be at risk. Vendors can be found in the telephone directories or on the web.

Catch Basin:

- The more frequently a catch basin is cleaned, the more pollutants it removes. The U.S. Environmental Protection Agency (EPA) recommends cleaning if the depth of solids reaches one-third the depth from the basin bottom to the invert of the lowest pipe into or out of the basin.
- To clean the catch basin you can hire a contractor by looking in a telephone directory or you can do it yourself by lifting the grate and using a bucket (to remove water) and a shovel to remove the sediment.



- Dispose of the water in a sanitary sewer through a shop drain or sink. Otherwise, use a toilet or other appropriate drain. Let the removed solids dry out, then properly dispose of them. When deciding how to dispose of the sediment, you need to consider the types of activities and pollutants on site. Catch basins in areas used for chemical or hazardous waste storage, material handling or equipment maintenance may collect the chemicals used in these activities from spills or via stormwater runoff. Solids removed from catch basins at commercial or industrial sites are usually not considered hazardous waste and may be disposed of as solid waste. However, as the "generator" of this waste, you are responsible for making that decision and deciding how to properly manage the solids. If you need assistance deciding whether the solids should be managed as a hazardous waste, contact the Oregon Department of Environmental Quality at 503-229-5263. Make sure the removed solids don't wash back into your catch basin, and don't dispose of them on your or someone else's property.

continued on back

Be sure to follow safety precautions:

- Use caution in removing the grate as it may be heavy.
- Don't leave an open catch basin unattended.
- Never enter a catch basin or other drainage structure unless you are properly trained.
- Ensure proper traffic safety is in place.

Tips:

- Sweep your lot regularly to reduce the need for catch basin cleaning.
- Consider installing and maintaining catch basin inserts or an oil-absorbent pillow.
- Repair or replace damaged outlet traps.
- Install an outlet trap if there isn't one already. They're inexpensive and make it easier and cheaper to remove any floatable pollutants that spill into your catch basin.
- Make sure your chemical and waste storage practices aren't exposed to rainfall and stormwater runoff.
- Don't wash vehicles or equipment to the storm sewer system.

For additional Best Management Practices to minimize pollution from other site activities, call 503-823-5320.



ENVIRONMENTAL SERVICES
CITY OF PORTLAND
working for clean rivers

STANDARD O&M PLAN FOR THE SIMPLIFIED APPROACH

3.1.1.11. Drywells and Soakage Trenches

Structural components must be operated and maintained in accordance with the design specifications.		
	MAINTENANCE INDICATOR	CORRECTIVE ACTION
	Clogged inlets, manholes, catch basins, or silt traps	Clean gutters, rain drains, catch basins, or silt traps at least twice a year. Remove sediment, debris, and blockages from catch basins, trench drains, curb inlets, and pipes to maintain at least 50% conveyance at all times.
	Cracked drain pipes, catch basins or manholes	Repair or seal cracks. Replace when repair is insufficient.
	Vegetation encroachment	Prevent large root systems from trees and bushes from damaging subsurface structural components.
	Ponding water	Remove sediment and debris from all accessible components. Repeated ponding in the system may indicate end of facility life. Consult with City prior to decommissioning or replacement activities.

Annual Maintenance Schedule

Summer	Make structural repairs. Clear drains, inlets and catch basins.
Fall	Clean gutters and rain drains; remove sediment and plant debris.
Winter	Monitor infiltration rates.
Spring	Clean gutters and rain drains

Maintenance Records: All facility operators are required to keep an inspection and maintenance log. Record date, description, and contractor (if applicable) for all repairs, landscape maintenance, and facility cleanout activities. Keep work orders and invoices on file and make available upon request of the City inspector.

Access: Maintain ingress/egress per design standards.

Infiltration/Flow Control: All facilities must drain within 48 hours. Record time/date, weather, and site conditions when ponding occurs.

Pollution Prevention: All sites must implement Best Management Practices to prevent contamination of stormwater. Call 503-823-7180 to report spills. Never wash spills into a stormwater facility. If contamination occurs, document the circumstances and the corrective action taken; include the time/date, weather, and site conditions.

Vectors (Mosquitoes and Rats): Stormwater facilities must not harbor mosquito larvae or rodents that pose a threat to public health or that undermine the facility structure. Record the time/date, weather, and site conditions when vector activity observed. Record when vector abatement started and ended.



PERKFILTER™

Inspection and Maintenance Guide



PerkFilter™ Media Filtration System

Description

The PerkFilter is a stormwater treatment device used to remove pollutants from urban runoff. Impervious surfaces and other urban and suburban landscapes generate a variety of contaminants that can enter stormwater and pollute downstream receiving waters. The PerkFilter is a media-filled cartridge filtration device designed to capture and retain sediment, gross solids, metals, nutrients, hydrocarbons, and trash and debris. As with any stormwater treatment system, the PerkFilter requires periodic maintenance to sustain optimum system performance.

Function

The PerkFilter is a water quality treatment system consisting of three chambers: an inlet chamber, a filter cartridge treatment chamber, and an outlet chamber (Figure 1). Stormwater runoff enters the inlet chamber through an inlet pipe, curb opening, or grated inlet. Gross solids are settled out, and floating trash and debris are trapped in the inlet chamber. Pretreated flow is then directed to the treatment chamber through an opening in the baffle wall between the inlet chamber and treatment chamber. The treatment chamber contains media-filled filter cartridges (Figure 2) that use physical and chemical processes to remove pollutants. During a storm event, runoff pools in the treatment chamber before passing radially through the cylindrical cartridges from the outside surface, through the media for treatment, and into the center of the cartridge. At the center of the cartridge is a center tube assembly designed to distribute the hydraulic load evenly across the surface of the filter cartridge and control the treatment flow rate. The center tube assembly discharges treated flow through the false floor and into the outlet chamber. A draindown feature built into each cartridge allows the treatment chamber to dewater between storm events.

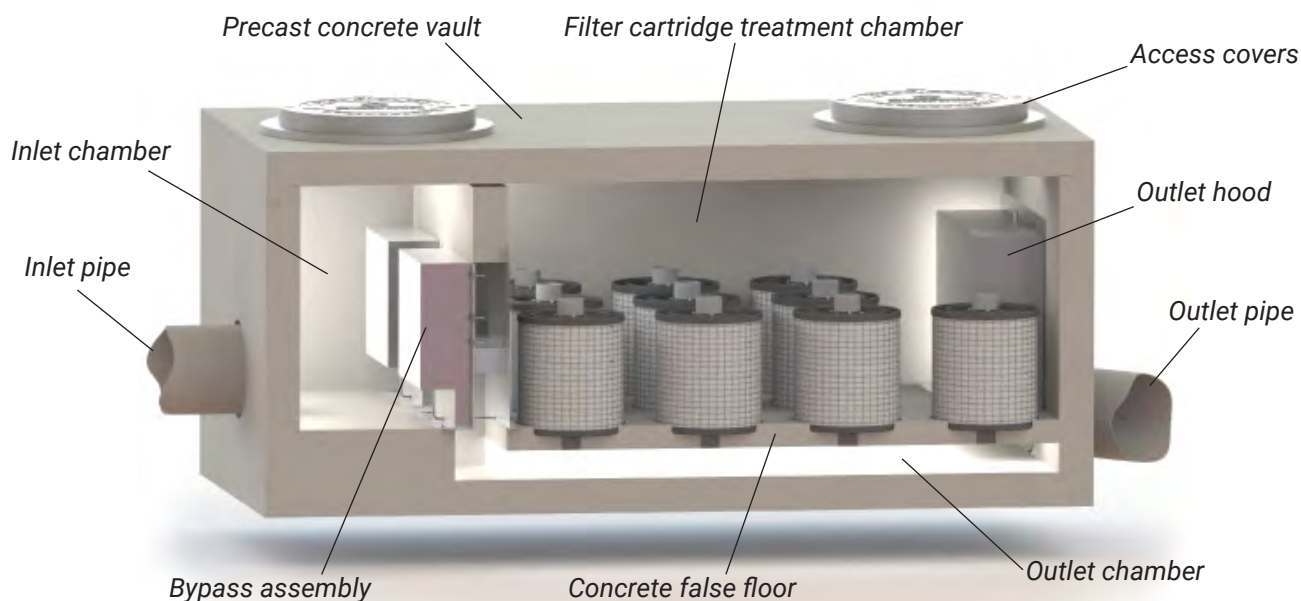


Figure 1. Schematic of the PerkFilter system.

All PerkFilter systems include a high-flow bypass assembly to divert flow exceeding the treatment capacity of the filter cartridges around the treatment chamber. The bypass assembly routes peak flow from the inlet chamber directly to the outlet chamber, bypassing the treatment chamber to prevent sediment and other captured pollutants from being scoured and re-entrained by high flow. Treated flow and bypass flow merge in the outlet chamber for discharge by a single outlet pipe.

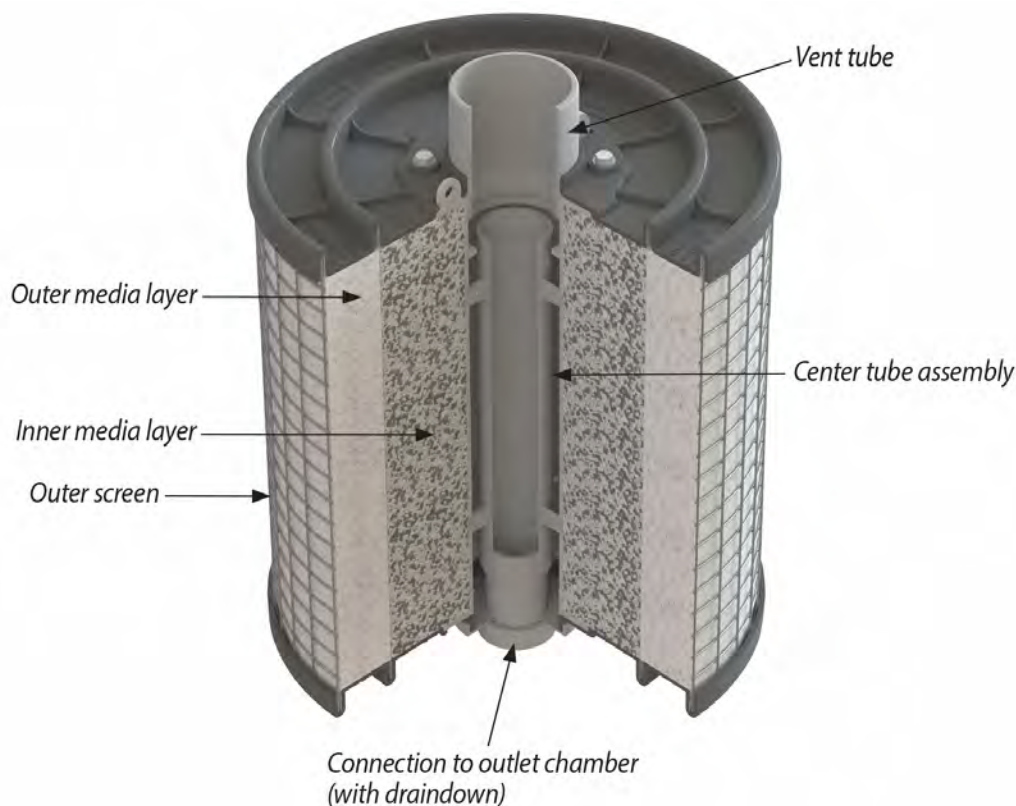


Figure 2. Schematic of PerkFilter cartridge.

Configuration

The PerkFilter structure may consist of a vault, manhole, or catch basin configuration. Catch basin units may be fabricated from concrete or steel. Internal components including the PerkFilter cartridges are manufactured from durable plastic and stainless steel components and hardware. All cartridges are 18 inches in diameter and are available in two heights: 12-inch and 18-inch. Cartridges may be used alone or may be stacked (Figure 3) to provide 24-inch and 30-inch combinations. The capacity of each cartridge or cartridge combination is dictated by the allowable operating rate of the media and the outer surface area of the cartridge. Thus, taller cartridges have greater treatment capacity than shorter cartridges, but they also require more hydraulic drop across the system. Cartridges may be filled with a wide variety of media but the standard mix is composed of zeolite, perlite and carbon (ZPC).

Access to an installed PerkFilter system is typically provided by ductile iron castings or hatch covers. The location and number of access appurtenances is dependent on the size and configuration of the system.

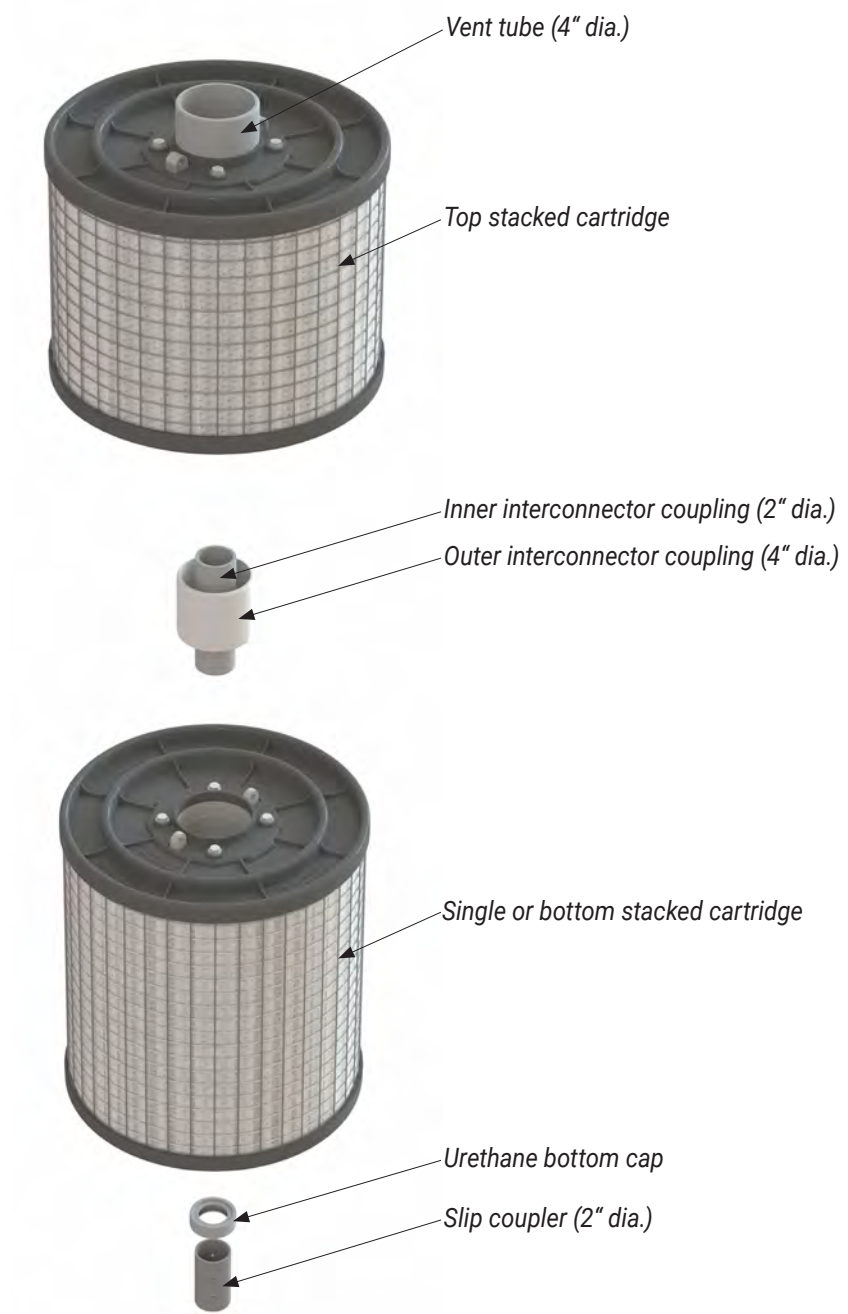


Figure 3. Schematic of stacked cartridges and connector components.

Maintenance Overview

State and local regulations require all stormwater management systems to be inspected on a periodic basis and maintained as necessary to ensure performance and protect downstream receiving waters. Maintenance prevents excessive pollutant buildup that can limit system performance by reducing the operating capacity and increasing the potential for scouring of pollutants during periods of high flow.

Inspection and Maintenance Frequency

The PerkFilter should be inspected on a periodic basis, typically twice per year, and maintained as required. Initially, inspections of a new system should be conducted more frequently to help establish an appropriate site-specific inspection frequency. The maintenance frequency will be driven by the amount of runoff and pollutant loading encountered by a given system. In most cases, the optimum maintenance interval will be one to three years. Inspection and maintenance activities should be performed only during dry weather periods.

Inspection Equipment

The following equipment is helpful when conducting PerkFilter inspections:

- Recording device (pen and paper form, voice recorder, iPad, etc.)
- Suitable clothing (appropriate footwear, gloves, hardhat, safety glasses, etc.)
- Traffic control equipment (cones, barricades, signage, flagging, etc.)
- Socket and wrench for bolt-down access covers
- Manhole hook or pry bar
- Flashlight
- Tape measure
- Measuring stick or sludge sampler
- Long-handled net (optional)

Inspection Procedures

PerkFilter inspections are visual and may be conducted from the ground surface without entering the unit. To complete an inspection, safety measures including traffic control should be deployed before the access covers are removed. Once the covers have been removed, the following items should be checked and recorded (see form provided at the end of this document) to determine whether maintenance is required:

- Inspect the internal components and note whether there are any broken or missing parts. In the unlikely event that internal parts are broken or missing, contact Oldcastle Infrastructure at (800) 579-8819 to determine appropriate corrective action.
- Note whether the inlet pipe is blocked or obstructed. The outlet pipe is covered by a removable outlet hood and cannot be observed without entering the unit.
- Observe, quantify and record the accumulation of floating trash and debris in the inlet chamber. The significance of accumulated floating trash and debris is a matter of judgment. A long-handled net may be used to retrieve the bulk of trash and debris at the time of inspection if full maintenance due to accumulation of floating oils or settled sediment is not yet warranted.

- Observe, quantify and record the accumulation of oils in the inlet chamber. The significance of accumulated floating oils is a matter of judgment. However, if there is evidence of an oil or fuel spill, immediate maintenance by appropriate certified personnel is warranted.
- Observe, quantify and record the average accumulation of sediment in the inlet chamber and treatment chamber. A calibrated dipstick, tape measure, or sludge sampler may be used to determine the amount of accumulated sediment in each chamber. The depth of sediment may be determined by calculating the difference between the measurement from the rim of the PerkFilter to the top of the accumulated sediment, and the measurement from the rim of the PerkFilter to the bottom of the PerkFilter structure. Finding the top of the accumulated sediment below standing water takes some practice and a light touch, but increased resistance as the measuring device is lowered toward the bottom of the unit indicates the top of the accumulated sediment.
- Finally, observe, quantify and record the amount of standing water in the treatment chamber around the cartridges. If standing water is present, do not include the depth of sediment that may have settled out below the standing water in the measurement.

Maintenance Triggers

Maintenance should be scheduled if any of the following conditions are identified during the inspection:

- Internal components are broken or missing.
- Inlet piping is obstructed.
- The accumulation of floating trash and debris that cannot be retrieved with a net and/or oil in the inlet chamber is significant.
- There is more than 6" of accumulated sediment in the inlet chamber.
- There is more than 4" of accumulated sediment in the treatment chamber.
- There is more than 4" of standing water in the treatment chamber more than 24 hours after end of rain event.
- A hazardous material release (e.g. automotive fluids) is observed or reported.
- The system has not been maintained for 3 years (wet climates) to 5 years (dry climates).

Maintenance Equipment

The following equipment is helpful when conducting PerkFilter maintenance:

- Suitable clothing (appropriate footwear, gloves, hardhat, safety glasses, etc.)
- Traffic control equipment (cones, barricades, signage, flagging, etc.)
- Socket and wrench for bolt-down access covers
- Manhole hook or pry bar
- Confined space entry equipment, if needed
- Flashlight
- Tape measure
- 9/16" socket and wrench to remove hold-down struts and filter cartridge tops
- Replacement filter cartridges
- Vacuum truck with water supply and water jet

Contact Oldcastle Infrastructure at (800) 579-8819 for replacement filter cartridges. A lead time of four weeks is recommended.

Maintenance Procedures

Maintenance should be conducted during dry weather when no flow is entering the system. Confined space entry is necessary to maintain vault and manhole PerkFilter configurations. Only personnel that are OSHA Confined Space Entry trained and certified may enter underground structures. Confined space entry is not required for catch basin PerkFilter configurations. Once safety measures such as traffic control are deployed, the access covers may be removed and the following activities may be conducted to complete maintenance:

- Remove floating trash, debris and oils from the water surface in the inlet chamber using the extension nozzle on the end of the boom hose of the vacuum truck. Continue using the vacuum truck to completely dewater the inlet chamber and evacuate all accumulated sediment from the inlet chamber. Some jetting may be required to fully remove sediment. The inlet chamber does not need to be refilled with water after maintenance is complete. The system will fill with water when the next storm event occurs.
- Remove the hold-down strut from each row of filter cartridges and then remove the top of each cartridge (the top is held on by four 9/16" bolts) and use the vacuum truck to evacuate the spent media. When empty, the spent cartridges may be easily lifted off their slip couplers and removed from the vault. The couplers may be left inserted into couplings cast into the false floor to prevent sediment and debris from being washed into the outlet chamber during washdown.
- Once all the spent cartridges have been removed from the structure, the vacuum truck may be used to evacuate all accumulated sediment from the treatment chamber. Some jetting may be required to fully remove sediment. Take care not to wash sediment and debris through the openings in the false floor and into the outlet chamber. All material removed from the PerkFilter during maintenance including the spent media must be disposed of in accordance with local, state, and/or federal regulations. In most cases, the material may be handled in the same manner as disposal of material removed from sumped catch basins or manholes.
- Place a fresh cartridge in each cartridge position using the existing slip couplers and urethane bottom caps. If the vault is equipped with stacked cartridges, the existing outer and inner interconnector couplers must be used between the stacked cartridges to provide hydraulic connection. Transfer the existing vent tubes from the spent cartridges to the fresh cartridges. Finally, refit the struts to hold the fresh cartridges in place.
- Securely replace access covers, as appropriate.
- Make arrangements to return the empty spent cartridges to Oldcastle Infrastructure.

PerkFilter Inspection and Maintenance Log

Location _____

Structure Configuration and Size:

Inspection Date _____

- ☐ Vault _____ feet x _____ feet
☐ Manhole _____ feet diameter
☐ Catch Basin _____ feet x _____ feet

Number and Height of Cartridge Stacks:

Media Type:

Count _____ each ☐ 12" ☐ 18" ☐ 24" ☐ 30"

☐ ZPC ☐ Perlite ☐ Other _____

Condition of Internal Components

Notes:

☐ Good ☐ Damaged ☐ Missing

Inlet or Outlet Blockage or Obstruction

Notes:

☐ Yes ☐ No

Floating Trash and Debris

Notes:

☐ Significant ☐ Not Significant

Floating Oils

Notes:

☐ Significant ☐ Not Significant ☐ Spill

Sediment Depth in Inlet Chamber

Notes:

☐ Inches of Sediment: _____

Sediment Depth in Treatment Chamber

Notes:

☐ Inches of Sediment: _____

Standing Water in Treatment Chamber

Notes:

☐ Inches of Standing Water: _____

Maintenance Required

☐ Yes - Schedule Maintenance ☐ No - Inspect Again in _____ Months

PERKFILTER™

OUR MARKETS



**BUILDING
STRUCTURES**



COMMUNICATIONS



WATER



ENERGY



TRANSPORTATION



Oldcastle Infrastructure™
A CRH COMPANY

www.oldcastleinfrastructure.com
800-579-8819

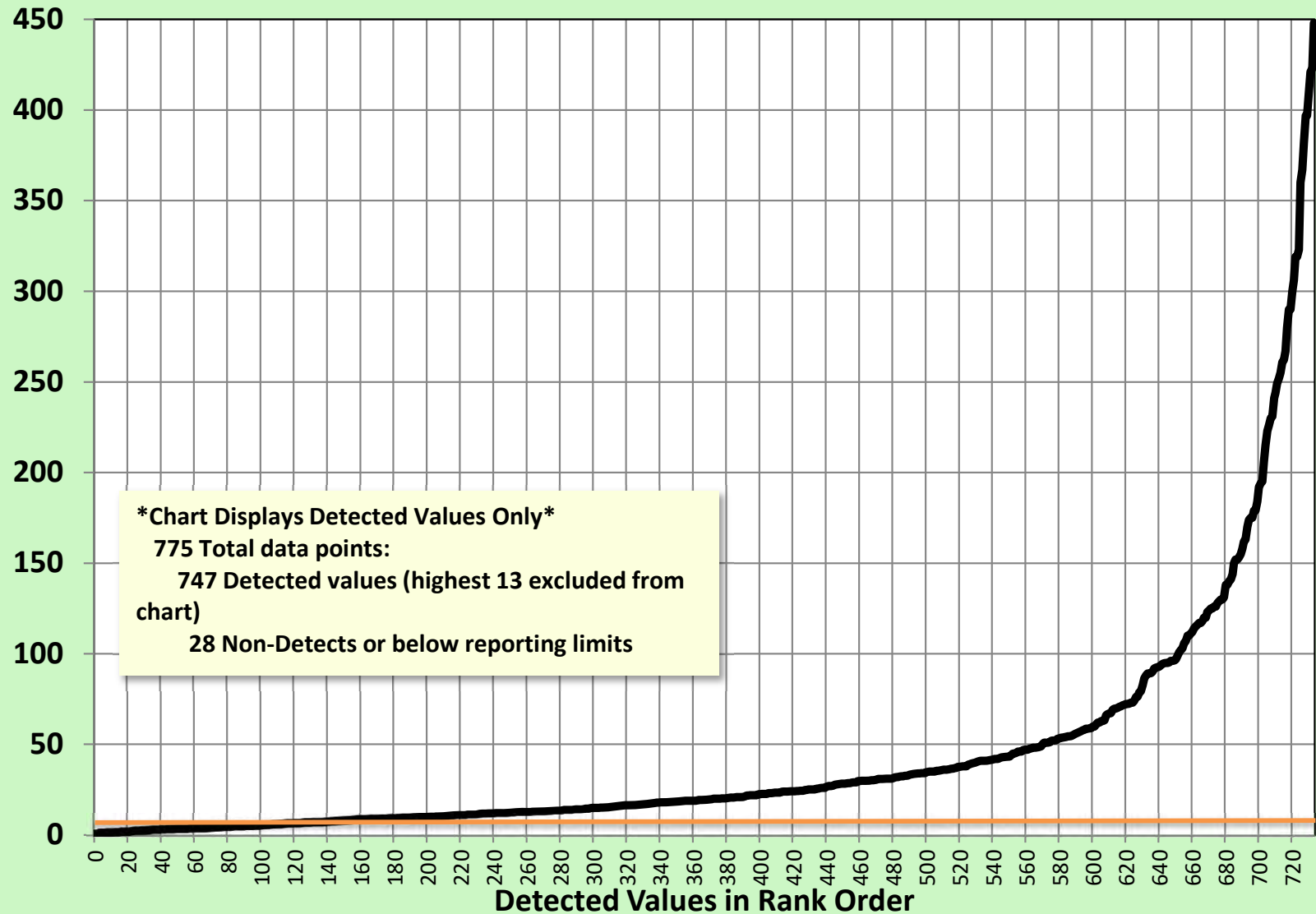


February 2019 v.1

Appendix D

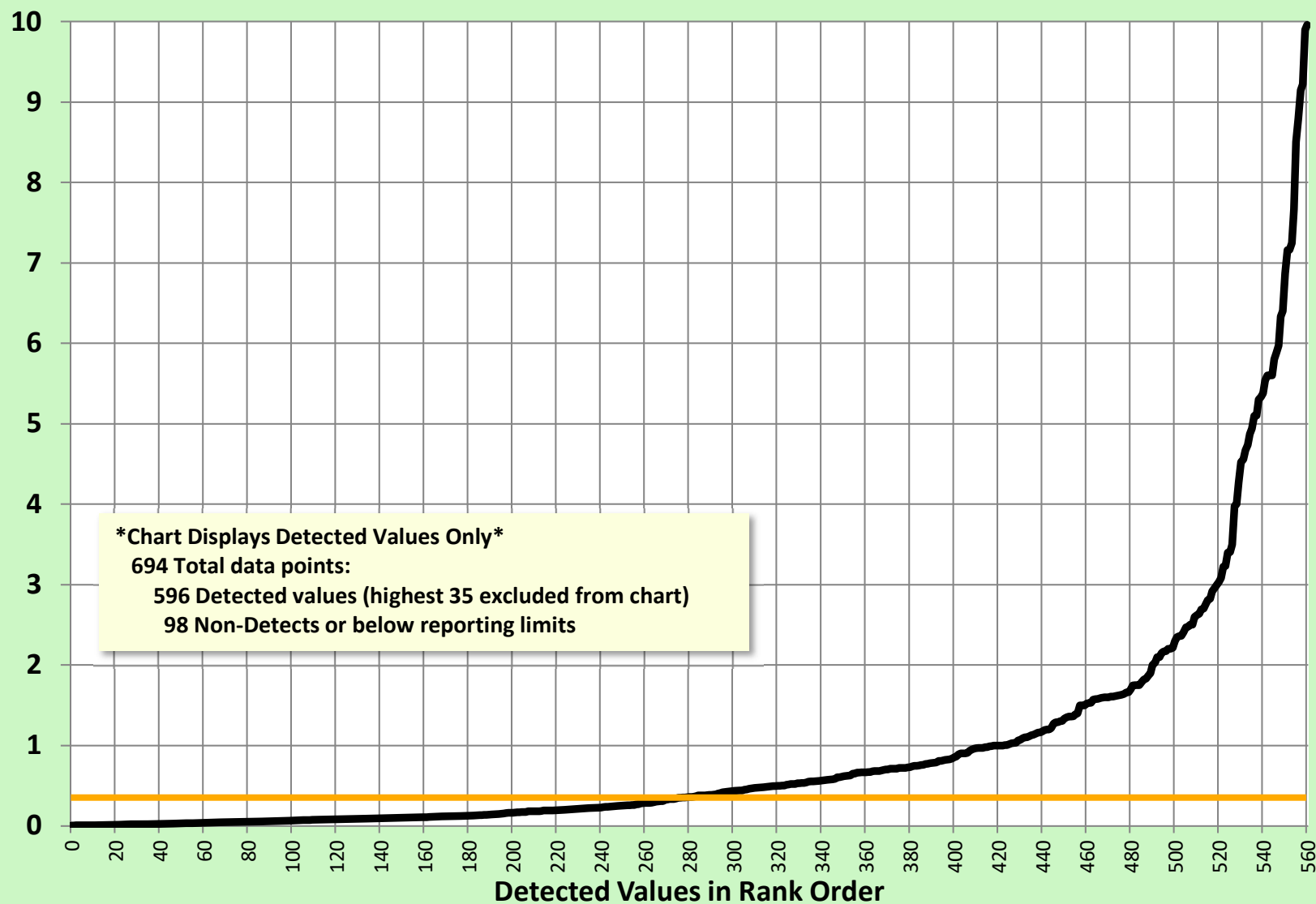
Comparison of Storm Water Analytical Results to Typical Industrial Sites

Copper (ug/L) in Stormwater at Portland Harbor Heavy Industrial Sites



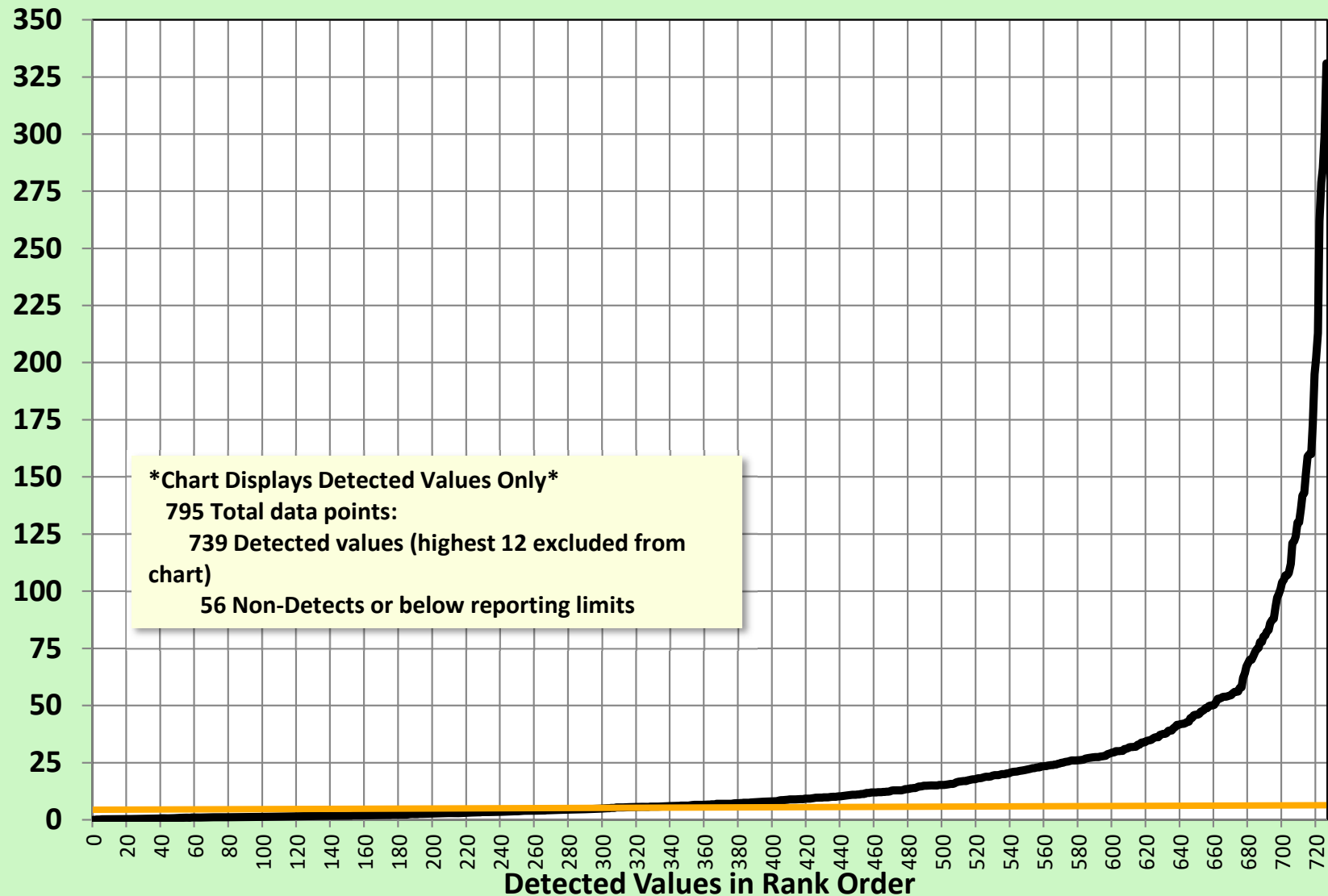
Orange line indicates maximum detected concentration during ENW's four 2022 and 2023 storm water sampling events

Total PAHs (ug/L) in Stormwater at Portland Harbor Heavy Industrial Sites



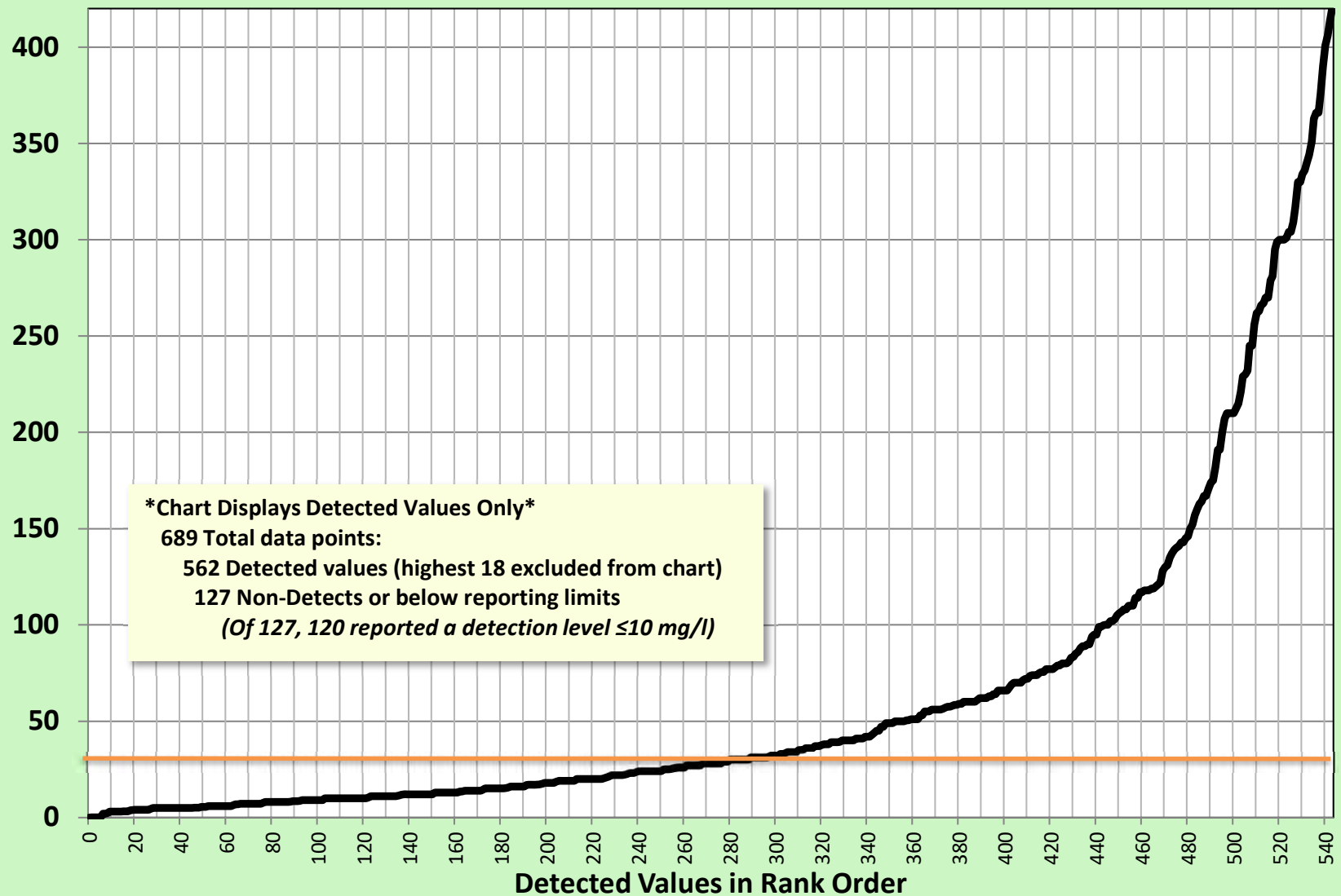
Orange line indicates maximum detected concentration during ENW's four 2022 and 2023 storm water sampling events

Lead (ug/L) in Stormwater at Portland Harbor Heavy Industrial Sites



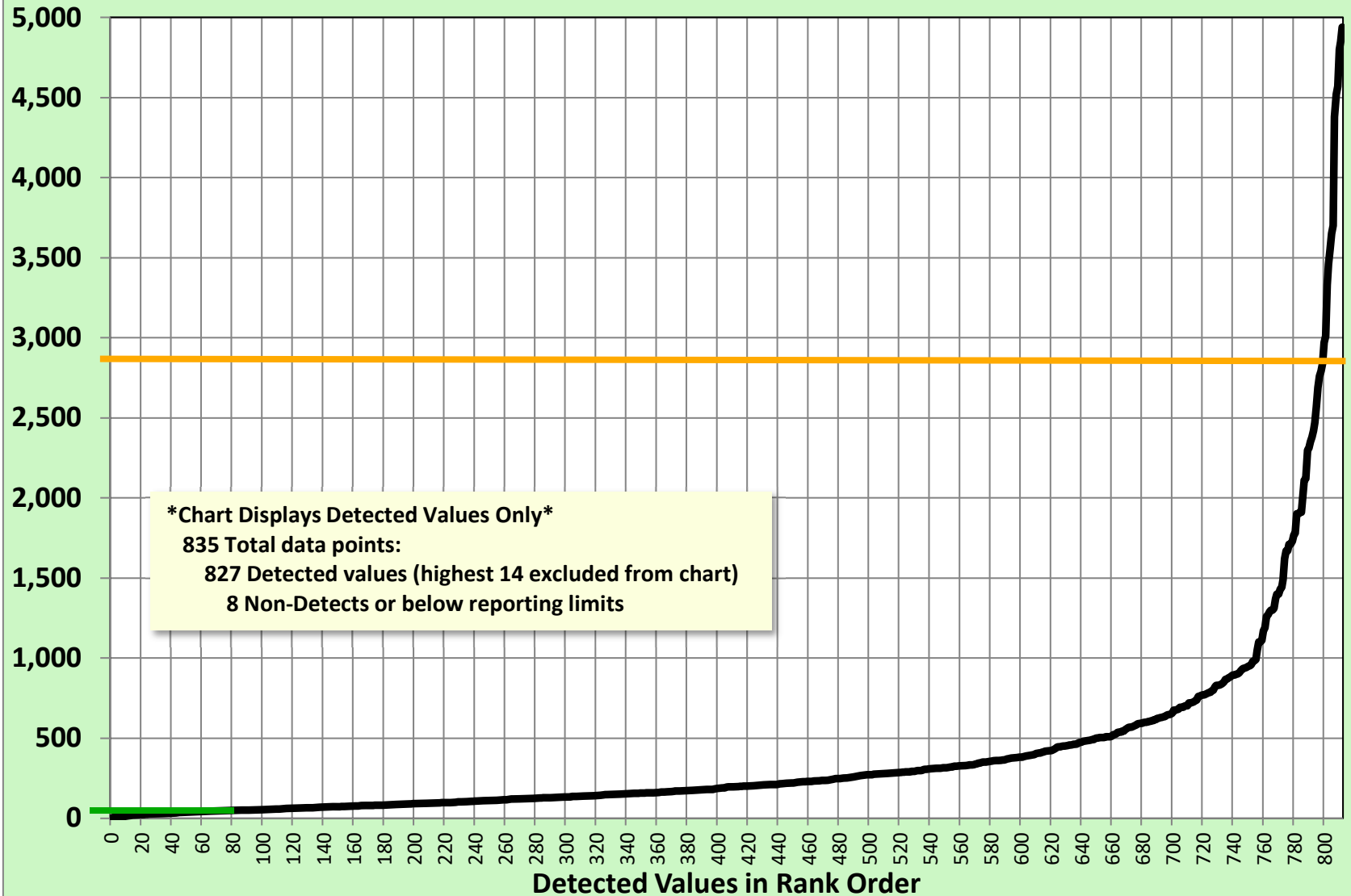
Orange line indicates maximum detected concentration during ENW's four 2022 and 2023 storm water sampling events

TSS (mg/L) in Stormwater at Portland Harbor Heavy Industrial Sites



Orange line indicates maximum detected concentration during ENW's four 2022 and 2023 storm water sampling events

Zinc (ug/L) in Stormwater at Portland Harbor Heavy Industrial Sites



Orange line indicates maximum detected concentration during ENW's four 2022 and 2023 storm water sampling events and the green line indicates the maximum following partial roof replacement work.