A Subsidiary of SoundEarth Strategies

REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

Property:
Buckley Library Property
123 South River Avenue
Buckley, Washington

Report Date:
June 21, 2021

Prepared for:
Pierce County Library System
3005 112th Street East
Tacoma, Washington

Remedial Investigation and Feasibility Study

Prepared for:

Pierce County Library System
3005 112th Street East
Tacoma, Washington 98446

Buckley Library Property
123 South River Avenue
Buckley, Washington 98321

Voluntary Cleanup Program No.: SW1673
EHSI Project No.: 11101

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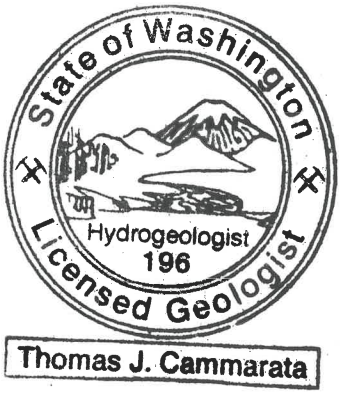

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ACRONYMS AND ABBREVIATIONS

µg/L	micrograms per liter
ARAR	applicable or relevant and appropriate requirement
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CFR	Code of Federal Regulations
COC	contaminant of concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CSM	conceptual site model
DCA	disproportionate cost analysis
DRPH	diesel-range petroleum hydrocarbons
EC	environmental covenant
Ecology	Washington State Department of Ecology
EHSI	EHS-International, Inc.
EPA	US Environmental Protection Agency
ESA	Environmental Site Assessment
FS	feasibility study
GAC	granular activated carbon
GACW	granular activated carbon wall
GRPH	gasoline-range petroleum hydrocarbons
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MTCA	Washington State Model Toxics Control Act
NE Area	Northeastern Area
NFA	No Further Action
NWTPH	Northwest Total Petroleum Hydrocarbons
O&M	operation and maintenance
ORPH	heavy oil-range petroleum hydrocarbons
PAC	powder activated carbon
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCLS	Pierce County Library System
PCS	petroleum-contaminated soil

the Property	Pierce County Tax Parcel No. 8000050140, located at 123 South River Avenue in Buckley, Washington
RAO	remedial action objective
RCW	Revised Code of Washington
REC	recognized environmental condition
RIFS	Remedial Investigation and Feasibility Study
ROW	right-of-way
SBA	Salt, Bush & Associates, Inc.
SW Area	Southwestern Area
TEE	Terrestrial Ecological Evaluation
TEQ	toxicity equivalent
TESC	temporary erosion and sediment control
TPH	total petroleum hydrocarbons
UIC	underground injection control
USC	United States Code
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOC	volatile organic compound
WAC	Washington Administrative Code

EXECUTIVE SUMMARY

EHS-International, Inc. (EHSI) has prepared this Remedial Investigation and Feasibility Study (RIFS) for Pierce County Library System (PCLS). The Property is defined as Pierce County Tax Parcel No. 8000050140, located at 123 South River Avenue in Buckley, Washington, and is owned by PCLS. The Site is defined as the lateral and vertical extent of contamination in soil and groundwater that has resulted from historical gasoline service station, shingle mill, and weld shop operations at the Property.

The RIFS was developed to meet the requirements of the Washington State Model Toxics Control Act (MTCA) Regulation, Sections 350 through 390 of Chapter 340 of Title 173 of the Washington Administrative Code (WAC 173-340-350 through 390). This RIFS will be submitted to the Washington State Department of Ecology in pursuit of a request for a No Further Action Likely determination. The planned remedial action will be documented in a Cleanup Action Report and submitted to Ecology in pursuit a No Further Action determination.

Historical operations at this Property included a weld shop in the area to the southwest of the existing library building. A shingle mill and gasoline service station historically operated on the northeastern area of the Property.

Following the investigations that have occurred at the Property, contaminants of concern have been identified that affect soil and groundwater, the media of concern. Investigations at the southwestern area of the Property have concluded that COCs are not present at concentrations above the MTCA cleanup levels in soil and groundwater. The soil and groundwater impacts on the northeastern area of the Property are addressed as part of the Feasibility Study (FS) portion of this report.

EHSI conducted the FS to develop and evaluate cleanup action alternatives to facilitate selection of a final cleanup action at the Site in accordance with WAC 173-340-350(8). The FS included the development, screening, and evaluation process for numerous remedial alternatives.

The three cleanup action alternatives that were retained for additional consideration include the following:

- Cleanup Action Alternative 1: Soil Excavation and Granular Activated Carbon Wall (GACW) with Environmental Covenant (EC)
- Cleanup Action Alternative 2: Partial Soil Excavation and In Situ Groundwater Treatment with EC
- Cleanup Action Alternative 3: In Situ Groundwater Treatment with EC

The FS process concluded with the selection of Cleanup Action Alternative 1, Soil Excavation and GACW with EC. This alternative was selected as the recommended remedial alternative due to its technical feasibility, its cost-effectiveness, and results of a cost-benefit analysis. The GACW would also provide an additional protective measure to prevent off-Site migration of residual petroleum-impacted groundwater.

This executive summary is presented solely for introductory purposes, and the information contained in this section should be used only in conjunction with the full text of this report.

1.0 INTRODUCTION

EHS-International, Inc. (EHSI) has prepared this Remedial Investigation and Feasibility Study (RIFS) for Pierce County Library System (PCLS). The Property is defined as Pierce County Tax Parcel No. 8000050140, located at 123 South River Avenue in Buckley, Washington (Figure 1), and is owned by PCLS. The Site is referenced by Washington State Department of Ecology (Ecology) Cleanup Site identification No. 9017 and by Ecology Voluntary Cleanup Program (VCP) No. SW1673.

The Site is defined as the lateral and vertical extent of contamination in soil and groundwater that has resulted from historical gasoline service station, shingle mill, and weld shop operations at the Property (Figure 2). Soil and groundwater at the Site is contaminated with gasoline-, diesel-, and oil-range petroleum hydrocarbons (GRPH, DRPH, and ORPH, respectively) and metals. Investigations conducted to date have established that contamination has been observed in soil and/or groundwater at Property and off-Property locations at concentrations that exceed applicable cleanup levels established under Chapter 173-340 of the Washington Administrative Code (WAC 173-340), Washington State Model Toxics Control Act (MTCA) Statute and Regulation. For the purposes of this RIFS, the Site is divided into two areas of concern: Northeastern and Southwestern Areas (NE Area and SW Area, respectively) as shown on Figure 2.

1.1 PURPOSE AND OBJECTIVES

The purpose of the RIFS is to provide a comprehensive understanding of the nature and extent of contaminants of concern at the Site, to evaluate cleanup action alternatives for the Site, and select a preferred remedy for cleanup of the Site in accordance with WAC 173-340-350. This report presents historical information regarding the former use of the Property and surrounding parcels, summarizes the information obtained during the review of historical information, summarizes the scope and findings of each subsurface investigation conducted at the Property and interim remedial action conducted at the Site, and presents an updated conceptual site model (CSM) to present the nature and extent of contamination and identify risks to human health and the environment.

The objective of the FS is to identify remedial alternatives and a preferred cleanup remedy that will reduce the concentrations of contaminants of concern (COCs) in soil and groundwater the Site and bring the Site into compliance with MTCA cleanup standards in pursuit of a No Further Action (NFA) Likely determination from Ecology.

2.0 BACKGROUND

This section provides a description of Property features and location; a summary of historical Property uses; the environmental setting of the Property vicinity; and a description of the local geology and hydrogeology pertaining to the Property.

2.1 GENERAL SITE INFORMATION

Project contact personnel are listed below.

Contact Type	Entity	Contact Information
Property Owner	Pierce County Public Library	Clifford Jo cjo@piercecountylibrary.org
Environmental Consultant	EHSI/ SoundEarth Strategies, Inc.	Mindy Graddon, Associate Geologist mgraddon@soundearthinc.com 206-306-1900

2.2 PROPERTY USE AND DESCRIPTION

The Property is developed with a 4,100-square-foot public library building with a parking lot to the south and a grass lawn to the north (Figure 2). The Property is bordered by Main Street to the north and River Avenue to the east. Highway 410 is located one parcel to the west of the Property. The Property is zoned Public Zone by the City of Buckley. The purpose of the Public Zone is to provide public services for all public needs. According to PCLS, the current land use at the Property is not expected to change for the foreseeable future.

2.3 PROPERTY HISTORY

EHSI completed a Phase I Environmental Site Assessment (ESA) for the Property in April 2017 (EHSI 2017a). Select research from the Phase I ESA is summarized below:

- The Property was developed with shingle mill in 1892 and operated until an unknown date (Figure 2).
- A railroad depot was present northwest-adjacent to the Property. Railroad tracks bordered the Property along the northwest and residential properties were located east of the Property.
- The Property was historically operated as a gasoline service station from 1941 until approximately 1986 in the NE Area of the Site. A weld shop also operated at the Property prior to redevelopment (Figure 2).
- Five underground storage tanks (USTs) were removed from the Property in 1983. Between 1989 and 1993, several environmental investigations and interim remedial actions were performed between the time of the property acquisition and construction of the public library building.
- The Property was vacant in 1990 until it was developed with a public library and adjacent parking lot (Figure 2).
- In 2012, Ecology performed an Initial Investigation (II) of the Property related to historical activities and subsequently, in 2013, placed the Property on the State of Washington's Confirmed and Suspected Contaminated Site List.
- A remedial investigation of the Property and off-property areas occurred between 2017 to 2021.

The Phase I ESA identified several recognized environmental conditions (RECs) affecting the Property:

- The historical operation of a gasoline service station on the Property.
- The historical operation of a weld shop on the Property.
- The historical operation of a shingle mill on the Property.
- An uncharacterized release of contaminated groundwater from a historical excavation onto the ground surface at the Property.
- Confirmed soil contamination from historical operations on the central portion of the Property.
- Vapor migration from historical releases at the Property.

2.4 GEOLOGIC AND HYDROGEOLOGIC SETTING

This section describes regional and Site-specific geology. Detailed cross sections depicting the subsurface geology of the Site are presented on Figures 3 and 4. Figure 2 shows the orientation of the cross sections.

2.4.1 Regional Geology and Hydrogeology

Near-surface soil at the Property is mapped as Buckley loam by Zulauf (1979). These soils are poorly drained, have a high water table, and are characterized by very slow infiltration rates. Vallance and Scott (1997) described the surface geology beneath the Property as Holocene Osceola Mudflow deposits, which originated as volcanic mudflow off of the northeastern side of Mount Rainier. Vallance and Scott (1997) mapped the thickness of the Osceola Mudflow deposits as approximately 5 to 20 meters thick near lowlands and valley bottoms. Osceola Mudflow is characterized by the presence of wood debris with varying amounts of silt, sand, and gravel.

The regional aquifers beneath the Property are present as Quaternary recessional and outwash deposits that were deposited during four episodes of glacial advance and retreat. These deposits tend to be heterogenous mix of coarse-gained sands and gravels accruing as both confined and unconfined aquifers. The thickness of the unconsolidated Quaternary deposits ranges from less than 600 feet to more than 1,800 feet at the southeastern corner of the Property. The majority of the inventoried wells encountered aquifers between 200 feet above sea level and 200 feet below sea level. Several wells encountered aquifers at depths greater than 500 feet below sea level.

2.4.2 Property-Specific Geology and Hydrology

The topography of the Property is relatively flat with an elevation of approximately 725 feet above sea level. The area surrounding the Property gently slopes in a northwesterly direction toward the White River, which is located approximately 0.75 miles from the Property. At the Property, fill material has been identified at depths from near surface to approximately 15 feet below ground surface (bgs). Underlying the fill material is Osceola Mudflow (Figures 3 and 4). Groundwater below the Property is encountered between approximately 2 and 5 feet bgs. The groundwater flow direction is to the east in the NE Area of the Site and to the southwest in the SW Area of the Site (Figure 5).

3.0 PREVIOUS INVESTIGATIONS

The following sections include a summary of the investigations that have been performed at the Property since 1989.

3.1 HISTORICAL INVESTIGATIONS

The following reports were obtained from Pierce County Public Library, reviewed, and summarized in this section. Each of the reports are included as Appendices A through F.

3.1.1 1989 Test Pit Investigation

According to a report by Salt, Bush & Associates, Inc. (SBA) dated May 9, 1989 (Appendix A), a test pit investigation that included advancing six test pits (TP-1 through TP-6) was completed at the Property. (Figure 2). Test pits TP-1 through TP-3 were excavated in the NE Area of the Site and test pits TP4 through TP6 were excavated in the SW Area of the Site. The test pits were advanced near former USTs (TP-1 through TP-4), a former weld shop (TP-5), and a background location (TP-6) on the Property. The report stated that the five USTs on the Property were removed in 1983; however, records were not available that documented condition or sampling of the USTs. The report stated that motor oil had been dumped throughout the Property, evidenced by surface soil staining observed in the SW Area. Most oil staining was observed in the soil at approximate depths of 6 to 12 inches bgs except for in test pit TP-5, near the former weld shop in the SW Area, where

impacts were observed to approximate depths of 4 feet bgs. Three discrete soil samples collected from test pits TP-4, TP-5, and TP-6, labeled as samples 4, 5, and 6, respectively, were analyzed for total petroleum hydrocarbons (TPH) by US Environmental Protection Agency (EPA) Method 418.1. The TPH concentrations were 339 milligrams per kilogram (mg/kg), 16,444 mg/kg, and 24.3 mg/kg in samples 4, 5, and 6, respectively. One composite sample labeled as sample 8 was collected from the largest oil-stained areas throughout the SW Area of the Site and was analyzed for TPH by EPA Method 418.1. TPH was detected at a concentration of 36,172 mg/kg in composite soil sample 8.

Discrete water samples were collected from water that infiltrated test pits TP-1, TP-2, and TP-3, labeled as sample 1, 2, and 3, respectively, and analyzed for TPH by EPA Method 418.1. The TPH results for 1, 2, and 3 were all below the laboratory practical quantitation limit of 5.0 mg/kg. A composite sample of samples 1, 2, and 3 was collected, labeled as sample 7, and analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8020. BTEX was not detected in sample 7 at concentrations above the laboratory practical quantitation limit of 0.001 mg/kg.

The recommendations resulting from this investigation were to remove the contaminated soils from the area around test pits TP-4 and TP-5 and to collect confirmation soil samples from the excavated areas.

3.1.2 1990 Remedial Excavation Sampling

In a letter from SBA to the Tacoma-Pierce County Health Department dated October 25, 1990 (Appendix B), the Property had been investigated in three sections described as the North Pit, Parking Lot, and South Pit:

- The North Pit was located at test pit TP-4 on the NE Area of the Site.
- The Parking Lot was on the northern half of the SW Area of the Site and was used for vehicle parking.
- The South Pit was on the southern half of the SW Area of the Site at the former weld shop location.

Development of the Property began in 1990 with the construction of the Buckley Library building. Contaminated soil excavation and performance and confirmation sampling took place on the Property during redevelopment and is discussed further in this section.

3.1.2.1 October 16, 1990, Excavation Sampling

During the construction of the library building, soil samples were collected by SBA from the North Pit (test pit TP-4 area) on October 16, 1990, after visibly contaminated soil was excavated (Figure 2). Samples were collected from the four walls and bottom of the excavation, composited, labeled as sample #9 (Figure 2) and analyzed for TPH by EPA Method 418.1. The TPH concentration in sample #9 was 3,148 mg/kg. If the TPH results were considered to represent GRPH, DRPH, or ORPH, the concentrations would exceed the current MTCA Method A cleanup levels of 100 mg/kg for GRPH and 2,000 mg/kg for DRPH and ORPH.

Three separate soil composite samples were collected from the Parking Lot area and labeled as samples #6 through #8 (Figure 2). The samples were analyzed for TPH by EPA Method 418.1. TPH concentrations were 1,309 mg/kg, 599 mg/kg, and 221 mg/kg, in samples #6 through #8, respectively. If the petroleum hydrocarbon contamination in the Parking Lot were considered to

represent DRPH or OPRH released from vehicles, the concentrations would not exceed the current MTCA Method A cleanup levels for these petroleum products in soil (2,000 mg/kg).

Samples were also collected at the former weld shop area, labeled as the South Pit, after visibly contaminated soil was excavated and removed. The South Pit soil samples were labeled as samples #1 through #5 (Figure 2) and were analyzed for TPH by EPA Method 418.1. The TPH concentrations were 1,007 mg/kg, 943 mg/kg, 3,612 mg/kg, 3,838 mg/kg, and 921 mg/kg for samples #1 through #5, respectively. If the TPH results were considered to represent GRPH, DRPH, or ORPH, all concentrations would exceed the current MTCA Method A cleanup levels of 100 mg/kg for GRPH and 2,000 mg/kg for DRPH and ORPH.

3.1.2.2 October 18, 1990, Excavation Sampling

Following the soil sampling on October 16, 1990, additional excavation was completed by SBA at the North Pit (test pit TP-4) and South Pit areas (former weld shop area; Figure 2).

Soil samples were collected from the North Pit from each sidewall and the bottom of the excavation and labeled as samples #1, #2, #3 (bottom), #4, and #5 (Figure 2). The soil samples were analyzed for TPH by EPA Method 418.1. TPH concentrations were 74.5 mg/kg, 77.9 mg/kg, 13.5 mg/kg, 179 mg/kg, and 11.8 mg/kg, in samples #1 through #5, respectively. If the TPH results were considered to represent GRPH, DRPH, or ORPH, then one concentration would exceed the current MTCA Method A cleanup level of 100 mg/kg for GRPH, but all concentrations would be less than the current MTCA Method A cleanup level for DRPH and ORPH (2,000 mg/kg).

Additional excavation occurred in the South Pit area to a depth of approximately 3 feet bgs, and soil samples were collected from the four sidewalls and bottom of the excavation. The soil samples were composited and the composite soil sample was labeled as sample #6 (Figure 2). The sample was analyzed for TPH by EPA Method 418.1, volatile organic compounds (VOCs) by EPA Method 8240, and semivolatile organic compounds by EPA Method 8270. Semivolatile organic compounds were not detected at concentrations above the laboratory practical quantitation limit, but the following contaminants were detected:

- TPH: 36.3 mg/kg
- Toluene: 3.82 mg/kg
- Total xylenes: 1.96 mg/kg

All contaminants were detected at concentrations less than current MTCA Method A soil cleanup levels.

3.1.2.3 October 20, 1990, Excavation Sampling

Following the soil sampling conducted on October 18, 1990, additional excavation was completed by SBA at the North Pit (test pit TP-4) and Parking Lot areas (Figure 2). Four discrete excavation sidewall soil samples, labeled as samples #1 through #4, were collected from the North Pit (test pit TP-4) and analyzed for BTEX by EPA Method 8020. BTEX was not detected at concentrations above the laboratory practical quantitation limit of 0.05 mg/kg in any of the four samples. The four sidewall samples were subsequently composited by the laboratory and the composite soil sample was labeled as “composite samples East, South, West, & North Wall.” The composite soil sample was analyzed for TPH by modified EPA Method 8015. TPH was not detected at a concentration above the laboratory practical quantitation limit of 10 mg/kg.

A water sample collected from the water that Infiltrated into the North Pit (test pit TP-4) excavation was labeled as sample #5 (Figure 2) and analyzed for BTEX by EPA Method 8020, for TPH by EPA Method 418.1, and for lead, oil, and grease. BTEX and lead were not detected at concentrations above the laboratory practical quantitation limits of 0.001 mg/kg and 0.05 mg/kg, respectively; the analytical method was not provided in the laboratory report reviewed. TPH was detected at a concentration of 7.0 mg/kg and oil and grease were detected at a concentration of 11.0 mg/kg.

The Parking Lot area was further excavated to a depth of approximately 2 feet bgs and resampled. The soil sample labeled as #6 (Figure 2) was analyzed for TPH by EPA Method 418.1 (Figure 2). TPH was detected at a concentration of 256 mg/kg. If the TPH result were considered to represent GRPH, DRPH, or ORPH, the concentration would exceed the current MTCA Method A cleanup level for GRPH of 100 mg/kg, but it would be less than the MTCA Method A cleanup level for DRPH and ORPH of 2,000 mg/kg.

The letter dated October 25, 1990, recommended the following for each sampled area:

- The North Pit area should be backfilled will clean material for the library building development to continue.
- TPH was detected at a concentration of 256 mg/kg in the most recent sample from the Parking Lot area (sample #6 collected on October 20, 1990). Because the area is intended to be capped by asphalt, the excavation was considered acceptable and no further excavation was planned to be completed.
- Additional excavation was recommended for the South Pit area.

3.1.3 1991 Groundwater Sampling

In a report by SBA dated April 10, 1991 (Appendix C), three groundwater monitoring wells (MW-1, MW-2, and MW-3) were installed on March 1, 1991, in the SW Area of the Site to the west, east, and north of the former weld shop (Figure 2). One boring (B-1) was also advanced within the footprint of the former weld shop. Soil samples were collected from the borings and groundwater samples were collected from the three monitoring wells; samples were analyzed for one or more of TPH by EPA Method 418.1 and VOCs by EPA Method 8240. Contaminant concentrations were below MTCA cleanup levels. The report concluded that contaminants observed in soil did not appear to have migrated to groundwater, but that quarterly sampling of the groundwater monitoring wells should be continued to pursue closure through Ecology.

3.1.4 1992 Groundwater Sampling

In a report by Saltbush Environmental Services, Inc. dated May 1, 1992 (Appendix D), the three groundwater monitoring wells (MW-1 through MW-3) were sampled in March 1991, June 1991, September 1991, and December 1991 and analyzed for TPH by EPA Method 418.1 and VOCs by EPA Method 8240. The results indicated that VOCs are not present in groundwater above the laboratory practical quantitation limits or MTCA cleanup levels. TPH was not detected at concentrations above the laboratory practical quantitation limit of 1.0 milligrams per liter (mg/L) in samples collected from monitoring well MW-1 during the four monitoring events. TPH was not detected at concentrations above the laboratory practical quantitation limit in samples collected from monitoring well MW-2, except for the sample collected in June 1991, which contained TPH at a concentration of 5.6 mg/L. TPH was not detected at concentrations above the laboratory practical quantitation limit in samples collected from monitoring well MW-3, except for the

sample collected in September 1991, which contained TPH at a concentration of 1.4 mg/L. The report recommended that groundwater sampling should continue for four consecutive quarters.

3.1.5 1993 Groundwater Sampling

In a report by H.E. Bush Associates dated April 23, 1993 (Appendix E), the three groundwater monitoring wells (MW-1 through MW-3) were sampled in July 1992, October 1992, January 1993, and April 1993 and analyzed for TPH by EPA Method 418.1. TPH was detected at concentrations below the laboratory practical quantitation limit of 1.0 mg/L in all samples collected, and additional groundwater sampling was not recommended.

3.1.6 2004 Stockpiled Soil Disposal

The excavated material generated during the 1990 investigations was stockpiled, sampled, and profiled by HWA Geosciences, Inc. Ultimately, 1,290.4 tons of non-hazardous contaminated soil was exported on August 6, 2004, to the TPS Technologies, Inc. soil recycling facility in Tacoma, Washington, to be treated by thermal desorption (Appendix F).

3.2 2017 EHSI PHASE II ESA

In June 2017, EHSI observed the advancement of nine environmental boreholes (B1 through B9) and two vapor probes (VP1 and VP2) at the Property to evaluate soil, groundwater, and vapor conditions beneath the Property. Soil borings B1 through B4 were advanced on the SW Area of the Site. Soil borings B5 through B9 and vapor probes VP1 and VP2 were advanced on the NE Area of the Site (Figure 2). Completed borings logs and laboratory analytical reports are provided in Appendices G and H, respectively.

3.2.1 NE Area

The Phase II ESA identified the below impacts to soil at concentrations above MTCA Method A cleanup levels in samples collected from the NE Area of the Site (Tables 1 through 5 and Figure 6; EHSI 2017b):

- GRPH, DRPH, and ORPH were present in soil samples collected from borings B7 and B8 at depths of 7 feet bgs (5,900 mg/kg for GRPH) and 5 feet bgs (1,400 for GRPH, 170,000 mg/kg for DRPH, and 5,400 mg/kg for ORPH), respectively.
- Benzene, ethylbenzene, and total xylenes were present in a soil sample collected from boring B7 at a depth of 7 feet bgs (4.0 mg/kg for benzene, 52 mg/kg for ethylbenzene, and 235 mg/kg for total xylenes, respectively). Benzene was present in a soil sample collected from boring B8 at a depth of 5 feet bgs (0.70 mg/kg).
- Naphthalene was present in soil samples collected from borings B7 and B8 at depths of 7 and 5 feet bgs (50 mg/kg and 44 mg/kg, respectively).
- Lead and cadmium were present in a soil sample collected from boring B8 at a depth of 5 feet (1,770 mg/kg and 3.33 mg/kg, respectively).

Reconnaissance groundwater samples were collected from borings B5 through B9 and analyzed for one or more of GRPH, DRPH, ORPH, BTEX, VOCs, metals, and polycyclic aromatic hydrocarbons (PAHs). The following COCs were detected at concentrations above the MTCA Method A cleanup level in reconnaissance groundwater samples collected from the NE Area of the Site (Tables 6 through 9 and Figure 7):

- GRPH was detected in a reconnaissance groundwater sample from boring B7 (8,400 micrograms per liter [µg/L]).
- DRPH was detected in a sample from borings B6 through B8 (650 µg/L, 2,000 µg/L, and 20,000 µg/L, respectively).
- ORPH was detected in a sample from boring B8 (4,300 µg/L).
- Benzene was detected in samples from borings B7 and B8 (900 µg/L and 13 µg/L, respectively).
- Ethylbenzene and total xylenes were detected in a sample from boring B7 (730 µg/L and 2,030 µg/L, respectively).

Petroleum hydrocarbons and naphthalene concentrations detected were all below the MTCA Method B screening levels in the soil vapor samples collected from vapor points VP1 and VP2 (Table 11, Figure 3).

3.2.2 SW Area

COCs were not detected above laboratory reporting limits and/or applicable MTCA cleanup levels in soil samples collected from borings B1 through B4 (Tables 1 through 5 and Figure 6).

Reconnaissance groundwater samples were collected from borings B2 and B3 and were analyzed for one or more of GRPH, DRPH, ORPH, BTEX, VOCs, metals, and PAHs. The following COCs were detected at concentrations above MTCA Method A cleanup levels in reconnaissance groundwater samples collected from the SW Area of the Site (Tables 6 through 9 and Figure 7):

- ORPH was detected in a sample from boring B3 (570 µg/L).
- Total arsenic was detected in samples from borings B2 and B3 (7.93 µg/L and 26.7 µg/L, respectively).
- Dissolved arsenic was detected in a sample from boring B3 (5.68 µg/L).
- Total lead was detected in a sample from boring B3 (16.4 µg/L).

3.3 REMEDIAL INVESTIGATION

Subsequent characterization for the COCs identified in samples from the SW and NE Areas is summarized below.

3.3.1 November 2017 Investigation

In November 2017, EHSI completed additional characterization at the Site. A ground-penetrating radar survey of the Site was completed, a series of six boreholes were advanced (B10 through B15), and five monitoring wells (MW4 through MW8) were installed, and two vapor probes (VP3 and VP4) were advanced and constructed (Figure 2). Borings B10, B11, and B15 were advanced on the SE Area of the Site. Borings B12, B13, and B14 and vapor probes VP3 and VP4 were advanced on the NE Area of the Site. Monitoring well MW4 was advanced on the SW Area of the Site and monitoring wells MW5 through MW8 were advanced on the NE Area of the Site.

3.3.1.1 NE Area

Soil samples collected from borings and monitoring wells on the NE Area of the Site (B12, B13, B14, and MW5 through MW8) were submitted for analysis for one or more of GRPH, DRPH, ORPH, BTEX, CVOCs, PAHs, and metals. Results are presented in Tables 1 through 4 and summarized below.

- DRPH, ORPH, BTEX, CVOCs, and PAHs were not detected at concentrations above the MTCA Method A cleanup level.
- GRPH was detected at concentrations above the MTCA Method A cleanup level of 30 mg/kg in the following: in a sample from boring B12 (40 mg/kg) collected at a depth of 2.5 feet bgs, in a sample from boring B13 (440 mg/kg) collected at a depth of 4 feet bgs, and in a sample from boring MW6 (1,600 mg/kg) collected at a depth of 4 feet bgs.
- Benzene was detected at a concentration above the MTCA Method A cleanup level of 0.02 mg/kg in the sample collected from boring MW6 (0.15 mg/kg) at a depth of 4 feet bgs.
- Lead was detected at a concentration of 350 mg/kg in the sample collected from boring B12 at a depth of 12 feet bgs, which exceeds the MTCA Method A cleanup level of 250 mg/kg.

The reconnaissance groundwater samples collected from borings B12 through B14 on the NE Area were analyzed for one or more of GRPH, DRPH, ORPH, BTEX, and metals. Results are presented in Tables 6 through 8 and summarized below.

- GRPH, DRPH, ORPH, and BTEX were not detected at concentrations above the MTCA Method A cleanup levels and/or laboratory reporting limits in the samples collected from borings B12 and B14.
- GRPH, DRPH, and ORPH were detected at concentrations above MTCA Method A cleanup levels (950 µg/L, 7,200 µg/L, and 67,000 µg/L, respectively) in the reconnaissance groundwater samples collected from boring B13. BTEX was detected at a concentration below the MTCA Method A cleanup level.
- Total arsenic and lead were detected at concentrations above MTCA Method A cleanup levels in unfiltered samples collected from borings B12 through B14. However, concentrations of arsenic and lead were not detected above laboratory limits and/or MTCA Method A cleanup levels in filtered samples.

Soil gas samples from vapor probes VP3 and VP4 on the NE Area of the Site were analyzed for one or more of aliphatic and aromatic petroleum hydrocarbons, air-phase petroleum hydrocarbons, TPH, BTEX, and naphthalene. Results are presented in Table 10 and summarized below.

- Naphthalene was detected at a concentration exceeding the MTCA sub-slab soil gas screening level in soil gas samples collected in December 2017 from vapor probes VP3 and VP4. However, naphthalene has not been detected at concentrations above the MTCA sub-slab soil gas screening level in subsequent sampling events in April and August 2018, October 2019, or December 2020.

- TPH and BTEX was not detected above the MTCA sub-slab soil gas screening levels in soil gas samples collected in December 2017 and subsequent sampling events in April and August 2018, October 2019, or December 2020.

3.3.1.2 SW Area

Soil samples collected from borings on the SW Area of the Site (B10, B11, B15, and MW4) were submitted for analysis of one or more of GRPH, DRPH, ORPH, BTEX, CVOCs, and metals. All COC concentrations were below MTCA cleanup levels in the soil samples submitted for analysis. Results are presented in Tables 1 through 3.

Reconnaissance groundwater samples were collected from borings B10, B11, and B15. The reconnaissance groundwater samples from the SW Area were analyzed for one or more of GRPH, DRPH, ORPH, BTEX, CVOCs, PAHs, and metals. Results are presented in Tables 6 through 9 and summarized below.

- GRPH, DRPH, ORPH, BTEX, CVOCs, and PAHs were not detected at concentrations above the MTCA cleanup level.
- Total arsenic was detected at concentrations above the MTCA Method A cleanup level of 5 µg/L in unfiltered samples collected from borings B10 (10.3 µg/L), B11 (8.02 µg/L) and B15 (51.6 µg/L).
- Total lead was detected at concentrations above the MTCA Method A cleanup level of 15 µg/L in unfiltered samples collected from borings B11 (15.8 µg/L) and B15 (174 µg/L).
- Dissolved arsenic and lead were not detected at concentrations above the laboratory reporting limit in filtered samples collected from borings B10, B11, and B15.

3.3.2 October 2019 Investigation

In October 2019, borings B16 through B28 were advanced, monitoring wells MW09 through MW11 were installed, and soil vapor probes VP5 and VP6 were advanced at the Site. Borings B16 through B20 and vapor probe VP5 were advanced on the SW Area of the Site; boring B21 was advanced on the southwest-adjoining property but is discussed as part of the SW Area. Borings B22 through B28, vapor probe VP6, and monitoring wells MW09 through MW11 were installed on the NE Area of the Site.

3.3.2.1 NE Area

Soil samples collected from borings B22 through B27 and monitoring wells MW09 through MW11 were analyzed for one or more of GRPH, DRPH, ORPH, BTEX, CVOCs, metals, and PAHs. Results are presented in Tables 1 through 4 and summarized below.

- DRPH, ORPH, toluene, ethylbenzene, total xylenes, CVOCs, and metals were not detected at concentrations above the MTCA cleanup level in any of the soil samples.
- GRPH was detected at concentrations above the MTCA Method A cleanup level of 30 mg/kg in soil samples collected from boring B24 at a depth of 3 feet (420 mg/kg) and boring B25 at a depth of 3 feet (850 mg/kg).
- PAHs were detected at concentrations above the toxicity equivalent (TEQ) MTCA Method A cleanup level of 0.1 mg/kg in the soil sample from boring B26 collected at a depth of 3 feet bgs (0.103 mg/kg), but not in the sample collected at a depth of 7 feet bgs.

Groundwater samples were collected from groundwater monitoring wells MW09 through MW11 and analyzed for one or more of GRPH, DRPH, ORPH, BTEX, metals, CVOCs, and PAHs. Results are presented in Tables 6 through 9 and summarized below.

- GRPH, ORPH, BTEX, total cadmium, total mercury, dissolved arsenic, dissolved cadmium, dissolved chromium, dissolved lead, dissolved mercury, CVOCs, and PAHs were not detected at concentrations above the MTCA cleanup level in any of the groundwater samples.
- DRPH was detected at a concentration above the MTCA Method A cleanup level of 500 µg/L in the sample from monitoring well MW11 (1,800 µg/L).
- Total arsenic was detected at a concentration above the MTCA Method A cleanup level of 5 µg/L in samples collected from monitoring wells MW09 and MW10 (91.4 µg/L and 8.16 µg/L, respectively).
- Total chromium was detected at a concentration above the MTCA Method A cleanup level of 50 µg/L in the sample collected from monitoring well MW09 (386 µg/L).
- Total lead was detected at a concentration above the MTCA Method A cleanup level of 15 µg/L in the sample collected from monitoring well MW09 (342 µg/L).

Reconnaissance groundwater samples were collected from borings B23, B24, B25, and B27. The reconnaissance groundwater samples were analyzed for one or more of GRPH, DRPH, ORPH, BTEX, CVOCs, PAHs, and metals. Results are presented in Tables 6 through 9 and summarized below.

- Toluene, dissolved arsenic, dissolved cadmium, dissolved chromium, dissolved lead, and CVOCs were not detected at concentrations above MTCA cleanup levels in any of the groundwater samples.
- GRPH was detected at concentrations above the MTCA Method A cleanup level of 800 µg/L in samples collected from borings B24 and B25 (4,400 µg/L, and 33,000 µg/L, respectively).
- DRPH was detected at concentrations above the MTCA Method A cleanup level of 500 µg/L in samples collected from borings B24, B25, and B27 (2,000 µg/L, 8,600 µg/L, and 590 µg/L, respectively).
- ORPH was detected at concentrations above the MTCA Method A cleanup level of 500 µg/L in samples collected from borings B25 and B27 (1,000 µg/L and 1,400 µg/L, respectively).
- Benzene was detected at concentrations above the MTCA Method A cleanup level of 5 µg/L in a sample collected from boring B24 (7.1 µg/L).
- Ethylbenzene and total xylenes were detected at concentrations above the MTCA Method A cleanup levels of 700 µg/L and 1,000 µg/L, respectively, in a sample collected from boring B25 (1,900 µg/L and 3,500 µg/L, respectively).
- Total arsenic was detected at a concentration above the MTCA Method A cleanup level in a sample collected from boring B25 (59.2 µg/L).
- Total lead was detected at a concentration above the MTCA Method A cleanup level of 15 µg/L in a sample collected from boring B25 (127 µg/L).

- Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) were detected at a concentration above the TEQ MTCA Method A cleanup level (0.1 µg/L) in a sample collected from boring B25 (1.510 µg/L).
- Naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene were detected at concentrations above the MTCA Method A cleanup levels in a sample collected from boring B25. Because the parent sample was flagged as estimated by the laboratory, the duplicate sample was tested. Naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene concentrations were 250 µg/L, 110 µg/L, and 230 µg/L, respectively.

A soil vapor sample was collected from vapor probe VP6 and analyzed for TPH, BTEX, and naphthalene. These COCs were not detected at concentrations above the MTCA Method B screening level. Results are presented in Table 11.

3.3.2.2 SW Area

Soil samples collected from borings B16 through B21 and B28 were analyzed for one or more of GRPH, DRPH, ORPH, BTEX, CVOCs, metals, and PAHs. None of the COCs were detected at concentrations above the MTCA cleanup levels in any of the soil samples collected from the SW Area. Results are presented in Tables 1 through 4.

Reconnaissance groundwater samples were collected from borings from B16 through B21 and B28. The reconnaissance groundwater samples were analyzed for one or more of GRPH, DRPH, ORPH, BTEX, CVOCs, PAHs, and metals. Results are presented in Tables 6 through 9 and summarized below.

- GRPH, DRPH, BTEX, CVOCs, dissolved arsenic, dissolved cadmium, dissolved chromium, dissolved lead, and PAHs were not detected at concentrations above the MTCA cleanup level in any of the reconnaissance groundwater samples.
- ORPH was detected at a concentration above the MTCA Method A cleanup level of 500 µg/L in the sample collected from boring B18 (1,900 µg/L).
- Total arsenic was detected at a concentration above the MTCA Method A cleanup level in the sample collected from boring B28 (6.33 µg/L).
- Total cadmium was detected at a concentration above the MTCA Method A cleanup level of 5 µg/L in the sample collected from boring B28 (12.2 µg/L).
- Total chromium was detected at a concentration above the MTCA Method A cleanup level of 50 µg/L in the sample collected from boring B18 (75.0 µg/L).
- Total lead was detected at a concentration above the MTCA Method A cleanup level of 15 µg/L in samples collected from borings B17 and B18 (17.9 µg/L and 534 µg/L, respectively).

A soil vapor sample was collected from vapor probe VP5 and analyzed for TPH, BTEX, and naphthalene. These COCs were not detected at concentrations above the MTCA Method B screening levels. Results are presented in Table 11.

3.3.3 November 2020 Investigation

In November 2020, borings B29 through B32 and hand auger locations HA1 and HA2 were advanced at the Site. Hand auger locations HA1 and HA2 were advanced on the NE Area of the Site. Boring B29 was advanced off the Siteon the southwest-adjoining parcel. B30 was advanced

on the SW Area. Borings B31 and B32 were advanced off the Site on the eastern side of the Motorcycle Storage Building to the east of the Site.

3.3.3.1 NE Area

Soil samples collected from hand auger locations HA1 and HA2 were analyzed for GRPH, DRPH, ORPH, BTEX, metals, and PAHs. These COCs were not detected at concentrations above the MTCA Method B screening level. Results are presented in Tables 1 through 4.

3.3.3.2 Off Property: Southwest-Adjoining Property

A soil sample collected from borings B29 was analyzed for GRPH, DRPH, ORPH, BTEX, metals, and PAHs. These COCs were not detected at concentrations above the MTCA Method A cleanup levels. Results are presented in Tables 1 through 4.

A reconnaissance groundwater sample was collected from boring B29 and analyzed for GRPH, DRPH, ORPH, and BTEX. Results are presented in Tables 5 through 9 and summarized below.

- GRPH and BTEX were not detected at concentrations above the MTCA Method A cleanup levels.
- DRPH was detected at a concentration above the MTCA Method A cleanup level of 500 µg/L in the sample collected from boring B29 (1,400 µg/L).
- ORPH was detected at a concentration above the MTCA Method A cleanup level of 500 µg/L in the sample collected from boring B29 (1,700 µg/L).

3.3.3.3 Off-Property: Motorcycle Storage Building

Soil samples collected from borings B31 and B32 were analyzed for GRPH, DRPH, ORPH, BTEX, metals, and PAHs. These COCs were not detected at concentrations above the MTCA Method A cleanup levels. Results are presented in Tables 1 through 5.

Reconnaissance groundwater samples were collected from borings B31 and B32 and were analyzed for GRPH, DRPH, ORPH, BTEX, and PAHs. Results are presented in Tables 6 and 7 and summarized below.

- GRPH and BTEX were not detected at concentrations above MTCA Method A cleanup levels.
- DRPH and ORPH were detected at concentrations above the MTCA Method A cleanup level of 500 µg/L in the sample collected from boring B32 (1,500 µg/L and 3,300 ug/L, respectively).
- ORPH was detected at a concentration above the MTCA Method A cleanup level of 500 µg/L in the sample collected from boring B31 (1,700 µg/L.
- cPAHs were detected at a concentration above the TEQ MTCA Method A cleanup level of 0.1 µg/L in the sample collected from boring B31 (1.310 µg/L).

3.3.4 <u>September 2021 Investigation</u>

Two borings were advanced in the NE Area of the Site in September 2021 and completed as groundwater monitoring wells B33/MW12 and B34/MW13. Soil samples were collected and analyzed for GRPH, DRPH, ORPH and BTEX. Results are presented in Table 1 and summarized below.

- DRPH, ORPH, and toluene were not detected at concentrations above MTCA Method A cleanup levels.
- GRPH was detected at a concentration above the MTCA Method A cleanup level of 30 mg/kg in the samples collected from monitoring well B33/MW12 at a depth of 3.5 feet bgs (160 mg/kg) and from monitoring well B34/MW14 at a depth of 5.5 feet bgs (3,000 mg/kg). However, GRPH concentrations did not exceed the MTCA Method A cleanup level in the samples collected from the same monitoring wells at a depth of 13 feet bgs.
- Benzene was not detected at concentrations above the laboratory reporting limit in the soil sample collected from B34/MW13 at a depth of 5.5 feet bgs. However, it should be noted that the laboratory reporting limit (0.4 mg/kg) exceeds the MTCA Method A cleanup level (0.03 mg/kg).
- Ethylbenzene and total xylenes were detected at concentrations above the MTCA Method A cleanup levels of 19 mg/kg and 9 mg/kg, respectively, in the sample collected from monitoring well B34/MW13 at a depth of 5.5 feet bgs (19 mg/kg and 17 mg/kg, respectively), but not in the sample collected from the same monitoring well at a depth of 13 feet bgs.

3.4 VAPOR EVALUATION

Following the additional characterization in 2018, EHSI completed four quarters of vapor intrusion screening and indoor air quality monitoring. The results indicated COC concentrations did not exceed MTCA Method B sub-slab screening levels in samples from the four vapor probes, except for the detection of naphthalene in the January 2018 event. All other target analytes were reported at concentrations below the MTCA Method B sub-slab screening levels. Benzene exceeded indoor air cleanup levels in indoor and outdoor air samples; however, when the indoor air concentrations of benzene were corrected for background ambient air concentrations, all benzene concentrations were below the indoor air cleanup level. The soil vapor and indoor air results are included in Tables 10 and 11.

3.5 2021 GROUNDWATER SAMPLING EVENTS

On March 19, 2021, groundwater samples were collected from monitoring wells MW-1, MW-2, and MW4 through MW11 on the Site. The March 2021 event included collecting groundwater samples from shallow, medium, and deeper intervals within monitoring wells MW-1 and MW5 to determine whether the surrounding geology may have been influencing the groundwater analytical results. Additionally, because the Property is known to overlay Osceola Mudflow deposits, the samples collected from monitoring wells MW-1, MW5, and MW7 were also submitted for analysis of DRPH using Northwest Total Petroleum Hydrocarbons (NWTPH) Method NWTPH-Dx with silica gel cleanup and one or more of GRPH using NWTPH Method NWTPH-Gx, DRPH using NWTPH Method NWTPH-Dx, BTEX, and naphthalene. The results of this sampling event indicated that GRPH, DRPH, benzene, and ethylbenzene concentrations exceeded the MTCA Method A cleanup levels in the samples collected from monitoring well MW6 on the NE Area (13,000 µg/L, 3,700 µg/L, 1,300 µg/L, and 1,300 µg/L, respectively).

The groundwater sampling event conducted in September 2021 included sampling of monitoring wells MW-2 and MW5 through MW13. Two wells (MW6 and MW13) on the NE Area exhibited GRPH (15,000 µg/L and 5,700 µg/L, respectively), DRPH (4,800 µg/L and 1,400, respectively), and benzene (1,400 µg/L and 35 µg/L, respectively) at concentrations above the cleanup levels. Ethylbenzene was also detected at a concentration above the MTCA Method A cleanup level in the sample collected from MW6 (1,300 µg/L). Groundwater analytical results since 2017 are included in Tables 6 through 9 and the depth to

groundwater measurements are included in Table 12. The groundwater elevation contour map is included on Figure 5.

4.0 IMPACT OF SILICA GEL CLEANUP ON PETROLEUM HYDROCARBON RESULTS

A study of DRPH and ORPH results and chromatograms for groundwater samples collected from monitoring wells located in the NE and SW Areas of the Site was conducted in March 2021 to determine whether the DRPH and ORPH concentrations represent petroleum hydrocarbons or whether a portion of the results can be attributed to non-petroleum hydrocarbon polar compounds. Analytical method NWTPH-Dx cannot distinguish highly non-polar petroleum hydrocarbons from polar compounds; therefore, these compounds are reported as concentrations of DRPH and ORPH under analytical method NWTPH-Dx. Under these conditions, the laboratory often flags DRPH and ORPH results with the statement that "the sample chromatographic pattern does not resemble the fuel standard used for quantification." Polar compounds include organic matter, oxygen, nitrogen, sulfur, organic acids, alcohol, ketones, phenols, lipids, plant oils, tannins, lignans, animal fats, proteins, humic acids, fatty acids, and resin acids. Currently, Ecology does not allow the use of silica gel cleanup with the NWTPH-Dx analytical method for analysis of groundwater samples; therefore, the DRPH and ORPH results can include naturally occurring polar organic compounds. Ecology has recognized that it is conceivably asking potentially liable parties to clean up naturally occurring organic compounds in groundwater, which is a requirement that is neither reasonable nor feasible (Ecology 2010). This is further evident in the fact that a silica gel column is used in Ecology's Extractable Petroleum Hydrocarbon method for analysis of DRPH and ORPH fractions for calculating Method B cleanup levels for petroleum hydrocarbons.

To evaluate whether fractions of DRPH and ORPH concentrations in the groundwater samples collected from the Site can be attributed to interference from polar compounds in groundwater samples collected from monitoring wells MW-1, MW4, MW6, MW7, and MW8 that were analyzed with and without silica gel cleanup. Analytical results for groundwater samples collected from the monitoring wells are as follows:

Monitoring Well	DRPH without silica gel cleanup (µg/L)	DRPH with silica gel cleanup (µg/L)	ORPH without silica gel cleanup (µg/L)	ORPH with silica gel cleanup (µg/L)
MW-1	230[x]	<50	280[x]	<250
MW4	120[x]	<50	280[x]	<250
MW6	3,700[x]	1,500	<250	<250
MW7	350[x]	<50	340[x]	<250
MW8	110[x]	<50	<250	<250

NOTE:
[x] = The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

Analytical results show that silica gel cleanup removed polar non-petroleum hydrocarbon compounds from the samples, resulting in a decrease in the concentrations of DRPH and ORPH in the samples. The impact of silica gel cleanup on sample results can also be seen in the chromatograms for the groundwater samples (Appendix I). In the chromatograms, polar non-petroleum compounds removed because of silica gel cleanup are shown in red. Furthermore, the laboratory flagged the majority of the DRPH and/or ORPH results without silica gel cleanup as not representative of DRPH and ORPH.

For the Site, eliminating the potential for false positive DRPH and ORPH results due to the presence of polar compounds in the groundwater is necessary because reconnaissance groundwater samples

previously collected from direct-push borings in the NE and SW Areas of the Site contained concentrations of DRPH and ORPH, in which some exceeded the applicable cleanup levels. The source for the false-positive results for DRPH and ORPH in the reconnaissance groundwater samples, particularly in the SW Area of the Site, is likely polar compounds originating in the Holocene-era Osceola Mudflow, which underlies the fill material at the Property and represents degradation products of petroleum hydrocarbons. Osceola Mudflow is generally fine-grained and rich in organic matter, lignins, animal fats, proteins, humic acids, fatty acids, and resin acids. The elevated concentrations of DRPH and ORPH were collected as reconnaissance groundwater samples from direct-push borings that were partially or entirely screened in the Osceola Mudflow (Figures 3 and 4).

5.0 CONCEPTUAL SITE MODEL

This section discusses the components of the CSM developed for the Site based on the completion of multiple phases of investigation and interim remedial actions conducted by EHSI and others. Included in the following sections are a discussion of the confirmed and suspected source areas, affected environmental media, fate and transport mechanisms, COCs, exposure pathways, and potential receptors. The CSM also includes the Terrestrial Ecological Evaluation (TEE).

The CSM serves as the basis for developing technically feasible cleanup alternatives and selecting a final cleanup action. Based on the historical operations at the Site and results of the RI, there is a confirmed source of COCs in soil and groundwater at the Site. The following subsections provide a summary of the likely sources and extents of the COCs at the Site identified during the RI. Figures 3 through 8 provide visual representations of the information presented below.

5.1 CONFIRMED AND SUSPECTED SOURCE AREAS

Confirmed and suspected source areas are locations at the Site where the release of hazardous substances has been confirmed or is suspected based on findings from the RI. A discussion of confirmed and suspected source areas is presented below.

5.1.1 On-Property Confirmed or Suspected Source Areas

After remediation of the Site in the 1990s, all suspected source areas, except for the former gasoline service station, have been remediated to comply with current MTCA cleanup standards. Although petroleum hydrocarbons have been detected in reconnaissance groundwater samples collected from direct-push borings advanced in the parking lot and proximate to the former weld shop in the SW Area, samples collected from groundwater monitoring wells installed in these areas have not contained concentrations of petroleum hydrocarbons above laboratory reporting limits. As discussed in Section 4.1, the petroleum hydrocarbon concentrations are likely due to the presence of polar compounds in groundwater that resulted from the degradation of petroleum hydrocarbons or natural organic matter and/or sorption of petroleum hydrocarbons onto fine particles entrained in the reconnaissance groundwater samples (i.e., turbidity), which biased the sample result concentrations high.

5.1.2 Off-Property Confirmed or Suspected Source Areas

Borings B27, B31, and B32 were advanced at the Motorcycle Storage Building located east of River Avenue, downgradient of the Site (Figure 2). Although DRPH and ORPH were detected in reconnaissance groundwater samples collected from the borings, a majority of the concentrations were flagged by the laboratory as not representative of DRPH and ORPH. As with the borings

advanced at the Site, the DRPH and ORPH concentrations detected in the samples from the Motorcycle Storage Building can likely be attributed to non-petroleum polar compounds. The borings were advanced into the Osceola Mudflow deposit.

Groundwater samples collected from monitoring wells MW10 and MW11, located in River Avenue, upgradient of the Motorcycle Storage Building, have not contained petroleum hydrocarbons at concentrations exceeding MTCA Method A cleanup levels, except for DPRH detected in a groundwater sample collected from monitoring well MW11 in 2019 (Table 1 and Figure 7). The DRPH concentration in the groundwater sample collected in 2019 was 1,800 µg/L; however, since then, DRPH has not been detected at a concentration above laboratory reporting limits in groundwater samples collected in 2020 or 2021 from monitoring well MW11. These results, along with the absence of petroleum hydrocarbons in monitoring wells MW10 and MW11, suggest a release at the NE Area of the Site has not impacted the groundwater quality beneath the Motorcycle Storage Building.

5.2 CONTAMINANTS AND MEDIA OF CONCERN

Based on the findings of the RI conducted at the Site, the COCs at the Site include petroleum hydrocarbons and metals in soil and groundwater. A discussion of each media of concern and the applicable COCs is presented below.

5.2.1 Indoor Air

Indoor and outdoor air samples were collected over a series of events from inside the main library building. VOC concentrations were less than applicable MTCA Method B cleanup levels in indoor air samples when corrected for VOCs in outdoor air, with the exception of acetaldehyde and chloroform, which exceeded Method B indoor air cleanup levels (Table 11). Based on the information presented below from the Canadian Department of Health (2022) and the U.S. Environmental Protection Agency (EPA) , acetaldehyde and chloroform concentrations detected in the indoor air samples are likely not due to a release of volatile COCs at the Site. These corrected indoor air results, in conjunction with soil gas results presented earlier in this RIFS, show that indoor air is not a medium of concern inside the library building.

> "The source of acetaldehyde indoor air is unknown; however, potential sources may include emissions from products for interior finishes (e.g., vinyl flooring and carpets) and wood-based building materials (e.g., fiberboard and particleboard) as well as paints, stains, adhesives, caulking and foam sealants may also contribute to indoor levels of acetaldehyde. An additional source of acetaldehyde indoors is the infiltration of vehicle exhaust fumes. Consumer products may directly contribute to indoor acetaldehyde levels, such as fragranced consumer products (e.g., air fresheners, liquid fabric softeners, dryer sheets, which may contain acetaldehyde), as well as indirectly via secondary formation of acetaldehyde from indoor reactions of ozone with other organic aerosols. Elevated indoor acetaldehyde levels have been shown to be associated with higher occupant density, likely due to "occupant activities" including, but not limited to, respiration releasing endogenously produced acetaldehyde."

Chloroform has not been detected in groundwater samples collected from the NE and SW Areas of the Site. This provides a line of evidence that the chloroform detected in the indoor air samples did not result from the release of hazardous substances at the Site. Intrinsic sources of chloroform in the library building may include chlorinated drinking water, chlorinated beverages, and sewer gas.

Chloroform in sewer gas can enter a building from breached toilet-wax rings, loose pipe fittings, and other conditions that often allow sewer gas to enter buildings (EPA 2011).

5.2.2 Soil

Soil samples that contained concentrations of one or more COCs collected from borings advanced at the Site are primarily proximate to the gasoline service station formerly on the NE Area of the Site and adjacent to River Avenue (Figure 6 and Tables 1 through 5). The primary COCs are GRPH, DRPH, ORPH, BTEX, lead, and cadmium. COCs are present at depths of 2.5 to 7 feet bgs. Samples from most of the borings contained COCs at concentrations below applicable cleanup levels and/or laboratory reporting limits except for samples from borings B7, B8, B12, B13, B14, B24, B25, and MW6 (Tables 1 through 5 and Figure 6). Based on these results, soil is a medium of concern at the Site. The extent of contaminated soil in the NE Area of the Site is shown on Figures 3 and 6.

5.2.3 Groundwater

COCs have been identified in reconnaissance groundwater samples collected from direct-push borings and from groundwater samples collected from monitoring wells (Tables 6 through 9 and Figure 7). On the NE Area of the Site, groundwater is impacted by a release of hazardous substances from the former gasoline service station. COCs in groundwater include GRPH, DRPH, ORPH, BTEX, and naphthalene. Although total arsenic, chromium, and/or lead concentrations exceeded applicable cleanup levels in non-filtered groundwater samples collected from monitoring wells MW09 and MW10, filtered groundwater samples collected at monitoring wells MW09 and MW10 did not contain metals at concentrations exceeding applicable cleanup levels and/or laboratory reporting limits. Therefore, based on the petroleum hydrocarbon concentrations detected, groundwater is a medium of concern on the NE Area of the Site The extent of petroleum hydrocarbons in groundwater on the NE Area of the Site is shown in Tables 6 through 9 and on Figures 4 and 7.

On the SW Area of the Site, petroleum hydrocarbons and metals (arsenic, cadmium, chromium, and lead) have been identified in groundwater samples. Petroleum hydrocarbons identified in reconnaissance groundwater samples collected from direct-push borings can be attributed to polar compounds in the sample that resulted from degradation of petroleum hydrocarbons or natural organic matter, which was detected as DRPH and OPRH, as discussed in Section 4.0. Groundwater samples collected from developed monitoring wells have not contained petroleum hydrocarbons, which further supports the conclusion that DRPH and OPRH detections in reconnaissance groundwater samples are false positives. Although total arsenic, cadmium, and lead concentrations exceeded applicable cleanup levels in non-filtered groundwater samples collected from direct-push borings, filtered groundwater samples collected from the borings do not contain concentrations of metals exceeding applicable cleanup levels and/or laboratory reporting limits, except for an arsenic concentration in the filtered reconnaissance groundwater sample collected from boring B3. Furthermore, groundwater samples collected from developed monitoring wells on the SW Area of the Site do not contain metals at concentrations exceeding applicable MTCA cleanup levels. Based on these findings, groundwater is not a media of concern on the SW Area of the Site.

5.3 CONTAMINANT FATE AND TRANSPORT OF PETROLUEM HYDROCARBONS

This section includes a discussion of the transport mechanisms and environmental fate of petroleum hydrocarbons in the subsurface.

5.3.1 Fate and Transport of Petroleum Hydrocarbons in the Subsurface

The transportation and distribution of petroleum hydrocarbons in groundwater controls the lateral and vertical migration of the COC by advection and dispersion transport mechanisms. Advection is a function of the hydraulic conductivity of the aquifer material and the hydraulic gradient of the groundwater. Under advective transport, dissolved contaminants follow the direction of groundwater flow, sometimes referred to as the advection front. Dispersive mixing causes some contaminant molecules to move ahead (longitudinally) of the average advective velocity along the hydraulic gradient and causes some molecules to move laterally (transverse) to the hydraulic gradient. The net effect is dispersal of the contaminant plume about the advective front. The amount of spreading is related to the dispersity of the soil, microscopic velocities through the pore spaces in the soil, the advective velocity of groundwater flow, and the molecular diffusion of the contaminant in the water within the pore space.

On the NE Area of the Site, petroleum hydrocarbons are present in the soil and groundwater because of a historical release from the former gasoline service station. The petroleum-contaminated groundwater plume has migrated partially into River Avenue, but not beyond the ROW, as shown on Figure 7. The footprint of the petroleum hydrocarbon plume appears relatively stable over time based on the absence of petroleum hydrocarbons in all monitoring wells, with exception of monitoring well MW6. In River Avenue, the plume may be shrinking in the ROW based on temporal analysis of analytical results of samples collected from monitoring well MW11 over time. The stability of the plume near the NE Area of the Site is likely a function of the anaerobic groundwater chemistry and flat groundwater gradient proximate to the former location of the gasoline service station. The groundwater elevation contour map is included on Figure 5.

5.4 EXPOSURE PATHWAYS AND POTENTIAL RECEPTORS

This section discusses the confirmed and potential human health and ecological exposure pathways at the Site with the goals of (1) identifying those pathways requiring remediation to reduce or eliminate unacceptable risks to human health or the environment and (2) applying the findings to the development of potentially feasible remedial technologies. Pathways associated with each media of potential concern are described below for the NE Area of the Site. The SW Area of the Site does not pose a risk to human health and the environment based on interim remedial actions performed in the 1990s and soil and groundwater analytical results acquired after the 1990s. Currently the Site is zoned “Public Zone” by the City of Buckley. The purpose of the Public Zone is to provide public services for all public needs. According to PCLS, the current land use at the Site is not expected to change for the foreseeable future.

5.4.1 Exposure Pathway: Soil

The potential exposure pathway for contaminated soil beneath the NE Area of the Site includes direct contact. Petroleum-impacted soil beneath the NE Area of the Site is accessible and presents a risk to human health by direct contact for workers. The exposure path of direct contact with contaminated soil is complete.

5.4.2 Exposure Pathway: Soil to Groundwater

The migration of petroleum hydrocarbons from the unsaturated soil has been demonstrated by the presence of petroleum hydrocarbons in shallow groundwater at the NE Area of the Site. These findings confirm the soil to groundwater pathway is complete. The nearest City of Buckley water supply well is 0.3 miles to the southwest. The water supply well is 10 inches in diameter and extends to a depth of 130 feet bgs. The water from the well is chlorinated with chlorine gas and pumped directly into the water distribution system (Gray & Osborne, Inc. 2017). The nearest surface water body is a spur of the White River, labeled as "Puget Sound Power and Light," which is located 0.4 miles to the west.

5.4.3 Exposure Pathway: Groundwater

Results of groundwater sampling and monitoring on the NE Area of the Site indicate that concentrations of petroleum hydrocarbons in groundwater pose a risk to human health through direct contact and inhalation of VOCs proximate to the former gasoline service station and likely in the River Avenue ROW. These findings confirm that the exposure pathway of direct contact and inhalation of groundwater is complete for workers.

5.4.4 Exposure Pathway: Soil Gas—Inhalation

Results of the soil gas surveys conducted at the NE Area of the Site indicate that petroleum hydrocarbons do not pose a risk to human health via the indoor inhalation pathway in the library building; therefore, this pathway is not complete.

5.4.5 Exposure Pathway: Indoor Air—Inhalation

Results of the indoor air sampling conducted at the NE Area of the Site indicate that petroleum hydrocarbons do not pose a risk to human health via the inhalation pathway for the library building; therefore, this pathway is not complete.

5.5 TERRESTRIAL ECOLOGICAL EVALUATION

A TEE is required by WAC 173-340-7490 at any site where there has been a release of hazardous substances to soil. The regulation requires that one of the following actions be taken:

- Documenting a TEE exclusion using the criteria presented in WAC 173-340-7491
- Conducting a simplified TEE in accordance with WAC 173-340-7492
- Conducting a site-specific TEE in accordance with WAC 173-340-7493

The Site is excluded from a TEE because there are fewer than 1.5 acres of contiguous undeveloped land on the Site or within 500 feet of any area of the Site based on the criteria for TEE exclusion in WAC 173-340-7491(1)(c)(i). Therefore, no further consideration of ecological impacts is required under MTCA. The Terrestrial Ecological Evaluation form is included in Appendix J.

6.0 CLEANUP STANDARDS AND TECHNICAL ELEMENTS

The remedial action objectives (RAOs) developed for the Site were used to define the technical elements for the screening evaluation and to select remedial alternatives. The technical elements include applicable or relevant and appropriate requirements (ARARs), COCs, media of concern, and cleanup standards.

6.1 REMEDIAL ACTION OBJECTIVES

RAOs are statements of the goals that a remedial alternative should achieve in order to be retained for further consideration as part of the feasibility study (FS). The purpose of establishing RAOs for a site is to provide remedial alternatives that protect human health and the environment (WAC 173-340-350). In addition, RAOs are designated to:

- Implement administrative principles for cleanup (WAC 173-340-130).
- Meet the requirements, procedures, and expectations for conducting an FS and developing cleanup action alternatives, as discussed in WAC 173-340-350 through 173-340-370.
- Develop cleanup levels (WAC 173-340-700 through 173-340-760) and remedial alternatives that are protective of human health and the environment.

In particular, RAOs must address the following threshold requirements from WAC 173-340:

- Protect human health and the environment.
- Comply with cleanup levels.
- Comply with applicable state and federal laws.
- Provide for compliance monitoring.

The RAO for the Site is to prevent direct contact or ingestion of COC-impacted soils and achieving compliance with applicable groundwater cleanup levels. The selected cleanup action will be performed in pursuit of obtaining an NFA determination from Ecology.

6.2 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Under WAC 173-340-350 and 173-340-710, ARARs include regulatory cleanup standards, standards of control, and other environmental requirements, criteria, or limitations established under state or federal law that specifically address a contaminant, remedial action, location, or other circumstances at a site.

MTCA defines relevant and appropriate requirements as follows:

> "…those cleanup action standards, standards of control, and other human health and environmental requirements, criteria or limitations established under state and federal law that, while not legally applicable to the hazardous substance, cleanup action, location, or other circumstances at a site, address problems or situations sufficiently similar to those encountered at the site that their use is well suited to the particular site. The criteria specified in WAC 173-340-710(3) shall be used to determine if a requirement is relevant and appropriate."

Remedial actions conducted under MTCA must comply with the substantive requirements of the ARARs but are exempt from their procedural requirements (WAC 173-340-710[9]). Specifically, this exemption applies to state and local permitting requirements under the Washington State Water Pollution Control Act, Solid Waste Management Act, Hazardous Waste Management Act, Clean Air Act, State Fisheries Code, and Shoreline Management Act. ARARs were screened to assess their applicability to the Site. The following tables summarizes the preliminary ARARs for the Site.

Preliminary ARARs for the Site

Preliminary ARAR	Citation or Source
MTCA	Chapter 70.105 of the Revised Code of Washington (RCW)
MTCA Cleanup Regulation	WAC 173-340
Washington State Department of Ecology, Toxics Cleanup Program	*Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*, dated January 2009 and revised March 2022 (Publication No. 09-09-047)
State Environmental Policy Act	RCW 43.21C
Washington State Shoreline Management Act	RCW 90.58; WAC 173-18, 173-22, and 173-27
The Clean Water Act	33 United States Code (USC) 1251 et seq.
Comprehensive Environmental Response, Compensation, and Liability Act of 1980	42 USC 9601 et seq. and 40 Code of Federal Regulations (CFR) 300
The Fish and Wildlife Coordination Act	16 USC 661-667e; the Act of March 10, 1934; Ch. 55; 48 Stat. 401
Endangered Species Act	16 USC 1531 et seq.; 50 CFR 17, 225, and 402
Native American Graves Protection and Repatriation Act	25 USC 3001 through 3013; 43 CFR 10 and Washington's Indian Graves and Records Law (RCW 27.44)
Archaeological Resources Protection Act	16 USC 470aa et seq.; 43 CFR 7
Washington Dangerous Waste Regulations	WAC 173-303
Solid Waste Management Act	RCW 70.95; WAC 173-304 and 173-351
Occupational Safety and Health Administration Regulations	29 CFR 1910, 1926
Washington Department of Labor and Industries Regulations	WAC 296
Water Quality Standards for Surface Waters of the State of Washington	RCW 90.48 and 90.54; WAC 173-201A
Water Quality Standards for Ground Water	WAC 173-200
Department of Transportation Hazardous Materials Regulations	40 CFR 100 through 185
Washington State Water Well Construction Act	RCW 18.104; WAC 173-160
Washington Administrative Code for Landfilling Standards	WAC 173-304-460
City of Buckley regulations, codes, and standards	All applicable or relevant and appropriate regulations, codes, and standards.
Pierce County regulations, codes, and standards	All applicable or relevant and appropriate regulations, codes, and standards.

6.2 PROPOSED CLEANUP STANDARDS

The proposed cleanup standards selected for the Site are consistent with applicable regulatory standards and local, state, or federal laws. The relevant requirements and the associated media-specific cleanup levels for the identified COCs are summarized in the following sections.

6.2.1 Cleanup Levels

Proposed Cleanup Levels for Soil

COC	Cleanup Level (mg/kg)	Source
GRPH	30	MTCA Method A Soil Cleanup Levels for Unrestricted Land Use (WAC 173-340-740(2)(b)(i))
DRPH	2,000	
ORPH	2,000	
Benzene	0.03	
Ethylbenzene	6	
Total Xylenes	9	
Cadmium	2	
Lead	250	
PAHs	0.1	

Proposed Cleanup Levels for Groundwater

COC	Cleanup Level (µg/L)	Source
GRPH	800	MTCA Method A, Table Value; WAC 173-340-720(3)(b)(i)
DRPH	500	
ORPH	500	
Benzene	5	
Ethylbenzene	700	
Total Xylenes	1,000	
Arsenic	5	
Cadmium	5	
Chromium	50	
Lead	15	
PAHs	0.1	

6.3 POINT OF COMPLIANCE

The point of compliance is the location where the cleanup levels that are set in accordance with WAC 173-340 and WAC 246-290 will be measured and cannot be exceeded. Once the cleanup levels have been attained at the defined points of compliance, the impacts present beneath the Site will no longer be considered a threat to human health or the environment. Based on evidence gathered during the site investigations, soil and groundwater are the only media of concern on NE Area of Site. A standard point of compliance for groundwater is proposed for the Site, which is defined under MTCA is “throughout the site from the uppermost level of the saturated zone extending vertically to the lowest depth which could potentially be affected by the site” (WAC 173-340-720 [8]).

7.0 FEASIBILITY STUDY

The purpose of this FS is to develop and evaluate cleanup action alternatives to facilitate selection of the final cleanup action at the Site in accordance with WAC 173-340-350(8). This FS includes screening of

potentially feasible remedial technologies and development of cleanup alternatives intended to achieve the RAOs described in Section 6.1. Because Site-specific conditions preclude the implementation of many potential remedial components, a more focused evaluation was prepared that includes only those alternatives that are implementable and capable of achieving the RAOs.

The cleanup alternatives are evaluated with respect to threshold and other requirements for cleanup actions set forth in MTCA. This FS evaluates the alternatives and identifies those that are not effective, not technically possible, or involve costs that are disproportionate under the provisions of WAC 173-340-360(3)(e), and the FS provides the basis for identifying a preferred cleanup action alternative. Based on the cleanup action alternative screening, the FS presented below evaluates the most practicable remedial alternatives in order to recommend a cleanup action for the Site in conformance with WAC 173-340-360 through WAC 173-340-390.

7.1 IDENTIFICATION AND EVALUATION TECHNOLOGIES

Remedial components (technologies) were evaluated with respect to the degree to which they comply with the cleanup requirements set forth in MTCA. According to MTCA, a cleanup action alternative must satisfy all of the minimum threshold requirements for RAOs, as outlined in Section 6.1. WAC 173 340-360 (2)(b) also requires the cleanup action alternative to:

- Use permanent solutions to the maximum extent practicable.
- Provide for a reasonable restoration time frame.
- Consider public concerns about the proposed cleanup action alternative.

Using the above criteria, several remedial technologies were evaluated and screened for effectiveness, implementability, and relative cost to produce a short list for further inclusion in the development of alternatives. Table 13 summarizes the remedial component screening process. The remedial technologies that passed the screening process include the following:

- Monitored natural attenuation
- Environmental covenant (EC)
- Soil excavation
- Dewatering during excavation
- Shoring
- Land disposal of contaminated soil
- Granular activated carbon (GAC) or powder activated carbon (PAC) in situ treatment

7.2 EVALUATION OF CLEANUP ACTION ALTERNATIVES

This section presents the criteria used to evaluate the potentially feasible remedial alternatives with respect to the RAOs established for the Site. Remedial components were identified in accordance with the requirements set forth in MTCA under WAC 340-350(8)(b), and the focused screening of potential remedial components was conducted using the requirements and procedures for selecting cleanup actions as set forth in MTCA under WAC 173-340-360(2)(a)(b). The criteria used to evaluate and compare applicable remedial alternatives were derived from WAC 173-340-360(3)(f) and include the following:

- **Protectiveness.** This criterion evaluates the overall protectiveness of human health and the environment, including the degree to which existing risks are reduced, the time required to reduce risk at the facility and attain cleanup standards, the risks resulting from implementing the alternative, and improvement of overall environmental quality.
- **Permanence.** This criterion evaluates the degree to which the alternative permanently reduces the toxicity, mobility, or volume of hazardous substances, including the adequacy of the alternative in destroying the hazardous substances, the reduction or elimination of hazardous substance releases and the sources of releases, the degree of irreversibility of the waste treatment process, and the characteristics and quantity of treatment residuals generated during the treatment process.
- **Effectiveness over the Long Term.** This criterion evaluates the degree of certainty that the alternative will be successful, the reliability of the alternative during the period of time over which hazardous substances are expected to remain on the site, and the magnitude of residual risk associated with the contaminated soil and/or groundwater components. The following types of cleanup action components, presented in descending order, may be used as a guide when assessing the relative degree of long-term effectiveness of the chosen alternative:
  - Reuse or recycling
  - Destruction or detoxification
  - Immobilization or solidification
  - On-site or off-site disposal in an engineered, lined, and monitored facility
  - On-site isolation or containment with attendant engineering controls
  - Institutional controls and monitoring
- **Management of Short-Term Risks.** This criterion evaluates the risk to human health and the environment associated with the alternative during its construction and implementation and the effectiveness of measures that will be taken to manage such risks.
- **Technical and Administrative Implementability.** This criterion evaluates the ability to implement the alternative, including consideration of the technical feasibility of the alternative, administrative and regulatory requirements, permitting, scheduling, size, complexity, monitoring requirements, access for construction operations and monitoring, and integration with the future development plans for the site.
- **Consideration of Public Concerns.** This criterion evaluates protection of the public interest, including considerations of perception, protection of the community, trust in the cleanup and the involved parties, and impact on the surrounding areas.

7.3 FOCUSED EVALUATION OF CLEANUP ACTION ALTERNATIVES

The focused evaluation of cleanup action alternatives considered the practicable remedial components confirmed to be effective at treating COCs in the affected media of concern. EHSI also considered whether Property-specific constraints would preclude application of a remedial technology due to the creation of a greater risk to human health and/or the environment or whether such constraints could result in the remedial technology being technically or administratively infeasible to implement.

The three cleanup action alternatives that were retained for additional consideration, which are described in more detail in the following subsections, include the following:

- Cleanup Action Alternative 1, Soil Excavation and Granular Activated Carbon Wall (GACW) with EC
- Cleanup Action Alternative 2, Partial Soil Excavation and In Situ Groundwater Treatment with EC
- Cleanup Action Alternative 3, In Situ Groundwater Treatment with EC

7.3.1 Common Components and Basic Assumptions

The following assumptions are common to all cleanup action alternatives:

- An EC would be recorded on the Property title.
- Monitored natural attenuation of groundwater at the Site is assumed.
- Monitoring wells installed at the Site would be decommissioned when points of compliance are met and upon the receipt of an NFA determination from Ecology.

7.3.2 Cleanup Action Alternative 1: Soil Excavation and GACW with EC

Cleanup Action Alternative 1 includes the removal of petroleum-contaminated soil (PCS) on the NE Area of the Site to attain compliance with MTCA Method A soil cleanup levels. The remedial excavation would be completed to depths between 5 and 7 feet bgs; an excavation(s) may be performed at greater depths in localized areas to remove PCS. The removal of PCS would significantly reduce the source of COCs impacting groundwater, thereby allowing COCs in groundwater to naturally attenuate and meet the groundwater point of compliance.

This alternative also includes installation of a GACW along a section of the eastern Property boundary in the NE Area of the Site. The GACW would adsorb and immobilize COCs present in saturated zone and prevent off-Site migration of residual petroleum-impacted groundwater. This GACW would reduce COC concentrations in groundwater and eventually destroy COCs through biodegradation.

An EC would also be recorded on the Property title to prevent direct contact with contaminated soil and/or groundwater that may remain beneath the Site. Figure 9 provides an illustration of the conceptual implementation of this cleanup action alternative, including the extent of the remedial excavation and the GACW alignment.

Key assumptions for this alternative include the following:

- Applicable Pierce County and City of Buckley permits (e.g., grading permit) would be secured prior to remedial activities.
- An underground injection control (UIC) permit would be obtained from Ecology.
- Temporary erosion and sediment control (TESC) measures would be installed prior to initiating earthwork activities.
- Monitoring wells MW5, MW6, MW12, and MW13, located within the remedial excavation area, would be decommissioned.
- Temporary shoring, such as trench boxes, would be utilized to facilitate the remedial excavation along the eastern Property boundary. The northern, western, and southern sidewalls of the remedial excavation would be sloped at 1:1 vertical to horizontal.

- The remedial excavation would extend to depths between 5 and 7 feet bgs; an excavation(s) may be performed at greater depths in localized areas to remove PCS. Overburden and PCS would be segregated and stockpiled for waste characterization and profiling.
- Approximately 1,600 cubic yard of overburden soil and PCS is anticipated to be generated during the remedial excavation. A soil waste profile would be developed for the Site prior to excavation activities.
  - A portion of the overburden soil is assumed to be deemed clean and suitable for reuse as backfill (approximately 360 cubic yards).
  - A portion of the overburden soil is assumed to be Class 2 soil (approximately 150 tons).
  - The PCS from the remedial excavation is assumed to be Class 3 soil (approximately 1,810 tons).
- Based on historical groundwater-level measurements, groundwater may be encountered as shallow as 3.5 feet bgs. The remedial excavation would be completed during low groundwater conditions to minimize dewatering. Groundwater generated during dewatering activities would be temporarily contained in a storage tank(s) and disposed of off the Property at an appropriate facility.
- GAC would be mixed with imported sand and placed along a section of the eastern Property boundary and within the saturated zone (at approximately 80 feet in length, at approximately 5 feet in width, and at depths between 3 and 7 feet bgs) for installation of the GACW.
- The excavation and disturbed areas would be restored to match existing conditions.
- The remedial excavation and installation of the GACW would be completed in approximately 2 months. The remedial action activities and results would be documented in a Cleanup Action Report.
- Performance and compliance groundwater monitoring would include the collection of groundwater samples from five existing monitoring wells (MW7 through MW11) and four newly installed monitoring wells (replacements for decommissioned monitoring wells MW5, MW6, MW12, and MW13). The groundwater samples would be collected on a quarterly basis for up to 2 years and submitted for analysis of GRPH, DRPH, ORPH, and BTEX. It is anticipated that compliance with MTCA Method A groundwater cleanup levels would be attained in 2 years. The results of the performance and compliance groundwater monitoring would be presented in annual Groundwater Monitoring Reports.
- An EC would be recorded against the Property in accordance with WAC 173-340-440. Periodic reviews would be performed to confirm that the terms of the EC are satisfied.

The FS-level cost estimate for this alternative is presented in Table 14. The estimated present worth cost of this alternative is $729,000.

7.3.3 Cleanup Action Alternative 2: Partial Soil Excavation and In Situ Groundwater Treatment with EC

Cleanup Action Alternative 2 includes the partial removal of PCS in the NE Area Site to reduce the source of COCs impacting groundwater. Remedial excavations would be completed in four areas were elevated petroleum hydrocarbon concentrations have been detected in soil and/or

groundwater samples (from borings B6, B7, B8, B12, B33/MW12, and B34/MW13). The remedial excavations would be completed to depths between 5 and 7 feet bgs; an excavation(s) may be performed at greater depths in localized areas to remove PCS. This alternative also includes the injection of PAC within the extent of petroleum-impacted groundwater in the NE Area. The PAC would adsorb and immobilize COCs present in the saturated zone and prevent off-Site migration of petroleum-impacted groundwater. This adsorption process would reduce COC concentrations in groundwater and eventually destroy COCs through biodegradation.

An EC would also be recorded on the Property title to prevent direct contact with contaminated soil and/or groundwater that may remain beneath the Site. Figure 10 provides an illustration of the conceptual implementation of this cleanup action alternative, including the extent of the remedial excavations and PAC injection locations.

Key assumptions for this alternative include the following:

- Applicable Pierce County and City of Buckley permits would be secured prior to remedial activities (e.g., grading permit).
- A UIC permit would be obtained from Ecology.
- TESC measures would be installed prior to initiating earthwork activities.
- Monitoring wells MW6, MW12, and MW13, located within the remedial excavation areas, would be decommissioned.
- Temporary shoring, such as trench boxes, would be utilized to facilitate the remedial excavations.
- The remedial excavations would extend to depths between 5 and 7 feet bgs; an excavation(s) may be performed at greater depths in localized areas to remove PCS. Overburden and PCS would be segregated and stockpiled for waste characterization and profiling.
- Approximately 400 cubic yard of overburden soil and PCS is anticipated to be generated during the remedial excavation. A soil waste profile would be developed for the Site prior to excavation activities.
  - A portion of the overburden soil is assumed to be deemed clean and suitable for reuse as backfill (approximately 120 cubic yards).
  - A portion of the overburden soil is assumed to be Class 2 soil (approximately 70 tons).
  - The PCS from the remedial excavation is assumed to be Class 3 soil (approximately 640 tons).
- Based on historical groundwater-level measurements, groundwater may be encountered as shallow as 3.5 feet bgs. The remedial excavations would be completed during low groundwater conditions to minimize dewatering. Groundwater generated during dewatering activities would be temporarily contained in a storage tank(s) and disposed of off the Site at an appropriate facility.
- The excavation and disturbed areas would be restored to match existing conditions.
- Following the remedial excavations, PAC injections would be performed within the remaining footprint of the area of petroleum-impacted groundwater (24 injection points, spaced apart approximately 10 feet on center). The PAC slurry would be prepared by

mixing PAC with potable water in an aboveground mixing tank. The PAC slurry would be delivered to the subsurface using direct-push drilling techniques. It is assumed a repeat injection would be completed approximately 10 years following the initial injection.

- The remedial excavations and PAC injection would be completed in approximately 1 month. The remedial action activities and results would be documented in a Cleanup Action Report.
- Groundwater monitoring would include the collection of groundwater samples from seven existing monitoring wells (MW5 and MW7 through MW12) and three newly installed monitoring wells (replacements for decommissioned monitoring wells MW6, MW12, and MW13). The groundwater samples would be collected every 5 years for up to 20 years and submitted for analysis of GRPH, DRPH, ORPH, and BTEX. It is anticipated that compliance with MTCA Method A groundwater cleanup levels would be attained in 20 years. The results of the groundwater monitoring would be presented in Groundwater Monitoring Reports.
- An EC would be recorded against the Property in accordance with WAC 173-340-440. Periodic reviews would be performed to confirm that the terms of the EC are satisfied.

The FS-level cost estimate for this alternative is presented in Table 15. The estimated present worth cost of this alternative is $471,000.

7.3.4 Cleanup Action Alternative 3: In Situ Groundwater Treatment with EC

Cleanup Action Alternative 3 includes the injection of PAC within the extent of petroleum-impacted groundwater in the NE Area of the Site. The PAC would adsorb and immobilize COCs present in the saturated zone and prevent off-Site migration of petroleum-impacted groundwater. This adsorption process would reduce COC concentrations in groundwater and eventually destroy COCs through biodegradation.

Figure 11 provides an illustration of the conceptual implementation of this cleanup action alternative, including the PAC injection locations. Key assumptions for this alternative include the following:

- A UIC permit would be obtained from Ecology.
- The PAC slurry would be prepared by mixing PAC with potable water in an aboveground mixing tank. The PAC slurry would be injected on a grid within the extent of the petroleum-impacted groundwater area (i.e., five alignments oriented perpendicular to the general groundwater flow direction; 36 injection points, spaced apart approximately 10 feet on center). The PAC slurry would be delivered to the subsurface using direct-push drilling techniques. It is assumed a repeat injection would be completed approximately 10 years following the initial injection.
- The PAC injection would be completed in approximately 1 month. The remedial action activities and results would be documented in a Cleanup Action Report.
- Groundwater monitoring would include the collection of groundwater samples from nine existing monitoring wells (MW5 through MW13). Groundwater samples would be collected every 5 years for up to 20 years and submitted for analysis of GRPH, DRPH, ORPH, and BTEX. It is anticipated that compliance with MTCA Method A groundwater

cleanup levels would be attained in 20 years. The results of the groundwater monitoring would be presented in Groundwater Monitoring Reports.

- An EC would also be recorded on the Property title to prevent direct contact with contaminated soil and/or groundwater that may remain beneath the Site in accordance with WAC 173-340-440. Periodic reviews would be performed to confirm that the terms of the EC are satisfied.

The FS-level cost estimate for this alternative is presented in Table 16. The estimated present worth cost of this alternative is approximately $248,000.

7.4 COMPARISION OF CLEANUP ACTION ALTERNATIVES

A summary of the evaluation of the alternatives described above using the MTCA evaluation criteria (WAC 173-340-360[3][f]) is presented below (Table 17):

- **Protectiveness.** Cleanup Action Alternative 1 is the most protective of human health and the environment because of the permanent removal and off-Site disposal of PCS from the Property; the GACW would also prevent off-Site migration of residual petroleum-impacted groundwater. Cleanup Action Alternative 2 scored lower than Cleanup Action Alternative 1 because of its longer remedial time frame given partial removal of PCS from the Property (i.e., residual petroleum hydrocarbon mass would be degraded through in situ groundwater treatment). Cleanup Action Alternative 3 scored lower than Alternatives 1 and 2 because in situ groundwater treatment via absorption and subsequent biodegradation (generally slow) would be relied upon for degradation of COCs in groundwater to attain soil and groundwater cleanup standards.
- **Permanence.** Cleanup Action Alternative 1 exhibits the highest degree of permanence because it permanently reduces the mass of COCs via the removal of PCS. Cleanup Action Alternative 2 ranked next because of the partial removal of PCS. Cleanup Action Alternative 3 scored the lowest because it solely relies on in situ groundwater treatment to reduce the COC mass in soil and groundwater.
- **Effectiveness over the Long Term.** The evaluation of effectiveness over the long term includes both the degree of certainty that the alternative will be successful and the reliability of the alternative during the period of time that hazardous substances are expected to remain on the Site at concentrations that exceed cleanup levels. Cleanup Action Alternative 1 scored the highest because excavation and disposal of PCS is permanent and the GACW would also prevent off-Site migration of petroleum-impacted groundwater. Cleanup Action Alternative 2 ranked higher than Cleanup Action Alternative 3 because less COC mass would remain following partial removal of PCS that would require in situ treatment via PAC injection. Although PAC application is a proven remedial technology, there is some uncertainty in the ability to deliver and distribute the PAC slurry to the subsurface under Cleanup Action Alternatives 2 and 3.
- **Management of Short-Term Risks.** Cleanup Action Alternative 3 scored the highest because direct-push injections of PAC can be performed with minimal worker exposure to PCS and impacted groundwater. Cleanup Action Alternative 1 ranked the lowest because of potential worker exposure to PCS and impacted groundwater during excavation, stockpiling, and dewatering activities. Cleanup Action Alternative 2 ranked between Cleanup Action Alternatives 1 and 3 because of potential worker exposure to COC-impacted media during earthwork activities.

  Technical and Administrative Implementability. Cleanup Action Alternative 3 scored the highest because in situ groundwater treatment via PAC injections can be performed with minimal disturbance to the Property. Cleanup Action Alternative 1 ranked the lowest because of use of

heavy machinery, challenges associated with handling and management of overburden soils/PCS, dewatering, and transport of a significant quantity of PCS to a landfill facility and import of backfill. Cleanup Action Alternative 2 ranked between Cleanup Action Alternatives 1 and 3 because it includes earthwork activities, although the activities would be less intensive than Cleanup Action Alternative 1.

Consideration of Public Concern. There are no known active public concerns regarding the specific impacts at the Site. The public concerns evaluated in this FS are conceptual and reflect possible public perceptions. Cleanup Action Alternative 3 ranked the highest because it would have significantly less impact on the business at the Site compared to Cleanup Action Alternatives 1 and 2, which require transport of PCS to a landfill facility and import of backfill (i.e., truck traffic).

As indicated in Table 17, when weighting factors are used for each of the evaluation criteria, Cleanup Action Alternative 1 achieved the highest-ranking score (8.2). Cleanup Action Alternatives 2 and 3 achieved lower-ranking scores of 8.0 and 7.4, respectively.

7.5 DISPROPORTIONATE COST ANALYSIS AND RANKING CRITERIA

The purpose of a disproportionate cost analysis (DCA) is to facilitate selection of the cleanup action alternative that provides the highest degree of permanence to the maximum extent practicable.

This DCA considers Cleanup Action Alternatives 1 through 3. Costs are considered disproportionate if the incremental costs of one alternative versus a less expensive alternative exceed the incremental benefit achieved by the more expensive alternative.

7.5.1 Cleanup Action Alternative Cost Estimating

- **Capital Costs.** These costs include expenditures for equipment, labor, and material necessary to install a remedial action. Indirect costs may be incurred for engineering, financial, or other services not directly involved with installation of remedial alternatives but that are necessary for completion of this activity.
- **Operation and Maintenance Costs.** Operation and maintenance (O&M) costs are the post-construction costs necessary to provide effective implementation of the alternative. Such costs may include but are not limited to operating labor, maintenance materials and labor, disposal of residues, and administrative, insurance, and licensing costs.
- **Monitoring Costs.** These costs are incurred from monitoring activities associated with remedial activities. Cost items may include sampling labor, laboratory and analysis fees, and report preparation.
- **Present Worth Analysis.** The present worth analysis provides a method of evaluating and comparing costs that occur over different time periods by discounting all future expenditures to the present year. The present worth cost or value represents the amount of money that, if invested in year 0 and disbursed as needed, would be sufficient to cover all costs associated with a remedial alternative. The assumptions necessary to derive a present worth cost are inflation rate, discount rate, and period of performance. A discount rate, which is similar to an interest rate, is used to account for the time value of money. For the DCA, a discount rate of 1.3 percent is recommended in developing present value cost estimates for remedial alternatives

discounted for 1 year; 1.3 percent is recommended for 5 years; and 1.5 percent is recommended for 30 years. The specified rates of 1.3 and 1.5 percent represent a "real" discount rate in that they approximate the marginal pretax rate of return on an average investment in the private sector in recent years and have been adjusted to eliminate the effect of expected inflation. The real discount rates used to estimate the present worth of annual operating costs are based on the estimated restoration time frame (life cycle) for each alternative.

Because it is assumed that all capital costs are incurred in year 0, the present worth analysis is performed only on annual O&M and groundwater monitoring costs. The total present worth for a given alternative is equal to the sum of the capital costs and the present worth of annual O&M and monitoring costs over the anticipated life cycle of the alternative.

Using these criteria, the present worth costs of Cleanup Action Alternatives 1 through 3 are approximately as follows:

- Cleanup Action Alternative 1: $729,000 (Table 14)
- Cleanup Action Alternative 2: $471,000 (Table 15)
- Cleanup Action Alternative 3: $248,000 (Table 16)

Chart 1 plots the relative cost and ranking scores, and Chart 2 plots the cost-to-benefit ratios for the three alternatives to illustrate the relative cost and benefits afforded by each alternative. The charts demonstrate that Alternative 3 exhibits the lowest (best) cost-to-benefit ratio.

7.6 PREFERRED REMEDIAL ACTION ALTERNATIVE

After performing the analysis and ranking of alternatives in accordance with MTCA, Cleanup Action Alternative 1 is the preferred remedial alternative because it achieves the RAOs, meets the requirements set forth in WAC 173-340-360(3) and WAC 173-340-370, and is favorable with respect to the established evaluation and ranking criteria. Cleanup Action Alternative 1 is also the most permanent alternative given the removal of and off-Property disposal of PCS. The GACW would also provide an additional protective measure to prevent off-Site migration of residual petroleum-impacted groundwater.

8.0 CONCLUSIONS

Through the investigations that have occurred at the Site, the COCs that affect soil and groundwater at the Property are listed in Section 5.2. This RIFS will be provided to Ecology for review in pursuit of an NFA Likely determination. The planned remedial action will be documented in a Cleanup Action Report and submitted to Ecology in pursuit an NFA determination.

9.0 LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with EHSI's agreement with the client. This report is solely for the use and information of the client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report are derived, in part, from data gathered by others, and from conditions evaluated when services were performed, and are intended only for the client, purposes, locations, time frames, and project parameters indicated. EHSI does not warrant and is not responsible for the accuracy or validity of work performed by others, nor from the impacts of changes in environmental standards, practices, or regulations subsequent to performance of services. EHSI does not warrant the use of segregated portions of this report.

10.0 REFERENCES

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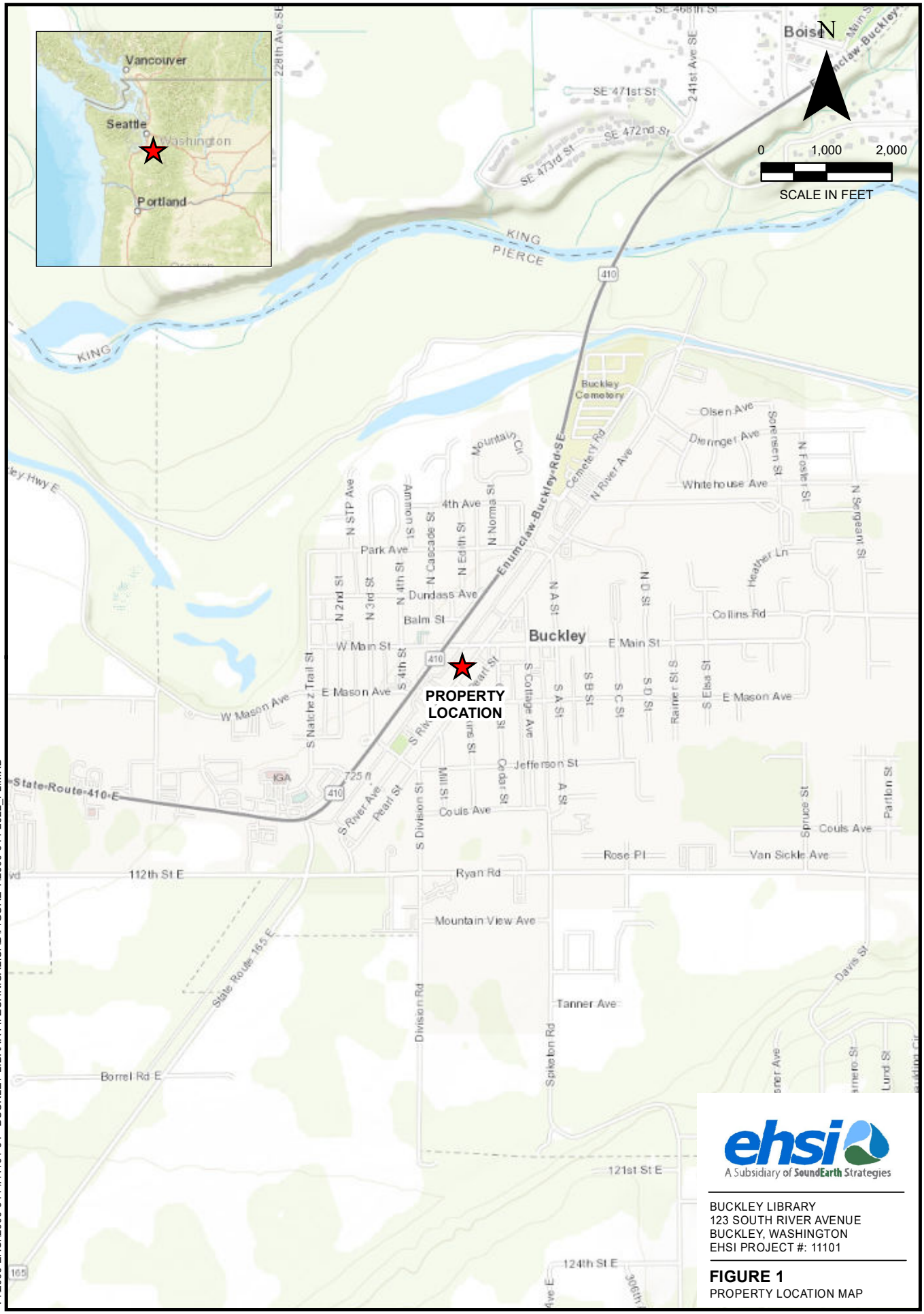
FIGURES



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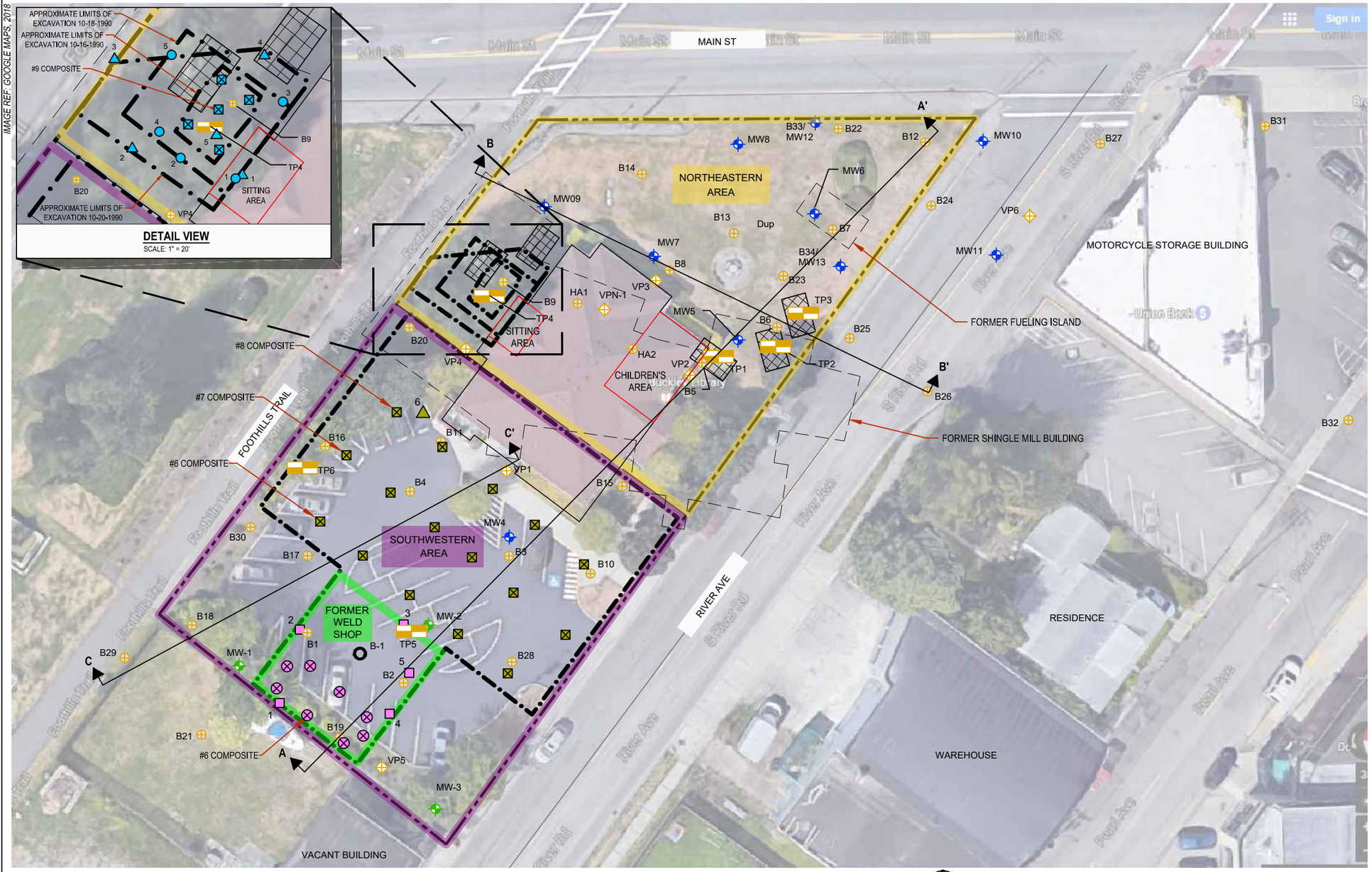
BUCKLEY LIBRARY
123 SOUTH RIVER AVENUE
BUCKLEY, WASHINGTON
EHSI PROJECT #: 11101

FIGURE 1
PROPERTY LOCATION MAP

P:\2000 EHSI\2000-044 #11101-04 - BUCKLEY LIBRARY\TECHNICAL\CAD\FIGURE 1\2000-044-2022_PL.MXD

IMAGE REF: GOOGLE MAPS, 2018



LEGEND

- PROPERTY BOUNDARY
- HISTORICAL SITE FEATURES
- TP1 — 1989 SALT, BUSH & ASSOCIATES, iNC. TEST PIT LOCATION
- HISTORICAL UST
- FORMER WELDING SHOP AND SOUTH PIT AREA
- 1990 EXCAVATIONS
- B-1 — 1991 SALT, BUSH, AND ASSOCIATES, INC BORING LOCATION
- B6 — EHSI BORING LOCATIONS (2017, 2019, 2020, 2021)
- VPN-1/VP1 — EHSI VAPOR PROBE LOCATIONS (2017, 2019, 2020) EHSI
- MW8 — MONITORING WELL LOCATIONS (2017, 2019, 2021)
- MW-1 — 1991 SALT, BUSH & ASSOCIATES, iNC. MONITORING WELL LOCATIONS

NORTH PIT SAMPLE LOCATIONS
NORTH PIT SAMPLE LOCATIONS WERE ADVANCED IN THE 1989 TP4 LOCATION

- NORTH PIT COMPOSITE SAMPLE LOCATIONS 10/16/1990 (SALT, BUSH, AND ASSOCIATES, INC.)
- NORTH PIT SAMPLE LOCATIONS 10/18/1990 (SALT, BUSH, AND ASSOCIATES, INC.)
- NORTH PIT SAMPLE LOCATIONS 10/20/1990 (SALT, BUSH, AND ASSOCIATES, INC.)

PARKING LOT SAMPLE LOCATIONS

- PARKING LOT COMPOSITE SAMPLE LOCATIONS 10/16/1990 (SALT, BUSH, AND ASSOCIATES, INC.)
- PARKING LOT SAMPLE LOCATIONS 10/20/1990 (SALT, BUSH, AND ASSOCIATES, INC.)

SOUTH PIT SAMPLE LOCATIONS

- SOUTH PIT SAMPLE LOCATIONS 10/16/1990 (SALT, BUSH, AND ASSOCIATES, INC)
- SOUTH PIT COMPOSITE SAMPLE LOCATIONS 10/18/1990 (SALT, BUSH AND ASSOCIATES, INC.)
- CROSS SECTION LOCATION

ALL LOCATIONS ARE APPROXIMATE. FOR ILLUSTRATIVE PURPOSES ONLY.

NORTH

0 10 20 30 40
SCALE in FEET

SHEET/FIGURE		
2	PROJECT MANAGER:	M. GRADDON
	EHSI PROJECT #:	11101
	PREPARED BY:	S. ALBERTS
	ISSUE DATE:	05/02/2022
	SCALE:	SHOWN

BUCKLEY LIBRARY
123 SOUTH RIVER AVENUE
BUCKLEY, WASHINGTON

EXPLORATION LOCATION MAP

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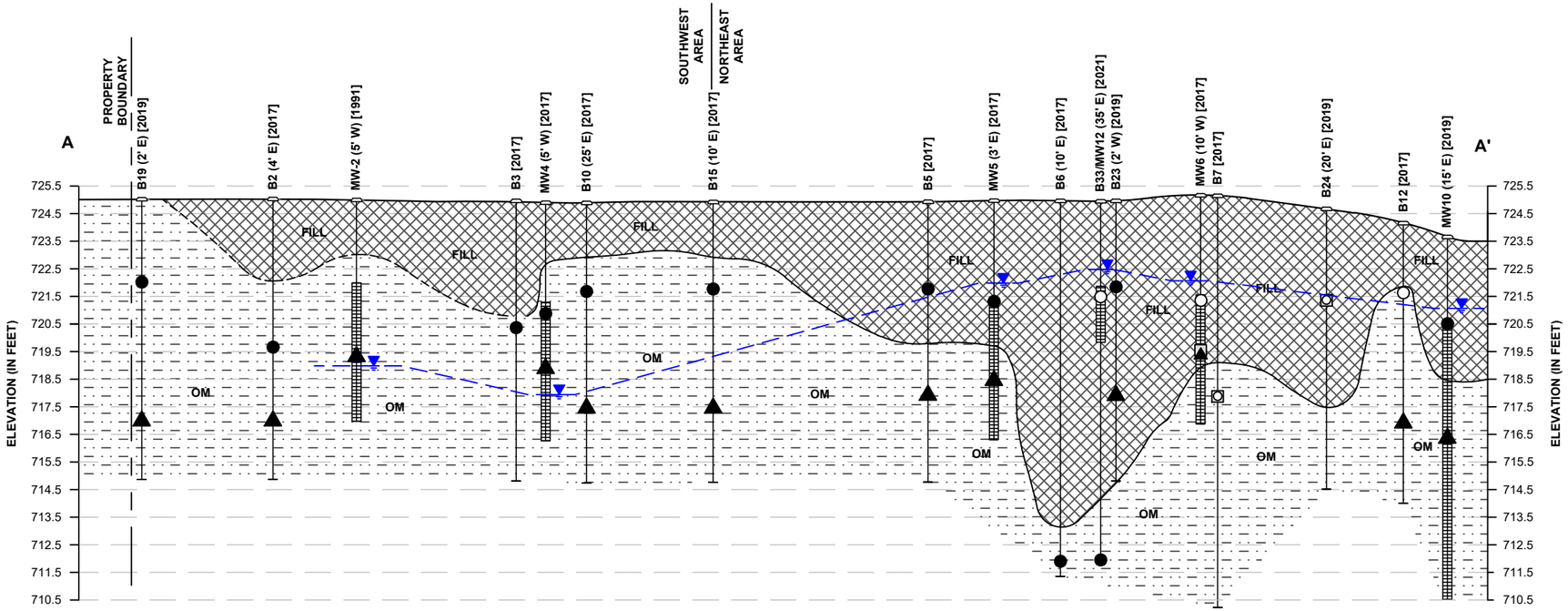
Seattle, Washington 98134
Ph: 206.381.1128
Fax: 206.254.4279

IMAGE REF: GOOGLE MAPS, 2018



LEGEND

B19 (2' E) [2019] — YEAR OF INSTALLATION; OFFSET 5' NORTH; SOIL BORING

MW-2 (5' W) [1991] — YEAR OF INSTALLATION; OFFSET 5' NORTHWEST; MONITORING WELL; FILTER SCREEN

UNDERGROUND UTILITY

DEPTH TO GROUNDWATER

- SOIL ANALYTICAL RESULT BELOW THE MTCA METHOD A CLEANUP LEVEL FOR GRPH, DRPH, ORPH, OR BTEX/ NAPHTHALENE
- SOIL ANALYTICAL RESULT ABOVE THE MTCA METHOD A CLEANUP LEVEL FOR ONE OR MORE OF GRPH, DRPH, ORPH, BENZENE, ETHYLBENZENE, OR TOTAL XYLENES
- RECONNAISSANCE OR GROUNDWATER ANALYTICAL RESULT BELOW THE MTCA METHOD A CLEANUP LEVEL FOR GRPH, DRPH, ORPH, OR BTEX/NAPHTHALENE
- RECONNAISSANCE OR GROUNDWATER ANALYTICAL RESULT ABOVE THE MTCA METHOD A CLEANUP LEVEL FOR GRPH, DRPH, ORPH, OR BTEX/NAPHTHALENE

FILL: GRAYISH BROWN OR BROWN SAND

OM: OSCEOLA MUDFLOW GRAY SILT W/ SAND AND GRAVEL OR NATIVE MATERIAL

1. GEOLOGIC CONTACTS ARE APPROXIMATE.
2. DASHED = INFERRED

ABBREVIATIONS

BTEX	BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
DRPH	DIESEL-RANGE PETROLEUM HYDROCARBONS
GRPH	GASOLINE-RANGE PETROLEUM HYDROCARBONS
MTCA	WASHINGTON STATE MODEL TOXICS CONTROL ACT
N	NAPHTHALENE
ORPH	OIL-RANGE PETROLEUM HYDROCARBONS

5 / 2.5 / 0

0 20 40

APPROXIMATE SCALE IN FEET

ALL LOCATIONS ARE APPROXIMATE. FOR ILLUSTRATIVE PURPOSES ONLY.

SHEET/FIGURE		
3	PROJECT MANAGER:	M. GRADDON
	EHSI PROJECT #:	11101
	PREPARED BY:	S. ALBERTS
	ISSUE DATE:	05/02/2022
	SCALE:	SHOWN

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BUCKLEY, WASHINGTON

CROSS SECTION A-A'

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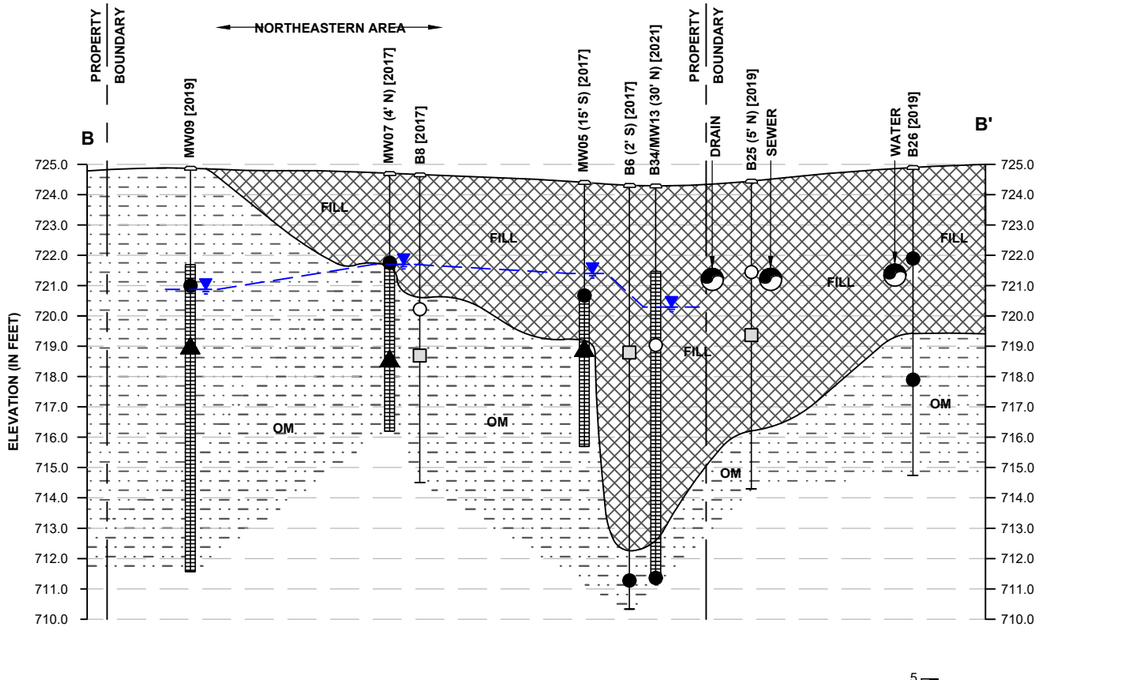
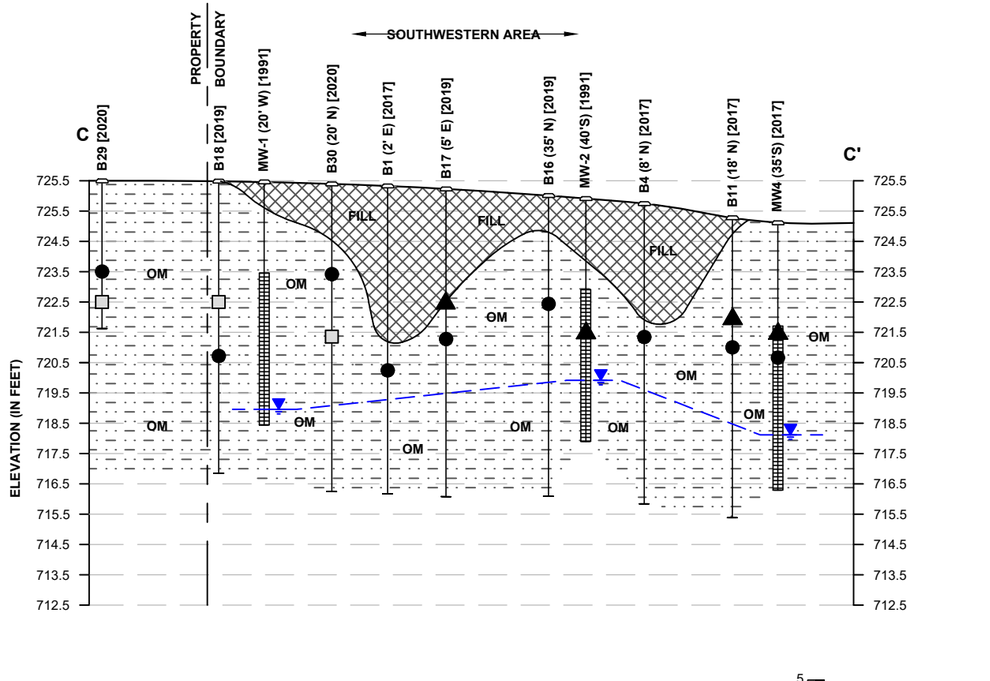
IMAGE REF: GOOGLE MAPS, 2018





LEGEND

- YEAR OF INSTALLATION
- OFFSET 5' NORTH
- SOIL BORING (5' N) [2017]
- YEAR OF INSTALLATION
- OFFSET 5' NORTHWEST
- MONITORING WELL
- FILTER SCREEN (5' NW) [2017]
- UNDERGROUND UTILITY
- DEPTH TO GROUNDWATER

- ● SOIL ANALYTICAL RESULT BELOW THE MTCA METHOD A CLEANUP LEVEL FOR GRPH, DRPH, ORPH, OR BTEX/ NAPHTHALENE
- ○ SOIL ANALYTICAL RESULT ABOVE THE MTCA METHOD A CLEANUP LEVEL FOR ONE OR MORE OF GRPH, DRPH, ORPH, BENZENE, ETHYLBENZENE, OR TOTAL XYLENES
- ▲ RECONNAISSANCE OR GROUNDWATER ANALYTICAL RESULT BELOW THE MTCA METHOD A CLEANUP LEVEL FOR GRPH, DRPH, ORPH, OR BTEX/NAPHTHALENE
- □ RECONNAISSANCE OR GROUNDWATER ANALYTICAL RESULT ABOVE THE MTCA METHOD A CLEANUP LEVEL FOR GRPH, DRPH, ORPH, OR BTEX/NAPHTHALENE

FILL: GRAYISH BROWN OR BROWN SAND

OM: OSCEOLA MUDFLOW GRAY SILT W/ SAND AND GRAVEL OR NATIVE MATERIAL

1. GEOLOGIC CONTACTS ARE APPROXIMATE.
2. DASHED = INFERRED

ALL LOCATIONS ARE APPROXIMATE. FOR ILLUSTRATIVE PURPOSES ONLY.

ABBREVIATIONS

BTEX	BENZENE, TOLUENE, ETHYLBENZENE, TOTAL XYLENES
DRPH	DIESEL-RANGE PETROLEUM HYDROCARBONS
GRPH	GASOLINE-RANGE PETROLEUM HYDROCARBONS
MTCA	WASHINGTON STATE MODEL TOXICS CONTROL ACT
N	NAPHTHALENE
ORPH	OIL-RANGE PETROLEUM HYDROCARBONS

SHEET/FIGURE: 4

PROJECT MANAGER:	M. GRADDON
EHSI PROJECT #:	11101
PREPARED BY:	S. ALBERTS
ISSUE DATE:	05/02/2022
SCALE:	SHOWN

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BUCKLEY, WASHINGTON

CROSS SECTION B-B' AND C-C'

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IMAGE REF: GOOGLE MAPS, 2018

MAIN ST
PARK
FOOTHILLS TRAIL
NORTHEAST AREA
SOUTHWEST AREA
FORMER WELD SHOP
CHILDREN'S AREA
SITTING AREA
FORMER FUELING ISLAND
FORMER SHINGLE MILL BUILDING
MOTORCYCLE STORAGE BUILDING
RIVER AVE
RESIDENCE
WAREHOUSE
VACANT BUILDING

MW8 722.72
MW12 722.49
MW6 722.04
MW09 722.09
MW7 722.74
MW5 722.18
MW13 722.16
MW10 720.85
MW11 717.22
MW4 NM
MW-2 719.11
MW-1 NM
MW-3 NM

B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12 B13 B14 B15 B16 B17 B18 B19 B20 B21 B22 B23 B24 B25 B26 B27 B28 B29 B30 B31 B32 B33 B34 Dup
TP1 TP2 TP3 TP4 TP5 TP6
VP1 VP2 VP3 VP4 VP5 VP6 VPN-1 HA1 HA2
B-1

720.00 721.00 719.00

LEGEND

- PROPERTY BOUNDARY
- HISTORICAL SITE FEATURES
- TP1 — 1989 SALT, BUSH & ASSOCIATES, iNC. TEST PIT LOCATION
- HISTORICAL UST
- FORMER WELDING SHOP AND SOUTH PIT AREA
- 1990 EXCAVATIONS
- B-1 — 1991 SALT, BUSH, AND ASSOCIATES, INC BORING LOCATION
- B6 — EHSI BORING LOCATIONS (2017, 2019, 2020, 2021)
- VPN-1/VP1 — EHSI VAPOR PROBE LOCATIONS (2017, 2019, 2020)
- MW8 — EHSI MONITORING WELL LOCATIONS (2017, 2019, 2021)
- MW-1 — 1991 SALT, BUSH & ASSOCIATES, iNC. MONITORING WELL LOCATIONS
- MW8 721.95 — MONITORING WELL ID WITH GROUNDWATER ELEVATION
- 719.00 — GROUNDWATER ELEVATION CONTOUR WITH ELEVATION IN FEET (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION
- NM — NOT MEASURED

ALL LOCATIONS ARE APPROXIMATE.
FOR ILLUSTRATIVE PURPOSES ONLY.

NORTH

0 10 20 30 40
SCALE in FEET

SHEET/FIGURE	PROJECT MANAGER:	M. GRADDON
5	EHSI PROJECT #:	11101
	PREPARED BY:	S. ALBERTS
	ISSUE DATE:	05/02/2022
	SCALE:	SHOWN

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GROUNDWATER ELEVATION CONTOUR MAP (09/20/2021)

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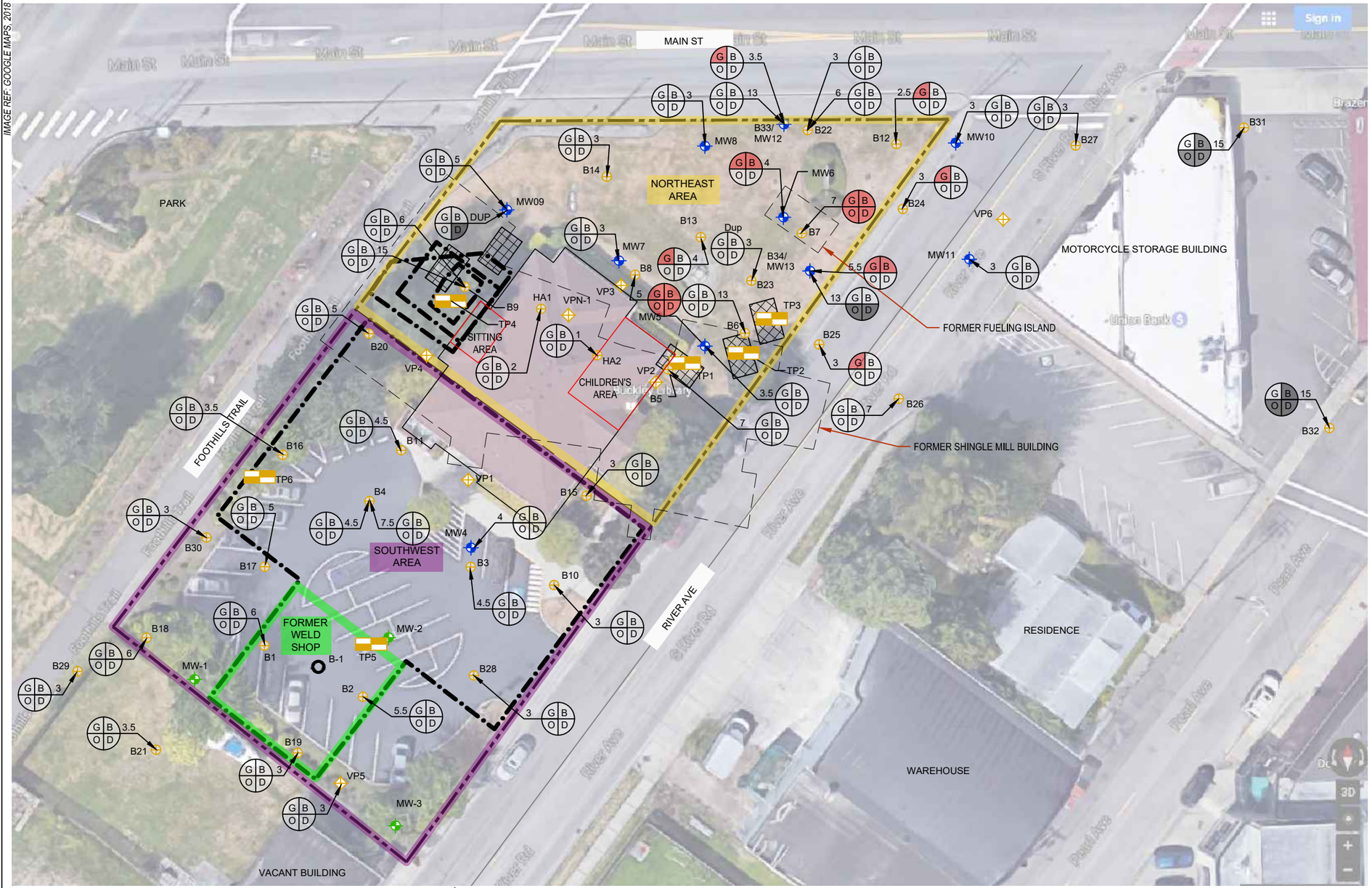
IMAGE REF: GOOGLE MAPS, 2018



KEY

GRPH / G B / O D / 6 / BTEX / DEPTH (IN FEET BGS) / ORPH / DRPH

DENOTES CONCENTRATION EXCEEDS MTCA METHOD A CLEANUP LEVEL

DENOTES CONCENTRATION DOES NOT EXCEED MTCA METHOD A CLEANUP LEVEL

NOT ANALYZED

LEGEND

	PROPERTY BOUNDARY
	HISTORICAL SITE FEATURES
TP1	1989 SALT, BUSH & ASSOCIATES, INC. TEST PIT LOCATION
	HISTORICAL UST
	FORMER WELDING SHOP AND SOUTH PIT AREA
	1990 EXCAVATIONS
B-1	1991 SALT, BUSH, AND ASSOCIATES, INC BORING LOCATION
B6	EHSI BORING LOCATIONS (2017, 2019, 2020, 2021)
VPN-1/VP1	EHSI VAPOR PROBE LOCATIONS (2017, 2019, 2020)
MW8	EHSI MONITORING WELL LOCATIONS (2017, 2019, 2021)
MW-1	1991 SALT, BUSH & ASSOCIATES, INC. MONITORING WELL LOCATIONS
BGS	BENEATH GROUND SURFACE
DRPH	DIESEL-RANGE PETROLEUM HYDROCARBONS
GRPH	GASOLINE-RANGE PETROLEUM HYDROCARBONS
MTCA	WASHINGTON STATE MODEL TOXICS CONTROL ACT
ORPH	OIL-RANGE PETROLEUM HYDROCARBONS
-	NOT ANALYZED
<	RESULT BELOW LABORATORY REPORTING LIMITS

ALL LOCATIONS ARE APPROXIMATE.
FOR ILLUSTRATIVE PURPOSES ONLY.

NORTH

0 10 20 30 40
SCALE in FEET

SHEET/FIGURE		BUCKLEY LIBRARY 123 SOUTH RIVER AVENUE BUCKLEY, WASHINGTON
6	PROJECT MANAGER: M. GRADDON	
	EHSI PROJECT #: 11101	
	PREPARED BY: S. ALBERTS	
	ISSUE DATE: 05/02/2022	
	SCALE: SHOWN	SOIL ANALYTICAL RESULTS FOR TPH AND BTEX

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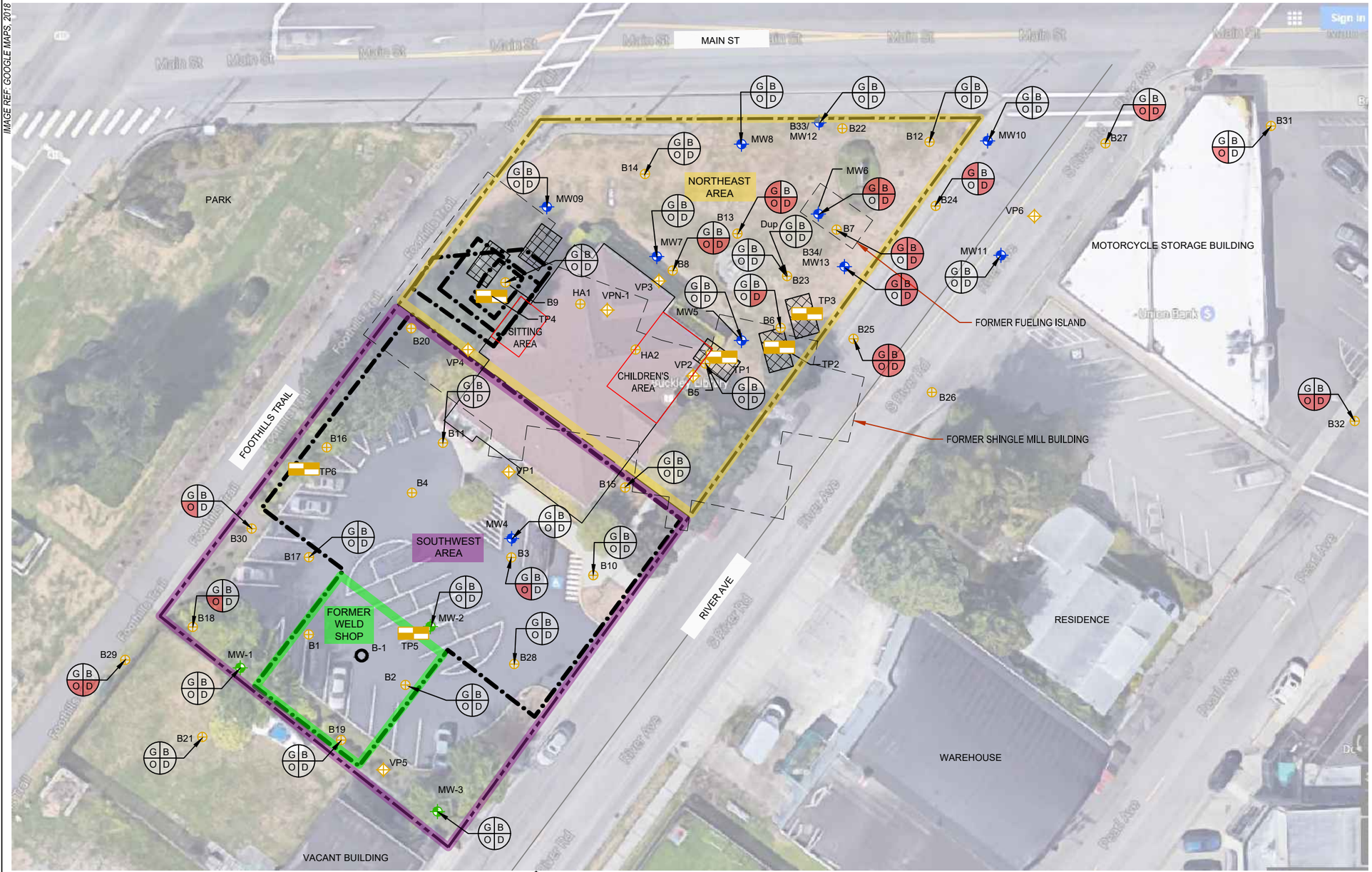
Ph: 206.381.1128
Fax: 206.254.4279

IMAGE REF: GOOGLE MAPS, 2018



KEY

GRPH / BTEX / ORPH / DRPH

DENOTES CONCENTRATION EXCEEDS MTCA METHOD A CLEANUP LEVEL

DENOTES CONCENTRATION DOES NOT EXCEED MTCA METHOD A CLEANUP LEVEL

LEGEND

	PROPERTY BOUNDARY
	HISTORICAL SITE FEATURES
TP1	1989 SALT, BUSH & ASSOCIATES, iNC. TEST PIT LOCATION
	HISTORICAL UST
	FORMER WELDING SHOP AND SOUTH PIT AREA
	1990 EXCAVATIONS
B-1	1991 SALT, BUSH, AND ASSOCIATES, INC BORING LOCATION
B6	EHSI BORING LOCATIONS (2017, 2019, 2020, 2021)
VPN-1/VP1	EHSI VAPOR PROBE LOCATIONS (2017, 2019, 2020)
MW8	EHSI MONITORING WELL LOCATIONS (2017, 2019, 2021)
MW-1	1991 SALT, BUSH & ASSOCIATES, iNC. MONITORING WELL LOCATIONS
BGS	BENEATH GROUND SURFACE
DRPH	DIESEL-RANGE PETROLEUM HYDROCARBONS
GRPH	GASOLINE-RANGE PETROLEUM HYDROCARBONS
MTCA	WASHINGTON STATE MODEL TOXICS CONTROL ACT
ORPH	OIL-RANGE PETROLEUM HYDROCARBONS
-	NOT ANALYZED
<	RESULT BELOW LABORATORY REPORTING LIMITS

ALL LOCATIONS ARE APPROXIMATE.
FOR ILLUSTRATIVE PURPOSES ONLY.

NORTH

0 10 20 30 40
SCALE in FEET

SHEET/FIGURE	PROJECT MANAGER:	M. GRADDON
7	EHSI PROJECT #:	11101
	PREPARED BY:	S. ALBERTS
	ISSUE DATE:	05/02/2022
	SCALE:	SHOWN

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123 SOUTH RIVER AVENUE
BUCKLEY, WASHINGTON

GROUNDWATER ANALYTICAL RESULTS FOR TPH AND BTEX

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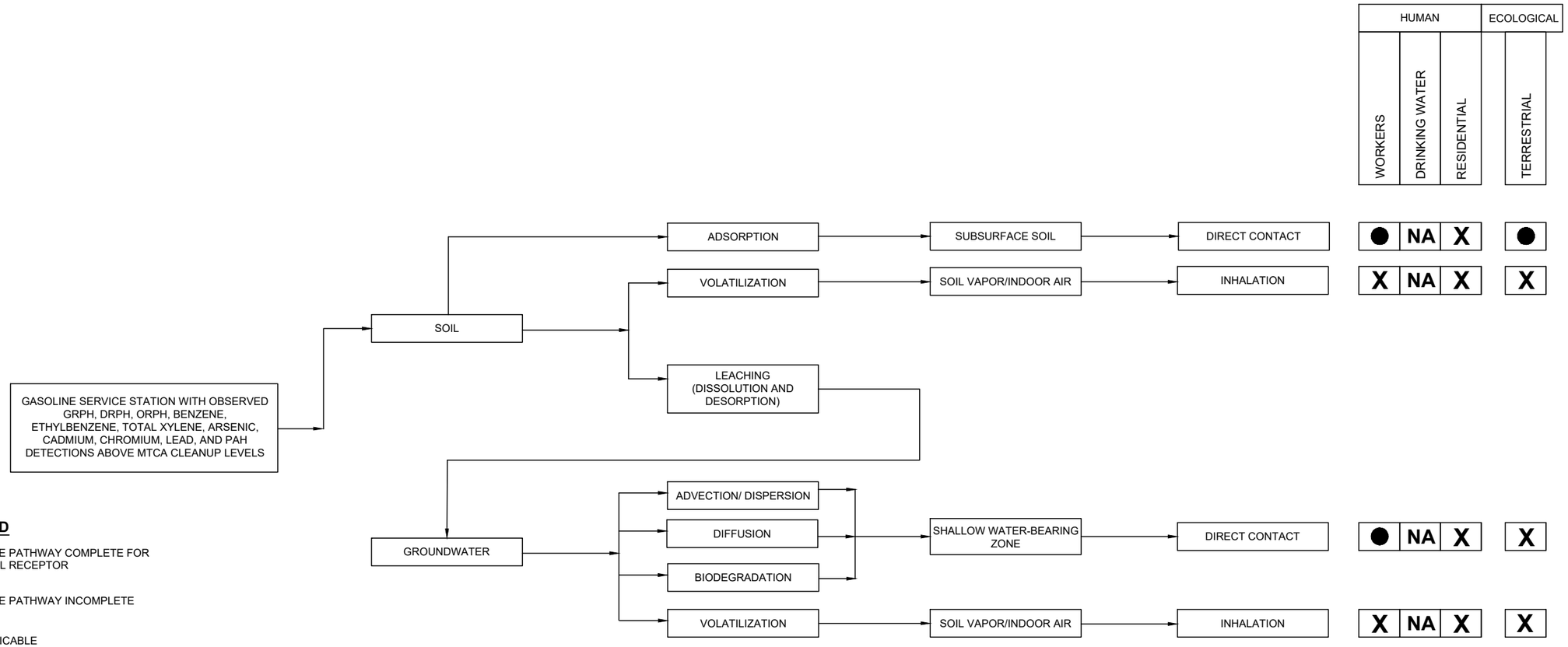
Fax: 206.254.4279



LEGEND

●	EXPOSURE PATHWAY COMPLETE FOR POTENTIAL RECEPTOR
X	EXPOSURE PATHWAY INCOMPLETE
NA	NOT APPLICABLE
DRPH	DIESEL-RANGE PETROLEUM HYDROCARBONS
GRPH	GASOLINE-RANGE PETROLEUM HYDROCARBONS
ORPH	HEAVY OIL-RANGE PETROLEUM HYDROCARBONS
MTCA	WASHINGTON STATE MODEL TOXICS CONTROL ACT
PAHs	POLYCYCLIC AROMATIC HYDROCARBONS

NOTE: DIRECT CONTACT INCLUDES DERMAL CONTACT AND INGESTION.

ALL LOCATIONS ARE APPROXIMATE. FOR ILLUSTRATIVE PURPOSES ONLY.

SHEET/FIGURE: 8

PROJECT MANAGER:	M. GRADDON
EHSI PROJECT #:	11101
PREPARED BY:	S. ALBERTS
ISSUE DATE:	05/02/2022
SCALE:	SHOWN

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BUCKLEY, WASHINGTON

CONCEPTUAL SITE MODEL EXPOSURE ASSESSMENT

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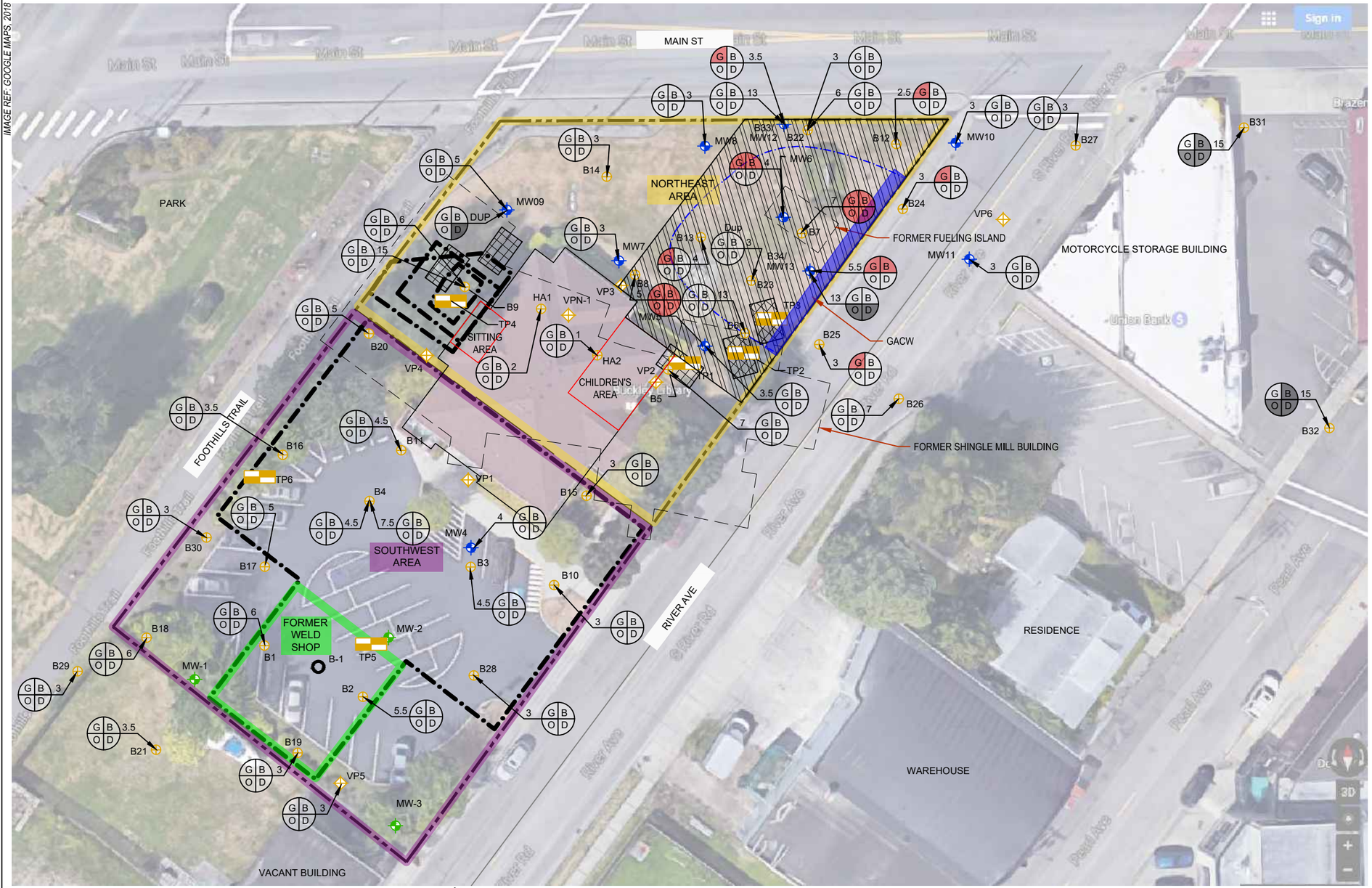
Seattle, Washington 98134
Ph: 206.381.1128
Fax: 206.254.4279

IMAGE REF: GOOGLE MAPS, 2018



KEY

GRPH / BTEX / DEPTH (IN FEET BGS) / ORPH / DRPH

DENOTES CONCENTRATION EXCEEDS MTCA METHOD A CLEANUP LEVEL

DENOTES CONCENTRATION DOES NOT EXCEED MTCA METHOD A CLEANUP LEVEL

NOT ANALYZED

LEGEND

- PROPERTY BOUNDARY
- HISTORICAL SITE FEATURES
- TP1 — 1989 SALT, BUSH AND ASSOCIATES TEST PIT LOCATION
- HISTORICAL UST
- FORMER WELDING SHOP AND SOUTH PIT AREA
- 1990 EXCAVATIONS
- REMEDIAL EXCAVATION
- GACW
- EXTENT OF GROUNDWATER CONTAINING PETROLEUM HYDROCARBONS CONCENTRATIONS EXCEEDING CLEANUP LEVELS
- B-1 — 1991 SALT, BUSH, AND ASSOCIATES, INC BORING LOCATION
- B6 — EHSI BORING LOCATIONS (2017, 2019, 2020, 2021)
- VPN-1/VP1 — EHSI VAPOR PROBE LOCATIONS (2017, 2019, 2020)
- MW8 — EHSI MONITORING WELL LOCATIONS (2017, 2019, 2021)
- MW-1 — 1991 SALT, BUSH, AND ASSOCIATES, INC. MONITORING WELL LOCATIONS

BGS	BENEATH GROUND SURFACE
DRPH	DIESEL-RANGE PETROLEUM HYDROCARBONS
GACW	GRANULAR ACTIVATED CARBON WALL
GRPH	GASOLINE-RANGE PETROLEUM HYDROCARBONS
MTCA	WASHINGTON STATE MODEL TOXICS CONTROL ACT
ORPH	OIL-RANGE PETROLEUM HYDROCARBONS
-	NOT ANALYZED
<	RESULT BELOW LABORATORY REPORTING LIMITS

ALL LOCATIONS ARE APPROXIMATE. FOR ILLUSTRATIVE PURPOSES ONLY.

NORTH

0 10 20 30 40
SCALE in FEET

SHEET/FIGURE	9	
PROJECT MANAGER:	M. GRADDON	BUCKLEY LIBRARY 123 SOUTH RIVER AVENUE BUCKLEY, WASHINGTON
EHSI PROJECT #:	11101	
PREPARED BY:	S. ALBERTS	
ISSUE DATE:	05/02/2022	
SCALE:	SHOWN	CLEANUP ACTION ALTERNATIVE 1: SOIL EXCAVATION AND GACW WITH EC

ehsi
A Subsidiary of SoundEarth Strategies
1011 SW Klickitat Way, Suite 104
Seattle, Washington 98134
Ph: 206.381.1128
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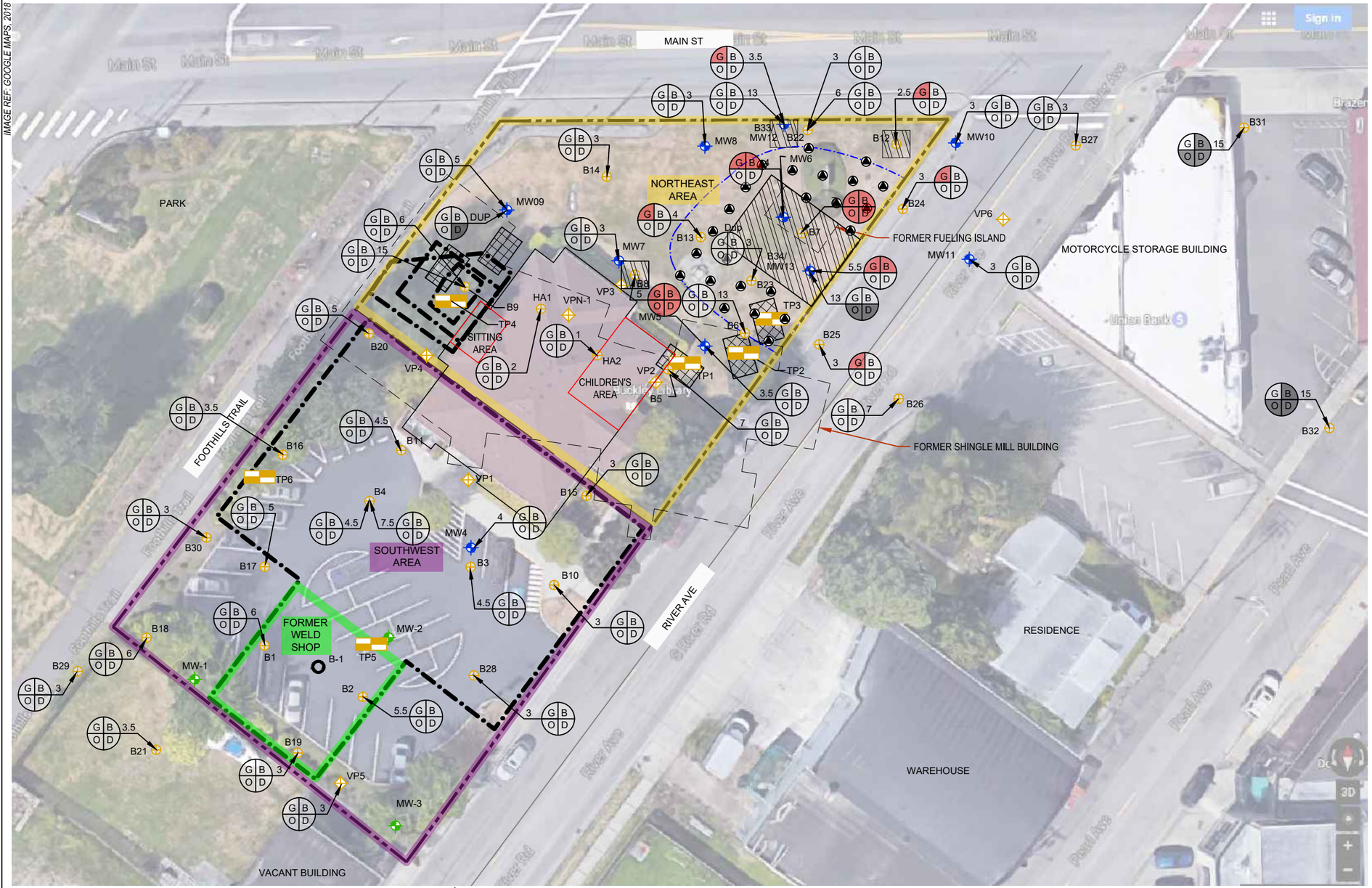
IMAGE REF: GOOGLE MAPS, 2018



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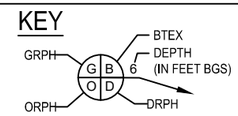

DENOTES CONCENTRATION EXCEEDS MTCA METHOD A CLEANUP LEVEL

DENOTES CONCENTRATION DOES NOT EXCEED MTCA METHOD A CLEANUP LEVEL

NOT ANALYZED

LEGEND

	PROPERTY BOUNDARY
	HISTORICAL SITE FEATURES
TP1	1989 SALT, BUSH AND ASSOCIATES TEST PIT LOCATION
	HISTORICAL UST
	FORMER WELDING SHOP AND SOUTH PIT AREA
	1990 EXCAVATIONS
	REMEDIAL EXCAVATION
	EXTENT OF GROUNDWATER CONTAINING PETROLEUM HYDROCARBONS CONCENTRATIONS EXCEEDING CLEANUP LEVELS
B-1	1991 SALT, BUSH, AND ASSOCIATES, INC BORING LOCATION
B6	EHSI BORING LOCATIONS (2017, 2019, 2020, 2021)
VPN-1/VP1	EHSI VAPOR PROBE LOCATIONS (2017, 2019, 2020)
MW8	EHSI MONITORING WELL LOCATIONS (2017, 2019, 2021)
MW-1	1991 SALT, BUSH, AND ASSOCIATES, INC. MONITORING WELL LOCATIONS
	PAC INJECTION LOCATION

BGS	BENEATH GROUND SURFACE
DRPH	DIESEL-RANGE PETROLEUM HYDROCARBONS
GRPH	GASOLINE-RANGE PETROLEUM HYDROCARBONS
MTCA	WASHINGTON STATE MODEL TOXICS CONTROL ACT
ORPH	OIL-RANGE PETROLEUM HYDROCARBONS
PAC	POWDER ACTIVATED CARBON
-	NOT ANALYZED
<	RESULT BELOW LABORATORY REPORTING LIMITS

ALL LOCATIONS ARE APPROXIMATE. FOR ILLUSTRATIVE PURPOSES ONLY.

NORTH

0 10 20 30 40
SCALE in FEET

SHEET/FIGURE
10

PROJECT MANAGER:	M. GRADDON
EHSI PROJECT #:	11101
PREPARED BY:	S. ALBERTS
ISSUE DATE:	05/02/2022
SCALE:	SHOWN

BUCKLEY LIBRARY
123 SOUTH RIVER AVENUE
BUCKLEY, WASHINGTON

CLEANUP ACTION ALTERNATIVE 2: PARTIAL SOIL EXCAVATION AND IN-SITU GROUNDWATER TREATMENT WITH EC

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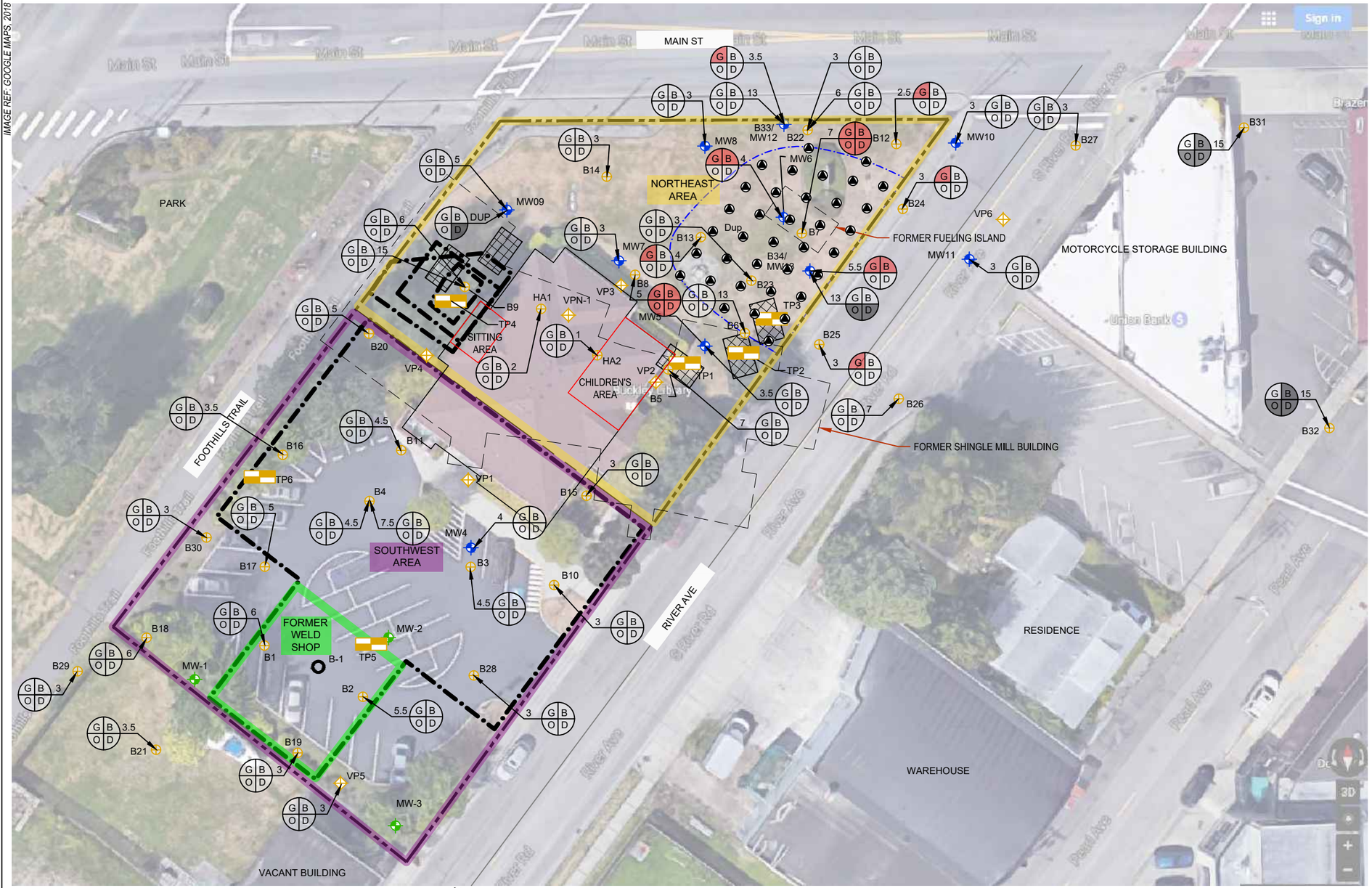

ALL LOCATIONS ARE APPROXIMATE.
FOR ILLUSTRATIVE PURPOSES ONLY.

NORTH

0 10 20 30 40
SCALE in FEET

KEY

GRPH / BTEX / DEPTH (IN FEET BGS) / ORPH / DRPH

DENOTES CONCENTRATION EXCEEDS MTCA METHOD A CLEANUP LEVEL

DENOTES CONCENTRATION DOES NOT EXCEED MTCA METHOD A CLEANUP LEVEL

NOT ANALYZED

LEGEND

- PROPERTY BOUNDARY
- HISTORICAL SITE FEATURES
- TP1 — 1989 SALT, BUSH AND ASSOCIATES TEST PIT LOCATION
- HISTORICAL UST
- FORMER WELDING SHOP AND SOUTH PIT AREA
- 1990 EXCAVATIONS
- EXTENT OF GROUNDWATER CONTAINING PETROLEUM HYDROCARBONS CONCENTRATIONS EXCEEDING CLEANUP LEVELS
- B-1 — 1991 SALT, BUSH, AND ASSOCIATES, INC BORING LOCATION
- B6 — EHSI BORING LOCATIONS (2017, 2019, 2020, 2021)
- VPN-1/VP1 — EHSI VAPOR PROBE LOCATIONS (2017, 2019, 2020)
- MW8 — EHSI MONITORING WELL LOCATIONS (2017, 2019, 2021)
- MW-1 — 1991 SALT, BUSH, AND ASSOCIATES, INC. MONITORING WELL LOCATIONS
- PAC INJECTION LOCATION

BGS	BENEATH GROUND SURFACE
DRPH	DIESEL-RANGE PETROLEUM HYDROCARBONS
GRPH	GASOLINE-RANGE PETROLEUM HYDROCARBONS
MTCA	WASHINGTON STATE MODEL TOXICS CONTROL ACT
ORPH	OIL-RANGE PETROLEUM HYDROCARBONS
PAC	POWDER ACTIVATED CARBON
-	NOT ANALYZED
<	RESULT BELOW LABORATORY REPORTING LIMITS

SHEET/FIGURE 11

PROJECT MANAGER:	M. GRADDON
EHSI PROJECT #:	11101
PREPARED BY:	S. ALBERTS
ISSUE DATE:	05/02/2022
SCALE:	SHOWN

BUCKLEY LIBRARY
123 SOUTH RIVER AVENUE
BUCKLEY, WASHINGTON

CLEANUP ACTION ALTERNATIVE 3: IN-SITU GROUNDWATER TREATMENT WITH EC

ehsi
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TABLES

EHS–International, Inc.

Table 1
Soil Analytical Results for TPH and BTEX
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well/Boring ID	Sample ID	Date Sampled	Depth (feet bgs)	Analytical Results (milligrams per kilogram)						
				GRPH[1]	DRPH[2]	ORPH[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Total Xylenes[3]
Southwest Area										
B-1	C-1	03/01/91	6.5	<10[6]	--	--	--	--	--	--
MW-1	W1-4	03/01/91	4.5	18.5[6]	--	--	--	--	--	--
	W1-6	03/01/91	7	<10[6]	--	--	--	--	--	--
	W1-9	03/01/91	9.5	<10[6]	--	--	--	--	--	--
MW-2	W2-4	03/01/91	4.5	<10[6]	--	--	--	--	--	--
	W2-6	03/01/91	7	<10[6]	--	--	--	--	--	--
	W2-9	03/01/91	9.5	<10[6]	--	--	--	--	--	--
MW-3	W3-4	03/01/91	4.5	<10[6]	--	--	--	--	--	--
	W3-6	03/01/91	7	23.7[6]	--	--	--	--	--	--
	W3-9	03/01/91	9.5	<10[6]	--	--	--	--	--	--
B1	B1-6	06/01/17	6	<2	<50	720	<0.03	<0.05	<0.05	<0.15
B2	B2-5.5	06/01/17	5.5	<2	<50	<250	<0.03	<0.05	<0.05	<0.15
B3	B3-4.5	06/01/17	4.5	<2	<50	<250	<0.03	<0.05	<0.05	<0.15
B4	B4-4.5	06/01/17	4.5	<2	<50	<250	<0.03	<0.05	<0.05	<0.15
B4	B4-7.5	06/01/17	7.5	<2	<50	<250	<0.03	<0.05	<0.05	<0.15
B10	B10-3'	11/28/17	3	<5	<50	<250	<0.03	<0.05	<0.05	<0.06
B11	B11-4.5'	11/28/17	4.5	<5	<50	<250	<0.03	<0.05	<0.05	<0.06
B15	B15-3'	11/28/17	3	<5	<50	<250	<0.03	<0.05	<0.05	<0.06
MW4	MW4-4'	11/28/17	4	<5	<50	<250	<0.03	<0.05	<0.05	<0.06
B16	B16-3.5	10/08/19	3.5	<5	<50	<250	<0.03	<0.05	<0.05	<0.15
B17	B17-5	10/08/19	5	<5	<50	<250	<0.03	<0.05	<0.05	<0.15
B18	B18-6	10/08/19	6	<5	80[x]	370	<0.03	<0.05	<0.05	<0.15
B19	B19-3	10/08/19	3	<5	<50	<250	<0.03	<0.05	<0.05	<0.15
B20	B20-5	10/08/19	5	<5	<50	<250	<0.03	<0.05	<0.05	<0.15
VP5	VP5-3	10/08/19	3	<5	<50	<250	<0.03	<0.05	<0.05	<0.15
B28	(B15-3) B28-3	10/08/19	3	<5	<50	<250	<0.03	<0.05	<0.05	<0.15
B30	B30-03	11/10/20	3	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
MTCA Cleanup Level for Soil[4]				**30**	**2,000**	**2,000**	**0.03**	**7**	**6**	**9**

EHS–International, Inc.

Table 1
Soil Analytical Results for TPH and BTEX
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well/Boring ID	Sample ID	Date Sampled	Depth (feet bgs)	Analytical Results (milligrams per kilogram) GRPH[1]	DRPH[2]	ORPH[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Total Xylenes[3]
Northeast Area										
B5	B5-7'	06/01/17	7	<2	<50	<250	<0.03	<0.05	<0.05	<0.15
B6	B6-13	06/01/17	13	<2	<50	<250	<0.03	<0.05	<0.05	<0.15
B7	B7-7'	06/01/17	7	**5,900**	1,100	<250	**4.0**	<5	**52**	**235**
B8	B8-5	06/01/17	5	**1,400**	**170,000**	**5,400**[x]	**0.70**	0.16	0.17	2.15
B9	B9-6	06/01/17	6	<2	<50	<250	<0.03	<0.05	<0.05	<0.15
	B9-15	06/01/17	15	<2	<50	<250	<0.03	<0.05	<0.05	<0.15
B12	B12-2.5'	11/28/17	2.5	**40**	<50	<250	<0.03	<0.05	<0.05	<0.06
B13	B13-4	11/28/17	4	**440**	1,500[x]	1200	<0.03	<0.05	<0.05	<0.06
B14	B14-3	11/28/17	3	<5	<50	<250	<0.03	<0.05	<0.05	<0.06
MW5	MW5-3.5'	11/28/17	3.5	<5	<50	<250	<0.03	<0.05	<0.05	<0.06
MW6	MW6-4’	11/28/17	4	**1,600**	360[x]	<250	**0.15**	<0.05	0.93	<0.06
MW7	MW7-3’	11/28/17	3	19	71[x]	<250	<0.03	<0.05	<0.05	<0.06
MW8	MW8-3’	11/28/17	3	<5	<50	<250	<0.03	<0.05	<0.05	<0.06
B22	B22-3	10/09/19	3	<5	<50	<250	<0.03	<0.05	<0.05	<0.15
	B22-6	10/09/19	6	<5	<50	<250	<0.03	<0.05	<0.05	<0.15
B23	B23-3	10/09/19	3	<5	<50	<250	<0.03	<0.05	<0.05	<0.15
B24	B24-3	10/09/19	3	**420**	<50	<250	<0.03	<0.05	4.8	<0.15
B25	B25-3	10/09/19	3	**850**	190	<250	<0.03	<0.05	0.23	<0.15
B26	B26-3	10/09/19	3	<5	<50	<250	<0.03	<0.05	<0.05	<0.15
	B26-7	10/09/19	7	<5	<50	<250	<0.03	<0.05	<0.05	<0.15
B27	B27-3	10/09/19	3	<5	<50	<250	<0.03	<0.05	<0.05	<0.15
MW09	MW-9-5	10/08/19	5	<5	<50	<250	<0.03	<0.05	<0.05	<0.15
	MW-9-5 Dup	10/08/19	5	<5	--	<250	<0.03	<0.05	<0.05	<0.15
MW10	MW10-3	10/09/19	3	<5	<50	<250	<0.03	<0.05	<0.05	<0.15
MW11	MW11-3	10/09/19	3	<5	<50	<250	<0.03	<0.05	<0.05	<0.15
HA1	HA1-02	11/10/20	2	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
HA2	HA2-01	11/10/20	1	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
B33/MW12	B33-03.5	09/09/21	3.5	**160**	71[x]	<250	<0.02[j]	<0.1	0.46	0.60
	B33-13	09/09/21	13	<5	<50[(5)]	<250[(5)]	<0.02	<0.02	<0.02	<0.06
B34/MW13	B34-05.5	09/09/21	5.5	**3,000**	240[x]	<250	**<0.4**	<0.4	**19**	**17**
	B34-13	09/09/21	13	6.2[ht]	--	--	<0.02[ht]	<0.02[ht]	<0.02[ht]	<0.06[ht]
MTCA Cleanup Level for Soil[(4)]				**30**	**2,000**	**2,000**	**0.03**	**7**	**6**	**9**

EHS–International, Inc.

Table 1
Soil Analytical Results for TPH and BTEX
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well/Boring ID	Sample ID	Date Sampled	Depth (feet bgs)	Analytical Results (milligrams per kilogram) GRPH[(1)]	DRPH[(2)]	ORPH[(2)]	Benzene[(3)]	Toluene[(3)]	Ethylbenzene[(3)]	Total Xylenes[(3)]
Southwest-Adjoining Property										
B21	B21-3.5	10/08/19	3.5	<5	<50	<250	<0.03	<0.05	<0.05	<0.15
B29	B29-03	11/10/20	3	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
Off-Property (Motorcycle Storage Buidling)										
B32	B32-15	11/10/20	15	9.8	<50	<250	<0.02	<0.02	0.073	<0.06
	Method Blank	11/10/20		<5	<50	<250	<0.02	<0.02	<0.02	<0.06
MTCA Cleanup Level for Soil[(4)]				**30**	**2,000**	**2,000**	**0.03**	**7**	**6**	**9**

NOTES:

Red denotes concentration exceeds MTCA cleanup level for soil.

Sample analyses conducted by Friedman & Bruya, Inc. of Seattle, Washington.

[(1)]Analyzed by Method NWTPH-Gx.

[(2)]Analyzed by Method NWTPH-Dx.

[(3)]Analyzed by EPA Method 8021B.

[(4)]MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1 Method A Cleanup Levels for Soil, Unrestricted Land Uses, revised November 2007.

[(5)]Sample was analyzed for NWTPH-Dx using silica gel cleanup the result for DRPH was <50 and ORPH was <250. compared to the current MTCA cleanup level.

Laboratory Notes:

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

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

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

-- = not analyzed/not applicable

< = not detected at a concentration exceeding the laboratory reporting limit

bgs = below ground surface

BTEX = benzene, toluene, ethylbenzene, and total xylenes

DRPH = diesel-range petroleum hydrocarbons

EPA = US Environmental Protection Agency

GRPH = gasoline-range petroleum hydrocarbons

MTCA = Washington State Model Toxics Control Act

NWTPH = Northwest Total Petroleum Hydrocarbon

ORPH = oil-range petroleum hydrocarbons

TPH = total petroleum hydrocarbons

EHS–International, Inc.

Table 2
Soil Analytical Results for Chlorinated VOCs
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well/Boring ID	Sample ID	Date Sampled	Depth (feet bgs)	Analytical Results[1] (milligrams per kilogram)														
				Tetrachloroethene	Trichloroethene	Cis-1,2-Dichloroethene	Trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl Chloride	1,2,4 Trimethylbenzene	1,3,5 Trimethylbenzene	Acetone	Isopropylbenzene	n-Propylbenzene	p-Isopropyltoluene	sec-Butyl-benzene	tert-Butyl-benzene	2-Butanone
Southwest Area																		
B10	B10-3'	11/28/17	3	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B11	B11-4.5'	11/28/17	4.5	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B15	B15-3'	11/28/17	3	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B16	B16-3.5	10/08/19	3.5	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.3[ca,lc]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
B17	B17-5	10/08/19	5	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.3[ca,lc]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
B18	B18-6	10/08/19	6	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.72[ca,lc]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
B19	B19-3	10/08/19	3	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.2[ca,lc]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
B20	B20-5	10/08/19	5	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.75[ca,lc]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
MW4	MW4-4'	11/28/17	4	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
VP5	VP5-3	10/08/19	3	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.2[ca,lc]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
B28	(B15-3) B28-3	10/08/19	3	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.93[ca,lc]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
Northeast Area																		
B12	B12-2.5'	11/28/17	2.5	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B13	B13-4	11/28/17	4	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	0.14	0.25	0.22	0.17	<0.05	<0.05
B14	B14-3	11/28/17	3	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW5	MW5-3.5'	11/28/17	3.5	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW6	MW6-4'	11/28/17	4	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	0.43	1.6	0.23	0.27	<0.05	<0.05
MW7	MW7-3'	11/28/17	3	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW8	MW8-3'	11/28/17	3	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B22	B22-3	10/09/19	3	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
	B22-6	10/09/19	6	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
B23	B23-3	10/09/19	3	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
B24	B24-3	10/09/19	3	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	2.7	1.4	1.1[ca,lc]	0.77	3.0	0.10	0.34	<0.05	<0.5
B25	B25-3	10/09/19	3	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.78[ca,lc]	0.41	1.9	0.097	0.34	<0.05	<0.5
B26	B26-3	10/09/19	3	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.3[ca,lc]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
	B26-7	10/09/19	7	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.51[ca,lc]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
B27	B27-3	10/09/19	3	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.64[ca,lc]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
MW09	MW-9-5	10/08/19	5	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.64[ca,lc]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
	MW-9-5 Dup	10/08/19	5	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.0[ca,lc]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
MW10	MW10-3	10/09/19	3	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
MW11	MW11-3	10/09/19	3	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.75[ca,lc]	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
Southwest-Adjoining Property																		
B21	B21-3.5	10/08/19	3.5	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5
MTCA Cleanup Level for Soil				**0.05**[2]	**0.03**[2]	**160**[3]	**1,600**[3]	**4,000**[3]	**0.67**[4]	**NE**	**800**[3]	**72,000**[3]	**8,000**[3]	**8,000**[3]	**NE**	**8,000**[3]	**8,000**[3]	**48,000**[3]

NOTES:

Red denotes concentration exceeds MTCA cleanup level for soil.

Sample analyses conducted by Friedman & Bruya, Inc. of Seattle, Washington.

[1]Samples analyzed by EPA Method 8260C.

[2]MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1 Method A Cleanup Levels for Soil, Unrestricted Land Uses, revised November 2007.

[3]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Soil, Method B, Noncancer, Direct Contact, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

[4]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Soil, Method B, Cancer, Direct Contact, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

Laboratory Notes:

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

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

-- = not analyzed/not applicable

< = not detected at a concentration exceeding the laboratory reporting limit

bgs = below ground surface

CLARC = Cleanup Levels and Risk Calculations

EPA = US Environmental Protection Agency

MTCA = Washington State Model Toxics Control Act

NE = not established

VOC = volatile organic compound

WAC = Washington Administrative Code

EHS–International, Inc.

Table 3
Soil Analytical Results for RCRA 8 Metals
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well/Boring ID	Sample ID	Date Sampled	Depth (feet bgs)	Analytical Results[1] (milligrams per kilogram)							
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Southwest Area											
B1	B1-6	06/01/17	6	3.58	49.8	<1	15.4	4.03	<1	<1	<1
B2	B2-5.5	06/01/17	5.5	4.15	37.2	<1	13.3	4.67	<1	<1	<1
B3	B3-4.5	06/01/17	4.5	2.14	72.0	<1	12.8	3.76	<1	<1	<1
B4	B4-4.5	06/01/17	4.5	4.15	89.0	<1	13.2	14.1	<1	<1	<1
B4	B4-7.5	06/01/17	7.5	3.21	62.1	<1	9.62	2.83	<1	<1	<1
B10	B10-3'	11/28/17	3	4.65	--	<1	--	3.97	--	--	--
B11	B11-4.5'	11/28/17	4.5	5.37	--	<1	--	9.14	--	--	--
B15	B15-3'	11/28/17	3	4.04	--	<1	--	3.30	--	--	--
MW4	MW4-4'	11/28/17	4	2.36	--	<1	--	3.16	--	--	--
B16	B16-3.5	10/08/19	3.5	1.91	--	<1	10.2	3.93	<1	--	--
B17	B17-5	10/08/19	5	8.21	--	<1	9.42	26.2	<1	--	--
B18	B18-6	10/08/19	6	7.03	--	<1	11.1	18.2	<1	--	--
B19	B19-3	10/08/19	3	2.04	--	<1	10.9	7.65	<1	--	--
B20	B20-5	10/08/19	5	3.61	--	<1	14.1	9.01	<1	--	--
VP5	VP5-3	10/08/19	3	2.43	--	<1	11.7	4.81	<1	--	--
B28	(B15-3) B28-3	10/08/19	3	3.46	--	<1	12.6	19.6	<1	--	--
B30	B30-03	11/10/20	3	2.22	--	<1	--	4.90	--	--	--
Northeast Area											
B5	B5-7'	06/01/17	7	--	--	--	--	2.69	--	--	--
B6	B6-13	06/01/17	13	--	--	--	--	2.28	--	--	--
B7	B7-7'	06/01/17	7	--	--	--	--	18.8	--	--	--
B8	B8-5	06/01/17	5	17.2	510	**3.33**	23.4	**1,770**	<1	<1	<1
B9	B9-6	06/01/17	6	6.02	70.6	<1	13.1	32.8	<1	<1	<1
	B9-15	06/01/17	15	4.42	28.1	<1	10.4	3.15	<1	<1	<1
B12	B12-2.5'	11/28/17	2.5	7.23	--	<1	--	**350**	--	--	--
B13	B13-4	11/28/17	4	4.33	--	<1	--	4.79	--	--	--
B14	B14-3	11/28/17	3	5.13	--	<1	--	20.5	--	--	--
MW5	MW5-3.5'	11/28/17	3.5	5.66	--	<1	--	9.10	--	--	--
MW6	MW6-4’	11/28/17	4	4.93	--	<1	--	12.1	--	--	--
MW7	MW7-3’	11/28/17	3	3.25	--	<1	--	64.8	--	--	--
MW8	MW8-3’	11/28/17	3	2.68	--	<1	--	3.62	--	--	--
B22	B22-3	10/09/19	3	2.19	--	<1	12.7	4.75	<1	--	--
	B22-6	10/09/19	6	2.93	--	<1	8.33	3.42	<1	--	--
B23	B23-3	10/09/19	3	3.78	--	<1	13.1	5.85	<1	--	--
B24	B24-3	10/09/19	3	3.47	--	<1	12.4	5.77	<1	--	--
B25	B25-3	10/09/19	3	2.62	--	<1	14.1	5.16	<1	--	--
B26	B26-3	10/09/19	3	2.96	--	<1	23.1	37.1	<1	--	--
	B26-7	10/09/19	7	2.34	--	<1	9.32	2.39	<1	--	--
MTCA Cleanup Level for Soil				**20**[2]	**16,000**[3]	**2**[2]	**2,000**[2]	**250**[2]	**2**[2]	**400**[3]	**400**[3]

EHS–International, Inc.

Table 3
Soil Analytical Results for RCRA 8 Metals
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well/Boring ID	Sample ID	Date Sampled	Depth (feet bgs)	Analytical Results[1] (milligrams per kilogram)							
				Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
B27	B27-3	10/09/19	3	3.18	--	<1	11.7	13.0	<1	--	--
MW09	MW-9-5	10/08/19	5	4.38	--	<1	11.6	66.4	<1	--	--
	MW-9-5 Dup	10/08/19									
MW10	MW10-3	10/09/19	3	2.97	--	<1	11.5	6.91	<1	--	--
MW11	MW11-3	10/09/19	3	2.97	--	<1	11.6	4.53	<1	--	--
B33/MW12	B33-03.5	09/09/21	3.5								
	B33-13	09/09/21	13								
B34/MW13	B34-05.5	09/09/21	5.5								
	B34-13	09/09/21	13								
HA1	HA1-02	11/10/20	2	4.17	--	<1	--	3.88	--	--	--
HA2	HA2-01	11/10/20	1	3.69	--	<1	--	2.60	--	--	--
Southwest-Adjoining Property											
B21	B21-3.5	10/08/19	3.5	3.75	--	<1	11.3	5.55	<1	--	--
B29	B29-03	11/10/20	3	1.70	--	<1	--	3.40	--	--	--
Off-Property (Motocycle Storage Building)											
B31	B31-015	11/10/20	15	2.85	--	<1	--	2.03	--	--	--
B32	B32-15	11/10/20	15	3.29	--	<1	--	12.7	--	--	--
MTCA Cleanup Level for Soil				**20**[2]	**16,000**[3]	**2**[2]	**2,000**[2]	**250**[2]	**2**[2]	**400**[3]	**400**[3]

NOTES:

Red denotes concentration exceeds MTCA cleanup level for soil.

Sample analyses conducted by Friedman & Bruya, Inc. of Seattle, Washington.

[1]Samples analyzed by EPA Method 200.8.

[2]MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1 Method A Cleanup Levels for Soil, Unrestricted Land Uses, revised November 2007.

[3]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Soil, Method B, Noncancer, Direct Contact, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

-- = not analyzed/not applicable

< = not detected at a concentration exceeding the laboratory reporting limit

bgs = below ground surface

CLARC = Cleanup Levels and Risk Calculations

EPA = US Environmental Protection Agency

MTCA = Washington State Model Toxics Control Act

RCRA = Resource Conservation and Recovery Act

WAC = Washington Administrative Code

EHS–International, Inc.

Table 4
Soil Analytical Results for PAHs
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well/Boring ID	Sample ID	Date Sampled	Analytical Results (milligrams per kilogram) Naphthalene	1-Methyl-naphthalene	2-Methyl-naphthalene	Acenaphthene	Acenaphthylene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(g,h,i)-perylene	cPAHs Toxicity Equivalency[1] (milligrams per kilogram) Benzo(a)-anthracene TEF: 0.1	Chrysene TEF: 0.01	Benzo(a)pyrene TEF: 1	Benzo(b)-fluoranthene TEF: 0.1	Benzo(k)-fluoranthene TEF: 0.1	Indeno(1,2,3-cd)-pyrene TEF: 0.1	Dibenz(a,h)-anthracene TEF: 0.1	TEQ[1] (milligrams per kilogram)
Southwest Area																					
B1	B1-6	06/01/17	<0.1	--	--	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1	0.13	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.076
B2	B2-5.5	06/01/17	<0.01	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
B3	B3-4.5	06/01/17	<0.01	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
B4	B4-4.5	06/01/17	0.014	--	--	<0.01	<0.01	<0.01	0.018	<0.01	0.029	0.028	<0.01	0.014	0.016	0.015	0.017	< 0.01	< 0.01	< 0.01	0.020
B4	B4-7.5	06/01/17	<0.01	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
MW4	MW4-4'	11/28/17	<0.05	2.8	5.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--
B16	B16-3.5	10/08/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
B17	B17-5	10/08/19	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.038
B18	B18-6	10/08/19	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.038
B19	B19-3	10/08/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	0.018	0.018	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
B20	B20-5	10/08/19	0.012	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	0.011	< 0.01	< 0.01	< 0.01	0.008
VP5	VP5-3	10/08/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
B28	(B15-3) B28-3	10/08/19	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.038
B30	B30-03	11/10/20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
Northeast Area																					
B5	B5-7'	06/01/17	<0.01	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
B6	B6-13	06/01/17	<0.01	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
B7	B7-7'	06/01/17	50	--	--	0.055	<0.01	0.073	0.10	0.023	0.020	0.027	0.012	< 0.01	0.010	0.013	0.013	< 0.01	< 0.01	< 0.01	0.016
B8	B8-5	06/01/17	44	--	--	3.6	<0.1	8.4	16	<0.1	0.38	1.2	0.11	< 0.1	0.22	< 0.1	0.11	< 0.1	< 0.1	< 0.1	0.083
B9	B9-6	06/01/17	<0.01	--	--	<0.01	<0.01	<0.01	0.027	<0.01	0.036	0.041	0.013	0.016	0.021	0.018	0.023	< 0.01	0.13	< 0.01	0.036
	B9-15	06/01/17	<0.01	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
B13	B13-4	11/28/17	0.75	--	--	<0.1	<0.1	<0.1	0.18	<0.1	0.1	0.3	<0.1[J]	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.076
B14	B14-3	11/28/17	<0.05	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--
MW5	MW5-3.5'	11/28/17	<0.05	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--
MW6	MW6-4'	11/28/17	2.6	--	--	0.012	<0.01	0.023	0.024	<0.01	0.011	0.014	<0.01	--	--	--	--	--	--	--	--
MW7	MW7-3'	11/28/17	0.018	--	--	<0.01	<0.01	<0.01	0.023	<0.01	0.032	0.055	0.013	--	--	--	--	--	--	--	--
MW8	MW8-3'	11/28/17	<0.05	--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	--	--	--	--	--	--	--
B22	B22-3	10/09/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
	B22-6	10/09/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
B23	B23-3	10/09/19	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.038
B24	B24-3	10/09/19	0.38	0.74	1.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.038
B25	B25-3	10/09/19	0.64	1.8	4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.038
B26	B26-3	10/09/19	0.033	0.030	0.038	<0.01	<0.01	0.011	0.090	0.016	0.089	0.12	0.073	0.062	0.071	0.073	0.10	0.035	0.087	0.013	**0.103**
	B26-7	10/09/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
B27	B27-3	10/09/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	0.018	<0.01	< 0.01	0.010	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
MW09	MW-9-5	10/08/19	0.016	0.027	0.029	<0.01	<0.01	<0.01	0.029	<0.01	0.025	0.029	<0.01	0.016	0.021	0.014	0.016	< 0.01	< 0.01	< 0.01	0.019
MW10	MW10-3	10/09/19	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.038
MW11	MW11-3	10/09/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
HA1	HA1-02	11/10/20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
HA2	HA2-01	11/10/20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
Southwest-Adjoining Property																					
B21	B21-3.5	10/08/19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
B29	B29-03	11/10/20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
Off-Property (Motocycle Storage Building)																					
B31	B31-015	11/10/20	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
B32	B32-15	11/10/20	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.081	<0.05	0.080	0.11	0.057	0.060	0.070	0.070	0.072	< 0.05	< 0.05	< 0.05	0.091
MTCA Cleanup Level for Soil			**5**[2]	**34.5**[3]	**320**[4]	**4,800**[4]	**NE**	**3,200**[4]	**NE**	**24,000**[4]	**3,200**[4]	**2,400**[4]	**NE**	**NE**	**NE**	**0.1**[2]	**NE**	**NE**	**NE**	**NE**	**0.1**[2]

NOTES:

Red denotes concentration exceeds MTCA cleanup level for soil.

Sample analyses conducted by Friedman & Bruya, Inc. of Seattle, Washington.

Samples analyzed by GC/MS-SIM or EPA Method 8270D.

[1]Analytical result for each individual cPAH is multiplied by the TEF and all seven cPAH values are added. When analytical results are reported as less than the LRL, one-half of the LRL is multiplied by the TEF to c

[2]MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1 Method A Cleanup Levels for Soil, Unrestricted Land Uses, revised November 2007.

[3]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Soil, Method B, Cancer, Direct Contact, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

[4]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Soil, Method B, Non cancer, Direct Contact, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

-- = not analyzed/not applicable

< or ND = not detected at a concentration exceeding the laboratory reporting limit

CLARC = Cleanup Levels and Risk Calculations

cPAH = carcinogenic polycyclic aromatic hydrocarbon

EPA = US Environmental Protection Agency

LRL = laboratory reporting limit

MTCA = Washington State Model Toxics Control Act

NE = not established

PAH = polycyclic aromatic hydrocarbon

TEF = toxicity equivalency factor

TEQ = toxicity equivalent

WAC = Washington Administrative Code

Laboratory Notes:

Yellow highlight = J flag (The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.)

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Table 5
Soil Analytical Results for PCB Mixtures
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well/Boring ID	Sample ID	Date Sampled	Depth (feet bgs)	Analytical Results[1] (milligrams per kilogram)									
				Aroclor 1221	Aroclor 1232	Aroclor 1016	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Total Value[1]
Southwest Area													
B1	B1-6	06/01/17	6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	ND
B2	B2-5.5	06/01/17	5.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	ND
B3	B3-4.5	06/01/17	4.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	ND
B4	B4-4.5	06/01/17	4.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	ND
B4	B4-7.5	06/01/17	7.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	ND
Northeast Area													
B8	B8-5	06/01/17	5	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	ND
B9	B9-6	06/01/17	6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	ND
B9	B9-15	06/01/17	15	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	ND
MTCA Cleanup Level for Soil for Unrestricted Properties[2]													**1**
MTCA Cleanup Level for Soil for Industrial Properties[3]													**10**

NOTES:

Sample analyses conducted by Friedman & Bruya, Inc. of Seattle, Washington.

Samples analyzed for PCBs by EPA Method 8082A.

[1]All nine PCB values are added. When analytical results are reported as less than the LRL, one-half of the LRL is used.

[2]Cleanup level is a total value for all PCBs, Chapter 173-340-900 of WAC, Table 740-1 Method A Cleanup Levels for Unrestricted Land Uses, Footnote P.

[3]Cleanup level is a total value of all PCBs, Chapter 173-340-900 of WAC, Table 745-1 Method A Soil Cleanup Levels for Industrial Properties, Footnote P.

-- = not analyzed/not applicable

< or ND = not detected at a concentration exceeding the laboratory reporting limit

bgs = below ground surface

EPA = US Environmental Protection Agency

MTCA = Washington State Model Toxics Control Act

PCB = polychlorinated biphenyl

WAC = Washington Administrative Code

Table 6
Groundwater Analytical Results for TPH and BTEX
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well ID	Sample ID	Date Sampled	Analytical Results (micrograms per liter)						
			GRPH[1]	DRPH[2]	ORPH[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Total Xylenes[3]
Southwest Area									
MW-1	MW-1	06/01/17	<100	190[x]	300[x]	<0.35	<1	<1	<3
	MW-1	12/05/17	<100	220[x]	410	<0.35	<1	<1	<3
	MW-1	10/15/19	<100	*320[x]	--	<0.35	<1	<1	<3
	MW-1	09/22/20	<100	70[x]	<250	<1	<1	<1	<3
	MW01-04-20210318	03/18/21	<100	<50[5]	<250[5]	<1	<1	<1	<3
	MW01-06-20210318	03/18/21	<100	<50[5]	<250[5]	<1	<1	<1	<3
	MW01-08.5-20210318	03/18/21	<100	<50[5]	<250[5]	<1	<1	<1	<3
MW-2	MW-2	06/01/17	<100	<50	<250	<0.35	<1	<1	<3
	MW-2	12/05/17	<100	<60	<300	<0.35	<1	<1	<3
	MW-2	10/15/19	<100	<50	<250	<0.35	<1	<1	<3
	MW-2	09/22/20	<100	<50	<250	<1	<1	<1	<3
	MW02-06-20210318	03/18/21	<100	<50	<250	<1	<1	<1	<3
	MW02-20210920	09/20/21	<100	<50	<250	<0.35	<1	<1	<3
MW-3	MW-3	06/01/17	<100	<50	<250	<0.35	<1	<1	<3
	MW-3	12/05/17	<100	<50	<250	<0.35	<1	<1	<3
	MW-3	10/15/19	<100	<50	<250	<0.35	<1	<1	<3
	MW-3	09/22/20	<100	<50	<250	<1	<1	<1	<3
MW4	MW-4	12/05/17	<100	**560[x]**	**920**	<0.35	<1	<1	<3
	MW-4	10/15/19	<100	*490[x]	--	<0.35	<1	<1	<3
	MW-4	09/22/20	<100	140[x]	270[x]	<1	<1	<1	<3
	MW04-06-20210318	03/18/21	<100	120[x]	<250	<1	<1	<1	<3
Northeast Area									
MW5	MW-5	12/05/17	<100	<50	<250	<0.35	<1	<1	<3
	MW-5	10/15/19	<100	<50	<250	<0.35	<1	<1	<3
	MW-5	09/22/20	<100	<50	<250	<1	<1	<1	<3
	MW05-03.5-20210318	03/18/21	<100	<50[5]	<250[5]	<1	<1	<1	<3
	MW05-06-20210318	03/18/21	<100	<50[5]	<250[5]	<1	<1	<1	<3
	MW05-08-20210318	03/18/21	<100	<50[5]	<250[5]	<1	<1	<1	<3
	MW-5	09/20/21	<100	<50	<250	<0.35	<1	<1	<3
MW6	MW-6	12/05/17	**15,000**	**1,800[x]**	<500	**500**	5	**880**	10
	MW-6	10/15/19	**14,000**	***8,400[x]**	--	**1,100**	<100	**1,100**	<300
	MW-6 Dup	10/15/19	**13,000**	--	--	**1,100**	15	**1,200**	25
	MW-6	09/22/20	**8,000**	**4,800[x]**	<250	**890**	17	500	20
	MW-6 Dup	09/22/20	**6,800**	--	--	**750**	17	310	23
	MW06-06-20210318	03/18/21	**13,000**	**3,700[x]**	<250	**1,300**	18	**1,300**	24
	MW06-20210920	09/20/21	**14,000**	**4,000[x]**	<250	**1,400**	<200	**1,300**	<600
	MW-6 Dup	09/20/21	**15,000**	**4,800[x]**	<250	**1,300**	16	**1,200**	23.8
MW7	MW-7	12/05/17	270c	380[x]	**590**	<0.35	<1	<1	<3
	MW-7	10/15/19	<100	*440[x]	--	<0.35	<1	<1	<3
	MW-7	09/22/20	<100	330[x]	<250	<1	<1	<1	<3
	MW07-07-20210318	03/18/21	<100	<50[5]	<250[5]	<1	<1	<1	<3
	MW07-20210920	09/20/21	<100	200[x]	<250	<0.35	<1	<1	<3
MW8	MW-8	12/05/17	<100	160[x]	<250	<0.35	<1	<1	<3
	MW-8	10/15/19	<100	210[x]	<360	<0.35	<1	<1	<3
	MW-8	09/22/20	<100	160[x]	<250	<1	<1	<1	<3
	MW08-06-20210318	03/18/21	<100	110[x]	<250	<1	<1	<1	<3
	MW08-20210920	09/20/21	<100	180[x]	<250	<0.35	<1	<1	<3
MW09	MW-9	10/15/19	<100	68[x]	<250	<0.35	<1	<1	<3
	MW-9	09/22/20	<100	<50	<250	<1	<1	<1	<3
	MW09-08-20210318	03/18/21	<100	<50	<250	<1	<1	<1	<3
	MW09-20210920	09/20/21	<100	<50	<250	<0.35	<1	<1	<3
MW10	MW-10	10/15/19	<100	84[x]	<250	<0.35	<1	<1	<3
	MW-10	09/22/20	<100	54[x]	<250	<1	<1	<1	<3
	MW10-08-20210318	03/18/21	<100	<50	<250	<1	<1	<1	<3
	MW10-20210920	09/20/21	<100	<50	<250	<0.35	<1	<1	<3
MW11	MW-11	10/15/19	<100	***1,800[x]**	--	<0.35	<1	<1	<3
	MW-11	09/22/20	<100	<50	<250	<1	<1	<1	<3
	MW11-09-20210318	03/18/21	<100	<50	<250	<1	<1	<1	<3
	MW11-20210920	09/20/21	<100	56[x]	<250	<0.35	<1	<1	<3
MW12	MW-12	09/20/21	<100	91	<250	<0.35	<1	<1	<3
MW13	MW-13	09/20/21	**5,700**	**1,400[x]**	<250	**35**	5.5	38	14.3
MTCA Cleanup Level for Groundwater[4]			**800**	**500**	**500**	**5**	**1,000**	**700**	**1,000**

Table 6
Groundwater Analytical Results for TPH and BTEX
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well ID	Sample ID	Date Sampled	Analytical Results (micrograms per liter)						
			GRPH[1]	DRPH[2]	ORPH[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Total Xylenes[3]
Boring Locations - Reconnaissance Groundwater Samples									
Southwest Area									
B2	B2-W	06/01/17	<100	170[x]	<250	<0.35	<1	<1	<3
B3	B3-W	06/01/17	<100	350[x]	**570[x]**	<0.35	<1	<1	<3
B10	B10-W	11/28/17	<100	<50	<250	<0.35	<1	<1	<3
B11	B11-W	11/28/17	<100	110[x]	<250	<0.35	<1	<1	<3
B15	B15-W	11/28/17	<100	<70	<350	<0.35	<1	<1	<3
B17	B17-W	10/09/19	<100	230[x]	320	<0.35	<1	<1	<3
B18	B18- W	10/09/19	<100	310[x]	**1,900**	<0.35	<1	<1	<3
B19	B19-W	10/09/19	<100	<80	<420	<0.35	<1	<1	<3
B28	B15-W (B28-W)	10/09/19	<100	280[x]	<250	<0.35	<1	<1	<3
B30	B30-W	11/10/20	<100	410[x]	**1,000**	<1	<1	<1	<3
Northeast Area									
B5	B5-W	06/01/17	<100	<100	<500	<0.35	<1	<1	<3
B6	B6-W	06/01/17	800	**650[x]**	250[x]	0.64	<1	<1	<3
B7	B7-W	06/01/17	**8,400**	**2,000[x]**	<1000	**900**	50	**730**	**2,030**
B8	B8-W	06/01/17	770	**20,000**	**4,300[x]**	**13**	<1	2.7	16.4
B9	B9-W	06/01/17	<100	<160	<800	<0.35	<1	<1	<3
B12	B12-W	11/28/17	<100	<50	<250	<0.35	<1	<1	<3
B13	B13-W	11/28/17	**950**	**7,200[x]**	**67,000**	<0.35	<1	<1	1.8
	Trip Blank	10/10/19	<100	--	--	<0.35	<1	<1	<3
B23	B23-W	10/10/19	490	240[x]	<250	1.1	<1	<1	<3
	B23-W Dup	10/10/19	380	220[x]	<250	1.1	<1	<1	<3
B24	B24-W	10/10/19	**4,400**	**2,000[x]**	<350	**7.1**	1.2	110	3.9
B25	B25-W	10/10/19	**33,000**	**8,600[x]**	**1,000[x]**	4.2	21	**1,900**	**3,500**
	* Method Blank	10/16/19	--	*<250	--	--	--	--	--
Southwest-Adjoining Property									
B21	B21-W	10/09/19	<100	91[x]	<300	<0.35	<1	<1	<3
B29	B29-W	11/10/20	<100	**1,400[x]**	**1,700**	<1	<1	<1	<3
Off-Property (Motorcycle Storage Building)									
B31	B31-W	11/10/20	<100	400[x]	**1,700**	<1	<1	<1	<3
B32	B32-W	11/10/20	220	**1,500[x]**	**3,300**	<1	<1	1.3	3.2
MTCA Cleanup Level for Groundwater[4]			**800**	**500**	**500**	**5**	**1,000**	**700**	**1,000**

NOTES:

Red denotes concentration exceeds MTCA cleanup level for groundwater.

Sample analyses conducted by Friedman & Bruya, Inc. of Seattle, Washington.

[1]Analyzed by Method NWTPH-Gx.

[2]Analyzed by Method NWTPH-Dx.

[3]Analyzed by EPA Method 8021B.

[4]MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 720-1 Method A Cleanup Levels for Groundwater, revised November 2007.

[5]Sample Extracts Passed Through a Silica Gel Column Prior to Analysis

Laboratory Notes:

[x] = The sample chromoatographic pattern does not resemble the fuel standard used for quantitation

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

* = combined DRPH and ORPH results

-- = not analyzed/not applicable

< = not detected at a concentration exceeding the laboratory reporting li

BTEX = benzene, toluene, ethylbenzene, and total xylenes

DRPH = diesel-range petroleum hydrocarbons

EPA = US Environmental Protection Agency

GRPH = gasoline-range petroleum hydrocarbons

MTCA = Washington State Model Toxics Control Act

NWTPH = Northwest Total Petroleum Hydrocarbon

ORPH = oil-range petroleum hydrocarbons

TPH = total petroleum hydrocarbons

Table 7
Groundwater Analytical Results for Chlorinated VOCs
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well ID	Sample ID	Date Sampled	Analytical Results[1] (micrograms per liter)							
			Tetrachloroethene	Trichloroethene	Cis-1,2-Dichloroethene	Trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl Chloride	Dichloroethane (EDC)	Dibromoethane (EDB)
Southwest Area										
MW-1	MW-1	06/01/17	<1	<1	<1	<1	<1	<0.2	<1	<1
	MW-1	10/15/19	<1	<1	<1	<1	<1	<0.2	<1	<1
MW-2	MW-2	06/01/17	<1	<1	<1	<1	<1	<0.2	<1	<1
	MW-2	10/15/19	<1	<1	<1	<1	<1	<0.2	<1	<1
MW-3	MW-3	06/01/17	<1	<1	<1	<1	<1	<0.2	<1	<1
	MW-3	10/15/19	<1	<1	<1	<1	<1	<0.2	<1	<1
MW4	MW-4	10/15/19	<1	<1	<1	<1	<1	<0.2	<1	<1
Northeast Area										
MW5	MW-5	10/15/19	<1	<1	<1	<1	<1	<0.2	<1	<1
MW6	MW-6	10/15/19	**<100**	**<100**	**<100**	**<100**	**<100**	**<20**	**<100**	**<100**
	MW-6 Dup	10/15/19	<1	<1	<1	<1	<1	<0.2	<1	<1
	MW-6	09/20/21	--	--	--	--	--	--	<40	**<200**
MW7	MW-7	10/15/19	<1	<1	<1	<1	<1	<0.2	<1	<1
MW8	MW-8	10/15/19	<1	<1	<1	<1	<1	<0.2	<1	<1
MW09	MW-9	10/15/19	<1	<1	<1	<1	<1	<0.2	<1	<1
MW10	MW-10	10/15/19	<1	<1	<1	<1	<1	<0.2	<1	<1
MW11	MW-11	10/15/19	<1	<1	<1	<1	<1	<0.2	<1	<1
Boring Locations - Reconnaissance Groundwater Samples										
Southwest Area										
B2	B2-W	06/01/17	<1	<1	<1	<1	<1	<0.2	<1	<1
B3	B3-W	06/01/17	<1	<1	<1	<1	<1	<0.2	<1	<1
B17	B17-W	10/09/19	<1	<1	<1	<1	<1	<0.2	<1	<1
B18	B18-W	10/09/19	<1	<1	<1	<1	<1	<0.2	<1	<1
B19	B19-W	10/09/19	<1	<1	<1	<1	<1	<0.2	<1	<1
B21	B21-W	10/09/19	<1	<1	<1	<1	<1	<0.2	<1	<1
B28	B15-W (B28-W)	10/09/19	<1	<1	<1	<1	<1	<0.2	<1	<1
Northeast Area										
B5	B5-W	06/01/17	<1	<1	<1	<1	<1	<0.2	<1	<1
B6	B6-W	06/01/17	<1	<1	<1	<1	<1	<0.2	<1	<1
B7	B7-W	06/01/17	<10	<10	<10	<10	<10	<2	<10	<10
B8	B8-W	06/01/17	<1	<1	<1	<1	<1	<0.2	<1	<1
B9	B9-W	06/01/17	<1	<1	<1	<1	<1	<0.2	<1	<1
B23	B23-W	10/10/19	<1	<1	<1	<1	<1	<0.2	<1	<1
	B23-W Dup	10/10/19	<1	<1	<1	<1	<1	<0.2	<1	<1
B24	B24-W	10/10/19	<1	<1	<1	<1	<1	<0.2	<1	<1
	B24-W[hs]	10/10/19	<10	<10	<10	<10	<10	<2	<10	<10
B25	B25-W	10/10/19	<1	<1	<1	<1	<1	<0.2	<1	<1
B27	B27-W	10/10/19	<1	<1	<1	<1	<1	<0.2	<1	<1
MTCA Cleanup Level for Groundwater			**5**[2]	**5**[2]	**16**[3]	**160**[3]	**400**[3]	**0.2**[2]	**80**[3]	**80**[3]

NOTES:

Red denotes concentration exceeds MTCA cleanup level for groundwater.

Sample analyses conducted by Friedman & Bruya, Inc. of Seattle, Washington.

[1]Samples analyzed by EPA Method 8260C.

[2]MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 720-1 Method A Cleanup Levels for Groundwater, revised November 2007.

[3]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Groundwater, Method B Standard Formula, Non cancer, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

Laboratory Notes:

[hs] = Headspace was present in in the container used for analysis.

-- = not analyzed/not applicable

< = not detected at a concentration exceeding the laboratory reporting limit

CLARC = Cleanup Levels and Risk Calculations

EPA = US Environmental Protection Agency

MTCA = Washington State Model Toxics Control Act

VOC = volatile organic compound

WAC = Washington Administrative Code

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Table 8
Groundwater Analytical Results for RCRA 8 Metals
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well ID	Sample ID	Date Sampled	Analytical Results[(1)] (micrograms per liter)															
			Arsenic		Barium		Cadmium		Chromium		Lead		Mercury		Selenium		Silver	
			Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Southwest Area																		
MW-1	MW-1	06/01/17	<1	<1	19.1	19.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	MW-1	12/05/17	<1	<1	--	--	<1	<1	--	--	<1	<1	--	--	--	--	--	--
	MW-1	10/15/19	1.74	1.16	--	--	<1	<1	<1	<1	<1	<1	<1	<1	--	--	--	--
	MW-1	09/22/20	<1	<1	--	--	<1	<1	<1	<1	<5	<5	<1	<1	--	--	--	--
MW-2	MW-2	06/01/17	2.64	2.19	6.81	4.96	<1	<1	1.39	1.3	<1	<1	<1	<1	<1	<1	<1	<1
	MW-2	12/05/17	1.74	1.84	--	--	<1	<1	--	--	<1	<1	--	--	--	--	--	--
	MW-2	10/15/19	<1	<1	--	--	<1	<1	<1	<1	<1	<1	<1	<1	--	--	--	--
	MW-2	09/22/20	1.78	1.18	--	--	<1	<1	1.28	<1	<5	<5	<1	<1	--	--	--	--
MW-3	MW-3	06/01/17	2.6	<1	22.9	8.09	<1	<1	1.95	<1	3.96	<1	<1	<1	<1	<1	<1	<1
	MW-3	12/05/17	<1	<1	--	--	<1	<1	--	--	<1	<1	--	--	--	--	--	--
	MW-3	10/15/19	1.69	1.53	--	--	<1	<1	<2	<1	<1	<1	<1	<1	--	--	--	--
	MW-3	09/22/20	<1	<1	--	--	<1	<1	1.95	<1	<5	<5	<1	<1	--	--	--	--
MW4	MW-4	12/05/17	3.94	<1	--	--	<1	<1	--	--	6.01	<1	--	--	--	--	--	--
	MW-4	10/15/19	<1	<1	--	--	<1	<1	<1	<1	<1	<1	<1	<1	--	--	--	--
	MW-4	09/22/20	1.19	<1	--	--	<1	<1	2.20	<1	<5	<5	<1	<1	--	--	--	--
Northeast Area																		
MW5	MW-5	12/05/17	2.12	<1	--	--	<1	<1	--	--	5.41	<1	--	--	--	--	--	--
	MW-5	10/15/19	<1	<1	--	--	<1	<1	<1	<1	<1	<1	<1	<1	--	--	--	--
	MW-5	09/22/20	<1	<1	--	--	<1	<1	<1	<1	<5	<5	<1	<1	--	--	--	--
MW6	MW-6	12/05/17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	MW-6	10/15/19	9.16	4.19	--	--	<1	<1	<1	<1	6.15	2.75	<1	<1	--	--	--	--
	MW-6	09/22/20	6.14	8.04	--	--	<1	<1	4.93	<1	9.19	<5	<1	<1	--	--	--	--
MW7	MW-7	12/05/17	2.68	<1	--	--	<1	<1	--	--	8.06	<1	--	--	--	--	--	--
	MW-7	10/15/19	2.6	<1	--	--	<1	<1	<2	<1	<1	<1	<1	<1	--	--	--	--
	MW-7	09/22/20	8.17	2.41	--	--	<1	<1	<10	<10	5.68	<5	<1	<1	--	--	--	--
MW8	MW-8	12/05/17	5.37	<1	--	--	<1	<1	--	--	2.36	<1	--	--	--	--	--	--
	MW-8	10/15/19	4.77	<1	--	--	<1	<1	<2	<1	<1	<1	<1	<1	--	--	--	--
	MW-8	09/22/20	2.05	<1	--	--	<1	<1	<10	<1	<5	<5	<1	<1	--	--	--	--
MW09	MW-9	10/15/19	**91.4**	2.16	--	--	<50	<1	**386**	1.16	**342**	<1	<50	<1	--	--	--	--
	MW-9	09/22/20	**10.8**	<1	--	--	<1	<1	22.8	<1	**108**	<5	<1	<1	--	--	--	--
MW10	MW-10	10/15/19	**8.16**	2.46	--	--	<1	<1	<2	<1	1.01	<1	<1	<1	--	--	--	--
	MW-10	09/22/20	**6.40**	1.62	--	--	<1	<1	2.73	<1	<5	<5	<1	<1	--	--	--	--
MW11	MW-11	10/15/19	2.41	2.11	--	--	<1	<1	<1	<1	<1	<1	<1	<1	--	--	--	--
	MW-11	09/22/20	3.90	3.00	--	--	<1	<1	<1	<1	<5	<5	<1	<1	--	--	--	--

Table 8
Groundwater Analytical Results for RCRA 8 Metals
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well ID	Sample ID	Date Sampled	Analytical Results[1] (micrograms per liter)															
			Arsenic		Barium		Cadmium		Chromium		Lead		Mercury		Selenium		Silver	
			Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Boring Locations - Reconnaissance Groundwater Samples																		
Southwest Area																		
B2	B2-W	06/01/17	**7.93**	<1	205	11.6	<1	<1	35.7	<1	8.29	<1	<1	<1	<1	<1	<1	<1
B3	B3-W	06/01/17	**26.7**	**5.68**	546	11.5	<1	<1	44.7 J	<1	**16.4**	<1	<1	<1	1.04	<1	<1	<1
B10	B10-W	11/28/17	**10.3**	<1	--	--	<1	<1	--	--	9.56	<1	--	--	--	--	--	--
B11	B11-W	11/28/17	**8.02**	<1	--	--	<1	<1	--	--	**15.8**	<1	--	--	--	--	--	--
B15	B15-W	11/28/17	**51.6**	<1	--	--	1.85	<1	--	--	**174**	<1	--	--	--	--	--	--
B17	B17-W	10/09/19	**15.0**	1.03	--	--	<1	--	5.31	--	**17.9**	<1	<1	--	--	--	--	--
B18	B18-W	10/09/19	**131**	<1	--	--	2.54	--	**75.0**	<1	**534**	<1	<5	--	--	--	--	--
B28	B15-W (B28-W)	10/09/19	**6.33**	2.15	--	--	**12.2**	2.76	<10	--	12.9	<1	<5	--	--	--	--	--
Northeast Area																		
B5	B5-W	06/01/17	--	--	--	--	--	--	--	--	**24.3**	<1	--	--	--	--	--	--
B7	B7-W	06/01/17	--	--	--	--	--	--	--	--	**--**	--	--	--	--	--	--	--
B8	B8-W	06/01/17	**49.7**	4.59	435	46.4	**6.76**	<1	18.6	1.11	**1,950**	1.32	<1	<1	1.72	1.58	<1	<1
B12	B12-W	11/28/17	**15.7**	<1	--	--	<1	<1	--	--	**76.8**	<1	--	--	--	--	--	--
B13	B13-W	11/28/17	**51.8**	1.16	--	--	<1	<1	--	--	**625**	<1	--	--	--	--	--	--
B14	B14-W	11/28/17	**5.68**	<1	--	--	<1	<1	--	--	**18.5**	<1	--	--	--	--	--	--
B23	B23-W	10/10/19	4.97	1.47	--	--	<1	--	5.39	--	9.57	<1	<1	--	--	--	--	--
	B23-W Dup	10/10/19	4.85	1.64	--	--	<1	--	5.62	--	9.74	<1	<1	--	--	--	--	--
B25	B25-W	10/10/19	**59.2**	2.00	--	--	1.75	--	**254**	<1	**127**	3.56	<1	--	--	--	--	--
MTCA Cleanup Level for Groundwater			**5**[2]		**3,200**[3]		**5**[2]		**50**[2]		**15**[2]		**2**[2]		**80**[3]		**80**[3]	

NOTES:

Red denotes concentration exceeds MTCA cleanup level for groundwater.

Sample analyses conducted by Friedman & Bruya, Inc. of Seattle, Washington.

[1]Samples analyzed by EPA Method 200.8.

[2]MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 720-1 Method A Cleanup Levels for Groundwater, revised November 2007.

[3]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Groundwater, Method B, Non cancer, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

Laboratory Notes:

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

-- = not analyzed/not applicable

< = not detected at a concentration exceeding the laboratory reporting limit

CLARC = Cleanup Levels and Risk Calculations

MTCA = Washington State Model Toxics Control Act

RCRA = Resource Conservation and Recovery Act

WAC = Washington Administrative Code

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Table 9
Groundwater Analytical Results for PAHs
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well ID	Sample ID	Date Sampled	Analytical Results (micrograms per liter)											cPAHs Toxicity Equivalency[1] (micrograms per liter)							TEQ[1] (micrograms per liter)
			Naphthalene	1-Methyl-naphthalene	2-Methyl-naphthalene	Acenaphthene	Acenaphthylene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(g,h,i)-perylene	Benzo(a)-anthracene TEI0.1	Chrysene TEI0.01	Benzo(a)pyrene TEI 1	Benzo(b)-fluoranthene TEI0.1	Benzo(k)-fluoranthene TEI0.1	Indeno(1,2,3-cd)-pyrene TEI0.1	Dibenz(a,h)-anthracene TEI0.1	
Southwest Area																					
MW-1	MW-1	06/01/17	<0.06	--	--	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.045
	MW-1	12/05/17	<0.03	<0.2	<0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.023
	MW-1	10/15/19	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-1	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
MW-2	MW-2	06/01/17	<0.06	--	--	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.045
	MW-2	12/05/17	<0.03	<0.2	<0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.023
	MW-2	10/15/19	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-2	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
MW-3	MW-3	06/01/17	<0.06	--	--	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.045
	MW-3	12/05/17	<0.03	<0.2	<0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.023
	MW-3	10/15/19	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-3	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
MW4	MW-4	12/05/17	0.033	<0.2	<0.2	<0.03	<0.03	<0.03	0.035	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.023
	MW-4	10/15/19	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-4	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	0.060	0.042	< 0.04	0.048	< 0.04	< 0.04	< 0.04	0.037
Northeast Area																					
MW5	MW-5	12/05/17	<0.03	<0.2	<0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.023
	MW-5	10/15/19	<0.2	<0.2	<0.2	--		--	--	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-5	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
	MW05-03.5-20210318	03/18/21	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	MW05-06-20210318	03/18/21	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	MW05-08-20210318	03/18/21	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW6	MW-6	10/15/19	160 ve	54 ve	34 ve	--	--	--	--	--	--	--	--	< 0.02	< 0.02	< 0.02 J	< 0.02 J	< 0.02 J	< 0.02 J	< 0.02 J	
	MW-6 Dup	10/15/19	270	61	36	--	--	--	--	--	--	--	--	< 2	< 2	< 2	< 2	< 2	< 2	< 2	1.51
	MW-6	09/22/20	56	11	2.7	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
	MW06-06-20210318	03/18/21	360	48	87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	MW-6	09/20/21	430	73	140	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
	MW-6 Dup	09/20/21	210	130	74	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
MW7	MW-7	12/05/17	0.07	0.76	<0.2	0.12	<0.03	0.31	0.12	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.023
	MW-7	10/15/19	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-7	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
	MW-7	09/20/21	<1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW8	MW-8	12/05/17	0.061	0.23	<0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.023
	MW-8	10/15/19	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	< 0.02	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-8	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
	MW08-06-20210318	03/18/21	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	MW-8	09/20/21	<1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW09	MW-9	10/15/19	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-9	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
MW10	MW-10	10/15/19	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-10	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
MW11	MW-11	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
	MW11-09-20210318	03/18/21	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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Table 9
Groundwater Analytical Results for PAHs
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well ID	Sample ID	Date Sampled	Analytical Results (micrograms per liter)											cPAHs Toxicity Equivalency[1] (micrograms per liter)							TEQ[1] (micrograms per liter)
			Naphthalene	1-Methyl-naphthalene	2-Methyl-naphthalene	Acenaphthene	Acenaphthylene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(g,h,i)-perylene	Benzo(a)-anthracene TEI0.1	Chrysene TEI0.01	Benzo(a)pyrene TEI 1	Benzo(b)-fluoranthene TEI0.1	Benzo(k)-fluoranthene TEI0.1	Indeno(1,2,3-cd)-pyrene TEI0.1	Dibenz(a,h)-anthracene TEI0.1	
Boring Locations - Reconnaissance Groundwater Samples																					
Southwest Area																					
B2-W	B2-W	06/01/17	<0.06	--	--	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.045
B3-W	B3-W	06/01/17	<0.06	--	--	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.045
B11-W	B11-W	11/28/17	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.023
B17-W	B17-W	10/09/19	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
B18-W	B18-W	10/09/19	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
B28-W	(B15-W) B28-W	10/09/19	<0.4	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
Northeast Area																					
B5-W	B5-W	06/01/17	<0.06	--	--	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.045
B6-W	B6-W	06/01/17	4.5	--	--	0.078	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.045
B8-W	B8-W	06/01/17	43	--	--	1.9	<0.3	7.6	12	<0.3	<0.3	0.69	<0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.227
B13-W	B13-W	11/28/17	31	--	--	0.6	1.1	1.5	2.7	0.41	1.3	3.6	<0.3 J	0.66	1.3	0.31 J	0.45 J	< 0.3 J	< 0.3 J	< 0.3 J	
B14-W	B14-W	11/28/17	<1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
B23-W	B23-W	10/10/19	0.25	0.48	0.27	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
B23-W Dup	B23-W Dup	10/10/19	0.26	0.51	0.30	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
B25-W	B25-W	10/10/19	**270** ve	**110**	**230** ve	<0.4	<0.4	<0.4	0.50	<0.4	<0.4	<0.4	<0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	**0.302**
B25-W Dup	B25-W Dup	10/10/19	**250**	**110**	**230**	<2	<2	<2	<2	<2	<2	<2	<2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	**1.510**
B27-W	B27-W	10/10/19	<0.2	<0.2	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
Off-Property (Motocycle Storage Building)																					
B31-W	B31-W	11/10/20	<4	<4	<4	<0.4	<0.4	<0.4	1.9	<0.4	1.6	1.8	<0.8	0.9	1.1	**1.0**	1.1	< 0.4	0.59	< 0.4	**1.310**
MTCA Cleanup Level for Groundwater			**160**[2]	**1.51**[3]	**32**[4]	**960**[4]	**NE**	**640**[4]	**NE**	**4,800**[4]	**640**[4]	**480**[4]	**NE**	**NE**	**NE**	**0.1**[2]	**NE**	**NE**	**NE**	**NE**	**0.1**[2]

NOTES:

Red denotes concentration exceeds MTCA cleanup level.

Sample analyses conducted by Friedman & Bruya, Inc. of Seattle, Washington.

Samples analyzed by GC/MS-SIM or EPA Method 8270E.

[1]Analytical result for each individual cPAH is multiplied by the TEF and all seven cPAH values are added. When analytical results are reported as less than the LRL, one-half of the LRL is multiplied by t

[2]MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 720-1 Method A Cleanup Levels for Groundwater, revised November 2007.

[3]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Groundwater, Method B, Cancer, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

[4]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Groundwater, Method B, Non cancer, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

-- = not analyzed/not applicable

< = not detected at a concentration exceeding the laboratory reporting limit

CLARC = Cleanup Levels and Risk Calculations

cPAH = carcinogenic polycyclic aromatic hydrocarbon

EPA = US Environmental Protection Agency

LRL = laboratory reporting limit

MTCA = Washington State Model Toxics Control Act

NE = not established

PAH = polycyclic aromatic hydrocarbon

TEF = toxicity equivalency factor

TEQ = toxicity equivalent

WAC = Washington Administrative Code

Laboratory Notes:

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

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Table 9
Groundwater Analytical Results for PAHs
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well ID	Sample ID	Date Sampled	Analytical Results (micrograms per liter)											cPAHs Toxicity Equivalency[1] (micrograms per liter)							TEQ[1] (micrograms per liter)
			Naphthalene	1-Methyl-naphthalene	2-Methyl-naphthalene	Acenaphthene	Acenaphthylene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(g,h,i)-perylene	Benzo(a)-anthracene TEI0.1	Chrysene TEI0.01	Benzo(a)pyrene TEI 1	Benzo(b)-fluoranthene TEI0.1	Benzo(k)-fluoranthene TEI0.1	Indeno(1,2,3-cd)-pyrene TEI0.1	Dibenz(a,h)-anthracene TEI0.1	
Southwest Area																					
MW-1	MW-1	06/01/17	<0.06	--	--	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.045
	MW-1	12/05/17	<0.03	<0.2	<0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.023
	MW-1	10/15/19	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-1	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
MW-2	MW-2	06/01/17	<0.06	--	--	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.045
	MW-2	12/05/17	<0.03	<0.2	<0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.023
	MW-2	10/15/19	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-2	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
MW-3	MW-3	06/01/17	<0.06	--	--	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.045
	MW-3	12/05/17	<0.03	<0.2	<0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.023
	MW-3	10/15/19	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-3	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
MW4	MW-4	12/05/17	0.033	<0.2	<0.2	<0.03	<0.03	<0.03	0.035	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.023
	MW-4	10/15/19	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-4	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	0.060	0.042	< 0.04	0.048	< 0.04	< 0.04	< 0.04	0.037
Northeast Area																					
MW5	MW-5	12/05/17	<0.03	<0.2	<0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.023
	MW-5	10/15/19	<0.2	<0.2	<0.2	--		--	--	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-5	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
	MW05-03.5-20210318	03/18/21	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	MW05-06-20210318	03/18/21	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	MW05-08-20210318	03/18/21	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW6	MW-6	10/15/19	160 ve	54 ve	34 ve	--	--	--	--	--	--	--	--	< 0.02	< 0.02	< 0.02 J	< 0.02 J	< 0.02 J	< 0.02 J	< 0.02 J	
	MW-6 Dup	10/15/19	270	61	36	--	--	--	--	--	--	--	--	< 2	< 2	< 2	< 2	< 2	< 2	< 2	1.51
	MW-6	09/22/20	56	11	2.7	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
	MW06-06-20210318	03/18/21	360	48	87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	MW-6	09/20/21	430	73	140	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
	MW-6 Dup	09/20/21	210	130	74	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
MW7	MW-7	12/05/17	0.07	0.76	<0.2	0.12	<0.03	0.31	0.12	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.023
	MW-7	10/15/19	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-7	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
	MW-7	09/20/21	<1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW8	MW-8	12/05/17	0.061	0.23	<0.2	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.023
	MW-8	10/15/19	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	< 0.02	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-8	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
	MW08-06-20210318	03/18/21	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	MW-8	09/20/21	<1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW09	MW-9	10/15/19	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-9	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
MW10	MW-10	10/15/19	<0.2	<0.2	<0.2	--	--	--	--	--	--	--	--	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
	MW-10	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
MW11	MW-11	09/22/20	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
	MW11-09-20210318	03/18/21	<0.4	<0.4	<0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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Table 9
Groundwater Analytical Results for PAHs
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Well ID	Sample ID	Date Sampled	Analytical Results (micrograms per liter)											cPAHs Toxicity Equivalency[1] (micrograms per liter)							TEQ[1] (micrograms per liter)
			Naphthalene	1-Methyl-naphthalene	2-Methyl-naphthalene	Acenaphthene	Acenaphthylene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(g,h,i)-perylene	Benzo(a)-anthracene TEI0.1	Chrysene TEI0.01	Benzo(a)pyrene TEI 1	Benzo(b)-fluoranthene TEI0.1	Benzo(k)-fluoranthene TEI0.1	Indeno(1,2,3-cd)-pyrene TEI0.1	Dibenz(a,h)-anthracene TEI0.1	
Boring Locations - Reconnaissance Groundwater Samples																					
Southwest Area																					
B2-W	B2-W	06/01/17	<0.06	--	--	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.045
B3-W	B3-W	06/01/17	<0.06	--	--	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.045
B11-W	B11-W	11/28/17	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.023
B17-W	B17-W	10/09/19	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
B18-W	B18-W	10/09/19	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
B28-W	(B15-W) B28-W	10/09/19	<0.4	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.030
Northeast Area																					
B5-W	B5-W	06/01/17	<0.06	--	--	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.045
B6-W	B6-W	06/01/17	4.5	--	--	0.078	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.045
B8-W	B8-W	06/01/17	43	--	--	1.9	<0.3	7.6	12	<0.3	<0.3	0.69	<0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.227
B13-W	B13-W	11/28/17	31	--	--	0.6	1.1	1.5	2.7	0.41	1.3	3.6	<0.3 J	0.66	1.3	0.31 J	0.45 J	< 0.3 J	< 0.3 J	< 0.3 J	
B14-W	B14-W	11/28/17	<1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
B23-W	B23-W	10/10/19	0.25	0.48	0.27	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
B23-W Dup	B23-W Dup	10/10/19	0.26	0.51	0.30	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
B25-W	B25-W	10/10/19	**270** ve	**110**	**230** ve	<0.4	<0.4	<0.4	0.50	<0.4	<0.4	<0.4	<0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	**0.302**
B25-W Dup	B25-W Dup	10/10/19	**250**	**110**	**230**	<2	<2	<2	<2	<2	<2	<2	<2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	**1.510**
B27-W	B27-W	10/10/19	<0.2	<0.2	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.015
Off-Property (Motocycle Storage Building)																					
B31-W	B31-W	11/10/20	<4	<4	<4	<0.4	<0.4	<0.4	1.9	<0.4	1.6	1.8	<0.8	0.9	1.1	**1.0**	1.1	< 0.4	0.59	< 0.4	**1.310**
MTCA Cleanup Level for Groundwater			**160**[2]	**1.51**[3]	**32**[4]	**960**[4]	**NE**	**640**[4]	**NE**	**4,800**[4]	**640**[4]	**480**[4]	**NE**	**NE**	**NE**	**0.1**[2]	**NE**	**NE**	**NE**	**NE**	**0.1**[2]

NOTES:

Red denotes concentration exceeds MTCA cleanup level.

Sample analyses conducted by Friedman & Bruya, Inc. of Seattle, Washington.

Samples analyzed by GC/MS-SIM or EPA Method 8270E.

[1]Analytical result for each individual cPAH is multiplied by the TEF and all seven cPAH values are added. When analytical results are reported as less than the LRL, one-half of the LRL is multiplied by t

[2]MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 720-1 Method A Cleanup Levels for Groundwater, revised November 2007.

[3]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Groundwater, Method B, Cancer, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

[4]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Groundwater, Method B, Non cancer, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

-- = not analyzed/not applicable

< = not detected at a concentration exceeding the laboratory reporting limit

CLARC = Cleanup Levels and Risk Calculations

cPAH = carcinogenic polycyclic aromatic hydrocarbon

EPA = US Environmental Protection Agency

LRL = laboratory reporting limit

MTCA = Washington State Model Toxics Control Act

NE = not established

PAH = polycyclic aromatic hydrocarbon

TEF = toxicity equivalency factor

TEQ = toxicity equivalent

WAC = Washington Administrative Code

Laboratory Notes:

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

Table 10
Soil Gas Analytical Results for TPH, BTEX, and Naphthalene
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Sample Location	Sample ID	Sample Date	Analytical Results[(1)] (µg/m^3)										
			APH (EC5-8 Aliphatics)	APH (EC9-12 Aliphatics)	APH (EC9-10 Aromatics)	TPH[(5)]	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Total Xylenes	Naphthalene
VP1	BLSG-1	06/19/17	660	620	<120	1,421	1.6	9.2	2.1	4.0	2.2	6.2	1.8
	04 (2295) (VP1)	12/11/17	140	220	<62	438	6.8	<1.1	<3.3	<2.2	<1.1	3.3	<1.3
	043018-0104V(VP1)	04/30/18	810	<350	<250	1,435	<3.2	<3.8	<4.3	<8.7	<4.3	13.0	<1
	VP1-04	08/20/18	850	320	<82	1,265	<1.1	4.4	1.8	3.4	<1.4	4.8	0.92[fb]
	VP1	10/15/19	270	260	<82	683	<1.1	<63	<1.4	2.9	<1.4	4.3	<0.86
	VP1	12/10/20	<220	420	<140	893	<1.8	<100	<2.4	<4.8	<2.4	7.2	<1.4
VPN-1	VPN-1	12/10/20	370	1,000	<130	1,612	<1.7	<100	<2.3	<4.6	<2.3	6.9	<1.4
VP2	BLSG-2	06/19/17	530	630	<120	1,294	1.0	6.8	<1.1	2.8	1.3	4.1	<1.3
	05 (2438) (VP2)	12/11/17	<110	<87	<62	266	<0.8	1.5	<1.1	<2.2	<1.1	3.3	<0.24
	043018-0105V(VP2)	04/30/18	800	440	<250	1,515	<3.2	<3.8	<4.3	<8.7	<4.3	13.0	1.1[fb]
	VP2-06	08/20/18	1,100	570	<82	1,763	<1.1	3.2	<1.4	2.9	<1.4	4.3	0.78[fb]
	VP2	10/15/19	330	300	<77	776	<0.99	<59	1.7	4.4	1.7	6.1	<0.81
	VP2	12/10/20	<200	340	<120	766	<1.6	<94	<2.2	<4.3	<2.2	6.5	<1.3
VP3	VP3 12-17	12/10/17	<110	95	<62	281	<0.8	4.4	<1.1	2.3	1.1	3.4	**3.9**
	043018-0106V(VP3)	04/30/18	580	<350	<250	1,205	<3.2	<3.8	<4.3	<8.7	<4.3	13.0	1.1[fb]
	VP3	12/10/20	<200	310	<130	748	<1.6	<96	<2.2	<4.4	<2.2	6.6	<1.3
VP4	VP4 12-17	12/15/17	210	240	<62	2,071	1.3	1,500	11	29	10	39	**8.1**
	043018-0107V(VP4)	04/30/18	620	<350	<250	1,247	<3.2	5.0	<4.3	<8.7	<4.3	13.0	1.1[fb]
	VP4-05	08/20/18	820	330	<82	1,242	<1.1	2.9	<1.4	<2.9	<1.4	4.3	0.55[fb]
	VP4	10/15/19	160	370	<82	683	<1.1	<63	<1.4	3.3	<1.4	4.7	<0.86
	VP4	12/10/20	<210	350	<130	803	<1.7	<100	<2.3	<4.6	<2.3	6.9	<1.4
VP5	VP5	10/15/19	340	400	<75	881.97	0.98	<57	1.5	4.6	2.1	6.7	<0.79
VP6	VP6	10/15/19	1,500	430	<85	2,082	6.1	<65	4.0	12	3.6	15.6	<0.89
MTCA Method B Sub-Slab Soil Gas Screening Level			**NE**	**NE**	**NE**	**4,700**[(2)(3)]	**11**[(4)]	**76,000**[(2)]	**15,000**[(2)]	**NE**	**NE**	**1,500**[(2)]	**2.5**[(4)]

NOTES:

Sample analyses conducted by Friedman & Bruya, Inc. of Seattle, Washington.

Red denotes concentration exceeds MTCA Method B Sub-Slab Soil Gas Screening Level.

[(1)]Analyzed by EPA Method MA-APH or TO-15.

[(2)]MTCA Method B Sub-Slab Soil Gas Screening Levels, Noncancer, Draft Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, October 2009 and updated in May 2019.

[(3)]Implementation Memorandum No. 18: Petroleum Vapor Intrusion (PVI): Updated Screening Levels, Cleanup Levels, and Assessing PVI Threats to Future Buildings, Washington State Department of Ecology Publication No. 17-09-043., August 2017, Revised January 2018.

[(4)]MTCA Method B Sub-Slab Soil Gas Screening Levels, Cancer, Draft Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, October 2009 and updated in May 2019.

[(5)]The TPH sum includes the reported concentrations of APH EC5- 8 Aliphatics, EC9-12 Aliphatics, EC9-10 Aromatics, benzene, toluene, ethylbenzene, total xylenes, and naphthalene. If the reported concentration is non-detect, the laboratory reporting limit is used in the sum.

Laboratory Notes:

[fb] The analyte was detected in the method blank.

-- = not sampled

< = not detected at a concentration exceeding the laboratory reporting limit

µg/m^3 = micrograms per cubic meter

APH = air-phase petroleum hydrocarbons

EPA = US Environmental Protection Agency

MTCA = Washington State Model Toxics Control Act

NE = not established

SoundEarth = SoundEarth Strategies, Inc.

TPH = total petroleum hydrocarbons

Table 11
Indoor Air Analytical Results for TPH, BTEX, and VOCs
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Sample Location	Sample ID	Sample Date	APH (EC5-8 Aliphatics)	APH (EC9-12 Aliphatics)	APH (EC9-10 Aromatics)	TPH	(Corrected for OA)[5]	Benzene	(Corrected for OA)[5]
Sitting Area	10949-0301	08/28/17	96	<140	<100	**216**	50	**0.9**	ND
	01 (18562)	12/11/2017	110	<35	<25	140	--	**2.0**	ND
	043018-0101	04/30/18	83	<35	<25	113	--	**0.3**	ND
	RA-820-01	08/20/18	58	<35	<25	88	--	**2.1**	0.1
Children's Area	10949-0302	08/28/17	100	<140	<100	**220**	54	**0.9**	ND
	02 (20541)	12/11/2017	110	<35	<25	140	--	**2.1**	ND
	043018-0102	04/30/18	93	<35	<25	123	--	<0.32	--
	CA 820-02	08/20/18	51	<35	<25	81	--	**2.0**	ND
Outdoor Air Results									
Outdoor Air	10949-0303	8/28/2017	<92	<140	<100	**166**	--	**1.0**	--
Outdoor Air	03 (23235)	12/11/2017	65	<35	<25	95	--	**2.7**	--
Outdoor Air	043018-0103	4/30/2018	90	<35	<25	120	--	**0.37**	--
Outdoor Air	Outdoor Air	8/20/2018	50	<35	<25	80	--	**2.0**	--
Outdoor Air	Outdoor Air	10/15/2019	<64	<49	<35	74	--	<0.45	--
MTCA Method B Indoor Air Cleanup Level			**NE**	**NE**	**NE**	**140**[2][3]	**140**[2][3]	**0.32**[4]	**0.32**[4]

NOTES:

Sample analyses conducted by Friedman & Bruya, Inc. of Seattle, Washington.

Red denotes concentration exceeds MTCA Method B Indoor Air Cleanup Level.

[1]Analyzed by EPA Method MA-APH or TO-15.

[2]MTCA Method B Indoor Air Cleanup Levels, Noncancer, Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, March 2022.

[3]Implementation Memorandum No. 18: Petroleum Vapor Intrusion (PVI): Updated Screening Levels, Cleanup Levels, and Assessing PVI Threats to Future Buildings, Washington State Department of Ecology Publication No. 17-09-043., August 2017, Revised January 2018.

[4]MTCA Method B Indoor Air Cleanup Levels, Cancer, Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, March 2022.

[5]TPH values are added together from the APH fractions and half the reporting limit is used if the result was non-detect. The corrected values are reported as non-detect if the outdoor air sample concentration subtracted from the parent sample concentration is zero or less than zero.

Laboratory Notes:

[fb] = The analyte was detected in the method blank.

[j] = The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

[lc] = The presence of the analyte is likely due to lab contamination.

-- = not sampled or not applicable

< = not detected at a concentration exceeding the laboratory reporting limit

µg/m^3 = micrograms per cubic meter

APH = air-phase petroleum hydrocarbons

BTEX = benzene, toluene, ethylbenzene, and total xylenes

EPA = US Environmental Protection Agency

MTCA = Washington State Model Toxics Control Act

ND = not detected

OA = outdoor air

TPH = total petroleum hydrocarbons

VOCs = volatile organic compounds

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Table 11
Indoor Air Analytical Results for TPH, BTEX, and VOCs
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Sample Location	Sample ID	Sample Date	Analytical Results[1] (µg/m³)									
			Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Total Xylenes	Naphthalene	(Corrected for OA)[5]	Chloroform	(Corrected for OA)[5]	Acetaldehyde	(Corrected for OA)[5]
Sitting Area	10949-0301	08/28/17	4.3	0.54	1.8	0.64	2.44	0.18 fb, lc	ND	0.21	0.07	5.7 j	2
	01 (18562)	12/11/2017	5.2	0.89	3.0	1.1	4.1	0.22	ND	0.38	--	<9	--
	043018-0101	04/30/18	1.3	<0.43	--	--	<1.3	0.18 fb	0.03	--	--	--	--
	RA-820-01	08/20/18	3.1	0.47	1.2	0.46	1.66	0.26 fb	ND	--	--	--	--
Children's Area	10949-0302	08/28/17	4.0	0.53	1.8	0.67	2.47	0.23 fb, lc	0.05	0.21	0.07	6 j	2.3
	02 (20541)	12/11/2017	5.8	0.90	3.0	1.1	4.1	0.23	ND	0.43	--	<9	--
	043018-0102	04/30/18	1.2	<0.43	--	--	<1.3	0.21 fb	0.06	--	--	--	--
	CA 820-02	08/20/18	2.9	<0.43	1.1	<0.43	1.32	0.23 fb	ND	--	--	--	--
Outdoor Air Results													
Outdoor Air	10949-0303	8/28/2017	3.4	0.46	--	--	2.05	0.18	--	0.14	--	3.7 j	--
Outdoor Air	03 (23235)	12/11/2017	5.6	1.1	--	--	4.2	0.31	--	--	--	--	--
Outdoor Air	043018-0103	4/30/2018	0.55	<0.43	--	--	<1.3	0.15	--	--	--	--	--
Outdoor Air	Outdoor Air	8/20/2018	2.6	<0.43	--	--	<1.3	0.28	--	--	--	--	--
Outdoor Air	Outdoor Air	10/15/2019	<27	<0.61	<1.2	<0.61	0.905	0.14 j	--	--	--	--	--
MTCA Method B Indoor Air Cleanup Level			**2,300**[2]	**460**[2]	**NE**	**NE**	**46**[2]	**0.074**[4]	**0.074**[4]	**0.109**[4]	**0.109**[4]	**1.14**[4]	**1.14**[4]

NOTES:

Sample analyses conducted by Friedman & Bruya, Inc. of Seattle, Washington.

Red denotes concentration exceeds MTCA Method B Indoor Air Cleanup Level.

[1]Analyzed by EPA Method MA-APH or TO-15.

[2]MTCA Method B Indoor Air Cleanup Levels, Noncancer, Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, March 2022.

[3]Implementation Memorandum No. 18: Petroleum Vapor Intrusion (PVI): Updated Screening Levels, Cleanup Levels, and Assessing PVI Threats to Future Buildings, Washington State Department of Ecology Publication No. 17-09-043., August 2017, Revised January 2018.

[4]MTCA Method B Indoor Air Cleanup Levels, Cancer, Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, March 2022.

[5]TPH values are added together from the APH fractions and half the reporting limit is used if the result was non-detect. The corrected values are reported as non-detect if the outdoor air sample concentration subtracted from the parent sample concentration is zero or less than zero.

Laboratory Notes:

fb = The analyte was detected in the method blank.

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

lc = The presence of the analyte is likely due to lab contamination.

-- = not sampled or not applicable

< = not detected at a concentration exceeding the laboratory reporting limit

APH = air-phase petroleum hydrocarbons

BTEX = benzene, toluene, ethylbenzene, and total xylenes

EPA = US Environmental Protection Agency

MTCA = Washington State Model Toxics Control Act

ND = not detected

OA = outdoor air

TPH = total petroleum hydrocarbons

VOCs = volatile organic compounds

Table 12
Summary of Groundwater Elevations
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Soil Boring/ Well Identification	Date	Top of Casing Elevation[1] (feet above MSL)	Depth to Groundwater[2] (feet below TOC)	Groundwater Elevation[1] (feet above MSL)
MW-1	06/01/17	726.52	4.18	722.34
	12/05/17	726.52	2.32	724.20
	10/15/19	726.52	5.15	721.37
	11/13/19	726.52	4.38	722.14
	09/22/20	726.52	5.38	721.14
	03/18/21	726.52	3.81	722.71
	08/10/21	726.52	7.76	718.76
	09/20/21	726.52	NM	NM
MW-2	06/01/17	725.33	2.68	722.65
	12/05/17	725.33	1.50	723.83
	10/15/19	725.33	3.32	722.01
	11/13/19	725.33	2.32	723.01
	09/22/20	725.33	3.95	721.38
	03/18/21	725.33	2.53	722.80
	08/10/21	725.33	5.71	719.62
	09/20/21	725.33	6.22	719.11
MW-3	06/01/17	725.31	3.60	721.71
	12/05/17	725.31	0.78	724.53
	10/15/19	725.31	3.38	721.93
	11/13/19	725.31	2.96	722.35
	09/22/20	725.31	2.63	722.68
	03/18/21	725.31	NM	NM
	08/10/21	725.31	NM	NM
	09/20/21	725.31	NM	NM
MW4	12/05/17	725.06	1.88	723.18
	10/15/19	725.06	3.75	721.31
	11/13/19	725.06	4.05	721.01
	09/22/20	725.06	3.05	722.01
	03/18/21	725.06	3.02	722.04
	08/10/21	725.06	6.85	718.21
	09/20/21	725.06	NM	NM
MW5	12/05/17	725.30	3.19	722.11
	10/15/19	725.30	3.62	721.68
	11/13/19	725.30	3.48	721.82
	09/22/20	725.30	3.14	722.16
	03/18/21	725.30	3.40	721.90
	08/10/21	725.30	3.68	721.62
	09/20/21	725.30	3.12	722.18
MW6	12/05/17	725.59	3.71	721.88
	10/15/19	725.59	3.39	722.20
	11/13/19	725.59	3.91	721.68
	09/22/20	725.59	3.58	722.01
	03/18/21	725.59	3.88	721.71
	08/10/21	725.59	3.82	721.77
	09/20/21	725.59	3.55	722.04

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Table 12
Summary of Groundwater Elevations
Buckley Library Site
123 South River Avenue
Buckley, WA 98321

Soil Boring/ Well Identification	Date	Top of Casing Elevation[1] (feet above MSL)	Depth to Groundwater[2] (feet below TOC)	Groundwater Elevation[1] (feet above MSL)
MW7	12/05/17	725.77	2.13	723.64
	10/15/19	725.77	4.52	721.25
	11/13/19	725.77	4.35	721.42
	09/22/20	725.77	2.88	722.89
	03/18/21	725.77	4.25	721.52
	08/10/21	725.77	3.55	722.22
	09/20/21	725.77	3.03	722.74
MW8	12/05/17	725.22	2.82	722.40
	10/15/19	725.22	3.88	721.34
	11/13/19	725.22	3.89	721.33
	09/22/20	725.22	2.67	722.55
	03/18/21	725.22	3.70	721.52
	08/10/21	725.22	3.14	722.08
	09/20/21	725.22	2.50	722.72
MW09	10/15/19	726.18	4.81	721.37
	11/13/19	726.18	4.76	721.42
	09/22/20	726.18	4.01	722.17
	03/18/21	726.18	5.05	721.13
	08/10/21	726.18	4.35	721.83
	09/20/21	726.18	4.09	722.09
MW10	10/15/19	723.37	2.99	720.38
	11/13/19	723.37	2.49	720.88
	09/22/20	723.37	2.61	720.76
	03/18/21	723.37	2.65	720.72
	08/10/21	723.37	2.77	720.60
	09/20/21	723.37	2.52	720.85
MW11	10/15/19	723.64	8.51	715.13
	11/13/19	723.64	6.30	717.34
	09/22/20	723.64	6.33	717.31
	03/18/21	723.64	6.23	717.41
	08/10/21	723.64	5.38	718.26
	09/20/21	723.64	6.42	717.22
MW12	09/20/21	724.61	2.12	722.49
MW13	09/20/21	726.11	3.95	722.16

NOTES:

[1]Elevation based on North American Vertical Datum of 1988.

[2]As measured from a fixed spot on the northern edge of the well casing rim.

MSL = mean sea level
NM = not measured
TOC = top of casing

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Table 13
Remedial Component Screening Matrix
Buckley Library
123 South River Avenue
Buckley, Washington

Component Group	Component Options	Retained for Inclusion in Cleanup Action Alternatives?	Rationale for Inclusion or Exclusion
Passive Remediation			
	No Further Action	No	Not retained because it is not protective of human health or the environment.
	Monitored Natural Attenuation	Yes	Retained; monitored natural attenuation is considered complimentary to the other remedial technologies.
	Containment Cap	No	Not retained because petroleum-impacted soil is generally encountered at the Property at depth.
	Passive Vapor Barrier	No	Not retained because the vapor intrusion pathway has been deemed incomplete.
	Environmental Covenant	Yes	Retained as a component for alternatives in which contamination remains in place following cleanup action.
	Permeable Reactive Barrier (GAC or PAC wall)	Yes	Retained for treatment of petroleum hydrocarbons in the saturated zone to address potential off-Property migration (Northeast Area only).
In Situ Physical Treatment			
	Soil Vapor Extraction	No	Not retained given shallow groundwater conditions (i.e., insufficient unsaturated zone thickness to apply vacuum and collect vapors; groundwater as shallow as 3.5 feet bgs).
	Air Sparging	No	Typically, air sparging is coupled with an SVE system. Not retained given shallow groundwater conditions (i.e., insufficient unsaturated zone thickness to apply vacuum and collect vapors; groundwater as shallow as approximately 3.5 feet bgs).
	Biosparging	No	Not retained because this technology is not competive with GAC or PAC applications for adsorption/immobilization and subsequent treatment of petroleum hydrocarbons in groundwater.
	Surfactant Washing	No	Not retained because this technology has the potential to mobilize contaminants during installation and operation.
	Cosolvent Washing	No	
	Pump and Treat	No	Not retained because this technology is not cost-competitive with GAC or PAC applications for adsorption/immobilization and subsequent treatment of petroleum hydrocarbons in groundwater. Pump and treat also requires long-term operations, maintenance, and monitoring.
	Dual-Phase Extraction	No	Not retained because this technology is not cost-competitive with GAC or PAC applications for adsorption/immobilization and subsequent treatment of petroleum hydrocarbons in groundwater. Dual-phase extraction also requires long-term operations, maintenance, and monitoring.
In Situ Thermal Treatment			
	Resistive Thermal with SVE	No	Not retained because these technologies are difficult to implement and not cost-competitive with other technologies when implemented at this scale. These technologies also present an increased short-term risk of injury during their installation and operation.
	Conductive Thermal with SVE	No	
	Radio Frequency/Electromagnetic Thermal with SVE	No	
	Steam Injection with SVE and Groundwater Extraction	No	
	Hot Air Injection with SVE	No	
	Hot Water Injection with SVE and Groundwater Extraction	No	
Source Removal			
	Excavation Dewatering	Yes	Retained to enable excavation of contaminated soil.
	Excavation on Property with Shoring		
	Trench Boxes - Non-Impervious Wall	Yes	Retained as the preferred technology for on-Property shoring.
	Secant Pile Wall - Impervious Wall	No	Not retained because these shoring options would be difficult to implement given overhead utility conflicts along River Avenue.
	Sheet Pile Wall - Impervious Wall	No	
	Soil Nail Wall - Non-Impervious Wall	No	
	Soldier Pile Wall - Non-Impervious Wall	No	
	Excavation off Property with Shoring		
	Trench Boxes - Non-Impervious Wall	No	Not retained because off-Property excavation will not be performed.
	Secant Pile Wall - Impervious Wall	No	
	Sheet Pile Wall - Impervious Wall	No	
	Soil Nail Wall - Non-Impervious Wall	No	
	Soldier Pile Wall - Non-Impervious Wall	No	

Table 13
Remedial Component Screening Matrix
Buckley Library
123 South River Avenue
Buckley, Washington

Component Group	Component Options	Retained for Inclusion in Cleanup Action Alternatives?	Rationale for Inclusion or Exclusion
Ex Situ Source Treatment			
	Surfactant Washing	No	Not retained because these components are not cost-competitive with other technologies at this scale and would result in another waste stream requiring disposal.
	Cosolvent Washing	No	
	Chemical Oxidation/Reduction	No	Not retained because chemical oxidation is not cost-competitive given ex situ application and subsequent disposal at a Subtitle D landfill.
	Thermal Desorption	No	Not retained because thermal desorption is not cost-competitive; thermal desorption facilities are a long distance from the Property.
	Landfill Disposal	Yes	Retained as a component of the excavation alternative for the Property. Soil generated during the excavation would be disposed of at a Subtitle D landfill.
In Situ Chemical Oxidation			
	Activated Sodium Persulfate	No	Not retained because these technologies are not cost-competitive with PAC applications for treatment of petroleum hydrocarbons in groundwater.
	Hydrogen Peroxide	No	
	Fenton's Reagent	No	
	RegenOx (Catalyzed Sodium Percarbonate)	No	
	Permanganate	No	
Containment/Immobilization			
	Bituminization	No	Not retained because these technologies reduce the mobility of hazardous substances but not their toxicity or volume. The technologies are typically implemented ex situ.
	Emulsified Asphalt	No	
	Modified Sulfur Cement	No	
	Polyethylene Extrusion	No	Not retained because this technology is not well developed.
	Pozzolan/Portland Cement	No	Not retained because this technology reduces the mobility and toxicity of hazardous substance, but not volume. The technology is typically implemented ex situ.
	Vitrification/Molten Glass	No	Not retained because this technology is not cost-competitive with other immobilization technologies and is difficult to implement. This technology also presents an increased short-term risk of injury during installation and operation.
	Slurry Wall Containment	No	Not retained because these technologies are not cost-competitive with GAC or PAC wall applications to adsorb/immobilize petroleum hydrocarbons in the saturated zone and prevent off-Property migration of petroleum-impacted groundwater. These technologies would also be difficult to implement given overhead utility conflicts along River Avenue.
	Sheet Pile Wall Containment	No	
	Pump and Treat for Hydraulic Containment	No	Not retained because this technology is not cost-competitive with GAC or PAC wall applications to adsorb/immobilize petroleum hydrocarbons in the saturated zone and prevent off-Property migration of petroleum-impacted groundwater. Pump and treat also requires long-term operations, maintenance, and monitoring.
Phytoremediation			
	Phyto-Degradation	No	Not retained because implementing these technologies would not result in a reasonable restoration time frame.
	Phyto-Volatilization	No	
	Phyto-Accumulation	No	
	Phyto-Stabilization	No	
	Enhanced Rhizosphere Biodegradation	No	
In Situ Adsorption/Bioremediation			
	Aerobic Bioremediation	Yes	Retained as a component of GAC and PAC applications; GAC or PAC would adsorb/immobilize petroleum hydrocarbons in the saturated zone and prevent off-Property migration of petroleum-impacted groundwater. The adsorption process reduces petroleum hydrocarbon concentrations in groundwater and eventually destroys constituents through biodegradation (aerobic and anaerobic processes).
	Anaerobic Bioremediation	Yes	
	Activated Carbon (Granular and Powder)	Yes	Retained because GAC or PAC would adsorb/immobilize petroleum hydrocarbons in the saturated zone and prevent off-Property migration of petroleum-impacted groundwater. The adsorption process reduces petroleum hydrocarbon concentrations in groundwater and eventually destroys constituents through biodegradation (aerobic and anaerobic processes).

NOTES:
bgs = below ground surface
COC = contaminant of concern
GAC = granular activated carbon
MTCA = Washington State Model Toxics Control Act
PAC = powder activated carbon
SVE = soil vapor extraction

Table 14
Feasibility Level Cost Estimate
Cleanup Action Alternative 1
Soil Excavation and GACW with EC
Buckley Library
123 South River Avenue
Buckley, Washington

CAPITAL COST ITEM	QTY	UNIT	UNIT PRICE	COST	TOTALS
Cleanup Action Plan and Design					
Cleanup Action Plan/Sampling and Analysis Plan and Quality Assurance Project Plan	1	lump sum	$ 25,000	$ 25,000	
Subtotal					$ 25,000
Permits					
Grading	1	lump sum	$ 5,000	$ 5,000	
Underground Injection Control	1	lump sum	$ 5,000	$ 5,000	
Subtotal					$ 10,000
Source Excavation					
Mobilization/Demobilization	1	lump sum	$ 21,215	$ 21,215	
Decommissioning of Groundwater Monitoring Wells (MW5, MW6, MW12, and MW13)	1	lump sum	$ 4,600	$ 4,600	
Private Utility Location	1	lump sum	$ 1,500	$ 1,500	
Temporary Erosion and Sediment Control Measures	1	lump sum	$ 9,400	$ 9,400	
Soil Excavation and Stockpile (Overburden)	460	cubic yard	$ 35	$ 16,100	
Soil Excavation and Direct Load (PCS)	1,140	cubic yard	$ 30	$ 34,200	
Placement and Compaction of Overburden	345	cubic yard	$ 30	$ 10,350	
Import, Placement, and Compaction	2,010	ton	$ 60	$ 120,600	
Dewatering	1	lump sum	$ 10,000	$ 10,000	
Transportation and Disposal Soil (non-hazardous waste; Class 2)	190	ton	$ 60	$ 11,400	
Transportation and Disposal Soil (non-hazardous waste; Class 3)	1,830	ton	$ 80	$ 146,400	
Transportation and Disposal Water (non-hazardous waste)	60,000	gallon	$ 1.5	$ 90,000	
Restoration (Landscaping)	1	lump sum	$ 10,000	$ 10,000	
Stockpile Soil Sampling and Chemical Analyses	1	lump sum	$ 7,200	$ 7,200	
Confirmation Soil Sampling and Chemical Analyses	1	lump sum	$ 11,200	$ 11,200	
Monitoring Well Installation (four replacement wells)	1	lump sum	$ 18,400	$ 18,400	
Construction Oversight	1	lump sum	$ 36,600	$ 36,600	
Subtotal					$ 559,165
Granular Activated Carbon (GAC) Wall					
Bench-Scale Test	1	lump sum	$ 5,000	$ 5,000	
GAC	15,674	pound	$ 1.3	$ 20,368	
Mixing of GAC with Imported Sand	90	cubic yard	$ 30	$ 2,700	
Subtotal					$ 28,068
Compliance Groundwater Monitoring					
Quarterly Groundwater Monitoring	1	year	$ 18,100	$ 18,100	
Subtotal					$ 18,100
Project Management, Reporting, and Closure Support					
Project Management	1	year	$ 7,500	$ 7,500	
Cleanup Action Report	1	report	$ 20,000	$ 20,000	
Annual Groundwater Monitoring Report	1	report	$ 6,000	$ 6,000	
Environmental Covenant	1	lump sum	$ 10,000	$ 10,000	
Regulatory Closure Support	1	lump sum	$ 10,000	$ 10,000	
Subtotal					$ 53,500
TOTAL CAPITAL COST					**$ 694,000**

FUTURE O&M AND OTHER DIRECT COST ITEMS[1]	ANNUAL COST[2]	PRESENT WORTH OF ANNUAL AND FUTURE CAPITAL COST	
Quarterly Groundwater Monitoring and Reporting (1 year)	$ 24,100	Discount Rate = 1.3%	$ 23,485
Well Decommissioning (13 wells; year 2)	$ 12,000	Discount Rate = 1.3%	$ 11,694
TOTAL PRESENT WORTH COST			**$ 35,200**
TOTAL PRESENT WORTH COST OF CLEANUP ACTION ALTERNATIVE 1			**$ 729,000**

NOTES:

Cost rounded up to nearest $1,000.

[1]Additional direct costs, such as project management, regulatory communications and reporting, and other technical support services not specifically listed, are not included in any future annual costs.

[2]Annual cost is year 2021 cost.

% = percent
PCS = petroleum-contaminated soil
QTY = quantity
ton = number of bank cubic yards x 1.6 ton/bank cubic yard

Table 15
Feasibility Level Cost Estimate
Cleanup Action Alternative 2
Partial Soil Excavation and In Situ Groundwater Treatment with EC
Buckley Library
123 South River Avenue
Buckley, Washington

CAPITAL COST ITEM	QTY	UNIT	UNIT PRICE	COST	TOTALS
Cleanup Action Plan and Design					
Cleanup Action Plan/Sampling and Analysis Plan and Quality Assurance Project Plan	1	lump sum	$ 25,000	$ 25,000	
Subtotal					$ 25,000
Permits					
Grading	1	lump sum	$ 5,000	$ 5,000	
Underground Injection Control	1	lump sum	$ 5,000	$ 5,000	
Subtotal					$ 10,000
Source Excavation					
Mobilization/Demobilization	1	lump sum	$ 10,040	$ 10,040	
Decommissioning of Groundwater Monitoring Wells (MW6, MW12, and MW13)	1	lump sum	$ 3,900	$ 3,900	
Private Utility Locating	1	lump sum	$ 1,500	$ 1,500	
Temporary Erosion and Sediment Control Measures	1	lump sum	$ 8,900	$ 8,900	
Soil Excavation and Stockpile (Overburden)	160	cubic yard	$ 30	$ 4,800	
Soil Excavation and Direct Load (PCS)	400	cubic yard	$ 35	$ 14,000	
Placement and Compaction of Overburden	120	cubic yard	$ 30	$ 3,600	
Import, Placement, and Compaction	710	ton	$ 60	$ 42,600	
Backfill Amendment	1	lump sum	$ 10,000	$ 10,000	
Dewatering	1	lump sum	$ 10,000	$ 10,000	
Transportation and Disposal Soil (non-hazardous waste; Class 2)	70	ton	$ 70	$ 4,900	
Transportation and Disposal Soil (non-hazardous waste; Class 3)	640	ton	$ 80	$ 51,200	
Transportation and Disposal Water (non-hazardous waste)	10,000	gallon	$ 1.5	$ 15,000	
Restoration (Landscaping)	1	lump sum	$ 5,000	$ 5,000	
Stockpile Soil Sampling and Chemical Analyses	1	lump sum	$ 7,200	$ 7,200	
Confirmation Soil Sampling and Chemical Analyses	1	lump sum	$ 5,600	$ 5,600	
Monitoring Well Installation (three replacement wells)	1	lump sum	$ 14,900	$ 14,900	
Construction Oversight	1	lump sum	$ 25,600	$ 25,600	
Subtotal					$ 238,740
In Situ Groundwater Treatment					
Private Utility Locate	1	lump sum	$ 1,000	$ 1,000	
Powder Activated Carbon	1,320	pounds	$ 1.5	$ 1,980	
Direct-Push Injection (driller)	5	day	$ 5,000	$ 24,000	
Injection (labor and injection trailer)	5	day	$ 4,500	$ 21,600	
Subtotal					$ 48,580
Compliance Groundwater Monitoring					
Quarterly Groundwater Monitoring	1	year	$ 18,100	$ 18,100	
Subtotal					$ 18,100
Project Management, Reporting, and Closure Support					
Project Management	1	year	$ 7,500	$ 7,500	
Cleanup Action Report	1	report	$ 20,000	$ 20,000	
Annual Groundwater Monitoring Report	1	report	$ 6,000	$ 6,000	
Environmental Covenant	1	lump sum	$ 10,000	$ 10,000	
Regulatory Closure Support	1	lump sum	$ 10,000	$ 10,000	
Subtotal					$ 53,500
TOTAL CAPITAL COST					**$ 394,000**

FUTURE O&M AND OTHER DIRECT COST ITEMS[1]	ANNUAL COST[2]	PRESENT WORTH OF ANNUAL AND FUTURE CAPITAL COST
Annual Groundwater Monitoring and Reporting (once per 5 years for 20 years, four events)	$ 7,300	Discount Rate = 1.3% $ 24,911
Repeat Injection (year 10)	$ 48,580	Discount Rate = 1.3% $ 42,694
Well Decommissioning (13 wells; year 20)	$ 12,000	Discount Rate = 1.3% $ 9,268
TOTAL PRESENT WORTH COST		**$ 76,900**
TOTAL PRESENT WORTH COST OF CLEANUP ACTION ALTERNATIVE 1		**$ 471,000**

NOTES:

Cost rounded up to nearest $1,000.

[1]Additional direct costs, such as project management, regulatory communications and reporting, and other technical support services not specifically listed, are not included in any future annual costs.

[2]Annual cost is year 2021 cost.

% = percent

PCS = petroleum-contaminated soil

QTY = quantity

ton = number of bank cubic yards x 1.6 ton/bank cubic yard

Table 16
Feasibility Level Cost Estimate
Cleanup Action Alternative 3
In Situ Groundwater Treatment with EC
Buckley Library
123 South River Avenue
Buckley, Washington

CAPITAL COST ITEM	QTY	UNIT	UNIT PRICE	COST	TOTALS
Cleanup Action Plan and Design					
Cleanup Action Plan/Sampling and Analysis Plan and Quality Assurance Project Plan	1	lump sum	$ 20,000	$ 20,000	
Subtotal					$ 20,000
Permits					
Underground Injection Control	1	lump sum	$ 5,000	$ 5,000	
Subtotal					$ 5,000
In Situ Groundwater Treatment					
Private Utility Locate	1	lump sum	$ 1,000	$ 1,000	
Powder Activated Carbon	1,980	pounds	$ 1.5	$ 2,970	
Direct-Push Injection (driller)	7	day	$ 5,000	$ 36,000	
Injection (labor and injection trailer)	7	day	$ 4,500	$ 32,400	
Subtotal					$ 72,370
Groundwater Monitoring					
Semiannual Groundwater Monitoring	1	year	$ 5,200	$ 5,200	
Subtotal					$ 5,200
Project Management, Reporting, and Closure Support					
Project Management	1	year	$ 7,500	$ 7,500	
Cleanup Action Report	1	report	$ 20,000	$ 20,000	
Annual Groundwater Monitoring Report	1	report	$ 6,000	$ 6,000	
Environmental Covenant	1	lump sum	$ 10,000	$ 10,000	
Regulatory Closure Support	1	lump sum	$ -	$ -	
Subtotal					$ 43,500
TOTAL CAPITAL COST					**$ 146,000**

FUTURE O&M AND OTHER DIRECT COST ITEMS[1]	ANNUAL COST[2]	PRESENT WORTH OF ANNUAL AND FUTURE CAPITAL COST	
Annual Groundwater Monitoring and Reporting (once per 5 years for 20 years, four events)	$ 8,600	Discount Rate = 1.3%	$ 29,348
Repeat Injection (year 10)	$ 72,370	Discount Rate = 1.3%	$ 63,601
Well Decommissioning (13 wells; year 20)	$ 12,000	Discount Rate = 1.3%	$ 9,268
TOTAL PRESENT WORTH COST			**$ 102,200**
TOTAL PRESENT WORTH COST OF CLEANUP ACTION ALTERNATIVE 1			**$ 248,000**

NOTES:

Cost rounded up to nearest $1,000.

[1]Additional direct costs, such as project management, regulatory communications and reporting, and other technical support services not specifically listed, are not included in any future annual costs.

[2]Annual cost is year 2021 cost.

% = percent
PCS = petroleum-contaminated soil
QTY = quantity
ton = number of bank cubic yards x 1.6 ton/bank cubic yard

Table 17
Cleanup Action Alternatives Screening Summary
Buckley Library
123 South River Avenue
Buckley, Washington

Cleanup Action Alternatives	Remedial Details	Cost	Washington State Department of Ecology Evaluation Criteria/Relative Ranking (1 = Low; 10 = High)						Ranking Score[(1)]
			Weighting Factors for Evaluation Criteria						
			20%	20%	20%	20%	20%		
			Protectiveness	Permanence	Effectiveness over the Long Term	Management of Short-Term Risks	Technical and Administrative Implementability	Consideration of Public Concerns	
1. Soil Excavation and GACW with EC	Excavation of petroleum-contaminated soil (PCS) in the Northeast Area. Installation of a GACW along a section of the eastern property boundary in the Northeast Area. Recording of an environmental covenant for the COC-impacted soil and groundwater remaining at the Site.	$729,000	9	9	9	7	7	7	**8.2**
2. Partial Soil Excavation and In Situ Groundwater Treatment with EC	Partial excavation of PCS in the Northeast Area. In situ groundwater treatment (PAC injections) within the extent of petroleum-impacted groundwater. Recording of an environmental covenant for the COC-impacted soil and groundwater remaining at the Site.	$471,000	8	8	8	8	8	8	**8.0**
3. In Situ Groundwater Treatment with EC	In situ groundwater treatment (PAC injections) within the extent of petroleum-impacted groundwater. Recording of an environmental covenant for the COC-impacted soil and groundwater remaining at the Site.	$248,000	7	6	6	9	9	9	**7.4**

NOTES:
[(1)]The ranking score for each alternative is the average of the weighted score for five of the six evaluation criteria. Consideration of Public Concerns is not included in the ranking score.

GACW = granular activated carbon wall
PAC = powder activated carbon

CHARTS

Chart 1
Cost and Relative Ranking of Cleanup Action Alternatives
Buckley Library
123 South River Avenue
Buckley, Washington

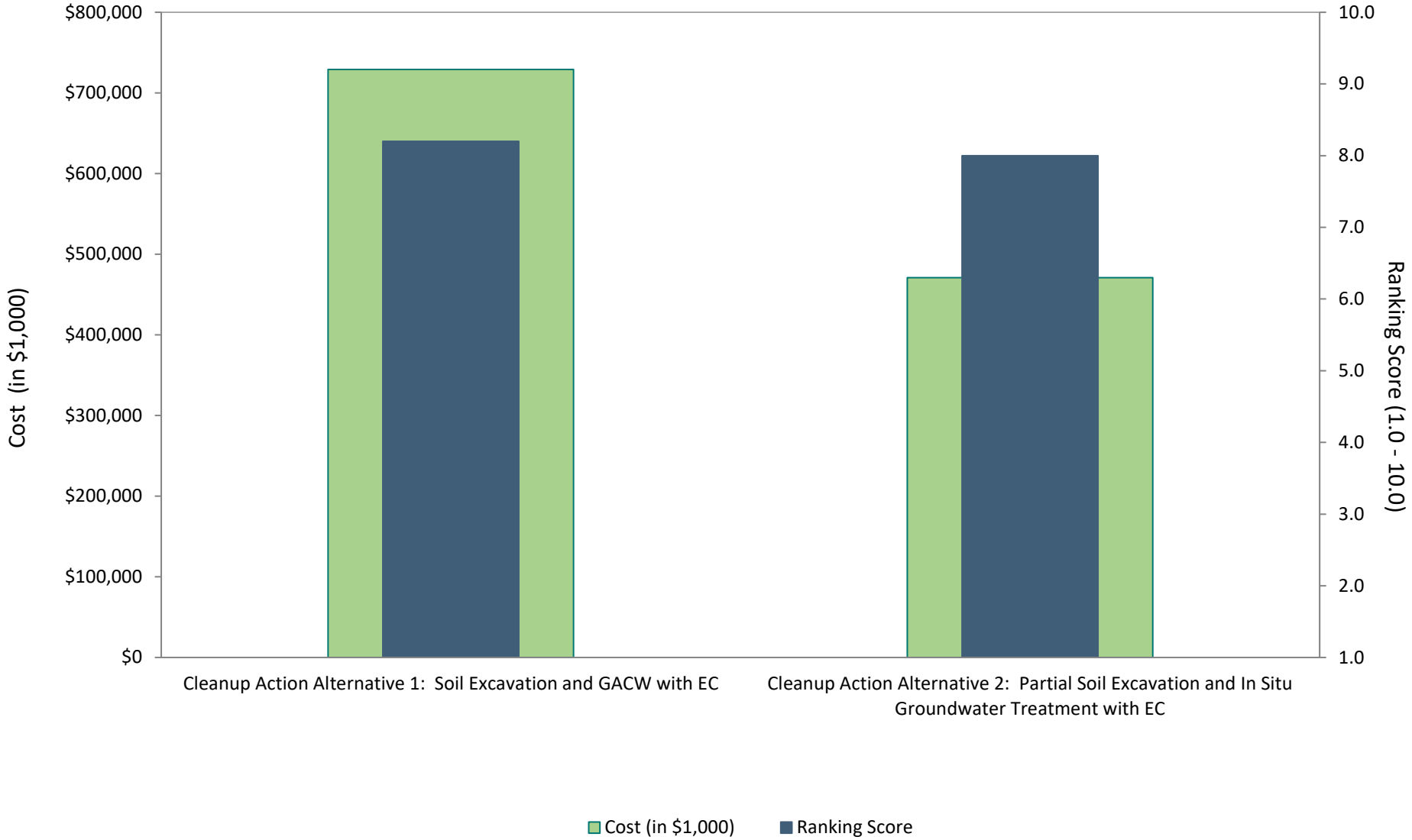
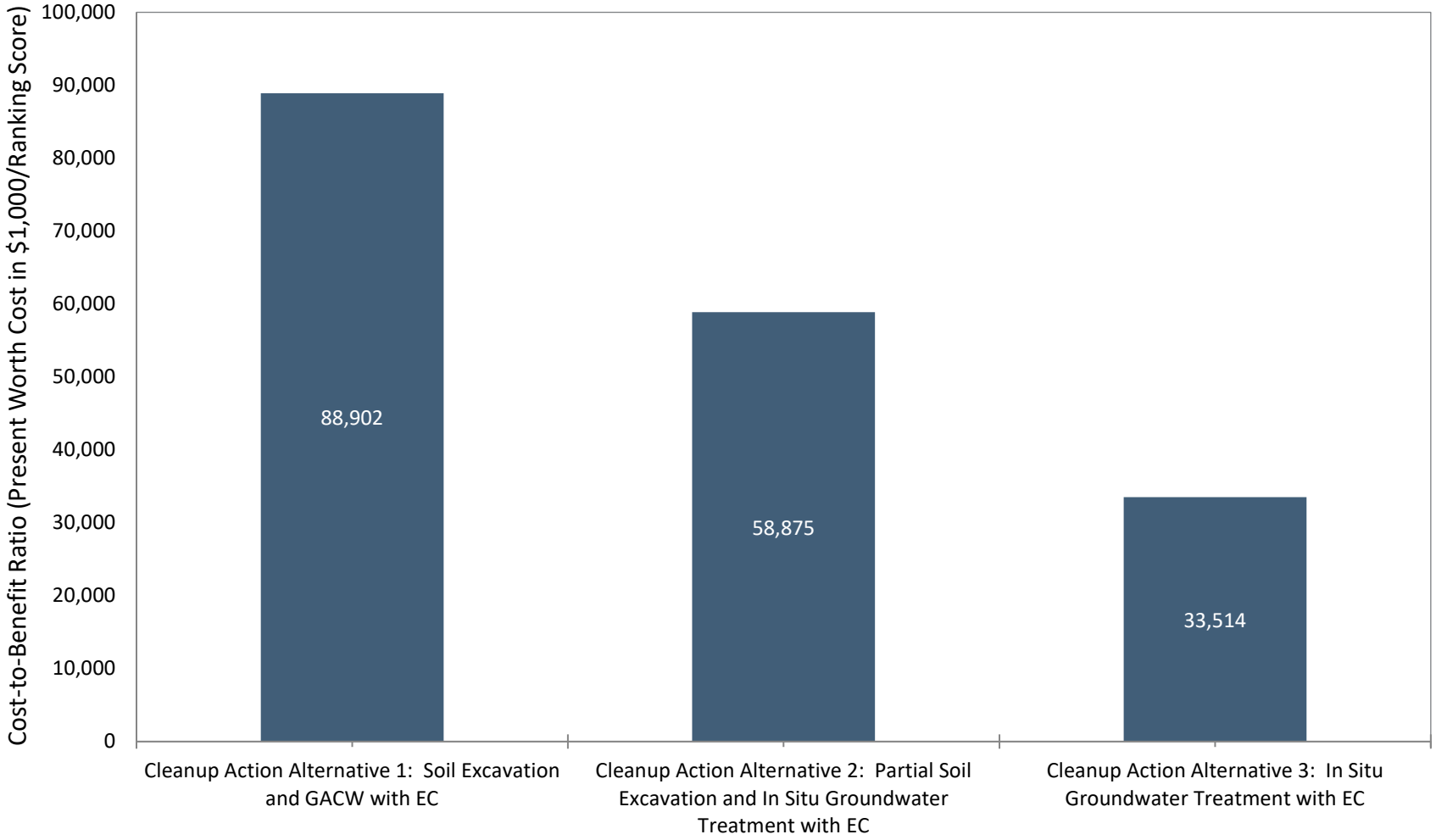


Chart 2
Cost-to-Benefit Ratio for
Cleanup Action Alternatives
Buckley Library
123 South River Avenue
Buckley, Washington

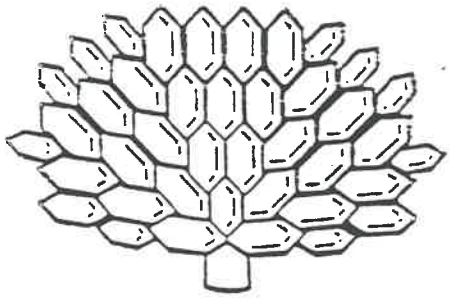


APPENDIX A

May 1989 SBA Report

Salt , Bush & Associates, Inc.

A PROFESSIONAL TECHNICAL & SUPPORT COMPANY



PIERCE COUNTY LIBRARY SYSTEM
SOIL SAMPLING/TESTING
BUCKLEY, WA

1020 South 344th, #202

Campus Park Business Center

Federal Way, Washington 98003

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Salt, Bush & Associates, Inc.

MAY 9, 1989

PIERCE COUNTY LIBRARY SYSTEM
BUCKLEY PROPERTY SITE

INTRODUCTION On May 2, 1989 the Pierce County Library contracted with SALT, BUSH & ASSOCIATES, INC., of Federal Way, Washington, to make an environmental assessment of a parcel of property in Buckley, Washington. SInce the property at one time housed a gasoline station, it was felt that soil samples of the area would be a valuable tool in the Library's decision making process to purchase this land.

OBSERVATIONS Following is a listing of the tank size and product stored prior to their removal in 1983.

2 10,000 gallon tanks leaded and unleaded gas
1 5,000 gallon tank premium gas
1 400 gallon tank (estimated) waste oil
1 500 gallon tank (estimated) fuel oil

It was noted that motor oil had been dumped throughout the property, (see Figure 1). A sample from eight of the largest spots was composited for testing. The major area of oil comtamination was pit #5, adjacent to the "welding shop". This area is contaminated to a depth of about four feet. The smaller spots appear to be 6"-12" deep.

All of the soil samples were taken with a stainless steel scoop which was washed in liquid detergent and rinsed in distilled water between samples. The samples that were composited were done in the laboratory using EPA methodology and guidelines.

Each test pit evidenced a very strong petroleum related odor which is common to this location as a result of it's Geological Formation. This accounts for the background sample testing out at 23.4 ppm TPH which was taken from the clay in the background pit #6. This clay seems to be the origin of the odor.

OBSERVATIONS OF TEST DATA The area of major concern was in the general vicinity of the three large tanks. However, this location contains a very low level of contamination, less than the background which is due to the dilution factor. (Water samples were analyzed from pits 1,2, & 3). The test pits, dug to a depth of about 3.5', filled with water almost immediately. The water present is trapped in the original excavation of the three large tanks, which was refilled with pit run gravel. Sample #4, with 339 ppm TPH, was unexpected. This area, from both observation and background data, appeared to be trouble free. Samples #5 & #8 were expected to be high in TPH since the contamination was highly visible.

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Post Office Box 3751 • Federal Way, Washington 98063-3751
Suite 202 • 1020 South 344th Street • Federal Way, Washington 98003-6726
Tacoma (206) 952-6729 • Seattle (206) 874-5361 • FAX (206) 874-0873

RECOMMENDATIONS For this property to be environmentally acceptable, the contaminated soils will have to be removed and put into an area where they can be satisfactorily "Land Farmed". This is the WDOE's preferred method for soils that are contaminated with Petroleum Hydrocarbons. (The City of Buckley has shown a willingness to work with the County on this). The areas that should be excavated are: site around pit #4, pit #5 and the surface contamination as illustrated in Figure 1. This remedial action should be supervised by a professional consulting firm. Samples will have to be taken and analyzed at completion to verify that the clean-up meets with WDOE requirements.

Respectfully submitted,

SALT, BUSH & ASSOCIATES, INC.

Harry E. Bush

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TEST RESULTS PIERCE COUNTY LIBRARY DISTRICT

SAMPLE	DESCRIPTION	SAMPLE #	[1] TPH ppm	[2] BENZENE ppm	TOLUENE ppm	XYLENE ppm	ETHYL BENZENE ppm
Water above	10,000 gal. tank pit #1	1	< 5.0				
Water above	10,000 gal. tank pit #2	2	< 5.0				
Water above	5,000 gal. tank pit #3	3	< 5.0				
Soil from area of fuel oil & waste oil tanks		4	339				
Soil from corner of old bldg.	pit #5	5	16,444				
Background soil sample	pit #6	6	24.3				
Composite of 1-2 &3 above		7	-	< 0.001	< 0.001	< 0.001	< 0.001
Soil composite of "oil spots" throughout the property		8	36,172				
Duplicate sample #6		6	26.9				

[1] Total Petroleum Hydrocarbons, detectable limits are greater than 5 ppm, EPA method 418.1.

[2] BTEX, detectable limits are greater than 0.001 EPA SW-846 method 8020.

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4630 PACIFIC HIGHWAY EAST, SUITE B-14, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922- 5047

Report To: Salt, Bush & Assoc. Date: May 5, 1989

Report On: Analysis of Liquid and Soils Lab No.: A 6121

IDENTIFICATION:
Samples Received on 5-4-89

ANALYSIS:

Laboratory Sample No.	1	2	3
Client Identification	Sample 1	Sample 2	Sample 3
Matrix	Liquid	Liquid	Liquid
Total Petroleum Hydrocarbons, ppm	< 5.0	< 5.0	< 5.0

Laboratory Sample No.	4	5	6
Client Identification	Sample 4	Sample 5	Sample 6
Matrix	Soil	Soil	Soil
Total Petroleum Hydrocarbons, ppm	339	16,444	24.3

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.

Lab No. A 6121
May 5, 1989

Laboratory Sample No. 7

Client ID: Sample #7

Matrix: Liquid

Benzene, ppm	< 0.001
Toluene, ppm	< 0.001
Ethyl Benzene, ppm	< 0.001
Xylenes, ppm	< 0.001

Laboratory Sample No. 8

Client Identification: Sample #8 Composite

Matrix: Soil

Total Petroleum Hydrocarbons, ppm 36,172

Analysis Procedures: TPH by EPA Method 418.1
BTEX by EPA SW-846 Method 8020

SOUND ANALYTICAL SERVICES

STAN P. PALMQUIST

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4630 PACIFIC HIGHWAY EAST, SUITE B-14, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

QUALITY CONTROL REPORT

DUPLICATES

Lab No: A 6121
Date: May 5, 1989
Client: Salt, Bush, & Assoc.
Client ID: Sample #6
Matrix: Soil
Units: mg/kg

Compound	Sample(S)	Duplicate(D)	RPD*
Total Petroleum Hydrocarbons	24.3	26.9	10.2%

*RPD = relative percent difference
= [(S - D) / ((S + D)- / 2)] x 100

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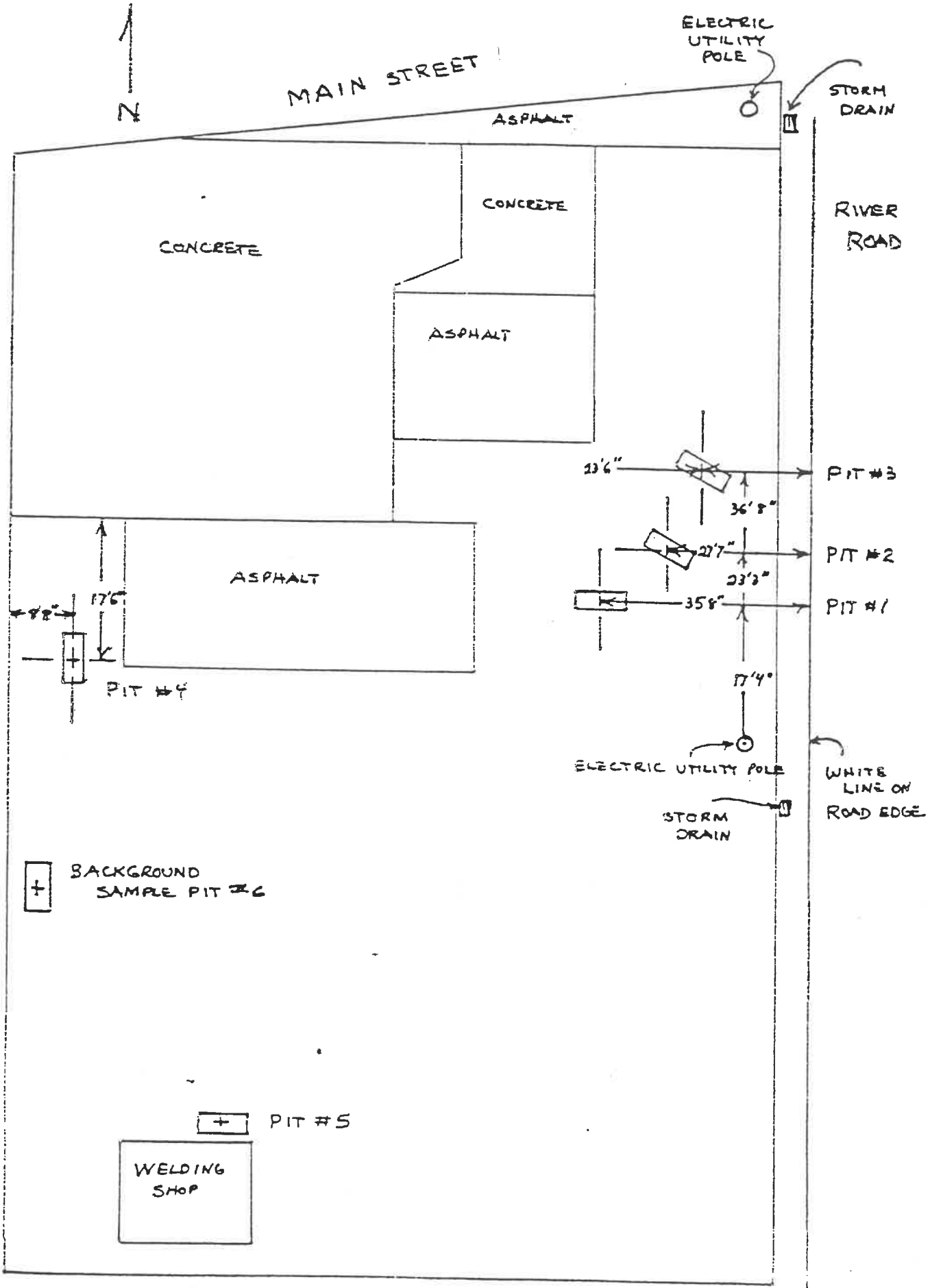

FIGURE 2

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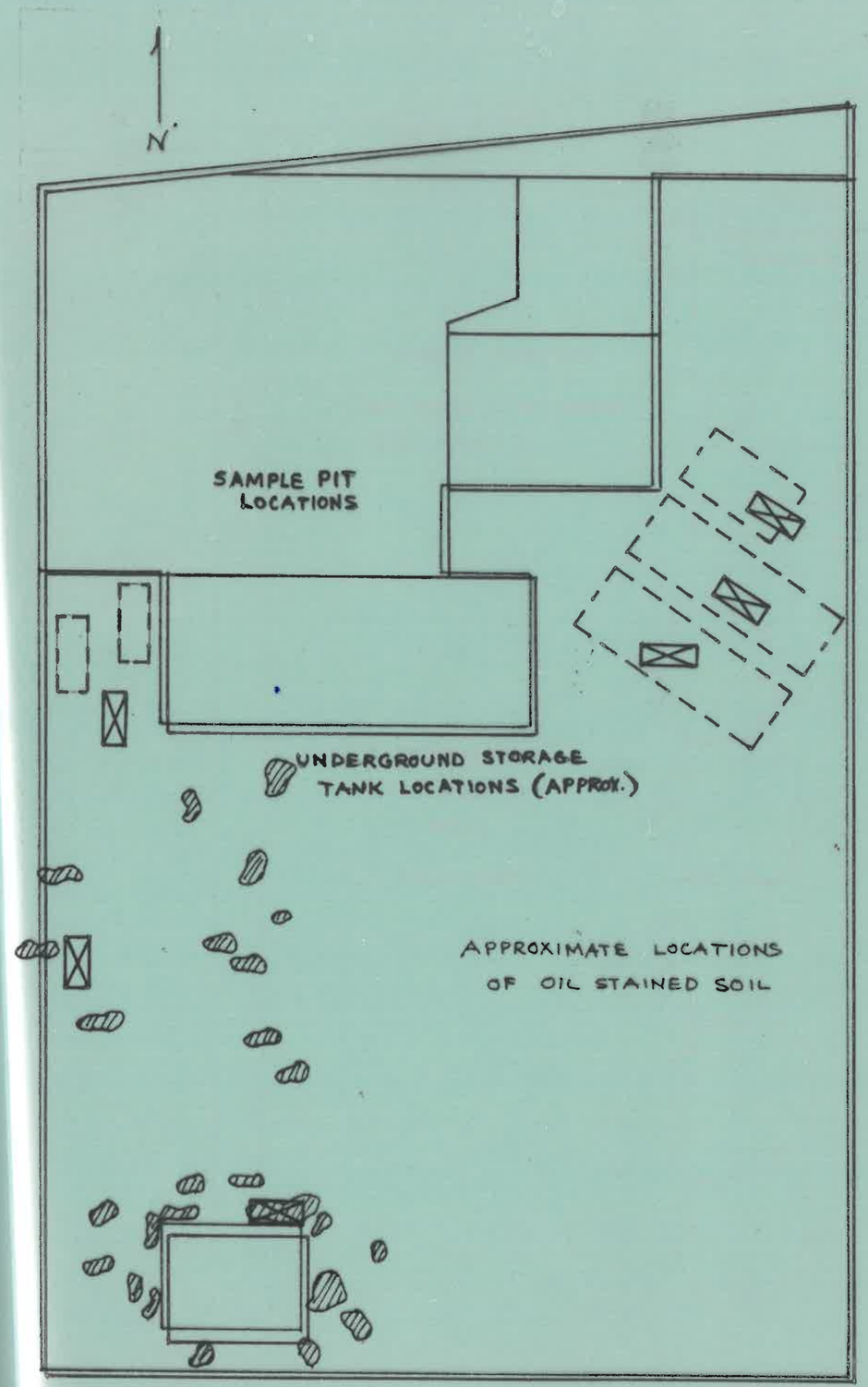
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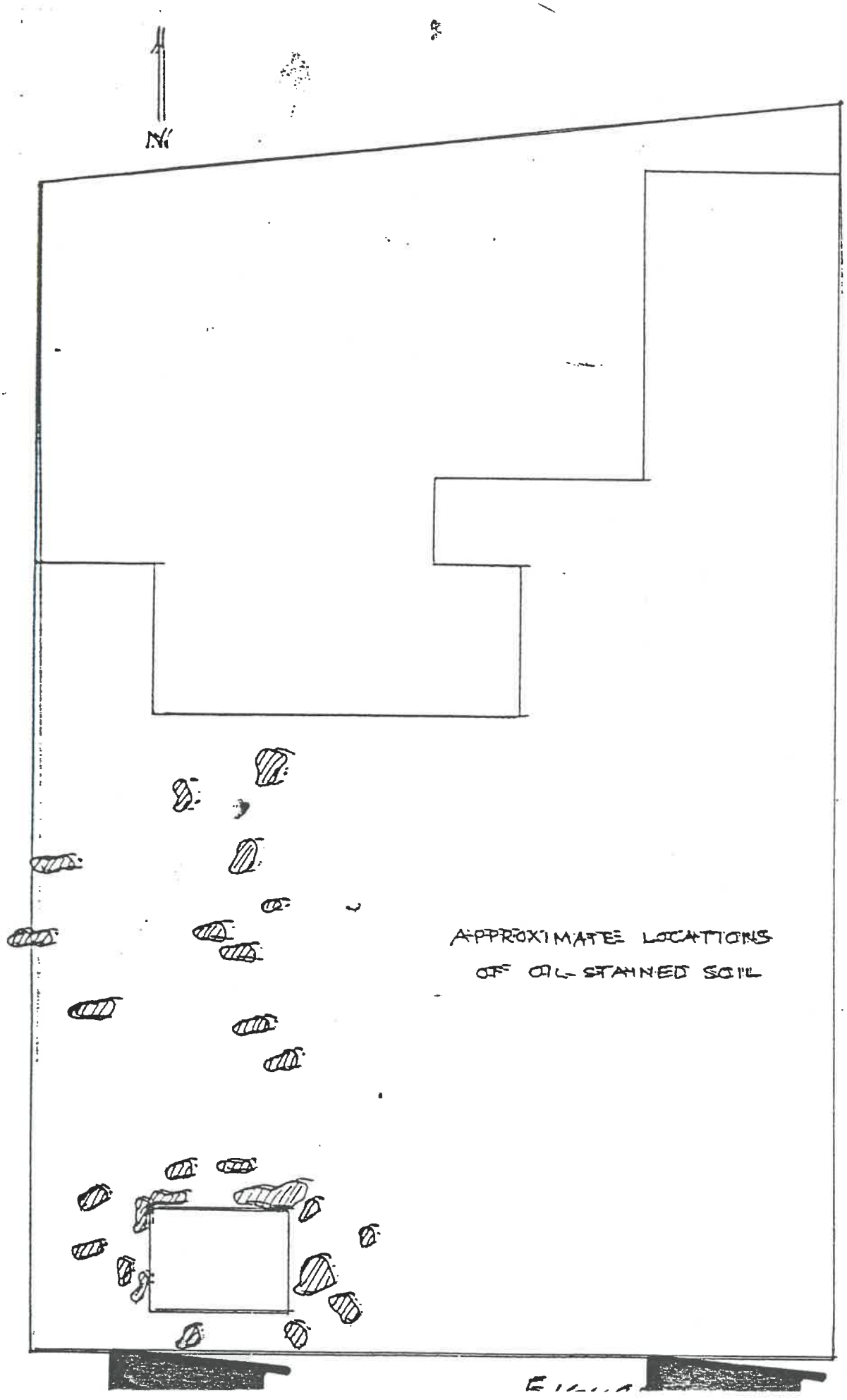
SAMPLE PIT
LOCATIONS
UNDERGROUND STORAGE
TANK LOCATIONS (APPROX.)
APPROXIMATE LOCATIONS
OF OIL STAINED SOIL

FIGURE 1



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UNDERGROUND STORAGE
TANK LOCATIONS (APPROX.)

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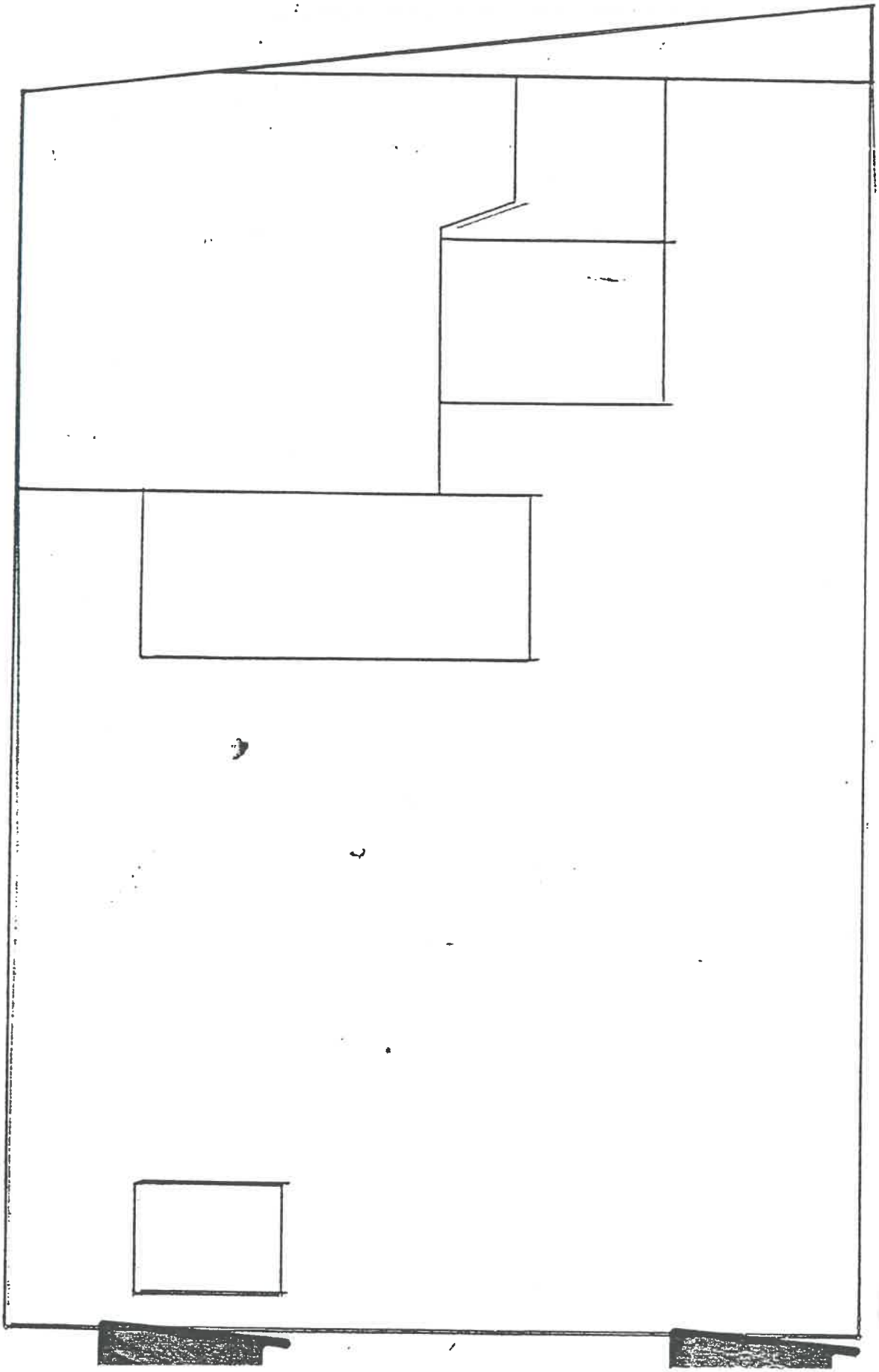

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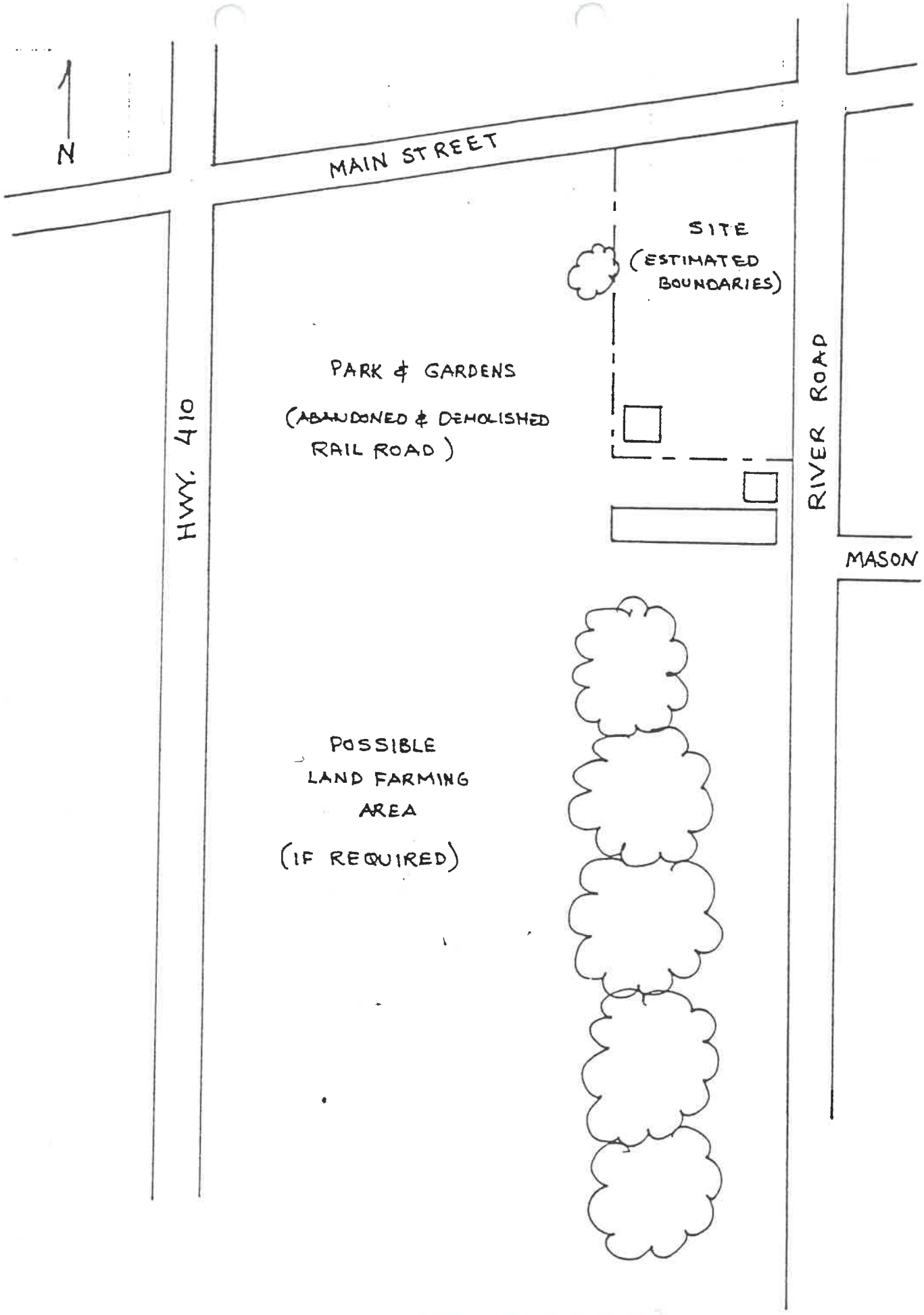
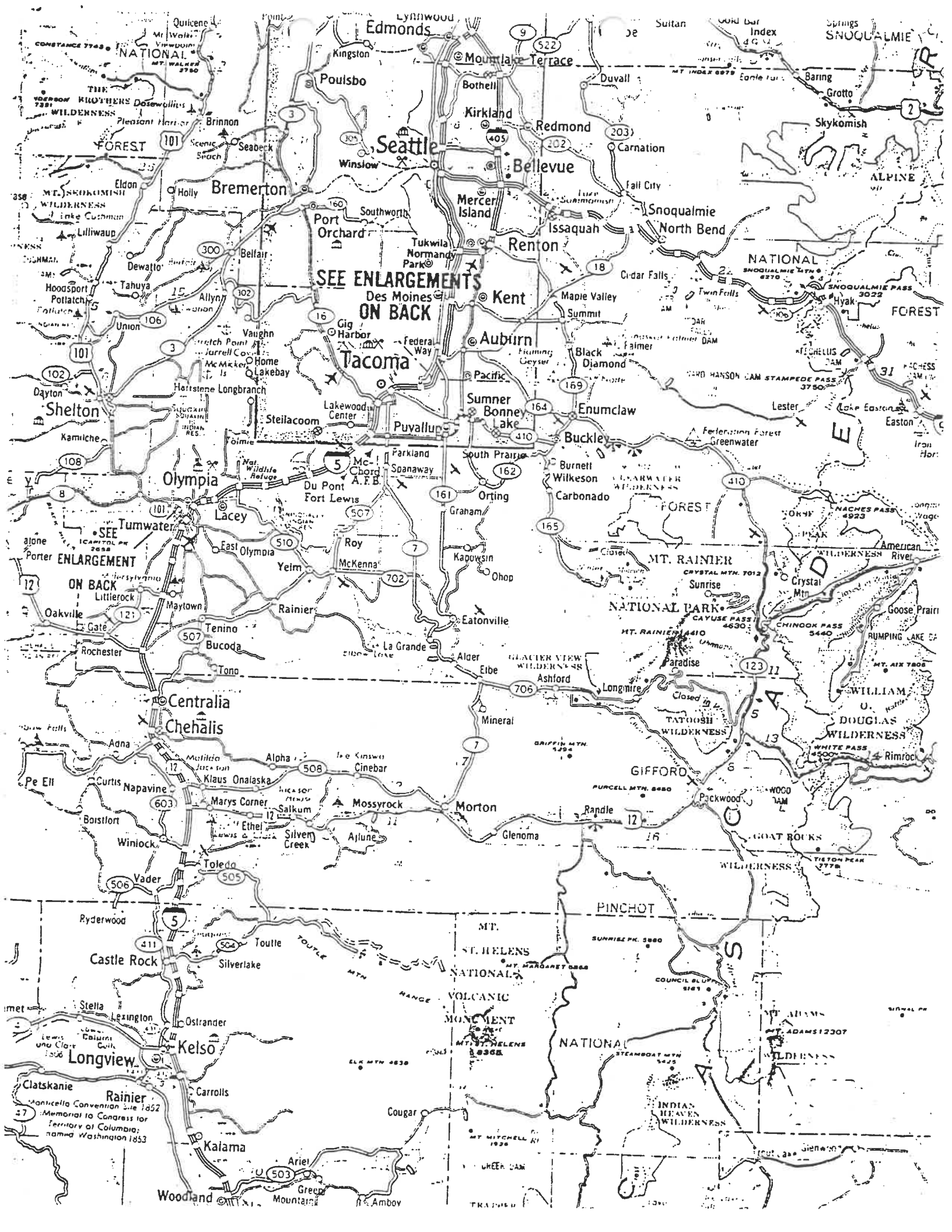

N
MAIN STREET
SITE
(ESTIMATED
BOUNDARIES)
PARK & GARDENS
(ABANDONED & DEMOLISHED
RAIL ROAD)
HWY. 410
RIVER ROAD
MASON
POSSIBLE
LAND FARMING
AREA
(IF REQUIRED)

FILE COPY


SEE ENLARGEMENTS ON BACK
SEE ENLARGEMENT ON BACK
Seattle
Bellevue
Bremerton
Tacoma
Olympia
Everett
Edmonds
Kent
Auburn
Renton
Issaquah
Snoqualmie
North Bend
Shelton
Centralia
Chehalis
Longview
Kelso
Castle Rock
Woodland
Kalama
Rainier
Puyallup
Buckley
Enumclaw
Sumner
Bonney Lake
Lacey
Tumwater
Mount Rainier National Park
Pinchot
Mt. St. Helens National Volcanic Monument
Gifford Pinchot
Alpine Lakes Wilderness
Glacier View Wilderness
Tatoosh Wilderness
Goat Rocks Wilderness
Indian Heaven Wilderness
Mount Adams Wilderness
Columbia River
Mount Rainier
Mount Adams
Mount St. Helens
Mount Margaret
Mount Mitchell
Mount Aix
Mount Index
Mount Walker
Mount Skokomish
Wilderness
Forest
Lake Cushman
Lake Easton
Lake Sawyer
Lake Kapowsin
Lake Tapps
Lake Wilderness
Lake Sammamish
Lake Washington
Lake Union
Lake Quinault
Lake Crescent
Lake Ozette
Lake Quinalt
Lake Wenatchee
Lake Chelan
Lake Roosevelt
Lake Sacajawea
Lake Kinsow
Lake Merwin
Lake Scanewa
Lake Swift
Lake Yale
Lake Kalama
Lake Sylvia
Lake Aberdeen
Lake Elsie
Lake Goodwin
Lake Stevens
Lake Cassidy
Lake Ballinger
Lake Serene
Lake Isabella
Lake Twenty
Lake Gillette
Lake Tanwax
Lake Kapowsin
Lake Ohop
Lake Alice
Lake Nahwatzel
Lake Wooten
Lake Wooten Wintergreen
Lake Wooten Peak
Lake Wooten Wilderness
Lake Wooten Wintergreen Wilderness
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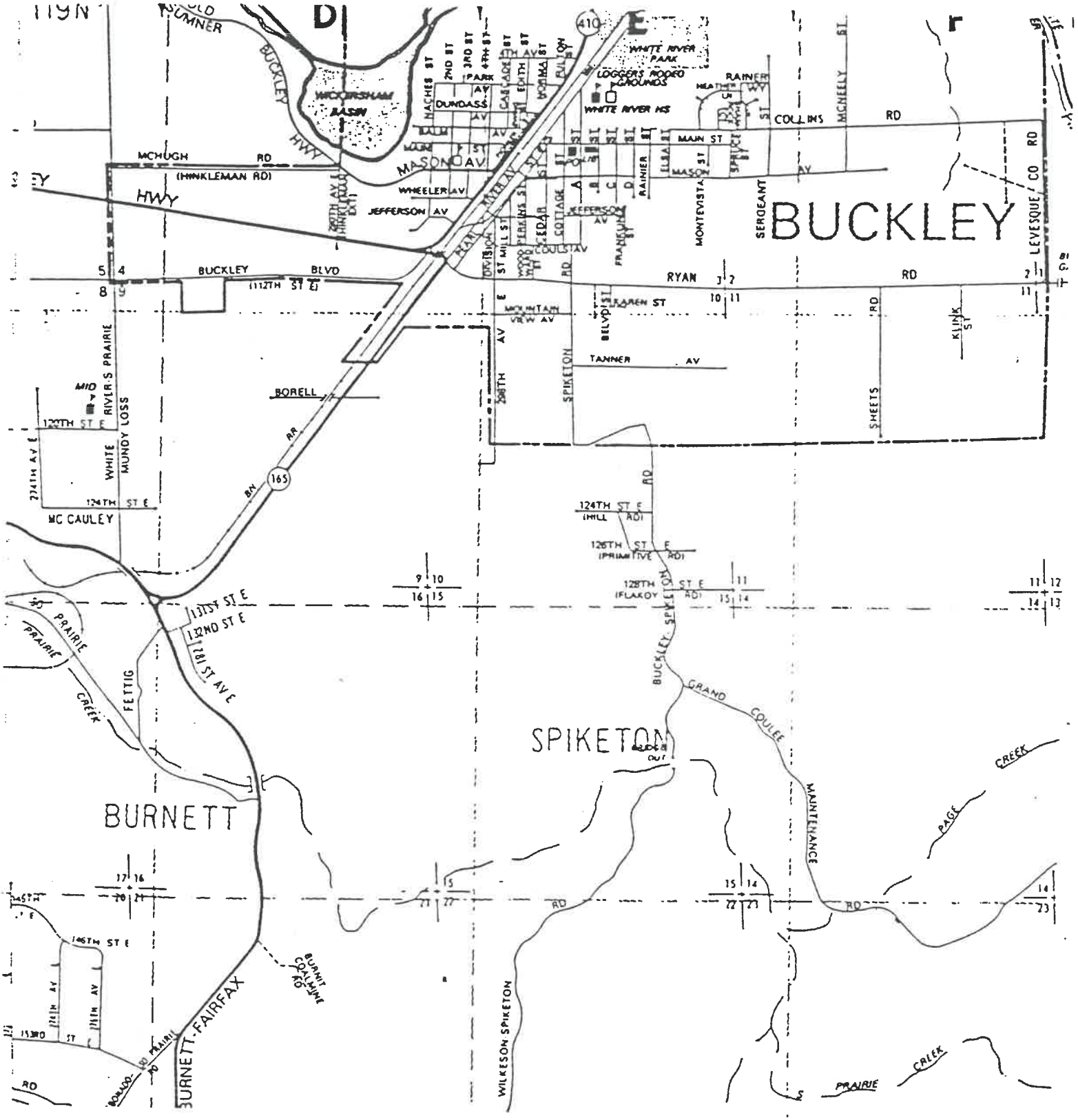
Lake Wooten Wintergreen


BUCKLEY
SPIKETON
BURNETT
MASON AV
MCHUGH RD
(HINKLEMAN RD)
HWY
BUCKLEY BLVD
(112TH ST E)
RYAN RD
COLLINS RD
MAIN ST
WHEELER AV
JEFFERSON AV
TANNER AV
MOUNTAIN VIEW AV
BOREL RD
124TH ST E
(HILL RD)
125TH ST E
(PRIMITIVE RD)
128TH ST E
(FLAKOY RD)
131ST ST E
132ND ST E
181ST AV E
224TH AV E
MC CAULEY
WHITE RIVER PARK
LOGGER'S RODEO GROUNDS
WHITE RIVER HS
RAINER ST
MONTEVISTA
SERGEANT
LEVESQUE / CO RD
SPIKETON RD
SHEETS RD
KLINK ST
BUCKLEY SPIKETON RD
GRAND COULEE
WANTLEMANCE CREEK
PAGE CREEK
PRAIRIE CREEK
FETTIG CREEK
WILKESON SPIKETON RD
BURNETT-FAIRFAX RD
BURNT COALMINE RD
145TH ST E
153RD ST
211TH AV E
WHITE RIVER
MUNDY LOSS
MID RIVER'S PRAIRIE
BN
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165
410
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E
r

FILE COPY

VIEW FROM NE CORNER of MAIN ST.

OVER-ALL VIEW LOOKING NW

TEST PIT #2

TEST PIT #1

TEST PIT #4

4

ADJACENT TO PIT #5

ALS

5

TEST PIT #5

INSIDE OF DESERTED BUILDING

OIL HEAVY ON CONCRETE FLOOR

APPENDIX B

October 1990 SBA Report

Salt, Bush & Associates, Inc.

October 25, 1990

COPY
DIANE THOMPSON

Mr. John Hildenbrand
Tacoma-Pierce County Health Dept.
3629 South D Street
Tacoma, WA 98408

Pierce County Library District
Buckley Library Project - 8709

Dear John:

Enclosed are site diagrams of samples taken and results obtained from excavation currently underway at the above site. We respectfully request your review of this material and further request your consideration to remedial action plans we submit for your consideration. As construction is temporarily stopped for remedying this site, your immediate attention is requested to keep the Library's costs at a minimum.

SYNOPSIS

1) The site is located in Buckley, WA. It is bordered on the west by Highway 10, the north by Main Street and the east by River Road.

2) The site is approximately one acre in size.

3) There are three areas of excavation of contaminated soil on this site:

North Pit — An area of removed underground gasoline - storage tanks and a waste oil tank.

South Pit — An area of a demolished welding shack. Formerly used by the railroad as a maintenance shop.

Parking Lot — Separates the two pits.

4) Our understanding of the area is that the water being detected at the 3' to 5' levels is static surface water and is not a part of the water supply aquifer. Confirmation of this, however, has not been established.

5) Recent testing of the north pit revealed the following results measured in parts per million (PPM):

SAMPLE	DESCRIPTION	MATRIX	BTEX	TPH	LEAD	O&G
1	East Wall	Soil	0000	77.9		
2	South Wall	Soil	0000	74.5		
3	West Wall	Soil	0000	179		
4	North Wall	Soil	0000	11.8		
5	North Pit	Water	0000	7.0	0	11.0

FILE COPY

917 Pacific Avenue, Suite 411 • P.O. Box 505 • Tacoma, Washington 98401-0505 • (206) 383-1914

5) Recent testing of the parking lot revealed the following results measured in parts per million (PPM):

SAMPLE	DESCRIPTION	MATRIX	BTEX	TPH
6	Parking Lot	Soil	0000	256

6) Recent testing of the south pit revealed the following results measured in parts per billion (PPB):

SAMPLE	DESCRIPTION	MATRIX	VOLATILE ORGANICS COMPOUND DETECTED	PPB	TPH
6	COMPOSITE	SOIL			36.3
			METHYLENE CHLORIDE	826	
			TOLUENE	3824	
			TOTAL XYLENES	1960	
			SEMI-VOLATILES COMPOUND DETECTED		
			NONE DETECTED		

ALLOWABLE CONCENTRATIONS	SOIL	FOUND
TPH (GASOLINE CONTAMINATION)	100 PPM	0.0
TPH (OIL CONTAMINATION)	200 PPM	11.8 - 256
METHYLENE CHLORIDE	500 PPM	826 PPB
TOLUENE	40 PPM	3824 PPB
TOTAL XYLENES	20 PPM	1960 PPB

In conversation with Mr. Tom Todd of WDOE this morning it was learned that we could not expect to receive any input from his agency for cleanup parameters. The best that could be offered is the occasional conversation for specific guideline purposes. The cleanup calendar for WDOE is filled for a period of from 2 to 3 years. This project will be termed an "Independent Cleanup Project" and will be evaluated by WDOE for future review at some time in the future.

It is important that the cleanup be done within the confines of current applicable local, state and federal laws. Since this is considered by WDOE as an independent cleanup project, keeping within acceptable guidelines is even more important. Taking the above mentioned information into consideration as well as available site information and enclosed test results, we offer the following remediation plan for your consideration.

FILE COPY

REMEDIATION PLAN
NORTH PIT

1) There are no gasoline compounds (BTEX) detectible in the soil or the water at this location.

2) With this in mind we suggest filling the pit with clean fill and thereby allowing for the continuation of the construction on this site.

3) Excavated soils are currently stored with poly protection under, around and above to the south of the site. This material should be considered for land farming or bio-pile remediation.

PARKING LOT

1) Approximately two feet have been excavated from the parking lot area.

2) The composite of soils tested in our original report found TPH at a level of approximately 36,000 ppm. Current testing finds TPH at a level of 256 ppm.

3) The next phase of construction is to asphalt the area. With this in mind we suggest the level of 256 ppm be considered to be acceptable and no further excavation be completed.

4) Excavated soils are currently stored with poly protection under, around and above to the south of the site. This material should be considered for land farming or bio-pile remediation.

SOUTH PIT

1) Approximately half of the shop area has been excavated to a level of about three feet, the depth of natural clay silt found in this area.

2) Volatile and semi-volatile compounds were limited to methylene chloride, toluene and xylenes. The levels of these compounds is substantially below the levels acceptable for soil.

3) The level of TPH in this area ranged from 36 ppm to 3838 ppm.

4) With this in mind we suggest continuing excavation of the pit for TPH to visibly contaminated limits.

5) Current and formerly excavated soils are and will be stored with poly protection under, around and above to the south of the site. This material should be considered for land farming or bio-pile remediation.

If you have any questions, John, please call me at 383-1914. We would like to make arrangements to continue on this project as soon as possible. If we could schedule a meeting with you, the library, and Salt, Bush, we would very much like to sit down and come to a uniform understanding of continued action.

Thank you for your attention and assistance in this project. Your continued support is always appreciated.

Very truly yours,

SALT, BUSH & ASSOCIATES, INC.

Dennis E. Salt

DES:pr BUCKLEY7.LTR

Copies: Pierce County Library
Mrs. Diane Thompson
Mr. Sam Thomas
Mr. Ed Olson

WDOE
Mr. Tom Todd

Jensen Sand & Gravel

Lewis Nelson Architects

Mr. Harry Bush

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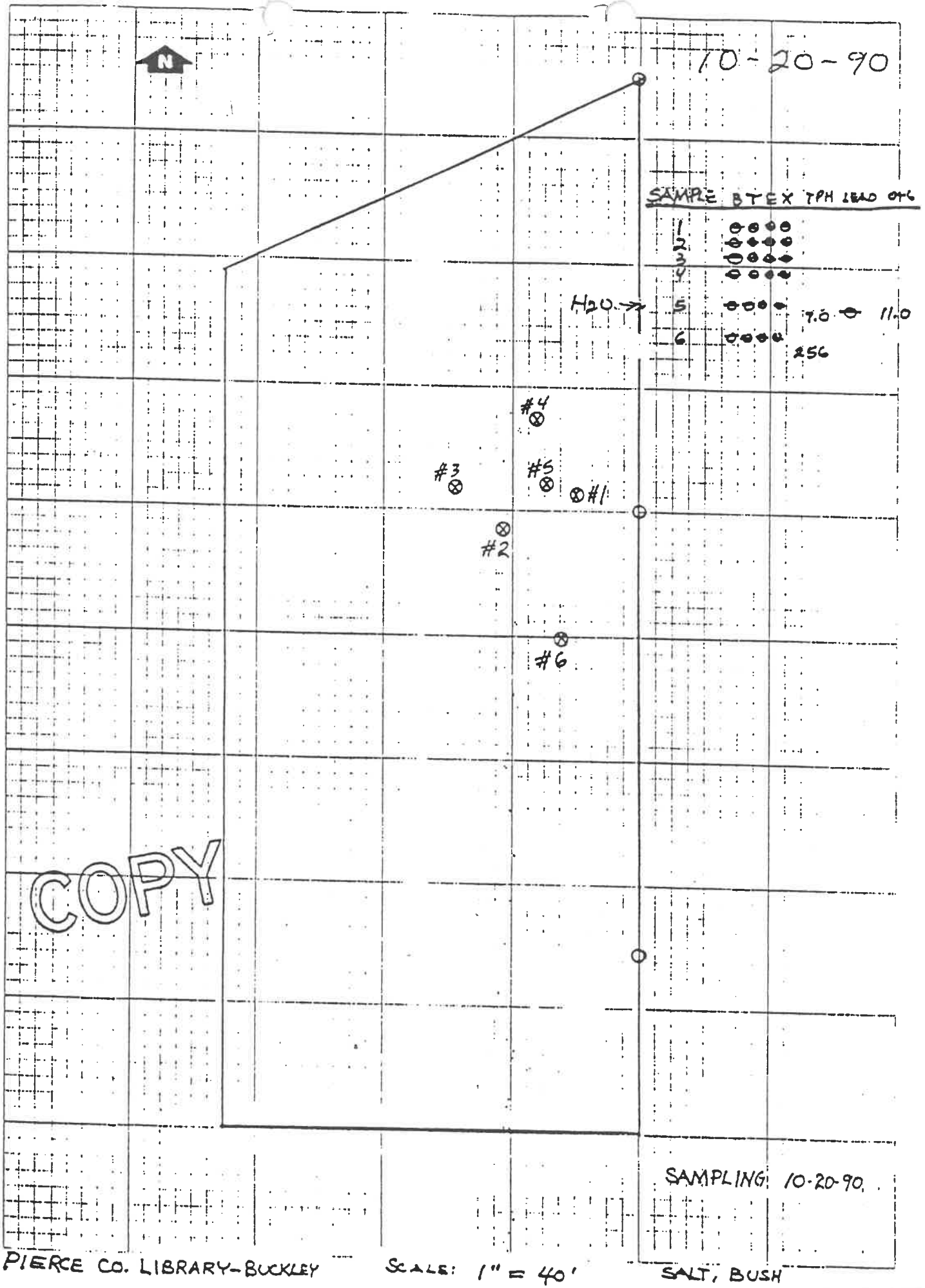
N
10-20-90
SAMPLE BTEX TPH LEAD OTG
1
2
3
4
5
6
H20
7.0
11.0
256
#4
#3
#5
#1
#2
#6
COPY
SAMPLING: 10-20-90.
PIERCE CO. LIBRARY-BUCKLEY
SCALE: 1" = 40'
SALT, BUSH

Salt, Bush & Associates, Inc.

CHAIN-OF-CUSTODY RECORD

Saltbush Project # PIERCE Co. LIBRARY Date 10-20-90

Customer Reference # BUCKLEY

Sample Number	Sample Location & Description	Date & Time Collected	Container Type	Condition on Receipt (Name/Date/Time)	Test	
1	EAST WALL	10-20-90 5:30 P	GLASS	SOIL	BETX	HOLD
2	SOUTH WALL	10-20-90 5:40 P	"	SOIL	BETX	HOLD
3	WEST - WALL	10-20-90 5:45 P	"	SOIL	BETX	HOLD
4	NORTH WALL	10-20-90 5:50 P	"	SOIL	BETX	HOLD
6	PARKING LOT	10-20-90 6:15 P	"	SOIL	TPH+BETX	HOLD

Special Instructions: _____

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: DENNIS SALT 10/22/90 9:20

   Received By: L Rupe / SAS.

   Company/Date/Time: 10-22 / 9:20

2. Relinquished By: _____

   Received By: _____

   Company/Date/Time: _____

3. Relinquished By: _____

   Received By: _____

   Company/Date/Time: _____

4. Relinquished By: _____

   Received By: _____

   Company/Date/Time: _____

CUSTODY1.FRM

Salt, Bush & Associates, Inc.

CHAIN-OF-CUSTODY RECORD

Saltbush Project # PIERCE CO. LIBRARY Date 10-20-90

Customer Reference # BUCKLEY

Sample Number	Sample Location & Description	Date & Time Collected	Container Type	Condition on Receipt (Name/Date/Time)	Test
5	NORTH PIT	10-20-90 6:00 P	GLASS	WATER	TPH
					BTEX
					LEAD
					TOTAL OILS/GREASES

Special Instructions: _____

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: DENNIS SALT 10-22-90 9:20
   Received By: L Pringle / SAS
   Company/Date/Time: 10-22 / 920
2. Relinquished By: _____
   Received By: _____
   Company/Date/Time: _____
3. Relinquished By: _____
   Received By: _____
   Company/Date/Time: _____
4. Relinquished By: _____
   Received By: _____
   Company/Date/Time: _____

CUSTODY1.FRM

Post Office Box 3751 • Federal Way, Washington 98063-3751 • (206) 952-6729

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4630 PACIFIC HIGHWAY EAST, SUITE B-14, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Assoc. Date: October 23, 1990

Report On: Analysis of Soil & Water Lab No.: 14014

IDENTIFICATION:
Samples Received on 10-22-90
Project: Buckley

ANALYSIS:

Lab Sample No.	1	2	3	4
Client Identification	East Wall	South Wall	West Wall	North Wall
Matrix/Units	Soil ppm	Soil ppm	Soil ppm	Soil ppm
Benzene	< 0.05	< 0.05	< 0.05	< 0.05
Toluene	< 0.05	< 0.05	< 0.05	< 0.05
Ethyl Benzene	< 0.05	< 0.05	< 0.05	< 0.05
Xylenes	< 0.05	< 0.05	< 0.05	< 0.05
BTEX by EPA SW-846 Method 8020				

Continued . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Project: Buckley
Page 2
Lab No. 14014
October 23, 1990

Lab Sample No.	5	6
Client Identification	Parking Lot	North Pit
Matrix/Units	Soil ppm	Water ppm
Benzene Toluene Ethyl Benzene Xylenes BTEX by EPA SW-846 Method 8020	< 0.05 < 0.05 < 0.05 < 0.05	< 0.001 < 0.001 < 0.001 < 0.001
Total Petroleum Hydrocarbons by EPA Method 418.1	256	7.0
Lead	NT	< 0.05
Oil & Grease, ppm	NT	11.0

NT = Not Tested

SOUND ANALYTICAL SERVICES

C. LARRY ZUBAW

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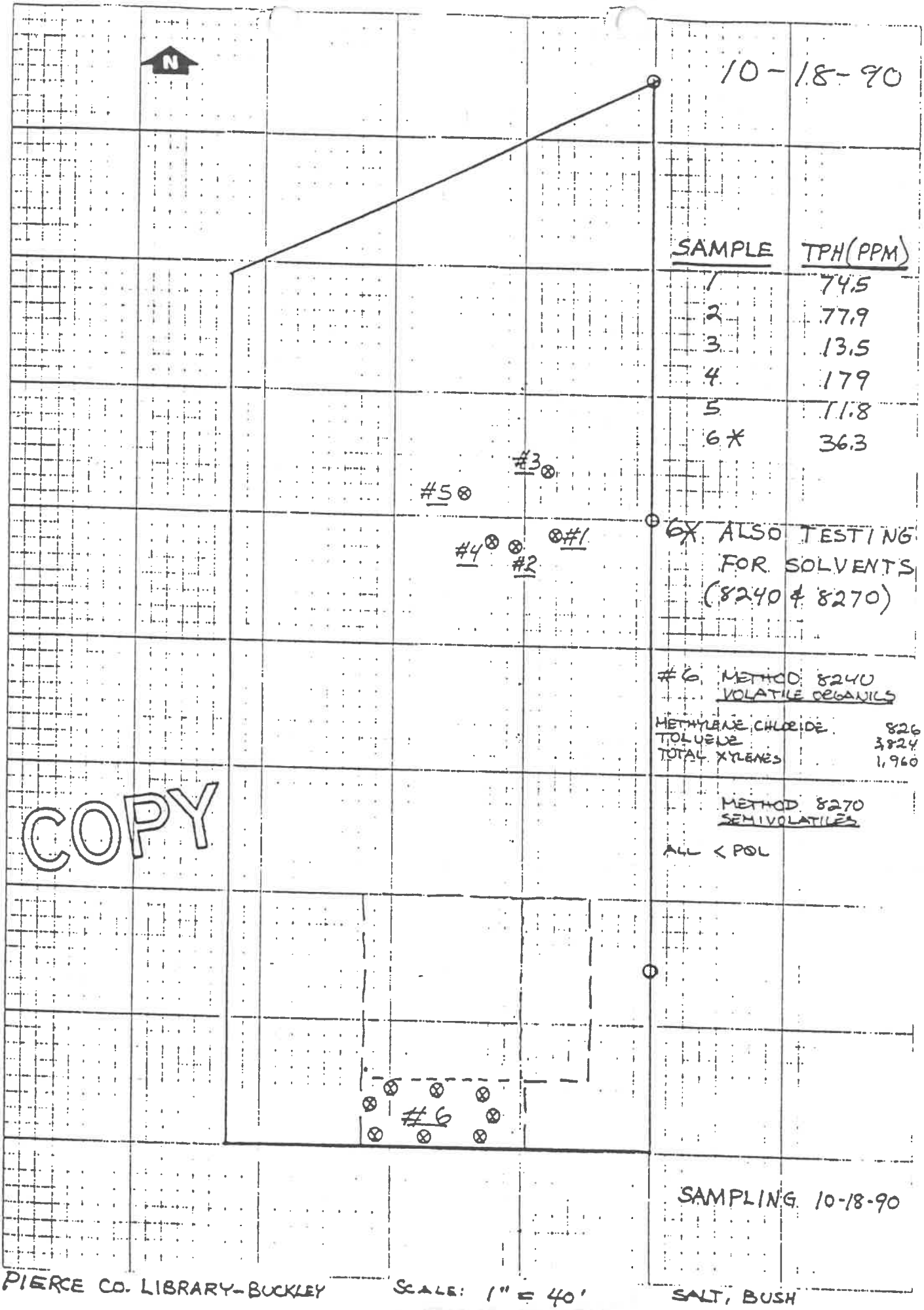

10-18-90

SAMPLE	TPH (PPM)
1	74.5
2	77.9
3	13.5
4	179
5	11.8
6*	36.3

6X ALSO TESTING FOR SOLVENTS (8240 & 8270)

#6 METHOD 8240 VOLATILE ORGANICS

METHYLENE CHLORIDE	826 PPB
TOLUENE	3,824 PPB
TOTAL XYLENES	1,960 PPB

METHOD 8270 SEMIVOLATILES

ALL < POL

COPY

SAMPLING 10-18-90

PIERCE CO. LIBRARY-BUCKLEY SCALE: 1" = 40' SALT, BUSH

FILE COPY

LAB, T

Salt, Bush & Associates, Inc.

CHAIN-OF-CUSTODY RECORD

Saltbush Project # BUCKLEY LIBRARY Date 10-18-90

Customer Reference # CONTRACT #8709

Sample Number	Sample Location & Description	Date & Time Collected	Container Type	Condition on Receipt (Name/Date/Time)	Test
1	S.E. CORNER OF NORTH PIT	10-18-90 10:30A	GLASS		TPH 418.1 RUSH
2	EAST SIDE OF NORTH PIT	10-18-90 11:00 A	"		"
3	BOTTOM OF NORTH PIT	10-18-90 11:30A	"		"
4	S.W. SIDE OF NORTH PIT	10-18-90 12:00	"		"
5	N.W. SIDE OF NORTH PIT	10-18-90 12:15 A	"		"
					TPH 418.1
6	COMPOSITE OF SOUTH PIT	10-18-90 2:00 P	"		8240 8270 HOLD SAMPLE

Special Instructions: _____

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: _____ 8-18-90 4:05
   Received By: L Payne 8-18-90 4:05
   Company/Date/Time: SAB
2. Relinquished By: _____
   Received By: _____
   Company/Date/Time: _____
3. Relinquished By: _____
   Received By: _____
   Company/Date/Time: _____
4. Relinquished By: _____
   Received By: _____
   Company/Date/Time: _____

CUSTODY1.PRM

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Post Office Box 3751 • Federal Way, Washington 98063-3751 • (206) 952-6729

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4630 PACIFIC HIGHWAY EAST, SUITE B-14, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922- 5047

Report To: Salt, Bush & Assoc.

Date: October 23, 1990

Report On: Analysis of Soil

Lab No.: 13984

IDENTIFICATION:
Samples Received on 10-18-90
Contract #8709 Buckley Library

ANALYSIS:

Lab Sample No.	Client ID	Total Petroleum Hydrocarbons, ppm by EPA Method 418.1
RUSH 1	S.E. Corner of N. Pit	74.5
RUSH 2	E. Side of N. Pit	77.9
RUSH 3	Bottom of N. Pit	13.5
RUSH 4	S.W. Side of N. Pit	179
RUSH 5	N.W. Side of N. Pit	11.8
RUSH 6	Composite of S. Pit	36.3

Continued . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Contract #8709

Lab No. 13984
October 23, 1990

Lab Sample No. RUSH 6 Client ID: Composite of S. Pit

Sample was analyzed in accordance with Test Methods for Evaluating Solid Waste, (SW-846), U.S.E.P.A., 1986 Method 8240 (Volatile Organics)

CAS No.	Compounds	Concentration ug/kg	PQL
74-87-3	Chloromethane	ND	100
74-83-9	Bromomethane	ND	100
75-01-4	Vinyl Chloride	ND	100
75-00-3	Chloroethane	ND	100
75-09-2	Methylene Chloride	826	50
67-64-1	Acetone	ND	1000
75-15-0	Carbon Disulfide	ND	50
75-35-4	1,1-Dichloroethene	ND	50
75-34-3	1,1-Dichloroethane	ND	50
540-59-0	1,2-Dichloroethene (Total)	ND	50
67-66-3	Chloroform	ND	50
107-06-2	1,2-Dichloroethane	ND	50
78-93-3	2-Butanone	ND	1000
71-55-6	1,1,1-Trichloroethane	ND	50
56-23-5	Carbon Tetrachloride	ND	50
108-05-4	Vinyl Acetate	ND	500
75-27-4	Bromodichloromethane	ND	50
78-87-5	1,2-Dichloropropane	ND	50
10061-01-5	Cis-1,3-Dichloropropene	ND	50
79-01-6	Trichloroethene	ND	50
124-48-1	Dibromochloromethane	ND	50
79-00-5	1,1,2-Trichloroethane	ND	50

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc
Contract #8709

Lab No. 13984
October 23, 1990

Lab Sample No. RUSH 6 Client ID: Composite of S. Pit

EPA Method 8240 Continued . . . . .

CAS No.	Compounds	Concentration ug/kg	PQL
71-43-2	Benzene	ND	50
10061-02-6	Trans-1,3-Dichloropropene	ND	50
75-25-2	Bromoform	ND	50
108-10-1	4-Methyl-2-Pentanone	ND	500
591-78-6	2-Hexanone	ND	50
127-18-4	Tetrachloroethene	ND	50
79-34-5	1,1,2,2-Tetrachloroethane	ND	50
108-88-3	Toluene	3,824	50
108-90-7	Chlorobenzene	ND	50
100-41-4	Ethyl Benzene	ND	50
100-42-5	Styrene	ND	50
1330-20-7	Total Xylenes	1,960	50

PQL - Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.

* = Compound was detected but below PQL

Volatile Surrogates

Surrogate	Percent Recovery	Control Limits
Toluene - D8	93	81 - 117
Bromofluorobenzene	91	74 - 121
1,2-Dichloroethane D4	113	70 - 121

Continued . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Contract #8709

Lab No. 13984
October 23, 1990

Lab Sample No. RUSH 6 Client ID: Composite of S. Pit

Sample was analyzed in accordance with Test Methods for Evaluating Solid Waste, (SW-846), U.S.E.P.A., 1986 Method 8270 (ABN Semivolatiles)

CAS No.	Compound	Concentration ug/kg	PQL
108-95-2	Phenol	ND	1,995
111-44-4	bis(2-Chloroethyl) ether	ND	1,995
95-57-8	2-Chlorophenol	ND	1,995
541-73-1	1,3-Dichlorobenzene	ND	1,995
106-46-7	1,4-Dichlorobenzene	ND	1,995
100-51-6	Benzyl Alcohol	ND	3,990
95-50-1	1,2-Dichlorobenzene	ND	1,995
95-48-7	2-Methylphenol	ND	1,995
39638-32-9	bis(2-Chloroisopropyl)ether	ND	1,995
106-44-5	4-Methylphenol	ND	1,995
621-64-7	N-Nitroso-Di-N-propylamine	ND	1,995
67-72-1	Hexachloroethane	ND	1,995
98-95-3	Nitrobenzene	ND	1,995
78-59-1	Isophorone	ND	1,995
88-75-5	2-Nitrophenol	ND	1,995
105-67-9	2,4-Dimethylphenol	ND	1,995
65-85-0	Benzoic Acid	ND	9,975
111-91-1	bis(2-Chloroethoxy)methane	ND	1,995
120-83-2	2,4-Dichlorophenol	ND	1,995
120-82-1	1,2,4-Trichlorobenzene	ND	1,995
91-20-3	Naphthalene	ND	1,995
106-47-8	4-Chloroaniline	ND	3,990
87-68-3	Hexachlorobutadiene	ND	1,995
59-50-7	4-Chloro-3-methylphenol	ND	3,990

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Contract #8709

Lab No. 13984
October 23, 1990

Lab Sample No. RUSH 6 Client ID: Composite of S. Pit

EPA Method 8270 Continued

CAS No.	Compound	Concentration ug/kg	PQL
91-57-6	2-Methylnaphthalene	ND	1,995
77-47-4	Hexachlorocyclopentadiene	ND	1,995
88-06-2	2,4,6-Trichlorophenol	ND	1,995
95-95-4	2,4,5-Trichlorophenol	ND	1,995
91-58-7	2-Chloronaphthalene	ND	1,995
88-74-4	2-Nitroaniline	ND	9,975
131-11-3	Dimethyl phthalate	ND	1,995
208-96-8	Acenaphthylene	ND	1,995
99-09-2	3-Nitroaniline	ND	9,975
83-32-9	Acenaphthene	ND	1,995
51-28-5	2,4-Dinitrophenol	ND	9,975
100-02-7	4-Nitrophenol	ND	9,975
132-64-9	Dibenzofuran	ND	1,995
121-14-2	2,4-Dinitrotoluene	ND	1,995
606-20-2	2,6-Dinitrotoluene	ND	1,995
84-66-2	Diethylphthalate	ND	1,995
7005-72-3	4-Chlorphenyl phenyl ether	ND	1,995
86-73-7	Fluorene	ND	1,995
100-01-6	4-Nitroaniline	ND	9,975
534-52-1	4,6-Dinitro-2-methylphenol	ND	9,975
86-30-6	N-Nitrosodiphenylamine	ND	1,995
101-55-3	4-Bromophenyl phenyl ether	ND	1,995
118-74-1	Hexachlorobenzene	ND	1,995
87-86-5	Pentachlorophenol	ND	9,975
85-01-8	Phenanthrene	ND	1,995
120-12-7	Anthracene	ND	1,995
84-74-2	Di-n-butylphthalate	ND	1,995

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Contract #8709

Lab No. 13984
October 23, 1990

Lab Sample No. RUSH 6 Client ID: Composite of S. Pit

EPA Method 8270 Continued

CAS No.	Compound	Concentration ug/kg	PQL
206-44-0	Fluoranthene	ND	1,995
129-00-0	Pyrene	ND	1,995
85-68-7	Butyl benzyl phthalate	ND	1,995
91-94-1	3,3'-Dichlorobenzidine	ND	1,995
56-55-3	Benzo(a)anthracene	ND	1,995
117-81-7	bis(2-ethylhexyl)phthalate	ND	1,995
218-01-9	Chrysene	ND	1,995
117-84-0	Di-n-octyl phthalate	ND	1,995
205-99-2	Benzo(b)fluoranthene	ND	1,995
207-08-9	Benzo(k)fluoranthene	ND	1,995
50-32-8	Benzo(a)pyrene	ND	1,995
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1,995
53-70-3	Dibenz(a,h)anthracene	ND	1,995
191-24-2	Benzo(g,h,i)perylene	ND	1,995

PQL - Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.

* = Compound Detected but below PQL

Semi-Volatile Surrogates

Surrogate	Percent Recovery	Control Limits
Nitrobenzene - D5	61.2	23 - 120
2-Fluorobiphenyl	72.1	30 - 115
2-Fluorophenol	52.3	25 - 121
2,4,6-Tribromophenol	49.2	19 - 122

SOUND ANALYTICAL SERVICES

C. LARRY ZURAW

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4630 PACIFIC HIGHWAY EAST, SUITE B-14, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922- 5047

Report To: Salt, Bush & Assoc.

Date: October 23, 1990

Report On: Analysis of Soil

Lab No.: 13984-D
Page 1 of 5

IDENTIFICATION:
Samples Received on 10-18-90
Contract #8709 Buckley Library

ANALYSIS:

Lab Sample No. RUSH 6

Client ID: Composite of S. Pit **Duplicate**

Sample was analyzed in accordance with Test Methods for Evaluating Solid Waste, (SW-846), U.S.E.P.A., 1986 Method 8240 (Volatile Organics)

CAS No.	Compounds	Concentration ug/kg	PQL
74-87-3	Chloromethane	ND	100
74-83-9	Bromomethane	ND	100
75-01-4	Vinyl Chloride	ND	100
75-00-3	Chloroethane	ND	100
75-09-2	Methylene Chloride	896	50
67-64-1	Acetone	ND	1000
75-15-0	Carbon Disulfide	ND	50
75-35-4	1,1-Dichloroethene	ND	50
75-34-3	1,1-Dichloroethane	ND	50
540-59-0	1,2-Dichloroethene (Total)	ND	50
67-66-3	Chloroform	ND	50
107-06-2	1,2-Dichloroethane	ND	50
78-93-3	2-Butanone	ND	1000
71-55-6	1,1,1-Trichloroethane	ND	50
56-23-5	Carbon Tetrachloride	ND	50
108-05-4	Vinyl Acetate	ND	500
75-27-4	Bromodichloromethane	ND	50
78-87-5	1,2-Dichloropropane	ND	50
10061-01-5	Cis-1,3-Dichloropropene	ND	50
79-01-6	Trichloroethene	ND	50
124-48-1	Dibromochloromethane	ND	50
79-00-5	1,1,2-Trichloroethane	ND	50

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc
Contract #8709

Lab No. 13984-D
October 23, 1990

Lab Sample No. RUSH 6 Client ID: Composite of S. Pit
DUPLICATE

EPA Method 8240 Continued . . . . .

CAS No.	Compounds	Concentration ug/kg	PQL
71-43-2	Benzene	ND	50
10061-02-6	Trans-1,3-Dichloropropene	ND	50
75-25-2	Bromoform	ND	50
108-10-1	4-Methyl-2-Pentanone	ND	500
591-78-6	2-Hexanone	ND	50
127-18-4	Tetrachloroethene	ND	50
79-34-5	1,1,2,2-Tetrachloroethane	ND	50
108-88-3	Toluene	3,660	50
108-90-7	Chlorobenzene	ND	50
100-41-4	Ethyl Benzene	ND	50
100-42-5	Styrene	ND	50
1330-20-7	Total Xylenes	1,887	50

PQL - Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.

* = Compound was detected but below PQL

Volatile Surrogates

Surrogate	Percent Recovery	Control Limits
Toluene - D8	86	81 - 117
Bromofluorobenzene	81	74 - 121
1,2-Dichloroethane D4	117	70 - 121

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Contract #8709

Lab No. 13984-D
October 23, 1990

Lab Sample No. RUSH 6 Client ID: Composite of S. Pit Duplicate

Sample was analyzed in accordance with Test Methods for Evaluating Solid Waste, (SW-846), U.S.E.P.A., 1986 Method 8270 (ABN Semivolatiles)

CAS No.	Compound	Concentration ug/kg	PQL
108-95-2	Phenol	ND	1,943
111-44-4	bis(2-Chloroethyl) ether	ND	1,943
95-57-8	2-Chlorophenol	ND	1,943
541-73-1	1,3-Dichlorobenzene	ND	1,943
106-46-7	1,4-Dichlorobenzene	ND	1,943
100-51-6	Benzyl Alcohol	ND	3,885
95-50-1	1,2-Dichlorobenzene	ND	1,943
95-48-7	2-Methylphenol	ND	1,943
39638-32-9	bis(2-Chloroisopropyl)ether	ND	1,943
106-44-5	4-Methylphenol	ND	1,943
621-64-7	N-Nitroso-Di-N-propylamine	ND	1,943
67-72-1	Hexachloroethane	ND	1,943
98-95-3	Nitrobenzene	ND	1,943
78-59-1	Isophorone	ND	1,943
88-75-5	2-Nitrophenol	ND	1,943
105-67-9	2,4-Dimethylphenol	ND	1,943
65-85-0	Benzoic Acid	ND	9,715
111-91-1	bis(2-Chloroethoxy)methane	ND	1,943
120-83-2	2,4-Dichlorophenol	ND	1,943
120-82-1	1,2,4-Trichlorobenzene	ND	1,943
91-20-3	Naphthalene	ND	1,943
106-47-8	4-Chloroaniline	ND	3,885
87-68-3	Hexachlorobutadiene	ND	1,943
59-50-7	4-Chloro-3-methylphenol	ND	3,885

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Contract #8709

Lab No. 13984-D
October 23, 1990

Lab Sample No. RUSH 6 Client ID: Composite of S. Pit
DUPLICATE

EPA Method 8270 Continued

CAS No.	Compound	Concentration ug/kg	PQL
91-57-6	2-Methylnaphthalene	ND	1,943
77-47-4	Hexachlorocyclopentadiene	ND	1,943
88-06-2	2,4,6-Trichlorophenol	ND	1,943
95-95-4	2,4,5-Trichlorophenol	ND	1,943
91-58-7	2-Chloronaphthalene	ND	1,943
88-74-4	2-Nitroaniline	ND	9,715
131-11-3	Dimethyl phthalate	ND	1,943
208-96-8	Acenaphthylene	ND	1,943
99-09-2	3-Nitroaniline	ND	9,715
83-32-9	Acenaphthene	ND	1,943
51-28-5	2,4-Dinitrophenol	ND	9,715
100-02-7	4-Nitrophenol	ND	9,715
132-64-9	Dibenzofuran	ND	1,943
121-14-2	2,4-Dinitrotoluene	ND	1,943
606-20-2	2,6-Dinitrotoluene	ND	1,943
84-66-2	Diethylphthalate	ND	1,943
7005-72-3	4-Chlorphenyl phenyl ether	ND	1,943
86-73-7	Fluorene	ND	1,943
100-01-6	4-Nitroaniline	ND	9,715
534-52-1	4,6-Dinitro-2-methylphenol	ND	9,715
86-30-6	N-Nitrosodiphenylamine	ND	1,943
101-55-3	4-Bromophenyl phenyl ether	ND	1,943
118-74-1	Hexachlorobenzene	ND	1,943
87-86-5	Pentachlorophenol	ND	9,715
85-01-8	Phenanthrene	ND	1,943
120-12-7	Anthracene	ND	1,943
84-74-2	Di-n-butylphthalate	ND	1,943

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Contract #8709

Lab No. 13984-D
October 23, 1990

Lab Sample No. RUSH 6 Client ID: Composite of S. Pit
DUPLICATE

EPA Method 8270 Continued

CAS No.	Compound	Concentration ug/kg	PQL
206-44-0	Fluoranthene	ND	1,943
129-00-0	Pyrene	ND	1,943
85-68-7	Butyl benzyl phthalate	ND	1,943
91-94-1	3,3'-Dichlorobenzidine	ND	1,943
56-55-3	Benzo(a)anthracene	ND	1,943
117-81-7	bis(2-ethylhexyl)phthalate	ND	1,943
218-01-9	Chrysene	ND	1,943
117-84-0	Di-n-octyl phthalate	ND	1,943
205-99-2	Benzo(b)fluoranthene	ND	1,943
207-08-9	Benzo(k)fluoranthene	ND	1,943
50-32-8	Benzo(a)pyrene	ND	1,943
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1,943
53-70-3	Dibenz(a,h)anthracene	ND	1,943
191-24-2	Benzo(g,h,i)perylene	ND	1,943

PQL - Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.

* = Compound Detected but below PQL

Semi-Volatile Surrogates

Surrogate	Percent Recovery	Control Limits
Nitrobenzene - D5	64.2	23 - 120
2-Fluorobiphenyl	73.2	30 - 115
2-Fluorophenol	54.1	25 - 121
2,4,6-Tribromophenol	51.3	19 - 122

Total Petroleum Hydrocarbons, ppm by EPA Method 418.1 30.8

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4630 PACIFIC HIGHWAY EAST, SUITE B-14, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922- 5047

Report To: Salt, Bush & Assoc. Date: October 23, 1990

Report On: Analysis of Method Blank for Soil Lab No.: 13984-B

IDENTIFICATION:

Samples Received on 10-18-90
Contract #8709 Buckley Library
Client ID: **METHOD BLANK**

ANALYSIS:

Sample was analyzed in accordance with Test Methods for Evaluating Solid Waste, (SW-846), U.S.E.P.A., 1986 Method 8240 (Volatile Organics)

CAS No.	Compounds	Concentration ug/kg	PQL
74-87-3	Chloromethane	ND	100
74-83-9	Bromomethane	ND	100
75-01-4	Vinyl Chloride	ND	100
75-00-3	Chloroethane	ND	100
75-09-2	Methylene Chloride	ND	50
67-64-1	Acetone	ND	1000
75-15-0	Carbon Disulfide	ND	50
75-35-4	1,1-Dichloroethene	ND	50
75-34-3	1,1-Dichloroethane	ND	50
540-59-0	1,2-Dichloroethene (Total)	ND	50
67-66-3	Chloroform	ND	50
107-06-2	1,2-Dichloroethane	ND	50
78-93-3	2-Butanone	ND	1000
71-55-6	1,1,1-Trichloroethane	ND	50
56-23-5	Carbon Tetrachloride	ND	50
108-05-4	Vinyl Acetate	ND	500
75-27-4	Bromodichloromethane	ND	50
78-87-5	1,2-Dichloropropane	ND	50
10061-01-5	Cis-1,3-Dichloropropene	ND	50
79-01-6	Trichloroethene	ND	50
124-48-1	Dibromochloromethane	ND	50
79-00-5	1,1,2-Trichloroethane	ND	50

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc
Contract #8709

Lab No. 13984-B
October 23, 1990

Client ID: **METHOD BLANK**

EPA Method 8240 Continued . . . . .

CAS No.	Compounds	Concentration ug/kg	PQL
71-43-2	Benzene	ND	50
10061-02-6	Trans-1,3-Dichloropropene	ND	50
75-25-2	Bromoform	ND	50
108-10-1	4-Methyl-2-Pentanone	ND	500
591-78-6	2-Hexanone	ND	50
127-18-4	Tetrachloroethene	ND	50
79-34-5	1,1,2,2-Tetrachloroethane	ND	50
108-88-3	Toluene	ND	50
108-90-7	Chlorobenzene	ND	50
100-41-4	Ethyl Benzene	ND	50
100-42-5	Styrene	ND	50
1330-20-7	Total Xylenes	ND	50

PQL - Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.

* = Compound was detected but below PQL

Volatile Surrogates

Surrogate	Percent Recovery	Control Limits
Toluene - D8	104	81 - 117
Bromofluorobenzene	91	74 - 121
1,2-Dichloroethane D4	114	70 - 121

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Contract #8709

Lab No. 13984-B
October 23, 1990

Client: **METHOD BLANK**

Sample was analyzed in accordance with Test Methods for Evaluating Solid Waste, (SW-846), U.S.E.P.A., 1986 Method 8270 (ABN Semivolatiles)

CAS No.	Compound	Concentration ug/kg	PQL
108-95-2	Phenol	ND	660
111-44-4	bis(2-Chloroethyl) ether	ND	660
95-57-8	2-Chlorophenol	ND	660
541-73-1	1,3-Dichlorobenzene	ND	660
106-46-7	1,4-Dichlorobenzene	ND	660
100-51-6	Benzyl Alcohol	ND	1,320
95-50-1	1,2-Dichlorobenzene	ND	660
95-48-7	2-Methylphenol	ND	660
39638-32-9	bis(2-Chloroisopropyl)ether	ND	660
106-44-5	4-Methylphenol	ND	660
621-64-7	N-Nitroso-Di-N-propylamine	ND	660
67-72-1	Hexachloroethane	ND	660
98-95-3	Nitrobenzene	ND	660
78-59-1	Isophorone	ND	660
88-75-5	2-Nitrophenol	ND	660
105-67-9	2,4-Dimethylphenol	ND	660
65-85-0	Benzoic Acid	ND	3,300
111-91-1	bis(2-Chloroethoxy)methane	ND	660
120-83-2	2,4-Dichlorophenol	ND	660
120-82-1	1,2,4-Trichlorobenzene	ND	660
91-20-3	Naphthalene	ND	660
106-47-8	4-Chloroaniline	ND	1,320
87-68-3	Hexachlorobutadiene	ND	660
59-50-7	4-Chloro-3-methylphenol	ND	1,320

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Contract #8709

Lab No. 13984-B
October 23, 1990

Client ID: **METHOD BLANK**

EPA Method 8270 Continued

CAS No.	Compound	Concentration ug/kg	PQL
91-57-6	2-Methylnaphthalene	ND	660
77-47-4	Hexachlorocyclopentadiene	ND	660
88-06-2	2,4,6-Trichlorophenol	ND	660
95-95-4	2,4,5-Trichlorophenol	ND	660
91-58-7	2-Chloronaphthalene	ND	660
88-74-4	2-Nitroaniline	ND	3,300
131-11-3	Dimethyl phthalate	ND	660
208-96-8	Acenaphthylene	ND	660
99-09-2	3-Nitroaniline	ND	3,300
83-32-9	Acenaphthene	ND	660
51-28-5	2,4-Dinitrophenol	ND	3,300
100-02-7	4-Nitrophenol	ND	3,300
132-64-9	Dibenzofuran	ND	660
121-14-2	2,4-Dinitrotoluene	ND	660
606-20-2	2,6-Dinitrotoluene	ND	660
84-66-2	Diethylphthalate	ND	660
7005-72-3	4-Chlorphenyl phenyl ether	ND	660
86-73-7	Fluorene	ND	660
100-01-6	4-Nitroaniline	ND	3,300
534-52-1	4,6-Dinitro-2-methylphenol	ND	3,300
86-30-6	N-Nitrosodiphenylamine	ND	660
101-55-3	4-Bromophenyl phenyl ether	ND	660
118-74-1	Hexachlorobenzene	ND	660
87-86-5	Pentachlorophenol	ND	3,300
85-01-8	Phenanthrene	ND	660
120-12-7	Anthracene	ND	660
84-74-2	Di-n-butylphthalate	ND	660

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Contract #8709

Lab No. 13984-B
October 23, 1990

Client ID: **METHOD BLANK**

EPA Method 8270 Continued

CAS No.	Compound	Concentration ug/kg	PQL
206-44-0	Fluoranthene	ND	660
129-00-0	Pyrene	ND	660
85-68-7	Butyl benzyl phthalate	ND	660
91-94-1	3,3'-Dichlorobenzidine	ND	660
56-55-3	Benzo(a)anthracene	ND	660
117-81-7	bis(2-ethylhexyl)phthalate	ND	660
218-01-9	Chrysene	ND	660
117-84-0	Di-n-octyl phthalate	ND	660
205-99-2	Benzo(b)fluoranthene	ND	660
207-08-9	Benzo(k)fluoranthene	ND	660
50-32-8	Benzo(a)pyrene	ND	660
193-39-5	Indeno(1,2,3-cd)pyrene	ND	660
53-70-3	Dibenz(a,h)anthracene	ND	660
191-24-2	Benzo(g,h,i)perylene	ND	660

PQL - Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.

* = Compound Detected but below PQL

Semi-Volatile Surrogates

Surrogate	Percent Recovery	Control Limits
Nitrobenzene - D5	56.3	23 - 120
2-Fluorobiphenyl	75.2	30 - 115
2-Fluorophenol	51.8	25 - 121
2,4,6-Tribromophenol	47.3	19 - 122

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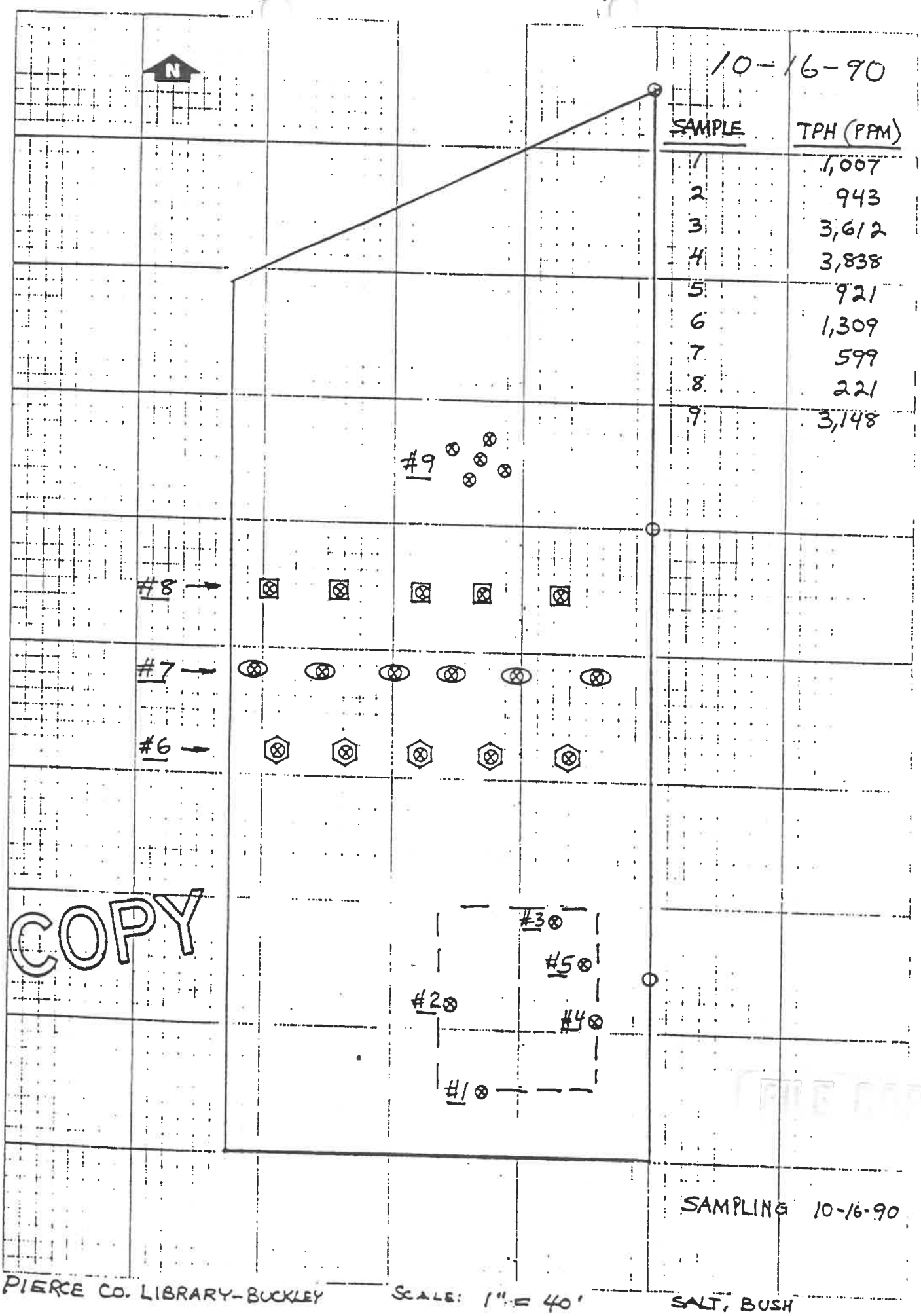
N
10-16-90
SAMPLE TPH (PPM)
1 1,007
2 943
3 3,612
4 3,838
5 921
6 1,309
7 599
8 221
9 3,148
#9
#8
#7
#6
#3
#5
#2
#4
#1
COPY
SAMPLING 10-16-90
PIERCE CO. LIBRARY-BUCKLEY
SCALE: 1" = 40'
SALT, BUSH

WO # 13928

Salt, Bush & Associates, Inc.

CHAIN-OF-CUSTODY RECORD

Saltbush Project # BUCKLEY LIBRARY Date 10-16-90

Customer Reference # CONTRACT #4709

Sample Number	Sample Location & Description	Date & Time Collected	Container Type	Condition on Receipt (Name/Date/Time)	Test
1	SHED PERIMETER (S) SOIL	10-16-90 12:40	GLASS		TPH 418.1
2	(W) "	" 12:42	"		"
3	(N) "	" 12:46	"		"
4	(E) "	" 12:48	"		"
5	(NE) SHED PERIMETER - BASE (3½') SOIL	" 12:50	"		"
6	PARKING LOT - SOUTH	" 12:53	"		"
7	PARKING LOT - CENTER	" 12:55	"		"
8	PARKING LOT NORTH	" 12:59	"		"
9	WASTE OIL TANK EXCAVATION	" 1:05	"		"
~~10~~					

Special Instructions: RUSH

Possible Sample Hazards:

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: Rebecca Prepsl 10-16-90 3:30

   Received By:

   Company/Date/Time:

2. Relinquished By:

   Received By:

   Company/Date/Time:

3. Relinquished By:

   Received By:

   Company/Date/Time:

4. Relinquished By:

   Received By:

   Company/Date/Time:

CUSTODY1.PRM

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4630 PACIFIC HIGHWAY EAST, SUITE B-14, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Assoc. Date: October 17, 1990

Report On: Analysis of Soil Lab No.: 13928

IDENTIFICATION:
Samples Received on 10-16-90
Project: Contract #8709 Buckley Library

ANALYSIS:

Lab Sample No.	Client ID	Total Petroleum Hydrocarbons, ppm by EPA Method 418.1
RUSH 1	#1 Shed Perimeter (South)	1,007
RUSH 2	#2 Shed Perimeter (West)	943
RUSH 3	#3 Shed Perimeter (North)	3,612
RUSH 4	#4 Shed Perimeter (East)	3,838
RUSH 5	#5 Shed Perimeter (Northeast, base 3 1/20)	921
RUSH 6	#6 Parking Lot (South)	1,309
RUSH 7	#7 Parking Lot (Center)	599
RUSH 8	#8 Parking Lot (North)	221
RUSH 9	#9 West Oil Tank Excavation	3,148

SOUND ANALYTICAL SERVICES

C. LARRY ZURAW

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4630 PACIFIC HIGHWAY EAST, SUITE B-14, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

QUALITY CONTROL REPORT

DUPLICATES

Lab No: 13928

Date: October 17, 1990
Client: Salt, Bush & Assoc.

Client ID: #9 West Oil Tank Excavation
Matrix: Soil
Units: ppm

Compound	Sample(S)	Duplicate(D)	RPD*	
Total Petroleum Hydrocarbons	3,148	2,757	13.2	

*RPD = relative percent difference
= [(S - D) / ((S + D) / 2)] x 100

APPENDIX C

April 1991 SBA Report

Pierce County Library District

Buckley Site

SHALLOW GROUND WATER & SUBSURFACE SOIL SAMPLING AND TESTING REPORT

April 10, 1991

Salt, Bush & Associates, Inc.

Salt, Bush & Associates, Inc.

April 10, 1990

Diane Thompson
Pierce County Library District
2356 Tacoma Avenue South
Tacoma, Washington 98402

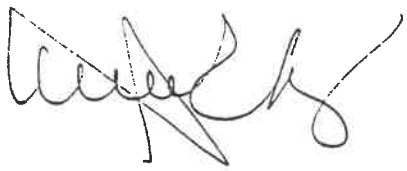
Re: Buckley Site
Shallow Ground Water & Subsurface
Soil Sampling and Testing Report

Dear Diane:

We are pleased to enclose for your review five copies of the above referenced report. If you have any questions please do not hesitate to give us a call. We will be of assistance in any way that we can.

Very truly yours,

SALT, BUSH & ASSOCIATES, INC.



Dennis E. Salt

DES:pr BUCKLY27.LTR

917 Pacific Avenue, Suite 411 • P.O. Box 505 • Tacoma, Washington 98401-0505 • (206) 383-1914

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PIERCE COUNTY LIBRARY DISTRICT

BUCKLEY SITE
Project Reference: 91032135

Buckley, Pierce County, Washington

SHALLOW GROUND WATER & SUBSURFACE SOIL SAMPLING AND TESTING REPORT

Prepared for: Pierce County Library District
Diane Thompson
2356 Tacoma Avenue South
Tacoma, WA 98402

On Site Start Date: March 1, 1991

INTRODUCTION

The following report has been prepared at the request of the Pierce County Library District to assist in making a determination if soils and ground water contain contamination as the result of operations in, and around, a former welding shop on the southwest corner of the property. This study was initiated subsequent to the excavation of contaminated soils which were replaced with clean fill.

SITE OBSERVATIONS

Project Hydrogeologists, Carr/Associates, Inc. and their drilling contractor, McDonald Holt, Inc., installed three shallow ground water monitoring wells around the location of the demolished welding shop. During well construction soil samples were taken from the 3' to 4.5' depths, the 5.5' to 7' depths and from the 8' to 9.5' depths. One additional bore was made near the center of the location of the demolished welding shop. A sample was taken from this bore at a depth of 5 feet to 6.5 feet. A total of 10 soil samples were taken. (Please see Carr/Associates, Inc. report in Appendix I)

Subsequent to each monitoring well's development, a water sample was taken from each well. A total of three water samples were taken.

TEST DATA OBSERVATIONS

All soil samples were tested individually for the presence of Total Petroleum Hydrocarbons, (TPH) method 418.1. The water samples were tested for Volatile Organic Compounds, method 8240, and TPH. Test results found there were no volatile organic compounds in any of the water samples. The level of TPH in all of the water samples was less than 10 ppm. Only two soil samples indicated the presence of Total Petroleum Hydrocarbons at slightly above the lower limits of the test. (Sample W1-4 @ 18.5 ppm and Sample W3-6 @ 23.7 ppm) The cleanup level of gasoline contaminated soils as established by the Model Toxics Control Act (MTCA) is 100 ppm. (Please see analytical results as prepared by Sound Analytical Services, Inc. in Appendix II)

CONCLUSIONS AND RECOMMENDATIONS

Based on the analytical results as presented from this study we would conclude that the levels of contamination on this site are within acceptable levels as established by the Model Toxics Control Act (MTCA). Cleanup of contaminated soils in, and around, the area of the former welding shop appears to have been successfully completed. Migration of contaminants via the local shallow ground water does not appear to have occurred.

We recommend that the wells be sampled quarterly and tested for the presence of TPH and Volatile Organic Compounds. Upon satisfactory test results for this period we believe that a proper closure letter can be drafted for presentation to WDOE.

If you have any questions regarding this report, please give us a call. We will be pleased to be of assistance in any way that we can.

Respectfully submitted.

SALT, BUSH & ASSOCIATES, INC.

Dennis E. Salt

DES:pr BUCKLY25.RPT

PIERCE COUNTRY LIBRARY DISTRICT

BUCKLEY, WASHINGTON

SHALLOW GROUND WATER INVESTIGATION REPORT

BACKGROUND

Owner: Pierce County Library District

Engineer: Salt, Bush & Associates, Inc.

Hydrogeologist: Carr/Associates, Inc.; Douglas C. Dow

Drilling contractor: McDonald Holt, Inc.

Drilling method: Hollow Stem Auger

Start date: 3/1/91

Completion date: 3/1/91

The site for the new public library in Buckley was once a gasoline service station. An environmental assessment of the property conducted by Salt, Bush & Associates, Inc. found minor soil contamination in test pits excavated on the property around the old station. The contaminated soil was removed to an area where it will be land farmed.

A building removed from the southern end of the property was identified as an old welding shop. Apparently, organic solvents had been used in the shop and spilled on the ground. The area where the welding shop was located has been excavated to remove soils contaminated with solvent compounds. Clean fill was placed in the excavation and leveled to final grade for the library construction.

The possibility of shallow ground water contamination prompted the construction of three monitoring wells around the old welding shop.

PERMITS AND APPLICATIONS

Start card number: 040148

DRILLING OBJECTIVES

- To install three shallow ground water monitoring wells around the location of the old welding shop.
- To obtain soil and water samples for analysis to determine if contamination is present.
- To determine the shallow ground water gradient and flow direction.

WELL SITE

(Illustrated in Figure 1)

Map location/coordinates: T19N/R6E/SW4, Section 3

County: Pierce

Ground surface elevation: 722 ft. (estimated from topographic map)

Site characteristics: The site is filled and leveled with clean sand and gravel.

CONSTRUCTION METHODS

Drilling and Sampling

Drilling was performed with 3 3/8-inch hollow stem auger. Soil samples were taken with a 3-inch Dames and Moore Type drive sampler driven by 300-pound sampling jars. Soil samples were taken from the following intervals in Monitoring Wells 1, 2 and 3:

Sample 1 - 3 to 4.5 ft.
Sample 2 - 5.5 to 7 ft.
Sample 3 - 8 to 9.5 ft.

One additional boring (B-1) was made to a depth of 5 feet in the center of the old welding shop area excavated during the original site evaluation. A soil sample was taken from a depth between 5 and 6.5 feet in this boring.

All soil samples were collected by Salt, Bush & Associates, Inc. and placed in glass jars for transport.

Monitoring Well Installation

The construction design is the same for Monitoring Wells 1, 2 and 3.

The completed monitoring wells are constructed of 2-inch, Schedule 40 PVC pipe with flush threaded joints. Each screen section is 5 feet long with 0.020-inch slots. Colorado Silica Sand, 10-20, filter pack is placed around the screened interval in each borehole from a depth of 2.5 to 8 feet. A bentonite chip seal is present from the surface to the top of the filter pack at 2.5 feet.

Each monitoring well was developed by surging and bailing with a stainless-steel bailer. Salt, Bush & Associates, Inc. collected water samples with a small sampling pump and bailer.

MONITORING WELL SCREEN ASSEMBLY

(Illustrated on the Resource Protection Well Report Forms in the Appendix)

The construction details are the same for Monitoring Wells 1, 2 and 3.

Depth	Diameter	Description
0 to 3 ft.	2-inch PVC	Blank pipe
3 to 8 ft.	2-inch PVC	Screen, 0.020-inch slots

Filter Pack

Type: Colorado Silica Sand

Size: 10 - 20

Depth: 2.5 to 8 feet

Seal Placement

Type: Bentonite chip, "Enviroplug Medium"

Depth: 0 to 2.5 feet

Monument Covers

Temporary monument covers made of 6-inch steel pipe with locking tops were cemented in place to protect the monitoring wells. The owner's contractor, C. E. Skinner Construction Company, was provided with flush type monument covers to be installed when the parking lot is paved.

HYDROGEOLOGIC LOG

(Illustrated on the Resource Protection Well Report Forms in the Appendix)

About 5,000 years ago, a volcanic mudflow flowed from Mount Rainier and covered the Buckley area with up to 75 feet of unsorted deposits of boulders and gravels in a fine-grained matrix. This deposit is called the Osceola Mudflow.

On the library property, the top of the mudflow is 3 to 5 feet below the surface. The mudflow has a very low permeability and acts as a barrier to the direct recharge of ground water into the permeable sands and gravels which underlie the mudflow. A well located less than 1/4 mile from the site and owned by the City of Buckley draws water from this aquifer underlying the mudflow.

Shallow ground water is present above the mudflow in a 1 to 3 foot thick layer of silty sand and gravel with a dark organic appearance. During the winter months, the ground water level in this unit is near ground surface.

At the surface, a layer of clean sand and gravel fill 1 to 3 feet thick has replaced contaminated soils which were removed during the initial environmental assessment of the site.

GROUND WATER GRADIENT AND FLOW DIRECTION

(Illustrated in Figure 2)

The 2-inch PVC monitoring wells were cut off close to ground surface after completion. C. E. Skinner Construction Company provided a transit and operator to survey elevations for each monitoring well. The following measurements are referenced to the top or measuring point (M.P.) of each 2-inch PVC monitoring well. The water levels were measured with a steel tape on March 7, 1991.

Well No.	Elevation of M.P.	Water Level in Feet	Elevation of Water in Feet
MW-1	722.83 ft.	2.05 ft.	720.78 ft.
MW-2	721.62 ft.	1.08 ft.	720.54 ft.
MW-3	721.62 ft.	1.05 ft.	720.57 ft.

Apparent ground water flow direction: East

Gradient: 0.40 ft. per 100 ft.

The gradient and flow direction of this very shallow ground water may change during the year. This shallow zone may be unsaturated during the summer months.

WATER QUALITY

Laboratory Analyses

Salt, Bush & Associates, Inc. are providing all laboratory results and performing the interpretation of soil and water samples collected during this project.

RECOMMENDATION

- Measure water levels during dry periods to evaluate possible seasonal changes in gradient and ground water flow direction.

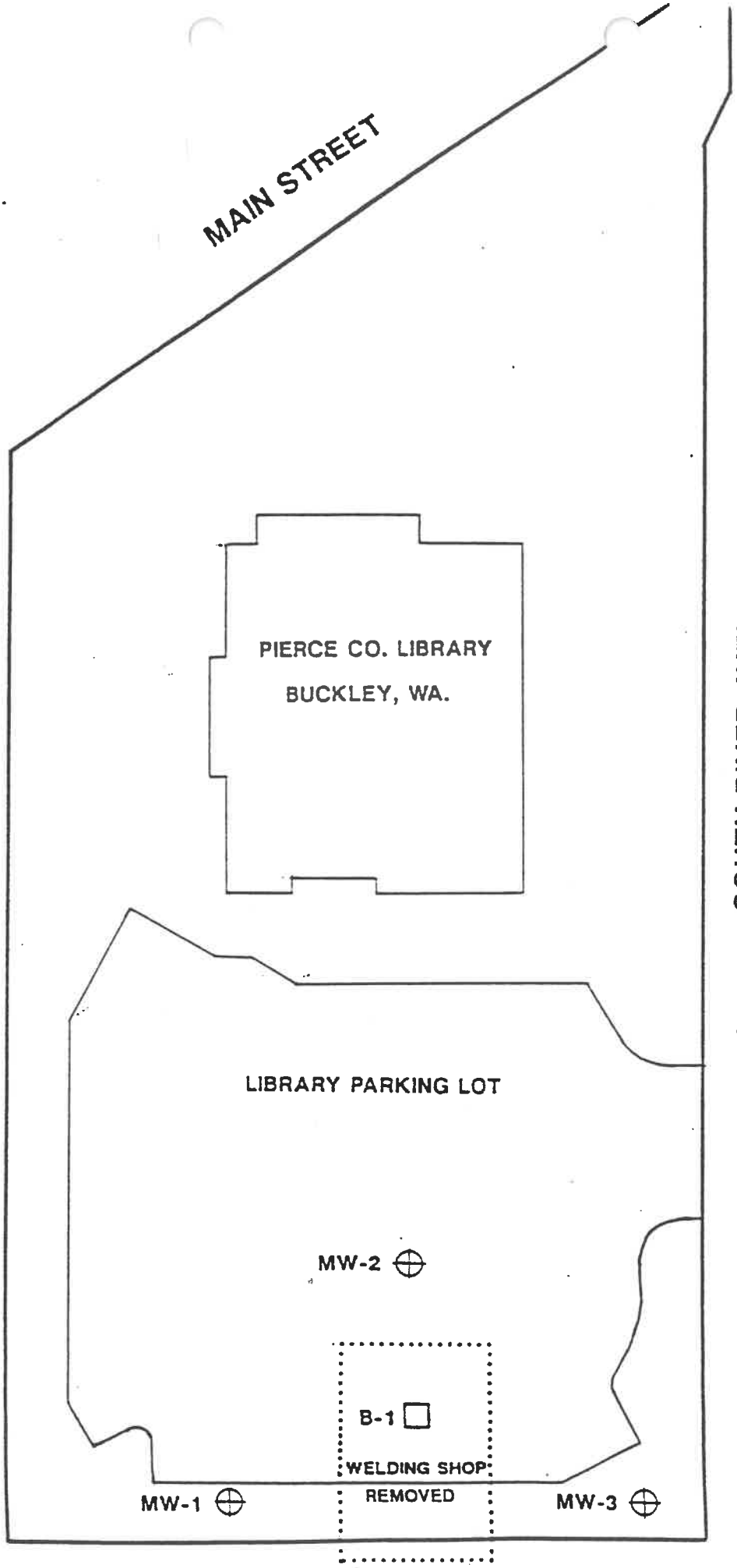
COMMENT

Three shallow monitoring wells were installed around the excavated area where the old welding shop was located on the southwest end of the library property. Water quality samples were collected from the shallow water-bearing sediments which overlie the Osceola Mudflow deposits. Soil samples were collected to determine if any contaminants were present beneath the site.

On March 7, 1991, water level measurements showed ground water flow to the east at a gradient of 0.40 feet per 100 feet. This gradient and flow direction may reflect local conditions and could change seasonally.

Soil and water quality results and interpretation will be provided by Salt, Bush & Associates, Inc.

FIGURE 1



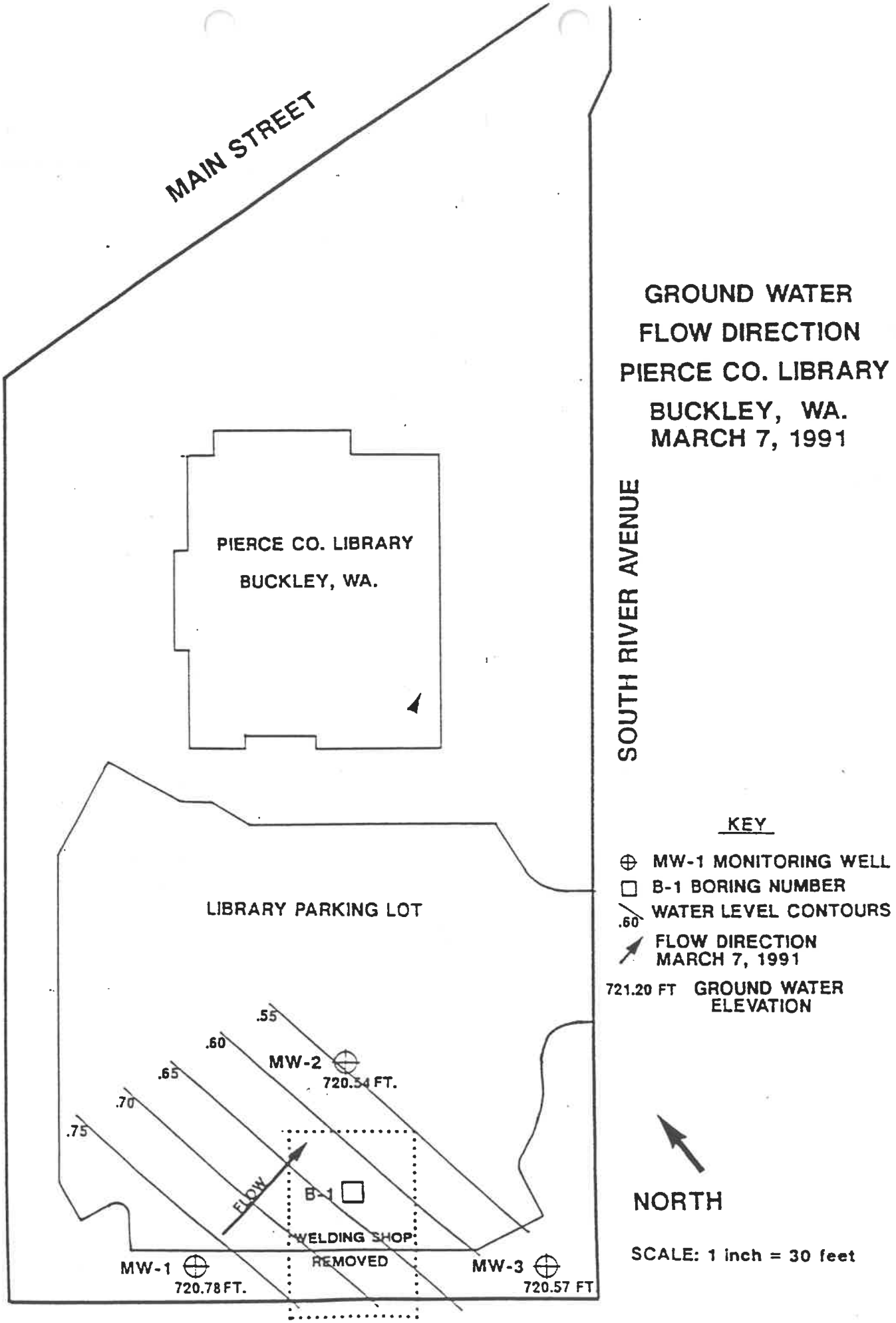
MONITORING WELL LOCATION MAP PIERCE CO. LIBRARY BUCKLEY, WA.

⊕ MW-1 MONITORING WELL
□ B-1 BORING NUMBER

NORTH

SCALE: 1 inch = 30 feet

C/A. 10361. 3/91


MAIN STREET
PIERCE CO. LIBRARY
BUCKLEY, WA.
SOUTH RIVER AVENUE
LIBRARY PARKING LOT
.55
.60
.65
.70
.75
MW-2
720.54 FT.
FLOW
B-1
WELDING SHOP
REMOVED
MW-1
720.78 FT.
MW-3
720.57 FT
GROUND WATER
FLOW DIRECTION
PIERCE CO. LIBRARY
BUCKLEY, WA.
MARCH 7, 1991
KEY
MW-1 MONITORING WELL
B-1 BORING NUMBER
.60 WATER LEVEL CONTOURS
FLOW DIRECTION
MARCH 7, 1991
721.20 FT GROUND WATER
ELEVATION
NORTH
SCALE: 1 inch = 30 feet

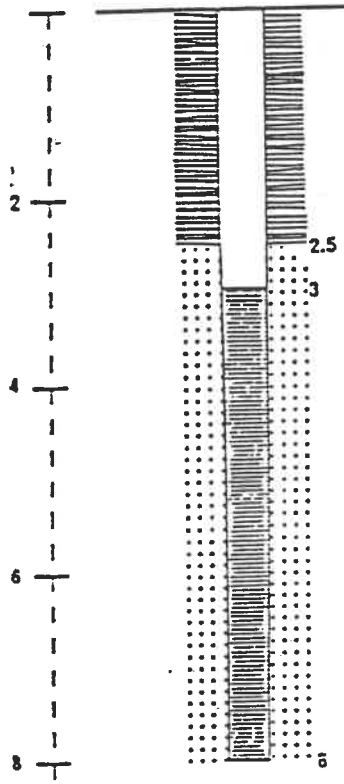
C/A, 10361, 3/91

RESOURCE PROTECTION WELL REPORT

START CARD NO. 040148

PROJECT NAME: Pierce County Library
WELL IDENTIFICATION NO. MW-1
DRILLING METHOD: 3 3/8-inch HSA
DRILLER: Pat Miller
FIRM: McDonald Holt, Inc.
SIGNATURE: [signature]
CONSULTING FIRM: Carr/Associates
REPRESENTATIVE: Douglas C. Dow

COUNTY: Pierce County
LOCATION: ¼ SW ¼ Sec 3 Twn 19 R 6E
STREET ADDRESS OF WELL: SW of intersection of So. River Street and Main St. Buckley
WATER LEVEL ELEVATION: 720.78 (3-7-91)
GROUND SURFACE ELEVATION: 721.60
INSTALLED: 3-1-91
DEVELOPED: 3-1-91



WELL DATA

Flush monument to be installed by Owner's Paving Contractor

Bentonite Chip Seal 0-2.5'

Monitoring Well
2" PVC Schedule 40
Flush Threads
Screen 0.020 inch Slots

Filter Sand
Colorado Silica 10-20

FORMATION DESCRIPTION

1 — Sand and gravel fill

5 — SAND and GRAVEL with silt Brown, water

9.5 — SILT with sand and gravel. Tan, (Osceola Mudflow)

Sample no.	Interval feet	Blow counts
1	3 to 4.5	1-1-1
2	5.5 to 7	3-20-14
3	8 to 9.5	9-10-12

SCALE: 1" = 2FT.

PAGE 1 OF 1

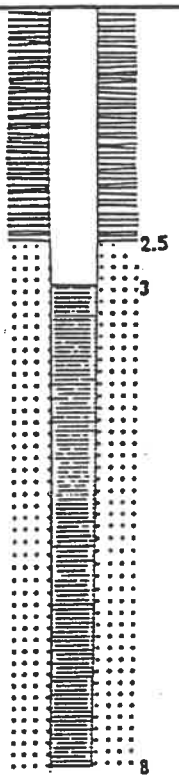
ECY 050-12 (Rev. 11/89)

RESOURCE PROTECTION WELL REPORT

START CARD NO. 040148

PROJECT NAME: Pierce County Library
WELL IDENTIFICATION NO. MW-2
DRILLING METHOD: 3 3/8-inch HSA
DRILLER: Pat Miller
FIRM: McDonald Holt, Inc.
SIGNATURE: [signature]
CONSULTING FIRM: Carr/Associates, Inc.
REPRESENTATIVE: Douglas C. Dow

COUNTY: Pierce
LOCATION: ¼ SW ¼ Sec 3 Twn 19 R 6E
STREET ADDRESS OF WELL: SW of intersection of So. River St. and Main St., Buckley.
WATER LEVEL ELEVATION: 720.54 (3-7-91)
GROUND SURFACE ELEVATION: 721.60
INSTALLED: 3-1-91
DEVELOPED: 3-1 and 4-91



WELL DATA

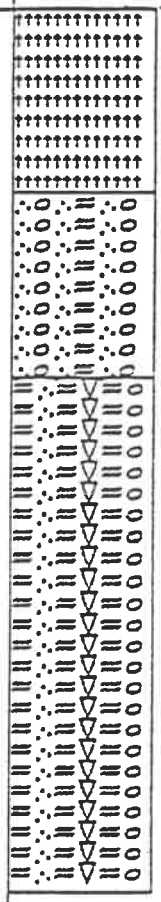
Flush monument to be installed by Owner's Paving Contractor.

Bentonite Chip Seal 0-2.5'

Monitoring Well
2" PVC Schedule 40
Flush Threads
Screen 0.020 inch Slots

Filter Sand
Colorado Silica

FORMATION DESCRIPTION



Sand and gravel fill

SAND and GRAVEL, with silt Brown, water

SILT with sand and gravel, Gray (Osceola Mudflow)

Sample No.	Interval feet	Blow counts
1	3 to 4.5	2-1-4
2	5.5 to 7	5-9-23
3	8 to 9.5	8-11-18

SCALE: 1" = 2FT.

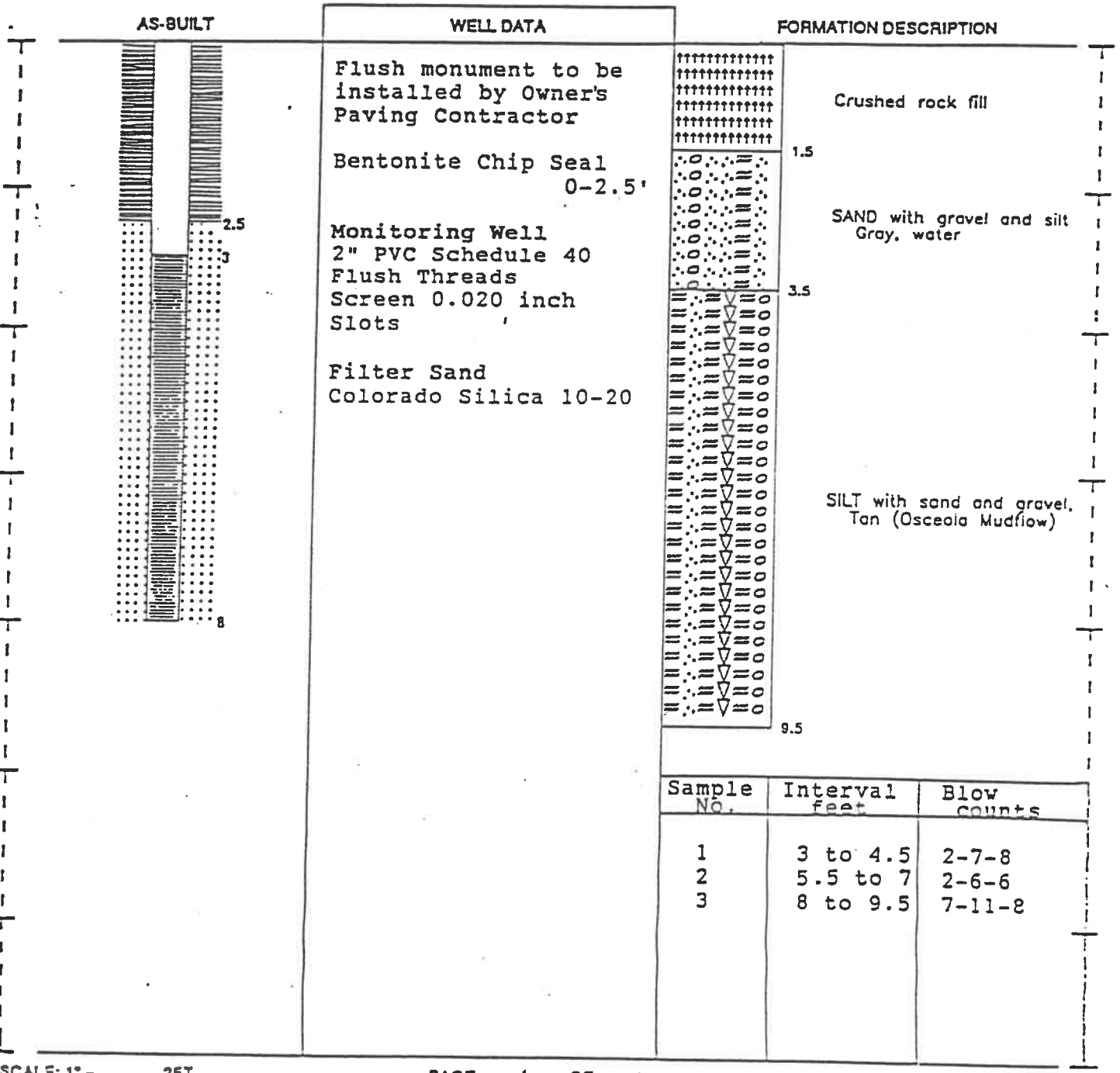
ECY 050-12 (Rev. 11/89)

RESOURCE PROTECTION WELL REPORT

START CARD NO. 040148

PROJECT NAME: Pierce County Library
WELL IDENTIFICATION NO. MW-3
DRILLING METHOD: 3 3/8-inch HSA
DRILLER: Pat Miller
FIRM: McDonald Holt, Inc.
SIGNATURE: [signature]
CONSULTING FIRM: Carr/Associates, Inc.
REPRESENTATIVE: Douglas C. Dow

COUNTY: Pierce
LOCATION: ¼ SW ¼ Sec 3 Twn 19 R 5E
STREET ADDRESS OF WELL: SW of intersection of So. River St. and Main St., Buckley
WATER LEVEL ELEVATION: 720.57 (3-7-91)
GROUND SURFACE ELEVATION: 721.60
INSTALLED: 3-1-91
DEVELOPED: 3-1 and 4-91



Sample No.	Interval feet	Blow counts
1	3 to 4.5	2-7-8
2	5.5 to 7	2-6-6
3	8 to 9.5	7-11-8

SCALE: 1" = 2FT.

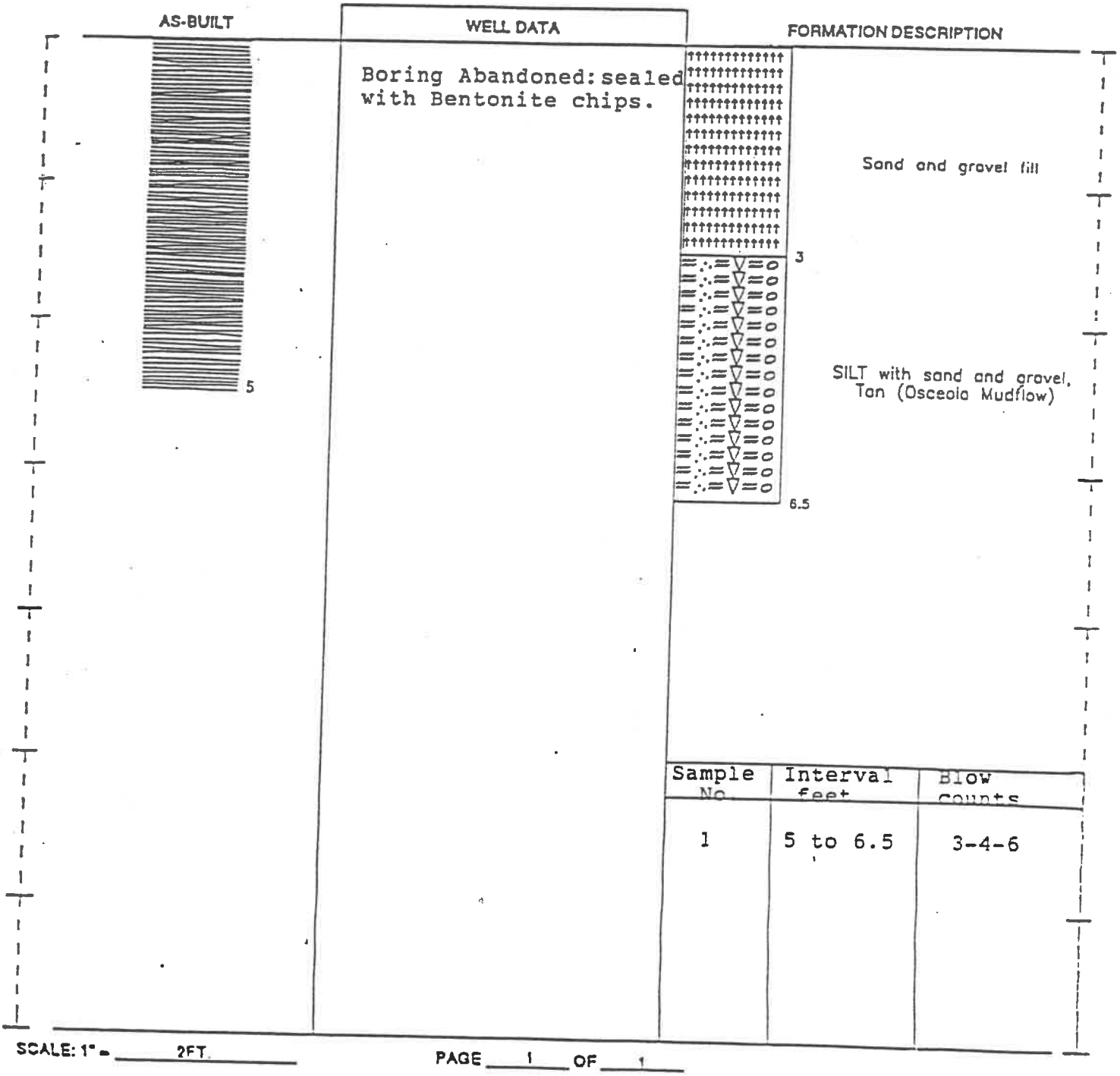
ECY 050-12 (Rev. 11/89)

RESOURCE PROTECTION WELL REPORT

START CARD NO. 040148

PROJECT NAME: Pierce County Library
WELL IDENTIFICATION NO. B-1
DRILLING METHOD: 3 3/8-inch HSA
DRILLER: Pat Miller
FIRM: McDonald Holt, Inc.
SIGNATURE: [signature]
CONSULTING FIRM: Carr/Associates, Inc.
REPRESENTATIVE: Douglas C. Dow

COUNTY: Pierce
LOCATION: ¼ SW ¼ Sec 3 Twn 19 R 6E
STREET ADDRESS OF WELL: SW of intersection of So. River ST. and Main St., Buckley.
WATER LEVEL ELEVATION: N/A
GROUND SURFACE ELEVATION: 721.60
INSTALLED: N/A
DEVELOPED: N/A



Sample No.	Interval feet	Blow counts
1	5 to 6.5	3-4-6

SCALE: 1" = 2FT.

PAGE 1 OF 1

ECY 050-12 (Rev. 11/89)

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Assoc. Date: March 11, 1991

Report On: Analysis of Soil Lab No.: 16282-2

IDENTIFICATION:
Samples Received on 03-01-91
Project: 900405 Pierce County Library - Buckley

ANALYSIS:

Lab Sample No.	Client ID	Total Petroleum Hydrocarbons, ppm by EPA Method 418.1
2	W1-4	18.5
3	W1-6	< 10.0
4	W1-9	< 10.0
5	W2-4	< 10.0
6	W2-6	< 10.0
7	W2-9	< 10.0
8	W3-4	< 10.0
9	W3-6	23.7
10	W3-9	< 10.0
11	C-1	< 10.0

Note - Results reported on an as received basis.

SOUND ANALYTICAL SERVICES

STAN P. PALMQUIST

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Assoc. Date: March 12, 1991

Report On: Analysis of Water Lab No.: 16346-3

IDENTIFICATION:
Samples Received on 03-06-91
Project: 900405 Pierce County Library
Client ID: Well #1

ANALYSIS:

Total Petroleum Hydrocarbons, ppm by EPA Method 418.1	< 10

SOUND ANALYTICAL SERVICES

STAN P. PALMQUIST

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Assoc. Date: March 11, 1991

Report On: Analysis of Water Lab No.: 16282-1

IDENTIFICATION:
Samples Received on 03-01-91
Project: 900405 Pierce County Library - Buckley
Client ID: W-1

ANALYSIS:

Sample was analyzed in accordance with Test Methods for Evaluating Solid Waste, (SW-846), U.S.E.P.A., 1986 Method 8240 (Volatile Organics)

CAS No.	Compounds	Concentration ug/l	PQL
74-87-3	Chloromethane	ND	10
74-83-9	Bromomethane	ND	10
75-01-4	Vinyl Chloride	ND	10
75-00-3	Chloroethane	ND	10
75-09-2	Methylene Chloride	ND	5
67-64-1	Acetone	ND	100
75-15-0	Carbon Disulfide	ND	5
75-35-4	1,1-Dichloroethene	ND	5
75-34-3	1,1-Dichloroethane	ND	5
540-59-0	1,2-Dichloroethene (Total)	ND	5
67-66-3	Chloroform	ND	5
107-06-2	1,2-Dichloroethane	ND	5
78-93-3	2-Butanone	ND	100
71-55-6	1,1,1-Trichloroethane	ND	5
56-23-5	Carbon Tetrachloride	ND	5
108-05-4	Vinyl Acetate	ND	50
75-27-4	Bromodichloromethane	ND	5
78-87-5	1,2-Dichloropropane	ND	5
10061-01-5	Cis-1,3-Dichloropropene	ND	5
79-01-6	Trichloroethene	ND	5
124-48-1	Dibromochloromethane	ND	5
79-00-5	1,1,2-Trichloroethane	ND	5

ND = Not Detectable

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Project: 900405
Lab No. 16282-1

March 11, 1991

Client ID: W-1

EPA Method 8240 Continued . . . . .

CAS No.	Compounds	Concentration ug/l	PQL
71-43-2	Benzene	ND	5
10061-02-6	Trans-1,3-Dichloropropene	ND	5
75-25-2	Bromoform	ND	5
108-10-1	4-Methyl-2-Pentanone	ND	50
591-78-6	2-Hexanone	ND	5
127-18-4	Tetrachloroethene	ND	5
79-34-5	1,1,2,2-Tetrachloroethane	ND	5
108-88-3	Toluene	ND	5
108-90-7	Chlorobenzene	ND	5
100-41-4	Ethyl Benzene	ND	5
100-42-5	Styrene	ND	5
1330-20-7	Total Xylenes	ND	5

ND = Not Detectable
PQL - Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.
* = Compound was detected but below PQL.

Volatile Surrogates

Surrogate	Percent Recovery	Control Limits
Toluene - D8	104	81 - 117
Bromofluorobenzene	111	74 - 121
1,2-Dichloroethane D4	85.3	70 - 121

SOUND ANALYTICAL SERVICES

DENNIS L. BEAN

This report is issued solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with industry acceptable practice. In no event shall Sound Analytical Services, Inc. or its employees be responsible for consequential or special damages in any kind or in any amount.

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Assoc. Date: March 12, 1991

Report On: Analysis of Water Lab No.: 16346-1

IDENTIFICATION:
Samples Received on 03-06-91
Project: 900405 Pierce County Library
Client ID: Well #2

ANALYSIS:

Sample was analyzed in accordance with Test Methods for Evaluating Solid Waste, (SW-846), U.S.E.P.A., 1986 Method 8240 (Volatile Organics)

CAS No.	Compounds	Concentration ug/l	PQL
74-87-3	Chloromethane	ND	10
74-83-9	Bromomethane	ND	10
75-01-4	Vinyl Chloride	ND	10
75-00-3	Chloroethane	ND	10
75-09-2	Methylene Chloride	ND	5
67-64-1	Acetone	ND	100
75-15-0	Carbon Disulfide	ND	5
75-35-4	1,1-Dichloroethene	ND	5
75-34-3	1,1-Dichloroethane	ND	5
540-59-0	1,2-Dichloroethene (Total)	ND	5
67-66-3	Chloroform	ND	5
107-06-2	1,2-Dichloroethane	ND	5
78-93-3	2-Butanone	ND	100
71-55-6	1,1,1-Trichloroethane	ND	5
56-23-5	Carbon Tetrachloride	ND	5
108-05-4	Vinyl Acetate	ND	50
75-27-4	Bromodichloromethane	ND	5
78-87-5	1,2-Dichloropropane	ND	5
10061-01-5	Cis-1,3-Dichloropropene	ND	5
79-01-6	Trichloroethene	ND	5
124-48-1	Dibromochloromethane	ND	5
79-00-5	1,1,2-Trichloroethane	ND	5

ND = Not Detectable

Continued . . . . .

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istry acceptable practice. In no event shall Sound Analytical Services, Inc. or its employees be responsible for consequential or special damages in any kin for in any amount

Salt, Bush & Assoc.
Project: 900405
Lab No. 16346-1

March 12, 1991

Client ID: Well #2

EPA Method 8240 Continued . . . . .

CAS No.	Compounds	Concentration ug/l	PQL
71-43-2	Benzene	ND	5
10061-02-6	Trans-1,3-Dichloropropene	ND	5
75-25-2	Bromoform	ND	5
108-10-1	4-Methyl-2-Pentanone	ND	50
591-78-6	2-Hexanone	ND	5
127-18-4	Tetrachloroethene	ND	5
79-34-5	1,1,2,2-Tetrachloroethane	ND	5
108-88-3	Toluene	ND	5
108-90-7	Chlorobenzene	ND	5
100-41-4	Ethyl Benzene	ND	5
100-42-5	Styrene	ND	5
1330-20-7	Total Xylenes	ND	5

ND = Not Detectable
PQL - Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.
* = Compound was detected but below PQL.

Volatile Surrogates

Surrogate	Percent Recovery	Control Limits
Toluene - D8	103	81 - 117
Bromofluorobenzene	103	74 - 121
1,2-Dichloroethane D4	93.1	70 - 121

Total Petroleum Hydrocarbons, ppm by EPA Method 418.1 < 10

SOUND ANALYTICAL SERVICES

DENNIS L. BEAN

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Assoc. Date: March 12, 1991

Report On: Analysis of Water Lab No.: 16346-2

IDENTIFICATION:
Samples Received on 03-06-91
Project: 900405 Pierce County Library
Client ID: Well #3

ANALYSIS:

Sample was analyzed in accordance with Test Methods for Evaluating Solid Waste, (SW-846), U.S.E.P.A., 1986 Method 8240 (Volatile Organics)

CAS No.	Compounds	Concentration ug/l	PQL
74-87-3	Chloromethane	ND	10
74-83-9	Bromomethane	ND	10
75-01-4	Vinyl Chloride	ND	10
75-00-3	Chloroethane	ND	10
75-09-2	Methylene Chloride	ND	5
67-64-1	Acetone	ND	100
75-15-0	Carbon Disulfide	ND	5
75-35-4	1,1-Dichloroethene	ND	5
75-34-3	1,1-Dichloroethane	ND	5
540-59-0	1,2-Dichloroethene (Total)	ND	5
67-66-3	Chloroform	ND	5
107-06-2	1,2-Dichloroethane	ND	5
78-93-3	2-Butanone	ND	100
71-55-6	1,1,1-Trichloroethane	ND	5
56-23-5	Carbon Tetrachloride	ND	5
108-05-4	Vinyl Acetate	ND	50
75-27-4	Bromodichloromethane	ND	5
78-87-5	1,2-Dichloropropane	ND	5
10061-01-5	Cis-1,3-Dichloropropene	ND	5
79-01-6	Trichloroethene	ND	5
124-48-1	Dibromochloromethane	ND	5
79-00-5	1,1,2-Trichloroethane	ND	5

ND = Not Detectable

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Project: 900405
Lab No. 16346-2

March 12, 1991

Client ID: Well #3

EPA Method 8240 Continued . . . . .

CAS No.	Compounds	Concentration ug/l	PQL
71-43-2	Benzene	ND	5
10061-02-6	Trans-1,3-Dichloropropene	ND	5
75-25-2	Bromoform	ND	5
108-10-1	4-Methyl-2-Pentanone	ND	50
591-78-6	2-Hexanone	ND	5
127-18-4	Tetrachloroethene	ND	5
79-34-5	1,1,2,2-Tetrachloroethane	ND	5
108-88-3	Toluene	ND	5
108-90-7	Chlorobenzene	ND	5
100-41-4	Ethyl Benzene	ND	5
100-42-5	Styrene	ND	5
1330-20-7	Total Xylenes	ND	5

ND = Not Detectable
PQL - Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.
* = Compound was detected but below PQL.

Volatile Surrogates

Surrogate	Percent Recovery	Control Limits
Toluene - D8	103	81 - 117
Bromofluorobenzene	105	74 - 121
1,2-Dichloroethane D4	92.5	70 - 121

Total Petroleum Hydrocarbons, ppm by EPA Method 418.1 < 10

SOUND ANALYTICAL SERVICES

DENNIS L. BEAN

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CHAIN OF CUSTODY RECORD / LABORATORY ANALYSIS REQUEST

Salt, Bush & Associates, Inc.
Environmental Property Assessments

(206) 383-1914
917 Pacific Avenue, Suite 411
P.O. Box 505
Tacoma, Washington 98401-0505

Special Instructions / Comments:

NOTE Sample W-1 for B240 was too small, will Re-submitted with W-2 & W-3 for B240 oil & TPH on 2-3

JOB NUMBER: 900405

PROJECT NAME: Pierce Co. Library - Buckley

Contact:

Telephone:

LABORATORY:

Telephone:

Sample ID #	Location / Reference	Date	Time	Preservative	Matrix	Hold for Future Analysis	Number of Containers	Detection Limits Desired	ANALYSIS REQUIRED: 418.1	B240									
W1-4	Well #1, 3-4.5' Deep	3-1-91	9:25A	ICE	Soil		1		✓										
W1-6	Well #1, 5.5-7.0' Deep	✓	9:35A	✓	✓		1		✓										
W1-9	Well #1, 8.0-9.5' Deep	✓	9:45A	✓	✓		1		✓										
W2-4	Well #2, 3.0-4.5' Deep	✓	10:40A	✓	✓		1		✓										
W2-6	Well #2, 5.5-7.0' Deep	✓	10:50A	✓	✓		1		✓										
W2-9	Well #2, 8.0-9.5' Deep	✓	10:55A	✓	✓		1		✓										
W3-4	Well #3, 3.0-4.5' Deep	✓	11:40A	✓	✓		1		✓										
W3-6	Well #3, 5.5-7.0' Deep	✓	11:45A	✓	✓		1		✓										
W3-9	Well #3, 8.0-9.5' Deep	✓	12:00	✓	✓		1		✓										
C-1	Center of Pit Excav.	✓	10:15A	✓	Soil		1		✓										
				Ice															
W-1	H2O from Well #1	3-1-91	2:15P	✓	H2O		1		✓	✓									
W-1	H2O from Well #1	3-1-91	2:15P	✓	H2O		1		✓	✓									

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: H E Bush	Signature: S Giang	Signature:	Signature:	Signature:	Signature:
Printed Name: H E BUSH	Printed Name: S Giang	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Firm: Salt Bush & Associates, Inc.	Firm: Source Environmental	Firm:	Firm:	Firm:	Firm:
Date / Time: 3-1-91 3:30 P	Date / Time: 3/1/91 3:30 pm	Date / Time:	Date / Time:	Date / Time:	Date / Time:

CHAIN OF CUSTODY RECORD / LABORATORY ANALYSIS REQUEST

Salt, Bush & Associates, Inc.
Environmental Property Assessments

(206) 383-1914
917 Pacific Avenue, Suite 411
P.O. Box 505
Tacoma, Washington 98401-0505

Special Instructions / Comments:

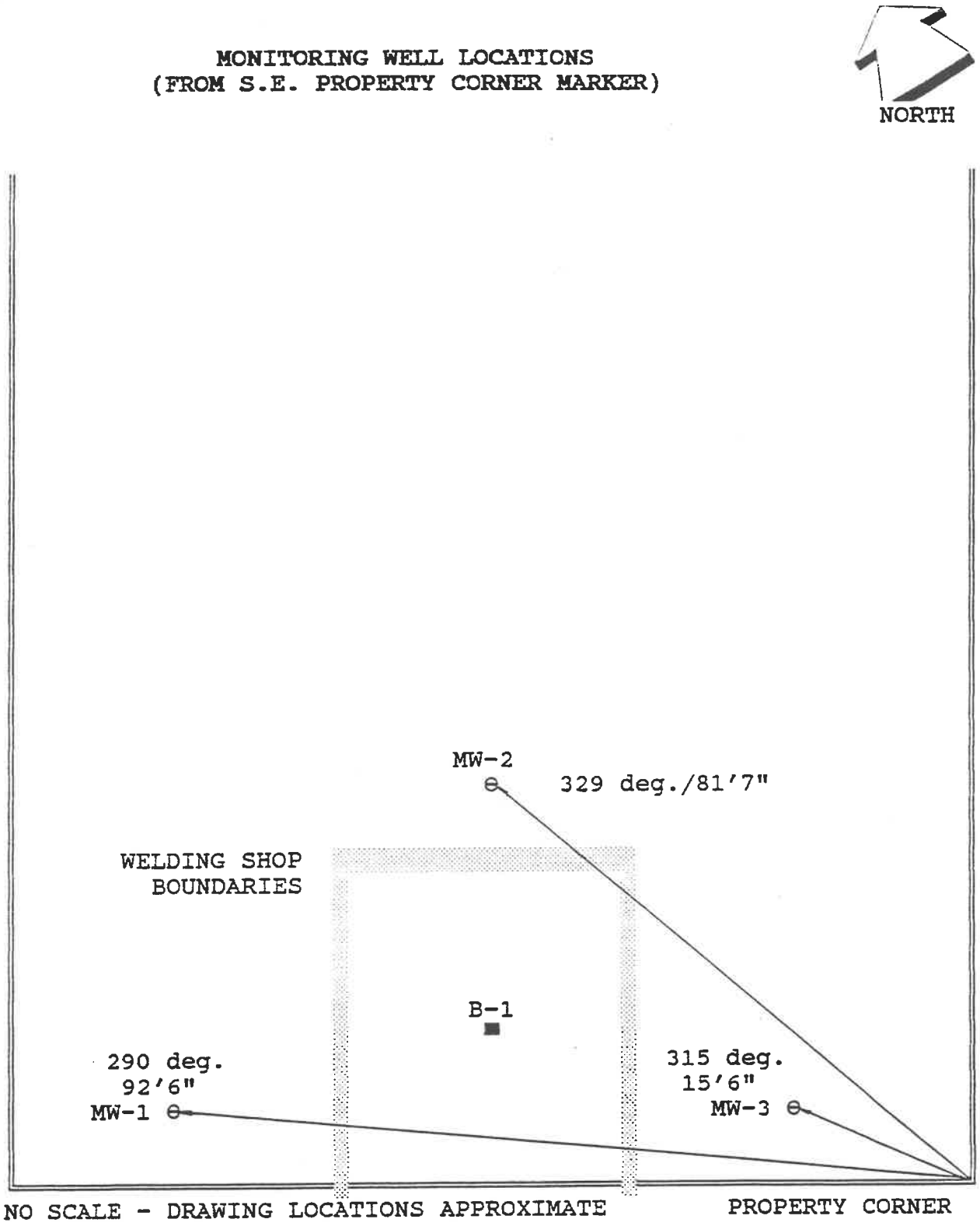
Wells 2+3 DO show Recovery / Hdrocarbons could not be pumped silt-free in any practical time frame. After analysis decision should be made as to time required. (Permitted)

JOB NUMBER: 900405
PROJECT NAME: Pierce Co. Library - Buckley
Contact:
Telephone:
LABORATORY:
Telephone:

Sample ID #	Location / Reference	Date	Time	Preservative	Matrix	Hold for Future Analysis	Number of Containers	Detection Limits Desired	ANALYSIS REQUIRED: 418.1	8240								
W-1	Well # 1	3-6-91	9:20A	H_2SO_4	H_2O		1		1									
W-2	Well # 2	3-6-91	9:35A	H_2SO_4	H_2O		1		1									
W-2	Well # 2	3-6-91	9:35A	None	H_2O		2			1								
W-3	Well # 3	3-6-91	9:55A	H_2SO_4	H_2O		1		1									
W-3	Well # 3	3-6-91	9:55A	None	H_2O		2			1								

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Hay E. Bush	Signature: Steiancy	Signature:	Signature:	Signature:	Signature:
Printed Name: H E Bush	Printed Name: Steiancy	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Firm: Salt Bush & Associates, Inc.	Firm: SBA	Firm:	Firm:	Firm:	Firm:
Date / Time: 3-6-91 11:15 AM	Date / Time: 3/6/91 11:20 AM	Date / Time:	Date / Time:	Date / Time:	Date / Time:

MONITORING WELL LOCATIONS
(FROM S.E. PROPERTY CORNER MARKER)



PIERCE COUNTY LIBRARY DISTRICT
BUCKLEY SITE

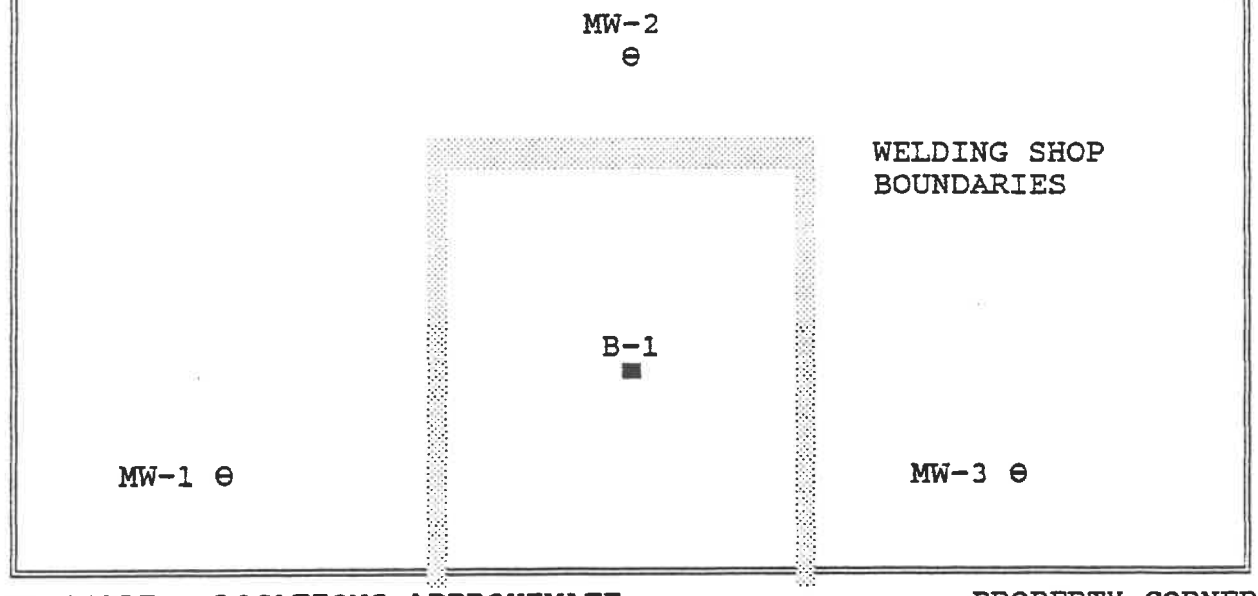
SAMPLE LOCATIONS/DESCRIPTIONS

MONITORING WELLS	SAMPLES	DEPTHS
MW-1	W1-4	3.0 FEET - 4.5 FEET
	W1-6	5.5 FEET - 7.0 FEET
	W1-9	8.0 FEET - 9.5 FEET
MW-2	W2-4	3.0 FEET - 4.5 FEET
	W2-6	5.5 FEET - 7.0 FEET
	W2-9	8.0 FEET - 9.5 FEET
MW-3	W3-4	3.0 FEET - 4.5 FEET
	W3-6	5.5 FEET - 7.0 FEET
	W3-9	8.0 FEET - 9.5 FEET

BORES	SAMPLES	DEPTHS
B-1	C-1	5.0 FEET - 6.5 FEET

WATER SAMPLES ARE IDENTIFIED AS:
WELL #1
WELL #2
WELL #3

SOUTH RIVER AVENUE...



NO SCALE - LOCATIONS APPROXIMATE

PROPERTY CORNER

PIERCE COUNTY LIBRARY DISTRICT
BUCKLEY SITE

APPENDIX D

May 1992 Saltbush Report

Saltbush Environmental Services, Inc.

Pierce County Library District
Buckley Site

SHALLOW GROUND WATER TEST REPORT

May 1, 1992

917 Pacific Avenue, Fourth Floor • P.O. Box 505 • Tacoma, Washington 98401-0505 • (206) 383-1914 • FAX (206) 383-4525

Saltbush Environmental Services, Inc.

May 1, 1992

Diane Thompson
Pierce County Library District
2356 Tacoma Avenue South
Tacoma, Washington 98402

Re: Buckley Site
Shallow Ground Water Sampling Report

Dear Diane:

Enclosed you will find the required number of copies of the subject report. If you should require additional copies of this document, please do not hesitate to contact us.

Yours truly,

SALTBUSH ENVIRONMENTAL SERVICES, INC.

Harry E. Bush
Consultant to Saltbush Environmental
Services, Incorporated

917 Pacific Avenue, Fourth Floor • P.O. Box 505 • Tacoma, Washington 98401-0505 • (206) 383-1914 • FAX (206) 383-4525

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SAMPLE DESCRIPTIONS AND ANALYTICAL RESULTS	4	

PIERCE COUNTY LIBRARY DISTRICT

BUCKLEY SITE
Project Reference: 91032135

Pierce County, Washington

SHALLOW GROUND WATER SAMPLING

TEST REPORT

Prepared for: Pierce County Library District
Attn: Diane Thompson
2356 Tacoma Avenue South
Tacoma, Washington 98402

INTRODUCTION

The following report has been prepared for the exclusive use of the Pierce County Library District to inform them of the water quality in the three monitoring wells on site in the parking lot of the Buckley Library Branch. This study was initiated to determine the presence of Methylene Chloride and Petroleum Hydrocarbons in the water over a period of several months. This system of monitoring wells is considered standard procedure when these materials are discovered in soils in concentrations considered to be a threat to human health. The threat is established by the Model Toxics Control Act (MTCA) and interpreted by one of the Regulatory Agencies.

SITE OBSERVATIONS

The monitoring wells had been properly monumented as required, at the time of the July sampling. Although each well had been developed at the time that they were established, the nature of a shallow system, perched or trapped surface water,

their condition is poor. There is more than the usual amount of silt that has washed through each well. Each sampling during the year required pumping silt in excess amounts, this had to be done each time the water was be totally purged from the well. They were very slow to recharge after being purged. This indicates that both volume and flow rates are very low.

TEST DATA AND RECOMMENDATIONS

It has been observed in reviewing the analytical data from March through December of 1991 that Methylene Chloride was never detected. This is a good indication that this material was removed form the soil near and around the welding shop. Total Petroleum Hydrocarbons are presenting a much different view as documented in well # 2 in June and well # 3 in September. It is quite possible that during this period, a dry season, that the flow took a 90 degree swing. This is very feasible as pointed out in the Carr/Associates report C/A 10361 dated March 25, 1991. The TPH levels are not alarmingly high but do exceed the MTCA levels for clean up. Our recommendation is to monitor all three wells for one year on a Quarterly basis. Record the static water level each time and analyze only for Total Petroleum Hydrocarbons.

An informational copy of this report will be sent to John Hildenbrand so that he is aware of our plan. At the end of the one year well monitoring, results will be tabulated and sent to the Health Department for their input.

If you have any questions regarding this report, please let us know. We will assist you in way that will be helpful to you.

Very truly,

SALTBUSH ENVIRONMENTAL SERVICES, INC

Harry E. Bush
Consultant to Saltbush

HEB:ssg
Enclosures

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Assoc.

Date: March 12, 1991
Revised: May 9, 1991

Report On: Analysis of Water

Lab No.: 16346-3

IDENTIFICATION:
Samples Received on 03-06-91
Project: 900405 Pierce County Library
Client ID: Well #1

ANALYSIS:

Total Petroleum Hydrocarbons, ppm by EPA Method 418.1	< 1.0

SOUND ANALYTICAL SERVICES

STAN P. PALMQUIST

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Project: 900405
Lab No. 16282-1

March 11, 1991

Client ID: W-1

EPA Method 8240 Continued . . . . .

CAS No.	Compounds	Concentration ug/l	PQL
71-43-2	Benzene	ND	5
10061-02-6	Trans-1,3-Dichloropropene	ND	5
75-25-2	Bromoform	ND	5
108-10-1	4-Methyl-2-Pentanone	ND	50
591-78-6	2-Hexanone	ND	5
127-18-4	Tetrachloroethene	ND	5
79-34-5	1,1,2,2-Tetrachloroethane	ND	5
108-88-3	Toluene	ND	5
108-90-7	Chlorobenzene	ND	5
100-41-4	Ethyl Benzene	ND	5
100-42-5	Styrene	ND	5
1330-20-7	Total Xylenes	ND	5

ND = Not Detectable
PQL - Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.
* = Compound was detected but below PQL.

Volatile Surrogates

Surrogate	Percent Recovery	Control Limits
Toluene - D8	104	81 - 117
Bromofluorobenzene	111	74 - 121
1,2-Dichloroethane D4	85.3	70 - 121

SOUND ANALYTICAL SERVICES

DENNIS L. BEAN

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Assoc.

Date: March 12, 1991
Revised: May 9, 1991

Report On: Analysis of Water

Lab No.: 16346-1

IDENTIFICATION:
Samples Received on 03-06-91
Project: 900405 Pierce County Library
Client ID: Well #2

ANALYSIS:

Sample was analyzed in accordance with Test Methods for Evaluating Solid Waste, (SW-846), U.S.E.P.A., 1986 Method 8240 (Volatile Organics)

CAS No.	Compounds	Concentration ug/l	PQL
74-87-3	Chloromethane	ND	10
74-83-9	Bromomethane	ND	10
75-01-4	Vinyl Chloride	ND	10
75-00-3	Chloroethane	ND	10
75-09-2	Methylene Chloride	ND	5
67-64-1	Acetone	ND	100
75-15-0	Carbon Disulfide	ND	5
75-35-4	1,1-Dichloroethene	ND	5
75-34-3	1,1-Dichloroethane	ND	5
540-59-0	1,2-Dichloroethene (Total)	ND	5
67-66-3	Chloroform	ND	5
107-06-2	1,2-Dichloroethane	ND	5
78-93-3	2-Butanone	ND	100
71-55-6	1,1,1-Trichloroethane	ND	5
56-23-5	Carbon Tetrachloride	ND	5
108-05-4	Vinyl Acetate	ND	50
75-27-4	Bromodichloromethane	ND	5
78-87-5	1,2-Dichloropropane	ND	5
10061-01-5	Cis-1,3-Dichloropropene	ND	5
79-01-6	Trichloroethene	ND	5
124-48-1	Dibromochloromethane	ND	5
79-00-5	1,1,2-Trichloroethane	ND	5

ND = Not Detectable

Continued . . . . .

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SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Assoc. Date: March 11, 1991

Report On: Analysis of Water Lab No.: 16282-1

IDENTIFICATION:
Samples Received on 03-01-91
Project: 900405 Pierce County Library - Buckley
Client ID: W-1

ANALYSIS:

Sample was analyzed in accordance with Test Methods for Evaluating Solid Waste, (SW-846), U.S.E.P.A., 1986 Method 8240 (Volatile Organics)

CAS No.	Compounds	Concentration ug/l	PQL
74-87-3	Chloromethane	ND	10
74-83-9	Bromomethane	ND	10
75-01-4	Vinyl Chloride	ND	10
75-00-3	Chloroethane	ND	10
75-09-2	Methylene Chloride	ND	5
67-64-1	Acetone	ND	100
75-15-0	Carbon Disulfide	ND	5
75-35-4	1,1-Dichloroethene	ND	5
75-34-3	1,1-Dichloroethane	ND	5
540-59-0	1,2-Dichloroethene (Total)	ND	5
67-66-3	Chloroform	ND	5
107-06-2	1,2-Dichloroethane	ND	5
78-93-3	2-Butanone	ND	100
71-55-6	1,1,1-Trichloroethane	ND	5
56-23-5	Carbon Tetrachloride	ND	5
108-05-4	Vinyl Acetate	ND	50
75-27-4	Bromodichloromethane	ND	5
78-87-5	1,2-Dichloropropane	ND	5
10061-01-5	Cis-1,3-Dichloropropene	ND	5
79-01-6	Trichloroethene	ND	5
124-48-1	Dibromochloromethane	ND	5
79-00-5	1,1,2-Trichloroethane	ND	5

ND = Not Detectable

Continued . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Project: 900405
Lab No. 16346-1

March 12, 1991
Revised: May 9, 1991

Client ID: Well #2

EPA Method 8240 Continued . . . . .

CAS No.	Compounds	Concentration ug/l	PQL
71-43-2	Benzene	ND	5
10061-02-6	Trans-1,3-Dichloropropene	ND	5
75-25-2	Bromoform	ND	5
108-10-1	4-Methyl-2-Pentanone	ND	50
591-78-6	2-Hexanone	ND	5
127-18-4	Tetrachloroethene	ND	5
79-34-5	1,1,2,2-Tetrachloroethane	ND	5
108-88-3	Toluene	ND	5
108-90-7	Chlorobenzene	ND	5
100-41-4	Ethyl Benzene	ND	5
100-42-5	Styrene	ND	5
1330-20-7	Total Xylenes	ND	5

ND = Not Detectable
PQL - Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.
* = Compound was detected but below PQL.

Volatile Surrogates

Surrogate	Percent Recovery	Control Limits
Toluene - D8	103	81 - 117
Bromofluorobenzene	103	74 - 121
1,2-Dichloroethane D4	93.1	70 - 121

Total Petroleum Hydrocarbons, ppm by EPA Method 418.1 < 1.0

SOUND ANALYTICAL SERVICES

DENNIS L. BEAN

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Assoc.

Date: March 12, 1991
Revised: May 9, 1991

Report On: Analysis of Water

Lab No.: 16346-2

IDENTIFICATION:
Samples Received on 03-06-91
Project: 900405 Pierce County Library
Client ID: Well #3

ANALYSIS:

Sample was analyzed in accordance with Test Methods for Evaluating Solid Waste, (SW-846), U.S.E.P.A., 1986 Method 8240 (Volatile Organics)

CAS No.	Compounds	Concentration ug/l	PQL
74-87-3	Chloromethane	ND	10
74-83-9	Bromomethane	ND	10
75-01-4	Vinyl Chloride	ND	10
75-00-3	Chloroethane	ND	10
75-09-2	Methylene Chloride	ND	5
67-64-1	Acetone	ND	100
75-15-0	Carbon Disulfide	ND	5
75-35-4	1,1-Dichloroethene	ND	5
75-34-3	1,1-Dichloroethane	ND	5
540-59-0	1,2-Dichloroethene (Total)	ND	5
67-66-3	Chloroform	ND	5
107-06-2	1,2-Dichloroethane	ND	5
78-93-3	2-Butanone	ND	100
71-55-6	1,1,1-Trichloroethane	ND	5
56-23-5	Carbon Tetrachloride	ND	5
108-05-4	Vinyl Acetate	ND	50
75-27-4	Bromodichloromethane	ND	5
78-87-5	1,2-Dichloropropane	ND	5
10061-01-5	Cis-1,3-Dichloropropene	ND	5
79-01-6	Trichloroethene	ND	5
124-48-1	Dibromochloromethane	ND	5
79-00-5	1,1,2-Trichloroethane	ND	5

ND = Not Detectable

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Project: 900405
Lab No. 16346-2

March 12, 1991
Revised: May 9, 1991

Client ID: Well #3

EPA Method 8240 Continued . . . . .

CAS No.	Compounds	Concentration ug/l	PQL
71-43-2	Benzene	ND	5
10061-02-6	Trans-1,3-Dichloropropene	ND	5
75-25-2	Bromoform	ND	5
108-10-1	4-Methyl-2-Pentanone	ND	50
591-78-6	2-Hexanone	ND	5
127-18-4	Tetrachloroethene	ND	5
79-34-5	1,1,2,2-Tetrachloroethane	ND	5
108-88-3	Toluene	ND	5
108-90-7	Chlorobenzene	ND	5
100-41-4	Ethyl Benzene	ND	5
100-42-5	Styrene	ND	5
1330-20-7	Total Xylenes	ND	5

ND = Not Detectable
PQL - Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.
* = Compound was detected but below PQL.

Volatile Surrogates

Surrogate	Percent Recovery	Control Limits
Toluene - D8	103	81 - 117
Bromofluorobenzene	105	74 - 121
1,2-Dichloroethane D4	92.5	70 - 121

Total Petroleum Hydrocarbons, ppm by EPA Method 418.1 < 1.0

SOUND ANALYTICAL SERVICES

DENNIS L. BEAN

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CHAIN OF CUSTODY RECORD / LABORATORY ANALYSIS REQUEST

Salt, Bush & Associates, Inc.
Environmental Property Assessments

(206) 383-1914
917 Pacific Avenue, Suite 411
P.O. Box 505
Tacoma, Washington 98401-0505

Special Instructions / Comments:

Wells 2+3 DO show Recovery / Hdrocarbons could not be pumped silt-free in any practical time frame. After Analysis decision should be made AS TO Time required. (practicality)

JOB NUMBER: 900405
PROJECT NAME: Pierce Co. Library - Buckley
Contact:
Telephone:
LABORATORY:
Telephone:

Sample ID #	Location / Reference	Date	Time	Preservative	Matrix	Hold for Future Analysis	Number of Containers	Detection Limits Desired	ANALYSIS REQUIRED: 418.1	8240								
W-1	Well #1	3-6-91	9:10A	H_2SO_4	H_2O		1		✓									
W-2	Well #2	3-6-91	9:35A	H_2SO_4	H_2O		1		✓									
W-2	Well #2	3-6-91	9:35A	None	H_2O		2			✓								
W-3	Well #3	3-6-91	9:55A	H_2SO_4	H_2O		1		✓									
W-3	Well #3	3-6-91	9:55A	None	H_2O		2			✓								

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Hay E. Bush	Signature: Siang	Signature:	Signature:	Signature:	Signature:
Printed Name: HEBush	Printed Name: Siang	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Firm: Salt Bush & Associates, Inc.	Firm: SAS	Firm:	Firm:	Firm:	Firm:
Date / Time: 3-6-91 11:15Am	Date / Time: 3/6/91 11:20 AM	Date / Time:	Date / Time:	Date / Time:	Date / Time:

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Assoc. Date: July 11, 1991

Report On: Analysis of Water Lab No.: 18434-1

IDENTIFICATION:

Samples Received on 06-28-91
Project: Buckley Cleanup
Client ID: Well #1

ANALYSIS:

Sample was analyzed in accordance with Test Methods for Evaluating Solid Waste, (SW-846), U.S.E.P.A., 1986 Method 8240 (Volatile Organics)

CAS No.	Compounds	Concentration ug/l	PQL
74-87-3	Chloromethane	ND	20
74-83-9	Bromomethane	ND	20
75-01-4	Vinyl Chloride	ND	20
75-00-3	Chloroethane	ND	20
75-09-2	Methylene Chloride	ND	10
67-64-1	Acetone	ND	200
75-15-0	Carbon Disulfide	ND	10
75-35-4	1,1-Dichloroethene	ND	10
75-34-3	1,1-Dichloroethane	ND	10
540-59-0	1,2-Dichloroethene (Total)	ND	10
67-66-3	Chloroform	ND	10
107-06-2	1,2-Dichloroethane	ND	10
78-93-3	2-Butanone	ND	200
71-55-6	1,1,1-Trichloroethane	ND	10
56-23-5	Carbon Tetrachloride	ND	10
108-05-4	Vinyl Acetate	ND	100
75-27-4	Bromodichloromethane	ND	10
78-87-5	1,2-Dichloropropane	ND	10
10061-01-5	Cis-1,3-Dichloropropene	ND	10
79-01-6	Trichloroethene	ND	10
124-48-1	Dibromochloromethane	ND	10
79-00-5	1,1,2-Trichloroethane	ND	10

ND = Not Detected

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Project: Buckley Cleanup
Lab No. 18434-1

July 11, 1991

Client ID: Well #1

EPA Method 8240 Continued . . . . .

CAS No.	Compounds	Concentration ug/l	PQL
71-43-2	Benzene	ND	10
10061-02-6	Trans-1,3-Dichloropropene	ND	10
75-25-2	Bromoform	ND	10
108-10-1	4-Methyl-2-Pentanone	ND	100
591-78-6	2-Hexanone	ND	10
127-18-4	Tetrachloroethene	ND	10
79-34-5	1,1,2,2-Tetrachloroethane	ND	10
108-88-3	Toluene	ND	10
108-90-7	Chlorobenzene	ND	10
100-41-4	Ethyl Benzene	ND	10
100-42-5	Styrene	ND	10
1330-20-7	Total Xylenes	ND	10

ND = Not Detected
PQL - Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.
* = Compound was detected but below PQL.

Volatile Surrogates

Surrogate	Percent Recovery	Control Limits
Toluene - D8	92	81 - 117
Bromofluorobenzene	100	74 - 121
1,2-Dichloroethane D4	108	70 - 121

Total Petroleum Hydrocarbons, mg/l by EPA Method 418.1 < 1.0

SOUND ANALYTICAL SERVICES

DENNIS L. BEAN

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Assoc. Date: July 11, 1991

Report On: Analysis of Water Lab No.: 18434-2

IDENTIFICATION:
Samples Received on 06-28-91
Project: Buckley Cleanup
Client ID: Well #2

ANALYSIS:

Sample was analyzed in accordance with Test Methods for Evaluating Solid Waste, (SW-846), U.S.E.P.A., 1986 Method 8240 (Volatile Organics)

CAS No.	Compounds	Concentration ug/l	PQL
74-87-3	Chloromethane	ND	20
74-83-9	Bromomethane	ND	20
75-01-4	Vinyl Chloride	ND	20
75-00-3	Chloroethane	ND	20
75-09-2	Methylene Chloride	ND	10
67-64-1	Acetone	ND	200
75-15-0	Carbon Disulfide	ND	10
75-35-4	1,1-Dichloroethene	ND	10
75-34-3	1,1-Dichloroethane	ND	10
540-59-0	1,2-Dichloroethene (Total)	ND	10
67-66-3	Chloroform	ND	10
107-06-2	1,2-Dichloroethane	ND	10
78-93-3	2-Butanone	ND	200
71-55-6	1,1,1-Trichloroethane	ND	10
56-23-5	Carbon Tetrachloride	ND	10
108-05-4	Vinyl Acetate	ND	100
75-27-4	Bromodichloromethane	ND	10
78-87-5	1,2-Dichloropropane	ND	10
10061-01-5	Cis-1,3-Dichloropropene	ND	10
79-01-6	Trichloroethene	ND	10
124-48-1	Dibromochloromethane	ND	10
79-00-5	1,1,2-Trichloroethane	ND	10

ND = Not Detected

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Project: Buckley Cleanup
Lab No. 18434-2

July 11, 1991

Client ID: Well #2

EPA Method 8240 Continued . . . . .

CAS No.	Compounds	Concentration ug/l	PQL
71-43-2	Benzene	ND	10
10061-02-6	Trans-1,3-Dichloropropene	ND	10
75-25-2	Bromoform	ND	10
108-10-1	4-Methyl-2-Pentanone	ND	100
591-78-6	2-Hexanone	ND	10
127-18-4	Tetrachloroethene	ND	10
79-34-5	1,1,2,2-Tetrachloroethane	ND	10
108-88-3	Toluene	ND	10
108-90-7	Chlorobenzene	ND	10
100-41-4	Ethyl Benzene	ND	10
100-42-5	Styrene	ND	10
1330-20-7	Total Xylenes	ND	10

ND = Not Detected
PQL - Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.
* = Compound was detected but below PQL.

Volatile Surrogates

Surrogate	Percent Recovery	Control Limits
Toluene - D8	105	81 - 117
Bromofluorobenzene	99	74 - 121
1,2-Dichloroethane D4	97	70 - 121

Total Petroleum Hydrocarbons, mg/l by EPA Method 418.1 — 5.6

SOUND ANALYTICAL SERVICES

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Assoc. Date: July 11, 1991

Report On: Analysis of Water Lab No.: 18434-3

IDENTIFICATION:
Samples Received on 06-28-91
Project: Buckley Cleanup
Client ID: Well #3

ANALYSIS:

Sample was analyzed in accordance with Test Methods for Evaluating Solid Waste, (SW-846), U.S.E.P.A., 1986 Method 8240 (Volatile Organics)

CAS No.	Compounds	Concentration ug/l	PQL
74-87-3	Chloromethane	ND	20
74-83-9	Bromomethane	ND	20
75-01-4	Vinyl Chloride	ND	20
75-00-3	Chloroethane	ND	20
75-09-2	Methylene Chloride	ND	10
67-64-1	Acetone	220	200
75-15-0	Carbon Disulfide	ND	10
75-35-4	1,1-Dichloroethene	ND	10
75-34-3	1,1-Dichloroethane	ND	10
540-59-0	1,2-Dichloroethene (Total)	ND	10
67-66-3	Chloroform	ND	10
107-06-2	1,2-Dichloroethane	ND	10
78-93-3	2-Butanone	ND	200
71-55-6	1,1,1-Trichloroethane	ND	10
56-23-5	Carbon Tetrachloride	ND	10
108-05-4	Vinyl Acetate	ND	100
75-27-4	Bromodichloromethane	ND	10
78-87-5	1,2-Dichloropropane	ND	10
10061-01-5	Cis-1,3-Dichloropropene	ND	10
79-01-6	Trichloroethene	ND	10
124-48-1	Dibromochloromethane	ND	10
79-00-5	1,1,2-Trichloroethane	ND	10

ND = Not Detected

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Project: Buckley Cleanup
Lab No. 18434-3

July 11, 1991

Client ID: Well #3

EPA Method 8240 Continued . . . . .

CAS No.	Compounds	Concentration ug/l	PQL
71-43-2	Benzene	ND	10
10061-02-6	Trans-1,3-Dichloropropene	ND	10
75-25-2	Bromoform	ND	10
108-10-1	4-Methyl-2-Pentanone	ND	100
591-78-6	2-Hexanone	ND	10
127-18-4	Tetrachloroethene	ND	10
79-34-5	1,1,2,2-Tetrachloroethane	ND	10
108-88-3	Toluene	ND	10
108-90-7	Chlorobenzene	ND	10
100-41-4	Ethyl Benzene	ND	10
100-42-5	Styrene	ND	10
1330-20-7	Total Xylenes	ND	10

ND = Not Detected
PQL - Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.
* = Compound was detected but below PQL.

Volatile Surrogates

Surrogate	Percent Recovery	Control Limits
Toluene - D8	104	81 - 117
Bromofluorobenzene	101	74 - 121
1,2-Dichloroethane D4	96	70 - 121

Total Petroleum Hydrocarbons, mg/l by EPA Method 418.1 < 1.0

SOUND ANALYTICAL SERVICES

DENNIS L. BEAN

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Assoc. Date: July 11, 1991

Report On: Analysis of Water Lab No.: 18434-1D

IDENTIFICATION:
Samples Received on 06-28-91
Project: Buckley Cleanup
Client ID: Well #1 **(DUPLICATE)**

ANALYSIS:

Sample was analyzed in accordance with Test Methods for Evaluating Solid Waste, (SW-846), U.S.E.P.A., 1986 Method 8240 (Volatile Organics)

CAS No.	Compounds	Concentration ug/l	PQL
74-87-3	Chloromethane	ND	20
74-83-9	Bromomethane	ND	20
75-01-4	Vinyl Chloride	ND	20
75-00-3	Chloroethane	ND	20
75-09-2	Methylene Chloride	ND	10
67-64-1	Acetone	ND	200
75-15-0	Carbon Disulfide	ND	10
75-35-4	1,1-Dichloroethene	ND	10
75-34-3	1,1-Dichloroethane	ND	10
540-59-0	1,2-Dichloroethene (Total)	ND	10
67-66-3	Chloroform	ND	10
107-06-2	1,2-Dichloroethane	ND	10
78-93-3	2-Butanone	ND	200
71-55-6	1,1,1-Trichloroethane	ND	10
56-23-5	Carbon Tetrachloride	ND	10
108-05-4	Vinyl Acetate	ND	100
75-27-4	Bromodichloromethane	ND	10
78-87-5	1,2-Dichloropropane	ND	10
10061-01-5	Cis-1,3-Dichloropropene	ND	10
79-01-6	Trichloroethene	ND	10
124-48-1	Dibromochloromethane	ND	10
79-00-5	1,1,2-Trichloroethane	ND	10

ND = Not Detected

Continued . . . . .

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SOUND ANALYTICAL SERVICES, INC.

Salt, Bush & Assoc.
Project: Buckley Cleanup
Lab No. 18434-1D

July 11, 1991

Client ID: Well #1 (DUPLICATE)

EPA Method 8240 Continued . . . . .

CAS No.	Compounds	Concentration ug/l	PQL
71-43-2	Benzene	ND	10
10061-02-6	Trans-1,3-Dichloropropene	ND	10
75-25-2	Bromoform	ND	10
108-10-1	4-Methyl-2-Pentanone	ND	100
591-78-6	2-Hexanone	ND	10
127-18-4	Tetrachloroethene	ND	10
79-34-5	1,1,2,2-Tetrachloroethane	ND	10
108-88-3	Toluene	ND	10
108-90-7	Chlorobenzene	ND	10
100-41-4	Ethyl Benzene	ND	10
100-42-5	Styrene	ND	10
1330-20-7	Total Xylenes	ND	10

ND = Not Detected
PQL - Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.
* = Compound was detected but below PQL.

Volatile Surrogates

Surrogate	Percent Recovery	Control Limits
Toluene - D8	91	81 - 117
Bromofluorobenzene	111	74 - 121
1,2-Dichloroethane D4	113	70 - 121

Total Petroleum Hydrocarbons, mg/l by EPA Method 418.1 < 1.0

SOUND ANALYTICAL SERVICES

DENNIS L. BEAN

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

QUALITY CONTROL REPORT

DUPLICATES

Lab No: 18434-1
Date: July 11, 1991
Client: Salt, Bush & Assoc.

Client ID: Well #1
Matrix: Water
Units: ug/l

Compound	Sample(S)	Duplicate(D)	RPD*
Total Petroleum Hydrocarbons	< 1.0	< 1.0	---

*RPD = relative percent difference
= [(S - D) / ((S + D) / 2)] x 100

CHAIN OF CUSTODY RECORD / LABORATORY ANALYSIS REQUEST

Salt, Bush & Associates, Inc.
Environmental Property Assessments

(206) 383-1914
917 Pacific Avenue, Suite 411
P.O. Box 505
Tacoma, Washington 98401-0505

Special Instructions / Comments:

JOB NUMBER: 91061154-A
PROJECT NAME: BUCKLEY CLEANUP
Contact: DENNIS SALT
Telephone: 383-1914
LABORATORY: SAS
Telephone:

Sample ID #	Location / Reference	Date	Time	Preservative	Matrix	Hold for Future Analysis	Number of Containers	Detection Limits Desired	ANALYSIS REQUIRED: HTH 418.1	8240 VOLATILES
1A	WELL #1	6-28	10:08	COOL	H_2O		1			*
1A	" (DUPLICATE)	"	"	"	"		1			*
1B	WELL #1	"	"	H_2SO_4	"		1		*	
2A	WELL #2	"	10:45	COOL	"		1			*
2A	" (DUPLICATE)	"	"	"	"		1			*
2B	WELL #2	"	"	H_2SO_4	"		1		*	
3A	WELL #3	"	11:30	COOL	"		1			*
3A	WELL #3 (DUPLICATE)	"	"	"	"		1			*
3B	WELL #3	"	"	H_2SO_4	"		1		*	

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature:	Signature: Mary Curtiss	Signature:	Signature:	Signature:	Signature:
Printed Name: DENNIS SALT	Printed Name: Mary Curtiss	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Firm: Salt Bush & Associates, Inc.	Firm: SAS	Firm:	Firm:	Firm:	Firm:
Date / Time: 6-28-91 1:40	Date / Time: 6/28/91 1:40	Date / Time:	Date / Time:	Date / Time:	Date / Time:

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Associates Date: September 24, 1991

Report On: Analysis of Water Lab No.: 20003

IDENTIFICATION:
Sample received on 09-16-91
Project: Pierce Co. Library

ANALYSIS:

Lab Sample No.	1	2	3
Client Identification	W1	W2	W3
Units	mg/l	mg/l	mg/l
Total Petroleum Hydorcarbons by EPA Method 418.1	< 1.0	< 1.0	1.4
Methylene Chloride by EPA Method 601.	< 0.001	< 0.001	< 0.001
SURROGATE RECOVERIES, %			
Bromochloromethane	142	156	149
2-bromo-1-chloropropane	116	116	121
1,4-dichlorobutane	118	124	122

SOUND ANALYTICAL SERVICES

STAN P. PALMQUIST

This report is issued solely for the use of the person or company to whom it is addressed. This laboratory accepts responsibility only for the due performance of analysis in accordance with industry acceptable practice. In no event shall Sound Analytical Services, Inc. or its employees be responsible for consequential or special damages in any kind or in any amount.

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

QUALITY CONTROL REPORT

DUPLICATES

Client: Salt, Bush & Associates
Lab No: 20003 (1)
Client ID: W1
Matrix: Water
Units: mg/l
Date: September 24, 1991

PURGEABLE HALOCARBONS PER EPA, METHOD 601

COMPOUND	SAMPLE (S)	DUPLICATE (D)	RPD
Methylene chloride	< 0.001	< 0.001	0.0

RPD = Relative Percent Difference
= [(S - D) / ((S + D) / 2] x 100

SURROGATE RECOVERIES%

COMPOUND	SAMPLE	DUPLICATE
Bromochloromethane	142	142
2-bromo-1-chloropropane	116	115
1,4-dichlorobutane	118	121

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush & Associates Date: September 24, 1991

Report On: Analysis of Water Lab No.: 20003

IDENTIFICATION:
Sample received on 09-16-91
Project: Pierce Co. Library

ANALYSIS:

Lab Sample No.	1	2	3
Client Identification	W1	W2	W3
Units	mg/l	mg/l	mg/l
Total Petroleum Hydorcarbons by EPA Method 418.1	< 1.0	< 1.0	1.4
Methylene Chloride by EPA Method 601.	< 0.001	< 0.001	< 0.001
SURROGATE RECOVERIES, %			
Bromochloromethane	142	156	149
2-bromo-1-chloropropane	116	116	121
1,4-dichlorobutane	118	124	122

SOUND ANALYTICAL SERVICES

STAN P. PALMQUIST

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

QUALITY CONTROL REPORT

DUPLICATES

Client: Salt, Bush & Associates
Lab No: 20003 (1)
Client ID: W1
Matrix: Water
Units: mg/l
Date: September 24, 1991

PURGEABLE HALOCARBONS PER EPA, METHOD 601

COMPOUND	SAMPLE (S)	DUPLICATE (D)	RPD
Methylene chloride	< 0.001	< 0.001	0.0

RPD = Relative Percent Difference
= [(S - D) / ((S + D) / 2] x 100

SURROGATE RECOVERIES%

COMPOUND	SAMPLE	DUPLICATE
Bromochloromethane	142	142
2-bromo-1-chloropropane	116	115
1,4-dichlorobutane	118	121

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CHAIN OF CUSTODY RECORD / LABORATORY ANALYSIS REQUEST

Salt, Bush & Associates, Inc.
Environmental Property Assessments

(206) 383-1914
917 Pacific Avenue, Suite 411
P.O. Box 505
Tacoma, Washington 98401-0505

Special Instructions / Comments:

RUN METHYLENE CHLORIDE ONLY ON VOC SAMPLES

JOB NUMBER:

PROJECT NAME: PIERCE COUNTY LIBRARY

Contact: DENNIS SALT

Telephone: 383-1914

LABORATORY: (FAX # [illegible]) SAS

Telephone:

Sample ID #	Location / Reference	Date	Time	Preservative	Matrix	Hold for Future Analysis	Number of Containers	Detection Limits Desired	ANALYSIS REQUIRED: 418.1	Methylene Chloride
W1	MONITORING WELL #1	9-14-91	11:00A	ICE	WATER		3	MTCA	*	*
W2	" #2	"	12:00P	"	"		3	"	*	*
W3	" #3	"	1:00P	"	"		3	"	*	*

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature: [signature]	Signature:	Signature:	Signature:	Signature:
Printed Name: D. Salt	Printed Name: Mary Curtis	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Firm: Salt Bush & Associates, Inc.	Firm: SAS	Firm:	Firm:	Firm:	Firm:
Date / Time: 9/16/91 4:18 PM	Date / Time: 9/16/91 4:15	Date / Time:	Date / Time:	Date / Time:	Date / Time:

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Salt, Bush, Assoc. Date: December 30, 1991

Report On: Analysis of Water Lab No.: 21730

IDENTIFICATION:
Samples received on 12-16-91
Project: Pierce County Library

ANALYSIS:

Lab Sample No.	1	2	3
Client ID	MW-1	MW-2	MW-3
Units	mg/l	mg/l	mg/l
Halogenated Volatile Organics Per EPA SW-846 Method 8010			
Methylene chloride	< 0.001	< 0.001	< 0.001
SURROGATE RECOVERY, %			
Bromochloromethane	123	103	120
2-bromo-1-chloropropane	102	101	99
1,4-dichlorobutane	89	89	92
Total Petroleum Hydrocarbons by EPA Method 418.1	< 1.0	< 1.0	< 1.0

SOUND ANALYTICAL SERVICES

STAN P. PALMQUIST

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

ANALYTICAL NARRATIVE

Client: Salt, Bush Assoc. Date: December 30, 1991

Project: Pierce County Library Lab No.: 21730

Delivered by: Customer

Date Sampled: 12-16-91

Condition of Samples on Receipt:

Samples were received cold and in good condition. Chain-of-custody was in order.

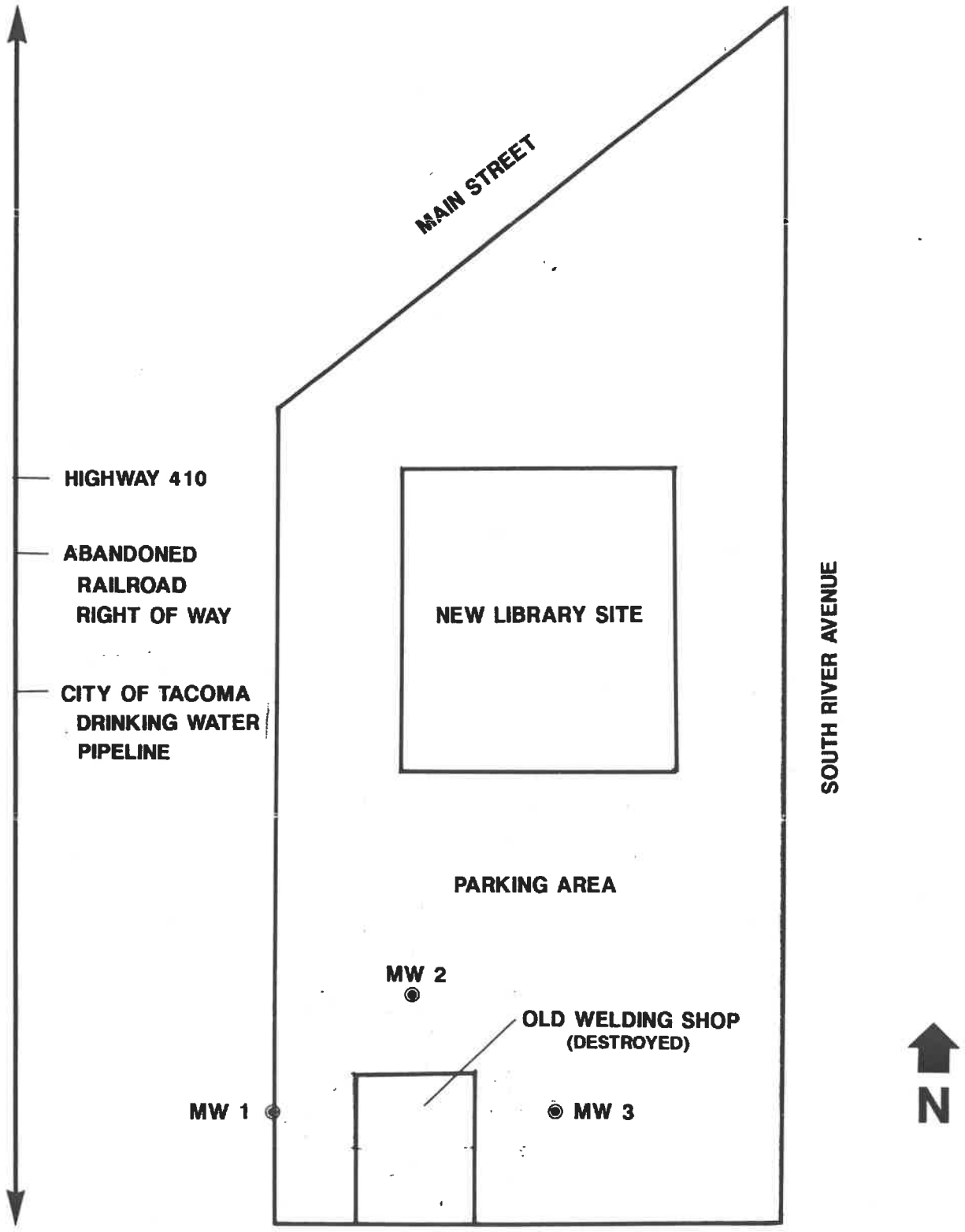
EXTRACTION AND ANALYSIS DATES

Samples were analyzed for total petroleum hydrocarbons in accordance with EPA Method 418.1 on 12-18-91. All QC was within acceptable limits.

Samples were analyzed for methylene chloride in accordance with EPA SW-846 Method 8010. Samples were extracted and analyzed on 12-19-91. All QC was within acceptable limits.

FIGURE 1

PROPOSED BORING LOCATION MAP
PIERCE COUNTY LIBRARY SITE
BUCKLEY, WA.



SCALE 1" = 40 FT.

CARR/ASSOCIATES
C/A 10361

Buckley Ground Water Test Summary By Well

Well # 1	TPH	Mehtylene Chloride	Sampled
	<1.0 ppm	ND	March
	<1.0 ppm	ND	June
	<1.0 ppm	<0.001 ppm	Sept
	<1.0 ppm	<0.001 ppm	Dec
Well # 2	**TPH**	**Methylene Chloride**	**Sampled**
	<1 0 ppm	ND	March
	5.6 ppm	ND	June
	<1.0 ppm	<0.001 ppm	Sept
	<1.0 ppm	<0.001 ppm	Dec
Well # 3	**TPH**	**Methylene Chloride**	**Sampled**
	<1.0 ppm	ND	March
	<1.0 ppm	ND	June
	1.4 ppm	<0.001 ppm	Sept
	<1.0 ppm	<0.001 ppm	Dec

ND = Not Detected

In September, analysis for Methylene Chloride was changed from Method 8240 to Method 601, specific to Methylene Chloride.

Buckley Shallow Ground Water Test Summary By Date

SAMPLE #	SAMPLE SCHEDULE AND CONTAMINANT	ANALYSIS	RESULTS
Well #1	Mar Sampling, Methylene Chloride	8240	ND
Well #1	Mar Sampling, Total Petroleum HC	418.1 TPH	<1.0
Well #2	Mar Sampling, Methylene Chloride	8240	ND
Well #2	Mar Sampling, Total Petroleum HC	418.1 TPH	<1.0
Well #3	Mar Sampling, Methylene Chloride	8240	ND
Well #3	Mar Sampling, Total Petroleum HC	418.1 TPH	<1.0
Well #1	June Sampling, Methylene Chloride	8240	ND
Well #1	June Sampling, Total Petroleum HC	418.1 TPH	<1.0 PPM
Well #2	June Sampling, Methylene Chloride	8240	ND
Well #2	June Sampling, Total Petroleum HC	418.1 TPH	5.6 PPM
Well #3	June Sampling, Methylene Chloride	8240	ND
Well #3	June Sampling, Total Petroleum HC	418.1 TPH	<1.0
Well #1	Sept Sampling, Methylene Chloride	601	<0.001 PPM
Well #1	Sept Sampling, Total Petroleum HC	418.1 TPH	<1.0 PPM
Well #2	Sept Sampling, Methylene Chloride	601	<0.001 PPM
Well #2	Sept Sampling, Total Petroleum HC	418.1 TPH	<1.0 PPM
Well #3	Sept Sampling, Methylene Chloride	601	<0.001 PPM
Well #3	Sept Sampling, Total Petroleum HC	418.1 TPH	1.4 PPM
Well #1	Dec Sampling, Methylene Chloride	601	<0.001 PPM
Well #1	Dec Sampling, Total Petroleum HC	418.1 TPH	<1.0 PPM
Well #2	Dec Sampling, Methylene Chloride	601	<0.001 PPM
Well #2	Dec Sampling, Total Petroleum HC	418.1 TPH	<1.0 PPM
Well #3	Dec Sampling, Methyene Chloride	601	<0.001 PPM
Well #3	Dec Sampling, Total Petroleum HC	418.1 H	<1.0 PPM

ND = Not Detected

APPENDIX E

April 1993 H.E. Bush Report

Pierce County Library District

Buckley Site

SHALLOW GROUND WATER REPORT

April 23, 1993

H. E. Bush, Associates

H. E. BUSH, ASSOCIATES
ENVIRONMENTAL CONSULTANTS
3813 SOUTH 345TH STREET
AUBURN, WASHINGTON 98001

(206) 927-3386

April 23, 1993

File
Buckley
Soils

Diane Thompson
Pierce County Library District
3005 112th Street East
Tacoma, Washington 98446-2215

Re: Buckley Site
Shallow Ground Water Sampling Report

Dear Diane:

Enclosed you will find the required number of copies of the subject report. If you should require additional copies of this document, please do not hesitate to contact us.

Yours truly,

H. E. BUSH, ASSOCIATES

Harry E. Bush
Principal

Pierce County Library District
Buckley Site

SHALLOW GROUND WATER TEST REPORT

April 23, 1993

H. E. BUSH, ASSOCIATES

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PIERCE COUNTY LIBRARY DISTRICT

BUCKLEY SITE

Pierce County, Washington

SHALLOW GROUND WATER SAMPLING

TEST REPORT

Prepared for: Pierce County Library District
Attn: Diane Thompson
3005 112th Street East
Tacoma, Washington 98446-2215

INTRODUCTION

The following report has been prepared for the exclusive use of the Pierce County Library District to inform them of the water quality in the three monitoring wells on site in the parking lot of the Buckley Library Branch. This study was initiated to determine the presence of Petroleum Hydrocarbons in the water over a period of several months. This system of monitoring wells is considered standard procedure when these materials are discovered in soils in concentrations considered to be a threat to human health. The threat is established by the Model Toxics Control Act (MTCA) and interpreted by one of the Regulatory Agencies.

SITE OBSERVATIONS

The monitoring wells had been properly monumented as required, at the time of the July sampling. Although each well had been developed at the time that they were established, the nature of a shallow system, perched or trapped surface water, their condition is poor. There is more than the usual amount of silt that has washed through each well. Each sampling during the year required pumping silt in excess amounts, this had to be done each time the water was be totally purged

from the well. They were very slow to recharge after being purged. This indicates that both volume and flow rates are very low. This was the exact same situation during the 1991-1992 monitoring period.

TEST DATA AND RECOMMENDATIONS

It has been noted that during the recently concluded sampling round that there was no indication of the presence of Petroleum Hydrocarbons at any time. It was also discovered that by recording the Static Water Level over this same time period that there has not been a change in the flow direction as suggested in the 1992 report. We recommend no further sampling of these wells on a quarterly basis, Tacoma-Pierce County Health may require an annual check.

We will forward an informational copy of this report to Norm Payton of the Health Department so that he is aware of our progress.

If you have any questions regarding this report, please let us know. We will assist you in any way that will be helpful to you.

Very truly,

H. E. BUSH ASSOCIATES

Harry E. Bush
Principal

HEB:ssg
Enclosures

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: H. E. Bush, Associates Date: August 13, 1992

Report On: Analysis of Water Lab No.: 25909

IDENTIFICATION:
Samples received on 07-27-92
Project: Buckley Shallow Well, Pierce Co. Library, Tacoma, Wa

ANALYSIS:

TPH Per EPA Method 418.1
Date Extracted: 8-1-92
Date Analyzed: 8-10-92

Lab No.	Client ID	Total Petroleum Hydrocarbons, mg/l
25909-1	MW-1	< 1.0
25909-2	MW-2	< 1.0
25909-3	MW-3	< 1.0

SOUND ANALYTICAL SERVICES

MARTY FRENCH

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

QUALITY CONTROL REPORT

TPH by Method 418.1

Client: H.E. Bush & Assoc.
Lab No: 25909qc
Units: mg/l
Date: August 13, 1992

METHOD BLANK

Parameter	Blank Value
Total Petroleum Hydrocarbons	< 1.0

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: H. E. Bush, Associates Date: October 13, 1992

Report On: Analysis of Water Lab No.: 27706

IDENTIFICATION:
Samples received on 10-12-92
Project: Buckley Shallow Well Project, Pierce County Library

ANALYSIS:

TPH Per EPA Method 418.1
Date Extracted: 10-13-92
Date Analyzed: 10-13-92

Lab No.	Client ID	Total Petroleum Hydrocarbons, mg/l
27706-1	MW-1	< 1.0
27706-2	MW-2	< 1.0
27706-3	MW-3	< 1.0

SOUND ANALYTICAL SERVICES

MARTY FRENCH

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

QUALITY CONTROL REPORT

TPH by Method 418.1

Client: H. E. Bush, Associates
Lab No: 27706mb
Units: mg/l
Date: October 13, 1992

METHOD BLANK

Parameter	Blank Value
Total Petroleum Hydrocarbons	< 1.0

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: H. E. Bush, Associates Date: January 22, 1993

Report On: Analysis of Water Lab No.: 29712

IDENTIFICATION:
Samples received on 01-21-93
Project: Pierce Co. Library - Buckley Shallow Well Sampling

ANALYSIS:

TPH Per EPA Method 418.1
Date Extracted: 1-21-93
Date Analyzed: 1-22-93

Lab No.	Client ID	Total Petroleum Hydrocarbons, mg/l
29712-1	MW-1	< 1.0
29712-2	MW-2	< 1.0
29712-3	MW-2	< 1.0

SOUND ANALYTICAL SERVICES

DEAN A. STROM

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

QUALITY CONTROL REPORT

TPH by Method 418.1

Client: H. E. Bush, Associates
Lab No: 29712qc
Units: mg/l
Date: January 22, 1993

METHOD BLANK

Parameter	Blank Value
Total Petroleum Hydrocarbons	< 1.0

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: H. E. Bush, Associates Date: April 16, 1993

Report On: Analysis of Water Lab No. 29976

IDENTIFICATION:
Samples received on 01-21-93
Project: Pierce Co. Library - Buckley Shallow Well Sampling

ANALYSIS:

TPH Per EPA Method 418.1
Date Extracted: 4-15-93
Date Analyzed: 4-16-93

Lab No.	Client ID	Total Petroleum Hydrocarbons, mg/l
29712-1	MW-1	< 1.0
29712-2	MW-2	< 1.0
29712-3	MW-2	< 1.0

SOUND ANALYTICAL SERVICES

DEAN A. STROM

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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

QUALITY CONTROL REPORT

TPH by Method 418.1

Client: H. E. Bush, Associates
Lab No: 29976qc
Units: mg/l
Date: April 16, 1993

METHOD BLANK

Parameter	Blank Value
Total Petroleum Hydrocarbons	< 1.0

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H. E. BUSH, ASSOCIATES
ENVIRONMENTAL CONSULTANTS
3813 SOUTH 345TH STREET
AUBURN, WASHINGTON 98001
(206) 927-3386

CHAIN OF CUSTODY

BUCKLEY SHALLOW WELL PROJECT	PIERCE CO. LIBRARY TACOMA, WA
ProjectName / Location	Client / Address

SAMPLE #	MATRIX	SAMPLE DESCRPTION	DATE & TIME COLLECTED	ANALYSIS	SWL
MW 1	H20	Well 1 water	7-25-92 10 am	418.1	4.46'
MW 2	H20	Well 2 water	7-25-92 10:55	418.1	3.36'
MW 3	H20	Well 3 water	7-25-92 11:30	418.1	3.11'

Relinquished by (signature)	Receieved by (signature)
Betty Bush	S. Jiang 7/27/92 1038 am
Relinquished by (signature)	Receieved by (signature)

Signature Laboratory Name Date/Time

H. E. BUSH, ASSOCIATES
ENVIRONMENTAL CONSULTANTS
3813 SOUTH 345TH STREET
AUBURN, WASHINGTON 98001
(206) 927-3386

CHAIN OF CUSTODY

BUCKLEY SHALLOW WELL PROJECT	PIERCE CO. LIBRARY TACOMA, WA
ProjectName / Location Buckley, WA	Client / Address

SAMPLE #	MATRIX	SAMPLE DESCRPTION	DATE & TIME COLLECTED	ANALYSIS	SWL
MW 1	H20	Well Water	10-10 11:50 am	418.1	3.38'
MW 2	H20	Well Water	10-10 12:20 pm	418.1	3.08'
MW 3	H20	Well Water	10-10 12:45 pm	418.1	2.75'

Hay E. Bush 10-12
Relinquished by (signature)

Receieved by (signature)

Relinquished by (signature)

Receieved by (signature)

Signature Laboratory Name

10/12/92 9:17
Date/Time

H. E. BUSH, ASSOCIATES
ENVIRONMENTAL CONSULTANTS
3813 SOUTH 345TH STREET
AUBURN, WASHINGTON 98001
(206) 927-3386

CHAIN OF CUSTODY

BUCKLEY SHALLOW WELL SAMPLING	PEARCE COUNTY LIBRARY
ProjectName / Location	Client / Address

BUCKLEY, WASHINGTON

SAMPLE #	MATRIX	SAMPLE DESCRPTION	DATE & TIME COLLECTED	TPH	SWL
MW 1	H20	WELL NUMBER 1	1-18-93 2:15	418.1	4' 2"
MW 2	H20	WELL NUMBER 2	1-18-93 2:20	418.1	3' 2"
MW 3	H20	WELL NUMBER 3	1-18-93 2:25	418.1	3' 0"

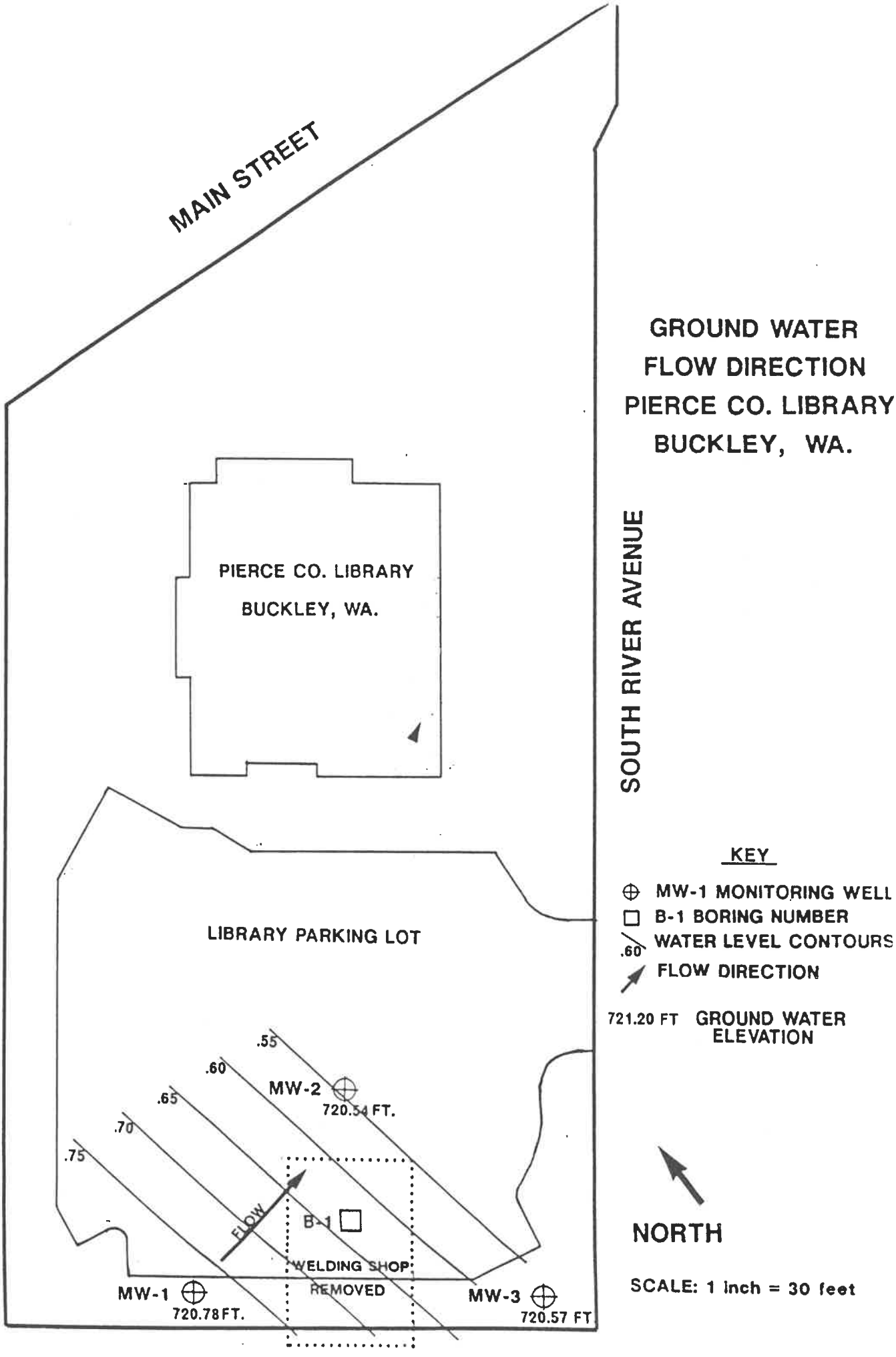
Denis Bush

Relinquished by (signature) | Receieved by (signature)

Relinquished by (signature) | Receieved by (signature)

S Giang — Sound Analytical — 1/21/93 1235pm

Signature | Laboratory Name | Date/Time


MAIN STREET
PIERCE CO. LIBRARY
BUCKLEY, WA.
SOUTH RIVER AVENUE
LIBRARY PARKING LOT
.55
.60
.65
.70
.75
MW-2
720.54 FT.
FLOW
B-1
WELDING SHOP
REMOVED
MW-1
720.78FT.
MW-3
720.57 FT
GROUND WATER
FLOW DIRECTION
PIERCE CO. LIBRARY
BUCKLEY, WA.
KEY
MW-1 MONITORING WELL
B-1 BORING NUMBER
.60 WATER LEVEL CONTOURS
FLOW DIRECTION
721.20 FT GROUND WATER ELEVATION
NORTH
SCALE: 1 inch = 30 feet

Buckley Ground Water Test Summary By Well

1992-1993

Well # 1	TPH	Static Water Level	Sampled
	<1.0 ppm	4.46′	July
	<1.0 ppm	3.38′	Otober
	<1.0 ppm	4.20′	January
	<1.0 ppm	4.21′	April
Well # 2	TPH	Static Water Level	Sampled
	<1.0 ppm	3.36′	July
	<1.0 ppm	3.08′	October
	<1.0 ppm	3.20′	January
	<1.0 ppm	3.22	April
Well # 3	TPH	Static Water Level	Sampled
	<1.0 ppm	3.11′	July
	<1.0 ppm	2.75′	October
	<1.0 ppm	3.00′	January
	<1.0 ppm	3.10′	April

APPENDIX F

April 2004 HWA Report

FINAL REPORT
Buckley Contaminated Soil Stockpile
City of Buckley, Pierce County, Washington
HWA Project No. 2003-163-22-100

Prepared for
Gray & Osborne, Inc.

November 19, 2004

HWA GEOSCIENCES INC.
• Geotechnical Engineering
• Hydrogeology
• Geoenvironmental Services
• Inspection & Testing

HWA GeoSciences Inc.
Geotechnical Engineering • Hydrogeology • Geoenvironmental Services • Inspection & Testing

November 19, 2004
HWA Project No. 2003-163-100

Gray & Osborne
701 Dexter Ave N Suite 200
Seattle, WA 98109

Attention: Dominic Miller

Subject: **FINAL REPORT**
Buckley Contaminated Soil Stockpile
City of Buckley
Pierce County, Washington

Dear Mr. Miller,

Enclosed is a copy of the final report for the Buckley Contaminated Soil Stockpile in Buckley, Washington.

We appreciate the opportunity to provide professional services on this project. Please call if you have any questions.

Sincerely,

HWA GeoSciences Inc.

Pete Pearson
Geologist

Arnie Sugar, P.G.
Senior Environmental Geologist

19730 - 64th Avenue W.
Suite 200
Lynnwood, WA 98036.5957

Tel: 425.774.0106
Fax: 425.774.2714
www.hwageosciences.com

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- 1.2 Remediation 3

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3.0 SAMPLE ANALYSIS 3
4.0 RESULTS 3
- 4.1 Subsurface Conditions 3
- 4.2 Soil Analytical Results 3

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Figure 1 Vicinity Map
Figure 2 Site and Exploration Plan

Appendices

Appendix A: Soil Disposal Certificate
Appendix B: Analytical Laboratory Reports

FINAL REPORT
BUCKLEY CONTAMINATED SOIL STOCKPILE
BUCKLEY, WASHINGTON

1.0 INTRODUCTION

HWA GeoSciences Inc. (HWA) was contracted by Gray & Osborne, Inc. (G&O) to provide confirmation sampling following the removal of a contaminated soil stockpile in Buckley, Washington. Figure 1 shows the site vicinity. All work was performed in accordance with the HWA *Quality Assurance Project Plan* (QAPP), *Buckley Contaminated Soil Stockpile, Buckley, Washington,* dated December 5, 2003, as approved by EPA.

1.1 SITE LOCATION AND DESCRIPTION

The site of the former Buckley Contaminated Soil Stockpile is located adjacent to the U.S. Post Office in Buckley, Washington. The stockpile was generated as waste material during the construction of the Pierce County Library, which is located approximately 550 feet northeast of the project site. The soil was initially stockpiled on the site of the Post Office, adjacent to and northeast of the project site, and then moved again during development of the Post Office. The soil was placed on a plastic liner in order to prevent migration of contaminants into the native soil.

As part of the re-development of the site as a regional multi-use park, the contaminated soil stockpile was removed and transported off-site for treatment by thermal desorption. Native soils under the liner were sampled following the stockpile's removal, to document shallow soil conditions beneath the stockpile.

1.2 REMEDIATION

The primary objective of soil remediation was to remove the contaminated soil stockpile and impacted native soil, if any, from the site. Although the Method A cleanup levels for unrestricted land use, outlined in the State of Washington Department of Ecology Model Toxics Control Act Cleanup Regulation, Chapter 173-340 WAC (MTCA), apply at this site (see QAPP), the stockpile itself did not contain petroleum hydrocarbons exceeding MTCA cleanup levels.

Following the review of several treatment alternatives, the City of Buckley found removal and off-site treatment of contaminated soils by thermal desorption to be the most economical and environmentally effective remediation option. Thermal desorption is a process in which hydrocarbons are volatilized and destroyed by the application of heat. Contaminated stockpile soils (1,290.4 tons) were removed and transported to the TPS Technologies (TPS) thermal treatment facility in Tacoma, Washington by Saybr Contractors, Inc. (Saybr). Appendix A contains the certificate of soil disposal / recycling from TPS.

2.0 SAMPLE LOCATIONS AND METHODS

HWA collected four surficial soil samples from native soils beneath the stockpile on August 5, 2004. HWA used hand tools to collect soil samples by boring to a depth of six inches at each sample location using pre-cleaned, dedicated stainless steel sampling spoons. The samples were then extracted from the walls of the hole. All field work was supervised by an HWA environmental engineer competent in soil logging and sampling.

The sampling locations were based on an equally spaced grid pattern covering the footprint of the stockpile, shown in Figure 2. Soils were logged and pertinent information including soil type and any visual or olfactory observations regarding the presence of contamination were noted.

HWA screened soil samples by photoionization detector (PID) headspace analysis. Although the PID is not capable of quantifying or identifying specific organic compounds, this instrument is capable of measuring relative concentrations of a variety of organic vapors. The environmental engineer collecting samples placed approximately two ounces of soil in a resealable (i.e. ziplock) plastic bag with ample air headspace. After a minimum of five minutes at ambient temperature, the sampler agitated the sample for ten seconds, inserted the PID probe through a small opening in the plastic bag, and recorded the highest reading within ten seconds.

The four samples with the highest PID readings or visual/odor indications of contamination were submitted for laboratory analysis. HWA collected soil samples for laboratory chemical testing by placing approximately four ounces of soil in each of two pre-cleaned and certified glass jars (supplied by the contracted laboratory).

3.0 SAMPLE ANALYSIS

Soil samples were analyzed for total petroleum hydrocarbons by OnSite Environmental Inc. (OnSite), of Redmond, Washington using the following test method:

- Washington state total petroleum hydrocarbons in the diesel-range extended test method (method NWTPH-Dx) quantified against diesel, transformer oil, and/or heavy oil standards if any of these petroleum fractions were positively identified.

A quality assurance review of the analytical data was performed. Surrogate recoveries, method blanks, laboratory duplicates, matrix spikes, and matrix spike duplicates were all within acceptable ranges. Reporting limits were elevated in some instances, due to the presence of petroleum in the sample or matrix effects, but were much lower than the cleanup levels in all analyses. Holding times and sample custody were all within compliance. The analyses of the four soil samples collected in August, 2004 for NWTPH-Dx were determined to be acceptable for their intended use.

Complete laboratory analytical reports, including chain-of custody forms, are included in Appendix B.

4.0 RESULTS

4.1 Subsurface Conditions

Soil below the footprint of the former contaminated soil stockpile generally consisted of dense, dark gray to brown, silty, fine to coarse sand with gravel. The soil was moist and contained some roots and organic material.

4.2 Soil Analytical Results

Soil field screening and petroleum hydrocarbon analytical results are summarized in Table 1.

Table 1
Soil Analytical Data
(all results in mg/kg)

		TPH-Diesel Extended Range	
Sample Number	Field Screening PID (ppm)	Diesel Range	Lube Oil Range
SP-1	2.7		
SP-2	3.3		
SP-3	1.3		
SP-4	2.2		
SP-5	2.1		
SP-6	6.3	<31	<61
SP-7	8.1	<28	310
SP-8	10.0	<26	130
SP-9	2.7		
SP-10	25.9	<140	520
MTCA Method A		2000	2000

5.0 SUMMARY

None of the four soil samples analyzed contained petroleum hydrocarbons exceeding Department of Ecology Model Toxics Control Act (MTCA) cleanup levels. Three of the samples contained detectable concentrations of petroleum hydrocarbons, ranging from 130 to 520 mg/kg as lube oil.

Analytical results were compared to MTCA Method A cleanup levels, per the QAPP. Method A values are intended to be protective of all exposure pathways. The subject property meets exclusion criteria for a Terrestrial Ecological Evaluation (TEE) due to the planned construction of a concrete skate park over the stockpile footprint. This proposed future use constitutes an incomplete pathway as outlined in Exclusion II of the Terrestrial Ecological Evaluation Process, as it will provide a physical barrier that will prevent the exposure of plants and wildlife to any contamination that may be present. Properties that do not meet at least one of the four TEE Exclusion criteria may be subject to lower cleanup levels per section 760 of MTCA.

Although the confirmation sample results were well below the cleanup levels, the presence of detectable petroleum hydrocarbons may suggest some impact from the

stockpiled soils, or previous impacts from vehicles parked on the site. As a precaution, an additional six inches of soil were reportedly removed from the stockpile area for off site thermal treatment, during excavation of other petroleum contaminated soils encountered at a different location on the property. No additional samples were collected from the stockpile area.

6.0 LIMITATIONS

The conclusions expressed by HWA are based solely on material referenced in this report. Observations were made under the conditions stated. Within the limitations of scope, schedule and budget, HWA attempted to execute these services in accordance with generally accepted professional principles and practices in the area at the time the report was prepared. No warranty, expressed or implied, is made. Experience has shown that subsurface soil and ground water conditions can vary significantly over small distances. It is always possible that contamination may exist in areas that were not sampled. HWA's findings and conclusions must not be considered as scientific or engineering certainties, but rather as our professional opinion concerning the significance of the limited data gathered and interpreted during the course of the assessment.

This study and report have been prepared on behalf of Gray & Osborne, Inc., for the specific application to the subject property. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

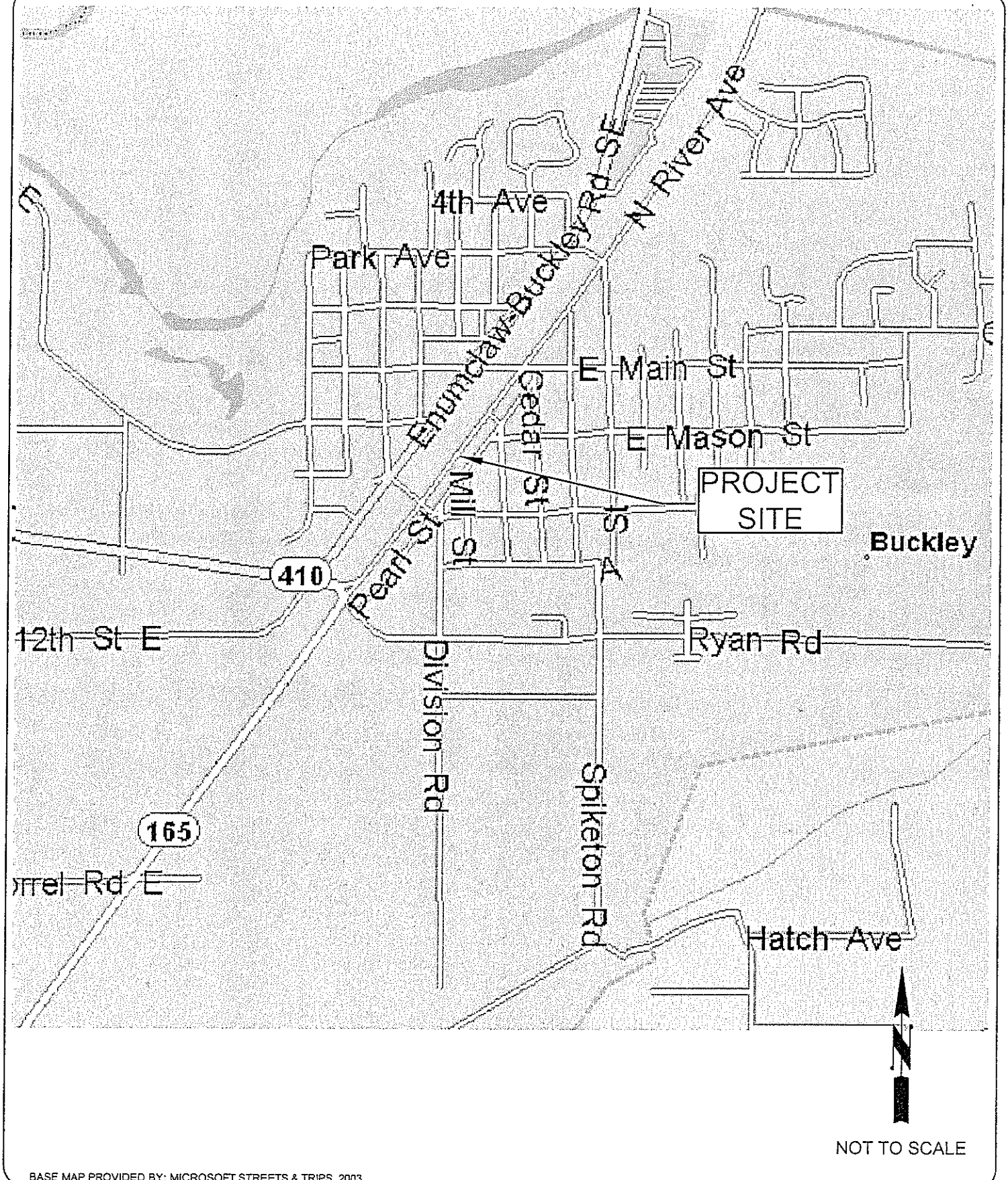
We appreciate the opportunity to provide these services. Please feel free to call us if you have any questions or need more information.

Sincerely,

HWA GEOSCIENCES INC.

Pete Pearson
Geologist

Arnie Sugar, P.G.
Senior Environmental Geologist



BASE MAP PROVIDED BY: MICROSOFT STREETS & TRIPS, 2003

HWA GEOSCIENCES INC.

VICINITY MAP	DRAWN BY KS	FIGURE NO. 1
CITY OF BUCKLEY CONTAMINATED SOIL STOCKPILE	CHECKED BY BR	
PIERCE COUNTY, WASHINGTON	DATE 12.03.03	PROJECT NO. 2003-163

H:\1PROJECTS\2003 PROJECTS\2003-163-22 BUCKLEY CONTAMINATED SOIL\CAD\2003-163.DWG

REV 00 KLS 12/3/03

STATE ROUTE 410

FOOTHILLS TRAIL

JEFFERSON AVE

POST OFFICE

CONTAMINATED STOCKPILE
APPROXIMATE FOOTPRINT

RIVER RD

CITY
SHOP

PEARL ST

0' 20' 40' 60' 120'

SCALE: 1"=60'

LEGEND

- ● ○ PROPOSED SAMPLING DESIGNATION AND APPROXIMATE LOCATION
- ● TO BE SUBMITTED TO LABORATORY IF NO FIELD SCREENING INDICATIONS IN ANY SAMPLE

BASE MAP PROVIDED BY: GRAY & OSBORNE, INC.
H:\1PROJECTS\2003 PROJECTS\2003-163-22 BUCKLEY CONTAMINATED SOIL\CAD\2003-163.DWG

HWA GEOSCIENCES INC.

CITY OF BUCKLEY
CONTAMINATED SOIL STOCKPILE

PIERCE COUNTY, WASHINGTON

SITE PLAN AND PROPOSED SAMPLING LOCATIONS

DRAWN BY KS	FIGURE NO. 2
CHECKED BY BR	
DATE 12.03.03	PROJECT NO. 2003-163

REV 01 KLS 3/30/04

APPENDIX A

SOIL DISPOSAL CERTIFICATE

Soil Recycling Certificate

TPS Technologies Inc. does hereby certify

that 1,290.40 tons of non-hazardous contaminated soil

received from

River Avenue Stockpile
Saybr Contractors, Inc (Consultant)
South Of 219 River Avenue
Buckley, WA 98321

Under Manifest / authorization number 38545
4902

have been properly recycled to approved regulatory standards

at our Soil Recycling Facility in Tacoma, WA

Dated this August 6, 2004

Sworn and Attested by:
TPS Technologies Inc.

By:

APPENDIX B

ANALYTICAL LABORATORY REPORTS

OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

August 10, 2004

Arnie Sugar
HWA GeoSciences, Inc.
19730 64th Avenue West
Lynnwood, WA 98036

Re: Analytical Data for Project 2003-163
Laboratory Reference No. 0408-038

Dear Arnie:

Enclosed are the analytical results and associated quality control data for samples submitted on August 5, 2004.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: August 10, 2004
Samples Submitted: August 5, 2004
Laboratory Reference: 0408-038
Project: 2003-163

Case Narrative

Samples were collected on August 5, 2004 and received by the laboratory on August 5, 2004. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: August 10, 2004
Samples Submitted: August 5, 2004
Laboratory Reference: 0408-038
Project: 2003-163

NWTPH-Dx

Date Extracted:	8-5-04
Date Analyzed:	8-5&9-04
Matrix:	Soil
Units:	mg/kg (ppm)

Client ID:	**SP-6**	**SP-7**	**SP-8**
Lab ID:	08-038-01	08-038-02	08-038-03
Diesel Range:	ND	ND	ND
PQL:	31	28	26
Identification:	---	---	---
Lube Oil Range:	ND	310	130
PQL:	61	57	53
Identification:	---	Lube Oil	Lube Oil
Surrogate Recovery			
o-Terphenyl:	95%	90%	92%
Flags:	Y	Y	Y

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: August 10, 2004
Samples Submitted: August 5, 2004
Laboratory Reference: 0408-038
Project: 2003-163

NWTPH-Dx

Date Extracted:	8-5-04
Date Analyzed:	8-5-04
Matrix:	Soil
Units:	mg/kg (ppm)

Client ID:	**SP-10**
Lab ID:	08-038-04
Diesel Range:	**ND**
PQL:	140
Identification:	---
Lube Oil Range:	**520**
PQL:	270
Identification:	Lube Oil
Surrogate Recovery	
o-Terphenyl:	83%
Flags:	Y

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: August 10, 2004
Samples Submitted: August 5, 2004
Laboratory Reference: 0408-038
Project: 2003-163

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	8-5-04
Date Analyzed:	8-5-04
Matrix:	Soil
Units:	mg/kg (ppm)
Lab ID:	MB0805S1
Diesel Range:	**ND**
PQL:	25
Identification:	---
Lube Oil Range:	**ND**
PQL:	50
Identification:	---
Surrogate Recovery	
o-Terphenyl:	98%
Flags:	Y

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: August 10, 2004
Samples Submitted: August 5, 2004
Laboratory Reference: 0408-038
Project: 2003-163

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	8-5-04	
Date Analyzed:	8-5-04	
Matrix:	Soil	
Units:	mg/kg (ppm)	
Lab ID:	08-032-01	08-032-01 DUP
Diesel Range:	**3640**	**3160**
PQL:	25	25
RPD:	14	
Surrogate Recovery		
o-Terphenyl:	98%	95%
Flags:	Y	Y

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: August 10, 2004
Samples Submitted: August 5, 2004
Laboratory Reference: 0408-038
Project: 2003-163

% MOISTURE

Date Analyzed: 8-5-04

Client ID	Lab ID	% Moisture
SP-6	08-038-01	18
SP-7	08-038-02	12
SP-8	08-038-03	5
SP-10	08-038-04	8

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

O - Hydrocarbons indicative of diesel fuel are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a silica gel cleanup procedure.

Y - Sample extract treated with an acid cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Chain of Custody

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • Fax: (425) 885-4603

Company: HWA Geosciences
Project Number: 2008-163
Project Name: Buckley Contaminated Stockpile
Project Manager: Arnie Sugar
Sampled by: Brendan Robinson

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☑ 3 Day
- ☑ Standard (7 working days)
- ☐ _____ (other)

Laboratory Number: 08-038

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	VPH	EPH	% Moisture
1	SP-6	8/5/04	1100	Soil	2			X													X
2	SP-7	8/5/04	1105	Soil	2			X													X
3	SP-8	8/5/04	1110	Soil	2			X													X
4	SP-10	8/5/04	1115	Soil	2			X													X

	Signature	Company	Date	Time
Relinquished by		HWA Geosciences	8/5/04	1330
Received by	Bo Wallace	OSE	8/5/04	1330
Relinquished by				
Received by				
Relinquished by				
Received by				

Comments/Special Instructions:

Reviewed by/Date

Reviewed by/Date

Chromatograms with final report ☐

DISTRIBUTION: White - OnSite Yellow - Report Copy Pink - Copy

APPENDIX G

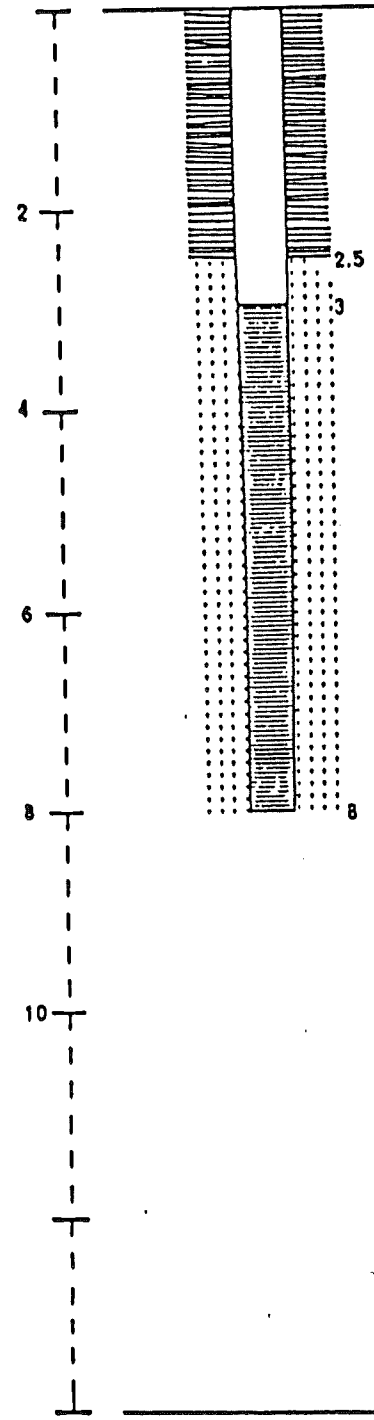
Boring Logs

RESOURCE PROTECTION WELL REPORT

START CARD NO. 040148

PROJECT NAME: Pierce County Library
WELL IDENTIFICATION NO. MW-1
DRILLING METHOD: 3 3/8-inch HSA
DRILLER: Pat Miller
FIRM: McDonald Holt, Inc.
SIGNATURE: [signature]
CONSULTING FIRM: Carr/Associates
REPRESENTATIVE: Douglas C. Dow

COUNTY: Pierce County
LOCATION: NW ¼ SW ¼ Sec 3 Twn 19 R 6E
STREET ADDRESS OF WELL: SW of intersection So. River Street and Main St. Buckle
WATER LEVEL ELEVATION: 720.78 (3-7-91
GROUND SURFACE ELEVATION: 721.60
INSTALLED: 3-1-91
DEVELOPED: 3-1-91



WELL DATA

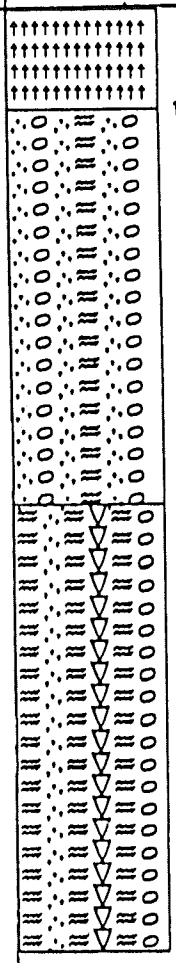
Flush monument to be installed by Owner's Paving Contractor

Bentonite Chip Seal 0-2.5'

Monitoring Well
2" PVC Schedule 40
Flush Threads
Screen 0.020 inch Slots

Filter Sand
Colorado Silica 10-20

FORMATION DESCRIPTION



Sand and gravel fill

SAND and GRAVEL, with silt Brown, water

SILT with sand and gravel, Tan, (Osceola Mudflow)

Sample no.	Interval feet	Blow counts
1	3 to 4.5	1-1-1
2	5.5 to 7	3-20-14
3	8 to 9.5	9-10-12

SCALE: 1" = 2FT.

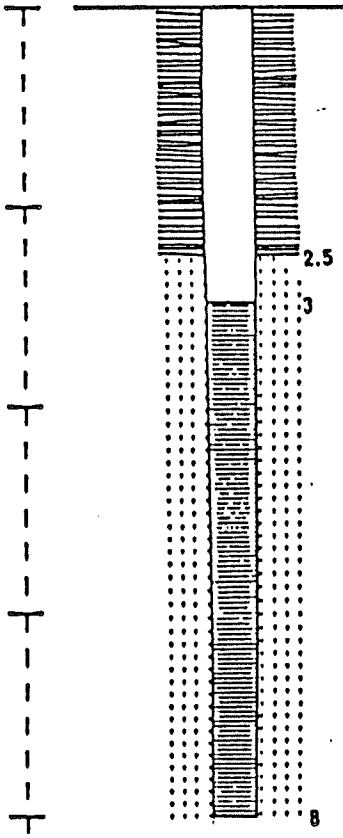
ECY 050-12 (Rev. 11/89)

RESOURCE PROTECTION WELL REPORT

START CARD NO. 040148

PROJECT NAME: Pierce County Library
WELL IDENTIFICATION NO. MW-2
DRILLING METHOD: 3 3/8-inch HSA
DRILLER: Pat Miller
FIRM: McDonald Holt, Inc.
SIGNATURE: [signature]
CONSULTING FIRM: Carr/Associates, Inc.
REPRESENTATIVE: Douglas C. Dow

COUNTY: Pierce
LOCATION: ¼ SW ¼ Sec 3 Twn 19 R 6E
STREET ADDRESS OF WELL: SW of intersection So. River St. and Main St., Buckley.
WATER LEVEL ELEVATION: 720.54 (3-7-91)
GROUND SURFACE ELEVATION: 721.60
INSTALLED: 3-1-91
DEVELOPED: 3-1 and 4-91



WELL DATA

Flush monument to be installed by Owner's Paving Contractor.

Bentonite Chip Seal 0-2.5'

Monitoring Well
2" PVC Schedule 40
Flush Threads
Screen 0.020 inch Slots

Filter Sand
Colorado Silica

FORMATION DESCRIPTION

0 – 2	Sand and gravel fill
2 – 4	SAND and GRAVEL, with silt Brown, water
4 – 9.5	SILT with sand and gravel, Gray (Osceola Mudflow)

Sample No.	Interval feet	Blow counts
1	3 to 4.5	2-1-4
2	5.5 to 7	5-9-23
3	8 to 9.5	8-11-18

SCALE: 1" = 2FT.

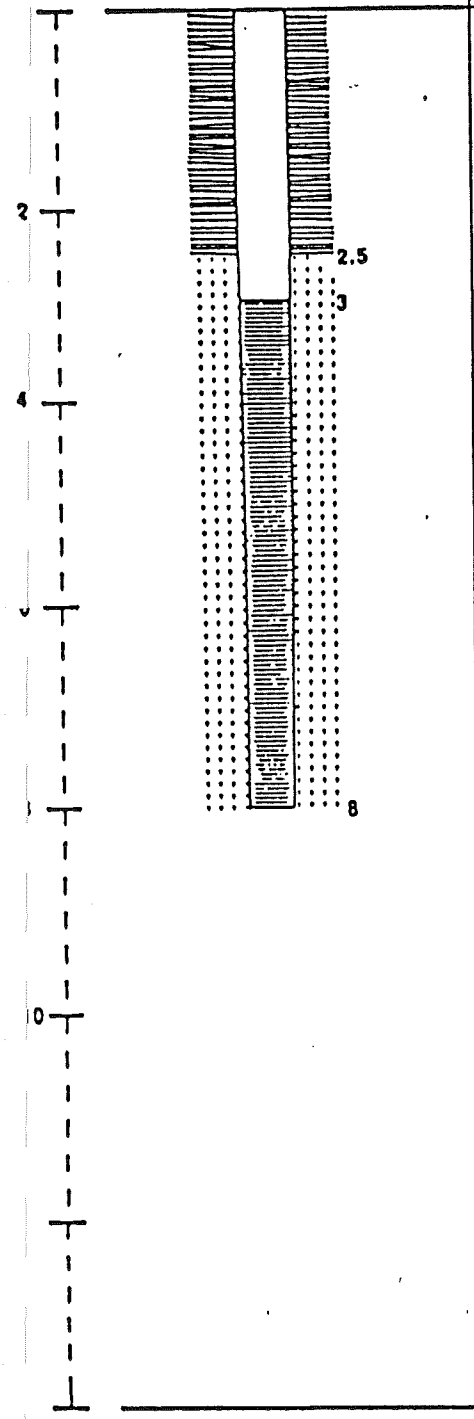
ECY 050-12 (Rev. 11/89)

RESOURCE PROTECTION WELL REPORT

START CARD NO. 040148

PROJECT NAME: Pierce County Library
WELL IDENTIFICATION NO. MW-3
DRILLING METHOD: 3 3/8-inch HSA
DRILLER: Pat Miller
FIRM: McDonald Holt, Inc.
SIGNATURE: [signature]
CONSULTING FIRM: Carr/Associates, Inc.
REPRESENTATIVE: Douglas C. Dow

COUNTY: Pierce
LOCATION: ¼ SW ¼ Sec 3 Twn 19 R 6E
STREET ADDRESS OF WELL: SW of intersection So. River St. and Main St., Buckley
WATER LEVEL ELEVATION: 720.57 (3-7-91)
GROUND SURFACE ELEVATION: 721.60
INSTALLED: 3-1-91
DEVELOPED: 3-1 and 4-91



WELL DATA

Flush monument to be installed by Owner's Paving Contractor

Bentonite Chip Seal 0-2.5'

Monitoring Well
2" PVC Schedule 40
Flush Threads
Screen 0.020 inch Slots

Filter Sand
Colorado Silica 10-20

FORMATION DESCRIPTION

Crushed rock fill — 1.5

SAND with gravel and silt
Gray, water — 3.5

SILT with sand and gravel,
Tan (Osceola Mudflow) — 9.5

Sample No.	Interval feet	Blow counts
1	3 to 4.5	2-7-8
2	5.5 to 7	2-6-6
3	8 to 9.5	7-11-8

SCALE: 1" = 2FT.

ECY 050-12 (Rev. 11/89)

RESOURCE PROTECTION WELL REPORT

START CARD NO. 040148

PROJECT NAME: Pierce County Library
WELL IDENTIFICATION NO. B-1
DRILLING METHOD: 3 3/8-inch HSA
DRILLER: Pat Miller
FIRM: McDonald Holt, Inc.
SIGNATURE:
CONSULTING FIRM: Carr/Associates, Inc.
REPRESENTATIVE: Douglas C. Dow

COUNTY: Pierce
LOCATION: ¼ SW ¼ Sec 3 Twn 19 R 6E
STREET ADDRESS OF WELL: SW of intersection of So. River ST. and Main St., Buckley.
WATER LEVEL ELEVATION: N/A
GROUND SURFACE ELEVATION: 721.60
INSTALLED: N/A
DEVELOPED: N/A

FT.	AS-BUILT	WELL DATA	FORMATION DESCRIPTION
2	5	Boring Abandoned: sealed with Bentonite chips.	Sand and gravel fill (3) SILT with sand and gravel, Tan (Osceola Mudflow) (6.5)

Sample No.	Interval feet	Blow counts
1	5 to 6.5	3-4-6

SCALE: 1" = 2FT.

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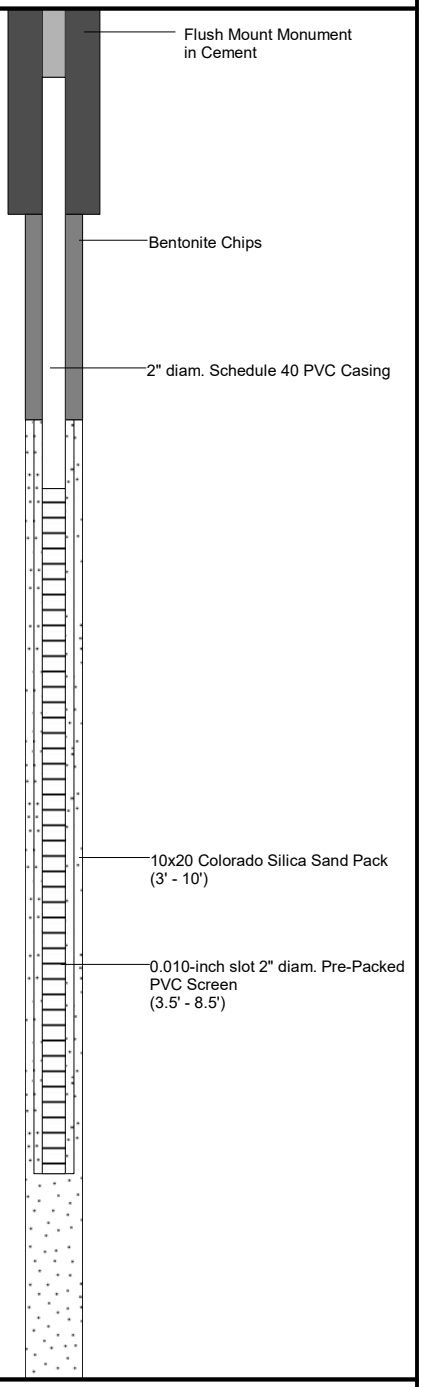
Fax: 206.254.4279

PROJECT: **PCLS - Buckley Library**	PROJECT NUMBER: **10949-04**	
LOCATION: **123 S. River Ave Buckley, WA**	WELL ID: **MW4**	
DRILLING CONTRACTOR: **Holt Services**	NORTHING:	EASTING:
DRILLING EQUIPMENT: **Track Mounted Geoprobe 7822 DT**	GROUNDWATER ELEV.: **723.03**	TOC ELEVATION: **724.91**
DRILLING METHOD: **Direct Push**	TOTAL DEPTH: **8.5'**	DEPTH TO WATER: **1.88' btoc**
LOGGED BY: **MPB**	SAMPLING METHOD: **Continuous**	DATE STARTED: **11/28/17** / DATE COMPLETED: **11/28/17**

Depth (feet)	Groundwater Depth	USCS	Soil / Lithologic Description	Sample ID / Blowcounts	PID Reading (ppm)
0.0 – 0.5			Asphalt		
0.5 – 2.0		SW	Brown F-M Sand		
2.0 – 4.5	▼ 2.5 / ▽ 4.0	SM	Gray-Brown Sandy Silt, moist to wet	MW4-4	0
4.5 – 7.0		SW	Gray-Brown Coarse to Fine Sand, wet		
7.0 – 9.5		SM	Brown Silty Fine to Medium Sand, wet		
9.5 – 10.0					

Well Installation Data



NOTES:

Recovery: 0'-5'= 60%, 5'-10'=80%

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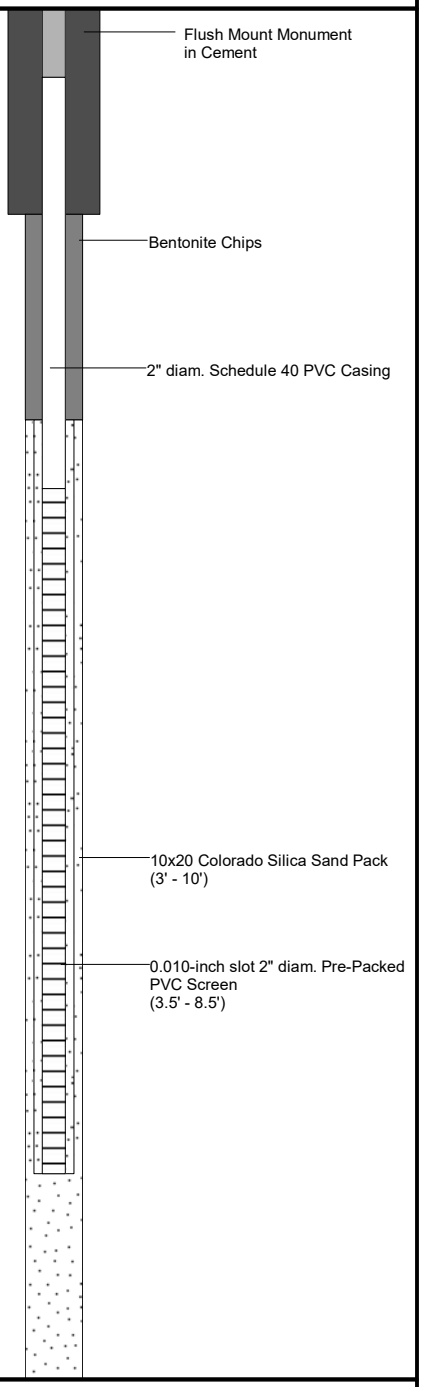
PROJECT: **PCLS - Buckley Library**		PROJECT NUMBER: **10949-04**	
LOCATION: **123 S. River Ave Buckley, WA**		WELL ID: **MW5**	
DRILLING CONTRACTOR: **Holt Services**		NORTHING:	EASTING:
DRILLING EQUIPMENT: **Track Mounted Geoprobe 7822 DT**		GROUNDWATER ELEV.: **721.95**	TOC ELEVATION: **725.14**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **8.5'**	DEPTH TO WATER: **3.19' btoc**
LOGGED BY: **MPB**	SAMPLING METHOD: **Continuous**	DATE STARTED: **11/28/17**	DATE COMPLETED: **11/28/17**

Depth (feet)	Groundwater Depth	USCS	Soil / Lithologic Description	Sample ID / Blowcounts	PID Reading (ppm)
0.0 – 1.0			Grassh, organics		
1.0 – 5.0	▼ 3.19 ▽ 3.5	SW	Brown Silty Sand and Gravel, moist to wet	MW5-3.5	0
5.0 – 8.5		SM	Gray-Brown Sandy Silt, moist to wet		
8.5 – 10.0					

Well Installation Data



NOTES:

Recovery: 0'-5'= 50%, 5'-10'=60%

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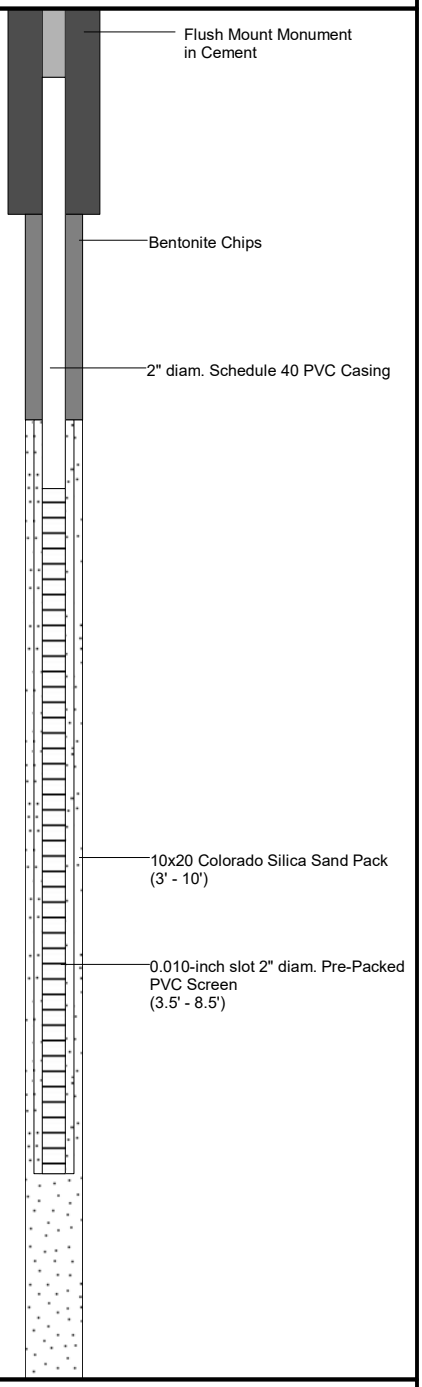
PROJECT: **PCLS - Buckley Library**	PROJECT NUMBER: **10949-04**	
LOCATION: **123 S. River Ave Buckley, WA**	WELL ID: **MW6**	
DRILLING CONTRACTOR: **Holt Services**	NORTHING:	EASTING:
DRILLING EQUIPMENT: **Track Mounted Geoprobe 7822 DT**	GROUNDWATER ELEV.: **721.71**	TOC ELEVATION: **725.42**
DRILLING METHOD: **Direct Push**	TOTAL DEPTH: **8.5'**	DEPTH TO WATER: **3.71 btoc**
LOGGED BY: **MPB**	SAMPLING METHOD: **Continuous**	DATE STARTED: **11/28/17** / DATE COMPLETED: **11/28/17**

Depth (feet)	Groundwater Depth	USCS	Soil / Lithologic Description	Sample ID / Blowcounts	PID Reading (ppm)
0.0 – 1.0			Grassh, organics		
1.0 – 4.0	▼	SW	Gray-Brown Silty Sand and Gravel		
4.0 – 4.5	▽			MW6-4	128
4.5 – 7.5		SM	Gray-stained Silty Sand, wet		201
7.5 – 8.5		SM	Brown Sandy Silt		

Well Installation Data



NOTES: Recovery: 0'-5'=50%, 5'-10'=100%

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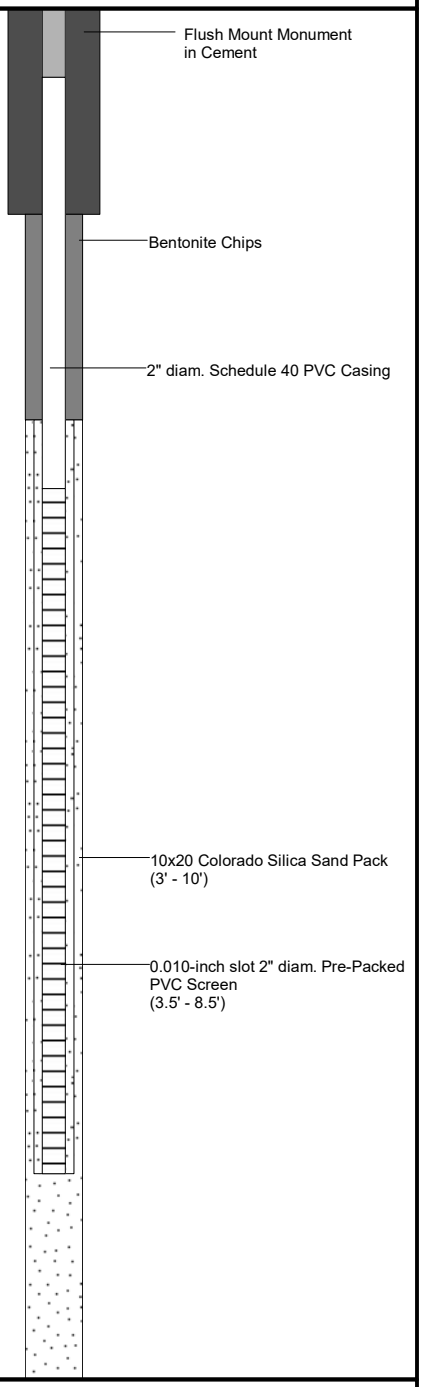
PROJECT: **PCLS - Buckley Library**	PROJECT NUMBER: **10949-04**	
LOCATION: **123 S. River Ave Buckley, WA**	WELL ID: **MW7**	
DRILLING CONTRACTOR: **Holt Services**	NORTHING:	EASTING:
DRILLING EQUIPMENT: **Track Mounted Geoprobe 7822 DT**	GROUNDWATER ELEV.: **723.48**	TOC ELEVATION: **725.61**
DRILLING METHOD: **Direct Push**	TOTAL DEPTH: **8.5'**	DEPTH TO WATER: **2.13' btoc**
LOGGED BY: **MPB**	SAMPLING METHOD: **Continuous**	DATE STARTED: **11/29/17** / DATE COMPLETED: **11/29/17**

Depth (feet)	Groundwater Depth	USCS	Soil / Lithologic Description	Sample ID / Blowcounts	PID Reading (ppm)
0.0 – 1.0			Grassh, organics		
1.0 – 3.0	▼	Fill	Brown Sand and Gravel		
3.0 – 7.5	▽	SM	Gray Sandy Silt, moist to wet	MW7-3	0 / 5
7.5 – 9.5		SM	Gray- Brown Sandy Silt		



NOTES:
Recovery: 0'-5'=40%, 5'-10'=90%

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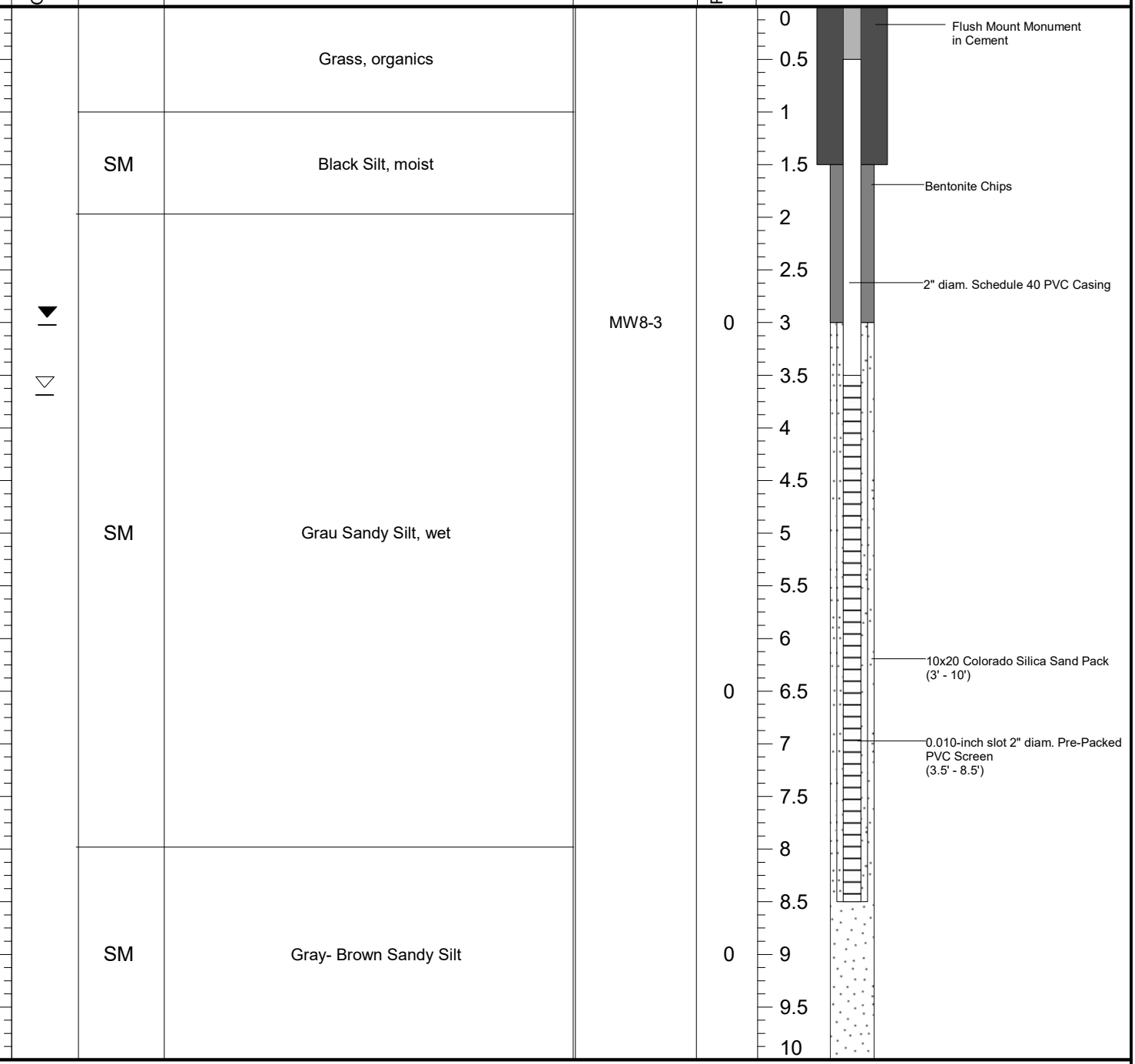
PROJECT: **PCLS - Buckley Library**	PROJECT NUMBER: **10949-04**	
LOCATION: **123 S. River Ave Buckley, WA**	WELL ID: **MW8**	
DRILLING CONTRACTOR: **Holt Services**	NORTHING:	EASTING:
DRILLING EQUIPMENT: **Track Mounted Geoprobe 7822 DT**	GROUNDWATER ELEV.: **722.23**	TOC ELEVATION: **725.05**
DRILLING METHOD: **Direct Push**	TOTAL DEPTH: **8.5'**	DEPTH TO WATER: **2.82' btoc**
LOGGED BY: **MPB**	SAMPLING METHOD: **Continuous**	DATE STARTED: **11/29/17** / DATE COMPLETED: **11/29/17**

Depth (feet)	Groundwater Depth	USCS	Soil / Lithologic Description	Sample ID / Blowcounts	PID Reading (ppm)
0.0 – 0.5			Grass, organics		
0.5 – 1.5		SM	Black Silt, moist		
1.5 – 3.0		SM	Grau Sandy Silt, wet		
3.0	▼			MW8-3	0
3.5	▽				
3.5 – 8.0		SM	Grau Sandy Silt, wet		0
8.0 – 9.0		SM	Gray- Brown Sandy Silt		0
9.0 – 10					



NOTES:
Recovery: 0'-5'=50%, 5'-10'=90%

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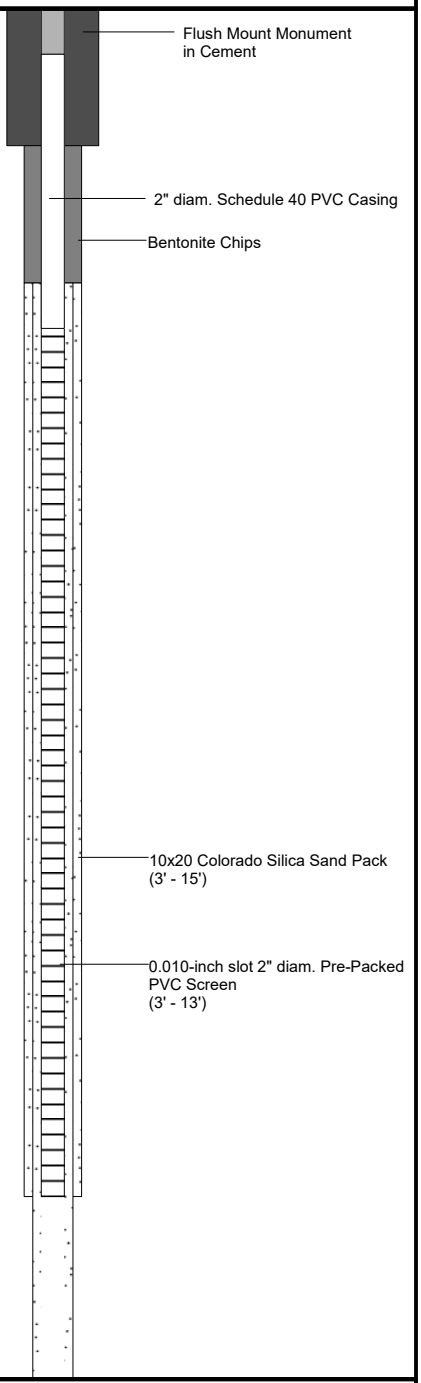
PROJECT: **Buckley Library**		PROJECT NUMBER: **11101**	
LOCATION: **123 S River Ave**		WELL ID: **MW09**	
DRILLING CONTRACTOR: **Holt Services**		NORTHING:	EASTING:
DRILLING EQUIPMENT: **Truck Mounted Geoprobe 7800**		GROUNDWATER ELEV.:	TOC ELEVATION:
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **15**	DEPTH TO WATER: **4.76**
LOGGED BY: **MPB**	SAMPLING METHOD: **Continuous**	DATE STARTED: **10/8/19**	DATE COMPLETED: **10/8/19**

Depth (feet)	Groundwater Depth	USCS	Soil / Lithologic Description	Sample ID / Blowcounts	PID Reading (ppm)
0.0		ORG	Grass, organics		
1.0					
2.0					
3.0		SM	Black silty sand, moist	MW09-3	0
4.0					
5.0	▼				
6.0					
7.0					
8.0					0
9.0					
10.0		SM	Tan-gray silty sand and sand, wet		
11.0					
12.0					
13.0					0
14.0					
15.0					



NOTES:

Recovery: 0'-5'= 20%, 5'-10'=40%, 10'-15'=40%

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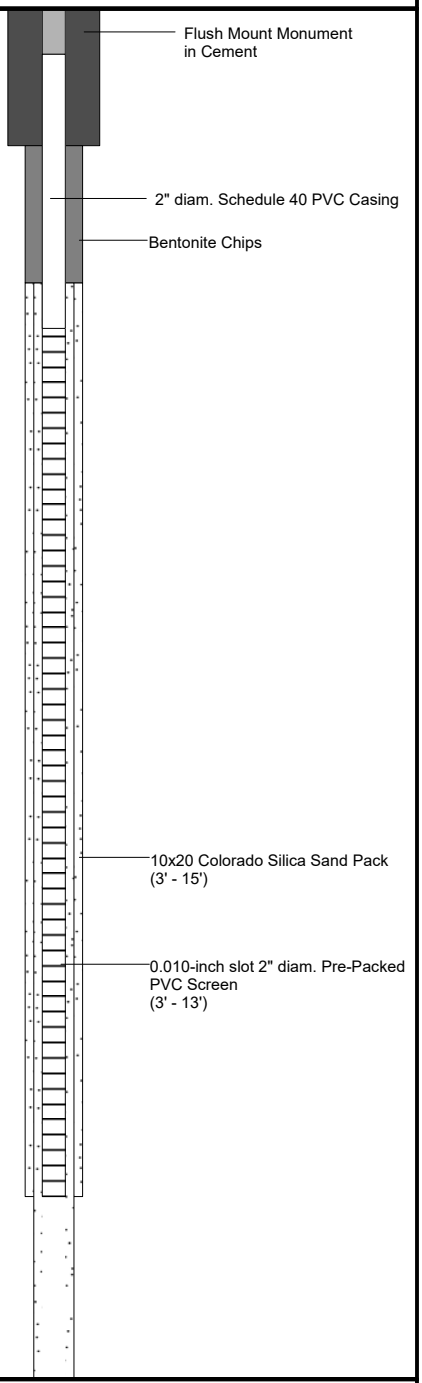
PROJECT: **Buckley Library**		PROJECT NUMBER: **11101**	
LOCATION: **123 S River Ave**		WELL ID: **MW10**	
DRILLING CONTRACTOR: **Holt Services**		NORTHING:	EASTING:
DRILLING EQUIPMENT: **Truck Mounted Geoprobe 7800**		GROUNDWATER ELEV.:	TOC ELEVATION:
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **15**	DEPTH TO WATER: **2.49**
LOGGED BY: **MPB**	SAMPLING METHOD: **Continuous**	DATE STARTED: **10/9/19**	DATE COMPLETED: **10/9/19**

Depth (feet)	Groundwater Depth	USCS	Soil / Lithologic Description	Sample ID / Blowcounts	PID Reading (ppm)
0.0 – 1.0		ROAD	Asphalt		
1.0 – 3.0	▼	FILL	Cobbles and gravel fill, dry to wet	MW10-3	0
3.0 – 13.0		SM	Brown-gray sandy silt, wet		0
13.0 – 15.0		SM	Gray sandy silt, moist		0



NOTES:

Recovery: 0'-5'= N/A, 5'-10'=80%, 10'-15'=60%

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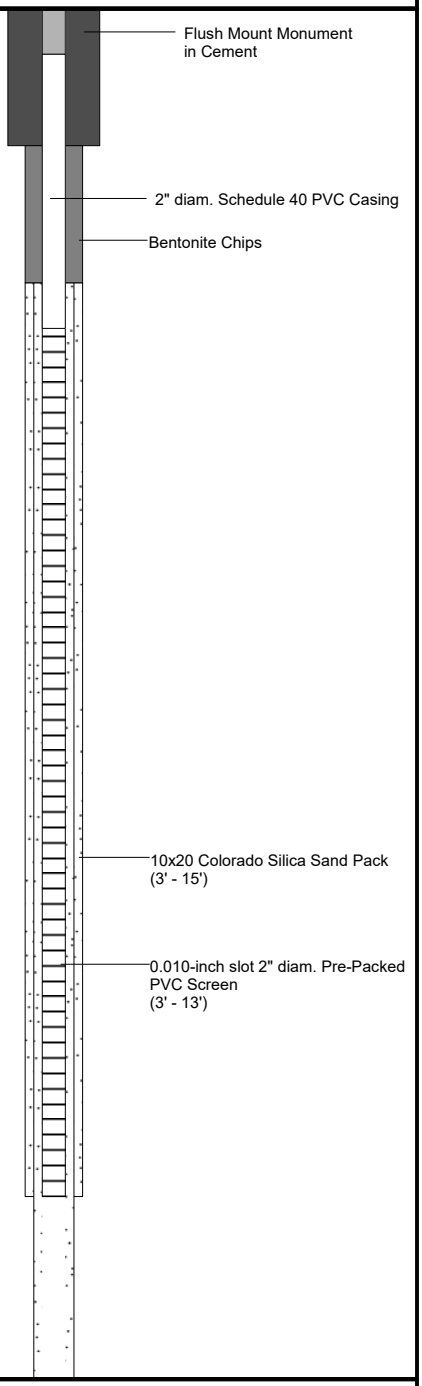
PROJECT: **Buckley Library**		PROJECT NUMBER: **11101**	
LOCATION: **123 S River Ave**		WELL ID: **MW11**	
DRILLING CONTRACTOR: **Holt Services**		NORTHING:	EASTING:
DRILLING EQUIPMENT: **Truck Mounted Geoprobe 7800**		GROUNDWATER ELEV.:	TOC ELEVATION:
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **15**	DEPTH TO WATER: **6.3**
LOGGED BY: **MPB**	SAMPLING METHOD: **Continuous**	DATE STARTED: **10/9/19**	DATE COMPLETED: **10/9/19**

Depth (feet)	Groundwater Depth	USCS	Soil / Lithologic Description	Sample ID / Blowcounts	PID Reading (ppm)
0.0		ROAD	Asphalt		
1.0		FILL	Cobbles and gravel fill, dry to wet		
2.0					
3.0				MW011-3	0
4.0		SM	Tan sandy silt, moist to wet		
5.0					
6.0	▼				
7.0					
8.0		ML	Tan-gray silt, moist		0
9.0					
10.0		ML	Lavender to red silt, dry		
11.0					
12.0		SM	Tan-gray sandy silt, wet		
13.0					0
14.0		GM	Gray siltbound sand and gravel, dry		
15.0					



NOTES:

Recovery: 0'-5'= 5% Vactor/ Hand Auger, 5'-10'=67%, 10'-15'=70%

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **10949-02**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B1**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7822 DT**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **6/1/2017**	DATE COMPLETED: **6/1/2017**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Asphalt				
			Fill, Brown sand and gravel, occ silty		0.0		50
5		GW	Brown silt, silty sand and gravel, moist to wet	B1-6	0.5		80
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **10949-02**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B2**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7822 DT**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **6/1/2017**	DATE COMPLETED: **6/1/2017**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Asphalt				
			Fill, Brown sand and gravel, occ silty		0.0		50
		GM	Brown silty sand and gravel, moist		0.0		
5		SM	Brown F-M Silty Sand, moist	B2-5.5	0.0		
		GM	Gray-Brown silty sand and gravel, wet		0.0		80
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**	PROJECT NUMBER: **10949-02**		
LOCATION: **123 River Avenue S Buckley, WA**	BOREHOLE ID: **B3**		
DRILLING CONTRACTOR: **Holt**	CORE SIZE: **2"**	HAMMER DATA:	
DRILLING EQUIPMENT: **Geoprobe 7822 DT**	GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**	
DRILLING METHOD: **Direct Push**	TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**	
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **6/1/2017**	DATE COMPLETED: **6/1/2017**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Asphalt				
			Fill, Brown sand		0.0		
		GM	Brown silty sand and gravel, moist		0.0		50
		SM	Gray fine silty sand, moist to wet	B3-4.5	0.0		
5		GM	Brown silty sand and gravel, wet		0.0		
		GM	Gray-Brown sitly to siltbound sand and gravel, moist		0.0		80
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **10949-02**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B4**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7822 DT**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **6/1/2017**	DATE COMPLETED: **6/1/2017**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Asphalt				
			Fill, Brown sand		0.0		40
5		SM	Black silty sand, moist to wet	B4-4.5	0.3		
		GM	Gray silty sand and gravel, wet		0.0		100
		GM	Tan-Orange silty sand and gravel, wet		0.0		
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **10949-02**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B5**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7822 DT**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **6/1/2017**	DATE COMPLETED: **6/1/2017**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Topsoil		0.0		
			Brown sand and gravel to gray-brown silty sand and gravel, moist		0.0		40
5		SM	Gray fine silty sand	B5-7'	0.5		50
10		GM	Gray-brown silty sand and gravel, wet		0.0		100
15							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **10949-02**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B6**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7822 DT**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **6/1/2017**	DATE COMPLETED: **6/1/2017**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Topsoil		0.0		40
			Brown silty sand and gravel, fill		0.0		0
10		SM	Gray fine silty sand / sandy silt, wet	B6-13'	6.8		100

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **10949-02**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B7**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7822 DT**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **6/1/2017**	DATE COMPLETED: **6/1/2017**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Topsoil		0.0		
			Brown sand and gravel, fill		0.0		0
5		GM	Black-gray stained silty sand and gravel, strong odor, moist to wet	B7-7'	525+		60
10		GM	Gray-orange silty sand and gravel, odor, wet				
		GM	Gray fine silty sand and gravel, odor, wet				80
15							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **10949-02**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B8**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7822 DT**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **6/1/2017**	DATE COMPLETED: **6/1/2017**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Topsoil		0.0		
			Gray sand and gravel fill		0.0		
		SM	Gray to Gray-Blue stained sand	B8-5'	250+		60
5		SM	Black to gray fine silty sand, wet				60
10							

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **10949-02**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B9**	
DRILLING CONTRACTOR: **Holt**	CORE SIZE: **2"**	HAMMER DATA:	
DRILLING EQUIPMENT: **Geoprobe 7822 DT**	GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**	
DRILLING METHOD: **Direct Push**	TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**	
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **6/1/2017**	DATE COMPLETED: **6/1/2017**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Topsoil		0.0		
		GM	Brown sand and gravel		0.0		40
5		GM	Black sand and gravel	B9-6'	0.0		
		GM	Gray-orange mottled silty sand and gravel, moist to wet				
		GM	Brown-gray mottled silty sand and gravel, wet				80
10		SM	Brown-gray silty fine sand, wet				60
15							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **10949-04**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B10**	
DRILLING CONTRACTOR: **Holt**	CORE SIZE: **2"**	HAMMER DATA:	
DRILLING EQUIPMENT: **Geoprobe 7822 DT**	GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**	
DRILLING METHOD: **Direct Push**	TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**	
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **11/28/17**	DATE COMPLETED: **11/28/17**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Asphalt				
		SM	Gray F-M sand, moist	B10-3	0.0		50
		SM	Gray-brown mottled sandy silt		0.0		
5		SM	Gray F-C sand				
		SM	Gray-brown sandy silt				80
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **10949-04**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B11**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7822 DT**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **11/28/17**	DATE COMPLETED: **11/28/17**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Asphalt				
		SM	Gray-brown sitly sand				60
5		SM	Gray silty sand	B11-4.5	0.0		
		SM	Brown F-M silty sand				90
10		SM	Brown F-M sandy silt				

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **10949-04**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B12**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7822 DT**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **11/28/17**	DATE COMPLETED: **11/28/17**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Grass/ organics				
		GM	Brown silty sand and gravel				
		ML	Black silt, moist to wet	B12-2.5	0.0		60
5		SM	Gray F-M silty sand		0.0		80
		SM	Gray-brown mottled sandy silt occ gravel				
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **10949-04**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B13**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7822 DT**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **11/28/17**	DATE COMPLETED: **11/28/17**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Grass/ organics				
		SM	Gray stained sandy silt, moist to wet, odor	B13-4	22.1		40
5							
		SM	Gray-brown sandy silt				100
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **10949-04**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B14**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7822 DT**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **11/29/17**	DATE COMPLETED: **11/29/17**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Grass/ organics				
		ML	Black silt, moist	B14-3	0.0		60
5		SM	Gray-brown sandy silt to silty sand		0.0		40
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **10949-04**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B15**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7822 DT**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **11/29/17**	DATE COMPLETED: **11/29/17**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Grass/ organics				
		GM	Brown silty sand and gravel				
		GM	Gray silt with gravel	B15-3	0.0		60
5		SM	Gray-brown sandy silt to silty sand, v. moist to wet		0.0		50
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**	PROJECT NUMBER: **11101**		
LOCATION: **123 River Avenue S Buckley, WA**	BOREHOLE ID: **B16**		
DRILLING CONTRACTOR: **Holt**	CORE SIZE: **2"**	HAMMER DATA:	
DRILLING EQUIPMENT: **Geoprobe 7800**	GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**	
DRILLING METHOD: **Direct Push**	TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**	
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **10/8/19**	DATE COMPLETED: **10/8/19**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Asphalt				
		SP	Black Sand, dry		0.0		60
	▼	SM	Gray-Black Silt to Sandy Silt, moist to wet	B16-3	0.0		
5		SM	Gray-Brown Silt to Siltbound Sand and Gravel, wet to moist		0.0		100
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **11101**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B17**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7800**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **10/8/19**	DATE COMPLETED: **10/8/19**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Asphalt				
		SP	Black-Brown Sand and Gravel, moist		0.0		40
5	▼	SM	Black Silt to Sandy Silt, moist to wet	B17-5	0.0		
		SM / GM	Gray Silt to Siltbound Sand and Gravel, dry		0.0		60
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **11101**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B18**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7800**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **10/8/19**	DATE COMPLETED: **10/8/19**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Organics				
		SP	Brown-Black Sand and Gravel		0.0		20
5	▼	SP	Brown Sand, dry	B18-6	0.0		
		ML	Black to Gray Silt, Sandy Silt Wet		0.0		50
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **11101**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B19**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7800**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **10/8/19**	DATE COMPLETED: **10/8/19**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Organics				
		SM	Black Silty Sand and Gravel, moist		0.0		60
5	▼	ML	Tan Silt to Sandy Silt, moist to wet	B19-3	0.0		80
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **11101**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B20**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7800**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **15'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **10/8/19**	DATE COMPLETED: **10/8/19**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Organics				
		SM	Brown Silt and Sandy Silt, moist		0.0		40
5		ML	Black Silt and Sandy Silt, moist	B20-5	0.0		
	▼	SM	Brown-Tan Silt and Sandy Silt, wet				40
10		ML	Tan Silt, Wet				60
15							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **11101**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B21**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7800**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **10/8/19**	DATE COMPLETED: **10/8/19**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Organics				
	▼	ML	Black Silt and Sandy Silt, moist	B21-3	0.0		40
5		ML	Tan Silt and Sandy Silt, wet		0.0		60
10		ML	Gray Silt and Sandy Silt, wet				

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **11101**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B22**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7800**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **10/9/19**	DATE COMPLETED: **10/9/19**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Organics				
	▼	ML	Black Silt and Sandy Silt, moist	B22-3	0.0		60
5		ML	Tan to Gray Silt and Sandy Silt, wet	B22-6	0.0		
			Refusal @ 6.5', Large Rock				30
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**	PROJECT NUMBER: **11101**		
LOCATION: **123 River Avenue S Buckley, WA**	BOREHOLE ID: **B23**		
DRILLING CONTRACTOR: **Holt**	CORE SIZE: **2"**	HAMMER DATA:	
DRILLING EQUIPMENT: **Geoprobe 7800**	GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**	
DRILLING METHOD: **Direct Push**	TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**	
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **10/9/19**	DATE COMPLETED: **10/9/19**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Organics				30
	▼	FILL	Gray Sand and Gravel Fill, petroleum odor, moist to wet	B23-3	1.3		
5							5
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**	PROJECT NUMBER: **11101**		
LOCATION: **123 River Avenue S Buckley, WA**	BOREHOLE ID: **B24**		
DRILLING CONTRACTOR: **Holt**	CORE SIZE: **2"**	HAMMER DATA:	
DRILLING EQUIPMENT: **Geoprobe 7800**	GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**	
DRILLING METHOD: **Direct Push**	TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**	
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **10/9/19**	DATE COMPLETED: **10/9/19**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Asphalt				
	▼	FILL	Gray Sand and Gravel Fill, Shallow Cobbles, Sandier with depth, petroleum odor, moist to wet	B24-3	754.0		30
5		ML	Gray Sandy Silt, Wet, odor Refusal @ 7'		99.7		5
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **11101**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B25**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7800**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **10/9/19**	DATE COMPLETED: **10/9/19**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Asphalt				
		FILL	Gray Sand and Sandy Silt, moist to wet, fill, odor	B25-3	72.2		30
5	▼						
					99.7		5
		ML	Tan-Gray Silt and Sandy Silt, Wet		0.0		
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **11101**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B26**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7800**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **10/9/19**	DATE COMPLETED: **10/9/19**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Asphalt				
		FILL	Gray Sand and Sandy Silt, fill, moist	B26-3	0.0		5
5	▼						
		ML	Tan-Gray Silt and Sandy Silt, slight odor, Wet	B26-7	4.5		90
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **11101**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B27**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7800**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **10/9/19**	DATE COMPLETED: **10/9/19**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Asphalt				
		FILL	Gray Sand and Sandy Silt, fill, moist	B27-3	0.0		5
5	▼	ML	Tan-Gray Silt and Sandy Silt, slight odor, Wet		0.0		100
		ML	Brown Sandy Silt, Wet		0.0		
10							

NOTES:

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PROJECT: **Buckley Library Phase II ESA**		PROJECT NUMBER: **11101**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B28**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7800**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **10'**	DEPTH TO WATER: **N/A**
LOGGED BY: **MPB**	SAMPLING METHOD:	DATE STARTED: **10/8/19**	DATE COMPLETED: **10/8/19**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Asphalt				
		GM	Gray Silty Sand and Gravel, dry	B28-3	0.0		60
	▼						
5		SM	Black-Gray Silt and Sandy Silt, dry to wet		0.0		80
10		GM	Gray Silty Sand and Gravel		0.0		

NOTES:

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PROJECT: **Buckley Library Supplemental Investigation**		PROJECT NUMBER: **11101**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B29**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7800**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **5'**	DEPTH TO WATER: **4'**
LOGGED BY: **RO**	SAMPLING METHOD:	DATE STARTED: **11/9/20**	DATE COMPLETED: **11/9/20**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Grass				
	▼	ML	Sandy (10%) silt (90%), dark brown, moist, no odor.	B29-03	0.2		
5							

NOTES:

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PROJECT: **Buckley Library Supplemental Investigation**		PROJECT NUMBER: **11101**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B30**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7800**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **5'**	DEPTH TO WATER: **4'**
LOGGED BY: **RO**	SAMPLING METHOD:	DATE STARTED: **11/9/20**	DATE COMPLETED: **11/9/20**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			grass				
	▼	ML	Sandy (10%) silt (80%) with gravel (10%), dark brown to black, moist, no odor.	B30-03	0.1		
5							

NOTES:

EHS–International, Inc.
1011 SW Klickitat Way, Suite 104
Seattle, Washington 98134
Ph: 206.381.1128
Fax: 206.254.4279

PROJECT: **Buckley Library Supplemental Investigation**		PROJECT NUMBER: **11101**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B31**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7800**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **15'**	DEPTH TO WATER: **4'**
LOGGED BY: **RO**	SAMPLING METHOD:	DATE STARTED: **11/9/20**	DATE COMPLETED: **11/9/20**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Asphalt				
		SM	Silty sand with minor gravel, light brown, wet, no odor.	B31-03	0.0		
5		SM	Silty sand with minor gravel, light brown, wet, no odor.	B31-08	0.0		
10	▼	SM	Silty sand with gravel, gray, moist, no odor.	B31-15	0.0		
15							

NOTES:

EHS–International, Inc.
1011 SW Klickitat Way, Suite 104
Seattle, Washington 98134
Ph: 206.381.1128
Fax: 206.254.4279

PROJECT: **Buckley Library Supplemental Investigation**		PROJECT NUMBER: **11101**	
LOCATION: **123 River Avenue S Buckley, WA**		BOREHOLE ID: **B32**	
DRILLING CONTRACTOR: **Holt**		CORE SIZE: **2"**	HAMMER DATA:
DRILLING EQUIPMENT: **Geoprobe 7800**		GROUND SURFACE ELEV.:	BOREHOLE BACKFILL: **Bentonite**
DRILLING METHOD: **Direct Push**		TOTAL DEPTH: **15'**	DEPTH TO WATER: **13'**
LOGGED BY: **RO**	SAMPLING METHOD:	DATE STARTED: **11/9/20**	DATE COMPLETED: **11/9/20**

Depth (feet)	Groundwater Depth	USCS	Lithologic / Soil Description	Sample ID	PID Reading (ppm)	Blows / foot	% Recovery
0			Asphalt				
		SM	Silty (20%) sand (70%) with minor gravel (10%), brick fragments, fill, light brown, moist, no odor.	B32-03	1.1		
5		ML	Sandy (20%) silt (70%) with minor gravel (10%), brown and gray, moist, no odor.	B32-08	5.0		
10	▼	ML	Sandy (20%) silt (70%) with minor gravel (10%), brown and gray, becomes wet at 13' bgs, no odor.	B32-15	8.4		
15							

NOTES:

SoundEarth Strategies

Project:	Buckley Library
Project Number:	2000-044
Logged by:	KJL
Date Started:	9/9/2021
Surface Conditions:	Grass/Soil
Location N/S:	3' N of telephone pole
Location E/W:	56' W of telephone pole
Reviewed by:	CED
Date Completed:	9/9/2021

BORING LOG | B33 MW12

Site Address: 123 South River Avenue, Buckley, Washington

Water Depth At Time of Drilling: 5 feet bgs

Water Depth After Completion: 6.79 feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppm)	Sample ID	Sample Analyzed	Group Symbol	Graphic	Lithologic Description (ASTM texture, density, color, odor, moisture, supplemental descriptors, estimated grain size distribution) Field-estimated grain size distribution by volume (% Fines - % Sand - % Gravel)	Well Detail/ Water Depth
0									**0.0-1.0 feet bgs: 1' of topsoil**	
									1.0-2.5 feet bgs: Concrete fill material observed. No recovery.	
		20 10 10	70	473.2			SM		**2.5-3.25 feet bgs: Silty SAND with gravel, loose, brown, no hydrocarbon odor, moist, organic debris, rootlets (25-40-35).**	
					B33-03.5	X	SM		**3.25-4.0 feet bgs: Silty SAND with gravel, loose, gray, strong hydrocarbon odor, moist (35-40-25).**	
5		50/5"	20	49.6	B33-05		SM		**5.0-6.5 feet bgs: Silty SAND with gravel, very dense, gray, moderate hydrocarbon odor, wet, metal debris (35-40-25).**	
		17 21 20	100	17.8 0.4			SM SM		**7.5-8.0 feet bgs: Silty SAND with gravel, loose, gray, moderate hydrocarbon odor, moist (35-40-25).** **8.0-9.0 feet bgs: Silty SAND with gravel, loose, light gray/brown, no hydrocarbon odor, moist (25-55-20).**	
10		7 18 50/4"	100	0.0			SM SM		**10.0-10.5 feet bgs: Silty SAND with gravel, very dense, light gray/brown, no hydrocarbon odor, moist (25-55-20).** **10.5-11.5 feet bgs: Silty SAND with gravel, very dense, gray, no hydrocarbon odor, moist (35-45-20).**	
		50/0" 10 10	50	0.0 0.0	B33-13	X	SM		**11.5-13.0 feet bgs: Silty SAND with gravel, loose, gray, no hydrocarbon odor, wet, wood and organic debris (35-45-20).**	
15									**Boring terminated at 13 feet bgs and completed as groundwater montioring well MW12.**	

Drilling Co./Driller:	Cascade / Curtis		**Well/Auger Diameter:**	2 / 4.25	inches
Drilling Equipment:	Hollow-Stem Auger		**Well Screened Interval:**	3 to 13	feet bgs
Sampler Type:	Dames & Moore		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	Auto / 140	lbs	**Filter Pack Used:**	10 x 20 silica sand	
Total Boring Depth:	13	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	13	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BMM 870		**Monument Type:**	Flush Mount	

Notes/Comments:

bgs: below ground surface

SoundEarth Strategies

Project:	Buckley Library
Project Number:	2000-044
Logged by:	KJL
Date Started:	9/9/2021
Surface Conditions:	Grass/Soil
Location N/S:	91' S of telephone pole
Location E/W:	32' W of telephone pole
Reviewed by:	CED
Date Completed:	9/9/2021

BORING LOG | B34 MW13

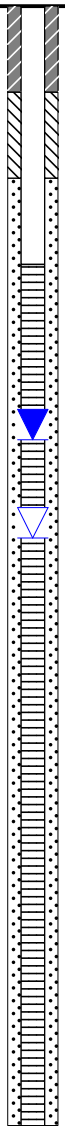
Site Address: 123 South River Avenue, Buckley, Washington

Water Depth At Time of Drilling: 6 feet bgs

Water Depth After Completion: 4.86 feet bgs

Depth (feet bgs)	Interval	Blow Count	% Recovery	PID (ppm)	Sample ID	Sample Analyzed	Group Symbol	Graphic	Lithologic Description (ASTM texture, density, color, odor, moisture, supplemental descriptors, estimated grain size distribution) Field-estimated grain size distribution by volume (% Fines - % Sand - % Gravel)
0									
		17 13 13	100	40.8			SM		**2.5-3.5 feet bgs: Silty SAND with gravel, loose, brown, faint hydrocarbon odor, moist, rootlets/organics (15-75-10).**
				335.6	B34-04		SM		**3.5-4.0 feet bgs: Silty SAND with gravel, loose, gray, strong hydrocarbon odor, moist (35-40-25).**
5		7 4 3	40	948.6	B34-05.5	X	SM		**5.0-6.5 feet bgs: Silty SAND with gravel, very loose, gray, strong hydrocarbon odor, wet (35-40-25).**
		20 50/7"	50	12.7			SM		**7.5-9.0 feet bgs: Silty SAND with gravel, very dense, gray, strong hydrocarbon odor, wet (35-40-25).**
10		11 13 12	100	67.3			SM		**10.0-10.5 feet bgs: Silty SAND with gravel, loose, gray, moderate hydrocarbon odor, moist (35-40-25).**
				6.3			SM		**10.5-11.5 feet bgs: Silty SAND with gravel, loose, light gray/brown, no hydrocarbon odor, moist, wood debris (35-40-25).**
		12 16 18	100	2.3	B34-13		SM		**11.5-13.0 feet bgs: Silty SAND with gravel, medium dense, gray, no hydrocarbon odor, wet, very dense, wood debris (35-45-20).**
15									**Boring terminated at 13 feet bgs and completed as groundwater monitoring well MW13.**

Well Detail/ Water Depth



Drilling Co./Driller:	Cascade / Curtis		**Well/Auger Diameter:**	2 / 4.25	inches
Drilling Equipment:	Hollow-Stem Auger		**Well Screened Interval:**	3 to 13	feet bgs
Sampler Type:	Dames & Moore		**Screen Slot Size:**	0.010	inches
Hammer Type/Weight:	Auto / 140	lbs	**Filter Pack Used:**	10 x 20 silica sand	
Total Boring Depth:	13	feet bgs	**Surface Seal:**	Concrete	
Total Well Depth:	13	feet bgs	**Annular Seal:**	Bentonite	
State Well ID No.:	BMM 871		**Monument Type:**	Flush Mount	

Notes/Comments:

bgs: below ground surface

APPENDIX H

Laboratory Analytical Reports

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

November 6, 2019

Mike Brady, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

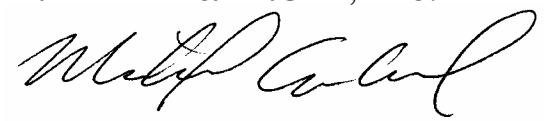
Dear Mr Brady:

Included is the amended report from the testing of material submitted on October 16, 2019 from the Buckley Library 11101-02, F&BI 910339 project. Per your request, the several NWTPH-Dx diesel and motor oil samples have been reported as NWTPH-Dx extended.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: EHSI A/P, Kurt Easthouse
EHS1025R.DOC

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

October 25, 2019

Mike Brady, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

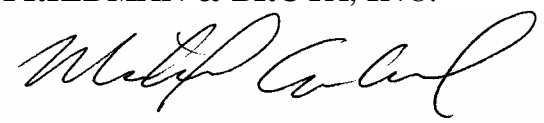
Dear Mr Brady:

Included are the results from the testing of material submitted on October 16, 2019 from the Buckley Library 11101-02, F&BI 910339 project. There are 68 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: EHSI A/P. Kurt Easthouse
EHS1025R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 16, 2019 by Friedman & Bruya, Inc. from the EHSI Buckley Library 11101-02, F&BI 910339 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EHSI
910339 -01	MW-1
910339 -02	MW-2
910339 -03	MW-3
910339 -04	MW-4
910339 -05	MW-5
910339 -06	MW-6
910339 -07	MW-7
910339 -08	MW-8
910339 -09	MW-9
910339 -10	MW-10
910339 -11	MW-11
910339 -12	MW-6 Dup
910339 -13	Trip Blank

An 8270D internal standard failed the acceptance criteria for sample MW-6. The sample was diluted and reanalyzed with acceptable results. Both data sets were reported.

The dissolved metals were filtered at Friedman and Bruya on October 17, 2019 at 14:59. The data were flagged accordingly.

A 6020B internal standard failed the acceptance criteria for the total metals analysis of samples MW-3, MW-7, MW-8, MW-9, and MW-10 . The samples were diluted and reanalyzed with acceptable results. Both data sets were reported.

Methylene chloride was detected in the 8260C method blank. The data were flagged as due to lab contamination.

The 8260C laboratory control sample and laboratory control sample duplicate failed the relative percent difference for acetone. The analyte was not detected therefore the data were acceptable.

All other quality control requirements were acceptable.

Date of Report: 10/25/19
Date Received: 10/16/19
Project: Buckley Library 11101-02, F&BI 910339
Date Extracted: 10/22/19
Date Analyzed: 10/22/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW-1 910339-01	<100	60
MW-2 910339-02	<100	57
MW-3 910339-03	<100	68
MW-4 910339-04	<100	63
MW-5 910339-05	<100	65
MW-6 910339-06 1/20	14,000	67
MW-7 910339-07	<100	68
MW-8 910339-08	<100	66
MW-9 910339-09	<100	62
MW-10 910339-10	<100	64
MW-11 910339-11	<100	57

Date of Report: 10/25/19
Date Received: 10/16/19
Project: Buckley Library 11101-02, F&BI 910339
Date Extracted: 10/22/19
Date Analyzed: 10/22/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
MW-6 Dup 910339-12 1/20	13,000	63
Method Blank 09-2604 MB	<100	81

Date of Report: 10/25/19
Date Received: 10/16/19
Project: Buckley Library 11101-02, F&BI 910339
Date Extracted: 10/17/19
Date Analyzed: 10/17/19 and 10/18/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW-2 910339-02	<50	<250	87
MW-3 910339-03	<50	<250	83
MW-5 910339-05	<50	<250	98
MW-8 910339-08 1/1.4	210 x	<360	97
MW-9 910339-09	68 x	<250	66
MW-10 910339-10	84 x	<250	80
Method Blank 09-2580 MB	<50	<250	89

Date of Report: 10/25/19
Date Received: 10/16/19
Project: Buckley Library 11101-02, F&BI 910339
Date Extracted: 10/17/19
Date Analyzed: 10/17/19 and 10/18/19

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL USING METHOD NWTPH-Dx
Extended to Include Motor Oil Range Compounds
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Extended (C_{10}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW-1 910339-01	320 x	80
MW-4 910339-04	490 x	79
MW-6 910339-06	8,400 x	94
MW-7 910339-07	440 x	90
MW-11 910339-11	1,800 x	99
Method Blank 09-2580 MB	<250	89

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-1	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-01
Date Analyzed:	10/18/19	Data File:	101804.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	101	31	160
Benzo(a)anthracene-d12	114	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-2	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-02
Date Analyzed:	10/18/19	Data File:	101805.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	98	31	160
Benzo(a)anthracene-d12	102	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-3	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-03
Date Analyzed:	10/18/19	Data File:	101806.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	97	31	160
Benzo(a)anthracene-d12	103	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-4	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-04
Date Analyzed:	10/18/19	Data File:	101807.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	74	31	160
Benzo(a)anthracene-d12	58	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-5	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-05
Date Analyzed:	10/18/19	Data File:	101808.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	106	31	160
Benzo(a)anthracene-d12	107	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-6	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-06
Date Analyzed:	10/18/19	Data File:	101817.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	85	31	160
Benzo(a)anthracene-d12	74	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	160 ve
2-Methylnaphthalene	34 ve
1-Methylnaphthalene	54 ve
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02 J
Benzo(b)fluoranthene	<0.02 J
Benzo(k)fluoranthene	<0.02 J
Indeno(1,2,3-cd)pyrene	<0.02 J
Dibenz(a,h)anthracene	<0.02 J

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-6	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-06 1/100
Date Analyzed:	10/21/19	Data File:	102109.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	255 d	31	160
Benzo(a)anthracene-d12	83 d	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	270
2-Methylnaphthalene	36
1-Methylnaphthalene	61
Benz(a)anthracene	<2
Chrysene	<2
Benzo(a)pyrene	<2
Benzo(b)fluoranthene	<2
Benzo(k)fluoranthene	<2
Indeno(1,2,3-cd)pyrene	<2
Dibenz(a,h)anthracene	<2

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-7	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-07
Date Analyzed:	10/18/19	Data File:	101810.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	86	31	160
Benzo(a)anthracene-d12	89	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-8	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-08
Date Analyzed:	10/18/19	Data File:	101811.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	103	31	160
Benzo(a)anthracene-d12	108	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-9	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-09
Date Analyzed:	10/18/19	Data File:	101812.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90	31	160
Benzo(a)anthracene-d12	79	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-10	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-10
Date Analyzed:	10/18/19	Data File:	101813.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	80	31	160
Benzo(a)anthracene-d12	67	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	09-2585 mb
Date Analyzed:	10/18/19	Data File:	101729.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	104	31	160
Benzo(a)anthracene-d12	111	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-1 f	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/18/19	Lab ID:	910339-01
Date Analyzed:	10/18/19	Data File:	910339-01.068
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.16
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-2 f	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/18/19	Lab ID:	910339-02
Date Analyzed:	10/18/19	Data File:	910339-02.069
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-3 f	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/18/19	Lab ID:	910339-03
Date Analyzed:	10/18/19	Data File:	910339-03.070
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.53
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-4 f	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/18/19	Lab ID:	910339-04
Date Analyzed:	10/18/19	Data File:	910339-04.073
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-5 f	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/18/19	Lab ID:	910339-05
Date Analyzed:	10/18/19	Data File:	910339-05.074
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-6 f	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/18/19	Lab ID:	910339-06
Date Analyzed:	10/18/19	Data File:	910339-06.075
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	4.19
Cadmium	<1
Chromium	<1
Lead	2.75
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-7 f	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/18/19	Lab ID:	910339-07
Date Analyzed:	10/18/19	Data File:	910339-07.076
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-8 f	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/18/19	Lab ID:	910339-08
Date Analyzed:	10/18/19	Data File:	910339-08.077
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-9 f	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/18/19	Lab ID:	910339-09
Date Analyzed:	10/18/19	Data File:	910339-09.078
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.16
Cadmium	<1
Chromium	1.16
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-10 f	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/18/19	Lab ID:	910339-10
Date Analyzed:	10/18/19	Data File:	910339-10.079
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.46
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-11 f	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/18/19	Lab ID:	910339-11
Date Analyzed:	10/18/19	Data File:	910339-11.080
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.11
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank f	Client:	EHSI
Date Received:	NA	Project:	Buckley Library 11101-02
Date Extracted:	10/18/19	Lab ID:	I9-664 mb2
Date Analyzed:	10/18/19	Data File:	I9-664 mb2.067
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-1	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-01
Date Analyzed:	10/17/19	Data File:	910339-01.117
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.74
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-2	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-02
Date Analyzed:	10/17/19	Data File:	910339-02.083
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-3	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-03
Date Analyzed:	10/17/19	Data File:	910339-03.084
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.69
Cadmium	<1
Chromium	<1 J
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-3	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-03 x2
Date Analyzed:	10/18/19	Data File:	910339-03 x2.042
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<2

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-4	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-04
Date Analyzed:	10/17/19	Data File:	910339-04.085
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-5	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-05
Date Analyzed:	10/17/19	Data File:	910339-05.121
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-6	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-06
Date Analyzed:	10/17/19	Data File:	910339-06.122
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	9.16
Cadmium	<1
Chromium	<1
Lead	6.15
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-7	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-07
Date Analyzed:	10/17/19	Data File:	910339-07.123
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.60
Cadmium	<1
Chromium	<1 J
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-7	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-07 x2
Date Analyzed:	10/18/19	Data File:	910339-07 x2.043
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<2

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-8	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-08
Date Analyzed:	10/17/19	Data File:	910339-08.124
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	4.77
Cadmium	<1
Chromium	<1 J
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-8	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-08 x2
Date Analyzed:	10/18/19	Data File:	910339-08 x2.053
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<2

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-9	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-09
Date Analyzed:	10/17/19	Data File:	910339-09.130
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	98.5 J
Cadmium	2.89 J
Chromium	70.7 J
Lead	128 J
Mercury	1.11 J

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-9	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-09 x50
Date Analyzed:	10/18/19	Data File:	910339-09 x50.054
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	91.4
Cadmium	<50
Chromium	386
Lead	342
Mercury	<50

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-10	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-10
Date Analyzed:	10/17/19	Data File:	910339-10.132
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	8.16
Cadmium	<1
Chromium	1.45 J
Lead	1.01
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-10	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-10 x2
Date Analyzed:	10/18/19	Data File:	910339-10 x2.055
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<2

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-11	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	910339-11
Date Analyzed:	10/17/19	Data File:	910339-11.133
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.41
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	EHSI
Date Received:	NA	Project:	Buckley Library 11101-02
Date Extracted:	10/17/19	Lab ID:	I9-663 mb
Date Analyzed:	10/17/19	Data File:	I9-663 mb.078
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-1	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/22/19	Lab ID:	910339-01
Date Analyzed:	10/22/19	Data File:	102233.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	93	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-2	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/22/19	Lab ID:	910339-02
Date Analyzed:	10/22/19	Data File:	102234.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	90	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-3	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/22/19	Lab ID:	910339-03
Date Analyzed:	10/22/19	Data File:	102235.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	91	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-4	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/22/19	Lab ID:	910339-04
Date Analyzed:	10/22/19	Data File:	102236.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	91	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-5	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/22/19	Lab ID:	910339-05
Date Analyzed:	10/22/19	Data File:	102237.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	93	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-6	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/23/19	Lab ID:	910339-06 1/100
Date Analyzed:	10/23/19	Data File:	102341.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	90	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<100	1,3-Dichloropropane	<100
Chloromethane	<1,000	Tetrachloroethene	<100
Vinyl chloride	<20	Dibromochloromethane	<100
Bromomethane	<100	1,2-Dibromoethane (EDB)	<100
Chloroethane	<100	Chlorobenzene	<100
Trichlorofluoromethane	<100	Ethylbenzene	1,100
Acetone	<5,000	1,1,1,2-Tetrachloroethane	<100
1,1-Dichloroethene	<100	m,p-Xylene	<200
Hexane	<100	o-Xylene	<100
Methylene chloride	<500	Styrene	<100
Methyl t-butyl ether (MTBE)	<100	Isopropylbenzene	<100
trans-1,2-Dichloroethene	<100	Bromoform	<100
1,1-Dichloroethane	<100	n-Propylbenzene	150
2,2-Dichloropropane	<100	Bromobenzene	<100
cis-1,2-Dichloroethene	<100	1,3,5-Trimethylbenzene	<100
Chloroform	<100	1,1,2,2-Tetrachloroethane	<100
2-Butanone (MEK)	<1,000	1,2,3-Trichloropropane	<100
1,2-Dichloroethane (EDC)	<100	2-Chlorotoluene	<100
1,1,1-Trichloroethane	<100	4-Chlorotoluene	<100
1,1-Dichloropropene	<100	tert-Butylbenzene	<100
Carbon tetrachloride	<100	1,2,4-Trimethylbenzene	<100
Benzene	1,100	sec-Butylbenzene	<100
Trichloroethene	<100	p-Isopropyltoluene	<100
1,2-Dichloropropane	<100	1,3-Dichlorobenzene	<100
Bromodichloromethane	<100	1,4-Dichlorobenzene	<100
Dibromomethane	<100	1,2-Dichlorobenzene	<100
4-Methyl-2-pentanone	<1,000	1,2-Dibromo-3-chloropropane	<1,000
cis-1,3-Dichloropropene	<100	1,2,4-Trichlorobenzene	<100
Toluene	<100	Hexachlorobutadiene	<100
trans-1,3-Dichloropropene	<100	Naphthalene	880
1,1,2-Trichloroethane	<100	1,2,3-Trichlorobenzene	<100
2-Hexanone	<1,000		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-7	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/22/19	Lab ID:	910339-07
Date Analyzed:	10/22/19	Data File:	102238.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	90	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-8	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/24/19	Lab ID:	910339-08
Date Analyzed:	10/24/19	Data File:	102420.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	83	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-9	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/22/19	Lab ID:	910339-09
Date Analyzed:	10/22/19	Data File:	102240.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	90	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-10	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/22/19	Lab ID:	910339-10
Date Analyzed:	10/22/19	Data File:	102241.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	89	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-11	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/22/19	Lab ID:	910339-11
Date Analyzed:	10/22/19	Data File:	102242.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	87	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-6 Dup	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/22/19	Lab ID:	910339-12
Date Analyzed:	10/22/19	Data File:	102215.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	890 ve
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	21
Hexane	67	o-Xylene	3.7
Methylene chloride	8.1	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	81
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	200 ve
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	950 ve	sec-Butylbenzene	12
Trichloroethene	<1	p-Isopropyltoluene	10
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	15	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	1,100 ve
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-6 Dup	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library 11101-02
Date Extracted:	10/23/19	Lab ID:	910339-12 1/100
Date Analyzed:	10/23/19	Data File:	102340.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	88	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<100	1,3-Dichloropropane	<100
Chloromethane	<1,000	Tetrachloroethene	<100
Vinyl chloride	<20	Dibromochloromethane	<100
Bromomethane	<100	1,2-Dibromoethane (EDB)	<100
Chloroethane	<100	Chlorobenzene	<100
Trichlorofluoromethane	<100	Ethylbenzene	1,200
Acetone	<5,000	1,1,1,2-Tetrachloroethane	<100
1,1-Dichloroethene	<100	m,p-Xylene	<200
Hexane	<100	o-Xylene	<100
Methylene chloride	<500	Styrene	<100
Methyl t-butyl ether (MTBE)	<100	Isopropylbenzene	<100
trans-1,2-Dichloroethene	<100	Bromoform	<100
1,1-Dichloroethane	<100	n-Propylbenzene	160
2,2-Dichloropropane	<100	Bromobenzene	<100
cis-1,2-Dichloroethene	<100	1,3,5-Trimethylbenzene	<100
Chloroform	<100	1,1,2,2-Tetrachloroethane	<100
2-Butanone (MEK)	<1,000	1,2,3-Trichloropropane	<100
1,2-Dichloroethane (EDC)	<100	2-Chlorotoluene	<100
1,1,1-Trichloroethane	<100	4-Chlorotoluene	<100
1,1-Dichloropropene	<100	tert-Butylbenzene	<100
Carbon tetrachloride	<100	1,2,4-Trimethylbenzene	<100
Benzene	1,100	sec-Butylbenzene	<100
Trichloroethene	<100	p-Isopropyltoluene	<100
1,2-Dichloropropane	<100	1,3-Dichlorobenzene	<100
Bromodichloromethane	<100	1,4-Dichlorobenzene	<100
Dibromomethane	<100	1,2-Dichlorobenzene	<100
4-Methyl-2-pentanone	<1,000	1,2-Dibromo-3-chloropropane	<1,000
cis-1,3-Dichloropropene	<100	1,2,4-Trichlorobenzene	<100
Toluene	<100	Hexachlorobutadiene	<100
trans-1,3-Dichloropropene	<100	Naphthalene	920
1,1,2-Trichloroethane	<100	1,2,3-Trichlorobenzene	<100
2-Hexanone	<1,000		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library 11101-02
Date Extracted:	10/22/19	Lab ID:	09-2561 mb
Date Analyzed:	10/22/19	Data File:	102213.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	89	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	8.7 lc	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 10/25/19
Date Received: 10/16/19
Project: Buckley Library 11101-02, F&BI 910339

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

Laboratory Code: 910339-01 (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	108	70-119

Date of Report: 10/25/19
Date Received: 10/16/19
Project: Buckley Library 11101-02, F&BI 910339

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	84	80	61-133	5

Date of Report: 10/25/19
Date Received: 10/16/19
Project: Buckley Library 11101-02, F&BI 910339

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

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)	1	83	81	57-114	2
2-Methylnaphthalene	ug/L (ppb)	1	86	84	63-122	2
1-Methylnaphthalene	ug/L (ppb)	1	85	83	65-122	2
Benz(a)anthracene	ug/L (ppb)	1	90	89	60-118	1
Chrysene	ug/L (ppb)	1	90	91	66-125	1
Benzo(b)fluoranthene	ug/L (ppb)	1	84	79	55-135	6
Benzo(k)fluoranthene	ug/L (ppb)	1	81	78	62-125	4
Benzo(a)pyrene	ug/L (ppb)	1	77	76	58-127	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	76	78	36-142	3
Dibenz(a,h)anthracene	ug/L (ppb)	1	72	80	37-133	11

Date of Report: 10/25/19
Date Received: 10/16/19
Project: Buckley Library 11101-02, F&BI 910339

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

Laboratory Code: 910227-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	104	101	75-125	3
Cadmium	ug/L (ppb)	5	<1	98	96	75-125	2
Chromium	ug/L (ppb)	20	<1	102	101	75-125	1
Lead	ug/L (ppb)	10	<1	95	94	75-125	1
Mercury	ug/L (ppb)	5	<1	99	99	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	92	80-120
Cadmium	ug/L (ppb)	5	98	80-120
Chromium	ug/L (ppb)	20	97	80-120
Lead	ug/L (ppb)	10	95	80-120
Mercury	ug/L (ppb)	5	97	80-120

Date of Report: 10/25/19
Date Received: 10/16/19
Project: Buckley Library 11101-02, F&BI 910339

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

Laboratory Code: 910339-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.74	102	100	75-125	2
Cadmium	ug/L (ppb)	5	<1	95	92	75-125	3
Chromium	ug/L (ppb)	20	<1	95	92	75-125	3
Lead	ug/L (ppb)	10	<1	94	93	75-125	1
Mercury	ug/L (ppb)	5	<1	94	94	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	92	80-120
Cadmium	ug/L (ppb)	5	96	80-120
Chromium	ug/L (ppb)	20	96	80-120
Lead	ug/L (ppb)	10	95	80-120
Mercury	ug/L (ppb)	5	94	80-120

Date of Report: 10/25/19
Date Received: 10/16/19
Project: Buckley Library 11101-02, F&BI 910339

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

Laboratory Code: 910403-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	110	55-137
Chloromethane	ug/L (ppb)	50	<10	92	57-129
Vinyl chloride	ug/L (ppb)	50	5.1	116	61-139
Bromomethane	ug/L (ppb)	50	<1	102	20-265
Chloroethane	ug/L (ppb)	50	<1	99	55-149
Trichlorofluoromethane	ug/L (ppb)	50	<1	104	65-137
Acetone	ug/L (ppb)	250	<50	84	48-149
1,1-Dichloroethene	ug/L (ppb)	50	<1	99	71-123
Hexane	ug/L (ppb)	50	<1	81	44-139
Methylene chloride	ug/L (ppb)	50	<5	106	61-126
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	114	68-125
trans-1,2-Dichloroethene	ug/L (ppb)	50	10	105	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<1	97	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<1	103	48-157
cis-1,2-Dichloroethene	ug/L (ppb)	50	2,500	184 b	63-126
Chloroform	ug/L (ppb)	50	1.2	98	77-117
2-Butanone (MEK)	ug/L (ppb)	250	<10	79	70-135
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	87	70-119
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	120	75-121
1,1-Dichloropropene	ug/L (ppb)	50	<1	94	67-121
Carbon tetrachloride	ug/L (ppb)	50	<1	114	70-132
Benzene	ug/L (ppb)	50	<0.35	95	75-114
Trichloroethene	ug/L (ppb)	50	350	99 b	73-122
1,2-Dichloropropane	ug/L (ppb)	50	<1	92	80-111
Bromodichloromethane	ug/L (ppb)	50	<1	96	78-117
Dibromomethane	ug/L (ppb)	50	<1	88	73-125
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	104	79-140
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	89	76-120
Toluene	ug/L (ppb)	50	<1	91	73-117
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	77	75-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	88	81-116
2-Hexanone	ug/L (ppb)	250	<10	81	74-127
1,3-Dichloropropane	ug/L (ppb)	50	<1	82	80-113
Tetrachloroethene	ug/L (ppb)	50	4,400	467 b	40-155
Dibromochloromethane	ug/L (ppb)	50	<1	97	69-129
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	88	79-120
Chlorobenzene	ug/L (ppb)	50	1.2	96	75-115
Ethylbenzene	ug/L (ppb)	50	<1	103	66-124
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	110	76-130
m,p-Xylene	ug/L (ppb)	100	<2	106	63-128
o-Xylene	ug/L (ppb)	50	<1	112	64-129
Styrene	ug/L (ppb)	50	<1	105	56-142
Isopropylbenzene	ug/L (ppb)	50	<1	114	74-122
Bromoform	ug/L (ppb)	50	<1	106	49-138
n-Propylbenzene	ug/L (ppb)	50	<1	93	65-129
Bromobenzene	ug/L (ppb)	50	<1	93	70-121
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	97	60-138
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	90	77-120
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	83	62-125
2-Chlorotoluene	ug/L (ppb)	50	<1	94	40-159
4-Chlorotoluene	ug/L (ppb)	50	<1	91	76-122
tert-Butylbenzene	ug/L (ppb)	50	<1	101	74-125
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	100	59-136
sec-Butylbenzene	ug/L (ppb)	50	<1	98	69-127
p-Isopropyltoluene	ug/L (ppb)	50	<1	98	64-132
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	95	77-113
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	93	75-110
1,2-Dichlorobenzene	ug/L (ppb)	50	5.7	99	70-120
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	98	69-129
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	111	66-123
Hexachlorobutadiene	ug/L (ppb)	50	<1	113	53-136
Naphthalene	ug/L (ppb)	50	<1	115	60-145
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	111	59-130

Date of Report: 10/25/19
Date Received: 10/16/19
Project: Buckley Library 11101-02, F&BI 910339

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	91	97	50-157	6
Chloromethane	ug/L (ppb)	50	77	81	62-130	5
Vinyl chloride	ug/L (ppb)	50	92	96	70-128	4
Bromomethane	ug/L (ppb)	50	83	87	60-143	5
Chloroethane	ug/L (ppb)	50	78	82	66-149	5
Trichlorofluoromethane	ug/L (ppb)	50	87	91	65-138	4
Acetone	ug/L (ppb)	250	52	80	44-145	42 vo
1,1-Dichloroethene	ug/L (ppb)	50	81	87	72-121	7
Hexane	ug/L (ppb)	50	94	95	51-153	1
Methylene chloride	ug/L (ppb)	50	87	99	63-132	13
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	93	102	70-122	9
trans-1,2-Dichloroethene	ug/L (ppb)	50	99	103	76-118	4
1,1-Dichloroethane	ug/L (ppb)	50	93	96	77-119	3
2,2-Dichloropropane	ug/L (ppb)	50	101	108	62-141	7
cis-1,2-Dichloroethene	ug/L (ppb)	50	97	100	76-119	3
Chloroform	ug/L (ppb)	50	95	97	78-117	2
2-Butanone (MEK)	ug/L (ppb)	250	73	83	48-150	13
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	89	91	75-116	2
1,1,1-Trichloroethane	ug/L (ppb)	50	104	108	80-116	4
1,1-Dichloropropene	ug/L (ppb)	50	95	96	78-119	1
Carbon tetrachloride	ug/L (ppb)	50	99	104	72-128	5
Benzene	ug/L (ppb)	50	91	93	75-116	2
Trichloroethene	ug/L (ppb)	50	94	96	72-119	2
1,2-Dichloropropane	ug/L (ppb)	50	91	93	79-121	2
Bromodichloromethane	ug/L (ppb)	50	97	97	76-120	0
Dibromomethane	ug/L (ppb)	50	90	91	79-121	1
4-Methyl-2-pentanone	ug/L (ppb)	250	96	103	54-153	7
cis-1,3-Dichloropropene	ug/L (ppb)	50	98	99	76-128	1
Toluene	ug/L (ppb)	50	92	93	79-115	1
trans-1,3-Dichloropropene	ug/L (ppb)	50	92	91	76-128	1
1,1,2-Trichloroethane	ug/L (ppb)	50	93	94	78-120	1
2-Hexanone	ug/L (ppb)	250	84	86	49-147	2
1,3-Dichloropropane	ug/L (ppb)	50	93	93	81-111	0
Tetrachloroethene	ug/L (ppb)	50	102	103	78-109	1
Dibromochloromethane	ug/L (ppb)	50	100	100	63-140	0
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	92	94	82-118	2
Chlorobenzene	ug/L (ppb)	50	96	98	80-113	2
Ethylbenzene	ug/L (ppb)	50	99	100	83-111	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	101	104	76-125	3
m,p-Xylene	ug/L (ppb)	100	102	104	81-112	2
o-Xylene	ug/L (ppb)	50	102	105	81-117	3
Styrene	ug/L (ppb)	50	105	107	83-121	2
Isopropylbenzene	ug/L (ppb)	50	106	109	78-118	3
Bromoform	ug/L (ppb)	50	102	103	40-161	1
n-Propylbenzene	ug/L (ppb)	50	96	95	81-115	1
Bromobenzene	ug/L (ppb)	50	98	97	80-113	1
1,3,5-Trimethylbenzene	ug/L (ppb)	50	101	101	83-117	0
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	93	94	79-118	1
1,2,3-Trichloropropane	ug/L (ppb)	50	87	87	74-116	0
2-Chlorotoluene	ug/L (ppb)	50	95	94	79-112	1
4-Chlorotoluene	ug/L (ppb)	50	96	95	80-116	1
tert-Butylbenzene	ug/L (ppb)	50	105	104	81-119	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	102	103	81-121	1
sec-Butylbenzene	ug/L (ppb)	50	103	102	83-123	1
p-Isopropyltoluene	ug/L (ppb)	50	103	103	81-117	0
1,3-Dichlorobenzene	ug/L (ppb)	50	99	100	80-115	1
1,4-Dichlorobenzene	ug/L (ppb)	50	97	98	77-112	1
1,2-Dichlorobenzene	ug/L (ppb)	50	97	102	79-115	5
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	87	99	62-133	13
1,2,4-Trichlorobenzene	ug/L (ppb)	50	102	110	75-119	8
Hexachlorobutadiene	ug/L (ppb)	50	107	114	70-116	6
Naphthalene	ug/L (ppb)	50	99	109	72-131	10
1,2,3-Trichlorobenzene	ug/L (ppb)	50	100	109	74-122	9

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.

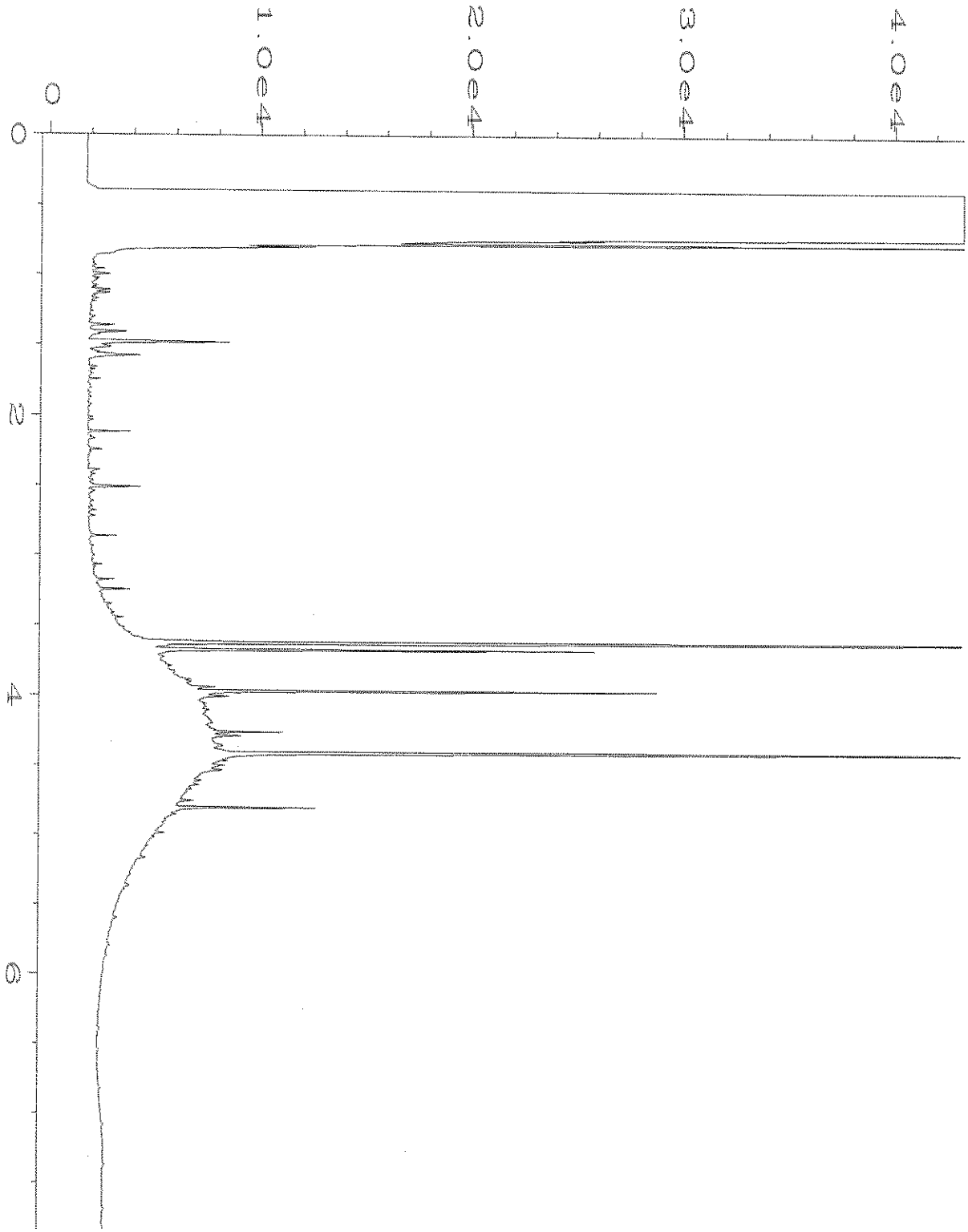
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

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.

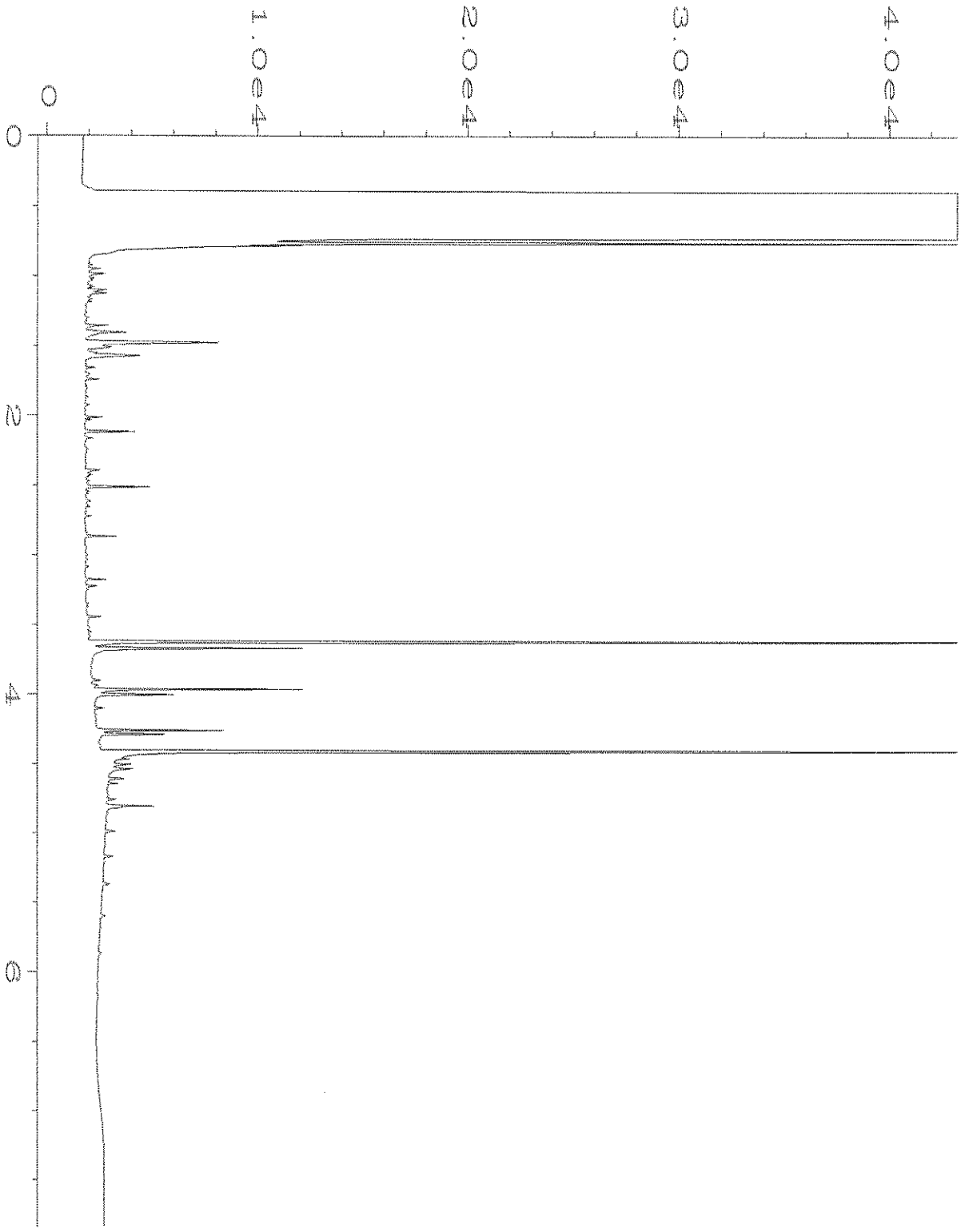
ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

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.

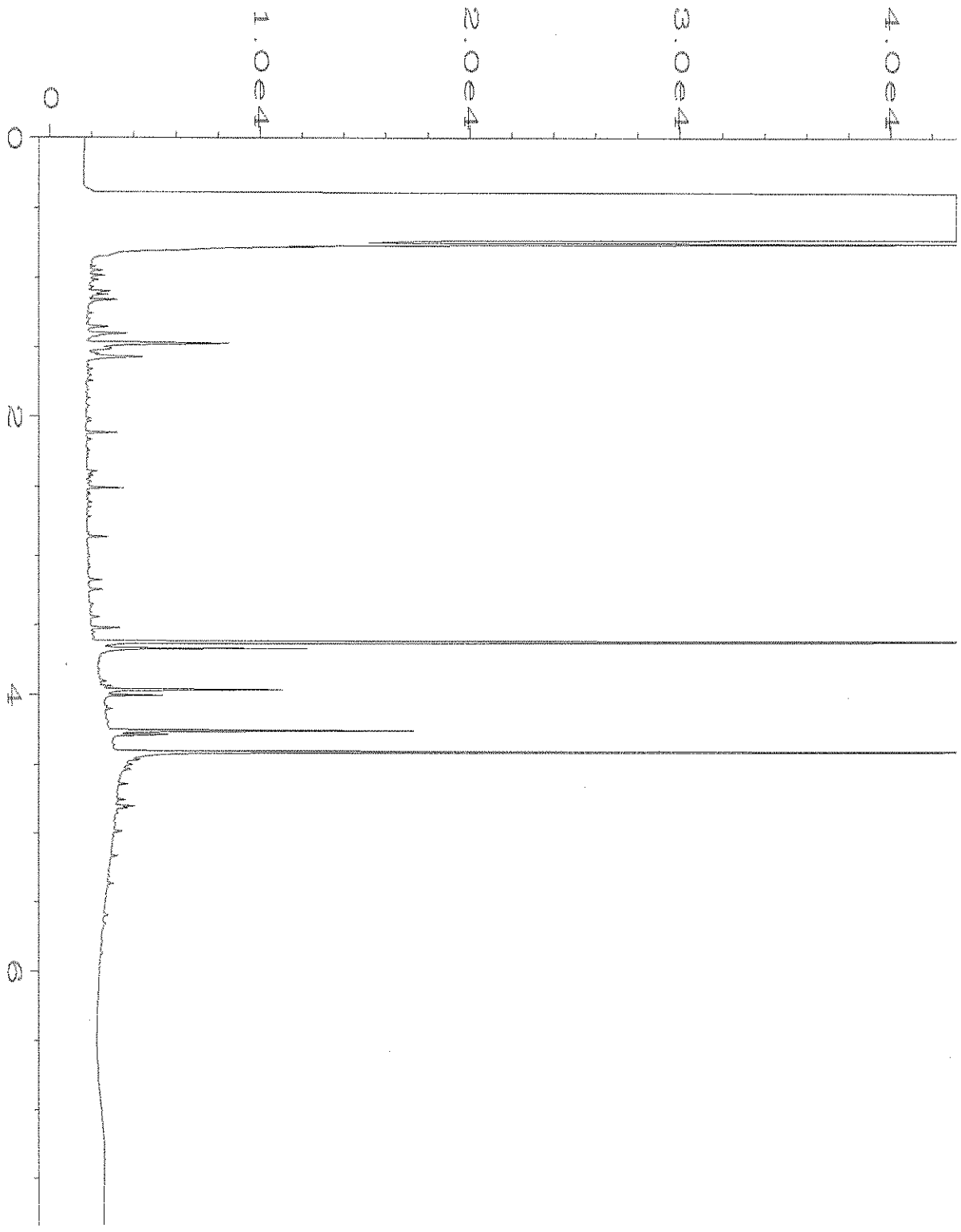


Data File Name	: C:\HPCHEM\4\DATA\10-17-19\026F0901.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 26
Sample Name	: 910339-01	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 9
Acquired on	: 17 Oct 19 07:47 PM	Instrument Method	: DX.MTH
Report Created on:	18 Oct 19 11:48 AM	Analysis Method	: BAKEOUT.MTH



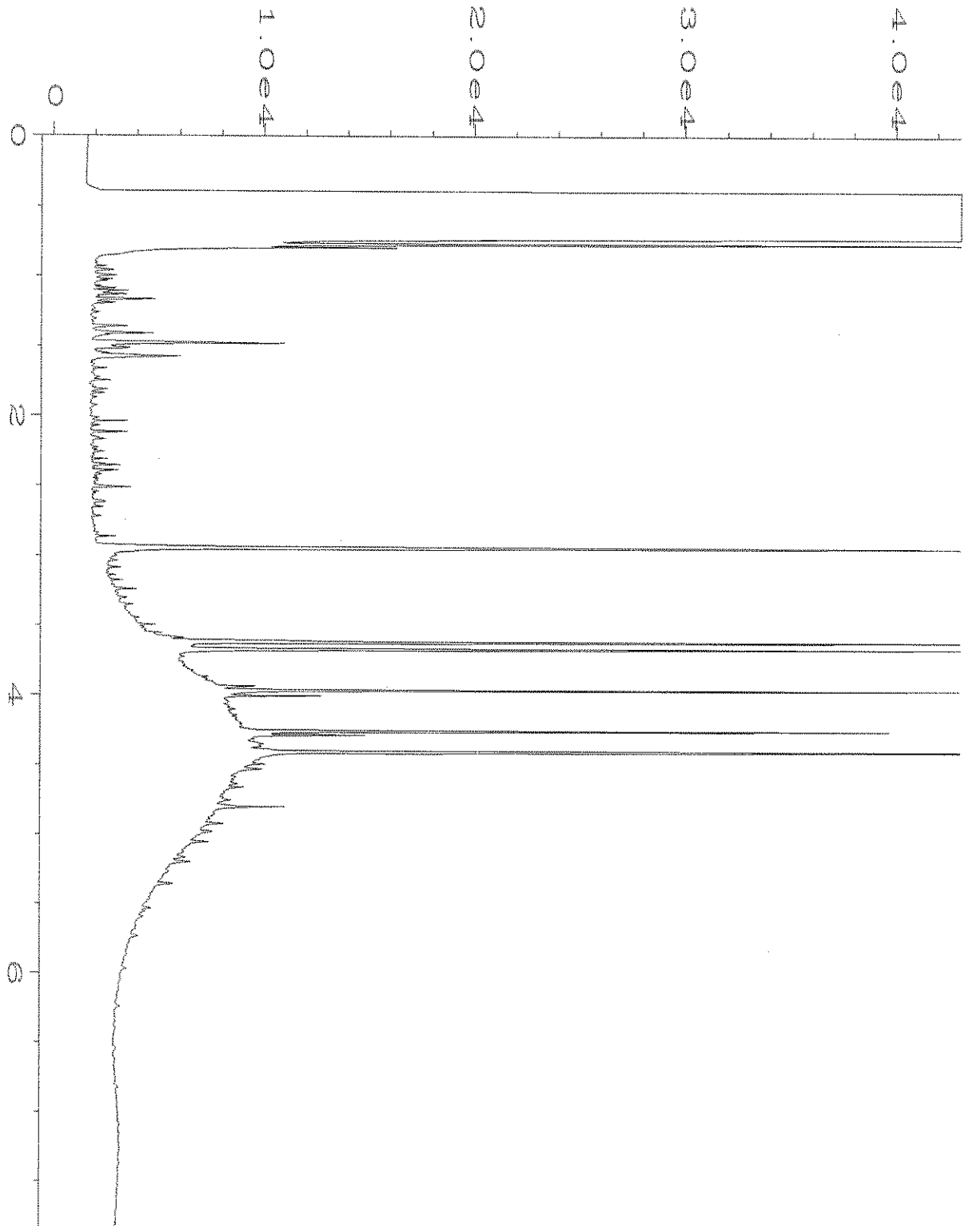
Data File Name : C:\HPCHEM\4\DATA\10-17-19\027F0901.D
Operator : TL
Instrument : GC#4
Sample Name : 910339-02
Run Time Bar Code:
Acquired on : 17 Oct 19 07:59 PM
Report Created on: 18 Oct 19 11:48 AM

Page Number : 1
Vial Number : 27
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : BAKEOUT.MTH

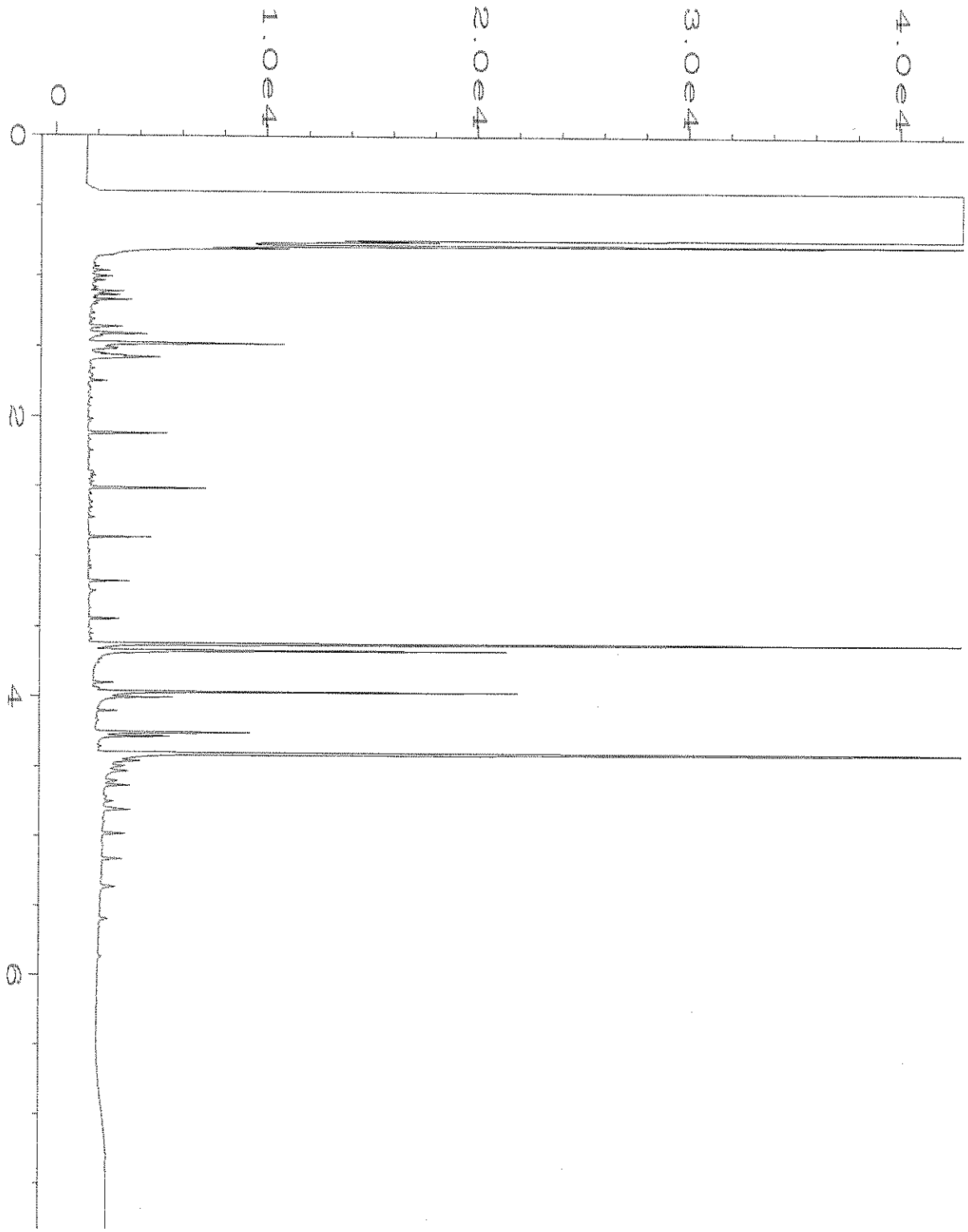


Data File Name : C:\HPCHEM\4\DATA\10-17-19\028F0901.D
Operator : TL
Instrument : GC#4
Sample Name : 910339-03
Run Time Bar Code:
Acquired on : 17 Oct 19 08:12 PM
Report Created on: 18 Oct 19 11:48 AM

Page Number : 1
Vial Number : 28
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : BAKEOUT.MTH

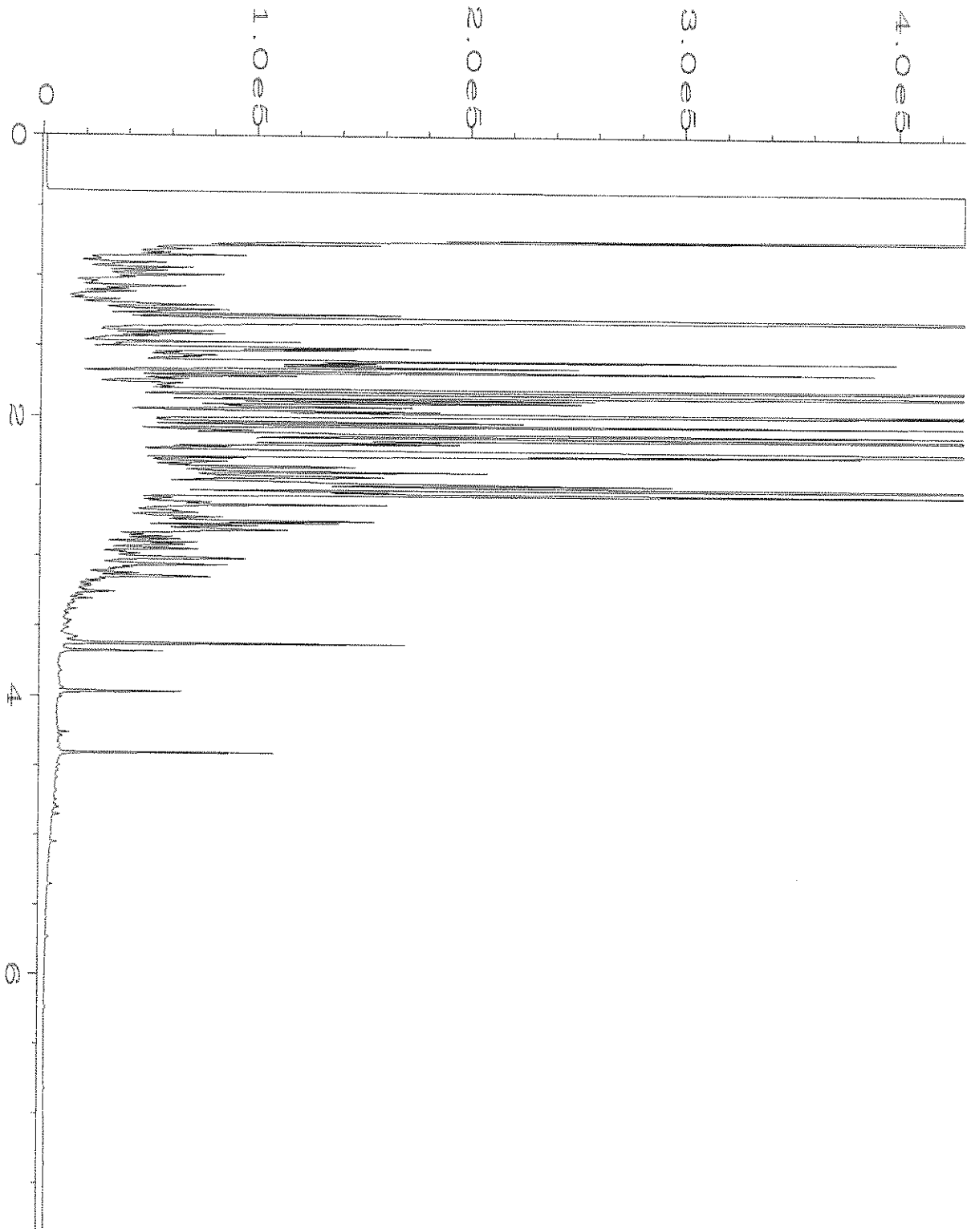


Data File Name	: C:\HPCHEM\4\DATA\10-17-19\029F0901.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 29
Sample Name	: 910339-04	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 9
Acquired on	: 17 Oct 19 08:24 PM	Instrument Method	: DX.MTH
Report Created on	: 18 Oct 19 11:48 AM	Analysis Method	: BAKEOUT.MTH

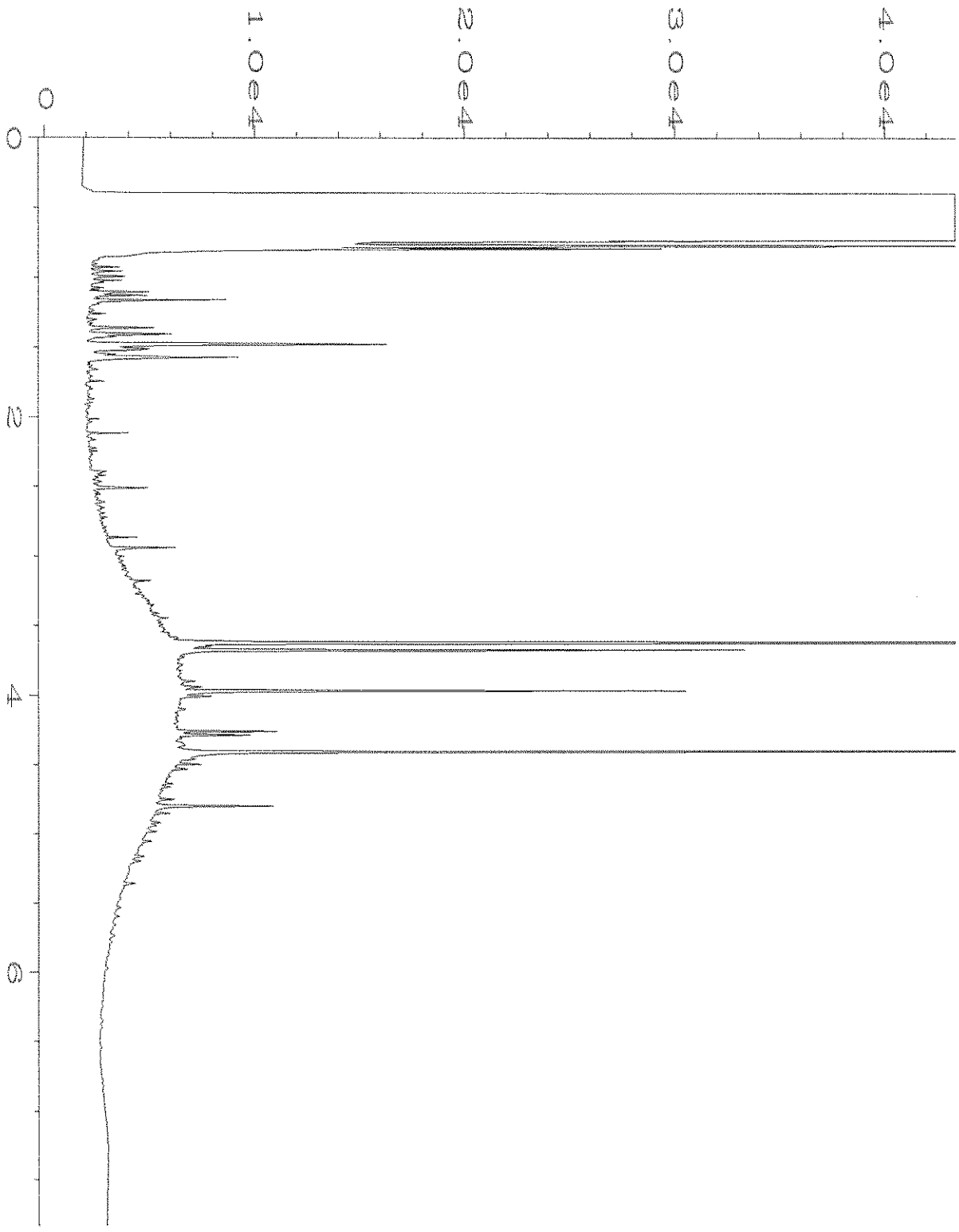


Data File Name : C:\HPCHEM\4\DATA\10-17-19\030F1101.D
Operator : TL
Instrument : GC#4
Sample Name : 910339-05
Run Time Bar Code:
Acquired on : 18 Oct 19 04:56 AM
Report Created on: 18 Oct 19 11:48 AM

Page Number : 1
Vial Number : 30
Injection Number : 1
Sequence Line : 11
Instrument Method: DX.MTH
Analysis Method : BAKEOUT.MTH

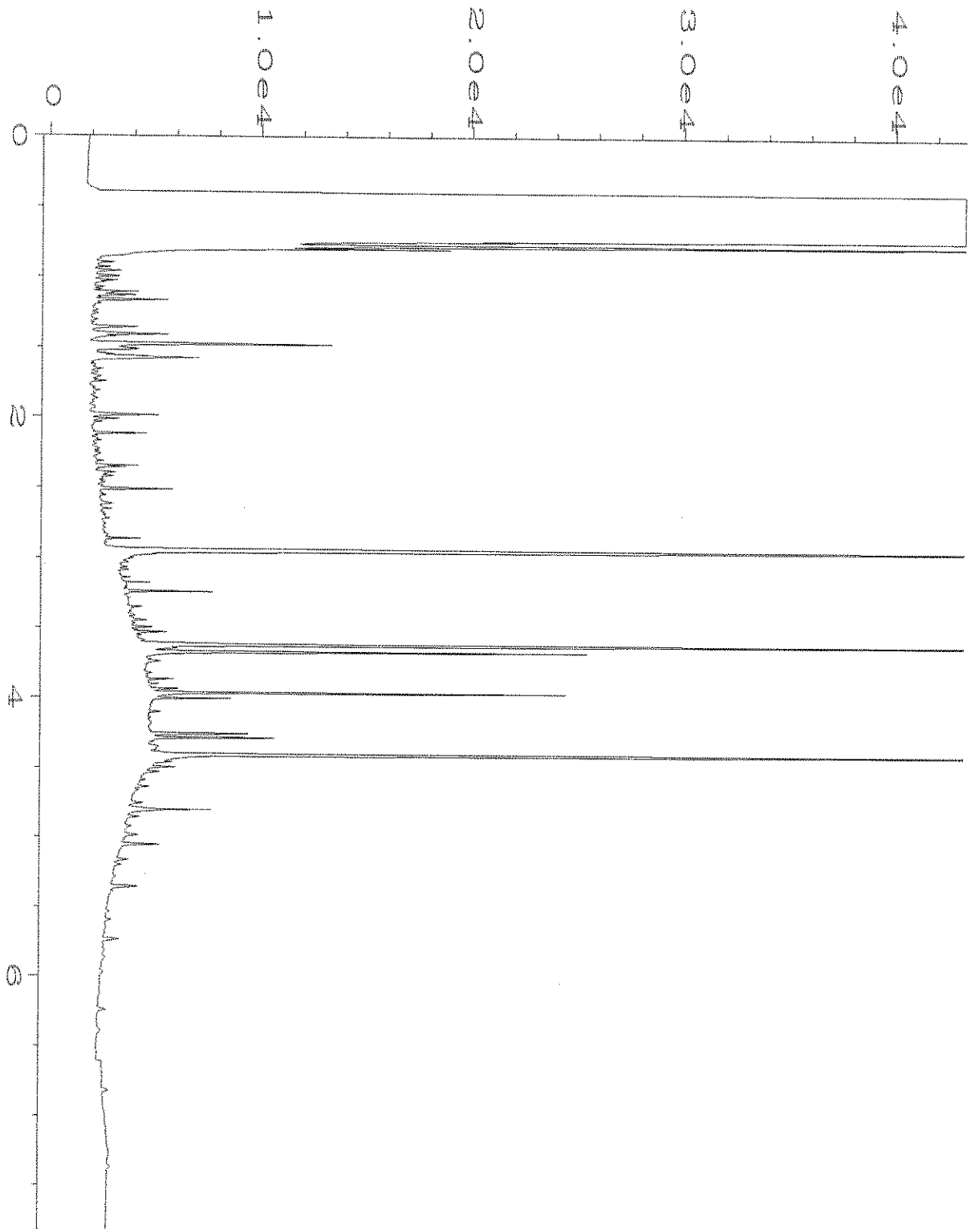


Data File Name	: C:\HPCHEM\4\DATA\10-17-19\031F1101.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 31
Sample Name	: 910339-06	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 11
Acquired on	: 18 Oct 19 05:09 AM	Instrument Method	: DX.MTH
Report Created on	: 18 Oct 19 11:48 AM	Analysis Method	: BAKEOUT.MTH

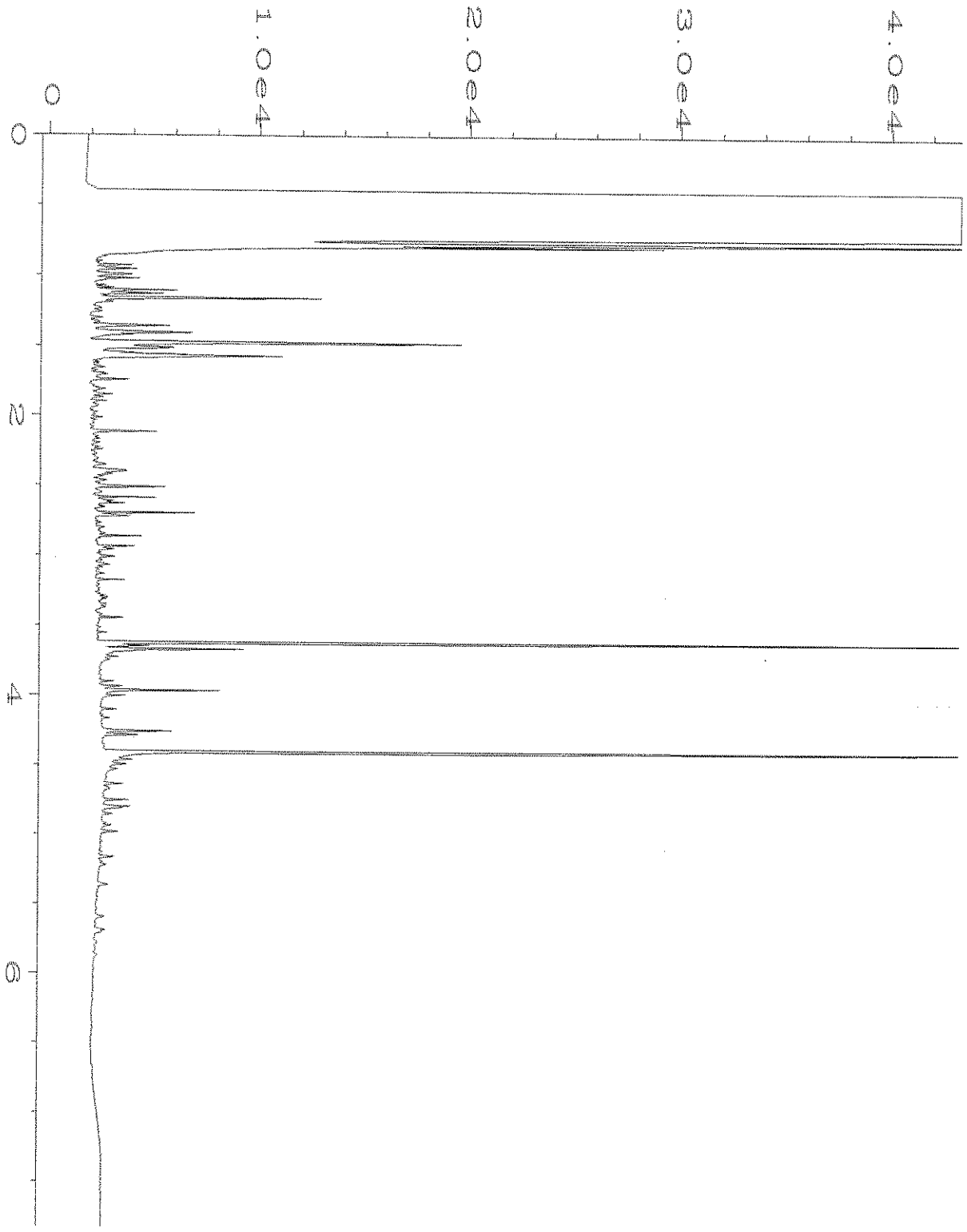


Data File Name : C:\HPCHEM\4\DATA\10-17-19\032F1101.D
Operator : TL
Instrument : GC#4
Sample Name : 910339-07
Run Time Bar Code:
Acquired on : 18 Oct 19 05:21 AM
Report Created on: 18 Oct 19 11:49 AM

Page Number : 1
Vial Number : 32
Injection Number : 1
Sequence Line : 11
Instrument Method: DX.MTH
Analysis Method : BAKEOUT.MTH

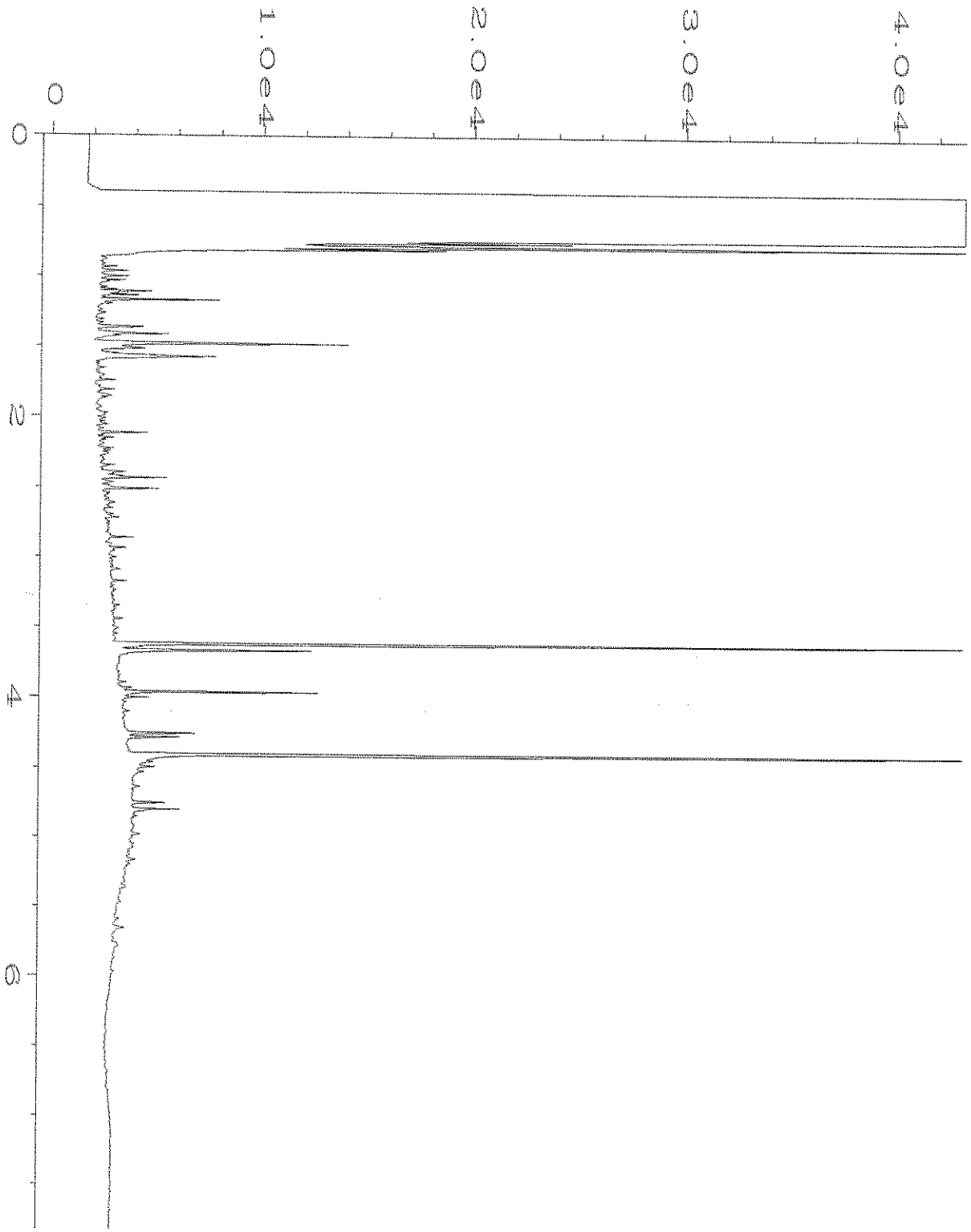


Data File Name	: C:\HPCHEM\4\DATA\10-17-19\033F1101.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 33
Sample Name	: 910339-08	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 11
Acquired on	: 18 Oct 19 05:33 AM	Instrument Method	: DX.MTH
Report Created on	: 18 Oct 19 11:49 AM	Analysis Method	: BAKEOUT.MTH



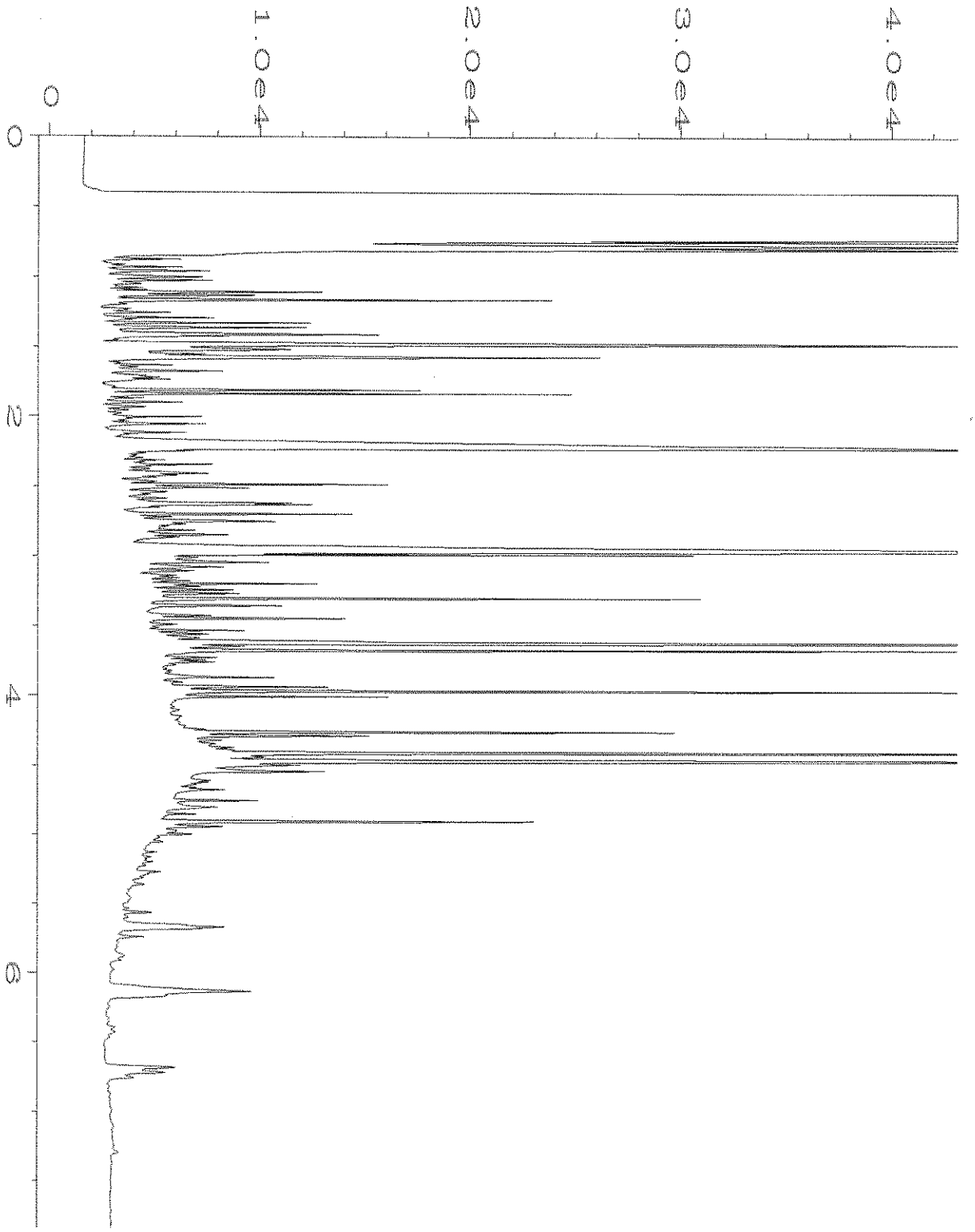
Data File Name : C:\HPCHEM\4\DATA\10-17-19\034F1101.D
Operator : TL
Instrument : GC#4
Sample Name : 910339-09
Run Time Bar Code:
Acquired on : 18 Oct 19 05:46 AM
Report Created on: 18 Oct 19 11:49 AM

Page Number : 1
Vial Number : 34
Injection Number : 1
Sequence Line : 11
Instrument Method: DX.MTH
Analysis Method : BAKEOUT.MTH

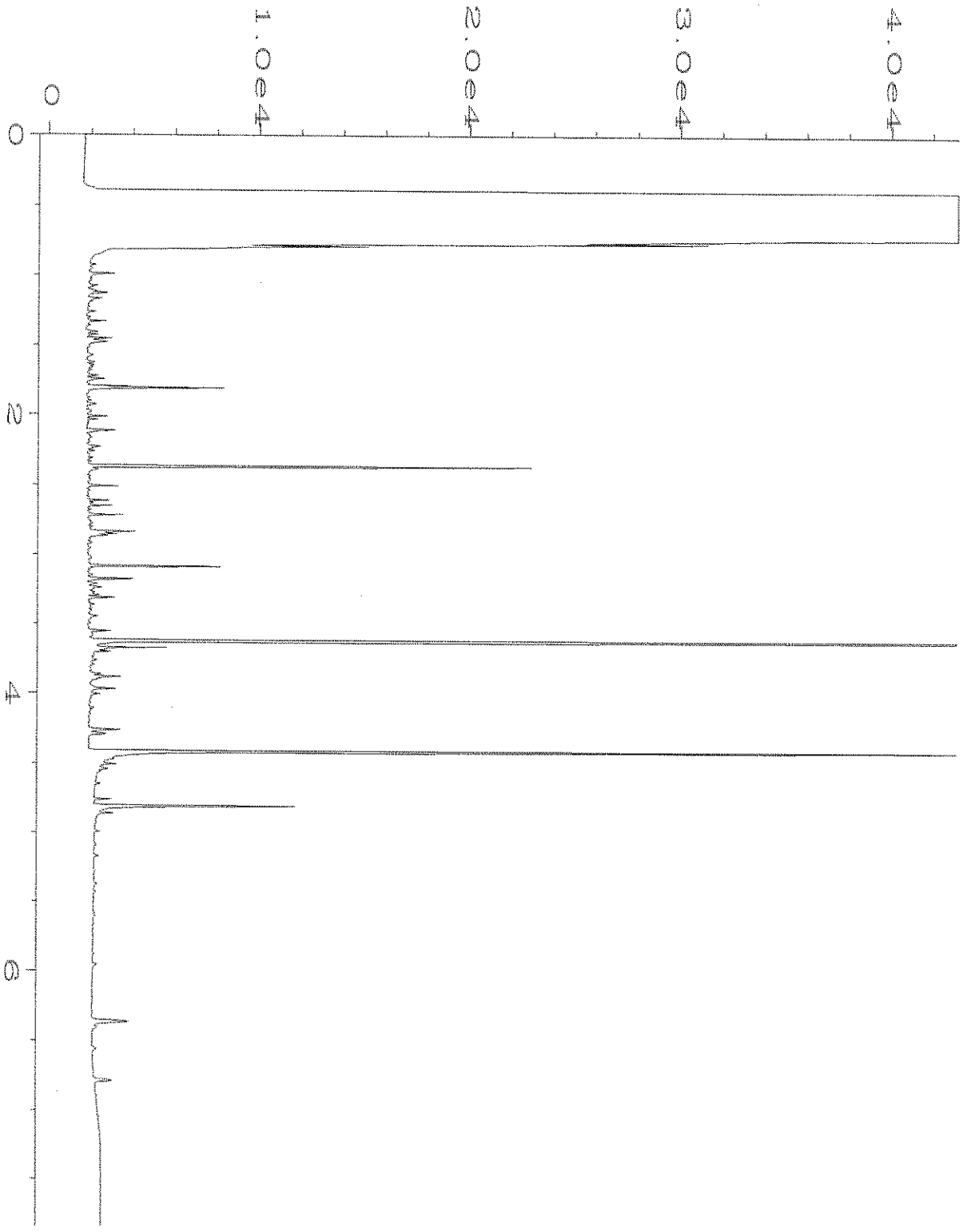


Data File Name : C:\HPCHEM\4\DATA\10-17-19\035F1101.D
Operator : TL
Instrument : GC#4
Sample Name : 910339-10
Run Time Bar Code:
Acquired on : 18 Oct 19 05:58 AM
Report Created on: 18 Oct 19 11:49 AM

Page Number : 1
Vial Number : 35
Injection Number : 1
Sequence Line : 11
Instrument Method: DX.MTH
Analysis Method : BAKEOUT.MTH

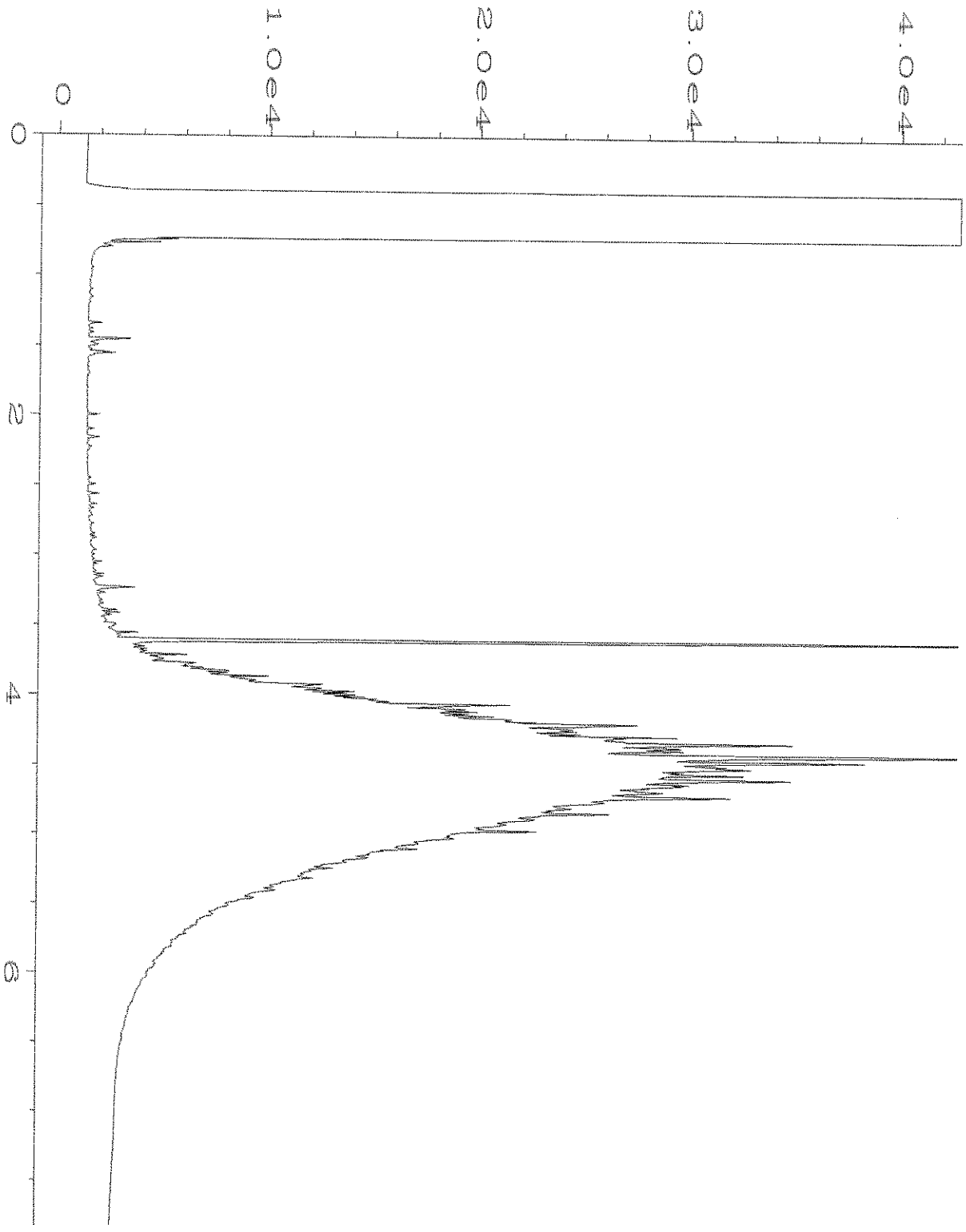


Data File Name	: C:\HPCHEM\4\DATA\10-17-19\036F1101.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 36
Sample Name	: 910339-11	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 11
Acquired on	: 18 Oct 19 06:10 AM	Instrument Method	: DX.MTH
Report Created on	: 18 Oct 19 11:49 AM	Analysis Method	: BAKEOUT.MTH

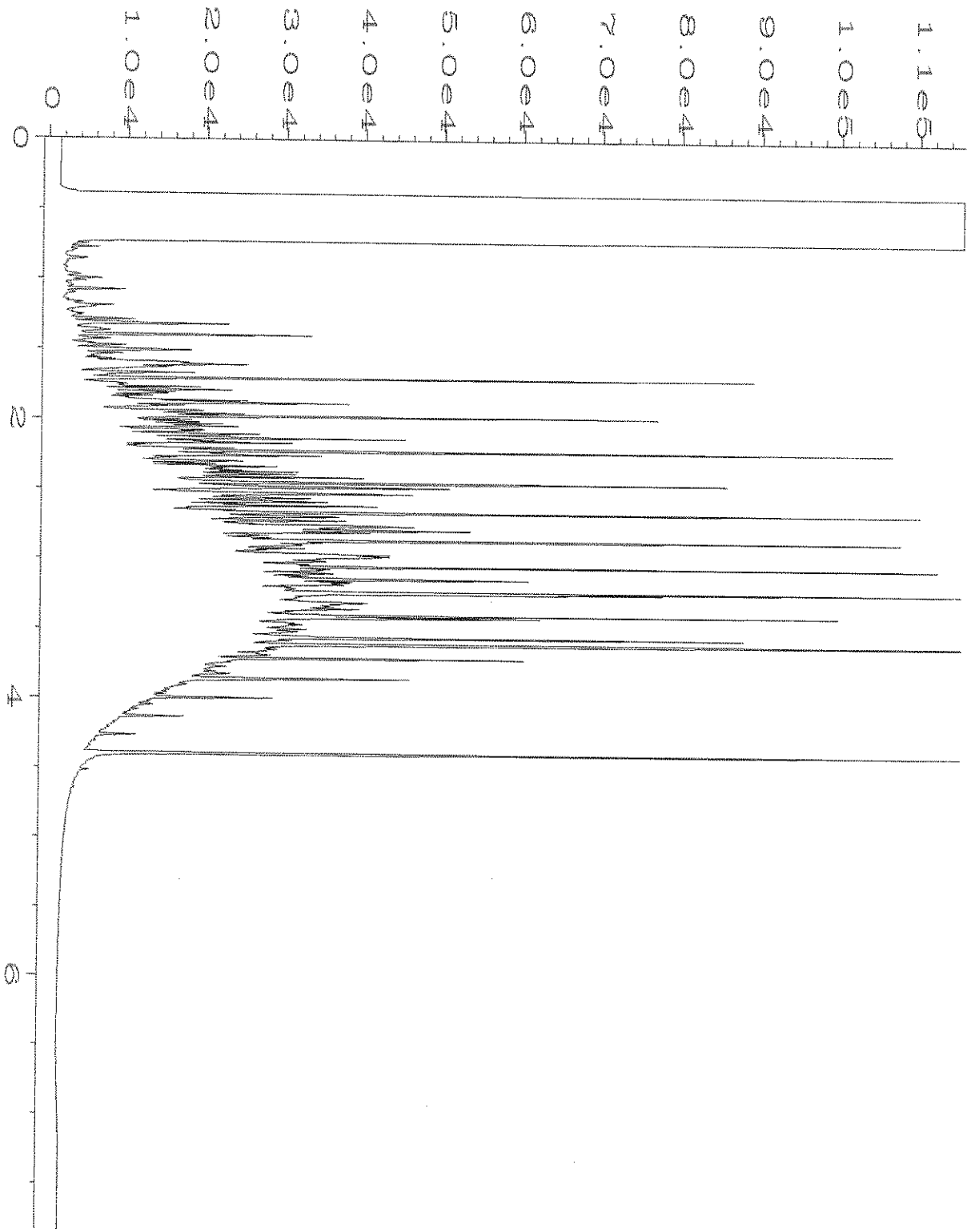


Data File Name : C:\HPCHEM\4\DATA\10-17-19\015F0901.D
Operator : TL
Instrument : GC#4
Sample Name : 09-2580 mb2 f
Run Time Bar Code:
Acquired on : 17 Oct 19 05:31 PM
Report Created on: 18 Oct 19 11:46 AM

Page Number : 1
Vial Number : 15
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : BAKEOUT.MTH



Data File Name	: C:\HPCHEM\4\DATA\10-17-19\002F0201.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 2
Sample Name	: 500 MO 58-164C	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 17 Oct 19 05:34 AM	Instrument Method	: DX.MTH
Report Created on	: 18 Oct 19 11:45 AM	Analysis Method	: BAKEOUT.MTH



Data File Name : C:\HPCHEM\4\DATA\10-17-19\003F0201.D
Operator : TL
Instrument : GC#4
Sample Name : 500 Dx 58-62F
Run Time Bar Code:
Acquired on : 17 Oct 19 06:04 AM
Report Created on: 18 Oct 19 11:45 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : BAKEOUT.MTH

910339

SAMPLE CHAIN OF CUSTODY

ME 10-16-19

D04 / BD4 / VW3

Page # 1 of 2

Report To Mike, Kurt

Company EHSI

Address 1011 SW Klickitat Way Suite 104

City, State, ZIP Seattle, Wa 98134

Phone 206-381-1128 Email

SAMPLERS (*signature*)

PROJECT NAME: Buckley Library

PO #: 11101-02

REMARKS

INVOICE TO

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

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	cPAH + Naph	Total MTCA 5	Dis MTCA 5		Notes
mw-1	01A-G	10/15	11:15	water	7		X	X		X			X	X	X		
mw-2	02	10/15	10:45		7		X	X		X			X	X	X		
mw-3	03	10/15	11:45		7		X	X		X			X	X	X		
mw-4	04	10/15	10:15		7		X	X		X			X	X	X		
mw-5	05	10/15	2:55		7		X	X		X			X	X	X		
mw-6	06A-F	10/15	2:15		6		X	X		X			X	X	X		Limited sample
mw-7	07 08A-G	10/15	3:35		7		X	X		X			X	X	X		
mw-8	08	10/15	1:45		7		X	X		X			X	X	X		
mw-9	09	10/15	4:00		7		X	X		X			X	X	X		
mw-10	10	10/15	1:15		7		X	X		X			X	X	X		

Samples received at 4 °C

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Ryan Ogle	EHSF	10/16/19	14:15
Received by:		DAVE	F&BI	10-16-19	14:15
Relinquished by:					
Received by:					

910339

SAMPLE CHAIN OF CUSTODY

ME 10-16-19 D04/R14/VW3

Page # 1 of 2

Report To Mike, Kurt

Company EHSI

Address 1011 SW Klickitat way Suite 604

City, State, ZIP Seattle WA 98134

Phone 206-381-1128 Email

SAMPLERS (*signature*)

PROJECT NAME: Buckley Library — PO # 11101-02

REMARKS — INVOICE TO

TURNAROUND TIME
- ☑ Standard Turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	Total MTCA5	Dis MTCA5			Notes
MW-11	11 A-F	10/15	12:45	water	6		X	X		X			X	X			Limited Sample
MW-6 Dup	12	10/15	2:15	water	1			X		X							Limited Sample
~~Trip Blank~~				water	1			X		X							Not Received ME 10/16/19
													~~Samples received~~ at 4 °C				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Ryan Opitz	EHSI	10/16/19	14:15
Received by:	DO VO	FEBI	10-16-19	14:15
Relinquished by:				
Received by:				

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

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

October 1, 2020

Jason Cass, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

Dear Mr Cass:

Included are the results from the testing of material submitted on September 22, 2020 from the Buckley Lib PO 11101-03, F&BI 009396 project. There are 50 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: EHSI A/P, Ryan Opitz
EHS1001R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 22, 2020 by Friedman & Bruya, Inc. from the EHSI Buckley Lib PO 11101-03, F&BI 009396 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EHSI
009396 -01	MW-1
009396 -02	MW-2
009396 -03	MW-3
009396 -04	MW-4
009396 -05	MW-5
009396 -06	MW-6
009396 -07	MW-6-Dup
009396 -08	MW-7
009396 -09	MW-8
009396 -10	MW-9
009396 -11	MW-10
009396 -12	MW-11

A 6020B internal standard failed the acceptance criteria for samples MW-7, MW-8, MW-9. The samples were diluted and reanalyzed with acceptable results. Both data sets were reported.

All other quality control requirements were acceptable.

Date of Report: 10/01/20
Date Received: 09/22/20
Project: Buckley Lib PO 11101-03, F&BI 009396
Date Extracted: 09/25/20
Date Analyzed: 09/25/20

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
MW-1 009396-01	<1	<1	<1	<3	<100	84
MW-2 009396-02	<1	<1	<1	<3	<100	84
MW-3 009396-03	<1	<1	<1	<3	<100	84
MW-4 009396-04	<1	<1	<1	<3	<100	84
MW-5 009396-05	<1	<1	<1	<3	<100	84
MW-6 009396-06 1/10	890	17	500	20	8,000	84
MW-6-Dup 009396-07 1/10	750	17	310	23	6,800	82
MW-7 009396-08	<1	<1	<1	<3	<100	84
MW-8 009396-09	<1	<1	<1	<3	<100	85
MW-9 009396-10	<1	<1	<1	<3	<100	85
MW-10 009396-11	<1	<1	<1	<3	<100	84

Date of Report: 10/01/20
Date Received: 09/22/20
Project: Buckley Lib PO 11101-03, F&BI 009396
Date Extracted: 09/25/20
Date Analyzed: 09/25/20

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
MW-11 009396-12	<1	<1	<1	<3	<100	84
Method Blank 00-2149 mb	<1	<1	<1	<3	<100	84

Date of Report: 10/01/20
Date Received: 09/22/20
Project: Buckley Lib PO 11101-03, F&BI 009396
Date Extracted: 09/23/20
Date Analyzed: 09/23/20

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW-1 009396-01	70 x	<250	93
MW-2 009396-02	<50	<250	118
MW-3 009396-03	<50	<250	81
MW-4 009396-04	140 x	270 x	108
MW-5 009396-05	<50	<250	120
MW-6 009396-06	4,800 x	<250	115
MW-7 009396-08	330 x	<250	98
MW-8 009396-09	160 x	<250	114
MW-9 009396-10	<50	<250	119
MW-10 009396-11	54 x	<250	59
MW-11 009396-12	<50	<250	117
Method Blank 00-2142 MB	<50	<250	122

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-1	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/25/20	Lab ID:	009396-01
Date Analyzed:	09/28/20	Data File:	009396-01.040
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<5
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-2	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/25/20	Lab ID:	009396-02
Date Analyzed:	09/28/20	Data File:	009396-02.043
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.78
Cadmium	<1
Chromium	1.28
Lead	<5
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-3	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/25/20	Lab ID:	009396-03
Date Analyzed:	09/28/20	Data File:	009396-03.089
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	1.95
Lead	<5
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-4	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/25/20	Lab ID:	009396-04
Date Analyzed:	09/28/20	Data File:	009396-04.090
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.19
Cadmium	<1
Chromium	2.20
Lead	<5
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-5	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/25/20	Lab ID:	009396-05
Date Analyzed:	09/28/20	Data File:	009396-05.091
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<5
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-6	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/25/20	Lab ID:	009396-06
Date Analyzed:	09/28/20	Data File:	009396-06.092
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	6.14
Cadmium	<1
Chromium	4.93
Lead	9.19
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-7	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/25/20	Lab ID:	009396-08
Date Analyzed:	09/28/20	Data File:	009396-08.093
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	8.17
Cadmium	<1
Chromium	<1 J
Lead	5.68
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-7	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/25/20	Lab ID:	009396-08 x10
Date Analyzed:	09/28/20	Data File:	009396-08 x10.154
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<10

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-8	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/25/20	Lab ID:	009396-09
Date Analyzed:	09/28/20	Data File:	009396-09.094
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.05
Cadmium	<1
Chromium	<1 J
Lead	<5
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-8	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/25/20	Lab ID:	009396-09 x10
Date Analyzed:	09/28/20	Data File:	009396-09 x10.155
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<10

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-9	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/25/20	Lab ID:	009396-10
Date Analyzed:	09/29/20	Data File:	009396-10.059
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	10.8
Cadmium	<1
Chromium	15.8 J
Lead	108
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-9	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/25/20	Lab ID:	009396-10 x10
Date Analyzed:	09/29/20	Data File:	009396-10 x10.164
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	22.8

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-10	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/25/20	Lab ID:	009396-11
Date Analyzed:	09/29/20	Data File:	009396-11.060
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	6.40
Cadmium	<1
Chromium	2.73
Lead	<5
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-11	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/25/20	Lab ID:	009396-12
Date Analyzed:	09/29/20	Data File:	009396-12.061
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	3.90
Cadmium	<1
Chromium	<1
Lead	<5
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	EHSI
Date Received:	NA	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/25/20	Lab ID:	I0-577 mb
Date Analyzed:	09/25/20	Data File:	I0-577 mb.100
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<5
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-1	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/28/20	Lab ID:	009396-01
Date Analyzed:	09/28/20	Data File:	009396-01.103
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<5
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-2	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/28/20	Lab ID:	009396-02
Date Analyzed:	09/28/20	Data File:	009396-02.104
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.18
Cadmium	<1
Chromium	<1
Lead	<5
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-3	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/28/20	Lab ID:	009396-03
Date Analyzed:	09/28/20	Data File:	009396-03.107
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<5
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-4	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/28/20	Lab ID:	009396-04
Date Analyzed:	09/28/20	Data File:	009396-04.140
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<5
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-5	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/28/20	Lab ID:	009396-05
Date Analyzed:	09/28/20	Data File:	009396-05.141
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<5
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-6	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/28/20	Lab ID:	009396-06
Date Analyzed:	09/28/20	Data File:	009396-06.142
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	8.04
Cadmium	<1
Chromium	<1
Lead	<5
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-7	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/28/20	Lab ID:	009396-08
Date Analyzed:	09/28/20	Data File:	009396-08.143
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.41
Cadmium	<1
Chromium	<1 J
Lead	<5
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-7	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/25/20	Lab ID:	009396-08 x10
Date Analyzed:	09/29/20	Data File:	009396-08 x10.062
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<10

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-8	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/28/20	Lab ID:	009396-09
Date Analyzed:	09/28/20	Data File:	009396-09.144
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<5
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-9	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/28/20	Lab ID:	009396-10
Date Analyzed:	09/28/20	Data File:	009396-10.145
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<5
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-10	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/28/20	Lab ID:	009396-11
Date Analyzed:	09/28/20	Data File:	009396-11.156
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.62
Cadmium	<1
Chromium	<1
Lead	<5
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	MW-11	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/28/20	Lab ID:	009396-12
Date Analyzed:	09/28/20	Data File:	009396-12.157
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	3.00
Cadmium	<1
Chromium	<1
Lead	<5
Mercury	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	EHSI
Date Received:	NA	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/28/20	Lab ID:	I0-581 mb
Date Analyzed:	09/28/20	Data File:	I0-581 mb.099
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<5
Mercury	<1

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW-1	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/23/20	Lab ID:	009396-01 1/2
Date Analyzed:	09/24/20	Data File:	092408.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	43 vo	15	33
Phenol-d6	30 vo	10	20
Nitrobenzene-d5	80	17	143
2-Fluorobiphenyl	79	50	150
2,4,6-Tribromophenol	83	50	150
Terphenyl-d14	85	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW-2	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/23/20	Lab ID:	009396-02 1/2
Date Analyzed:	09/24/20	Data File:	092409.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	23	15	33
Phenol-d6	25 vo	10	20
Nitrobenzene-d5	74	17	143
2-Fluorobiphenyl	74	50	150
2,4,6-Tribromophenol	62	50	150
Terphenyl-d14	79	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW-3	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/23/20	Lab ID:	009396-03 1/2
Date Analyzed:	09/24/20	Data File:	092410.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	43 vo	15	33
Phenol-d6	32 vo	10	20
Nitrobenzene-d5	84	17	143
2-Fluorobiphenyl	83	50	150
2,4,6-Tribromophenol	86	50	150
Terphenyl-d14	89	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW-4	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/23/20	Lab ID:	009396-04 1/2
Date Analyzed:	09/24/20	Data File:	092419.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	32	15	33
Phenol-d6	30 ip	10	20
Nitrobenzene-d5	61	17	143
2-Fluorobiphenyl	61	50	150
2,4,6-Tribromophenol	74	50	150
Terphenyl-d14	67	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Benz(a)anthracene	0.060
Chrysene	0.042
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	0.048
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW-5	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/23/20	Lab ID:	009396-05 1/2
Date Analyzed:	09/24/20	Data File:	092411.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	39 ip	15	33
Phenol-d6	32 ip	10	20
Nitrobenzene-d5	86	17	143
2-Fluorobiphenyl	91	50	150
2,4,6-Tribromophenol	89	50	150
Terphenyl-d14	92	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW-6	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/23/20	Lab ID:	009396-06 1/2
Date Analyzed:	09/24/20	Data File:	092412.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	39 ip	15	33
Phenol-d6	40 ip	10	20
Nitrobenzene-d5	120	17	143
2-Fluorobiphenyl	18 ip J	50	150
2,4,6-Tribromophenol	24 ip	50	150
Terphenyl-d14	85	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	56
2-Methylnaphthalene	2.7
1-Methylnaphthalene	11
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW-7	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/23/20	Lab ID:	009396-08 1/2
Date Analyzed:	09/24/20	Data File:	092413.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	26	15	33
Phenol-d6	24 ip	10	20
Nitrobenzene-d5	52	17	143
2-Fluorobiphenyl	54	50	150
2,4,6-Tribromophenol	71	50	150
Terphenyl-d14	61	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW-8	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/23/20	Lab ID:	009396-09 1/2
Date Analyzed:	09/24/20	Data File:	092414.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	50 ip	15	33
Phenol-d6	35 ip	10	20
Nitrobenzene-d5	84	17	143
2-Fluorobiphenyl	81	50	150
2,4,6-Tribromophenol	99	50	150
Terphenyl-d14	89	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW-9	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/23/20	Lab ID:	009396-10 1/2
Date Analyzed:	09/24/20	Data File:	092415.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	42 vo	15	33
Phenol-d6	36 vo	10	20
Nitrobenzene-d5	84	17	143
2-Fluorobiphenyl	80	50	150
2,4,6-Tribromophenol	97	50	150
Terphenyl-d14	92	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW-10	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/23/20	Lab ID:	009396-11 1/2
Date Analyzed:	09/24/20	Data File:	092416.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	26	15	33
Phenol-d6	30 ip	10	20
Nitrobenzene-d5	67	17	143
2-Fluorobiphenyl	60	50	150
2,4,6-Tribromophenol	78	50	150
Terphenyl-d14	72	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW-11	Client:	EHSI
Date Received:	09/22/20	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/23/20	Lab ID:	009396-12 1/2
Date Analyzed:	09/24/20	Data File:	092417.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	50 ip	15	33
Phenol-d6	34 ip	10	20
Nitrobenzene-d5	89	17	143
2-Fluorobiphenyl	86	50	150
2,4,6-Tribromophenol	104	50	150
Terphenyl-d14	93	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Lib PO 11101-03
Date Extracted:	09/23/20	Lab ID:	00-2136 mb2
Date Analyzed:	09/24/20	Data File:	092404.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	29	15	33
Phenol-d6	17	10	20
Nitrobenzene-d5	83	17	143
2-Fluorobiphenyl	86	50	150
2,4,6-Tribromophenol	78	50	150
Terphenyl-d14	92	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02

Date of Report: 10/01/20
Date Received: 09/22/20
Project: Buckley Lib PO 11101-03, F&BI 009396

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

Laboratory Code: 009417-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	102	65-118
Toluene	ug/L (ppb)	50	92	72-122
Ethylbenzene	ug/L (ppb)	50	96	73-126
Xylenes	ug/L (ppb)	150	94	74-118
Gasoline	ug/L (ppb)	1,000	107	69-134

Date of Report: 10/01/20
Date Received: 09/22/20
Project: Buckley Lib PO 11101-03, F&BI 009396

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	100	100	63-142	0

Date of Report: 10/01/20
Date Received: 09/22/20
Project: Buckley Lib PO 11101-03, F&BI 009396

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

Laboratory Code: 009396-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	96	96	75-125	0
Cadmium	ug/L (ppb)	5	<1	97	98	75-125	1
Chromium	ug/L (ppb)	20	<1	96	96	75-125	0
Lead	ug/L (ppb)	10	<1	88	87	75-125	1
Mercury	ug/L (ppb)	5	<1	89	89	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	91	80-120
Cadmium	ug/L (ppb)	5	95	80-120
Chromium	ug/L (ppb)	20	99	80-120
Lead	ug/L (ppb)	10	96	80-120
Mercury	ug/L (ppb)	5	93	80-120

Date of Report: 10/01/20
Date Received: 09/22/20
Project: Buckley Lib PO 11101-03, F&BI 009396

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

Laboratory Code: 009396-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.18	92	93	75-125	1
Cadmium	ug/L (ppb)	5	<1	96	98	75-125	2
Chromium	ug/L (ppb)	20	<1	101	100	75-125	1
Lead	ug/L (ppb)	10	<1	95	95	75-125	0
Mercury	ug/L (ppb)	5	<1	89	93	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	91	80-120
Cadmium	ug/L (ppb)	5	98	80-120
Chromium	ug/L (ppb)	20	101	80-120
Lead	ug/L (ppb)	10	98	80-120
Mercury	ug/L (ppb)	5	95	80-120

Date of Report: 10/01/20
Date Received: 09/22/20
Project: Buckley Lib PO 11101-03, F&BI 009396

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)	5	87	86	56-100	1
2-Methylnaphthalene	ug/L (ppb)	5	88	88	60-104	0
1-Methylnaphthalene	ug/L (ppb)	5	88	87	60-104	1
Benz(a)anthracene	ug/L (ppb)	5	98	99	70-130	1
Chrysene	ug/L (ppb)	5	99	100	70-130	1
Benzo(a)pyrene	ug/L (ppb)	5	104	104	70-130	0
Benzo(b)fluoranthene	ug/L (ppb)	5	110	108	70-130	2
Benzo(k)fluoranthene	ug/L (ppb)	5	110	103	70-130	7
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	102	105	57-141	3
Dibenz(a,h)anthracene	ug/L (ppb)	5	101	104	57-137	3

Data Qualifiers & Definitions

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

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

ca - The calibration results for the analyte were outside of acceptance criteria. 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.

009396

SAMPLE CHAIN OF CUSTODY

ME

09-22-20

VW3/AI6/BO5

Page # 1 of 2

Report To Dylan and Ryan

Company EHSI

Address 1011 SW Klickitat Way, 104

City, State, ZIP Seattle WA

Phone 206-721-8282 Email

SAMPLERS (*signature*)

PROJECT NAME: Buckley Lib

PO #: 11101-03

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270 (Naph)	PCBs EPA 8082	mTCA 5 Total	mTCA 5 Dissolved			Notes
MW-1	01A-G	9/22/20	12:30	Water	7	X	X	X			X		+	+			filtered
MW-2	02		11:45			X	X	X			X		X	X			
MW-3	03		12:05			X	X	X			X		X	X			
MW-4	04		11:20			X	X	X			X		X	X			filtered
MW-5	05		1:00			X	X	X			X		X	X			
MW-6	06		2:25			X	X	X			X		X	X			* hold per instruction MS 9/23/20
MW-6-Dup	07A-C		2:30			X	X	X			X		X	X			filtered 3 VOA only TB 9/23
MW-7	08A-G		1:25			X	X	X			X		X	X			
MW-8	09		3:00			X	X	X			X		X	X			
MW-9	10		2:00			X	X	X			X		X	X			

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Ryan Gelatt	EHSI	9/22/19	17:15
Received by: HONG	HONG NGUYEN	EHSI	V	V
Relinquished by:				
Received by:		Samples received at 3 °C		

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

SAMPLE CHAIN OF CUSTODY

B009396 — 09-22-20 — VW3/2 AT6/2 BO:

Page # 1 of 2

Report To Ryan and Jason

Company EHSI

Address 1611 SW Klickitat way, 104

City, State, ZIP Seattle Wa

Phone 206-324-8222 Email

SAMPLERS (*signature*)

PROJECT NAME: Buckley Lot — PO #: 11161-03

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- [X] Standard turnaround
- [ ] RUSH
- Rush charges authorized by:

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270 (+ Perk)	PCBs EPA 8082	Total MTCA 5	Dissolved MTCA 5			Notes
MW-10	11 A-6	~~9/22/20~~ 3:20	3:20	water	7	X	X	X			X		X	X			
MW-11	12	~~9/22/20~~ 3:45	3:45	water	7	X	X	X			X		X	X			

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Ryan Gatti	EHSI	9/22/20	17:15
Received by: HONG NGUYEN	HONG NGUYEN	FBA	9/22/20	V
Relinquished by:				
Received by:				

Samples rec'd 1 2 3

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

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

March 29, 2021

Jen Moore, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

Dear Ms Moore:

Included are the results from the testing of material submitted on March 19, 2021 from the Buckley Library 1111-04, F&BI 103392 project. There are 18 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: EHSI A/P, Tom Cammarata
EHS0329R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 19, 2021 by Friedman & Bruya, Inc. from the EHSI Buckley Library 1111-04, F&BI 103392 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EHSI
103392 -01	MW01-04-20210318
103392 -02	MW01-06-20210318
103392 -03	MW01-08.5-20210318
103392 -04	MW05-03.5-20210318
103392 -05	MW05-06-20210318
103392 -06	MW05-08-20210318
103392 -07	MW07-07-20210318
103392 -08	MW02-06-20210318
103392 -09	MW04-06-20210318
103392 -10	MW08-06-20210318
103392 -11	MW09-08-20210318
103392 -12	MW10-08-20210318
103392 -13	MW11-09-20210318
103392 -14	MW06-06-20210318

The NWTPH-Gx and 8021B surrogate for sample MW05-03.5-20210318 exceeded the acceptance criteria. No analytes were detected in the sample, therefore the data were acceptable.

All quality control requirements were acceptable.

Date of Report: 03/29/21
Date Received: 03/19/21
Project: Buckley Library 1111-04, F&BI 103392
Date Extracted: 03/25/21
Date Analyzed: 03/25/21

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
MW01-04-20210318 103392-01	<1	<1	<1	<3	<100	82
MW01-06-20210318 103392-02	<1	<1	<1	<3	<100	81
MW01-08.5-20210318 103392-03	<1	<1	<1	<3	<100	82
MW05-03.5-20210318 103392-04	<1	<1	<1	<3	<100	147 vo
MW05-06-20210318 103392-05	<1	<1	<1	<3	<100	84
MW05-08-20210318 103392-06	<1	<1	<1	<3	<100	84
MW07-07-20210318 103392-07	<1	<1	<1	<3	<100	82
MW02-06-20210318 103392-08	<1	<1	<1	<3	<100	83
MW04-06-20210318 103392-09	<1	<1	<1	<3	<100	83
MW08-06-20210318 103392-10	<1	<1	<1	<3	<100	82

Date of Report: 03/29/21
Date Received: 03/19/21
Project: Buckley Library 1111-04, F&BI 103392
Date Extracted: 03/25/21
Date Analyzed: 03/25/21

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
MW09-08-20210318 103392-11	<1	<1	<1	<3	<100	81
MW10-08-20210318 103392-12	<1	<1	<1	<3	<100	84
MW11-09-20210318 103392-13	<1	<1	<1	<3	<100	83
MW06-06-20210318 103392-14	1,300	18	1,300	24	13,000	75
Method Blank 01-587 MB	<1	<1	<1	<3	<100	77

Date of Report: 03/29/21
Date Received: 03/19/21
Project: Buckley Library 1111-04, F&BI 103392
Date Extracted: 03/22/21
Date Analyzed: 03/23/21

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)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW01-04-20210318 103392-01	<50	<250	113
MW01-06-20210318 103392-02	<50	<250	118
MW01-08.5-20210318 103392-03	<50	<250	106
MW05-03.5-20210318 103392-04	<50	<250	116
MW05-06-20210318 103392-05	<50	<250	115
MW05-08-20210318 103392-06	<50	<250	102
MW07-07-20210318 103392-07	<50	<250	98
Method Blank 01-708 MB	<50	<250	112

Date of Report: 03/29/21
Date Received: 03/19/21
Project: Buckley Library 1111-04, F&BI 103392
Date Extracted: 03/22/21
Date Analyzed: 03/22/21 and 03/23/21

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW01-04-20210318 103392-01	250 x	280 x	110
MW01-06-20210318 103392-02	220	<250	104
MW01-08.5-20210318 103392-03	230 x	280 x	105
MW05-03.5-20210318 103392-04	<50	<250	110
MW05-06-20210318 103392-05	<50	<250	108
MW05-08-20210318 103392-06	<50	<250	93
MW07-07-20210318 103392-07	350 x	340 x	94
MW02-06-20210318 103392-08	<50	<250	107
MW04-06-20210318 103392-09	120 x	<250	92
MW08-06-20210318 103392-10	110 x	<250	110

Date of Report: 03/29/21
Date Received: 03/19/21
Project: Buckley Library 1111-04, F&BI 103392
Date Extracted: 03/22/21
Date Analyzed: 03/22/21 and 03/23/21

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW09-08-20210318 103392-11	<50	<250	102
MW10-08-20210318 103392-12	<50	<250	97
MW11-09-20210318 103392-13	<50	<250	111
MW06-06-20210318 103392-14	3,700 x	<250	95
Method Blank 01-708 MB	<50	<250	105

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW05-03.5-20210318	Client:	EHSI
Date Received:	03/19/21	Project:	Buckley Library 1111-04
Date Extracted:	03/22/21	Lab ID:	103392-04 1/2
Date Analyzed:	03/22/21	Data File:	032208.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	44	15	99
Phenol-d6	30	11	65
Nitrobenzene-d5	100	10	145
2-Fluorobiphenyl	90	16	138
2,4,6-Tribromophenol	83	12	132
Terphenyl-d14	90	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW05-06-20210318	Client:	EHSI
Date Received:	03/19/21	Project:	Buckley Library 1111-04
Date Extracted:	03/22/21	Lab ID:	103392-05 1/2
Date Analyzed:	03/22/21	Data File:	032209.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	44	15	99
Phenol-d6	31	11	65
Nitrobenzene-d5	102	10	145
2-Fluorobiphenyl	93	16	138
2,4,6-Tribromophenol	84	12	132
Terphenyl-d14	92	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW05-08-20210318	Client:	EHSI
Date Received:	03/19/21	Project:	Buckley Library 1111-04
Date Extracted:	03/22/21	Lab ID:	103392-06 1/2
Date Analyzed:	03/22/21	Data File:	032210.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	42	15	99
Phenol-d6	32	11	65
Nitrobenzene-d5	107	10	145
2-Fluorobiphenyl	98	16	138
2,4,6-Tribromophenol	81	12	132
Terphenyl-d14	98	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW08-06-20210318	Client:	EHSI
Date Received:	03/19/21	Project:	Buckley Library 1111-04
Date Extracted:	03/22/21	Lab ID:	103392-10 1/2
Date Analyzed:	03/22/21	Data File:	032211.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	45	15	99
Phenol-d6	33	11	65
Nitrobenzene-d5	98	10	145
2-Fluorobiphenyl	99	16	138
2,4,6-Tribromophenol	98	12	132
Terphenyl-d14	105	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW11-09-20210318	Client:	EHSI
Date Received:	03/19/21	Project:	Buckley Library 1111-04
Date Extracted:	03/22/21	Lab ID:	103392-13 1/2
Date Analyzed:	03/22/21	Data File:	032212.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	42	15	99
Phenol-d6	32	11	65
Nitrobenzene-d5	103	10	145
2-Fluorobiphenyl	95	16	138
2,4,6-Tribromophenol	84	12	132
Terphenyl-d14	91	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW06-06-20210318	Client:	EHSI
Date Received:	03/19/21	Project:	Buckley Library 1111-04
Date Extracted:	03/22/21	Lab ID:	103392-14 1/40
Date Analyzed:	03/23/21	Data File:	032308.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	47 d	15	99
Phenol-d6	33 d	11	65
Nitrobenzene-d5	90 d	10	145
2-Fluorobiphenyl	84 d	16	138
2,4,6-Tribromophenol	139 d	12	132
Terphenyl-d14	82 d	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	360
2-Methylnaphthalene	87
1-Methylnaphthalene	48

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library 1111-04
Date Extracted:	03/22/21	Lab ID:	01-709 mb
Date Analyzed:	03/22/21	Data File:	032207.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	23	15	99
Phenol-d6	16	11	65
Nitrobenzene-d5	101	10	145
2-Fluorobiphenyl	93	16	138
2,4,6-Tribromophenol	62	12	132
Terphenyl-d14	97	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2

Date of Report: 03/29/21
Date Received: 03/19/21
Project: Buckley Library 1111-04, F&BI 103392

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

Laboratory Code: 103417-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	83	65-118
Toluene	ug/L (ppb)	50	91	72-122
Ethylbenzene	ug/L (ppb)	50	90	73-126
Xylenes	ug/L (ppb)	150	88	74-118
Gasoline	ug/L (ppb)	1,000	95	69-134

Date of Report: 03/29/21
Date Received: 03/19/21
Project: Buckley Library 1111-04, F&BI 103392

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

Laboratory Code: Laboratory Control Sample 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	120	104	63-142	14

Date of Report: 03/29/21
Date Received: 03/19/21
Project: Buckley Library 1111-04, F&BI 103392

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	112	108	63-142	4

Date of Report: 03/29/21
Date Received: 03/19/21
Project: Buckley Library 1111-04, F&BI 103392

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	79	78	56-100	1
2-Methylnaphthalene	ug/L (ppb)	5	81	81	60-104	0
1-Methylnaphthalene	ug/L (ppb)	5	80	81	60-104	1

Data Qualifiers & Definitions

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

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

ca - The calibration results for the analyte were outside of acceptance criteria. 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

103392 ME 03-19-21 VWS VS/EO4

Send Report to Jason Cass, Jen Moore, Tom Cunningham

Company EHSI

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO.: Buckley Library

PO #: 11101-04

REMARKS

Page # 1 of 2

TURNAROUND TIME
~~Standard (2 Weeks)~~
RUSH
Rush charges authorized by:

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

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	ANALYSES REQUESTED: NWTPH-Gx	BTEX by 8021B	NWTPH-Dx/ORPH	~~Naphthalenes~~ Naphthalene	analysis with silica gel cleanup				Notes
MW01-04-20210318	MW01	04	01A-D	03/18/21	1225	H_2O	4	X	X	X		X				
MW01-06-20210318	MW01	06	02		1228		4	X	X	X		X				
MW01-08.5-20210318	MW01	08.5	03		1235		4	X	X	X		X				
MW05-03.5-20210318	MW05	3.5	04A-E		1330		5	X	X	X	X	X				
MW05-06-20210318	MW05	06	05		1340		5	X	X	X	X	X				
MW05-08-20210318	MW05	08	06		1350		5	X	X	X	X	X				
MW07-07-20210318	MW07	07	07A-D		1430		4	X	X	X		X				
MW02-06-20210318	MW02	06	08		1505		4	X	X	X						
MW04-06-20210318	MW04	06	09		1550		4	X	X	X						
MW08-06-20210318	MW08	06	10A-E	✓	1617	✓	5	X	X	X	X					

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		SES	03/19/21	1635
Received by:	Eric Young	F&B	3/19/21	1635
Relinquished by:				
Received by:		Samples received at 4 °C		

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

FORMS\COC\COC.DOC

103392

SAMPLE CHAIN OF CUSTODY ME 03-19-21

VWS/EQ4

Page # 2 of 2

Send Report to ~~Jason~~ Cass, Jen Moore, Tom Cannavata

Company EHSI

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature) Kyle Bowers

PROJECT NAME/NO.	PO #
Buckley Library	11101-04

REMARKS

TURNAROUND TIME
~~Standard~~ (2 Weeks)
RUSH
Rush charges authorized by:

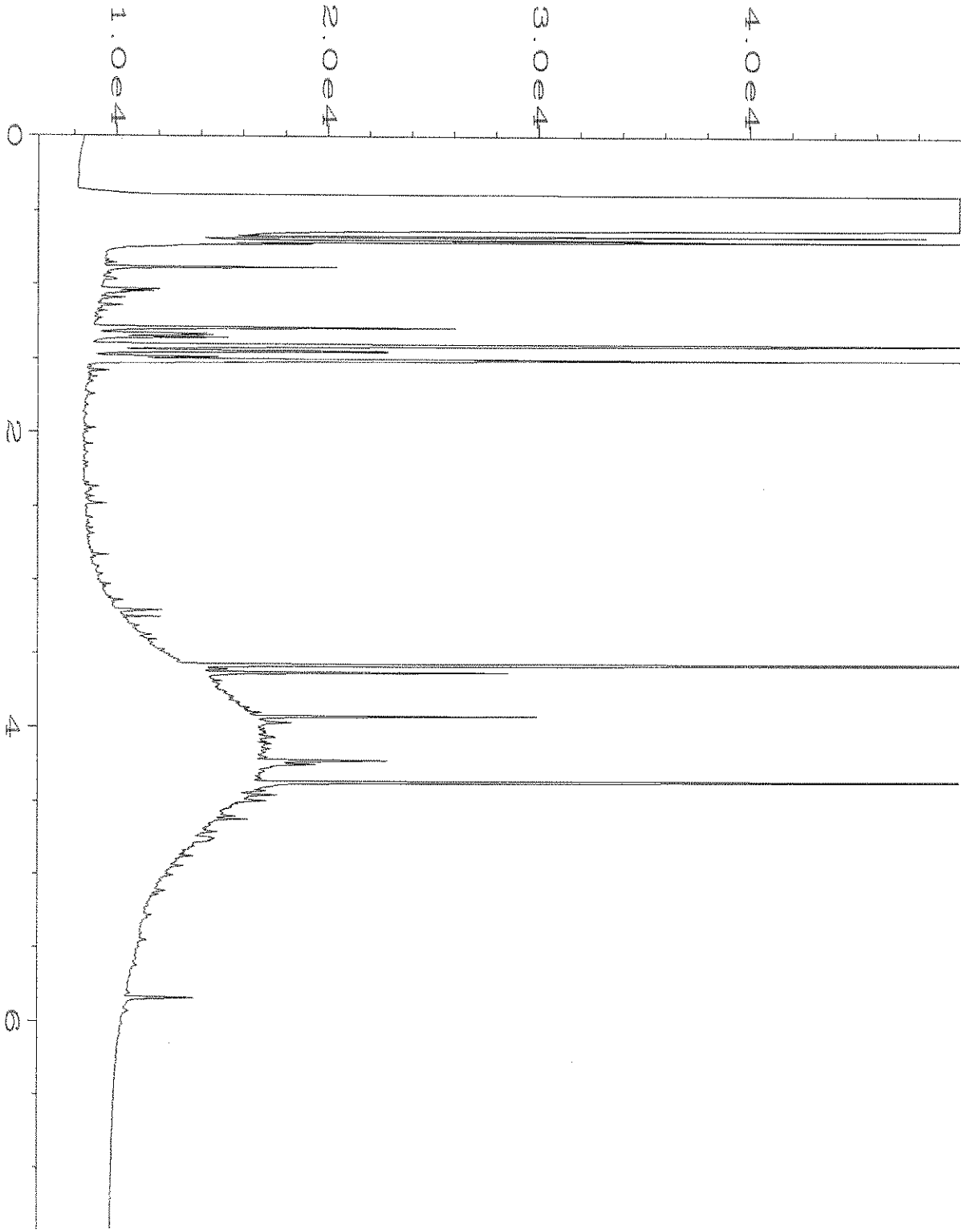
SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	ANALYSES REQUESTED: NWTPH-Gx	BTEX by 8021B	NWTPH-Dx/ORPH	~~Naphthalenes~~ Naphthalenes					Notes
MW09-08-20210319	MW09	08	11A-D	03/19/21	1035	H2O	4	X	X	X						
MW10-08-20210319	MW10	08	12A-E		1115		5	X	X	X						
MW11-09-20210319	MW11	09	13		1150		5	X	X	X	X					
MW06-06-20210319	MW06	06	14		1225		5	X	X	X	X					

for 03/19/21

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Kyle Bowers	Kyle Bowers	SES	03/19/21	1635
Received by:	Eric Hom	F&B	3/19/21	1635
Relinquished by:				
Received by:		Samples received at 4 °C		

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



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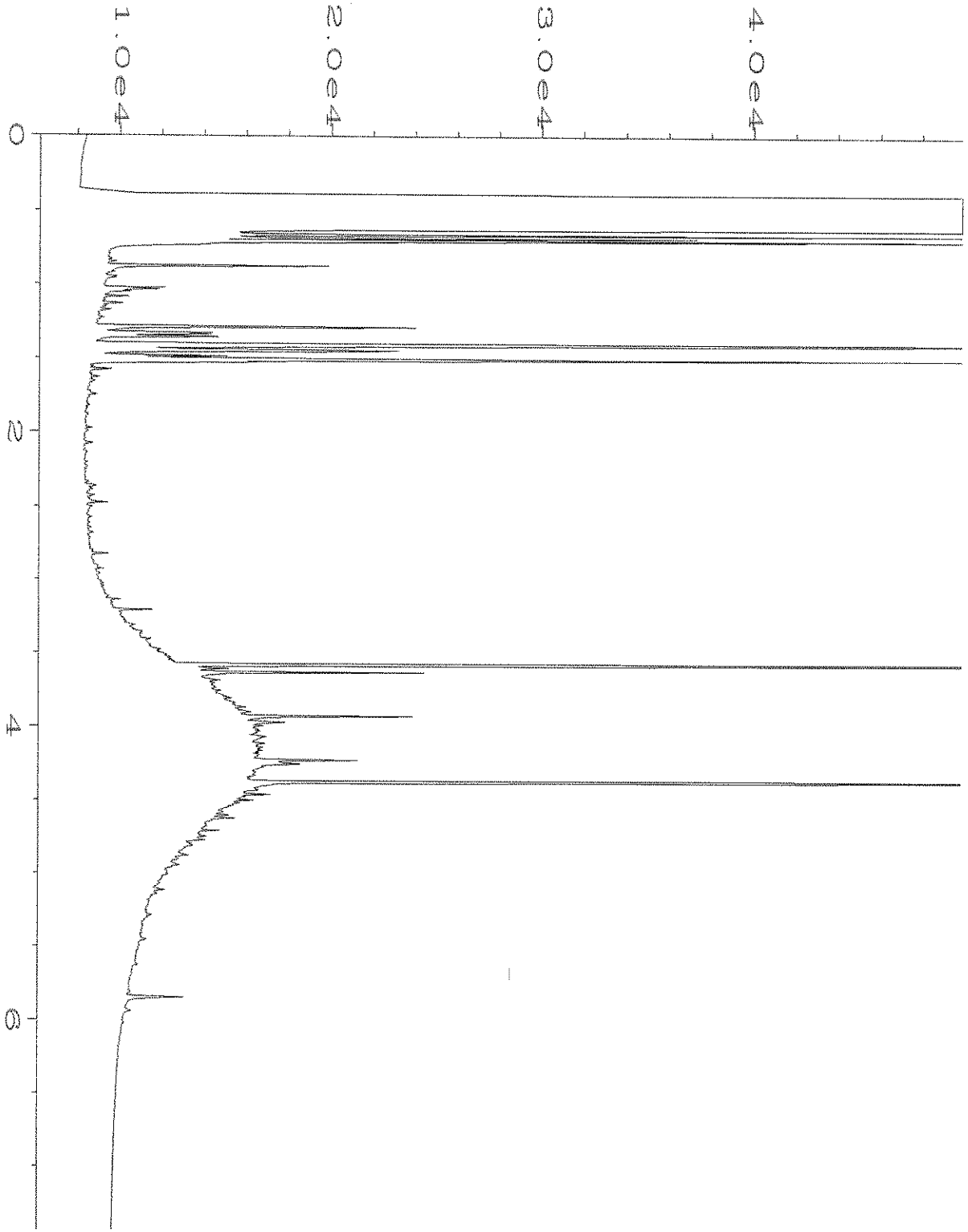
Operator : TL
Instrument : GC1
Sample Name : 103392-01
Run Time Bar Code:
Acquired on : 22 Mar 21 05:13 PM
Report Created on: 23 Mar 21 09:30 AM

Page Number : 1
Vial Number : 19
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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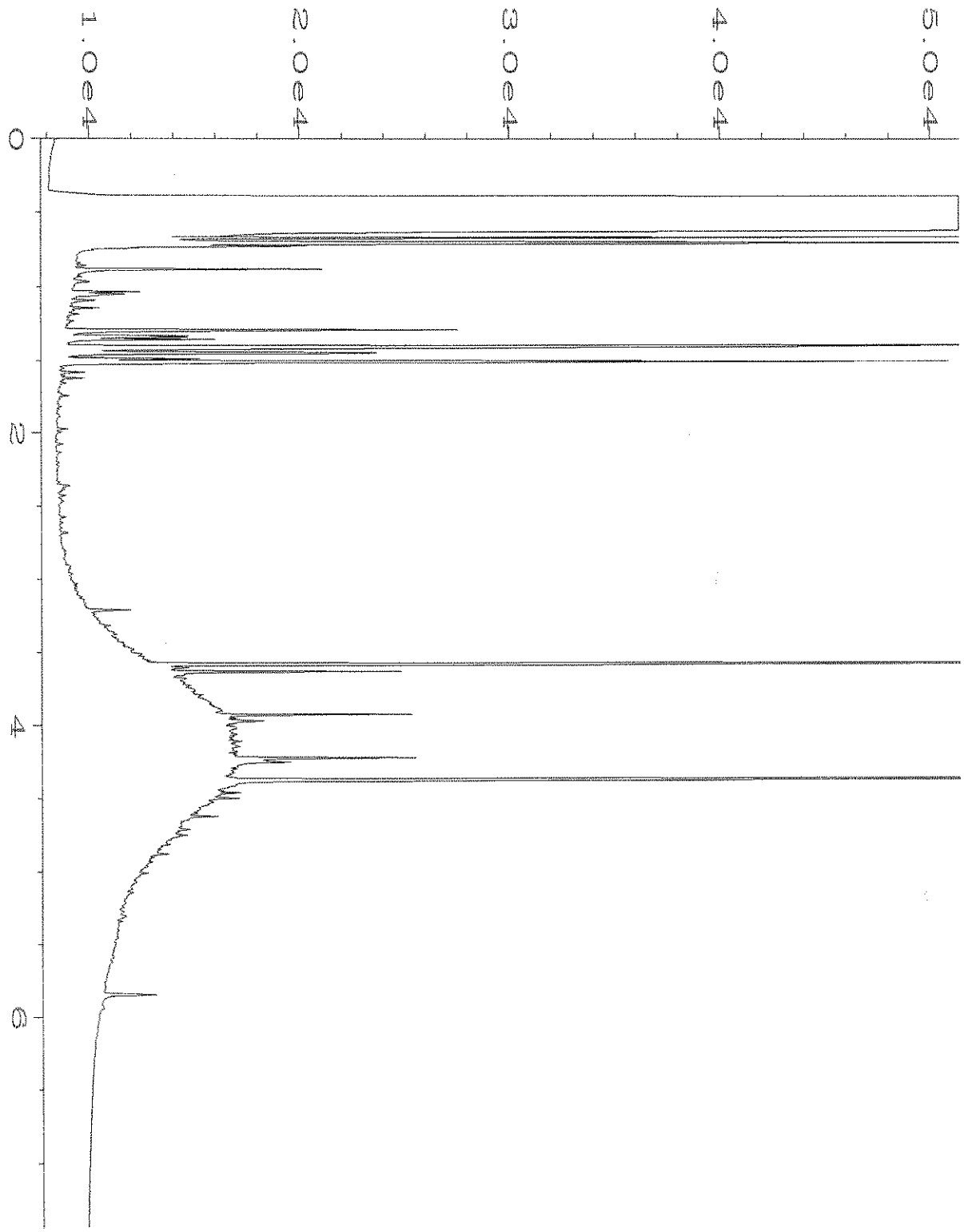
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 20
Sample Name	: 103392-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 22 Mar 21 05:24 PM	Instrument Method	: DX.MTH
Report Created on	: 23 Mar 21 09:32 AM	Analysis Method	: DEFAULT.MTH



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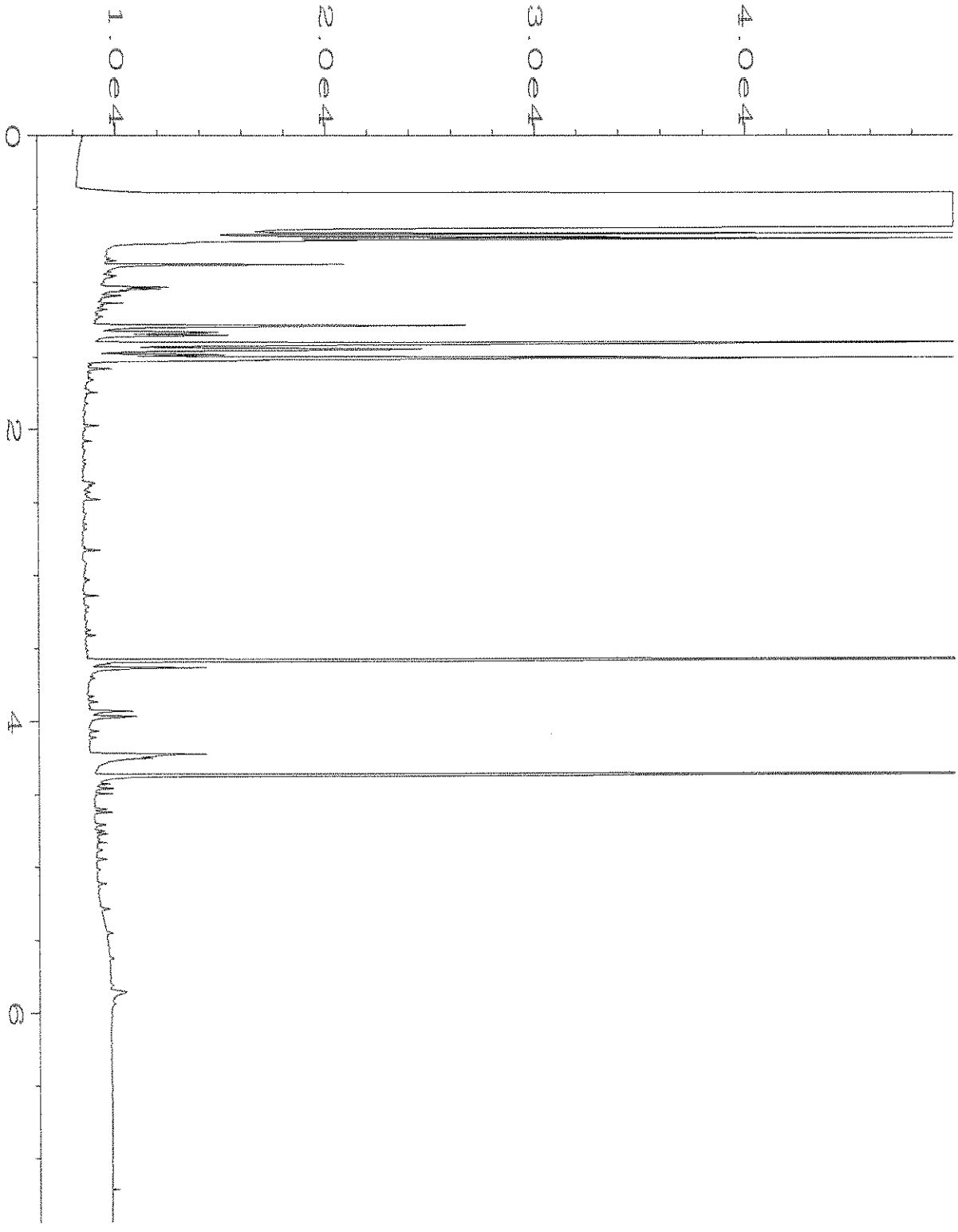
Operator : TL
Instrument : GC1
Sample Name : 103392-03
Run Time Bar Code:
Acquired on : 22 Mar 21 05:36 PM
Report Created on: 23 Mar 21 09:32 AM

Page Number : 1
Vial Number : 21
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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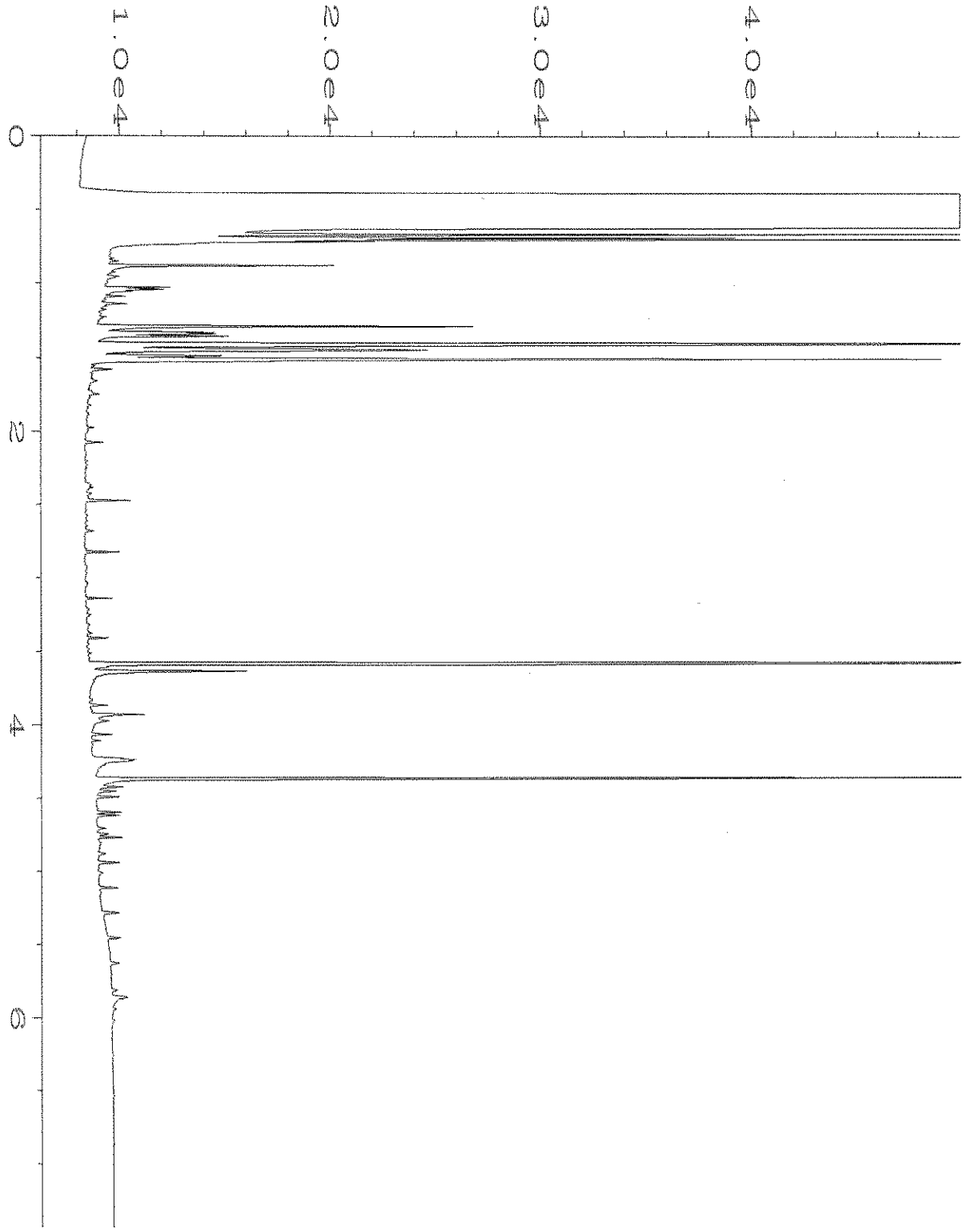
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 22
Sample Name	: 103392-04	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 22 Mar 21 05:47 PM	Instrument Method	: DX.MTH
Report Created on	: 23 Mar 21 09:32 AM	Analysis Method	: DEFAULT.MTH



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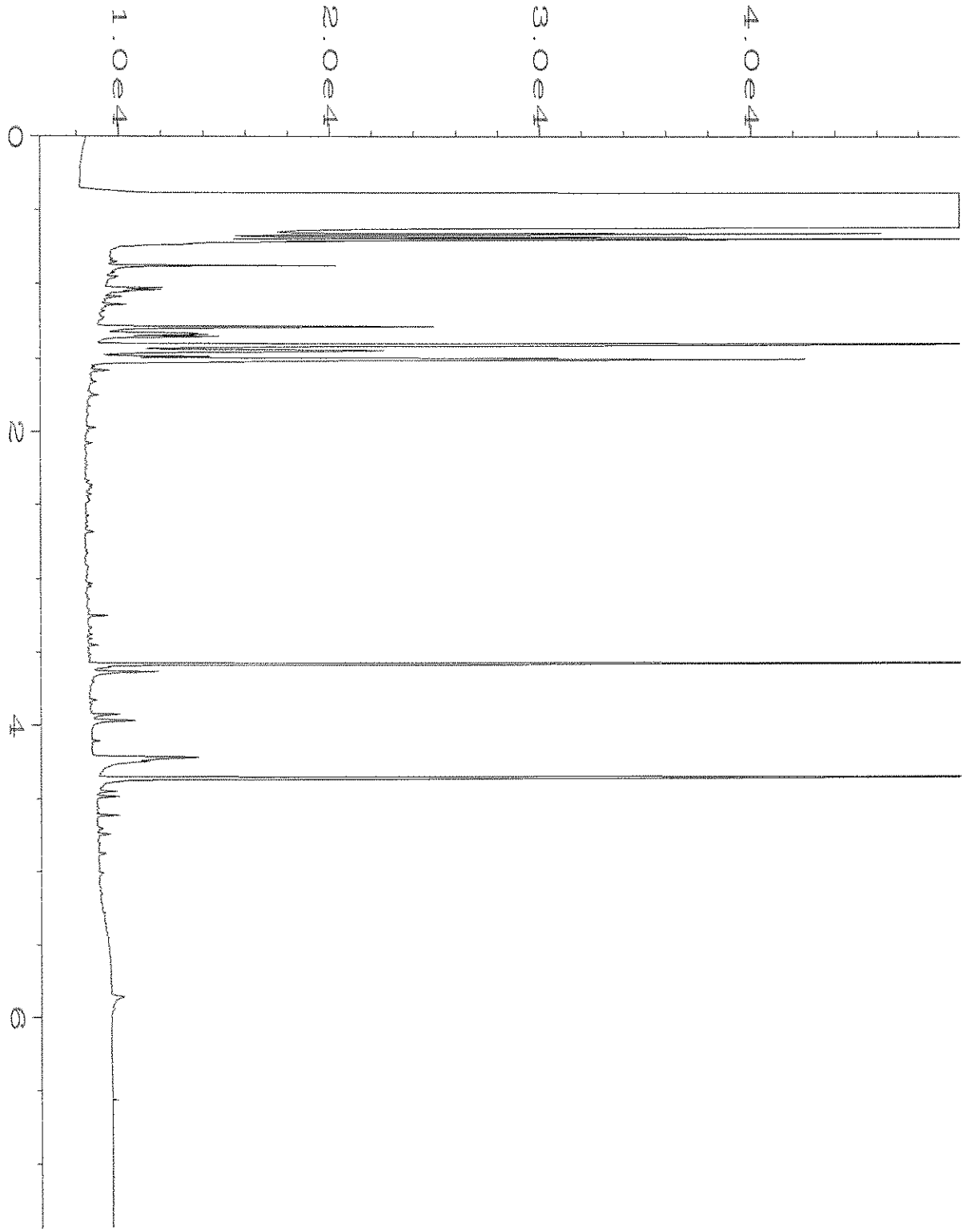
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 23
Sample Name	: 103392-05	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 22 Mar 21 05:58 PM	Instrument Method	: DX.MTH
Report Created on	: 23 Mar 21 09:32 AM	Analysis Method	: DEFAULT.MTH



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Operator : TL
Instrument : GC1
Sample Name : 103392-06
Run Time Bar Code:
Acquired on : 22 Mar 21 06:10 PM
Report Created on: 23 Mar 21 09:32 AM

Page Number : 1
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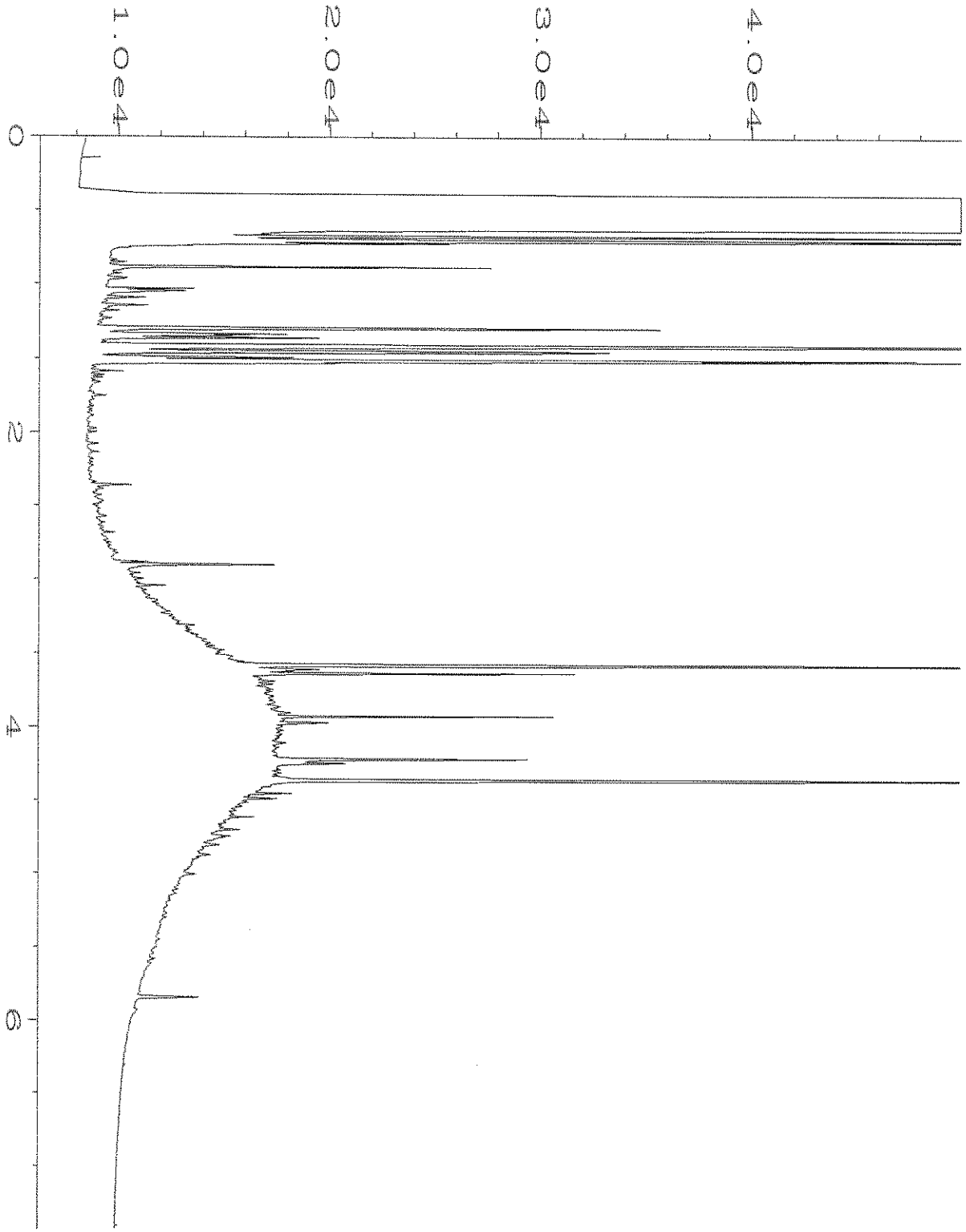
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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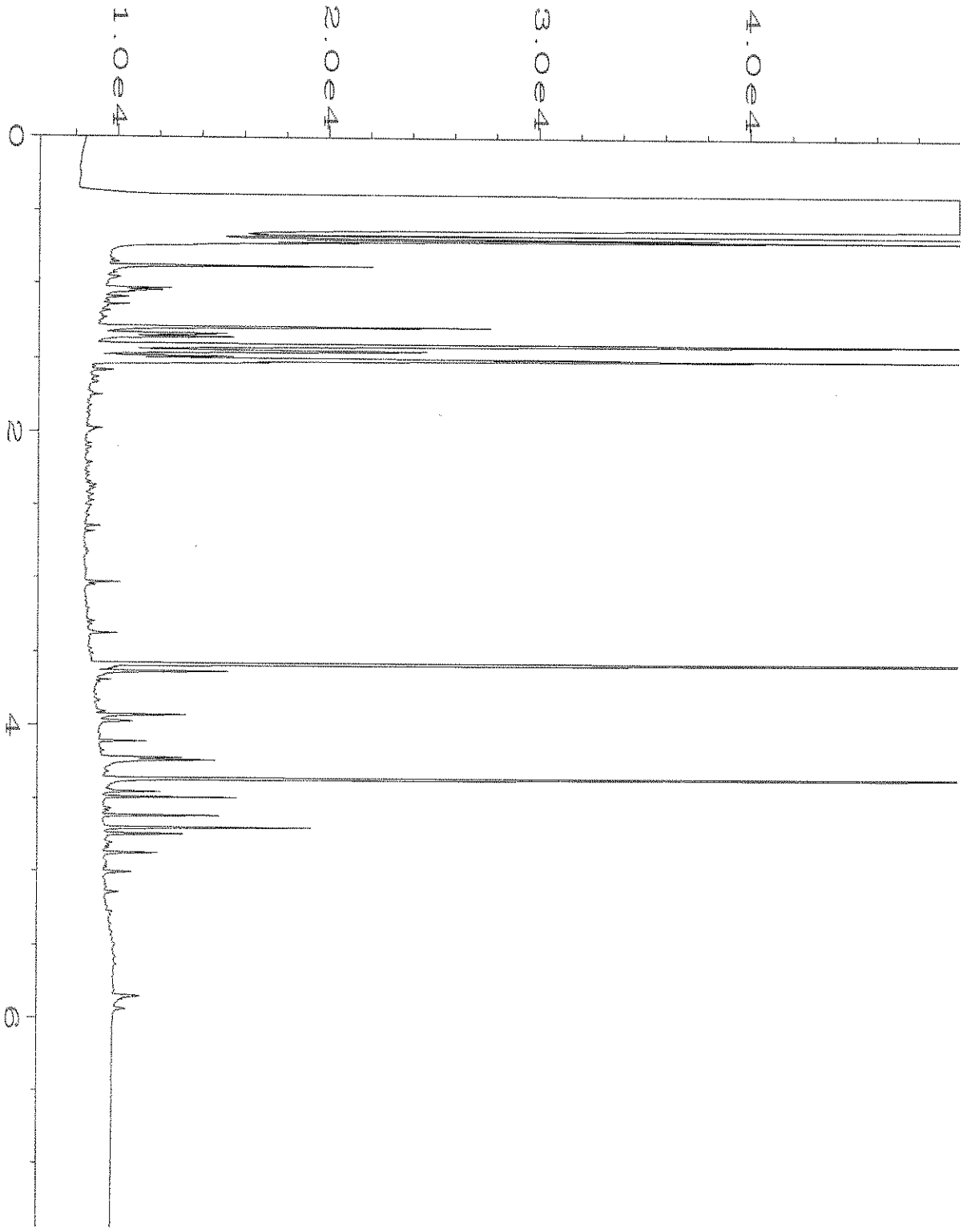
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 25
Sample Name	: 103392-07	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 22 Mar 21 06:21 PM	Instrument Method	: DX.MTH
Report Created on	: 23 Mar 21 09:32 AM	Analysis Method	: DEFAULT.MTH



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Operator : TL
Instrument : GC1
Sample Name : 103392-08
Run Time Bar Code:
Acquired on : 22 Mar 21 06:33 PM
Report Created on: 23 Mar 21 09:32 AM

Page Number : 1
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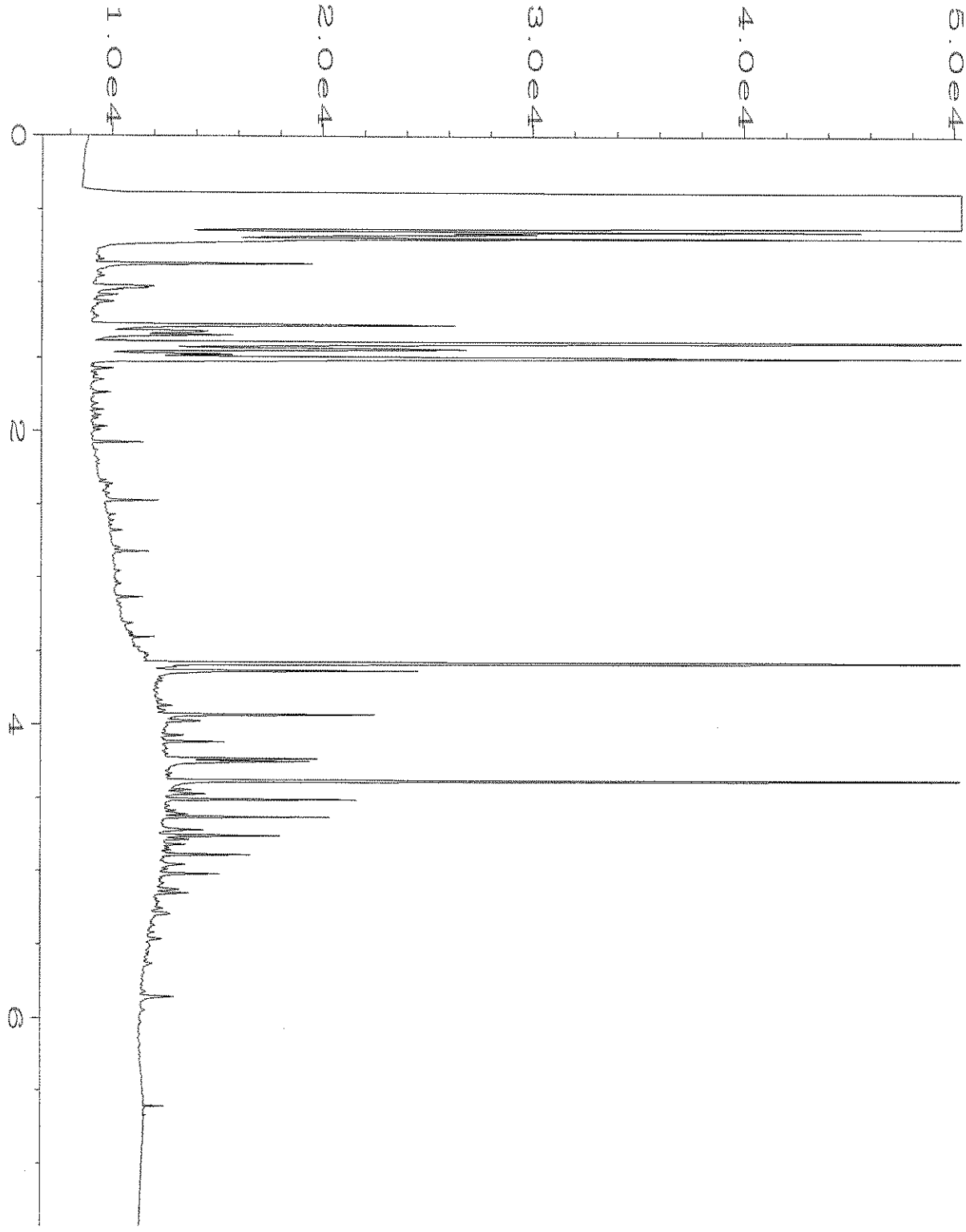
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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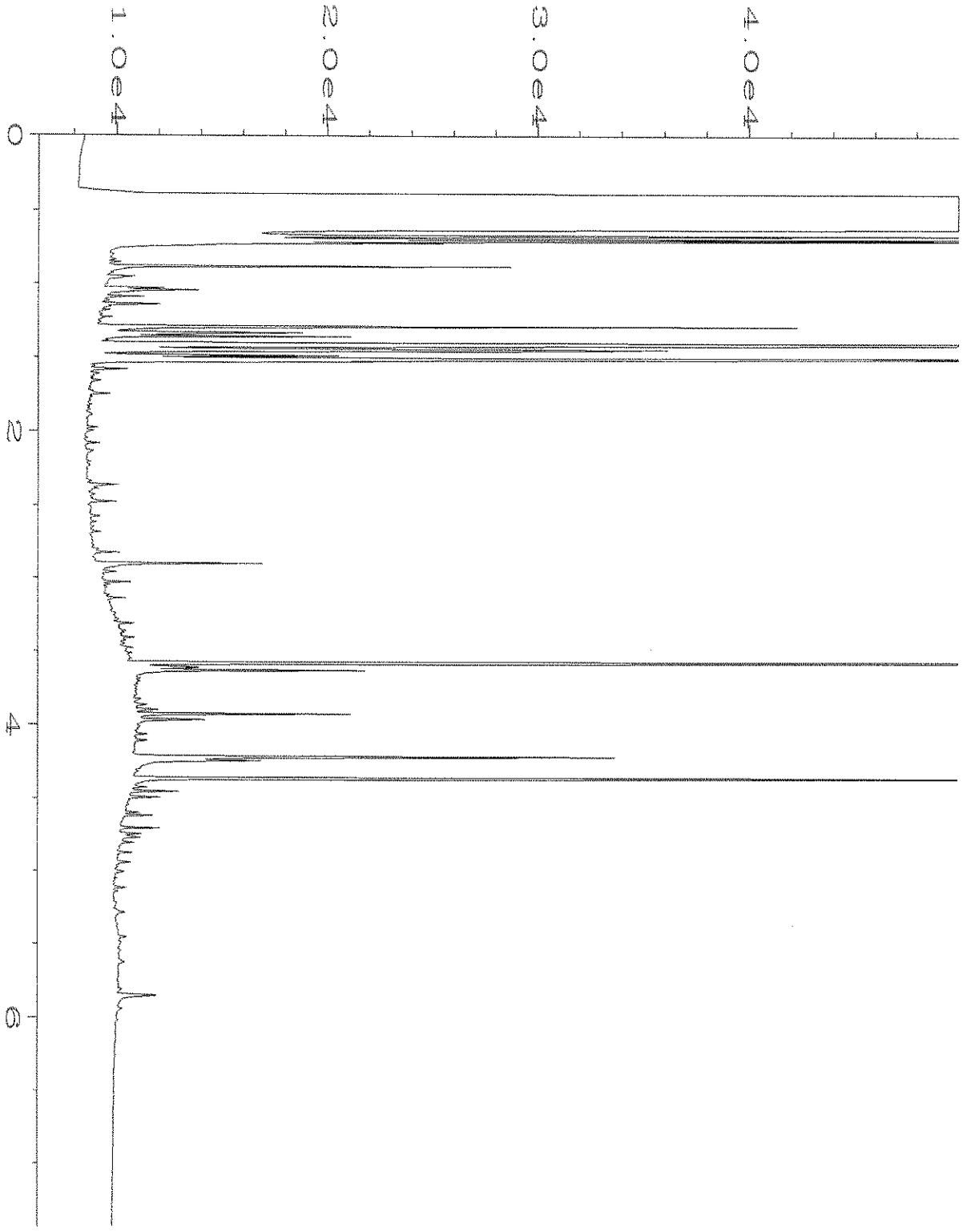
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 6
Sample Name	: 103392-09 rr	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 23 Mar 21 08:55 AM	Instrument Method	: DX.MTH
Report Created on	: 23 Mar 21 01:10 PM	Analysis Method	: DEFAULT.MTH



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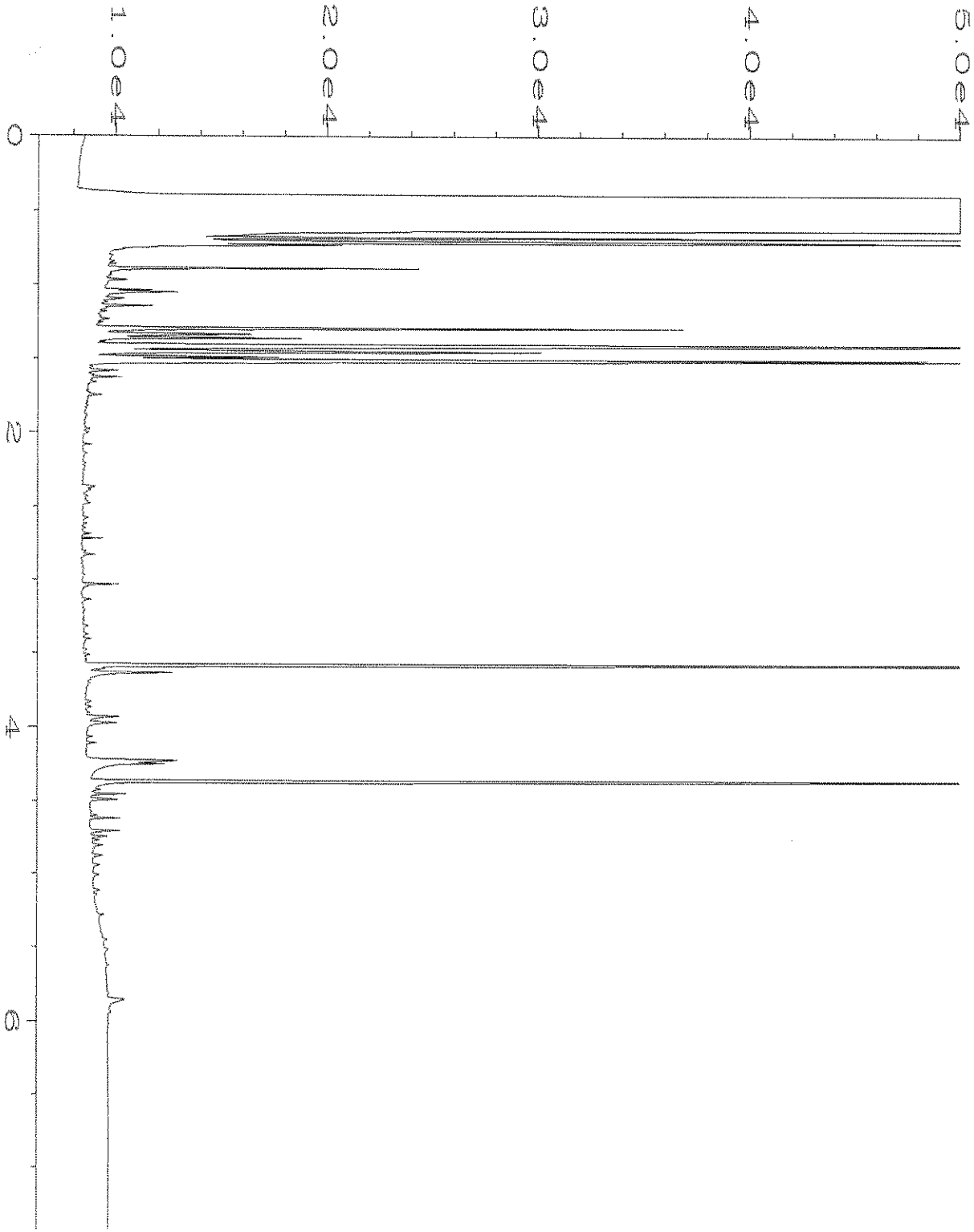
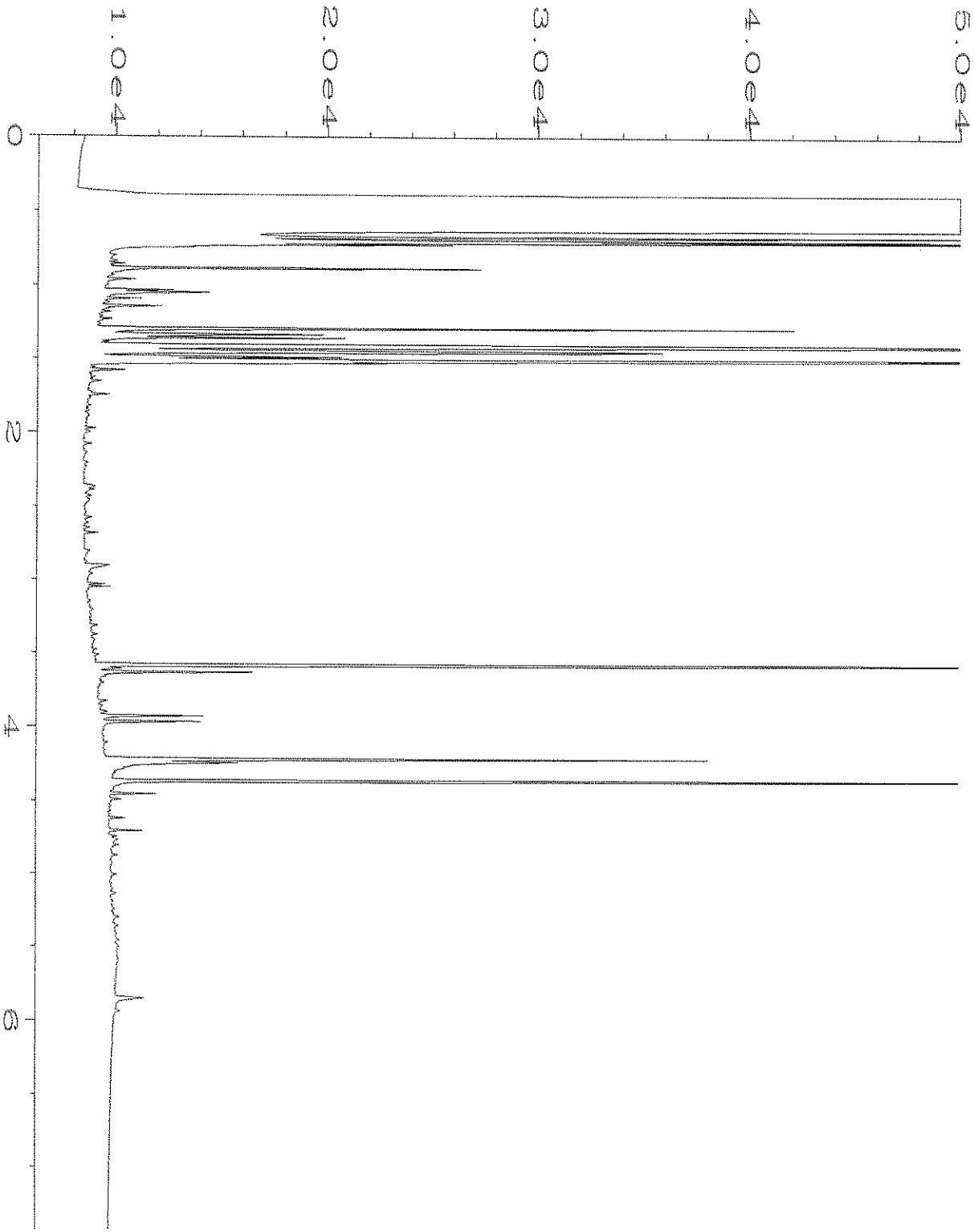
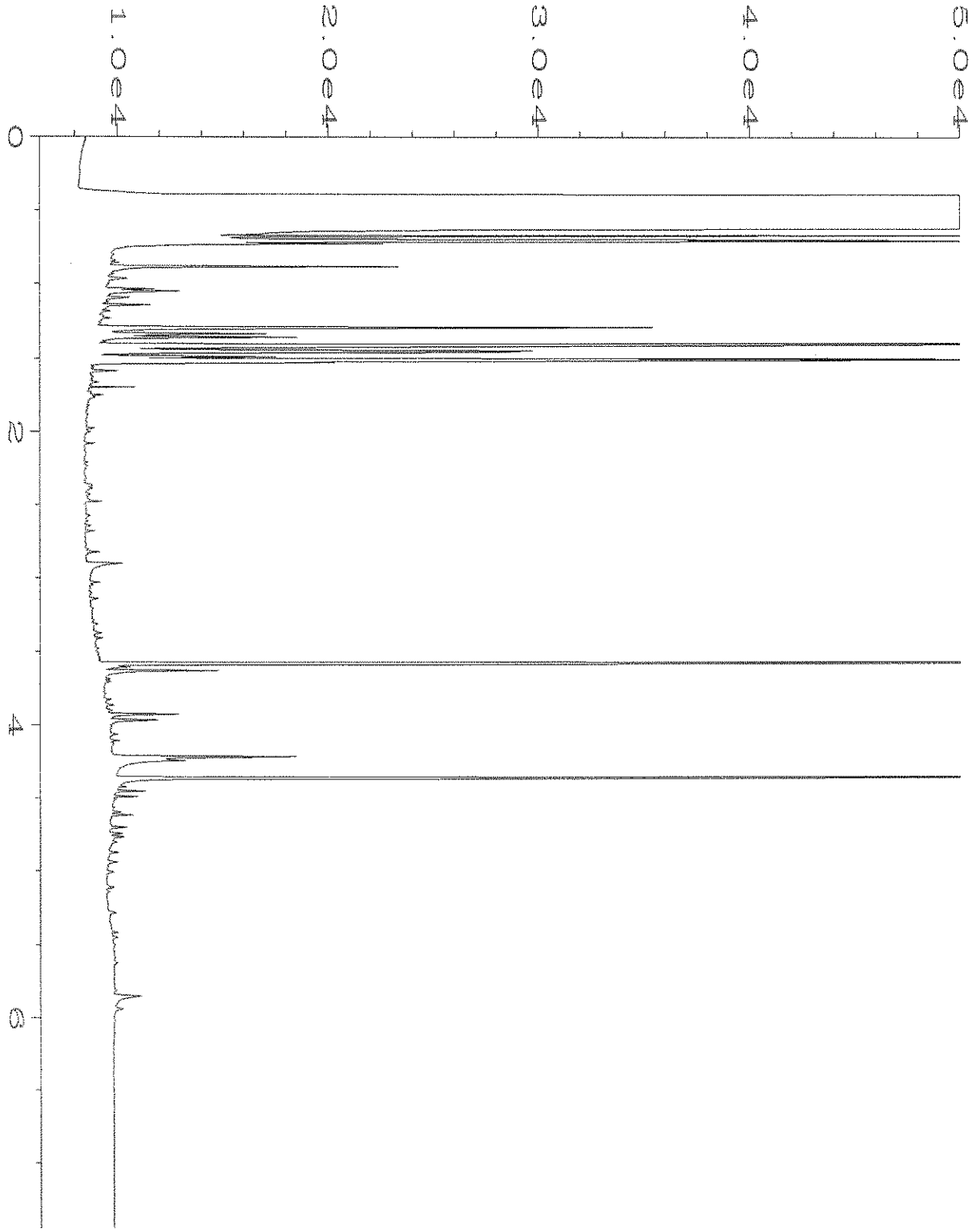
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 28
Sample Name	: 103392-10	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 22 Mar 21 06:55 PM	Instrument Method	: DX.MTH
Report Created on	: 23 Mar 21 09:32 AM	Analysis Method	: DEFAULT.MTH



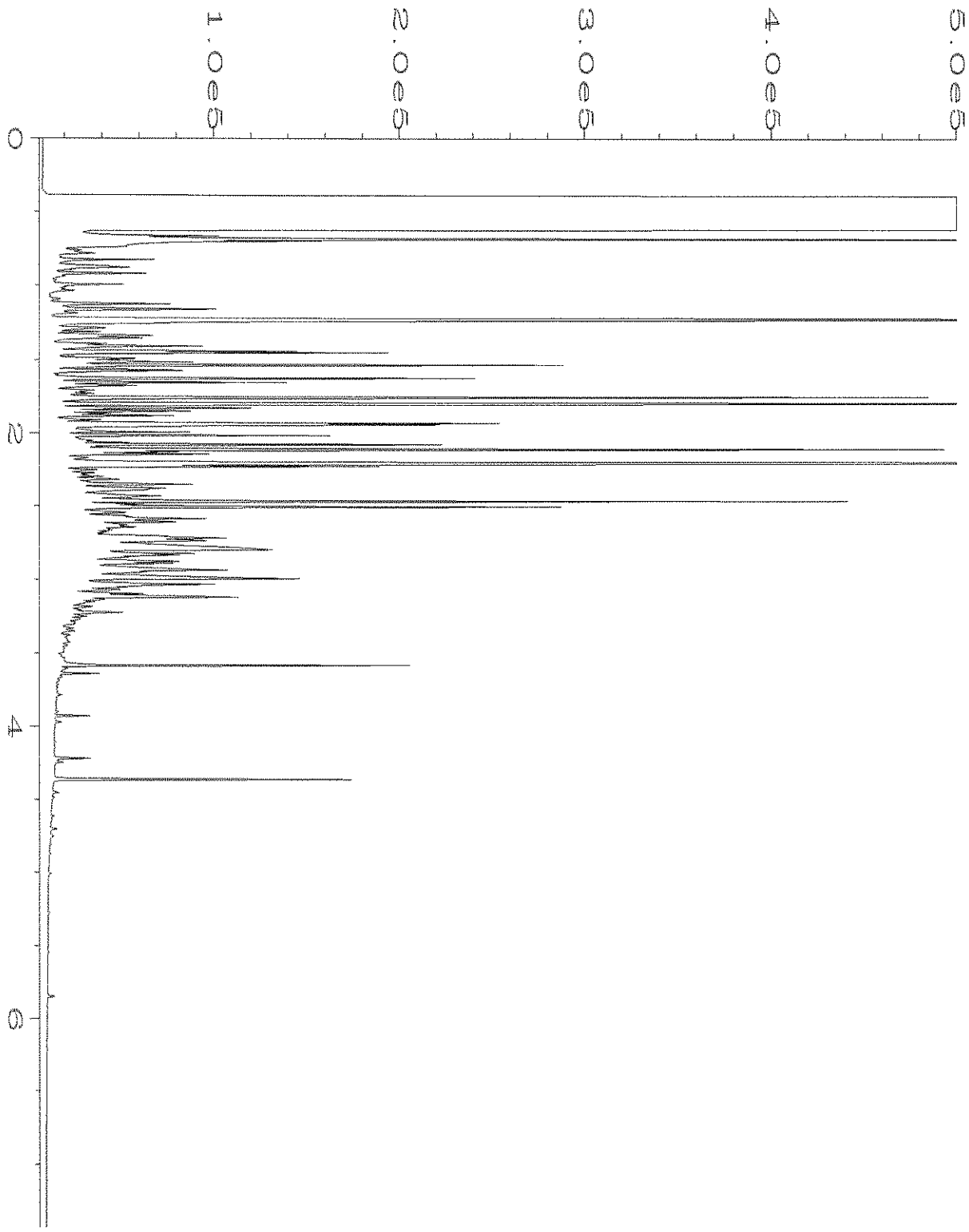
Data File Name	: C:\HPCHEM\1\DATA\03-22-21\029F1001.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 29
Sample Name	: 103392-11	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 22 Mar 21 07:07 PM	Instrument Method	: DX.MTH
Report Created on	: 23 Mar 21 09:33 AM	Analysis Method	: DEFAULT.MTH



Data File Name	: C:\HPCHEM\1\DATA\03-22-21\030F1001.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 30
Sample Name	: 103392-12	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 22 Mar 21 07:18 PM	Instrument Method	: DX.MTH
Report Created on	: 23 Mar 21 09:33 AM	Analysis Method	: DEFAULT.MTH

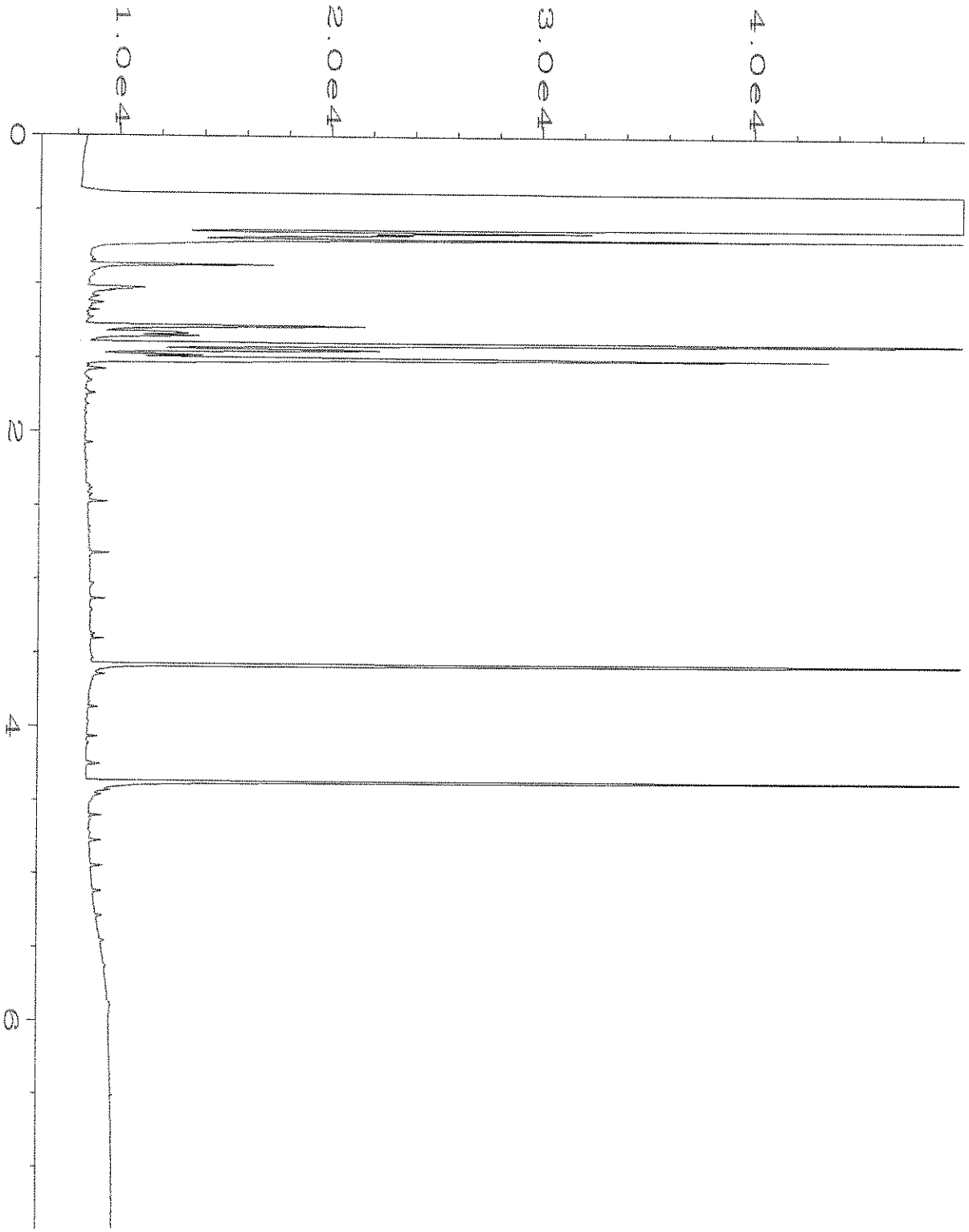


Data File Name	: C:\HPCHEM\1\DATA\03-22-21\031F1001.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 31
Sample Name	: 103392-13	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 22 Mar 21 07:29 PM	Instrument Method	: DX.MTH
Report Created on	: 23 Mar 21 09:33 AM	Analysis Method	: DEFAULT.MTH



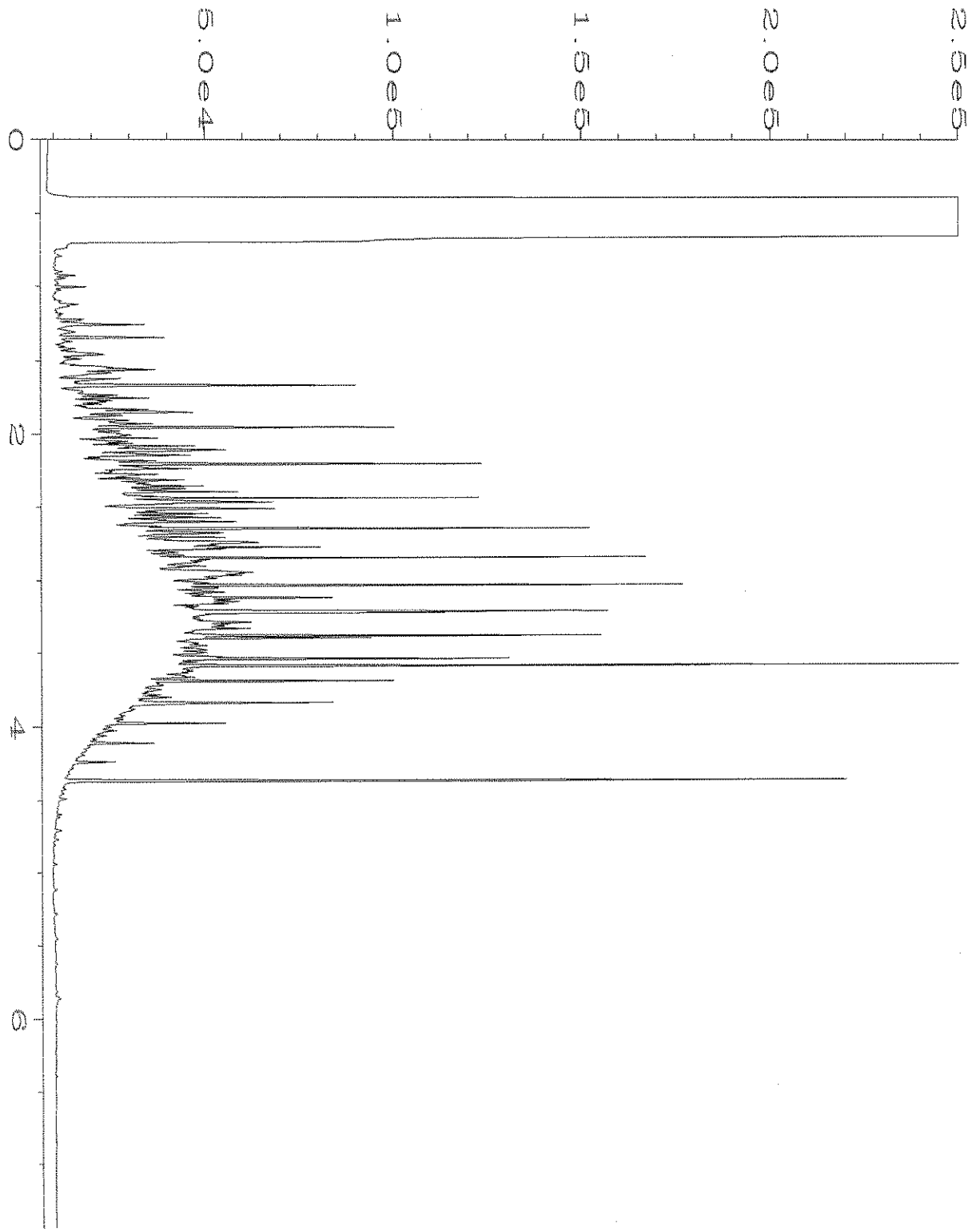
Data File Name : C:\HPCHEM\1\DATA\03-22-21\032F1001.D
Operator : TL
Instrument : GC1
Sample Name : 103392-14
Run Time Bar Code:
Acquired on : 22 Mar 21 07:41 PM
Report Created on: 23 Mar 21 09:33 AM

Page Number : 1
Vial Number : 32
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



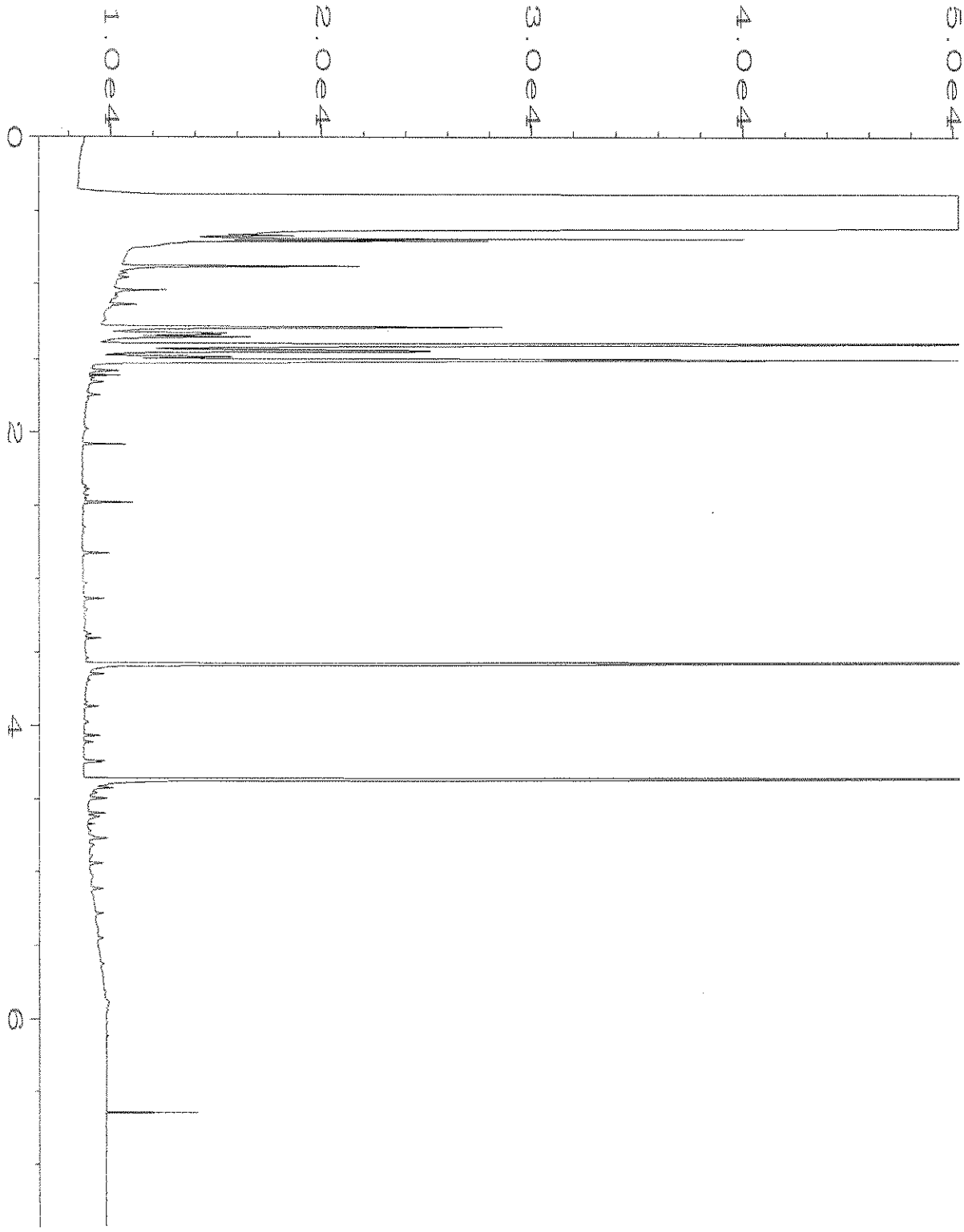
Data File Name : C:\HPCHEM\1\DATA\03-22-21\012F0801.D
Operator : TL
Instrument : GC1
Sample Name : 01-708 mb
Run Time Bar Code:
Acquired on : 22 Mar 21 03:33 PM
Report Created on: 23 Mar 21 09:33 AM

Page Number : 1
Vial Number : 12
Injection Number : 1
Sequence Line : 8
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

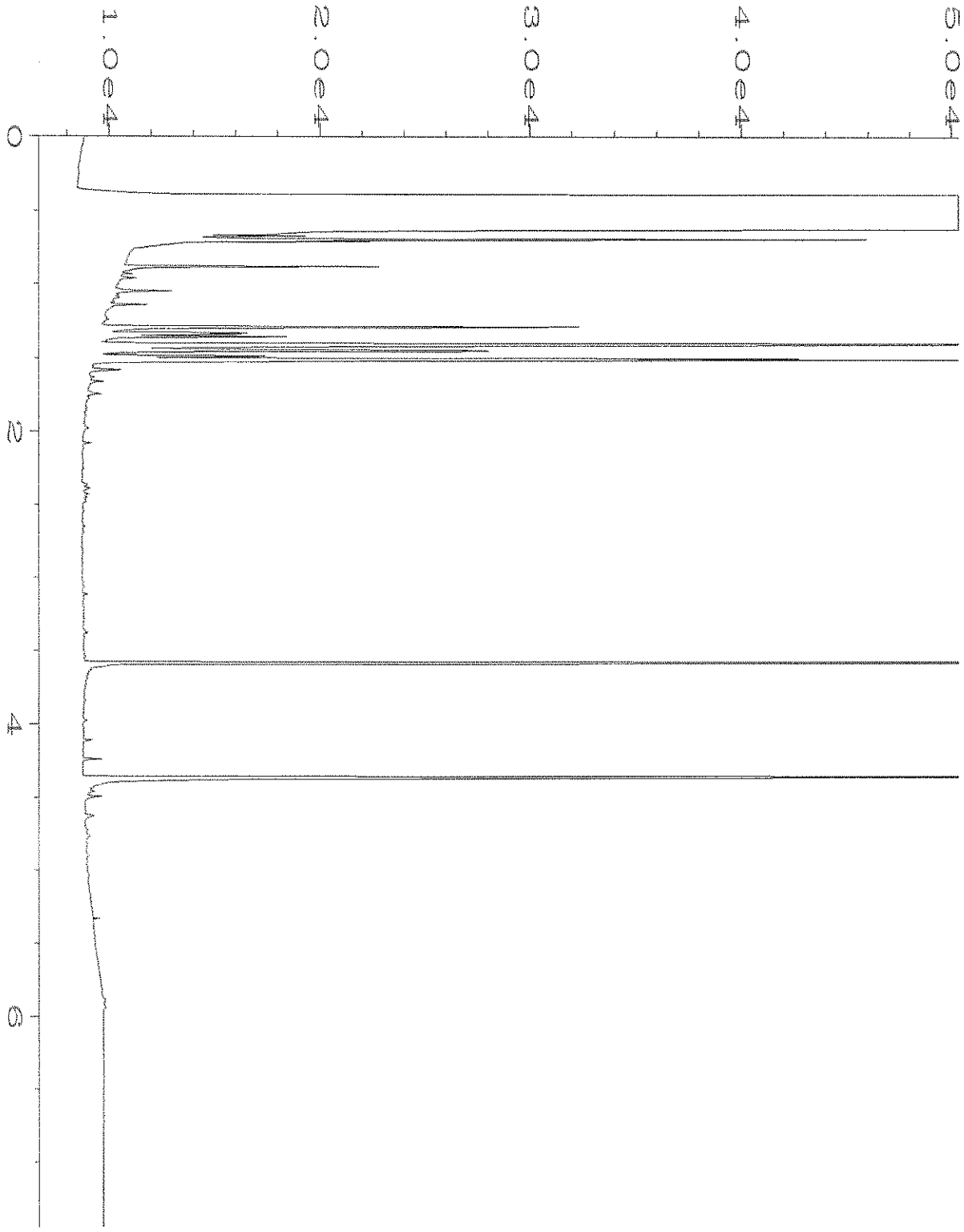


Data File Name : C:\HPCHEM\1\DATA\03-22-21\003F1301.D
Operator : TL
Instrument : GC1
Sample Name : 500 Dx 61-146D
Run Time Bar Code:
Acquired on : 22 Mar 21 11:15 PM
Report Created on: 23 Mar 21 09:33 AM

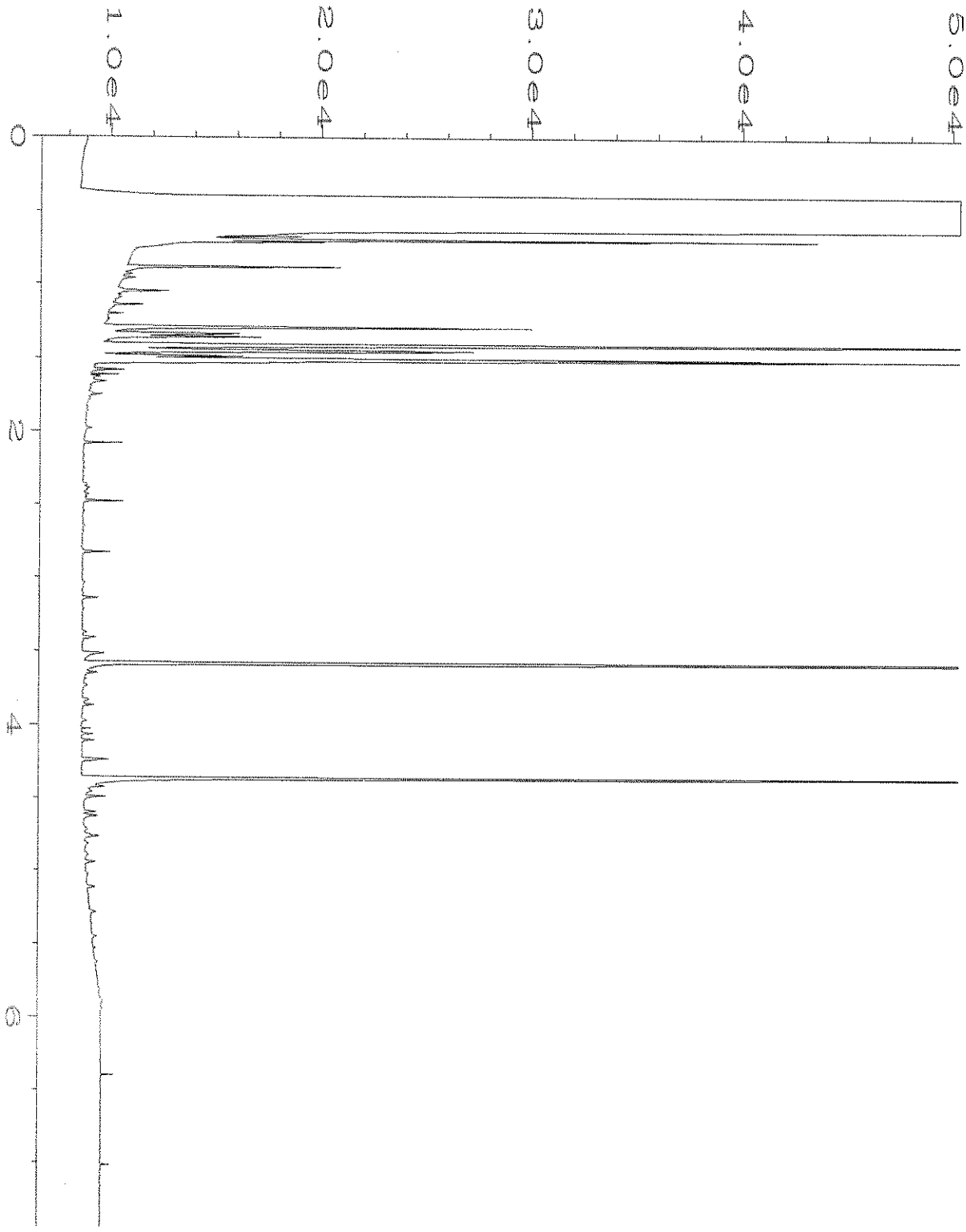
Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 13
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



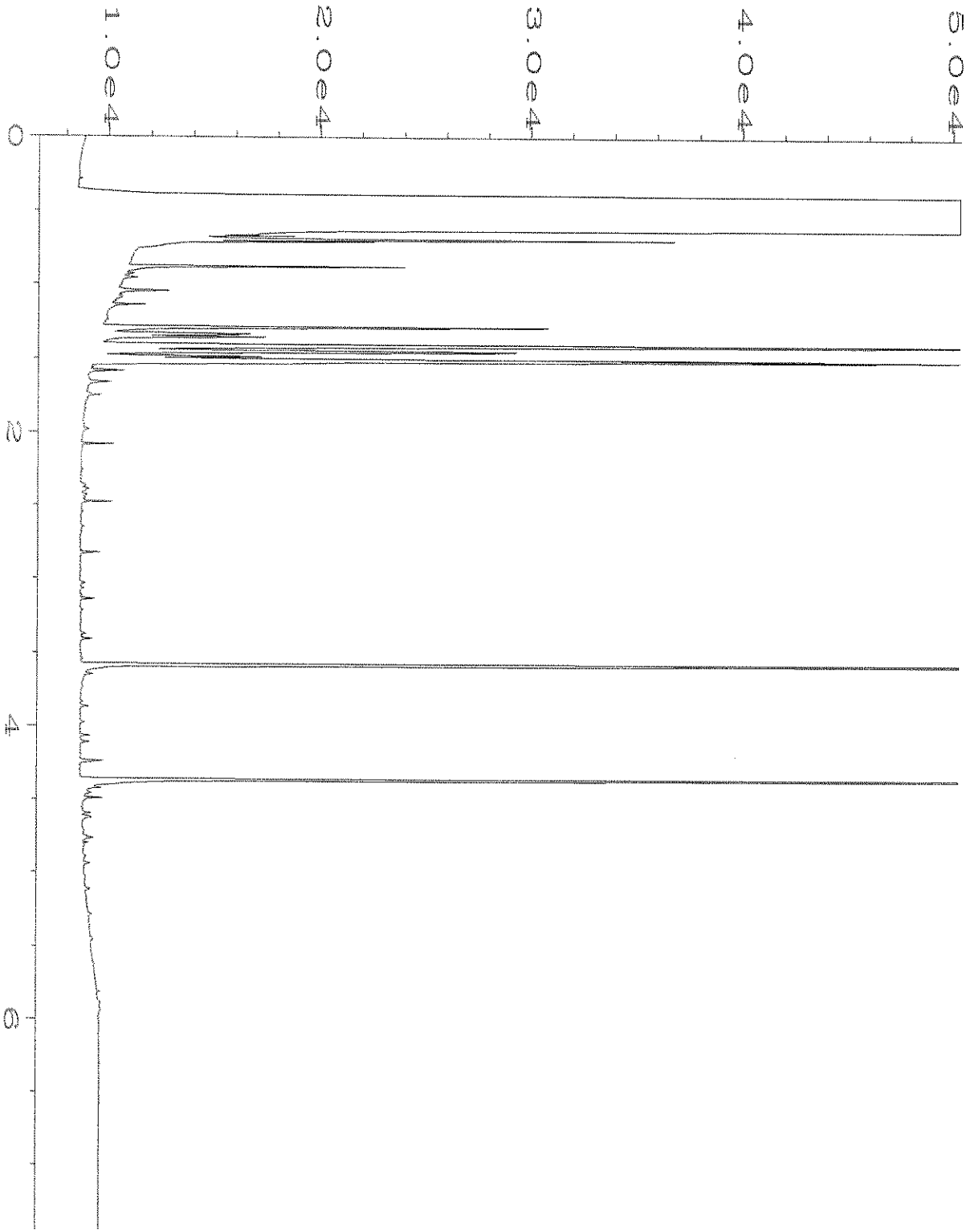
Data File Name	: C:\HPCHEM\1\DATA\03-23-21\044F1201.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 44
Sample Name	: 103392-01 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 12
Acquired on	: 23 Mar 21 06:39 PM	Instrument Method	: DX.MTH
Report Created on	: 24 Mar 21 08:32 AM	Analysis Method	: DEFAULT.MTH



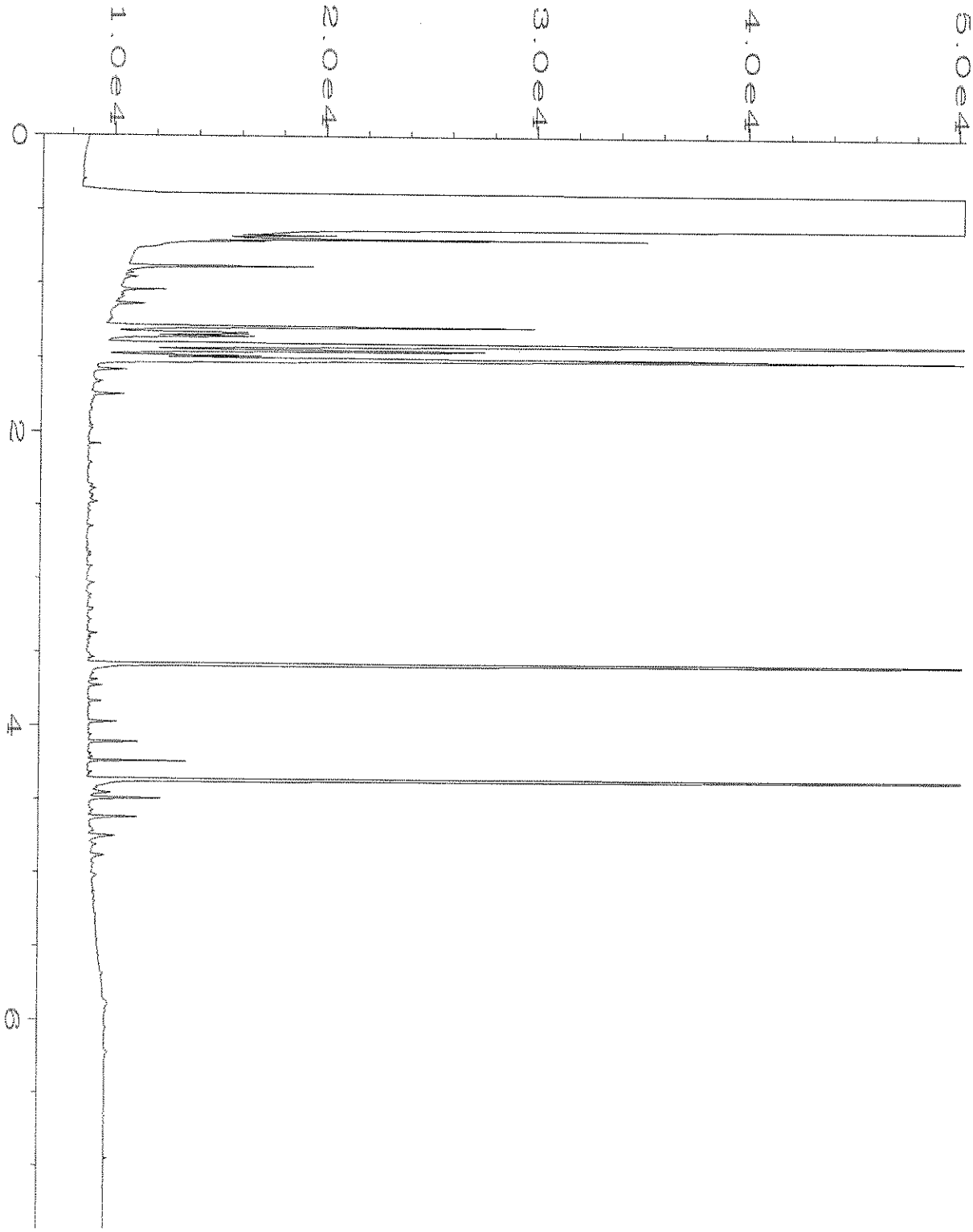
Data File Name	: C:\HPCHEM\1\DATA\03-23-21\045F1201.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 45
Sample Name	: 103392-02 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 12
Acquired on	: 23 Mar 21 06:51 PM	Instrument Method	: DX.MTH
Report Created on	: 24 Mar 21 08:32 AM	Analysis Method	: DEFAULT.MTH



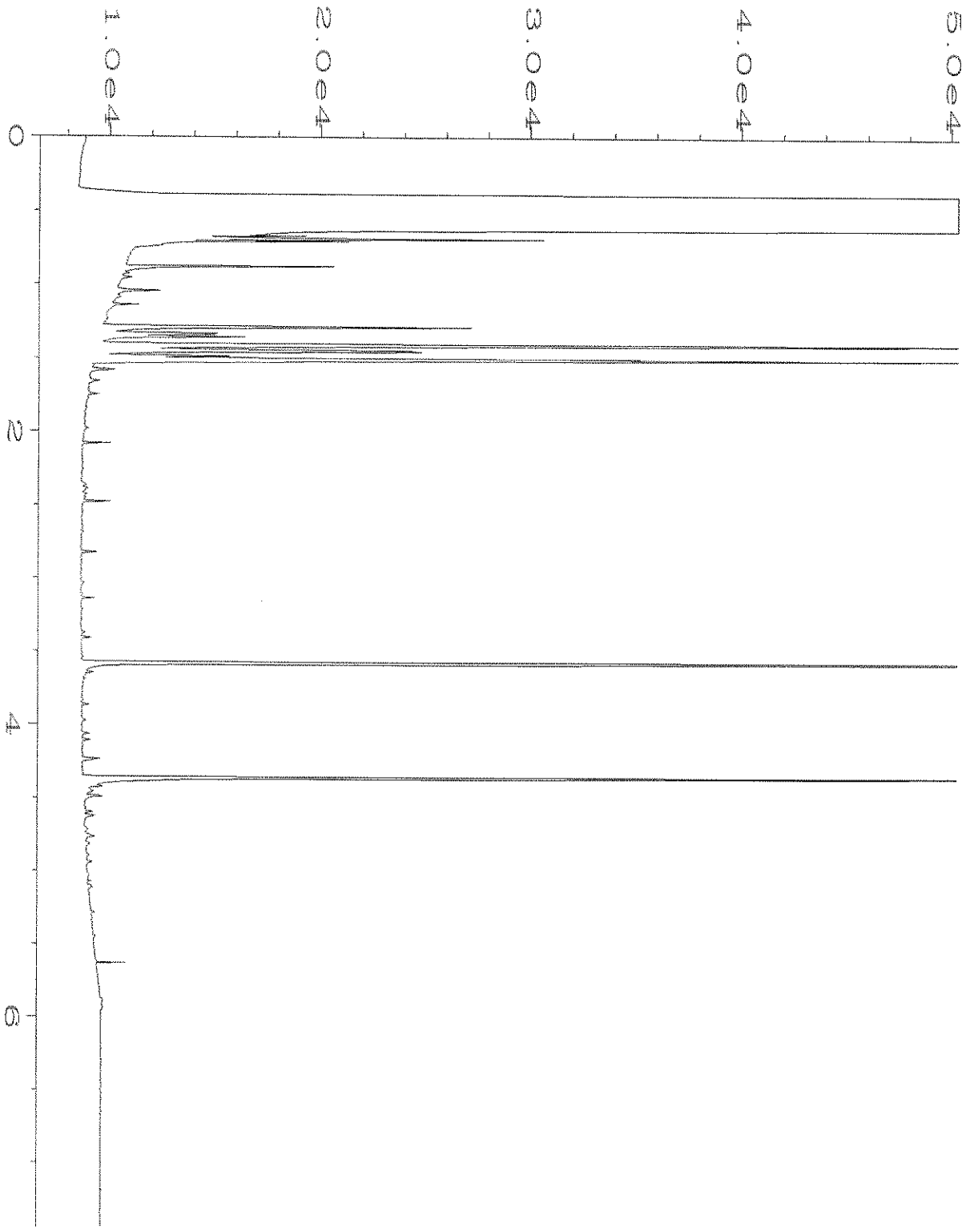
Data File Name	: C:\HPCHEM\1\DATA\03-23-21\046F1201.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 46
Sample Name	: 103392-03 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 12
Acquired on	: 23 Mar 21 07:02 PM	Instrument Method	: DX.MTH
Report Created on	: 24 Mar 21 08:32 AM	Analysis Method	: DEFAULT.MTH



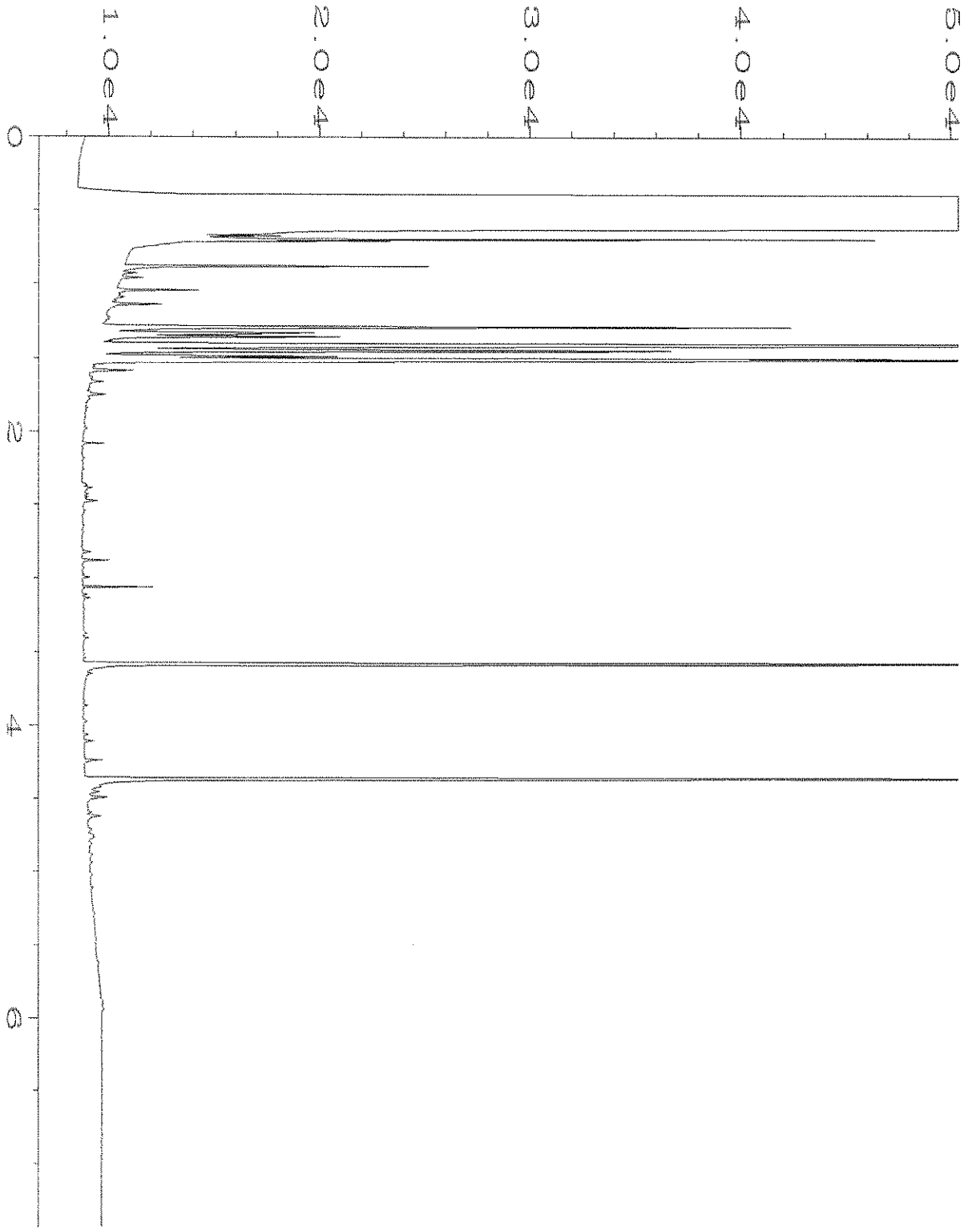
Data File Name	: C:\HPCHEM\1\DATA\03-23-21\047F1201.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 47
Sample Name	: 103392-04 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 12
Acquired on	: 23 Mar 21 07:14 PM	Instrument Method	: DX.MTH
Report Created on	: 24 Mar 21 08:32 AM	Analysis Method	: DEFAULT.MTH



Data File Name	: C:\HPCHEM\1\DATA\03-23-21\048F1401.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 48
Sample Name	: 103392-05 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 14
Acquired on	: 23 Mar 21 07:48 PM	Instrument Method	: DX.MTH
Report Created on	: 24 Mar 21 08:33 AM	Analysis Method	: DEFAULT.MTH

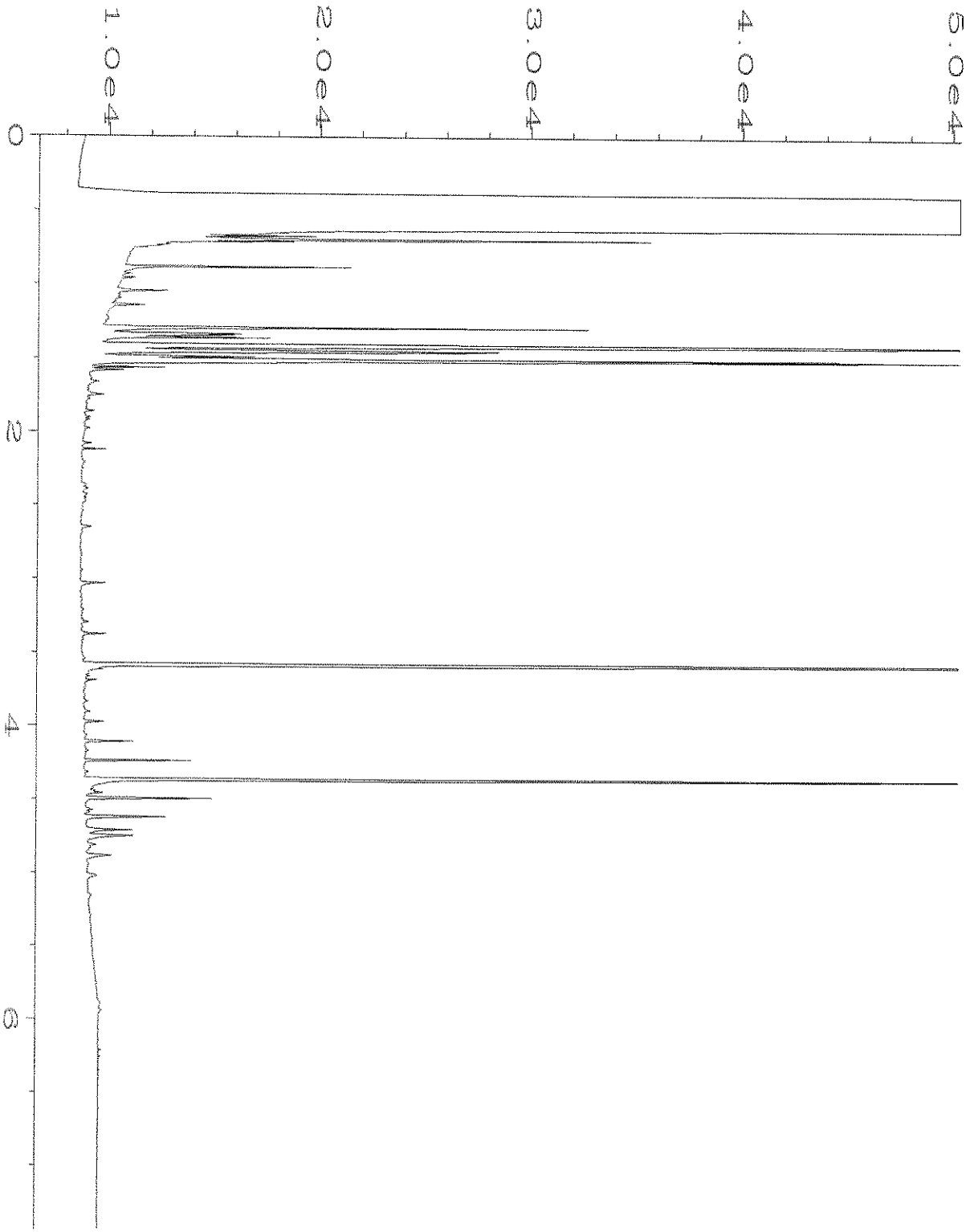


Data File Name	: C:\HPCHEM\1\DATA\03-23-21\049F1401.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 49
Sample Name	: 103392-06 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 14
Acquired on	: 23 Mar 21 08:00 PM	Instrument Method	: DX.MTH
Report Created on	: 24 Mar 21 08:33 AM	Analysis Method	: DEFAULT.MTH

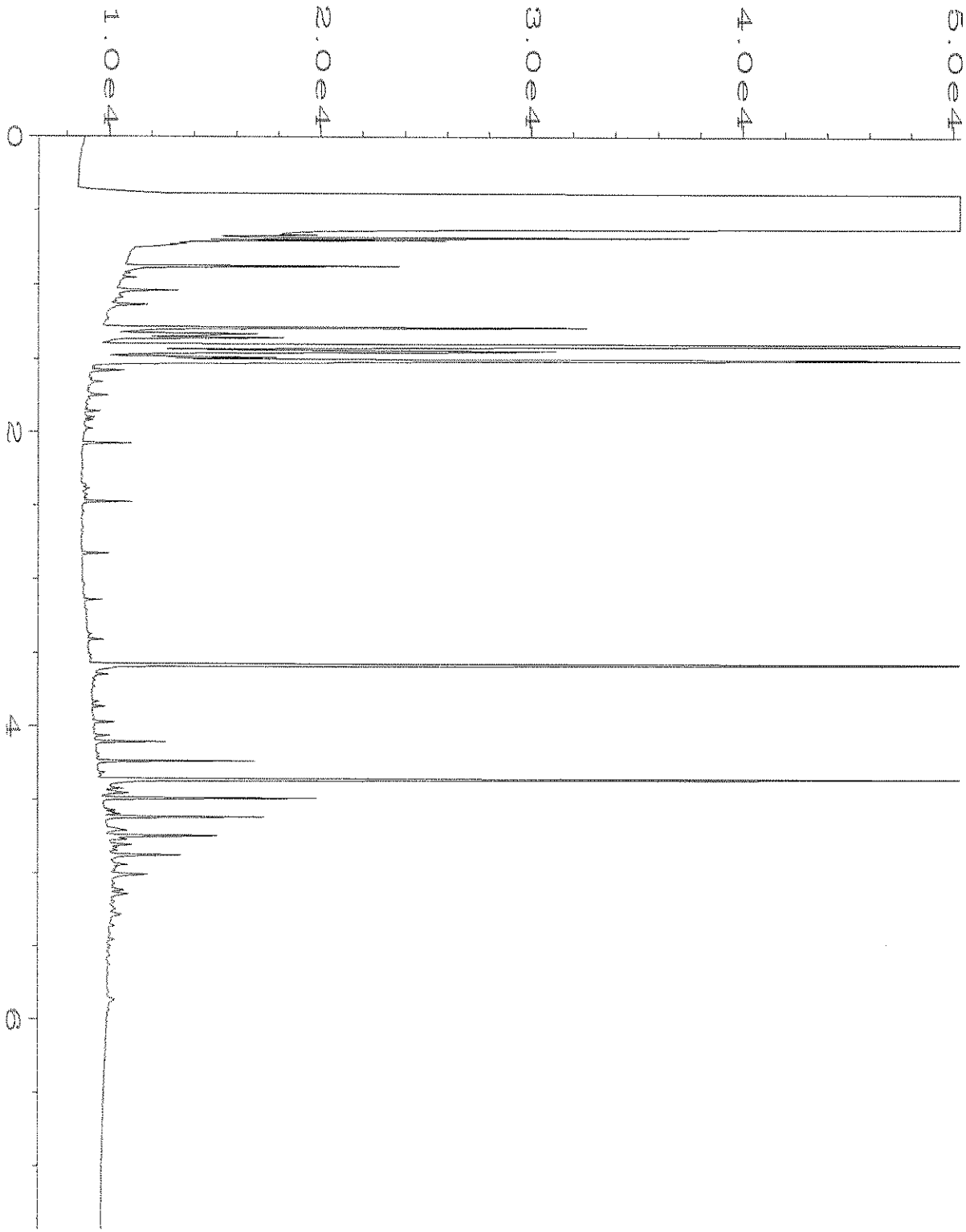


Data File Name : C:\HPCHEM\1\DATA\03-23-21\050F1401.D
Operator : TL
Instrument : GC1
Sample Name : 103392-07 sg
Run Time Bar Code:
Acquired on : 23 Mar 21 08:11 PM
Report Created on: 24 Mar 21 08:33 AM

Page Number : 1
Vial Number : 50
Injection Number : 1
Sequence Line : 14
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

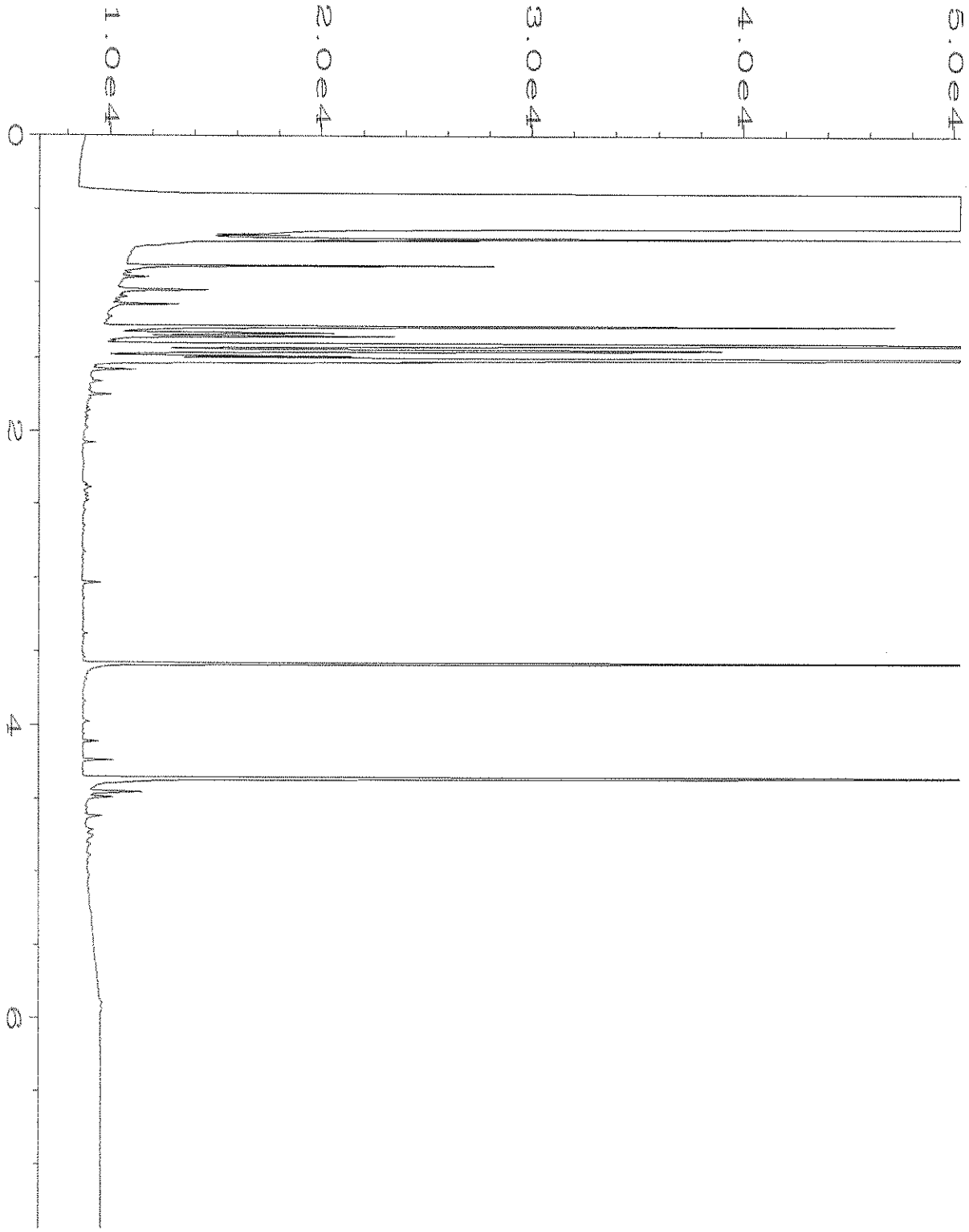


Data File Name	: C:\HPCHEM\1\DATA\03-23-21\051F1401.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 51
Sample Name	: 103392-08 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 14
Acquired on	: 23 Mar 21 08:23 PM	Instrument Method	: DX.MTH
Report Created on	: 24 Mar 21 08:33 AM	Analysis Method	: DEFAULT.MTH

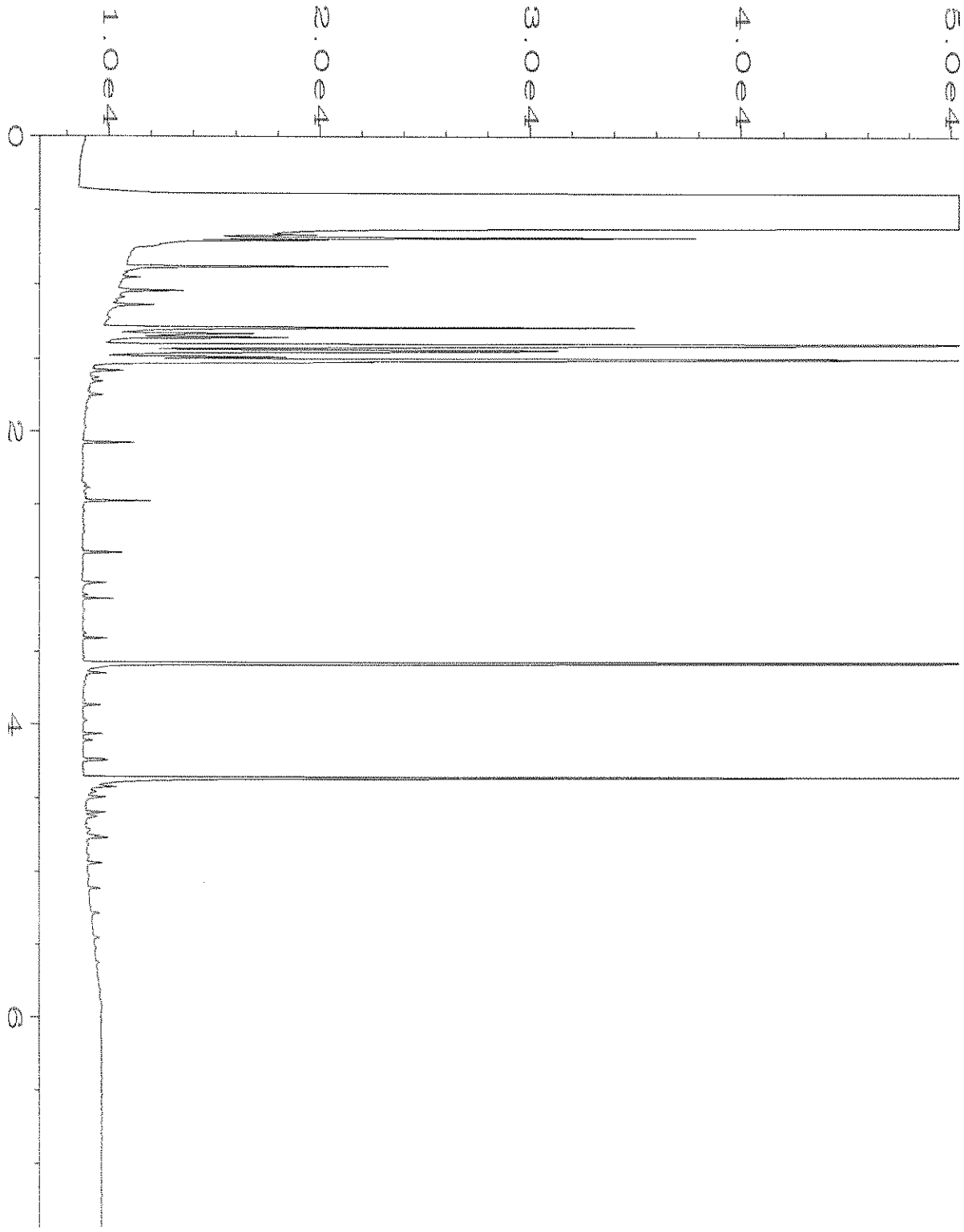


Data File Name : C:\HPCHEM\1\DATA\03-23-21\052F1401.D
Operator : TL
Instrument : GC1
Sample Name : 103392-09 sg
Run Time Bar Code:
Acquired on : 23 Mar 21 08:34 PM
Report Created on: 24 Mar 21 08:33 AM

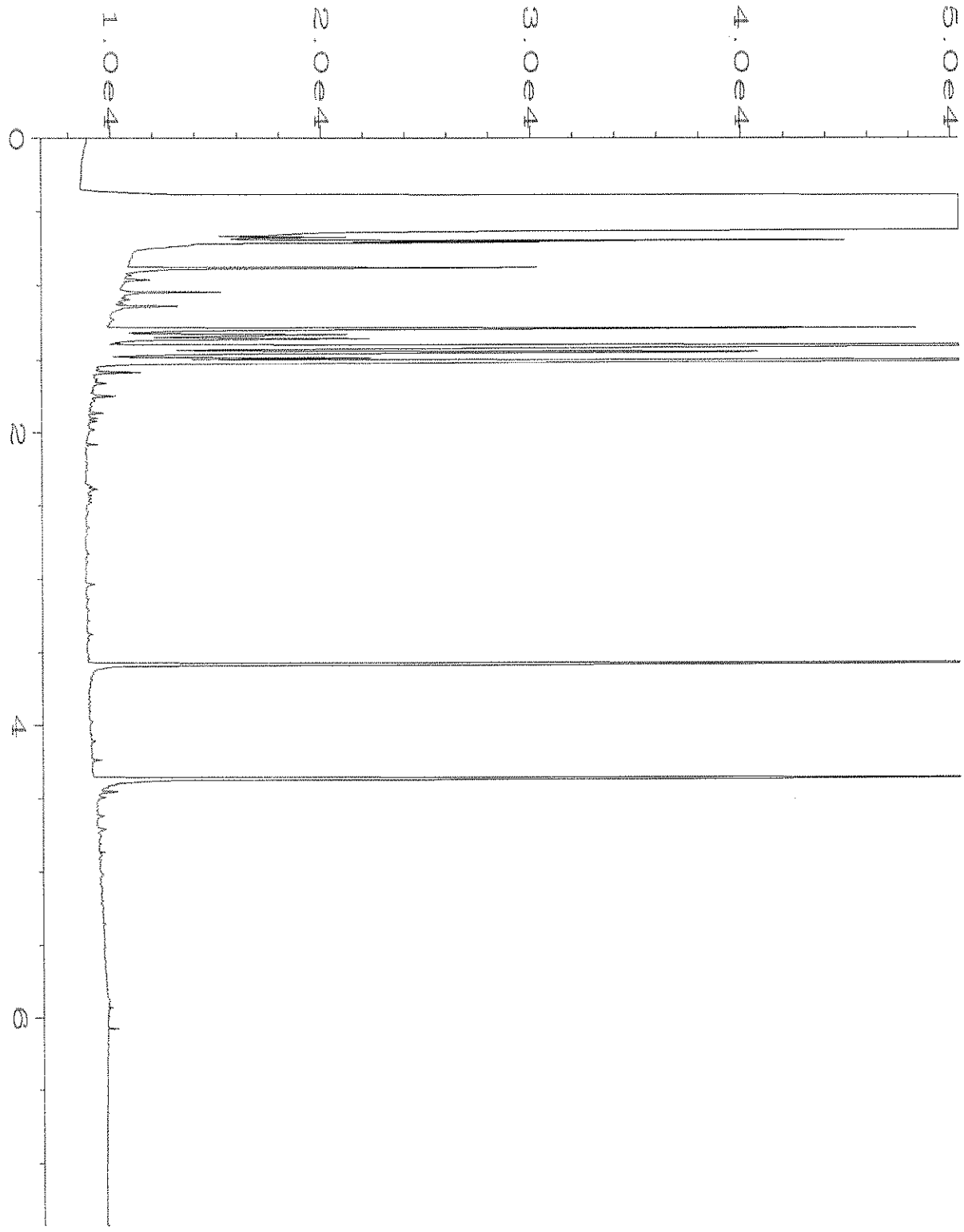
Page Number : 1
Vial Number : 52
Injection Number : 1
Sequence Line : 14
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name	: C:\HPCHEM\1\DATA\03-23-21\053F1401.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 53
Sample Name	: 103392-10 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 14
Acquired on	: 23 Mar 21 08:45 PM	Instrument Method	: DX.MTH
Report Created on	: 24 Mar 21 08:33 AM	Analysis Method	: DEFAULT.MTH

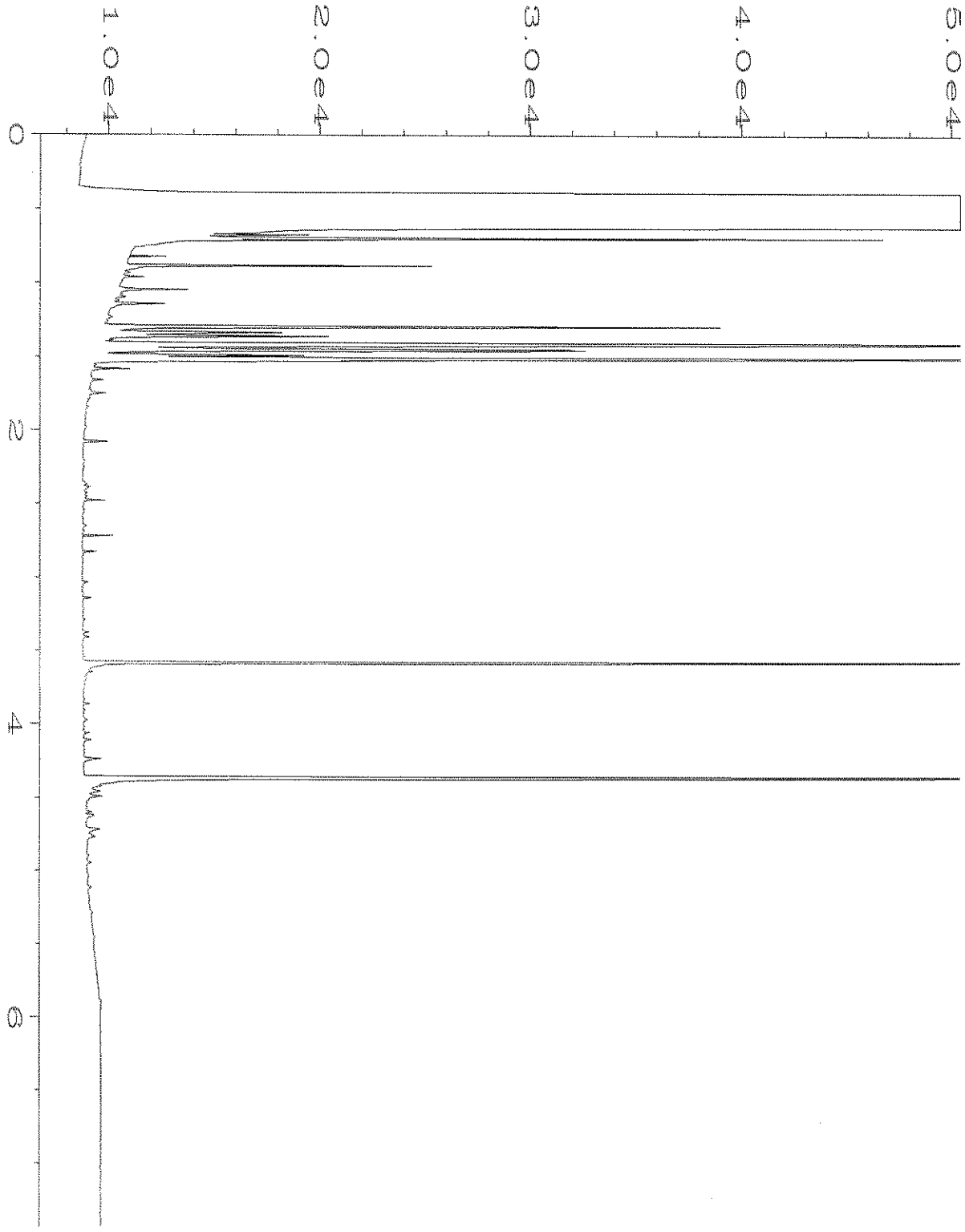


Data File Name	: C:\HPCHEM\1\DATA\03-23-21\054F1401.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 54
Sample Name	: 103392-11 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 14
Acquired on	: 23 Mar 21 08:57 PM	Instrument Method	: DX.MTH
Report Created on	: 24 Mar 21 08:33 AM	Analysis Method	: DEFAULT.MTH

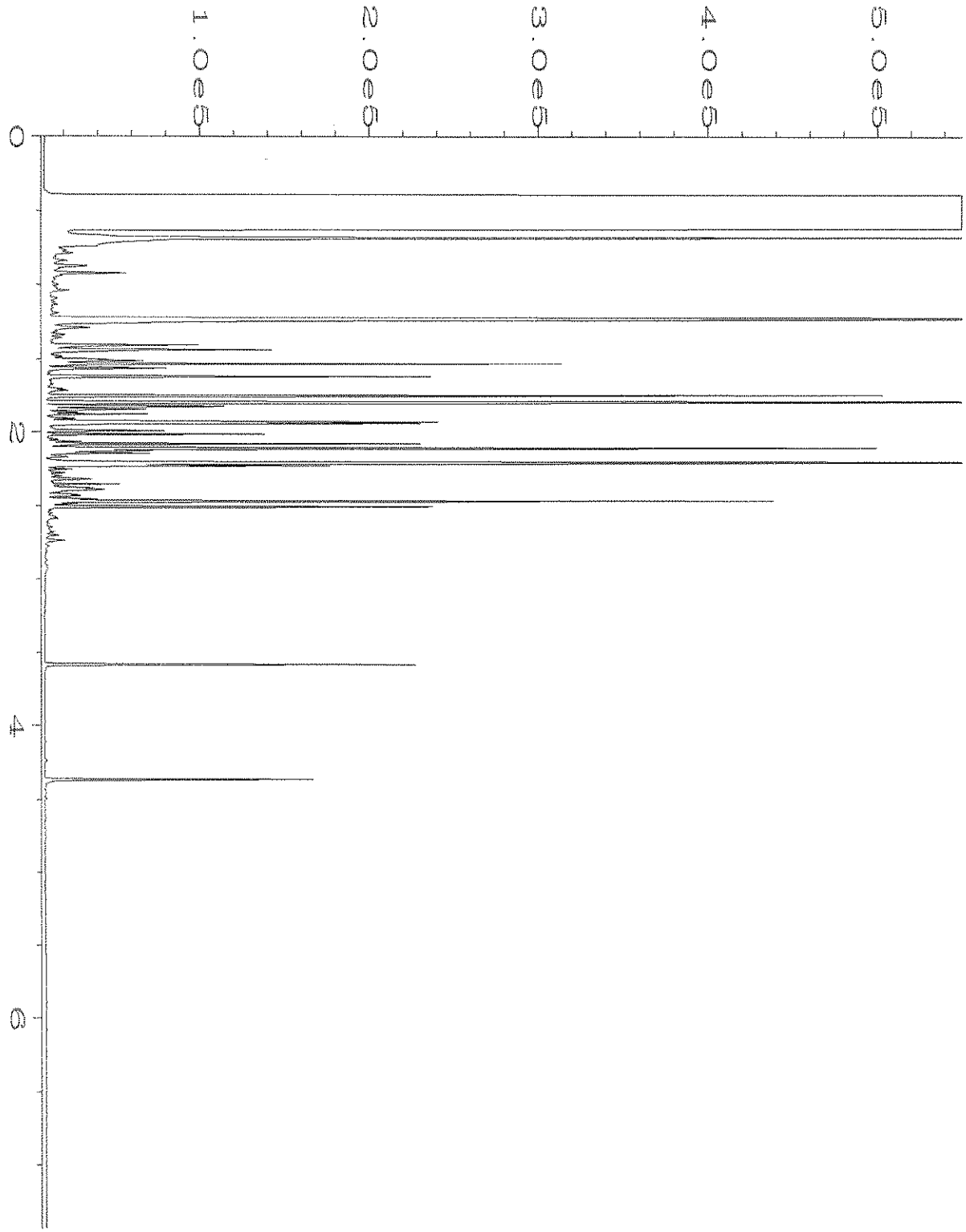


Data File Name : C:\HPCHEM\1\DATA\03-23-21\055F1401.D
Operator : TL
Instrument : GC1
Sample Name : 103392-12 sg
Run Time Bar Code:
Acquired on : 23 Mar 21 09:08 PM
Report Created on: 24 Mar 21 08:34 AM

Page Number : 1
Vial Number : 55
Injection Number : 1
Sequence Line : 14
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

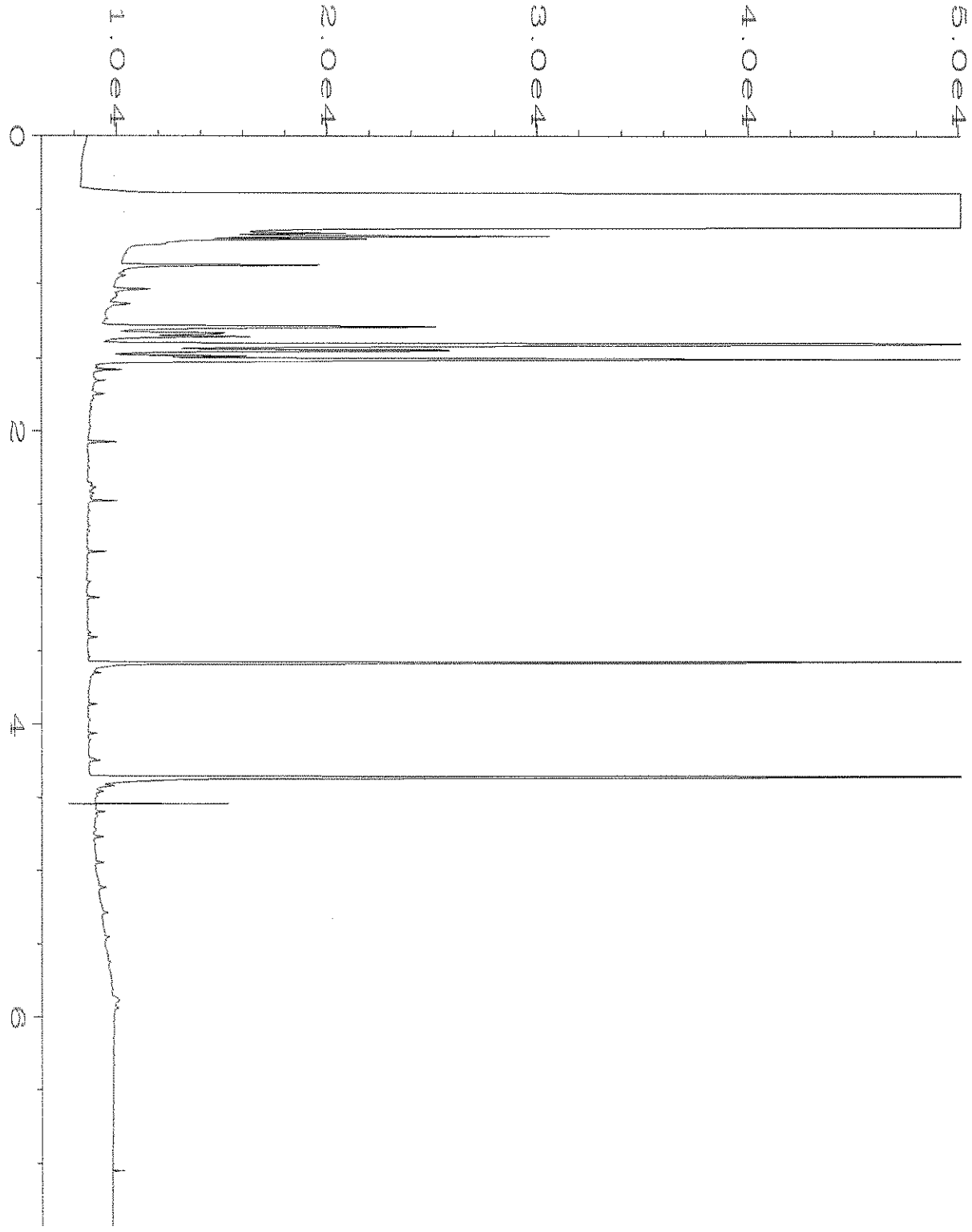


Data File Name	: C:\HPCHEM\1\DATA\03-23-21\056F1401.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 56
Sample Name	: 103392-13 sg	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 14
Acquired on	: 23 Mar 21 09:20 PM	Instrument Method	: DX.MTH
Report Created on	: 24 Mar 21 08:34 AM	Analysis Method	: DEFAULT.MTH



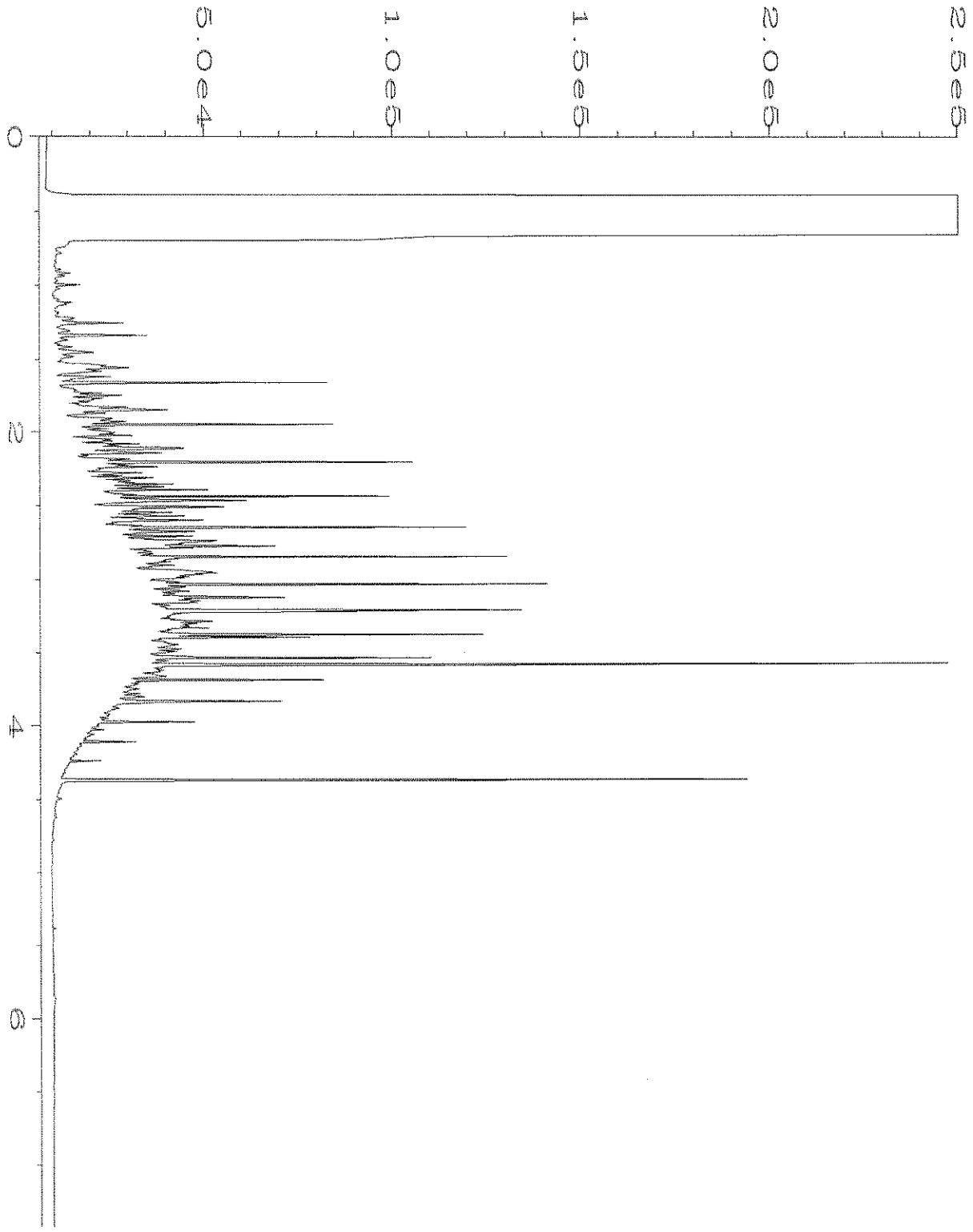
Data File Name : C:\HPCHEM\1\DATA\03-23-21\057F1401.D
Operator : TL
Instrument : GC1
Sample Name : 103392-14 sg
Run Time Bar Code:
Acquired on : 23 Mar 21 09:31 PM
Report Created on: 24 Mar 21 08:34 AM

Page Number : 1
Vial Number : 57
Injection Number : 1
Sequence Line : 14
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\1\DATA\03-23-21\037F1201.D
Operator : TL
Instrument : GC1
Sample Name : 01-708 mb sg
Run Time Bar Code:
Acquired on : 23 Mar 21 05:22 PM
Report Created on: 24 Mar 21 08:34 AM

Page Number : 1
Vial Number : 37
Injection Number : 1
Sequence Line : 12
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\1\DATA\03-23-21\003F1001.D
Operator : TL
Instrument : GC1
Sample Name : 500 Dx 61-146D
Run Time Bar Code:
Acquired on : 23 Mar 21 04:41 PM
Report Created on: 24 Mar 21 08:34 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
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October 7, 2021

Mindy Graddon, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

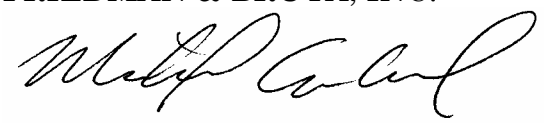
Dear Ms Graddon:

Included are the results from the testing of material submitted on September 20, 2021 from the Buckley Library 2000-044, F&BI 109347 project. There are 24 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: EHSI A/P, Tom Cammarata
EHS1007R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 20, 2021 by Friedman & Bruya, Inc. from the EHSI Buckley Library 2000-044, F&BI 109347 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EHSI
109347 -01	MW02-20210920
109347 -02	MW99-20210920
109347 -03	MW11-20210920
109347 -04	MW10-20210920
109347 -05	MW05-20210920
109347 -06	MW12-20210920
109347 -07	MW07-20210920
109347 -08	MW13-20210920
109347 -09	MW06-20210920
109347 -10	MW09-20210920
109347 -11	MW08-20210920

Sample MW06-20210920 was sent to Fremont Analytical for EPH and VPH analyses. The report is enclosed.

All quality control requirements were acceptable.

Date of Report: 10/07/21
Date Received: 09/20/21
Project: Buckley Library 2000-044, F&BI 109347
Date Extracted: 09/21/21
Date Analyzed: 09/22/21

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW02-20210920 109347-01	<100	91
MW99-20210920 109347-02 1/10	15,000	83
MW11-20210920 109347-03	<100	95
MW10-20210920 109347-04	<100	95
MW05-20210920 109347-05	<100	91
MW12-20210920 109347-06	<100	93
MW07-20210920 109347-07	<100	91
MW13-20210920 109347-08 1/5	5,700	83
MW06-20210920 109347-09 1/5	14,000	84
MW09-20210920 109347-10	<100	88
MW08-20210920 109347-11	<100	90
Method Blank 01-1949 MB	<100	95

Date of Report: 10/07/21
Date Received: 09/20/21
Project: Buckley Library 2000-044, F&BI 109347
Date Extracted: 09/21/21
Date Analyzed: 09/21/21

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW02-20210920 109347-01	<50	<250	93
MW99-20210920 109347-02	4,800 x	<250	105
MW11-20210920 109347-03	56 x	<250	98
MW10-20210920 109347-04	<50	<250	112
MW05-20210920 109347-05	<50	<250	101
MW12-20210920 109347-06	91	<250	118
MW07-20210920 109347-07	200 x	<250	96
MW13-20210920 109347-08	1,400 x	<250	112
MW06-20210920 109347-09	4,000 x	<250	93
MW09-20210920 109347-10	<50	<250	107
MW08-20210920 109347-11	180 x	<250	118
Method Blank 01-2164 MB2	<50	<250	91

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW06-20210920	Client:	EHSI
Date Received:	09/20/21	Project:	Buckley Library 2000-044
Date Extracted:	09/21/21	Lab ID:	109347-09 1/2
Date Analyzed:	09/22/21	Data File:	092137.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	53	10	60
Phenol-d6	39	10	49
Nitrobenzene-d5	1 ip	15	144
2-Fluorobiphenyl	61	25	128
2,4,6-Tribromophenol	88	10	142
Terphenyl-d14	79	41	138

Compounds:	Concentration ug/L (ppb)
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW06-20210920	Client:	EHSI
Date Received:	09/20/21	Project:	Buckley Library 2000-044
Date Extracted:	09/21/21	Lab ID:	109347-09 1/100
Date Analyzed:	09/22/21	Data File:	092216.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	44 d	11	65
Phenol-d6	37 d	11	65
Nitrobenzene-d5	70 d	50	150
2-Fluorobiphenyl	55 d	44	108
2,4,6-Tribromophenol	67 d	10	140
Terphenyl-d14	80 d	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	430
2-Methylnaphthalene	140
1-Methylnaphthalene	73

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library 2000-044
Date Extracted:	09/21/21	Lab ID:	01-2166 mb2 1/2
Date Analyzed:	09/22/21	Data File:	092134.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	29	10	60
Phenol-d6	16	10	49
Nitrobenzene-d5	109	15	144
2-Fluorobiphenyl	91	25	128
2,4,6-Tribromophenol	78	10	142
Terphenyl-d14	105	41	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW02-20210920	Client:	EHSI
Date Received:	09/20/21	Project:	Buckley Library 2000-044
Date Extracted:	09/22/21	Lab ID:	109347-01
Date Analyzed:	09/22/21	Data File:	092212.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	104	87	115
4-Bromofluorobenzene	103	92	112

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

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW99-20210920	Client:	EHSI
Date Received:	09/20/21	Project:	Buckley Library 2000-044
Date Extracted:	09/22/21	Lab ID:	109347-02
Date Analyzed:	09/22/21	Data File:	092213.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	78	126
Toluene-d8	108	87	115
4-Bromofluorobenzene	93	92	112

Compounds:	Concentration ug/L (ppb)
Toluene	16
m,p-Xylene	21
o-Xylene	2.8

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW99-20210920	Client:	EHSI
Date Received:	09/20/21	Project:	Buckley Library 2000-044
Date Extracted:	09/23/21	Lab ID:	109347-02 1/10
Date Analyzed:	09/23/21	Data File:	092327.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	109	78	126
Toluene-d8	103	87	115
4-Bromofluorobenzene	98	92	112

Compounds:	Concentration ug/L (ppb)
Benzene	1,300
Ethylbenzene	1,200
Naphthalene	890

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW11-20210920	Client:	EHSI
Date Received:	09/20/21	Project:	Buckley Library 2000-044
Date Extracted:	09/23/21	Lab ID:	109347-03
Date Analyzed:	09/23/21	Data File:	092325.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	78	126
Toluene-d8	97	87	115
4-Bromofluorobenzene	103	92	112

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

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW10-20210920	Client:	EHSI
Date Received:	09/20/21	Project:	Buckley Library 2000-044
Date Extracted:	09/22/21	Lab ID:	109347-04
Date Analyzed:	09/22/21	Data File:	092215.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	78	126
Toluene-d8	95	87	115
4-Bromofluorobenzene	107	92	112

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

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW05-20210920	Client:	EHSI
Date Received:	09/20/21	Project:	Buckley Library 2000-044
Date Extracted:	09/22/21	Lab ID:	109347-05
Date Analyzed:	09/22/21	Data File:	092216.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	78	126
Toluene-d8	95	87	115
4-Bromofluorobenzene	105	92	112

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

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW12-20210920	Client:	EHSI
Date Received:	09/20/21	Project:	Buckley Library 2000-044
Date Extracted:	09/22/21	Lab ID:	109347-06
Date Analyzed:	09/22/21	Data File:	092217.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	78	126
Toluene-d8	101	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
Naphthalene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW07-20210920	Client:	EHSI
Date Received:	09/20/21	Project:	Buckley Library 2000-044
Date Extracted:	09/22/21	Lab ID:	109347-07
Date Analyzed:	09/22/21	Data File:	092218.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	78	126
Toluene-d8	95	87	115
4-Bromofluorobenzene	105	92	112

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

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW13-20210920	Client:	EHSI
Date Received:	09/20/21	Project:	Buckley Library 2000-044
Date Extracted:	09/22/21	Lab ID:	109347-08
Date Analyzed:	09/22/21	Data File:	092219.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	78	126
Toluene-d8	113	87	115
4-Bromofluorobenzene	100	92	112

Compounds:	Concentration ug/L (ppb)
Benzene	35
Toluene	5.5
Ethylbenzene	38
m,p-Xylene	13
o-Xylene	1.3
Naphthalene	130

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW06-20210920	Client:	EHSI
Date Received:	09/20/21	Project:	Buckley Library 2000-044
Date Extracted:	09/22/21	Lab ID:	109347-09 1/200
Date Analyzed:	09/22/21	Data File:	092222.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

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

Compounds:	Concentration ug/L (ppb)
Hexane	<1,000
1,2-Dichloroethane (EDC)	<40
Benzene	1,400
Toluene	<200
1,2-Dibromoethane (EDB)	<200
Ethylbenzene	1,300
m,p-Xylene	<400
o-Xylene	<200
Naphthalene	760

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW09-20210920	Client:	EHSI
Date Received:	09/20/21	Project:	Buckley Library 2000-044
Date Extracted:	09/22/21	Lab ID:	109347-10
Date Analyzed:	09/22/21	Data File:	092220.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	78	126
Toluene-d8	103	87	115
4-Bromofluorobenzene	103	92	112

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

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW08-20210920	Client:	EHSI
Date Received:	09/20/21	Project:	Buckley Library 2000-044
Date Extracted:	09/22/21	Lab ID:	109347-11
Date Analyzed:	09/22/21	Data File:	092221.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	108	78	126
Toluene-d8	103	87	115
4-Bromofluorobenzene	106	92	112

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

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library 2000-044
Date Extracted:	09/22/21	Lab ID:	01-2128 mb
Date Analyzed:	09/22/21	Data File:	092207.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	78	126
Toluene-d8	102	87	115
4-Bromofluorobenzene	105	92	112

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

Date of Report: 10/07/21
Date Received: 09/20/21
Project: Buckley Library 2000-044, F&BI 109347

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

Laboratory Code: 109332-01 (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	105	69-134

Date of Report: 10/07/21
Date Received: 09/20/21
Project: Buckley Library 2000-044, F&BI 109347

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	92	96	63-142	4

Date of Report: 10/07/21
Date Received: 09/20/21
Project: Buckley Library 2000-044, F&BI 109347

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)	5	87	87	62-90	0
2-Methylnaphthalene	ug/L (ppb)	5	89	90	64-93	1
1-Methylnaphthalene	ug/L (ppb)	5	89	90	64-93	1
Benz(a)anthracene	ug/L (ppb)	5	106	107	70-130	1
Chrysene	ug/L (ppb)	5	102	104	70-130	2
Benzo(a)pyrene	ug/L (ppb)	5	108	110	70-130	2
Benzo(b)fluoranthene	ug/L (ppb)	5	109	111	70-130	2
Benzo(k)fluoranthene	ug/L (ppb)	5	107	110	70-130	3
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	102	108	70-130	6
Dibenz(a,h)anthracene	ug/L (ppb)	5	100	102	70-130	2

Date of Report: 10/07/21
Date Received: 09/20/21
Project: Buckley Library 2000-044, F&BI 109347

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

Laboratory Code: 109355-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Hexane	ug/L (ppb)	10	<5	106	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	105	50-150
Benzene	ug/L (ppb)	10	<0.35	99	50-150
Toluene	ug/L (ppb)	10	<1	94	50-150
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	95	50-150
Ethylbenzene	ug/L (ppb)	10	<1	96	50-150
m,p-Xylene	ug/L (ppb)	20	<2	94	50-150
o-Xylene	ug/L (ppb)	10	<1	95	50-150
Naphthalene	ug/L (ppb)	10	<1	91	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Hexane	ug/L (ppb)	10	89	99	54-136	11
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	97	107	70-130	10
Benzene	ug/L (ppb)	10	91	100	70-130	9
Toluene	ug/L (ppb)	10	93	93	70-130	0
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	94	95	70-130	1
Ethylbenzene	ug/L (ppb)	10	95	95	70-130	0
m,p-Xylene	ug/L (ppb)	20	92	92	70-130	0
o-Xylene	ug/L (ppb)	10	94	93	70-130	1
Naphthalene	ug/L (ppb)	10	91	93	70-130	2

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 CHA OF CUSTODY 09-20-21

VWH/E03

Page # 1 of 1

Send Report to Mindy Graddon, Tom Camarata

Company EHSI 109347

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)

PROJECT NAME/NO.	PO #
Buckley Library	2000-044

REMARKS Notify Run All Samples for Dx with Silica Gel Cleanup Results:

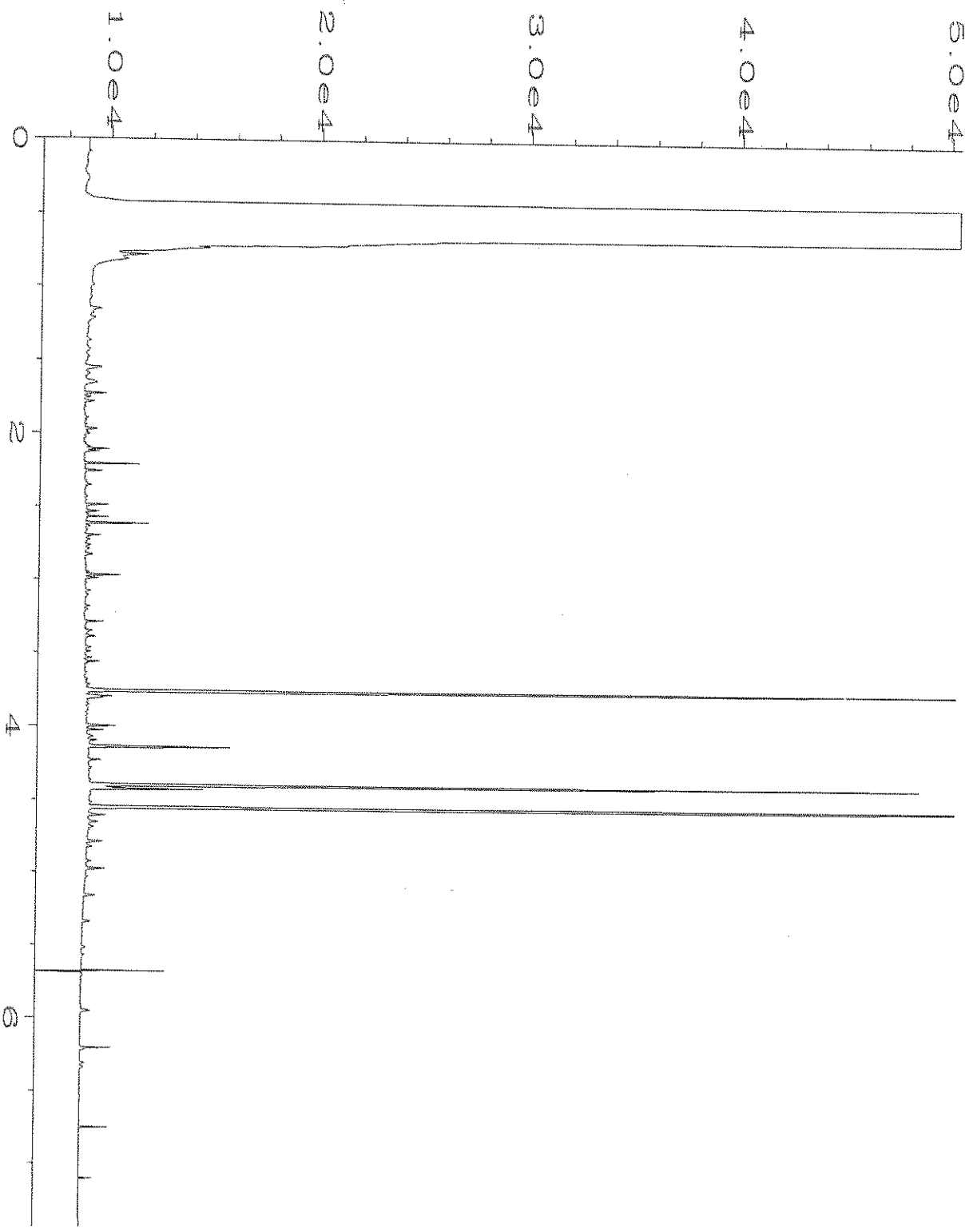
TURNAROUND TIME
Standard (2 Weeks)
RUSH
Rush charges authorized by:

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

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	ANALYSES REQUESTED: NWTPH-Gx	BTEX by 8021B / 8260	NWTPH-Dx/ORPH	Naphalenes 8270	Naphthalene 8260	8260: Naphthalene, EDB, EDC, n-Hexane	cPAHs		Notes
MW02-20210920	MW02	-	01A-E	09/20/21	1128	H2O	5	X	X	X		X				
MW99-20210920	MW99	-	02A-F		1200		6	X	X	X		X				
MW11-20210920	MW11	-	03		1202		6	X	X	X		X				
MW10-20210920	MW10	-	04		1245		6	X	X	X		X				
MW05-20210920	MW05	-	05A-E		1245		5	X	X	X		X				
MW12-20210920	MW12	-	06A-F		1412		6	X	X	X		X				
MW07-20210920	MW07	-	07A-E		1415		5	X	X	X		X				
MW13-20210920	MW13	-	08A-F		1448		6	X	X	X		X				
MW06-20210920	MW06	-	09		1525		6	X	X	X	X		X	X		
MW09-20210920	MW09	-	10A-E		1550		5	X	X	X		X				MW09
MW08-20210920	MW08	-	11		1620		5	X	X	X		X				

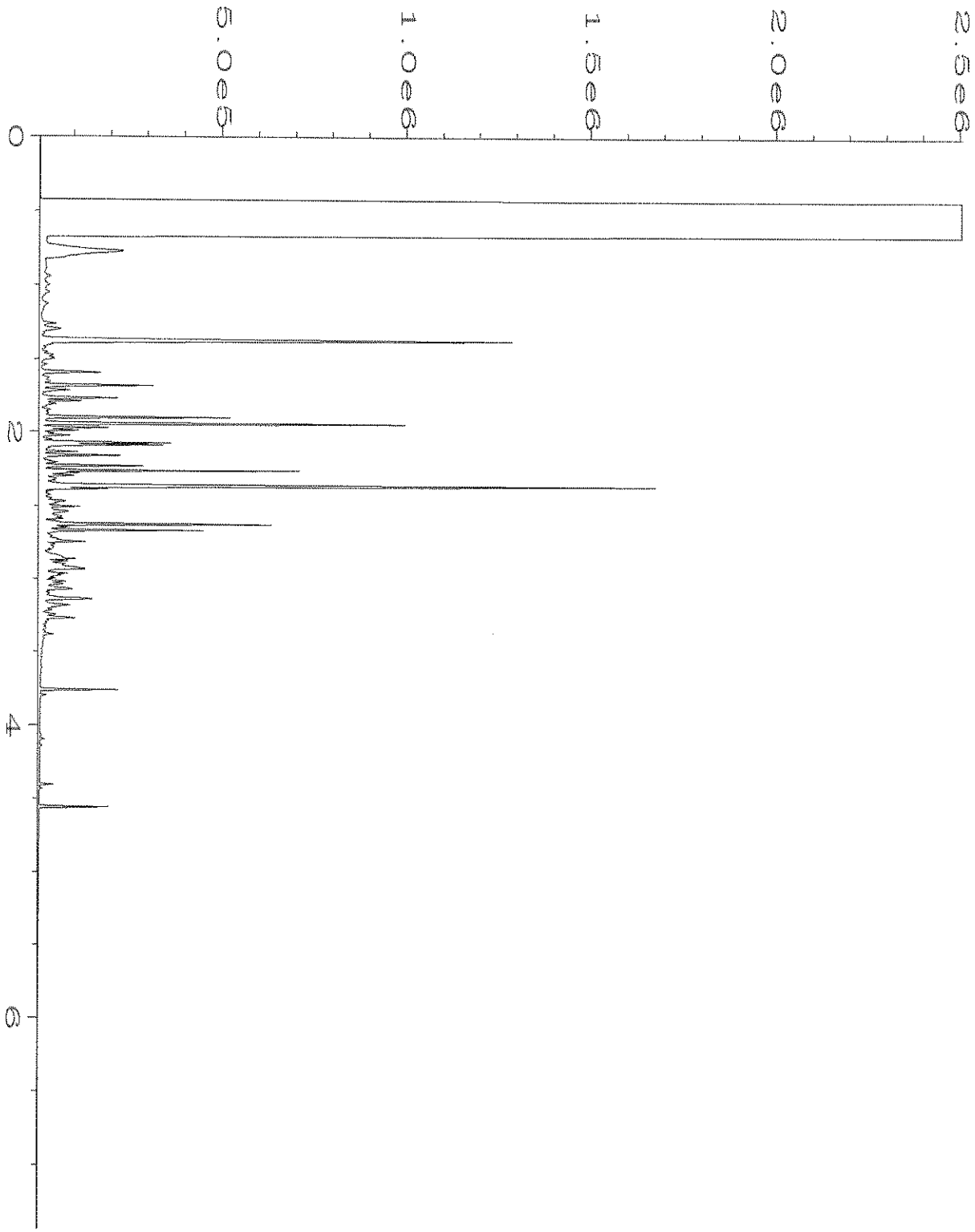
SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kyler Lemming	SEI	092021	1825
Received by:	JOE MOHAMMED	FBI	9/20/21	1825
Relinquished by:	Samples received at 5° °C			
Received by:				

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



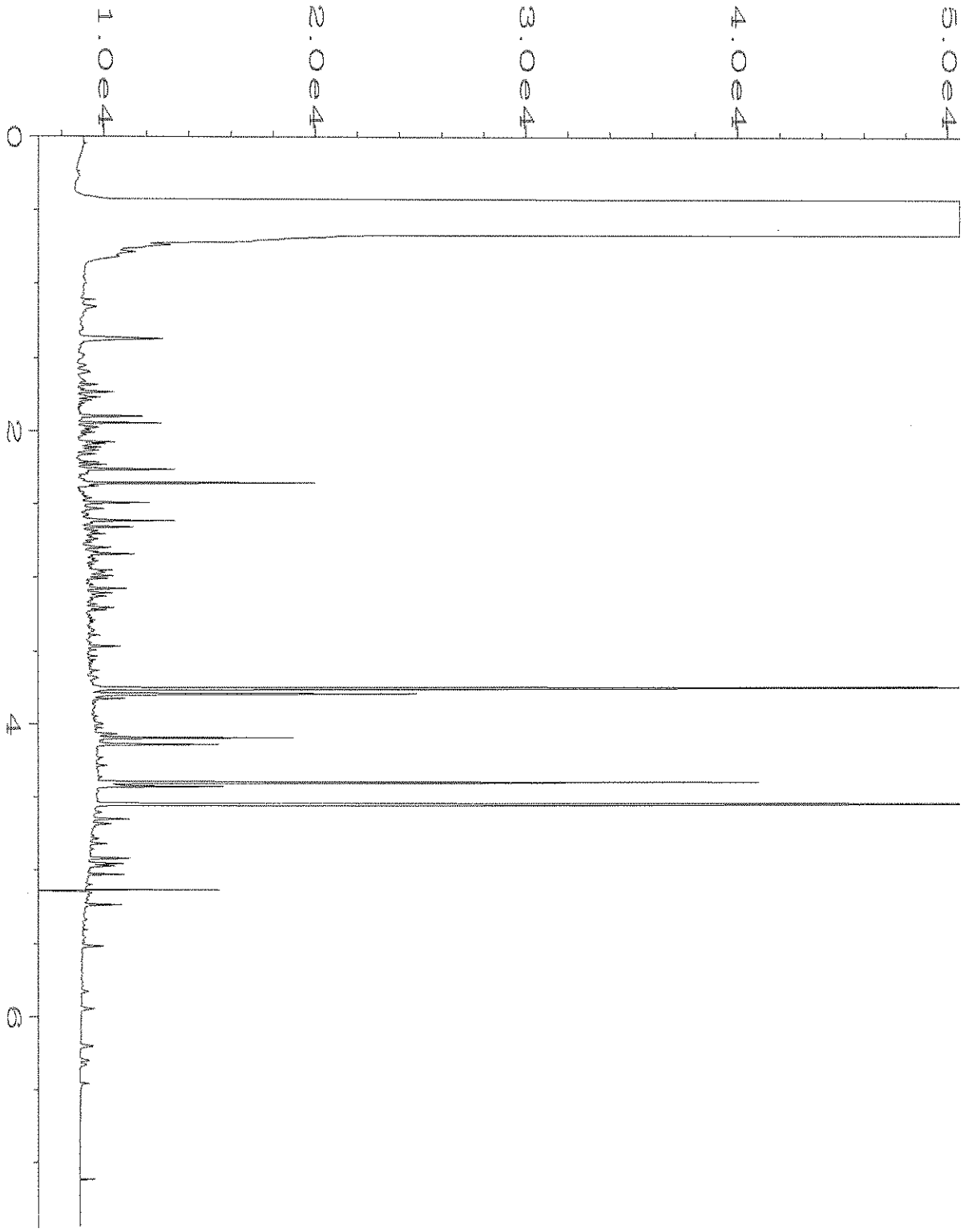
Data File Name : C:\HPCHEM\1\DATA\09-21-21\014F0301.D
Operator : TL
Instrument : GC1
Sample Name : 109347-01
Run Time Bar Code:
Acquired on : 21 Sep 21 01:15 PM
Report Created on: 22 Sep 21 09:53 AM

Page Number : 1
Vial Number : 14
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



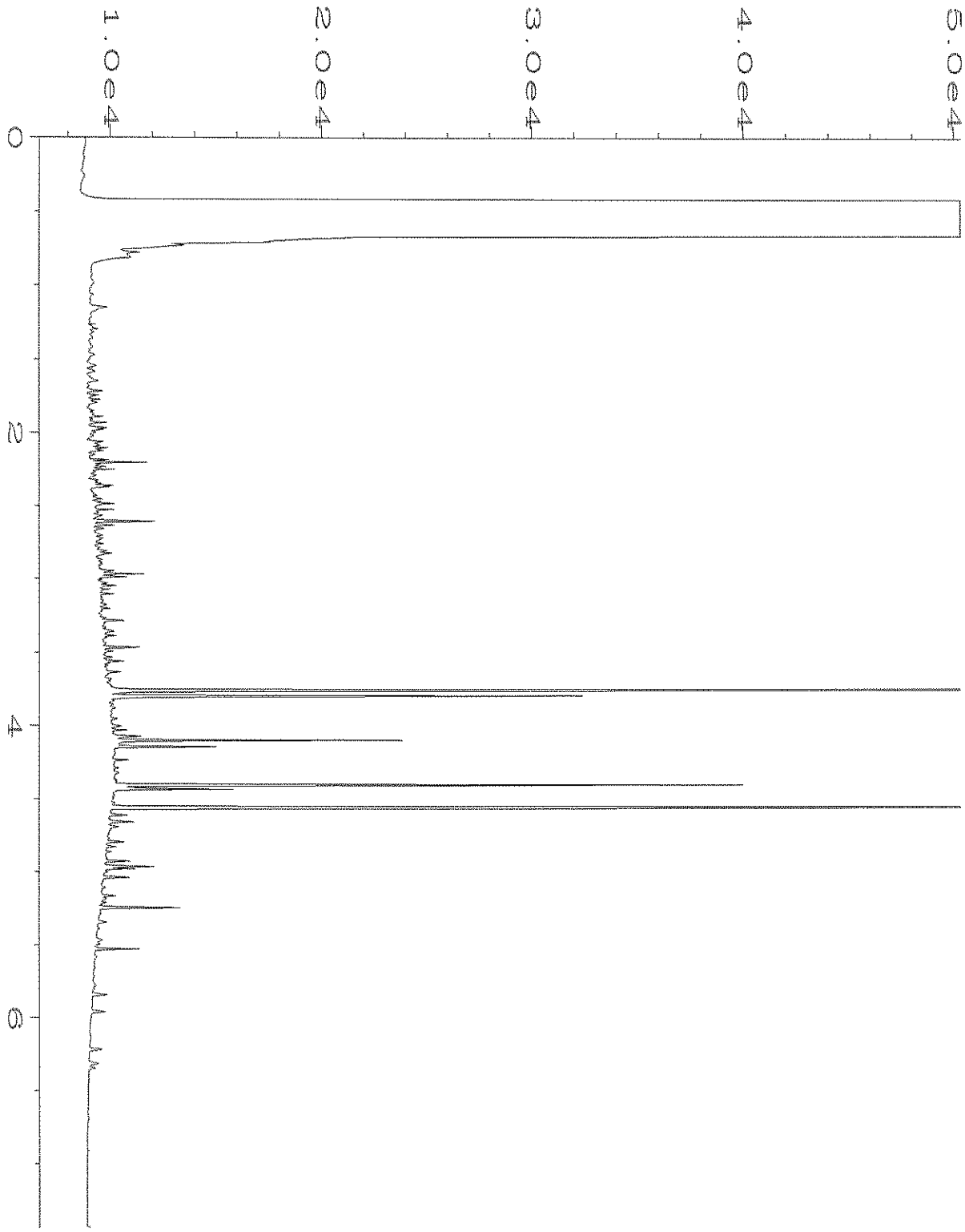
Data File Name : C:\HPCHEM\1\DATA\09-21-21\015F0301.D
Operator : TL
Instrument : GC1
Sample Name : 109347-02
Run Time Bar Code:
Acquired on : 21 Sep 21 01:24 PM
Report Created on: 22 Sep 21 09:53 AM

Page Number : 1
Vial Number : 15
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



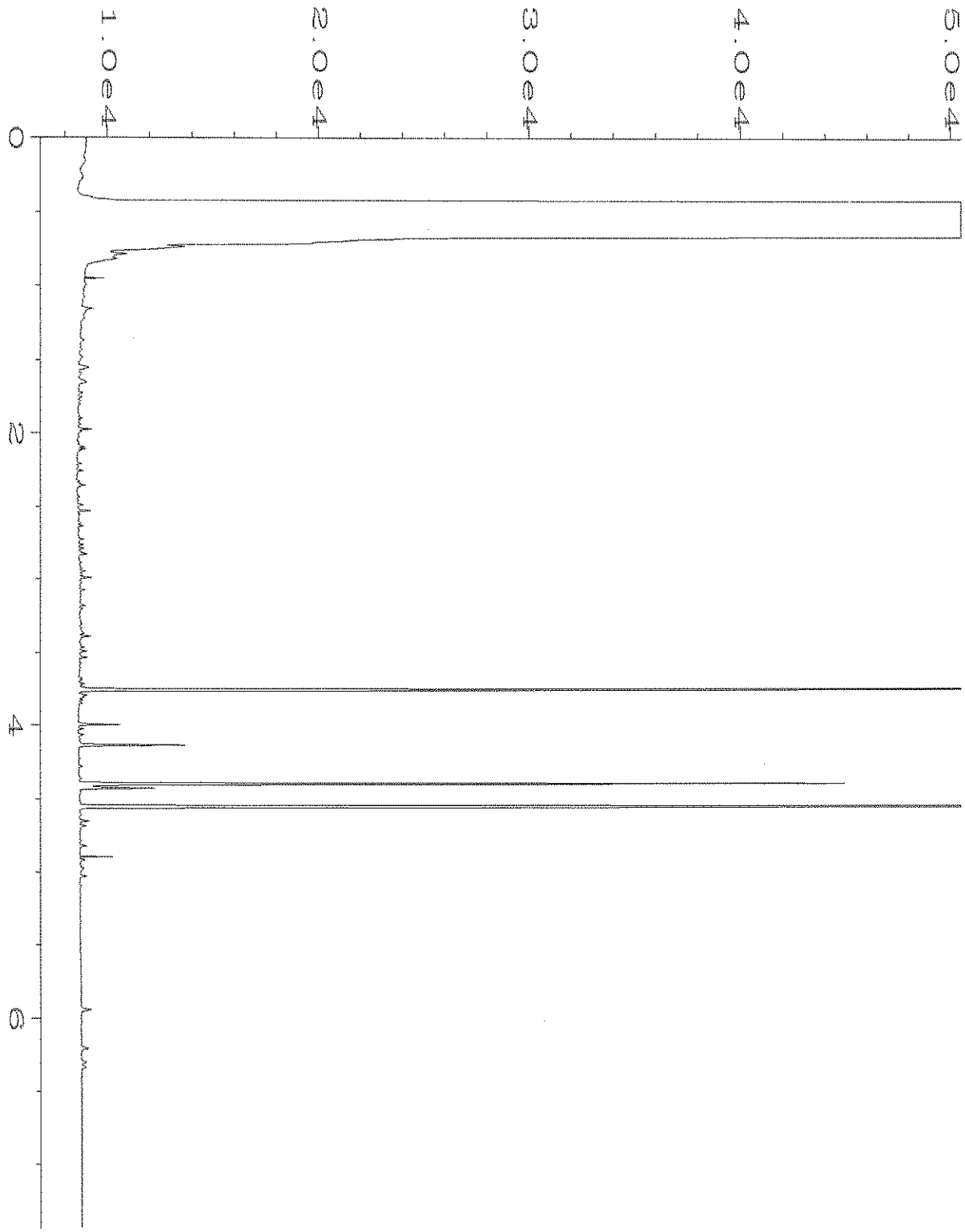
Data File Name : C:\HPCHEM\1\DATA\09-21-21\016F0301.D
Operator : TL
Instrument : GC1
Sample Name : 109347-03
Run Time Bar Code:
Acquired on : 21 Sep 21 01:36 PM
Report Created on: 22 Sep 21 09:53 AM

Page Number : 1
Vial Number : 16
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



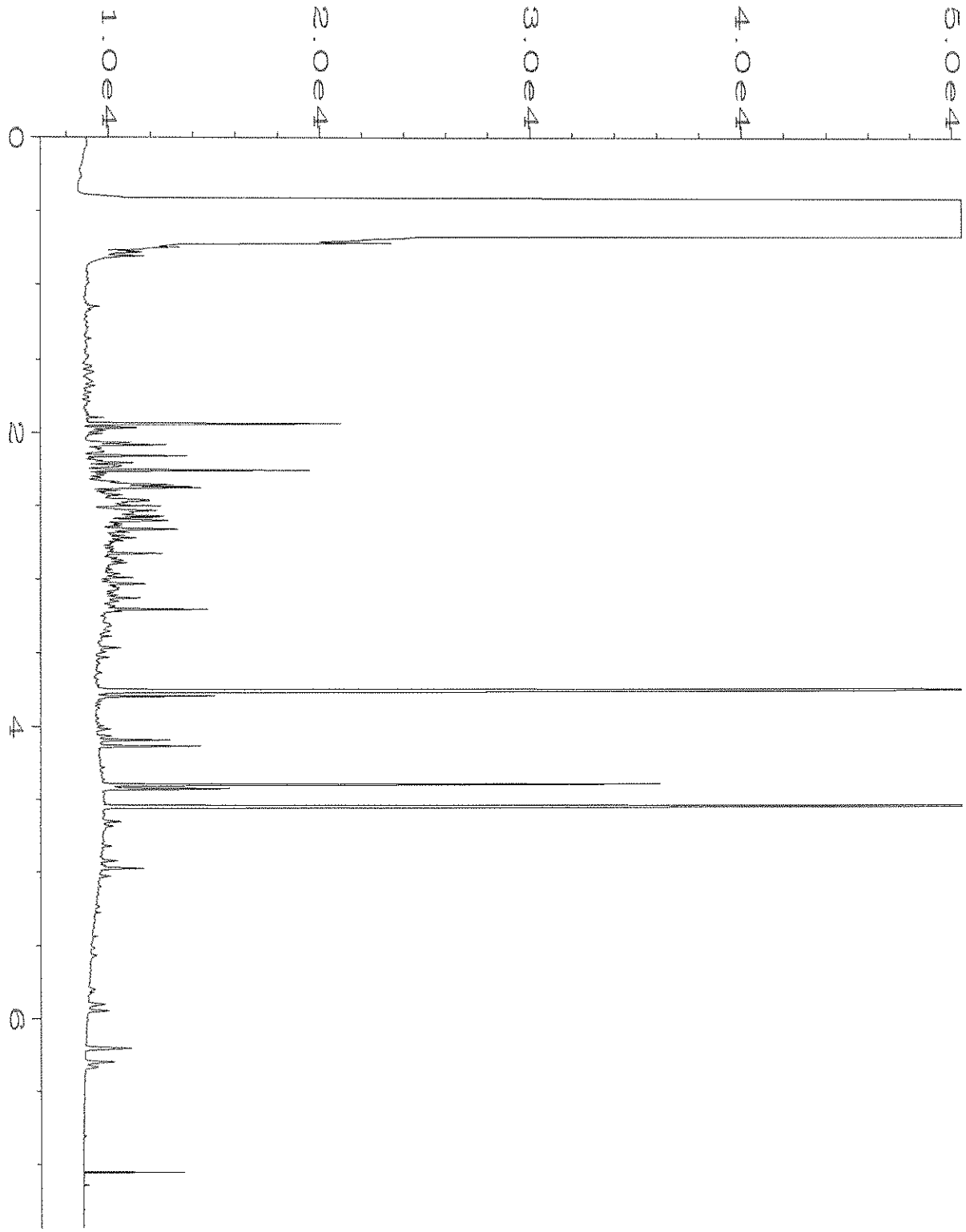
Data File Name : C:\HPCHEM\1\DATA\09-21-21\017F0501.D
Operator : TL
Instrument : GC1
Sample Name : 109347-04
Run Time Bar Code:
Acquired on : 21 Sep 21 02:44 PM
Report Created on: 22 Sep 21 09:53 AM

Page Number : 1
Vial Number : 17
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

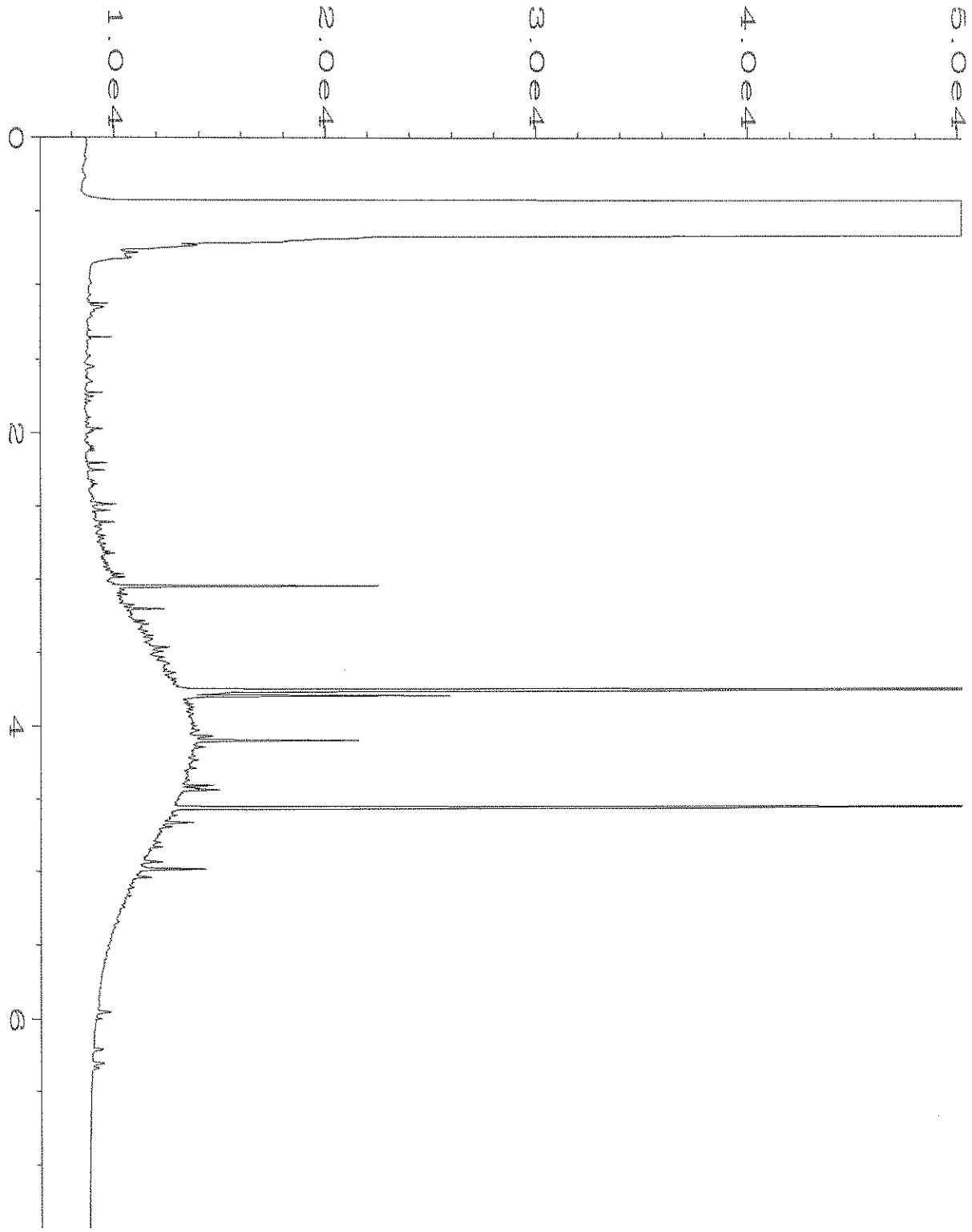


Data File Name : C:\HPCHEM\1\DATA\09-21-21\018F0501.D
Operator : TL
Instrument : GC1
Sample Name : 109347-05
Run Time Bar Code:
Acquired on : 21 Sep 21 02:53 PM
Report Created on: 22 Sep 21 09:53 AM

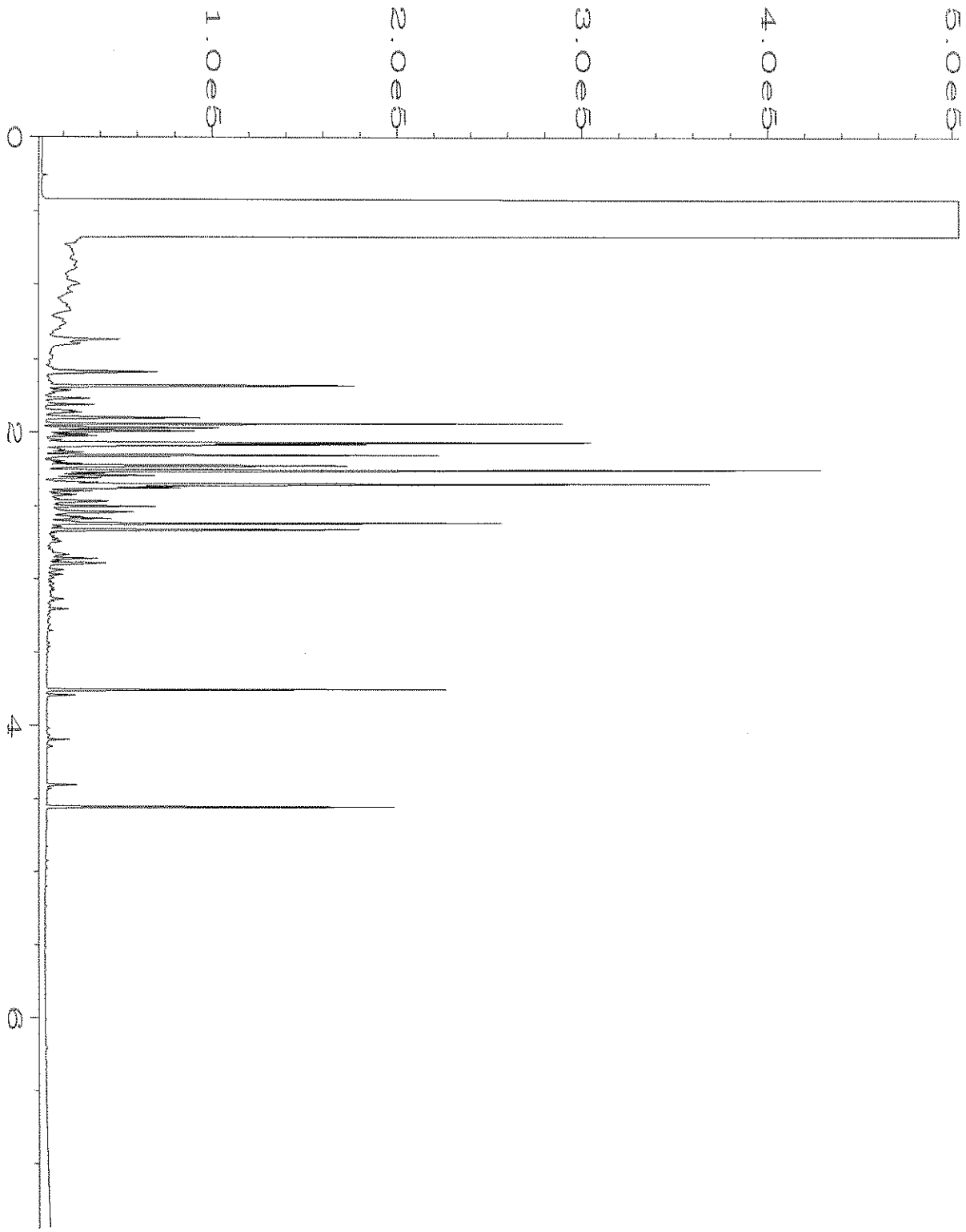
Page Number : 1
Vial Number : 18
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



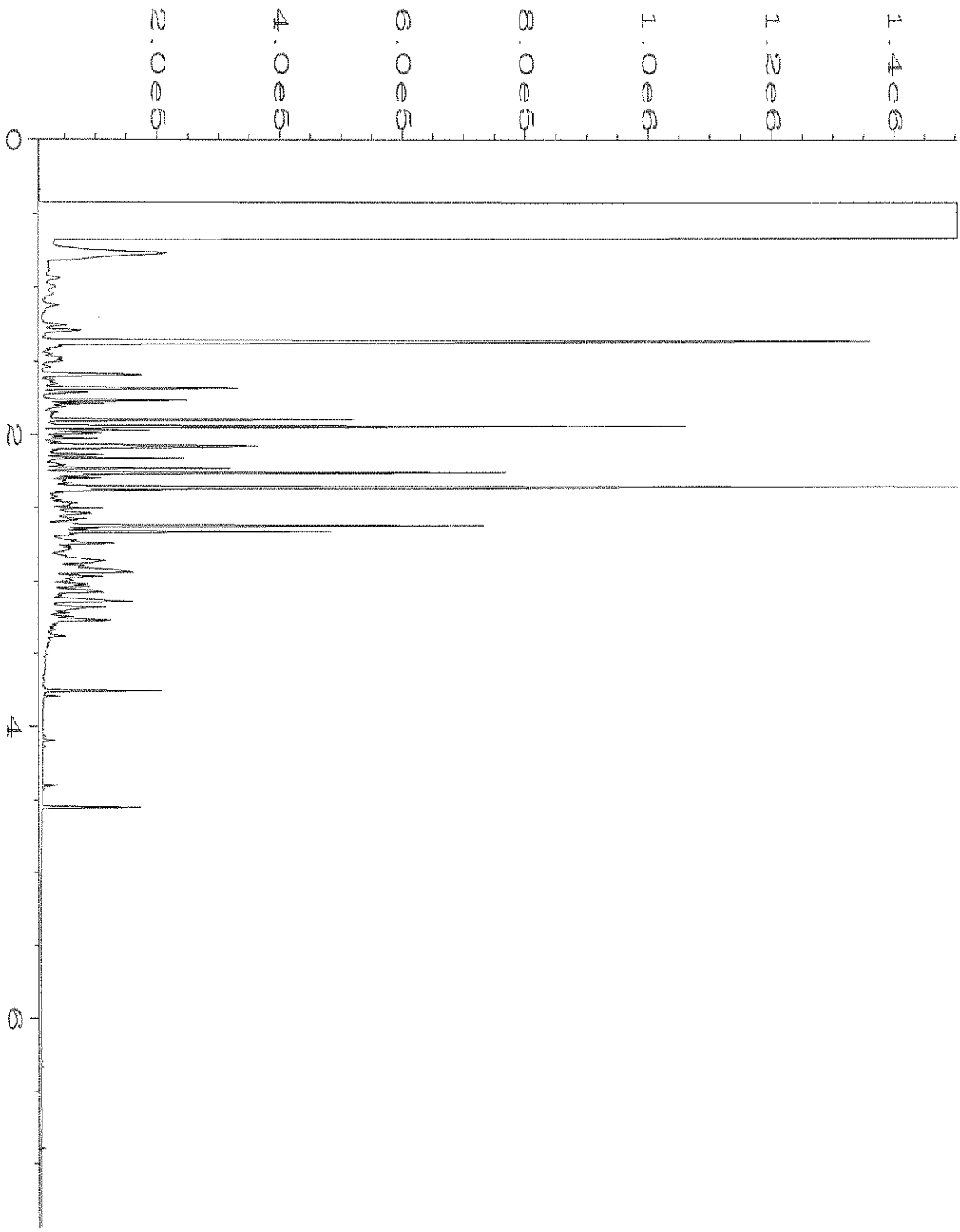
Data File Name	: C:\HPCHEM\1\DATA\09-21-21\019F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 19
Sample Name	: 109347-06	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 21 Sep 21 03:04 PM	Instrument Method	: DX.MTH
Report Created on	: 22 Sep 21 09:53 AM	Analysis Method	: DEFAULT.MTH



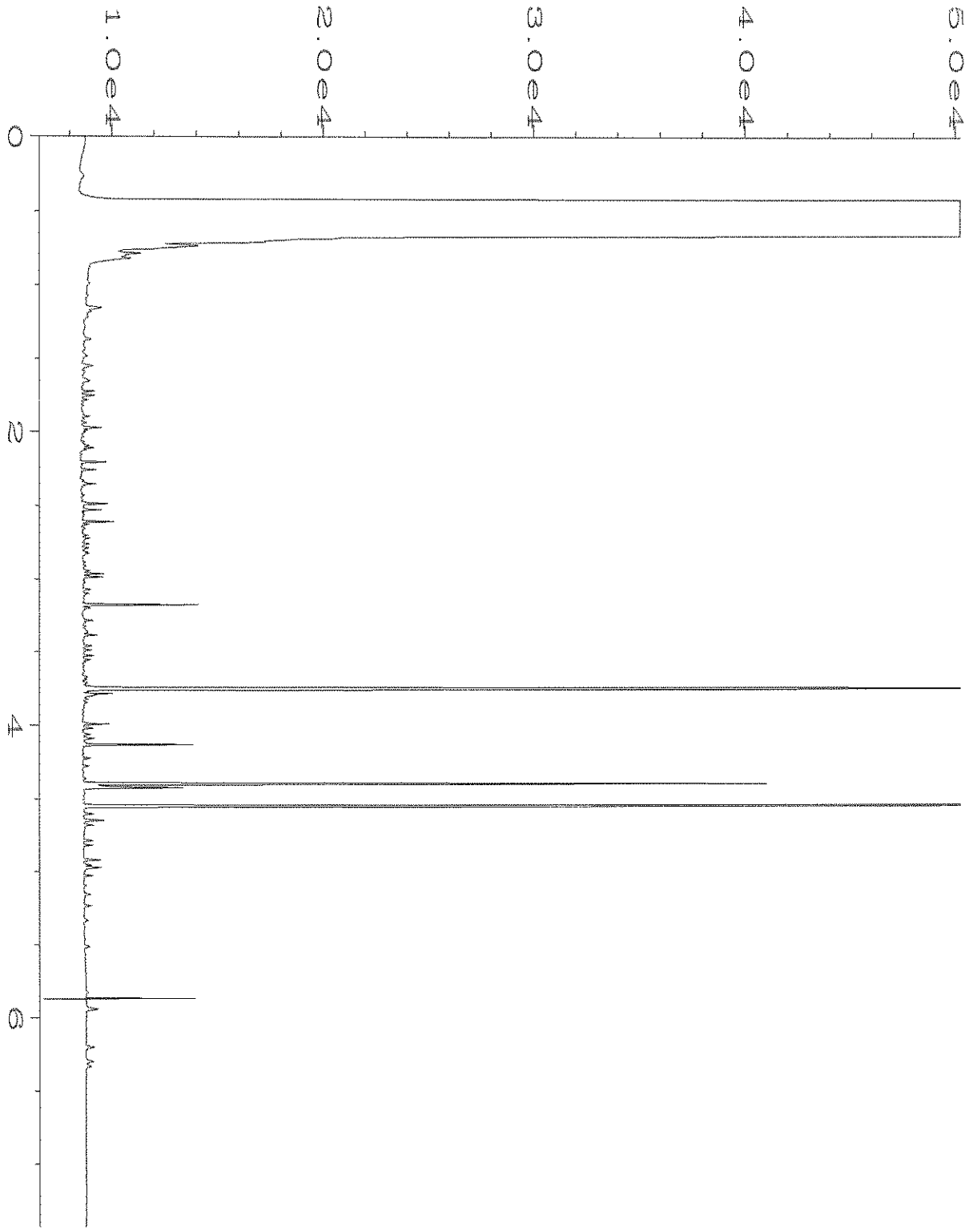
Data File Name	: C:\HPCHEM\1\DATA\09-21-21\020F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 20
Sample Name	: 109347-07	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 21 Sep 21 03:16 PM	Instrument Method	: DX.MTH
Report Created on	: 22 Sep 21 09:54 AM	Analysis Method	: DEFAULT.MTH



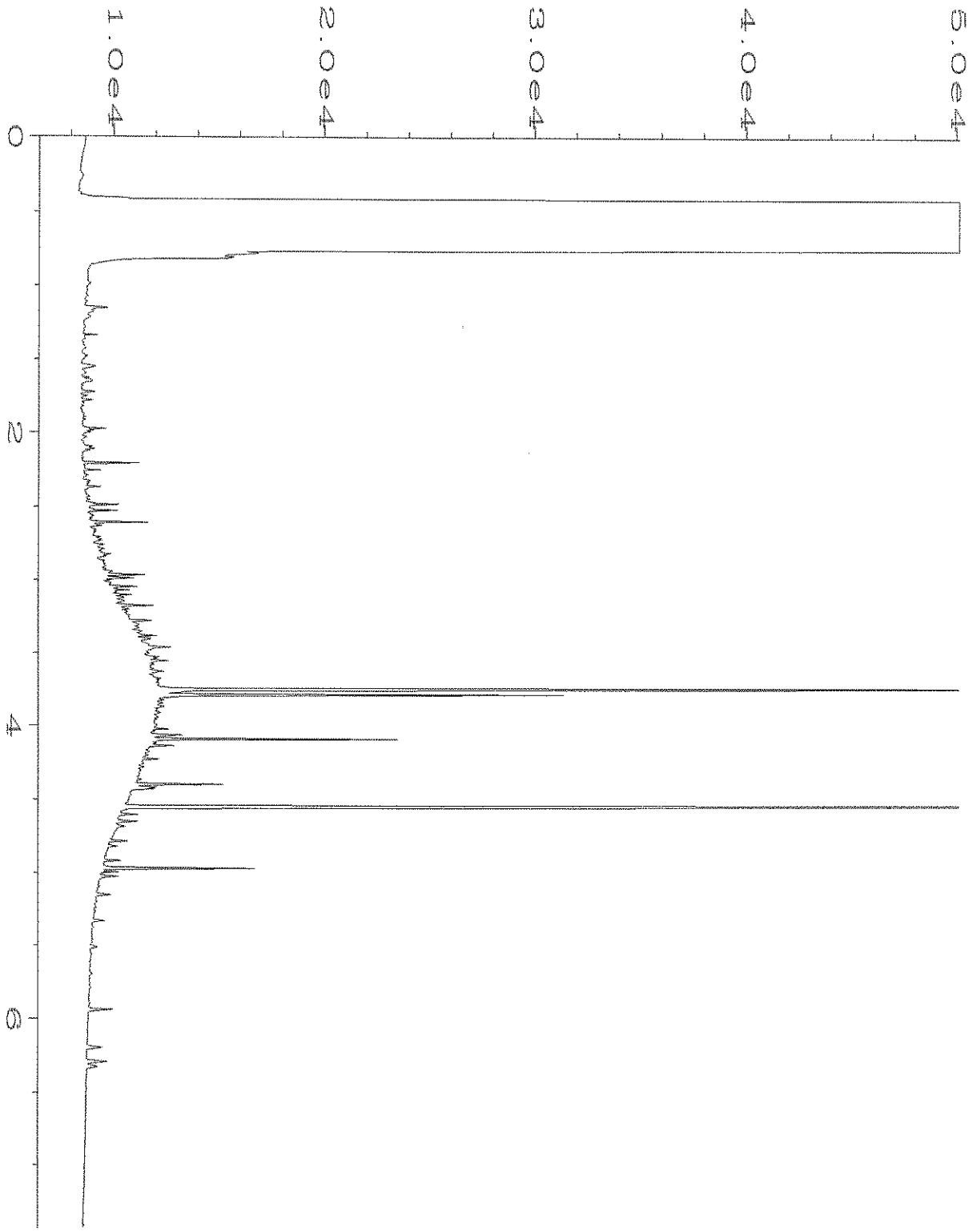
Data File Name	: C:\HPCHEM\1\DATA\09-21-21\021F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 21
Sample Name	: 109347-08	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 21 Sep 21 03:29 PM	Instrument Method	: DX.MTH
Report Created on	: 22 Sep 21 09:54 AM	Analysis Method	: DEFAULT.MTH



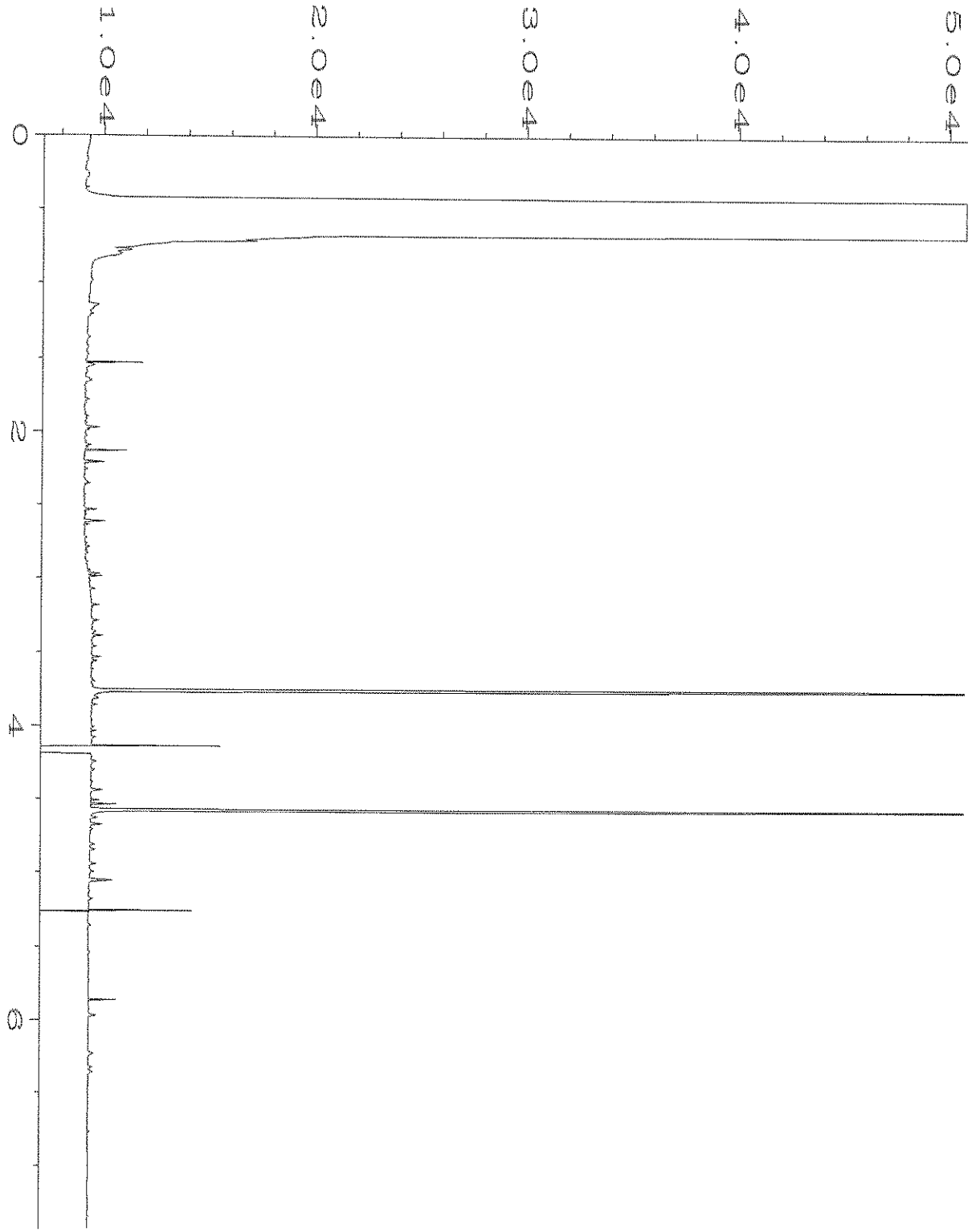
Data File Name	: C:\HPCHEM\1\DATA\09-21-21\022F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 22
Sample Name	: 109347-09	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 21 Sep 21 03:41 PM	Instrument Method	: DX.MTH
Report Created on	: 22 Sep 21 09:54 AM	Analysis Method	: DEFAULT.MTH



Data File Name	: C:\HPCHEM\1\DATA\09-21-21\023F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 23
Sample Name	: 109347-10	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 21 Sep 21 03:52 PM	Instrument Method	: DX.MTH
Report Created on	: 22 Sep 21 09:54 AM	Analysis Method	: DEFAULT.MTH

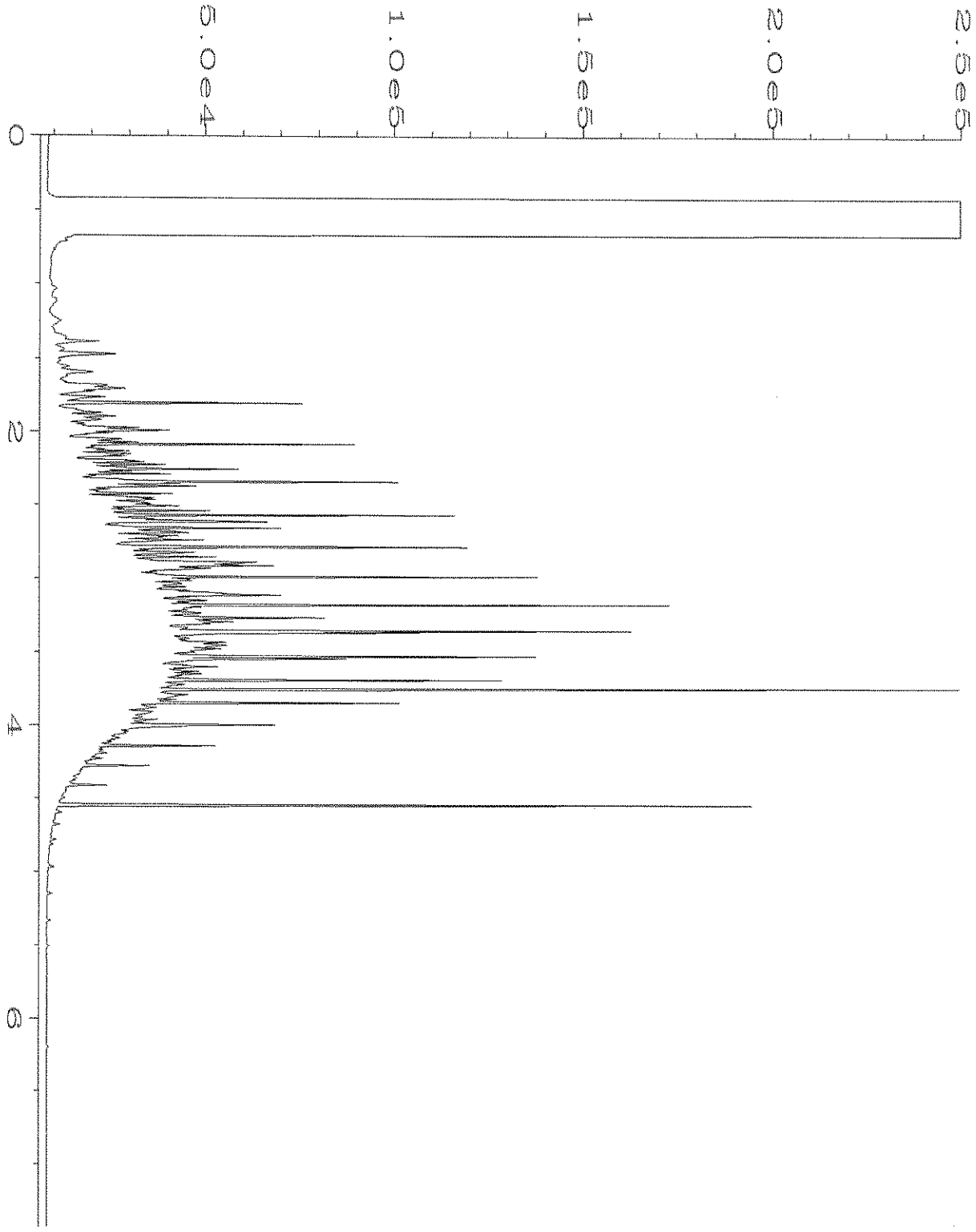


Data File Name	: C:\HPCHEM\1\DATA\09-21-21\024F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 24
Sample Name	: 109347-11	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 21 Sep 21 04:04 PM	Instrument Method	: DX.MTH
Report Created on	: 22 Sep 21 09:54 AM	Analysis Method	: DEFAULT.MTH



Data File Name : C:\HPCHEM\1\DATA\09-21-21\006F0301.D
Operator : TL
Instrument : GC1
Sample Name : 01-2164 mb2
Run Time Bar Code:
Acquired on : 21 Sep 21 10:47 AM
Report Created on: 22 Sep 21 09:54 AM

Page Number : 1
Vial Number : 6
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name	: C:\HPCHEM\1\DATA\09-21-21\003F0601.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 3
Sample Name	: 500 Dx 63-79C	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 21 Sep 21 04:27 PM	Instrument Method	: DX.MTH
Report Created on	: 22 Sep 21 09:55 AM	Analysis Method	: DEFAULT.MTH

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
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June 14, 2017

Kurt Easthouse, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

Dear Mr Easthouse:

Included are the results from the testing of material submitted on June 2, 2017 from the PCLS-Buckley, PO 10949, F&BI 706042 project. There are 128 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Stephanie Bolton, Mike Brady
EHS0614R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 2, 2017 by Friedman & Bruya, Inc. from the EHSI PCLS-Buckley, PO 10949, F&BI 706042 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EHSI
706042 -01	MW-1
706042 -02	MW-2
706042 -03	MW-3
706042 -04	B1-6
706042 -05	B2-5.5
706042 -06	B2-W
706042 -07	B3-4.5
706042 -08	B3-W
706042 -09	B4-4.5
706042 -10	B4-7.5
706042 -11	B5-7'
706042 -12	B5-W
706042 -13	B6-13
706042 -14	B6-W
706042 -15	B7-7'
706042 -16	B7-W
706042 -17	B8-5
706042 -18	B8-W
706042 -19	B9-6
706042 -20	B9-15
706042 -21	B9-W

The reporting limits for samples B5-W and B9-W were raised for several analytes due to insufficient sample volume.

The 8270D calibration verification for nitroaniline and di-n-octyl-phthalate was outside of control limits. The data were qualified accordingly.

All quality control requirements were acceptable.

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042
Date Extracted: 06/05/17 and 06/07/17
Date Analyzed: 06/05/17 and 06/07/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW-1 706042-01	<100	90
MW-2 706042-02	<100	94
MW-3 706042-03	<100	96
B2-W 706042-06	<100	97
B3-W 706042-08	<100	95
B5-W 706042-12	<100	96
B6-W 706042-14	800	85
B7-W 706042-16 1/20	8,400	85
B8-W 706042-18	770	116

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042
Date Extracted: 06/05/17 and 06/07/17
Date Analyzed: 06/05/17 and 06/07/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
B9-W 706042-21	<100	83
Method Blank 07-1185 MB	<100	73
Method Blank 07-1189 MB	<100	96

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042
Date Extracted: 06/05/17
Date Analyzed: 06/05/17

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

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

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
B1-6 706042-04	<2	95
B2-5.5 706042-05	<2	93
B3-4.5 706042-07	<2	90
B4-4.5 706042-09	<2	90
B4-7.5 706042-10	<2	91
B5-7' 706042-11	<2	91
B6-13 706042-13	<2	92
B7-7' 706042-15 1/50	5,900	126
B8-5 706042-17 1/5	1,400	ip
B9-6 706042-19	<2	91

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042
Date Extracted: 06/05/17
Date Analyzed: 06/05/17

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

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

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
B9-15 706042-20	<2	90
Method Blank 07-1186 MB	<2	95

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042
Date Extracted: 06/06/17
Date Analyzed: 06/06/17

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW-1 706042-01	190 x	300 x	98
MW-2 706042-02	<50	<250	89
MW-3 706042-03	<50	<250	92
B2-W 706042-06	170 x	<250	91
B3-W 706042-08	350 x	570 x	93
B5-W 706042-12 1/2	<100	<500	93
B6-W 706042-14	650 x	250 x	94
B7-W 706042-16 1/4	2,000 x	<1,000	96
B8-W 706042-18	20,000	4,300 x	92
B9-W 706042-21 1/3.2	<160	<800	85
Method Blank 07-1211 MB	<50	<250	100

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042
Date Extracted: 06/02/17
Date Analyzed: 06/02/17 and 06/05/17

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

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

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
B1-6 706042-04	<50	720	106
B2-5.5 706042-05	<50	<250	97
B3-4.5 706042-07	<50	<250	98
B4-4.5 706042-09	<50	<250	103
B4-7.5 706042-10	<50	<250	90
B5-7' 706042-11	<50	<250	94
B6-13 706042-13	<50	<250	95
B7-7' 706042-15	1,100	<250	98
B8-5 706042-17 1/10	170,000	5,400 x	ip
B9-6 706042-19	<50	<250	93

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042
Date Extracted: 06/02/17
Date Analyzed: 06/02/17 and 06/05/17

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

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

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
B9-15 706042-20	<50	<250	99
Method Blank 07-1179 MB2	<50	<250	92
Method Blank 07-1182 MB	<50	<250	89

Analysis For Dissolved Metals By EPA Method 6020A

Client ID:	MW-1 f	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-01
Date Analyzed:	06/05/17	Data File:	706042-01.087
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	19.3
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020A

Client ID:	MW-2 f	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-02
Date Analyzed:	06/05/17	Data File:	706042-02.090
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.19
Barium	4.96
Cadmium	<1
Chromium	1.30
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020A

Client ID:	MW-3 f	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-03
Date Analyzed:	06/05/17	Data File:	706042-03.091
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	8.09
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020A

Client ID:	B2-W f	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-06
Date Analyzed:	06/05/17	Data File:	706042-06.092
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	11.6
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020A

Client ID:	B3-W f	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-08
Date Analyzed:	06/05/17	Data File:	706042-08.093
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	5.68
Barium	11.5
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020A

Client ID:	B5-W f	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-12
Date Analyzed:	06/05/17	Data File:	706042-12.094
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

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

Analysis For Dissolved Metals By EPA Method 6020A

Client ID:	B6-W f	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-14
Date Analyzed:	06/05/17	Data File:	706042-14.095
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

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

Analysis For Dissolved Metals By EPA Method 6020A

Client ID:	B8-W f	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-18
Date Analyzed:	06/05/17	Data File:	706042-18.096
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	4.59
Barium	46.4
Cadmium	<1
Chromium	1.11
Lead	1.32
Mercury	<1
Selenium	1.58
Silver	<1

Analysis For Dissolved Metals By EPA Method 6020A

Client ID:	Method Blank f	Client:	EHSI
Date Received:	NA	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	I7-305 mb
Date Analyzed:	06/06/17	Data File:	I7-305 mb.098
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	MW-1	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-01
Date Analyzed:	06/05/17	Data File:	706042-01.101
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	19.1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	MW-2	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-02
Date Analyzed:	06/05/17	Data File:	706042-02.102
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.64
Barium	6.81
Cadmium	<1
Chromium	1.39
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	MW-3	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-03
Date Analyzed:	06/05/17	Data File:	706042-03.105
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.60
Barium	22.9
Cadmium	<1
Chromium	1.95
Lead	3.96
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	B2-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-06
Date Analyzed:	06/05/17	Data File:	706042-06.106
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	7.93
Barium	205
Cadmium	<1
Chromium	30.4 J
Lead	8.29
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	B2-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-06 x10
Date Analyzed:	06/06/17	Data File:	706042-06 x10.032
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	35.7

Analysis For Total Metals By EPA Method 6020A

Client ID:	B3-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-08
Date Analyzed:	06/05/17	Data File:	706042-08.107
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	26.7
Barium	546
Cadmium	<1
Chromium	44.7 J
Lead	16.4
Mercury	<1
Selenium	1.04
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	B3-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-08 x10
Date Analyzed:	06/06/17	Data File:	706042-08 x10.042
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	63.9

Analysis For Total Metals By EPA Method 6020A

Client ID:	B5-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-12
Date Analyzed:	06/05/17	Data File:	706042-12.108
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	24.3

Analysis For Total Metals By EPA Method 6020A

Client ID:	B6-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-14
Date Analyzed:	06/05/17	Data File:	706042-14.109
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	13.6

Analysis For Total Metals By EPA Method 6020A

Client ID:	B8-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-18
Date Analyzed:	06/05/17	Data File:	706042-18.110
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	49.7
Barium	435
Cadmium	6.76
Chromium	18.6
Lead	1,730 ve
Mercury	<1
Selenium	1.72
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	B8-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-18 x10
Date Analyzed:	06/06/17	Data File:	706042-18 x10.053
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	1,950

Analysis For Total Metals By EPA Method 6020A

Client ID:	Method Blank	Client:	EHSI
Date Received:	NA	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	I7-306 mb
Date Analyzed:	06/05/17	Data File:	I7-306 mb.081
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	B1-6	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-04
Date Analyzed:	06/06/17	Data File:	706042-04.100
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.58
Barium	49.8
Cadmium	<1
Chromium	15.4
Lead	4.03
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	B2-5.5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-05
Date Analyzed:	06/06/17	Data File:	706042-05.101
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.15
Barium	37.2
Cadmium	<1
Chromium	13.3
Lead	4.67
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	B3-4.5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-07
Date Analyzed:	06/06/17	Data File:	706042-07.106
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.14
Barium	72.0
Cadmium	<1
Chromium	12.8
Lead	3.76
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	B4-4.5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-09
Date Analyzed:	06/06/17	Data File:	706042-09.107
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.15
Barium	89.0
Cadmium	<1
Chromium	13.2
Lead	14.1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	B4-7.5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-10
Date Analyzed:	06/06/17	Data File:	706042-10.108
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.21
Barium	62.1
Cadmium	<1
Chromium	9.62
Lead	2.83
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	B5-7'	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-11
Date Analyzed:	06/06/17	Data File:	706042-11.109
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	2.69

Analysis For Total Metals By EPA Method 6020A

Client ID:	B6-13	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-13
Date Analyzed:	06/06/17	Data File:	706042-13.110
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	2.28

Analysis For Total Metals By EPA Method 6020A

Client ID:	B7-7'	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-15
Date Analyzed:	06/06/17	Data File:	706042-15.111
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	18.8

Analysis For Total Metals By EPA Method 6020A

Client ID:	B8-5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-17
Date Analyzed:	06/06/17	Data File:	706042-17.123
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	17.2
Barium	510
Cadmium	3.33
Chromium	23.4
Lead	1,750 ve
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	B8-5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-17 x10
Date Analyzed:	06/06/17	Data File:	706042-17 x10.072
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Lead	1,770

Analysis For Total Metals By EPA Method 6020A

Client ID:	B9-6	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-19
Date Analyzed:	06/06/17	Data File:	706042-19.124
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	6.02
Barium	70.6
Cadmium	<1
Chromium	13.1
Lead	32.8
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	B9-15	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-20
Date Analyzed:	06/06/17	Data File:	706042-20.125
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.42
Barium	28.1
Cadmium	<1
Chromium	10.4
Lead	3.15
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020A

Client ID:	Method Blank	Client:	EHSI
Date Received:	NA	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	I7-307 mb
Date Analyzed:	06/06/17	Data File:	I7-307 mb.040
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B1-6	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-04
Date Analyzed:	06/02/17	Data File:	060243.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	142
Toluene-d8	102	55	145
4-Bromofluorobenzene	111	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B2-5.5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-05
Date Analyzed:	06/02/17	Data File:	060244.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	110	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B3-4.5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-07
Date Analyzed:	06/02/17	Data File:	060245.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	62	142
Toluene-d8	102	55	145
4-Bromofluorobenzene	112	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B4-4.5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-09
Date Analyzed:	06/03/17	Data File:	060246.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	110	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B4-7.5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-10
Date Analyzed:	06/03/17	Data File:	060247.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	102	55	145
4-Bromofluorobenzene	108	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B5-7'	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-11
Date Analyzed:	06/03/17	Data File:	060248.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	106	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B6-13	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-13
Date Analyzed:	06/03/17	Data File:	060249.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	107	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B7-7'	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-15
Date Analyzed:	06/06/17	Data File:	060605.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	96	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	44 ve
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	180 ve
Hexane	2.3	o-Xylene	13
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	4.1
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	14
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	27
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	91 ve
Benzene	3.3	sec-Butylbenzene	1.2
Trichloroethene	<0.02	p-Isopropyltoluene	1.0
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	0.84	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	37 ve
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B7-7'	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-15 1/100
Date Analyzed:	06/05/17	Data File:	060518.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	101	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<50	1,3-Dichloropropane	<5
Chloromethane	<50	Tetrachloroethene	<2.5
Vinyl chloride	<5	Dibromochloromethane	<5
Bromomethane	<50	1,2-Dibromoethane (EDB)	<5
Chloroethane	<50	Chlorobenzene	<5
Trichlorofluoromethane	<50	Ethylbenzene	52
Acetone	<50	1,1,1,2-Tetrachloroethane	<5
1,1-Dichloroethene	<5	m,p-Xylene	220
Hexane	<25	o-Xylene	15
Methylene chloride	<50	Styrene	<5
Methyl t-butyl ether (MTBE)	<5	Isopropylbenzene	<5
trans-1,2-Dichloroethene	<5	Bromoform	<5
1,1-Dichloroethane	<5	n-Propylbenzene	17
2,2-Dichloropropane	<5	Bromobenzene	<5
cis-1,2-Dichloroethene	<5	1,3,5-Trimethylbenzene	33
Chloroform	<5	1,1,2,2-Tetrachloroethane	<5
2-Butanone (MEK)	<50	1,2,3-Trichloropropane	<5
1,2-Dichloroethane (EDC)	<5	2-Chlorotoluene	<5
1,1,1-Trichloroethane	<5	4-Chlorotoluene	<5
1,1-Dichloropropene	<5	tert-Butylbenzene	<5
Carbon tetrachloride	<5	1,2,4-Trimethylbenzene	120
Benzene	4.0	sec-Butylbenzene	<5
Trichloroethene	<2	p-Isopropyltoluene	<5
1,2-Dichloropropane	<5	1,3-Dichlorobenzene	<5
Bromodichloromethane	<5	1,4-Dichlorobenzene	<5
Dibromomethane	<5	1,2-Dichlorobenzene	<5
4-Methyl-2-pentanone	<50	1,2-Dibromo-3-chloropropane	<50
cis-1,3-Dichloropropene	<5	1,2,4-Trichlorobenzene	<25
Toluene	<5	Hexachlorobutadiene	<25
trans-1,3-Dichloropropene	<5	Naphthalene	39
1,1,2-Trichloroethane	<5	1,2,3-Trichlorobenzene	<25
2-Hexanone	<50		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B8-5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-17
Date Analyzed:	06/05/17	Data File:	060515.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	102	55	145
4-Bromofluorobenzene	101	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	0.17
Acetone	0.61	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	2.1
Hexane	0.34	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	1.9
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	3.1
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	0.15
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	14
Benzene	0.70	sec-Butylbenzene	1.7
Trichloroethene	<0.02	p-Isopropyltoluene	1.6
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	0.16	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	30
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B9-6	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-19
Date Analyzed:	06/05/17	Data File:	060526.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	101	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B9-15	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-20
Date Analyzed:	06/05/17	Data File:	060527.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	142
Toluene-d8	102	55	145
4-Bromofluorobenzene	103	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	07-1159 mb
Date Analyzed:	06/02/17	Data File:	060211.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	100	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-1	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-01
Date Analyzed:	06/02/17	Data File:	060230.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-2	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-02
Date Analyzed:	06/02/17	Data File:	060231.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-3	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-03
Date Analyzed:	06/02/17	Data File:	060232.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	103	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B2-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-06
Date Analyzed:	06/02/17	Data File:	060233.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B3-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-08
Date Analyzed:	06/02/17	Data File:	060234.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B5-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-12
Date Analyzed:	06/02/17	Data File:	060235.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	16	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B6-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-14
Date Analyzed:	06/02/17	Data File:	060236.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	3.5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	11
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	25
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	0.64	sec-Butylbenzene	3.7
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	13
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B7-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-16
Date Analyzed:	06/02/17	Data File:	060218.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	101	63	127
4-Bromofluorobenzene	95	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	510 ve
Acetone	58	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	1,400 ve
Hexane	37	o-Xylene	130
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	24
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	30
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	30
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	35	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	75
Benzene	650 ve	sec-Butylbenzene	1.4
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	51	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	8.6
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B7-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-16 1/10
Date Analyzed:	06/05/17	Data File:	060514.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<10	1,3-Dichloropropane	<10
Chloromethane	<100	Tetrachloroethene	<10
Vinyl chloride	<2	Dibromochloromethane	<10
Bromomethane	<10	1,2-Dibromoethane (EDB)	<10
Chloroethane	<10	Chlorobenzene	<10
Trichlorofluoromethane	<10	Ethylbenzene	730
Acetone	<100	1,1,1,2-Tetrachloroethane	<10
1,1-Dichloroethene	<10	m,p-Xylene	1,900
Hexane	31	o-Xylene	130
Methylene chloride	<50	Styrene	<10
Methyl t-butyl ether (MTBE)	<10	Isopropylbenzene	24
trans-1,2-Dichloroethene	<10	Bromoform	<10
1,1-Dichloroethane	<10	n-Propylbenzene	30
2,2-Dichloropropane	<10	Bromobenzene	<10
cis-1,2-Dichloroethene	<10	1,3,5-Trimethylbenzene	29
Chloroform	<10	1,1,2,2-Tetrachloroethane	<10
2-Butanone (MEK)	<100	1,2,3-Trichloropropane	<10
1,2-Dichloroethane (EDC)	<10	2-Chlorotoluene	<10
1,1,1-Trichloroethane	<10	4-Chlorotoluene	<10
1,1-Dichloropropene	<10	tert-Butylbenzene	<10
Carbon tetrachloride	<10	1,2,4-Trimethylbenzene	74
Benzene	900	sec-Butylbenzene	<10
Trichloroethene	<10	p-Isopropyltoluene	<10
1,2-Dichloropropane	<10	1,3-Dichlorobenzene	<10
Bromodichloromethane	<10	1,4-Dichlorobenzene	<10
Dibromomethane	<10	1,2-Dichlorobenzene	<10
4-Methyl-2-pentanone	<100	1,2-Dibromo-3-chloropropane	<100
cis-1,3-Dichloropropene	<10	1,2,4-Trichlorobenzene	<10
Toluene	50	Hexachlorobutadiene	<10
trans-1,3-Dichloropropene	<10	Naphthalene	12
1,1,2-Trichloroethane	<10	1,2,3-Trichlorobenzene	<10
2-Hexanone	<100		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B8-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-18
Date Analyzed:	06/05/17	Data File:	060513.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	103	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	2.7
Acetone	15	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	15
Hexane	<1	o-Xylene	1.4
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	5.8
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	7.3
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	1.1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	61
Benzene	13	sec-Butylbenzene	2.8
Trichloroethene	<1	p-Isopropyltoluene	3.5
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	87
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B9-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-21
Date Analyzed:	06/02/17	Data File:	060220.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	101	63	127
4-Bromofluorobenzene	101	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	11	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	07-1162 mb
Date Analyzed:	06/02/17	Data File:	060217.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	101	63	127
4-Bromofluorobenzene	102	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	B8-5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/12/17	Lab ID:	706042-17 1/250
Date Analyzed:	06/12/17	Data File:	061206.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	57 d	56	115
Phenol-d6	65 d	54	113
Nitrobenzene-d5	1279 d	31	164
2-Fluorobiphenyl	82 d	47	133
2,4,6-Tribromophenol	76 d	35	141
Terphenyl-d14	112 d	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<25	Hexachlorocyclopentadiene	<7.5
Bis(2-chloroethyl) ether	<2.5	2,4,6-Trichlorophenol	<25
2-Chlorophenol	<25	2,4,5-Trichlorophenol	<25
1,3-Dichlorobenzene	<2.5	2-Chloronaphthalene	<2.5
1,4-Dichlorobenzene	<2.5	2-Nitroaniline	<12
1,2-Dichlorobenzene	<2.5	Dimethyl phthalate	<25
Benzyl alcohol	<25	2,6-Dinitrotoluene	<12
2,2'-Oxybis(1-chloropropane)	<2.5	3-Nitroaniline	<250
2-Methylphenol	<25	2,4-Dinitrophenol	<75
Hexachloroethane	<2.5	Dibenzofuran	16
N-Nitroso-di-n-propylamine	<2.5	2,4-Dinitrotoluene	<12
3-Methylphenol + 4-Methylphenol	<50	4-Nitrophenol	<75
Nitrobenzene	<2.5	Diethyl phthalate	<25
Isophorone	<2.5	4-Chlorophenyl phenyl ether	<2.5
2-Nitrophenol	<25	N-Nitrosodiphenylamine	<2.5
2,4-Dimethylphenol	<25	4-Nitroaniline	<250 ca
Benzoic acid	<120	4,6-Dinitro-2-methylphenol	<75
Bis(2-chloroethoxy)methane	<2.5	4-Bromophenyl phenyl ether	<2.5
2,4-Dichlorophenol	<25	Hexachlorobenzene	<2.5
1,2,4-Trichlorobenzene	<2.5	Pentachlorophenol	<25
Hexachlorobutadiene	<2.5	Carbazole	<25
4-Chloroaniline	<250	Di-n-butyl phthalate	<25
4-Chloro-3-methylphenol	<25	Benzyl butyl phthalate	<25
2-Methylnaphthalene	630 ve	Bis(2-ethylhexyl) phthalate	<40
1-Methylnaphthalene	480 ve	Di-n-octyl phthalate	<25 ca

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	B8-5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/12/17	Lab ID:	706042-17 1/500
Date Analyzed:	06/12/17	Data File:	061207.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	60 d	56	115
Phenol-d6	73 d	54	113
Nitrobenzene-d5	520 d	31	164
2-Fluorobiphenyl	110 d	47	133
2,4,6-Tribromophenol	80 d	35	141
Terphenyl-d14	120 d	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<50	Hexachlorocyclopentadiene	<15
Bis(2-chloroethyl) ether	<5	2,4,6-Trichlorophenol	<50
2-Chlorophenol	<50	2,4,5-Trichlorophenol	<50
1,3-Dichlorobenzene	<5	2-Chloronaphthalene	<5
1,4-Dichlorobenzene	<5	2-Nitroaniline	<25
1,2-Dichlorobenzene	<5	Dimethyl phthalate	<50
Benzyl alcohol	<50	2,6-Dinitrotoluene	<25
2,2'-Oxybis(1-chloropropane)	<5	3-Nitroaniline	<500
2-Methylphenol	<50	2,4-Dinitrophenol	<150
Hexachloroethane	<5	Dibenzofuran	19
N-Nitroso-di-n-propylamine	<5	2,4-Dinitrotoluene	<25
3-Methylphenol + 4-Methylphenol	<100	4-Nitrophenol	<150
Nitrobenzene	<5	Diethyl phthalate	<50
Isophorone	<5	4-Chlorophenyl phenyl ether	<5
2-Nitrophenol	<50	N-Nitrosodiphenylamine	<5
2,4-Dimethylphenol	<50	4-Nitroaniline	<500 ca
Benzoic acid	<250	4,6-Dinitro-2-methylphenol	<150
Bis(2-chloroethoxy)methane	<5	4-Bromophenyl phenyl ether	<5
2,4-Dichlorophenol	<50	Hexachlorobenzene	<5
1,2,4-Trichlorobenzene	<5	Pentachlorophenol	<50
Hexachlorobutadiene	<5	Carbazole	<50
4-Chloroaniline	<500	Di-n-butyl phthalate	<50
4-Chloro-3-methylphenol	<50	Benzyl butyl phthalate	<50
2-Methylnaphthalene	710	Bis(2-ethylhexyl) phthalate	<80
1-Methylnaphthalene	540	Di-n-octyl phthalate	<50 ca

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/12/17	Lab ID:	07-1242 mb
Date Analyzed:	06/12/17	Data File:	061205.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	109	56	115
Phenol-d6	94	54	113
Nitrobenzene-d5	100	31	164
2-Fluorobiphenyl	100	47	133
2,4,6-Tribromophenol	100	35	141
Terphenyl-d14	103	24	188

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.1	Hexachlorocyclopentadiene	<0.03
Bis(2-chloroethyl) ether	<0.01	2,4,6-Trichlorophenol	<0.1
2-Chlorophenol	<0.1	2,4,5-Trichlorophenol	<0.1
1,3-Dichlorobenzene	<0.01	2-Chloronaphthalene	<0.01
1,4-Dichlorobenzene	<0.01	2-Nitroaniline	<0.05
1,2-Dichlorobenzene	<0.01	Dimethyl phthalate	<0.1
Benzyl alcohol	<0.1	2,6-Dinitrotoluene	<0.05
2,2'-Oxybis(1-chloropropane)	<0.01	3-Nitroaniline	<1
2-Methylphenol	<0.1	2,4-Dinitrophenol	<0.3
Hexachloroethane	<0.01	Dibenzofuran	<0.01
N-Nitroso-di-n-propylamine	<0.01	2,4-Dinitrotoluene	<0.05
3-Methylphenol + 4-Methylphenol	<0.2	4-Nitrophenol	<0.3
Nitrobenzene	<0.01	Diethyl phthalate	<0.1
Isophorone	<0.01	4-Chlorophenyl phenyl ether	<0.01
2-Nitrophenol	<0.1	N-Nitrosodiphenylamine	<0.01
2,4-Dimethylphenol	<0.1	4-Nitroaniline	<1 ca
Benzoic acid	<0.5	4,6-Dinitro-2-methylphenol	<0.3
Bis(2-chloroethoxy)methane	<0.01	4-Bromophenyl phenyl ether	<0.01
2,4-Dichlorophenol	<0.1	Hexachlorobenzene	<0.01
1,2,4-Trichlorobenzene	<0.01	Pentachlorophenol	<0.1
Hexachlorobutadiene	<0.01	Carbazole	<0.1
4-Chloroaniline	<1	Di-n-butyl phthalate	<0.1
4-Chloro-3-methylphenol	<0.1	Benzyl butyl phthalate	<0.1
2-Methylnaphthalene	<0.01	Bis(2-ethylhexyl) phthalate	<0.16
1-Methylnaphthalene	<0.01	Di-n-octyl phthalate	<0.1 ca

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B1-6	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-04 1/50
Date Analyzed:	06/05/17	Data File:	060504.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	141 d	31	163
Benzo(a)anthracene-d12	135 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	0.13
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B2-5.5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-05 1/5
Date Analyzed:	06/02/17	Data File:	060212.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	110	31	163
Benzo(a)anthracene-d12	124	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
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	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B3-4.5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-07 1/5
Date Analyzed:	06/02/17	Data File:	060213.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	103	31	163
Benzo(a)anthracene-d12	119	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
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	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B4-4.5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-09 1/5
Date Analyzed:	06/03/17	Data File:	060214.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	97	31	163
Benzo(a)anthracene-d12	110	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.014
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.018
Anthracene	<0.01
Fluoranthene	0.029
Pyrene	0.028
Benz(a)anthracene	0.014
Chrysene	0.016
Benzo(a)pyrene	0.015
Benzo(b)fluoranthene	0.017
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B4-7.5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-10 1/5
Date Analyzed:	06/03/17	Data File:	060215.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	102	31	163
Benzo(a)anthracene-d12	113	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
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	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B5-7'	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-11 1/5
Date Analyzed:	06/03/17	Data File:	060216.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	98	31	163
Benzo(a)anthracene-d12	113	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
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	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B6-13	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-13 1/5
Date Analyzed:	06/03/17	Data File:	060217.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	99	31	163
Benzo(a)anthracene-d12	110	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
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	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B7-7'	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-15 1/5
Date Analyzed:	06/03/17	Data File:	060218.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	103	31	163
Benzo(a)anthracene-d12	117	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	28 ve
Acenaphthylene	<0.01
Acenaphthene	0.055
Fluorene	0.073
Phenanthrene	0.10
Anthracene	0.023
Fluoranthene	0.020
Pyrene	0.027
Benz(a)anthracene	<0.01
Chrysene	0.010
Benzo(a)pyrene	0.013
Benzo(b)fluoranthene	0.013
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	0.012

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B7-7'	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-15 1/500
Date Analyzed:	06/05/17	Data File:	060503.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	314 d	31	163
Benzo(a)anthracene-d12	140 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	50
Acenaphthylene	<1
Acenaphthene	<1
Fluorene	<1
Phenanthrene	<1
Anthracene	<1
Fluoranthene	<1
Pyrene	<1
Benz(a)anthracene	<1
Chrysene	<1
Benzo(a)pyrene	<1
Benzo(b)fluoranthene	<1
Benzo(k)fluoranthene	<1
Indeno(1,2,3-cd)pyrene	<1
Dibenz(a,h)anthracene	<1
Benzo(g,h,i)perylene	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B8-5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-17 1/50
Date Analyzed:	06/03/17	Data File:	060224.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	132 d	31	163
Benzo(a)anthracene-d12	109 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	47 ve
Acenaphthylene	<0.1
Acenaphthene	3.6
Fluorene	8.4
Phenanthrene	16
Anthracene	<0.1
Fluoranthene	0.38
Pyrene	1.2
Benz(a)anthracene	<0.1
Chrysene	0.22
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	0.11
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	0.11

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B8-5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-17 1/250
Date Analyzed:	06/03/17	Data File:	060222.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	219 d	31	163
Benzo(a)anthracene-d12	103 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	44
Acenaphthylene	<0.5
Acenaphthene	3.0
Fluorene	10
Phenanthrene	15
Anthracene	<0.5
Fluoranthene	<0.5
Pyrene	1.3
Benz(a)anthracene	<0.5
Chrysene	<0.5
Benzo(a)pyrene	<0.5
Benzo(b)fluoranthene	<0.5
Benzo(k)fluoranthene	<0.5
Indeno(1,2,3-cd)pyrene	<0.5
Dibenz(a,h)anthracene	<0.5
Benzo(g,h,i)perylene	<0.5

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B9-6	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-19 1/5
Date Analyzed:	06/07/17	Data File:	060725.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	97	31	163
Benzo(a)anthracene-d12	114	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.027
Anthracene	<0.01
Fluoranthene	0.036
Pyrene	0.041
Benz(a)anthracene	0.016
Chrysene	0.021
Benzo(a)pyrene	0.018
Benzo(b)fluoranthene	0.023
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	0.013
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	0.013

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B9-15	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	706042-20 1/5
Date Analyzed:	06/03/17	Data File:	060220.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	104	31	163
Benzo(a)anthracene-d12	121	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
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	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/02/17	Lab ID:	07-1184 mb 1/5
Date Analyzed:	06/02/17	Data File:	060205.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	100	31	163
Benzo(a)anthracene-d12	118	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
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	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-1	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/06/17	Lab ID:	706042-01 1/2
Date Analyzed:	06/07/17	Data File:	060707.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90	31	160
Benzo(a)anthracene-d12	96	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-2	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/06/17	Lab ID:	706042-02 1/2
Date Analyzed:	06/07/17	Data File:	060708.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	160
Benzo(a)anthracene-d12	98	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-3	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/06/17	Lab ID:	706042-03 1/2
Date Analyzed:	06/07/17	Data File:	060709.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	92	31	160
Benzo(a)anthracene-d12	100	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B2-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/06/17	Lab ID:	706042-06 1/2
Date Analyzed:	06/07/17	Data File:	060710.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	87	31	160
Benzo(a)anthracene-d12	94	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B3-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/06/17	Lab ID:	706042-08 1/2
Date Analyzed:	06/07/17	Data File:	060711.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90	31	160
Benzo(a)anthracene-d12	93	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B5-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/06/17	Lab ID:	706042-12 1/2
Date Analyzed:	06/07/17	Data File:	060712.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	31	160
Benzo(a)anthracene-d12	96	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.06
Acenaphthylene	<0.06
Acenaphthene	<0.06
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B6-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/06/17	Lab ID:	706042-14 1/2
Date Analyzed:	06/07/17	Data File:	060713.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	92	31	160
Benzo(a)anthracene-d12	92	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	4.5
Acenaphthylene	<0.06
Acenaphthene	0.078
Fluorene	<0.06
Phenanthrene	<0.06
Anthracene	<0.06
Fluoranthene	<0.06
Pyrene	<0.06
Benz(a)anthracene	<0.06
Chrysene	<0.06
Benzo(a)pyrene	<0.06
Benzo(b)fluoranthene	<0.06
Benzo(k)fluoranthene	<0.06
Indeno(1,2,3-cd)pyrene	<0.06
Dibenz(a,h)anthracene	<0.06
Benzo(g,h,i)perylene	<0.06

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B8-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/06/17	Lab ID:	706042-18 1/10
Date Analyzed:	06/07/17	Data File:	060714.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	78	31	160
Benzo(a)anthracene-d12	82	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	43
Acenaphthylene	<0.3
Acenaphthene	1.9
Fluorene	7.6
Phenanthrene	12
Anthracene	<0.3
Fluoranthene	<0.3
Pyrene	0.69
Benz(a)anthracene	<0.3
Chrysene	<0.3
Benzo(a)pyrene	<0.3
Benzo(b)fluoranthene	<0.3
Benzo(k)fluoranthene	<0.3
Indeno(1,2,3-cd)pyrene	<0.3
Dibenz(a,h)anthracene	<0.3
Benzo(g,h,i)perylene	<0.3

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/06/17	Lab ID:	07-1210 mb
Date Analyzed:	06/07/17	Data File:	060706.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	90	31	160
Benzo(a)anthracene-d12	97	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.03
Acenaphthylene	<0.03
Acenaphthene	<0.03
Fluorene	<0.03
Phenanthrene	<0.03
Anthracene	<0.03
Fluoranthene	<0.03
Pyrene	<0.03
Benz(a)anthracene	<0.03
Chrysene	<0.03
Benzo(a)pyrene	<0.03
Benzo(b)fluoranthene	<0.03
Benzo(k)fluoranthene	<0.03
Indeno(1,2,3-cd)pyrene	<0.03
Dibenz(a,h)anthracene	<0.03
Benzo(g,h,i)perylene	<0.03

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	B1-6	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-04 1/50
Date Analyzed:	06/06/17	Data File:	060523.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	55 d	29	154

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.2
Aroclor 1232	<0.2
Aroclor 1016	<0.2
Aroclor 1242	<0.2
Aroclor 1248	<0.2
Aroclor 1254	<0.2
Aroclor 1260	<0.2
Aroclor 1262	<0.2
Aroclor 1268	<0.2

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	B2-5.5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-05 1/50
Date Analyzed:	06/05/17	Data File:	060515.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	65 d	29	154

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.2
Aroclor 1232	<0.2
Aroclor 1016	<0.2
Aroclor 1242	<0.2
Aroclor 1248	<0.2
Aroclor 1254	<0.2
Aroclor 1260	<0.2
Aroclor 1262	<0.2
Aroclor 1268	<0.2

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	B3-4.5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-07 1/50
Date Analyzed:	06/05/17	Data File:	060508.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	65 d	29	154

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.2
Aroclor 1232	<0.2
Aroclor 1016	<0.2
Aroclor 1242	<0.2
Aroclor 1248	<0.2
Aroclor 1254	<0.2
Aroclor 1260	<0.2
Aroclor 1262	<0.2
Aroclor 1268	<0.2

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	B4-4.5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-09 1/50
Date Analyzed:	06/05/17	Data File:	060511.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	55 d	29	154

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.2
Aroclor 1232	<0.2
Aroclor 1016	<0.2
Aroclor 1242	<0.2
Aroclor 1248	<0.2
Aroclor 1254	<0.2
Aroclor 1260	<0.2
Aroclor 1262	<0.2
Aroclor 1268	<0.2

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	B4-7.5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-10 1/50
Date Analyzed:	06/05/17	Data File:	060512.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	55 d	29	154

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.2
Aroclor 1232	<0.2
Aroclor 1016	<0.2
Aroclor 1242	<0.2
Aroclor 1248	<0.2
Aroclor 1254	<0.2
Aroclor 1260	<0.2
Aroclor 1262	<0.2
Aroclor 1268	<0.2

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	B8-5	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-17 1/100
Date Analyzed:	06/06/17	Data File:	060522.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	50 d	29	154

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.4
Aroclor 1232	<0.4
Aroclor 1016	<0.4
Aroclor 1242	<0.4
Aroclor 1248	<0.4
Aroclor 1254	<0.4
Aroclor 1260	<0.4
Aroclor 1262	<0.4
Aroclor 1268	<0.4

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	B9-6	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-19 1/50
Date Analyzed:	06/05/17	Data File:	060513.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	65 d	29	154

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.2
Aroclor 1232	<0.2
Aroclor 1016	<0.2
Aroclor 1242	<0.2
Aroclor 1248	<0.2
Aroclor 1254	<0.2
Aroclor 1260	<0.2
Aroclor 1262	<0.2
Aroclor 1268	<0.2

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	B9-15	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	706042-20 1/50
Date Analyzed:	06/05/17	Data File:	060514.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	55 d	29	154

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.2
Aroclor 1232	<0.2
Aroclor 1016	<0.2
Aroclor 1242	<0.2
Aroclor 1248	<0.2
Aroclor 1254	<0.2
Aroclor 1260	<0.2
Aroclor 1262	<0.2
Aroclor 1268	<0.2

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/05/17	Lab ID:	07-1203 mb 1/5
Date Analyzed:	06/05/17	Data File:	060507.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	73	29	154

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MW-1	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/06/17	Lab ID:	706042-01
Date Analyzed:	06/07/17	Data File:	060707.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	52	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MW-2	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/06/17	Lab ID:	706042-02
Date Analyzed:	06/07/17	Data File:	060708.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	47	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MW-3	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/06/17	Lab ID:	706042-03
Date Analyzed:	06/07/17	Data File:	060709.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	49	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	B2-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/06/17	Lab ID:	706042-06
Date Analyzed:	06/07/17	Data File:	060710.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	46	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	B3-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/06/17	Lab ID:	706042-08
Date Analyzed:	06/07/17	Data File:	060711.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	47	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	B8-W	Client:	EHSI
Date Received:	06/02/17	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/06/17	Lab ID:	706042-18 1/4
Date Analyzed:	06/07/17	Data File:	060712.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	45	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.4
Aroclor 1232	<0.4
Aroclor 1016	<0.4
Aroclor 1242	<0.4
Aroclor 1248	<0.4
Aroclor 1254	<0.4
Aroclor 1260	<0.4
Aroclor 1262	<0.4
Aroclor 1268	<0.4

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	PCLS-Buckley, PO 10949
Date Extracted:	06/06/17	Lab ID:	07-1212 mb
Date Analyzed:	06/07/17	Data File:	060706.D
Matrix:	Water	Instrument:	GC7
Units:	ug/L (ppb)	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	48	24	127

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.1
Aroclor 1232	<0.1
Aroclor 1016	<0.1
Aroclor 1242	<0.1
Aroclor 1248	<0.1
Aroclor 1254	<0.1
Aroclor 1260	<0.1
Aroclor 1262	<0.1
Aroclor 1268	<0.1

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042

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

Laboratory Code: 706016-04 (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	78	69-134

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042

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

Laboratory Code: 706042-01 (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	93	70-119

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042

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

Laboratory Code: 706042-04 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<2	3	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	85	71-131

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	90	92	63-142	2

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042

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

Laboratory Code: 706023-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	97	96	63-146	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	97	79-144

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042

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

Laboratory Code: 706033-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	98	101	73-135	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	99	74-139

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042

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

Laboratory Code: 706042-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	101	103	75-125	2
Barium	ug/L (ppb)	50	19.3	105	105	75-125	0
Cadmium	ug/L (ppb)	5	<1	101	104	75-125	3
Chromium	ug/L (ppb)	20	<1	101	105	75-125	4
Lead	ug/L (ppb)	10	<1	96	98	75-125	2
Mercury	ug/L (ppb)	5	<1	97	101	75-125	4
Selenium	ug/L (ppb)	5	<1	103	106	75-125	3
Silver	ug/L (ppb)	5	<1	94	96	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	85	80-120
Barium	ug/L (ppb)	50	90	80-120
Cadmium	ug/L (ppb)	5	92	80-120
Chromium	ug/L (ppb)	20	96	80-120
Lead	ug/L (ppb)	10	94	80-120
Mercury	ug/L (ppb)	5	92	80-120
Selenium	ug/L (ppb)	5	92	80-120
Silver	ug/L (ppb)	5	92	80-120

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042

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

Laboratory Code: 706042-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	2.64	111	113	75-125	2
Barium	ug/L (ppb)	50	6.81	106	108	75-125	2
Cadmium	ug/L (ppb)	5	<1	102	102	75-125	0
Chromium	ug/L (ppb)	20	1.39	107	108	75-125	1
Lead	ug/L (ppb)	10	<1	97	99	75-125	2
Mercury	ug/L (ppb)	5	<1	99	101	75-125	2
Selenium	ug/L (ppb)	5	<1	104	99	75-125	5
Silver	ug/L (ppb)	5	<1	94	95	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	96	80-120
Barium	ug/L (ppb)	50	96	80-120
Cadmium	ug/L (ppb)	5	100	80-120
Chromium	ug/L (ppb)	20	104	80-120
Lead	ug/L (ppb)	10	102	80-120
Mercury	ug/L (ppb)	5	101	80-120
Selenium	ug/L (ppb)	5	99	80-120
Silver	ug/L (ppb)	5	98	80-120

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042

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

Laboratory Code: 706041-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	4.52	96	95	75-125	1
Barium	mg/kg (ppm)	50	109	92	85	75-125	8
Cadmium	mg/kg (ppm)	10	<1	93	91	75-125	2
Chromium	mg/kg (ppm)	50	21.7	90	91	75-125	1
Lead	mg/kg (ppm)	50	49.0	62 b	97 b	75-125	44 b
Mercury	mg/kg (ppm	5	<1	82	87	75-125	6
Selenium	mg/kg (ppm)	5	<1	85	85	75-125	0
Silver	mg/kg (ppm)	10	<1	84	84	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	100	80-120
Barium	mg/kg (ppm)	50	106	80-120
Cadmium	mg/kg (ppm)	10	102	80-120
Chromium	mg/kg (ppm)	50	105	80-120
Lead	mg/kg (ppm)	50	101	80-120
Mercury	mg/kg (ppm)	5	100	80-120
Selenium	mg/kg (ppm)	5	102	80-120
Silver	mg/kg (ppm)	10	100	80-120

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042

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

Laboratory Code: 706028-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	14	10-142
Chloromethane	mg/kg (ppm)	2.5	<0.5	44	10-126
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	44	10-138
Bromomethane	mg/kg (ppm)	2.5	<0.5	54	10-163
Chloroethane	mg/kg (ppm)	2.5	<0.5	57	10-176
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	48	10-176
Acetone	mg/kg (ppm)	12.5	<0.5	79	10-163
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	60	10-160
Hexane	mg/kg (ppm)	2.5	<0.25	41	10-137
Methylene chloride	mg/kg (ppm)	2.5	<0.5	76	10-156
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	79	21-145
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	73	14-137
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	74	19-140
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	79	10-158
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	79	25-135
Chloroform	mg/kg (ppm)	2.5	<0.05	79	21-145
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	88	19-147
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	80	12-160
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	74	10-156
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	72	17-140
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	73	9-164
Benzene	mg/kg (ppm)	2.5	<0.03	76	29-129
Trichloroethene	mg/kg (ppm)	2.5	<0.02	77	21-139
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	81	30-135
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	83	23-155
Dibromomethane	mg/kg (ppm)	2.5	<0.05	83	23-145
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	83	24-155
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	83	28-144
Toluene	mg/kg (ppm)	2.5	<0.05	75	35-130
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	86	26-149
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	82	10-205
2-Hexanone	mg/kg (ppm)	12.5	<0.5	85	15-166
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	82	31-137
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	78	20-133
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	84	28-150
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	83	28-142
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	81	32-129
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	80	32-137
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	85	31-143
m,p-Xylene	mg/kg (ppm)	5	<0.1	81	34-136
o-Xylene	mg/kg (ppm)	2.5	<0.05	80	33-134
Styrene	mg/kg (ppm)	2.5	<0.05	82	35-137
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	80	31-142
Bromoform	mg/kg (ppm)	2.5	<0.05	82	21-156
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	80	23-146
Bromobenzene	mg/kg (ppm)	2.5	<0.05	83	34-130
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	80	18-149
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	83	28-140
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	82	25-144
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	80	31-134
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	80	31-136
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	80	30-137
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	80	10-182
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	79	23-145
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	81	21-149
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	81	30-131
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	79	29-129
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	81	31-132
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	81	11-161
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	80	22-142
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	81	10-142
Naphthalene	mg/kg (ppm)	2.5	<0.05	82	14-157
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	81	20-144

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	48	49	10-146	2
Chloromethane	mg/kg (ppm)	2.5	72	73	27-133	1
Vinyl chloride	mg/kg (ppm)	2.5	78	78	22-139	0
Bromomethane	mg/kg (ppm)	2.5	86	88	38-114	2
Chloroethane	mg/kg (ppm)	2.5	89	89	10-163	0
Trichlorofluoromethane	mg/kg (ppm)	2.5	89	92	10-196	3
Acetone	mg/kg (ppm)	12.5	103	103	52-141	0
1,1-Dichloroethene	mg/kg (ppm)	2.5	94	94	47-128	0
Hexane	mg/kg (ppm)	2.5	91	90	43-142	1
Methylene chloride	mg/kg (ppm)	2.5	101	102	42-132	1
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	101	101	60-123	0
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	100	101	67-127	1
1,1-Dichloroethane	mg/kg (ppm)	2.5	98	98	68-115	0
2,2-Dichloropropane	mg/kg (ppm)	2.5	105	105	52-170	0
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	100	102	72-113	2
Chloroform	mg/kg (ppm)	2.5	102	102	66-120	0
2-Butanone (MEK)	mg/kg (ppm)	12.5	110	112	57-123	2
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	101	102	56-135	1
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	101	102	62-131	1
1,1-Dichloropropene	mg/kg (ppm)	2.5	99	100	69-128	1
Carbon tetrachloride	mg/kg (ppm)	2.5	102	101	60-139	1
Benzene	mg/kg (ppm)	2.5	99	100	68-114	1
Trichloroethene	mg/kg (ppm)	2.5	99	101	64-117	2
1,2-Dichloropropane	mg/kg (ppm)	2.5	104	105	72-127	1
Bromodichloromethane	mg/kg (ppm)	2.5	105	106	72-130	1
Dibromomethane	mg/kg (ppm)	2.5	105	106	70-120	1
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	102	106	45-145	4
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	106	108	75-136	2
Toluene	mg/kg (ppm)	2.5	96	97	66-126	1
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	106	109	72-132	3
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	101	103	75-113	2
2-Hexanone	mg/kg (ppm)	12.5	106	110	33-152	4
1,3-Dichloropropane	mg/kg (ppm)	2.5	103	105	72-130	2
Tetrachloroethene	mg/kg (ppm)	2.5	100	101	72-114	1
Dibromochloromethane	mg/kg (ppm)	2.5	107	107	74-125	0
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	104	106	74-132	2
Chlorobenzene	mg/kg (ppm)	2.5	101	102	76-111	1
Ethylbenzene	mg/kg (ppm)	2.5	101	102	64-123	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	105	105	69-135	0
m,p-Xylene	mg/kg (ppm)	5	102	103	78-122	1
o-Xylene	mg/kg (ppm)	2.5	100	101	77-124	1
Styrene	mg/kg (ppm)	2.5	103	104	74-126	1
Isopropylbenzene	mg/kg (ppm)	2.5	99	101	76-127	2
Bromoform	mg/kg (ppm)	2.5	107	106	56-132	1
n-Propylbenzene	mg/kg (ppm)	2.5	99	101	74-124	2
Bromobenzene	mg/kg (ppm)	2.5	102	105	72-122	3
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	99	101	76-126	2
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	103	105	56-143	2
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	99	102	61-137	3
2-Chlorotoluene	mg/kg (ppm)	2.5	98	102	74-121	4
4-Chlorotoluene	mg/kg (ppm)	2.5	99	101	75-122	2
tert-Butylbenzene	mg/kg (ppm)	2.5	99	102	73-130	3
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	100	102	76-125	2
sec-Butylbenzene	mg/kg (ppm)	2.5	98	101	71-130	3
p-Isopropyltoluene	mg/kg (ppm)	2.5	100	103	70-132	3
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	100	103	75-121	3
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	98	101	74-117	3
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	99	104	76-121	5
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	101	106	58-138	5
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	97	102	64-135	5
Hexachlorobutadiene	mg/kg (ppm)	2.5	98	102	50-153	4
Naphthalene	mg/kg (ppm)	2.5	99	105	63-140	6
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	97	102	63-138	5

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

Laboratory Code: 706048-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	102	10-172
Chloromethane	ug/L (ppb)	50	<10	101	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	99	36-166
Bromomethane	ug/L (ppb)	50	<1	109	47-169
Chloroethane	ug/L (ppb)	50	<1	104	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	104	44-165
Acetone	ug/L (ppb)	250	<10	100	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	98	60-136
Hexane	ug/L (ppb)	50	<1	100	52-150
Methylene chloride	ug/L (ppb)	50	<5	98	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	97	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	100	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	97	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	104	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	99	71-127
Chloroform	ug/L (ppb)	50	<1	100	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	110	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	99	69-133
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	99	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	98	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	101	56-152
Benzene	ug/L (ppb)	50	<0.35	97	76-125
Trichloroethene	ug/L (ppb)	50	<1	98	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	101	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	104	61-150
Dibromomethane	ug/L (ppb)	50	<1	102	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	102	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	104	72-132
Toluene	ug/L (ppb)	50	<1	93	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	105	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	99	68-131
2-Hexanone	ug/L (ppb)	250	<10	104	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	100	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	96	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	107	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	103	69-134
Chlorobenzene	ug/L (ppb)	50	<1	97	77-122
Ethylbenzene	ug/L (ppb)	50	<1	96	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	101	73-137
m,p-Xylene	ug/L (ppb)	100	<2	97	69-135
o-Xylene	ug/L (ppb)	50	<1	95	60-140
Styrene	ug/L (ppb)	50	<1	98	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	94	65-142
Bromoform	ug/L (ppb)	50	<1	110	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	94	58-144
Bromobenzene	ug/L (ppb)	50	<1	98	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	94	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	100	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	98	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	94	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	95	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	94	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	95	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	94	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	95	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	97	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	94	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	97	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	105	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	96	66-136
Hexachlorobutadiene	ug/L (ppb)	50	<1	95	60-143
Naphthalene	ug/L (ppb)	50	<1	99	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	96	69-148

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	113	114	25-158	1
Chloromethane	ug/L (ppb)	50	104	103	45-156	1
Vinyl chloride	ug/L (ppb)	50	103	104	50-154	1
Bromomethane	ug/L (ppb)	50	106	112	55-143	6
Chloroethane	ug/L (ppb)	50	105	108	58-146	3
Trichlorofluoromethane	ug/L (ppb)	250	109	111	50-150	2
Acetone	ug/L (ppb)	250	120	119	53-131	1
1,1-Dichloroethene	ug/L (ppb)	50	104	103	67-136	1
Hexane	ug/L (ppb)	50	101	103	57-137	2
Methylene chloride	ug/L (ppb)	50	101	101	39-148	0
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	100	101	64-147	1
trans-1,2-Dichloroethene	ug/L (ppb)	50	105	104	68-128	1
1,1-Dichloroethane	ug/L (ppb)	50	100	100	79-121	0
2,2-Dichloropropane	ug/L (ppb)	50	100	100	55-143	0
cis-1,2-Dichloroethene	ug/L (ppb)	50	102	101	80-123	1
Chloroform	ug/L (ppb)	50	102	102	80-121	0
2-Butanone (MEK)	ug/L (ppb)	250	116	115	57-149	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	101	101	73-132	0
1,1,1-Trichloroethane	ug/L (ppb)	50	103	104	83-130	1
1,1-Dichloropropene	ug/L (ppb)	50	102	102	77-129	0
Carbon tetrachloride	ug/L (ppb)	50	106	106	75-158	0
Benzene	ug/L (ppb)	50	100	99	69-134	1
Trichloroethene	ug/L (ppb)	50	101	101	80-120	0
1,2-Dichloropropane	ug/L (ppb)	50	105	104	77-123	1
Bromodichloromethane	ug/L (ppb)	50	107	107	81-133	0
Dibromomethane	ug/L (ppb)	50	106	105	82-125	1
4-Methyl-2-pentanone	ug/L (ppb)	250	104	104	65-138	0
cis-1,3-Dichloropropene	ug/L (ppb)	50	106	106	82-132	0
Toluene	ug/L (ppb)	50	96	96	72-122	0
trans-1,3-Dichloropropene	ug/L (ppb)	50	108	107	80-136	1
1,1,2-Trichloroethane	ug/L (ppb)	50	101	101	75-124	0
2-Hexanone	ug/L (ppb)	250	109	107	60-136	2
1,3-Dichloropropane	ug/L (ppb)	50	103	102	76-126	1
Tetrachloroethene	ug/L (ppb)	50	100	99	76-121	1
Dibromochloromethane	ug/L (ppb)	50	111	110	84-133	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	105	104	82-125	1
Chlorobenzene	ug/L (ppb)	50	100	99	83-114	1
Ethylbenzene	ug/L (ppb)	50	100	99	77-124	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	105	104	84-127	1
m,p-Xylene	ug/L (ppb)	100	100	100	83-125	0
o-Xylene	ug/L (ppb)	50	97	98	81-121	1
Styrene	ug/L (ppb)	50	100	100	84-119	0
Isopropylbenzene	ug/L (ppb)	50	97	97	85-117	0
Bromoform	ug/L (ppb)	50	111	111	74-136	0
n-Propylbenzene	ug/L (ppb)	50	98	97	74-126	1
Bromobenzene	ug/L (ppb)	50	102	100	80-121	2
1,3,5-Trimethylbenzene	ug/L (ppb)	50	98	97	78-123	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	102	99	66-126	3
1,2,3-Trichloropropane	ug/L (ppb)	50	101	98	67-124	3
2-Chlorotoluene	ug/L (ppb)	50	99	97	77-127	2
4-Chlorotoluene	ug/L (ppb)	50	98	97	78-128	1
tert-Butylbenzene	ug/L (ppb)	50	98	98	80-123	0
1,2,4-Trimethylbenzene	ug/L (ppb)	50	98	97	79-122	1
sec-Butylbenzene	ug/L (ppb)	50	98	97	80-125	1
p-Isopropyltoluene	ug/L (ppb)	50	99	99	81-123	0
1,3-Dichlorobenzene	ug/L (ppb)	50	100	99	85-116	1
1,4-Dichlorobenzene	ug/L (ppb)	50	97	96	84-121	1
1,2-Dichlorobenzene	ug/L (ppb)	50	100	99	85-116	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	108	107	57-141	1
1,2,4-Trichlorobenzene	ug/L (ppb)	50	100	99	72-130	1
Hexachlorobutadiene	ug/L (ppb)	50	100	100	53-141	0
Naphthalene	ug/L (ppb)	50	103	102	64-133	1
1,2,3-Trichlorobenzene	ug/L (ppb)	50	101	101	65-136	0

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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Phenol	mg/kg (ppm)	0.33	109	117	51-119	7
Bis(2-chloroethyl) ether	mg/kg (ppm)	0.33	94	104	60-112	10
2-Chlorophenol	mg/kg (ppm)	0.33	93	99	59-114	6
1,3-Dichlorobenzene	mg/kg (ppm)	0.33	84	93	62-113	10
1,4-Dichlorobenzene	mg/kg (ppm)	0.33	83	91	61-114	9
1,2-Dichlorobenzene	mg/kg (ppm)	0.33	85	93	61-113	9
Benzyl alcohol	mg/kg (ppm)	0.33	92	99	50-119	7
2,2'-Oxybis(1-chloropropane)	mg/kg (ppm)	0.33	83	89	59-113	7
2-Methylphenol	mg/kg (ppm)	0.33	87	94	58-115	8
Hexachloroethane	mg/kg (ppm)	0.33	85	94	63-114	10
N-Nitroso-di-n-propylamine	mg/kg (ppm)	0.33	93	100	62-114	7
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	0.33	89	96	54-120	8
Nitrobenzene	mg/kg (ppm)	0.33	90	95	59-114	5
Isophorone	mg/kg (ppm)	0.33	96	100	61-113	4
2-Nitrophenol	mg/kg (ppm)	0.33	98	106	59-114	8
2,4-Dimethylphenol	mg/kg (ppm)	0.33	85	86	54-107	1
Benzoic acid	mg/kg (ppm)	0.5	112	114	43-150	2
Bis(2-chloroethoxy)methane	mg/kg (ppm)	0.33	92	99	60-114	7
2,4-Dichlorophenol	mg/kg (ppm)	0.33	94	100	57-118	6
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.33	88	95	56-112	8
Hexachlorobutadiene	mg/kg (ppm)	0.33	87	94	60-116	8
4-Chloroaniline	mg/kg (ppm)	0.66	53	56	10-126	6
4-Chloro-3-methylphenol	mg/kg (ppm)	0.33	95	101	59-115	6
2-Methylnaphthalene	mg/kg (ppm)	0.33	91	98	60-115	7
1-Methylnaphthalene	mg/kg (ppm)	0.33	91	97	70-130	6
Hexachlorocyclopentadiene	mg/kg (ppm)	0.33	125 vo	130 vo	41-107	4
2,4,6-Trichlorophenol	mg/kg (ppm)	0.33	105	114	47-119	8
2,4,5-Trichlorophenol	mg/kg (ppm)	0.33	101	106	61-121	5
2-Chloronaphthalene	mg/kg (ppm)	0.33	93	98	58-114	5
2-Nitroaniline	mg/kg (ppm)	0.33	95	100	55-119	5
Dimethyl phthalate	mg/kg (ppm)	0.33	87	92	58-116	6
2,6-Dinitrotoluene	mg/kg (ppm)	0.33	102	108	57-119	6
3-Nitroaniline	mg/kg (ppm)	0.66	66	74	10-143	11
2,4-Dinitrophenol	mg/kg (ppm)	0.33	125 vo	134 vo	40-122	7
Dibenzofuran	mg/kg (ppm)	0.33	91	96	56-115	5
2,4-Dinitrotoluene	mg/kg (ppm)	0.33	100	108	53-126	8
4-Nitrophenol	mg/kg (ppm)	0.33	89	95	40-124	7
Diethyl phthalate	mg/kg (ppm)	0.33	83	88	57-116	6
4-Chlorophenyl phenyl ether	mg/kg (ppm)	0.33	88	94	54-119	7
N-Nitrosodiphenylamine	mg/kg (ppm)	0.33	86	95	54-113	10
4-Nitroaniline	mg/kg (ppm)	0.66	70	80	47-109	13
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	0.33	120	129	55-147	7
4-Bromophenyl phenyl ether	mg/kg (ppm)	0.33	96	102	56-116	6
Hexachlorobenzene	mg/kg (ppm)	0.33	94	99	57-115	5
Pentachlorophenol	mg/kg (ppm)	0.33	108	116	45-123	7
Carbazole	mg/kg (ppm)	0.33	79	93	57-116	16
Di-n-butyl phthalate	mg/kg (ppm)	0.33	95	102	56-118	7
Benzyl butyl phthalate	mg/kg (ppm)	0.33	101	111	56-122	9
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	0.33	86	96	56-155	11
Di-n-octyl phthalate	mg/kg (ppm)	0.33	80	87	58-120	8

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: 706003-17 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	<0.01	82	81	44-129	1
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	83	80	52-121	4
Acenaphthene	mg/kg (ppm)	0.17	<0.01	83	80	51-123	4
Fluorene	mg/kg (ppm)	0.17	<0.01	84	80	37-137	5
Phenanthrene	mg/kg (ppm)	0.17	<0.01	84	79	34-141	6
Anthracene	mg/kg (ppm)	0.17	<0.01	82	76	32-124	8
Fluoranthene	mg/kg (ppm)	0.17	<0.01	91	82	16-160	10
Pyrene	mg/kg (ppm)	0.17	<0.01	88	84	10-180	5
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	88	80	23-144	10
Chrysene	mg/kg (ppm)	0.17	<0.01	85	78	32-149	9
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	0.0099	83	74	23-176	11
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	83	75	42-139	10
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	82	73	21-163	12
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	80	69	23-170	15
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	84	75	31-146	11
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	79	68	37-133	15

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	90	58-121
Acenaphthylene	mg/kg (ppm)	0.17	89	54-121
Acenaphthene	mg/kg (ppm)	0.17	90	54-123
Fluorene	mg/kg (ppm)	0.17	91	56-127
Phenanthrene	mg/kg (ppm)	0.17	92	55-122
Anthracene	mg/kg (ppm)	0.17	89	50-120
Fluoranthene	mg/kg (ppm)	0.17	100	54-129
Pyrene	mg/kg (ppm)	0.17	94	53-127
Benz(a)anthracene	mg/kg (ppm)	0.17	96	51-115
Chrysene	mg/kg (ppm)	0.17	93	55-129
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	94	56-123
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	93	54-131
Benzo(a)pyrene	mg/kg (ppm)	0.17	87	51-118
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	85	49-148
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	89	50-141
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	84	52-131

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

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)	1	92	95	67-116	3
Acenaphthylene	ug/L (ppb)	1	92	95	65-119	3
Acenaphthene	ug/L (ppb)	1	92	95	66-118	3
Fluorene	ug/L (ppb)	1	92	94	64-125	2
Phenanthrene	ug/L (ppb)	1	92	94	67-120	2
Anthracene	ug/L (ppb)	1	90	91	65-122	1
Fluoranthene	ug/L (ppb)	1	101	103	65-127	2
Pyrene	ug/L (ppb)	1	93	92	62-130	1
Benz(a)anthracene	ug/L (ppb)	1	96	96	60-118	0
Chrysene	ug/L (ppb)	1	93	93	66-125	0
Benzo(b)fluoranthene	ug/L (ppb)	1	100	101	55-135	1
Benzo(k)fluoranthene	ug/L (ppb)	1	100	101	62-125	1
Benzo(a)pyrene	ug/L (ppb)	1	94	95	58-127	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	73	78	36-142	7
Dibenz(a,h)anthracene	ug/L (ppb)	1	72	82	37-133	13
Benzo(g,h,i)perylene	ug/L (ppb)	1	64	72	34-135	12

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR POLYCHLORINATED BIPHENYLS AS AROCLOR 1016/1260 BY EPA METHOD 8082A

Laboratory Code: 706042-07 1/50 (Matrix Spike) 1/50

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Control Limits	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.8	<0.2	66	61	50-150	8
Aroclor 1260	mg/kg (ppm)	0.8	<0.2	70	65	50-150	7

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	mg/kg (ppm)	0.8	74	55-130
Aroclor 1260	mg/kg (ppm)	0.8	86	58-133

Date of Report: 06/14/17
Date Received: 06/02/17
Project: PCLS-Buckley, PO 10949, F&BI 706042

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	2.5	54	58	37-136	7
Aroclor 1260	ug/L (ppb)	2.5	59	63	41-135	7

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 compound 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. Compounds in the sample matrix interfered with the quantitation of the analyte.

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.

706042

SAMPLE CHAIN OF CUSTODY

ME 06/02/17 1 VS2/ /3 WW5 BI

Page 1 of

Report To KURT, MIKE

Company EHSI

Address 1611 SW Klickitat Way Ste 104

City, State, ZIP Seattle, WA 98134

Phone Email

SAMPLERS (signature)

PROJECT NAME: PCLS - Buckley

PO #: 10949

REMARKS

INVOICE TO

TURNAROUND TIME
- X Standard Turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- X Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM ~~Target Analytes~~	RCRA 8 ↓ Total + Dissolved (by ICP)	PCB's		Notes
						ANALYSES REQUESTED										
MW-1	01 A-H	6/1	1610	W	8		X	X		X		X	X	X		
MW-2	02	6/1	720	W	8		X	X		X		X	X	X		
MW-3	03	6/1	1650	W	8		X	X		X		X	X	X		
B1-6	04 A-F	6/1	740	S	6		X	X		X		X	X	X		2-4oz, 4 VOA
B2-5.5	05 A-F	6/1	800	S	6		X	X		X		X	X	X		
B2-W	06 A-H	6/1	820	W	8		X	X		X		X	X	X		
B3-4.5	07 A-F	6/1	855	S	6		X	X		X		X	X	X		"
B3-W	08 A-H	6/1	905	W	8		X	X		X		X	X	X		
B4-4.5	09 A-F	6/1	955	S	6		X	X		X		X	X	X		"
B4-7.5	10 A-F	6/1	1010	S	6		X	X		X		X	X	X		"

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Mike Brady	EHSI	6/2	1137
Received by:	A. Podnozova	FBC	6/2/17	11:37
Relinquished by:				
Received by:		Samples received at 3 °C		

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

706042

SAMPLE CHAIN OF CUSTODY ME 06/02/17 VS2/ VWS/ BIG

Page # 2 of 3

Report To KURT, MIKE

Company EHSI

Address 1011 SW Klickitat

City, State, ZIP

Phone Email

SAMPLERS (signature) MikeBrady

PROJECT NAME: PCLS - Buckley

PO #: 10949

REMARKS

INVOICE TO

TURNAROUND TIME
- X Standard Turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- X Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM + naphthalene	Pb Total + dissolved in Hg on 6/2 per MB	PCB's Total by 8082	RCRA 8 Metals	Notes *added per MB 6/6/17 MS
B5-7'	11 A-F	6/1	1040	S	6		X	X		X		X	X			11
B5-W	12 A-G		1110	W	7		X	X		X		X	X			
B6-13	~~12~~ 13 A-F		1300	S	6		X	X		X		X	X			11
B6-W	~~13~~ 14 A-G		1320	W	7		X	X		X		X	X			
B7-7'	~~14~~ 15 A-F		1355	S	6		X	X		X		X	X			11 HIGH PID
B7-W	~~15~~ 16 A B		1410	W	2		⊗	X		X		⊗	Insufficient volume for PAHs			2 VOA LITTLE WATER
B8-5	~~16~~ 17 A-F		1500	S	6		X	X		X	*	X		X	X	11 HIGH PID
B8-W	~~17~~ 18 A-H		1510	W	~~8~~		X	X		X		X		⊗	X	LITTLE WATER OILY?
B9-6	~~18~~ 19 A-F		1625	S	6		X	X		X		X		X	X	11
B9-15	20 A-F		1635	S	6		X	X		X		X		X	X	11

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: MikeBrady	Mike Brady	EHSI	6/2	1137
Received by:	A. Rodriguez	FBI	6/2/17	11:37
Relinquished by:				
Received by:		Samples received at 3 °C		

Friedman & Bruya, Inc.
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SAMPLE CHAIN OF CUSTODY

ME 06/02/17 VS2/VW5/BI4

Page # 3 of 3

Report To KURT, MIKE

Company EHSI

Address 1011 SW Klickitat

City, State, ZIP

Phone Email

SAMPLERS (signature)

PROJECT NAME: PCLS-Buckley

PO #: 10949

REMARKS

INVOICE TO

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [x] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
	21					ANALYSES REQUESTED											
B9-W	A-C	6/1	1630	W	3		⊗	X		X							LITTLE WATER 3 VOA

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Mike Brady	EHSI	6/2	1137
Received by:	A. Podnozova	FBI	6/2/17	11:37
Relinquished by:				
Received by:		Samples received at 2 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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www.friedmanandbruya.com

October 17, 2019

Mike Brady, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

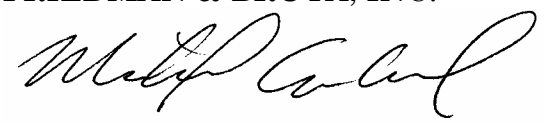
Dear Mr Brady:

Included are the results from the testing of material submitted on October 9, 2019 from the Buckley Library RI/FS 11101, F&BI 910181 project. There are 68 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: EHSI A/P, Kurt Easthouse
EHS1017R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 9, 2019 by Friedman & Bruya, Inc. from the EHSI Buckley Library RI/FS 11101, F&BI 910181 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EHSI
910181 -01	B15-3 (B28-3)
910181 -02	B15-W (B28-W)
910181 -03	B16-3.5
910181 -04	B17-5
910181 -05	B17-W
910181 -06	B18-6
910181 -07	B18-W
910181 -08	B19-3
910181 -09	B19-W
910181 -10	B20-5
910181 -11	MW-9-5
910181 -12	B21-3.5
910181 -13	B21-W
910181 -14	MW-9-5 DUP
910181 -15	VP5-3

A 6020B water internal standard failed the acceptance criteria for samples B15-W, B17-W, and B18-W. The samples were diluted and reanalyzed with acceptable results. Both data sets were reported.

Acetone was detected in the 8260C sample B15-3, B16-3.5, B17-5, B18-6, B19-3, B20-5, MW-9-5, MW-9-5 DUP, and VP5-3. The data were flagged as possibly due to laboratory contamination.

All other quality control requirements were acceptable.

Date of Report: 10/17/19
Date Received: 10/09/19
Project: Buckley Library RI/FS 11101, F&BI 910181
Date Extracted: 10/14/19
Date Analyzed: 10/14/19 and 10/15/19

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

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

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 58-139)
B15-3 (B28-3) 910181-01	<5	87
B16-3.5 910181-03	<5	87
B17-5 910181-04	<5	85
B18-6 910181-06	<5	85
B19-3 910181-08	<5	84
B20-5 910181-10	<5	81
MW-9-5 910181-11	<5	85
B21-3.5 910181-12	<5	85
MW-9-5 DUP 910181-14	<5	85
VP5-3 910181-15	<5	85
Method Blank 09-2499 MB	<5	90

Date of Report: 10/17/19
Date Received: 10/09/19
Project: Buckley Library RI/FS 11101, F&BI 910181
Date Extracted: 10/14/19
Date Analyzed: 10/14/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
B15-W (B28-W) 910181-02	<100	85
B17-W 910181-05	<100	84
B18-W 910181-07	<100	85
B19-W 910181-09	<100	87
B21-W 910181-13	<100	85
Method Blank 09-2498 MB	<100	83

Date of Report: 10/17/19
Date Received: 10/09/19
Project: Buckley Library RI/FS 11101, F&BI 910181
Date Extracted: 10/10/19
Date Analyzed: 10/10/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 51-134)
B15-W (B28-W) 910181-02	280 x	<250	78
B17-W 910181-05	230 x	320	104
B18-W 910181-07 1/1.2	310 x	1,900	68
B19-W 910181-09 1/1.7	<80	<420	120
B21-W 910181-13 1/1.2	91 x	<300	82
Method Blank 09-2485 MB	<50	<250	104

Date of Report: 10/17/19
Date Received: 10/09/19
Project: Buckley Library RI/FS 11101, F&BI 910181
Date Extracted: 10/10/19
Date Analyzed: 10/10/19

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

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

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
B15-3 (B28-3) 910181-01	<50	<250	102
B16-3.5 910181-03	<50	<250	98
B17-5 910181-04	<50	<250	103
B18-6 910181-06	80 x	370	103
B19-3 910181-08	<50	<250	101
B20-5 910181-10	<50	<250	107
MW-9-5 910181-11	<50	<250	107
B21-3.5 910181-12	<50	<250	108
VP5-3 910181-15	<50	<250	96
Method Blank 09-2486 MB	<50	<250	97

Analysis For Total Metals By EPA Method 6020B

Client ID:	B15-3 (B28-3)	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910181-01
Date Analyzed:	10/15/19	Data File:	910181-01.094
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.46
Cadmium	<1
Chromium	12.6
Lead	19.6
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B16-3.5	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910181-03
Date Analyzed:	10/15/19	Data File:	910181-03.095
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.91
Cadmium	<1
Chromium	10.2
Lead	3.93
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B17-5	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910181-04
Date Analyzed:	10/15/19	Data File:	910181-04.096
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	8.21
Cadmium	<1
Chromium	9.42
Lead	26.2
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B18-6	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910181-06
Date Analyzed:	10/15/19	Data File:	910181-06.097
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	7.03
Cadmium	<1
Chromium	11.1
Lead	18.2
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B19-3	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910181-08
Date Analyzed:	10/15/19	Data File:	910181-08.098
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.04
Cadmium	<1
Chromium	10.9
Lead	7.65
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B20-5	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910181-10
Date Analyzed:	10/15/19	Data File:	910181-10.099
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.61
Cadmium	<1
Chromium	14.1
Lead	9.01
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-9-5	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910181-11
Date Analyzed:	10/15/19	Data File:	910181-11.100
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.38
Cadmium	<1
Chromium	11.6
Lead	66.4
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B21-3.5	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910181-12
Date Analyzed:	10/15/19	Data File:	910181-12.112
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.75
Cadmium	<1
Chromium	11.3
Lead	5.55
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	VP5-3	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910181-15
Date Analyzed:	10/15/19	Data File:	910181-15.113
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.43
Cadmium	<1
Chromium	11.7
Lead	4.81
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	EHSI
Date Received:	NA	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	I9-648 mb2
Date Analyzed:	10/15/19	Data File:	I9-648 mb2.084
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B15-W	(B28-W)	Client:	EHSI
Date Received:	10/09/19		Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19		Lab ID:	910181-02
Date Analyzed:	10/11/19		Data File:	910181-02.282
Matrix:	Water		Instrument:	ICPMS2
Units:	ug/L (ppb)		Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	6.33
Cadmium	12.2
Chromium	3.63 J ca
Lead	8.85 J
Mercury	<1 J

Analysis For Total Metals By EPA Method 6020B

Client ID:	B15-W (B28-W)	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910181-02 x5
Date Analyzed:	10/11/19	Data File:	910181-02 x5.262
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	12.9
Mercury	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	B15-W (B28-W)	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910181-02 x10
Date Analyzed:	10/14/19	Data File:	910181-02 x10.167
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	<10

Analysis For Total Metals By EPA Method 6020B

Client ID:	B17-W	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910181-05
Date Analyzed:	10/11/19	Data File:	910181-05.283
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	15.0
Cadmium	<1
Chromium	2.86 J ca
Lead	17.9
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B17-W	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910181-05 x5
Date Analyzed:	10/14/19	Data File:	910181-05 x5.168
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	5.31

Analysis For Total Metals By EPA Method 6020B

Client ID:	B18-W	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910181-07
Date Analyzed:	10/11/19	Data File:	910181-07.284
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	131
Cadmium	2.54
Chromium	32.7 J ca
Lead	410 J ve
Mercury	<1 J

Analysis For Total Metals By EPA Method 6020B

Client ID:	B18-W	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910181-07 x5
Date Analyzed:	10/11/19	Data File:	910181-07 x5.271
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	534
Mercury	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	B18-W	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910181-07 x10
Date Analyzed:	10/14/19	Data File:	910181-07 x10.169
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	75.0

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	EHSI
Date Received:	NA	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	I9-644 mb
Date Analyzed:	10/11/19	Data File:	I9-644 mb.225
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B15-3 (B28-3)	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/10/19	Lab ID:	910181-01 1/25
Date Analyzed:	10/11/19	Data File:	101105.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	109 d	50	150
Benzo(a)anthracene-d12	105 d	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	<0.05
Anthracene	<0.05
Fluoranthene	<0.05
Pyrene	<0.05
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05
1-Methylnaphthalene	<0.05
2-Methylnaphthalene	<0.05

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B16-3.5	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/10/19	Lab ID:	910181-03 1/5
Date Analyzed:	10/11/19	Data File:	101106.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	91	50	150
Benzo(a)anthracene-d12	90	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
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	<0.01
1-Methylnaphthalene	<0.01
2-Methylnaphthalene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B17-5	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/10/19	Lab ID:	910181-04 1/25
Date Analyzed:	10/11/19	Data File:	101107.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	104 d	50	150
Benzo(a)anthracene-d12	93 d	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	<0.05
Anthracene	<0.05
Fluoranthene	<0.05
Pyrene	<0.05
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05
1-Methylnaphthalene	<0.05
2-Methylnaphthalene	<0.05

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B18-6	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/10/19	Lab ID:	910181-06 1/25
Date Analyzed:	10/11/19	Data File:	101108.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	114 d	50	150
Benzo(a)anthracene-d12	107 d	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	<0.05
Anthracene	<0.05
Fluoranthene	<0.05
Pyrene	<0.05
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05
1-Methylnaphthalene	<0.05
2-Methylnaphthalene	<0.05

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B19-3	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/10/19	Lab ID:	910181-08 1/5
Date Analyzed:	10/11/19	Data File:	101109.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	103	50	150
Benzo(a)anthracene-d12	105	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.013
Anthracene	<0.01
Fluoranthene	0.018
Pyrene	0.018
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	<0.01
1-Methylnaphthalene	<0.01
2-Methylnaphthalene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B20-5	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/10/19	Lab ID:	910181-10 1/5
Date Analyzed:	10/11/19	Data File:	101110.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	104	50	150
Benzo(a)anthracene-d12	104	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.012
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	0.011
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01
1-Methylnaphthalene	<0.01
2-Methylnaphthalene	0.011

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW-9-5	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/10/19	Lab ID:	910181-11 1/5
Date Analyzed:	10/11/19	Data File:	101111.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	101	50	150
Benzo(a)anthracene-d12	103	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.016
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.029
Anthracene	<0.01
Fluoranthene	0.025
Pyrene	0.029
Benz(a)anthracene	0.016
Chrysene	0.021
Benzo(a)pyrene	0.014
Benzo(b)fluoranthene	0.016
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01
1-Methylnaphthalene	0.027
2-Methylnaphthalene	0.029

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B21-3.5	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/10/19	Lab ID:	910181-12 1/5
Date Analyzed:	10/11/19	Data File:	101036.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	108	31	163
Benzo(a)anthracene-d12	109	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
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	<0.01
1-Methylnaphthalene	<0.01
2-Methylnaphthalene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	VP5-3	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/10/19	Lab ID:	910181-15 1/5
Date Analyzed:	10/11/19	Data File:	101112.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	95	50	150
Benzo(a)anthracene-d12	95	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
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	<0.01
1-Methylnaphthalene	<0.01
2-Methylnaphthalene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/10/19	Lab ID:	09-2488 mb 1/5
Date Analyzed:	10/10/19	Data File:	101028.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	94	31	163
Benzo(a)anthracene-d12	99	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
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	<0.01
1-Methylnaphthalene	<0.01
2-Methylnaphthalene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B15-W (B28-W)	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910181-02 1/2
Date Analyzed:	10/11/19	Data File:	101122.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	88	31	160
Benzo(a)anthracene-d12	88	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.04

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B17-W	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910181-05
Date Analyzed:	10/11/19	Data File:	101123.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	85	31	160
Benzo(a)anthracene-d12	76	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B18-W	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910181-07
Date Analyzed:	10/12/19	Data File:	101136.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	83	31	160
Benzo(a)anthracene-d12	55	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	09-2487 mb
Date Analyzed:	10/11/19	Data File:	101109.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	93	31	160
Benzo(a)anthracene-d12	97	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	B15-W (B28-W)	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910181-02
Date Analyzed:	10/14/19	Data File:	101410.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	93	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	B17-W	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910181-05
Date Analyzed:	10/14/19	Data File:	101413.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	93	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	B18-W	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910181-07
Date Analyzed:	10/14/19	Data File:	101414.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	102	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	B19-W	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910181-09
Date Analyzed:	10/14/19	Data File:	101411.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	93	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	B21-W	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910181-13
Date Analyzed:	10/14/19	Data File:	101412.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	94	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	09-2463 mb
Date Analyzed:	10/14/19	Data File:	101409.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	92	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B15-3 (B28-3)	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910181-01
Date Analyzed:	10/14/19	Data File:	101432.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	145
Toluene-d8	105	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	0.93 ca lc	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B16-3.5	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910181-03
Date Analyzed:	10/14/19	Data File:	101433.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	145
Toluene-d8	105	55	145
4-Bromofluorobenzene	96	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	1.3 ca lc	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B17-5	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910181-04
Date Analyzed:	10/14/19	Data File:	101434.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	145
Toluene-d8	106	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	1.3 ca lc	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B18-6	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910181-06
Date Analyzed:	10/14/19	Data File:	101435.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	62	145
Toluene-d8	107	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	0.72 ca lc	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B19-3	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910181-08
Date Analyzed:	10/14/19	Data File:	101436.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	62	145
Toluene-d8	107	55	145
4-Bromofluorobenzene	99	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	1.2 ca lc	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B20-5	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910181-10
Date Analyzed:	10/14/19	Data File:	101437.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	145
Toluene-d8	106	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	0.75 ca lc	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-9-5	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910181-11
Date Analyzed:	10/14/19	Data File:	101438.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	145
Toluene-d8	106	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	0.64 ca lc	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B21-3.5	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910181-12
Date Analyzed:	10/14/19	Data File:	101439.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	62	145
Toluene-d8	107	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-9-5 DUP	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910181-14
Date Analyzed:	10/14/19	Data File:	101440.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	145
Toluene-d8	106	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	1.0 ca lc	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	VP5-3	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910181-15
Date Analyzed:	10/14/19	Data File:	101441.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	145
Toluene-d8	106	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	1.2 ca lc	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	09-2464 mb
Date Analyzed:	10/14/19	Data File:	101426.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	145
Toluene-d8	102	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 10/17/19
Date Received: 10/09/19
Project: Buckley Library RI/FS 11101, F&BI 910181

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

Laboratory Code: 909488-21 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	105	71-131

Date of Report: 10/17/19
Date Received: 10/09/19
Project: Buckley Library RI/FS 11101, F&BI 910181

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

Laboratory Code: 910227-01 (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	92	69-134

Date of Report: 10/17/19
Date Received: 10/09/19
Project: Buckley Library RI/FS 11101, F&BI 910181

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	88	92	58-134	4

Date of Report: 10/17/19
Date Received: 10/09/19
Project: Buckley Library RI/FS 11101, F&BI 910181

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

Laboratory Code: 910184-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	88	90	73-135	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	102	74-139

Date of Report: 10/17/19
Date Received: 10/09/19
Project: Buckley Library RI/FS 11101, F&BI 910181

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

Laboratory Code: 909421-07 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<1	92	92	75-125	0
Cadmium	mg/kg (ppm)	10	<1	103	97	75-125	6
Chromium	mg/kg (ppm)	50	7.14	94	88	75-125	7
Lead	mg/kg (ppm)	50	1.29	105	100	75-125	5
Mercury	mg/kg (ppm	5	<1	100	96	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	89	80-120
Cadmium	mg/kg (ppm)	10	101	80-120
Chromium	mg/kg (ppm)	50	101	80-120
Lead	mg/kg (ppm)	50	108	80-120
Mercury	mg/kg (ppm)	5	103	80-120

Date of Report: 10/17/19
Date Received: 10/09/19
Project: Buckley Library RI/FS 11101, F&BI 910181

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

Laboratory Code: 910227-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.78	86	86	75-125	0
Cadmium	ug/L (ppb)	5	<1	97	100	75-125	3
Chromium	ug/L (ppb)	20	1.51	99	99	75-125	0
Lead	ug/L (ppb)	10	1.23	87	86	75-125	1
Mercury	ug/L (ppb)	5	<1	88	88	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	95	80-120
Cadmium	ug/L (ppb)	5	92	80-120
Chromium	ug/L (ppb)	20	93	80-120
Lead	ug/L (ppb)	10	97	80-120
Mercury	ug/L (ppb)	5	94	80-120

Date of Report: 10/17/19
Date Received: 10/09/19
Project: Buckley Library RI/FS 11101, F&BI 910181

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: 910181-12 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	71	44-129
2-Methylnaphthalene	mg/kg (ppm)	0.17	<0.01	76	45-135
1-Methylnaphthalene	mg/kg (ppm)	0.17	<0.01	76	40-141
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	81	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	78	51-123
Fluorene	mg/kg (ppm)	0.17	<0.01	80	37-137
Phenanthrene	mg/kg (ppm)	0.17	<0.01	76	34-141
Anthracene	mg/kg (ppm)	0.17	<0.01	82	32-124
Fluoranthene	mg/kg (ppm)	0.17	<0.01	81	16-160
Pyrene	mg/kg (ppm)	0.17	<0.01	71	10-180
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	78	23-144
Chrysene	mg/kg (ppm)	0.17	<0.01	76	32-149
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	73	23-176
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	69	42-139
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	74	21-163
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	58	23-170
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	59	31-146
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	55	37-133

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	72	72	58-121	0
2-Methylnaphthalene	mg/kg (ppm)	0.17	75	75	58-123	0
1-Methylnaphthalene	mg/kg (ppm)	0.17	76	75	60-124	1
Acenaphthylene	mg/kg (ppm)	0.17	75	77	54-121	3
Acenaphthene	mg/kg (ppm)	0.17	79	79	54-123	0
Fluorene	mg/kg (ppm)	0.17	81	79	56-127	2
Phenanthrene	mg/kg (ppm)	0.17	79	80	55-122	1
Anthracene	mg/kg (ppm)	0.17	79	80	50-120	1
Fluoranthene	mg/kg (ppm)	0.17	82	82	54-129	0
Pyrene	mg/kg (ppm)	0.17	76	76	53-127	0
Benz(a)anthracene	mg/kg (ppm)	0.17	83	83	51-115	0
Chrysene	mg/kg (ppm)	0.17	83	82	55-129	1
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	73	68	56-123	7
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	70	73	54-131	4
Benzo(a)pyrene	mg/kg (ppm)	0.17	69	70	51-118	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	71	73	49-148	3
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	72	74	50-141	3
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	76	79	52-131	4

Date of Report: 10/17/19
Date Received: 10/09/19
Project: Buckley Library RI/FS 11101, F&BI 910181

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

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)	1	79	75	57-114	5
Acenaphthylene	ug/L (ppb)	1	92	87	65-119	6
Acenaphthene	ug/L (ppb)	1	88	83	66-118	6
Fluorene	ug/L (ppb)	1	91	86	64-125	6
Phenanthrene	ug/L (ppb)	1	89	84	67-120	6
Anthracene	ug/L (ppb)	1	95	90	65-122	5
Fluoranthene	ug/L (ppb)	1	96	90	65-127	6
Pyrene	ug/L (ppb)	1	91	86	62-130	6
Benz(a)anthracene	ug/L (ppb)	1	94	90	60-118	4
Chrysene	ug/L (ppb)	1	92	88	66-125	4
Benzo(b)fluoranthene	ug/L (ppb)	1	94	87	55-135	8
Benzo(k)fluoranthene	ug/L (ppb)	1	92	84	62-125	9
Benzo(a)pyrene	ug/L (ppb)	1	89	83	58-127	7
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	52	51	36-142	2
Dibenz(a,h)anthracene	ug/L (ppb)	1	55	52	37-133	6
Benzo(g,h,i)perylene	ug/L (ppb)	1	47	47	34-135	0

Date of Report: 10/17/19
Date Received: 10/09/19
Project: Buckley Library RI/FS 11101, F&BI 910181

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

Laboratory Code: 910227-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	106	10-172
Chloromethane	ug/L (ppb)	50	<10	111	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	114	36-166
Bromomethane	ug/L (ppb)	50	<1	115	47-169
Chloroethane	ug/L (ppb)	50	<1	107	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	117	44-165
Acetone	ug/L (ppb)	250	<50	95	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	114	60-136
Hexane	ug/L (ppb)	50	<1	98	52-150
Methylene chloride	ug/L (ppb)	50	<5	110	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	116	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	108	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	108	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	103	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	107	71-127
Chloroform	ug/L (ppb)	50	<1	109	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	104	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	108	48-149
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	109	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	106	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	116	56-152
Benzene	ug/L (ppb)	50	<0.35	104	76-125
Trichloroethene	ug/L (ppb)	50	<1	103	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	106	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	112	61-150
Dibromomethane	ug/L (ppb)	50	<1	106	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	110	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	116	72-132
Toluene	ug/L (ppb)	50	<1	91	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	99	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	95	68-131
2-Hexanone	ug/L (ppb)	250	<10	93	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	90	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	92	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	104	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	94	69-134
Chlorobenzene	ug/L (ppb)	50	<1	91	77-122
Ethylbenzene	ug/L (ppb)	50	<1	92	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	100	73-137
m,p-Xylene	ug/L (ppb)	100	<2	93	69-135
o-Xylene	ug/L (ppb)	50	<1	94	60-140
Styrene	ug/L (ppb)	50	<1	94	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	94	65-142
Bromoform	ug/L (ppb)	50	<1	101	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	90	58-144
Bromobenzene	ug/L (ppb)	50	<1	87	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	90	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	94	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	92	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	89	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	89	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	92	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	90	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	91	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	90	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	91	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	89	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	90	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	103	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	90	66-136
Hexachlorobutadiene	ug/L (ppb)	50	<1	87	60-143
Naphthalene	ug/L (ppb)	50	<1	92	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	90	69-148

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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)
Dichlorodifluoromethane	ug/L (ppb)	50	101	116	25-158	14
Chloromethane	ug/L (ppb)	50	107	111	45-156	4
Vinyl chloride	ug/L (ppb)	50	108	114	50-154	5
Bromomethane	ug/L (ppb)	50	108	113	55-143	5
Chloroethane	ug/L (ppb)	50	103	107	58-146	4
Trichlorofluoromethane	ug/L (ppb)	250	108	115	50-150	6
Acetone	ug/L (ppb)	250	87	91	53-131	4
1,1-Dichloroethene	ug/L (ppb)	50	107	113	67-136	5
Hexane	ug/L (ppb)	50	99	101	57-137	2
Methylene chloride	ug/L (ppb)	50	104	110	39-148	6
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	108	116	64-147	7
trans-1,2-Dichloroethene	ug/L (ppb)	50	101	107	68-128	6
1,1-Dichloroethane	ug/L (ppb)	50	101	107	79-121	6
2,2-Dichloropropane	ug/L (ppb)	50	112	118	55-143	5
cis-1,2-Dichloroethene	ug/L (ppb)	50	101	107	80-123	6
Chloroform	ug/L (ppb)	50	102	108	80-121	6
2-Butanone (MEK)	ug/L (ppb)	250	92	94	57-149	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	99	101	73-132	2
1,1,1-Trichloroethane	ug/L (ppb)	50	102	109	81-125	7
1,1-Dichloropropene	ug/L (ppb)	50	99	101	77-129	2
Carbon tetrachloride	ug/L (ppb)	50	112	118	75-158	5
Benzene	ug/L (ppb)	50	97	100	69-134	3
Trichloroethene	ug/L (ppb)	50	95	98	79-113	3
1,2-Dichloropropane	ug/L (ppb)	50	98	100	77-123	2
Bromodichloromethane	ug/L (ppb)	50	106	110	81-133	4
Dibromomethane	ug/L (ppb)	50	96	100	82-125	4
4-Methyl-2-pentanone	ug/L (ppb)	250	97	100	65-138	3
cis-1,3-Dichloropropene	ug/L (ppb)	50	113	114	82-132	1
Toluene	ug/L (ppb)	50	96	98	72-122	2
trans-1,3-Dichloropropene	ug/L (ppb)	50	111	111	80-136	0
1,1,2-Trichloroethane	ug/L (ppb)	50	97	98	75-124	1
2-Hexanone	ug/L (ppb)	250	90	91	60-136	1
1,3-Dichloropropane	ug/L (ppb)	50	92	94	76-126	2
Tetrachloroethene	ug/L (ppb)	50	98	101	76-121	3
Dibromochloromethane	ug/L (ppb)	50	115	116	84-133	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	95	97	82-115	2
Chlorobenzene	ug/L (ppb)	50	95	98	83-114	3
Ethylbenzene	ug/L (ppb)	50	97	99	77-124	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	110	114	84-127	4
m,p-Xylene	ug/L (ppb)	100	98	100	81-112	2
o-Xylene	ug/L (ppb)	50	99	102	81-121	3
Styrene	ug/L (ppb)	50	97	100	84-119	3
Isopropylbenzene	ug/L (ppb)	50	100	105	80-117	5
Bromoform	ug/L (ppb)	50	113	114	74-136	1
n-Propylbenzene	ug/L (ppb)	50	98	99	74-126	1
Bromobenzene	ug/L (ppb)	50	92	93	80-121	1
1,3,5-Trimethylbenzene	ug/L (ppb)	50	100	102	78-123	2
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	98	102	66-126	4
1,2,3-Trichloropropane	ug/L (ppb)	50	95	97	67-124	2
2-Chlorotoluene	ug/L (ppb)	50	96	99	77-127	3
4-Chlorotoluene	ug/L (ppb)	50	96	98	78-128	2
tert-Butylbenzene	ug/L (ppb)	50	103	104	80-123	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	99	101	79-122	2
sec-Butylbenzene	ug/L (ppb)	50	100	102	80-116	2
p-Isopropyltoluene	ug/L (ppb)	50	99	102	81-123	3
1,3-Dichlorobenzene	ug/L (ppb)	50	98	100	83-113	2
1,4-Dichlorobenzene	ug/L (ppb)	50	96	98	83-107	2
1,2-Dichlorobenzene	ug/L (ppb)	50	98	101	84-112	3
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	120	121	57-141	1
1,2,4-Trichlorobenzene	ug/L (ppb)	50	105	108	72-130	3
Hexachlorobutadiene	ug/L (ppb)	50	104	107	53-141	3
Naphthalene	ug/L (ppb)	50	105	109	64-133	4
1,2,3-Trichlorobenzene	ug/L (ppb)	50	103	106	65-136	3

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

Laboratory Code: 910203-14 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	31	32	10-142	3
Chloromethane	mg/kg (ppm)	2.5	<0.5	62	63	10-126	2
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	63	67	10-138	6
Bromomethane	mg/kg (ppm)	2.5	<0.5	81	86	10-163	6
Chloroethane	mg/kg (ppm)	2.5	<0.5	77	83	10-176	7
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	69	75	10-176	8
Acetone	mg/kg (ppm)	12.5	0.62	76	89	10-163	16
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	85	91	10-160	7
Hexane	mg/kg (ppm)	2.5	<0.25	49	54	10-137	10
Methylene chloride	mg/kg (ppm)	2.5	<0.5	98	108	10-156	10
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	108	116	21-145	7
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	94	101	14-137	7
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	97	103	19-140	6
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	94	101	10-158	7
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	101	109	25-135	8
Chloroform	mg/kg (ppm)	2.5	<0.05	101	110	21-145	9
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	79	84	19-147	6
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	90	97	12-160	7
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	98	105	10-156	7
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	87	95	17-140	9
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	100	110	9-164	10
Benzene	mg/kg (ppm)	2.5	<0.03	90	97	29-129	7
Trichloroethene	mg/kg (ppm)	2.5	<0.02	93	99	21-139	6
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	91	97	30-135	6
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	95	102	23-155	7
Dibromomethane	mg/kg (ppm)	2.5	<0.05	91	95	23-145	4
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	93	99	24-155	6
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	91	99	28-144	8
Toluene	mg/kg (ppm)	2.5	<0.05	81	86	35-130	6
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	77	83	26-149	7
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	81	86	10-205	6
2-Hexanone	mg/kg (ppm)	12.5	<0.5	73	78	15-166	7
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	75	81	31-137	8
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	81	88	20-133	8
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	86	93	28-150	8
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	78	82	28-142	5
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	83	89	32-129	7
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	84	91	32-137	8
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	95	103	31-143	8
m,p-Xylene	mg/kg (ppm)	5	<0.1	86	92	34-136	7
o-Xylene	mg/kg (ppm)	2.5	<0.05	89	96	33-134	8
Styrene	mg/kg (ppm)	2.5	<0.05	86	92	35-137	7
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	92	98	31-142	6
Bromoform	mg/kg (ppm)	2.5	<0.05	84	90	21-156	7
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	78	84	23-146	7
Bromobenzene	mg/kg (ppm)	2.5	<0.05	75	80	34-130	6
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	82	87	18-149	6
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	75	78	28-140	4
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	76	81	25-144	6
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	79	85	31-134	7
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	77	82	31-136	6
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	83	88	30-137	6
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	82	88	10-182	7
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	83	88	23-145	6
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	83	89	21-149	7
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	83	89	30-131	7
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	81	87	29-129	7
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	84	90	31-132	7
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	91	96	11-161	5
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	89	95	22-142	7
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	90	98	10-142	9
Naphthalene	mg/kg (ppm)	2.5	<0.05	87	93	14-157	7
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	87	94	20-144	8

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	65	10-146
Chloromethane	mg/kg (ppm)	2.5	81	27-133
Vinyl chloride	mg/kg (ppm)	2.5	86	22-139
Bromomethane	mg/kg (ppm)	2.5	93	38-114
Chloroethane	mg/kg (ppm)	2.5	90	9-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	96	10-196
Acetone	mg/kg (ppm)	12.5	88	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	97	47-128
Hexane	mg/kg (ppm)	2.5	97	43-142
Methylene chloride	mg/kg (ppm)	2.5	98	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	105	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	97	67-129
1,1-Dichloroethane	mg/kg (ppm)	2.5	99	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	106	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	101	72-127
Chloroform	mg/kg (ppm)	2.5	101	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	98	72-127
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	102	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	100	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	99	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	106	60-139
Benzene	mg/kg (ppm)	2.5	97	68-114
Trichloroethene	mg/kg (ppm)	2.5	98	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	100	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	105	72-130
Dibromomethane	mg/kg (ppm)	2.5	98	70-120
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	101	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	113	75-136
Toluene	mg/kg (ppm)	2.5	97	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	107	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	101	75-113
2-Hexanone	mg/kg (ppm)	12.5	97	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	97	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	99	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	108	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	99	74-132
Chlorobenzene	mg/kg (ppm)	2.5	97	76-111
Ethylbenzene	mg/kg (ppm)	2.5	97	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	105	69-135
m,p-Xylene	mg/kg (ppm)	5	99	78-122
o-Xylene	mg/kg (ppm)	2.5	100	77-124
Styrene	mg/kg (ppm)	2.5	100	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	100	76-127
Bromoform	mg/kg (ppm)	2.5	103	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	97	74-124
Bromobenzene	mg/kg (ppm)	2.5	93	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	97	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	98	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	96	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	95	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	97	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	100	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	98	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	98	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	98	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	98	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	96	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	95	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	101	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	101	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	105	50-153
Naphthalene	mg/kg (ppm)	2.5	100	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	101	63-138

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.

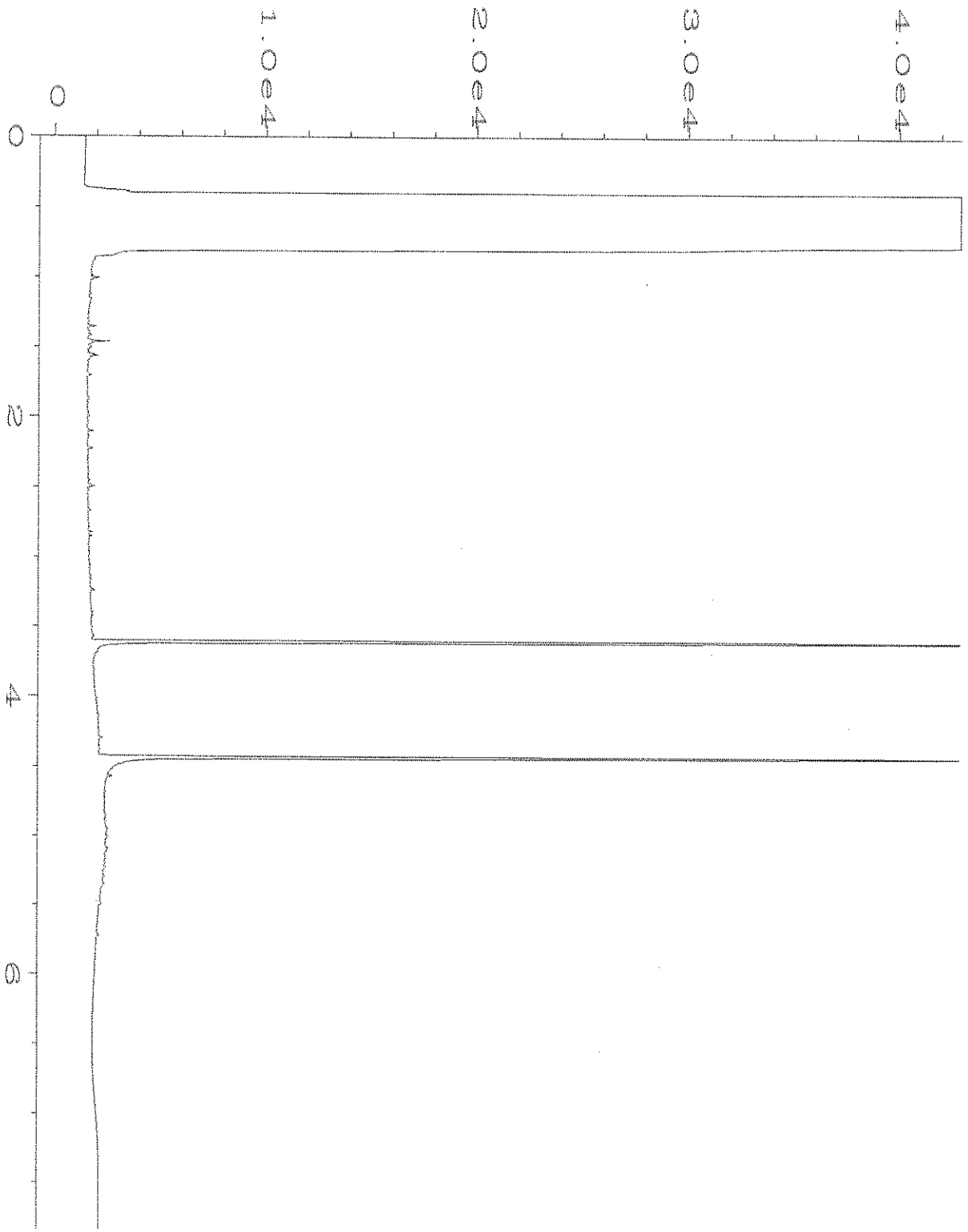
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

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.



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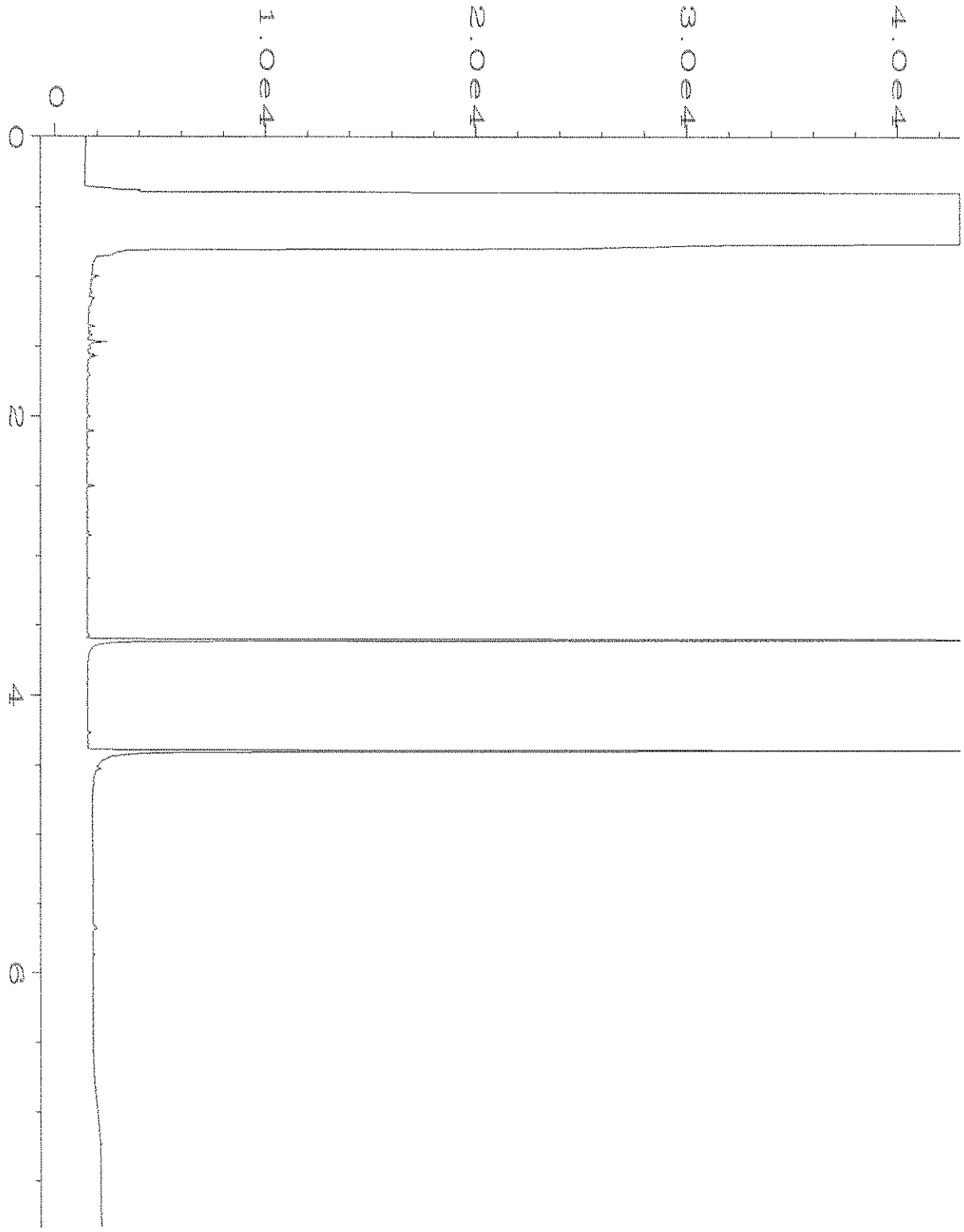
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 10 Oct 19 02:20 PM	Instrument Method	: DX.MTH
Report Created on	: 11 Oct 19 10:12 AM	Analysis Method	: DEFAULT.MTH



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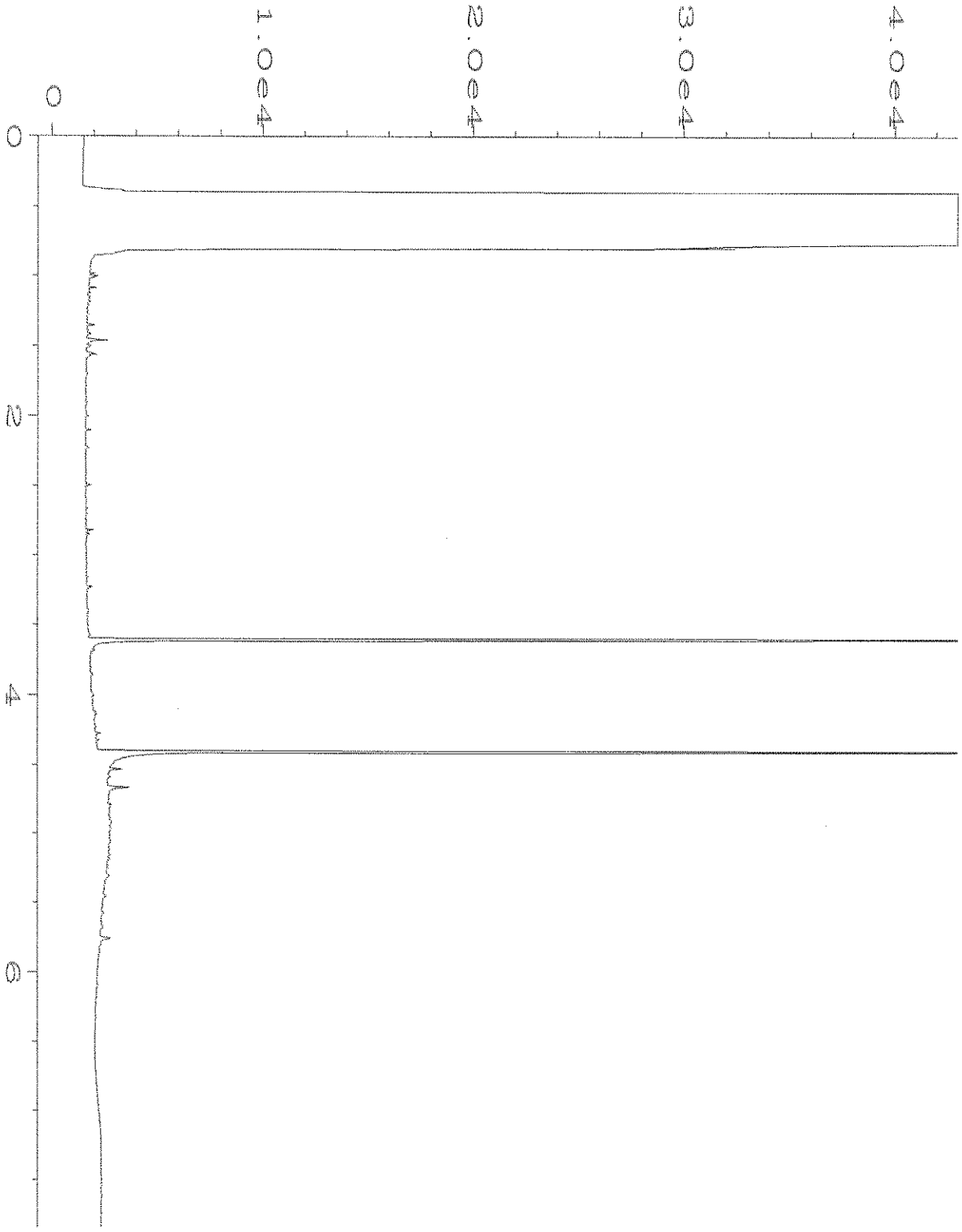

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Instrument : GC#4
Sample Name : 910181-04
Run Time Bar Code:
Acquired on : 10 Oct 19 03:31 PM
Report Created on: 11 Oct 19 10:13 AM

Page Number : 1
Vial Number : 26
Injection Number : 1
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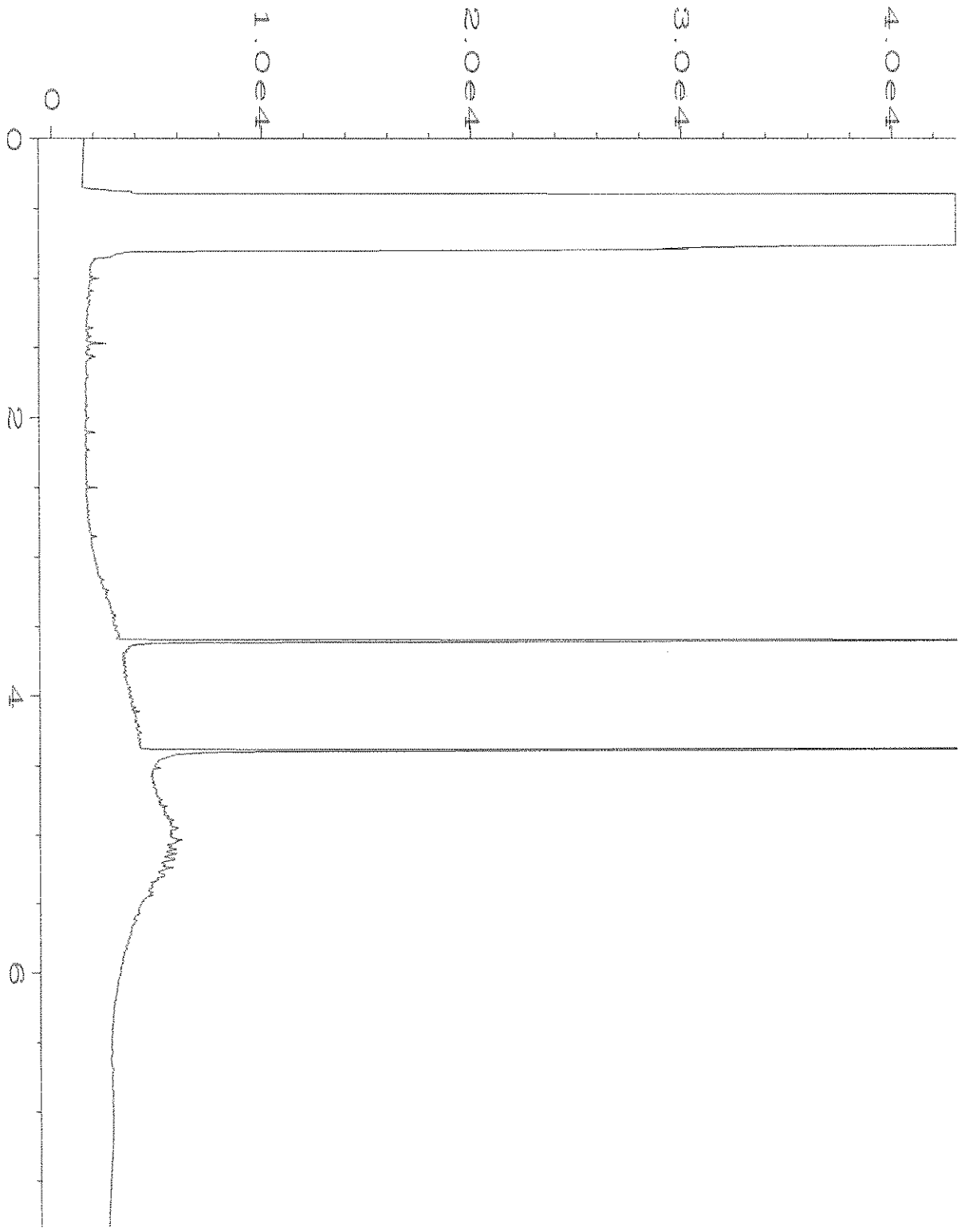
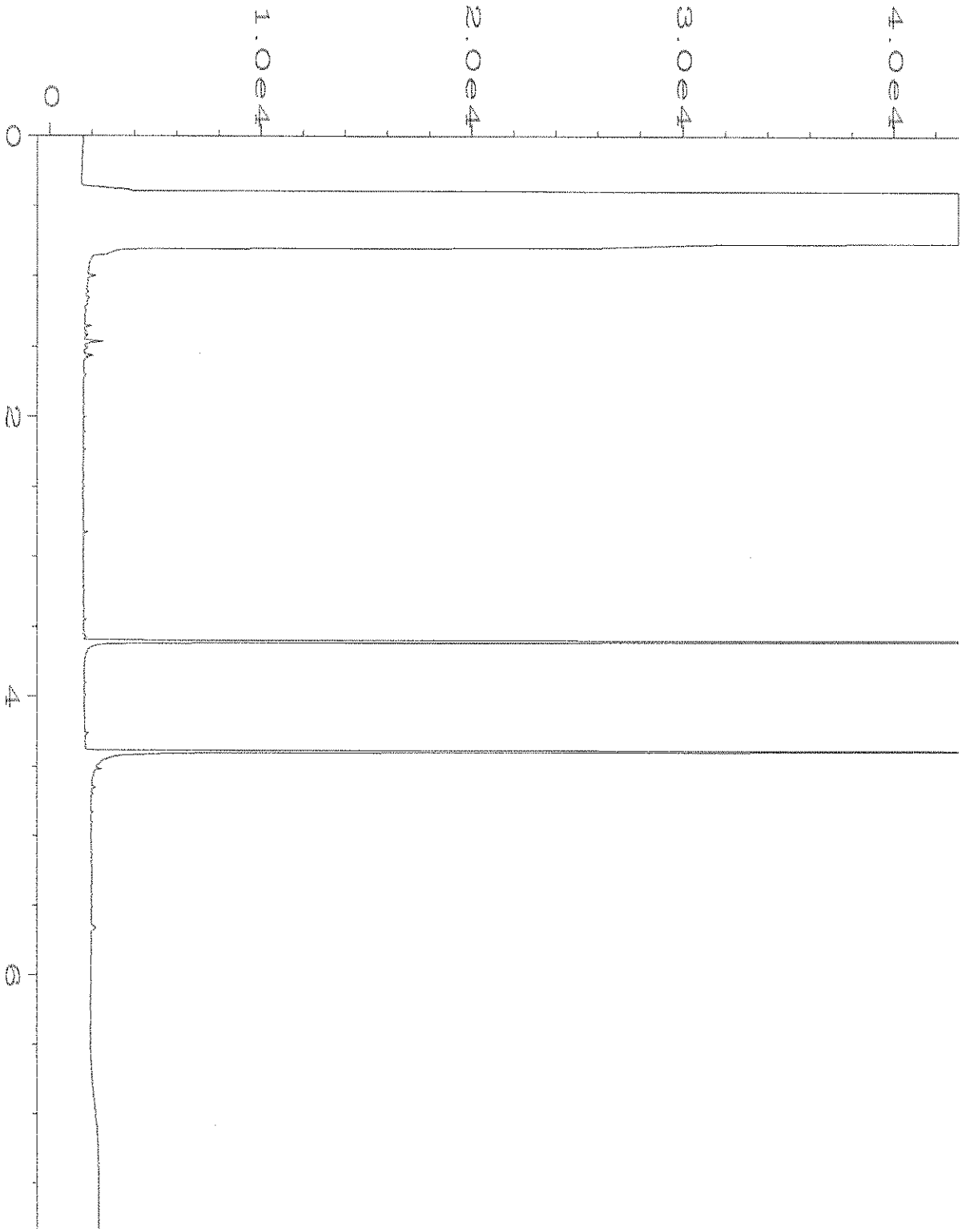
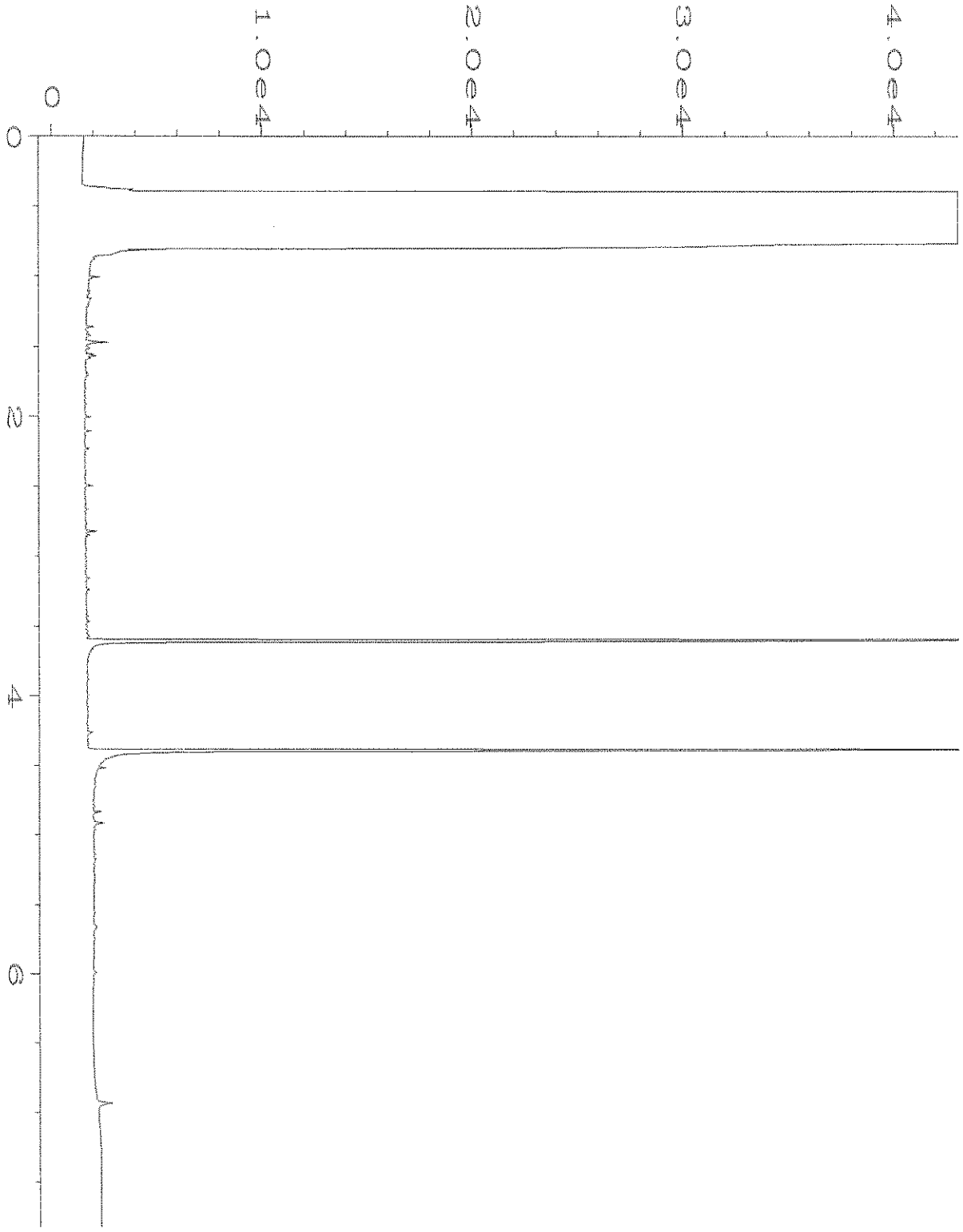
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name	: C:\HPCHEM\4\DATA\10-10-19\027F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 27
Sample Name	: 910181-06	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 10 Oct 19 03:41 PM	Instrument Method	: DX.MTH
Report Created on	: 11 Oct 19 10:13 AM	Analysis Method	: DEFAULT.MTH

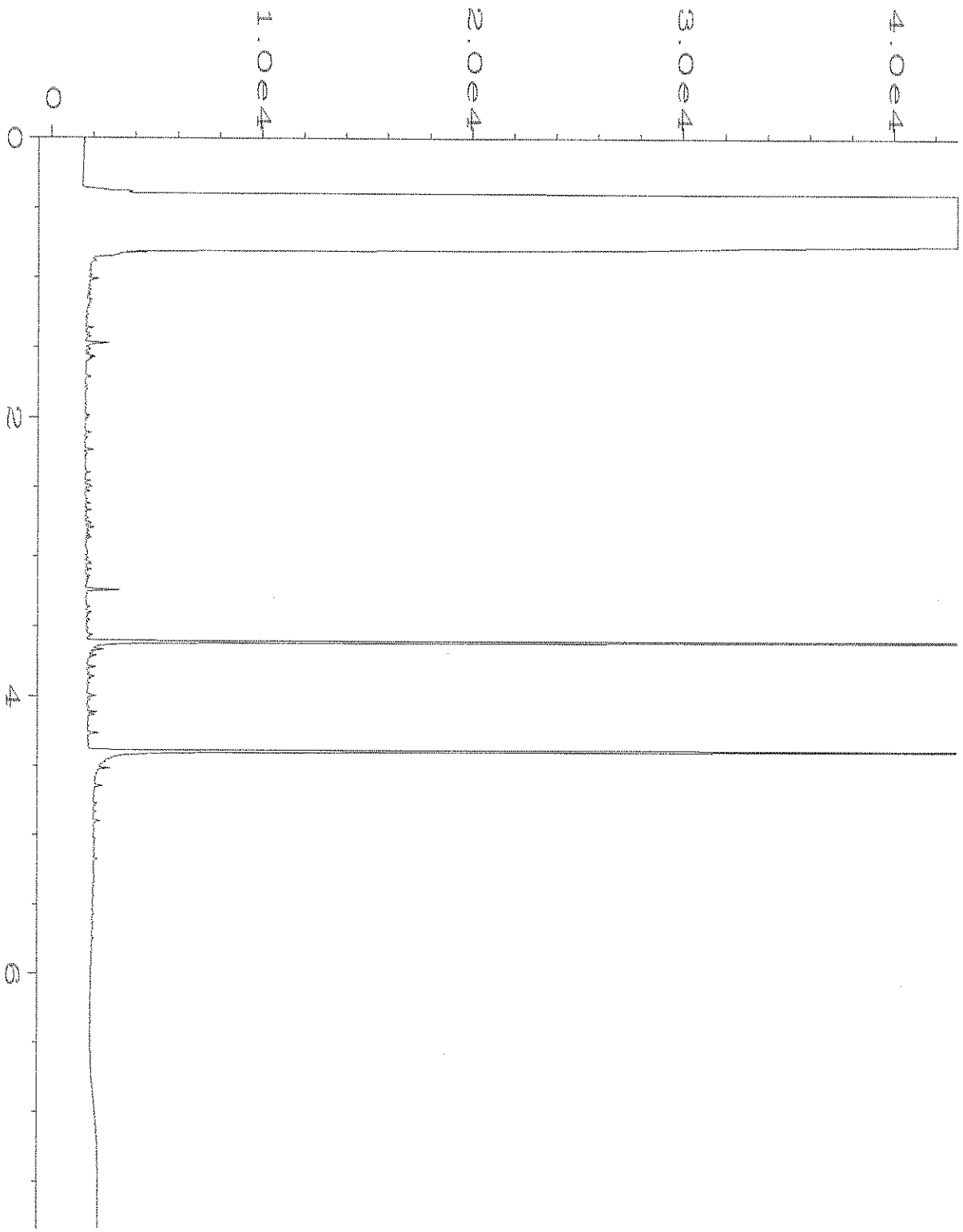


Data File Name	: C:\HPCHEM\4\DATA\10-10-19\028F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 28
Sample Name	: 910181-08	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 10 Oct 19 03:52 PM	Instrument Method	: DX.MTH
Report Created on	: 11 Oct 19 10:13 AM	Analysis Method	: DEFAULT.MTH

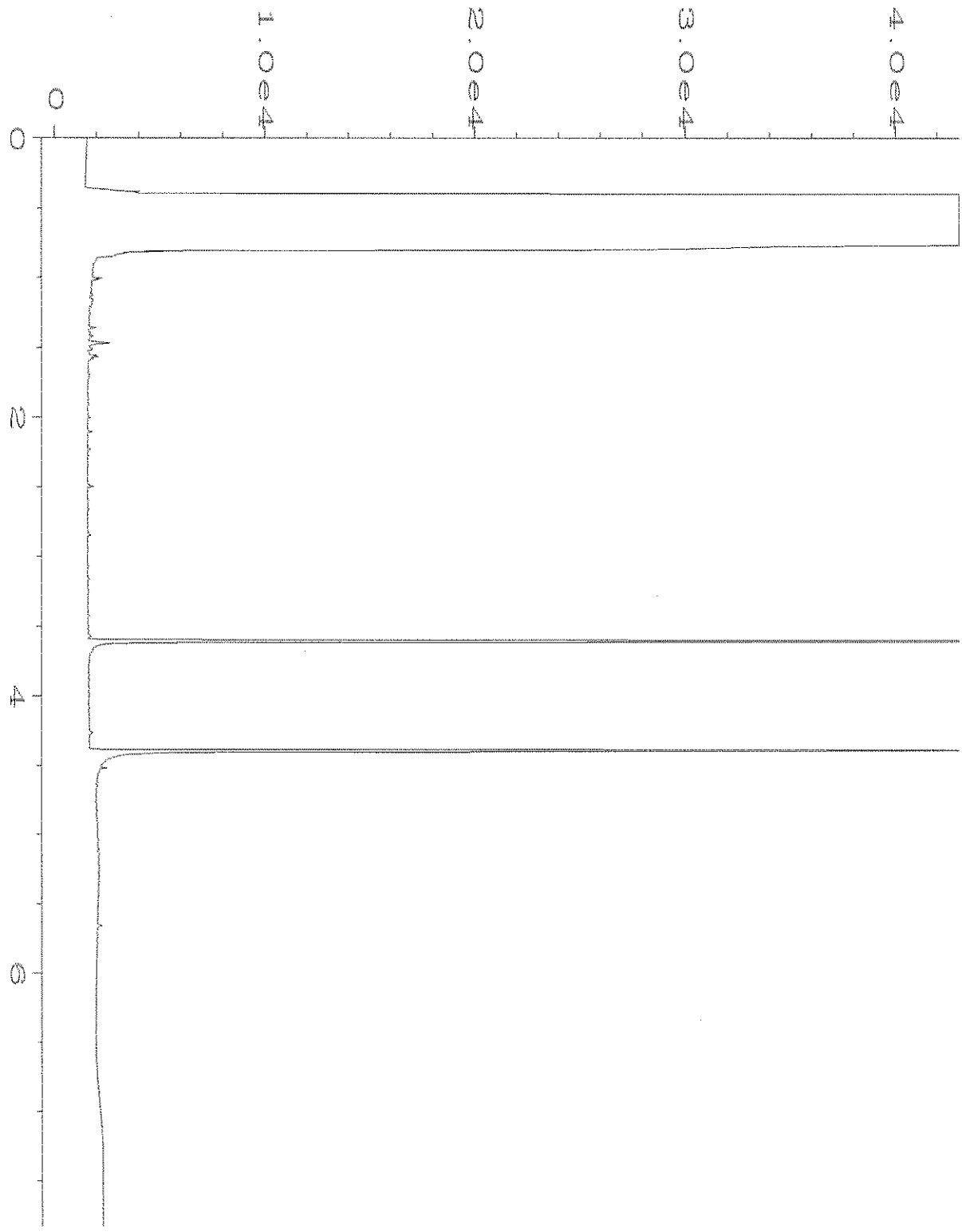


Data File Name : C:\HPCHEM\4\DATA\10-10-19\029F0501.D
Operator : TL
Instrument : GC#4
Sample Name : 910181-10
Run Time Bar Code:
Acquired on : 10 Oct 19 04:05 PM
Report Created on: 11 Oct 19 10:13 AM

Page Number : 1
Vial Number : 29
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

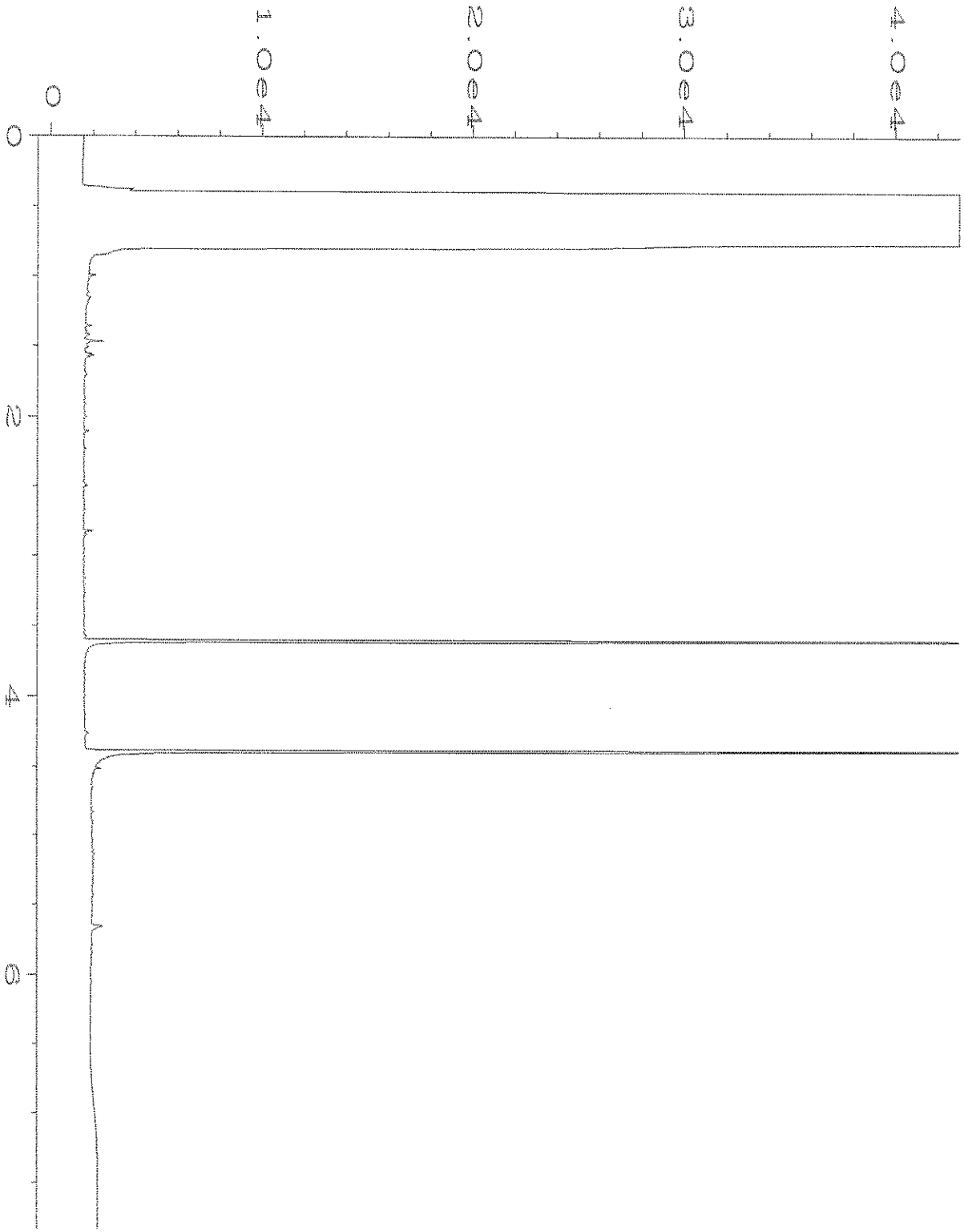


Data File Name	: C:\HPCHEM\4\DATA\10-10-19\030F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 30
Sample Name	: 910181-11	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 10 Oct 19 04:17 PM	Instrument Method	: DX.MTH
Report Created on	: 11 Oct 19 10:13 AM	Analysis Method	: DEFAULT.MTH



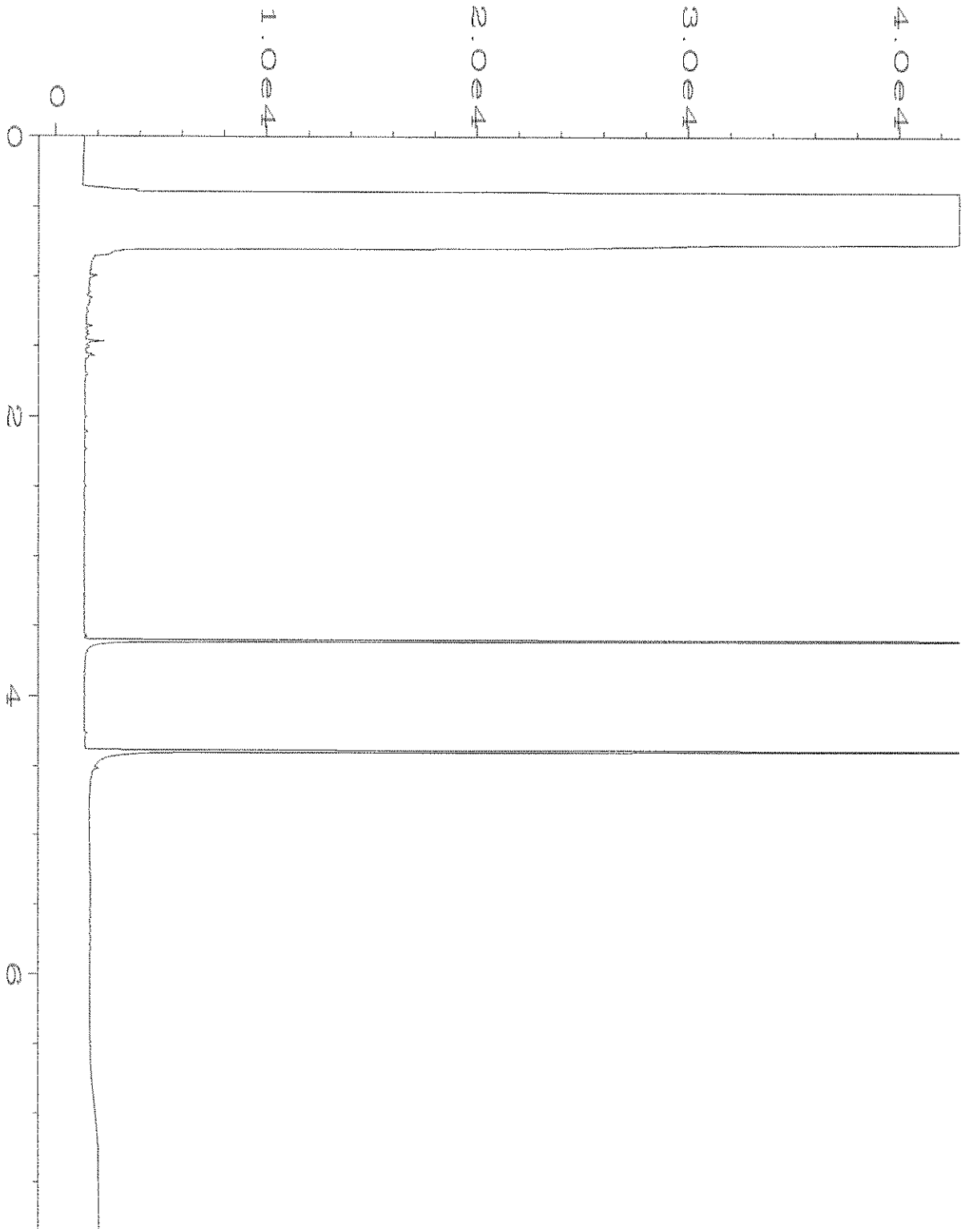
Data File Name : C:\HPCHEM\4\DATA\10-10-19\031F0501.D
Operator : TL
Instrument : GC#4
Sample Name : 910181-12
Run Time Bar Code:
Acquired on : 10 Oct 19 04:29 PM
Report Created on: 11 Oct 19 10:14 AM

Page Number : 1
Vial Number : 31
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



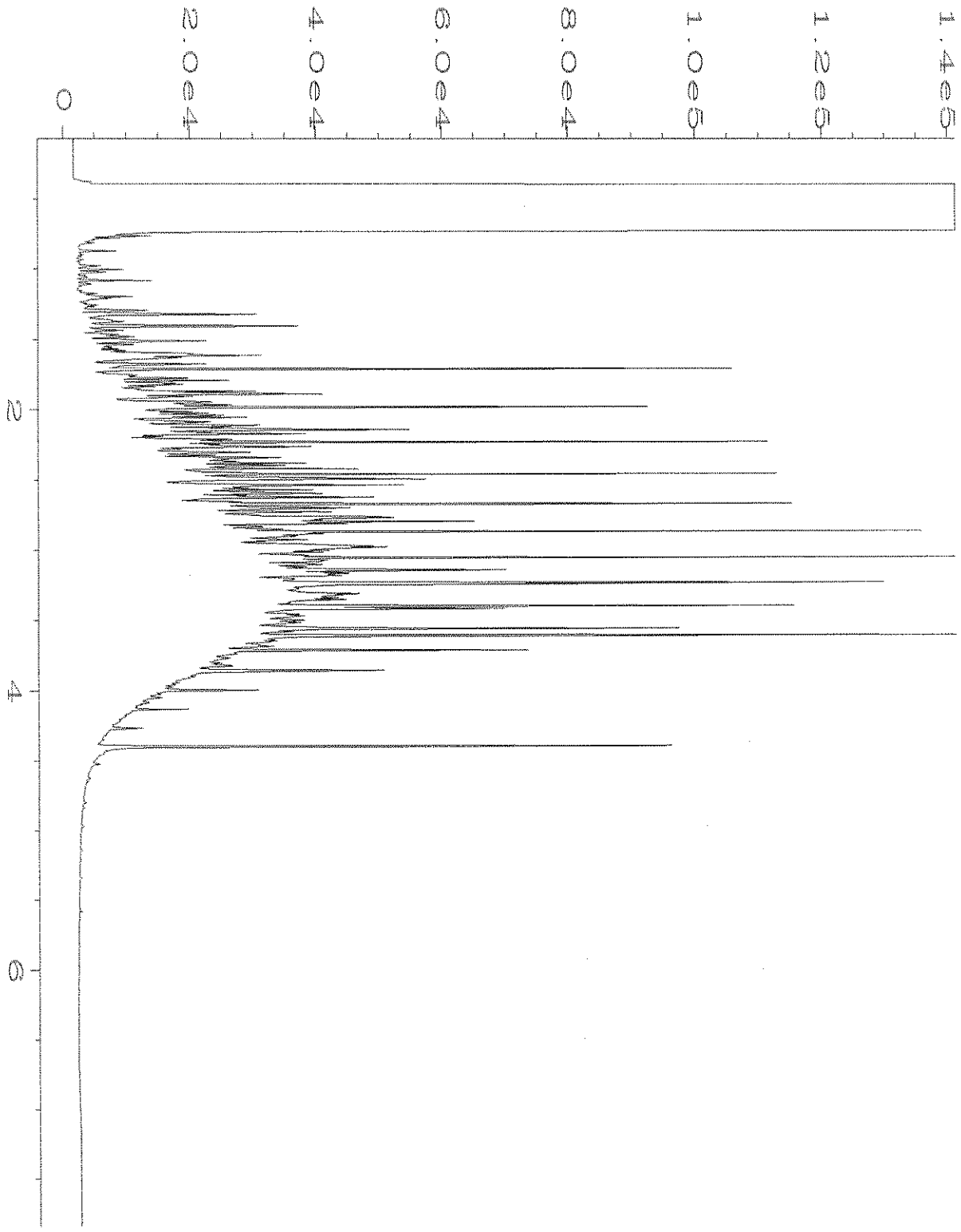
Data File Name : C:\HPCHEM\4\DATA\10-10-19\032F0501.D
Operator : TL
Instrument : GC#4
Sample Name : 910181-15
Run Time Bar Code:
Acquired on : 10 Oct 19 04:41 PM
Report Created on: 11 Oct 19 10:14 AM

Page Number : 1
Vial Number : 32
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

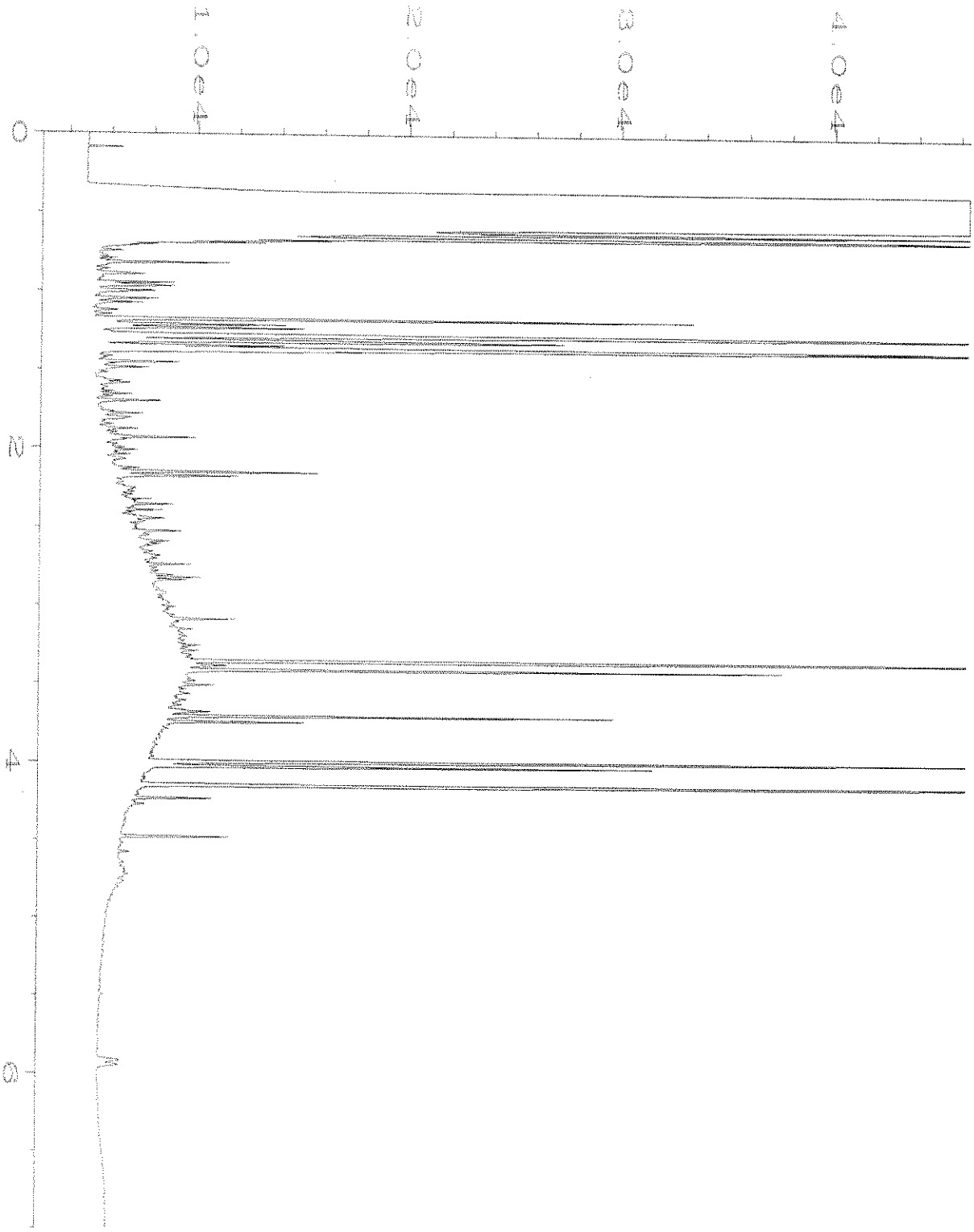


Data File Name : C:\HPCHEM\4\DATA\10-10-19\012F0301.D
Operator : TL
Instrument : GC#4
Sample Name : 09-2486 mb
Run Time Bar Code:
Acquired on : 10 Oct 19 10:00 AM
Report Created on: 11 Oct 19 10:12 AM

Page Number : 1
Vial Number : 12
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

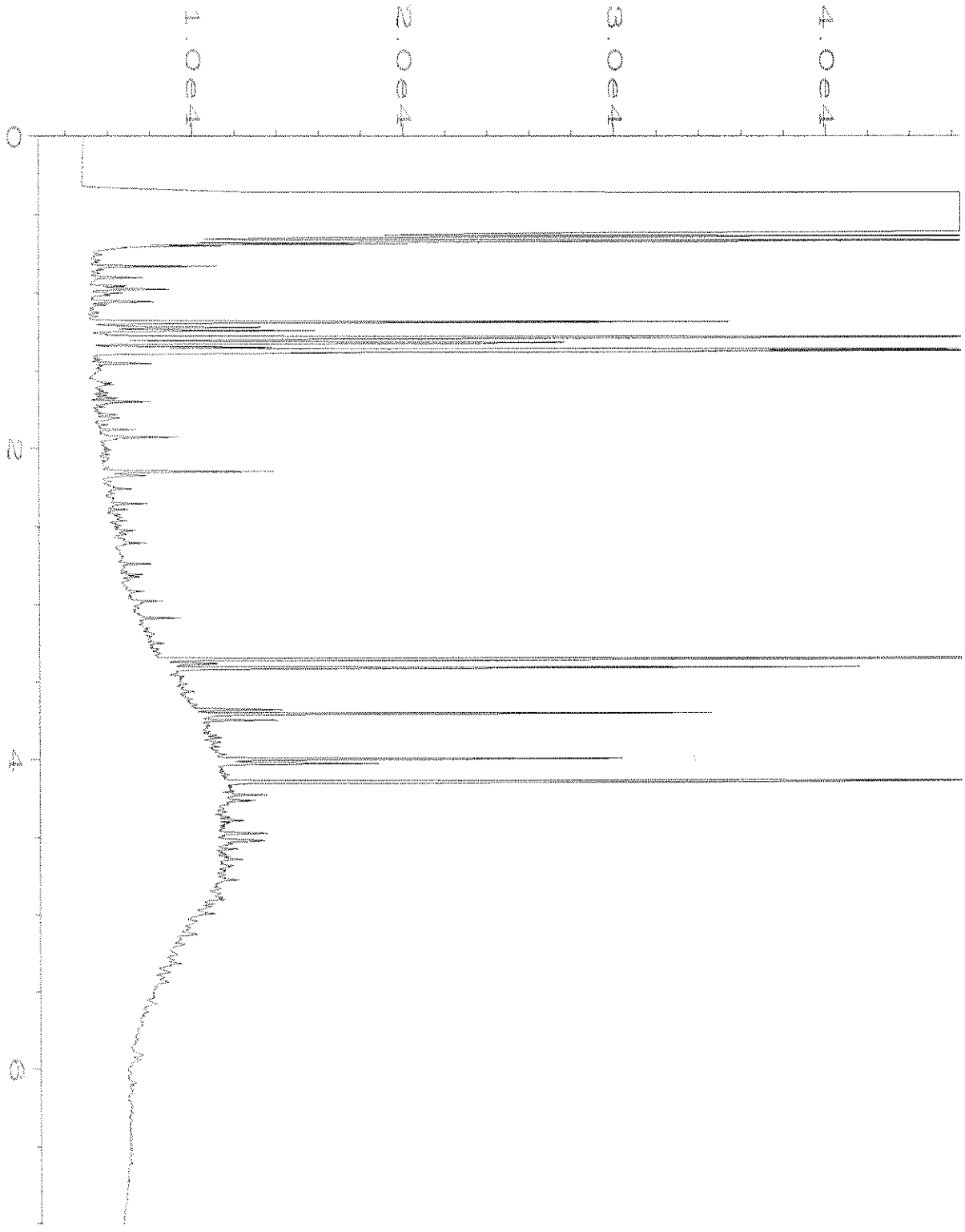


Data File Name	: C:\HPCHEM\4\DATA\10-10-19\003F0201.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 3
Sample Name	: 500 Dx 58-62F	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 10 Oct 19 06:32 AM	Instrument Method	: DX.MTH
Report Created on	: 11 Oct 19 10:09 AM	Analysis Method	: DEFAULT.MTH



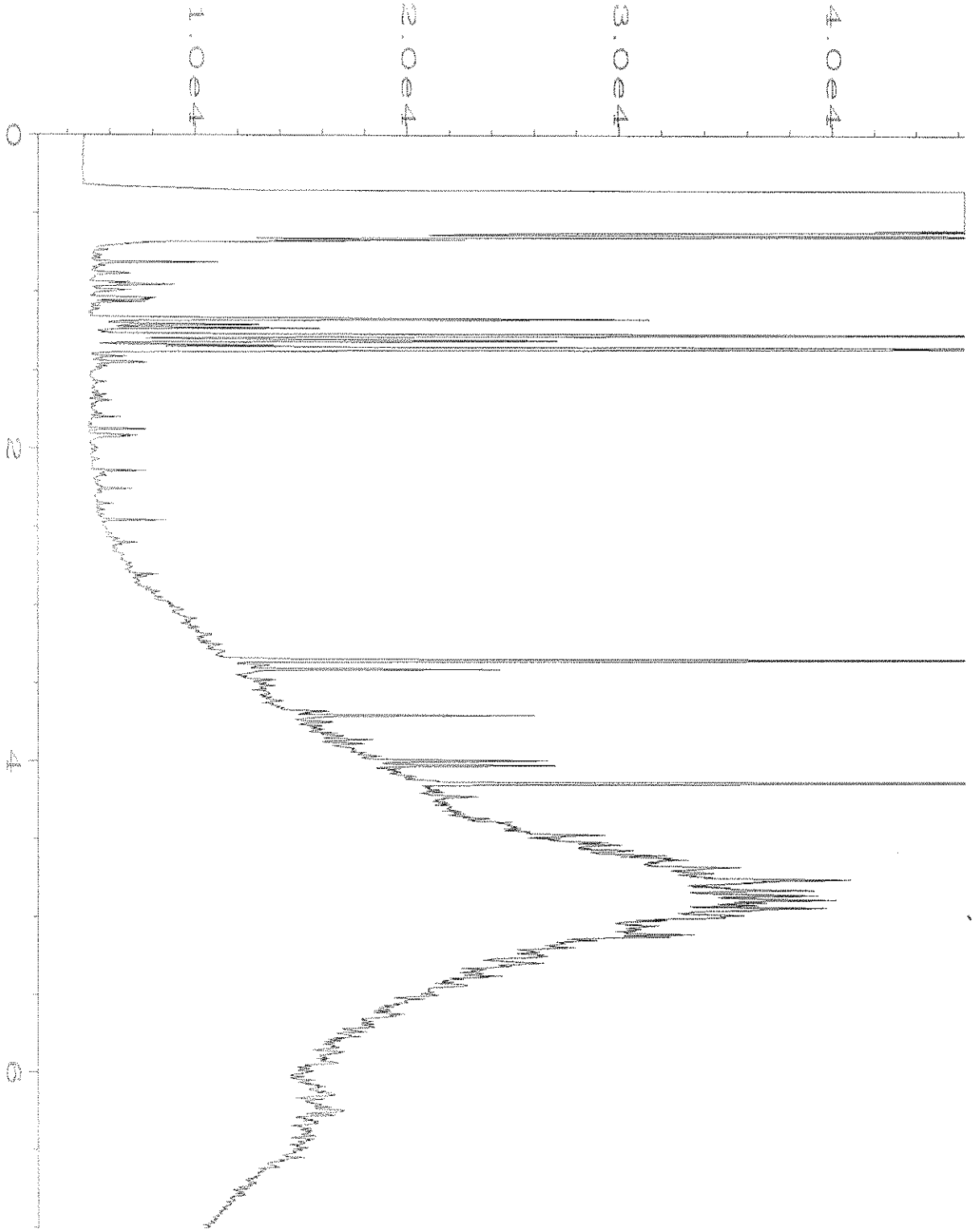
Data File Name : C:\HPCHEM\6\DATA\10-10-19\033F0501.D
Operator : TL
Instrument : GC6
Sample Name : 910181-02
Run Time Bar Code:
Acquired on : 10 Oct 19 04:49 PM
Report Created on: 11 Oct 19 11:10 AM

Page Number : 1
Vial Number : 33
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

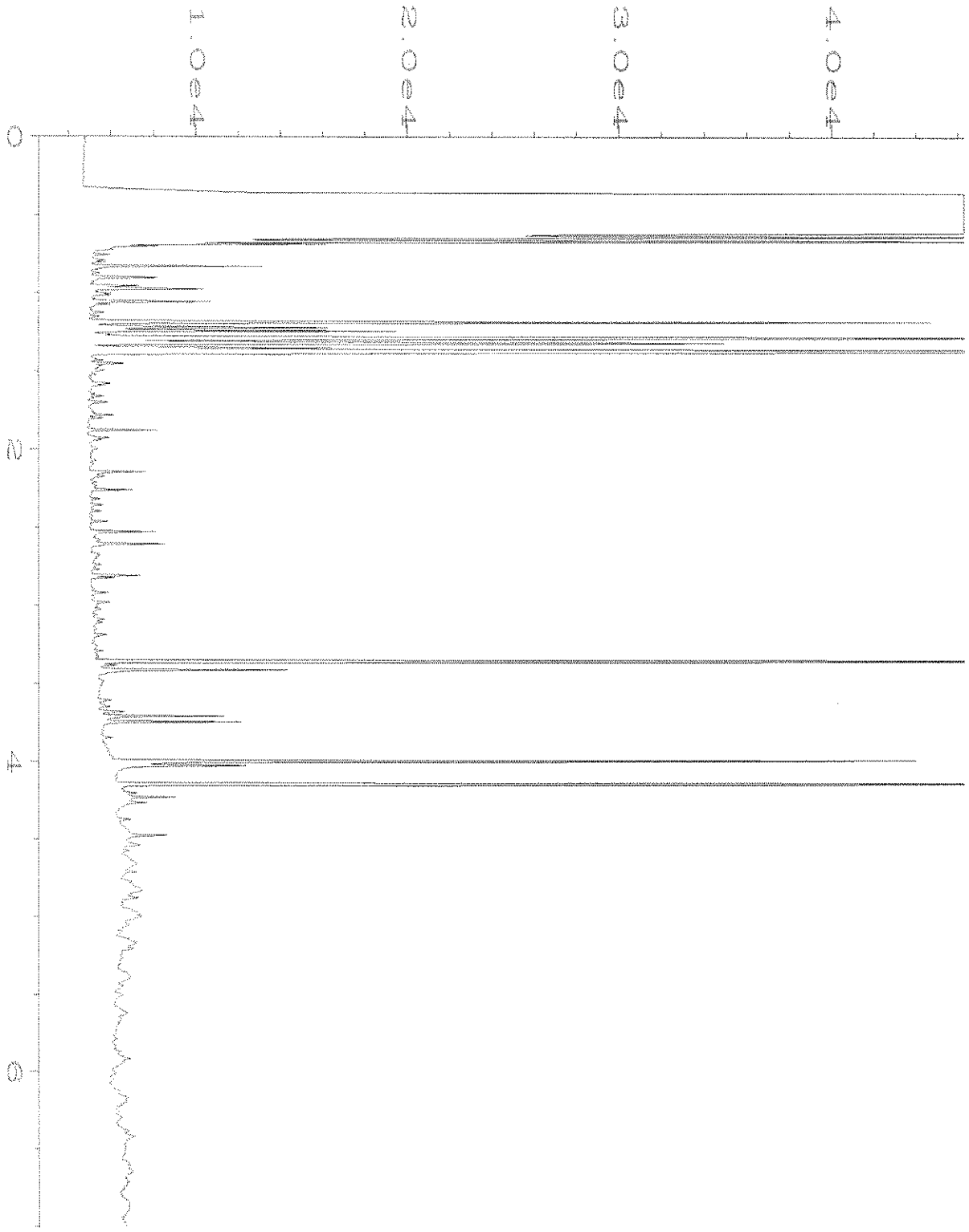


Data File Name : C:\HPCHEM\6\DATA\10-10-19\034F0501.D
Operator : TL
Instrument : GC6
Sample Name : 910181-05
Run Time Bar Code:
Acquired on : 10 Oct 19 05:00 PM
Report Created on: 11 Oct 19 11:10 AM

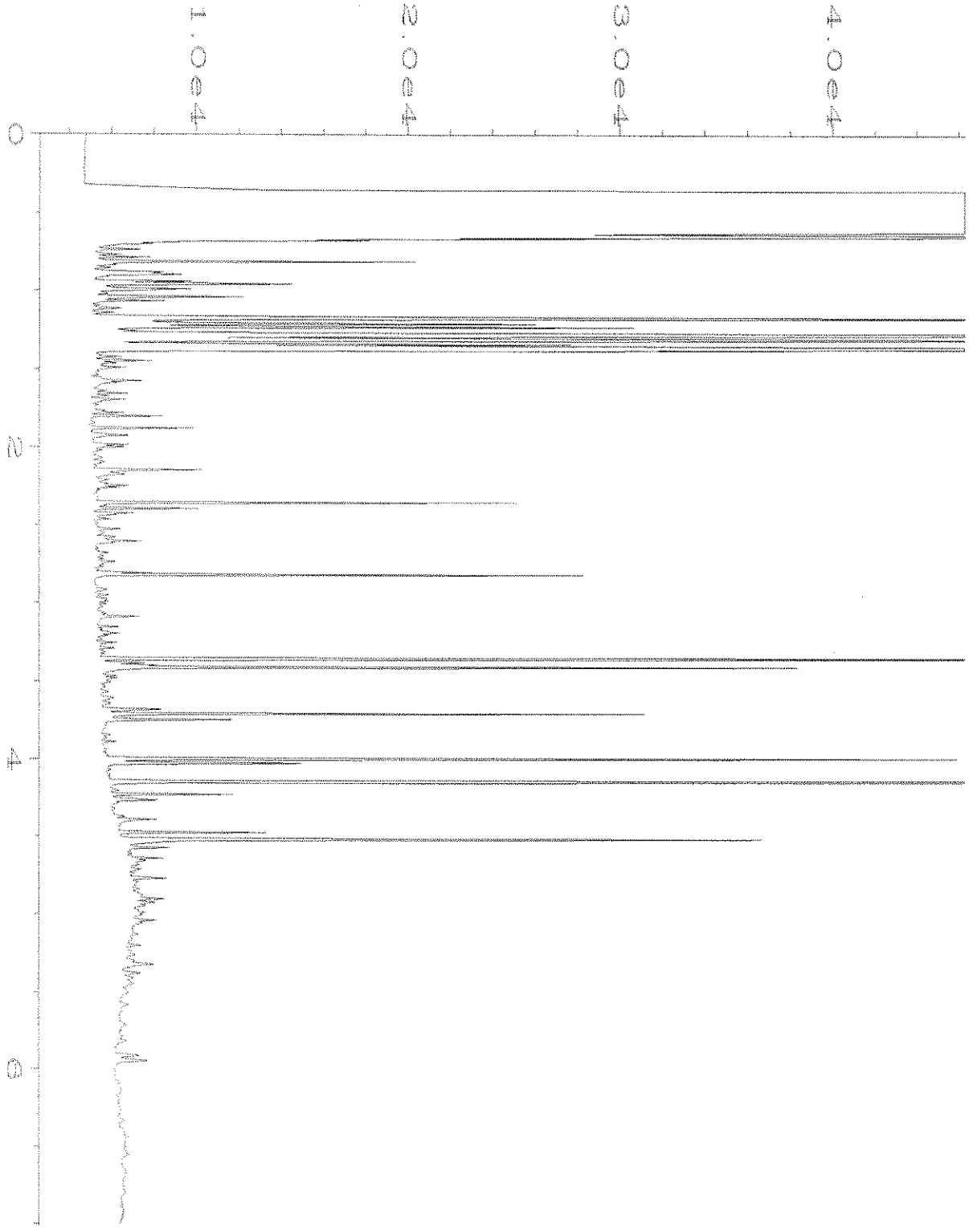
Page Number : 1
Vial Number : 34
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name	: C:\HPCHEM\6\DATA\10-10-19\035F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 35
Sample Name	: 910181-07	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 10 Oct 19 05:11 PM	Instrument Method	: DX.MTH
Report Created on	: 11 Oct 19 11:10 AM	Analysis Method	: DEFAULT.MTH

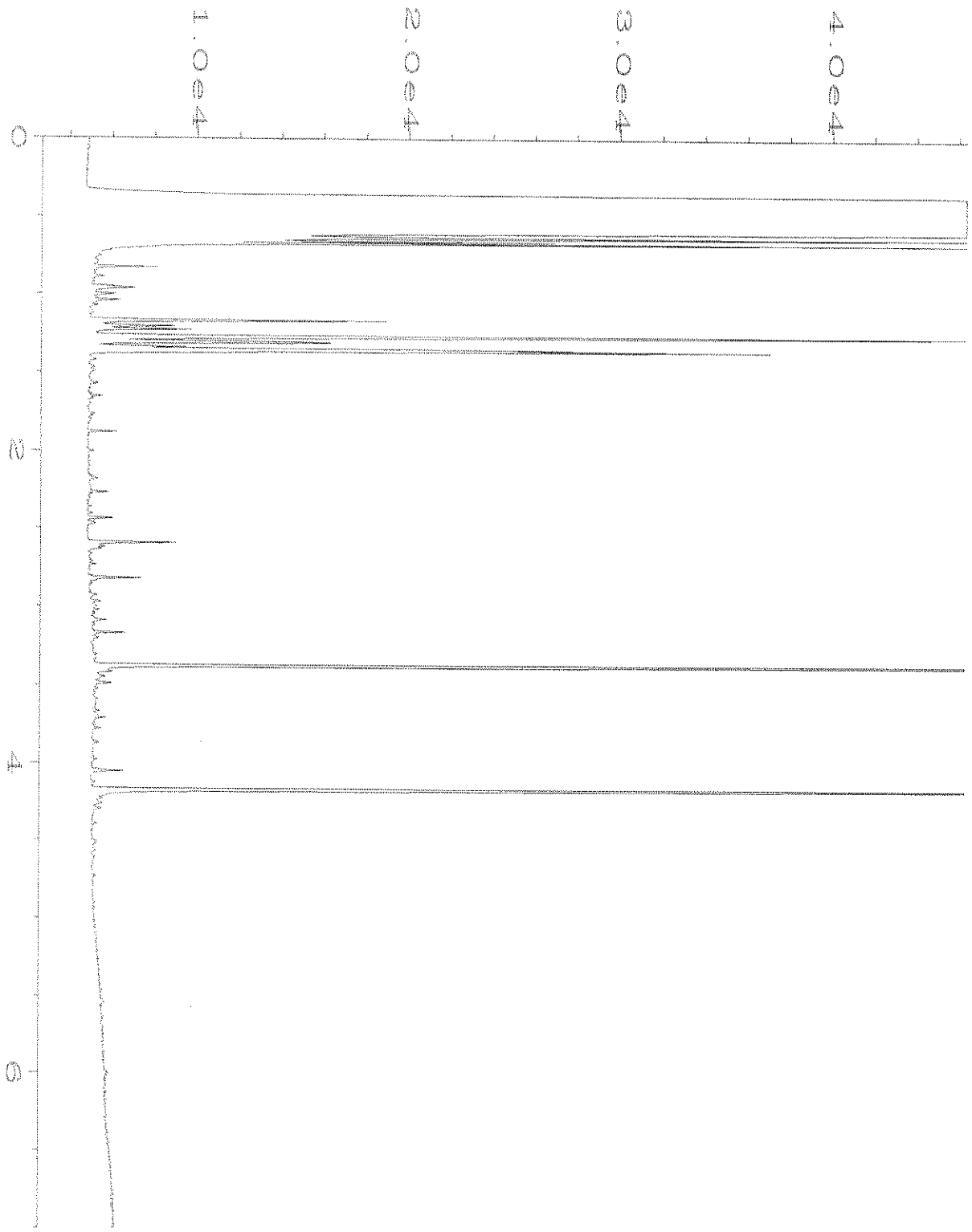


Data File Name	: C:\HPCHEM\6\DATA\10-10-19\036F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 36
Sample Name	: 910181-09	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 10 Oct 19 05:21 PM	Instrument Method	: DX.MTH
Report Created on	: 11 Oct 19 11:10 AM	Analysis Method	: DEFAULT.MTH



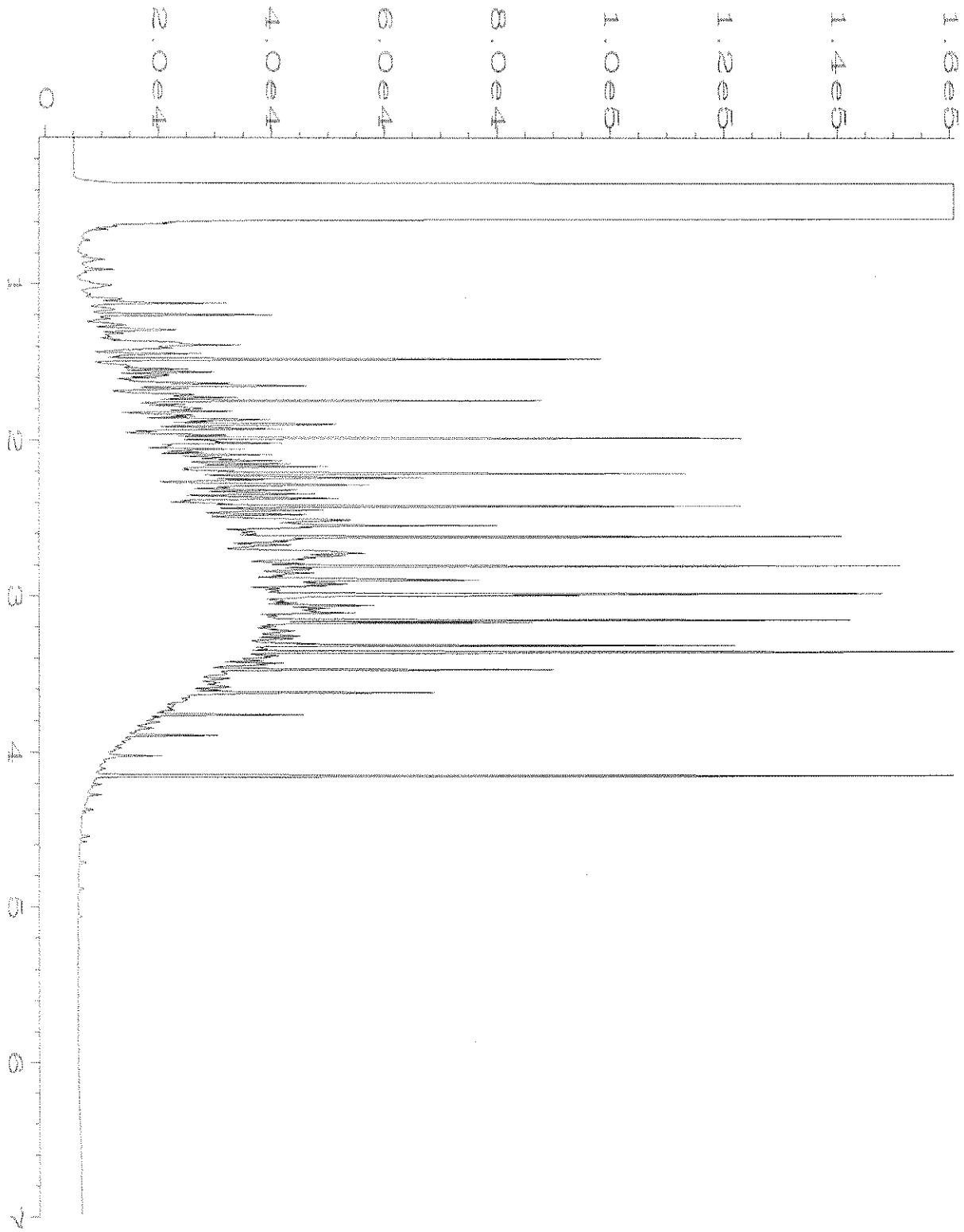
Data File Name : C:\HPCHEM\6\DATA\10-10-19\037F0501.D
Operator : TL
Instrument : GC6
Sample Name : 910181-13
Run Time Bar Code:
Acquired on : 10 Oct 19 05:32 PM
Report Created on: 11 Oct 19 11:10 AM

Page Number : 1
Vial Number : 37
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\6\DATA\10-10-19\022F0301.D
Operator : TL
Instrument : GC6
Sample Name : 09-2485 mb
Run Time Bar Code:
Acquired on : 10 Oct 19 02:17 PM
Report Created on: 11 Oct 19 11:09 AM

Page Number : 1
Vial Number : 22
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\6\DATA\10-10-19\003F0201.D
Operator : TL
Instrument : GC6
Sample Name : 500 Dx 58-62F
Run Time Bar Code:
Acquired on : 10 Oct 19 06:55 AM
Report Created on: 11 Oct 19 11:08 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

91018/

SAMPLE CHAIN OF CUSTODY ME 10/9/19 COC/AIS/VS3/VW2

Page # 1 of 2

Report To MIKE, KURT

Company EHSI

Address 1011 SW Klickitat Way Ste 104

City, State, ZIP Seattle, WA 98134

Phone 206 381 1128 Email

SAMPLERS (signature)

PROJECT NAME: Bucley Library RI/FS

PO #: 11101

REMARKS

Project specific RLs? - Yes (No)

INVOICE TO

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Archive samples
- [x] Other Ecology
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270 ~~Frac.~~	PCBs EPA 8082	SC As/Pb/Mn/Cd	Hold for Dissolved		Dissolved Metals	Notes
B15-3 (B28-3)	01 A-E	10/4	830	S	5	X	X			X	X		X				per MB 10/16/19 ME
B15-W (B15-W)	02 A-G		1000	W	7	X	X			X	X		X			⊗	Limited sample B0416
B16-3.5	03 A-E		835	S	5	X	X			X	X		X				
B17-5	04 A-E		900	S	5	X	X			X	X		X				
B17-W	05 A-G		1040	W	7	X	X			X	X		X			⊗	
B18-6	06 A-E		930	S	5	X	X			X	X		X				
B18-W	07 A-G		950	W	7	X	X			X	X		X			⊗	
B19-5	08 A-E		1010	S	5	X	X			X	X		X				
B19-W	09 A-D		1150	W	4	X	X			X						⊗	LIMITED SAMPLE
B20-5	10 A-E	↓	1230	S	5	X	X			X	X		X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	MIKE BRADY	EHSI	10/9	6:15
Received by:	Nhan Phan	FEBI	10/9/19	1453
Relinquished by:				
Received by:		Samples received at 5 °C		

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

91018 1

SAMPLE CHAIN OF CUSTODY

ME 10/9/19 COC/AIS/VS3/VN2

Page # 2 of 2

Report To MIKE, KURT

Company EHSI

Address 1011 SW Klickitat Way Ste 104

City, State, ZIP Seattle, WA 98134

Phone 206 351 1126 Email

SAMPLERS (signature) MLB

PROJECT NAME: Buckley Library RI/FS

PO # 11101

REMARKS

Project specific RLs? - Yes / (No)

INVOICE TO

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Archive samples
- [x] Other Verbal
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type (NP) 10/9	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	MTCA 5 metals	Dissolved Pb+As			Notes
MW-9-5	11 A-E		1245	Soil	5	X	X			X	X		X				
B21-3.5	12 V		1450	Soil	5	X	X			X	X		X				
B21-W	13 A-D		1510	water	4	X	X			X			~~X~~	X			LIMITED SAMPLE
MW-9-5 DUP	14 A-D		1245	Soil	2 (4 Pre)		X			X							
VPS-3	15 A-E		1045	Soil	5	X	X			X	X		X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: MLB	Mike Brady	EHSI	10/9	6:15
Received by:	Nhan Phan	FCBT	10/9/19	1453
Relinquished by:				
Received by:		Samples received at 5 °C		

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

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

October 29, 2019

Mike Brady, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

Dear Mr Brady:

Included are the additional results from the testing of material submitted on October 9, 2019 from the Buckley Library RI/FS 11101, F&BI 910181 project. There are 7 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: EHSI A/P
EHS1029R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 9, 2019 by Friedman & Bruya, Inc. from the EHSI Buckley Library RI/FS 11101, F&BI 910181 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EHSI
910181 -01	B15-3 (B28-3)
910181 -02	B15-W (B28-W)
910181 -03	B16-3.5
910181 -04	B17-5
910181 -05	B17-W
910181 -06	B18-6
910181 -07	B18-W
910181 -08	B19-3
910181 -09	B19-W
910181 -10	B20-5
910181 -11	MW-9-5
910181 -12	B21-3.5
910181 -13	B21-W
910181 -14	MW-9-5 DUP
910181 -15	VP5-3

The dissolved metals samples were filtered at Friedman and Bruya on October 18, 2019 at 16:40. The data were flagged accordingly.

All quality control requirements were acceptable.

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	B15-W f	(B28-W)	Client:	EHSI
Date Received:	10/09/19		Project:	Buckley Library RI/FS 11101
Date Extracted:	10/23/19		Lab ID:	910181-02
Date Analyzed:	10/23/19		Data File:	910181-02.034
Matrix:	Water		Instrument:	ICPMS2
Units:	ug/L (ppb)		Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.15
Cadmium	2.76
Lead	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	B17-W f	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/23/19	Lab ID:	910181-05
Date Analyzed:	10/23/19	Data File:	910181-05.035
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.03
Lead	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	B18-W f	Client:	EHSI
Date Received:	10/09/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/23/19	Lab ID:	910181-07
Date Analyzed:	10/23/19	Data File:	910181-07.099
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

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

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank f	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/23/19	Lab ID:	I9-677 mb
Date Analyzed:	10/23/19	Data File:	I9-677 mb.031
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

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

Date of Report: 10/29/19
Date Received: 10/09/19
Project: Buckley Library RI/FS 11101, F&BI 910181

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

Laboratory Code: 910247-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	92	92	75-125	0
Cadmium	ug/L (ppb)	5	<1	98	99	75-125	1
Chromium	ug/L (ppb)	20	<1	97	96	75-125	1
Lead	ug/L (ppb)	10	<1	85	86	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	95	80-120
Cadmium	ug/L (ppb)	5	94	80-120
Chromium	ug/L (ppb)	20	96	80-120
Lead	ug/L (ppb)	10	95	80-120

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.

910181

SAMPLE CHAIN OF CUSTODY ME 10/9/19 COC/AIS/VS3/VW2

Page # 1 of 2

Report To MIKE, KURT
Company EHSI
Address 1011 SW Klickitat Way Ste 104
City, State, ZIP Seattle, WA 98134
Phone 206 381 1128 Email

SAMPLERS (signature) MLB

PROJECT NAME: Bucley Library RI/FS
PO #: 11101

REMARKS
Project specific RLs? - Yes (No)

INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270 (Low Level)	PCBs EPA 8082	SC As 1/6 MTCA	Hold for Diss Cd Dissolved	Diss Cd	Dissolved Pb+As	⊗ per MB 10/16/19 MG Notes
B15-3 (B28-3)	01 A-E	10/4	830	S	5	X	X			X	X		X				
B15-W (B28-W)	02 A-G		1000	W	7	X	X			X	X		X		⊗	⊗	Limited sample B&L
B16-3.5	03 A-E		835	S	5	X	X			X	X		X				
B17-5	04 A-E		900	S	5	X	X			X	X		X				
B17-W	05 A-G		1040	W	7	X	X			X	X		X			⊗	
B18-6	06 A-E		930	S	5	X	X			X	X		X				
B18-W	07 A-G		950	W	7	X	X			X	X		X	⊗		⊗	
B19-[redacted]	08 A-E		1010	S	5	X	X			X	X		X				
B19-W	09 A-D		1150	W	4	X	X			X					⊗		Do not run dissolved EMB 10/29 LIMITED SAMPLE
B20-5	10 A-E	↓	1230	S	5	X	X			X	X		X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: MLB	MIKE BRADY	EHSI	10/9	6:15
Received by:	Nhan Phan	FEBI	10/9/19	1453
Relinquished by:				
Received by:		Samples received at 5 °C		

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

91018 1

SAMPLE CHAIN OF CUSTODY

ME 10/9/19 COC1 / AD5 / VS3 2 / VN2

Page # 2 of 2

Report To MIKE, KURT

Company EHSI

Address 1011 SW Klickitat Way Ste 104

City, State, ZIP Seattle, WA 98134

Phone 206 351 1128 Email

SAMPLERS (signature)

PROJECT NAME: Buckley Library RI/FS

PO #: 11101

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- [x] Standard turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Archive samples
- [x] Other Verbal
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type (NP 10/9)	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	MTCA 5 metals	Dissolved Pb+As			Notes
MW-9-5	11 A-E		1245	Soil	5	X	X			X	X		X				
B21-3.5	12 V		1450	Soil	5	X	X			X	X		X				
B21-W	13 A-D		1510	water	4	X	X			X			~~X~~	~~X~~			dissolved Do not run end 10/29 LIMITED SAMPLE
MW-9-5 DUP	14 A-D		1245	Soil	~~3~~ 4 Pre	~~X~~	X			X	~~X~~						
VPS-3	15 A-E		1045	Soil	5	X	X			X	X		X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Mike Brady	EHSI	10/9	6:15
Received by:	Nhan Phan	FEBT	10/9/19	1455
Relinquished by:				
Received by:		Samples received at 5 °C		

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

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

November 6, 2019

Mike Brady, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

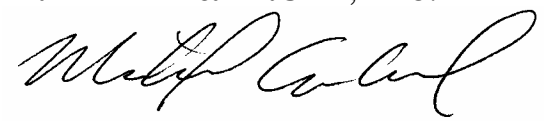
Dear Mr Brady:

Included are the amended results from the testing of material submitted on October 10, 2019 from the Buckley Library RI/FS 11101, F&BI 910203 project. Per your request, the several NWTPH-Dx diesel and motor oil samples have been reported as NWTPH-Dx extended.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: EHSI A/P, Kurt Easthouse
EHS1028R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West
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www.friedmanandbruya.com

October 28, 2019

Mike Brady, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

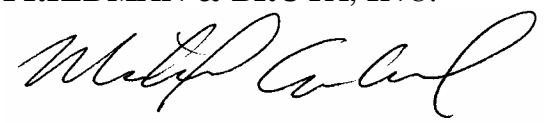
Dear Mr Brady:

Included are the results from the testing of material submitted on October 10, 2019 from the Buckley Library RI/FS 11101, F&BI 910203 project. There are 84 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: EHSI A/P, Kurt Easthouse
EHS1028R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 10, 2019 by Friedman & Bruya, Inc. from the EHSI Buckley Library RI/FS 11101, F&BI 910203 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EHSI
910203 -01	Trip Blank
910203 -02	B22-3
910203 -03	B22-6
910203 -04	MW10-3
910203 -05	B23-3
910203 -06	B23-W
910203 -07	B23-W DUP
910203 -08	B24-3
910203 -09	B25-3
910203 -10	B24-W
910203 -11	B25-W
910203 -12	B26-3
910203 -13	B26-7
910203 -14	MW11-3
910203 -15	B27-3
910203 -16	B27-W

The dissolved metals samples were filtered at Friedman and Bruya on October 18, 2019 at 16:40. The data were flagged accordingly.

A 6020B internal standard failed the acceptance criteria for some samples. In addition, the calibration standard failed the acceptance criteria for chromium. The samples were diluted and reanalyzed with acceptable results. Both data sets were reported.

Acetone and methylene chloride were detected in several samples due to lab contamination. The data were flagged accordingly. In addition, several analytes in the 8260C laboratory control sample and laboratory control sample duplicate exceeded the acceptance criteria. The analytes were not detected in the sample, therefore the data were acceptable.

All other quality control requirements were acceptable.

Date of Report: 10/28/19
Date Received: 10/10/19
Project: Buckley Library RI/FS 11101, F&BI 910203
Date Extracted: 10/16/19
Date Analyzed: 10/16/19

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

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

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
B22-3 910203-02	<5	83
B22-6 910203-03	<5	88
MW10-3 910203-04	<5	84
B23-3 910203-05	<5	83
B24-3 910203-08 1/10	420	98
B25-3 910203-09 1/5	850	ip
B26-3 910203-12	<5	87
B26-7 910203-13	<5	88
MW11-3 910203-14	<5	80
B27-3 910203-15	<5	82
Method Blank 09-2504 MB2	<5	87

Date of Report: 10/28/19
Date Received: 10/10/19
Project: Buckley Library RI/FS 11101, F&BI 910203
Date Extracted: 10/17/19
Date Analyzed: 10/17/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
Trip Blank 910203-01	<100	80
B23-W 910203-06	490	100
B23-W DUP 910203-07	380	95
B24-W 910203-10 1/10	4,400	89
B25-W 910203-11 1/10	33,000	72
B27-W 910203-16	<100	79
Method Blank 09-2507 MB	<100	83

Date of Report: 10/28/19
Date Received: 10/10/19
Project: Buckley Library RI/FS 11101, F&BI 910203
Date Extracted: 10/15/19
Date Analyzed: 10/15/19

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

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

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
B22-3 910203-02	<50	<250	89
B22-6 910203-03	<50	<250	89
MW10-3 910203-04	<50	<250	90
B23-3 910203-05	<50	<250	90
B24-3 910203-08	<50	<250	100
B25-3 910203-09	190	<250	100
B26-3 910203-12	<50	<250	92
B26-7 910203-13	<50	<250	90
MW11-3 910203-14	<50	<250	90
B27-3 910203-15	<50	<250	100
Method Blank 09-2531 MB	<50	<250	94

Date of Report: 10/28/19
Date Received: 10/10/19
Project: Buckley Library RI/FS 11101, F&BI 910203
Date Extracted: 10/14/19
Date Analyzed: 10/14/19

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 51-134)
B23-W 910203-06	240 x	<250	103
B23-W DUP 910203-07	220 x	<250	98
Method Blank 09-2522 MB	<50	<250	84

Date of Report: 10/28/19
Date Received: 10/10/19
Project: Buckley Library RI/FS 11101, F&BI 910203
Date Extracted: 10/14/19
Date Analyzed: 10/14/19

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL USING METHOD NWTPH-Dx
Extended to Include Motor Oil Range Compounds
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Extended (C_{10}-C_{36})	Surrogate (% Recovery) (Limit 51-134)
B24-W 910203-10	2,000 x	61
B25-W 910203-11	8,900 x	60
B27-W 910203-16	1,500 x	ip
Method Blank 09-2522 MB	<250	84

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	B23-W f	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/23/19	Lab ID:	910203-06
Date Analyzed:	10/23/19	Data File:	910203-06.100
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.47
Lead	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	B23-W DUP f	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/23/19	Lab ID:	910203-07
Date Analyzed:	10/23/19	Data File:	910203-07.101
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.64
Lead	<1

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	B25-W f	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/23/19	Lab ID:	910203-11
Date Analyzed:	10/23/19	Data File:	910203-11.102
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.00
Chromium	<1
Lead	3.56

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	B27-W f	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/23/19	Lab ID:	910203-16
Date Analyzed:	10/23/19	Data File:	910203-16.103
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

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

Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank f	Client:	EHSI
Date Received:	NA	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/23/19	Lab ID:	I9-677 mb
Date Analyzed:	10/23/19	Data File:	I9-677 mb.031
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

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

Analysis For Total Metals By EPA Method 6020B

Client ID:	B22-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910203-02
Date Analyzed:	10/15/19	Data File:	910203-02.133
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.19
Cadmium	<1
Chromium	12.7
Lead	4.75
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B22-6	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910203-03
Date Analyzed:	10/15/19	Data File:	910203-03.134
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.93
Cadmium	<1
Chromium	8.33
Lead	3.42
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW10-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910203-04
Date Analyzed:	10/15/19	Data File:	910203-04.135
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.97
Cadmium	<1
Chromium	11.5
Lead	6.91
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B23-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910203-05
Date Analyzed:	10/15/19	Data File:	910203-05.136
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.78
Cadmium	<1
Chromium	13.1
Lead	5.85
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B24-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910203-08
Date Analyzed:	10/15/19	Data File:	910203-08.137
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.47
Cadmium	<1
Chromium	12.4
Lead	5.77
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B25-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910203-09
Date Analyzed:	10/15/19	Data File:	910203-09.142
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.62
Cadmium	<1
Chromium	14.1
Lead	5.16
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B26-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910203-12
Date Analyzed:	10/15/19	Data File:	910203-12.143
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.96
Cadmium	<1
Chromium	23.1
Lead	37.1
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B26-7	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910203-13
Date Analyzed:	10/15/19	Data File:	910203-13.144
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.34
Cadmium	<1
Chromium	9.32
Lead	2.39
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW11-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910203-14
Date Analyzed:	10/15/19	Data File:	910203-14.145
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.97
Cadmium	<1
Chromium	11.6
Lead	4.53
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B27-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910203-15
Date Analyzed:	10/15/19	Data File:	910203-15.146
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.18
Cadmium	<1
Chromium	11.7
Lead	13.0
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	EHSI
Date Received:	NA	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	I9-655 mb
Date Analyzed:	10/15/19	Data File:	I9-655 mb.116
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B23-W	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910203-06
Date Analyzed:	10/12/19	Data File:	910203-06.296
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	4.97
Cadmium	<1
Chromium	5.20 J ca
Lead	9.57
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B23-W	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910203-06
Date Analyzed:	10/14/19	Data File:	910203-06.171
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	5.39

Analysis For Total Metals By EPA Method 6020B

Client ID:	B23-W DUP	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910203-07
Date Analyzed:	10/12/19	Data File:	910203-07.297
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	4.85
Cadmium	<1
Chromium	5.39 J ca
Lead	9.74
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B23-W DUP	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910203-07
Date Analyzed:	10/14/19	Data File:	910203-07.172
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	5.62

Analysis For Total Metals By EPA Method 6020B

Client ID:	B25-W	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910203-11
Date Analyzed:	10/12/19	Data File:	910203-11.298
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	59.2
Cadmium	1.75
Chromium	55.3 J ca
Lead	127
Mercury	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B25-W	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910203-11 x20
Date Analyzed:	10/15/19	Data File:	910203-11 x20.164
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	254

Analysis For Total Metals By EPA Method 6020B

Client ID:	B27-W	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910203-16
Date Analyzed:	10/12/19	Data File:	910203-16.299
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	53.4
Cadmium	3.99
Chromium	66.7 J ca
Lead	141 J
Mercury	<1 J

Analysis For Total Metals By EPA Method 6020B

Client ID:	B27-W	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910203-16 x10
Date Analyzed:	10/14/19	Data File:	910203-16 x10.174
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	275
Mercury	<10

Analysis For Total Metals By EPA Method 6020B

Client ID:	B27-W	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	910203-16 x20
Date Analyzed:	10/15/19	Data File:	910203-16 x20.165
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	283

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	EHSI
Date Received:	NA	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/11/19	Lab ID:	I9-644 mb
Date Analyzed:	10/11/19	Data File:	I9-644 mb.225
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B22-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-02 1/5
Date Analyzed:	10/15/19	Data File:	101505.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	75	50	150
Benzo(a)anthracene-d12	75	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
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	<0.01
1-Methylnaphthalene	<0.01
2-Methylnaphthalene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B22-6	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-03 1/5
Date Analyzed:	10/15/19	Data File:	101506.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	81	50	150
Benzo(a)anthracene-d12	83	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
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	<0.01
1-Methylnaphthalene	<0.01
2-Methylnaphthalene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW10-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-04 1/25
Date Analyzed:	10/15/19	Data File:	101507.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	98 d	50	150
Benzo(a)anthracene-d12	88 d	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	<0.05
Anthracene	<0.05
Fluoranthene	<0.05
Pyrene	<0.05
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05
1-Methylnaphthalene	<0.05
2-Methylnaphthalene	<0.05

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B23-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-05 1/25
Date Analyzed:	10/16/19	Data File:	101534.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	92 d	50	150
Benzo(a)anthracene-d12	91 d	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	<0.05
Anthracene	<0.05
Fluoranthene	<0.05
Pyrene	<0.05
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05
1-Methylnaphthalene	<0.05
2-Methylnaphthalene	<0.05

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B24-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-08 1/25
Date Analyzed:	10/15/19	Data File:	101508.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	93 d	50	150
Benzo(a)anthracene-d12	86 d	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.38
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	<0.05
Anthracene	<0.05
Fluoranthene	<0.05
Pyrene	<0.05
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05
1-Methylnaphthalene	0.74
2-Methylnaphthalene	1.5

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B25-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-09 1/5
Date Analyzed:	10/15/19	Data File:	101509.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	87	50	150
Benzo(a)anthracene-d12	92	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.57
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	0.016
Phenanthrene	0.024
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	<0.01
1-Methylnaphthalene	1.8 ve
2-Methylnaphthalene	4.0 ve

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B25-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-09 1/25
Date Analyzed:	10/17/19	Data File:	101622.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	116 d	31	163
Benzo(a)anthracene-d12	84 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.64
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	<0.05
Anthracene	<0.05
Fluoranthene	<0.05
Pyrene	<0.05
Benz(a)anthracene	<0.05
Chrysene	<0.05
Benzo(a)pyrene	<0.05
Benzo(b)fluoranthene	<0.05
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	<0.05
1-Methylnaphthalene	1.8
2-Methylnaphthalene	4.0

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B26-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-12 1/5
Date Analyzed:	10/15/19	Data File:	101510.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	82	50	150
Benzo(a)anthracene-d12	89	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.033
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	0.011
Phenanthrene	0.090
Anthracene	0.016
Fluoranthene	0.089
Pyrene	0.12
Benz(a)anthracene	0.062
Chrysene	0.071
Benzo(a)pyrene	0.073
Benzo(b)fluoranthene	0.10
Benzo(k)fluoranthene	0.035
Indeno(1,2,3-cd)pyrene	0.087
Dibenz(a,h)anthracene	0.013
Benzo(g,h,i)perylene	0.073
1-Methylnaphthalene	0.030
2-Methylnaphthalene	0.038

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B26-7	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-13 1/5
Date Analyzed:	10/15/19	Data File:	101511.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	81	50	150
Benzo(a)anthracene-d12	88	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
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	<0.01
1-Methylnaphthalene	<0.01
2-Methylnaphthalene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	MW11-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-14 1/5
Date Analyzed:	10/15/19	Data File:	101512.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	82	50	150
Benzo(a)anthracene-d12	87	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
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	<0.01
1-Methylnaphthalene	<0.01
2-Methylnaphthalene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B27-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-15 1/5
Date Analyzed:	10/15/19	Data File:	101514.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	81	50	150
Benzo(a)anthracene-d12	87	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	0.015
Pyrene	0.018
Benz(a)anthracene	<0.01
Chrysene	0.010
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	<0.01
1-Methylnaphthalene	<0.01
2-Methylnaphthalene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	09-2521 mb 1/5
Date Analyzed:	10/14/19	Data File:	101422.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	94	31	163
Benzo(a)anthracene-d12	94	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
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	<0.01
1-Methylnaphthalene	<0.01
2-Methylnaphthalene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B23-W	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-06
Date Analyzed:	10/15/19	Data File:	101507.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	99	31	160
Benzo(a)anthracene-d12	90	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	0.25
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02
1-Methylnaphthalene	0.48
2-Methylnaphthalene	0.27

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B23-W DUP	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-07
Date Analyzed:	10/15/19	Data File:	101508.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	97	31	160
Benzo(a)anthracene-d12	92	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	0.26
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02
1-Methylnaphthalene	0.51
2-Methylnaphthalene	0.30

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B25-W	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-11 1/20
Date Analyzed:	10/15/19	Data File:	101525.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	40 d	50	150
Benzo(a)anthracene-d12	30 d	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	270 ve
Acenaphthylene	<0.4
Acenaphthene	<0.4
Fluorene	<0.4
Phenanthrene	0.50
Anthracene	<0.4
Fluoranthene	<0.4
Pyrene	<0.4
Benz(a)anthracene	<0.4
Chrysene	<0.4
Benzo(a)pyrene	<0.4
Benzo(b)fluoranthene	<0.4
Benzo(k)fluoranthene	<0.4
Indeno(1,2,3-cd)pyrene	<0.4
Dibenz(a,h)anthracene	<0.4
Benzo(g,h,i)perylene	<0.4
1-Methylnaphthalene	110
2-Methylnaphthalene	230 ve

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B25-W	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-11 1/100
Date Analyzed:	10/17/19	Data File:	101623.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	97 d	31	160
Benzo(a)anthracene-d12	41 d	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	250
Acenaphthylene	<2
Acenaphthene	<2
Fluorene	<2
Phenanthrene	<2
Anthracene	<2
Fluoranthene	<2
Pyrene	<2
Benz(a)anthracene	<2
Chrysene	<2
Benzo(a)pyrene	<2
Benzo(b)fluoranthene	<2
Benzo(k)fluoranthene	<2
Indeno(1,2,3-cd)pyrene	<2
Dibenz(a,h)anthracene	<2
Benzo(g,h,i)perylene	<2
1-Methylnaphthalene	110
2-Methylnaphthalene	230

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B27-W	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-16
Date Analyzed:	10/15/19	Data File:	101509.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	62	31	160
Benzo(a)anthracene-d12	51	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02
1-Methylnaphthalene	<0.2
2-Methylnaphthalene	<0.2

Analysis For Semivolatile Compounds By EPA Method 8270E SIM

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	09-2523 mb
Date Analyzed:	10/15/19	Data File:	101506.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	98	31	160
Benzo(a)anthracene-d12	102	25	165

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Benzo(a)pyrene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02
1-Methylnaphthalene	<0.2
2-Methylnaphthalene	<0.2

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B22-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-02
Date Analyzed:	10/14/19	Data File:	101435.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	93	107
Toluene-d8	99	87	110
4-Bromofluorobenzene	97	85	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B22-6	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-03
Date Analyzed:	10/14/19	Data File:	101436.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	93	107
Toluene-d8	99	87	110
4-Bromofluorobenzene	96	85	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW10-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-04
Date Analyzed:	10/14/19	Data File:	101437.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	93	107
Toluene-d8	100	87	110
4-Bromofluorobenzene	96	85	112

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B23-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-05
Date Analyzed:	10/14/19	Data File:	101427.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	145
Toluene-d8	103	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B24-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-08
Date Analyzed:	10/14/19	Data File:	101443.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	145
Toluene-d8	105	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	4.8
Acetone	1.1 ca lc	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	4.3	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	0.77
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	3.0
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	1.4
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	2.7
Benzene	<0.03	sec-Butylbenzene	0.34
Trichloroethene	<0.02	p-Isopropyltoluene	0.10
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	5.5
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B25-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-09
Date Analyzed:	10/14/19	Data File:	101442.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	62	145
Toluene-d8	106	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	0.23
Acetone	0.78 ca lc	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	0.76	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	0.41
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	1.9
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	0.34
Trichloroethene	<0.02	p-Isopropyltoluene	0.097
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	1.8
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B26-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-12
Date Analyzed:	10/14/19	Data File:	101428.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	145
Toluene-d8	104	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	1.3 ca lc	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B26-7	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-13
Date Analyzed:	10/14/19	Data File:	101429.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	62	145
Toluene-d8	105	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	0.51 ca lc	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW11-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-14
Date Analyzed:	10/14/19	Data File:	101430.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	145
Toluene-d8	104	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	0.75 ca lc	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B27-3	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	910203-15
Date Analyzed:	10/14/19	Data File:	101431.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	145
Toluene-d8	105	55	145
4-Bromofluorobenzene	98	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	0.64 ca lc	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/14/19	Lab ID:	09-2464 mb
Date Analyzed:	10/14/19	Data File:	101426.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	145
Toluene-d8	102	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Trip Blank	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910203-01
Date Analyzed:	10/15/19	Data File:	101513.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	57	121
Toluene-d8	104	63	127
4-Bromofluorobenzene	92	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B23-W	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910203-06
Date Analyzed:	10/15/19	Data File:	101514.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	107	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	1.3	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	3.6
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	6.5
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	1.1	sec-Butylbenzene	1.2
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B23-W DUP	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910203-07
Date Analyzed:	10/15/19	Data File:	101515.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	57	121
Toluene-d8	109	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	1.1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	3.6
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	6.2
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	1.1	sec-Butylbenzene	1.1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B24-W	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910203-10
Date Analyzed:	10/15/19	Data File:	101516.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	57	121
Toluene-d8	109	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	210 ve
Acetone	79 ca	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	3.9
Hexane	17	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	15
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	46
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	6.9
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	25	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	16
Benzene	7.1	sec-Butylbenzene	2.7
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	1.2	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	480 ve
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B24-W hs	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/23/19	Lab ID:	910203-10 1/10
Date Analyzed:	10/23/19	Data File:	102344.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	87	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<10	1,3-Dichloropropane	<10
Chloromethane	<100	Tetrachloroethene	<10
Vinyl chloride	<2	Dibromochloromethane	<10
Bromomethane	<10	1,2-Dibromoethane (EDB)	<10
Chloroethane	<10	Chlorobenzene	<10
Trichlorofluoromethane	<10	Ethylbenzene	110
Acetone	<500	1,1,1,2-Tetrachloroethane	<10
1,1-Dichloroethene	<10	m,p-Xylene	<20
Hexane	15	o-Xylene	<10
Methylene chloride	<50	Styrene	<10
Methyl t-butyl ether (MTBE)	<10	Isopropylbenzene	<10
trans-1,2-Dichloroethene	<10	Bromoform	<10
1,1-Dichloroethane	<10	n-Propylbenzene	22
2,2-Dichloropropane	<10	Bromobenzene	<10
cis-1,2-Dichloroethene	<10	1,3,5-Trimethylbenzene	<10
Chloroform	<10	1,1,2,2-Tetrachloroethane	<10
2-Butanone (MEK)	<100	1,2,3-Trichloropropane	<10
1,2-Dichloroethane (EDC)	<10	2-Chlorotoluene	<10
1,1,1-Trichloroethane	<10	4-Chlorotoluene	<10
1,1-Dichloropropene	<10	tert-Butylbenzene	<10
Carbon tetrachloride	<10	1,2,4-Trimethylbenzene	<10
Benzene	5.3	sec-Butylbenzene	<10
Trichloroethene	<10	p-Isopropyltoluene	<10
1,2-Dichloropropane	<10	1,3-Dichlorobenzene	<10
Bromodichloromethane	<10	1,4-Dichlorobenzene	<10
Dibromomethane	<10	1,2-Dichlorobenzene	<10
4-Methyl-2-pentanone	<100	1,2-Dibromo-3-chloropropane	<100
cis-1,3-Dichloropropene	<10	1,2,4-Trichlorobenzene	<10
Toluene	<10	Hexachlorobutadiene	<10
trans-1,3-Dichloropropene	<10	Naphthalene	200
1,1,2-Trichloroethane	<10	1,2,3-Trichlorobenzene	<10
2-Hexanone	<100		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B25-W	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910203-11
Date Analyzed:	10/15/19	Data File:	101517.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	110	63	127
4-Bromofluorobenzene	121	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	500 ve
Acetone	160 ca	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	1,300 ve
Hexane	750 ve	o-Xylene	77
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	84
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	300 ve
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	410 ve
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	65	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	720 ve
Benzene	4.2	sec-Butylbenzene	13
Trichloroethene	<1	p-Isopropyltoluene	10
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	21	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	840 ve
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B25-W	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	910203-11 1/100
Date Analyzed:	10/18/19	Data File:	101742.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<100	1,3-Dichloropropane	<100
Chloromethane	<1,000	Tetrachloroethene	<100
Vinyl chloride	<20	Dibromochloromethane	<100
Bromomethane	<100	1,2-Dibromoethane (EDB)	<100
Chloroethane	<100	Chlorobenzene	<100
Trichlorofluoromethane	<100	Ethylbenzene	1,900
Acetone	<5,000	1,1,1,2-Tetrachloroethane	<100
1,1-Dichloroethene	<100	m,p-Xylene	3,500
Hexane	400	o-Xylene	<100
Methylene chloride	<500	Styrene	<100
Methyl t-butyl ether (MTBE)	<100	Isopropylbenzene	<100
trans-1,2-Dichloroethene	<100	Bromoform	<100
1,1-Dichloroethane	<100	n-Propylbenzene	280
2,2-Dichloropropane	<100	Bromobenzene	<100
cis-1,2-Dichloroethene	<100	1,3,5-Trimethylbenzene	450
Chloroform	<100	1,1,2,2-Tetrachloroethane	<100
2-Butanone (MEK)	<1,000	1,2,3-Trichloropropane	<100
1,2-Dichloroethane (EDC)	<100	2-Chlorotoluene	<100
1,1,1-Trichloroethane	<100	4-Chlorotoluene	<100
1,1-Dichloropropene	<100	tert-Butylbenzene	<100
Carbon tetrachloride	<100	1,2,4-Trimethylbenzene	2,000
Benzene	<35	sec-Butylbenzene	<100
Trichloroethene	<100	p-Isopropyltoluene	<100
1,2-Dichloropropane	<100	1,3-Dichlorobenzene	<100
Bromodichloromethane	<100	1,4-Dichlorobenzene	<100
Dibromomethane	<100	1,2-Dichlorobenzene	<100
4-Methyl-2-pentanone	<1,000	1,2-Dibromo-3-chloropropane	<1,000
cis-1,3-Dichloropropene	<100	1,2,4-Trichlorobenzene	<100
Toluene	<100	Hexachlorobutadiene	<100
trans-1,3-Dichloropropene	<100	Naphthalene	1,000
1,1,2-Trichloroethane	<100	1,2,3-Trichlorobenzene	<100
2-Hexanone	<1,000		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B27-W	Client:	EHSI
Date Received:	10/10/19	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/22/19	Lab ID:	910203-16
Date Analyzed:	10/22/19	Data File:	102218.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	95	50	150
4-Bromofluorobenzene	95	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	9.8 lc	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library RI/FS 11101
Date Extracted:	10/15/19	Lab ID:	09-2468 mb
Date Analyzed:	10/15/19	Data File:	101510.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	107	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 10/28/19
Date Received: 10/10/19
Project: Buckley Library RI/FS 11101, F&BI 910203

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

Laboratory Code: 910309-01 (Duplicate)

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	110	71-131

Date of Report: 10/28/19
Date Received: 10/10/19
Project: Buckley Library RI/FS 11101, F&BI 910203

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

Laboratory Code: 910190-01 (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	86	69-134

Date of Report: 10/28/19
Date Received: 10/10/19
Project: Buckley Library RI/FS 11101, F&BI 910203

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

Laboratory Code: 910251-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	86	84	73-135	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	90	74-139

Date of Report: 10/28/19
Date Received: 10/10/19
Project: Buckley Library RI/FS 11101, F&BI 910203

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	84	88	58-134	5

Date of Report: 10/28/19
Date Received: 10/10/19
Project: Buckley Library RI/FS 11101, F&BI 910203

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

Laboratory Code: 910247-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	92	92	75-125	0
Chromium	ug/L (ppb)	20	<1	97	96	75-125	1
Lead	ug/L (ppb)	10	<1	85	86	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	95	80-120
Chromium	ug/L (ppb)	20	96	80-120
Lead	ug/L (ppb)	10	95	80-120

Date of Report: 10/28/19
Date Received: 10/10/19
Project: Buckley Library RI/FS 11101, F&BI 910203

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

Laboratory Code: 910278-14 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	1.46	86	84	75-125	2
Cadmium	mg/kg (ppm)	10	<1	106	104	75-125	2
Chromium	mg/kg (ppm)	50	13.8	87	89	75-125	2
Lead	mg/kg (ppm)	50	3.61	96	94	75-125	2
Mercury	mg/kg (ppm	5	<1	99	98	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	85	80-120
Cadmium	mg/kg (ppm)	10	104	80-120
Chromium	mg/kg (ppm)	50	102	80-120
Lead	mg/kg (ppm)	50	107	80-120
Mercury	mg/kg (ppm)	5	91	80-120

Date of Report: 10/28/19
Date Received: 10/10/19
Project: Buckley Library RI/FS 11101, F&BI 910203

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

Laboratory Code: 910227-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.78 ca	86	86	75-125	0
Cadmium	ug/L (ppb)	5	<1	97	100	75-125	3
Chromium	ug/L (ppb)	20	1.51	99	99	75-125	0
Lead	ug/L (ppb)	10	1.23	87	86	75-125	1
Mercury	ug/L (ppb)	5	<1	88	88	75-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	95	80-120
Cadmium	ug/L (ppb)	5	92	80-120
Chromium	ug/L (ppb)	20	93	80-120
Lead	ug/L (ppb)	10	97	80-120
Mercury	ug/L (ppb)	5	94	80-120

Date of Report: 10/28/19
Date Received: 10/10/19
Project: Buckley Library RI/FS 11101, F&BI 910203

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: 910217-07 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	77	44-129
2-Methylnaphthalene	mg/kg (ppm)	0.17	<0.01	85	45-135
1-Methylnaphthalene	mg/kg (ppm)	0.17	<0.01	86	40-141
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	90	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	86	51-123
Fluorene	mg/kg (ppm)	0.17	<0.01	91	37-137
Phenanthrene	mg/kg (ppm)	0.17	<0.01	85	34-141
Anthracene	mg/kg (ppm)	0.17	<0.01	91	32-124
Fluoranthene	mg/kg (ppm)	0.17	0.011	92	16-160
Pyrene	mg/kg (ppm)	0.17	0.014	105	10-180
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	92	23-144
Chrysene	mg/kg (ppm)	0.17	<0.01	86	32-149
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	86	23-176
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	78	42-139
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	86	21-163
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	54	23-170
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	56	31-146
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	48	37-133

Date of Report: 10/28/19
Date Received: 10/10/19
Project: Buckley Library RI/FS 11101, F&BI 910203

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	82	82	58-121	0
2-Methylnaphthalene	mg/kg (ppm)	0.17	88	88	58-123	0
1-Methylnaphthalene	mg/kg (ppm)	0.17	88	89	60-124	1
Acenaphthylene	mg/kg (ppm)	0.17	94	95	54-121	1
Acenaphthene	mg/kg (ppm)	0.17	90	90	54-123	0
Fluorene	mg/kg (ppm)	0.17	93	95	56-127	2
Phenanthrene	mg/kg (ppm)	0.17	89	90	55-122	1
Anthracene	mg/kg (ppm)	0.17	91	92	50-120	1
Fluoranthene	mg/kg (ppm)	0.17	94	94	54-129	0
Pyrene	mg/kg (ppm)	0.17	88	90	53-127	2
Benz(a)anthracene	mg/kg (ppm)	0.17	92	96	51-115	4
Chrysene	mg/kg (ppm)	0.17	93	95	55-129	2
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	87	83	56-123	5
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	85	87	54-131	2
Benzo(a)pyrene	mg/kg (ppm)	0.17	82	83	51-118	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	73	73	49-148	0
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	73	77	50-141	5
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	76	81	52-131	6

Date of Report: 10/28/19
Date Received: 10/10/19
Project: Buckley Library RI/FS 11101, F&BI 910203

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PAHS BY EPA METHOD 8270D SIM

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)	1	72	75	57-114	4
2-Methylnaphthalene	ug/L (ppb)	1	79	82	63-122	4
1-Methylnaphthalene	ug/L (ppb)	1	81	83	65-122	2
Acenaphthylene	ug/L (ppb)	1	88	92	65-119	4
Acenaphthene	ug/L (ppb)	1	84	87	66-118	4
Fluorene	ug/L (ppb)	1	90	91	64-125	1
Phenanthrene	ug/L (ppb)	1	85	87	67-120	2
Anthracene	ug/L (ppb)	1	90	93	65-122	3
Fluoranthene	ug/L (ppb)	1	94	90	65-127	4
Pyrene	ug/L (ppb)	1	93	98	62-130	5
Benz(a)anthracene	ug/L (ppb)	1	99	98	60-118	1
Chrysene	ug/L (ppb)	1	96	98	66-125	2
Benzo(b)fluoranthene	ug/L (ppb)	1	83	84	55-135	1
Benzo(k)fluoranthene	ug/L (ppb)	1	82	82	62-125	0
Benzo(a)pyrene	ug/L (ppb)	1	89	89	58-127	0
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	82	85	36-142	4
Dibenz(a,h)anthracene	ug/L (ppb)	1	70	80	37-133	13
Benzo(g,h,i)perylene	ug/L (ppb)	1	82	91	34-135	10

Date of Report: 10/28/19
Date Received: 10/10/19
Project: Buckley Library RI/FS 11101, F&BI 910203

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

Laboratory Code: 910203-14 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	31	32	10-142	3
Chloromethane	mg/kg (ppm)	2.5	<0.5	62	63	10-126	2
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	63	67	10-138	6
Bromomethane	mg/kg (ppm)	2.5	<0.5	81	86	10-163	6
Chloroethane	mg/kg (ppm)	2.5	<0.5	77	83	10-176	7
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	69	75	10-176	8
Acetone	mg/kg (ppm)	12.5	0.62	76	89	10-163	16
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	85	91	10-160	7
Hexane	mg/kg (ppm)	2.5	<0.25	49	54	10-137	10
Methylene chloride	mg/kg (ppm)	2.5	<0.5	98	108	10-156	10
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	108	116	21-145	7
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	94	101	14-137	7
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	97	103	19-140	6
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	94	101	10-158	7
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	101	109	25-135	8
Chloroform	mg/kg (ppm)	2.5	<0.05	101	110	21-145	9
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	79	84	19-147	6
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	90	97	12-160	7
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	98	105	10-156	7
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	87	95	17-140	9
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	100	110	9-164	10
Benzene	mg/kg (ppm)	2.5	<0.03	90	97	29-129	7
Trichloroethene	mg/kg (ppm)	2.5	<0.02	93	99	21-139	6
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	91	97	30-135	6
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	95	102	23-155	7
Dibromomethane	mg/kg (ppm)	2.5	<0.05	91	95	23-145	4
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	93	99	24-155	6
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	91	99	28-144	8
Toluene	mg/kg (ppm)	2.5	<0.05	81	86	35-130	6
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	77	83	26-149	7
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	81	86	10-205	6
2-Hexanone	mg/kg (ppm)	12.5	<0.5	73	78	15-166	7
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	75	81	31-137	8
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	81	88	20-133	8
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	86	93	28-150	8
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	78	82	28-142	5
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	83	89	32-129	7
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	84	91	32-137	8
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	95	103	31-143	8
m,p-Xylene	mg/kg (ppm)	5	<0.1	86	92	34-136	7
o-Xylene	mg/kg (ppm)	2.5	<0.05	89	96	33-134	8
Styrene	mg/kg (ppm)	2.5	<0.05	86	92	35-137	7
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	92	98	31-142	6
Bromoform	mg/kg (ppm)	2.5	<0.05	84	90	21-156	7
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	78	84	23-146	7
Bromobenzene	mg/kg (ppm)	2.5	<0.05	75	80	34-130	6
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	82	87	18-149	6
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	75	78	28-140	4
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	76	81	25-144	6
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	79	85	31-134	7
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	77	82	31-136	6
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	83	88	30-137	6
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	82	88	10-182	7
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	83	88	23-145	6
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	83	89	21-149	7
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	83	89	30-131	7
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	81	87	29-129	7
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	84	90	31-132	7
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	91	96	11-161	5
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	89	95	22-142	7
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	90	98	10-142	9
Naphthalene	mg/kg (ppm)	2.5	<0.05	87	93	14-157	7
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	87	94	20-144	8

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Project: Buckley Library RI/FS 11101, F&BI 910203

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	65	10-146
Chloromethane	mg/kg (ppm)	2.5	81	27-133
Vinyl chloride	mg/kg (ppm)	2.5	86	22-139
Bromomethane	mg/kg (ppm)	2.5	93	38-114
Chloroethane	mg/kg (ppm)	2.5	90	9-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	96	10-196
Acetone	mg/kg (ppm)	12.5	88	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	97	47-128
Hexane	mg/kg (ppm)	2.5	97	43-142
Methylene chloride	mg/kg (ppm)	2.5	98	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	105	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	97	67-129
1,1-Dichloroethane	mg/kg (ppm)	2.5	99	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	106	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	101	72-127
Chloroform	mg/kg (ppm)	2.5	101	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	98	72-127
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	102	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	100	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	99	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	106	60-139
Benzene	mg/kg (ppm)	2.5	97	68-114
Trichloroethene	mg/kg (ppm)	2.5	98	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	100	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	105	72-130
Dibromomethane	mg/kg (ppm)	2.5	98	70-120
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	101	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	113	75-136
Toluene	mg/kg (ppm)	2.5	97	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	107	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	101	75-113
2-Hexanone	mg/kg (ppm)	12.5	97	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	97	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	99	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	108	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	99	74-132
Chlorobenzene	mg/kg (ppm)	2.5	97	76-111
Ethylbenzene	mg/kg (ppm)	2.5	97	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	105	69-135
m,p-Xylene	mg/kg (ppm)	5	99	78-122
o-Xylene	mg/kg (ppm)	2.5	100	77-124
Styrene	mg/kg (ppm)	2.5	100	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	100	76-127
Bromoform	mg/kg (ppm)	2.5	103	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	97	74-124
Bromobenzene	mg/kg (ppm)	2.5	93	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	97	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	98	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	96	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	95	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	97	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	100	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	98	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	98	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	98	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	98	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	96	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	95	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	101	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	101	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	105	50-153
Naphthalene	mg/kg (ppm)	2.5	100	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	101	63-138

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Project: Buckley Library RI/FS 11101, F&BI 910203

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	120	101	25-158	17
Chloromethane	ug/L (ppb)	50	125	112	45-156	11
Vinyl chloride	ug/L (ppb)	50	132	117	50-154	12
Bromomethane	ug/L (ppb)	50	133	120	55-143	10
Chloroethane	ug/L (ppb)	50	126	114	58-146	10
Trichlorofluoromethane	ug/L (ppb)	250	134	123	50-150	9
Acetone	ug/L (ppb)	250	107	96	53-131	11
1,1-Dichloroethene	ug/L (ppb)	50	131	123	67-136	6
Hexane	ug/L (ppb)	50	117	118	57-137	1
Methylene chloride	ug/L (ppb)	50	134	121	39-148	10
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	137	125	64-147	9
trans-1,2-Dichloroethene	ug/L (ppb)	50	127	118	68-128	7
1,1-Dichloroethane	ug/L (ppb)	50	125 vo	119	79-121	5
2,2-Dichloropropane	ug/L (ppb)	50	137	124	55-143	10
cis-1,2-Dichloroethene	ug/L (ppb)	50	126 vo	119	80-123	6
Chloroform	ug/L (ppb)	50	127 vo	120	80-121	6
2-Butanone (MEK)	ug/L (ppb)	250	105	114	57-149	8
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	119	120	73-132	1
1,1,1-Trichloroethane	ug/L (ppb)	50	128 vo	119	81-125	7
1,1-Dichloropropene	ug/L (ppb)	50	118	117	77-129	1
Carbon tetrachloride	ug/L (ppb)	50	138	131	75-158	5
Benzene	ug/L (ppb)	50	117	115	69-134	2
Trichloroethene	ug/L (ppb)	50	113	114 vo	79-113	1
1,2-Dichloropropane	ug/L (ppb)	50	116	118	77-123	2
Bromodichloromethane	ug/L (ppb)	50	126	127	81-133	1
Dibromomethane	ug/L (ppb)	50	116	119	82-125	3
4-Methyl-2-pentanone	ug/L (ppb)	250	114	121	65-138	6
cis-1,3-Dichloropropene	ug/L (ppb)	50	130	134 vo	82-132	3
Toluene	ug/L (ppb)	50	100	99	72-122	1
trans-1,3-Dichloropropene	ug/L (ppb)	50	109	114	80-136	4
1,1,2-Trichloroethane	ug/L (ppb)	50	101	106	75-124	5
2-Hexanone	ug/L (ppb)	250	89	100	60-136	12
1,3-Dichloropropane	ug/L (ppb)	50	95	101	76-126	6
Tetrachloroethene	ug/L (ppb)	50	102	101	76-121	1
Dibromochloromethane	ug/L (ppb)	50	119	118	84-133	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	98	102	82-115	4
Chlorobenzene	ug/L (ppb)	50	100	100	83-114	0
Ethylbenzene	ug/L (ppb)	50	102	100	77-124	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	117	110	84-127	6
m,p-Xylene	ug/L (ppb)	100	103	102	81-112	1
o-Xylene	ug/L (ppb)	50	107	102	81-121	5
Styrene	ug/L (ppb)	50	102	103	84-119	1
Isopropylbenzene	ug/L (ppb)	50	108	102	80-117	6
Bromoform	ug/L (ppb)	50	119	113	74-136	5
n-Propylbenzene	ug/L (ppb)	50	97	99	74-126	2
Bromobenzene	ug/L (ppb)	50	92	95	80-121	3
1,3,5-Trimethylbenzene	ug/L (ppb)	50	100	98	78-123	2
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	99	103	66-126	4
1,2,3-Trichloropropane	ug/L (ppb)	50	93	99	67-124	6
2-Chlorotoluene	ug/L (ppb)	50	97	97	77-127	0
4-Chlorotoluene	ug/L (ppb)	50	96	98	78-128	2
tert-Butylbenzene	ug/L (ppb)	50	103	101	80-123	2
1,2,4-Trimethylbenzene	ug/L (ppb)	50	101	99	79-122	2
sec-Butylbenzene	ug/L (ppb)	50	101	99	80-116	2
p-Isopropyltoluene	ug/L (ppb)	50	101	98	81-123	3
1,3-Dichlorobenzene	ug/L (ppb)	50	100	99	83-113	1
1,4-Dichlorobenzene	ug/L (ppb)	50	97	97	83-107	0
1,2-Dichlorobenzene	ug/L (ppb)	50	102	97	84-112	5
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	127	111	57-141	13
1,2,4-Trichlorobenzene	ug/L (ppb)	50	113	100	72-130	12
Hexachlorobutadiene	ug/L (ppb)	50	110	97	53-141	13
Naphthalene	ug/L (ppb)	50	115	102	64-133	12
1,2,3-Trichlorobenzene	ug/L (ppb)	50	111	101	65-136	9

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.

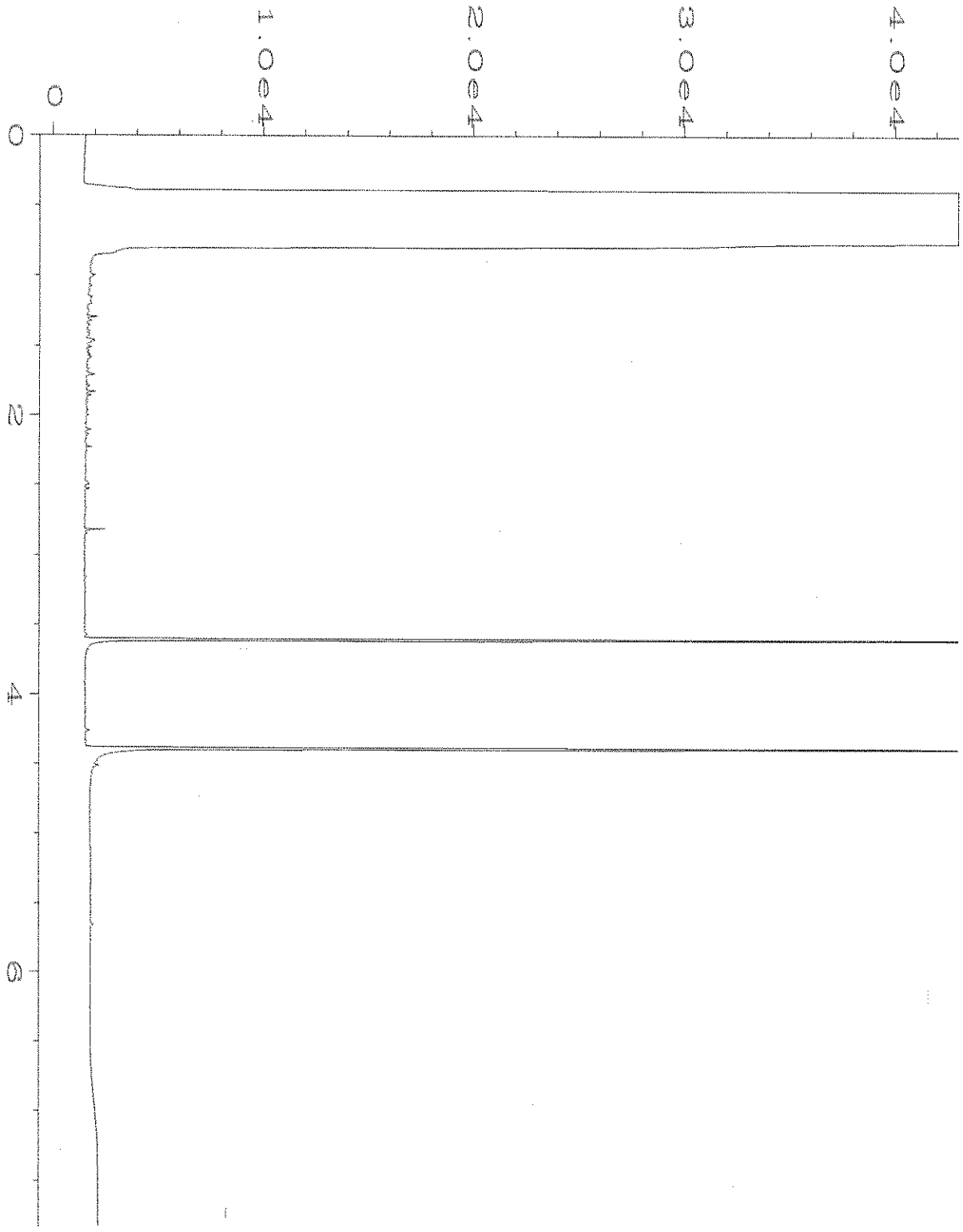
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

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.



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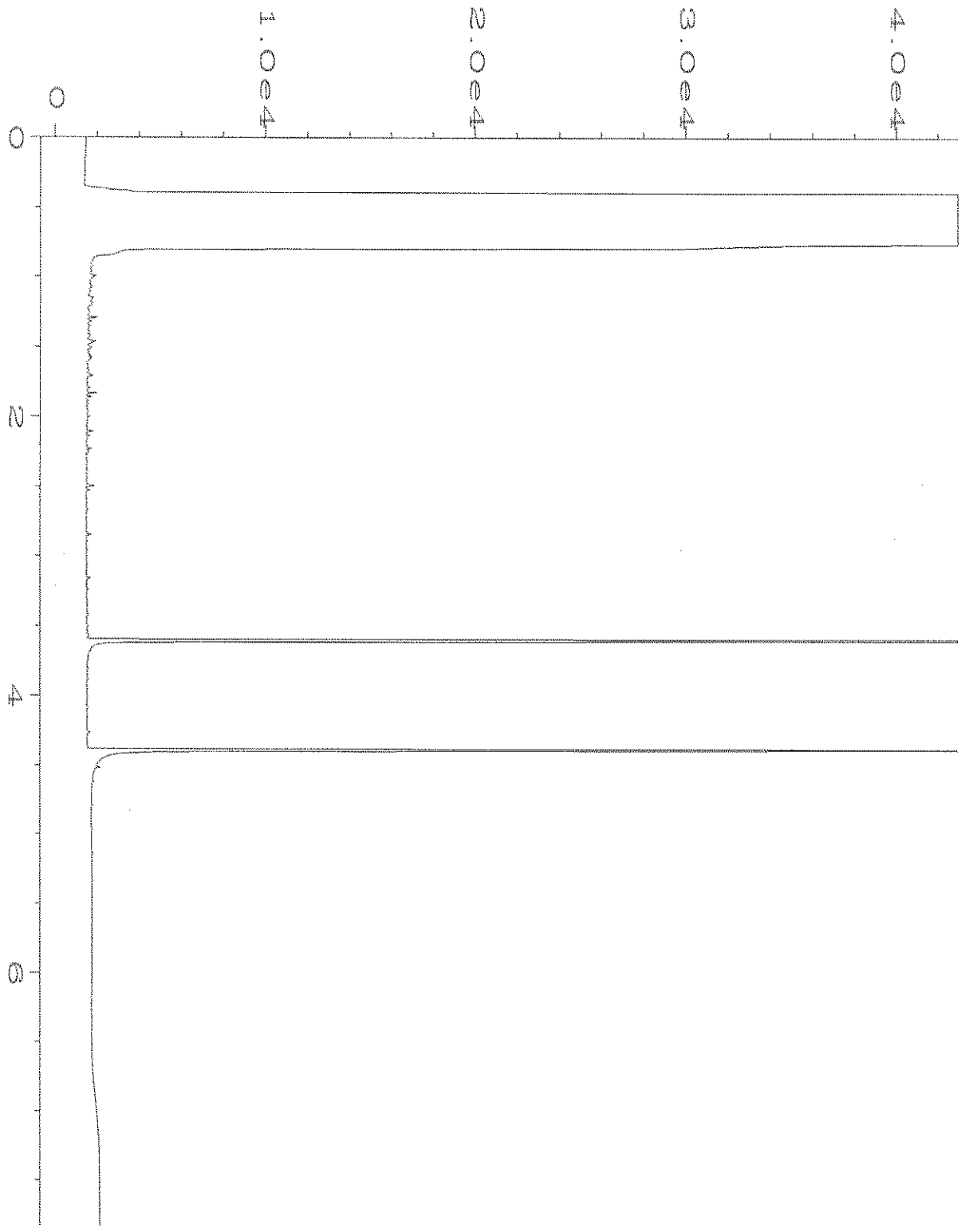
Sample Name	: 910203-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 7
Acquired on	: 15 Oct 19 04:03 PM	Instrument Method	: DX.MTH
Report Created on	: 16 Oct 19 11:51 AM	Analysis Method	: DEFAULT.MTH



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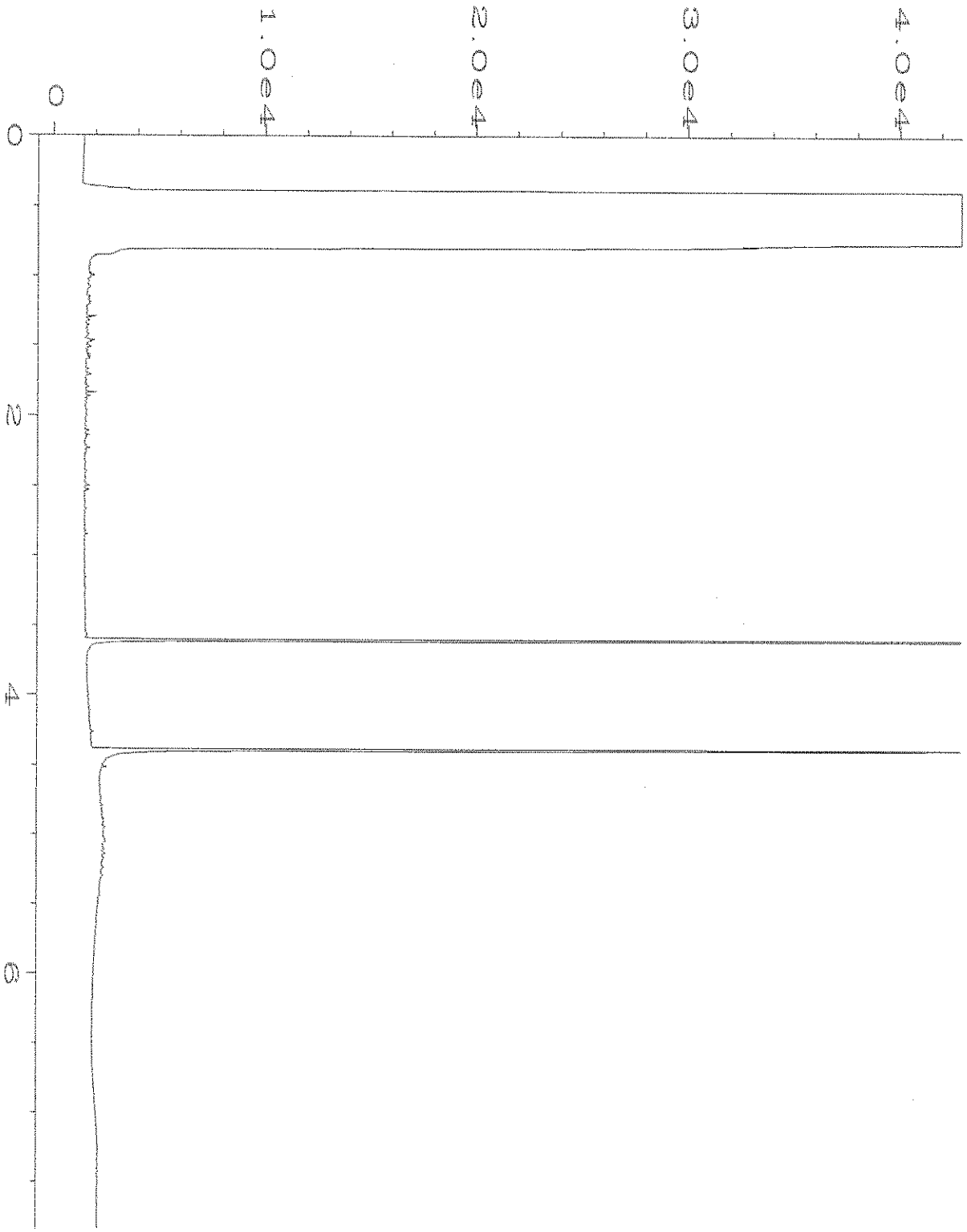
Run Time Bar Code:
Acquired on : 15 Oct 19 04:15 PM
Report Created on: 16 Oct 19 11:51 AM

Page Number : 1
Vial Number : 21
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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Instrument	: GC#4	Vial Number	: 22
Sample Name	: 910203-04	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 7
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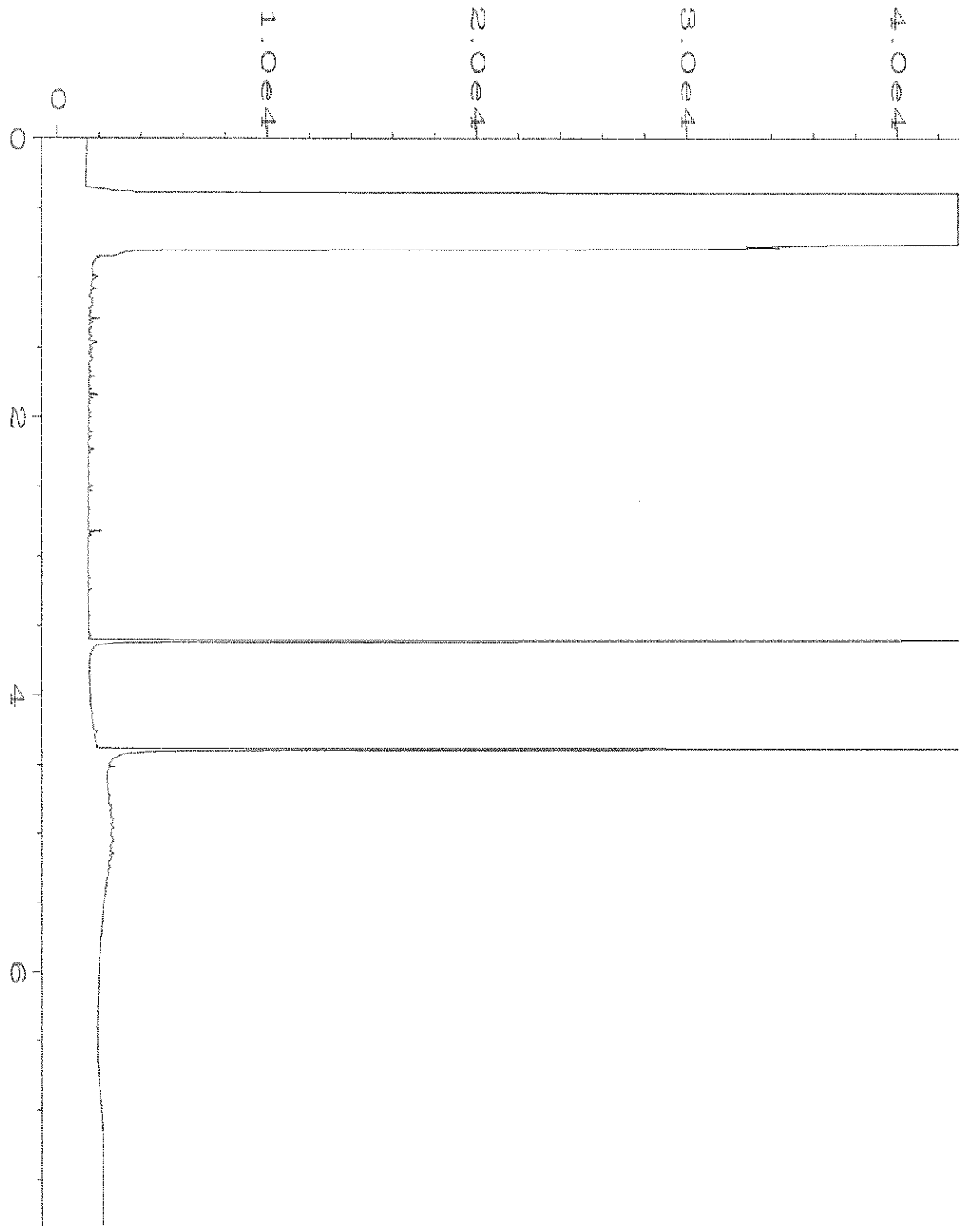

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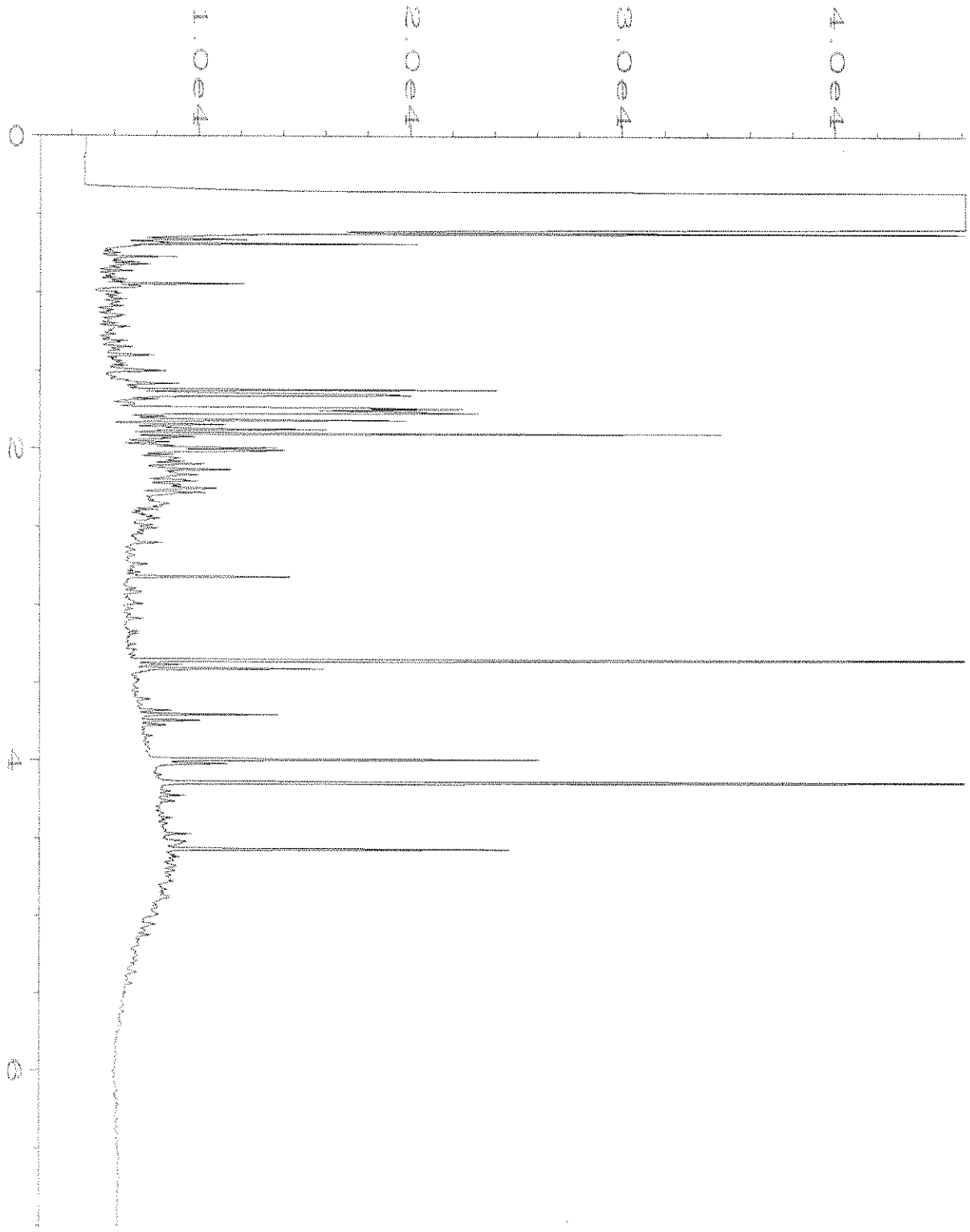
Run Time Bar Code:
Acquired on : 15 Oct 19 04:39 PM
Report Created on: 16 Oct 19 11:51 AM

Page Number : 1
Vial Number : 23
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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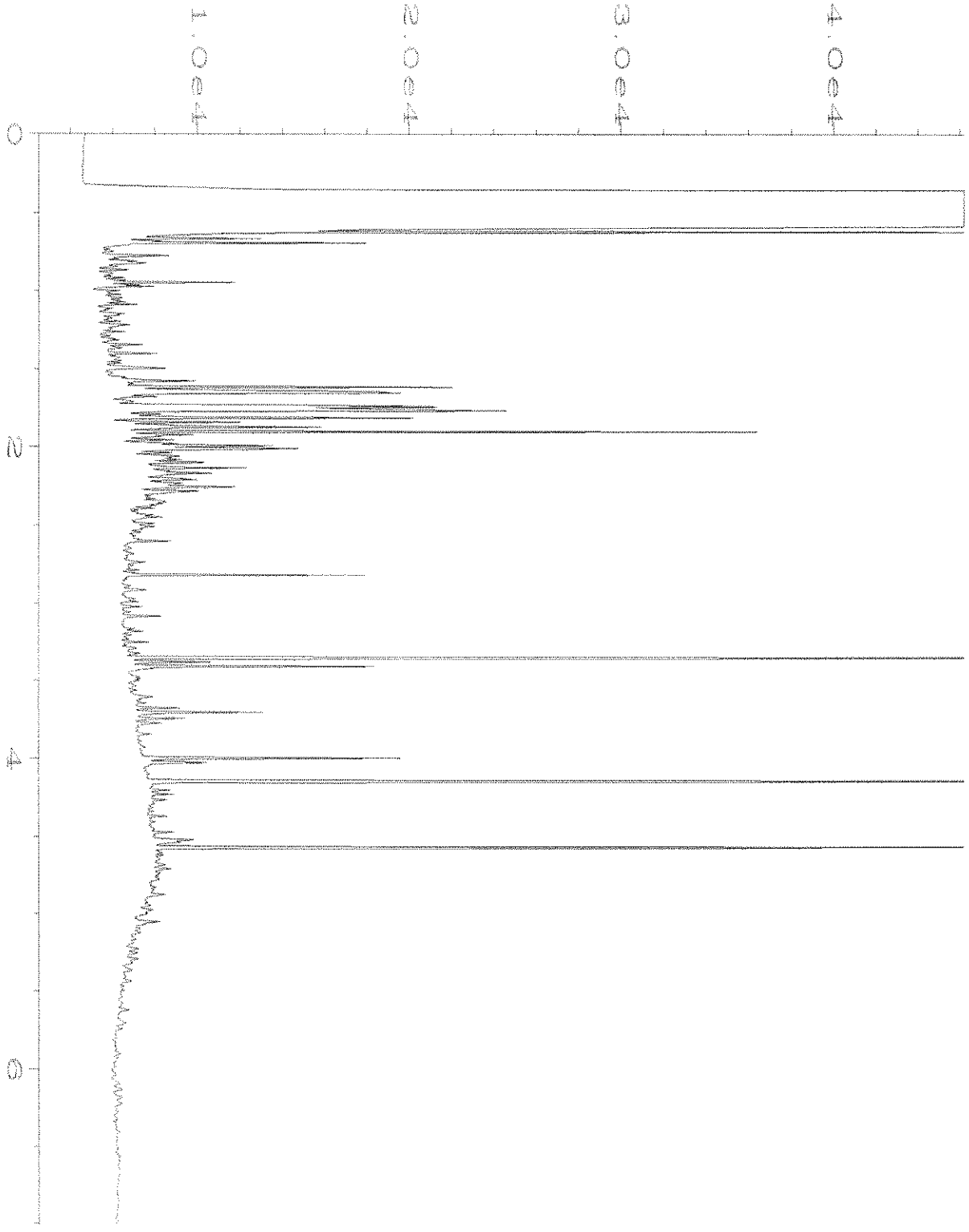
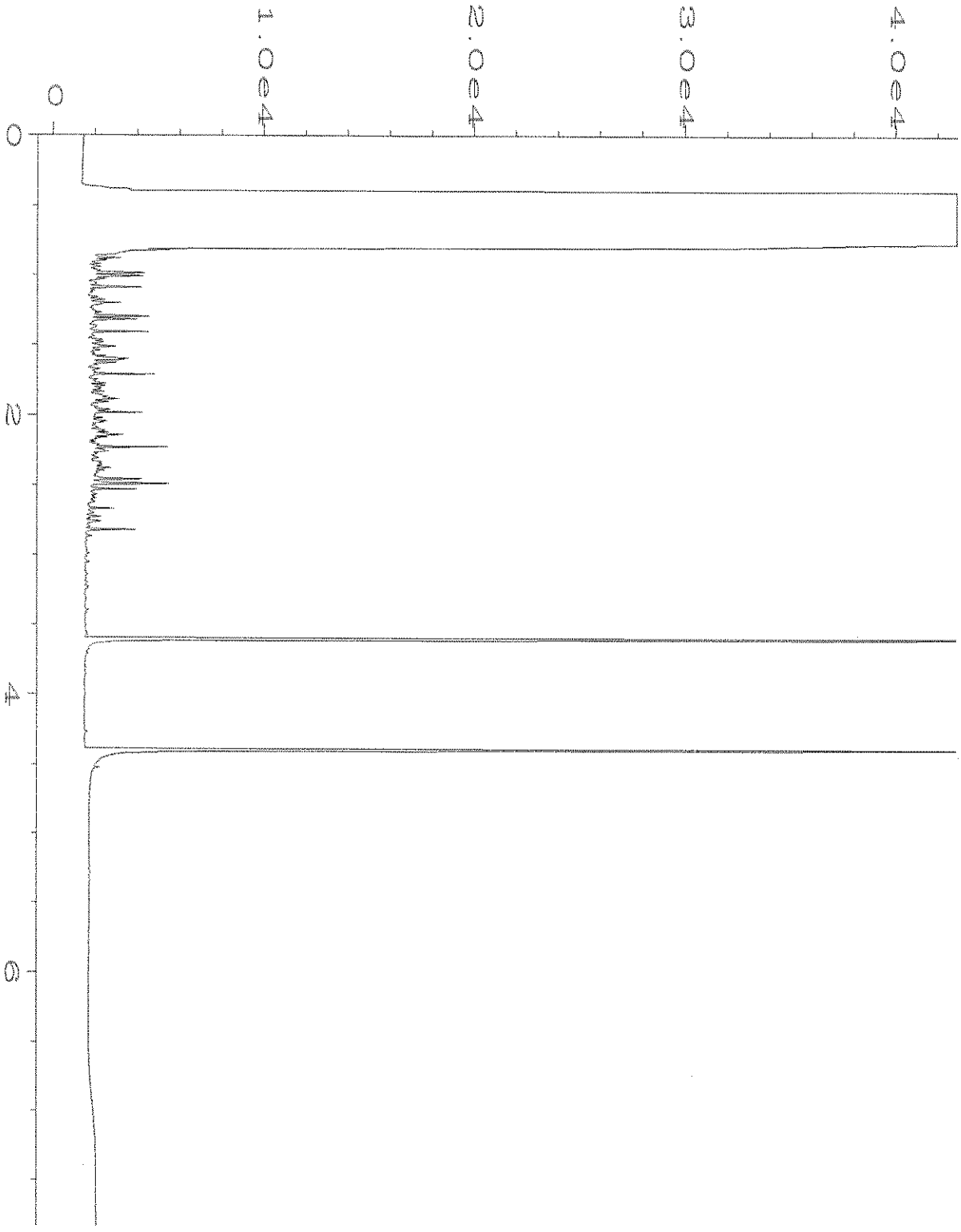
Instrument : GC6
Sample Name : 910203-06
Run Time Bar Code:
Acquired on : 14 Oct 19 05:50 PM
Report Created on: 15 Oct 19 10:32 AM

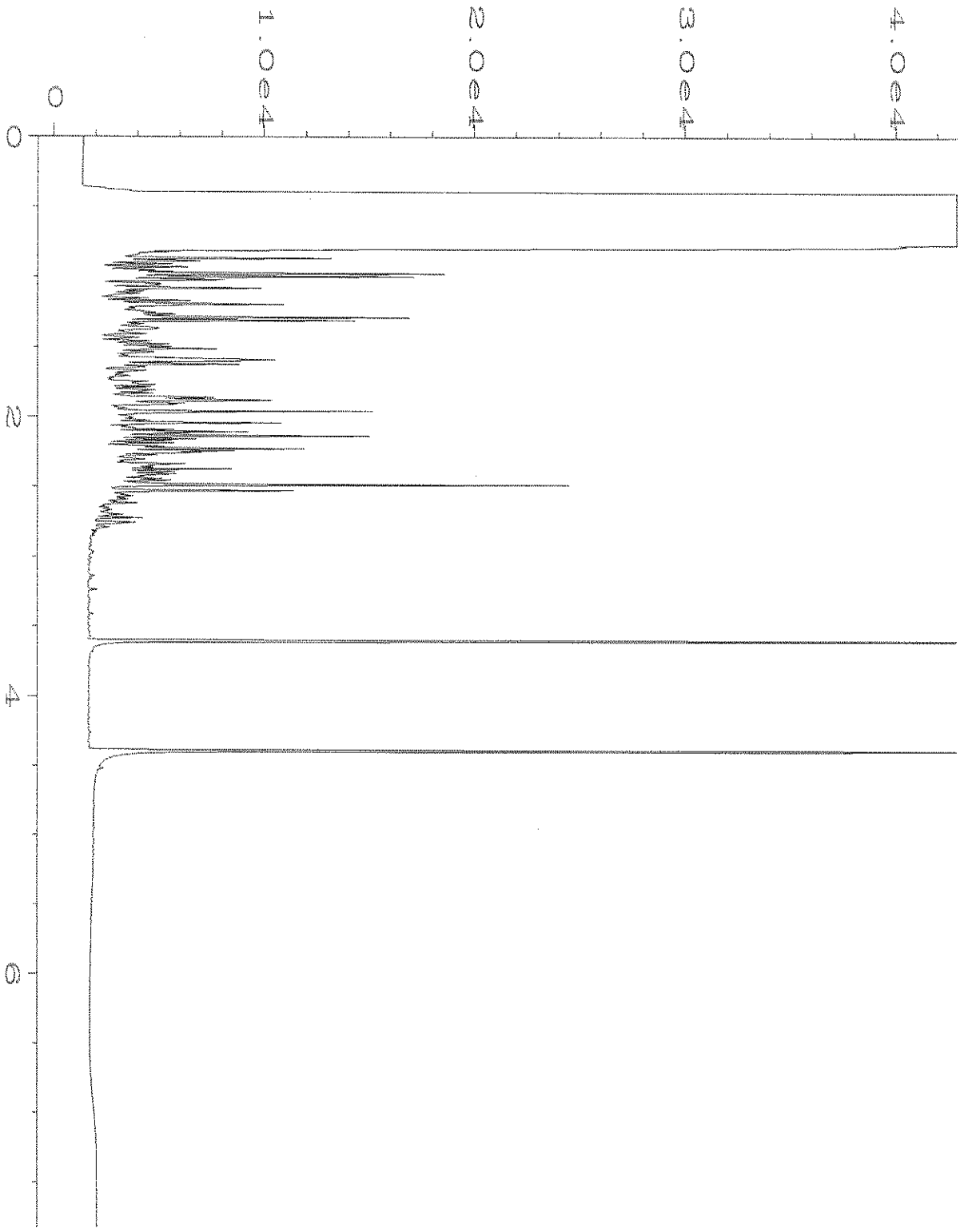
Page Number : 1
Vial Number : 23
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



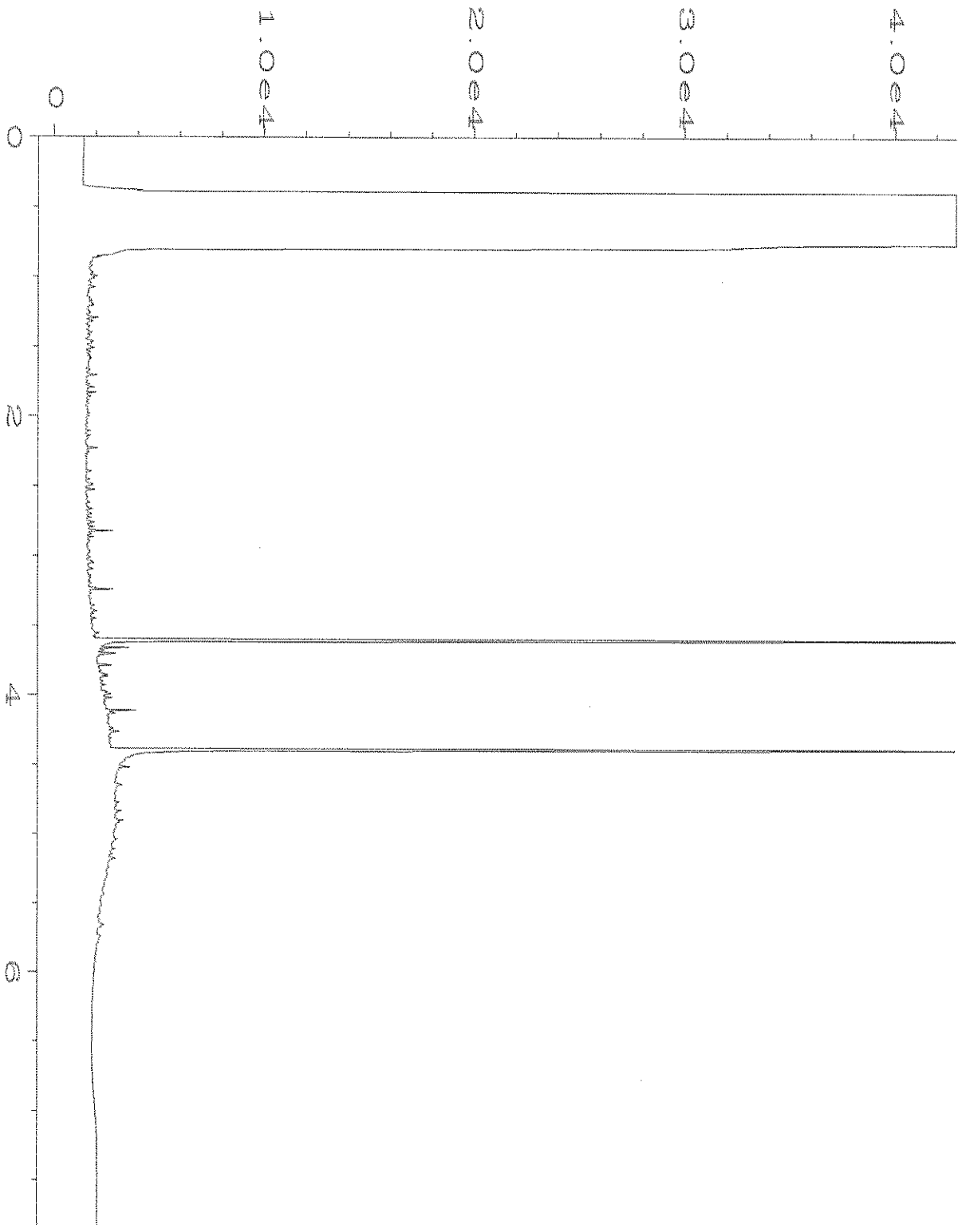
Data File Name	: C:\HPCHEM\6\DATA\10-14-19\024F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 24
Sample Name	: 910203-07	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 14 Oct 19 06:01 PM	Instrument Method	: DX.MTH
Report Created on	: 15 Oct 19 10:26 AM	Analysis Method	: DEFAULT.MTH



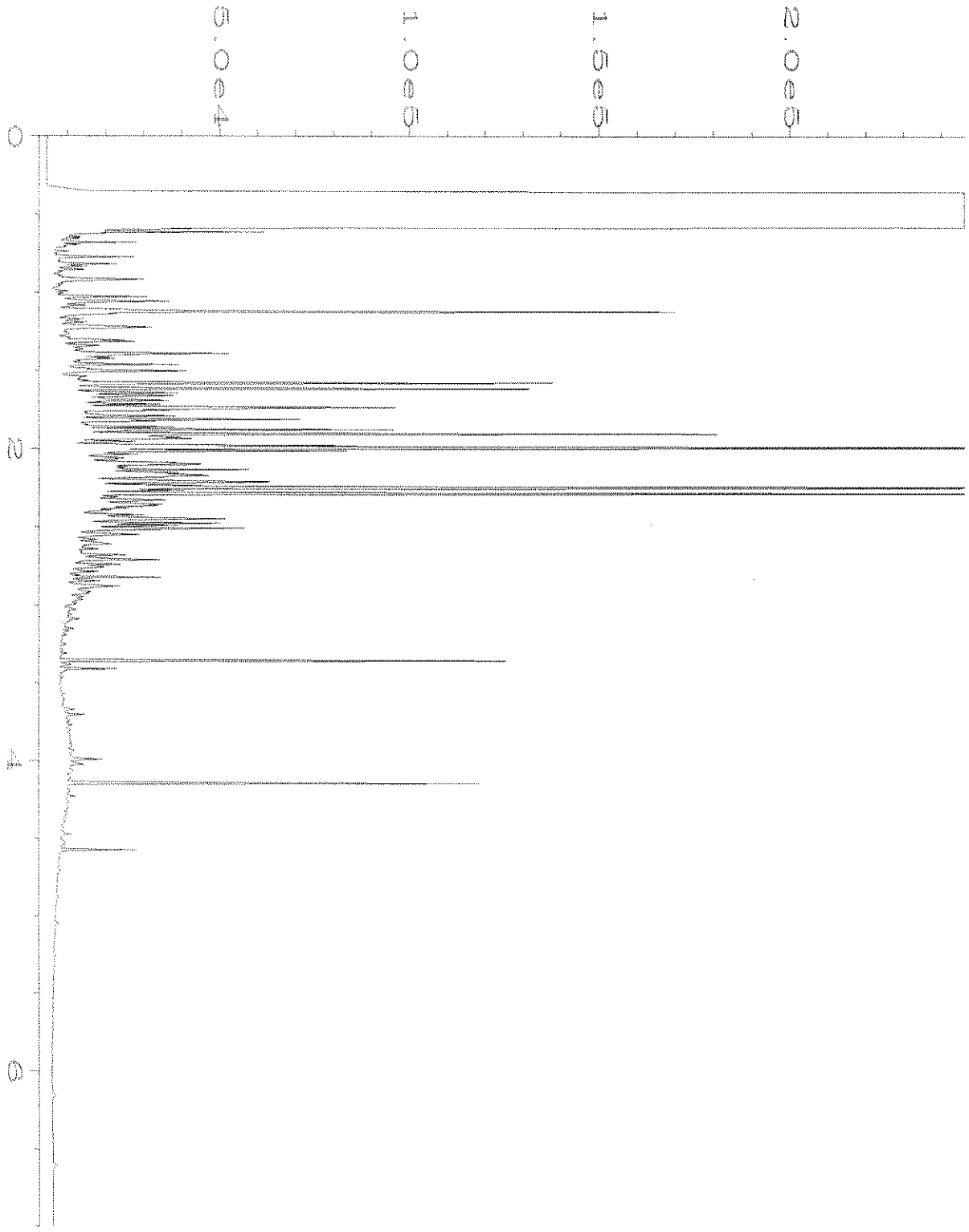
Data File Name	: C:\HPCHEM\4\DATA\10-15-19\024F0701.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 24
Sample Name	: 910203-08	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 7
Acquired on	: 15 Oct 19 04:51 PM	Instrument Method	: DX.MTH
Report Created on	: 16 Oct 19 11:51 AM	Analysis Method	: DEFAULT.MTH



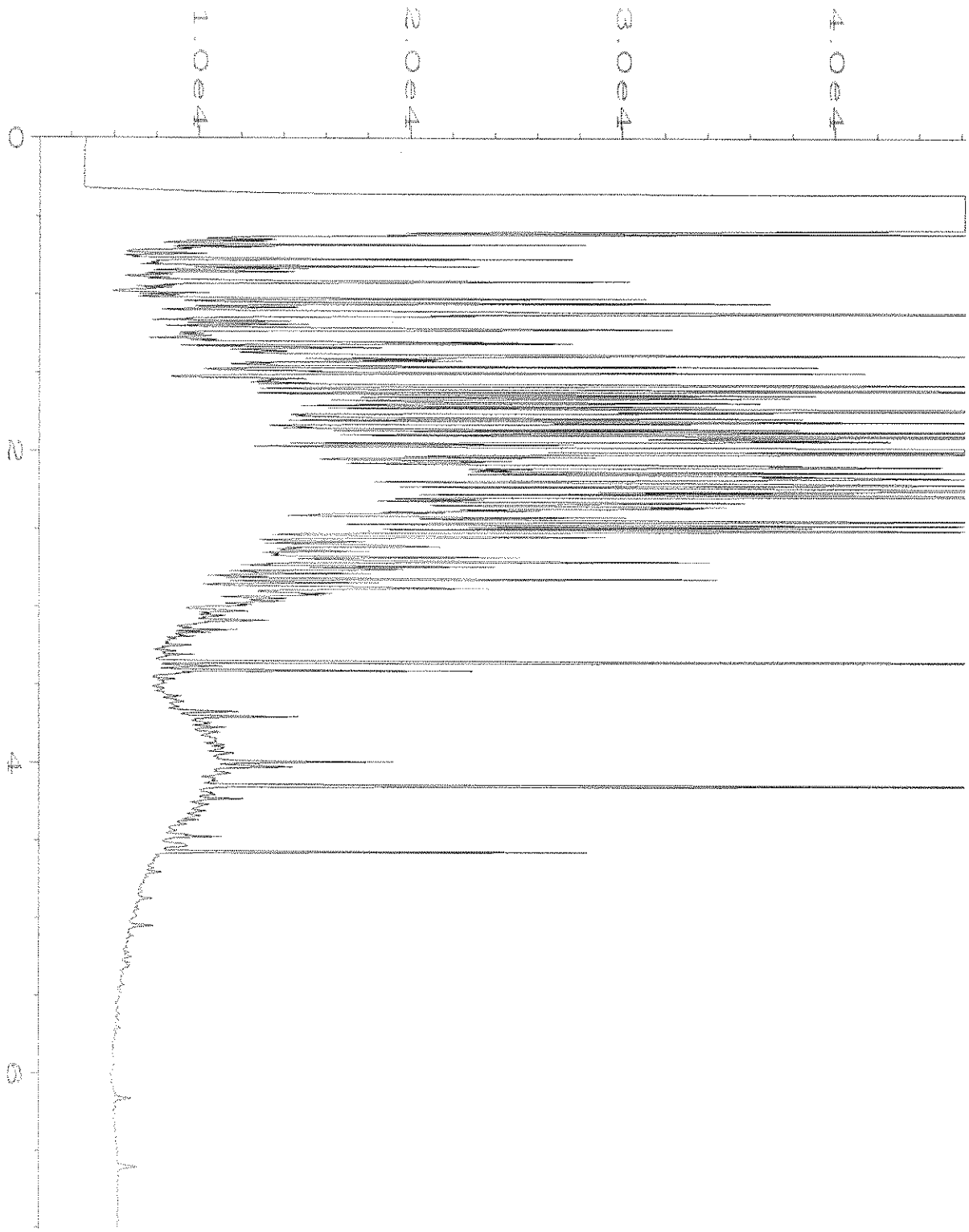
Data File Name	: C:\HPCHEM\4\DATA\10-15-19\025F0701.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 25
Sample Name	: 910203-09	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 7
Acquired on	: 15 Oct 19 05:03 PM	Instrument Method	: DX.MTH
Report Created on:	16 Oct 19 11:51 AM	Analysis Method	: DEFAULT.MTH



Data File Name	: C:\HPCHEM\4\DATA\10-15-19\026F0701.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 26
Sample Name	: 910203-12	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 7
Acquired on	: 15 Oct 19 05:15 PM	Instrument Method	: DX.MTH
Report Created on	: 16 Oct 19 11:52 AM	Analysis Method	: DEFAULT.MTH

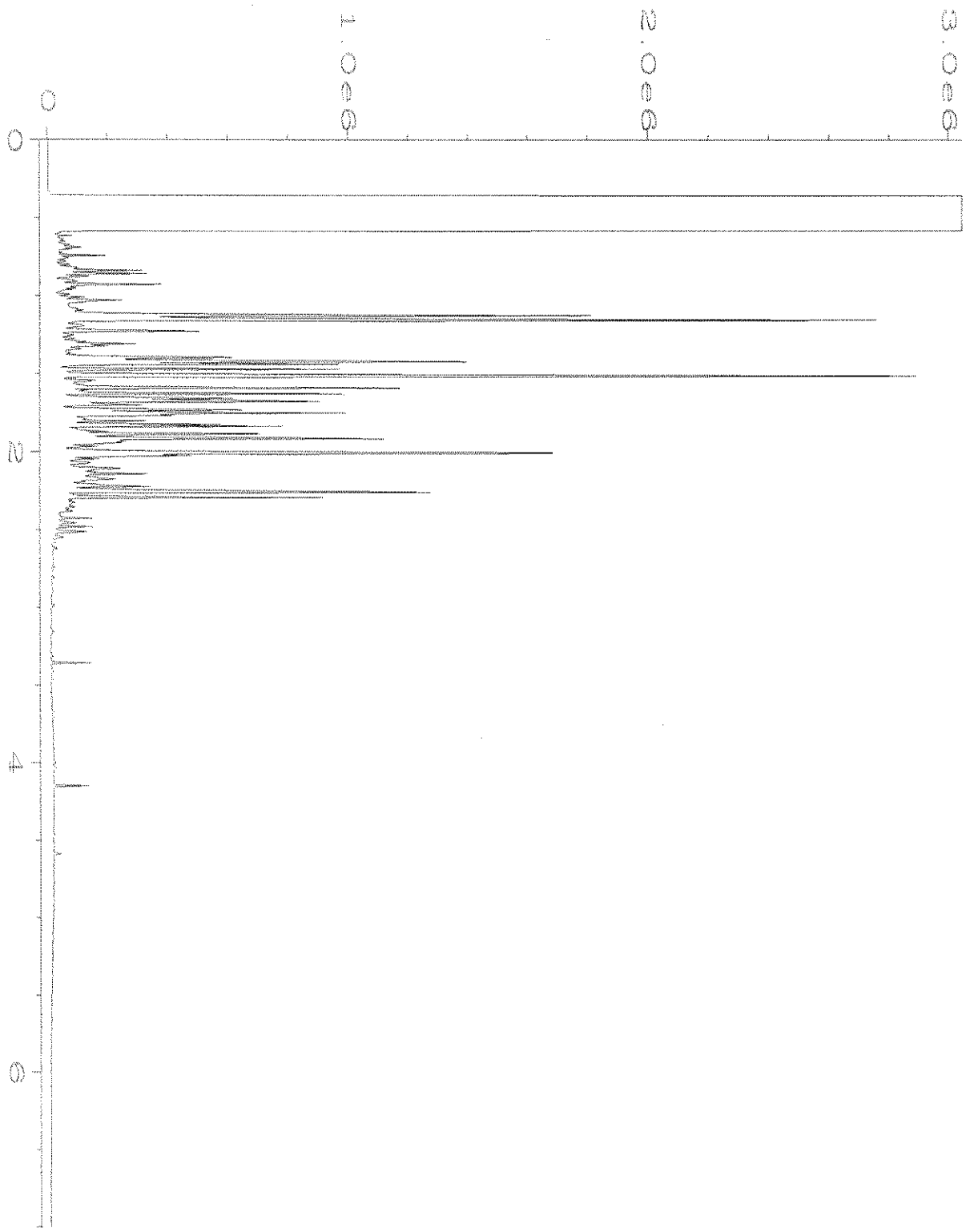


Data File Name	: C:\HPCHEM\6\DATA\10-14-19\025F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 25
Sample Name	: 910203-10	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 14 Oct 19 06:12 PM	Instrument Method	: DX.MTH
Report Created on	: 15 Oct 19 10:26 AM	Analysis Method	: DEFAULT.MTH

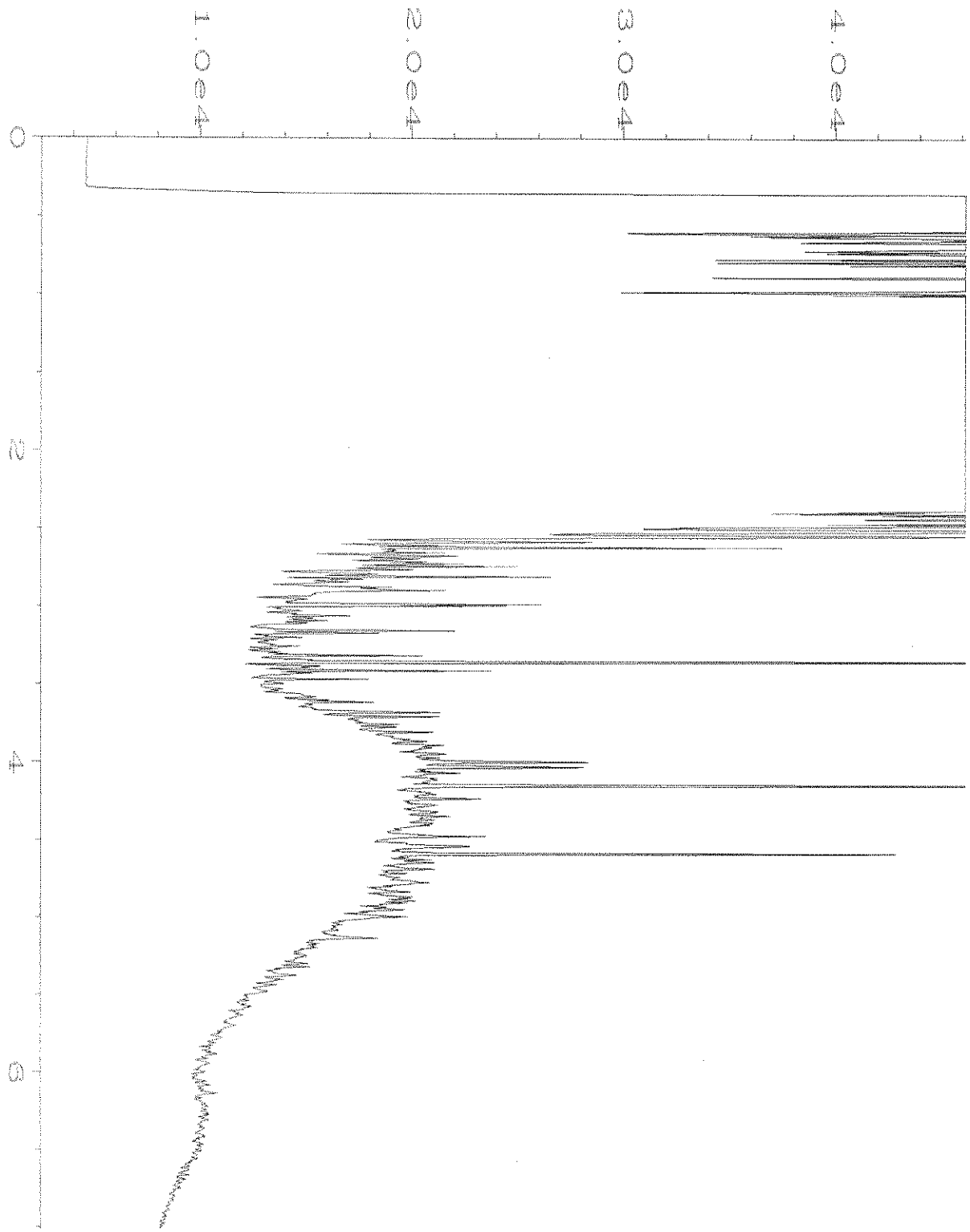


Data File Name : C:\HPCHEM\6\DATA\10-14-19\025F0501.D
Operator : TL
Instrument : GC6
Sample Name : 910203-10
Run Time Bar Code:
Acquired on : 14 Oct 19 06:12 PM
Report Created on: 15 Oct 19 10:32 AM

Page Number : 1
Vial Number : 25
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

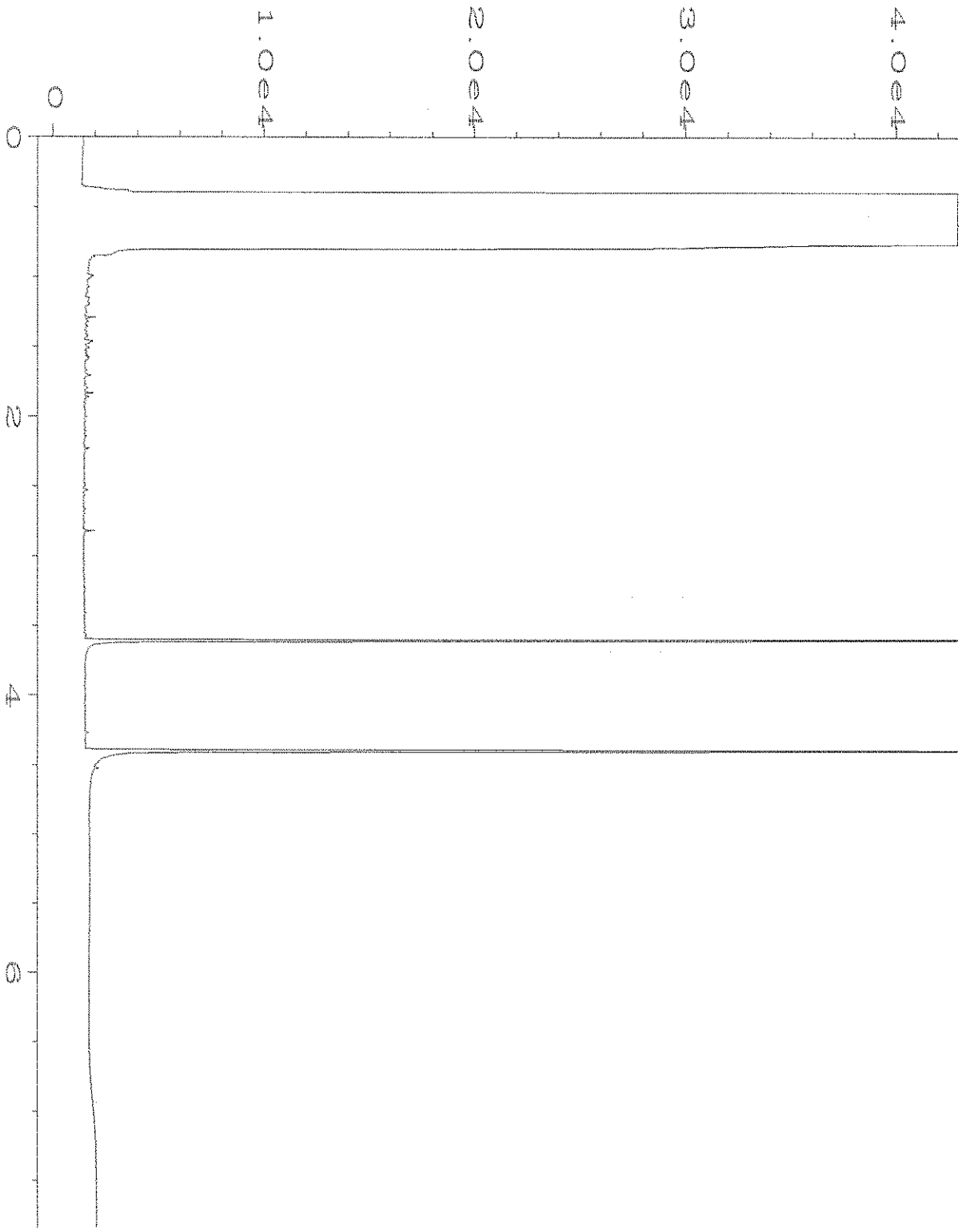


Data File Name	: C:\HPCHEM\6\DATA\10-14-19\026F0501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 26
Sample Name	: 910203-11	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 5
Acquired on	: 14 Oct 19 06:23 PM	Instrument Method	: DX.MTH
Report Created on	: 15 Oct 19 10:28 AM	Analysis Method	: DEFAULT.MTH

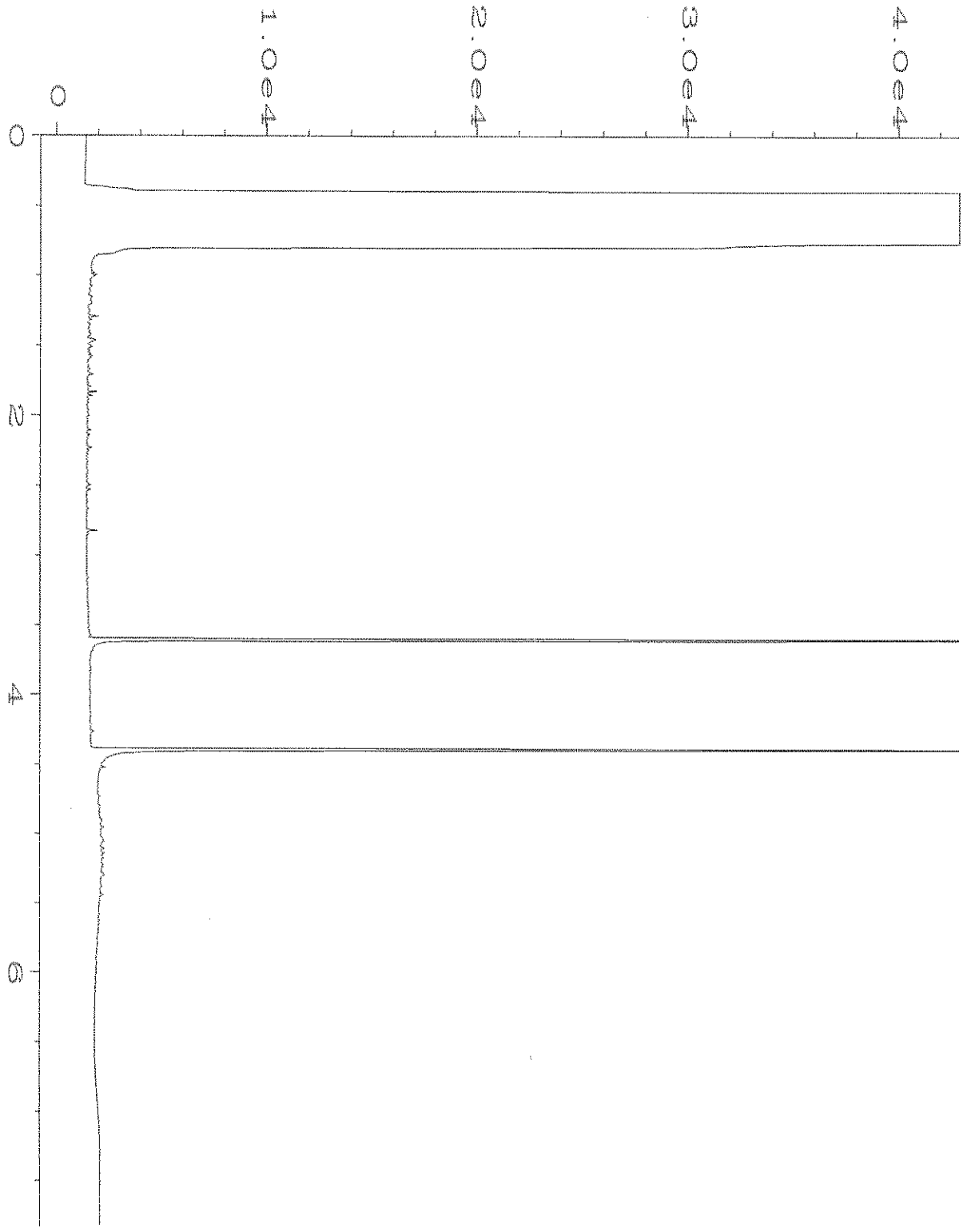


Data File Name : C:\HPCHEM\6\DATA\10-14-19\026F0501.D
Operator : TL
Instrument : GC6
Sample Name : 910203-11
Run Time Bar Code:
Acquired on : 14 Oct 19 06:23 PM
Report Created on: 15 Oct 19 10:33 AM

Page Number : 1
Vial Number : 26
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

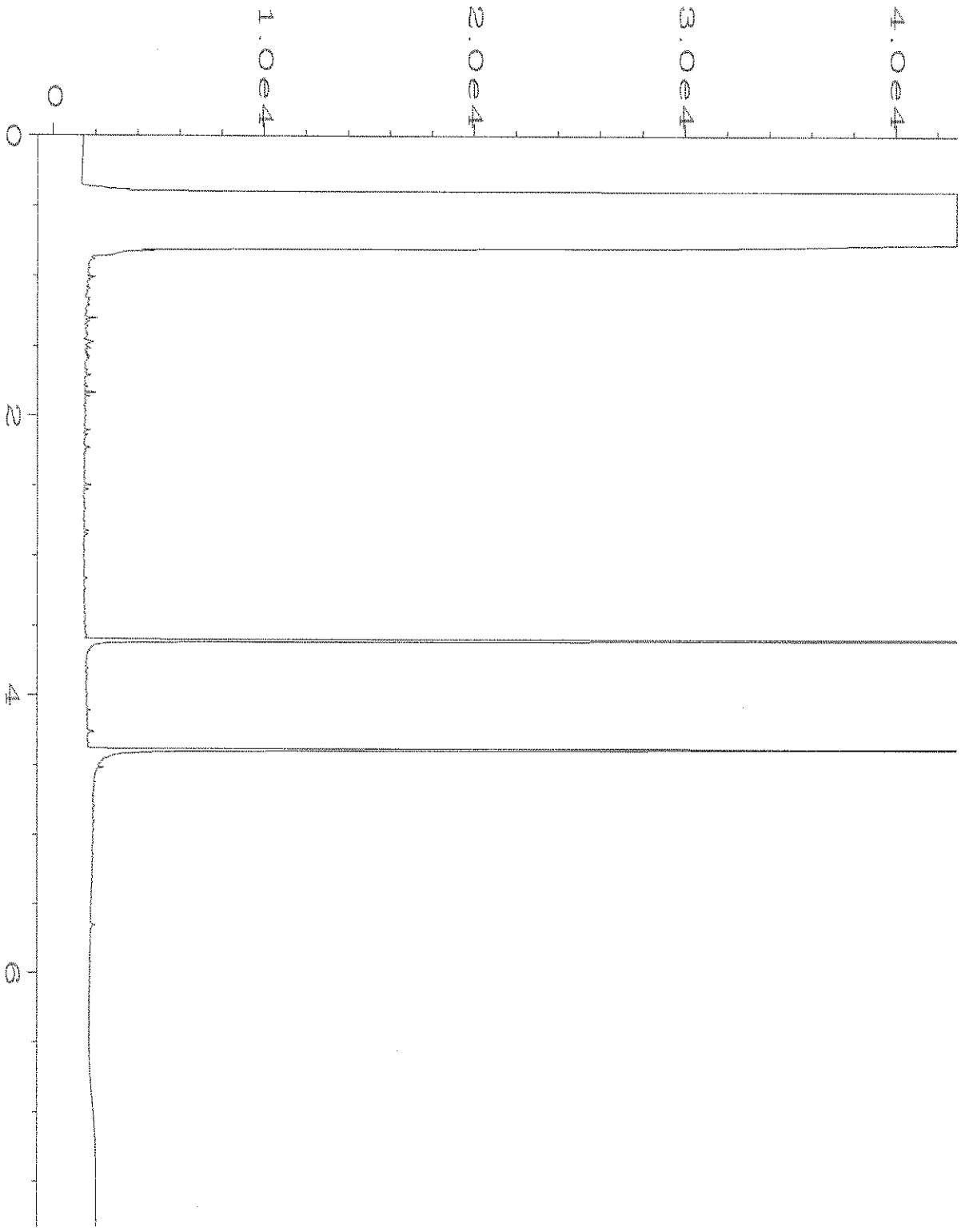


Data File Name	: C:\HPCHEM\4\DATA\10-15-19\027F0701.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 27
Sample Name	: 910203-13	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 7
Acquired on	: 15 Oct 19 05:28 PM	Instrument Method	: DX.MTH
Report Created on:	16 Oct 19 11:52 AM	Analysis Method	: DEFAULT.MTH

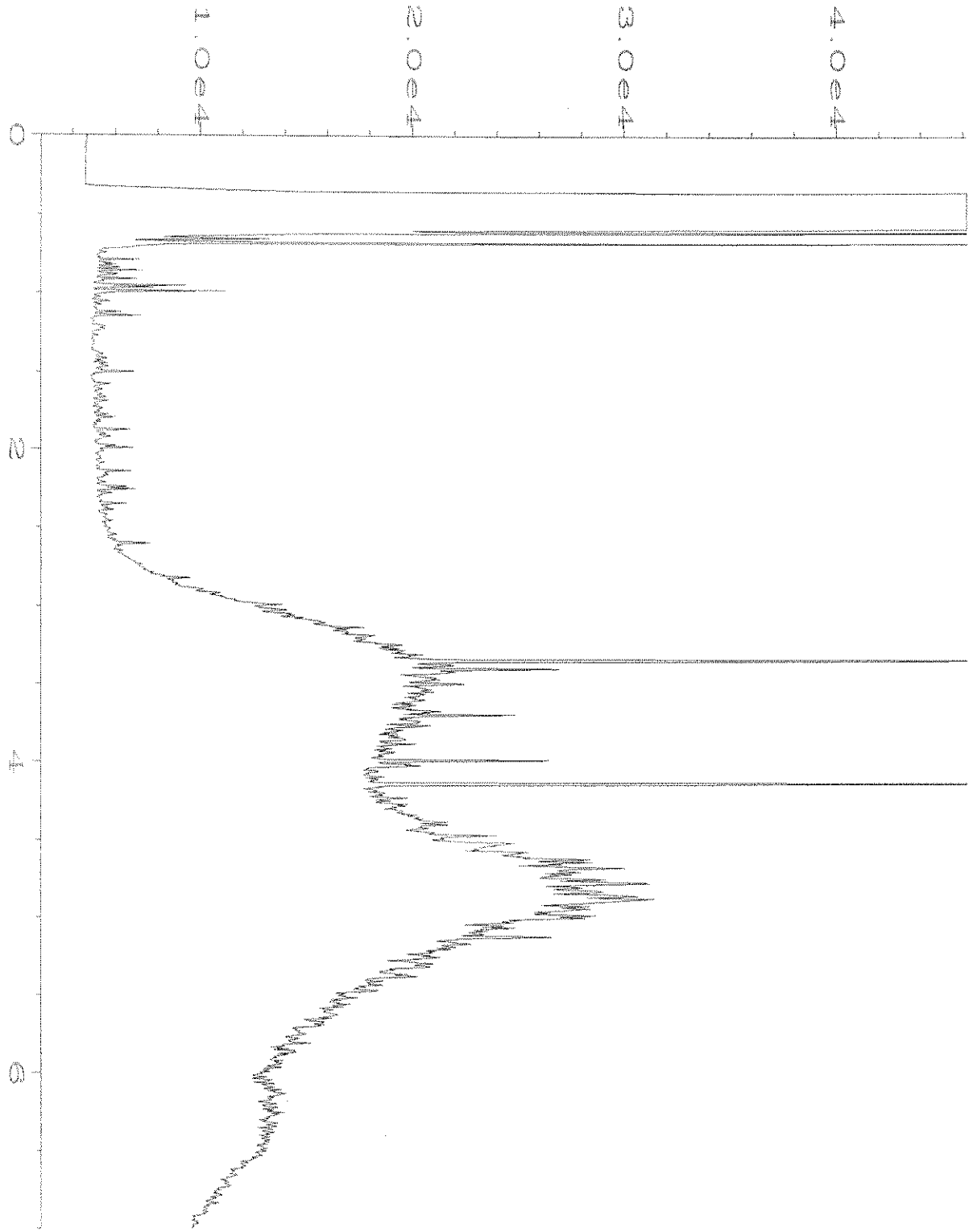


Data File Name : C:\HPCHEM\4\DATA\10-15-19\028F0701.D
Operator : TL
Instrument : GC#4
Sample Name : 910203-14
Run Time Bar Code:
Acquired on : 15 Oct 19 05:40 PM
Report Created on: 16 Oct 19 12:23 PM

Page Number : 1
Vial Number : 28
Injection Number : 1
Sequence Line : 7
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

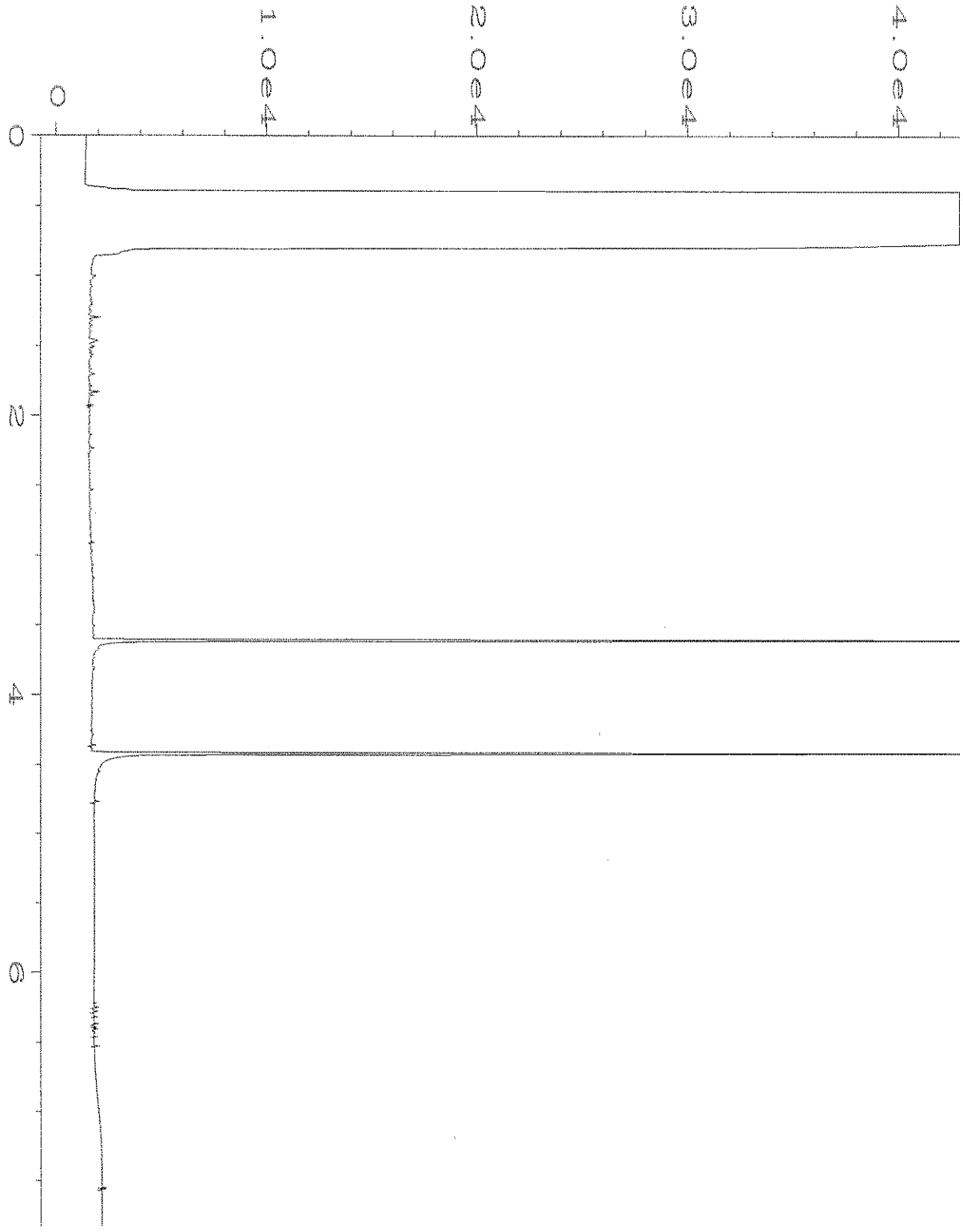


Data File Name	: C:\HPCHEM\4\DATA\10-15-19\029F0701.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 29
Sample Name	: 910203-15	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 7
Acquired on	: 15 Oct 19 05:52 PM	Instrument Method	: DX.MTH
Report Created on:	16 Oct 19 12:23 PM	Analysis Method	: DEFAULT.MTH

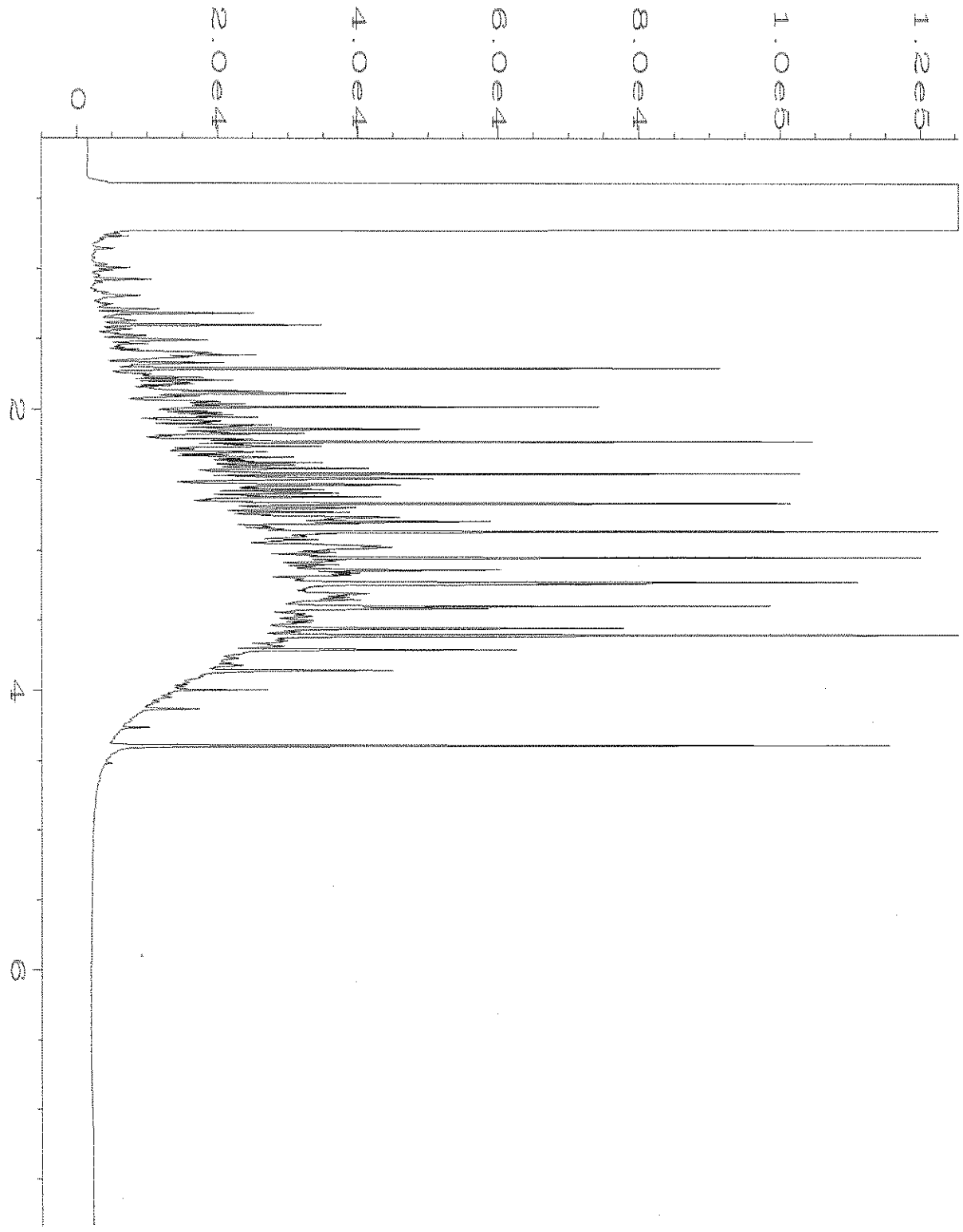


Data File Name : C:\HPCHEM\6\DATA\10-14-19\027F0501.D
Operator : TL
Instrument : GC6
Sample Name : 910203-16
Run Time Bar Code:
Acquired on : 14 Oct 19 06:34 PM
Report Created on: 15 Oct 19 10:33 AM

Page Number : 1
Vial Number : 27
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name	: C:\HPCHEM\4\DATA\10-15-19\006F0301.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 6
Sample Name	: 09-2531 mb	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 15 Oct 19 10:57 AM	Instrument Method	: DX.MTH
Report Created on:	16 Oct 19 11:50 AM	Analysis Method	: DEFAULT.MTH



Data File Name	: C:\HPCHEM\4\DATA\10-15-19\003F0201.D		
Operator	: TL	Page Number	: 1
Instrument	: GC#4	Vial Number	: 3
Sample Name	: 500 Dx 58-62F	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 15 Oct 19 06:20 AM	Instrument Method	: DX.MTH
Report Created on	: 16 Oct 19 11:50 AM	Analysis Method	: DEFAULT.MTH

910203

SAMPLE CHAIN OF CUSTODY

ME 10-10-19

Page# _____ of AIS1

Report To Mike Kurt

Company EHSI

Address 1011 SW Klickitat Way Ste 104

City, State, ZIP Seattle, WA 98134

Phone 206 381 1178 Email

SAMPLERS (signature)

PROJECT NAME: Bucklen Library RI/FS

PO # 11101

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME VW2

☐ Standard turnaround VS1

☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Archive samples

☐ Other

Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	MTCA 5	Dissolved Fe + As			Notes
						ANALYSES REQUESTED											(X) for MB
TRIP BLANK	01 A-B	10/9	800	W	2		X			X				(X)		MS/MSD	10/16/19 MG
B22-3	02 A-E	10/9	900	S	5	X	X			X	X		X				
B22-6	03	10/9	915	S	5	X	X			X	X		X				
MW10-3	04		930	S	5	X	X			X	X		X				
B23-3	05		930	S	5	X	X			X	X		X				
B23-W	06 A-G		1010	W	7	X	X			X	X		X	(X)			
B23-W DUP	07		1010	W	7	X	X			X	X		X	(X)			
B24-3	08 A-E		1130	S	5	X	X			X	X		X				PID 754
B25-3	09		1230	S	5	X	X			X	X		X				PID 785
B24-W	10 A-D		1250	W	4	X	X			X				(X)		MS/MSD	LIMITED SAMPLE

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	MIKE BRADY	EHSI	10/10	10:55
Received by:	Nhan Phan	FCBT	10/10/19	1055
Relinquished by:		Samples received at 5 °C		
Received by:				

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

910203

SAMPLE CHAIN OF CUSTODY

MG 10-10-19

Page # 2 of 2 AIS VW2

Report To MIKE, RUFT

Company EHSI

Address 1011 SW Klickitat

City, State, ZIP Seattle, WA

Phone 206 381 1125 Email

SAMPLERS (signature)

PROJECT NAME: Buckley Library RI/FS

PO # 11101

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- [X] Standard turnaround
- [ ] RUSH
- Rush charges authorized by:

US1

SAMPLE DISPOSAL
- [ ] Archive samples
- [X] Other VENBAL
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270 TNTC	PCBs EPA 8082	MTCA 5	Dissolved Pb+As	Dissolved Cr		Notes
B25W	11 A-G	10/9	1400	W	7	X	X			X	X		X	X	X		
B26-3	12 A-D	10/9	1455	S	4	X	X			X	X		X				only 1-4oz
B26-7	13 A-E	10/9	15:35	S	5	X	X			X	X		X				PID 4.5
MW11-3	14	10/9	1600	S	5	X	X			X	X		X				
B27-3	15		1710	S	5	X	X			X	X		X				
B27-W	16 A-G		1730	W	7	X	X			X	X		X	X	X		

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Mike Brady	EHSI	10/10	10:55
Received by:	Nhan Phan	FEBI	10/10	1055
Relinquished by:				
Received by:				

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

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

November 18, 2020

Ryan Opitz, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

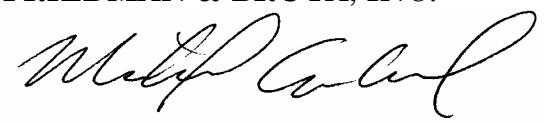
Dear Mr Opitz:

Included are the results from the testing of material submitted on November 10, 2020 from the Buckley Library PO 11101, F&BI 011165 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: EHSI A/P, Jason Cass, Jen Moore
EHS1118R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 10, 2020 by Friedman & Bruya, Inc. from the EHSI Buckley Library PO 11101, F&BI 011165 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EHSI
011165 -01	B29-03
011165 -02	B29-W
011165 -03	B30-03
011165 -04	B30-W
011165 -05	B31-03
011165 -06	B31-08
011165 -07	B31-015
011165 -08	B31-W
011165 -09	B32-03
011165 -10	B32-08
011165 -11	B32-15
011165 -12	B32-W
011165 -13	HA1-02
011165 -14	HA2-01

All quality control requirements were acceptable.

Date of Report: 11/18/20
Date Received: 11/10/20
Project: Buckley Library PO 11101, F&BI 011165
Date Extracted: 11/12/20
Date Analyzed: 11/13/20

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

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

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
B29-03 011165-01	<0.02	<0.02	<0.02	<0.06	<5	90
B30-03 011165-03	<0.02	<0.02	<0.02	<0.06	<5	90
B31-015 011165-07	<0.02	<0.02	<0.02	<0.06	<5	89
B32-15 011165-11	<0.02	<0.02	0.073	<0.06	9.8	74
HA1-02 011165-13	<0.02	<0.02	<0.02	<0.06	<5	88
HA2-01 011165-14	<0.02	<0.02	<0.02	<0.06	<5	88
Method Blank 00-2416 MB	<0.02	<0.02	<0.02	<0.06	<5	86

Date of Report: 11/18/20
Date Received: 11/10/20
Project: Buckley Library PO 11101, F&BI 011165
Date Extracted: 11/17/20
Date Analyzed: 11/17/20

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
B29-W 011165-02	<1	<1	<1	<3	<100	79
B30-W 011165-04	<1	<1	<1	<3	<100	78
B31-W 011165-08	<1	<1	<1	<3	<100	79
B32-W 011165-12	<1	<1	1.3	3.2	220	80
Method Blank 00-2421 MB	<1	<1	<1	<3	<100	77

Date of Report: 11/18/20
Date Received: 11/10/20
Project: Buckley Library PO 11101, F&BI 011165
Date Extracted: 11/10/20
Date Analyzed: 11/10/20

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

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

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
B29-03 011165-01	<50	<250	87
B30-03 011165-03	<50	<250	94
B31-015 011165-07	<50	<250	90
B32-15 011165-11	<50	<250	87
HA1-02 011165-13	<50	<250	88
HA2-01 011165-14	<50	<250	85
Method Blank 00-2491 MB	<50	<250	89

Date of Report: 11/18/20
Date Received: 11/10/20
Project: Buckley Library PO 11101, F&BI 011165
Date Extracted: 11/11/20
Date Analyzed: 11/11/20

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
B29-W 011165-02	1,400 x	1,700	93
B30-W 011165-04	410 x	1,000	ip
B31-W 011165-08	400 x	1,700	ip
B32-W 011165-12	1,500 x	3,300	ip
Method Blank 00-2499 MB	<50	<250	106

Analysis For Total Metals By EPA Method 6020B

Client ID:	B29-03	Client:	EHSI
Date Received:	11/10/20	Project:	Buckley Library PO 11101
Date Extracted:	11/11/20	Lab ID:	011165-01
Date Analyzed:	11/12/20	Data File:	011165-01.144
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	1.70
Cadmium	<1
Lead	3.40

Analysis For Total Metals By EPA Method 6020B

Client ID:	B30-03	Client:	EHSI
Date Received:	11/10/20	Project:	Buckley Library PO 11101
Date Extracted:	11/11/20	Lab ID:	011165-03
Date Analyzed:	11/12/20	Data File:	011165-03.152
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.22
Cadmium	<1
Lead	4.90

Analysis For Total Metals By EPA Method 6020B

Client ID:	B31-015	Client:	EHSI
Date Received:	11/10/20	Project:	Buckley Library PO 11101
Date Extracted:	11/11/20	Lab ID:	011165-07
Date Analyzed:	11/12/20	Data File:	011165-07.153
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.85
Cadmium	<1
Lead	2.03

Analysis For Total Metals By EPA Method 6020B

Client ID:	B32-15	Client:	EHSI
Date Received:	11/10/20	Project:	Buckley Library PO 11101
Date Extracted:	11/11/20	Lab ID:	011165-11
Date Analyzed:	11/12/20	Data File:	011165-11.154
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.29
Cadmium	<1
Lead	12.7

Analysis For Total Metals By EPA Method 6020B

Client ID:	HA1-02	Client:	EHSI
Date Received:	11/10/20	Project:	Buckley Library PO 11101
Date Extracted:	11/11/20	Lab ID:	011165-13
Date Analyzed:	11/12/20	Data File:	011165-13.155
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.17
Cadmium	<1
Lead	3.88

Analysis For Total Metals By EPA Method 6020B

Client ID:	HA2-01	Client:	EHSI
Date Received:	11/10/20	Project:	Buckley Library PO 11101
Date Extracted:	11/11/20	Lab ID:	011165-14
Date Analyzed:	11/12/20	Data File:	011165-14.156
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.69
Cadmium	<1
Lead	2.60

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	EHSI
Date Received:	NA	Project:	Buckley Library PO 11101
Date Extracted:	11/11/20	Lab ID:	I0-698 mb2
Date Analyzed:	11/11/20	Data File:	I0-698 mb2.155
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

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

Analysis For Total Metals By EPA Method 6020B

Client ID:	B31-W	Client:	EHSI
Date Received:	11/10/20	Project:	Buckley Library PO 11101
Date Extracted:	11/10/20	Lab ID:	011165-08
Date Analyzed:	11/12/20	Data File:	011165-08.118
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Lead	1.90

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	EHSI
Date Received:	NA	Project:	Buckley Library PO 11101
Date Extracted:	11/10/20	Lab ID:	I0-697 mb2
Date Analyzed:	11/12/20	Data File:	I0-697 mb2.092
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

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

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	B29-03	Client:	EHSI
Date Received:	11/10/20	Project:	Buckley Library PO 11101
Date Extracted:	11/10/20	Lab ID:	011165-01 1/5
Date Analyzed:	11/10/20	Data File:	111007.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	66	36	114
Phenol-d6	71	47	116
Nitrobenzene-d5	85	38	117
2-Fluorobiphenyl	86	50	150
2,4,6-Tribromophenol	61	25	187
Terphenyl-d14	87	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
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	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	B30-03	Client:	EHSI
Date Received:	11/10/20	Project:	Buckley Library PO 11101
Date Extracted:	11/10/20	Lab ID:	011165-03 1/5
Date Analyzed:	11/10/20	Data File:	111008.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	68	36	114
Phenol-d6	73	47	116
Nitrobenzene-d5	85	38	117
2-Fluorobiphenyl	87	50	150
2,4,6-Tribromophenol	67	25	187
Terphenyl-d14	93	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
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	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	B31-015	Client:	EHSI
Date Received:	11/10/20	Project:	Buckley Library PO 11101
Date Extracted:	11/10/20	Lab ID:	011165-07 1/5
Date Analyzed:	11/10/20	Data File:	111009.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	74	36	114
Phenol-d6	81	47	116
Nitrobenzene-d5	90	38	117
2-Fluorobiphenyl	90	50	150
2,4,6-Tribromophenol	70	25	187
Terphenyl-d14	94	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
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	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	B32-15	Client:	EHSI
Date Received:	11/10/20	Project:	Buckley Library PO 11101
Date Extracted:	11/10/20	Lab ID:	011165-11 1/25
Date Analyzed:	11/10/20	Data File:	111012.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	74 d	36	114
Phenol-d6	82 d	47	116
Nitrobenzene-d5	103 d	38	117
2-Fluorobiphenyl	94 d	50	150
2,4,6-Tribromophenol	83 d	25	187
Terphenyl-d14	95 d	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.05
2-Methylnaphthalene	<0.05
1-Methylnaphthalene	<0.05
Acenaphthylene	<0.05
Acenaphthene	<0.05
Fluorene	<0.05
Phenanthrene	0.081
Anthracene	<0.05
Fluoranthene	0.080
Pyrene	0.11
Benz(a)anthracene	0.060
Chrysene	0.070
Benzo(a)pyrene	0.070
Benzo(b)fluoranthene	0.072
Benzo(k)fluoranthene	<0.05
Indeno(1,2,3-cd)pyrene	<0.05
Dibenz(a,h)anthracene	<0.05
Benzo(g,h,i)perylene	0.057

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HA1-02	Client:	EHSI
Date Received:	11/10/20	Project:	Buckley Library PO 11101
Date Extracted:	11/10/20	Lab ID:	011165-13 1/5
Date Analyzed:	11/10/20	Data File:	111010.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	67	36	114
Phenol-d6	73	47	116
Nitrobenzene-d5	81	38	117
2-Fluorobiphenyl	87	50	150
2,4,6-Tribromophenol	68	25	187
Terphenyl-d14	87	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
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	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HA2-01	Client:	EHSI
Date Received:	11/10/20	Project:	Buckley Library PO 11101
Date Extracted:	11/10/20	Lab ID:	011165-14 1/5
Date Analyzed:	11/10/20	Data File:	111011.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	68	36	114
Phenol-d6	74	47	116
Nitrobenzene-d5	85	38	117
2-Fluorobiphenyl	86	50	150
2,4,6-Tribromophenol	67	25	187
Terphenyl-d14	90	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
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	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library PO 11101
Date Extracted:	11/10/20	Lab ID:	00-2485 mb2 1/5
Date Analyzed:	11/10/20	Data File:	111006.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	76	36	114
Phenol-d6	80	47	116
Nitrobenzene-d5	98	38	117
2-Fluorobiphenyl	102	50	150
2,4,6-Tribromophenol	62	25	187
Terphenyl-d14	103	50	150

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
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	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	B31-W	Client:	EHSI
Date Received:	11/10/20	Project:	Buckley Library PO 11101
Date Extracted:	11/11/20	Lab ID:	011165-08 1/20
Date Analyzed:	11/11/20	Data File:	111111.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	24 d	15	99
Phenol-d6	19 d	11	65
Nitrobenzene-d5	101 d	10	145
2-Fluorobiphenyl	52 d	16	138
2,4,6-Tribromophenol	63 d	12	132
Terphenyl-d14	51 d	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<4
2-Methylnaphthalene	<4
1-Methylnaphthalene	<4
Acenaphthylene	<0.4
Acenaphthene	<0.4
Fluorene	<0.4
Phenanthrene	1.9
Anthracene	<0.4
Fluoranthene	1.6
Pyrene	1.8
Benz(a)anthracene	0.90
Chrysene	1.1
Benzo(a)pyrene	1.0
Benzo(b)fluoranthene	1.1
Benzo(k)fluoranthene	0.40
Indeno(1,2,3-cd)pyrene	0.59
Dibenz(a,h)anthracene	<0.4
Benzo(g,h,i)perylene	<0.8

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library PO 11101
Date Extracted:	11/11/20	Lab ID:	00-2495 mb
Date Analyzed:	11/11/20	Data File:	111107.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	18	15	99
Phenol-d6	12	11	65
Nitrobenzene-d5	93	10	145
2-Fluorobiphenyl	93	16	138
2,4,6-Tribromophenol	53	12	132
Terphenyl-d14	98	35	138

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.04

Date of Report: 11/18/20
Date Received: 11/10/20
Project: Buckley Library PO 11101, F&BI 011165

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

Laboratory Code: 011230-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	85	66-121
Toluene	mg/kg (ppm)	0.5	88	72-128
Ethylbenzene	mg/kg (ppm)	0.5	87	69-132
Xylenes	mg/kg (ppm)	1.5	87	69-131
Gasoline	mg/kg (ppm)	20	90	61-153

Date of Report: 11/18/20
Date Received: 11/10/20
Project: Buckley Library PO 11101, F&BI 011165

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

Laboratory Code: 011245-07 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	15	15	0
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	680	650	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	100	65-118
Toluene	ug/L (ppb)	50	92	72-122
Ethylbenzene	ug/L (ppb)	50	92	73-126
Xylenes	ug/L (ppb)	150	91	74-118
Gasoline	ug/L (ppb)	1,000	94	69-134

Date of Report: 11/18/20
Date Received: 11/10/20
Project: Buckley Library PO 11101, F&BI 011165

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

Laboratory Code: 011156-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	94	98	73-135	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	100	74-139

Date of Report: 11/18/20
Date Received: 11/10/20
Project: Buckley Library PO 11101, F&BI 011165

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	100	104	63-142	4

Date of Report: 11/18/20
Date Received: 11/10/20
Project: Buckley Library PO 11101, F&BI 011165

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

Laboratory Code: 011161-03 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	98	105	75-125	7
Cadmium	mg/kg (ppm)	10	<5	100	112	75-125	11
Lead	mg/kg (ppm)	50	17.6	119	114	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	81	80-120
Cadmium	mg/kg (ppm)	10	95	80-120
Lead	mg/kg (ppm)	50	100	80-120

Date of Report: 11/18/20
Date Received: 11/10/20
Project: Buckley Library PO 11101, F&BI 011165

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

Laboratory Code: 011149-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	1.64	95	97	75-125	2
Cadmium	ug/L (ppb)	5	<1	104	105	75-125	1
Lead	ug/L (ppb)	10	<1	79	80	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	91	80-120
Cadmium	ug/L (ppb)	5	102	80-120
Lead	ug/L (ppb)	10	101	80-120

Date of Report: 11/18/20
Date Received: 11/10/20
Project: Buckley Library PO 11101, F&BI 011165

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

Laboratory Code: 011131-03 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.83	0.020	80	75	50-150	6
2-Methylnaphthalene	mg/kg (ppm)	0.83	0.29	77 b	68 b	50-150	12 b
1-Methylnaphthalene	mg/kg (ppm)	0.83	0.22	77 b	68 b	50-150	12 b
Acenaphthylene	mg/kg (ppm)	0.83	<0.01	89	85	50-150	5
Acenaphthene	mg/kg (ppm)	0.83	<0.01	83	79	50-150	5
Fluorene	mg/kg (ppm)	0.83	0.022	79	74	50-150	7
Phenanthrene	mg/kg (ppm)	0.83	0.096	82	75	50-150	9
Anthracene	mg/kg (ppm)	0.83	<0.01	85	80	50-150	6
Fluoranthene	mg/kg (ppm)	0.83	<0.01	88	81	50-150	8
Pyrene	mg/kg (ppm)	0.83	<0.01	85	78	50-150	9
Benz(a)anthracene	mg/kg (ppm)	0.83	<0.01	86	81	50-150	6
Chrysene	mg/kg (ppm)	0.83	<0.01	83	78	50-150	6
Benzo(a)pyrene	mg/kg (ppm)	0.83	<0.01	90	84	50-150	7
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	<0.01	95	88	50-150	8
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	<0.01	90	82	50-150	9
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	<0.01	96	91	50-150	5
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	<0.01	94	89	50-150	5
Benzo(g,h,i)perylene	mg/kg (ppm)	0.83	<0.01	93	87	50-150	7

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.83	85	58-108
2-Methylnaphthalene	mg/kg (ppm)	0.83	89	70-130
1-Methylnaphthalene	mg/kg (ppm)	0.83	86	70-130
Acenaphthylene	mg/kg (ppm)	0.83	96	70-130
Acenaphthene	mg/kg (ppm)	0.83	90	70-130
Fluorene	mg/kg (ppm)	0.83	90	70-130
Phenanthrene	mg/kg (ppm)	0.83	89	70-130
Anthracene	mg/kg (ppm)	0.83	89	70-130
Fluoranthene	mg/kg (ppm)	0.83	89	70-130
Pyrene	mg/kg (ppm)	0.83	90	70-130
Benz(a)anthracene	mg/kg (ppm)	0.83	91	70-130
Chrysene	mg/kg (ppm)	0.83	90	70-130
Benzo(a)pyrene	mg/kg (ppm)	0.83	93	70-130
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	97	70-130
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	90	70-130
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	100	70-130
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	100	70-130
Benzo(g,h,i)perylene	mg/kg (ppm)	0.83	98	70-130

Date of Report: 11/18/20
Date Received: 11/10/20
Project: Buckley Library PO 11101, F&BI 011165

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	76	80	56-100	5
2-Methylnaphthalene	ug/L (ppb)	5	79	84	60-104	6
1-Methylnaphthalene	ug/L (ppb)	5	77	82	60-104	6
Acenaphthylene	ug/L (ppb)	5	93	96	70-130	3
Acenaphthene	ug/L (ppb)	5	88	92	65-122	4
Fluorene	ug/L (ppb)	5	86	91	70-130	6
Phenanthrene	ug/L (ppb)	5	89	92	70-130	3
Anthracene	ug/L (ppb)	5	91	92	70-130	1
Fluoranthene	ug/L (ppb)	5	96	99	70-130	3
Pyrene	ug/L (ppb)	5	96	98	70-130	2
Benz(a)anthracene	ug/L (ppb)	5	93	95	70-130	2
Chrysene	ug/L (ppb)	5	95	96	70-130	1
Benzo(a)pyrene	ug/L (ppb)	5	97	98	70-130	1
Benzo(b)fluoranthene	ug/L (ppb)	5	102	104	70-130	2
Benzo(k)fluoranthene	ug/L (ppb)	5	100	99	70-130	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	96	94	57-141	2
Dibenz(a,h)anthracene	ug/L (ppb)	5	96	98	57-137	2
Benzo(g,h,i)perylene	ug/L (ppb)	5	94	95	50-143	1

Data Qualifiers & Definitions

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

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

ca - The calibration results for the analyte were outside of acceptance criteria. 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.

011165

SAMPLE CHAIN OF CUSTODY

ME 11-10-20

VW2/BI4/E03/VS2

Page # 1 of 2

Report To Ryan, Jason, Jen

Company EHSI

Address 101 S.W. Klickitat Way 104

City, State, ZIP Seattle

Phone 206-321-8222 Email

SAMPLERS (*signature*)

PROJECT NAME: Buckley Library

PO #: 11101

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270 w/ NAPH	PCBs EPA 8082	Lead/arsenic/Cadmium				Notes
B29-03	01 A-F	11/9/20	10:15	Soil	6	X	X	X			X		X				
B29-W	02 A-D		12:15	water	4	X	X	X									
B30-03	03 A-F		10:40	Soil	6	X	X	X			X		X				
B30-W	04 A-D		12:20	water	4	X	X	X									
B31-03	05 A-F		11:45	Soil	6												
B31-08	06		15:00		6												
B31-015	07		15:10		6	X	X	X			X		X				
B31-W	08 A-J		15:50	water	10	X	X	X			X		X				1 poly/1 pack of Voas Field Filtered
B32-03	09 A-F		12:45	Soil	6												
B32-08	10		15:35	Soil	6												

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Ryan Opfer	EHSI	11/10/20	8:10
Received by:	Nhan Phan	FEBI	11/10/20	0810
Relinquished by:				
Received by:		Samples received at 4 °C		

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

011165

SAMPLE CHAIN OF CUSTODY

ME 11-10-20 VW2 / BTY / E03 / VS2

Page # 2 of 2

Report To Ryan, Tyson, Jen

Company EHSI

Address 1011 Sw Klickitat Way 104

City, State, ZIP Seattle

Phone 206 324-8222 Email

SAMPLERS (*signature*)

PROJECT NAME: Beckley Library

PO #: 11101

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	w/ Naph. PCBs EPA 8082	Lead/Arsenic/Cadmium				Notes
B32-15	11 A-F	11/9/20	15:45	Soil	6	X	X	X			X		X				
B32-W	12 A-D	"	16:30	water	4	X	X	X									
HA-1-02	13 A-F	"	15:05	Soil	6	X	X	X			X		X				
HA2-01	14 A-F	"	15:30	Soil	6	X	X	X			X		X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Ryan Ogata	EHSI	11/10/20	8:10
Received by:	Nhan Phan	FedEx	11/10/20	0810
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
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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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fbi@isomedia.com
www.friedmanandbruya.com

October 7, 2021

Mindy Graddon, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

Dear Graddon:

Included is the amended report from the testing of material submitted on September 10, 2021 from the Buckley Library 2000-044, F&BI 109186 project. The sample IDs have been amended.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: EHSI A/P, Tom Cammarata
EHS0930R.DOC

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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fbi@isomedia.com
www.friedmanandbruya.com

September 30, 2021

Mindy Graddon, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

Dear Graddon:

Included are the additional results from the testing of material submitted on September 10, 2021 from the Buckley Library 2000-044, F&BI 109186 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 should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: EHSI A/P, Tom Cammarata
EHS0930R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 10, 2021 by Friedman & Bruya, Inc. from the EHSI Buckley Library 2000-044, F&BI 109186 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EHSI
109186 -01	B33-03.5
109186 -02	B33-05
109186 -03	B33-13
109186 -04	B34-04
109186 -05	B34-05.5
109186 -06	B34-13
109186 -07	B33-B30_Composite

The NWTPH-Gx/BTEX was performed outside of the method recommended holding time. The datat were qualified accordingly.

All other quality control requirements were acceptable.

Date of Report: 09/30/21
Date Received: 09/10/21
Project: Buckley Library 2000-044, F&BI 109186
Date Extracted: 09/27/21
Date Analyzed: 09/28/21

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

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

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
B34-13 ht 109186-06	<0.02	<0.02	<0.02	<0.06	6.2	77
Method Blank 0-1959 MB	<0.02	<0.02	<0.02	<0.06	<5	83

Date of Report: 09/30/21
Date Received: 09/10/21
Project: Buckley Library 2000-044, F&BI 109186

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

Laboratory Code: 109485-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	96	69-120
Toluene	mg/kg (ppm)	0.5	98	70-117
Ethylbenzene	mg/kg (ppm)	0.5	96	65-123
Xylenes	mg/kg (ppm)	1.5	93	66-120
Gasoline	mg/kg (ppm)	20	105	71-131

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.

(109186 (NP))

SAMPLE CHAIN OF CUSTODY ME 09-10-21 ADB/VS3

Page # 1 of 1

Send Report to Mindy Graddon, Tom Camarata

Company EHSI

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature) Kyle Lowery

PROJECT NAME/NO. Buckley Library

PO # 2000-044

REMARKS

TURNAROUND TIME
(X) Standard (2 Weeks)
RUSH
Rush charges authorized by:

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

	Sample ID (per MG 10/6/21 MG)	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	ANALYSES REQUESTED: NWTPH-Gx	BTEX by 8021B	NWTPH-Dx/ORPH	Naphalenes	RCRA Metals	NWTPH-Dx W/SG			Notes
B33	~~B29~~-03.5	B29	3.5	01 AB	09/09/21	0940	Soil	5	X	X	X			X			X per MG
B33	B29-05	↓	5	02	↓	0950	↓	↓									9/10/21 MG
B33	B29-13	↓	13	03	↓	1025	↓	↓	X	X	X			X			↓
B34	~~B30~~-04	B30	4	04	↓	1230	↓	↓									Std TAT per MG
B34	~~B30~~-05.5	↓	5.5	05	↓	1240	↓	↓	X	X	X						9/22/21 ME
B34	~~B30~~-13	↓	13	06	↓	1310	↓	↓	(X)	(X)							
	~~B29 B30~~ COMPOSITE	—	—	07	↓	1330	↓	1					X				
	B33-B34																
																	Samples received at 4 °C
	9/10/21																

KG 09/10/2021

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Kyle Lowery	Kyle Lowery	SES	09/09/21	~~1330~~ 16:00
Received by: KG	Khai Hoang	FBI	9/10/21	16:00
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
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Seattle, WA 98119-2029
Ph. (206) 285-8282
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FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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October 7, 2021

Mindy Graddon, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

Dear Ms Graddon:

Included is the amended report from the testing of material submitted on September 10, 2021 from the Buckley Library 2000-044, F&BI 109186 project. Per your request, the sample IDs were amended.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: EHSI A/P, Tom Cammarata
EHS0917R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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www.friedmanandbruya.com

September 17, 2021

Mindy Graddon, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

Dear Ms Welter:

Included are the results from the testing of material submitted on September 10, 2021 from the Buckley Library 2000-044, F&BI 109186 project. There are 12 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: EHSI A/P, Tom Cammarata
EHS0917R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 10, 2021 by Friedman & Bruya, Inc. from the EHSI Buckley Library 2000-044, F&BI 109186 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EHSI
109186 -01	B33-03.5
109186 -02	B33-05
109186 -03	B33-13
109186 -04	B34-04
109186 -05	B34-05.5
109186 -06	B34-13
109186 -07	B33-B34_Composite

All quality control requirements were acceptable.

Date of Report: 09/17/21
Date Received: 09/10/21
Project: Buckley Library 2000-044, F&BI 109186
Date Extracted: 09/13/21
Date Analyzed: 09/14/21

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

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

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
B33-03.5 109186-01 1/5	<0.02 j	<0.1	0.46	0.60	160	91
B33-13 109186-03	<0.02	<0.02	<0.02	<0.06	<5	90
B34-05.5 109186-05 1/20	<0.4	<0.4	19	17	3,000	92
Method Blank 01-1936 MB	<0.02	<0.02	<0.02	<0.06	<5	76

Date of Report: 09/17/21
Date Received: 09/10/21
Project: Buckley Library 2000-044, F&BI 109186
Date Extracted: 09/14/21
Date Analyzed: 09/14/21

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

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

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 56-165)
B33-03.5 109186-01	71 x	<250	93
B33-13 109186-03	<50	<250	91
B34-05.5 109186-05	240 x	<250	93
Method Blank 01-2102 MB	<50	<250	93

Date of Report: 09/17/21
Date Received: 09/10/21
Project: Buckley Library 2000-044, F&BI 109186
Date Extracted: 09/14/21
Date Analyzed: 09/14/21

RESULTS FROM THE ANALYSIS OF SOIL 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 on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 48-168)
B33-13 109186-03	<50	<250	103
Method Blank 01-2102 MB	<50	<250	105

Analysis For Total Metals By EPA Method 6020B

Client ID:	B33-B34_Composite	Client:	EHSI
Date Received:	09/10/21	Project:	2000-044, F&BI 109186
Date Extracted:	09/14/21	Lab ID:	109186-07
Date Analyzed:	09/14/21	Data File:	109186-07.147
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	2.87
Barium	42.2
Cadmium	<1
Lead	47.6
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	B33-B34_Composite	Client:	EHSI
Date Received:	09/10/21	Project:	2000-044, F&BI 109186
Date Extracted:	09/14/21	Lab ID:	109186-07 x5
Date Analyzed:	09/15/21	Data File:	109186-07 x5.103
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	9.36

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	EHSI
Date Received:	NA	Project:	2000-044, F&BI 109186
Date Extracted:	09/14/21	Lab ID:	I1-569 mb2
Date Analyzed:	09/14/21	Data File:	I1-569 mb2.054
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Date of Report: 09/17/21
Date Received: 09/10/21
Project: Buckley Library 2000-044, F&BI 109186

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

Laboratory Code: 109204-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	74	66-121
Toluene	mg/kg (ppm)	0.5	83	72-128
Ethylbenzene	mg/kg (ppm)	0.5	87	69-132
Xylenes	mg/kg (ppm)	1.5	84	69-131
Gasoline	mg/kg (ppm)	20	90	61-153

Date of Report: 09/17/21
Date Received: 09/10/21
Project: Buckley Library 2000-044, F&BI 109186

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

Laboratory Code: 109186-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	100	108	63-146	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	112	79-144

Date of Report: 09/17/21
Date Received: 09/10/21
Project: Buckley Library 2000-044, F&BI 109186

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

Laboratory Code: 109186-03 (Matrix Spike) Silica Gel

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	126	132	73-135	5

Laboratory Code: Laboratory Control Sample Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	130	74-139

Date of Report: 09/17/21
Date Received: 09/10/21
Project: Buckley Library 2000-044, F&BI 109186

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

Laboratory Code: 109192-10 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	86	85	75-125	1
Barium	mg/kg (ppm)	50	45.6	85	87	75-125	2
Cadmium	mg/kg (ppm)	10	<5	84	89	75-125	6
Chromium	mg/kg (ppm)	50	18.3	88	87	75-125	1
Lead	mg/kg (ppm)	50	5.08	84	85	75-125	1
Mercury	mg/kg (ppm	5	<5	90	93	75-125	3
Selenium	mg/kg (ppm)	5	<5	90	90	75-125	0
Silver	mg/kg (ppm)	10	<5	87	91	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	93	80-120
Barium	mg/kg (ppm)	50	96	80-120
Cadmium	mg/kg (ppm)	10	96	80-120
Chromium	mg/kg (ppm)	50	97	80-120
Lead	mg/kg (ppm)	50	94	80-120
Mercury	mg/kg (ppm)	5	103	80-120
Selenium	mg/kg (ppm)	5	96	80-120
Silver	mg/kg (ppm)	10	93	80-120

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.

(109186 (NP))

SAMPLE CHAIN OF CUSTODY ME 09-10-21 ADB/VS3

Page # 1 of 1

Send Report to Mindy Graddon, Tom Camarata

Company EHSI

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature) Kyle Lowery

PROJECT NAME/NO. Buckley Library

PO # 2000-044

REMARKS

TURNAROUND TIME
(X) Standard (2 Weeks)
RUSH
Rush charges authorized by:

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

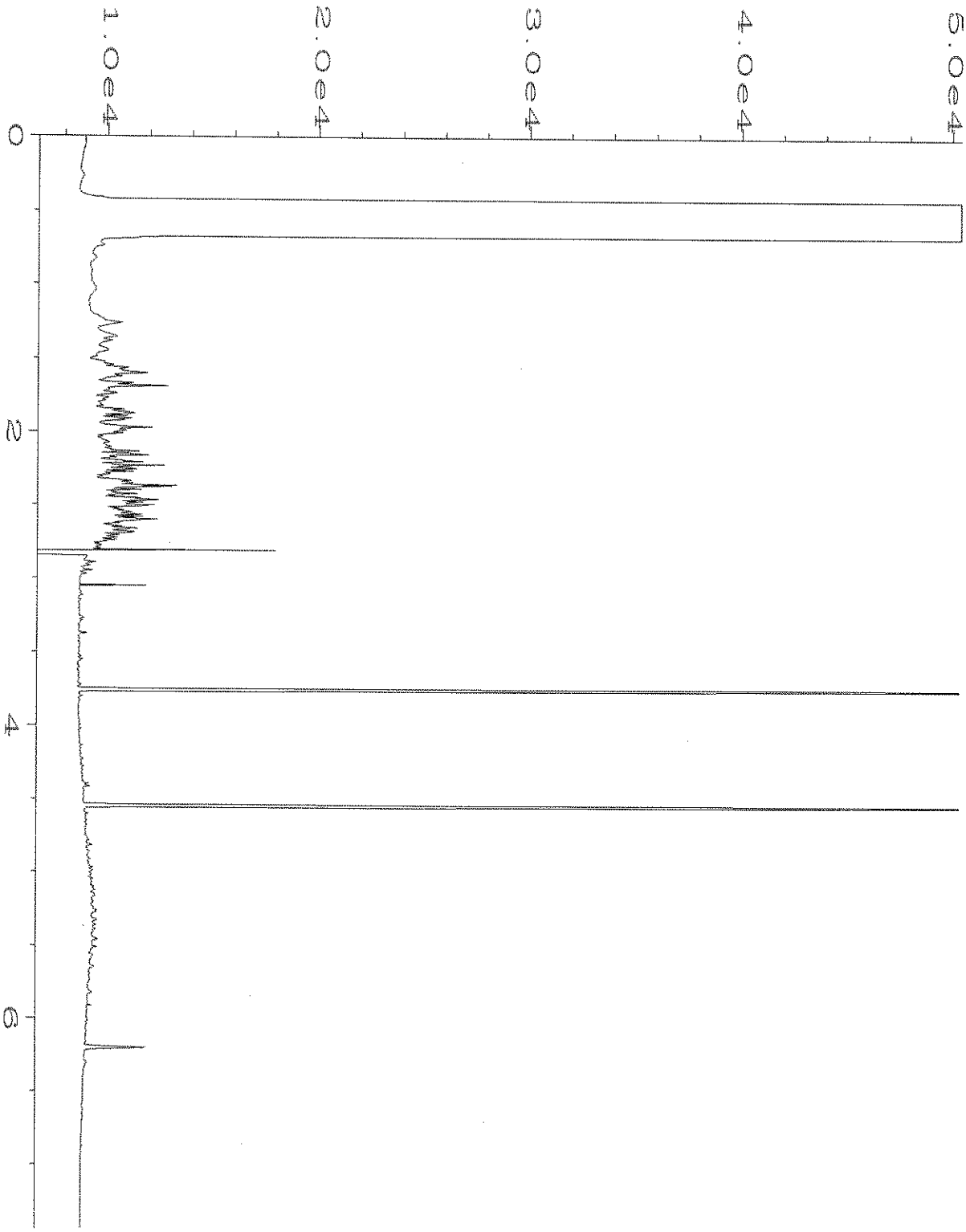
	Sample ID (per MG 10/6/21 MG)	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	ANALYSES REQUESTED: NWTPH-Gx	BTEX by 8021B	NWTPH-Dx/ORPH	Naphalenes	RCRA Metals	NWTPH-Dx W/SG			Notes
B33	~~B29~~-03.5	B29	3.5	01 AB	09/09/21	0940	Soil	5	X	X	X			X			X per MG
B33	B29-05	↓	5	02	↓	0950	↓	↓									9/10/21 MG
B33	B29-13	↓	13	03	↓	1025	↓	↓	X	X	X			X			↓
B34	~~B30~~-04	B30	4	04	↓	1230	↓	↓									Std TAT per MG
B34	~~B30~~-05.5	↓	5.5	05	↓	1240	↓	↓	X	X	X						9/22/21 ME
B34	~~B30~~-13	↓	13	06	↓	1310	↓	↓	(X)	(X)							
	~~B29 B30~~ COMPOSITE	—	—	07	↓	1330	↓	1					X				
	B33-B34																
																	Samples received at 4 °C
	9/10/21																

KG 09/10/2021

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Kyle Lowery	Kyle Lowery	SES	09/09/21	~~1330~~ 16:00
Received by: KG	Khai Hoang	FBI	9/10/21	16:00
Relinquished by:				
Received by:				

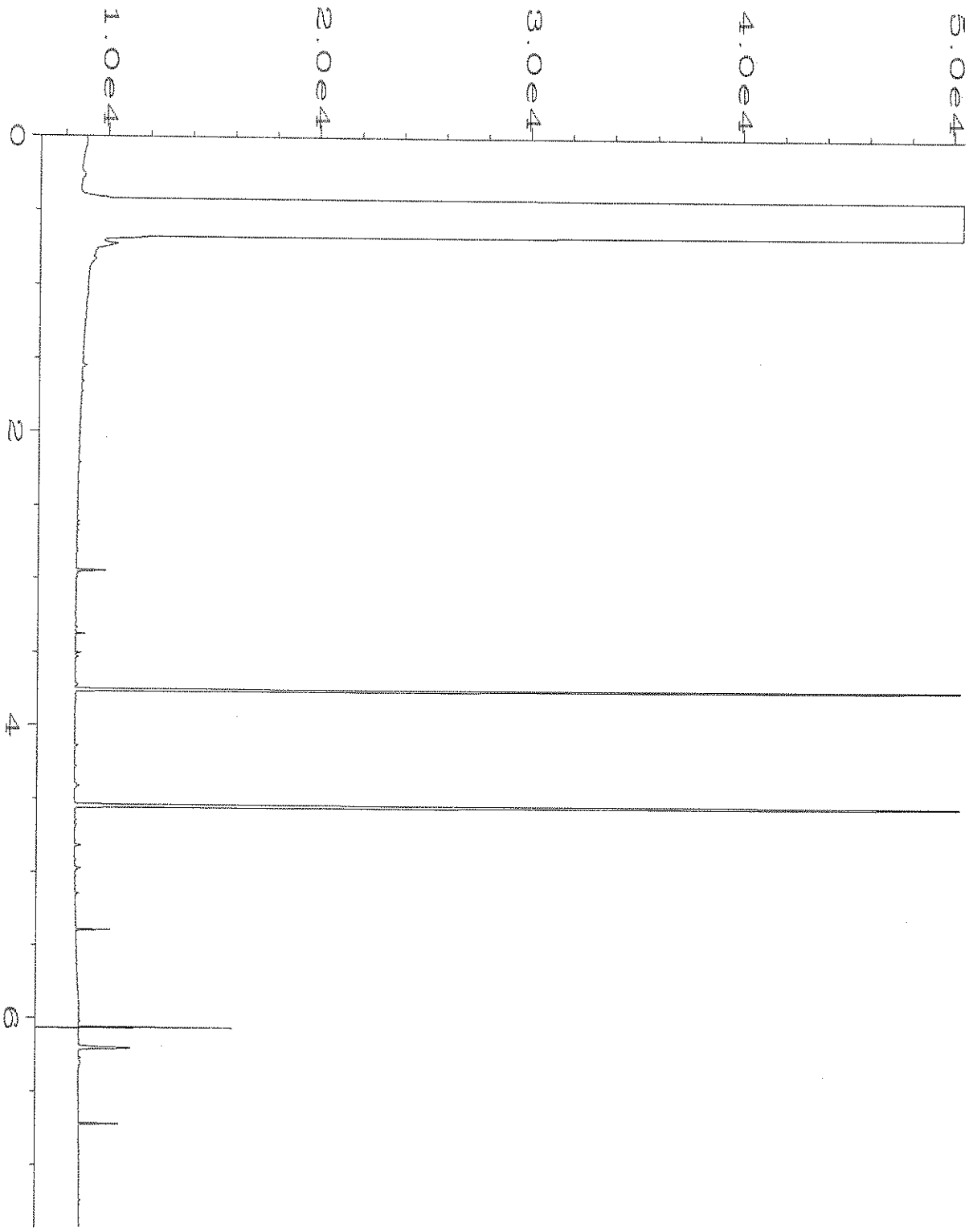
Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC



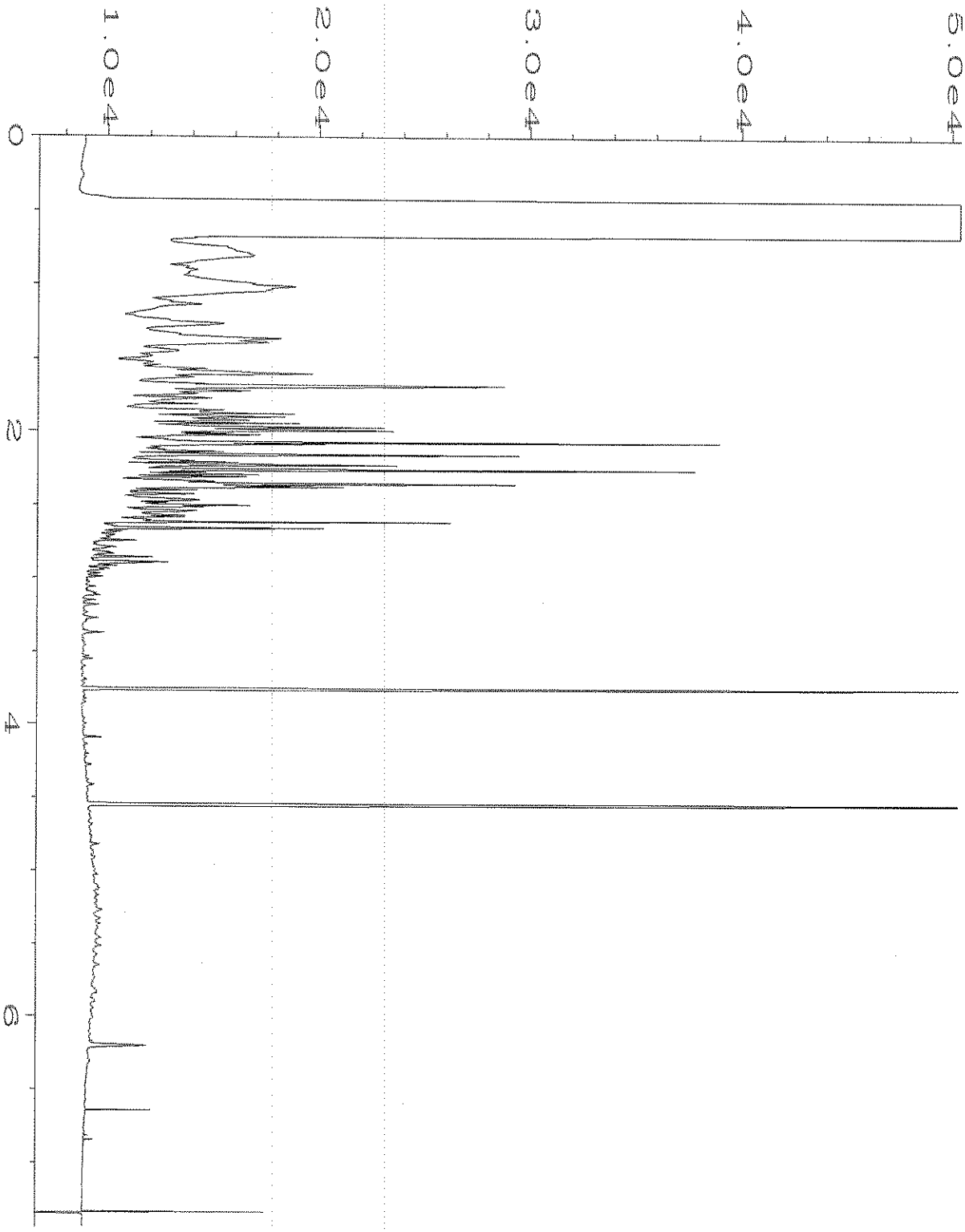
Data File Name : C:\HPCHEM\1\DATA\09-14-21\033F0901.D
Operator : TL
Instrument : GC1
Sample Name : 109186-01
Run Time Bar Code:
Acquired on : 14 Sep 21 02:40 PM
Report Created on: 15 Sep 21 11:47 AM

Page Number : 1
Vial Number : 33
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



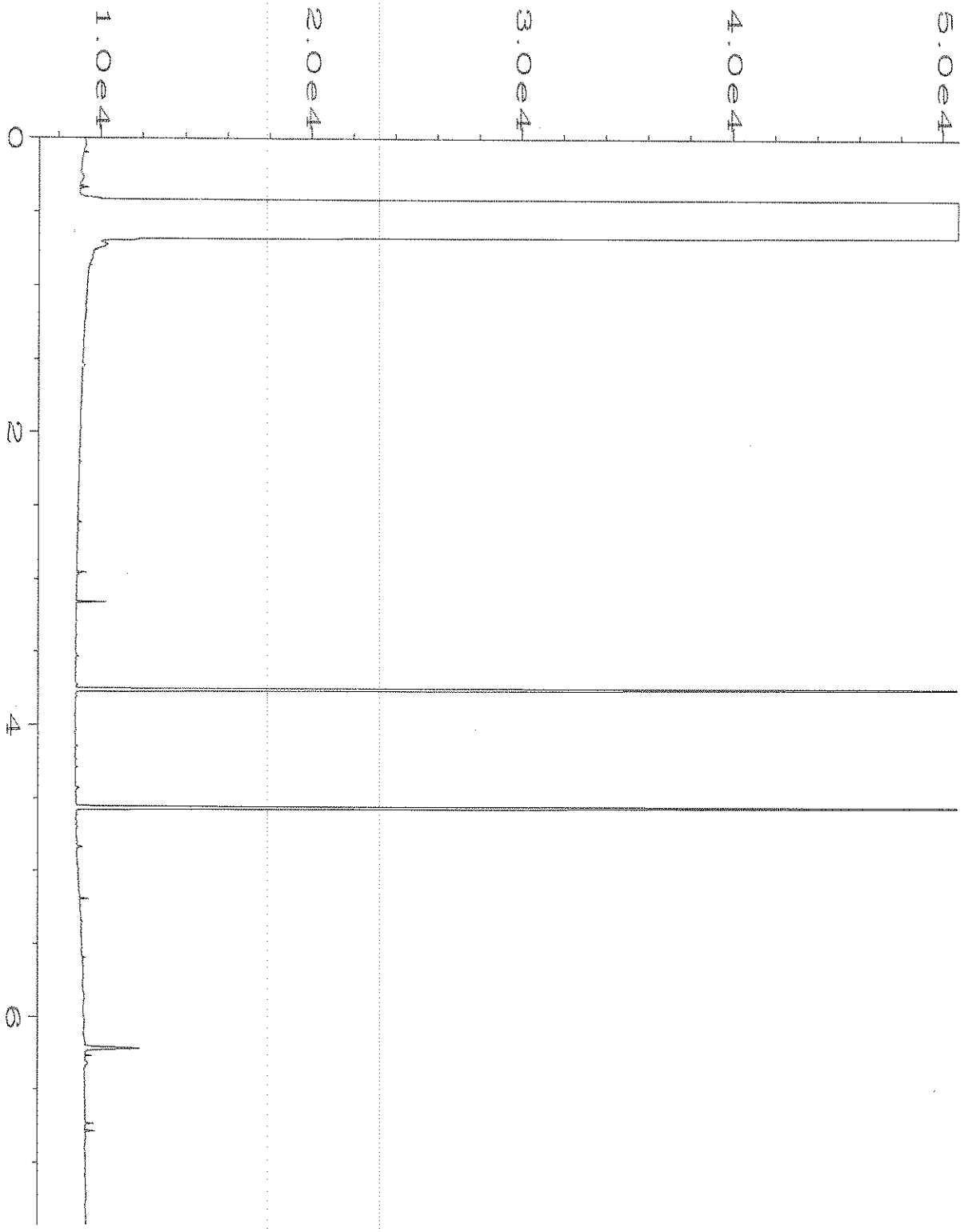
Data File Name : C:\HPCHEM\1\DATA\09-14-21\032F0501.D
Operator : TL
Instrument : GC1
Sample Name : 109186-03
Run Time Bar Code:
Acquired on : 14 Sep 21 01:24 PM
Report Created on: 15 Sep 21 11:47 AM

Page Number : 1
Vial Number : 32
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



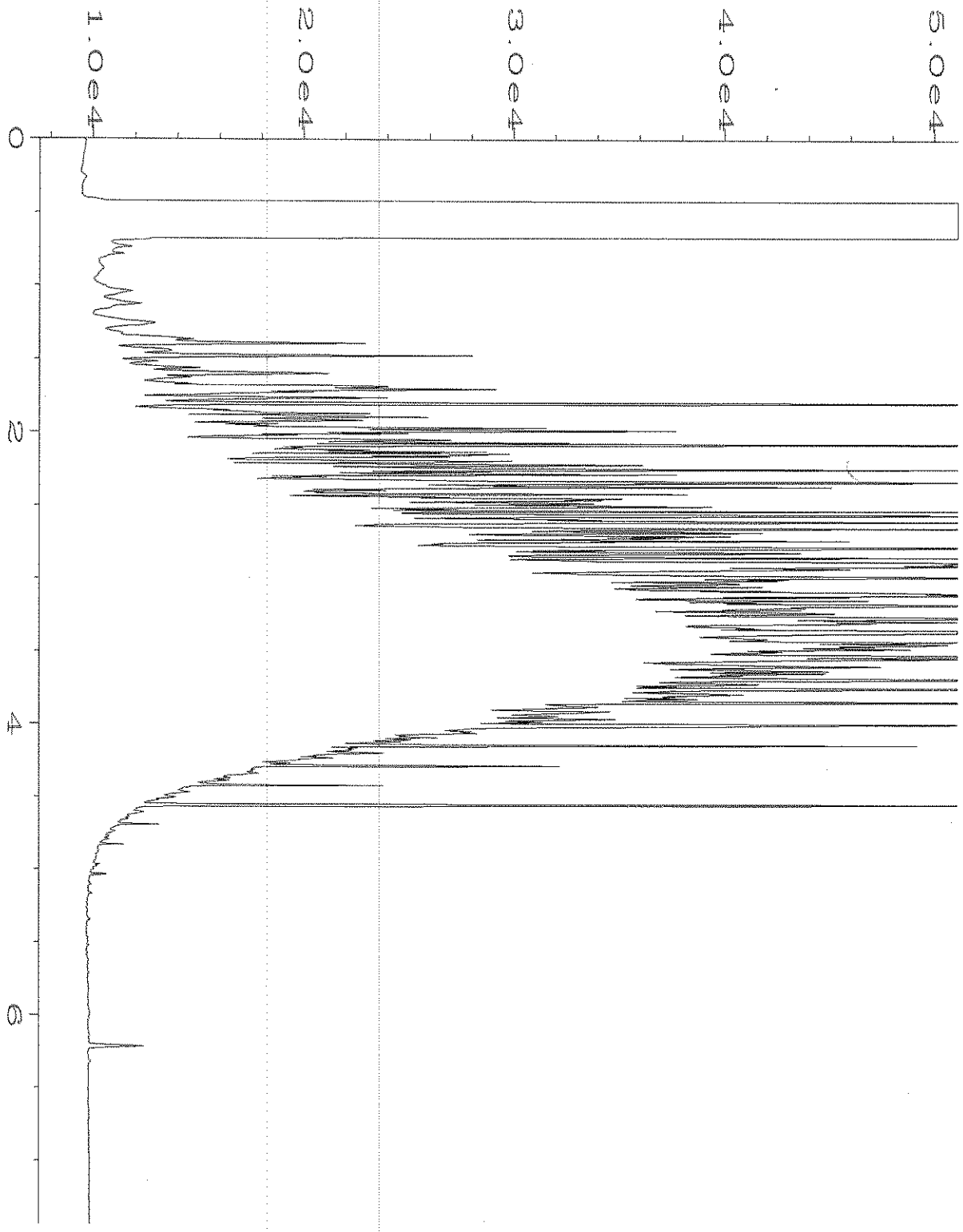
Data File Name : C:\HPCHEM\1\DATA\09-14-21\034F0901.D
Operator : TL
Instrument : GC1
Sample Name : 109186-05
Run Time Bar Code:
Acquired on : 14 Sep 21 02:52 PM
Report Created on: 15 Sep 21 11:47 AM

Page Number : 1
Vial Number : 34
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\1\DATA\09-14-21\020F0501.D
Operator : TL
Instrument : GC1
Sample Name : 01-2102 mb
Run Time Bar Code:
Acquired on : 14 Sep 21 11:07 AM
Report Created on: 15 Sep 21 11:46 AM

Page Number : 1
Vial Number : 20
Injection Number : 1
Sequence Line : 5
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\1\DATA\09-14-21\003F0201.D
Operator : TL
Instrument : GC1
Sample Name : 500 Dx 63-79C
Run Time Bar Code:
Acquired on : 14 Sep 21 06:02 AM
Report Created on: 15 Sep 21 11:45 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

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

June 28, 2017

Jason Cass, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

Dear Mr Cass:

Included are the results from the testing of material submitted on June 19, 2017 from the Buckley Library, PO 10949, F&BI 706301 project. There are 11 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Stephanie Bolton, Kurt Easthouse, Mike Brady
EHS0628R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 19, 2017 by Friedman & Bruya, Inc. from the EHSI Buckley Library, PO 10949, F&BI 706301 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EHSI
706301 -01	BLSG-1
706301 -02	BLSG-2

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	BLSG-1	Client:	EHSI
Date Received:	06/19/17	Project:	Buckley Library, PO 10949
Date Collected:	06/19/17	Lab ID:	706301-01 1/2.5
Date Analyzed:	06/23/17	Data File:	062218.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	660
APH EC9-12 aliphatics	620
APH EC9-10 aromatics	<120

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	BLSG-2	Client:	EHSI
Date Received:	06/19/17	Project:	Buckley Library, PO 10949
Date Collected:	06/19/17	Lab ID:	706301-02 1/2.5
Date Analyzed:	06/23/17	Data File:	062219.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	530
APH EC9-12 aliphatics	630
APH EC9-10 aromatics	<120

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library, PO 10949
Date Collected:	Not Applicable	Lab ID:	07-1294 mb
Date Analyzed:	06/22/17	Data File:	062207.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<46
APH EC9-12 aliphatics	<70
APH EC9-10 aromatics	<50

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	BLSG-1	Client:	EHSI
Date Received:	06/19/17	Project:	Buckley Library, PO 10949
Date Collected:	06/19/17	Lab ID:	706301-01 1/2.5
Date Analyzed:	06/23/17	Data File:	062218.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	1.4	0.39	1-Butanol	<15	<5
Propene	<1.7	<1	Carbon tetrachloride	<1.6	<0.25
Dichlorodifluoromethane	2.7	0.55	Benzene	1.6	0.49
Chloromethane	2.9	1.4	Cyclohexane	<17	<5
F-114	<1.7	<0.25	2-Pentanone	<8.8	<2.5
Isobutene	<2.3	<1	3-Pentanone	<8.8	<2.5
Acetaldehyde	32	18	Pentanal	<8.8	<2.5
Vinyl chloride	<0.64	<0.25	1,2-Dichloropropane	<1.2	<0.25
1,3-Butadiene	0.76	0.34	1,4-Dioxane	<0.9	<0.25
Bromomethane	<0.97	<0.25	Bromodichloromethane	<1.7	<0.25
Chloroethane	<0.66	<0.25	Trichloroethene	<1.3	<0.25
Ethanol	21	11	cis-1,3-Dichloropropene	<1.1	<0.25
Acetonitrile	<4.2	<2.5	4-Methyl-2-pentanone	<10	<2.5
Acrolein	<2.3	<1	trans-1,3-Dichloropropene	<1.1	<0.25
Acrylonitrile	<0.54	<0.25	Toluene	9.2	2.4
Pentane	<7.4	<2.5	1,1,2-Trichloroethane	<1.4	<0.25
Trichlorofluoromethane	7.4	1.3	3-Hexanone	<10	<2.5
Acetone	20	8.3	2-Hexanone	<10	<2.5
2-Propanol	34	14	Hexanal	<10	<2.5
Isoprene	<0.7	<0.25	Tetrachloroethene	<1.7	<0.25
Iodomethane	<1.5	<0.25	Dibromochloromethane	<2.1	<0.25
1,1-Dichloroethene	<0.99	<0.25	1,2-Dibromoethane (EDB)	<1.9	<0.25
Methacrolein	<7.2	<2.5	Chlorobenzene	<1.2	<0.25
trans-1,2-Dichloroethene	2.3	0.58	Ethylbenzene	2.1	0.48
Cyclopentane	<0.72	<0.25	1,1,2,2-Tetrachloroethane	<1.7	<0.25
Methyl vinyl ketone	<2.9	<1	m,p-Xylene	4.0	0.93
Butanal	<7.4	<2.5	o-Xylene	2.2	0.51
Methylene chloride	<220	<62	Styrene	<2.1	<0.5
CFC-113	<1.9	<0.25	Bromoform	<5.2	<0.5
Carbon disulfide	<16	<5	Benzyl chloride	<1.3	<0.25
Methyl t-butyl ether	<4.5	<1.2	1,3,5-Trimethylbenzene	<6.1	<1.2
Vinyl acetate	<18	<5	1,2,4-Trimethylbenzene	<6.1	<1.2
1,1-Dichloroethane	<1	<0.25	1,3-Dichlorobenzene	3.2	0.53
cis-1,2-Dichloroethene	<0.99	<0.25	1,4-Dichlorobenzene	<1.5	<0.25
Hexane	9.5	2.7	1,2,3-Trimethylbenzene	<6.1	<1.2
Chloroform	13	2.8	1,2-Dichlorobenzene	<3	<0.5
2-Butanone (MEK)	<7.4	<2.5	1,2,4-Trichlorobenzene	<1.9	<0.25
1,2-Dichloroethane (EDC)	<1	<0.25	Naphthalene	1.8	0.34
1,1,1-Trichloroethane	<1.4	<0.25	Hexachlorobutadiene	<2.7	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	BLSG-2	Client:	EHSI
Date Received:	06/19/17	Project:	Buckley Library, PO 10949
Date Collected:	06/19/17	Lab ID:	706301-02 1/2.5
Date Analyzed:	06/23/17	Data File:	062219.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	1.3	0.36	1-Butanol	<15	<5
Propene	<1.7	<1	Carbon tetrachloride	<1.6	<0.25
Dichlorodifluoromethane	2.7	0.55	Benzene	1.0	0.32
Chloromethane	0.54	0.26	Cyclohexane	<17	<5
F-114	<1.7	<0.25	2-Pentanone	<8.8	<2.5
Isobutene	3.1	1.3	3-Pentanone	<8.8	<2.5
Acetaldehyde	44	25	Pentanal	<8.8	<2.5
Vinyl chloride	<0.64	<0.25	1,2-Dichloropropane	<1.2	<0.25
1,3-Butadiene	<0.55	<0.25	1,4-Dioxane	<0.9	<0.25
Bromomethane	<0.97	<0.25	Bromodichloromethane	<1.7	<0.25
Chloroethane	<0.66	<0.25	Trichloroethene	<1.3	<0.25
Ethanol	<19	<10	cis-1,3-Dichloropropene	<1.1	<0.25
Acetonitrile	<4.2	<2.5	4-Methyl-2-pentanone	<10	<2.5
Acrolein	<2.3	<1	trans-1,3-Dichloropropene	<1.1	<0.25
Acrylonitrile	<0.54	<0.25	Toluene	6.8	1.8
Pentane	<7.4	<2.5	1,1,2-Trichloroethane	<1.4	<0.25
Trichlorofluoromethane	2.0	0.35	3-Hexanone	<10	<2.5
Acetone	22	9.4	2-Hexanone	<10	<2.5
2-Propanol	23	9.4	Hexanal	<10	<2.5
Isoprene	<0.7	<0.25	Tetrachloroethene	<1.7	<0.25
Iodomethane	<1.5	<0.25	Dibromochloromethane	<2.1	<0.25
1,1-Dichloroethene	<0.99	<0.25	1,2-Dibromoethane (EDB)	<1.9	<0.25
Methacrolein	<7.2	<2.5	Chlorobenzene	<1.2	<0.25
trans-1,2-Dichloroethene	1.8	0.46	Ethylbenzene	<1.1	<0.25
Cyclopentane	<0.72	<0.25	1,1,2,2-Tetrachloroethane	<1.7	<0.25
Methyl vinyl ketone	<2.9	<1	m,p-Xylene	2.8	0.64
Butanal	<7.4	<2.5	o-Xylene	1.3	0.30
Methylene chloride	<220	<62	Styrene	<2.1	<0.5
CFC-113	<1.9	<0.25	Bromoform	<5.2	<0.5
Carbon disulfide	<16	<5	Benzyl chloride	<1.3	<0.25
Methyl t-butyl ether	<4.5	<1.2	1,3,5-Trimethylbenzene	<6.1	<1.2
Vinyl acetate	<18	<5	1,2,4-Trimethylbenzene	<6.1	<1.2
1,1-Dichloroethane	<1	<0.25	1,3-Dichlorobenzene	7.5	1.2
cis-1,2-Dichloroethene	<0.99	<0.25	1,4-Dichlorobenzene	<1.5	<0.25
Hexane	<8.8	<2.5	1,2,3-Trimethylbenzene	<6.1	<1.2
Chloroform	14	2.8	1,2-Dichlorobenzene	<3	<0.5
2-Butanone (MEK)	<7.4	<2.5	1,2,4-Trichlorobenzene	<1.9	<0.25
1,2-Dichloroethane (EDC)	<1	<0.25	Naphthalene	<1.3	<0.25
1,1,1-Trichloroethane	<1.4	<0.25	Hexachlorobutadiene	<2.7	<0.25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library, PO 10949
Date Collected:	Not Applicable	Lab ID:	07-1294 mb
Date Analyzed:	06/22/17	Data File:	062207.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MP

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<0.35	<0.1	1-Butanol	<6.1	<2
Propene	<0.69	<0.4	Carbon tetrachloride	<0.63	<0.1
Dichlorodifluoromethane	<0.49	<0.1	Benzene	<0.32	<0.1
Chloromethane	<0.21	<0.1	Cyclohexane	<6.9	<2
F-114	<0.7	<0.1	2-Pentanone	<3.5	<1
Isobutene	<0.92	<0.4	3-Pentanone	<3.5	<1
Acetaldehyde	<9	<5	Pentanal	<3.5	<1
Vinyl chloride	<0.26	<0.1	1,2-Dichloropropane	<0.46	<0.1
1,3-Butadiene	<0.22	<0.1	1,4-Dioxane	<0.36	<0.1
Bromomethane	<0.39	<0.1	Bromodichloromethane	<0.67	<0.1
Chloroethane	<0.26	<0.1	Trichloroethene	<0.54	<0.1
Ethanol	<7.5	<4	cis-1,3-Dichloropropene	<0.45	<0.1
Acetonitrile	<1.7	<1	4-Methyl-2-pentanone	<4.1	<1
Acrolein	<0.92	<0.4	trans-1,3-Dichloropropene	<0.45	<0.1
Acrylonitrile	<0.22	<0.1	Toluene	<0.38	<0.1
Pentane	<3	<1	1,1,2-Trichloroethane	<0.55	<0.1
Trichlorofluoromethane	<0.56	<0.1	3-Hexanone	<4.1	<1
Acetone	<4.8	<2	2-Hexanone	<4.1	<1
2-Propanol	<8.6	<3.5	Hexanal	<4.1	<1
Isoprene	<0.28	<0.1	Tetrachloroethene	<0.68	<0.1
Iodomethane	<0.58	<0.1	Dibromochloromethane	<0.85	<0.1
1,1-Dichloroethene	<0.4	<0.1	1,2-Dibromoethane (EDB)	<0.77	<0.1
Methacrolein	<2.9	<1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Cyclopentane	<0.29	<0.1	1,1,2,2-Tetrachloroethane	<0.69	<0.1
Methyl vinyl ketone	<1.1	<0.4	m,p-Xylene	<0.87	<0.2
Butanal	<2.9	<1	o-Xylene	<0.43	<0.1
Methylene chloride	<87	<25	Styrene	<0.85	<0.2
CFC-113	<0.77	<0.1	Bromoform	<2.1	<0.2
Carbon disulfide	<6.2	<2	Benzyl chloride	<0.52	<0.1
Methyl t-butyl ether	<1.8	<0.5	1,3,5-Trimethylbenzene	<2.5	<0.5
Vinyl acetate	<7	<2	1,2,4-Trimethylbenzene	<2.5	<0.5
1,1-Dichloroethane	<0.4	<0.1	1,3-Dichlorobenzene	<1.2	<0.2
cis-1,2-Dichloroethene	<0.4	<0.1	1,4-Dichlorobenzene	<0.6	<0.1
Hexane	<3.5	<1	1,2,3-Trimethylbenzene	<2.5	<0.5
Chloroform	<0.49	<0.1	1,2-Dichlorobenzene	<1.2	<0.2
2-Butanone (MEK)	<2.9	<1	1,2,4-Trichlorobenzene	<0.74	<0.1
1,2-Dichloroethane (EDC)	<0.4	<0.1	Naphthalene	<0.52	<0.1
1,1,1-Trichloroethane	<0.55	<0.1	Hexachlorobutadiene	<1.1	<0.1

Date of Report: 06/28/17
Date Received: 06/19/17
Project: Buckley Library, PO 10949, F&BI 706301

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD APH

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
APH EC5-8 aliphatics	ug/m3	230	88	70-130
APH EC9-12 aliphatics	ug/m3	350	100	70-130
APH EC9-10 aromatics	ug/m3	251	98	70-130

Date of Report: 06/28/17
Date Received: 06/19/17
Project: Buckley Library, PO 10949, F&BI 706301

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chlorodifluoromethane	ppbv	10	103	70-130
Propene	ppbv	10	94	70-130
Dichlorodifluoromethane	ppbv	10	104	70-130
Chloromethane	ppbv	10	108	70-130
F-114	ppbv	10	111	70-130
Isobutene	ppbv	10	108	70-130
Acetaldehyde	ppbv	10	109	70-130
Vinyl chloride	ppbv	10	111	70-130
1,3-Butadiene	ppbv	10	110	70-130
Bromomethane	ppbv	10	108	70-130
Chloroethane	ppbv	10	114	70-130
Ethanol	ppbv	10	108	70-130
Acetonitrile	ppbv	10	114	70-130
Acrolein	ppbv	10	107	70-130
Acrylonitrile	ppbv	10	102	70-130
Pentane	ppbv	10	103	70-130
Trichlorofluoromethane	ppbv	10	105	70-130
Acetone	ppbv	10	98	70-130
2-Propanol	ppbv	10	103	70-130
Isoprene	ppbv	10	103	70-130
Iodomethane	ppbv	10	104	70-130
1,1-Dichloroethene	ppbv	10	102	70-130
Methacrolein	ppbv	10	102	70-130
trans-1,2-Dichloroethene	ppbv	10	106	70-130
Cyclopentane	ppbv	10	99	70-130
Methyl Vinyl Ketone	ppbv	10	94	70-130
Butanal	ppbv	10	104	70-130
Methylene chloride	ppbv	10	86	70-130
CFC-113	ppbv	10	104	70-130
Carbon disulfide	ppbv	10	104	70-130
Methyl t-butyl ether	ppbv	10	99	70-130
Vinyl acetate	ppbv	10	104	70-130
1,1-Dichloroethane	ppbv	10	106	70-130
cis-1,2-Dichloroethene	ppbv	10	105	70-130
Hexane	ppbv	10	100	70-130
Chloroform	ppbv	10	107	70-130
2-Butanone (MEK)	ppbv	10	100	70-130
1,2-Dichloroethane (EDC)	ppbv	10	107	70-130
1,1,1-Trichloroethane	ppbv	10	105	70-130
1-Butanol	ppbv	10	106	70-130
Carbon tetrachloride	ppbv	10	103	70-130

Date of Report: 06/28/17
Date Received: 06/19/17
Project: Buckley Library, PO 10949, F&BI 706301

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ppbv	10	104	70-130
Cyclohexane	ppbv	10	103	70-130
2-Pentanone	ppbv	10	106	70-130
3-Pentanone	ppbv	10	108	70-130
Pentanal	ppbv	10	97	70-130
1,2-Dichloropropane	ppbv	10	102	70-130
1,4-Dioxane	ppbv	10	102	70-130
Bromodichloromethane	ppbv	10	105	70-130
Trichloroethene	ppbv	10	102	70-130
cis-1,3-Dichloropropene	ppbv	10	105	70-130
4-Methyl-2-pentanone	ppbv	10	98	70-130
trans-1,3-Dichloropropene	ppbv	10	105	70-130
Toluene	ppbv	10	101	70-130
1,1,2-Trichloroethane	ppbv	10	101	70-130
3-Hexanone	ppbv	10	100	70-130
2-Hexanone	ppbv	10	107	70-130
Hexanal	ppbv	10	101	70-130
Tetrachloroethene	ppbv	10	102	70-130
Dibromochloromethane	ppbv	10	103	70-130
1,2-Dibromoethane (EDB)	ppbv	10	100	70-130
Chlorobenzene	ppbv	10	105	70-130
Ethylbenzene	ppbv	10	104	70-130
1,1,2,2,-Tetrachloroethane	ppbv	10	107	70-130
m,p-Xylene	ppbv	20	100	70-130
o-Xylene	ppbv	10	98	70-130
Styrene	ppbv	10	99	70-130
Bromoform	ppbv	10	101	70-130
Benzyl chloride	ppbv	10	110	70-130
1,3,5-Trimethylbenzene	ppbv	10	108	70-130
1,2,4-Trimethylbenzene	ppbv	10	107	70-130
1,3-Dichlorobenzene	ppbv	10	107	70-130
1,4-Dichlorobenzene	ppbv	10	107	70-130
1,2,3-Trimethylbenzene	ppbv	10	103	70-130
1,2-Dichlorobenzene	ppbv	10	106	70-130
1,2,4-Trichlorobenzene	ppbv	10	103	70-130
Naphthalene	ppbv	10	110	70-130
Hexachlorobutadiene	ppbv	10	101	70-130

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound 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. Compounds in the sample matrix interfered with the quantitation of the analyte.

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.

706301

SAMPLE CHAIN OF CUSTODY

ME 06/19/17

Page 1 of 1

Report To Jason Cass

Company EHSI

Address 1011 SW Klickitat Way, #104

City, State, ZIP Seattle, WA 98134

Phone (206) 381-1128 Email

SAMPLERS (signature) Jason Cass

PROJECT NAME: Buckley Library

PO #: 10949

REMARKS: ~~with call with direction~~

INVOICE TO

TURNAROUND TIME
- [x] Standard
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [x] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	TO-15 BTEXN	TO-15 cVOCs	APH	Notes
BLSG-1	01	FB03		6/19/17	27	13:50	4	14:01	X			X	X - per JC 6/20/17
BLSG-2	02	FB103		6/19/17	28	14:47	4	14:55	X			X	MG

Samples received at 23 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Jason Cass	Jason Cass	EHSI	6/19/17	16:40
Received by: Jon Shimazu	Jon Shimazu	FB&I	6	6
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
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

November 4, 2019

Mike Brady, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

Dear Mr Brady:

Included are the results from the testing of material submitted on October 16, 2019 from the Buckley Library RI/FS 11101, F&BI 910332 project. There are 18 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: EHSI A/P, Kurt Easthouse
EHS1104R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 16, 2019 by Friedman & Bruya, Inc. from the EHSI Buckley Library RI/FS 11101, F&BI 910332 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EHSI
910332 -01	Outdoor Air
910332 -02	VP1
910332 -03	VP2
910332 -04	VP4
910332 -05	VP5
910332 -06	VP6

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	Outdoor Air	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library RI/FS 11101, F&BI 910332
Date Collected:	10/15/19	Lab ID:	910332-01 1/1.4
Date Analyzed:	10/29/19	Data File:	102817.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	107	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<64
APH EC9-12 aliphatics	<49
APH EC9-10 aromatics	<35

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP1	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library RI/FS 11101, F&BI 910332
Date Collected:	10/15/19	Lab ID:	910332-02 1/3.3
Date Analyzed:	10/29/19	Data File:	102818.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	81	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	270
APH EC9-12 aliphatics	260
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP2	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library RI/FS 11101, F&BI 910332
Date Collected:	10/15/19	Lab ID:	910332-03 1/3.1
Date Analyzed:	10/29/19	Data File:	102819.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	78	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	330
APH EC9-12 aliphatics	300
APH EC9-10 aromatics	<77

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP4	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library RI/FS 11101, F&BI 910332
Date Collected:	10/15/19	Lab ID:	910332-04 1/3.3
Date Analyzed:	10/29/19	Data File:	102820.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	103	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	160
APH EC9-12 aliphatics	370
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP5	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library RI/FS 11101, F&BI 910332
Date Collected:	10/15/19	Lab ID:	910332-05 1/3.0
Date Analyzed:	10/29/19	Data File:	102821.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	86	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	340
APH EC9-12 aliphatics	400
APH EC9-10 aromatics	<75

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP6	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library RI/FS 11101, F&BI 910332
Date Collected:	10/15/19	Lab ID:	910332-06 1/3.4
Date Analyzed:	10/29/19	Data File:	102822.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	81	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	1,500
APH EC9-12 aliphatics	430
APH EC9-10 aromatics	<85

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library RI/FS 11101, F&BI 910332
Date Collected:	Not Applicable	Lab ID:	09-2574 mb
Date Analyzed:	10/28/19	Data File:	102812.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	104	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<46
APH EC9-12 aliphatics	<35
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Outdoor Air	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library RI/FS 11101, F&BI 910332
Date Collected:	10/15/19	Lab ID:	910332-01 1/1.4
Date Analyzed:	10/29/19	Data File:	102817.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	108	70	130

Compounds:	Concentration ug/m3	ppbv
Benzene	<0.45	<0.14
Toluene	<27	<7
Ethylbenzene	<0.61	<0.14
m,p-Xylene	<1.2	<0.28
o-Xylene	<0.61	<0.14
Naphthalene	0.14 j	0.027 j

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP1	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library RI/FS 11101, F&BI 910332
Date Collected:	10/15/19	Lab ID:	910332-02 1/3.3
Date Analyzed:	10/29/19	Data File:	102818.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<1.1	<0.33
Toluene	<63	<17
Ethylbenzene	<1.4	<0.33
m,p-Xylene	2.9	0.67
o-Xylene	<1.4	<0.33
Naphthalene	<0.86	<0.16

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP2	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library RI/FS 11101, F&BI 910332
Date Collected:	10/15/19	Lab ID:	910332-03 1/3.1
Date Analyzed:	10/29/19	Data File:	102819.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	79	70	130

Compounds:	Concentration ug/m3	ppbv
Benzene	<0.99	<0.31
Toluene	<59	<16
Ethylbenzene	1.7	0.39
m,p-Xylene	4.4	1.0
o-Xylene	1.7	0.39
Naphthalene	<0.81	<0.15

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP4	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library RI/FS 11101, F&BI 910332
Date Collected:	10/15/19	Lab ID:	910332-04 1/3.3
Date Analyzed:	10/29/19	Data File:	102820.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	104	70	130

Compounds:	Concentration ug/m3	ppbv
Benzene	<1.1	<0.33
Toluene	<63	<17
Ethylbenzene	<1.4	<0.33
m,p-Xylene	3.3	0.76
o-Xylene	<1.4	<0.33
Naphthalene	<0.86	<0.16

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP5	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library RI/FS 11101, F&BI 910332
Date Collected:	10/15/19	Lab ID:	910332-05 1/3.0
Date Analyzed:	10/29/19	Data File:	102821.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	87	70	130

Compounds:	Concentration ug/m3	ppbv
Benzene	0.98	0.31
Toluene	<57	<15
Ethylbenzene	1.5	0.34
m,p-Xylene	4.6	1.1
o-Xylene	2.1	0.48
Naphthalene	<0.79	<0.15

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP6	Client:	EHSI
Date Received:	10/16/19	Project:	Buckley Library RI/FS 11101, F&BI 910332
Date Collected:	10/15/19	Lab ID:	910332-06 1/3.4
Date Analyzed:	10/29/19	Data File:	102822.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	6.1	1.9
Toluene	<65	<14
Ethylbenzene	4.0	0.93
m,p-Xylene	12	2.8
o-Xylene	3.6	0.84
Naphthalene	<0.89	<0.17

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library RI/FS 11101, F&BI 910332
Date Collected:	Not Applicable	Lab ID:	09-2574 mb
Date Analyzed:	10/28/19	Data File:	102812.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	105	70	130

Compounds:	Concentration ug/m3	ppbv
Benzene	<0.32	<0.1
Toluene	<19	<5
Ethylbenzene	<0.43	<0.1
m,p-Xylene	<0.87	<0.2
o-Xylene	<0.43	<0.1
Naphthalene	0.079 j	0.015 j

Date of Report: 11/04/19
Date Received: 10/16/19
Project: Buckley Library RI/FS 11101, F&BI 910332

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD MA-APH

Laboratory Code: 910332-06 1/3.4 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
APH EC5-8 aliphatics	ug/m3	1,500	1,500	0
APH EC9-12 aliphatics	ug/m3	430	430	0
APH EC9-10 aromatics	ug/m3	<85	<85	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
APH EC5-8 aliphatics	ug/m3	23	72	70-130
APH EC9-12 aliphatics	ug/m3	23	99	70-130
APH EC9-10 aromatics	ug/m3	23	105	70-130

Date of Report: 11/04/19
Date Received: 10/16/19
Project: Buckley Library RI/FS 11101, F&BI 910332

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ppbv	5	88	70-130
Toluene	ppbv	5	92	70-130
Ethylbenzene	ppbv	5	90	70-130
m,p-Xylene	ppbv	10	89	70-130
o-Xylene	ppbv	5	88	70-130
Naphthalene	ppbv	5	85	70-130

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

910332

SAMPLE CHAIN OF CUSTODY ME 10-16-19

Page # 1 of 1

Report To MIKE, KURI
Company EHSI
Address 1011 SW Klickitat Wy
City, State, ZIP Seattle WA
Phone 2063811128 Email

SAMPLERS (signature)

PROJECT NAME: BUCKLEY LIBRARY RI/FS
PO #: 11101

REPORTING LEVEL
☐ Indoor Air ☐ Deep Soil Gas
☐ Sub Slab/Soil Gas ☐ SVE/Grab

INVOICE TO

TURNAROUND TIME
☒ Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Archive Samples
☐ Other

ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	TO-15 BTEXN	TO-15 cVOCs	MA-APH	Notes
OUTDOOR AIR	01	20541	08182	10/15	-27.5	925	-13,75	14:25		X		X	
VP1	02	3311	106		-27.5	10:25	-4	10:30		X		X	
VP2	03	2298	101		-29	10:53	-4	10:58		X		X	
VP4	04	2304	117		-28	11:40	-4	11:45		X		X	
VP5	05	3432	102		-30	12:41	-4	12:46		X		X	
VP6	06	2434	109		-28	13:10	-4	13:15		X		X	
													Samples received at 20 °C

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	MIKE BRADY	EHSI	10/16	10:25
Received by:	Nhan Phan	FCBI	10/16/19	10:25
Relinquished by:				
Received by:				

FORMS\COC\COCTO-15.DOC

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 18, 2020

Jen Moore, Project Manager
EHSI
1011 SW Klickitat Way, Suite 104
Seattle, WA 98134

Dear Ms Moore:

Included are the results from the testing of material submitted on December 10, 2020 from the Buckley Library PO 11101-04, F&BI 012176 project. There are 16 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: EHSI A/P, Ryan Opitz, Jason Cass
EHS1218R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on December 10, 2020 by Friedman & Bruya, Inc. from the EHSI Buckley Library PO 11101-04, F&BI 012176 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EHSI
012176 -01	VPN-1
012176 -02	VP1
012176 -03	VP2
012176 -04	VP3
012176 -05	VP4

Non-petroleum compounds identified in the air phase hydrocarbon (APH) ranges were subtracted per the MA-APH method.

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VPN-1	Client:	EHSI
Date Received:	12/10/20	Project:	Buckley Library PO 11101-04
Date Collected:	12/10/20	Lab ID:	012176-01 1/5.3
Date Analyzed:	12/15/20	Data File:	121521.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	370
APH EC9-12 aliphatics	1,000
APH EC9-10 aromatics	<130

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP1	Client:	EHSI
Date Received:	12/10/20	Project:	Buckley Library PO 11101-04
Date Collected:	12/10/20	Lab ID:	012176-02 1/5.5
Date Analyzed:	12/15/20	Data File:	121523.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	101	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<220
APH EC9-12 aliphatics	420
APH EC9-10 aromatics	<140

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP2	Client:	EHSI
Date Received:	12/10/20	Project:	Buckley Library PO 11101-04
Date Collected:	12/10/20	Lab ID:	012176-03 1/5.0
Date Analyzed:	12/15/20	Data File:	121524.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<200
APH EC9-12 aliphatics	340
APH EC9-10 aromatics	<120

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP3	Client:	EHSI
Date Received:	12/10/20	Project:	Buckley Library PO 11101-04
Date Collected:	12/10/20	Lab ID:	012176-04 1/5.1
Date Analyzed:	12/16/20	Data File:	121525.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	118	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<200
APH EC9-12 aliphatics	310
APH EC9-10 aromatics	<130

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP4	Client:	EHSI
Date Received:	12/10/20	Project:	Buckley Library PO 11101-04
Date Collected:	12/10/20	Lab ID:	012176-05 1/5.3
Date Analyzed:	12/16/20	Data File:	121526.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<210
APH EC9-12 aliphatics	350
APH EC9-10 aromatics	<130

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library PO 11101-04
Date Collected:	Not Applicable	Lab ID:	00-2823 MB
Date Analyzed:	12/15/20	Data File:	121520.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<40
APH EC9-12 aliphatics	<50
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VPN-1	Client:	EHSI
Date Received:	12/10/20	Project:	Buckley Library PO 11101-04
Date Collected:	12/10/20	Lab ID:	012176-01 1/5.3
Date Analyzed:	12/15/20	Data File:	121521.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	93	70	130

Compounds:	Concentration ug/m3	ppbv
Benzene	<1.7	<0.53
Toluene	<100	<26
Ethylbenzene	<2.3	<0.53
m,p-Xylene	<4.6	<1.1
o-Xylene	<2.3	<0.53
Naphthalene	<1.4	<0.26

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP1	Client:	EHSI
Date Received:	12/10/20	Project:	Buckley Library PO 11101-04
Date Collected:	12/10/20	Lab ID:	012176-02 1/5.5
Date Analyzed:	12/15/20	Data File:	121523.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	103	70	130

Compounds:	Concentration ug/m3	ppbv
Benzene	<1.8	<0.55
Toluene	<100	<27
Ethylbenzene	<2.4	<0.55
m,p-Xylene	<4.8	<1.1
o-Xylene	<2.4	<0.55
Naphthalene	<1.4	<0.28

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP2	Client:	EHSI
Date Received:	12/10/20	Project:	Buckley Library PO 11101-04
Date Collected:	12/10/20	Lab ID:	012176-03 1/5.0
Date Analyzed:	12/15/20	Data File:	121524.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	94	70	130

Compounds:	Concentration ug/m3	ppbv
Benzene	<1.6	<0.5
Toluene	<94	<25
Ethylbenzene	<2.2	<0.5
m,p-Xylene	<4.3	<1
o-Xylene	<2.2	<0.5
Naphthalene	<1.3	<0.25

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP3	Client:	EHSI
Date Received:	12/10/20	Project:	Buckley Library PO 11101-04
Date Collected:	12/10/20	Lab ID:	012176-04 1/5.1
Date Analyzed:	12/16/20	Data File:	121525.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	121	70	130

Compounds:	Concentration ug/m3	ppbv
Benzene	<1.6	<0.51
Toluene	<96	<25
Ethylbenzene	<2.2	<0.51
m,p-Xylene	<4.4	<1
o-Xylene	<2.2	<0.51
Naphthalene	<1.3	<0.25

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP4	Client:	EHSI
Date Received:	12/10/20	Project:	Buckley Library PO 11101-04
Date Collected:	12/10/20	Lab ID:	012176-05 1/5.3
Date Analyzed:	12/16/20	Data File:	121526.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3	ppbv
Benzene	<1.7	<0.53
Toluene	<100	<26
Ethylbenzene	<2.3	<0.53
m,p-Xylene	<4.6	<1.1
o-Xylene	<2.3	<0.53
Naphthalene	<1.4	<0.26

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	EHSI
Date Received:	Not Applicable	Project:	Buckley Library PO 11101-04
Date Collected:	Not Applicable	Lab ID:	00-2823 MB
Date Analyzed:	12/15/20	Data File:	121520.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3	ppbv
Benzene	<0.32	<0.1
Toluene	<19	<5
Ethylbenzene	<0.43	<0.1
m,p-Xylene	<0.87	<0.2
o-Xylene	<0.43	<0.1
Naphthalene	<0.26	<0.05

Date of Report: 12/18/20
Date Received: 12/10/20
Project: Buckley Library PO 11101-04, F&BI 012176

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD MA-APH

Laboratory Code: 012176-01 1/5.3 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
APH EC5-8 aliphatics	ug/m3	370	500	30
APH EC9-12 aliphatics	ug/m3	1,000	850	16
APH EC9-10 aromatics	ug/m3	<130	<130	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
APH EC5-8 aliphatics	ug/m3	67	82	70-130
APH EC9-12 aliphatics	ug/m3	67	113	70-130
APH EC9-10 aromatics	ug/m3	67	112	70-130

Date of Report: 12/18/20
Date Received: 12/10/20
Project: Buckley Library PO 11101-04, F&BI 012176

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

Laboratory Code: 012176-01 1/5.3 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Benzene	ug/m3	<1.7	<1.7	nm
Toluene	ug/m3	<100	<100	nm
Ethylbenzene	ug/m3	<2.3	<2.3	nm
m,p-Xylene	ug/m3	<4.6	<4.6	nm
o-Xylene	ug/m3	<2.3	<2.3	nm
Naphthalene	ug/m3	<1.4	<1.4	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/m3	43	109	70-130
Toluene	ug/m3	51	79	70-130
Ethylbenzene	ug/m3	59	95	70-130
m,p-Xylene	ug/m3	120	100	70-130
o-Xylene	ug/m3	59	98	70-130
Naphthalene	ug/m3	71	103	70-130

Data Qualifiers & Definitions

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

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

ca - The calibration results for the analyte were outside of acceptance criteria. 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.

012176

SAMPLE CHAIN OF CUSTODY ME 12-10-20

Report To Jen/Jason/Ryan
Company EHSI
Address 1101 SW Klickitat Way, 104
City, State, ZIP Seattle
Phone 206-321-8222 Email

SAMPLERS (*signature*)

PROJECT NAME & ADDRESS: Buckley Library
PO #: 1101-04

NOTES:

INVOICE TO

TURNAROUND TIME
☒ Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Default: Clean after 3 days
☐ Archive (Fee may apply)

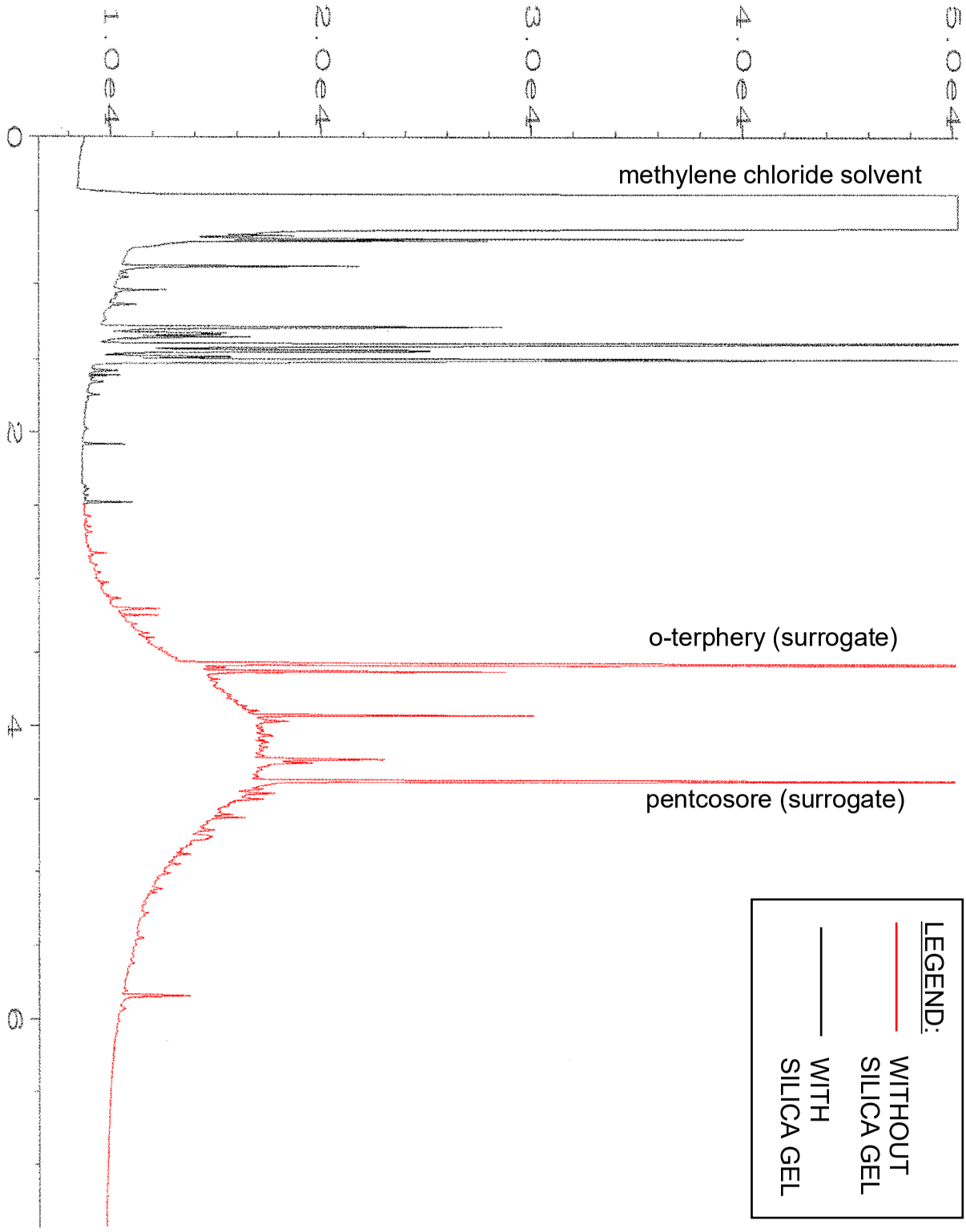
SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium	~~APH~~ MA-APH	Notes
VPN-1	01	3378	243	IA / (SG)	12/10/20	30.0	8:50	4.0	8:56		X				X	Short list
VP1	02	2299	106	IA / (SG)		29.0	9:19	4.0	9:24		X				X	
VP2	03	2298	242	IA / (SG)		28.5	9:55	3.5	10:01		X				X	
VP3	04	3386	256	IA / (SG)		27.5	10:32	4.0	10:37		X				X	
VP4	05	3412	280	IA / (SG)		28	11:23	4.0	11:28		X				X	
				IA / SG												
				IA / SG												
				IA / SG							Samples received at 20 °C					

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Ryan Cpzitz	EHSI	12/10/20	15:25
Received by:	HONG NGUYEN	FBI	✓	✓
Relinquished by:				
Received by:				

APPENDIX I

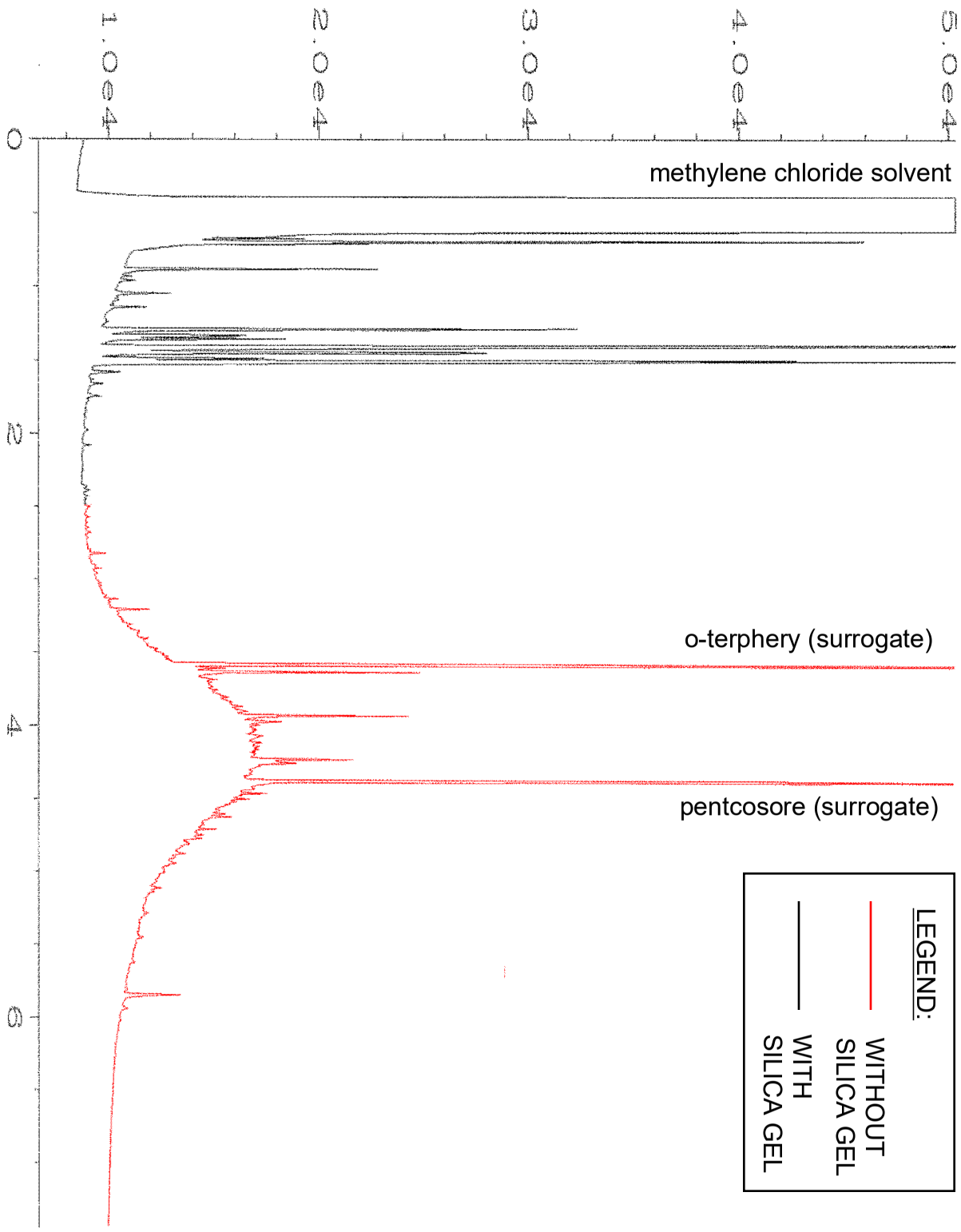
Chromatograms for Groundwater Samples



MW01-04

Data File Name : C:\HPCHEM\1\DATA\03-23-21\044F1201.D
Operator : TL
Instrument : GC1
Sample Name : 103392-01 sg
Run Time Bar Code:
Acquired on : 23 Mar 21 06:39 PM
Report Created on: 24 Mar 21 08:32 AM

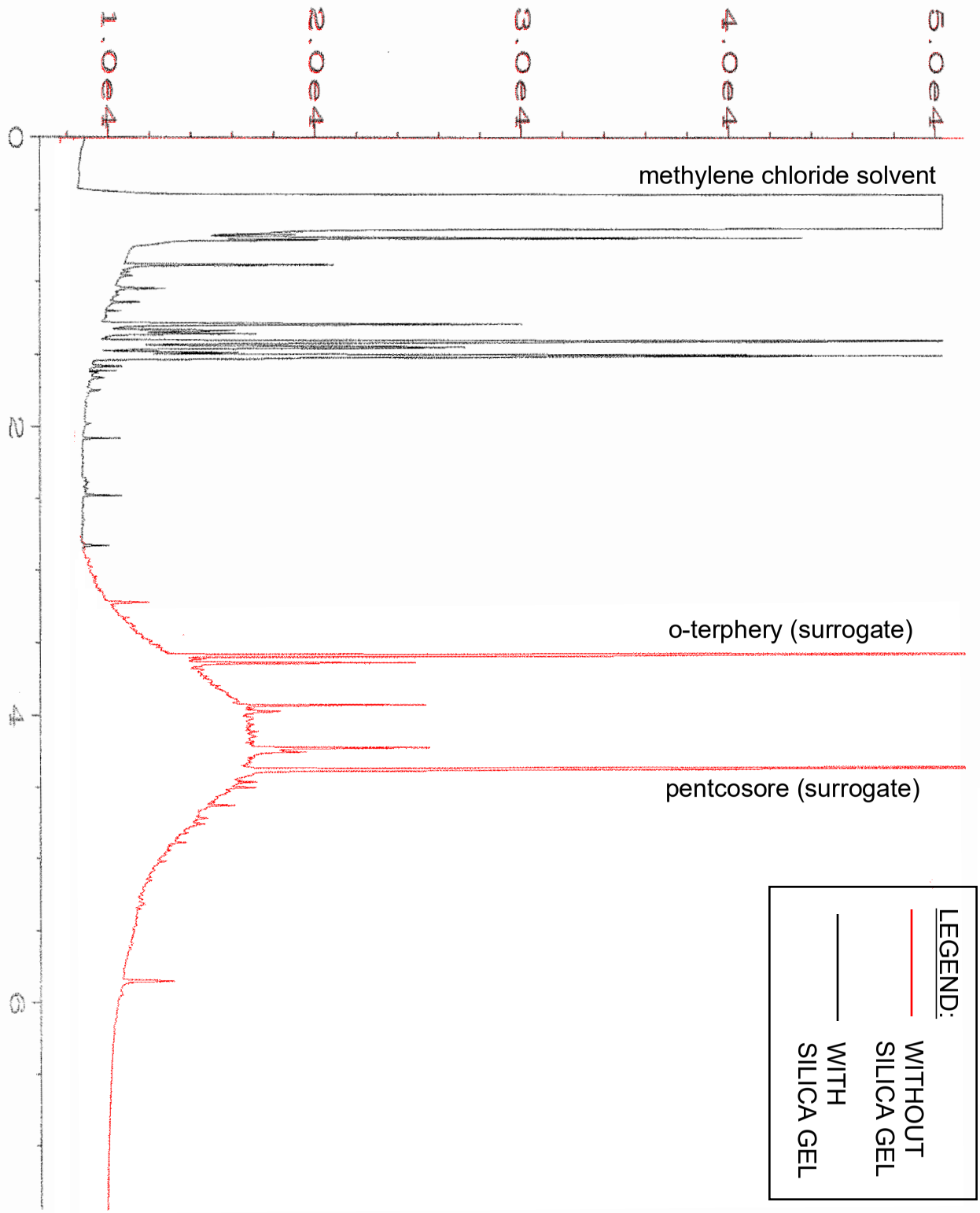
Page Number : 1
Vial Number : 44
Injection Number : 1
Sequence Line : 12
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



MW01-06

Data File Name : C:\HPCHEM\1\DATA\03-23-21\045F1201.D
Operator : TL
Instrument : GC1
Sample Name : 103392-02 sg
Run Time Bar Code:
Acquired on : 23 Mar 21 06:51 PM
Report Created on: 24 Mar 21 08:32 AM

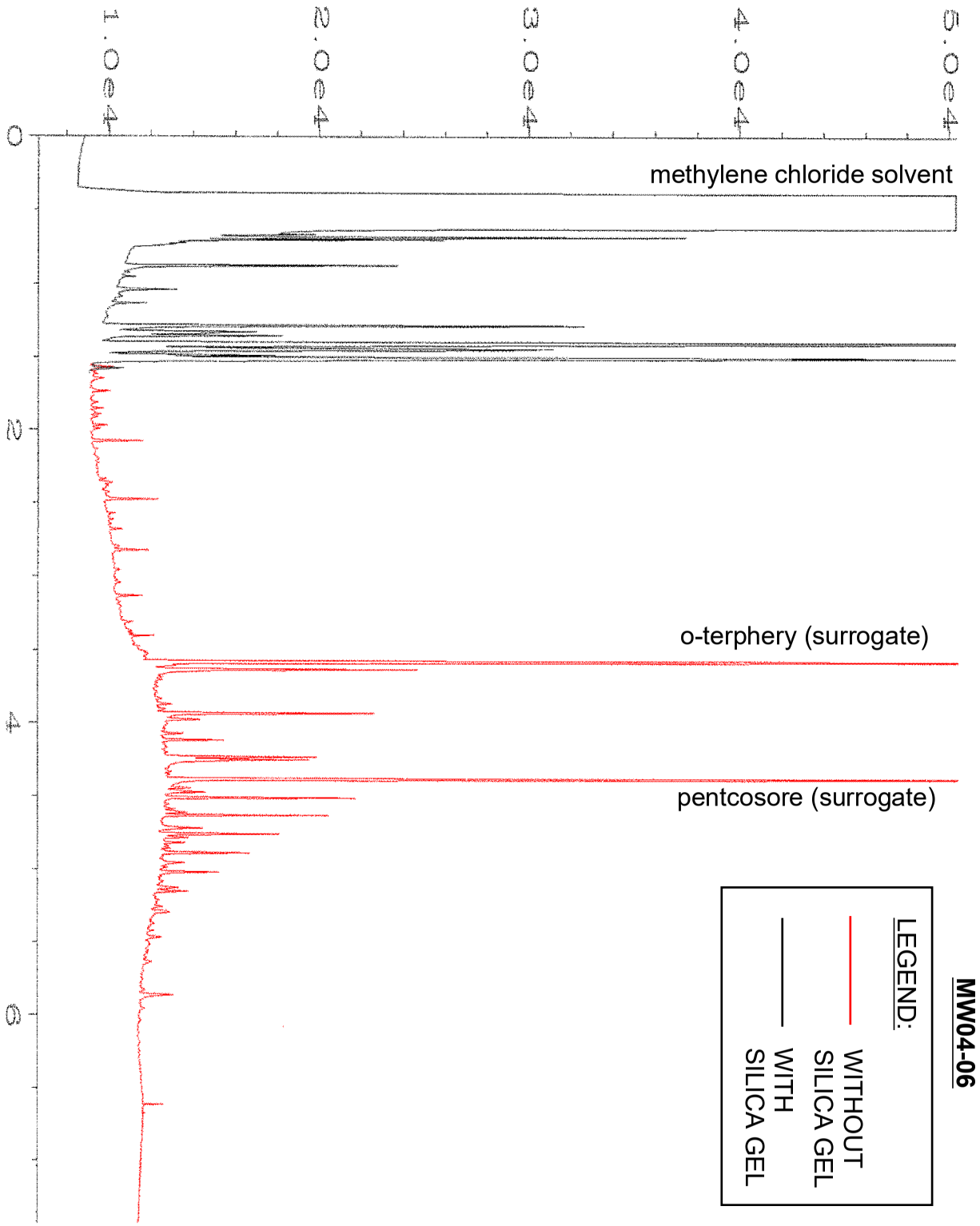
Page Number : 1
Vial Number : 45
Injection Number : 1
Sequence Line : 12
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



MW01-08.5

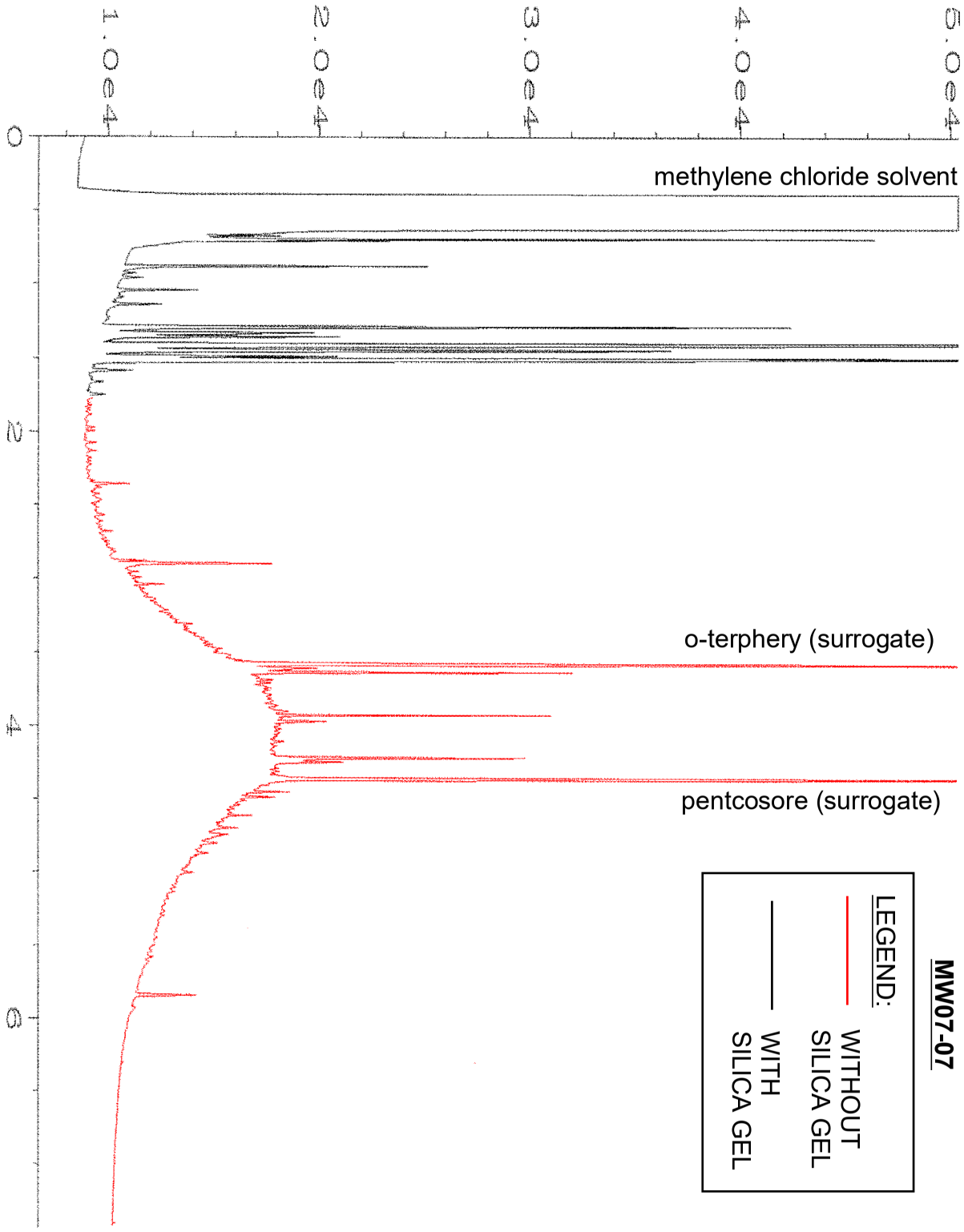
Data File Name : C:\HPCHEM\1\DATA\03-23-21\046F1201.D
Operator : TL
Instrument : GC1
Sample Name : 103392-03 sg
Run Time Bar Code:
Acquired on : 23 Mar 21 07:02 PM
Report Created on: 24 Mar 21 08:32 AM

Page Number : 1
Vial Number : 46
Injection Number : 1
Sequence Line : 12
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

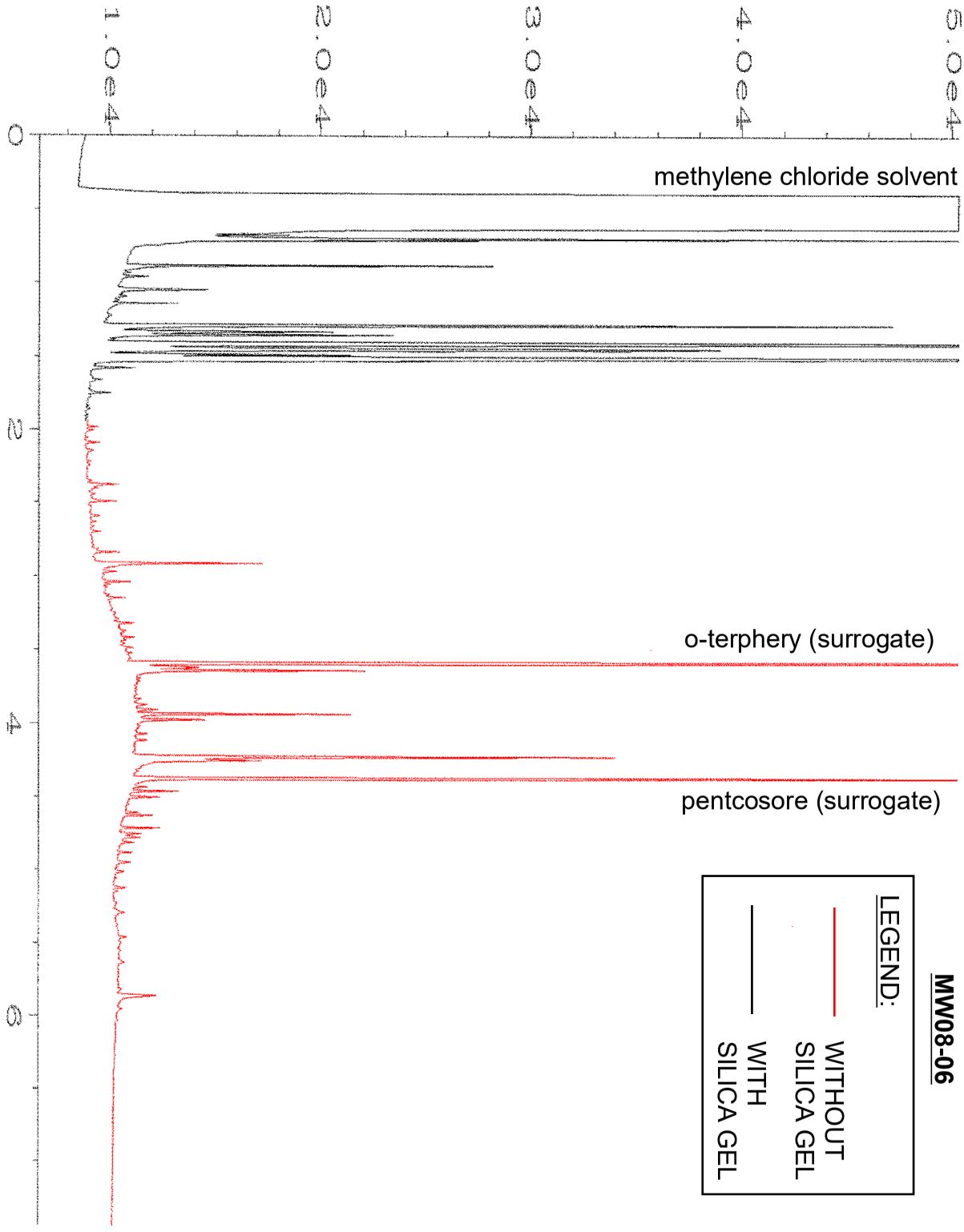


Data File Name : C:\HPCHEM\1\DATA\03-23-21\052F1401.D
Operator : TL
Instrument : GC1
Sample Name : 103392-09 sg
Run Time Bar Code:
Acquired on : 23 Mar 21 08:34 PM
Report Created on: 24 Mar 21 08:33 AM

Page Number : 1
Vial Number : 52
Injection Number : 1
Sequence Line : 14
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH




```
Data File Name    : C:\HPCHEM\1\DATA\03-23-21\050F1401.D
Operator          : TL                              Page Number       : 1
Instrument        : GC1                             Vial Number       : 50
Sample Name       : 103392-07 sg                    Injection Number  : 1
Run Time Bar Code:                                  Sequence Line     : 14
Acquired on       : 23 Mar 21   08:11 PM            Instrument Method: DX.MTH
Report Created on: 24 Mar 21   08:33 AM            Analysis Method   : DEFAULT.MTH
```



Data File Name : C:\HPCHEM\1\DATA\03-23-21\053F1401.D
Operator : TL
Instrument : GC1
Sample Name : 103392-10 sg
Run Time Bar Code:
Acquired on : 23 Mar 21 08:45 PM
Report Created on: 24 Mar 21 08:33 AM

Page Number : 1
Vial Number : 53
Injection Number : 1
Sequence Line : 14
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

APPENDIX J

Terrestrial Ecological Evaluation

Voluntary Cleanup Program

Washington State Department of Ecology
Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

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

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

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

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

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

Step 1: IDENTIFY HAZARDOUS WASTE SITE	
Please identify below the hazardous waste site for which you are documenting an evaluation.	
Facility/Site Name: Buckley Library Property	
Facility/Site Address: 123 South River Avenue, Buckley, Washington	
Facility/Site No: 39884259	VCP Project No.: SW1673

Step 2: IDENTIFY EVALUATOR		
Please identify below the person who conducted the evaluation and their contact information.		
Name: Mindy Graddon		Title: Associate Geologist
Organization: SoundEarth Strategies, Inc.		
Mailing address: 2811 Fairview Avenue East, Suite 2000		
City: Seattle	State: WA	Zip code: 98102
Phone: 206-306-1900	Fax:	E-mail: mgraddon@soundearthinc.com

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS

A. Exclusion from further evaluation.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

B. Simplified evaluation.

1. Does the Site qualify for a simplified evaluation?

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

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

2. Did you conduct a simplified evaluation?

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

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

3. Was further evaluation necessary?

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☐ No *If you answered **"NO,"** then identify the reason here and then skip to **Question 5** below:*

- ☐ No issues were identified during the problem formulation step.
- ☐ While issues were identified, those issues were addressed by the cleanup actions for protecting human health.

2. What did you do to resolve the problem? *See* WAC 173-340-7493(3).

- ☐ Used the concentrations listed in Table 749-3 as cleanup levels. *If so, then skip to **Question 5** below.*
- ☐ Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. *If so, then answer **Questions 3 and 4** below.*

3. If you conducted further site-specific evaluations, what methods did you use?
Check all that apply. See WAC 173-340-7493(3).

- ☐ Literature surveys.
- ☐ Soil bioassays.
- ☐ Wildlife exposure model.
- ☐ Biomarkers.
- ☐ Site-specific field studies.
- ☐ Weight of evidence.
- ☐ Other methods approved by Ecology. If so, please specify:

4. What was the result of those evaluations?

- ☐ Confirmed there was no problem.
- ☐ Confirmed there was a problem and established site-specific cleanup levels.

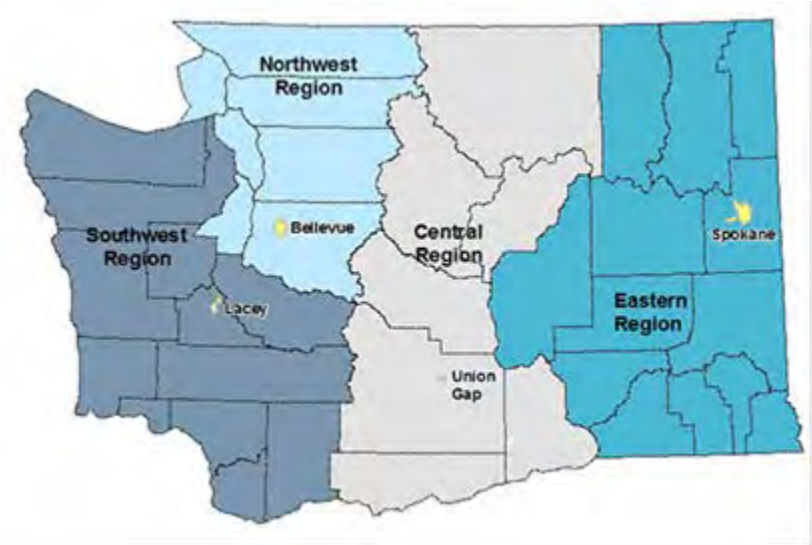
5. Have you already obtained Ecology's approval of both your problem formulation and problem resolution steps?

☐ Yes If so, please identify the Ecology staff who approved those steps:

☐ No

Step 4: SUBMITTAL

Please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.



Northwest Region: Attn: VCP Coordinator 3190 160th Ave. SE Bellevue, WA 98008-5452	**Central Region:** Attn: VCP Coordinator 1250 West Alder St. Union Gap, WA 98903-0009
Southwest Region: Attn: VCP Coordinator P.O. Box 47775 Olympia, WA 98504-7775	**Eastern Region:** Attn: VCP Coordinator N. 4601 Monroe Spokane WA 99205-1295

If you need this publication in an alternate format, please call the Toxics Cleanup Program at 360-407-7170. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call 877-833-6341.