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# Supplemental Remedial Investigation Report

Brookdale Golf Course 1802 Brookdale Road East Tacoma, Washington VCP Site No. SW 1672

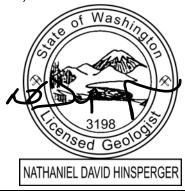
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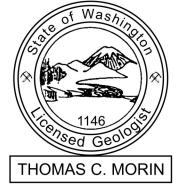
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- Attachment A Historical Aerial Maps
- Attachment B Boring Logs
- Attachment C Laboratory Analytical Reports
- Attachment D TEE Cleanup Levels
- Attachment E Conceptual Site Model



# ABBREVIATIONS AND ACRONYMS

Abbreviation/	
Acronym	Definition
AOI	Area of Interest
bgs	Below ground surface
CAP	Cleanup Action Plan
CAR	Cleanup Action Report
CLARC	Cleanup Levels and Risk Calculations
COC	Contaminant of Concern
COPC	Contaminant of potential concern
CSM	Conceptual Site Model
CUL	Cleanup level
DPT	Direct Push Technology
Ecology	Washington State Department of Ecology
EDB	1,2-Dibromoethane
EPI	Environmental Partners, Inc.
EPA	U.S. Environmental Protection Agency
FFS	Focused Feasibility Study
Ichijo	Ichijo USA Co., Ltd.
MDL	Method detection limit
µg/L	Micrograms per liter
mg/kg	Milligrams per Kilogram
MTCA	Model Toxics Control Act (70.105D) and its implementing regulations (Washington
	Administrative Code [WAC] 173-340)
NTU	Nephelometric Turbidity Units
NVE	No Value Established
PQL	Practical Quantitation Limit
RI	Remedial Investigation
SIM	Selected Ion Measurement
SRI	Supplemental Remedial Investigation
TEE	Terrestrial Ecological Evaluation
TRC	TRC Environmental Corporation
VCP	Voluntary Cleanup Program
WAC	Washington Administrative Code



# 1.0 INTRODUCTION

TRC Environmental Corporation (TRC)<sup>1</sup> is pleased to submit this *Supplemental Remedial Investigation Report* (SRI Report) for the former Brookdale Golf Course Site located at 1802 Brookdale Road East, Tacoma, Washington (subject property). The general location of the subject property is indicated on Figure 1. The Site, as defined below, is currently enrolled in the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP) as Site No. SW1672 and Mr. Adam Harris is the Site Manager. A site representation is depicted on Figure 2.

This SRI Report has been prepared on behalf of the current property owner, Ichijo USA Co., LTD (Ichijo), that purchased the subject property from Brookdale PDD, LLC. This SRI Report was prepared for Ichijo in support of its ongoing efforts to comply with the requirements of the Model Toxics Control Act (70.105D RCW) and its implementing regulations (Washington Administrative Code [WAC] 173-340; collectively "MTCA"). As defined in MTCA, the "Site" shall mean all areas where contaminants from the general maintenance of the Brookdale Golf Course have come to be located. The former Brookdale Golf Course contains multiple areas of impacts which are collectively referred to as the "Site." All areas of the Site are located within the subject property boundary.

TRC (as EPI) previously completed a *Remedial Investigation and Focused Feasibility Study* (RI/FFS), dated March 18, 2019, which was submitted to Ecology for review and comment under the Voluntary Cleanup Program (VCP). TRC also prepared a Cleanup Action Plan (CAP), dated March 18, 2019, documenting the planned implementation of the remedy selected in the FFS. The CAP was also submitted for review under the VCP.

Significant remedial actions, as planned in the CAP, had been completed throughout the Site by November 2019. All remedial actions will be addressed under separate cover in a *Cleanup Action Report* (CAR) for the Site.

In a letter dated December 10, 2019, Ecology issued an opinion stating the RI/FFS as incomplete, with several comments and questions. Ecology declined to review or provide comments on the CAP. The Site is currently in the permitting process for redevelopment as a residential subdivision with single-family detached homes. Future residential land uses were considered during the preparation of the RI/FFS, CAP, and this SRI Report.

The SRI documented herein was performed after successful implementation of the CAP and in response to the comments provided by Ecology in its December 10, 2019 letter. The scope of work presented herein addresses, through direct investigation, the concerns expressed in that opinion. The SRI focused on the northern portion of the Site, north of Clover Creek. This was done to allow the work to proceed more expeditiously and because that is the portion of the Site that will be redeveloped first. Ichijo acknowledges that additional assessment, consistent with what is documented herein, will be required on the portion of the Site south of Clover Creek.

<sup>&</sup>lt;sup>1</sup> Prior work on the Site was performed by Environmental Partners, Inc. (EPI). EPI was acquired by TRC on December 27, 2019. For the purposes of this document, EPI and TRC may be used interchangeably.



Additionally, TRC has provided as a cover to this SRI Report a formal Response to Comments (RTC) to Ecology's December 10, 2019 opinion letter.

# 2.0 BACKGROUND

The RI/FFS provides a detailed description of the Site background. In its opinion letter Ecology requested additional historical documentation confirming that the orientation and layout of the former Brookdale Golf Course had not changed substantially since its construction in 1941.

Attachment A provides available historical aerial photographs of the golf course starting in 1941 and ending in 2017. These photographs confirm that the layout of the golf course has not changed significantly since its original construction.

Between 2016 and 2018, multiple environmental investigations were conducted by TRC and others at the subject property. These investigations have assessed the condition of soil, groundwater, and surface water beneath the subject property and characterized the nature and extent of the hazardous substances at the Site. The cumulative results of these investigations constitute the RI. The investigations indicate the subject property contains 15 small and distinct areas impacted by the same compounds from the same historical activities, which together constitute a "Site" under MTCA as defined in WAC 173-340-200. The findings of the environmental investigations conducted at the Site were presented in the RI/FFS referenced above.

An FFS was also completed to develop and evaluate cleanup alternatives for the Site and select a final cleanup action in accordance with WAC 173-340-350(8). The objective of the selected cleanup action is to protect human health and the environment and to meet the requirements of MTCA. The FFS selected direct excavation of contaminated soils as the most effective alternative for addressing the Site impacts. This selected remedy was based on the findings of the prior environmental investigations and the FFS determined that direct excavation and off-site disposal addressed all current and future exposure pathways for all potential receptors.

Following the submittal of the RI/FFS, TRC prepared and submitted the CAP to Ecology. The CAP presented a brief summary of the existing environmental conditions at the subject property and the process that would be followed during remediation to comply with the requirements of the MTCA (70.105D RCW) and its associated Cleanup Regulations, WAC 173-340. The cleanup action was successfully implemented according to the technical approach outlined in the CAP. Remedial excavation areas are depicted on Figure 2. A typical cross-section of the remedial excavations is depicted on Figure 3.

A CAR will be prepared and will present additional detailed descriptions of each remedial excavation and the result of both performance samples used to guide the excavation and confirmation samples from the limits of the remedial excavations confirming compliance with the selected cleanup levels. The completion of the CAR has been deferred until after completion of this SRI Report and confirmation that the approach used therein is sufficient to address Ecology's concerns. A similar SRI would then be performed on the



southern portion of the Site. If additional areas of contamination are identified during the SRI, additional remediation would be performed. At the completion of all remedial actions and attainment of all cleanup levels for all analytes the CAR can be completed and submitted to Ecology.

# 3.0 SUPPLEMENTAL REMEDIAL INVESTIGATION

This SRI was developed to address the comments and concerns outlined in Ecology's opinion letter dated December 10, 2019. Ecology requested additional investigation of soil, groundwater, surface water, and sediment at the Site. Ecology also requested the evaluation of the potential presence of additional analytes at the Site. The additional analytes were:

- Nitrates and phosphates
- Arsenic
- 1,2-Dibromoethane
- Diazinon

The objective of the SRI was to assess the potential presence of these additional analytes in soil, groundwater, surface water, and sediment at the Site. Between January 13 and February 13, 2020, TRC performed the additional elements of the SRI as requested by Ecology. The details of the SRI are presented below.

# 3.1 Soil

Ecology requested that shallow soil be assessed for the additional analytes mentioned above. TRC collected a total of 33 soil samples at the Site during the SRI. Soil sample locations are depicted on Figure 4. Soil sampling was initially performed at 27 locations. As detailed further below, arsenic was detected in five locations at a concentration exceeding the MTCA Method A Soil Cleanup Level (CUL) for Unrestricted Land Uses of 20 milligrams per kilogram (mg/kg). An additional four soil samples were collected from areas surrounding this initial result to fully characterize the vertical and lateral extent of the apparent area of affected soil.

The soil samples were collected in remediation areas distributed across the subject property located north of Clover Creek. The samples were collected in locations that included tees, fairways, and greens where remedial excavation has been performed. The samples were collected from near-surface soils at depths ranging from 6 inches to 3 feet below ground surface (bgs). At the completion of sampling, each sample location was backfilled with excess soil generated from the soil borings.

Each soil sample was collected and submitted for the following analysis:

- Arsenic analyzed by U.S. Environmental Protection Agency (EPA) Method 6020
- 1,2-Dibromoethane analyzed by EPA Method 8260
- Diazinon analyzed by EPA Method 8270 Selected Ion Measurement (SIM)
- Nitrate and phosphate analyzed by EPA Method 300.0



# 3.2 Groundwater

Ecology requested that groundwater conditions be assessed in areas where concentrations of Site contaminants of concern (COCs) exceeded an applicable cleanup level prior to the performance of remedial excavation. TRC collected a total of 10 groundwater samples at the Site during the SRI at locations representative of overall Site conditions. Groundwater sample locations are depicted on Figure 5.

Groundwater sampling consisted of nine reconnaissance sampling locations. As detailed further below, the sample from one of the reconnaissance samples contained dieldrin at a concentration exceeding the cleanup level. Because reconnaissance samples are often affected by high turbidity and potential drag-down during sampling, the result from this location was further assessed through the installation and sampling of a monitoring well.

All groundwater samples were collected from locations north of Clover Creek. The samples were collected in locations that included tees, fairways, and greens where remedial excavation has been performed. The samples were collected from temporary wells ranging in depth from 10 feet to 20 feet bgs. One groundwater sample was collected from a monitoring well installed at the Site.

Each groundwater sample was collected and submitted for the following analysis:

- Total and dissolved arsenic analyzed by EPA Method 6020
- 1,2-Dibromoethane analyzed by EPA Method 8260
- Dieldrin analyzed by EPA Method 8081
- Diazinon analyzed by EPA Method 8270 SIM
- Nitrate and phosphate analyzed by EPA Method 300.0

# 3.3 Surface Water

Ecology requested that surface water conditions be assessed in Clover Creek and the North Fork Clover Creek tributary for the presence of all Site COCs and the additional analytes outlined above. TRC collected a total of five surface water samples at the Site during the SRI. Surface water sample locations are depicted on Figure 6.

Two surface water samples were collected from the North Fork Clover Creek tributary. Two surface water samples were collected from Clover Creek and one surface water sample was collected from the pond located adjacent to the east of Clover Creek.

Each surface water sample was collected and submitted for the following analysis:

- Total and dissolved arsenic analyzed by EPA Method 6020
- 1,2-Dibromoethane analyzed by EPA Method 8260
- Dieldrin analyzed by EPA Method 8081
- Diazinon analyzed by EPA Method 8270 SIM



• Nitrate and phosphate analyzed by EPA Method 300.0

# 3.4 Sediment

Ecology requested that sediment conditions be assessed in the North Fork Clover Creek tributary, Clover Creek, and the pond east-adjacent to Clover Creek for the presence of all Site COCs and the additional analytes. Ecology specified that the sediment samples should be collected at or below the ordinary highwater level where the water is present for a minimal of six consecutive weeks where exposure risks are present. TRC collected a total of nine sediment samples at the Site during the SRI. Sediment sample locations are depicted on Figure 7.

Three sediment samples were collected from the North Fork Clover Creek tributary. Three sediment samples were collected from Clover Creek and three sediment samples were collected from the pond located adjacent to the east of Clover Creek.

Each sediment sample was collected and submitted for the following analysis:

- Arsenic analyzed by EPA Method 6020
- 1,2-Dibromoethane analyzed by EPA Method 8260
- Dieldrin analyzed by EPA Method 8081
- Diazinon analyzed by EPA Method 8270 SIM
- Nitrate and phosphate analyzed by EPA Method 300.0

# 4.0 METHODOLOGY

The methods used to conduct the Ecology-requested additional investigation of soil, groundwater, surface water, and sediment at the Site are described in the following sections.

# 4.1 Soil Sampling

Samples were collected from soil borings, test pits, and surface soil sample locations as described below.

# 4.1.1 Soil Borings

A total of 10 soil borings with temporary wells were advanced using direct-push technology (DPT) drilling and sampling methods. All drilling was performed by a Washington-state licensed driller under the supervision and direction of an experienced environmental professional from TRC. Soil boring locations are depicted on Figure 4. Soil boring logs are included in Attachment B.

Prior to drilling, TRC notified Washington One-Call Service to identify publicly-owned subsurface utilities at the subject properties. The notification was initiated a minimum of 3 business days prior to scheduled field activities.



At each soil boring location, soil samples were collected and placed directly into laboratory-supplied glass sample containers and submitted for laboratory analysis.

Soil conditions encountered at each location were logged using the Unified Soil Classification System with visual-manual procedures (ASTM Method 2488D).

The 10 soil borings (B-1 through B-10) were advanced to depths ranging from 10 feet bgs to 20 feet bgs. Two soil samples were collected from each boring. A total of 10 soil samples were submitted for the following analysis:

- Arsenic analyzed by EPA Method 6020
- 1,2-Dibromoethane analyzed by EPA Method 8260
- Diazinon analyzed by EPA Method 8270 SIM
- Nitrate and phosphate analyzed by EPA Method 300.0

# 4.1.2 Test Pits

A total of four test pits were advanced at the subject property using single-use hand tool methods. The test pits (TP-1 through TP-4) were advanced to a depth of two feet bgs. Test pit locations are depicted on Figure 4.

At each test pit location, soil samples were collected with single-use disposable equipment and placed directly into laboratory-supplied sample containers. A total of nine soil samples were submitted for the following analysis:

Test pit soil samples were submitted for the following analysis:

- Arsenic analyzed by EPA Method 6020
- 1,2-Dibromoethane analyzed by EPA Method 8260
- Diazinon analyzed by EPA Method 8270 SIM
- Nitrate and phosphate analyzed by EPA Method 300.0

# 4.1.3 Surface Soil Sampling

Surface soil samples were collected in 14 remediation areas distributed across the northern portion of the Site. Samples were collected using single-use hand tool methods. The surface soil samples were collected from near-surface soils at depths ranging from 6 inches to 3 feet bgs. Surface soil sample locations are depicted on Figure 4.

At each surface soil sample location, samples were collected with single-use disposable equipment and placed directly into 4-ounce laboratory-supplied glass sample containers. A total of 19 surface soil samples were submitted for arsenic analyzed by EPA Method 6020.



# 4.2 Groundwater

A total of 10 soil borings (B-1 through B-10) were advanced with temporary wells using DPT drilling and sampling methods. Temporary wells were installed at depths ranging from 10 feet bgs to 20 feet bgs. Temporary well locations are depicted on Figure 5.

At each soil boring location, reconnaissance groundwater samples were collected and placed directly into laboratory-supplied sample containers and submitted for laboratory analysis. Groundwater was not encountered in soil boring B-9 and no reconnaissance groundwater sample was collected at that location. A total of nine reconnaissance groundwater samples were submitted for the following analysis:

- Total and dissolved arsenic analyzed by EPA Method 6020
- 1,2-Dibromoethane analyzed by EPA Method 8260
- Dieldrin analyzed by EPA Method 8081
- Diazinon analyzed by EPA Method 8270 SIM
- Nitrate and phosphate analyzed by EPA Method 300.0

Groundwater samples for dissolved arsenic were filtered using a single-use 0.45-micron filter and placed directly into sample containers preserved with nitric acid to a pH of 2.

Additionally, one monitoring well (MW-1) was advanced using hollow-stem auger (HSA) drilling and sampling methods. MW-1 was advanced to further assess groundwater conditions at to soil boring B-4 after analysis of the initial sample contained dieldrin. The location of MW-1 is depicted on Figure 5.

Following the installation of MW-1, well development was performed by continuous pumping at a steady flow rate using a submersible pump. Well development was terminated when the turbidity of the discharge water decreased to less than 10 nephelometric turbidity units (NTU) or to the satisfaction of the on-site TRC personnel.

Following well development, the well was allowed to stabilize for about 24 hours before collection of a groundwater sample. One groundwater sample was collected from MW-1 and analyzed for dieldrin using EPA Method 8081.

# 4.3 Surface Water

A total of five surface water samples were collected at three locations at the subject property. Two surface water samples were collected from the North Fork Clover Creek tributary. Two surface water samples were collected from Clover Creek, and one surface water sample was collected from the pond. Surface water sample locations are depicted on Figure 6.

At each surface water sampling location, samples were collected directly into laboratory-supplied sample containers and submitted for laboratory analysis. A total of five surface water samples were submitted for the following analysis:



- Total and dissolved arsenic analyzed by EPA Method 6020
- 1,2-Dibromoethane analyzed by EPA Method 8260
- Dieldrin analyzed by EPA Method 8081
- Diazinon analyzed by EPA Method 8270 SIM
- Nitrate and phosphate analyzed by EPA Method 300.0

# 4.4 Sediment

A total of nine sediment samples were collected. Three sediment samples were collected from the North Fork Clover Creek tributary. Three sediment samples were collected from Clover Creek, and three sediment samples were collected from the pond. Sediment sample locations are indicated on Figure 7.

At each sediment sampling location, samples were collected with single-use disposable equipment and placed directly into laboratory-supplied sample containers. A total of nine sediment samples were submitted for the following analysis:

- Arsenic analyzed by EPA Method 6020
- 1,2-Dibromoethane analyzed by EPA Method 8260
- Dieldrin analyzed by EPA Method 8081
- Diazinon analyzed by EPA Method 8270 SIM
- Nitrate and phosphate analyzed by EPA Method 300.0

Immediately upon collection all samples collected at the subject property were labeled and placed in an iced cooler pending submittal to the analytical laboratory. Samples were transported to Friedman & Bruya Laboratory, Inc, in Seattle, Washington, under standard chain-of-custody protocols.

# 5.0 FINDINGS

# 5.1 Soil

Soil sample analytical results are summarized in Table 1. Laboratory analytical reports are included in Attachment C. The soil sample locations and are depicted on Figure 4. The analytical results are described below:

- Thirty-three soil samples were submitted for analysis of arsenic. Arsenic was detected in all 33 samples at concentrations ranging from 1.71 mg/kg to 111 mg/kg. Five of the 33 soil samples contained arsenic at a concentration exceeding the MTCA Method A Soil CUL of 20 mg/kg.
- Thirteen soil samples were submitted for analysis of 1,2-dibromoethane (commonly referred to as ethylene dibromide [EDB]). EDB was not detected in any sample at a concentration exceeding the laboratory method detection limit (MDL).



- Thirteen soil samples were submitted for analysis of diazinon. Diazinon was not detected in any sample at a concentration exceeding the MDL of 0.449 mg/kg
- Thirteen soil samples were submitted for analysis of nitrate. Nitrate was detected in four samples at concentrations ranging from 1.34 mg/kg to 3.97 mg/kg. None of the detected concentrations exceeded the MTCA Method B CUL of 130,000 mg/kg for nitrate.
- Thirteen soil samples were submitted for analysis of Phosphate. Phosphate was not detected in any sample at a concentration exceeding the MDL of 2.06 mg/kg

In all cases the MDL for individual analyses was less than the applicable CUL or was the lowest available detection or reporting limit available.

# 5.2 Groundwater

A total of 10 groundwater samples were submitted for the range of analyses described in Section 4.2. Table 2 summarizes the laboratory analytical results for all groundwater samples. Laboratory analytical reports are included in Attachment C. The groundwater sample locations and are depicted on Figure 5. The analytical results are described below:

- Nine reconnaissance groundwater samples were submitted for analysis of total and dissolved arsenic. Total arsenic was detected in seven of the groundwater samples exceeding a MTCA Method A Groundwater CUL of 5 micrograms per liter (µg/L) for total arsenic. Dissolved arsenic was not detected in any sample at a concentration exceeding the MDL of 1 µg/L.
- Nine reconnaissance groundwater samples were submitted for analysis of EDB. EDB was not detected in any sample at a concentration exceeding the MDL of 0.01 µg/L.
- Nine reconnaissance groundwater samples were submitted for analysis of dieldrin. Dieldrin was detected in one sample (B-4:GW) at a concentration of 0.032 µg/L, which exceeds the MTCA Method B CUL of 0.0055 µg/L for dieldrin.
- One groundwater sample from monitoring well MW-1, installed at the location of B-4, was submitted for analysis of dieldrin. Dieldrin was not detected in that sample at a concentration exceeding the MDL of 0.02 μg/L.
- Nine reconnaissance groundwater samples were submitted for analysis of diazinon. Diazinon was not detected in any sample at a concentration exceeding the MDL of 0.199 µg/L.
- Nine reconnaissance groundwater samples were submitted for analysis of nitrate. Nitrate was detected in all nine samples. None of the detected concentrations exceeded the MTCA Method B CUL of 26,000 µg/L for nitrate.



• Nine reconnaissance groundwater samples were submitted for analysis of phosphate. Phosphate was not detected in any sample at a concentration exceeding the MDL of  $200 \,\mu\text{g/L}$ 

# 5.3 Surface Water

A total of five surface water samples were submitted for the range of analyses described in Section 4.3. Table 3 summarizes the laboratory analytical results for all surface water samples. Laboratory analytical reports are included in Attachment C. The surface water sample locations and are depicted on Figure 6. The analytical results are described below:

- Five surface water samples were submitted for analysis of total arsenic and dissolved arsenic. Neither total nor dissolved arsenic was detected in any sample at a concentration exceeding the MDL of 1  $\mu$ g/L for total and dissolved arsenic.
- Five surface water samples were submitted for analysis of EDB. EDB was not detected in any sample at a concentration exceeding the MDL of 0.01 µg/L.
- Five surface water samples were submitted for analysis of dieldrin. Dieldrin was not detected in any sample at a concentration exceeding the MDL of 0.02 µg/L for dieldrin. It should be noted that the freshwater cleanup objective for dieldrin is 0.0000061 µg/L. This cleanup objective is significantly less than any MDL achievable. As stated in WAC 173-340-707, where the practical quantitation limit (PQL) is greater than a cleanup objective, the cleanup level shall be considered to be the PQL.
- Five surface water samples were submitted for analysis of diazinon. Diazinon was not detected in any sample at a concentration exceeding the MDL of 0.199  $\mu$ g/L.
- Five surface water samples were submitted for analysis of nitrate. Nitrate was detected in all five samples. Detected nitrate concentrations ranged from 993 µg/L to 2,840 µg/L. None of the detected concentrations exceeded an applicable CUL. The lowest available CUL for nitrate is 10,000 µg/L.
- Five surface water samples were submitted for analysis of phosphate. Phosphate was not detected in any sample at a concentration exceeding the MDL of 200  $\mu$ g/L.

# 5.4 Sediment

A total of nine sediment samples were submitted for the range of analyses described in Section 4.4. Table 4 summarizes the laboratory analytical results for all sediment samples. Laboratory analytical reports are included in Attachment C. The sediment sample locations and are depicted on Figure 7. The analytical results are described below:



- Nine sediment samples were submitted for analysis of arsenic. Arsenic was detected in all nine samples at concentrations ranging from 3.08 mg/kg to 10.4 mg/kg. None of the detected concentrations exceeded Ecology's Freshwater Sediment Cleanup Objectives and Cleanup Screening Level Criteria for arsenic of 14 mg/kg as defined in WAC 173-204-563.
- Nine sediment samples were submitted for analysis of EDB. EDB was not detected in any sample at a concentration exceeding the MDL of 0.005 mg/kg. There is no established freshwater sediment cleanup objective for EDB.
- Nine sediment samples were submitted for analysis of dieldrin. Dieldrin was not detected in any sample at a concentration exceeding the MDL of 0.006 mg/kg. The freshwater sediment cleanup objective is for dieldrin is 0.0049 mg/kg. As stated in WAC 173-340-707, where the PQL is greater than a cleanup objective, the cleanup level shall be considered to be the PQL.
- Nine sediment samples were submitted for analysis of diazinon. Diazinon was not detected in any sample at a concentration exceeding the MDL of 0.0852 mg/kg.
- Nine sediment samples were submitted for analysis of nitrate. Nitrate was detected in four samples at concentrations ranging from 1.84 mg/kg to 4.32 mg/kg. There is no established freshwater sediment cleanup objective for nitrate.
- Nine sediment samples were submitted for analysis of phosphate. Phosphate was not detected in any sample at a concentration exceeding the MDL of 3.53 mg/kg. There is no established freshwater sediment cleanup objective for phosphate.

# 6.0 CONTAMINANTS OF POTENTIAL CONCERN

Based on the opinion issued by Ecology the contaminants of potential concern (COPCs) for this SRI are:

- Arsenic
- 1,2-Dibromoethane
- Dieldrin
- Diazinon
- Nitrates and phosphates

The potential presence of these compounds was evaluated in soils, groundwater, surface water, and sediment during the SRI. Ecology requested the additional investigation to evaluate whether the compounds listed above were used during the time the subject property operated as a golf course. A summary of detections in soil, sediment, groundwater, and surface water by analyte, is presented in Tables 5 and 6, below.



COPC	Number of Samples Collected	Number of Detections	Frequency of Detections (percent)	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)
Arsenic	42	42	100	1.71	111
1,2- Dibromoethane	22	0	0		
Dieldrin	9	0	0		
Diazinon	22	0	0		
Nitrate	22	8	36	1.34	4.32
Phosphate	22	0	0		

 Table 5

 COPCs Detected in Soil and Sediment

Note:

-- Compound not detected.

Table 6
COPCs Detected in Groundwater and Surface Water

СОРС	Number of Samples Collected	Number of Detections	Frequency of Detections (percent)	Minimum Concentration (µg/L)	Maximum Concentration (µg/L)
Total Arsenic	14	8	57	1.22	73.1
Dissolved Arsenic	14	0	0		
1,2- Dibromoethane	14	0	0		
Dieldrin	15	1	7	0.032	0.032
Diazinon	14	0	0		
Nitrate	14	14	100	638	4,230
Phosphate	14	0	0		

Note:

-- Compound not detected.

# 6.1 Affected Media

Based on geological and hydrogeological conditions and future land uses at the subject property, the media of potential concern evaluated during the SRI are soil, groundwater, surface water, and sediment. Indoor air was not evaluated during the SRI because the detected COPCs are not volatile.



# 6.2 Terrestrial Ecological Evaluation Cleanup Levels

Ecology's opinion letter indicated that the Terrestrial Ecological Evaluation (TEE) CULs for the RI should be revised. The final TEE CULs for the Non-Excluded Sites consist of values established in Table 749-3 and CULs provided by Ecology's TEE specialist. This evaluation was reportedly performed at Mr. Harris' request in support of Ecology's comments to the RI. TEE CULs provided by Ecology's TEE specialist are included as Attachment D.

For comparison purposes, TRC reviewed the readily available CULs for vascular plants, soil biota, and wildlife for the other compounds detected at the Site. The following concentrations were identified in Table 749-3, WAC 173-340-900 or were provided by Ecology's TEE specialist.

TEE CULs were re-evaluated for each of the three potential receptors of concern for the subject property. The TEE CULs applicable to the COPCs identified in the RI are listed below for each of the ecological receptors:

Compound	Vascular Plants	Soil Biota	Wildlife
4,4-DDT	NVE	NVE	0.75
B-BHC	NVE	29	6
D-BHC	NVE	29	6
Aldrin	NVE	NVE	0.1
Dieldrin	NVE	NVE	0.07
Endosulfan I	NVE	NVE	NVE
Endrin	NVE	NVE	0.2
Endrin Aldehyde	NVE	NVE	0.01

# Table 7 Summary of TEE CULs

Note:

NVE No value established for this compound.

TRC reviewed the RI data and confirmed that the only compound detected to exceed a TEE CUL was dieldrin.

# 7.0 CLEANUP LEVELS

Site CULs for affected media were evaluated in accordance with MTCA and take into consideration exposure pathways and receptors based on current and likely future uses of the Site. Based on current and expected future use of the Site, exposure pathways for human and ecological receptors were considered for the development of applicable CULs. The CULs for the applicable COPCs are documented in Table 8 below. In each case, the lowest applicable CUL is applied to each medium or receptor.



Compound	Soil <sup>a</sup> (mg/kg)	Groundwater <sup>ь</sup> (µg/L)	Surface Water <sup>c</sup> (µg/L)	Sediment <sup>d</sup> (mg/kg)
Arsenic	20 <sup>e</sup>	5	10	14
1,2- Dibromoethane	0.005	0.01	NVE	NVE
Dieldrin	0.0625 <sup>f</sup>	< 0.02 <sup>g</sup>	<0.02 <sup>g</sup>	<0.06 <sup>g</sup>
Diazinon	56	11	NVE	NVE
Nitrate	130,000	26,000	NVE	NVE
Phosphate	NVE	NVE	NVE	NVE

# Table 8Summary of Established CULs

Notes:

a MTCA Method A Soil Cleanup Level (Table 740-1). Where no MTCA Method A Cleanup Level established, MTCA Method B Soil Cleanup Levels (from Cleanup Levels and Risk Calculations [CLARC]) used.

b MTCA Method A Groundwater Cleanup Level (Table 740-1). Where no MTCA Method A Cleanup Level established, MTCA Method B Groundwater Cleanup Levels (from CLARC) used.

c Based on CLARC Database.

d Based on Washington State Department of Ecology Sediment Management Standards, WAC 173-204-563 Table VI, Freshwater Sediment Cleanup Objectives and Cleanup Screening Levels Chemical Criteria.

e MTCA Method A value is considered protective of terrestrial receptors and considers background concentrations in Washington State.

f MTCA Method B Value that is protective of terrestrial receptors.

g CUL is less that listed CUL. Listed CUL for groundwater is 0.0055 ug/L, for surface water is 0.0000061 ug/L and for sediment is 0.0049 mg/kg.

NVE No value established.

As noted above, where a CUL is less than the technically achievable MDL for a specific compound, the CUL shall be the PQL or MDL (WAC 173-340-707). This is the case for the dieldrin CULs for groundwater, surface water, and sediment. For each of those media, the CUL for dieldrin shall be the MDL.

# 8.0 CONTAMINANTS OF CONCERN

The COCs for the Site are those COPCs that have been detected in either soil, groundwater, surface water, or sediment at concentrations exceeding an applicable CUL. Based on the results of this SRI, dieldrin remains the only compound to exceed a CUL for the original RI. This SRI has identified arsenic as an additional COC.

Dieldrin was detected in groundwater at a concentration exceeding the MTCA Method B CUL for groundwater in one reconnaissance groundwater sample in soil boring B-4. This result was obtained from a reconnaissance groundwater sample. Reconnaissance groundwater samples are considered reliable for site screening but can be prone to high bias due to turbidity. Dieldrin is also generally insoluble in water with an organic carbon-to-water partitioning coefficient (Koc) of 25,546. This sample was collected in an area of prior dieldrin soil remediation during CAP implementation, and the result was therefore



considered potentially attributable to turbidity within the sample. It is standard practice to confirm elevated results from reconnaissance groundwater samples by confirmation using a properly constructed and sampled monitoring well.

Accordingly, TRC installed a monitoring well (MW-1) in the location of soil boring B-4 to allow sampling and analysis using standard repeatable and defensible methods. The well was installed and constructed by a Washington State licensed driller in accordance with WAC 173-160. The well was developed until the turbidity of the discharge water decreased to less than 10 NTU or to the satisfaction of the on-site TRC personnel. Following development, a groundwater sample was collected using low-flow sampling techniques.

Dieldrin was not detected in the groundwater sample collected from MW-1. This sample from well MW-1 is considered fully quantitative and of a higher data quality than the original reconnaissance sample. Because dieldrin was not detected in the water sample from MW-1 dieldrin is not considered a COC for groundwater.

No other COPCs were detected in any other medium at a concentration exceeding the respective CULs. Therefore, there are no COCs for surface water or sediment.

# 9.0 CONCEPTUAL SITE MODEL

A conceptual site model (CSM) was developed for the Site based on the data collected at the subject property. The CSM identifies current and potential future exposure pathways for human and ecological receptors. The CSM is presented as Attachment E and is discussed below.

- The environmental medium of concern at the Site is soil. Potential current exposure pathways
  include dermal and ingestion exposure by construction workers, residential/recreational
  users, and TEE receptors. Potential future exposure pathways to COPC impacts include
  dermal and ingestion exposure by construction workers, residential receptors, and TEE
  receptors.
- The subject property and surrounding land are currently zoned for residential use by Pierce County and are expected to continue as such in the future.
- Site geology consists of a mixture of well-graded sands with gravel, silts with gravel, and silts with sand.
- Groundwater has been reportedly encountered as shallow as 2.5 feet bgs, depending on Site surface elevation.
- Arsenic and dieldrin are COCs in Site soils.
- There are no COCs for Site groundwater, surface water, or sediment.



- There are not, or will not be, any potential dermal or ingestion exposure pathways for soil at the Site. All dieldrin-impacted soil has been removed during implementation of the CAP. The limited amount of arsenic-impacted soil in AOI-28 will be removed during additional remedial action prior to redevelopment.
- No volatile compounds have been detected in soil at the Site. Therefore, indoor air is not a medium of concern for future buildings being constructed at the Site.

# 10.0 CONCLUSIONS

The following conclusions are based on the observations and findings from the SRI:

- There are no impacts to groundwater, surface water, and sediment at the Site. It is necessary
  to confirm the findings of the SRI for the southern half of the Site south of Clover Creek.
  However, based on the consistency of historical operations between the northern and
  southern portions of the Site and the findings of this SRI, it is reasonable to conclude that
  assessment of the southern half of the property will have similar findings as in the northern
  portion.
- Arsenic is an additional COC for Site soils. A limited amount of arsenic-impacted soil remains at the subject property in AOI-28 and will be removed by direct excavation and off-Site disposal to an appropriately designated landfill. This additional remedial action will utilize the means and methods used during the prior CAP implementation.
- The source of the observed arsenic is not known. Arsenic at concentrations exceeding an applicable CUL was not widespread at the Site. It also did not correlate to any other areas of impact other than in AOI-28.
- The assessment of the southern portion of the Site should include a Site-wide screening for arsenic using similar method and sampling frequency as on the northern portion of the Site. Arsenic identified in soil at a concentration exceeding a CUL should be remediated prior to redevelopment.
- The CAR will present detailed descriptions of each remedial excavation and the result of both performance samples used to guide the excavation and conformational samples from the limits of the remedial excavations.
- Potential current or future exposure pathways for Site COCs have been resolved. Impacts to soil have been or will be remediated by direct excavation and off-Site disposal prior to any future use of the property. The CULs developed in the RI and within this SRI are fully protective of all current and potential future receptors.



# 11.0 LIMITATIONS

To the extent that preparation of this report has required the application of best professional judgment and the application of established scientific and engineering principles, certain results of this work were based on subjective interpretation. TRC makes no warranties, express or implied, including and without limitation warranties as to merchantability or fitness for a particular purpose. The information provided in this report is not to be construed as legal advice.

This SRI Report was prepared solely for Ichijo and the contents herein may not be used or relied upon by any other person without the express written consent and authorization of TRC.



Tables

# Table 1Soil Analytical Results – January 2020Supplemental Remedial Investigation ReportFormer Brookdale Golf Course1802 Brookdale Road East, Tacoma, Washington

Sample Location	Sample Date	Arsenicª	1,2- Dibromoethan e (EDB) <sup>b</sup>	Diazinon <sup>c</sup>	Nitrate (as N) <sup>d</sup>	Ortho- Phosphate (as P) <sup>d</sup>
B-1:Surface	1/15/2020	1.90	<0.005	<0.484	<1.05	<2.10
B-2:Surface	1/15/2020	2.06	<0.005	<0.537	<1.11	<2.23
B-3:Surface	1/15/2020	3.11	<0.005	<0.516	<1.04	<2.08
B-4:Surface	1/15/2020	3.94	<0.005	<0.451	<1.05	<2.09
B-5:Surface	1/15/2020	2.59	<0.005	<0.449	<1.06	<2.11
B-6:Surface	1/16/2020	3.97	<0.005	<0.537	<1.07	<2.14
B-7:Surface	1/16/2020	55.0	<0.005	<0.503	<1.07	<2.14
B-7:2	1/16/2020	111				
B-8:Surface	1/16/2020	2.12	<0.005	<0.510	<1.03	<2.06
B-9:Surface	1/16/2020	2.57	<0.005 J	<0.488	1.34	<2.12
TP-1:Surface	1/17/2020	3.11	<0.005 J	<0.642	3.97	<2.75
TP-2:Surface	1/17/2020	3.42	<0.005	<0.639	<1.39	<2.78
TP-3:Surface	1/17/2020	5.66	<0.005 J	<0.831	2.48	<3.47
TP-4:Surface	1/17/2020	3.89	<0.005 J	<0.647	2.43	<3.04
AOI-1:Surface	1/23/2020	4.09				
AOI-2:Surface	1/23/2020	2.22				
AOI-3:Surface	1/23/2020	5.12				
AOI-5:Surface	1/23/2020	3.06				
AOI-7:Surface	1/23/2020	1.71				
AOI-9:Surface	1/23/2020	2.91				
AOI-10:Surface	1/23/2020	3.69				
AOI-12:Surface	1/24/2020	3.91				
AOI-13:Surface	1/24/2020	3.92				
AOI-14:Surface	1/24/2020	3.63				
AOI-16:Surface	1/24/2020	4.38				
AOI-21:Surface	1/24/2020	9.77				
AOI-23:Surface	1/24/2020	2.54				
AOI-20-1:3	1/23/2020	95.4				
AOI-20-2:S	1/23/2020	14.4				
AOI-20-3:S	1/23/2020	11.8				
AOI-20-4:S	1/23/2020	26.5				
AOI-20-4:2	1/23/2020	34.6				
AOI-20-5:S	1/24/2020	10.4				
Soil Cleanup	Level	20 <sup>e</sup>	0.005 <sup>e</sup>	56 <sup>f</sup>	130,000 <sup>f</sup>	NVE

Notes:

All results presented in milligrams per kilogram (mg/kg).

**Bold** Bold results indicate that the compound was detected.

- Shaded cells indicate that the compound was detected at a concentration greater than cleanup level.
- a Analyzed by EPA Method EPA 6020B.
- b Analyzed by EPA Method EPA 8260D Direct Sparge.
- c Analyzed by EPA Method EPA 8270-SIM.
- d Analyzed by EPA Method EPA 300.0.
- e Model Toxics Control Act (MTCA) Method A Soil Cleanup Level for Unrestricted Land Uses taken from Table 740-1 of Washington Administrative Code Chapter 170-340-900.
- f When no MTCA Method A established, MTCA Method B Soil Cleanup Levels (from Cleanup Levels and Risk Calculations [CLARC] spreadsheet) used.
- -- Sample was not analyzed for this compound.
- < Less than laboratory method detection limit.
- NVE No value established.

Qualifier: J

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



# Table 2Groundwater Analytical Results – January 2020Supplemental Remedial Investigation ReportFormer Brookdale Golf Course1802 Brookdale Road East, Tacoma, Washington

Sample	Sample	Arse	enic <sup>a</sup>	1,2- Dibromoethane	Die Iduite <sup>C</sup>	Diazinon <sup>d</sup>	Nitrate	Ortho- Phosphate
Location	Date	Total	Dissolved	(EDB) <sup>b</sup>	Dieldrin <sup>c</sup>	Diazinon	(as N) <sup>e</sup>	(as P) <sup>e</sup>
B-1:GW	1/15/2020	9.68	<1*	<0.01	<0.02	<0.197	1,200	<200
B-2:GW	1/15/2020	1.22	<1*	<0.01	<0.02	<0.197	1,180	<200
B-3:GW	1/15/2020	73.1	<1*	<0.01	<0.02	<0.199	638	<200
B-4:GW	1/15/2020	33.5	<1*	<0.01	0.032	<0.197	2,260	<200
B-5:GW	1/15/2020	53.4	<1*	<0.01	<0.02	<0.198	2,560 D	<200
B-6:GW	1/16/2020	6.37	<1*	<0.01	<0.02	<0.198	2,050	<200
B-7:GW	1/16/2020	<1	<1*	<0.01	<0.02	<0.199	3,180	<200
B-8:GW	1/16/2020	9.08	<1*	<0.01	<0.02	<0.197	4,070 DH / 4,230 E	<200
B-10:GW	1/16/2020	39.7	<1*	<0.01	<0.02	<0.198	2,640 DH / 2,740 E	<200
MW-1	2/17/2020				<0.02			
Groundwater Cleanup Level		Į	5 <sup>f</sup>	0.01 <sup>f</sup>	0.0055 <sup>9</sup>	11 <sup>g</sup>	26,000 <sup>g</sup>	NVE

Notes:

All results presented in micrograms per liter (µg/L).

**Bold** Bold results indicate that the compound was detected.

Shaded cells indicate that the compound was detected at a concentration greater than cleanup level.

a Analyzed by EPA Method EPA 6020B.

b Analyzed by EPA Method EPA 8011 Modified.

c Analyzed by EPA Method EPA 8081B.

d Analyzed by EPA Method EPA 8270-SIM.

e Analyzed by EPA Method EPA 300.0.

f Model Toxics Control Act (MTCA) Method A Groundwater Cleanup Levels, WAC 173-340-900, Table 720-1.

g When no MTCA Method A established, MTCA Method B Groundwater Cleanup Levels (from Cleanup Levels and Risk Calculations [CLARC]

spreadsheet) used. Where cleanup levels based on carcinogenic and non-carcinogenic risk were available, the lower value is listed.

\* The dissolved metals samples were filtered at Friedman and Bruya on January 15,2020 at 09:42.

-- Sample was not analyzed for this compound.

< Less than laboratory method detection limit.

NVE No value established.

### Qualifiers:

D Dilution was required.

E Estimated value. The amount exceeds the linear working range of the instrument.

H Holding times for preparation or analysis exceeded.



# Table 3Surface Water Analytical Results – January 2020Supplemental Remedial Investigation ReportFormer Brookdale Golf Course1802 Brookdale Road East, Tacoma, Washington

Sample	Sample Date	Arsenic <sup>a</sup>		1,2- Dibromoethan	Dieldrin <sup>c</sup>	Diazinon <sup>d</sup>	Nitrate	Ortho- Phosphate
Location	Sample Date	Total	Dissolved	e (EDB) <sup>b</sup>	Dielarin	Diazinon	(as N) <sup>e</sup>	(as P) <sup>e</sup>
NFCC-SW-1	1/13/2020	<1	<1*	<0.01	<0.02	<0.197	1,130	<200
NFCC-SW-2	1/13/2020	<1	<1*	<0.01	<0.02	<0.197	1,140	<200
CC-SW-1	1/13/2020	<1	<1*	<0.01	<0.02	<0.199	2,690 D	<200
CC-SW-2	1/14/2020	<1	<1*	<0.01	<0.02	<0.198	2,840 D	<200
Pond-SW	1/14/2020	<1	<1*	<0.01	<0.02	<0.199	993	<200
CLARC	173-201A WAC (μg/L)	1	10	NVE	0.0000061	NVE	NVE	NVE
Surface Water Human Health	40 CFR 131.45 (μg/L)	0.0	018	NVE	0.00000007	NVE	NVE	NVE
Fresh Water <sup>t</sup>	CWA §304 (μg/L)	0.0	018	NVE	0.0000012	NVE	10,000	NVE

Notes:

All results presented in micrograms per liter (µg/L).

**Bold** Bold results indicate that the compound was detected.

- a Analyzed by EPA Method EPA 6020B.
- b Analyzed by EPA Method EPA 8011 Modified.
- c Analyzed by EPA Method EPA 8081B.
- d Analyzed by EPA Method EPA 8270-SIM.
- e Analyzed by EPA Method EPA 300.0.
- f Based on Cleanup Levels and Risk Calculations (CLARC) database.
- \* The dissolved metals samples were filtered at Friedman and Bruya.
- < Less than laboratory method detection limit
- NVE No value established.
- WAC Washington Administrative Code.
- CFR Code of Federal Regulations.
- CWA Clean Water Act.

Qualifier:

D Dilution was required.

# Table 4Sediment Analytical ResultsSupplemental Remedial Investigation ReportFormer Brookdale Golf Course1802 Brookdale Road East, Tacoma, Washington

Sample Location	Sample Date	Arsenic <sup>ª</sup>	1,2- Dibromoethan e (EDB) <sup>b</sup>	Dieldrin <sup>c</sup>	Diazinon <sup>d</sup>	Nitrate (as N) <sup>e</sup>	Ortho- Phosphate (as P) <sup>e</sup>
NFCC-Sed-1	1/13/2020	3.08	<0.005	<0.006	<0.0820	2.51	<3.53
NFCC-Sed-2	1/13/2020	3.33	<0.005	<0.006	<0.696 D	4.32	<3.09
NFCC-Sed-3	1/13/2020	4.62	<0.005	<0.006	<0.0657	2.88	<3.04
CC-Sed-1	1/13/2020	4.10	<0.005	<0.006	<0.0852	<1.96	<3.91
CC-Sed-2	1/14/2020	3.19	<0.005	<0.006	<0.838 D	<1.76	<3.52
CC-Sed-3	1/14/2020	8.88	<0.005	<0.006	<0.592 D	<1.30	<2.59
Pond-Sed-1	1/14/2020	8.25	<0.005 J	<0.006	<0.703 D	<1.47	<2.95
Pond-Sed-2	1/14/2020	10.4	<0.005	<0.006	<0.567 D	1.84	<2.32
Pond-Sed-3	1/14/2020	5.77	<0.005	<0.006	<0.517 D	<1.17	<2.34
Freshwater S Cleanup Ol		14	NVE	0.0049	NVE	NVE	NVE

### Notes:

All results presented in milligrams per kilogram (mg/kg).

**Bold** Bold results indicate that the compound was detected.

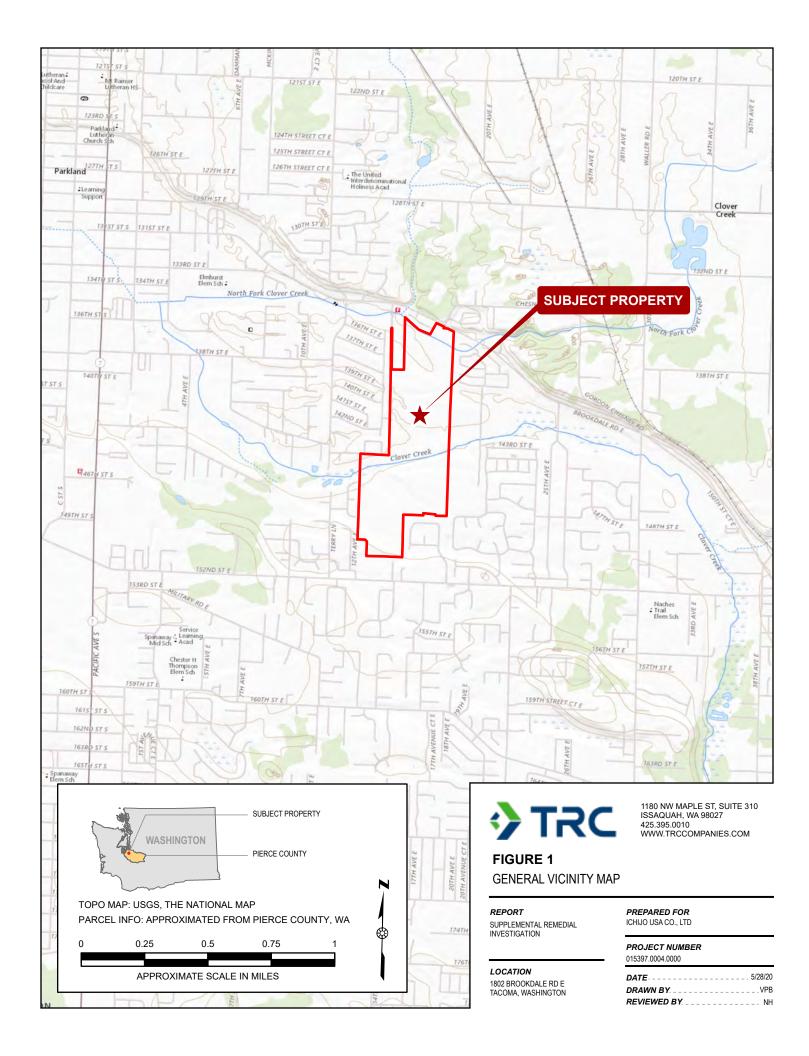
- a Analyzed by EPA Method EPA 6020.
- b Analyzed by EPA Method EPA 8260D Direct Sparge.
- c Analyzed by EPA Method EPA 8081B.
- d Analyzed by EPA Method EPA 8270-SIM.
- e Analyzed by EPA Method EPA 300.0.
- f Based on Washington State Department of Ecology Sediment Management Standards, WAC 173-204-563 Table VI, Freshwater Sediment Cleanup Objectives and Cleanup Screening Levels Chemical Criteria.,
- < Less than laboratory method detection limit.
- NVE No value established.

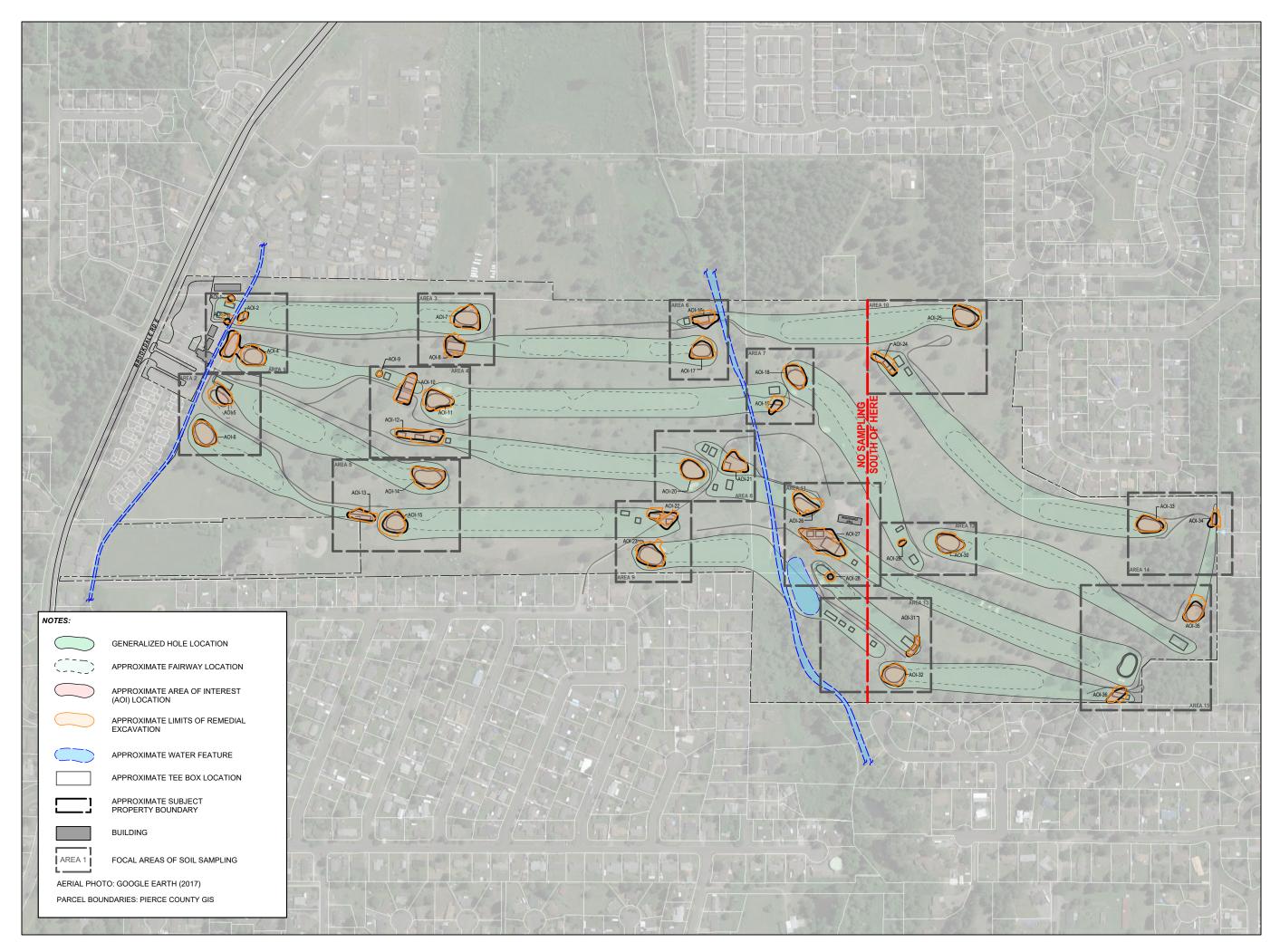
### Qualifier:

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



Figures







# FIGURE 2

SITE REPRESENTATION SHOWING REMEDIAL EXCAVATION AREAS

### REPORT

SUPPLEMENTAL REMEDIAL INVESTIGATION

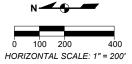
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1802 BROOKDALE RD E TACOMA, WASHINGTON

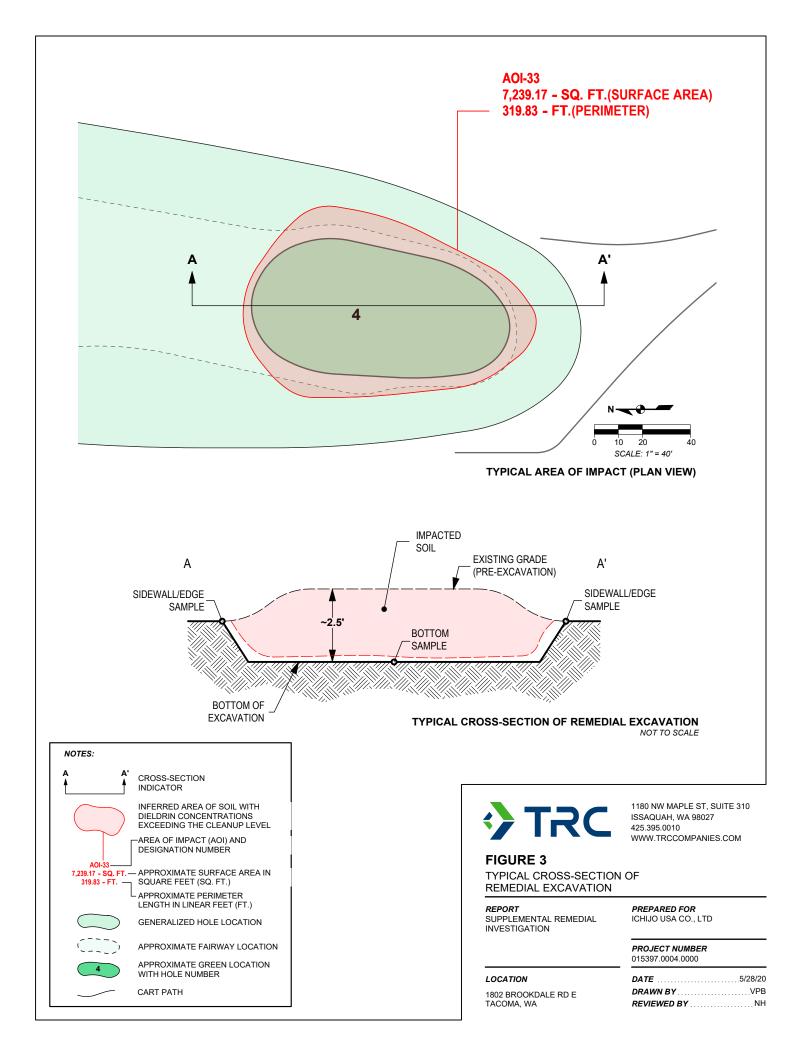
### PREPARED FOR

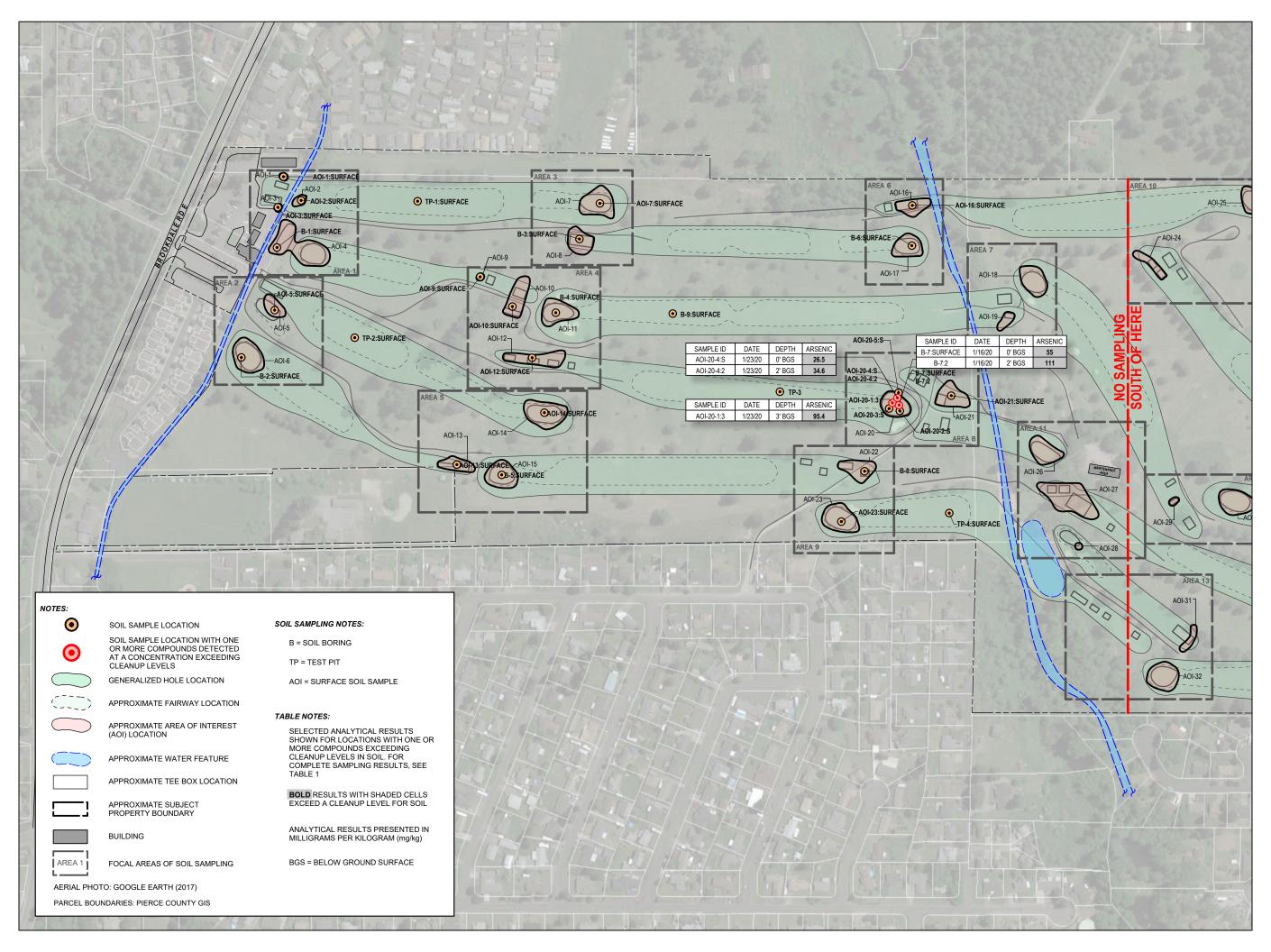
ICHIJO USA CO., LTD

### PROJECT NUMBER



DATE	5/28/20
DRAWN BY	VPB
REVIEWED BY	NH







# **FIGURE 4**

SOIL SAMPLE LOCATIONS WITH SELECTED ANALYTICAL RESULTS

### REPORT

SUPPLEMENTAL REMEDIAL INVESTIGATION

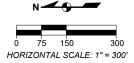
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1802 BROOKDALE RD E TACOMA, WASHINGTON

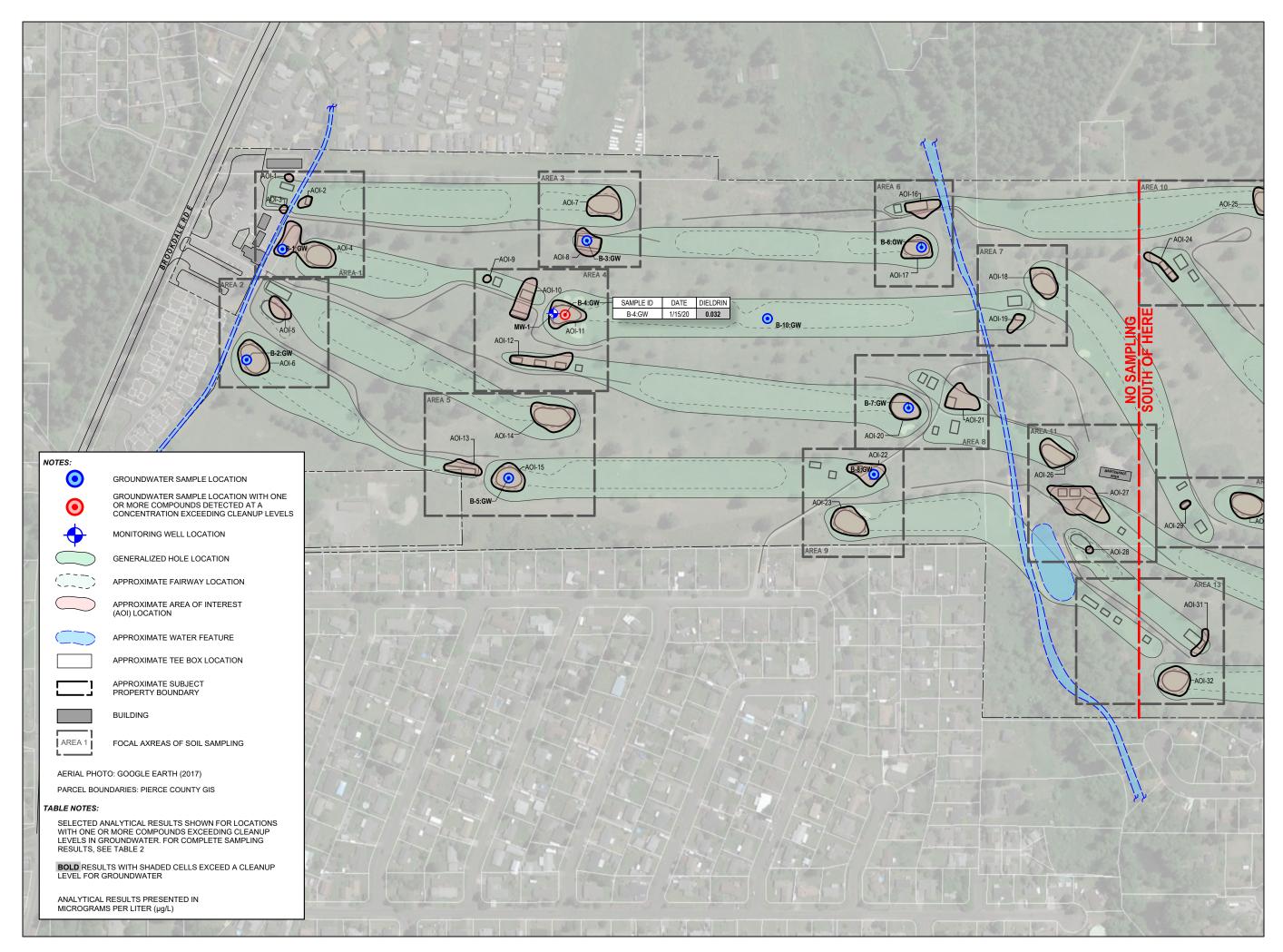
### PREPARED FOR

ICHIJO USA CO., LTD

### PROJECT NUMBER



DATE	5/28/20
DRAWN BY	VPB
REVIEWED BY	NH





# FIGURE 5

GROUNDWATER SAMPLE LOCATIONS WITH SELECTED ANALYTICAL RESULTS

### REPORT

SUPPLEMENTAL REMEDIAL INVESTIGATION

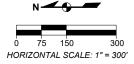
### LOCATION

1802 BROOKDALE RD E TACOMA, WASHINGTON

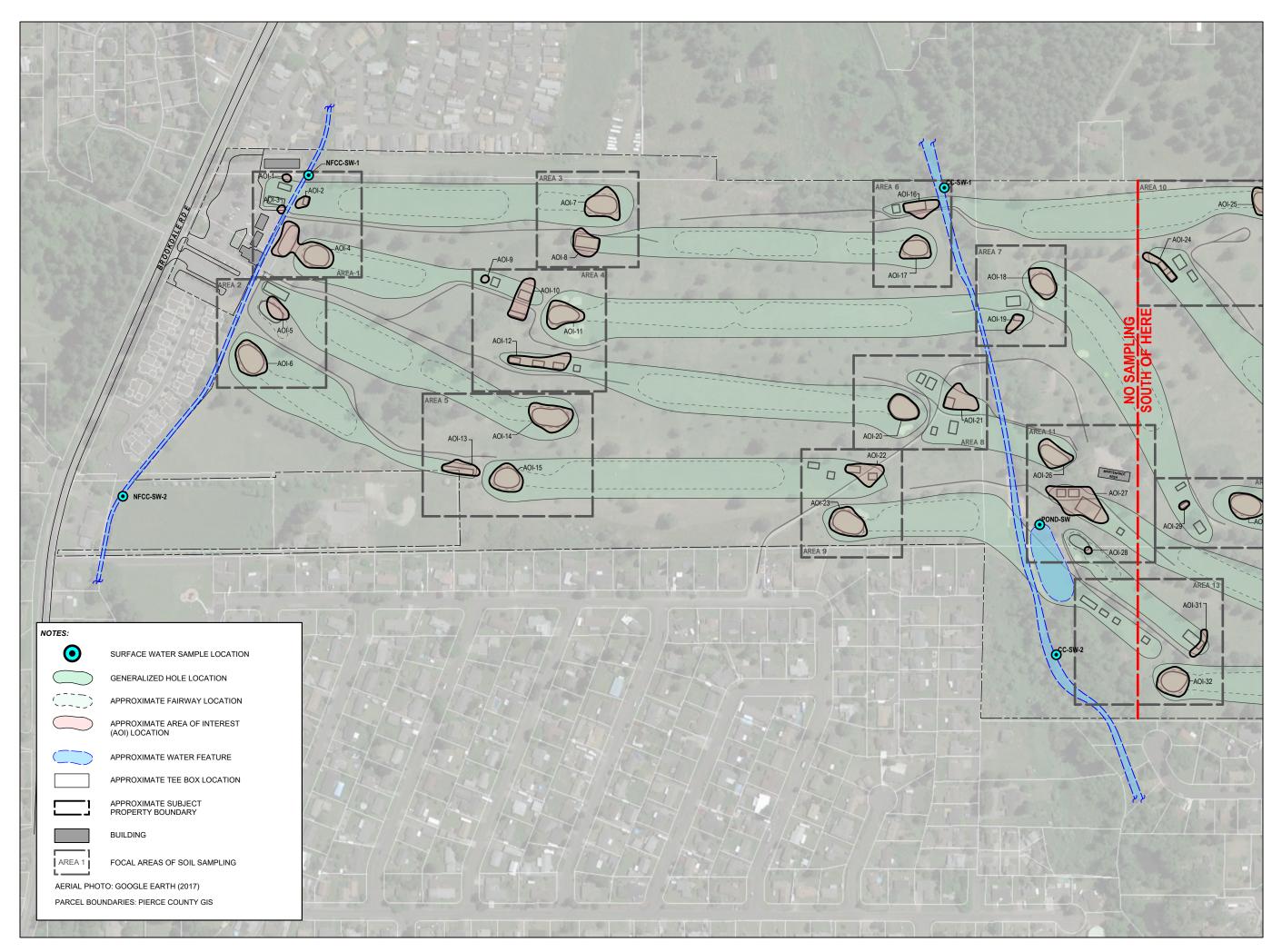
### PREPARED FOR

ICHIJO USA CO., LTD

### PROJECT NUMBER



DATE	5/28/20
DRAWN BY	VPB
REVIEWED BY	NH





# FIGURE 6

SURFACE WATER SAMPLE LOCATIONS WITH SELECTED ANALYTICAL RESULTS

### REPORT

SUPPLEMENTAL REMEDIAL INVESTIGATION

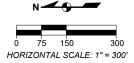
### LOCATION

1802 BROOKDALE RD E TACOMA, WASHINGTON

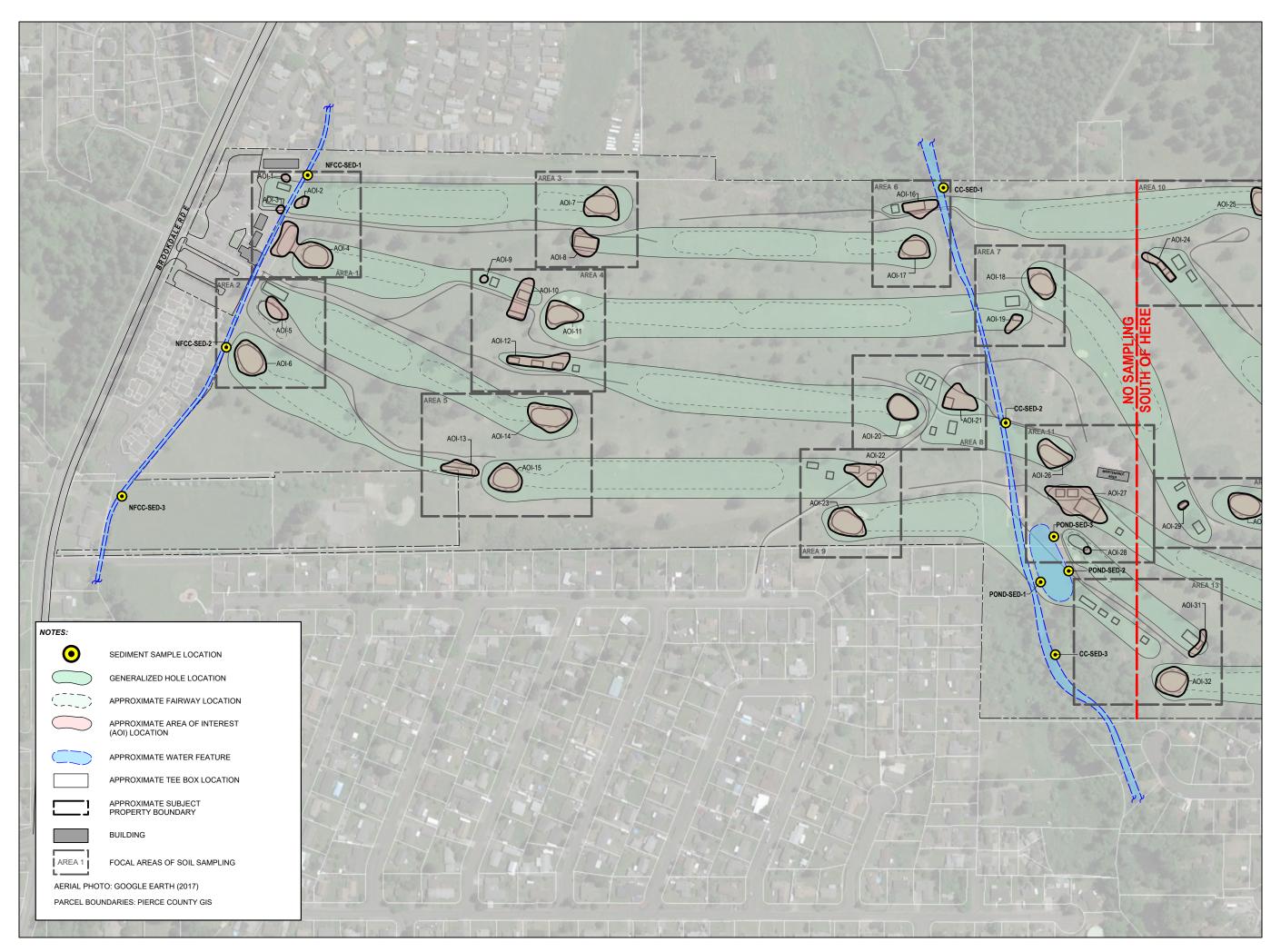
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DATE	5/28/20
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# **FIGURE 7**

SEDIMENT SAMPLE LOCATIONS WITH SELECTED ANALYTICAL RESULTS

### REPORT

SUPPLEMENTAL REMEDIAL INVESTIGATION

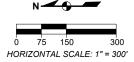
### LOCATION

1802 BROOKDALE RD E TACOMA, WASHINGTON

### PREPARED FOR

ICHIJO USA CO., LTD

### PROJECT NUMBER



DATE	5/28/20
DRAWN BY	VPB
REVIEWED BY	NH

Attachment A Historical Aerial Maps

# **Brookdale GC**

1802 BROOKDALE RD E Tacoma, WA 98445

Inquiry Number: 6046090.1 April 22, 2020

# **The EDR Aerial Photo Decade Package**



6 Armstrong Road, 4th floor Shelton, CT 06484 Toll Free: 800.352.0050 www.edrnet.com

## EDR Aerial Photo Decade Package

#### Site Name:

#### Client Name:

04/22/20

Brookdale GC 1802 BROOKDALE RD E Tacoma, WA 98445 EDR Inquiry # 6046090.1

#### TRC Environmental Corporation 1180 NW Maple St Suite 310 Issaquah, WA 98027 Contact: Nate Hinsperger



Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Searc	h Results:			
<u>Year</u>	Scale	Details	Source	
2017	1"=750'	Flight Year: 2017	USDA/NAIP	
2013	1"=750'	Flight Year: 2013	USDA/NAIP	
2009	1"=750'	Flight Year: 2009	USDA/NAIP	
2006	1"=750'	Flight Year: 2006	USDA/NAIP	
1990	1"=750'	Acquisition Date: July 10, 1990	USGS/DOQQ	
1980	1"=750'	Flight Date: July 01, 1980	USDA	
1972	1"=750'	Flight Date: September 04, 1972	USGS	
1968	1"=750'	Flight Date: September 02, 1968	USGS	
1957	1"=750'	Flight Date: May 28, 1957	USGS	
1941	1"=750'	Flight Date: July 10, 1941	USDA	

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Attachment B Boring Logs

	IRONMEN TNERS IN	TAL C	BO	RING I	D: B-1			
SITE ADDRESS			CLIE	INT:		CASIN	G MATEF	RIAL AND SIZE:
802 Brookdal	e Rd E, Tacoma, V	VA	Ichi	jo USA		0.75"	Tempo	orary Well
RILLING CONTR	ACTOR:			JECT #:		SCREE	EN SIZE:	
SN Northwes	t		153	97		0.010	" Slot	
RILLING EQUIPA	IENT:		DAT	E:		SCREE	EN INTER	RVAL:
ruck-Mount G	eoprobe 7800		1/15	5/20		10'-15	5' bgs	
RILLING METHO	D:		GRC	UND SURF	FACE ELEV. FT AMSL:	FILTER	PACK:	
Direct-Push Te	chnology (DPT)			Measure		Nativ		
OGGED BY:		BOREHOLE SIZE:		AL DEPTH:				NTERVAL:
C. McFadden/J	Snerroa	2.25" Diameter		bgs		0'-15'	bgs	
Depth (feet) CDepth (feet)	USCS name: Co	c <b>ription</b> lor; Moisture; Density; y; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample		Well C	onstruction
0	WELL-GRADED GRA gravel with few sand;	AVEL; brown; dry; mostly no odor			B-1:Surface			
2					B-1:2			
3 - 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0 . 0			70					
4								Tomp Wo
5 6 			80					Temp. We Casing
9	10' Wet						·	
11	11' Decreased gravel gray	size; wet; color change to	80					Temp. Wel Screen
13	14' Rusting				P.1.CM			
					B-1:GW	F		

gr	Rd E, Tacoma, W FOR: IT: pprobe 7800 nology (DPT) Desc USCS name; Colo Plasticity; Dilatency /ELL-GRADED GRA		PRO <b>153</b> DAT <b>1/16</b> GRC <b>Not</b> TOT <b>15'</b> <sup>Klecconeric</sup> <i>State</i>	ijo USA DJECT #: 97 E: 6/20 DUND SURF CAL DEPTH: bgs		0.75" Te SCREEN 0.010" \$ SCREEN 10'-15' I FILTER P Native \$ FILTER P 0'-15' bg	Slot INTERVAL: Ogs ACK: Soil ACK INTERVAL:
DRILLING CONTRACT ESN Northwest DRILLING EQUIPMENT Fruck-Mount Geo DRILLING METHOD: Direct-Push Techn OGGED BY: C. McFadden 1 0 0 0 0 0 0 0 0 0 0 0 0 0	TOR: TT: probe 7800 nology (DPT) Desc USCS name; Colo Plasticity; Dilatency VELL-GRADED GRA ray; damp; mostly find	BOREHOLE SIZE: 2.25" Diameter Cription pr; Moisture; Density; ; EPI description; Other VEL WITH SAND; brownish	PRO <b>153</b> DAT <b>1/16</b> GRC <b>Not</b> TOT <b>15'</b> <sup>Klecconeric</sup> <i>State</i>	5. 50 JECT #: 597 E: 6/20 50 UND SURF 50 UND SURF 50 UND SURF 50 SURF	ed	SCREEN 0.010" \$ SCREEN 10'-15' I FILTER P Native \$ FILTER P 0'-15' b	SIZE: Slot INTERVAL: bgs ACK: Soil ACK INTERVAL: gs
SN Northwest PRILLING EQUIPMENT Truck-Mount Geo PRILLING METHOD: Direct-Push Techn OGGED BY: C. McFadden 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	IT: probe 7800 nology (DPT) Desc USCS name; Colo Plasticity; Dilatency VELL-GRADED GRA ray; damp; mostly fine	2.25" Diameter Cription or; Moisture; Density; ; EPI description; Other VEL WITH SAND; brownish	153 DAT 1/10 GRC Not TOT 15'	97 E: 6/20 DUND SURF Measure AL DEPTH: bgs	ed	0.010" \$ SCREEN 10'-15' I FILTER P Native \$ FILTER P 0'-15' bg	Slot INTERVAL: Ogs ACK: Soil ACK INTERVAL: gs
DRILLING EQUIPMEN Truck-Mount Geo DRILLING METHOD: Direct-Push Tech OGGED BY: C. McFadden 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	probe 7800 nology (DPT) Desc USCS name; Colo Plasticity; Dilatency VELL-GRADED GRA ray; damp; mostly find	2.25" Diameter Cription or; Moisture; Density; ; EPI description; Other VEL WITH SAND; brownish	DAT 1/10 GRC Not TOT 15'	E: 6/20 DUND SURF : <b>Measure</b> AL DEPTH: <b>bgs</b>	ed	SCREEN 10'-15' I FILTER P Native S FILTER P 0'-15' bg	INTERVAL: Dgs ACK: Soil ACK INTERVAL: gs
Tuck-Mount Geo         DRILLING METHOD:         Direct-Push Techi         OGGED BY:         C. McFadden         (199)         USCS         0<	probe 7800 nology (DPT) Desc USCS name; Colo Plasticity; Dilatency VELL-GRADED GRA ray; damp; mostly find	2.25" Diameter Cription or; Moisture; Density; ; EPI description; Other VEL WITH SAND; brownish	Interval & BRCOVERY Recovery 22	6/20 DUND SURF : <b>Measure</b> AL DEPTH: <b>bgs</b>	ed	10'-15' I FILTER P Native S FILTER P 0'-15' bg	bgs ACK: Soil ACK INTERVAL: gs
DRILLING METHOD: Direct-Push Techi OGGED BY: C. McFadden (1) USCS 0 0 0 0 0 0 0 0 0 0 0 0 0	nology (DPT) Desc USCS name; Colo Plasticity; Dilatency VELL-GRADED GRA ray; damp; mostly find	2.25" Diameter Cription or; Moisture; Density; ; EPI description; Other VEL WITH SAND; brownish	Interval & Recovery <b>121</b>	DUND SURF Measure AL DEPTH: bgs	ed	FILTER P Native S FILTER P 0'-15' bg	ACK: Soil ACK INTERVAL: gs
Direct-Push Techi OGGED BY: C. McFadden (1) H USCS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Desc USCS name; Colo Plasticity; Dilatency /ELL-GRADED GRA ray; damp; mostly fine	2.25" Diameter Cription or; Moisture; Density; ; EPI description; Other VEL WITH SAND; brownish	Interval & LOL % Recovery	: <b>Measure</b> AL DEPTH: <b>bgs</b>	ed	Native S FILTER P 0'-15' bg	Soil ACK INTERVAL: gs
OGGED BY: C. McFadden (199) Hda O O O O O O O O O O O O O	Desc USCS name; Colo Plasticity; Dilatency /ELL-GRADED GRA ray; damp; mostly fine	2.25" Diameter Cription or; Moisture; Density; ; EPI description; Other VEL WITH SAND; brownish	Interval & LOT % Recovery	AL DEPTH: <b>bgs</b>		FILTER P <b>0'-15' b</b>	ACK INTERVAL: <b>gs</b>
USCS         Wgr           0 <td>USCS name; Colo Plasticity; Dilatency /ELL-GRADED GRA ray; damp; mostly find</td> <td>2.25" Diameter Cription or; Moisture; Density; ; EPI description; Other VEL WITH SAND; brownish</td> <td>Interval &amp; ,51</td> <td>bgs</td> <td></td> <td>0'-15' bạ</td> <td>gs</td>	USCS name; Colo Plasticity; Dilatency /ELL-GRADED GRA ray; damp; mostly find	2.25" Diameter Cription or; Moisture; Density; ; EPI description; Other VEL WITH SAND; brownish	Interval & ,51	bgs		0'-15' bạ	gs
(f) tida 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	USCS name; Colo Plasticity; Dilatency /ELL-GRADED GRA ray; damp; mostly find	Cription or; Moisture; Density; ; EPI description; Other VEL WITH SAND; brownish	Interval & % Recovery		Sample		
0 W 	USCS name; Colo Plasticity; Dilatency /ELL-GRADED GRA ray; damp; mostly find	or; Moisture; Density; ; EPI description; Other VEL WITH SAND; brownish		PID (ppm)	Sample		/ell Construction
2	ray; damp; mostly fine						
4			60				Temp. Wel Casing
10         11         12         13         14         14         15	End of	Borehole	100		B-10:GW		Temp. Wel Screen

	IRONMEN TNERS IN	TAL C	BC	RING I	D: B-2		
SITE ADDRESS			CLIE	ENT:		CASING MATE	RIAL AND SIZE:
802 Brookdal	e Rd E, Tacoma, V	/A	Ich	ijo USA		0.75" Temp	orary Well
RILLING CONTR	ACTOR:			JECT #:		SCREEN SIZE:	
SN Northwes	t		153	97		0.010" Slot	
RILLING EQUIP	IENT:		DAT	E:		SCREEN INTER	RVAL:
ruck-Mount C	eoprobe 7800		1/1	5/20		10'-15' bgs	
RILLING METHO			GRO	OUND SURI	FACE ELEV. FT AMSL:	FILTER PACK:	
	chnology (DPT)	1		Measur		Native Soil	
OGGED BY:		BOREHOLE SIZE:		AL DEPTH	:	FILTER PACK	NTERVAL:
. McFadden		2.25" Diameter		bgs		0'-15' bgs	
Depth (feet) USCS	USCS name; Col	cription or; Moisture; Density; r; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample	Well C	Construction
0	WELL-GRADED GRA to coarse gravel with t	VEL; brown; dry; mostly fir ew sand	le		B-2:Surface		
2			50		B-2:2		
$\begin{array}{c} 3 \xrightarrow{} \cdots \cdots \cdots \cdots \\ \overline{} \cdots \cdots \cdots \\ \overline{} \cdots \cdots \cdots \\ \overline{} \cdots \cdots \cdots \\ 4 \xrightarrow{} \cdots \cdots \cdots \\ \overline{} \cdots $							
5							Temp. We Casing
6  7  							
8 - · · · · · · · · · · · · · · · · · ·			65				
10	10' Wet; decreased gi content to minor; colo	avel size; increase sand r change to gray					
11							
12			65				Temp. We Screen
13							
14	14' Rusting				B-2:GW		
15							
-	End o	f Borehole					

PAR	IRONMEN TNERSINO	TAL C	BC	RING I	D: B-3			
SITE ADDRESS			CLIE	ENT:		CASING MAT	ERIAL AND SIZE:	
802 Brookdale	e Rd E, Tacoma, W	/Α	lchi	ijo USA		0.75" Temporary Well		
DRILLING CONTRA				JECT #:		SCREEN SIZE		
ESN Northwest	t		153	97		0.010" Slot	t	
ORILLING EQUIPM	ENT:		DAT	E:		SCREEN INTI	ERVAL:	
ruck-Mount G	eoprobe 7800		1/1	5/20		10'-15' bgs	i	
ORILLING METHO					FACE ELEV. FT AMSL:			
	chnology (DPT)	[		Measur		Native Soil		
OGGED BY: <b>. McFadden</b>		BOREHOLE SIZE:			:	FILTER PACK		
		2.25" Diameter	ייען א	5' bgs		0'-17.5' bg:	5	
Depth (feet) Contraction (feet)	USCS name; Col	Cription or; Moisture; Density; ; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample	Well	Construction	
0	WELL-GRADED GRA to coarse gravel with f	VEL; brown; dry; mostly fi ew sand			B-3:Surface			
2			50		B-3:2			
3								
5							Temp. We Casing	
6 - · · · · · · · · · · · · · · · · · ·								
8			100					
9								
11								
12		reased gravel size ray; damp; mostly silt with ace fine gravel; low plastic					Temp. We Screen	
13 - - 14 - MI							50,001	
					1			
15 -								

	IRONMEN TNERSINO	TAL C	BC	RING I	D: B-4			
SITE ADDRESS			CLIE	ENT:		CASIN	G MA	TERIAL AND SIZE:
1802 Brookdale	e Rd E, Tacoma, W	ΙΑ	Ichi	ijo USA		0.75"	Tem	porary Well
DRILLING CONTRA	ACTOR:			JECT #:		SCRE		
ESN Northwest	t		153	97		0.010	" Slo	t
DRILLING EQUIPM	IENT:		DAT	E:		SCREI	EN INT	ERVAL:
Truck-Mount G	eoprobe 7800		1/1!	5/20		11'-1	6' bg:	S
DRILLING METHO	D:		GRC	OUND SURF	FACE ELEV. FT AMSL:	FILTER	R PAC	K:
Direct-Push Te	chnology (DPT)	1	_	Measure		Nativ	e Soi	il
LOGGED BY:		BOREHOLE SIZE:		AL DEPTH:				K INTERVAL:
C. McFadden		2.25" Diameter		5' bgs		0'-19.	.5° bg	S
Depth (feet) Contraction (feet)	USCS name: Col	<b>cription</b> or; Moisture; Density; r; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample		Well	Construction
0 1 	WELL-GRADED GRA to coarse gravel with f	VEL; brown; dry; mostly fine ew sand	60		B-4:Surface B-4:2			Temp. Well Casing
10			75					Temp. Well Screen
15			90		B-4:GW			

	IRONMEN TNERSIN	TAL C	BO	RING I	D: B-5			
SITE ADDRESS			CLIE	INT:		CASIN	g Ma	TERIAL AND SIZE:
802 Brookdale	e Rd E, Tacoma, V	VA	Ichi	ijo USA		0.75"	Ten	nporary Well
ORILLING CONTRA	ACTOR:		PRC	JECT #:		SCREE		
SN Northwest	<u>.</u>		153	97		0.010	" Sle	ot
DRILLING EQUIPM	ENT:		DAT	E:		SCREE	EN IN	TERVAL:
ruck-Mount G	eoprobe 7800		1/1	5/20		15'-20	)' bg	S
RILLING METHO			GRC	OUND SURF	FACE ELEV. FT AMSL:	FILTEF	R PAC	CK:
Direct-Push Te	chnology (DPT)			Measure		Nativ		
OGGED BY:		BOREHOLE SIZE:		AL DEPTH:				CK INTERVAL:
. McFadden		2.25" Diameter		bgs		0'-20'	bgs	
Depth (feet) USCS	USCS name; Col Plasticity; Dilatency	c <b>ription</b> lor; Moisture; Density; y; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample		We	II Construction
	WELL-GRADED GRA dry; mostly fine to coa	AVEL WITH SAND; brown; arse gravel with minor sand			B-5:Surface B-5:2			
$ \begin{array}{c} 2 \\ - & & & & \\ 0 \\ - & & & & \\ 0 \\ - & & & & \\ 0 \\ - & & & & \\ 0 \\ - & & & & \\ 0 \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ -$			60		D-3.2			
5			30					Temp. We Casing
11			80					
15 - [			·					

QD -	N V I R O A R T N E	N M E N R S I N	TAL C	В	OF	ring II	D: B-6		
SITE ADDR				CL	IEN.	IT:		CASING M	ATERIAL AND SIZE:
802 Bro	okdale Rd E,	Tacoma, N	NA	lc	hijo	o USA		0.75" Te	mporary Well
	CONTRACTOR:					ECT #:		SCREEN S	
SN Nor					39			0.010" S	
	EQUIPMENT:				TE:			SCREEN I	
	ount Geoprob	e 7800			16/:			0'-7' bgs	
DRILLING N							ACE ELEV. FT AMSL:	FILTER PA	
JIRECT-PU	ish Technolo	gy (DPT)	BOREHOLE SIZE:			Measure		Native S	<b>DII</b> CK INTERVAL:
C. McFad			<b>2.25" Diameter</b>	10	)' b			0'-10' bg	
Depth (feet)	SCS US Plasi	CS name; Co	s <b>cription</b> blor; Moisture; Density; ;y; EPI description; Othe	r Interval &	% Kecovery	PID (ppm)	Sample	We	ell Construction
	WELL-( mostly)	GRADED GRA	AVEL; grayish brown; m gravel with few sand	oist;			B-6:Surface		
2				30			B-6:2		
4	3.5' We	t							Temp. We Screen
6	0.9		size; increased coarse s	and 50	)		B-6:GW		
9									
		End o	of Borehole						
11 –									
- 12 -									
- 13 -									
- 14 -									
_									

	IRONMEN TNERSIN	C	BC	oring I	D: B-7		
SITE ADDRESS				ENT:			
	e Rd E, Tacoma, V	VA		ijo USA		0.75" Tempo	orary Well
				)JECT #:		SCREEN SIZE:	
SN Northwest			153			0.010" Slot	D\/AL.
RILLING EQUIPM			DAT			SCREEN INTER	(VAL:
<b>TUCK-MOUNT G</b>	•		_	6/20		<b>0'-7' bgs</b> FILTER PACK:	
	chnology (DPT)			t Measur	FACE ELEV. FT AMSL:	Native Soil	
OGGED BY:	chilology (DPT)	BOREHOLE SIZE:				FILTER PACK I	
C. McFadden		2.25" Diameter		bgs		0'-10' bgs	
Depth (feet) USCS	USCS name; Co	<b>Cription</b> or; Moisture; Density; ;; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample	Well C	onstruction
0	WELL-GRADED GRA fine to coarse gravel v	VEL; brown; moist; mostly vith few sand			B-7:Surface		
2			50		B-7:2		
4	4' Wet; rusting						Temp. We Screen
5	5' Color change to gra	ıyish brown	50		B-7:GW		
10							
	End o	f Borehole					
11 -							
12 -							
13 -							
14 -							
-							

	IRONMEN TNERSIN	TAL C	BC	RING I	D: B-8			
SITE ADDRESS			CLIE	ENT:		CASIN	IG MAT	FERIAL AND SIZE:
1802 Brookda	le Rd E, Tacoma, V	VA	Ichi	ijo USA		0.75'	' Tem	porary Well
DRILLING CONT			PROJECT #: 15397				EN SIZ <b>)" Slo</b>	
DRILLING EQUIP			DAT					ERVAL:
	Geoprobe 7800			6/20		8'-18		
DRILLING METHO	•		-		FACE ELEV. FT AMSL:		R PACI	K:
	echnology (DPT)			Measur			ve Soi	
OGGED BY:		BOREHOLE SIZE:	тот	AL DEPTH	:	FILTE	R PAC	K INTERVAL:
C. McFadden	1	2.25" Diameter		bgs	1	0'-18	' bgs	
Depth (feet) Constant	USCS name; Co Plasticity; Dilatenc	s <b>cription</b> lor; Moisture; Density; y; EPI description; Other	Interval & % Recovery	PID (ppm)	Sample		Well	Construction
0 1 	brown; damp; mostly minor sand	AVEL WITH SAND; grayish fine to coarse gravel with	50		B-8:Surface B-8:2			Temp. Well Casing
8			0					Temp. Well Screen
	d							
NOTES: BO	ring begins 1' bgs in lection.	AOI-22. Tagged DTW	= 8.5	0' bgs. 2.	.5 gallons of GW rem	noved p	prior to	
COL								1 of 1

3     -	<b>e</b> di	E N V P A R	IRONMEN TNERSIN(	TAL C	BC	RING I	D: B-9	
DRELING CONTRACTOR:     PROJECT #:     SCREEN NEL2::       ESN Northwest     15897     0.010° Slot       DRLING COURNENT:     DATE:     SCREEN NETRAL:       Truck-Mount Geoprobe 7800     1/16/20     N/A       DRULING EDWING:     DATE:     SCREEN NETRAL:       Truck-Mount Geoprobe 7800     1/16/20     N/A       DRULING EDWING:     DRUE NUCLE SIZE:     NOT Measured     N/A       LOGGED BY:     CRESS Sufface Nucle SiZE:     TOTAL DEPTH:     FILTE PACK:       CMFFadden     2.2.5° Diameter     20° bgs     N/A       0     Creass Sufface with Topsail     80     8-9.2       1     Truck-GRAVEL WITH SAND: dty:     B-9.5urface     No Tempor       2     WELL GRADED GRAVEL WITH SAND: dty:     B-9.5urface     No Tempor       3     WELL GRADED GRAVEL WITH SAND: dty:     B-9.2     No Tempor       4     S     S     S     S       5     S     S     S     S     S       6     S     S     S     S     S       7     S     S     S     S     S       1     S     S     S     S     S       1     S     S     S     S     S       1     S     S			e Rd E, Tacoma, W	ΙΑ				
Truck-Mount Geoprobe 7800     1/16/20     N/A       DRILLING METHOD:     GROUND SURFACE LIEV. FT AMSL:     FILTER PACK:       Direct-Push Technology (DPT)     Not Measured     N/A       LOGGED BY:     2.25" Diameter     20" bgs       C. McFadden     2.25" Diameter     20" bgs     N/A       IDG     USCS name: Color: Mostare: Density:     0" bgs     PID     Sample       Well Construction     USCS name: Color: Mostare: Density:     0" bgs     PID     Sample       0     Grass Surface with Topsoll     B-9:Surface     B-9:Surface       1     Truck-WELL GRADED GRAVEL WITH SAND dry:     40     B-9:2       3     Mostary fine to coarse gravel with minor sand     B-9:2     40       4     Sample     Well Construction     Well instal       5     Sample     80     B-9:2       4     Sample     B-9:2     No Tempor       10     GGW:     Truck-Mount Support     B-9:2       11     Sample     B-9:2     Sample					PRC	JECT #:		SCREEN SIZE:
DRILLING METHOD.     GROUND SURFACE ELEV. FT AMSL:     FILTER PACK:       N/A     N/A       LOGGED BY:     BOREHOLE SIZE:       C.MEFBadden     2.25" Diameter       20" bgs     N/A       9     USCS       USCS memory leader     Description uses color holdsture: Density: Plasticity: Dialetery: Dialetery: EPI description: Oliner       0     Grass Surface with Topsoil       1     Grass Surface with Topsoil       2     Grass Surface with Topsoil       3     B-9:Surface       4     Most Holdsture Density: Plasticity: Dialetery: EPI description: Oliner       6     Grass Surface with minor sand       2     Grass Surface with minor sand       3     Grass Surface with minor sand       4     Grass Surface with minor sand       5     Grass Surface       6     Grass Surface       7     Grass Surface       9     Grass Surface       10     Grass Surface       11     Grass Surface       12     Total Description: Directory       13     Grass Surface								
LOGGED BY:     EOREHOLE SIZE:     TOTAL DEPTH:     PLTER PACK INTERVAL:       2. McFadden     2.25" Diameter     20 bgs     N/A       9     USCS     Description     9     PLD       0     Grass Surface with Topsoil     9     PLD     Sample       1     Well-GRADED GRAVEL WITH SAND.dry:     B-9:Surface     B-9:Surface       1     Well-GRADED GRAVEL WITH SAND.dry:     B-9:Surface     B-9:Surface       3     Well-GRADED GRAVEL WITH SAND.dry:     B-9:Surface     B-9:Surface       3     Well-GRADED GRAVEL WITH SAND.dry:     B-9:Surface     B-9:Surface       4     B-9:Surface     B-9:Surface     B-9:Surface       3     Grass Surface with minor sand     B-9:Surface     B-9:Surface       4     Grass Surface     B-9:Surface     B-9:Surface       4     Grass Surface     B-9:Surface     B-9:Surface       4     Grass Surface     B-9:Surface     B-9:Surface       5     Grass Surface     B-9:Surface     B-9:Surface       6     Grass Surface     B-9:Surface     B-9:Surface       10     Grass Surface     B-9:Surface     B-9:Surface       11     Grass Surface     B-9:Surface     B-9:Surface       12     Grass Surface     B-9:Surface     B-9:Surface <td></td> <td></td> <td>•</td> <td></td> <td></td> <td></td> <td>FACE ELEV. FT AMSL:</td> <td></td>			•				FACE ELEV. FT AMSL:	
C. McFadden     2.25" Diameter     20 bgs     N/A       Image: Second Control of Mosture: Density: Plasticity: Diatency: Plasciption: Other     Image: Second Control of Mosture: Density: Plasticity: Diatency: Plasciption: Other     Image: Second Control of Mosture: Density: Plasticity: Diatency: Plasciption: Other     Image: Second Control of Mosture: Density: Plasticity: Diatency: Plasciption: Other     Image: Second Control of Mosture: Density: Plasticity: Diatency: Plasciption: Other     Image: Second Control of Mosture: Density: Plasticity: Diatency: Plasticity: Plasti	Direct	-Push Te	chnology (DPT)	1				N/A
Image: system     USCS     Description pusces pane: Color Mosture: Density: Plasticity: Dilations; EPI description: Other     PID (pm)     Sample     Well Construction       0     Grass Surface with Topsol     B-9:Surface     B-9:Surface     B-9:Surface       1     Grass Surface with Topsol     B-9:Surface     B-9:Surface       2     Well-Charge gravel with minor sand     B-9:Surface       4     Grass Surface     B-9:Surface       4     Grass Surface     B-9:Surface       5     Grass Surface     B-9:Surface       4     Grass Surface     B-9:Surface       4     Grass Surface     B-9:Surface       4     Grass Surface     B-9:Surface       4     Grass Surface     B-9:Surface       5     Grass Surface     B-9:Surface       6     Grass Surface     B-9:Surface       7     Grass Surface     B-9:Surface       10     Grass Surface     B-9:Surface       11     Grass Surface     B-9:Surface       12     Grass Surface     B-9:Surface       13     Grass Surface     B-9:Surface								
0     Grass Surface with Topsoli       1     WELL GRADED GRAVEL WITH SAND' dry: mostly line to coarse gravel with minor sand       2     40       3     40       4     40       5     5       6     6       7     80       80     80       10     CGW       11     100	_	Fadden		2.25" Diameter		bgs		N/A
0     Grass Surface with Topsoil       1     WELL-GRADED GRAVEL WITH SAND: dry:       mostly fine to coarse gravel with minor sand       2       3       40       40       5       6       7       6       80       80       10       CGWW       11       12       13	Depth (fee	USCS	USCS name: Col	or: Moisture: Density:	Interval & % Recover		Sample	Well Construction
WELL-GRADED GRAVEL WITH SAID: dy:         mostly line to coarse gravel with minor sand         40         3         6         7         6         7         80         80         80         10         CGW*         11         12         10         13	0		Grass Surface with To	psoil			B-9:Surface	
2     40     B.9.2       3     40     40       5     5       6     6       7     80       8     80       9     6       10     GGW       11     100       12     100	1 -	0.0.0.0			-			
3       -	2 -	0.0.0.0		,			B-9:2	
3       -	-	0 • 0 • 0 • 0 • 0 0 • 0 • 0 • 0 • 0 0 • 0 •			40			
3       -	3 -							
3       -	4 -							
6     80       8     80       9     60       10     60       11     60       12     60       13     100	- 5	0 • 0 • 0 • 0 • 0 0 • 0 • 0 • 0 • 0 0 • 0 •						No Temporary Well Installed
7     80       8     80       9     9       10     60       10     60       10     60       11     100       12     100       13     100	-							
7	6 -							
8     80       9     000000000000000000000000000000000000	7 -	0.0.0.0.0.0						
$ \begin{array}{c}                                     $	- 8 -	0 • 0 • 0 • 0 • 0 • 0 • 0 • 0 • 0 • 0 •			80			
10	_	0 • 0 • 0 • 0 • 0 0 • 0 • 0 • 0 • 0 0 • 0 •						
$ \begin{array}{c} 10 \\ -0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ $	9 -	0.0.0.0.0						
$ \begin{array}{c} 11 \\ 11 \\ -0.00000 \\ 0.00000 \\ 12 \\ -0.00000 \\ 0.0000 \\ 0.00000 \\ 0.$	10 -	••••••••••••••••••••••••••••••••••••••						
$12 \xrightarrow{0.00000}_{0.00000}_{0.00000}_{0.00000}_{0.00000}_{0.000000}_{0.000000}_{0.000000}_{0.000000}_{0.0000000}_{0.0000000}_{0.0000000}_{0.0000000000$	- 11 -	• • • • • • • • • • • • • • • • • • •						
$     \begin{bmatrix}             12 & - & \cdots & \cdots$		0 • 0 • 0 • 0 • 0 • 0 • 0 • 0 • 0 • 0 •						
	12 -	0 • 0 • 0 • 0 • 0 0 • 0 • 0 • 0 • 0 0 • 0 •			100			
	13 -	0 • 0 • 0 • 0 • 0 • 0 0 • 0 • 0 • 0 • 0 0 • 0 •						
	- 14 -	0 • 0 • 0 • 0 • 0 • 0 • 0 • 0 • 0 • 0 •						
		0 • 0 • 0 • 0 • 0 0 • 0 • 0 • 0 • 0 0 • 0 •						
	15 -	0 • 0 • 0 • 0 • 0 0 • 0 • 0 • 0 • 0 0 • 0 •			0			

NOTES: Boring in fairway. No groundwater sample.

	IRONM TNERS	INC		BORING	ID: MW-1		
SITE ADDRESS				CLIENT:			CASING MATERIAL AND SIZE:
802 Brookda	ale Rd E, Taco	ma, WA		Ichijo USA			2" Sch. 40 PVC
RILLING CONT	RACTOR:			PROJECT #:			SCREEN SIZE:
lolocene Dri	lling			15397			0.010" Slot
RILLING EQUIF	PMENT:			DATE:			SCREEN INTERVAL:
_imited-Acce	ss Rig			2/13/20			10'-20' bgs
RILLING METH	OD:			GROUND SUF	RFACE ELEV. FT	FAMSL:	FILTER PACK:
lollow-Stem	Auger (HSA)			Not Measu	red		Silica Sand
OGGED BY:		BOREHOLE SIZE:		TOTAL DEPTH	H:		FILTER PACK INTERVAL:
C. McFadden		6" Diameter		20' bgs		1	8'-20' bgs
Depth (feet) USCS	USCS name; C	SCription olor; Moisture; Density; icy; EPI description; Other	Interval & % Recovery	Blows per 6"	Sample	PID (ppm)	Well Construction
0 1 2 3 4 5 6 7 6 7 6 7 6 7 6 7 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	brown; damp; mo minor sand 15' Wet; rusting; 20' NO RECOVE	GRAVEL WITH SAND; postly fine to coarse gravel with addition of few silt ERY; wet d of Borehole	33 66 66	16,50/6 22,29,50/6 32,24,35 32,24,35		0.0	Well Monument Sel in Cement Hydrated Bentonite Chip Well Casing Filter Pack Well Screen

Attachment C Laboratory Analytical Reports

#### 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

February 4, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015397, F&BI 001156

Dear Mr McFadden:

Included is the amended report from the testing of material submitted on January 13, 2020 from the 015397, F&BI 001156 project. Per your request, the dieldrin results were reported to the method detection limit.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Thom Morin TRC0117R.DOC

#### 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

January 17, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015397, F&BI 001156

Dear Mr McFadden:

Included are the results from the testing of material submitted on January 13, 2020 from the 015397, F&BI 001156 project. There are 20 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Thom Morin TRC0117R.DOC

#### ENVIRONMENTAL CHEMISTS

#### CASE NARRATIVE

This case narrative encompasses samples received on January 13, 2020 by Friedman & Bruya, Inc. from the Environmental Partners 015397, F&BI 001156 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Environmental Partners
001156-01	NFCC-Sed-1
001156-02	NFCC-Sed-1:1
001156-03	NFCC-Sed-2
001156-04	NFCC-Sed-2:1
001156-05	NFCC-Sed-3
001156-06	NFCC-Sed-3:1
001156-07	CC-Sed-1
001156-08	CC-Sed-1:1

Samples NFCC-Sed-1, NFCC-Sed-2, NFCC-Sed-3, and CC-Sed-1 were sent to Fremont Analytical for nitrate, phosphate, and organophosphorus pesticide diazinon analyses. The report is enclosed.

All quality control requirements were acceptable.

## ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	NFCC-Sed-1	Client:	Environmental Partners
Date Received:	01/13/20	Project:	015397, F&BI 001156
Date Extracted:	01/14/20	Lab ID:	001156-01
Date Analyzed:	01/14/20	Data File:	001156-01.046
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)	- <b>F</b>	
Arsenic	3.08		

## ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	01/13/20 01/14/20 01/14/20 Soil	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001156 001156-03 001156-03.047 ICPMS2
Units: Analyte:	mg/kg (ppm) Dry Weight Concentration mg/kg (ppm)	Operator:	SP

Arsenic

## ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	NFCC-Sed-3	Client:	Environmental Partners
Date Received:	01/13/20	Project:	015397, F&BI 001156
Date Extracted:	01/14/20	Lab ID:	001156-05
Date Analyzed:	01/14/20	Data File:	001156-05.050
Matrix:	Soil	Instrument:	ICPMS2
Units: Analyte:	mg/kg (ppm) Dry Weight Concentration mg/kg (ppm)	Operator:	SP

Arsenic

## ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	CC-Sed-1 01/13/20 01/14/20 01/14/20 Soil	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001156 001156-07 001156-07.051 ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)		
Arsenic	4.10		

## ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Environmental Partners
Date Received:	Not Applicable	Project:	015397, F&BI 001156
Date Extracted:	01/14/20	Lab ID:	I0-028 mb
Date Analyzed:	01/14/20	Data File:	I0-028 mb.044
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte: Arsenic	Concentration mg/kg (ppm) <1		51

## ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	NFCC-Sed- 01/13/20 01/14/20 01/14/20 Soil mg/kg (ppm	-	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001156 001156-01 011421.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	105	50	150
Toluene-d8		91	50	150
4-Bromofluorobenz	ene	126	50	150
Compounds:		Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

## ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	NFCC-Sed-2 01/13/20 01/14/20 01/15/20 Soil mg/kg (ppm	_	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001156 001156-03 011509.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	118	50	150
Toluene-d8		99	50	150
4-Bromofluorobenz	ene	95	50	150
Compounds:		Concentration mg/kg (ppm)		

< 0.005

1,2-Dibromoethane (EDB)

## ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	NFCC-Sed-3 01/13/20 01/14/20 01/14/20 Soil mg/kg (ppm	-	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001156 001156-05 011424.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	103	50	150
Toluene-d8		97	50	150
4-Bromofluorobenz	ene	113	50	150
Compounds:		Concentration mg/kg (ppm)		

< 0.005

1,2-Dibromoethane (EDB)

## ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	CC-Sed-1 01/13/20 01/14/20 01/14/20 Soil mg/kg (ppm	1)	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001156 001156-07 011425.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	101	50	150
Toluene-d8		95	50	150
4-Bromofluorobenz	ene	120	50	150
Compounds:		Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

## ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blar Not Applical 01/14/20 01/14/20 Soil mg/kg (ppm)	ble	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001156 00-090 mb 011420.D GCMS9 MS
		_	Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	100	50	150
Toluene-d8		99	50	150
4-Bromofluorobenz	ene	101	50	150
Compounds:		Concentration mg/kg (ppm)		

< 0.005

1,2-Dibromoethane (EDB)

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	NFCC-Sed-1 01/13/20 01/14/20 01/14/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001156 001156-01 1/6 011407.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 63 70	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.006		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	NFCC-Sed-2 01/13/20 01/14/20 01/14/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001156 001156-03 1/6 011410.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 63 66	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.006		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	NFCC-Sed-3 01/13/20 01/14/20 01/14/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001156 001156-05 1/6 011411.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 64 66	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.006		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	CC-Sed-1 01/13/20 01/14/20 01/14/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001156 001156-07 1/6 011412.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 60 66	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.006		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix:	Method Blank Not Applicable 01/14/20 01/14/20 Soil	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001156 00-122 mb 1/6 011405.D GC9
Units: Surrogates: TCMX DBC	mg/kg (ppm) Dry Weight % Recovery: 68 71	Operator: Lower Limit: 50 50	IJL Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.006		

### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/13/20 Project: 015397, F&BI 001156

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

Laboratory Code: 001156-03 x5 (Matrix Spike)

			Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	$\operatorname{RPD}$
Analyte	Units	Level	(Wet wt)	${ m MS}$	MSD	Criteria	(Limit 20)
Arsenic	mg/kg (ppm)	10	<5	84	85	75 - 125	1

Laboratory Code: Laboratory Control Sample

Laboratory Co	ode: Laboratory Con	troi Sample	Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Arsenic	mg/kg (ppm)	10	92	80-120

### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/13/20 Project: 015397, F&BI 001156

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

Laboratory Code: 001156-01 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet wt)	(Wet wt)	(Limit 20)
1,2-Dibromoethane (EDB)	mg/kg (ppm)	< 0.005	< 0.005	nm

Laboratory Code: Laboratory Control Sample

Laboratory Code. Laboratory Co	nuor sampie		Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	$\operatorname{RPD}$
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
1,2-Dibromoethane (EDB)	mg/kg (ppm)	0.05	113	111	70-130	2

### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/13/20 Project: 015397, F&BI 001156

-

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

Laboratory Code: 001156-01 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dieldrin	mg/kg (ppm)	0.1	< 0.01	66	64	50 - 150	3
Laboratory Code: Laboratory Control Sample 1/6 Percent							
	Reporting	Spike	Recovery	y Accept	ance		
Analyte	Units	Level	LCS	Crite	ria		
Dieldrin	mg/kg (ppm)	0.1	82	70-1	30		

### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

 ${\rm J}$  - 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.



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

Friedman & Bruya Michael Erdahl 3012 16th Ave. W. Seattle, WA 98119

RE: 001156 Work Order Number: 2001205

January 15, 2020

#### **Attention Michael Erdahl:**

Fremont Analytical, Inc. received 8 sample(s) on 1/13/2020 for the analyses presented in the following report.

### Ion Chromatography by EPA Method 300.0 Organophosphorus Pesticides by EPA Method 8270-SIM Sample Moisture (Percent Moisture)

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes Project Manager

**CC:** Eric Young

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005 ORELAP Certification: WA 100009-007 (NELAP Recognized)



CLIENT: Project: Work Order:	Friedman & Bruya 001156 2001205	Work Order S	Sample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2001205-001	NFCC-Sed-1	01/13/2020 8:30 AM	01/13/2020 4:33 PM
2001205-002	NFCC-Sed-1:1	01/13/2020 9:00 AM	01/13/2020 4:33 PM
2001205-003	NFCC-Sed-2	01/13/2020 9:30 AM	01/13/2020 4:33 PM
2001205-004	NFCC-Sed-2:1	01/13/2020 9:35 AM	01/13/2020 4:33 PM
2001205-005	NFCC-Sed-3	01/13/2020 10:25 AM	01/13/2020 4:33 PM
2001205-006	NFCC-Sed-3:1	01/13/2020 10:35 AM	01/13/2020 4:33 PM
2001205-007	CC-Sed-1	01/13/2020 11:55 AM	01/13/2020 4:33 PM
2001205-008	CC-Sed-1:1	01/13/2020 12:05 PM	01/13/2020 4:33 PM



**Case Narrative** 

WO#: **2001205** Date: **1/15/2020** 

CLIENT:Friedman & BruyaProject:001156

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

### II. GENERAL REPORTING COMMENTS:

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

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

### III. ANALYSES AND EXCEPTIONS:

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

# **Qualifiers & Acronyms**



 WO#:
 2001205

 Date Reported:
 1/15/2020

### Qualifiers:

- \* Flagged value is not within established control limits
- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- I Analyte with an internal standard that does not meet established acceptance criteria
- J Analyte detected below Reporting Limit
- N Tentatively Identified Compound (TIC)
- Q Analyte with an initial or continuing calibration that does not meet established acceptance criteria
- (<20%RSD, <20% Drift or minimum RRF)
- S Spike recovery outside accepted recovery limits
- ND Not detected at the Reporting Limit
- R High relative percent difference observed

Acronyms:

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



Work Order: 2001205 Date Reported: 1/15/2020

Client: Friedman & Bruya				Collection	Dat	te: 1/13/2020 8:30:00 AM
Project: 001156						
Lab ID: 2001205-001				Matrix: So	oil	
Client Sample ID: NFCC-Sed-1						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Metho	<u>d 8270-SIM</u>		Batch	ID:	27114 Analyst: SB
Diazinon	ND	82.0		µg/Kg-dry	1	1/14/2020 10:05:40 PM
Surr: Triphenylphosphate	68.0	10.7 - 154		%Rec	1	1/14/2020 10:05:40 PM
Ion Chromatography by EPA Metho	<u>od 300.0</u>			Batch	ID:	27121 Analyst: SS
Nitrate (as N)	2.51	1.77		mg/Kg-dry	1	1/15/2020 12:20:00 PM
Orthophosphate (as P)	ND	3.53		mg/Kg-dry	1	1/15/2020 12:20:00 PM
Sample Moisture (Percent Moisture	<u>e)</u>			Batch	ID:	R56603 Analyst: MM
Percent Moisture	43.5	0.500		wt%	1	1/14/2020 8:22:08 AM



 Work Order:
 2001205

 Date Reported:
 1/15/2020

Client: Friedman & Bruya				Collection	Date:	1/13/2020 9:30:00 AM
Project: 001156						
Lab ID: 2001205-003				Matrix: So	oil	
Client Sample ID: NFCC-Sed-2						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Metho	d 8270-SIM		Batch	1D: 27	114 Analyst: SB
Diazinon	ND	696	D	µg/Kg-dry	10	1/15/2020 2:24:19 PM
Surr: Triphenylphosphate	77.1	10.7 - 154	D	%Rec	10	1/15/2020 2:24:19 PM
Ion Chromatography by EPA Methe	<u>od 300.0</u>			Batch	ID: 27	121 Analyst: SS
Nitrate (as N)	4.32	1.54		mg/Kg-dry	1	1/15/2020 12:43:00 PM
Orthophosphate (as P)	ND	3.09		mg/Kg-dry	1	1/15/2020 12:43:00 PM
Sample Moisture (Percent Moisture	<u>e)</u>			Batch	ID: R5	6603 Analyst: MM
Percent Moisture	35.3	0.500		wt%	1	1/14/2020 8:22:08 AM



 Work Order:
 2001205

 Date Reported:
 1/15/2020

Client: Friedman & Bruya				Collection	Dat	t <b>e:</b> 1/13/2020 10:25:00 AM
Project: 001156						
Lab ID: 2001205-005				Matrix: So	oil	
Client Sample ID: NFCC-Sed-3						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by I	EPA Metho	<u>d 8270-SIM</u>		Batch	n ID:	27114 Analyst: SB
Diazinon	ND	65.7		µg/Kg-dry	1	1/14/2020 11:57:37 PM
Surr: Triphenylphosphate	67.1	10.7 - 154		%Rec	1	1/14/2020 11:57:37 PM
Ion Chromatography by EPA Metho	od 300.0			Batch	n ID:	27121 Analyst: SS
Nitrate (as N)	2.88	1.52		mg/Kg-dry	1	1/15/2020 1:06:00 PM
Orthophosphate (as P)	ND	3.04		mg/Kg-dry	1	1/15/2020 1:06:00 PM
Sample Moisture (Percent Moisture	<u>e)</u>			Batch	n ID:	R56603 Analyst: MM
Percent Moisture	34.2	0.500		wt%	1	1/14/2020 8:22:08 AM



 Work Order:
 2001205

 Date Reported:
 1/15/2020

Client: Friedman & Bruya				Collection	Dat	t <b>e:</b> 1/13/2020 11:55:00 AM
Project: 001156						
Lab ID: 2001205-007				Matrix: So	oil	
Client Sample ID: CC-Sed-1						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by E	PA Metho	<u>d 8270-SIM</u>		Batch	n ID:	27114 Analyst: SB
Diazinon	ND	85.2		µg/Kg-dry	1	1/15/2020 12:20:05 AM
Surr: Triphenylphosphate	40.8	10.7 - 154		%Rec	1	1/15/2020 12:20:05 AM
Ion Chromatography by EPA Metho	<u>d 300.0</u>			Batch	ID:	27121 Analyst: SS
Nitrate (as N)	ND	1.96		mg/Kg-dry	1	1/15/2020 1:29:00 PM
Orthophosphate (as P)	ND	3.91		mg/Kg-dry	1	1/15/2020 1:29:00 PM
Sample Moisture (Percent Moisture	)			Batch	n ID:	R56603 Analyst: MM
Percent Moisture	49.5	0.500		wt%	1	1/14/2020 8:22:08 AM



Work Order:	2001205								2.00	SUMMAI	RY RFF	PORT
CLIENT:	Friedman &	Bruya										
Project:	001156							Ion Chi	romatograp	phy by EP	A Method	d 300.0
Sample ID: MB-27	/121	SampType: <b>MBLK</b>			Units: mg/Kg		Prep Da	te: 1/14/202	20	RunNo: 566	674	
Client ID: MBLK	S	Batch ID: 27121					Analysis Da	te: 1/15/202	20	SeqNo: 112	28921	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		ND	1.00									
Orthophosphate (a	as P)	ND	2.00									
Sample ID: LCS-2	7121	SampType: LCS			Units: mg/Kg		Prep Da	te: 1/14/202	20	RunNo: 566	674	
Client ID: LCSS		Batch ID: 27121					Analysis Da	te: 1/15/202	20	SeqNo: 112	28922	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		7.33	1.00	7.500	0	97.7	90	110				
Orthophosphate (a	ıs P)	12.2	2.00	12.50	0	98.0	90	110				

Frem	ont								Date: 1/	15/2020	
Work Order: 2001205 CLIENT: Friedman & Project: 001156					Org	anophos	phorus	QC S Pesticides	SUMMA by EPA M		-
Sample ID: MB-27114	SampType: MBLK			Units: µg/Kg		Prep Dat	te: 1/14/20	20	RunNo: 56	650	
Client ID: MBLKS	Batch ID: 27114					Analysis Da	te: 1/14/20	)20	SeqNo: 11	28470	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon Surr: Triphenylphosphate	ND 21.4	50.0	20.00		107	10.7	154				
Sample ID: LCS-27114	SampType: LCS			Units: µg/Kg		Prep Dat	te: 1/14/20	)20	RunNo: 56	650	
Client ID: LCSS	Batch ID: 27114					Analysis Da	te: 1/14/20	20	SeqNo: 11	28471	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	15.4	50.0	20.00	0	77.2	37.1	132				
Surr: Triphenylphosphate	21.6		20.00		108	10.7	154				
Sample ID: 2001205-001ADUP	SampType: <b>DUP</b>			Units: µg/Kg-a	dry	Prep Dat	te: 1/14/20	020	RunNo: 56	650	
Client ID: NFCC-Sed-1	Batch ID: 27114				-	Analysis Da	te: 1/14/20	)20	SeqNo: 11	28473	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	ND	80.5						0	0	30	
Surr: Triphenylphosphate	21.1		32.22		65.6	10.7	154		0		
Sample ID: 2001205-001AMS	SampType: <b>MS</b>			Units: µg/Kg-c	dry	Prep Dat	te: 1/14/20	020	RunNo: 56	650	
Client ID: NFCC-Sed-1	Batch ID: 27114					Analysis Da	te: 1/14/20	20	SeqNo: 11	28474	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	15.5	82.5	33.00	0	47.1	9.74	142				
Surr: Triphenylphosphate	26.0		33.00		78.7	10.7	154				
Sample ID: 2001205-001AMSD	SampType: <b>MSD</b>			Units: µg/Kg-a	dry	Prep Dat	te: 1/14/20	)20	RunNo: 56	650	
Client ID: NFCC-Sed-1	Batch ID: 27114					Analysis Da			SeqNo: 11		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC			RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	13.1	755	30.18	0	0	9.74	142	15.54	200	30	DS
Driginal							Page 10	of 13			



Work Order: CLIENT: Project:	2001205 Friedman & 001156	Bruya				Org	anophos	QC S Sphorus Pesticides	SUMMA by EPA M		-
Sample ID: 20012 Client ID: NFCC	205-001AMSD -Sed-1	SampType: <b>MSD</b> Batch ID: <b>27114</b>			Units: µg/I	• •		ite: 1/14/2020 ite: 1/15/2020	RunNo: <b>56</b> SegNo: <b>11</b>		
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	,	HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Triphenylp NOTES:	ohosphate	22.5		30.18		74.5	10.7	154	0		D

S - Outlying spike recovery(ies) observed.



# Sample Log-In Check List

Client Name: F	В	Work Order Numb	ber: 2001205	
Logged by: C	arissa True	Date Received:	1/13/2020	0 4:33:00 PM
Chain of Custod	ly			
1. Is Chain of Cus	tody complete?	Yes 🖌	No	Not Present
2. How was the sa	mple delivered?	<u>FedEx</u>		
<u>Log In</u>				
3. Coolers are pre	sent?	Yes 🖌	No 🗌	NA 🗌
4. Shipping contai	ner/cooler in good condition?	Yes 🖌	No 🗌	
	present on shipping container/cooler? ents for Custody Seals not intact)	Yes	No 🗹	Not Required
6. Was an attemp	t made to cool the samples?	Yes 🖌	No 🗌	
7. Were all items	received at a temperature of >0°C to 10.0°C*	Yes 🖌	No 🗌	
8. Sample(s) in pr	oper container(s)?	Yes 🖌	No 🗌	
9. Sufficient samp	le volume for indicated test(s)?	Yes 🖌	No 🗌	
10. Are samples pr	operly preserved?	Yes 🖌	No 🗌	
11. Was preservati	ve added to bottles?	Yes	No 🗹	NA 🗌
12. Is there headsp	ace in the VOA vials?	Yes	No 🗌	NA 🔽
13. Did all samples	containers arrive in good condition(unbroken)?	Yes 🗹	No 🗌	
14. Does paperwor	k match bottle labels?	Yes 🗸	No	
15. Are matrices co	prrectly identified on Chain of Custody?	Yes 🖌	No 🗌	
16. Is it clear what	analyses were requested?	Yes 🖌	No 🗌	
17. Were all holding	g times able to be met?	Yes 🖌	No 🗌	
<u>Special Handlin</u>	<u>g (if applicable)</u>			
18. Was client notif	ied of all discrepancies with this order?	Yes	No 🗌	NA 🔽
Person No By Whom Regarding	Via:	,	one 🗌 Fax	In Person
Client Inst	ructions:			
19. Additional rema	ırks:			

#### Item Information

Item #	Temp °C
Cooler 1	5.6
Sample 1	5.6

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

# SUBCONTRACT SAMPLE CHAIN OF CUSTODY

# 2001205

				SU	BCONT	RACT	ER F	in.	+				٦.			#	of (
Send Report <u>To</u> <u>N</u>	Michael	Erdahl		PR	OJECT	NAME		12.142	T		PO#			O Stand	dard (	(2 Weeks)	
Company F	riedma	in and Bruya	, Inc.									÷				zyhr sauthorized	by:
Address 3	012 16	th Ave W			001156 A-S											: Ma	
	ity, State, ZIP <u>Seattle, WA 98119</u> ; hone # <u>(206) 285-8282</u> Fax # <u>(206) 283-5044</u>					ease E	mail R	lesult	s				SAMPLE DISPO Dispose after 30 days Return samples Will call with instruct				
	1								ANA	LYSES	SREQ	UES	TED	1	-	1	
Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins/Furans	EPH	VPH	N.t.t.	te.	Digzinin					Ne	otes
NFCC-Sed-1		1/13/20	0830	50.1	1				×	×	×						
NFCC-Sed-1:1			10900	. 1	1					02						- Hold	
NFCC -Sed-Z			. 0930	-	1			,	×	×	×						
VFCC - Sed-2:1			0935		1					1	-		-		-	- Hald	
NFCC-Sed-3			1025		1				×	×	×					-	
NFCC-Sed -3:1			1035		1											- Hold	
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cc-Sed-1:1 CC-Sed-1:1	+	1	1217	1	(	- /	_									- 14.1d.	
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Friedman & Bruya 3012 16th Avenue				Mich	I ael Er	PRINT	NAN	Æ	* * *	Fri		DMPA n & B		-	DATE 1/13/20	TIME 1447	
	attle, WA 98119-2029 Received by:			-Eva	Rec	her.	- Ju	ay	r'	E	H				13/20	1633	
Fax (206) 283-8284		Received by:									+				-	*	2,2

001156		SAMPLI	E CHAIN	OF (	UST	ODY	, <i>M</i>	ME 01-	13-	20	VS2 AO3
	McLadden Thom M	SAMPL	ERS (signa	ture)		R				<b>in De</b> ge fi	of IAROUND TIME
Company TRC	VICE ACOUNT I THIN JU	PROJE	CT NAME					O #		Standard	turnaround 24 Hr
	2 marte 81	Broo	Brookdale 0153						R		es authorized by:
Address 1100, All	V Mapie Gr.	REMAR	KS			_	INVOI	ICE TO		SAM	PLE DISPOSAL
City, State, ZIPS	yuah, UNA 430	27	4.4			1 7	-RC	<b>,</b>		Archive a Other	
Phone <u>425-395-00</u> b	Email <u>Mctadden Qfr</u>	Compa Project	Project specific RLs? - Yes / No								ispose after 30 days
£`	· · · · · · · · · · · · · · · · · · ·		T . T		<u> </u>			YSES REQU	JESTE		
					I-Dx	BTEX EPA 8021		A 8270 A 8082	<b>S</b>	e (EUB	
Sample ID	Lab ID Dat Samp		Sample Type	# of Jars	NWTPH-Dx NWTPH-Gx	K EP.	s EP	PAHs EPA PCBs EPA Dimans/	ind i	on the	Notes
ž					MN	BTE	VOC	PAHs EPA 8 PCBs EPA 8 UIWATE/	× S	Ethylene <u>Dibromite</u> Dieldrinen	
NFCC-Sed-1	01 A-F 1/131	2. 0830	Sediment	6				X	X	XX	
NFCC-Sed-1:1	02 1	0400					1	X	· X	XX	Hold AS
NFCC-Sed-2+	03	0430						X	( X	$\chi \chi$	
NFCC-sed-2:1	04	0935							4 <u>-</u> X-1	XX	- Hold AZ
NFCC-Sed-3	05	1025							X	XX	
NFcc-Sed-3:1	06	1035						X	X	$\mathbf{X}$	thold of F
(c-sed-1	07	1155		/					X	$X \mid X$	· ·
CL-Sed-1:1	08 1	1205		V				*	X	X X	- Hold
			•								
	SIGNATU	RE		PRIN	T NAM	E			IPANY	r	DATE TIME
Friedman & Bruya, Inc.	Relinquished by:		Jæ	S	remod	·		TPE		••	1/13/2 142>
3012 16 <sup>th</sup> Avenue West	6th Avenue West Received by MMMM				Whan Phan FebJ						13/20 1427
Seattle, WA 98119-2029											
Ph. (206) 285-8282	Received by:							Sample	s rece	ived at	<u>4</u> °C

### 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

February 4, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015397, F&BI 001157

Dear Mr McFadden:

Included is the amended report from the testing of material submitted on January 13, 2020 from the 015397, F&BI 001157 project. Per your request, the results were reported down to the method detection limit.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Thom Morin TRC0117R.DOC

### 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

January 17, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015397, F&BI 001157

Dear Mr McFadden:

Included are the results from the testing of material submitted on January 13, 2020 from the 015397, F&BI 001157 project. There are 19 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Thom Morin TRC0117R.DOC

### ENVIRONMENTAL CHEMISTS

### CASE NARRATIVE

This case narrative encompasses samples received on January 13, 2020 by Friedman & Bruya, Inc. from the Environmental Partners 015397, F&BI 001157 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Environmental Partners</u>
001157 -01	NFCC-SW-1
001157 -02	NFCC-SW-2
001157 -03	CC-SW-1

The samples were sent to Fremont Analytical for nitrate, phosphate, and organophosphorus pesticide diazinon analyses. The report is enclosed.

The dissolved metals samples were filtered at Friedman and Bruya on January 14, 2020 at 15:05. The data were flagged accordingly.

All quality control requirements were acceptable.

## ENVIRONMENTAL CHEMISTS

# Analysis For Dissolved Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	NFCC-SW-1 f 01/13/20 01/14/20 01/14/20 Water wg(L (nub)	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001157 001157-01 001157-01.083 ICPMS2
Units: Analyte: Arsenic	ug/L (ppb) Concentration ug/L (ppb) <1	Operator:	SP

## ENVIRONMENTAL CHEMISTS

# Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	NFCC-SW-2 f	Client:	Environmental Partners
Date Received:	01/13/20	Project:	015397, F&BI 001157
Date Extracted:	01/14/20	Lab ID:	001157-02
Date Analyzed:	01/14/20	Data File:	001157-02.084
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	<1		

## ENVIRONMENTAL CHEMISTS

# Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	CC-SW-1 f		Client:	Environmental Partners
Date Received:	01/13/20		Project:	$015397, F\&BI\ 001157$
Date Extracted:	01/14/20		Lab ID:	001157-03
Date Analyzed:	01/14/20		Data File:	001157 - 03.085
Matrix:	Water		Instrument:	ICPMS2
Units:	ug/L (ppb)		Operator:	SP
		Concentration		
Analyte:		ug/L (ppb)		

Arsenic

## ENVIRONMENTAL CHEMISTS

# Analysis For Dissolved Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	Method Blank f Not Applicable 01/14/20 01/14/20 Water	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001157 I0-030 mb I0-030 mb.080 ICPMS2
Units:	ug/L (ppb)	Operator:	SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	<1		

## ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed:	NFCC-SW-1 01/13/20 01/14/20 01/14/20	Client: Project: Lab ID: Data File:	Environmental Partners 015397, F&BI 001157 001157-01 001157-01.056
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	<1		

## ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed:	NFCC-SW-2 01/13/20 01/14/20 01/14/20	Client: Project: Lab ID: Data File:	Environmental Partners 015397, F&BI 001157 001157-02 001157-02.059
Date Analyzed: Matrix: Units:	01/14/20 Water ug/L (ppb)	Instrument: Operator:	ICPMS2 SP
Analyte:	Concentration ug/L (ppb)	Operator.	51
Arsenic	<1		

## ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	CC-SW-1 01/13/20 01/14/20 01/14/20 Water		Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001157 001157-03 001157-03.060 ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte:		Concentration ug/L (ppb)		
Arsenic		<1		

## ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	<b>Environmental Partners</b>
Date Received:	Not Applicable	Project:	015397, F&BI 001157
Date Extracted:	01/14/20	Lab ID:	I0-029 mb
Date Analyzed:	01/14/20	Data File:	I0-029 mb.054
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP
	Concentration		
Analyte:	ug/L (ppb)		

Arsenic

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	NFCC-SW-1 01/13/20 01/14/20 01/14/20 Water ug/L	L	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001157 001157-01 011417.D GC9 IJL
Surrogates: TCMX DBC	C	% Recovery: 51 77	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		< 0.02		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	NFCC-SW-2 01/13/20 01/14/20 01/14/20 Water ug/L		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001157 001157-02 011418.D GC9 IJL
Surrogates: TCMX DBC	-	% Recovery: 50 75	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		< 0.02		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	CC-SW-1 01/13/20 01/14/20 01/14/20 Water ug/L		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001157 001157-03 011419.D GC9 IJL
Surrogates: TCMX DBC		% Recovery: 48 ip 64	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		< 0.02		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blank Not Applicable 01/14/20 01/14/20 Water ug/L	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001157 00-123 mb 011414.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 49 ip 74	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration ug/L		
Dieldrin	< 0.02		

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/13/20 Project: 015397, F&BI 001157 Date Extracted: 01/14/20 Date Analyzed: 01/14/20

## **RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR 1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED**

Results Reported as  $\mu$ g/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>EDB</u>
NFCC-SW-1 001157-01	<0.01
NFCC-SW-2 001157-02	<0.01
CC-SW-1 001157-03	<0.01
Method Blank	< 0.01

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/13/20 Project: 015397, F&BI 001157

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

			Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Arsenic	ug/L (ppb)	10	99	99	80-120	0

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/13/20 Project: 015397, F&BI 001157

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

Laboratory Code	e: 001157-01	(Matrix Sp	oike)	Percent	Percent		
Analyte	Reporting Units	Spike Level	Sample Result	Recovery MS	Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	105	105	75-125	0

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Arsenic	ug/L (ppb)	10	101	80-120

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/13/20 Project: 015397, F&BI 001157

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

	Reporting	Spike	Percent Recovery	Percent Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Dieldrin	ug/L (ppb)	0.5	75	77	70-130	3

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/13/20 Project: 015397, F&BI 001157

#### QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR 1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED

			Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	$\operatorname{RPD}$
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 10)
1,2-Dibromoethane	ug/L (ppb)	0.10	90	98	70-130	9

#### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

 ${\rm J}$  - 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.



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

Friedman & Bruya Michael Erdahl 3012 16th Ave. W. Seattle, WA 98119

RE: 001157 Work Order Number: 2001204

January 15, 2020

#### **Attention Michael Erdahl:**

Fremont Analytical, Inc. received 3 sample(s) on 1/13/2020 for the analyses presented in the following report.

#### Ion Chromatography by EPA Method 300.0 Organophosphorus Pesticides by EPA Method 8270-SIM

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes Project Manager

CC: Eric Young

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005 ORELAP Certification: WA 100009-007 (NELAP Recognized)



CLIENT: Project: Work Order:	Friedman & Bruya 001157 2001204	Work Order Sample Summary				
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received			
2001204-001	NFCC-SW-1	01/13/2020 8:17 AM	01/13/2020 4:34 PM			
2001204-002	NFCC-SW-2	01/13/2020 10:15 AM	01/13/2020 4:34 PM			
2001204-003	CC-SW-1	01/13/2020 11:45 AM	01/13/2020 4:34 PM			



**Case Narrative** 

WO#: **2001204** Date: **1/15/2020** 

CLIENT:Friedman & BruyaProject:001157

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

#### II. GENERAL REPORTING COMMENTS:

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

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

#### III. ANALYSES AND EXCEPTIONS:

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

## **Qualifiers & Acronyms**



 WO#:
 2001204

 Date Reported:
 1/15/2020

#### Qualifiers:

- \* Flagged value is not within established control limits
- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- I Analyte with an internal standard that does not meet established acceptance criteria
- J Analyte detected below Reporting Limit
- N Tentatively Identified Compound (TIC)
- Q Analyte with an initial or continuing calibration that does not meet established acceptance criteria
- (<20%RSD, <20% Drift or minimum RRF)
- S Spike recovery outside accepted recovery limits
- ND Not detected at the Reporting Limit
- R High relative percent difference observed

Acronyms:

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



# **Analytical Report**

 Work Order:
 2001204

 Date Reported:
 1/15/2020

CLIENT:	Friedman & Bruya
Project:	001157

Lab ID:         2001204-001         Collection Date:         1/13/2020 8:17:00 AM           Client Sample ID:         NFCC-SW-1         Matrix:         Water						
Analyses	Result	RL Qual	Units	DF	Date Analyzed	
Organophosphorus Pesticides by E	Batch	n ID: 27	125 Analyst: SB			
Diazinon Surr: Triphenylphosphate	ND 88.3	0.197 10 - 132	μg/L %Rec	1 1	1/15/2020 11:46:30 AM 1/15/2020 11:46:30 AM	
Ion Chromatography by EPA Metho	Batch	n ID: 27	109 Analyst: SS			
Nitrate (as N) Ortho-Phosphate (as P)	1.13 ND	0.100 0.200	mg/L mg/L	1 1	1/13/2020 7:22:00 PM 1/13/2020 7:22:00 PM	

Lab ID: 2001204-002 Client Sample ID: NFCC-SW-2			Collection Matrix: V		1/13/2020 10:15:00 AM
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by I	EPA Method	<u>18270-SIM</u>	Batch	n ID: 27	125 Analyst: SB
Diazinon Surr: Triphenylphosphate	ND 102	0.197 10 - 132	μg/L %Rec	1 1	1/15/2020 12:31:32 PM 1/15/2020 12:31:32 PM
Ion Chromatography by EPA Metho	od 300.0		Batcl	ו ID: 27	109 Analyst: SS
Nitrate (as N) Ortho-Phosphate (as P)	1.14 ND	0.100 0.200	mg/L mg/L	1 1	1/13/2020 8:08:00 PM 1/13/2020 8:08:00 PM



Friedman & Bruya

CLIENT:

# **Analytical Report**

 Work Order:
 2001204

 Date Reported:
 1/15/2020

Project: 001157							
Lab ID: 2001204-003 Client Sample ID: CC-SW-1				Collection Matrix: V		1/13/2020 11:45:	:00 AM
Analyses	Result	RL	Qual	Units	DF	Date Analyzed	ł
Organophosphorus Pesticides by	EPA Method	8270-SIM		Batc	h ID: 27	125 Analyst:	SB
Diazinon	ND	0.199		µg/L	1	1/15/2020 12:54:0	02 PM
Surr: Triphenylphosphate	87.9	10 - 132		%Rec	1	1/15/2020 12:54:0	02 PM
Ion Chromatography by EPA Meth	nod 300.0			Batc	h ID: 27	109 Analyst:	SS
Nitrate (as N)	2.69	0.200	D	mg/L	2	1/14/2020 10:46:0	00 AM
Ortho-Phosphate (as P)	ND	0.200		mg/L	1	1/13/2020 9:17:00	) PM



Work Order: 2001204								00.9	SUMMA		
CLIENT: Friedman	& Bruya							• - ·			-
<b>Project:</b> 001157							Ion Ch	romatogra	phy by EP	A Method	1 300.
Sample ID: MB-27109	SampType: MBLK			Units: mg/L		Prep Dat	e: 1/13/20	020	RunNo: 56	652	
Client ID: MBLKW	Batch ID: 27109					Analysis Dat	e: 1/13/20	020	SeqNo: 11	28564	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	ND	0.100									
Ortho-Phosphate (as P)	ND	0.200									
Sample ID: LCS-27109	SampType: LCS			Units: mg/L		Prep Dat	e: 1/13/20	020	RunNo: 56	652	
Client ID: LCSW	Batch ID: 27109					Analysis Dat	e: 1/13/20	020	SeqNo: 11	28565	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	0.729	0.100	0.7500	0	97.2	90	110				
Ortho-Phosphate (as P)	1.29	0.200	1.250	0	103	90	110				
Sample ID: 2001204-001ADUP	SampType: <b>DUP</b>			Units: mg/L		Prep Dat	e: 1/13/20	020	RunNo: 56	652	
Client ID: NFCC-SW-1	Batch ID: 27109					Analysis Dat	e: 1/13/20	020	SeqNo: 11	28567	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	1.08	0.100						1.133	4.98	20	
Ortho-Phosphate (as P)	ND	0.200						0		20	
Sample ID: 2001204-002AMS	SampType: <b>MS</b>			Units: mg/L		Prep Dat	e: 1/13/20	020	RunNo: 56	652	
Client ID: NFCC-SW-2	Batch ID: 27109					Analysis Dat	e: 1/13/20	020	SeqNo: 11	28569	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	1.93	0.100	0.7500	1.136	106	80	120				
Ortho-Phosphate (as P)	1.07	0.200	1.250	0	85.7	80	120				
Sample ID: 2001204-002AMSD	SampType: MSD			Units: mg/L		Prep Dat	e: 1/13/20	020	RunNo: 56	652	
Client ID: NFCC-SW-2	Batch ID: 27109					Analysis Dat	e: 1/13/20	020	SeqNo: 11	28570	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	1.98	0.100	0.7500	1.136	112	80	120	1.930	2.30	20	
										P	ade 7 o



Work Order:	2001204								00.5	SUMMA		VORT
CLIENT:	Friedman &	Bruya										
Project:	001157							lon Ch	romatogra	phy by EP	A Method	1 300.0
Sample ID: 20012	04-002AMSD	SampType: <b>MSD</b>			Units: mg/L		Prep Da	te: 1/13/20	)20	RunNo: 566	652	
Client ID: NFCC	-SW-2	Batch ID: 27109					Analysis Da	te: 1/13/20	)20	SeqNo: 112	28570	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ortho-Phosphate (	(as P)	1.19	0.200	1.250	0	95.4	80	120	1.071	10.8	20	



Work Order:	2001204								QCS	SUMMA	RY REF	PORT
CLIENT:	Friedman &	Bruya				Ora	anonhos	nhorus	Pesticides		othod 82	70-SIM
Project:	001157					org	anopnos	photus	i esticides			/0-311
Sample ID: MB-271	125	SampType: <b>MB</b>	LK		Units: µg/L		Prep Da	te: 1/14/20	020	RunNo: 566	666	
Client ID: MBLKW	N	Batch ID: 271	25				Analysis Da	te: 1/15/20	020	SeqNo: 112	28788	
Analyte		Result	RL RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon		ND	0.199									
Surr: Triphenylph	osphate	0.334		0.3987		83.7	10	132				
Sample ID: LCS-27	125	SampType: LCS	6		Units: µg/L		Prep Da	te: 1/14/20	020	RunNo: 566	666	
Client ID: LCSW		Batch ID: 271	25				Analysis Da	te: 1/15/20	020	SeqNo: 112	28789	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon		1.49	0.199	1.994	0	75.0	26.5	127				
Surr: Triphenylph	osphate	0.334		0.3989		83.7	10	132				
Sample ID: LCSD-2	27125	SampType: LCS	SD		Units: µg/L		Prep Da	te: 1/14/20	020	RunNo: 566	66	
Client ID: LCSW0	)2	Batch ID: 271	25				Analysis Da	te: 1/15/20	020	SeqNo: 112	28790	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon		1.56	0.199	1.987	0	78.4	26.5	127	1.495	4.18	30	
Surr: Triphenylph	osphate	0.341		0.3974		85.8	10	132		0		
Sample ID: 200120	4-001BDUP	SampType: <b>DUI</b>	D		Units: µg/L		Prep Da	te: 1/14/20	020	RunNo: 566	66	
Client ID: NFCC-S	SW-1	Batch ID: 271	25				Analysis Da	te: 1/15/20	020	SeqNo: 112	28792	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon		ND	0.231						0		30	
Surr: Triphenylph	osphate	0.440	1	0.4611		95.3	10	132		0		

Original



## Sample Log-In Check List

Clier	nt Name:	FB	Work Order Numb	per: 2001204	
Logę	ged by:	Carissa True	Date Received:	1/13/2020	0 4:34:00 PM
Chain	of Cust	ody			
1. Is	Chain of C	ustody complete?	Yes 🖌	No 🗌	Not Present
2. H	ow was the	sample delivered?	<u>FedEx</u>		
<u>Log lı</u>	<u>n</u>				
-	oolers are p	resent?	Yes 🖌	No 🗌	NA 🗌
4. SI	hipping con	tainer/cooler in good condition?	Yes 🖌	No 🗌	
		s present on shipping container/cooler? ments for Custody Seals not intact)	Yes	No 🗹	Not Required 🗌
6. W	/as an atten	npt made to cool the samples?	Yes 🖌	No 🗌	
7. W	/ere all item	s received at a temperature of >0°C to 10.0°C*	Yes 🖌	No 🗌	
8. S	ample(s) in	proper container(s)?	Yes 🖌	No 🗌	
9. S	ufficient sar	nple volume for indicated test(s)?	Yes 🖌	No 🗌	
10. A	re samples	properly preserved?	Yes 🖌	No 🗌	
11. W	/as preserva	ative added to bottles?	Yes	No 🗹	NA 🗌
12. <sup>Is</sup>	there head	space in the VOA vials?	Yes	No 🗌	NA 🗹
13. D	id all sample	es containers arrive in good condition(unbroken)?	Yes 🗹	No 🗌	
14. D	oes paperw	ork match bottle labels?	Yes 🗸	No	
15. A	re matrices	correctly identified on Chain of Custody?	Yes 🖌	No 🗌	
16. <sup>Is</sup>	it clear what	at analyses were requested?	Yes 🖌	No 🗌	
17. W	/ere all hold	ing times able to be met?	Yes 🖌	No 🗌	
<u>Speci</u>	ial Handl	ing (if applicable)			
18. <sup>W</sup>	/as client no	tified of all discrepancies with this order?	Yes	No 🗌	NA 🗹
	Person By Who	m: Via:		one 🗌 Fax	In Person
	Regardi Client Ir	ng: structions:			
10 1	dditional rer				

#### Item Information

Item #	Temp °C
Cooler 1	5.6
Sample 1	5.6

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

# SUBCONTRACT SAMPLE CHAIN OF CUSTODY

# 2001204

					CTT	DOONTOT	ACT	FP								Page #	¥_1c	of	- 4
a 10	Michael	Frdahl			50	BCONTI	ACTI	F	Kmo.	t				ſ	,	TURN	IAROUND T		7
Send Report <u>To</u>					PR	OJECT 1	VAME			T		PO#	-		O Stan	dard (	2 Weeks)		Ī
Company]	Friedma	an and Bruya	a, Inc.		1.000							Car					by:		
Address	3012 16	th Ave W			001157 A.S.						546	1			2.2	mg			
					RE	MARKS	-								- D'		PLE DISPOS	SAL	
City, State, ZIP	Seattle,	WA 98119					17								🗆 Disp 🗆 Retu		ter 30 days noles		
Phone #(206) 28	5-8282	Fax# (2	06) 283-5044			Ple	ase E	mail R	esuits	5							ith instructi	ions	
F HOLE #200/20	0-0202				-		-		_		- XTOD	1 10 10 10	ATTEC	MED		4	1		٦
		1					- 1		- 1	ANA	LYSES	SRE	TOFF	TED	1	-	-	*	1
Sample ID	Lab ID	Date Sampled	Time Sampled	Mat	trix	# of jars	Dioxins/Furans	EPH	ЧРН	Nitate	Phosphite Sulta	Dinzigon		2 -			No	otes	
	-	halan	0817	11 0						2	X	X							
NFCC. SW-1	-	1/13/20		HZO			-			×	×	X							1
NFCC - SW-2		11	\$ 1015	41				-		x	×	x							1
cc-sw-1		1	1145	1				-		~	*	×	-			-			1
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Friedman & Bruye	a, Inc.		SIGNATURE		/	$\left( \right)$		PRINT	NAN	Œ		-		OMPA		-	DATE	TIME	
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Ph. (206) 285-8282	8		<i></i>		_												~		T
Fax (206) 283-504	4	Received by:				. 1						1							

Report To C. Mc Fallen	cc T. 1	Morin	SAMPL	ERS (signo	ature)		ĺ	1	-	2	///				Page	) # NAROU	of	<u>_/</u> 4
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Phone 425-395-0010 Email	CHART	aen el RC Compa	- Project	specific RL	<u>s? - Y</u> e	es /	No	-	, LTI		<u>.</u> ,,,,,		- 18 - 18 - 18 - 18 - 1	ΠOt	her	Dispose		
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Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCa EPA 8260	PAHs EPA 8270	PCBs EPA 8082	phosphates	Dissolvel)	NAZINON +		Notes	3
NFCC-SW-1	OI A-H	1/13/20	0817	Water	8	, φ <b>υ</b>								( X				
NFCC-SW-2	02 1/	1/13/20	1015	Water	8	و مندی		1				Ť			$\frac{1}{\sqrt{2}}$	1		
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eattle, WA 98119-2029 Relin	quished by:																<u>~</u> +-	

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#### 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

February 4, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015379, F&BI 001178

Dear Mr McFadden:

Included is the amended report from the testing of material submitted on January 14, 2020 from the 015379, F&BI 001178 project. Per your request, the samples were reported down to the method detection limit.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Thom Morin TRC0117R.DOC

#### 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

January 17, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015379, F&BI 001178

Dear Mr McFadden:

Included are the results from the testing of material submitted on January 14, 2020 from the 015379, F&BI 001178 project. There are 16 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Thom Morin TRC0117R.DOC

#### ENVIRONMENTAL CHEMISTS

#### CASE NARRATIVE

This case narrative encompasses samples received on January 14, 2020 by Friedman & Bruya, Inc. from the Environmental Partners 015379, F&BI 001178 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<b>Environmental Partners</b>
001178 -01	CC-SW-2
001178 -02	Pond-SW

The samples were sent to Fremont Analytical for nitrate, phosphate, and organophosphorus pesticide diazinon analyses. The report is enclosed.

The dissolved metals samples were filtered at Friedman and Bruya on January 15, 2020 at 09:42. The data were flagged accordingly.

The 8081 method blank surrogate failed below the acceptance criteria. The data were flagged accordingly.

All other quality control requirements were acceptable.

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	CC-SW-2		Client:	Environmental Partners
Date Received:	01/14/20		Project:	015379, F&BI 001178
Date Extracted:	01/15/20		Lab ID:	001178-01
Date Analyzed:	01/15/20		Data File:	001178-01.048
Matrix:	Water		Instrument:	ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte: Arsenic	«8. ב (PP»)	Concentration ug/L (ppb) <1	operatori	

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	Pond-SW		Client:	Environmental Partners
Date Received:	01/14/20		Project:	015379, F&BI 001178
Date Extracted:	01/15/20		Lab ID:	001178-02
Date Analyzed:	01/15/20		Data File:	001178-02.049
Matrix:	Water		Instrument:	ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte: Arsenic	ug/L (ppb)	Concentration ug/L (ppb) <1		51

3

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	<b>Environmental Partners</b>
Date Received:	Not Applicable	Project:	015379, F&BI 001178
Date Extracted:	01/15/20	Lab ID:	I0-029 mb2
Date Analyzed:	01/15/20	Data File:	I0-029 mb2.047
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP
	Concentration		
Analyte:	ug/L (ppb)		
<b>A</b> .	.1		
Arsenic	<1		

## ENVIRONMENTAL CHEMISTS

## Analysis For Dissolved Metals By EPA Method 6020B

Arsenic

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	CC-SW-2 f 01/14/20 01/15/20 01/15/20 Water		Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015379, F&BI 001178 001178-01 001178-01.045 ICPMS2
Units:	ug/L (ppb)		Operator:	SP SP
Analyte:		Concentration ug/L (ppb)	-	

## ENVIRONMENTAL CHEMISTS

## Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Pond-SW f		Client:	Environmental Partners
Date Received:	01/14/20		Project:	015379, F&BI 001178
Date Extracted:	01/15/20		Lab ID:	001178-02
Date Analyzed:	01/15/20		Data File:	001178-02.046
Matrix:	Water		Instrument:	ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte: Arsenic	5 (I <i>)</i>	Concentration ug/L (ppb) <1		

## ENVIRONMENTAL CHEMISTS

## Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank f	Client:	Environmental Partners
Date Received:	Not Applicable	Project:	015379, F&BI 001178
Date Extracted:	01/15/20	Lab ID:	I0-030 mb2
Date Analyzed:	01/15/20	Data File:	I0-030 mb2.044
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	<1		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	CC-SW-2 01/14/20 01/14/20 01/15/20 Water ug/L		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001178 001178-01 011505.D GC9 IJL
Surrogates: TCMX DBC		% Recovery: 47 ip 82	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		< 0.02		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Pond-SW 01/14/20 01/14/20 01/15/20 Water ug/L		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001178 001178-02 011506.D GC9 IJL
Surrogates: TCMX DBC		% Recovery: 49 ip 62	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		< 0.02		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blank Not Applicable 01/14/20 01/14/20 Water ug/L	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001178 00-123 mb 011414.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 49 vo 74	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration ug/L		
Dieldrin	<0.02 js		

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/14/20 Project: 015379, F&BI 001178 Date Extracted: 01/15/20 Date Analyzed: 01/15/20

## RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR 1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED

Results Reported as  $\mu$ g/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>EDB</u>
CC-SW-2 001178-01	< 0.01
Pond-SW 001178-02	< 0.01
Method Blank	< 0.01

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/14/20 Project: 015379, F&BI 001178

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

Laboratory Cod	e: 001157-01	(Matrix Sp	oike)	Percent	Percent		
Analyte	Reporting Units	Spike Level	Sample Result	Recovery MS	Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	105	105	75-125	0

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Arsenic	ug/L (ppb)	10	101	80-120

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/14/20 Project: 015379, F&BI 001178

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

			Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Arsenic	ug/L (ppb)	10	99	99	80-120	0

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/14/20 Project: 015379, F&BI 001178

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

	Reporting	Spike	Percent Recovery	Percent Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Dieldrin	ug/L (ppb)	0.5	75	77	70-130	3

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/14/20 Project: 015379, F&BI 001178

#### QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR 1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED

			Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	$\operatorname{RPD}$
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 10)
1,2-Dibromoethane	ug/L (ppb)	0.10	90	98	70-130	9

#### ENVIRONMENTAL CHEMISTS

## **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

 ${\rm J}$  - 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.



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

Friedman & Bruya Michael Erdahl 3012 16th Ave. W. Seattle, WA 98119

RE: 001178 Work Order Number: 2001223

January 16, 2020

#### **Attention Michael Erdahl:**

Fremont Analytical, Inc. received 2 sample(s) on 1/14/2020 for the analyses presented in the following report.

#### Ion Chromatography by EPA Method 300.0 Organophosphorus Pesticides by EPA Method 8270-SIM

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes Project Manager

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005 ORELAP Certification: WA 100009-007 (NELAP Recognized)



CLIENT: Project: Work Order:	Friedman & Bruya 001178 2001223	Work Order S	Sample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2001223-001	CC-SW-2	01/14/2020 10:25 AM	01/14/2020 3:35 PM
2001223-002	Pond-SW	01/14/2020 11:50 AM	01/14/2020 3:35 PM



**Case Narrative** 

WO#: **2001223** Date: **1/16/2020** 

CLIENT:Friedman & BruyaProject:001178

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

#### II. GENERAL REPORTING COMMENTS:

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

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

#### III. ANALYSES AND EXCEPTIONS:

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

# **Qualifiers & Acronyms**



 WO#:
 2001223

 Date Reported:
 1/16/2020

#### Qualifiers:

- \* Flagged value is not within established control limits
- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- I Analyte with an internal standard that does not meet established acceptance criteria
- J Analyte detected below Reporting Limit
- N Tentatively Identified Compound (TIC)
- Q Analyte with an initial or continuing calibration that does not meet established acceptance criteria
- (<20%RSD, <20% Drift or minimum RRF)
- S Spike recovery outside accepted recovery limits
- ND Not detected at the Reporting Limit
- R High relative percent difference observed

Acronyms:

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



# **Analytical Report**

 Work Order:
 2001223

 Date Reported:
 1/16/2020

Client: Friedman & Bruya			(	Collectior	n Date: <sup>•</sup>	1/14/2020 10:25:00 AM
Project: 001178						
Lab ID: 2001223-001			I	Matrix: W	/ater	
Client Sample ID: CC-SW-2						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Method	0.198			h ID: 27	125 Analyst: SB
Surr: Triphenylphosphate	80.8	0.196 10 - 132		µg/L %Rec	1 1	1/15/2020 1:16:36 PM
Ion Chromatography by EPA Metho	od 300.0			Batc	h ID: 27	141 Analyst: SS
Nitrate (as N)	2.84	0.200	D	mg/L	2	1/16/2020 10:53:00 AM
Ortho-Phosphate (as P)	ND	0.200		mg/L	1	1/15/2020 8:02:00 PM



# **Analytical Report**

 Work Order:
 2001223

 Date Reported:
 1/16/2020

Client: Friedman & Bruya				Collectior	Date:	1/14/2020 11:50:00 AM
Project: 001178						
Lab ID: 2001223-002				Matrix: W	ater	
Client Sample ID: Pond-SW						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by I	EPA Method	1 8270-SIM 0.199		Batcl µg/L	ו ID: 27	125 Analyst: SB 1/15/2020 1:39:14 PM
Surr: Triphenylphosphate	99.9	10 - 132		%Rec	1	1/15/2020 1:39:14 PM
Ion Chromatography by EPA Metho	od 300.0			Batcl	n ID: 27	141 Analyst: SS
Nitrate (as N)	0.993	0.100		mg/L	1	1/15/2020 8:48:00 PM
Ortho-Phosphate (as P)	ND	0.200		mg/L	1	1/15/2020 8:48:00 PM

Fremont
Analytical

Work Order:         2001223           CLIENT:         Friedman           Project:         001178	n & Bruya						lon Ch	QC S	SUMMA phy by EP		
Sample ID: MB-27141	SampType: <b>MBLK</b>			Units: <b>mg/L</b>		Prep Da	te: 1/15/20	)20	RunNo: 56	687	
Client ID: MBLKW	Batch ID: 27141					Analysis Da	te: 1/15/20	)20	SeqNo: 112	29132	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N) Ortho-Phosphate (as P)	ND ND	0.100 0.200									
Sample ID: LCS-27141	SampType: LCS			Units: mg/L		Prep Da	te: 1/15/20	)20	RunNo: 56	687	
Client ID: LCSW	Batch ID: 27141					Analysis Da	te: 1/15/20	)20	SeqNo: 112	29133	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	0.744	0.100	0.7500	0	99.2	90	110				
Ortho-Phosphate (as P)	1.24	0.200	1.250	0	98.9	90	110				
Sample ID: 2001223-001ADUP	SampType: DUP			Units: mg/L		Prep Da	te: 1/15/20	)20	RunNo: 56	687	
Client ID: CC-SW-2	Batch ID: 27141					Analysis Da	te: 1/15/20	)20	SeqNo: 112	29138	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	2.97	0.100						2.974	0.101	20	Е
Ortho-Phosphate (as P) NOTES:	ND	0.200	41					0		20	
	ount exceeds the linear worki	ng range or	the instrument						Durkle 50		
Sample ID: 2001223-002AMS	SampType: <b>MS</b>			Units: <b>mg/L</b>			te: 1/15/20		RunNo: 560		
Client ID: Pond-SW	Batch ID: 27141					Analysis Da			SeqNo: 112		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	1.80	0.100	0.7500	0.9930	108	80	120				
Ortho-Phosphate (as P)	1.06	0.200	1.250	0	85.2	80	120				



Work Order: CLIENT: Project:	2001223 Friedman & 001178	Bruya						lon Ch	QC S romatograp	SUMMAI		-
Sample ID: 20012	23-002AMSD	SampType: <b>MSD</b>	Units: mg/L Prep Date: 1/15/2020 Rui						RunNo: 566	687		
Client ID: Pond	-SW	Batch ID: 27141					Analysis Da	te: 1/15/20	20	SeqNo: 112	29141	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		1.80	0.100	0.7500	0.9930	108	80	120	1.802	0.166	20	
Ortho-Phosphate	(as P)	1.10	0.200	1.250	0	87.9	80	120	1.065	3.14	20	



Work Order:2001CLIENT:FriedProject:0011	lman & Bruya				Org	anophos	phorus	QC S Pesticides	SUMMAI		-
Sample ID: MB-27125	SampType: MBLK			Units: µg/L		Prep Da	te: 1/14/20	)20	RunNo: 566	66	
Client ID: MBLKW	Batch ID: 27125					Analysis Da	te: 1/15/20	)20	SeqNo: 112	28788	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon Surr: Triphenylphosphal	ND te 0.334	0.199	0.3987		83.7	10	132				
Sample ID: LCS-27125	SampType: LCS			Units: µg/L		Prep Da	te: 1/14/20	)20	RunNo: 566	666	
Client ID: LCSW	Batch ID: 27125			10		Analysis Da			SeqNo: 112	28789	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon Surr: Triphenylphosphat	1.49 te 0.334	0.199	1.994 0.3989	0	75.0 83.7	26.5 10	127 132				
Sample ID: LCSD-27125	SampType: LCSD			Units: µg/L		Prep Da	te: 1/14/20	)20	RunNo: 566	666	
Client ID: LCSW02	Batch ID: 27125					Analysis Da	te: 1/15/20	)20	SeqNo: 112	28790	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon Surr: Triphenylphosphat	1.56 te 0.341	0.199	1.987 0.3974	0	78.4 85.8	26.5 10	127 132	1.495	4.18 0	30	
Sample ID: 2001204-001E	BDUP SampType: DUP			Units: µg/L		Prep Da	te: 1/14/20	)20	RunNo: 566	66	
Client ID: BATCH	Batch ID: 27125					Analysis Da	te: 1/15/20	)20	SeqNo: 112	28792	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon Surr: Triphenylphosphat	ND te 0.440	0.231	0.4611		95.3	10	132	0	0	30	



# Sample Log-In Check List

Cli	ent Name:	FB	Work O	der Numl	ber: 2001223	
Lo	gged by:	Carissa True	Date Re	ceived:	1/14/2020	3:35:00 PM
Cha	in of Custo	<u>ody</u>				
1.	Is Chain of Cu	istody complete?	Yes	✓	No 🗌	Not Present
2.	How was the s	sample delivered?	<u>Clien</u>	t		
Log	<u>In</u>					
3.	Coolers are p	resent?	Yes	✓	No	
4.	Shipping cont	ainer/cooler in good condition?	Yes	✓	No 🗌	
		s present on shipping container/cooler? ments for Custody Seals not intact)	Yes		No 🗌	Not Required 🗹
6.	Was an attem	pt made to cool the samples?	Yes	✓	No 🗌	
7.	Were all items	s received at a temperature of $>0^{\circ}$ C to $10.0^{\circ}$ C*	Yes	✓	No 🗌	
8.	Sample(s) in	proper container(s)?	Yes	✓	No 🗌	
9.	Sufficient sam	ple volume for indicated test(s)?	Yes	✓	No 🗆	
10.	Are samples p	properly preserved?	Yes	✓	No 🗌	
11.	Was preserva	tive added to bottles?	Yes		No 🗹	NA 🗌
12.	Is there heads	space in the VOA vials?	Yes		No 🗌	NA 🗸
13.	Did all sample	es containers arrive in good condition(unbroken)?	Yes	✓	No 🗌	
14.	Does paperwo	ork match bottle labels?	Yes	✓	No 🗌	
15.	Are matrices	correctly identified on Chain of Custody?	Yes	✓	No 🗌	
16.	Is it clear wha	t analyses were requested?	Yes	✓	No 🗌	
17.	Were all holdi	ng times able to be met?	Yes	✓	No 🗌	
<u>Spe</u>	cial Handli	ng (if applicable)				
18.	Was client no	tified of all discrepancies with this order?	Yes		No 🗌	NA 🗹
	Person N	Notified: Date:				
	By Whor	n: Via:	🗌 eMa	il 🗌 Ph	none 🗌 Fax	In Person
	Regardir					
	Client In:	structions:				
19.	Additional rem	narks:				

#### Item Information

Item #	Temp °C
Cooler 1	0.4
Sample 1	0.7

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

# SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Send Report <u>To</u>	Micha	ael Erdahl			UBCON	TRACT	FER	Frem	nont				7	_	Page		of(
to and the		man and Bru	va, Inc.	P.	ROJECI						PO			RU	ndard SH	24 hour	s)
		16th Ave W		-	001		8				A - 52	50	_	Rush	charg	es author	ized by:
City, State, ZIP Phone #(206) 28				; [ <sup>R</sup>	EMARK P	S lease E	mail I	Result	ts					O Ret	urn sa	IPLE DIS fter 30 da mples with instr	.,
	1	-		1			_		ANA	LYSE	SRE	QUES	STED			T	
Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins/Furans	EPH .	VPH	Diazinon	Nitch	Phasphate :		:				Notes
CC-SW-2		1/14	1025	w	2				V	~	./		-	-	-	-	
POND-SW	1	1/14	1150	Ŵ	2		-		V	V	V					. 8	
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riedman & Bruya, 1 012 16th Avenue We eattle, WA 98119-20	st	Relinquiched by	A LOD	P	Michae	el Erda		0.0			Fried		MPAN & Bri		-	DATE	TIME
h. (206) 285-8282 ax (206) 283-5044		Relinquished by: Received by:			Y IN Y	Cong	4	ILL	inp	art	1.1	01		-		14/20	15.63

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	001128			SAMPLE	CHAIN	OF	US	TO	DY	٨	1E	01-	14-	20	>	<i>U</i>	Mas/	AIY
· ·	00117-8 Report To Charles Met	2.11 /17.	Ale de	SAMPL	ERS (signa	uture) .									ŗ	<b>FURN</b>	AROUND T	IME
	Company TRC			0153					<	9(S	P0 7 ז־2				a RU	SH_2	turnaround <u>4 -hr 17</u> es authorized	<u>+]</u>
	Address <u>[180 NW N</u> City, State, ZIP <u>Issaqu</u>	uqple St.	8027	- (Broo REMAR	<u>kdale)</u> KS TAT	(24	hr)				10010	CET	0		🗆 Arc	hive s	PLE DISPOS amples	SAL
	Phone 425-39 5-00/0En	nail <u>cructadesd</u>	trecompandes	5							20					ier ilt: D	ispose after	30 days
		·····			1	·			<u> </u>	<u>A</u> T	1		REQU			<u>.</u>		
	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	As	Ethylene (BDR)	Diazion +	Not	es
	CC-SW-2	01 A-H	1/14/20	1025	420	8							X	X	X	X		
	·Pond-SW	02 A-H	1/14/20	1150	1420	0												
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			GNATURE			PRI	1							MPA	NY		DATE	TIME
	Friedman & Bruya, Inc.	Relinquished by:	J R		Joe		he	Nos	•			7	<u>P</u> <u>c</u>				1/14/20	1435
	3012 16 <sup>th</sup> Avenue West	Received by:	YZ		Kh	<u>oi</u>	H	<u>09</u>	<u> 19</u>					BI			1/14/20	1435
· ·	Seattle, WA 98119-2029	Relinquished by:					•		1				· · · · ·	`	*	: 	₹34 <b>.</b>	
	Ph. (206) 285-8282	Received by:	· · · ·										· · · · ·		-			
			· . ·															· · · ·

#### 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

January 17, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015379, F&BI 001178

Dear Mr McFadden:

Included are the results from the testing of material submitted on January 14, 2020 from the 015379, F&BI 001178 project. There are 16 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Thom Morin TRC0117R.DOC

#### ENVIRONMENTAL CHEMISTS

#### CASE NARRATIVE

This case narrative encompasses samples received on January 14, 2020 by Friedman & Bruya, Inc. from the Environmental Partners 015379, F&BI 001178 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Environmental Partners
001178 -01	CC-SW-2
001178 -02	Pond-SW

The samples were sent to Fremont Analytical for nitrate, phosphate, and organophosphorus pesticide diazinon analyses. The report is enclosed.

The dissolved metals samples were filtered at Friedman and Bruya on January 15, 2020 at 09:42. The data were flagged accordingly.

The 8081 method blank surrogate failed below the acceptance criteria. The data were flagged accordingly.

All other quality control requirements were acceptable.

# ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	CC-SW-2		Client:	Environmental Partners
Date Received:	01/14/20		Project:	015379, F&BI 001178
Date Extracted:	01/15/20		Lab ID:	001178-01
Date Analyzed:	01/15/20		Data File:	001178-01.048
Matrix:	Water		Instrument:	ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte: Arsenic	«8. ב (PP»)	Concentration ug/L (ppb) <1	operatori	

# ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	Pond-SW		Client:	Environmental Partners
Date Received:	01/14/20		Project:	015379, F&BI 001178
Date Extracted:	01/15/20		Lab ID:	001178-02
Date Analyzed:	01/15/20		Data File:	001178-02.049
Matrix:	Water		Instrument:	ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte: Arsenic	ug/L (ppb)	Concentration ug/L (ppb) <1		51

3

# ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	<b>Environmental Partners</b>
Date Received:	Not Applicable	Project:	015379, F&BI 001178
Date Extracted:	01/15/20	Lab ID:	I0-029 mb2
Date Analyzed:	01/15/20	Data File:	I0-029 mb2.047
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP
	Concentration		
Analyte:	ug/L (ppb)		
<b>A</b> .	.1		
Arsenic	<1		

# ENVIRONMENTAL CHEMISTS

# Analysis For Dissolved Metals By EPA Method 6020B

Arsenic

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	CC-SW-2 f 01/14/20 01/15/20 01/15/20 Water		Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015379, F&BI 001178 001178-01 001178-01.045 ICPMS2
Units:	ug/L (ppb)		Operator:	SP SP
Analyte:		Concentration ug/L (ppb)		

# ENVIRONMENTAL CHEMISTS

# Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Pond-SW f		Client:	Environmental Partners
Date Received:	01/14/20		Project:	015379, F&BI 001178
Date Extracted:	01/15/20		Lab ID:	001178-02
Date Analyzed:	01/15/20		Data File:	001178-02.046
Matrix:	Water		Instrument:	ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte: Arsenic	5 (I )	Concentration ug/L (ppb) <1		

# ENVIRONMENTAL CHEMISTS

# Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank f	Client:	Environmental Partners
Date Received:	Not Applicable	Project:	015379, F&BI 001178
Date Extracted:	01/15/20	Lab ID:	I0-030 mb2
Date Analyzed:	01/15/20	Data File:	I0-030 mb2.044
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	<1		

# ENVIRONMENTAL CHEMISTS

# Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	CC-SW-2 01/14/20 01/14/20 01/15/20 Water ug/L		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001178 001178-01 011505.D GC9 IJL
Surrogates: TCMX DBC		% Recovery: 47 ip 82	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		< 0.1		

# ENVIRONMENTAL CHEMISTS

# Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Pond-SW 01/14/20 01/14/20 01/15/20 Water ug/L		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001178 001178-02 011506.D GC9 IJL
Surrogates: TCMX DBC		% Recovery: 49 ip 62	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		< 0.1		

# ENVIRONMENTAL CHEMISTS

# Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blank Not Applicable 01/14/20 01/14/20 Water ug/L	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001178 00-123 mb 011414.D GC9 IJIL
Surrogates: TCMX DBC	% Recovery: 49 vo 74	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration ug/L		
Dieldrin	<0.1 js		

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/14/20 Project: 015379, F&BI 001178 Date Extracted: 01/15/20 Date Analyzed: 01/15/20

## **RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR 1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED**

Results Reported as  $\mu$ g/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>EDB</u>
CC-SW-2 001178-01	< 0.01
Pond-SW 001178-02	< 0.01
Method Blank	< 0.01

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/14/20 Project: 015379, F&BI 001178

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

Laboratory Cod	e: 001157-01	(Matrix Sp	oike)	Percent	Percent		
Analyte	Reporting Units	Spike Level	Sample Result	Recovery MS	Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	105	105	75-125	0

		Percent					
	Reporting	Spike	Recovery	Acceptance			
Analyte	Units	Level	LCS	Criteria			
Arsenic	ug/L (ppb)	10	101	80-120			

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/14/20 Project: 015379, F&BI 001178

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

			Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Arsenic	ug/L (ppb)	10	99	99	80-120	0

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/14/20 Project: 015379, F&BI 001178

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

	Reporting	Spike	Percent Recovery	Percent Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Dieldrin	ug/L (ppb)	0.5	75	77	70-130	3

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/17/20 Date Received: 01/14/20 Project: 015379, F&BI 001178

#### QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR 1,2-DIBROMOETHANE BY EPA METHOD 8011 MODIFIED

			Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	$\operatorname{RPD}$
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 10)
1,2-Dibromoethane	ug/L (ppb)	0.10	90	98	70-130	9

#### ENVIRONMENTAL CHEMISTS

## **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

 ${\rm J}$  - 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.



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

**Friedman & Bruya** Michael Erdahl 3012 16th Ave. W. Seattle, WA 98119

RE: 001178 Work Order Number: 2001223

#### Attention Michael Erdahl:

Fremont Analytical, Inc. received 2 sample(s) on 1/14/2020 for the analyses presented in the following report.

#### Ion Chromatography by EPA Method 300.0 Organophosphorus Pesticides by EPA Method 8270-SIM

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes Project Manager

PRELIMINARY

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005 ORELAP Certification: WA 100009-007 (NELAP Recognized)



CLIENT:Friedman & BruyaProject:001178Work Order:2001223		Work Order Sample Sum			
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received		
2001223-001	CC-SW-2	01/14/2020 10:25 AM	01/14/2020 3:35 PM		
2001223-002	Pond-SW	01/14/2020 11:50 AM	01/14/2020 3:35 PM		



**Case Narrative** 

WO#: **2001223** Date:

CLIENT:Friedman & BruyaProject:001178

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

#### II. GENERAL REPORTING COMMENTS:

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

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

#### III. ANALYSES AND EXCEPTIONS:

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

# **Qualifiers & Acronyms**



WO#: 2001223 Date Reported:

#### Qualifiers:

- \* Flagged value is not within established control limits
- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- I Analyte with an internal standard that does not meet established acceptance criteria
- J Analyte detected below Reporting Limit
- N Tentatively Identified Compound (TIC)
- Q Analyte with an initial or continuing calibration that does not meet established acceptance criteria
- (<20%RSD, <20% Drift or minimum RRF)
- S Spike recovery outside accepted recovery limits
- ND Not detected at the Reporting Limit
- R High relative percent difference observed

Acronyms:

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



# **Analytical Report**

Work Order: **2001223** Date Reported:

Client: Friedman & Bruya	Collection Date: 1/14/2020 10:25:00 AM									
Project: 001178										
Lab ID: 2001223-001			I	Matrix: W	/ater					
Client Sample ID: CC-SW-2										
Analyses	Result	RL	Qual	Units	DF	Date Analyzed				
Organophosphorus Pesticides by	EPA Method	0.198		Batc	h ID: 27 <sup>-</sup>	125 Analyst: SB				
Surr: Triphenylphosphate	80.8	10 - 132		%Rec	1	1/15/2020 1:16:36 PM				
Ion Chromatography by EPA Meth	<u>od 300.0</u>			Batc	h ID: 27	141 Analyst: SS				
Nitrate (as N)	2.84	0.200	D	mg/L	2	1/16/2020 10:53:00 AM				
Ortho-Phosphate (as P)	ND	0.200		mg/L	1	1/15/2020 8:02:00 PM				



# **Analytical Report**

Work Order: 2001223 Date Reported:

Client: Friedman & Bruya	Collection Date: 1/14/2020 11:50:00 AM									
Project: 001178										
Lab ID: 2001223-002				Matrix: W	/ater					
Client Sample ID: Pond-SW										
Analyses	Result	RL	Qual	Units	DF	Date Analyzed				
Organophosphorus Pesticides by	EPA Method	<u>I 8270-SIM</u> 0.199		Batcl µg/L	h ID: 27 1	125 Analyst: SB 1/15/2020 1:39:14 PM				
Surr: Triphenylphosphate	99.9	10 - 132		%Rec	1	1/15/2020 1:39:14 PM				
Ion Chromatography by EPA Meth	<u>od 300.0</u>			Batc	h ID: 27	141 Analyst: SS				
Nitrate (as N)	0.993	0.100		mg/L	1	1/15/2020 8:48:00 PM				
Ortho-Phosphate (as P)	ND	0.200		mg/L	1	1/15/2020 8:48:00 PM				



CLIENT: Frie	)1223 edman & Bruya I178							lon Ch	QC S	SUMMA phy by EP		
Sample ID: MB-27141	SampTyp	e: MBLK			Units: mg/L		Prep Date	e: 1/15/20	20	RunNo: 56	687	
Client ID: MBLKW	Batch ID	27141					Analysis Date	e: 1/15/20	20	SeqNo: 112	29132	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N) Ortho-Phosphate (as P)		ND ND	0.100 0.200									
Sample ID: LCS-27141	SampTyp	e: LCS			Units: mg/L		Prep Date	e: <b>1/15/20</b>	20	RunNo: 56	687	
Client ID: LCSW	Batch ID	27141					Analysis Date	e: 1/15/20	20	SeqNo: 112	29133	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		0.744	0.100	0.7500	0	99.2	90	110				
Ortho-Phosphate (as P)		1.24	0.200	1.250	0	98.9	90	110				
Sample ID: 2001223-00	1ADUP SampTyp	e: DUP			Units: mg/L		Prep Date	e: 1/15/20	20	RunNo: 560	687	
Client ID: CC-SW-2	Batch ID	27141					Analysis Date	e: <b>1/15/20</b>	20	SeqNo: 112	29138	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		2.97	0.100						2.974	0.101	20	Е
Ortho-Phosphate (as P) <b>NOTES:</b>		ND	0.200						0		20	
E - Estimated value. 1	The amount exceeds the	e linear work	ing range of	the instrument	t.							
Sample ID: 2001223-00	2AMS SampTyp	e: MS			Units: mg/L		Prep Date	e: 1/15/20	20	RunNo: 56	687	
Client ID: Pond-SW	Batch ID	27141					Analysis Date	e: 1/15/20	20	SeqNo: 112	29140	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		1.80	0.100	0.7500	0.9930	108	80	120				
Ortho-Phosphate (as P)		1.06	0.200	1.250	0	85.2	80	120				



Work Order:	2001223								00.5			ORT
CLIENT:	Friedman &	Bruya										-
Project:	001178							Ion Ch	romatograp	ohy by EP	A Method	300.0
Sample ID: 20012	223-002AMSD	SampType: MSD			Units: mg/L		Prep Dat	te: 1/15/20	20	RunNo: 566	687	
Client ID: Pond	-SW	Batch ID: 27141					Analysis Dat	te: 1/15/20	20	SeqNo: 112	29141	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		1.80	0.100	0.7500	0.9930	108	80	120	1.802	0.166	20	
Ortho-Phosphate	(as P)	1.10	0.200	1.250	0	87.9	80	120	1.065	3.14	20	



CLIENT:	2001223 Friedman & B 001178	ruya				Org	anophos	phorus	QC S Pesticides	SUMMA by EPA M		
Sample ID: MB-271	25	SampType: MBL	ĸ		Units: µg/L		Prep Dat	e: 1/14/20	)20	RunNo: 56	666	
Client ID: MBLKW	V	Batch ID: 2712	5				Analysis Dat	e: 1/15/20	)20	SeqNo: 112	28788	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon Surr: Triphenylpho	osphate	ND 0.334	0.199	0.3987		83.7	10	132				
Sample ID: LCS-27	125	SampType: LCS			Units: µg/L		Prep Dat	e: 1/14/20	)20	RunNo: 56	666	
Client ID: LCSW		Batch ID: 2712	5				Analysis Dat	e: 1/15/20	)20	SeqNo: 112	28789	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon Surr: Triphenylpho	osphate	1.49 0.334	0.199	1.994 0.3989	0	75.0 83.7	26.5 10	127 132				
Sample ID: LCSD-2	7125	SampType: LCSE	)		Units: µg/L		Prep Dat	e: 1/14/20	)20	RunNo: 560	666	
Client ID: LCSW0	2	Batch ID: 2712	5				Analysis Dat	e: 1/15/20	)20	SeqNo: 112	28790	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon Surr: Triphenylpho	osphate	1.56 0.341	0.199	1.987 0.3974	0	78.4 85.8	26.5 10	127 132	1.495	4.18 0	30	
Sample ID: 2001204	4-001BDUP	SampType: <b>DUP</b>			Units: µg/L		Prep Dat	e: 1/14/20	)20	RunNo: 56	666	
Client ID: BATCH		Batch ID: 2712	5				Analysis Dat	e: 1/15/20	)20	SeqNo: 112	28792	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon Surr: Triphenylpho	osphate	ND 0.440	0.231	0.4611		95.3	10	132	0	0	30	



## Sample Log-In Check List

Cli	ent Name:	FB	Work Order Number: 2001223							
Lo	gged by:	Carissa True	Date Re	ceived:	1/14/2020	3:35:00 PM				
Cha	in of Custo	<u>ody</u>								
1.	Is Chain of Cu	istody complete?	Yes	✓	No 🗌	Not Present				
2.	How was the s	sample delivered?	<u>Clien</u>	t						
Log	<u>In</u>									
3.	Coolers are p	resent?	Yes	✓	No					
4.	Shipping cont	ainer/cooler in good condition?	Yes	✓	No 🗌					
		s present on shipping container/cooler? ments for Custody Seals not intact)	Yes		No 🗌	Not Required 🗹				
6.	Was an attem	pt made to cool the samples?	Yes	✓	No 🗌					
7.	Were all items	s received at a temperature of $>0^{\circ}$ C to $10.0^{\circ}$ C*	Yes	✓	No 🗌					
8.	Sample(s) in	proper container(s)?	Yes	✓	No 🗌					
9.	Sufficient sam	ple volume for indicated test(s)?	Yes	✓	No 🗆					
10.	Are samples p	properly preserved?	Yes	✓	No 🗌					
11.	Was preserva	tive added to bottles?	Yes		No 🗹	NA 🗌				
12.	Is there heads	space in the VOA vials?	Yes		No 🗌	NA 🗸				
13.	Did all sample	es containers arrive in good condition(unbroken)?	Yes	✓	No 🗌					
14.	Does paperwo	ork match bottle labels?	Yes	✓	No					
15.	Are matrices	correctly identified on Chain of Custody?	Yes	✓	No 🗌					
16.	Is it clear wha	t analyses were requested?	Yes	✓	No 🗌					
17.	Were all holdi	ng times able to be met?	Yes	✓	No 🗌					
<u>Spe</u>	cial Handli	ng (if applicable)								
18.	Was client no	tified of all discrepancies with this order?	Yes		No 🗌	NA 🗹				
	Person N	Notified: Date:								
	By Whor	n: Via:	🗌 eMa	il 🗌 Ph	none 🗌 Fax	In Person				
	Regardir									
	Client In:	structions:								
19.	Additional rem	narks:								

#### Item Information

Item #	Temp °C
Cooler 1	0.4
Sample 1	0.7

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

# SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Send Report <u>To</u>	Micha	ael Erdahl			UBCON	TRACT	FER	Frem	nont				7	_	Page		of(
to and the		man and Bru	va, Inc.	P.	ROJECI						PO			RU	ndard SH	24 hour	s)
		16th Ave W		-	001		8				A - 52	50	_	Rush	charg	es author	ized by:
City, State, ZIP Phone #(206) 28				; [ <sup>R</sup>	EMARK P	S lease E	mail I	Result	ts					O Ret	urn sa	IPLE DIS fter 30 da mples with instr	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
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Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins/Furans	EPH .	VPH	Diazinon	Nitch	Phasphate :		:				Notes
CC-SW-2		1/14	1025	w	2				V	~	./		-	-	-	-	
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riedman & Bruya, 1 012 16th Avenue We eattle, WA 98119-20	st	Relinquiched by	A LOD	P	Michae	el Erda		0.0			Fried		MPAN & Bri		-	DATE	TIME
h. (206) 285-8282 ax (206) 283-5044		Relinquished by: Received by:			V IN V	Cong	4	ILL	inp	art	1.1	01		-		14/20	15.63

	001128			SAMPLE	CHAIN	OF	US	TO	DY	٨	1E	01-	14-	20	>	<i>U</i>	Mas/	AIY
· ·	00117-8 Report To Charles Met	2.11 /17.	Ale de	SAMPL	ERS (signa	uture) .									ŗ	<b>FURN</b>	AROUND T	IME
	Company TRC			0153					<	9(S	P0 7 ז־2				a RU	SH_2	turnaround <u>4 -hr 17</u> es authorized	<u>+]</u>
	Address <u>[180 NW N</u> City, State, ZIP <u>Issaqu</u>	uqple St.	8027	- (Broo REMAR	<u>kdale)</u> KS TAT	(24	hr)				10010	CET	0		🗆 Arc	hive s	PLE DISPOS amples	SAL
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	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	As	Ethylene (BDR)	Diazion +	Not	es
	CC-SW-2	01 A-H	1/14/20	1025	420	8							X	X	X	X		
	·Pond-SW	02 A-H	1/14/20	1150	1420	0												
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			GNATURE			PRI	1							MPA	NY		DATE	TIME
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	3012 16 <sup>th</sup> Avenue West	Received by:	YZ		Kh	<u>oi</u>	H	<u>09</u>	<u> 19</u>					BI			1/14/20	1435
· ·	Seattle, WA 98119-2029	Relinquished by:					•		1				· · · · ·	`	*	: 	₹34 <b>.</b>	
	Ph. (206) 285-8282	Received by:	· · · ·										· · · · ·		-			
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#### 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

February 4, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015379, F&BI 001179

Dear Mr McFadden:

Included is the amended report from the testing of material submitted on January 14, 2020 from the 015379, F&BI 001179 project. Per your request, the dieldrin results have been lowered to the method detection limit.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Thom Morin TRC0120R.DOC

#### 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

January 20, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015379, F&BI 001179

Dear Mr McFadden:

Included are the results from the testing of material submitted on January 14, 2020 from the 015379, F&BI 001179 project. There are 23 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Thom Morin TRC0120R.DOC

#### ENVIRONMENTAL CHEMISTS

#### CASE NARRATIVE

This case narrative encompasses samples received on January 14, 2020 by Friedman & Bruya, Inc. from the Environmental Partners 015379, F&BI 001179 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Environmental Partners
001179 -01	CC-Sed-2
001179 -02	CC-Sed-2:1
001179 -03	CC-Sed-3
001179 -04	CC-Sed-3:1
001179 -05	Pond-Sed-1
001179 -06	Pond-Sed-1:1
001179 -07	Pond-Sed-2
001179 -08	Pond-Sed-2:1
001179 -09	Pond-Sed-3
001179 -10	Pond-Sed-3:1

Samples CC-Sed-2, CC-Sed-3, Pond-Sed-2, and Pond-Sed-3 were sent to Fremont Analytical for nitrate, phosphate, and organophosphorus pesticide diazinon analyses. The report is enclosed.

A 8260D internal standard failed the acceptance criteria for sample Pond-Sed-1. The data were flagged accordingly.

All other quality control requirements were acceptable.

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	CC-Sed-2 01/14/20 01/15/20 01/15/20 Soil	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015379, F&BI 001179 001179-01 001179-01.079 ICPMS2
Units: Analyte:	mg/kg (ppm) Dry Weight Concentration mg/kg (ppm)	Operator:	SP
Arsenic	3.19		

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	CC-Sed-3	Client:	Environmental Partners
Date Received:	01/14/20	Project:	015379, F&BI 001179
Date Extracted:	01/15/20	Lab ID:	001179-03
Date Analyzed:	01/15/20	Data File:	001179-03.082
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)	operator.	51

Arsenic

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Pond-Sed-1 01/14/20 01/15/20 01/15/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015379, F&BI 001179 001179-05 001179-05.083 ICPMS2 SP
Analyte:	mg/kg (ppm) Dry Weight Concentration mg/kg (ppm)	Operator:	SP

Arsenic

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	Pond-Sed-2	Client:	Environmental Partners
Date Received:	01/14/20	Project:	015379, F&BI 001179
Date Extracted:	01/15/20	Lab ID:	001179-07
Date Analyzed:	01/15/20	Data File:	001179-07.084
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)	Operator.	51

Arsenic

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	Pond-Sed-3 01/14/20 01/15/20 01/15/20 Soil	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015379, F&BI 001179 001179-09 001179-09.085 ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)		
Arsenic	5.77		

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Environmental Partners
Date Received:	Not Applicable	Project:	015379, F&BI 001179
Date Extracted:	01/15/20	Lab ID:	I0-032 mb
Date Analyzed:	01/15/20	Data File:	I0-032 mb.077
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte: Arsenic	Concentration mg/kg (ppm) <1	operator.	51

## ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	CC-Sed-2 01/14/20 01/15/20 01/15/20 Soil mg/kg (ppm)	) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-01 011515.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	100	50	150
Toluene-d8		93	50	150
4-Bromofluorobenz	ene	119	50	150
Compounds:		Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

8

## ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	CC-Sed-3 01/14/20 01/15/20 01/15/20 Soil mg/kg (ppm)	Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-03 011511.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	130	50	150
Toluene-d8		103	50	150
4-Bromofluorobenz	ene	94	50	150
Compounds:	(	Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

#### ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Pond-Sed-1 01/14/20 01/15/20 01/16/20 Soil mg/kg (ppm)	Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-05 011615.D GCMS9 MS
Surrogates: 1,2-Dichloroethane Toluene-d8		% Recovery: 104 J 92 J	Lower Limit: 50 50	Upper Limit: 150 150
<ul><li>4-Bromofluorobenz</li><li>Compounds:</li><li>1,2-Dibromoethane</li></ul>	(	115 J Concentration mg/kg (ppm) <0.005 J	50	150

## ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Pond-Sed-2 01/14/20 01/15/20 01/15/20 Soil mg/kg (ppm	) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-07 011513A.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	129	50	150
Toluene-d8		98	50	150
4-Bromofluorobenz	ene	$99 \mathrm{J}$	50	150
Compounds:		Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

## ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Pond-Sed-3 01/14/20 01/15/20 01/15/20 Soil mg/kg (ppm)	Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-09 011514.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	112	50	150
Toluene-d8		104	50	150
4-Bromofluorobenz	ene	111	50	150
Compounds:	(	Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

## ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Bla Not Applica 01/15/20 01/15/20 Soil mg/kg (ppm		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 00-090 mb2 011508.D GCMS9 MS
Surrogates:		% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane	-d4	100	50	150
Toluene-d8		101	50	150
4-Bromofluorobenz	ene	102	50	150
Compounds:		Concentration mg/kg (ppm)		

< 0.005

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	CC-Sed-2 01/14/20 01/14/20 01/15/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-01 1/6 011507.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 62 68	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.006		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	CC-Sed-3 01/14/20 01/14/20 01/15/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-03 1/6 011508.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 64 71	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.006		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Pond-Sed-1 01/14/20 01/14/20 01/15/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-05 1/6 011509.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 58 66	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.006		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Pond-Sed-2 01/14/20 01/14/20 01/15/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-07 1/6 011514.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 61 60	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.006		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Pond-Sed-3 01/14/20 01/14/20 01/15/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-09 1/6 011510.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 63 71	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.006		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blank Not Applicable 01/14/20 01/14/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 00-122 mb 1/6 011405.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 68 71	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.006		

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/20/20 Date Received: 01/14/20 Project: 015379, F&BI 001179

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

RPD

(Limit 20)

 $\mathbf{2}$ 

Laboratory Code: 001179-01 (Matrix Spike) Percent Sample Percent Reporting Spike Result Recovery Recovery Acceptance MSD Analyte Units Level (Wet wt) MSCriteria Arsenic mg/kg (ppm) 10 1.94 81 83 75-125

Laboratory Code: Laboratory Control Sample

		Percent			
	Reporting	Spike	Recovery	Acceptance	
Analyte	Units	Level	LCS	Criteria	
Arsenic	mg/kg (ppm)	10	86	80-120	

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/20/20 Date Received: 01/14/20 Project: 015379, F&BI 001179

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

Laboratory Code: 001156-01 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet wt)	(Wet wt)	(Limit 20)
1,2-Dibromoethane (EDB)	mg/kg (ppm)	< 0.005	< 0.005	nm

Laboratory Code: Laboratory Control Sample

Laboratory Code. Laboratory Co.	neror Sample		Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	$\operatorname{RPD}$
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
1,2-Dibromoethane (EDB)	mg/kg (ppm)	0.05	113	111	70-130	2

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/20/20 Date Received: 01/14/20 Project: 015379, F&BI 001179

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

Laboratory Code: 001156-01 1/6 (Matrix Spike) 1/6

,	Reporting Units	Spike	Sample	Percent Recovery	Percent Recovery	Acceptance	RPD
Analyte		Level	Result	MS	MSD	Criteria	(Limit 20)
Dieldrin	mg/kg (ppm)	0.1	< 0.01	66	64	50-150	3

Laboratory Code: Laboratory Control Sample 1/6

U U			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Dieldrin	mg/kg (ppm)	0.1	82	70-130

#### ENVIRONMENTAL CHEMISTS

#### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

 ${\rm J}$  - 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.



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

Friedman & Bruya Michael Erdahl 3012 16th Ave. W. Seattle, WA 98119

RE: 001179 Work Order Number: 2001222

January 15, 2020

#### Attention Michael Erdahl:

Fremont Analytical, Inc. received 10 sample(s) on 1/14/2020 for the analyses presented in the following report.

#### Ion Chromatography by EPA Method 300.0 Organophosphorus Pesticides by EPA Method 8270-SIM Sample Moisture (Percent Moisture)

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes Project Manager



CLIENT: Project: Work Order:	Friedman & Bruya 001179 2001222	Work Order Sample Su		
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received	
2001222-001	CC-Sed-2	01/14/2020 9:00 AM	01/14/2020 3:35 PM	
2001222-002	CC-Sed-2:1	01/14/2020 9:10 AM	01/14/2020 3:35 PM	
2001222-003	CC-Sed-3	01/14/2020 10:30 AM	01/14/2020 3:35 PM	
2001222-004	CC-Sed-3:1	01/14/2020 10:40 AM	01/14/2020 3:35 PM	
2001222-005	Pond-Sed-1	01/14/2020 11:40 AM	01/14/2020 3:35 PM	
2001222-006	Pond-Sed-1:1	01/14/2020 11:45 AM	01/14/2020 3:35 PM	
2001222-007	Pond-Sed-2	01/14/2020 12:20 PM	01/14/2020 3:35 PM	
2001222-008	Pond-Sed-2:1	01/14/2020 12:25 PM	01/14/2020 3:35 PM	
2001222-009	Pond-Sed-3	01/14/2020 12:45 PM	01/14/2020 3:35 PM	
2001222-010	Pond-Sed-3:1	01/14/2020 12:50 PM	01/14/2020 3:35 PM	



**Case Narrative** 

WO#: **2001222** Date: **1/15/2020** 

CLIENT:Friedman & BruyaProject:001179

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

#### II. GENERAL REPORTING COMMENTS:

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

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

#### III. ANALYSES AND EXCEPTIONS:

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

# **Qualifiers & Acronyms**



 WO#:
 2001222

 Date Reported:
 1/15/2020

#### Qualifiers:

- \* Flagged value is not within established control limits
- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- I Analyte with an internal standard that does not meet established acceptance criteria
- J Analyte detected below Reporting Limit
- N Tentatively Identified Compound (TIC)
- Q Analyte with an initial or continuing calibration that does not meet established acceptance criteria
- (<20%RSD, <20% Drift or minimum RRF)
- S Spike recovery outside accepted recovery limits
- ND Not detected at the Reporting Limit
- R High relative percent difference observed

Acronyms:

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



Client: Friedman & Bruya				Collection	Date:	1/14/2020 9:00:00 AM
Project: 001179						
Lab ID: 2001222-001				Matrix: So	bil	
Client Sample ID: CC-Sed-2						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Metho	<u>d 8270-SIM</u>		Batch	ID: 27	114 Analyst: SB
Diazinon	ND	838	D	µg/Kg-dry	10	1/15/2020 2:46:55 PM
Surr: Triphenylphosphate	72.6	10.7 - 154	D	%Rec	10	1/15/2020 2:46:55 PM
Ion Chromatography by EPA Meth	<u>od 300.0</u>			Batch	ID: 27	121 Analyst: SS
Nitrate (as N)	ND	1.76		mg/Kg-dry	1	1/15/2020 1:52:00 PM
Orthophosphate (as P)	ND	3.52		mg/Kg-dry	1	1/15/2020 1:52:00 PM
Sample Moisture (Percent Moistur	<u>e)</u>			Batch	ID: R5	6636 Analyst: CJ
Percent Moisture	44.9	0.500		wt%	1	1/14/2020 5:05:41 PM



Client: Friedman & Bruya				Collection	Date:	1/14/2020 10:30:00 AM
Project: 001179						
Lab ID: 2001222-003				Matrix: So	bil	
Client Sample ID: CC-Sed-3						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Metho	d 8270-SIM		Batch	n ID: 27	114 Analyst: SB
Diazinon	ND	592	D	µg/Kg-dry	10	1/15/2020 3:08:57 PM
Surr: Triphenylphosphate	80.2	10.7 - 154	D	%Rec	10	1/15/2020 3:08:57 PM
Ion Chromatography by EPA Metho	<u>od 300.0</u>			Batch	n ID: 27	121 Analyst: SS
Nitrate (as N)	ND	1.30		mg/Kg-dry	1	1/15/2020 2:15:00 PM
Orthophosphate (as P)	ND	2.59		mg/Kg-dry	1	1/15/2020 2:15:00 PM
Sample Moisture (Percent Moisture	<u>e)</u>			Batch	ID: R5	6636 Analyst: CJ
Percent Moisture	23.0	0.500		wt%	1	1/14/2020 5:05:41 PM



Client: Friedman & Bruya				Collection	Date:	1/14/2020 11:40:00 AM
Project: 001179						
Lab ID: 2001222-005				Matrix: So	bil	
Client Sample ID: Pond-Sed-1						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Metho	od 8270-SIM		Batch	ID: 27	114 Analyst: SB
Diazinon	ND	703	D	µg/Kg-dry	10	1/15/2020 3:31:24 PM
Surr: Triphenylphosphate	74.4	10.7 - 154	D	%Rec	10	1/15/2020 3:31:24 PM
Ion Chromatography by EPA Meth	od 300.0			Batch	ID: 27	121 Analyst: SS
Nitrate (as N)	ND	1.47		mg/Kg-dry	1	1/15/2020 2:38:00 PM
Orthophosphate (as P)	ND	2.95		mg/Kg-dry	1	1/15/2020 2:38:00 PM
Sample Moisture (Percent Moistur	<u>e)</u>			Batch	ID: R5	6636 Analyst: CJ
Percent Moisture	33.3	0.500		wt%	1	1/14/2020 5:05:41 PM



Client: Friedman & Bruya				Collection	Date:	1/14/2020 12:20:00 PM
Project: 001179						
Lab ID: 2001222-007				Matrix: So	bil	
Client Sample ID: Pond-Sed-2						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Metho	d 8270-SIM		Batch	1D: 27	114 Analyst: SB
Diazinon	ND	567	D	µg/Kg-dry	10	1/15/2020 3:53:58 PM
Surr: Triphenylphosphate	75.3	10.7 - 154	D	%Rec	10	1/15/2020 3:53:58 PM
lon Chromatography by EPA Metho	<u>od 300.0</u>			Batch	n ID: 27	121 Analyst: SS
Nitrate (as N)	1.84	1.16		mg/Kg-dry	1	1/15/2020 3:01:00 PM
Orthophosphate (as P)	ND	2.32		mg/Kg-dry	1	1/15/2020 3:01:00 PM
Sample Moisture (Percent Moisture	<u>e)</u>			Batch	ID: R5	6636 Analyst: CJ
Percent Moisture	15.2	0.500		wt%	1	1/14/2020 5:05:41 PM



Client: Friedman & Bruya				Collection	Date:	1/14/2020 12:45:00 PM
Project: 001179						
Lab ID: 2001222-009				Matrix: So	bil	
Client Sample ID: Pond-Sed-3						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Metho	<u>d 8270-SIM</u>		Batch	n ID: 27	114 Analyst: SB
Diazinon	ND	517	D	µg/Kg-dry	10	1/15/2020 4:16:27 PM
Surr: Triphenylphosphate	127	10.7 - 154	D	%Rec	10	1/15/2020 4:16:27 PM
Ion Chromatography by EPA Meth	<u>od 300.0</u>			Batch	n ID: 27	121 Analyst: SS
Nitrate (as N)	ND	1.17		mg/Kg-dry	1	1/15/2020 4:11:00 PM
Orthophosphate (as P)	ND	2.34		mg/Kg-dry	1	1/15/2020 4:11:00 PM
Sample Moisture (Percent Moistur	<u>e)</u>			Batch	ID: R5	6636 Analyst: CJ
Percent Moisture	13.0	0.500		wt%	1	1/14/2020 5:05:41 PM



Work Order: CLIENT: Project:	2001222 Friedman & 001179	Bruya						Ion Chi	QC S romatograp	SUMMA ohy by EP		
Sample ID: MB-27 Client ID: MBLK		SampType: MBL Batch ID: 2712			Units: <b>mg/Kg</b>		•	te: 1/14/202 te: 1/15/202		RunNo: <b>566</b> SeqNo: <b>11</b> 2		
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		ND	1.00									
Orthophosphate (a	is P)	ND	2.00									
Sample ID: LCS-2	7121	SampType: LCS			Units: mg/Kg		Prep Da	te: 1/14/202	20	RunNo: 566	674	
Client ID: LCSS		Batch ID: 2712	21				Analysis Da	te: 1/15/202	20	SeqNo: 112	28922	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		7.33	1.00	7.500	0	97.7	90	110				
Orthophosphate (a	is P)	12.2	2.00	12.50	0	98.0	90	110				



Work Order: CLIENT: Project:	2001222 Friedman & 001179	Bruya					Org	anophos	phorus	QC S Pesticides	SUMMAI		-
Sample ID: MB-27	114	SampType	e: MBLK			Units: µg/Kg		Prep Dat	e: 1/14/20	20	RunNo: 566	50	
Client ID: MBLKS	S	Batch ID:	27114					Analysis Dat	e: 1/14/20	20	SeqNo: 112	8470	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon			ND	50.0									
Surr: Triphenylph	nosphate		21.4		20.00		107	10.7	154				
Sample ID: LCS-27	7114	SampType	e: LCS			Units: µg/Kg		Prep Dat	e: 1/14/20	20	RunNo: 566	50	
Client ID: LCSS		Batch ID:	27114					Analysis Dat	e: 1/14/20	20	SeqNo: 112	8471	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon			15.4	50.0	20.00	0	77.2	37.1	132				
Surr: Triphenylph	nosphate		21.6		20.00		108	10.7	154				
Sample ID: 200120	5-001ADUP	SampType	e: DUP			Units: µg/Kg-	dry	Prep Dat	e: 1/14/20	20	RunNo: 566	50	
Client ID: BATCH	1	Batch ID:	27114					Analysis Dat	e: 1/14/20	20	SeqNo: 112	8473	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon			ND	80.5						0		30	
Surr: Triphenylph	nosphate		21.1		32.22		65.6	10.7	154		0		
Sample ID: 200120	05-001AMS	SampType	e: MS			Units: µg/Kg-	dry	Prep Dat	e: 1/14/20	20	RunNo: 566	50	
Client ID: BATCH	1	Batch ID:	27114					Analysis Dat	e: 1/14/20	20	SeqNo: 112	8474	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon			15.5	82.5	33.00	0	47.1	9.74	142				
Surr: Triphenylph	nosphate		26.0		33.00		78.7	10.7	154				
Sample ID: 200120	5-001AMSD	SampType	e: MSD			Units: µg/Kg-	dry	Prep Dat	e: 1/14/20	20	RunNo: 566	50	
Client ID: BATCH	1	Batch ID:	27114					Analysis Dat	e: 1/15/20	20	SeqNo: 112	8883	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon			13.1	755	30.18	0	0	9.74	142	0		30	DS



Work Order: CLIENT: Project:	2001222 Friedman & 001179	Bruya				Org	anophos	sphorus	QC S Pesticides	SUMMAI by EPA M		
Sample ID: 20012 Client ID: BATC		SampType: <b>MSD</b> Batch ID: <b>27114</b>			Units: µg/k	0,	•	nte: 1/14/20 nte: 1/15/20	-	RunNo: <b>566</b> SeqNo: <b>112</b>		
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Triphenylp NOTES:	phosphate	22.5		30.18		74.5	10.7	154		0		D

S - Outlying spike recovery(ies) observed.



# Sample Log-In Check List

Client Name: <b>FB</b>	Work C	order Num	ber: 2001222	
Logged by: Carissa True	Date R	eceived:	1/14/2020	3:35:00 PM
Chain of Custody				
1. Is Chain of Custody complete?	Yes	✓	No 🗌	Not Present
2. How was the sample delivered?	Clie	<u>nt</u>		
<u>Log In</u>				
3. Coolers are present?	Yes	✓	No 🗌	
4. Shipping container/cooler in good condition?	Yes	✓	No 🗌	
<ol> <li>Custody Seals present on shipping container (Refer to comments for Custody Seals not in</li> </ol>			No 🗌	Not Required 🗹
6. Was an attempt made to cool the samples?	Yes		No 🗌	
7. Were all items received at a temperature of	>0°C to 10.0°C* Yes	✓	No 🗌	
8. Sample(s) in proper container(s)?	Yes		No 🗌	
9. Sufficient sample volume for indicated test(s	)? Yes		No 🗌	
10. Are samples properly preserved?	Yes	✓	No 🗌	
11. Was preservative added to bottles?	Yes		No 🔽	NA 🗌
12. Is there headspace in the VOA vials?	Yes		No 🗌	NA 🖌
13. Did all samples containers arrive in good cor	ndition(unbroken)? Yes		No 🗌	
14. Does paperwork match bottle labels?	Yes	✓	No	
15. Are matrices correctly identified on Chain of	Custody? Yes	✓	No 🗌	
16. Is it clear what analyses were requested?	Yes	✓	No 🗌	
17. Were all holding times able to be met?	Yes	✓	No 🗌	
<u>Special Handling (if applicable)</u>				
18. Was client notified of all discrepancies with t	his order? Yes		No 🗌	NA 🗹
Person Notified:	Date:			
By Whom:	Via: eM	ail 🗌 Pł	none 🗌 Fax [	In Person
Regarding:				
Client Instructions:				

#### Item Information

Item #	Temp ⁰C
Cooler 1	0.4
Sample 1	0.7

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

# SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Send Report To	Micha	el Erdahl	•		SUBCOL	VTRACT	ER	Frem	+				_		[of(
2122-00x C		<u>aan and Bru</u> 6th Ave W	ya, Inc.		PROJEC	TNAME	E/NO.	700			PO#		RU	TURNAROU andard (2 Wee ISH 24 400 charges autho	ks)
City, State, ZIP Phone #(206) 28	Seattle,	WA 98119			REMARE	/		lesult	s		<u><u> </u></u>		□ Dis	SAMPLE DI pose after 30 d urn samples I call with inst	SPOSAL lays
Ŧ	-		1	1			_	_	ANA	LYSI	ES REQU	ESTEI			
Sample ID	Lab ID	Date Sampled	Time Sampled	Matr	ix # of jars	Dioxins/Furans	EPH	HAV	Diazinon	N.t.L	Phazhate :	:			Notes
CC-sed-2		1/14/20	0900	SOIL	- 1				./	1	1		-		
CC-Sed-2:1			OPID	. )	1			-	V	-	V	-	1	-	
cc-sed-3			1030		1				V	V	1		1	How	D
CC-Sed-3:1			104D		1						-	-		1200	
and sed-1			1140		1				V	/	1	+		HOLS	)
and - Sed - [:]			1145		1				-			1			
ond - Sed-2			1220		1				V	1:	. /	1		HOL	0
and -Sed-2:1			1225	1	1	-		-			V	1	1 1		
ond-Sed-3			1245		1		-		1	V	1	1		HOLE	)
and - Sed-3:1	-	V	1250	1	1		1	1	1					HOLI	)
								1			-		-	•	
iedman & Bruya, In	nc.		SIGNATURE	-	4						ľ	-			
12 16th Avenue Wes	st R	elinquished by	nen	P	Micha	el Erdah	NT N 1	AME			C Friedma	OMPA1 an & Br	NY uva	DATE	TIME
attle, WA 98119-202	29 R	eceived by:	MA. MA	1 m	mum (	NIP	- 1	)	0		0			114/20	
. (206) 285-8282	Re	linquished by:		V	11124	TEL.	[1]	Ken	be	le nhb	EA.	L		414/20	15.35
x (206) 283-5044	T	eceived by:			-						1. 18 1			-	

001179			SAMPL	E CHAIN	N OF	CU	STO	DDY		ME	- 01.	- 14	1-2	0	l	VS4/A	04,	
Report To Charles	McLadber ("	Thom Morin	SAMPI	LERS (sign	ature)								Г		Page	#	of	<b></b> 1.
Company <u>TPC</u>			PROJE	CT NAME 379 rookelale)				0	(5	P0 379				🗆 Ste 9 RU	andar ISH_	NAROUNE rd turnarou <u>24 みに</u> ges authori	nd <u>TAT</u>	
Address <u>UE0 NW</u> City, State, ZIP <u>Issa</u>	gual, int	78027		RKS RUSL	(244.	-) T.	1†	7	IN 72	VOIC	ЕТО				hive	APLE DISP samples	OSAL	
Phone <u>425-395-00(</u>	Email <u>Cuckall</u>	en Otrian	Project	specific RL	. <u>s? - Y</u>	<u>es /</u>	No									Dispose aft	er 30 day	3
			1	1	1		[		T	NALY		EQU	EST	ED L_99		-1		
 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	3s EPA 8082	NITrates + Phosphates	As	Blene Dibrana	21/00 +	N N	otes	
			·			2	Z	BTI	<u></u>	VO PAI	PCI	the state	AS	H.S.		Σ,		
CC-Sed-2	01 A-E	1/14/20	0900	Sedime 14	5							X		X	X			
CC-Sed-2:1	02		0910															
 CC-sed-3	03		(030									-X	X	X	X			
(c-sed-3:1	04		(040												1			
Poud-Sed-1	05		(14)0						,			X	X	X	X			1
Pond-Sed-1:1	06		1145			·								_/ `				ſ
Pond-Sed+2	07		1220						-			X	X	χ	X			-
Pond-sed-2:1.	08		1225				-+							<u> </u>	11			
Pond-sed-3	09 /		1245									$\overline{\mathbf{x}}$	X	Ý	X			
Pond-Sed-3:1	16		1250	$\overline{\mathbf{V}}$	$\overline{\mathbf{V}}$							-	_^_		<u> </u>	· · ·		
Friedman & Bruya, Inc.	SIGNATURE Relinquished by:		2	Joe	PRIN	T N/				$\tau$	  72 c		PANY	l		DATE 1/14/26	TIME   435	
3012 16 <sup>th</sup> Avenue West	Received by:		Kho	,								<del></del>				+		
Seattle, WA 98119-2029	9 Relinquished by: Received by:										bles received at $\underline{-4}$ °C							
Ph. (206) 285-8282												··· ·						
			<b></b>	·····		<u>. (%)</u>	· »:	l			n		+	-	<u> ∧ ,</u>	1		

#### 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

January 20, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015379, F&BI 001179

Dear Mr McFadden:

Included are the results from the testing of material submitted on January 14, 2020 from the 015379, F&BI 001179 project. There are 23 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Thom Morin TRC0120R.DOC

#### ENVIRONMENTAL CHEMISTS

#### CASE NARRATIVE

This case narrative encompasses samples received on January 14, 2020 by Friedman & Bruya, Inc. from the Environmental Partners 015379, F&BI 001179 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Environmental Partners
001179 -01	CC-Sed-2
001179 -02	CC-Sed-2:1
001179 -03	CC-Sed-3
001179 -04	CC-Sed-3:1
001179 -05	Pond-Sed-1
001179 -06	Pond-Sed-1:1
001179 -07	Pond-Sed-2
001179 -08	Pond-Sed-2:1
001179 -09	Pond-Sed-3
001179 -10	Pond-Sed-3:1

Samples CC-Sed-2, CC-Sed-3, Pond-Sed-2, and Pond-Sed-3 were sent to Fremont Analytical for nitrate, phosphate, and organophosphorus pesticide diazinon analyses. The report is enclosed.

A 8260D internal standard failed the acceptance criteria for sample Pond-Sed-1. The data were flagged accordingly.

All other quality control requirements were acceptable.

#### ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	CC-Sed-2 01/14/20 01/15/20 01/15/20 Soil	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015379, F&BI 001179 001179-01 001179-01.079 ICPMS2
Units: Analyte:	mg/kg (ppm) Dry Weight Concentration mg/kg (ppm)	Operator:	SP
Arsenic	3.19		

#### ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	CC-Sed-3	Client:	Environmental Partners
Date Received:	01/14/20	Project:	015379, F&BI 001179
Date Extracted:	01/15/20	Lab ID:	001179-03
Date Analyzed:	01/15/20	Data File:	001179-03.082
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)	operator.	51

Arsenic

#### ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Pond-Sed-1 01/14/20 01/15/20 01/15/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015379, F&BI 001179 001179-05 001179-05.083 ICPMS2 SP
Analyte:	mg/kg (ppm) Dry Weight Concentration mg/kg (ppm)	Operator:	SP

Arsenic

#### ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	Pond-Sed-2	Client:	Environmental Partners
Date Received:	01/14/20	Project:	015379, F&BI 001179
Date Extracted:	01/15/20	Lab ID:	001179-07
Date Analyzed:	01/15/20	Data File:	001179-07.084
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)	Operator.	51

Arsenic

#### ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	Pond-Sed-3 01/14/20 01/15/20 01/15/20 Soil	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015379, F&BI 001179 001179-09 001179-09.085 ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)		
Arsenic	5.77		

#### ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Environmental Partners
Date Received:	Not Applicable	Project:	015379, F&BI 001179
Date Extracted:	01/15/20	Lab ID:	I0-032 mb
Date Analyzed:	01/15/20	Data File:	I0-032 mb.077
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte: Arsenic	Concentration mg/kg (ppm) <1	operator.	51

#### ENVIRONMENTAL CHEMISTS

#### Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	CC-Sed-2 01/14/20 01/15/20 01/15/20 Soil mg/kg (ppm)	) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-01 011515.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	100	50	150
Toluene-d8		93	50	150
4-Bromofluorobenz	ene	119	50	150
Compounds:		Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

8

#### ENVIRONMENTAL CHEMISTS

#### Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	CC-Sed-3 01/14/20 01/15/20 01/15/20 Soil mg/kg (ppm)	Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-03 011511.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	130	50	150
Toluene-d8		103	50	150
4-Bromofluorobenz	ene	94	50	150
Compounds:	(	Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

#### ENVIRONMENTAL CHEMISTS

#### Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Pond-Sed-1 01/14/20 01/15/20 01/16/20 Soil mg/kg (ppm)	Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-05 011615.D GCMS9 MS
Surrogates: 1,2-Dichloroethane Toluene-d8		% Recovery: 104 J 92 J	Lower Limit: 50 50	Upper Limit: 150 150
<ul><li>4-Bromofluorobenz</li><li>Compounds:</li><li>1,2-Dibromoethane</li></ul>	(	115 J Concentration mg/kg (ppm) <0.005 J	50	150

#### ENVIRONMENTAL CHEMISTS

#### Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Pond-Sed-2 01/14/20 01/15/20 01/15/20 Soil mg/kg (ppm	) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-07 011513A.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	129	50	150
Toluene-d8		98	50	150
4-Bromofluorobenz	ene	$99 \mathrm{J}$	50	150
Compounds:		Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

#### ENVIRONMENTAL CHEMISTS

#### Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Pond-Sed-3 01/14/20 01/15/20 01/15/20 Soil mg/kg (ppm)	Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-09 011514.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	112	50	150
Toluene-d8		104	50	150
4-Bromofluorobenz	ene	111	50	150
Compounds:	(	Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

#### ENVIRONMENTAL CHEMISTS

#### Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Bla Not Applica 01/15/20 01/15/20 Soil mg/kg (ppm		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 00-090 mb2 011508.D GCMS9 MS
Surrogates:		% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane	-d4	100	50	150
Toluene-d8		101	50	150
4-Bromofluorobenz	ene	102	50	150
Compounds:		Concentration mg/kg (ppm)		

< 0.005

#### ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	CC-Sed-2 01/14/20 01/14/20 01/15/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-01 1/6 011507.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 62 68	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.01		

#### ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	CC-Sed-3 01/14/20 01/14/20 01/15/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-03 1/6 011508.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 64 71	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.01		

#### ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Pond-Sed-1 01/14/20 01/14/20 01/15/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-05 1/6 011509.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 58 66	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.01		

#### ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Pond-Sed-2 01/14/20 01/14/20 01/15/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-07 1/6 011514.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 61 60	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.01		

#### ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Pond-Sed-3 01/14/20 01/14/20 01/15/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 001179-09 1/6 011510.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 63 71	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.01		

#### ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blank Not Applicable 01/14/20 01/14/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015379, F&BI 001179 00-122 mb 1/6 011405.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 68 71	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration mg/kg (ppm)		
Dieldrin	< 0.01		

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/20/20 Date Received: 01/14/20 Project: 015379, F&BI 001179

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

RPD

(Limit 20)

 $\mathbf{2}$ 

Laboratory Code: 001179-01 (Matrix Spike) Percent Sample Percent Reporting Spike Result Recovery Recovery Acceptance MSD Analyte Units Level (Wet wt) MSCriteria Arsenic mg/kg (ppm) 10 1.94 81 83 75-125

Laboratory Code: Laboratory Control Sample

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Arsenic	mg/kg (ppm)	10	86	80-120

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/20/20 Date Received: 01/14/20 Project: 015379, F&BI 001179

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

Laboratory Code: 001156-01 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet wt)	(Wet wt)	(Limit 20)
1,2-Dibromoethane (EDB)	mg/kg (ppm)	< 0.005	< 0.005	nm

Laboratory Code: Laboratory Control Sample

Laboratory Code. Laboratory Co.	neror Sample		Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	$\operatorname{RPD}$
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
1,2-Dibromoethane (EDB)	mg/kg (ppm)	0.05	113	111	70-130	2

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/20/20 Date Received: 01/14/20 Project: 015379, F&BI 001179

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

Laboratory Code: 001156-01 1/6 (Matrix Spike) 1/6

,	Reporting Units	Spike	Sample	Percent Recovery	Percent Recovery	Acceptance	RPD
Analyte		Level	Result	MS	MSD	Criteria	(Limit 20)
Dieldrin	mg/kg (ppm)	0.1	< 0.01	66	64	50-150	3

Laboratory Code: Laboratory Control Sample 1/6

U U			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Dieldrin	mg/kg (ppm)	0.1	82	70-130

#### ENVIRONMENTAL CHEMISTS

#### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

 ${\rm J}$  - 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.



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

Friedman & Bruya Michael Erdahl 3012 16th Ave. W. Seattle, WA 98119

RE: 001179 Work Order Number: 2001222

January 15, 2020

#### Attention Michael Erdahl:

Fremont Analytical, Inc. received 10 sample(s) on 1/14/2020 for the analyses presented in the following report.

#### Ion Chromatography by EPA Method 300.0 Organophosphorus Pesticides by EPA Method 8270-SIM Sample Moisture (Percent Moisture)

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes Project Manager



CLIENT: Project: Work Order:	Friedman & Bruya 001179 2001222	Work Order S	Sample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2001222-001	CC-Sed-2	01/14/2020 9:00 AM	01/14/2020 3:35 PM
2001222-002	CC-Sed-2:1	01/14/2020 9:10 AM	01/14/2020 3:35 PM
2001222-003	CC-Sed-3	01/14/2020 10:30 AM	01/14/2020 3:35 PM
2001222-004	CC-Sed-3:1	01/14/2020 10:40 AM	01/14/2020 3:35 PM
2001222-005	Pond-Sed-1	01/14/2020 11:40 AM	01/14/2020 3:35 PM
2001222-006	Pond-Sed-1:1	01/14/2020 11:45 AM	01/14/2020 3:35 PM
2001222-007	Pond-Sed-2	01/14/2020 12:20 PM	01/14/2020 3:35 PM
2001222-008	Pond-Sed-2:1	01/14/2020 12:25 PM	01/14/2020 3:35 PM
2001222-009	Pond-Sed-3	01/14/2020 12:45 PM	01/14/2020 3:35 PM
2001222-010	Pond-Sed-3:1	01/14/2020 12:50 PM	01/14/2020 3:35 PM



**Case Narrative** 

WO#: **2001222** Date: **1/15/2020** 

CLIENT:Friedman & BruyaProject:001179

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

#### II. GENERAL REPORTING COMMENTS:

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

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

#### III. ANALYSES AND EXCEPTIONS:

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

## **Qualifiers & Acronyms**



 WO#:
 2001222

 Date Reported:
 1/15/2020

#### Qualifiers:

- \* Flagged value is not within established control limits
- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- I Analyte with an internal standard that does not meet established acceptance criteria
- J Analyte detected below Reporting Limit
- N Tentatively Identified Compound (TIC)
- Q Analyte with an initial or continuing calibration that does not meet established acceptance criteria
- (<20%RSD, <20% Drift or minimum RRF)
- S Spike recovery outside accepted recovery limits
- ND Not detected at the Reporting Limit
- R High relative percent difference observed

Acronyms:

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



Client: Friedman & Bruya				Collection	Date:	1/14/2020 9:00:00 AM
Project: 001179						
Lab ID: 2001222-001				Matrix: So	bil	
Client Sample ID: CC-Sed-2						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Metho	<u>d 8270-SIM</u>		Batch	ID: 27	114 Analyst: SB
Diazinon	ND	838	D	µg/Kg-dry	10	1/15/2020 2:46:55 PM
Surr: Triphenylphosphate	72.6	10.7 - 154	D	%Rec	10	1/15/2020 2:46:55 PM
Ion Chromatography by EPA Meth	<u>od 300.0</u>			Batch	ID: 27	121 Analyst: SS
Nitrate (as N)	ND	1.76		mg/Kg-dry	1	1/15/2020 1:52:00 PM
Orthophosphate (as P)	ND	3.52		mg/Kg-dry	1	1/15/2020 1:52:00 PM
Sample Moisture (Percent Moistur	<u>e)</u>			Batch	ID: R5	6636 Analyst: CJ
Percent Moisture	44.9	0.500		wt%	1	1/14/2020 5:05:41 PM



Client: Friedman & Bruya				Collection	Date:	1/14/2020 10:30:00 AM
Project: 001179						
Lab ID: 2001222-003				Matrix: So	bil	
Client Sample ID: CC-Sed-3						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Metho	d 8270-SIM		Batch	n ID: 27	114 Analyst: SB
Diazinon	ND	592	D	µg/Kg-dry	10	1/15/2020 3:08:57 PM
Surr: Triphenylphosphate	80.2	10.7 - 154	D	%Rec	10	1/15/2020 3:08:57 PM
Ion Chromatography by EPA Metho	<u>od 300.0</u>			Batch	n ID: 27	121 Analyst: SS
Nitrate (as N)	ND	1.30		mg/Kg-dry	1	1/15/2020 2:15:00 PM
Orthophosphate (as P)	ND	2.59		mg/Kg-dry	1	1/15/2020 2:15:00 PM
Sample Moisture (Percent Moisture	<u>e)</u>			Batch	ID: R5	6636 Analyst: CJ
Percent Moisture	23.0	0.500		wt%	1	1/14/2020 5:05:41 PM



Client: Friedman & Bruya				Collection	Date:	1/14/2020 11:40:00 AM
Project: 001179						
Lab ID: 2001222-005				Matrix: So	bil	
Client Sample ID: Pond-Sed-1						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Metho	od 8270-SIM		Batch	ID: 27	114 Analyst: SB
Diazinon	ND	703	D	µg/Kg-dry	10	1/15/2020 3:31:24 PM
Surr: Triphenylphosphate	74.4	10.7 - 154	D	%Rec	10	1/15/2020 3:31:24 PM
Ion Chromatography by EPA Meth	od 300.0			Batch	ID: 27	121 Analyst: SS
Nitrate (as N)	ND	1.47		mg/Kg-dry	1	1/15/2020 2:38:00 PM
Orthophosphate (as P)	ND	2.95		mg/Kg-dry	1	1/15/2020 2:38:00 PM
Sample Moisture (Percent Moistur	<u>e)</u>			Batch	ID: R5	6636 Analyst: CJ
Percent Moisture	33.3	0.500		wt%	1	1/14/2020 5:05:41 PM



Client: Friedman & Bruya				Collection	Date:	1/14/2020 12:20:00 PM
Project: 001179						
Lab ID: 2001222-007				Matrix: So	bil	
Client Sample ID: Pond-Sed-2						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Metho	d 8270-SIM		Batch	1D: 27	114 Analyst: SB
Diazinon	ND	567	D	µg/Kg-dry	10	1/15/2020 3:53:58 PM
Surr: Triphenylphosphate	75.3	10.7 - 154	D	%Rec	10	1/15/2020 3:53:58 PM
lon Chromatography by EPA Metho	<u>od 300.0</u>			Batch	n ID: 27	121 Analyst: SS
Nitrate (as N)	1.84	1.16		mg/Kg-dry	1	1/15/2020 3:01:00 PM
Orthophosphate (as P)	ND	2.32		mg/Kg-dry	1	1/15/2020 3:01:00 PM
Sample Moisture (Percent Moisture	<u>e)</u>			Batch	ID: R5	6636 Analyst: CJ
Percent Moisture	15.2	0.500		wt%	1	1/14/2020 5:05:41 PM



Client: Friedman & Bruya				Collection	Date:	1/14/2020 12:45:00 PM
Project: 001179						
Lab ID: 2001222-009				Matrix: So	bil	
Client Sample ID: Pond-Sed-3						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Metho	<u>d 8270-SIM</u>		Batch	n ID: 27	114 Analyst: SB
Diazinon	ND	517	D	µg/Kg-dry	10	1/15/2020 4:16:27 PM
Surr: Triphenylphosphate	127	10.7 - 154	D	%Rec	10	1/15/2020 4:16:27 PM
Ion Chromatography by EPA Meth	<u>od 300.0</u>			Batch	n ID: 27	121 Analyst: SS
Nitrate (as N)	ND	1.17		mg/Kg-dry	1	1/15/2020 4:11:00 PM
Orthophosphate (as P)	ND	2.34		mg/Kg-dry	1	1/15/2020 4:11:00 PM
Sample Moisture (Percent Moistur	<u>e)</u>			Batch	ID: R5	6636 Analyst: CJ
Percent Moisture	13.0	0.500		wt%	1	1/14/2020 5:05:41 PM



Work Order: CLIENT: Project:	2001222 Friedman & 001179	Bruya						Ion Chi	QC S romatograp	SUMMA ohy by EP		
Sample ID: MB-27 Client ID: MBLK		SampType: MBL Batch ID: 2712			Units: <b>mg/Kg</b>		•	te: 1/14/202 te: 1/15/202		RunNo: <b>566</b> SeqNo: <b>11</b> 2		
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		ND	1.00									
Orthophosphate (a	is P)	ND	2.00									
Sample ID: LCS-2	7121	SampType: LCS			Units: mg/Kg		Prep Da	te: 1/14/202	20	RunNo: 566	674	
Client ID: LCSS		Batch ID: 2712	21				Analysis Da	te: 1/15/202	20	SeqNo: 112	28922	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		7.33	1.00	7.500	0	97.7	90	110				
Orthophosphate (a	is P)	12.2	2.00	12.50	0	98.0	90	110				



Work Order: CLIENT: Project:	2001222 Friedman & 001179	Bruya					Org	anophos	phorus	QC S Pesticides	SUMMAI		-
Sample ID: MB-27	114	SampType	e: MBLK			Units: µg/Kg		Prep Dat	e: 1/14/20	20	RunNo: 566	50	
Client ID: MBLKS	S	Batch ID:	27114					Analysis Dat	e: 1/14/20	20	SeqNo: 112	8470	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon			ND	50.0									
Surr: Triphenylph	nosphate		21.4		20.00		107	10.7	154				
Sample ID: LCS-27	7114	SampType	e: LCS			Units: µg/Kg		Prep Dat	e: 1/14/20	20	RunNo: 566	50	
Client ID: LCSS		Batch ID:	27114					Analysis Dat	e: 1/14/20	20	SeqNo: 112	8471	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon			15.4	50.0	20.00	0	77.2	37.1	132				
Surr: Triphenylph	nosphate		21.6		20.00		108	10.7	154				
Sample ID: 200120	5-001ADUP	SampType	e: DUP			Units: µg/Kg-	dry	Prep Dat	e: 1/14/20	20	RunNo: 566	50	
Client ID: BATCH	1	Batch ID:	27114					Analysis Dat	e: 1/14/20	20	SeqNo: 112	8473	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon			ND	80.5						0		30	
Surr: Triphenylph	nosphate		21.1		32.22		65.6	10.7	154		0		
Sample ID: 200120	05-001AMS	SampType	e: MS			Units: µg/Kg-	dry	Prep Dat	e: 1/14/20	20	RunNo: 566	50	
Client ID: BATCH	1	Batch ID:	27114					Analysis Dat	e: 1/14/20	20	SeqNo: 112	8474	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon			15.5	82.5	33.00	0	47.1	9.74	142				
Surr: Triphenylph	nosphate		26.0		33.00		78.7	10.7	154				
Sample ID: 200120	5-001AMSD	SampType	e: MSD			Units: µg/Kg-	dry	Prep Dat	e: 1/14/20	20	RunNo: 566	50	
Client ID: BATCH	1	Batch ID:	27114					Analysis Dat	e: 1/15/20	20	SeqNo: 112	8883	
Analyte			Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon			13.1	755	30.18	0	0	9.74	142	0		30	DS



Work Order: CLIENT: Project:	2001222 Friedman & 001179	Bruya	QC SUMMARY REPOR         Organophosphorus Pesticides by EPA Method 8270-SI         Units: µg/Kg-dry       Prep Date: 1/14/2020       RunNo: 56650									
Sample ID: 20012 Client ID: BATC		SampType: <b>MSD</b> Batch ID: <b>27114</b>			Units: µg/k	0,	•	nte: 1/14/20 nte: 1/15/20	-	RunNo: <b>566</b> SeqNo: <b>112</b>		
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Triphenylp NOTES:	phosphate	22.5		30.18		74.5	10.7	154		0		D

S - Outlying spike recovery(ies) observed.



## Sample Log-In Check List

Client Name: <b>FB</b>	Work C	order Num	ber: 2001222	
Logged by: Carissa True	Date R	eceived:	1/14/2020	3:35:00 PM
Chain of Custody				
1. Is Chain of Custody complete?	Yes	✓	No 🗌	Not Present
2. How was the sample delivered?	Clie	<u>nt</u>		
<u>Log In</u>				
3. Coolers are present?	Yes	✓	No 🗌	
4. Shipping container/cooler in good condition?	Yes	✓	No 🗌	
<ol> <li>Custody Seals present on shipping container (Refer to comments for Custody Seals not in</li> </ol>			No 🗌	Not Required 🗹
6. Was an attempt made to cool the samples?	Yes		No 🗌	
7. Were all items received at a temperature of	>0°C to 10.0°C* Yes	✓	No 🗌	
8. Sample(s) in proper container(s)?	Yes		No 🗌	
9. Sufficient sample volume for indicated test(s	)? Yes		No 🗌	
10. Are samples properly preserved?	Yes	✓	No 🗌	
11. Was preservative added to bottles?	Yes		No 🔽	NA 🗌
12. Is there headspace in the VOA vials?	Yes		No 🗌	NA 🖌
13. Did all samples containers arrive in good cor	ndition(unbroken)? Yes		No 🗌	
14. Does paperwork match bottle labels?	Yes	✓	No	
15. Are matrices correctly identified on Chain of	Custody? Yes	✓	No 🗌	
16. Is it clear what analyses were requested?	Yes	✓	No 🗌	
17. Were all holding times able to be met?	Yes	✓	No 🗌	
<u>Special Handling (if applicable)</u>				
18. Was client notified of all discrepancies with t	his order? Yes		No 🗌	NA 🗹
Person Notified:	Date:			
By Whom:	Via: eM	ail 🗌 Pł	none 🗌 Fax [	In Person
Regarding:				
Client Instructions:				

#### Item Information

Item #	Temp ⁰C
Cooler 1	0.4
Sample 1	0.7

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

# SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Send Report To	Micha	el Erdahl	•		SUBCOL	VTRACT	ER	Frem	+				_		[of(		
2122-00x C		<u>aan and Bru</u> 6th Ave W	ya, Inc.		PROJEC	TNAME	E/NO.	700			PO#		RU	TURNAROU Indard (2 Wee ISH 24 hou	ks)		
City, State, ZIP Phone #(206) 28	Seattle,	WA 98119			REMARE	REMARKS Please Email Results								Rush charges authorized by: SAMPLE DISPOSAL Dispose after 30 days Return samples Will call with instructions			
Ŧ	-		1	1			_	_	ANA	LYSI	ES REQU	ESTEI					
Sample ID	Lab ID	Date Sampled	Time Sampled	Matr	ix # of jars	Dioxins/Furans	EPH	HAV	Diazinon	N.t.L	Phazhate :	:			Notes		
CC-sed-2		1/14/20	0900	SOIL	- 1				./	1	1		-				
CC-Sed-2:1			OPID	. )	1			-	V	-	V	-	1	-			
cc-sed-3			1030		1				V	V	1		1	How	D		
CC-Sed-3:1			104D		1						-	-		1200			
and sed-1			1140		1				V	/	1	+		HOLS	)		
and - Sed - [:]			1145		1				-			1					
ond - Sed-2			1220		1				V	1:	. /	1		HOL	0		
and -Sed-2:1			1225	1	1	-		-			V	1	1 1				
ond-Sed-3			1245		1		-		1	V	1	1		HOLE	)		
and - Sed-3:1	-	V	1250	1	1		1	1	1					HOLI	)		
								1			-		-	•			
iedman & Bruya, In	nc.		SIGNATURE	-	4						ľ	-					
12 16th Avenue Wes	st R	elinquished by	nen	P	Micha	el Erdah	NT N 1	AME			C Friedma	OMPA1 an & Br	NY uva	DATE	TIME		
attle, WA 98119-202	29 R	eceived by:	MA. MA	1 m	mum (	NIP	- 1	)	0		0			114/20			
. (206) 285-8282	Re	linquished by:		V	11124	TEL.	[1]	Ken	be	le nhb	EA.	L		414/20	15.35		
x (206) 283-5044	T	ceived by:			-						1. 18 1			-			

	001179			SAMPL	E CHAIN	N OF	CU	STO	DDY		ME	- 01-	- 14	1-2	0	l	VS4/A	04,	
Report To Charles McLadden (Thom Morin				SAMPI	SAMPLE CHAIN OF CUSTODY ME 01-14-				Г	Page # of									
	Company <u>TPC</u>			PROJE	PROJECT NAME G15379 (Brookelale)		0	РО# ©{5374				TURNAROUND TIME							
	Address <u>UE0 NW</u> City, State, ZIP <u>Issa</u>	gual, int	78027		REMARKS RUSL(244r) TAT			INVOICE TO TPC			SAMPLE DISPOSAL			OSAL					
	Phone <u>425-395-00(</u>	Email <u>Cuckall</u>	en Otrian	Project	specific RL	. <u>s? - Y</u>	<u>es /</u>	No									Dispose aft	er 30 day	3
				1	1	1		[			NALY		EQU	EST	ED L_99		-1		
	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	3s EPA 8082	NITrates + Phosphates	As	Blene Dibrans	21/00 +	N N	otes	
				·			2	Z	BTI	<u></u>	VO PAI	PCI	the state	AS	H.S.		Σ,		
	CC-Sed-2	01 A-E	1/14/20	0900	Sedime 14	5							X		X	X			
	CC-Sed-2:1	02		0910															
	CC-sed-3	03		(030									-X	X	X	X			
	(c-sed-3:1	04		(040												1			
	Poud-Sed-1	05		(14)0						,			X	X	X	X			1
	Pond-Sed-1:1	06		1145			·								_/ `				ſ
	Pond-Sed+2	07		1220						-			X	X	χ	X			-
	Pond-sed-2:1.	08		1225				-+							<u> </u>	11			
	Pond-sed-3	09 /		1245									$\overline{\mathbf{x}}$	X	Ý	X			
	Pond-Sed-3:1	16		1250	$\overline{\mathbf{V}}$	$\overline{\mathbf{V}}$							-	_^_		<u> </u>	· · ·		
	·		GNATURE	2	Joe	PRIN	T N/				$\tau$			PANY	l		DATE	TIME   435	
	3012 16 <sup>th</sup> Avenue West	Received by:	1/2		Kho	,									+				
	Seattle, WA 98119-2029	Relinquished by:	£			<u> </u>		зП.	j –				$\frac{1}{1} \frac{1}{1420} \frac{1435}{435}$						
	Ph. (206) 285-8282	Received by:											··· ·				•		
						<b></b>	·····		<u>. (%)</u>	· ».	l			n		+	-	<u> ∧ , </u>	1

#### 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

January 21, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015397, F&BI 001189

Dear Mr McFadden:

Included are the results from the testing of material submitted on January 15, 2020 from the 015397, F&BI 001189 project. There are 16 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Thom Morin TRC0121R.DOC

#### ENVIRONMENTAL CHEMISTS

#### CASE NARRATIVE

This case narrative encompasses samples received on January 15, 2020 by Friedman & Bruya, Inc. from the Environmental Partners 015397, F&BI 001189 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Environmental Partners
001189-01	B-1:Surface
001189-02	B-1:2
001189-03	B-2:Surface
001189-04	B-2:2
001189-05	B-3:Surface
001189-06	B-3:2
001189-07	B-4:Surface
001189-08	B-4:2
001189-09	B-5:Surface
001189-10	B-5:2

Samples B-1:Surface, B-2:Surface, B-3:Surface, B-4:Surface, and B-5:Surface were sent to Fremont Analytical for nitrate, phosphate, and organophosphorus pesticide diazinon analyses. The report is enclosed.

All quality control requirements were acceptable.

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	B-1:Surface 01/15/20 01/16/20 01/16/20 Soil	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001189 001189-01 001189-01.051 ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)		
Arsenic	1.90		

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	B-2:Surface 01/15/20 01/16/20 01/16/20 Soil	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001189 001189-03 001189-03.052 ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)		
Arsenic	2.06		

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	B-3:Surface	Client:	Environmental Partners
Date Received:	01/15/20	Project:	015397, F&BI 001189
Date Extracted:	01/16/20	Lab ID:	001189-05
Date Analyzed:	01/16/20	Data File:	001189-05.061
Matrix:	Soil	Instrument:	ICPMS2
Units: Analyte:	mg/kg (ppm) Dry Weight Concentration mg/kg (ppm)	Operator:	SP

Arsenic

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	B-4:Surface	Client:	Environmental Partners
Date Received:	01/15/20	Project:	015397, F&BI 001189
Date Extracted:	01/16/20	Lab ID:	001189-07
Date Analyzed:	01/16/20	Data File:	001189-07.062
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)		

Arsenic

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	B-5:Surface 01/15/20 01/16/20 01/16/20 Soil	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001189 001189-09 001189-09.063 ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)		
Arsenic	2.59		

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	Method Blank Not Applicable 01/16/20 01/16/20 Soil	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001189 I0-032 mb2 I0-032 mb2.044 ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)		
Arsenic	<1		

## ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-1:Surface 01/15/20 01/16/20 01/16/20 Soil mg/kg (ppm)	Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001189 001189-01 011616.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	97	50	150
Toluene-d8		101	50	150
4-Bromofluorobenz	ene	113	50	150
Compounds:		Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

## ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-2:Surface 01/15/20 01/16/20 01/16/20 Soil mg/kg (ppm)	Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001189 001189-03 011617.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	105	50	150
Toluene-d8		87	50	150
4-Bromofluorobenz	ene	101	50	150
Compounds:		Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

## ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-3:Surface 01/15/20 01/16/20 01/16/20 Soil mg/kg (ppm)	) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001189 001189-05 011618.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	104	50	150
Toluene-d8		92	50	150
4-Bromofluorobenz	ene	108	50	150
Compounds:		Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

## ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-4:Surface 01/15/20 01/16/20 01/16/20 Soil mg/kg (ppm	) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001189 001189-07 011619.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	102	50	150
Toluene-d8		89	50	150
4-Bromofluorobenz	ene	98	50	150
Compounds:		Concentration mg/kg (ppm)		

< 0.005

## ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-5:Surface 01/15/20 01/16/20 01/16/20 Soil mg/kg (ppm)	Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001189 001189-09 011620.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	109	50	150
Toluene-d8		97	50	150
4-Bromofluorobenz	ene	110	50	150
Compounds:		Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

## ENVIRONMENTAL CHEMISTS

## Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix:	Method Bla Not Applica 01/16/20 01/16/20 Soil		Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001189 00-0134 mb 011611.D GCMS9
Units:	mg/kg (ppn	n) Dry Weight	Operator:	MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	106	50	150
Toluene-d8		88	50	150
4-Bromofluorobenz	ene	92	50	150
Compounds:		Concentration mg/kg (ppm)		

< 0.005

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/21/20 Date Received: 01/15/20 Project: 015397, F&BI 001189

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

Laboratory Code: 001179-01 (Matrix Spike)							
			Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet wt)	MS	MSD	Criteria	(Limit 20)
Arsenic	mg/kg (ppm)	10	1.94	81	83	75 - 125	2

Laboratory Code: Laboratory Control Sample

Laboratory C	oue. Laboratory Com	troi Sample	Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Arsenic	mg/kg (ppm)	10	86	80-120

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/21/20 Date Received: 01/15/20 Project: 015397, F&BI 001189

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

Laboratory Code: 001189-07 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet wt)	(Wet wt)	(Limit 20)
1,2-Dibromoethane (EDB)	mg/kg (ppm)	< 0.005	< 0.005	nm

Laboratory Code: Laboratory Control Sample

Laboratory Code. Laboratory Co	nuor sampie		Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	$\operatorname{RPD}$
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
1,2-Dibromoethane (EDB)	mg/kg (ppm)	0.05	107	117	70-130	9

#### ENVIRONMENTAL CHEMISTS

#### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

 ${\rm J}$  - 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.



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

**Friedman & Bruya** Michael Erdahl 3012 16th Ave. W. Seattle, WA 98119

RE: 001189 Work Order Number: 2001240

January 17, 2020

#### **Attention Michael Erdahl:**

Fremont Analytical, Inc. received 10 sample(s) on 1/16/2020 for the analyses presented in the following report.

#### Ion Chromatography by EPA Method 300.0 Organophosphorus Pesticides by EPA Method 8270-SIM Sample Moisture (Percent Moisture)

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes Project Manager

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005 ORELAP Certification: WA 100009-007 (NELAP Recognized)



CLIENT: Project: Work Order:	Friedman & Bruya 001189 2001240	Work Order Sample Summary			
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received		
2001240-001	B-1:Surface	01/15/2020 8:30 AM	01/16/2020 10:15 AM		
2001240-002	B-1:2	01/15/2020 8:40 AM	01/16/2020 10:15 AM		
2001240-003	B-2:Surface	01/15/2020 9:40 AM	01/16/2020 10:15 AM		
2001240-004	B-2:2	01/15/2020 9:50 AM	01/16/2020 10:15 AM		
2001240-005	B-3:Surface	01/15/2020 10:40 AM	01/16/2020 10:15 AM		
2001240-006	B-3:2	01/15/2020 10:45 AM	01/16/2020 10:15 AM		
2001240-007	B-4:Surface	01/15/2020 11:50 AM	01/16/2020 10:15 AM		
2001240-008	B-4:2	01/15/2020 11:55 AM	01/16/2020 10:15 AM		
2001240-009	B-5:Surface	01/15/2020 12:55 PM	01/16/2020 10:15 AM		
2001240-010	B-5:2	01/15/2020 1:00 PM	01/16/2020 10:15 AM		



**Case Narrative** 

WO#: **2001240** Date: **1/17/2020** 

CLIENT:Friedman & BruyaProject:001189

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

#### II. GENERAL REPORTING COMMENTS:

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

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

#### III. ANALYSES AND EXCEPTIONS:

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

## **Qualifiers & Acronyms**



 WO#:
 2001240

 Date Reported:
 1/17/2020

#### Qualifiers:

- \* Flagged value is not within established control limits
- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- I Analyte with an internal standard that does not meet established acceptance criteria
- J Analyte detected below Reporting Limit
- N Tentatively Identified Compound (TIC)
- Q Analyte with an initial or continuing calibration that does not meet established acceptance criteria
- (<20%RSD, <20% Drift or minimum RRF)
- S Spike recovery outside accepted recovery limits
- ND Not detected at the Reporting Limit
- R High relative percent difference observed

Acronyms:

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



Friedman & Bruya

**CLIENT:** 

# **Analytical Report**

 Work Order:
 2001240

 Date Reported:
 1/17/2020

Project: 001189					
Lab ID: 2001240-001 Client Sample ID: B-1:Surface			Collection I Matrix: Soil		1/15/2020 8:30:00 AM
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by E	PA Metho	d 8270-SIM	Batch I	D: 271	52 Analyst: SB
Diazinon	ND	484	µg/Kg-dry	1	1/17/2020 10:43:33 AM
Surr: Triphenylphosphate	90.0	10.7 - 154	%Rec	1	1/17/2020 10:43:33 AM
Ion Chromatography by EPA Metho	<u>d 300.0</u>		Batch I	D: 271	56 Analyst: SS
Nitrate (as N)	ND	1.05	mg/Kg-dry	1	1/16/2020 9:48:00 PM
Orthophosphate (as P)	ND	2.10	mg/Kg-dry	1	1/16/2020 9:48:00 PM
Sample Moisture (Percent Moisture	1		Batch I	D: R56	689 Analyst: CJ
Percent Moisture	4.75	0.500	wt%	1	1/16/2020 11:32:46 AM

Lab ID: 2001240-003 Client Sample ID: B-2:Surface	••••••	Collection Date: 1/15/2020 9:40:00 AM Matrix: Soil				
Analyses	Result	RL Qual	Units	DF	Date Analyzed	
Organophosphorus Pesticides by I	EPA Metho	<u>d 8270-SIM</u>	Batch	ID: 2	27152 Analyst: SB	
Diazinon	ND	537	µg/Kg-dry	1	1/17/2020 11:05:54 AM	
Surr: Triphenylphosphate	73.2	10.7 - 154	%Rec	1	1/17/2020 11:05:54 AM	
lon Chromatography by EPA Metho	od 300.0		Batch	ID: 2	27156 Analyst: SS	
Nitrate (as N)	ND	1.11	mg/Kg-dry	1	1/16/2020 10:34:00 PM	
Orthophosphate (as P)	ND	2.23	mg/Kg-dry	1	1/16/2020 10:34:00 PM	
Sample Moisture (Percent Moisture	<u>e)</u>		Batch	ID: F	R56689 Analyst: CJ	
Percent Moisture	10.3	0.500	wt%	1	1/16/2020 11:32:46 AM	



# **Analytical Report**

 Work Order:
 2001240

 Date Reported:
 1/17/2020

CLIENT:	Friedman & Bruya
Project:	001189
	2001240 005

Lab ID:         2001240-005         Collection Date:         1/15/2020         10:40:00 AM           Client Sample ID:         B-3:Surface         Matrix:         Soil										
Analyses	Result	RL Qual	Units	DF	Date Analyzed					
Organophosphorus Pesticides by E	EPA Metho	d 8270-SIM	Batch	ID: 27	152 Analyst: SB					
Diazinon	ND	516	µg/Kg-dry	1	1/17/2020 11:28:07 AM					
Surr: Triphenylphosphate	80.5	10.7 - 154	%Rec	1	1/17/2020 11:28:07 AM					
Ion Chromatography by EPA Metho	<u>d 300.0</u>		Batch	ID: 27	156 Analyst: SS					
Nitrate (as N)	ND	1.04	mg/Kg-dry	1	1/16/2020 10:57:00 PM					
Orthophosphate (as P)	ND	2.08	mg/Kg-dry	1	1/16/2020 10:57:00 PM					
Sample Moisture (Percent Moisture	)		Batch	ID: R	56689 Analyst: CJ					
Percent Moisture	5.01	0.500	wt%	1	1/16/2020 11:32:46 AM					

Lab ID:         2001240-007         Collection Date:         1/15/2020         11:50:00 AM           Client Sample ID:         B-4:Surface         Matrix:         Soil										
Analyses	Result	RL Qual	Units	DF	Date Analyzed					
Organophosphorus Pesticides by E	EPA Metho	<u>d 8270-SIM</u>	Batch	ID: 27	152 Analyst: SB					
Diazinon	ND	451	µg/Kg-dry	1	1/17/2020 11:50:31 AM					
Surr: Triphenylphosphate	85.9	10.7 - 154	%Rec	1	1/17/2020 11:50:31 AM					
lon Chromatography by EPA Metho	od 300.0		Batch	ID: 27	156 Analyst: SS					
Nitrate (as N)	ND	1.05	mg/Kg-dry	1	1/16/2020 11:20:00 PM					
Orthophosphate (as P)	ND	2.09	mg/Kg-dry	1	1/16/2020 11:20:00 PM					
Sample Moisture (Percent Moisture	)		Batch	ID: R	56689 Analyst: CJ					
Percent Moisture	4.41	0.500	wt%	1	1/16/2020 11:32:46 AM					



Friedman & Bruya

CLIENT:

# **Analytical Report**

 Work Order:
 2001240

 Date Reported:
 1/17/2020

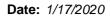
Project: 001189					
Lab ID: 2001240-009 Client Sample ID: B-5:Surface			Collection D Matrix: Soil	ate: 1/	/15/2020 12:55:00 PM
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by I	EPA Metho	<u>d 8270-SIM</u>	Batch ID	): 2715	2 Analyst: SB
Diazinon	ND	449	µg/Kg-dry	1	1/17/2020 12:12:57 PM
Surr: Triphenylphosphate	80.7	10.7 - 154	%Rec	1	1/17/2020 12:12:57 PM
Ion Chromatography by EPA Metho	od 300.0		Batch ID	): 2715	6 Analyst: SS
Nitrate (as N)	ND	1.06	mg/Kg-dry	1	1/17/2020 12:30:00 AM
Orthophosphate (as P)	ND	2.11	mg/Kg-dry	1	1/17/2020 12:30:00 AM
Sample Moisture (Percent Moisture	<u>e)</u>		Batch ID	): R566	89 Analyst: CJ
Percent Moisture	5.90	0.500	wt%	1	1/16/2020 11:32:46 AM

Fremont
Analytical

Work Order: CLIENT: Project:	2001240 Friedman & 001189	Bruya							lon Ch	QC S	SUMMAI		
Sample ID: MB-27	156	SampType:	MBLK			Units: mg/Kg		Prep Date	e: 1/16/20	20	RunNo: 567	716	
Client ID: MBLK	S	Batch ID:	27156					Analysis Date	e: 1/16/20	20	SeqNo: 112	29894	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N) Orthophosphate (a	s P)		ND ND	1.00 2.00									
Sample ID: LCS-2	7156	SampType:	LCS			Units: mg/Kg		Prep Date	e: 1/16/20	20	RunNo: 567	716	
Client ID: LCSS		Batch ID:	27156					Analysis Date	e: 1/16/20	20	SeqNo: 112	29895	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)			7.94	1.00	7.500	0	106	90	110				
Orthophosphate (a	s P)		12.7	2.00	12.50	0	102	90	110				
Sample ID: 200124	40-001ADUP	SampType:	DUP			Units: mg/Kg-	dry	Prep Date	e: 1/16/20	20	RunNo: 567	716	
Client ID: B-1:Su	urface	Batch ID:	27156					Analysis Date	e: <b>1/16/20</b>	20	SeqNo: 112	29897	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)			ND	1.04						0		30	
Orthophosphate (a	s P)		ND	2.09						0		30	
Sample ID: 200124	40-007AMS	SampType:	MS			Units: mg/Kg-	dry	Prep Date	e: 1/16/20	20	RunNo: 567	716	
Client ID: B-4:Su	urface	Batch ID:	27156					Analysis Date	e: 1/16/20	20	SeqNo: 112	29901	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)			8.20	1.04	7.831	0	105	80	120				
Orthophosphate (a	s P)		2.28	2.09	13.05	0	17.4	80	120				S

#### NOTES:

S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.





Work Order: CLIENT: Project:	2001240 Friedman & 001189	Bruya	QC SUMMARY REPORT Ion Chromatography by EPA Method 300.									
Sample ID: 20012	40-007AMSD	SampType: MSD			Units: mg/K	g-dry	Prep Da	te: 1/16/20	20	RunNo: 567	716	
Client ID: B-4:Su	urface	Batch ID: 27156					Analysis Da	te: 1/17/20	20	SeqNo: 112	29902	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		8.16	1.04	7.774	0	105	80	120	8.196	0.471	30	
Orthophosphate (a	is P)	ND	2.07	12.96	0	14.6	80	120	2.276	18.7	30	S

#### NOTES:

S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.



Work Order:	2001240									00 9	SUMMA		PORT
CLIENT:	Friedman 8	k Bruya					•			•			-
Project:	001189						Org	anopnos	pnorus	Pesticides	by EPA M	ethod 82	70-SIM
Sample ID: MB-27	152	SampType	MBLK			Units: µg/Kg		Prep Da	te: 1/16/20	)20	RunNo: 567	/25	
Client ID: MBLK	S	Batch ID:	27152					Analysis Da	te: 1/17/20	)20	SeqNo: 113	80103	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon			ND	500									
Surr: Triphenylph	nosphate		219		200.0		109	10.7	154				
Sample ID: LCS-2	7152	SampType	LCS			Units: µg/Kg		Prep Da	te: 1/16/20	)20	RunNo: 567	725	
Client ID: LCSS		Batch ID:	27152					Analysis Da	te: 1/17/20	)20	SeqNo: 113	80104	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon			198	500	200.0	0	99.1	37.1	132				
Surr: Triphenylph	nosphate		227		200.0		114	10.7	154				



# Sample Log-In Check List

Client Name: FB				Work Order Number: 2001240						
Logo	ged by:	Carissa True	Date Re	ceived:	1/16/2020	) 10:15:00 AM				
Chain	of Cust	ody								
1. Is	Chain of C	ustody complete?	Yes	✓	No 🗌	Not Present				
2. Ho	ow was the	sample delivered?	FedE	<u>x</u>						
<u>Log lr</u>	<u>n</u>									
	oolers are p	present?	Yes	✓	No 🗌					
4. Sł	hipping con	tainer/cooler in good condition?	Yes	✓	No 🗌					
		s present on shipping container/cooler? ments for Custody Seals not intact)	Yes		No 🗹	Not Required				
6. W	/as an atter	npt made to cool the samples?	Yes	✓	No 🗌					
7. W	/ere all item	s received at a temperature of >0°C to 10.0°C*	Yes	✓	No 🗌					
8. Sa	ample(s) in	proper container(s)?	Yes		No 🗌					
9. Si	ufficient sar	nple volume for indicated test(s)?	Yes	✓	No 🗌					
10. Ai	re samples	properly preserved?	Yes	✓	No 🗌					
11. W	/as preserv	ative added to bottles?	Yes		No 🖌	NA				
12. <sup>Is</sup>	there head	space in the VOA vials?	Yes		No 🗌	NA 🗹				
13. Di	id all sampl	es containers arrive in good condition(unbroken)?	Yes	✓	No 🗌					
14. Do	oes paperw	ork match bottle labels?	Yes	✓	No 🗌					
15. Aı	re matrices	correctly identified on Chain of Custody?	Yes	✓	No 🗌					
16. <sup>Is</sup>	it clear what	at analyses were requested?	Yes	✓	No 🗌					
17. W	/ere all hold	ing times able to be met?	Yes	✓	No 🗌					
<u>Speci</u>	ial Handl	ing (if applicable)								
18. W	/as client no	otified of all discrepancies with this order?	Yes		No 🗌	NA 🗹				
	Person	Notified: Date								
	By Who	m: Via:	🗌 eMa	il 🗌 Ph	one 🗌 Fax	In Person				
	Regardi	ng:								
	Client Ir	nstructions:								
19. A	dditional rer	narks:								

#### Item Information

Item #	Temp ⁰C
Cooler 1	4.8
Sample 1	4.8

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

# SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Send Report <u>To</u>	Micha	ael Erdahl	9	-	SUBCO	NTRA	CTER	Fren	nant	F			_	Page	#!	of
Company	Friedr	nan and Bri	iva, Inc.		PROJEC	TNA	ME/NO	-	1011	T	PO#		In St.	TURN	VAROU	ND TIME
Address	3012 1	6th Ave W				.00	1189			1			PARO	andard ISH_ 2	24 hou	
City Shat and				-		1 A 4	1101		_		A - 531		Rush	charge	s autho	rized by:
City, State, ZIP_ Phone # <u>(206) 2</u>				,	REMARE		Email ]	Result	ts				O Ret	pose aft wrn san	ter 30 d	SPOSAL ays
	1		1	1			_		AN	ALYS	ES REQI	JESTEI		14.1		
Sample ID	Lab ID	Date Sampled	Time Sampled	Matri	x # of jars	Dioxins/Furans	EPH .	HdV		-	: 7	:				Notes
-1: Surface		1/15/20	· · ·			Diox			Diarinan	T tiv	Phas		·			
-1:2		115/20	063.	Soil	1				×	x	×					
-2: Surface				1.	1				•					-	Hold	
-2:2			- 0940	2	1				*	×	×			-	proved	
- 3: Surface		1-1	0930		1						-			+	Hold	-
3-3:2		1 1	1046		11	-	_		×	×	×				····	
3.4: Surfaces		1 1	1023		11		_							-1	hid	
.4:2					11		_		×	×	×	-		- F		
-S: Suface			1155		1		_							-H	Id	
-5:2			1300		11	_	_	,	×	×	×		1	-	1	
			150.	1	1	+	+	+	+	-				H	old -	ý
								1		1	-			•		
lman & Bruya, In 16th Avenue Wes	st Re	Singuished by	IGNATURE	0	Michael	PR	INT NA	AME				OMPAN		DA	TE	TIME
tle, WA 98119-202 206) 285-8282	9 Rec	ceived by:	HAT	2	0	tu		ohn		5	Friedma	an & Bru	ya	1/16/		0730A

	QQN	189	SAMPLE	CHAIN	OF (	CUS	то	DY	Μ	E	01	- 1:	5->	2	0		1 HSt	+ VS3
Report To Charles Met			SAMPL	ERS (signo	uture)	tra	L	che	ا میں	-	7	/	Z,		<u> </u>	Page #	tof	AD5
Company TRC	•		PROJEC 0153	ERS (signo <u>3 Mef</u> CT NAME 597 Kdale)	KO EM	/		0	(57	Å. 37	0# 7				] Stai VRUS	ndard SH2	turnaround $4$ $4r$ $7$ , $7$ , $7$ , $7$ , $7$ , $7$ , $7$ , $7$	41
Address <u>[180 NW</u> City, State, ZIP <u>Issag</u> Phone <u>H25-395-0010</u> E	wah, UNA mail constables	9802-7 24rccompani	REMAR 12054 exc Project :	$\frac{KS}{\mathcal{T}\mathcal{A}\mathcal{T}}$	(24 s? - Ye	(hr) is 71	No	<b>مر</b> ا	IN 72		ICE	то	,		) Arcl ) Oth	nive s er	PLE DISPO samples Dispose after	
	-	ł							A	NAI	YSE	SRE	QUI				·····	
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	Nitrates + Phospimites	Å,	ETWHENE (EDB)	Diazihon	Not	es
B-1: Surface	OIAF	V15/20	0830	Soll	6								X	Х	X.	X		
B-1:2	×3		0840			×							4	. K <u>i</u>				
B-2: Surface	03		0940										X	X	X	Х		
8-2:2	04		950							-					-			
B-3: Surface	05		1040			-							χ	Х	X	X		
B-3:2	06		1045															×.
B-4: Sur face	07		1150										χ	χ	X	X		
B-4:2	øB		1155			San	ples	s rec	eived	l at	5	PC						
B-5: Surface	07		1255										Х	x	X	x		
3-5'2	10	$\checkmark$	1300		N.											- ·		
Friedman & Bruya, Inc.	Relinquished by:	GNATURE		Joe	PRIN Shi			6			T	C 72.0		PAN	Y		DATE  // <i>5</i> /20	TIME 1558
3012 16 <sup>th</sup> Avenue West Seattle, WA 98119-2029	Received by: Relinquished by:	nz	2	Isa	ac	lez	<i>51</i> /c	Y				FR	>]				1/15/20	15:58
Ph. (206) 285-8282	Received by:															44		

#### 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

February 4, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015397, F&BI 001190

Dear Mr McFadden:

Included is the amended report from the testing of material submitted on January 15, 2020 from the 015397, F&BI 001190 project. Per your request, the dieldrin results were reported down to the method detection limit.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Thom Morin TRC0121R.DOC

#### 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

January 21, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015397, F&BI 001190

Dear Mr McFadden:

Included are the results from the testing of material submitted on January 15, 2020 from the 015397, F&BI 001190 project. There are 25 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Thom Morin TRC0121R.DOC

#### ENVIRONMENTAL CHEMISTS

#### CASE NARRATIVE

This case narrative encompasses samples received on January 15, 2020 by Friedman & Bruya, Inc. from the Environmental Partners 015397, F&BI 001190 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Environmental Partners</u>
001190 -01	B-1:GW
001190 -02	B-2:GW
001190 -03	B-3:GW
001190 -04	B-4:GW
001190 -05	B-5:GW

The dissolved metals samples were filtered at Friedman and Bruya on January 16, 2020 at 13:32. The data were flagged accordingly.

The 8081 surrogate TCMX failed below the acceptance criteria in the method blank. The data were flagged accordingly.

Sediment was present in the total metals 6020B samples B-1:GW, B-3:GW, B-4:GW, and B-5:GW. The total arsenic concentration is likely biased high due to interference from the sediment.

The samples were sent to Fremont Analytical for nitrate, phosphate, and organophosphorus pesticide diazinon analyses. The report is enclosed.

All other quality control requirements were acceptable.

# ENVIRONMENTAL CHEMISTS

# Analysis For Dissolved Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	B-1:GW f 01/15/20 01/16/20 01/16/20 Water		Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001190 001190-01 001190-01.101 ICPMS2
Units:	ug/L (ppb)		Operator:	SP SP
Analyte:		Concentration ug/L (ppb)	-	
Arsenic		<1		

# ENVIRONMENTAL CHEMISTS

# Analysis For Dissolved Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	B-2:GW f 01/15/20 01/16/20 01/16/20 Water		Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001190 001190-02 001190-02.102 ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte:		Concentration ug/L (ppb)		
Arsenic		<1		

# ENVIRONMENTAL CHEMISTS

# Analysis For Dissolved Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	B-3:GW f 01/15/20 01/16/20 01/16/20 Water		Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001190 001190-03 001190-03.103 ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte:		Concentration ug/L (ppb)		
Arsenic		<1		

# ENVIRONMENTAL CHEMISTS

# Analysis For Dissolved Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	B-4:GW f 01/15/20 01/16/20 01/16/20 Water		Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001190 001190-04 001190-04.107 ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte:	8 - (FF*)	Concentration ug/L (ppb)		
Arsenic		<1		

# ENVIRONMENTAL CHEMISTS

# Analysis For Dissolved Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	B-5:GW f 01/15/20 01/16/20 01/16/20 Water		Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001190 001190-05 001190-05.108 ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte:		Concentration ug/L (ppb)		
Arsenic		<1		

# ENVIRONMENTAL CHEMISTS

# Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank f	Client:	Environmental Partners
Date Received:	Not Applicable	Project:	015397, F&BI 001190
Date Extracted:	01/16/20	Lab ID:	I0-034 mb
Date Analyzed:	01/16/20	Data File:	I0-034 mb.093
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP
	Concentration		
Analyte:	ug/L (ppb)		

Arsenic

# ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	B-1:GW 01/15/20 01/16/20 01/16/20 Water		Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001190 001190-01 001190-01.056 ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte:		Concentration ug/L (ppb)		
Arsenic		9.68		

# ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	B-2:GW 01/15/20 01/16/20 01/16/20 Water		Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001190 001190-02 001190-02.057 ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte:		Concentration ug/L (ppb)		
Arsenic		1.22		

# ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	B-3:GW 01/15/20 01/16/20 01/16/20 Water		Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001190 001190-03 001190-03.058 ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte:		Concentration ug/L (ppb)		
Arsenic		73.1		

# ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	B-4:GW 01/15/20 01/16/20 01/16/20 Water		Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001190 001190-04 001190-04.059 ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte:		Concentration ug/L (ppb)		
Arsenic		33.5		

#### ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	B-5:GW 01/15/20 01/16/20 01/16/20 Water		Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001190 001190-05 001190-05.060 ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte:		Concentration ug/L (ppb)		
Arsenic		53.4		

# ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	Method Blank Not Applicable 01/16/20 01/16/20 Water	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001190 I0-033 mb I0-033 mb.040 ICPMS2
Units:	ug/L (ppb)	Operator:	SP
Analyte:	Concentration ug/L (ppb)		
Arsenic	<1		

# ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-1:GW 01/15/20 01/16/20 01/16/20 Water ug/L		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001190 001190-01 011619.D GC9 IJL
Surrogates: TCMX DBC		% Recovery: 53 76	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		< 0.02		

# ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-2:GW 01/15/20 01/16/20 01/16/20 Water ug/L		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001190 001190-02 011620.D GC9 IJL
Surrogates: TCMX DBC		% Recovery: 57 78	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		< 0.02		

# ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-3:GW 01/15/20 01/16/20 01/16/20 Water ug/L		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001190 001190-03 011621.D GC9 IJL
Surrogates: TCMX DBC		% Recovery: 39 ip 63	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		< 0.02		

# ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-4:GW 01/15/20 01/16/20 01/16/20 Water ug/L		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001190 001190-04 011622.D GC9 IJL
Surrogates: TCMX DBC		% Recovery: 52 63	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		0.032		

# ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-5:GW 01/15/20 01/16/20 01/16/20 Water ug/L		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001190 001190-05 011623.D GC9 IJL
Surrogates: TCMX DBC		% Recovery: 54 59	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		< 0.02		

# ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blank Not Applicable 01/16/20 01/16/20 Water ug/L	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001190 00-156 mb2 011618.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 48 vo 75	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration ug/L		
Dieldrin	<0.02 js		

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/21/20 Date Received: 01/15/20 Project: 015397, F&BI 001190 Date Extracted: 01/16/20 Date Analyzed: 01/16/20

# RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR 1,2-DIBROMOETHANE (EDB) BY EPA METHOD 8011 MODIFIED

Results Reported as  $\mu$ g/L (ppb)

<u>EDB</u>
< 0.01
< 0.01
< 0.01
<0.01
<0.01

< 0.01

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/21/20 Date Received: 01/15/20 Project: 015397, F&BI 001190

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

			Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Arsenic	ug/L (ppb)	10	94	95	80-120	1

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/21/20 Date Received: 01/15/20 Project: 015397, F&BI 001190

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

RPD

(Limit 20)

9

Laboratory Code: 001037-28 x10 (Matrix Spike) Percent Percent Reporting Spike Sample Recovery Recovery Acceptance Units Analyte Level Result MSMSD Criteria 10 Arsenic ug/L (ppb) 37.9 108118 75-125

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Arsenic	ug/L (ppb)	10	95	80-120

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/21/20 Date Received: 01/15/20 Project: 015397, F&BI 001190

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

	Reporting	Spike	Percent Recoverv	Percent Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Dieldrin	ug/L (ppb)	0.25	83	78	70-130	6

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/21/20 Date Received: 01/15/20 Project: 015397, F&BI 001190

#### QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR 1,2-DIBROMOETHANE (EDB) BY EPA METHOD 8011 MODIFIED

Laboratory Coue. Laboratory C	onnoi oampi	C	Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	$\operatorname{RPD}$
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 10)
1,2-Dibromoethane	ug/L (ppb)	0.10	98	103	70-130	6

#### ENVIRONMENTAL CHEMISTS

#### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

 ${\rm J}$  - 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.



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

Friedman & Bruya Michael Erdahl 3012 16th Ave. W. Seattle, WA 98119

RE: 001190 Work Order Number: 2001241

January 17, 2020

#### Attention Michael Erdahl:

Fremont Analytical, Inc. received 5 sample(s) on 1/16/2020 for the analyses presented in the following report.

#### Ion Chromatography by EPA Method 300.0 Organophosphorus Pesticides by EPA Method 8270-SIM

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes Project Manager

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005 ORELAP Certification: WA 100009-007 (NELAP Recognized)



CLIENT: Project: Work Order:	Friedman & Bruya 001190 2001241	Work Order S	Sample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2001241-001	B-1:GW	01/15/2020 9:10 AM	01/16/2020 10:15 AM
2001241-002	B-2:GW	01/15/2020 10:05 AM	01/16/2020 10:15 AM
2001241-003	B-3:GW	01/15/2020 11:15 AM	01/16/2020 10:15 AM
2001241-004	B-4:GW	01/15/2020 12:20 PM	01/16/2020 10:15 AM
2001241-005	B-5:GW	01/15/2020 1:30 PM	01/16/2020 10:15 AM



**Case Narrative** 

WO#: **2001241** Date: **1/17/2020** 

CLIENT:Friedman & BruyaProject:001190

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

#### II. GENERAL REPORTING COMMENTS:

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

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

#### **III. ANALYSES AND EXCEPTIONS:**

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

## **Qualifiers & Acronyms**



 WO#:
 2001241

 Date Reported:
 1/17/2020

#### Qualifiers:

- \* Flagged value is not within established control limits
- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- I Analyte with an internal standard that does not meet established acceptance criteria
- J Analyte detected below Reporting Limit
- N Tentatively Identified Compound (TIC)
- Q Analyte with an initial or continuing calibration that does not meet established acceptance criteria
- (<20%RSD, <20% Drift or minimum RRF)
- S Spike recovery outside accepted recovery limits
- ND Not detected at the Reporting Limit
- R High relative percent difference observed

Acronyms:

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



# **Analytical Report**

 Work Order:
 2001241

 Date Reported:
 1/17/2020

CLIENT:	Friedman & Bruya
Project:	001190

Lab ID: 2001241-001 Client Sample ID: B-1:GW			Collectior Matrix: W		1/15/2020 9:10:00 AM
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Metho	<u>d 8270-SIM</u>	Batch	n ID: 27	157 Analyst: SB
Diazinon	ND	0.197	µg/L	1	1/17/2020 1:42:58 PM
Surr: Triphenylphosphate	104	10 - 132	%Rec	1	1/17/2020 1:42:58 PM
Ion Chromatography by EPA Meth	<u>od 300.0</u>		Batch	n ID: 27	155 Analyst: SS
Nitrate (as N)	1.20	0.100	mg/L	1	1/16/2020 5:11:00 PM
Ortho-Phosphate (as P)	ND	0.200	mg/L	1	1/16/2020 5:11:00 PM

Lab ID: 2001241-002 Client Sample ID: B-2:GW			Collectior Matrix: W		1/15/2020 10:05:00 AM
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	/ EPA Method	d 8270-SIM	Batch	n ID: 27	157 Analyst: SB
Diazinon	ND	0.197	µg/L	1	1/17/2020 2:27:38 PM
Surr: Triphenylphosphate	113	10 - 132	%Rec	1	1/17/2020 2:27:38 PM
Ion Chromatography by EPA Met	<u>hod 300.0</u>		Batch	n ID: 27	155 Analyst: SS
Nitrate (as N)	1.18	0.100	mg/L	1	1/16/2020 5:57:00 PM
Ortho-Phosphate (as P)	ND	0.200	mg/L	1	1/16/2020 5:57:00 PM



# **Analytical Report**

 Work Order:
 2001241

 Date Reported:
 1/17/2020

CLIENT:	Friedman & Bruya
Project:	001190

Lab ID: 2001241-003 Client Sample ID: B-3:GW			Collectior Matrix: W		1/15/2020 11:15:00 AM
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Metho	<u>d 8270-SIM</u>	Batch	n ID: 27	157 Analyst: SB
Diazinon Surr: Triphenylphosphate	ND 121	0.199 10 - 132	μg/L %Rec	1 1	1/17/2020 2:49:31 PM 1/17/2020 2:49:31 PM
Ion Chromatography by EPA Meth	<u>10d 300.0</u>		Batch	n ID: 27	155 Analyst: SS
Nitrate (as N) Ortho-Phosphate (as P)	0.638 ND	0.100 0.200	mg/L mg/L	1 1	1/16/2020 7:06:00 PM 1/16/2020 7:06:00 PM

Lab ID: 2001241-004 Client Sample ID: B-4:GW			Collectior Matrix: W		1/15/2020 12:20:00 PM
Analyses	Result	RL Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Method	<u>d 8270-SIM</u>	Batch	1D: 27	157 Analyst: SB
Diazinon	ND	0.197	μg/L	1	1/17/2020 3:11:50 PM
Surr: Triphenylphosphate	86.4 100 300.0	10 - 132	%Rec Batch	1 i ID: 27	1/17/2020 3:11:50 PM 155 Analyst: SS
Nitrate (as N) Ortho-Phosphate (as P)	2.26 ND	0.100 0.200	mg/L mg/L	1 1	1/16/2020 7:29:00 PM 1/16/2020 7:29:00 PM



Friedman & Bruya

001190

CLIENT:

Project:

# **Analytical Report**

 Work Order:
 2001241

 Date Reported:
 1/17/2020

Lab ID: 2001241-005 Client Sample ID: B-5:GW				Collection Matrix: V		: 1/15/2020 1:30:00 Pl
Analyses	Result	RL Q	ual	Units	DF	Date Analyzed
Organophosphorus Pesticides I	by EPA Metho	<u>d 8270-SIM</u>		Batcl	ו ID: 2	7157 Analyst: SB
Diazinon	ND	0.198		µg/L	1	1/17/2020 3:34:15 PM
Surr: Triphenylphosphate	129	10 - 132		%Rec	1	1/17/2020 3:34:15 PM
Ion Chromatography by EPA Me	<u>ethod 300.0</u>			Batcl	n ID: 2	7155 Analyst: SS
Nitrate (as N)	2.56	0.200	D	mg/L	2	1/17/2020 11:01:00 AM
Ortho-Phosphate (as P)	ND	0.200		mg/L	1	1/16/2020 7:52:00 PM



Work Order: 2001241								2.00			PORT
CLIENT: Friedman 8	a Bruya							•			-
Project: 001190							ion Ch	romatogra	ony by EP	A Method	1 300.C
Sample ID: MB-27155	SampType: <b>MBLK</b>			Units: <b>mg/L</b>		Prep Dat	e: 1/16/20	20	RunNo: 567	717	
Client ID: MBLKW	Batch ID: 27155					Analysis Dat	e: 1/16/20	20	SeqNo: 112	29908	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	ND	0.100									
Ortho-Phosphate (as P)	ND	0.200									
Sample ID: LCS-27155	SampType: LCS			Units: mg/L		Prep Dat	e: 1/16/20	20	RunNo: 567	717	
Client ID: LCSW	Batch ID: 27155					Analysis Dat	e: 1/16/20	20	SeqNo: 112	29909	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	0.740	0.100	0.7500	0	98.7	90	110				
Ortho-Phosphate (as P)	1.21	0.200	1.250	0	97.0	90	110				
Sample ID: 2001241-001ADUP	SampType: <b>DUP</b>			Units: mg/L		Prep Dat	e: 1/16/20	20	RunNo: 567	717	
Client ID: B-1:GW	Batch ID: 27155					Analysis Dat	e: 1/16/20	20	SeqNo: 112	29911	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	1.20	0.100						1.197	0.417	20	
Ortho-Phosphate (as P)	ND	0.200						0		20	
Sample ID: 2001241-002AMS	SampType: <b>MS</b>			Units: mg/L		Prep Dat	e: 1/16/20	20	RunNo: 567	717	
Client ID: B-2:GW	Batch ID: 27155					Analysis Dat	e: 1/16/20	20	SeqNo: 112	29913	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	2.00	0.100	0.7500	1.179	109	80	120				
Ortho-Phosphate (as P)	1.12	0.200	1.250	0	89.8	80	120				
Sample ID: 2001241-002AMSD	SampType: <b>MSD</b>			Units: mg/L		Prep Dat	e: 1/16/20	20	RunNo: 567	717	
Client ID: B-2:GW	Batch ID: 27155					Analysis Dat	e: 1/16/20	20	SeqNo: 112	29914	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	1.99	0.100	0.7500	1.179	108	80	120	1.997	0.251	20	
											<u>ana 8 a</u>



Work Order:	2001241								00.5	SUMMAF		PORT
CLIENT:	Friedman &	Bruya										
Project:	001190							lon Ch	romatograp	ohy by EP	A Method	300.0
Sample ID: 200124	41-002AMSD	SampType: <b>MSD</b>			Units: mg/L		Prep Dat	te: 1/16/20	20	RunNo: 567	'17	
Client ID: B-2:G	w	Batch ID: 27155					Analysis Dat	te: 1/16/20	20	SeqNo: 112	9914	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ortho-Phosphate (	as P)	1.16	0.200	1.250	0	92.7	80	120	1.123	3.16	20	



CLIENT: Fr	001241 iedman & Bruya 01190					Org	anophos	phorus	QC S Pesticides	SUMMAI		-
Sample ID: MB-27157	SampT	ype: MBLK	K		Units: µg/L		Prep Dat	e: 1/16/20	20	RunNo: 567	'26	
Client ID: MBLKW	Batch I	D: 27157	,				Analysis Dat	e: 1/17/20	20	SeqNo: 113	0114	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon		ND	0.198									
Surr: Triphenylphosp	ohate	0.540		0.3959		136	10	132				S
NOTES: S - Outlying surrogat	te recovery(ies) observ	ed (high bia	s). Sample is n	on-detect; no f	urther action requi	red.						
Sample ID: LCS-27157	7 SampT	ype: LCS			Units: µg/L		Prep Dat	e: 1/16/20	20	RunNo: 567	26	
Client ID: LCSW	Batch I	D: 27157	,				Analysis Dat	e: 1/17/20	20	SeqNo: 113	0115	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon Surr: Triphenylphosp	phate	2.00 0.458	0.198	1.975 0.3951	0	101 116	26.5 10	127 132				
Sample ID: LCSD-271	57 SampT	ype: LCSD	1		Units: µg/L		Prep Dat	e: 1/16/20	20	RunNo: 567	26	
Client ID: LCSW02	Batch I	D: 27157	,				Analysis Dat	e: 1/17/20	20	SeqNo: 113	0116	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon		2.13	0.198	1.980	0	108	26.5	127	2.000	6.42	30	
Surr: Triphenylphosp	bhate	0.440		0.3961		111	10	132		0		
Sample ID: 2001241-0	01BDUP SampT	ype: DUP			Units: µg/L		Prep Dat	e: 1/16/20	20	RunNo: 567	26	
Client ID: B-1:GW	Batch I	D: 27157	,				Analysis Dat	e: 1/17/20	20	SeqNo: 113	0118	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon		ND	0.234						0		30	
Surr: Triphenylphosp	ohate	0.448		0.4686		95.5	10	132		0		



## Sample Log-In Check List

Cli	ent Name:	FB	Work Order Number: 2001241					
Log	gged by:	Brianna Barnes	Date Received:	1/16/2020	0 10:15:00 AM			
Chai	in of Cust	ody						
1.	ls Chain of C	custody complete?	Yes 🖌	No 🗌	Not Present			
2.	How was the	sample delivered?	FedEx					
<u>Log</u>	<u>In</u>							
3.	Coolers are	present?	Yes 🖌	No 🗌				
4. 3	Shipping con	tainer/cooler in good condition?	Yes 🖌	No 🗌				
		ls present on shipping container/cooler? nments for Custody Seals not intact)	Yes	No 🗹	Not Required 🗌			
6.	Was an atter	npt made to cool the samples?	Yes 🖌	No 🗌				
7.	Were all item	ns received at a temperature of >0°C to 10.0°C *	Yes 🖌	No 🗌				
8.	Sample(s) in	proper container(s)?	Yes 🖌	No 🗌				
9.	Sufficient sa	mple volume for indicated test(s)?	Yes 🗹	No 🗌				
10.4	Are samples	properly preserved?	Yes 🗹	No 🗌				
11.	Was preserv	ative added to bottles?	Yes	No 🗹	NA 🗌			
12.	ls there head	Ispace in the VOA vials?	Yes	No 🗌	NA 🗹			
13.	Did all samp	les containers arrive in good condition(unbroken)?	Yes 🖌	No 🗌				
14.	Does paperv	vork match bottle labels?	Yes 🖌	No 🗌				
15.	Are matrices	correctly identified on Chain of Custody?	Yes 🖌	No 🗌				
16.	ls it clear wh	at analyses were requested?	Yes 🖌	No 🗌				
17.	Were all hold	ling times able to be met?	Yes 🗹	No 🗌				
<u>Spec</u>	cial Handl	ling (if applicable)						
18.	Was client n	otified of all discrepancies with this order?	Yes	No 🗌	NA 🗹			
	Person	Notified: Date	:					
	By Who	om: Via:	🗌 eMail 📃 Pho	one 🗌 Fax	In Person			
	Regard	ing:						
	Client I	nstructions:						
19.	Additional re	marks:						

#### Item Information

Item #	Temp °C
Cooler 1	4.8
Sample 1	4.8

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

2001241

 $2^{-1}$ 

#### SUBCONTRACT SAMPLE CHAIN OF CUSTODY 42 q SUBCONTRACTER Page #\_\_\_\_ [ Fremont Send Report To Michael Erdahl Page 12 TURNAROUND TIME PROJECT NAME/NO. PO# O Standard (2 Weeks) Company Friedman and Bruya, Inc. BRUSH 24 hour A.531 Rush charges authorized by: 001190 Address 3012 16th Ave W REMARKS SAMPLE DISPOSAL City, State, ZIP Seattle, WA 98119 Dispose after 30 days Please Email Results C Return samples Phone # (206) 285-8282 Fax # (206) 283-5044 O Will call with instructions ANALYSES REQUESTED. Dioxins/Furans Phashate Time EPH Lab Date #of HTV Sample ID Diazinon Matrix Nitret m Sampled Sampled Notes jars B-1:6W 1/15/20 2 0910 4,0 × × × 1005 BZ:GW × × B-3:6W 1115 7 × 30 8-4:6W 1220 $\mathbf{x}$ 5 × R-S:6W 1330 st. × Y Y 1 ŝ, . . Friedman & Bruya, Inc. SIGNATURE PRINT NAME COMPANY DATE TIME 3012 16th Avenue West Relinquished by: Michael Erdahl Friedman & Bruya 1/4/20 07:30AM Received by: Seattle, WA 98119-2029 arter Johnson AT 1015 20 Ph. (206) 285-8282 Relinquished by: Fax (906) 900 5011 Danimad her

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Report To Charles A	Chadles The	March	Charles	ERS (signo MeFads CT NAME 97	iture),	tra	- 5	her	ral					١r		Page # FURN	IAROUND '	TIME
Company TRC			PROJE	CT NAME	<u> </u>	<i>joc</i>			~~~	P	O #				] Star	ndard	l turnaroun 4hr - T	d - A T
Company 1/2			$ \mathcal{O}(5) $	,47 				Ol	58	7	7						es authoriz	
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City, State, ZIP <u>J 554</u>	ouch, turt "	98027	- Dush	no 24h	TA:	T					IUE	ΪŌ		11	] Arcl	hive s	amples	OAL
Address <u>[186 MW</u> City, State, ZIP <u>I 5 Sag</u> Phone <u>425-39500 E</u>	mail cruchadder of	HTCCOMPONIE	E Project	specific RL	s? - Ve	i is /	No		72	$\mathcal{U}$					] Oth Defau		ispose afte	r 30 davs
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								57	T			~1	7	T T	<b>\</b>	Γ	Γ	
,		Dete	<b>m</b> :	g		NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	A 8082	5	+ tolved	Ellylen Dibrard	+Ę		
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ΗŢ	T'P}	EP	Ήď	EP,	EP	EP	25	云 著	20	E 3	No	tes
						NM	ž	TEX	LMN	ő	AH	CB		5 3	11.1	25		
		1 /10 /-			4			<u> </u>		~						$\overline{\nabla}$		
B-1:6W	01A-H	1/15/20	090	H10	8			-+	·				X	X		$\lambda$		
B-2:GW	0ZA-H		1005		ľ.						Ì		<u>х</u>	X	X	X		
B-3: GW	03A-H		1115			2	•						X	X	×	X		
8-4:GW	OHA-H		1220										X	X	X	X		
B-5: GW	05A-H	V	1330	V	V								χ	Х	X	X		
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Friedman & Bruya, Inc.	SIC Relinquished by:	INATURE	<u> </u>		PRIN			<u>C</u>						PAN	Y		DATE	TIME
3012 16 <sup>th</sup> Avenue West	Received by		****	Joe	<u> </u>	1	-0d					<u>LC</u>		<u>`</u>			1/15/20	
		45	×	1501	ac	68	<u>sj</u> c	<u>}_</u>			<u>}</u>	731					1/12/10	15:58
Seattle, WA 98119-2029	Relinquished by:			,														
Ph. (206) 285-8282	Received by:	,															•	

#### 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

January 27, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015397 (Brookdale), F&BI 001212

Dear Mr McFadden:

Included are the results from the testing of material submitted on January 16, 2020 from the 015397 (Brookdale), F&BI 001212 project. There are 17 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Thom Morin TRC0127R.DOC

#### ENVIRONMENTAL CHEMISTS

#### CASE NARRATIVE

This case narrative encompasses samples received on January 16, 2020 by Friedman & Bruya, Inc. from the Environmental Partners 015397 (Brookdale), F&BI 001212 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Environmental Partners
001212 -01	B-6:Surface
001212 -02	B-6:2
001212 -03	B-7:Surface
001212 -04	B-7:2
001212 -05	B-8:Surface
001212 -06	B-8:2
001212 -07	B-9:Surface
001212 -08	B-9:2

Samples B-6:Surface, B-7:Surface, B-8:Surface, and B-9:Surface were sent to Fremont Analytical for nitrate, phosphate, and organophosphorus pesticide diazinon analyses. The report is enclosed.

The 8260D internal standard in sample B-9:Surface did not pass the acceptance criteria. The data were flagged accordingly.

All other quality control requirements were acceptable.

### ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-6:Surface 01/16/20 01/17/20 01/17/20 Soil mg/kg (ppm)	) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397 (Brookdale), F&BI 001212 001212-01 011716.D GCMS9 MS
Surrogates:	1.	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane	-d4	95	50	150
Toluene-d8		106	50	150
4-Bromofluorobenz	ene	94	50	150
Compounds:		Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

### ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-7:Surface 01/16/20 01/17/20 01/20/20 Soil mg/kg (ppm)	) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397 (Brookdale), F&BI 001212 001212-03 012015.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	105	50	150
Toluene-d8		98	50	150
4-Bromofluorobenz	ene	94	50	150
Compounds:		Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

### ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-8:Surface 01/16/20 01/17/20 01/20/20 Soil mg/kg (ppm)	) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397 (Brookdale), F&BI 001212 001212-05 012016.D GCMS9 MS
Surrogates: 1,2-Dichloroethane	-d4	% Recovery: 102	Lower Limit: 50	Upper Limit: 150
Toluene-d8 4-Bromofluorobenz	ene	$\frac{100}{98}$	50 50	$\begin{array}{c} 150 \\ 150 \end{array}$
Compounds:		Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

### ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-9:Surface 01/16/20 01/17/20 01/20/20 Soil mg/kg (ppm)	) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397 (Brookdale), F&BI 001212 001212-07 012017.D GCMS9 MS
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	105	50	150
Toluene-d8		$92 \mathrm{J}$	50	150
4-Bromofluorobenz	ene	$108 \mathrm{J}$	50	150
Compounds:		Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	<0.005 J		

### ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blar Not Applicat 01/17/20 01/17/20 Soil mg/kg (ppm)		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397 (Brookdale), F&BI 001212 00-0144 mb 011713.D GCMS9 MS
	88 (FF)		1	
			Lower	Upper
Surrogates:		% Recovery:	Limit:	Limit:
1,2-Dichloroethane	-d4	$91~\mathrm{J}$	50	150
Toluene-d8		$99 \mathrm{J}$	50	150
4-Bromofluorobenz	ene	$92 \mathrm{J}$	50	150
Compounds:		Concentration mg/kg (ppm)		
1,2-Dibromoethane	e (EDB)	< 0.005  J		

### ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	B-6:Surface	Client:	Environmental Partners
Date Received:	01/16/20	Project:	015397 (Brookdale), F&BI 001212
Date Extracted:	01/17/20	Lab ID:	001212-01
Date Analyzed:	01/17/20	Data File:	001212-01.100
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte: Arsenic	Concentration mg/kg (ppm) 3.97		

### ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	B-7:Surface	Client:	Environmental Partners
Date Received:	01/16/20	Project:	015397 (Brookdale), F&BI 001212
Date Extracted:	01/17/20	Lab ID:	001212-03
Date Analyzed:	01/17/20	Data File:	001212-03.101
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)		

Arsenic

55.0

### ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-7:2 01/16/20 01/21/20 01/21/20 Soil mg/kg (ppm) Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397 (Brookdale), F&BI 001212 001212-04 001212-04.045 ICPMS2 SP
Analyte: Arsenic	Concentration mg/kg (ppm) 111		
Aiseine	111		

#### ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	B-8:Surface	Client:	Environmental Partners
Date Received:	01/16/20	Project:	015397 (Brookdale), F&BI 001212
Date Extracted:	01/17/20	Lab ID:	001212-05
Date Analyzed:	01/17/20	Data File:	001212-05.102
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)	-	

Arsenic

2.12

### ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	B-9:Surface 01/16/20 01/17/20 01/17/20 Soil	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397 (Brookdale), F&BI 001212 001212-07 001212-07.103 ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)		
Arsenic	2.57		

### ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Environmental Partners
Date Received:	Not Applicable	Project:	015397 (Brookdale), F&BI 001212
Date Extracted:	01/17/20	Lab ID:	I0-036 mb
Date Analyzed:	01/17/20	Data File:	I0-036 mb.090
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Are allottar	Concentration		
Analyte:	mg/kg (ppm)		
Arsenic	<1		

### ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Environmental Partners
Date Received:	Not Applicable	Project:	015397 (Brookdale), F&BI 001212
Date Extracted:	01/21/20	Lab ID:	I0-043 mb
Date Analyzed:	01/21/20	Data File:	I0-043 mb.040
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)		
Arsenic	<1		

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/27/20 Date Received: 01/16/20 Project: 015397 (Brookdale), F&BI 001212

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

Laboratory Code: 001237-01 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	RPD
Analyte	Units	(Wet wt)	(Wet wt)	(Limit 20)
1,2-Dibromoethane (EDB)	mg/kg (ppm)	<0.005 J	<0.005 J	nm

Laboratory Code: Laboratory Control Sample

Laboratory Coue. Laboratory Co	noror sample		Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	$\operatorname{RPD}$
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
1,2-Dibromoethane (EDB)	mg/kg (ppm)	0.05	113	104	70-130	8

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/27/20 Date Received: 01/16/20 Project: 015397 (Brookdale), F&BI 001212

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

Laboratory Code: 001257-08 x5 (Matrix Spike)

			Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	$\operatorname{RPD}$
Analyte	Units	Level	(Wet wt)	MS	MSD	Criteria	(Limit 20)
Arsenic	mg/kg (ppm)	10	<5	90	93	75 - 125	3

Laboratory Code: Laboratory Control Sample

Laboratory Co	ode: Laboratory Con	troi Sample	Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Arsenic	mg/kg (ppm)	10	106	80-120

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/27/20 Date Received: 01/16/20 Project: 015397 (Brookdale), F&BI 001212

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

Laboratory Code: 001202-02 x5 (Matrix Spike)

			Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	$\operatorname{RPD}$
Analyte	Units	Level	(Wet wt)	MS	MSD	Criteria	(Limit 20)
Arsenic	mg/kg (ppm)	10	6.05	79	89	75 - 125	12

Laboratory Code: Laboratory Control Sample

Laboratory Co	ode: Laboratory Con	troi Sample	Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Arsenic	mg/kg (ppm)	10	84	80-120

#### ENVIRONMENTAL CHEMISTS

#### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

 ${\rm J}$  - 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.



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

Friedman & Bruya Michael Erdahl 3012 16th Ave. W. Seattle, WA 98119

RE: 001212 Work Order Number: 2001255

January 20, 2020

#### **Attention Michael Erdahl:**

Fremont Analytical, Inc. received 8 sample(s) on 1/16/2020 for the analyses presented in the following report.

#### Ion Chromatography by EPA Method 300.0 Organophosphorus Pesticides by EPA Method 8270-SIM Sample Moisture (Percent Moisture)

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes Project Manager

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005 ORELAP Certification: WA 100009-007 (NELAP Recognized)



CLIENT: Project: Work Order:	Friedman & Bruya 001212 2001255	Work Order Sample Summa				
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received			
2001255-001	B-6: Surface	01/16/2020 8:25 AM	01/16/2020 5:25 PM			
2001255-002	B-6:2	01/16/2020 8:30 AM	01/16/2020 5:25 PM			
2001255-003	B-7: Surface	01/16/2020 9:25 AM	01/16/2020 5:25 PM			
2001255-004	B-7:2	01/16/2020 9:30 AM	01/16/2020 5:25 PM			
2001255-005	B-8: Surface	01/16/2020 10:05 AM	01/16/2020 5:25 PM			
2001255-006	B-8:2	01/16/2020 10:10 AM	01/16/2020 5:25 PM			
2001255-007	B-9: Surface	01/16/2020 11:05 AM	01/16/2020 5:25 PM			
2001255-008	B-9:2	01/16/2020 11:10 AM	01/16/2020 5:25 PM			



**Case Narrative** 

WO#: **2001255** Date: **1/20/2020** 

CLIENT:Friedman & BruyaProject:001212

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

#### II. GENERAL REPORTING COMMENTS:

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

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

#### III. ANALYSES AND EXCEPTIONS:

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

## **Qualifiers & Acronyms**



WO#: **2001255** Date Reported: **1/20/2020** 

#### Qualifiers:

- \* Flagged value is not within established control limits
- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- I Analyte with an internal standard that does not meet established acceptance criteria
- J Analyte detected below Reporting Limit
- N Tentatively Identified Compound (TIC)
- Q Analyte with an initial or continuing calibration that does not meet established acceptance criteria
- (<20%RSD, <20% Drift or minimum RRF)
- S Spike recovery outside accepted recovery limits
- ND Not detected at the Reporting Limit
- R High relative percent difference observed

Acronyms:

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



# **Analytical Report**

 Work Order:
 2001255

 Date Reported:
 1/20/2020

Client: Friedman & Bruya	Collection Date: 1/16/2020 8:25:00 AM					
Project: 001212						
Lab ID: 2001255-001				Matrix: Sc	il	
Client Sample ID: B-6: Surface						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Metho	d 8270-SIM		Batch	ID:	27162 Analyst: SB
Diazinon	ND	537		µg/Kg-dry	1	1/17/2020 8:49:10 PM
Surr: Triphenylphosphate	96.9	10.7 - 154		%Rec	1	1/17/2020 8:49:10 PM
Ion Chromatography by EPA Meth	<u>od 300.0</u>			Batch	ID:	27177 Analyst: SS
Nitrate (as N)	ND	1.07		mg/Kg-dry	1	1/17/2020 11:13:00 PM
Orthophosphate (as P)	ND	2.14		mg/Kg-dry	1	1/17/2020 11:13:00 PM
Sample Moisture (Percent Moistur	<u>e)</u>			Batch	ID:	R56723 Analyst: CJ
Percent Moisture	7.12	0.500		wt%	1	1/17/2020 2:53:20 PM



# **Analytical Report**

 Work Order:
 2001255

 Date Reported:
 1/20/2020

Client: Friedman & Bruya	vya Collection Date: 1/16/2020 9:25:00 AM												
Project: 001212													
Lab ID: 2001255-003				Matrix: So	oil								
Client Sample ID: B-7: Surface													
Analyses	Result	RL	Qual	Units	DF	Date Analyzed							
Organophosphorus Pesticides by	EPA Metho	<u>d 8270-SIM</u>		Batch	ID: 2	7162 Analyst: SB							
Diazinon	ND	503		µg/Kg-dry	1	1/17/2020 10:19:10 PM							
Surr: Triphenylphosphate	104	10.7 - 154		%Rec	1	1/17/2020 10:19:10 PM							
Ion Chromatography by EPA Metho	<u>od 300.0</u>			Batch	ID: 2	7177 Analyst: SS							
Nitrate (as N)	ND	1.07		mg/Kg-dry	1	1/17/2020 11:36:00 PM							
Orthophosphate (as P)	ND	2.14		mg/Kg-dry	1	1/17/2020 11:36:00 PM							
Sample Moisture (Percent Moisture	<u>e)</u>			Batch	ID: F	856723 Analyst: CJ							
Percent Moisture	7.10	0.500		wt%	1	1/17/2020 2:53:20 PM							



# **Analytical Report**

 Work Order:
 2001255

 Date Reported:
 1/20/2020

Client: Friedman & Bruya	nt: Friedman & Bruya Collection Date: 1/16/2020 10:05:00 AM												
Project: 001212													
Lab ID: 2001255-005				Matrix: So	oil								
Client Sample ID: B-8: Surface													
Analyses	Result	RL	Qual	Units	DF	Date Analyzed							
Organophosphorus Pesticides by I	EPA Metho	<u>d 8270-SIM</u>		Batch	1D: 27	7162 Analyst: SB							
Diazinon	ND	510		µg/Kg-dry	1	1/17/2020 10:41:36 PM							
Surr: Triphenylphosphate	107	10.7 - 154		%Rec	1	1/17/2020 10:41:36 PM							
Ion Chromatography by EPA Metho	od 300.0			Batch	1D: 27	7177 Analyst: SS							
Nitrate (as N)	ND	1.03		mg/Kg-dry	1	1/17/2020 11:59:00 PM							
Orthophosphate (as P)	ND	2.06		mg/Kg-dry	1	1/17/2020 11:59:00 PM							
Sample Moisture (Percent Moisture	<u>e)</u>			Batch	ID: R	56723 Analyst: CJ							
Percent Moisture	3.70	0.500		wt%	1	1/17/2020 2:53:20 PM							



# **Analytical Report**

 Work Order:
 2001255

 Date Reported:
 1/20/2020

Client: Friedman & Bruya Collection Date: 1/16/2020 11:05:00 AM													
Project: 001212 Lab ID: 2001255-007				Matrix: Sc	oil								
Client Sample ID: B-9: Surface	nt Sample ID: B-9: Surface												
Analyses	Result	RL	Qual	Units	DF	Date Analyzed							
Organophosphorus Pesticides by I	EPA Method	<u>d 8270-SIM</u>		Batch	ID:	27162 Analyst: SB							
Diazinon	ND	488		µg/Kg-dry	1	1/17/2020 11:04:05 PM							
Surr: Triphenylphosphate	94.9	10.7 - 154		%Rec	1	1/17/2020 11:04:05 PM							
Ion Chromatography by EPA Metho	<u>od 300.0</u>			Batch	ID:	27177 Analyst: SS							
Nitrate (as N)	1.34	1.06		mg/Kg-dry	1	1/18/2020 12:22:00 AM							
Orthophosphate (as P)	ND	2.12		mg/Kg-dry	1	1/18/2020 12:22:00 AM							
Sample Moisture (Percent Moisture	<u>e)</u>			Batch	ID:	R56723 Analyst: CJ							
Percent Moisture	5.81	0.500		wt%	1	1/17/2020 2:53:20 PM							

Fremont
[ Analytical]

CLIENT: Frie	1255 edman & Bruya 212							lon Ch	QC S	SUMMAI		
Sample ID: MB-27177	SampType:	MBLK			Units: mg/K	g	Prep Date	e: 1/17/20	20	RunNo: 567	738	
Client ID: MBLKS	Batch ID:	27177					Analysis Date	e: 1/17/20	20	SeqNo: 113	30449	
Analyte	R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N) Orthophosphate (as P)			1.00 2.00									
Sample ID: LCS-27177	SampType:	LCS			Units: mg/K	g	Prep Date	e: 1/17/20	20	RunNo: 567	738	
Client ID: LCSS	Batch ID:	27177					Analysis Date	e: 1/17/20	20	SeqNo: 113	80450	
Analyte	R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		7.71	1.00	7.500	0	103	90	110				
Orthophosphate (as P)		12.6	2.00	12.50	0	101	90	110				
Sample ID: 2001273-007	7ADUP SampType:	DUP			Units: mg/K	g-dry	Prep Date	e: 1/17/20	20	RunNo: 567	/38	
Client ID: BATCH	Batch ID:	27177					Analysis Date	e: <b>1/18/20</b>	20	SeqNo: 113	80461	
Analyte	R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		2.01	1.51						2.429	18.6	30	
Orthophosphate (as P)		ND	3.03						0		30	
Sample ID: 2001273-007	7AMS SampType:	MS			Units: mg/K	g-dry	Prep Date	e: 1/17/20	20	RunNo: 567	738	
Client ID: BATCH	Batch ID:	27177			_		Analysis Date	e: 1/18/20	20	SeqNo: 113	80462	
Analyte	R	esult	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		13.1	1.51	11.35	2.429	93.9	80	120				
Orthophosphate (as P)		ND	3.03	18.92	0	0	80	120				S

#### NOTES:

S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.



Work Order: CLIENT: Project:	2001255 Friedman & 001212	Bruya						lon Ch	QC S romatogra	SUMMA ohy by EP		-			
Sample ID: 200127	73-007AMSD	SampType: <b>MSD</b>			Units: mg/	Kg-dry	Prep Da	te: 1/17/20	20	RunNo: 567	738				
Client ID: BATCH	4	Batch ID: 27177					Analysis Date: 1/18/2020 SeqNo: 1130463								
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual			
Nitrate (as N)		13.4	1.53	11.44	2.429	95.7	80	120	13.09	2.15	30				
Orthophosphate (as	s P)	ND	3.05	19.06	0	14.7	80	120	0		30	S			

#### NOTES:

S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.



Work Order: 2001255								QC S	SUMMAR	RY REF	<b>'</b> ORT
CLIENT: Friedman 8	Bruya				Ora	anonhos	phorus	Pesticides	by FPA M	ethod 82	70-SIM
<b>Project:</b> 001212					U.S.	anophoo	phorao				
Sample ID: MB-27162	SampType: MBLK			Units: µg/Kg		•	te: 1/17/20	-	RunNo: 567	737	
Client ID: MBLKS	Batch ID: 27162					Analysis Da	te: 1/17/20	)20	SeqNo: 113	30426	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	ND	500									
Surr: Triphenylphosphate	21.3		20.00		107	10.7	154				
Sample ID: LCS-27162	SampType: LCS			Units: µg/Kg		Prep Da	te: 1/17/20	020	RunNo: 567	737	
Client ID: LCSS	Batch ID: 27162					Analysis Da	te: 1/17/20	)20	SeqNo: 113	30427	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	10.3	500	20.00	0	51.4	37.1	132				
Surr: Triphenylphosphate	21.0		20.00		105	10.7	154				
Sample ID: 2001255-001AMS	SampType: <b>MS</b>			Units: µg/Kg-	dry	Prep Da	te: 1/17/20	)20	RunNo: 567	737	
Client ID: B-6: Surface	Batch ID: 27162					Analysis Da	te: 1/17/20	)20	SeqNo: 113	30429	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	15.4	513	20.53	0	75.0	9.74	142				
Surr: Triphenylphosphate	21.8		20.53		106	10.7	154				
Sample ID: 2001255-001AMSD	SampType: <b>MSD</b>			Units: µg/Kg-	dry	Prep Da	te: 1/17/20	)20	RunNo: 567	737	
Client ID: B-6: Surface	Batch ID: 27162					Analysis Da	te: 1/17/20	)20	SeqNo: 113	30430	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	16.4	493	19.70	0	83.2	9.74	142	0		30	
Surr: Triphenylphosphate	19.4		19.70		98.6	10.7	154		0		
Sample ID: 2001255-001ADUP	SampType: <b>DUP</b>			Units: µg/Kg-	dry	Prep Da	te: 1/17/20	)20	RunNo: 567	737	
Client ID: B-6: Surface	Batch ID: 27162					Analysis Da	te: 1/17/20	)20	SeqNo: 113	30431	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	ND	469						0		30	
										Pa	ne 11 of



Work Order:	2001255									00.9	SUMMA		VORT
CLIENT:	Friedman &	Bruya					-			-			
Project:	001212						Org	anophos	sphorus	Pesticides	by EPA M	ethod 82	70-SIM
Sample ID: 2001	255-001ADUP	SampType	DUP			Units: µg/	/Kg-dry	Prep Da	te: 1/17/20	)20	RunNo: 567	'37	
Client ID: B-6:	Surface	Batch ID:	27162					Analysis Da	te: 1/17/20	)20	SeqNo: 113	80431	
Analyte		F	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Triphenyl	phosphate		16.4		18.76		87.7	10.7	154		0		



## Sample Log-In Check List

Cli	ent Name:	FB	Work Order Number: 2001255									
Lo	gged by:	Clare Griggs	Date Received:	1/16/2020	0 5:25:00 PM							
Cha	in of Cust	ody										
1.	Is Chain of C	Custody complete?	Yes 🖌	No 🗌	Not Present							
2.	How was the	sample delivered?	<u>FedEx</u>									
Log	<u>In</u>											
-	Coolers are p	present?	Yes 🖌	No 🗌	NA 🗌							
4.	Shipping con	tainer/cooler in good condition?	Yes 🖌	No 🗌								
		ls present on shipping container/cooler? nments for Custody Seals not intact)	Yes	No 🗹	Not Required							
6.	Was an atter	npt made to cool the samples?	Yes 🖌	No 🗌								
7.	Were all item	ns received at a temperature of >0°C to 10.0°C*	Yes 🖌	No 🗌								
8.	Sample(s) in	proper container(s)?	Yes 🖌	No 🗌								
9.	Sufficient sa	mple volume for indicated test(s)?	Yes 🖌	No 🗌								
10.	Are samples	properly preserved?	Yes 🖌	No 🗌								
11.	Was preserv	ative added to bottles?	Yes	No 🗹	NA 🗌							
12.	Is there head	Ispace in the VOA vials?	Yes	No 🗌	NA 🗹							
13.	Did all sampl	les containers arrive in good condition(unbroken)?	Yes 🗹	No 🗌								
14.	Does paperw	vork match bottle labels?	Yes 🖌	No								
15.	Are matrices	correctly identified on Chain of Custody?	Yes 🖌	No 🗌								
16.	Is it clear wh	at analyses were requested?	Yes 🖌	No 🗌								
17.	Were all hold	ling times able to be met?	Yes 🖌	No 🗌								
<u>Spe</u>	<u>cial Handl</u>	ing (if applicable)										
18.	Was client no	otified of all discrepancies with this order?	Yes	No 🗌	NA 🗹							
	By Who Regard	ing:	,	one 🗌 Fax	In Person							
		nstructions:										
19.	Additional rel	marks:										

#### Item Information

Item #	Temp °C
Cooler	3.2
Sample	6.0

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

Send Report <u>To</u>	Micha	el Erdahl		CONTRA	UBCONT	TRACI			nont				T.	T	Pag	e #(	of(										
Company		an and Bruy 6th Ave W	řa, Inc.		ROJECT	NAM	E/NO.	2		-	P0			ARU	andard JSH	1 (2 Week 2 4 hours	s)										
City, State, ZIP Phone # <u>(206) 28</u>	Seattle,	WA 98119	206) 283-5044	RJ	EMARKS	s ease E	mail )	Result	ts					O Ret	pose a	APLE DIS after 30 da amples with instr	ays										
				1		-		_	ANA	LYSE	SRE	QUE	STED			T											
Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins/Furans	EPH .	NPH	Diazinon	Nitch	Phashate :		:				Notes										
B-6: Surface	1.000	1/16/20	. 925	Soil		1	1	1			· .	×	x	×			1	1									
B-6:2			:030																				. 1				1.
B-7: Sufue			. 425	* *					×	×	×	-				-											
B-7:2			930				_									Hold											
B-8: Surface			1005						×	×	×	1															
13-8:2			1010									17.1	111			+ Hald											
B-9: Surface			1105					-	×	×	X		1 ÷														
B-9:2		1	1110	L											-	Hold	·										
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edman & Bruya,	170										ŀ	-	-														
12 16th Avenue We		elinquished by	SIGNATURE	1	Michae		INT I	VAME	5	1.	Fri		MPAN & B-		-	DATE	TIME										
ttle, WA 98119-2029 Received by:				F	11.						edman & Bruya 1/16/20 15170				15170												
(206) 285-8282		elinquished by:	m		Canter Johnson F.					F	AT				16/20	(7.25											
(206) 283-5044		eceived by:									-	a.				-											

9019		SAMPLE	CI	HAIN	OF	CU	JS'	то	DY		ME	-		16-	20	<u></u>		of	1 153			
0012 Report To Charles Mo	1	T.	Maria	SAMPLE SAMPL	ERS	(signa	uture)	X	In	Fe	Do Sti	s fn e Tra	*	$\mathcal{Y}$	1 jé		4	P T	'age # 'URN	AROUND T	ME BT2	
	Hacch / 1	NOM	740/14	PROJEC		IAME	<u>54/1 1</u>		Q				R	0#				Star	ndard SH 2	AROUND TI turnaround 4 4 7 7	AT	
Company TRC	· · · <u>- · · · · · · · · · · · · · · · ·</u>			- 101つさ	77	/					0	15	39	7			F	Rush o	harge	es authorized	l by:	
Address US NW	Maple	84_	:	- (Brook REMAR	KS	e)						 II	VVO	ICE	TO		┤╞═			PLE DISPOS	AL	
Address <u>US</u> <u>Nw</u> City, State, ZIP <u>Issag</u>	unh UNA	98	8027	- Rush	Rush TAT (24hr) The Ichito W							□ Archive sa □ Other										
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												ANALYSES REQUESTED										
									×	ЗX	8021	CID	8260	8270	8082	Nitrates + Phosphates	va mão					
	Sample ID Lab ID Sampled					mple	# of	f	PH·I	PH-(	SPA	H-H	SPA	SPA	ΞPA	+ +	6 0;b		101	Not	es	
Sample ID	Lad I.		Sampled	Sampled	] ]	Гуре	Jar	s	NWTPH-Dx	NWTPH-Gx	BTEX EPA	NWTPH-HCID	VOCs EPA	PAHs EPA	Bs I	ind so	20	~	Diazinon			
								Ľ			BT	ź	VC	ΡA	P(	17 4 17 4	五	As As	2			
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B-6:2	02 1		1	830		1														1/20/	20	
B-7: Surface	03			425									X	X	ME							
B-7:2	04			930														$\otimes$				
B-8: Surface	05			1005	1	1										X	X	X	X	-		
13-8:2			_	1010				T														
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			NATURE		1		PR	INT							(	COM		Y		DATE 1/16/20	TIME	
Friedman & Bruya, Inc.	Relinquished b	iy: /	NH MM	· · · · ·		2	ATE .		·		NE			╞			TRL			1517		
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Seattle, WA 98119-2029	Relinquished b Received by:	oy:							<del></del>		0					- <del>-S</del>	amı	les	recei	ved at _4	0C	
Ph. (206) 285-8282															-							

#### 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

February 4, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015397 (Brookdale), F&BI 001213

Dear Mr McFadden:

Included is the amended report from the testing of material submitted on January 16, 2020 from the 015397 (Brookdale), F&BI 001213 project. Per your request, the dieldrin results have been reported down to the method detection limit.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Thom Morin TRC0122R.DOC

#### 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

January 22, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015397 (Brookdale), F&BI 001213

Dear Mr McFadden:

Included are the results from the testing of material submitted on January 16, 2020 from the 015397 (Brookdale), F&BI 001213 project. There are 22 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Thom Morin TRC0122R.DOC

#### ENVIRONMENTAL CHEMISTS

#### CASE NARRATIVE

This case narrative encompasses samples received on January 16, 2020 by Friedman & Bruya, Inc. from the Environmental Partners 015397 (Brookdale), F&BI 001213 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Environmental Partners
001213 -01	B-6:GW
001213 -02	B-7:GW
001213 -03	B-8:GW
001213 -04	B-10:GW

The samples were sent to Fremont Analytical for nitrate, phosphate, and organophosphorus pesticide diazinon analyses. The report is enclosed.

The 6020 dissolved metals were filtered at Friedman and Bruya on January 17, 2020 at 11:22. The data were flagged accordingly.

All quality control requirements were acceptable.

## ENVIRONMENTAL CHEMISTS

## Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	B-6:GW f		Client:	Environmental Partners
Date Received:	01/16/20		Project:	015397 (Brookdale), F&BI 001213
Date Extracted:	01/17/20		Lab ID:	001213-01
Date Analyzed:	01/17/20		Data File:	001213-01.110
Matrix:	Water		Instrument:	ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte:		Concentration ug/L (ppb)		

Arsenic

## ENVIRONMENTAL CHEMISTS

## Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	B-7:GW f		Client:	Environmental Partners
Date Received:	01/16/20		Project:	015397 (Brookdale), F&BI 001213
Date Extracted:	01/17/20		Lab ID:	001213-02
Date Analyzed:	01/17/20		Data File:	001213-02.111
Matrix:	Water		Instrument:	ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte:		Concentration ug/L (ppb)		

Arsenic

## ENVIRONMENTAL CHEMISTS

## Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	B-8:GW f		Client:	Environmental Partners
Date Received:	01/16/20		Project:	015397 (Brookdale), F&BI 001213
Date Extracted:	01/17/20		Lab ID:	001213-03
Date Analyzed:	01/17/20		Data File:	001213-03.112
Matrix:	Water		Instrument:	ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte:	аў, 1 (РРо)	Concentration ug/L (ppb)	o portutor.	

Arsenic

## ENVIRONMENTAL CHEMISTS

## Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	B-10:GW f		Client:	Environmental Partners
Date Received:	01/16/20		Project:	015397 (Brookdale), F&BI 001213
Date Extracted:	01/17/20		Lab ID:	001213-04
Date Analyzed:	01/17/20		Data File:	001213-04.113
Matrix:	Water		Instrument:	ICPMS2
Units:	ug/L (ppb)		Operator:	SP
Analyte:		Concentration ug/L (ppb)		

Arsenic

## ENVIRONMENTAL CHEMISTS

## Analysis For Dissolved Metals By EPA Method 6020B

Client ID:	Method Blank f	Client:	Environmental Partners
Date Received:	Not Applicable	Project:	015397 (Brookdale), F&BI 001213
Date Extracted:	01/17/20	Lab ID:	I0-034 mb2
Date Analyzed:	01/17/20	Data File:	I0-034 mb2.109
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP
Analyte:	Concentration ug/L (ppb)	oporatori	

Arsenic

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	B-6:GW	Client:	Environmental Partners
Date Received:	01/16/20	Project:	015397 (Brookdale), F&BI 001213
Date Extracted:	01/17/20	Lab ID:	001213-01
Date Analyzed:	01/17/20	Data File:	001213-01.124
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP
Analyte: Arsenic	Concentration ug/L (ppb) 6.37	Operator.	51

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	B-7:GW	Client:	Environmental Partners
Date Received:	01/16/20	Project:	015397 (Brookdale), F&BI 001213
Date Extracted:	01/17/20	Lab ID:	001213-02
Date Analyzed:	01/17/20	Data File:	001213-02.125
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP
Analyte: Arsenic	Concentration ug/L (ppb) <1	- <b>-</b>	

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	B-8:GW	Client:	Environmental Partners
Date Received:	01/16/20	Project:	015397 (Brookdale), F&BI 001213
Date Extracted:	01/17/20	Lab ID:	001213-03
Date Analyzed:	01/17/20	Data File:	001213-03.126
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP
Analyte: Arsenic	Concentration ug/L (ppb) 9.08	Operator.	Sr

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	B-10:GW	Client:	Environmental Partners
Date Received:	01/16/20	Project:	015397 (Brookdale), F&BI 001213
Date Extracted:	01/17/20	Lab ID:	001213-04
Date Analyzed:	01/17/20	Data File:	001213-04.127
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP
Analyte: Arsenic	Concentration ug/L (ppb) 39.7		

## ENVIRONMENTAL CHEMISTS

## Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Environmental Partners
Date Received:	Not Applicable	Project:	015397 (Brookdale), F&BI 001213
Date Extracted:	01/17/20	Lab ID:	I0-033 mb2
Date Analyzed:	01/17/20	Data File:	I0-033 mb2.115
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP
Analyte:	Concentration ug/L (ppb)	- F	

Arsenic

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-6:GW 01/16/20 01/16/20 01/17/20 Water ug/L		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397 (Brookdale), F&BI 001213 001213-01 011716.D GC9 IJL
Surrogates: TCMX DBC		% Recovery: 30 ip 44 ip	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		< 0.02		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-7:GW 01/16/20 01/16/20 01/17/20 Water ug/L		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397 (Brookdale), F&BI 001213 001213-02 011717.D GC9 IJL
Surrogates: TCMX DBC		% Recovery: 51 62	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		< 0.02		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-8:GW 01/16/20 01/16/20 01/17/20 Water ug/L		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397 (Brookdale), F&BI 001213 001213-03 011718.D GC9 IJL
Surrogates: TCMX DBC		% Recovery: 50 63	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		< 0.02		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	B-10:GW 01/16/20 01/16/20 01/17/20 Water ug/L		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397 (Brookdale), F&BI 001213 001213-04 011719.D GC9 IJL
Surrogates: TCMX DBC		% Recovery: 53 51	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		< 0.02		

## ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blank Not Applicable 01/16/20 01/16/20 Water ug/L	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397 (Brookdale), F&BI 001213 00-156 mb2 011618.D GC9 IJL
Surrogates: TCMX DBC	% Recovery: 48 vo 75	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration ug/L		
Dieldrin	< 0.02		

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/22/20 Date Received: 01/16/20 Project: 015397 (Brookdale), F&BI 001213 Date Extracted: 01/17/20 Date Analyzed: 01/17/20

## RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR 1,2-DIBROMOETHANE (EDB) BY EPA METHOD 8011 MODIFIED

Results Reported as  $\mu g/L$  (ppb)

< 0.01

<u>Sample ID</u> Laboratory ID	<u>EDB</u>
B-6:GW 001213-01	< 0.01
B-7:GW 001213-02	< 0.01
B-8:GW 001190-03	< 0.01
B-10:GW 001213-04	<0.01

Method Blank

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/22/20 Date Received: 01/16/20 Project: 015397 (Brookdale), F&BI 001213

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

			Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Arsenic	ug/L (ppb)	10	94	95	80-120	1

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/22/20 Date Received: 01/16/20 Project: 015397 (Brookdale), F&BI 001213

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

Laboratory Code: 001037-28 x10 (Matrix Spike)

Laboratory C	oue. 001037-20 x	10 (Matri	x opikej	Percent	Percent		
	Reporting	Spike	Sample	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	Result	MS	MSD	Criteria	(Limit 20)
Arsenic	ug/L (ppb)	10	37.9	108	118	75 - 125	9

			Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Arsenic	ug/L (ppb)	10	95	80-120

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/22/20 Date Received: 01/16/20 Project: 015397 (Brookdale), F&BI 001213

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

	Reporting	Spike	Percent Recovery	Percent Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Dieldrin	ug/L (ppb)	0.25	83	78	70-130	6

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/22/20 Date Received: 01/16/20 Project: 015397 (Brookdale), F&BI 001213

#### QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR 1,2-DIBROMOETHANE (EDB) BY EPA METHOD 8011 MODIFIED

			Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	$\operatorname{RPD}$
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 10)
1,2-Dibromoethane	ug/L (ppb)	0.10	98	103	70-130	6

#### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

 ${\rm J}$  - 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.



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

Friedman & Bruya Michael Erdahl 3012 16th Ave. W. Seattle, WA 98119

RE: 001213 Work Order Number: 2001254

January 20, 2020

#### **Attention Michael Erdahl:**

Fremont Analytical, Inc. received 4 sample(s) on 1/16/2020 for the analyses presented in the following report.

#### Ion Chromatography by EPA Method 300.0 Organophosphorus Pesticides by EPA Method 8270-SIM

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes Project Manager

CC: Eric Young

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005 ORELAP Certification: WA 100009-007 (NELAP Recognized)



CLIENT: Project: Work Order:	Friedman & Bruya 001213 2001254	Work Order S	Sample Summary
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2001254-001	B-6:GW	01/16/2020 8:55 AM	01/16/2020 5:25 PM
2001254-002	B-7:GW	01/16/2020 9:35 AM	01/16/2020 5:25 PM
2001254-003	B-8:GW	01/16/2020 10:35 AM	01/16/2020 5:25 PM
2001254-004	B-10:GW	01/16/2020 1:25 PM	01/16/2020 5:25 PM



**Case Narrative** 

WO#: **2001254** Date: **1/20/2020** 

CLIENT:Friedman & BruyaProject:001213

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

#### II. GENERAL REPORTING COMMENTS:

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

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

#### III. ANALYSES AND EXCEPTIONS:

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

# **Qualifiers & Acronyms**



 WO#:
 2001254

 Date Reported:
 1/20/2020

### Qualifiers:

- \* Flagged value is not within established control limits
- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- I Analyte with an internal standard that does not meet established acceptance criteria
- J Analyte detected below Reporting Limit
- N Tentatively Identified Compound (TIC)
- Q Analyte with an initial or continuing calibration that does not meet established acceptance criteria
- (<20%RSD, <20% Drift or minimum RRF)
- S Spike recovery outside accepted recovery limits
- ND Not detected at the Reporting Limit
- R High relative percent difference observed

Acronyms:

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



Friedman & Bruya

CLIENT:

# **Analytical Report**

Project: 001213												
Lab ID: 2001254-001 Client Sample ID: B-6:GW			••••••	Collection Date: 1/16/2020 8:55:00 AM Matrix: Water								
Analyses	Result	RL Qual	Units	DF	Date Analyzed							
Organophosphorus Pesticides by	EPA Method	<u>1 8270-SIM</u>	Batc	h ID: 27	157 Analyst: SB							
Diazinon	ND	0.198	μg/L	1	1/17/2020 5:04:06 PM							
Surr: Triphenylphosphate	121	10 - 132	%Rec	1	1/17/2020 5:04:06 PM							
lon Chromatography by EPA Metl	hod 300.0		Batc	h ID: 27	176 Analyst: SS							
Nitrate (as N)	2.05	0.100	mg/L	1	1/17/2020 5:04:00 PM							
Ortho-Phosphate (as P)	ND	0.200	mg/L	1	1/17/2020 5:04:00 PM							

Lab ID: 2001254-002 Client Sample ID: B-7:GW				Collection Matrix: W	1/16/2020 9:35:00 AM	
Analyses	Result RL (		ual	Units	DF	Date Analyzed
Organophosphorus Pesticides by E	PA Method	8270-SIM		Batch	n ID: 27	157 Analyst: SB
Diazinon Surr: Triphenylphosphate	ND 124	0.199 10 - 132		μg/L %Rec	1 1	1/17/2020 5:26:39 PM 1/17/2020 5:26:39 PM
Ion Chromatography by EPA Metho	<u>d 300.0</u>			Batch	n ID: 271	176 Analyst: SS
Nitrate (as N) Ortho-Phosphate (as P)	3.18 ND	0.200 0.200	D	mg/L mg/L	2 1	1/17/2020 9:18:00 PM 1/17/2020 5:27:00 PM



 Work Order:
 2001254

 Date Reported:
 1/20/2020

1/17/2020 6:59:00 PM

CLIENT: Friedman & Bruya Project: 001213						
<b>Project:</b> 001213						
Lab ID: 2001254-003 Client Sample ID: B-8:GW				Collection Matrix: V		1/16/2020 10:35:00 AM
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	y EPA Method	8270-SIM		Batc	h ID: 27	157 Analyst: SB
Diazinon	ND	0.197		µg/L	1	1/17/2020 5:49:12 PM
Surr: Triphenylphosphate	93.2	10 - 132		%Rec	1	1/17/2020 5:49:12 PM
Ion Chromatography by EPA Met	<u>hod 300.0</u>			Batc	h ID: 27	176 Analyst: SS
Nitrate (as N)	4.07	0.200	DH	mg/L	2	1/20/2020 10:46:00 AM
Nitrate (as N)	4.23	0.100	E	mg/L	1	1/17/2020 6:59:00 PM

0.200

mg/L

1

E - Estimated value. The amount exceeds the linear working range of the instrument.

ND

Lab ID: 2001254-004 Client Sample ID: B-10:GW				Collectio Matrix: V		1/16/2020 1:25:00 PM
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides	by EPA Method	<u>  8270-SIM</u>		Batc	h ID: 27	7157 Analyst: SB
Diazinon	ND	0.198		µg/L	1	1/17/2020 6:11:40 PM
Surr: Triphenylphosphate	92.1	10 - 132		%Rec	1	1/17/2020 6:11:40 PM
Ion Chromatography by EPA M	ethod 300.0			Batc	h ID: 27	7176 Analyst: SS
Nitrate (as N)	2.64	0.200	DH	mg/L	2	1/20/2020 11:09:00 AM
Nitrate (as N)	2.74	0.100	E	mg/L	1	1/17/2020 7:22:00 PM
Ortho-Phosphate (as P)	ND	0.200		mg/L	1	1/17/2020 7:22:00 PM

#### NOTES:

Ortho-Phosphate (as P)

NOTES:

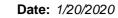
E - Estimated value. The amount exceeds the linear working range of the instrument.

Analytical		<b>Fremont</b>
------------	--	----------------

Work Order: CLIENT: Project:	2001254 Friedman & 001213	Bruya							lon Ch	QC S	SUMMA phy by EP		
Sample ID: MB-27	7176	SampType	MBLK			Units: mg/L		Prep Dat	e: 1/17/20	)20	RunNo: 567	744	
Client ID: MBLK	W	Batch ID:	27176					Analysis Dat	e: 1/17/20	)20	SeqNo: 11:	30675	
Analyte		I	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N) Ortho-Phosphate (	as P)		ND ND	0.100 0.200									
Sample ID: LCS-2	27176	SampType	LCS			Units: <b>mg/L</b>		Prep Dat	e: 1/17/20	)20	RunNo: 567	744	
Client ID: LCSW	I	Batch ID:	27176					Analysis Dat	e: 1/17/20	)20	SeqNo: 113	30676	
Analyte		I	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N) Ortho-Phosphate (	(as P)		0.700 1.16	0.100 0.200	0.7500 1.250	0 0	93.3 92.5	90 90	110 110				
Sample ID: 20012	54-002BDUP	SampType	DUP			Units: <b>mg/L</b>		Prep Dat	e: 1/17/20	)20	RunNo: 567	744	
Client ID: B-7:G	w	Batch ID:	27176					Analysis Dat	e: 1/17/20	)20	SeqNo: 11	30679	
Analyte		I	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N) Ortho-Phosphate ( NOTES:	as P) alue. The amoun	t avaa da tha	3.34 ND	0.100 0.200	the instrumen					3.338 0	0.0300	20 20	E
				ng range or				Draw Dat			Dunbles 50		
Sample ID: 20012 Client ID: B-7:G		SampType Batch ID:				Units: <b>mg/L</b>		Analysis Dat	e: 1/17/20 e: 1/17/20		RunNo: <b>56</b> SeqNo: <b>11</b>		
Analyte		I	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N) Ortho-Phosphate (	as P)		4.17 1.15	0.100 0.200	0.7500 1.250	3.338 0	111 92.0	80 80	120 120				E

#### NOTES:

E - Estimated value. The amount exceeds the linear working range of the instrument.





Work Order: CLIENT: Project:	2001254 Friedman & 001213	Bruya						lon Ch	QC S romatograp	SUMMAI		-	
Sample ID: 20012	54-002BMSD	SampType: <b>MSD</b>			Units: <b>mg/L</b>		Prep Da	te: 1/17/20	)20	RunNo: 567	744		
Client ID: B-7:G	w	Batch ID: 27176				Analysis Date: 1/17/2020				SeqNo: 1130681			
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Nitrate (as N)		4.18	0.100	0.7500	3.338	113	80	120	4.170	0.311	20	Е	
Ortho-Phosphate (	as P)	1.21	0.200	1.250	0	96.8	80	120	1.150	5.08	20		

#### NOTES:

E - Estimated value. The amount exceeds the linear working range of the instrument.



Work Order: 2007									QC S	SUMMA	RY REF	ORT
CLIENT: Fried Project: 0012	dman & Bruya 213					Org	anophosp	ohorus	Pesticides	by EPA M	ethod 82	70-SIM
Sample ID: <b>MB-27157</b> Client ID: <b>MBLKW</b>	SampType Batch ID:				Units: µg/L		Prep Date Analysis Date	e: 1/16/20		RunNo: <b>567</b> SeqNo: <b>11</b> 3		
Analyte		Result	RL	SPK value	SPK Ref Val	%REC			RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon Surr: Triphenylphospha NOTES:	te	ND 0.540	0.198	0.3959		136	10	132				S
S - Outlying surrogate r	ecovery(ies) observed	(high bias). S	Sample is n	on-detect; no f	further action requir	ed.						
Sample ID: LCS-27157	SampType				Units: µg/L			e: 1/16/20		RunNo: 567		
Client ID: LCSW	Batch ID:	27157					Analysis Date	e: 1/17/20	20	SeqNo: 113	0115	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon Surr: Triphenylphospha	te	2.00 0.458	0.198	1.975 0.3951	0	101 116	26.5 10	127 132				
Sample ID: LCSD-27157	SampType	e: LCSD			Units: µg/L		Prep Date	e: <b>1/16/20</b>	20	RunNo: 567	26	
Client ID: LCSW02	Batch ID:	27157					Analysis Date	e: <b>1/17/20</b>	20	SeqNo: 113	0116	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon Surr: Triphenylphospha	te	2.13 0.440	0.198	1.980 0.3961	0	108 111	26.5 10	127 132	2.000	6.42 0	30	
Sample ID: 2001241-001I	BDUP SampType	e: DUP			Units: µg/L		Prep Date	e: 1/16/20	20	RunNo: 567	26	
Client ID: BATCH	Batch ID:	27157					Analysis Date	e: 1/17/20	20	SeqNo: 113	0118	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon Surr: Triphenylphospha	te	ND 0.448	0.234	0.4686		95.5	10	132	0	0	30	



# Sample Log-In Check List

Clier	nt Name:	FB	Work Order Numl	per: 2001254	
Logę	ged by:	Clare Griggs	Date Received:	1/16/2020	0 5:25:00 PM
Chain	n of Cust	ody			
1. Is	Chain of C	ustody complete?	Yes 🖌	No 🗌	Not Present
2. H	ow was the	sample delivered?	<u>FedEx</u>		
<u>Log lı</u>	<u>n</u>				
-	oolers are p	present?	Yes 🖌	No 🗌	
4. SI	hipping con	tainer/cooler in good condition?	Yes 🖌	No 🗌	
		ls present on shipping container/cooler? ments for Custody Seals not intact)	Yes	No 🗹	Not Required
6. W	/as an atter	npt made to cool the samples?	Yes 🖌	No 🗌	
7. W	/ere all item	s received at a temperature of >0°C to 10.0°C*	Yes 🖌	No 🗌	
8. S	ample(s) in	proper container(s)?	Yes 🖌	No 🗌	
9. S	ufficient sar	nple volume for indicated test(s)?	Yes 🖌	No 🗌	
10. A	re samples	properly preserved?	Yes 🖌	No 🗌	
11. W	/as preserv	ative added to bottles?	Yes	No 🗹	NA 🗌
12. <sup>Is</sup>	there head	space in the VOA vials?	Yes	No 🗌	NA 🔽
13. D	id all sampl	es containers arrive in good condition(unbroken)?	Yes 🗹	No 🗌	
14. D	oes paperw	ork match bottle labels?	Yes 🗹	No	
15. A	re matrices	correctly identified on Chain of Custody?	Yes 🗸	No 🗌	
16. <sup>Is</sup>	it clear what	at analyses were requested?	Yes 🖌	No 🗌	
17. W	/ere all hold	ing times able to be met?	Yes 🖌	No 🗌	
<u>Speci</u>	ial Handl	ing (if applicable)			
18. <sup>W</sup>	as client no	tified of all discrepancies with this order?	Yes	No 🗌	NA 🔽
	By Who Regardi	ng:		one 🗌 Fax	In Person
		nstructions:			
19. A	dditional rer	marks:			

#### Item Information

Item #	Temp °C
Cooler	3.2
Sample	6.0

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

Send Report <u>To</u>	Michae	el Erdahl		[	SUBCONI	RACI	ER f	Frem	ont	2		0		Page # of TURNAROUND TIME					
Company	Friedm	an and Bruy	a. Inc.		PROJECT	NAMI	E/NO.				PO #	ŧ							
		Sth Ave W		-	00	212	13			A	.53	1		Rush charges authorized by:					
City, State, ZIP Phone #(206) 283	Seattle,	WA 98119	06) 992 5044		REMARKS Please Email Results								SAMPLE DISPOSAL  Dispose after 30 days Return samples Will call with instructions						
попе #_ (200) 20	J-0202	F ax #2	.00) 203-3044	— L							-	_			call w	ith instruc	tions		
				1					ANA	LYSE	SRE	QUES	STED	1	-		* .		
Sample ID	Lab ID	Date Sampled	Time Sampled	Matri	x #of jars	Dioxins/Furans	EPH	NPH	Diazinon	Nitek .	Phasphite :	+	:			N	otes		
B-6:6W		1/16/20	0855	H20	2		2	124	×	×	×								
B-7:0W			10935		2		1	-	Y	×	×	1.0							
B-8:6W			- 1035		Z		1		×	×	×								
B-10:60		1	1325	1	2				7	×	×	-	[				_		
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edman & Bruya, 12 16th Avenue W		Relinquished	SIGNATURE	1	Micha		RINT	NAM	E		Fri		DMPA n & B		T	DATE	TIM		
attle, WA 98119-2	1000	Received by:	Pth	E			J	ohr	isan		F.	AI	-		1	16/20	15:20		
(206) 285-8282	1	Relinquished by								-	1 1	41							

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001213			SAMPLI	E CHAIN	OF	CUS	год	Y		Û	10	2	ME	01-1	6-20	e 1 BO	
QO 1213 Report To Charles A Company TRC	Adden /1	hom Morin	SAMPL - Charle	ERS (signo s Madad	uture)	Nat	e Do	v Forer		Ø	$\geq$		,	P 5 TURI	NAROUND '	TIME VWZ	
company <u> </u>			- 1 ~ // 5 -	477			1	05	Р 29						d turnaround 24 HR 7		
Address 1122 NW	Maple St	4	_ (Bra	pledale)				_					Rush charges authorized by:				
City, State, ZIP I 5547	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	8027	- REMAF	(Brokchle) REMARKS Rush TAT (24hr) Project specific RLs? - Yes / No CIDDIN UNVOICE TO THE INVOICE TO THE INVOICE TO THE INVOICE TO						SAMPLE DISPOSAL							
Phone 425-395-0010 E	mail notadles Q	-rccompanies.	M Project	<u>specific RL</u>	s? - Y	es / N		Ichi	TO	usA	•		∃ Oth Defaı		Dispose afte	r 30 days	
	· · · · · · · · · · · · · · · · · · ·	1						7 1	ANAL		S REQU			1	1		
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx RTFY FDA 8091	H-H	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	As (total + Discle	Ellylene Dibund	Diazina +	No	tes	
B-6:GW	-01 A-G	1/16/20	855	HEO	8							X	Х	Х			
B-7:6W	62		935	<u> </u>							<u> </u>	X	X	X			
B-8: GW	03		1035								<u> </u>	X	X	X			
B-10:6W	04	42	1325	4	4						<u> </u>	X	X	X			
	-			a												· · · · · · · · · · · · · · · ·	
		·					_										
		GNATURE	L		PRIN	JT NA	ME		k		COM	PAN	Y		DATE	TIME	
Friedman & Bruya, Inc.	Relinquished by:			TAG	TE	Dor					TR	L			1/16/20	1515	
3012 16 <sup>th</sup> Avenue West	Received by:			Khoi Hoang						FBI					116120	1515	
Seattle, WA 98119-2029 Ph. (206) 285-8282				0					Samples receiv			ceiv	ed at <u>4</u>	•C			
	L													l		L	

#### 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

January 27, 2020

Charles McFadden, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015397, F&BI 001237

Dear Mr McFadden:

Included are the results from the testing of material submitted on January 17, 2020 from the 015397, F&BI 001237 project. There are 14 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Cule

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon TRC0127R.DOC

### ENVIRONMENTAL CHEMISTS

### CASE NARRATIVE

This case narrative encompasses samples received on January 17, 2020 by Friedman & Bruya, Inc. from the Environmental Partners 015397, F&BI 001237 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	Environmental Partners
001237-01	TP-1:Surface
001237-02	TP-1:2
001237-03	TP-2:Surface
001237-04	TP-2:2
001237-05	TP-3:Surface
001237-06	TP-3:2
001237-07	TP-4:Surface
001237-08	TP-4:2

Samples TP-1:Surface, TP-2:Surface, TP-3:Surface, and TP-4:Surface were sent to Fremont Analytical for nitrate, phosphate, and organophosphorus pesticide diazinon analyses. The report is enclosed.

The 8260D internal standard for samples TP-1:Surface, TP-3:Surface, and TP-4:Surface did not pass the acceptance criteria. The data were flagged accordingly.

All other quality control requirements were acceptable.

# ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	TP-1:Surface 01/17/20 01/17/20 01/20/20 Soil mg/kg (ppm)	Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001237 001237-01 012019.D GCMS9 MS
Surrogates: 1,2-Dichloroethane		% Recovery: 108	Lower Limit: 50	Upper Limit: 150
Toluene-d8 4-Bromofluorobenz		87 J 120 J	$50 \\ 50$	$\frac{150}{150}$
Compounds:	C	Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	<0.005 J		

# ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	TP-2:Surface 01/17/20 01/17/20 01/20/20 Soil mg/kg (ppm)		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001237 001237-03 012020.D GCMS9 MS
Surrogates: 1,2-Dichloroethane Toluene-d8 4-Bromofluorobenz		% Recovery: 108 89 J 125 J	Lower Limit: 50 50 50	Upper Limit: 150 150 150
Compounds:		Concentration mg/kg (ppm)		
1,2-Dibromoethane	(EDB)	< 0.005		

# ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	TP-3:Surface 01/17/20 01/17/20 01/20/20 Soil mg/kg (ppm)	Dry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001237 001237-05 012021.D GCMS9 MS
Surrogates: 1,2-Dichloroethane Toluene-d8		% Recovery: 99 J 87 J	Lower Limit: 50 50	Upper Limit: 150 150
4-Bromofluorobenz Compounds:		111 J Concentration mg/kg (ppm)	50	150
1,2-Dibromoethane	(EDB)	<0.005 J		

### ENVIRONMENTAL CHEMISTS

# Analysis For Volatile Compounds By EPA Method 8260D Direct Sparge

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	TP-4:Surface 01/17/20 01/17/20 01/20/20 Soil mg/kg (ppm) D	ry Weight	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001237 001237-07 012022.D GCMS9 MS
Surrogates: 1,2-Dichloroethane		Recovery:	Lower Limit: 50	Upper Limit: 150
Toluene-d8 4-Bromofluorobenz		87 J 126 J	50 50	$150 \\ 150$
Compounds:	m	ncentration g/kg (ppm)		

< 0.005 J

1,2-Dibromoethane (EDB)

 $\mathbf{5}$ 

# ENVIRONMENTAL CHEMISTS

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blan Not Applicabl 01/17/20 01/17/20 Soil mg/kg (ppm)	le	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 001237 00-0144 mb 011713.D GCMS9 MS
Surrogates: 1,2-Dichloroethane		% Recovery: 91 J	Lower Limit: 50	Upper Limit: 150
Toluene-d8 4-Bromofluorobenz		99 J 92 J Concentration	$\frac{50}{50}$	$\begin{array}{c} 150 \\ 150 \end{array}$
Compounds: 1,2-Dibromoethane		<0.005 J		

# ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	TP-1:Surface	Client:	Environmental Partners
Date Received:	01/17/20	Project:	015397, F&BI 001237
Date Extracted:	01/17/20	Lab ID:	001237-01
Date Analyzed:	01/17/20	Data File:	001237-01.105
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte: Arsenic	Concentration mg/kg (ppm) 3.11	Operator.	51

# ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	TP-2:Surface	Client:	Environmental Partners
Date Received:	01/17/20	Project:	015397, F&BI 001237
Date Extracted:	01/17/20	Lab ID:	001237-03
Date Analyzed:	01/17/20	Data File:	001237-03.106
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)	Operator:	Sr

Arsenic

# ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	TP-3:Surface 01/17/20 01/17/20 01/17/20 Soil	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001237 001237-05 001237-05.118 ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)		
Arsenic	5.66		

# ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	TP-4:Surface	Client:	Environmental Partners
Date Received:	01/17/20	Project:	015397, F&BI 001237
Date Extracted:	01/17/20	Lab ID:	001237-07
Date Analyzed:	01/17/20	Data File:	001237-07.119
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte: Arsenic	Concentration mg/kg (ppm) 3.89		

# ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Environmental Partners
Date Received:	Not Applicable	Project:	015397, F&BI 001237
Date Extracted:	01/17/20	Lab ID:	I0-036 mb
Date Analyzed:	01/17/20	Data File:	I0-036 mb.090
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte: Arsenic	Concentration mg/kg (ppm) <1		51

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/27/20 Date Received: 01/17/20 Project: 015397, F&BI 001237

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

Laboratory Code: 001237-01 (Duplicate)

		Sample	Duplicate	
	Reporting	Result	Result	$\operatorname{RPD}$
Analyte	Units	(Wet wt)	(Wet wt)	(Limit 20)
1,2-Dibromoethane (EDB)	mg/kg (ppm)	<0.005 J	<0.005 J	nm

Laboratory Code: Laboratory Control Sample

Laboratory Code. Laboratory Col	introi Gampie		Percent	Percent		
	Reporting	Spike	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
1,2-Dibromoethane (EDB)	mg/kg (ppm)	0.05	113	104	70-130	8

### ENVIRONMENTAL CHEMISTS

Date of Report: 01/27/20 Date Received: 01/17/20 Project: 015397, F&BI 001237

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

Laboratory Code: 001202-02 x5 (Matrix Spike)

			Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	RPD
Analyte	Units	Level	(Wet wt)	MS	MSD	Criteria	(Limit 20)
Arsenic	mg/kg (ppm)	10	6.05	79	89	75 - 125	12

Laboratory Code: Laboratory Control Sample

Laboratory Co	ode: Laboratory Con	troi Sample	Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Arsenic	mg/kg (ppm)	10	84	80-120

### ENVIRONMENTAL CHEMISTS

### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

 ${\rm J}$  - 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.



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

**Friedman & Bruya** Michael Erdahl 3012 16th Ave. W. Seattle, WA 98119

RE: 001237 Work Order Number: 2001273

January 20, 2020

#### **Attention Michael Erdahl:**

Fremont Analytical, Inc. received 8 sample(s) on 1/17/2020 for the analyses presented in the following report.

### Ion Chromatography by EPA Method 300.0 Organophosphorus Pesticides by EPA Method 8270-SIM Sample Moisture (Percent Moisture)

This report consists of the following:

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

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

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes Project Manager

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005 ORELAP Certification: WA 100009-007 (NELAP Recognized)



CLIENT: Project: Work Order:	Friedman & Bruya 001237 2001273	Work Order Sample Summar							
Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received						
2001273-001	TP-1:Surface	01/17/2020 9:20 AM	01/17/2020 1:30 PM						
2001273-002	TP-1:2	01/17/2020 9:30 AM	01/17/2020 1:30 PM						
2001273-003	TP-2:Surface	01/17/2020 9:45 AM	01/17/2020 1:30 PM						
2001273-004	TP-2:2	01/17/2020 9:50 AM	01/17/2020 1:30 PM						
2001273-005	TP-3:Surface	01/17/2020 10:15 AM	01/17/2020 1:30 PM						
2001273-006	TP-3:2	01/17/2020 10:20 AM	01/17/2020 1:30 PM						
2001273-007	TP-4:Surface	01/17/2020 11:00 AM	01/17/2020 1:30 PM						
2001273-008	TP-4:2	01/17/2020 11:10 AM	01/17/2020 1:30 PM						



**Case Narrative** 

WO#: **2001273** Date: **1/20/2020** 

CLIENT:Friedman & BruyaProject:001237

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

#### II. GENERAL REPORTING COMMENTS:

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

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

#### III. ANALYSES AND EXCEPTIONS:

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

# **Qualifiers & Acronyms**



 WO#:
 2001273

 Date Reported:
 1/20/2020

### Qualifiers:

- \* Flagged value is not within established control limits
- B Analyte detected in the associated Method Blank
- D Dilution was required
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- I Analyte with an internal standard that does not meet established acceptance criteria
- J Analyte detected below Reporting Limit
- N Tentatively Identified Compound (TIC)
- Q Analyte with an initial or continuing calibration that does not meet established acceptance criteria
- (<20%RSD, <20% Drift or minimum RRF)
- S Spike recovery outside accepted recovery limits
- ND Not detected at the Reporting Limit
- R High relative percent difference observed

Acronyms:

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



Client: Friedman & Bruya				Collection	Dat	e: 1/17/2020 9:20:00 AM
Project: 001237 Lab ID: 2001273-001				Matrix: Sc	oil	
Client Sample ID: TP-1:Surface						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by E	EPA Metho	d 8270-SIM		Batch	ID:	27162 Analyst: SB
Diazinon	ND	642		µg/Kg-dry	1	1/17/2020 11:26:36 PM
Surr: Triphenylphosphate	102	10.7 - 154		%Rec	1	1/17/2020 11:26:36 PM
Ion Chromatography by EPA Metho	od 300.0			Batch	ID:	27177 Analyst: SS
Nitrate (as N)	3.97	1.38		mg/Kg-dry	1	1/18/2020 1:32:00 AM
Orthophosphate (as P)	ND	2.75		mg/Kg-dry	1	1/18/2020 1:32:00 AM
Sample Moisture (Percent Moisture	<u>e)</u>			Batch	ID:	R56723 Analyst: CJ
Percent Moisture	27.4	0.500		wt%	1	1/17/2020 2:53:20 PM



Client: Friedman & Bruya				Collection	Dat	t <b>e:</b> 1/17/2020 9:45:00 AM
Project: 001237 Lab ID: 2001273-003				Matrix: So	oil	
Client Sample ID: TP-2:Surface						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by I	EPA Metho	<u>d 8270-SIM</u>		Batch	ID:	27162 Analyst: SB
Diazinon	ND	639		µg/Kg-dry	1	1/17/2020 11:49:07 PM
Surr: Triphenylphosphate	84.3	10.7 - 154		%Rec	1	1/17/2020 11:49:07 PM
Ion Chromatography by EPA Metho	<u>od 300.0</u>			Batch	ID:	27177 Analyst: SS
Nitrate (as N)	ND	1.39		mg/Kg-dry	1	1/18/2020 1:55:00 AM
Orthophosphate (as P)	ND	2.78		mg/Kg-dry	1	1/18/2020 1:55:00 AM
Sample Moisture (Percent Moisture	<u>e)</u>			Batch	ID:	R56723 Analyst: CJ
Percent Moisture	28.4	0.500		wt%	1	1/17/2020 2:53:20 PM



Client: Friedman & Bruya				Collection	Dat	e: 1/17/2020 10:15:00 AM
Project: 001237						
Lab ID: 2001273-005				Matrix: So	oil	
Client Sample ID: TP-3:Surface						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by	EPA Metho	<u>d 8270-SIM</u>		Batch	ID:	27162 Analyst: SB
Diazinon	ND	831		µg/Kg-dry	1	1/18/2020 12:11:36 AM
Surr: Triphenylphosphate	82.8	10.7 - 154		%Rec	1	1/18/2020 12:11:36 AM
Ion Chromatography by EPA Metho	<u>od 300.0</u>			Batch	ID:	27177 Analyst: SS
Nitrate (as N)	2.48	1.74		mg/Kg-dry	1	1/18/2020 2:18:00 AM
Orthophosphate (as P)	ND	3.47		mg/Kg-dry	1	1/18/2020 2:18:00 AM
Sample Moisture (Percent Moisture	<u>e)</u>			Batch	ID:	R56723 Analyst: CJ
Percent Moisture	42.4	0.500		wt%	1	1/17/2020 2:53:20 PM



Client: Friedman & Bruya				Collection	Date	: 1/17/2020 11:00:00 AM
Project: 001237						
Lab ID: 2001273-007				Matrix: So	oil	
Client Sample ID: TP-4:Surface						
Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organophosphorus Pesticides by E	EPA Metho	<u>d 8270-SIM</u>		Batch	1D: 2	27162 Analyst: SB
Diazinon	ND	647		µg/Kg-dry	1	1/18/2020 12:34:07 AM
Surr: Triphenylphosphate	61.9	10.7 - 154		%Rec	1	1/18/2020 12:34:07 AM
lon Chromatography by EPA Metho	<u>d 300.0</u>			Batch	1D: 2	27177 Analyst: SS
Nitrate (as N)	2.43	1.52		mg/Kg-dry	1	1/18/2020 2:41:00 AM
Orthophosphate (as P)	ND	3.04		mg/Kg-dry	1	1/18/2020 2:41:00 AM
Sample Moisture (Percent Moisture	)			Batch	ID: F	R56723 Analyst: CJ
Percent Moisture	34.3	0.500		wt%	1	1/17/2020 2:53:20 PM

Fremont
[ Analytical]

Work Order:         200127           CLIENT:         Friedm           Project:         001237	an & Bruya						Ion Chi	QC S romatograj	SUMMAI		
Sample ID: MB-27177	SampType: MBLK			Units: mg/Kg		Prep Date	e: 1/17/202	20	RunNo: 567	738	
Client ID: MBLKS	Batch ID: 27177					Analysis Date	e: 1/17/20	20	SeqNo: 113	30449	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N) Orthophosphate (as P)	ND ND	1.00 2.00									
Sample ID: LCS-27177	SampType: LCS			Units: mg/Kg		Prep Date	e: 1/17/202	20	RunNo: 567	738	
Client ID: LCSS	Batch ID: 27177					Analysis Date	e: 1/17/202	20	SeqNo: 113	30450	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	7.71	1.00	7.500	0	103	90	110				
Orthophosphate (as P)	12.6	2.00	12.50	0	101	90	110				
Sample ID: 2001273-007ADI	JP SampType: DUP			Units: mg/Kg-	dry	Prep Date	e: <b>1/17/20</b> 2	20	RunNo: 567	738	
Client ID: TP-4:Surface	Batch ID: 27177					Analysis Date	e: <b>1/18/20</b> 2	20	SeqNo: 113	30461	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	2.01	1.51						2.429	18.6	30	
Orthophosphate (as P)	ND	3.03						0		30	
Sample ID: 2001273-007AM	S SampType: MS			Units: mg/Kg-	dry	Prep Date	e: 1/17/20	20	RunNo: 567	738	
Client ID: TP-4:Surface	Batch ID: 27177					Analysis Date	e: 1/18/202	20	SeqNo: 113	30462	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)	13.1	1.51	11.35	2.429	93.9	80	120				
Orthophosphate (as P)	ND	3.03	18.92	0	0	80	120				S

#### NOTES:

S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.



Work Order: CLIENT: Project:	2001273 Friedman & 001237	Bruya						lon Ch	QC S romatograp	SUMMAI		-
Sample ID: 20012	73-007AMSD	SampType: <b>MSD</b>			Units: mg/	Kg-dry	Prep Da	te: 1/17/20	20	RunNo: 567	738	
Client ID: TP-4:S	Surface	Batch ID: 27177					Analysis Da	te: 1/18/20	20	SeqNo: 113	30463	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate (as N)		13.4	1.53	11.44	2.429	95.7	80	120	13.09	2.15	30	
Orthophosphate (a	is P)	ND	3.05	19.06	0	14.7	80	120	0		30	S

#### NOTES:

S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.



Work Order: 2001273								QC S	SUMMAI	RY REF	PORT
CLIENT: Friedman 8	ι Bruya				Ora	anophos	phorus	Pesticides	bv EPA M	ethod 82	70-SIM
<b>Project:</b> 001237						•	•		•		
Sample ID: <b>MB-27162</b>	SampType: MBLK			Units: µg/Kg		•	te: 1/17/20	-	RunNo: 567		
Client ID: MBLKS	Batch ID: 27162					Analysis Da			SeqNo: 113		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	ND	500									
Surr: Triphenylphosphate	21.3		20.00		107	10.7	154				
Sample ID: LCS-27162	SampType: LCS			Units: µg/Kg		Prep Da	te: 1/17/20	)20	RunNo: 567	737	
Client ID: LCSS	Batch ID: 27162					Analysis Da	te: 1/17/20	)20	SeqNo: 113	30427	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	10.3	500	20.00	0	51.4	37.1	132				
Surr: Triphenylphosphate	21.0		20.00		105	10.7	154				
Sample ID: 2001255-001AMS	SampType: <b>MS</b>			Units: µg/Kg-	dry	Prep Da	te: 1/17/20	)20	RunNo: 567	737	
Client ID: BATCH	Batch ID: 27162					Analysis Da	te: 1/17/20	)20	SeqNo: 113	30429	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	15.4	513	20.53	0	75.0	9.74	142				
Surr: Triphenylphosphate	21.8		20.53		106	10.7	154				
Sample ID: 2001255-001AMSD	SampType: <b>MSD</b>			Units: µg/Kg-	dry	Prep Da	te: 1/17/20	)20	RunNo: 567	737	
Client ID: BATCH	Batch ID: 27162					Analysis Da	te: 1/17/20	)20	SeqNo: 113	30430	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	16.4	493	19.70	0	83.2	9.74	142	0		30	
Surr: Triphenylphosphate	19.4		19.70		98.6	10.7	154		0		
Sample ID: 2001255-001ADUP	SampType: <b>DUP</b>			Units: µg/Kg-	dry	Prep Da	te: 1/17/20	)20	RunNo: 567	737	
Client ID: BATCH	Batch ID: 27162					Analysis Da	te: 1/17/20	)20	SeqNo: 113	30431	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diazinon	ND	469						0		30	
										Pa	ne 11 of



Work Order:	2001273									00	SUMMAR		VORT
CLIENT:	Friedman &	Bruya		QC SUMMARY REPOR Organophosphorus Pesticides by EPA Method 8270-S						-			
Project:	001237						Org	anophos	phorus	Pesticides	by EPA M	ethod 82	70-SIM
Sample ID: 20012	55-001ADUP	SampType	DUP			Units: µg	/Kg-dry	Prep Da	te: 1/17/20	20	RunNo: 567	737	
Client ID: BATC	н	Batch ID:	27162					Analysis Da	te: 1/17/20	20	SeqNo: 113	30431	
Analyte		I	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Triphenylp	hosphate		16.4		18.76		87.7	10.7	154		0		



# Sample Log-In Check List

CI	lient Name: <b>FB</b>		Work Order Num	ber: 2001273	
Lo	ogged by: Carissa True		Date Received:	1/17/2020	0 1:30:00 PM
Cha	nin of Custody				
1.	Is Chain of Custody complete	?	Yes 🖌	No 🗌	Not Present
2.	How was the sample delivere	d?	<u>FedEx</u>		
<u>Log</u>	<u>. In</u>				
_	Coolers are present?		Yes 🖌	No 🗌	
4.	Shipping container/cooler in g	good condition?	Yes 🖌	No 🗌	
5.	Custody Seals present on shi (Refer to comments for Custo		Yes	No 🗹	Not Required
6.	Was an attempt made to coo	the samples?	Yes 🖌	No 🗌	
7.	Were all items received at a t	emperature of >0°C to 10.0°C*	Yes 🔽	No 🗌	
8.	Sample(s) in proper containe	r(s)?	Yes 🖌	No 🗌	
9.	Sufficient sample volume for	indicated test(s)?	Yes 🗹	No 🗌	
10.	Are samples properly preserv	red?	Yes 🗹	No 🗌	
11.	Was preservative added to be	ottles?	Yes	No 🗹	NA 🗌
12.	Is there headspace in the VO	A vials?	Yes	No 🗌	NA 🔽
13.	Did all samples containers ar	rive in good condition(unbroken)?	Yes 🗹	No 🗌	
14.	Does paperwork match bottle	labels?	Yes 🖌	No 🗌	
15.	Are matrices correctly identifi	ed on Chain of Custody?	Yes 🖌	No 🗌	
16.	Is it clear what analyses were	requested?	Yes 🖌	No 🗌	
17.	Were all holding times able to	be met?	Yes 🖌	No 🗌	
<u>Spe</u>	<u>cial Handling (if applic</u>	<u>able)</u>			
18.	Was client notified of all discr	epancies with this order?	Yes	No 🗌	NA 🗸
	Person Notified:	Date Via:	,	none 🗌 Fax	In Person
	Client Instructions:				
19	Additional remarks:				

#### Item Information

Item #	Temp °C
Cooler 1	4.2
Sample 1	5.9

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

# SUBCONTRACT SAMPLE CHAIN OF CUSTODY

# 2001273 (2+ 1/17 2001272

4

14

					SIT	BCONT	RACTI	ER.	-							Page	#0	f
Send Report To N	Michael	l Erdahl			100	0001111	aror.										JAROUND T	IME
		an and Bruya	Inc		PR	OJECT	NAME	/NO.				PO#		□ Standard (2 Weeks) Ø RUSH 24 hr				
		th Ave W	1.000	-	.00.1237 A-53						53	30 Rush				s authorized	by:	
Address 3	012 16	th Ave w		_	RE	MARKS	-	-							1	SAM	PLE DISPOS	AL
City, State, ZIP_S	eattle,	WA 98119			1	<b>D1</b> .	ase Ei		lt						<ul> <li>Disp</li> <li>Retu</li> </ul>		ter 30 days	
Phone # (206) 285	-8282	Fax #(2	06) 283-5044			Ple	ase E	man n	esuit	5							rith instruction	ons
		1			-				-	ANA	LYSES	SRE	QUES	TED				-
Sample ID	Lab ID	Date Sampled	Time Sampled	Mat	trix	# of jars	Dioxins/Furans	EPH	NPH	Diazinon	Nitrate,	Phosphate.		1.			No	tes
-2.1.0		1000	920	Soi	1	1				X	X	×	1					
TP-1: Surface	-	11/20		100	1	T I	-					1						
TP-1:2	-		930	-	4	1				X	X	X					1	
TP-2: Surface	-		950			1				1.				-				
TP-2:2							-			X	X	×		-				
TP-3: Surface			1015				-	-	-	1	~	1-					2	-
TAP = 38 TP-3:2			1020	+			-	-		N	X	×						
TP-4: Surface	-		1100	+	-					X	~	1-		-	1	-		
EWBPPTP-4:2		1	1110				-	-		-	-				-		-	
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Friedman & Bruya, 3012 16th Avenue V		Relinquished	SIGNATURE			Mich	I ael Er	PRINT			R	F	riedma	OMP/ an & H			DATE 12/17/20	TIME 1305
	144114	Received by:	D. M-1	3		-		L		Jenso	er-Biz		11	_	-	-		
Seattle, WA 98119-2	2029		MW. Y	X	)	VVV	nke	ent	131	Nein	herd	4 4	At			-	1/17/20	1330
Ph. (206) 285-8282		Relinquished	by:														-	
Fax (206) 283-5044		Received by:				1						1						~

OG1237 SA Report To Charles McFadden / Thon Morin			SAMPL	SAMPLERS (signature)						7/20 V53/B03 Page # of							
Company $TRC$			PROJE	PROJECT NAME				- PO #	PO# () Stands			ndaro	RNAROUND TIME				
Address 1180 NW Maple St Ste 310			D153	97												2.4 W rges authorized by:	
City, State, ZIP_ISSagual, We 98022			REMAR	REMARKS			INVOICE TO				-	SAMPLE DISPOSAL					
Phone <u>415-345-0010</u> Em	CMC Faller S ail Thoris OTA	TRL companies.() Constances ( 10	- Pay Duciost	specific RL	-9 W.	« 	л ХТ.	Ichite USA					<ul> <li>Archive samples</li> <li>Other</li> <li>Default: Dispose after 30 days</li> </ul>				
				specific KL	<u>S: - 16</u>	<u>s /</u>	INO		AN	ALYS	ES R	EQU			<u>ilt: L</u>	Dispose afte	<u>r 30 days</u>
						~		12		F	1	T		Τ			
Sample ID	Lab ID	Date	Time	Sample	# of	CH-D	PH-G	PA 8(	H-HC	PA 85	PA 80	L v		Disark			
Sample 12		Sampled	Sampled	Туре	Jars	NWTPH-D <sub>x</sub>	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	PAHs EPA 8270	Bs El	Nitrates / Phosphates	1	Ethylene (ED)	Diazinan	No	tes
	<u></u>	-				4		BT	N S	PA	PC	the state	¥,	5	Diá		
TP-1: Surface	01 AF	1/17/20	920	50:1	6							Χ,	<u> </u>	X	X		
<u>TP-1:2</u>	02		976														
TP-2: Surface	03	4	୩୳୨									X	X	X	$ \lambda $	-	
TP-2'.2	04		450								<u> </u>						
TP-3: Surface	05		1015	<u>,</u>								X	X	X	X		
TP-3:2	06		1020														
TP-4: Surface	07 /		1100		-							X	X	X	X		
TP-4:2	08		1110 .	Ą	$\forall$												
		GNATURE	·	1	PRIN	ΤN	AME				(	COM	PAN	Y		DATE	TIME
<u>,</u> ,	Relinquished by:	-2	<b></b>	E	ric	Kri	nes	er				TZ	.C			1/17/20	1252
3012 16 <sup>th</sup> Avenue West Seattle, WA 98119-2029	teceived by:	Received by:							E& B	$\widehat{\mathcal{L}}$			1-17-20	12:5			

#### 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

January 28, 2020

Thom Morin, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015397, F&BI 001355

Dear Mr Morin:

Included are the results from the testing of material submitted on January 24, 2020 from the 015397, F&BI 001355 project. There are 11 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Charles McFadden TRC0128R.DOC

#### ENVIRONMENTAL CHEMISTS

#### CASE NARRATIVE

This case narrative encompasses samples received on January 24, 2020 by Friedman & Bruya, Inc. from the Environmental Partners 015397, F&BI 001355 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<b>Environmental Partners</b>
001355 -01	AOI-12:Surface
001355 -02	AOI-12:2
001355 -03	AOI-13:Surface
001355 -04	AOI-13:2
001355 -05	AOI-14:Surface
001355 -06	AOI-14:2
001355 -07	AOI-16:Surface
001355 -08	AOI-16:1.5
001355 -09	AOI-21:Surface
001355 -10	AOI-21:2
001355 -11	AOI-23:Surface
001355 -12	AOI-23:2
001355 -13	AOI-20-5:s
001355 -14	AOI-20-5:2

All quality control requirements were acceptable.

### ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	AOI-12:Surface	Client:	Environmental Partners
Date Received:	01/24/20	Project:	015397, F&BI 001355
Date Extracted:	01/27/20	Lab ID:	001355-01
Date Analyzed:	01/27/20	Data File:	001355-01.032
Matrix:	Soil	Instrument:	ICPMS2
Units: Analyte: Arsenic	mg/kg (ppm) Dry Weight Concentration mg/kg (ppm) 3.91	Operator:	SP

### ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	AOI-13:Surface	Client:	Environmental Partners
Date Received:	01/24/20	Project:	015397, F&BI 001355
Date Extracted:	01/27/20	Lab ID:	001355-03
Date Analyzed:	01/27/20	Data File:	001355-03.033
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte: Arsenic	Concentration mg/kg (ppm) 3.92	operator.	51

### ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	AOI-14:Surface 01/24/20 01/27/20 01/27/20 Soil mg/tg (app) Dry Weight	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001355 001355-05 001355-05.034 ICPMS2 SP
Analyte: Arsenic	mg/kg (ppm) Dry Weight Concentration mg/kg (ppm) 3.63	Operator:	Sr

### ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	AOI-16:Surface	Client:	Environmental Partners
Date Received:	01/24/20	Project:	015397, F&BI 001355
Date Extracted:	01/27/20	Lab ID:	001355-07
Date Analyzed:	01/27/20	Data File:	001355-07.037
Matrix:	Soil	Instrument:	ICPMS2
Units: Analyte: Arsenic	mg/kg (ppm) Dry Weight Concentration mg/kg (ppm) 4.38	Operator:	SP

### ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	AOI-21:Surface 01/24/20 01/27/20 01/27/20 Soil	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001355 001355-09 001355-09.038 ICPMS2 SP
Analyte: Arsenic	mg/kg (ppm) Dry Weight Concentration mg/kg (ppm) 9.77	Operator:	Sr

### ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	AOI-23:Surface	Client:	Environmental Partners
Date Received:	01/24/20	Project:	015397, F&BI 001355
Date Extracted:	01/27/20	Lab ID:	001355-11
Date Analyzed:	01/27/20	Data File:	001355-11.039
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte: Arsenic	Concentration mg/kg (ppm) 2.54		51

### ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID: Date Received: Date Extracted: Date Analyzed: Matrix:	AOI-20-5:s 01/24/20 01/27/20 01/27/20 Soil	Client: Project: Lab ID: Data File: Instrument:	Environmental Partners 015397, F&BI 001355 001355-13 001355-13.042 ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte:	Concentration mg/kg (ppm)		
Arsenic	10.4		

### ENVIRONMENTAL CHEMISTS

# Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Environmental Partners
Date Received:	Not Applicable	Project:	015397, F&BI 001355
Date Extracted:	01/27/20	Lab ID:	I0-054 mb
Date Analyzed:	01/27/20	Data File:	I0-054 mb.030
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP
Analyte: Arsenic	Concentration mg/kg (ppm) <1		51

#### ENVIRONMENTAL CHEMISTS

Date of Report: 01/28/20 Date Received: 01/24/20 Project: 015397, F&BI 001355

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

Laboratory Code: 001355-11 x5 (Matrix Spike)

			Sample	Percent	Percent		
	Reporting	Spike	Result	Recovery	Recovery	Acceptance	$\operatorname{RPD}$
Analyte	Units	Level	(Wet wt)	MS	MSD	Criteria	(Limit 20)
Arsenic	mg/kg (ppm)	10	<5	95	108	75 - 125	13

Laboratory Code: Laboratory Control Sample

	oue. Laboratory com		Percent	
	Reporting	Spike	Recovery	Acceptance
Analyte	Units	Level	LCS	Criteria
Arsenic	mg/kg (ppm)	10	110	80-120

#### ENVIRONMENTAL CHEMISTS

#### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

 ${\rm J}$  - 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.

001355			SAMPLE	E CHAIN	OF (	CUS	TO	DY	01-	24	- 20		В	I41		7
Report To Thom Morin	& closer 1	Carlas	SAMPL	ERS (signe	ture)	$\sim$		2 <sup>22</sup>				]				
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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 AS				Note	:5
ADI-12: Swiface	01	1/24/20	09.00	50M	1						X					·····
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AOI-13: Surface	03		0930								X					****
ADI-13:2	04		0935													
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ADI-23: Surface	11	1/24/20	//00	Soil	1			·					X						
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#### 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

February 19, 2020

Thom Morin, Project Manager Environmental Partners, Inc. 1180 NW Maple St, Suite 310 Issaquah, WA 98027

RE: 015397, F&BI 002224

Dear Mr Morin:

Included are the results from the testing of material submitted on February 17, 2020 from the 015397, F&BI 002224 project. There are 5 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Nelf

Michael Erdahl Project Manager

Enclosures c: Cynthia Moon, Charles McFadden TRC0219R.DOC

#### ENVIRONMENTAL CHEMISTS

#### CASE NARRATIVE

This case narrative encompasses samples received on February 17, 2020 by Friedman & Bruya, Inc. from the Environmental Partners 015397, F&BI 002224 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	
002224 -01	

Environmental Partners MW-1

All quality control requirements were acceptable.

### ENVIRONMENTAL CHEMISTS

### Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	MW-1 02/17/20 02/17/20 02/17/20 Water ug/L		Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 002224 002224-01 021720.D GC9 VM
Surrogates: TCMX DBC		% Recovery: 59 59	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:		Concentration ug/L		
Dieldrin		< 0.02		

### ENVIRONMENTAL CHEMISTS

### Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID: Date Received: Date Extracted: Date Analyzed: Matrix: Units:	Method Blank Not Applicable 02/17/20 02/17/20 Water ug/L	Client: Project: Lab ID: Data File: Instrument: Operator:	Environmental Partners 015397, F&BI 002224 00-436 mb 021718.D GC9 VM
Surrogates: TCMX DBC	% Recovery: 71 116	Lower Limit: 50 50	Upper Limit: 150 150
Compounds:	Concentration ug/L		
Dieldrin	< 0.02		

#### ENVIRONMENTAL CHEMISTS

Date of Report: 02/19/20 Date Received: 02/17/20 Project: 015397, F&BI 002224

#### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR ORGANOCHLORINE PESTICIDES BY EPA METHOD 8081B

Laboratory Code: Laboratory Control Sample

	Reporting	Spike	Percent Recoverv	Percent Recovery	Acceptance	RPD
Analyte	Units	Level	LCS	LCSD	Criteria	(Limit 20)
Dieldrin	ug/L (ppb)	0.25	91	90	70-130	1

#### ENVIRONMENTAL CHEMISTS

#### **Data Qualifiers & Definitions**

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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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 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	Dieldrin				No	tes
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Attachment D TEE Cleanup Levels

#### Brookdale Golf Course VCP Site

cas lookup	Analyte Pesticides	CAS	MTCA Soil Method A - Unrestricted (mg/kg)	Method B Direct Contact (noncancer) (mg/kg)	Method B Direct Contact (cancer) (mg/kg)	Selected Human Health Screening Level (mg/kg)	Target Potable Groundwater Level (ug/L)		Soil Protective of Groundwater Unsat (mg/kg)	Soil Protective of Groundwater Sat (mg/kg)	(mg/kg)	TEE Value (mg/kg) (soil biota)	(mg/kg)	(mg/kg)	Notes
72-55-9	4,4-DDE	72-55-9		24	2.9	2.9	0.26	С	0.45	0.022	х	х	0.75	0.75	0.75 mg/kg for total DDD, DDE, DDT
50-29-3	4,4-DDT	50-29-3	3	40	2.9	2.9	0.26	С	3.5	0.17	х	х	0.75		0.75 mg/kg for total DDD, DDE, DDT
319-85-7	Beta-BHC	319-85-7		NTV	0.56	0.56	0.049	с	0.0023	0.00012	x	29	6	6	6 mg/kg for total BHC (including lindane)
319-86-8	Delta-BHC	319-86-8		NTV	NTV	NTV					x	29	6	6	6 mg/kg for total BHC (including lindane)
309-00-2	Aldrin	309-00-2		2.4	0.059	0.059	0.0026	С	0.0025	0.00013	x	х	0.1	0.1	
959-98-8	Endosulfan I	959-98-8		NTV	NTV	NTV					x	х	х	4	
60-57-1	Dieldrin	60-57-1		4	0.063	0.063	0.0055	С	0.0028	0.00014	x	х	0.07	0.07	
72-20-8	Endrin	72-20-8		24	NTV	24	2	MCL	0.44	0.022	х	х	0.2	0.2	
7421-93-4	Endrin Aldehyde	7421-93-4		NTV	NTV	NTV					х	х	0.01	0.01	

Notes:

c = Carcinogen, Method B calculation using MTCA Equation 720-2.

MCL = Federal drinking water maximum contaminant level or maximum contaminant level goal.

NTV = No Toxicity Value

Attachment E Conceptual Site Model

Primary Sources	Contaminants of Potential Concern	Media of Concern	Transport Mechanisms	Exposure Media	Exposure Pathway		Fut	Construction and Worker (A) and Residential/ Recreational	tors
Lawful application of pesticides	Arsenic, 1,2-Dibromoethane, Dieldrin, Diazinon, Nitrate, Phosphate         X         Adsorbed onto soil         Dissolved in water         Non-aqueous phase	Surface Soil (0–2 feet bgs)         X         Soil (> 2 feet bgs)         X         Groundwater	<ul> <li>Direct release to soil</li> <li>Migration to subsurface soil</li> <li>Migration to groundwater</li> <li>Volatilization</li> <li>Runoff or erosion</li> <li>Utake by plant or animal</li> <li>Other (list)</li></ul>	Soil     X     Groundwater     Air     Surface Water	X Ingestion   X Dermal Exposure   X Ingestion   X Dermal Exposure			C/F C/F	C/F
		Surface Water	Release to surface water         Volatilization         Sedimentation         Uptake by plant or animal         Other (list)         Release to surface water         Resuspension or erosion	Sediment	Ingestion Dermal Contact Inhalation				
			Uptake by plant or animal Other (list)	V			CONCEPT	ACHMENT E UAL SITE MODE	L
DTES: gs = below ground surface					PREPARED BY REPORT	SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT			
							1802 BROOKDALE ROAD EAST, TACOMA, WA		
						PREPARED FOR 05/20/20	ICHIJO USA CO., L DRAWN BY NDH	TD. <b>REVIEWED BY</b> TCM	PROJECT NUMBER 015397.0004.0000