



January 3, 2020

Mr. Ben Sommer
T-O Engineers, Inc.
121 W. Pacific Avenue, Suite 200
Spokane, Washington 99201

Re: Pangborn Airport Site – Soil Excavation and UST Removal Report

1 Pangborn Drive
East Wenatchee, WA
Aspect Project No. 190245

Dear Mr. Sommer:

This report prepared by Aspect Consulting, LLC (Aspect) summarizes the underground storage tank (UST) removal and soil excavation activities completed at the Pangborn Memorial Airport property located at 1 Pangborn Drive in East Wenatchee, Washington (herein referred to as the Subject Property, Figure 1). The purpose of this report is to provide a record of the environmental observations, testing, and soil disposal actions that were completed during construction of the new fueling facility. This includes documentation specific to the removal of two USTs, and more broadly, the disposition of soil removed from the construction site. This report fulfills Department of Ecology's reporting requirements for removal of the two USTs.

The UST removal and soil excavation activities were completed during a construction project for a new fueling facility located in the hangar/terminal/office portion of the Site (herein referred to as the Project Area or Site, Figure 2) between May and October 2019. The construction project included demolition of an existing hangar building (Building 3750), soil excavation and removal of two USTs from within the mass excavation limits, and construction of a new fueling facility.

The following is a summary of environmental support during construction including pre-excavation surface soil characterization, UST removal, and monitoring of mass excavation activities completed at the Site.

Pre-Excavation Soil Characterization

Based on a request from T-O Engineers (Client), Aspect performed surface soil sampling and testing on May 28, 2019, to assess the surficial soil quality within the mass excavation limits prior to beginning soil excavation. The chemical analytical results of the surface soil samples were utilized by the construction and earthwork contractor to determine appropriate protective measures for construction worker safety.

The following summarizes the surficial soil sampling (composite samples) and testing results:

Surface Soil Sampling (Composite Samples) and Chemical Results

Aspect obtained 9 discrete samples of surface soil from within the planned mass excavation limits. Then, Aspect created three composite samples (EXCA-COMP-1 through EXCA-COMP-3) by mixing a set of 3 discrete samples from the 9 samples.

Considering historical crop-dusting operations based at the Site and documented presence of USTs at the Site, the composite samples were submitted to a licensed testing laboratory for chemical analysis of the following analytes:

- Petroleum hydrocarbons (gasoline-, diesel-, and oil-range)
- Metals (arsenic, cadmium, chromium, lead, and mercury)
- Organochlorine and organo-phosphorous pesticides, and chlorinated herbicides

Chemical analytical results consisted of the following:

- Oil-range hydrocarbons, cadmium, and organochlorine pesticides (DDD, DDT, and Dieldrin) were detected at concentrations exceeding the Model Toxics Control Act (MTCA) Method A or B cleanup levels in EXCA-COMP-1. Samples comprising EXCA-COMP-1 were collected from along northwestern margin of the mass excavation.
- Analytes either were not detected or detected at concentrations below the MTCA Method A or B cleanup levels in EXCA-COMP-2 and EXCA-COMP-3.

The chemical analytical results of the composite samples are summarized in Table 1. A copy of the laboratory report is provided in Appendix D.

For the purpose of this report:

- “Contaminated Soil” is defined as soil containing any of the chemical(s) of concern at a concentration that exceeded the MTCA Method A or B cleanup level.
- “Impacted Soil” is defined as soil containing any of the chemical(s) of concern at a concentration below the MTCA Method A or B cleanup level.

Soil represented by the composite samples was excavated and temporarily stockpiled on-Site for further characterization as discussed in the following sections of this report.

Heating Oil (UST1) and Gasoline (UST2) Tanks Removal

Two underground storage tanks were discovered within the mass excavation footprint at the Site between May and July 2019. An approximately 1,100-gallon steel heating oil tank (UST1) was encountered in the north portion and an approximately 1,000-gallon steel gasoline tank (UST2) was encountered in the south portion of the mass excavation (Figure 3). Aspect communicated the discovery to Camille Bennett of Washington State Department of Ecology (Ecology) Central Regional Office and obtained a waiver for the 30-day advance closure notice.

The overburden removed by the earthwork contractor at both tank locations was field screened by Aspect. Based on the field screening results (slight to moderate sheen and mild petroleum odor) at the heating oil tank location (UST1 in north portion of the Site), the soil was stockpiled over plastic sheeting pending characterization through soil sampling and chemical testing (discussed in later parts of this report).

Field screening results at the UST2 location yielded no evidence of petroleum contamination (no sheen and no petroleum odor).

On July 30, 2019, both tanks were inerted by a chemist and removed by a licensed UST decommissioner (David Borys [UST Decommissioner Certificate No. 1035105] of HydroCon Environmental, LLC. David also performed a UST Site Assessment (Site Assessor Certificate No. 8451793) in accordance with Ecology's guidance. Aspect oversaw the UST decommissioning and site assessment activities at the Site.

The tanks were inspected for any evidence of structural damage after they were removed from the ground. No holes/fissures were observed. The soil from the sidewalls and base of UST1 and UST2 excavations was field screened for physical evidence of petroleum contamination. Field screening noted no slight sheen and no petroleum odor.

Confirmation Sampling and Chemical Results

A total of 10 confirmation soil samples were obtained from the four sidewalls and base of UST1 and UST2 excavations.

All soil samples were submitted to a licensed chemical laboratory for analytical testing of one or more of the following analytes: petroleum hydrocarbons (gasoline-, diesel- and oil-range), BTEX (benzene, ethylbenzene, toluene, and xylenes), metals (arsenic, cadmium, chromium, lead, and mercury). Also, the base sample from the gasoline tank (UST2) was additionally analyzed for gasoline additives (EDB, EDC, MTBE, and n-Hexane) in accordance with Ecology's Guidance¹ (Ecology, 2003).

According to the chemical analytical results,

- **Heating Oil Tank (UST 1).** Petroleum hydrocarbons and BTEX either were not detected or were detected at concentrations below the MTCA Method A cleanup levels. Only lead was detected at a concentration (350 milligrams per kilogram [mg/kg]) exceeding the MTCA Method A cleanup level of 250 mg/kg in the base sample (8-foot deep) from the UST1 excavation. The source of the lead is unknown and other metals were not detected.

The 8-foot-depth soil sample was further analyzed by Toxicity Characteristic Leachate Procedure (TCLP) for waste characterization purposes. The TCLP lead was detected (1.5 micrograms per liter [µg/l]), which is below the MTCA Method A cleanup level of 5 µg/l for groundwater quality.

The residual lead-contaminated soil is not a threat to human health and environment because:

- TCLP data demonstrates that the material exhibits relatively low leachability potential.
- Soil remains capped under the concrete slab of the new fueling facility.
- Groundwater was not observed in the UST excavation.
- Depth to regional groundwater is greater than 100 feet at the Site based on the well logs reviewed by Aspect. These wells were completed by others for different projects.

¹ Guidance for Site Checks and Site Assessments for Underground Storage Tanks, Department of Ecology Underground Storage Tank Program, Publication #90-52 dated February 1991 (Revised April 2003).

- The Site is an airport and no change in Site use is anticipated for the foreseeable future.
- **Gasoline Tank (UST2).** Petroleum hydrocarbons, BTEX, and gasoline additives were not detected in any of the five samples. Metals were detected at concentrations below their respective MTCA Method A or B cleanup levels.

The chemical analytical results of the confirmation samples are summarized in attached Table 2. The approximate locations of the former UST1 and UST2 and confirmation soil samples along with a graphical summary of the chemical analytical data are shown in Figure 3.

A UST Site Assessment Checklist along with the tank decommissioning and removal documents are presented in attached Appendix A. A copy of the well logs and a map showing the approximate location of the groundwater wells in the Site vicinity are presented as Appendix B. A copy of the laboratory report is provided in attached Appendix D.

Mass Excavation and Soil Stockpiles

Following demolition of the old hangar building (Building 3750) and removal of the two USTs, soil within the construction footprint was excavated to an approximate depth of 2- to 2.5 feet below ground surface (bgs) to reach bearing soil for the new hangar building.

Aspect monitored the mass excavation and assisted the earthwork contractor in identifying and segregating the potentially contaminated and/or impacted soils. Soil was field screened for physical evidence of potential petroleum contamination using water sheen testing, visual observations, and/or headspace vapor measurements (in parts per million [ppm] using a photo-ionization detector [PID]).

Based on the field screening results and chemical analytical data from the composite samples, the soil generated from mass excavation was temporarily stockpiled over plastic sheets into four separate piles (Piles 1, 2, 3, and 4) for supplemental characterization. All applicable construction best management practices (BMPs) were implemented to manage the soil stockpiles.

The field screening results of each stockpile is presented below and approximate locations where stockpile soils originated are shown in Figure 3.

- **Piles 1&2** – Soil in Piles 1 and 2 was generated from all areas of the mass excavation except the region along the northwestern margin of the excavation and UST excavations. Field screening exhibited no evidence of contamination including slight to no sheen, no petroleum odor, and 0 ppm headspace vapor readings.
- **Pile 3** – The soil in Pile 3 was generated from UST 1 and 2 excavations and also overburden soil lying above the former UST1. Field screening exhibited evidence of petroleum contamination including moderate sheen, petroleum odor, blackened, and 4 ppm headspace vapor readings.
- **Pile 4** – The soil in Pile 4 was generated from along the northwestern margin of the mass excavation in the area where samples were collected for EXCA-COMP-1 that had pesticide concentrations exceeding MTCA clean up levels. Field screening exhibited evidence of

pesticide contamination including slight to no sheen, no petroleum odor, but apparent discoloration with 0 ppm headspace vapor readings and a pesticide odor.

Aspect collected soil samples from the stockpiles to verify the field screening results and for waste characterization as discussed below.

Soil Stockpiles Characterization Sampling and Chemical Results

Aspect collected samples from the soil stockpiles for characterization. The samples were submitted to an Ecology-accredited testing laboratory for chemical analysis of one or more of the following: petroleum hydrocarbons (gasoline-, diesel-, and oil-range), metals (arsenic, cadmium, chromium, lead, and mercury), organochlorine and organo-phosphorous pesticides, and chlorinated herbicides. The following summarizes the sampling rationale and chemical analytical results.

Piles 1 & 2

Based on the field screening results, the soil in Piles 1 and 2 was considered not-contaminated (no sheen and 0 ppm PID reading) and stockpiled at the Site for further characterization through chemical testing. Aspect collected five soil samples from Piles 1 & 2 (approximately 150 cubic yards) in accordance with Ecology's guideline (Ecology, 2003). According to the chemical analytical results:

- **Piles 1&2** – Analytes were not detected except metals and DDD, DDE, and DDT in all five soil samples. The detected concentrations of metals were below Natural Background Concentrations². Also, the detected concentrations of DDD, DDE, and DDT were below their respective MTCA Method A cleanup levels.

Piles 3 & 4

Based on the field screening results (moderate to heavy sheen, petroleum odor, and 5 ppm PID reading), the soil in Piles 3 and 4 was considered "contaminated" and stockpiled separately for further characterization through chemical testing. Aspect collected three samples from Pile 3 (approximately 100 cubic yards), and three samples from Pile 4 (approximately 100 cubic yards) in accordance with Ecology's guideline (Ecology, 2003). According to the chemical analytical results,

- **Pile 3 (Contaminated Soil)** – Diesel- and oil-range hydrocarbons were detected at concentrations greater than the MTCA Method A cleanup levels in all three samples collected from this pile. Gasoline-range hydrocarbons were detected at a concentration less than the MTCA Method A cleanup level.
- **Pile 4 (Contaminated Soil)** – Pesticides (DDT and dieldrin) were detected at a concentration exceeding the MTCA Method A or B cleanup levels in each of the three samples collected from this pile.

The chemical analytical data of the soil stockpile characterization samples are summarized in attached Table 3. A copy of the laboratory report is provided in attached Appendix D.

² Natural Background Soil Metals Concentrations in Washington State, Toxics Cleanup Program, Department of Ecology, Publication #94-115, October 1994.

Contaminated Soil Disposal

According to the information provided by T-O Engineers, approximately 213 tons of contaminated soil (Piles 3 and 4) was transported offsite to the Waste Management's Subtitle D landfill in East Wenatchee for permitted disposal and the soil from Piles 1 and 2 was stored/reused on-Site for construction purposes.

A copy of the waste disposal summary is presented as Appendix C.

Confirmation Soil Sampling and Chemical Analytical Results

Aspect collected six confirmation soil samples at an approximate depth of 2- and 2.5-feet below ground surface (bgs) from within the mass excavation footprint to document final soil conditions.

The confirmation soil samples were submitted to a licensed testing laboratory for chemical analysis of one or more of the following: petroleum hydrocarbons (gasoline-, diesel-, and oil-range), metals (arsenic, cadmium, chromium, lead, and mercury), organochlorine and organo-phosphorous pesticides, and chlorinated herbicides.

According to the chemical analytical results, analytes either were not detected or detected at concentrations below the respective MTCA Method A cleanup levels in all confirmation samples with one exception. The oil-range hydrocarbons (ORH) were detected at a concentration (3,500 milligrams per kilogram [mg/kg]) exceeding the MTCA Method A Cleanup Level of 2,000 mg/kg in a 2-foot sample (MASSEX-6-2.0) from a limited north portion of the mass excavation (Figure 3). The ORH were not detected in the 2-, 2.5-, and 5-foot samples obtained from the north portion (Figure 3). These samples informed the lateral and vertical extent of residual ORH-contaminated soil.

The residual ORH-contaminated soil is not a threat to human health and environment because:

- Nature (ORH has low mobility), limited extent of contamination (limited to the upper 2-feet), and slight MTCA exceedance (residual concentration is less than twice the cleanup level)
- Remains capped under the concrete slab of the fueling facility
- Groundwater was not encountered in the mass excavation
- The depth to regional groundwater is greater than 100 feet at the Site based on the well logs reviewed by Aspect. These wells were completed by others for a different project.
- The Site is an airport and no change in Site use is anticipated for the foreseeable future.

The chemical analytical results of the confirmation samples are summarized in Table 4. The approximate location of the confirmation samples along with a graphical summary of the chemical analytical results is shown in the attached Figure 3. A copy of the laboratory report is provided in attached Appendix D.

References

Washington State Department of Ecology (Ecology), 2019, Washington State Well Log Viewer, website accessed December 2019. <https://fortress.wa.gov/ecy/waterresources/map/WCLWebMap/>.

Limitations

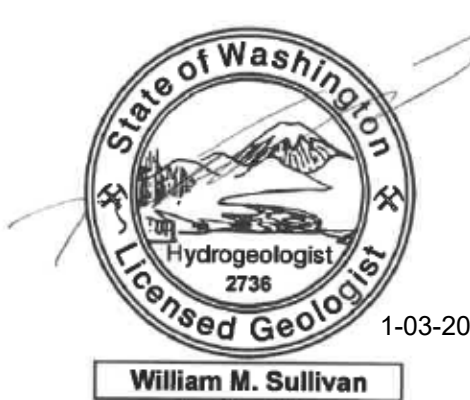
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Please refer to Appendix E titled "Report Limitations and Guidelines for Use" for additional information governing the use of this report.

Sincerely,

Aspect consulting, LLC



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Attachments:

Table 1 – Composite Soil Samples Analytical Data
Table 2 – USTs Pit Soil Samples Analytical Data
Table 3 – Soil Stockpile Samples Analytical Data
Table 4 – Mass Excavation Soil Samples Analytical Data

Figure 1 – Vicinity Map
Figure 2 – Project Area Map
Figure 3 – Excavation Map

Appendix A – UST Removal Documents
Appendix B – Wells Map and Logs
Appendix C – Contaminated Soil Disposal Documents
Appendix D – Chemical Laboratory Reports
Appendix E – Report Limitation and Guidelines for Use

cc: Ron Russ, Pangborn Memorial Airport (email only)
Camille Bennett, Department of Ecology Toxics Cleanup Program (email only)

TABLES

Table 1. Composite Soil Samples Analytical Data

Project No. 190245, Pangborn Airport Site, East Wenatchee, Washington

Sample Location			Mass Excavation Footprint*		
Sample Identification			EXCA-COMP-1	EXCA-COMP-2	EXCA-COMP-3
Sample Depth			Surface	Surface	Surface
Sample Date			05/28/2019	05/28/2019	05/28/2019
Analyte	Unit	MTCA Method A or B Cleanup Level			
Total Petroleum Hydrocarbons					
Gasoline Range Organics	mg/kg	100**	--	--	--
Diesel Range Organics	mg/kg	2000	680 X	< 50 U	< 50 U
Motor Oil Range Organics	mg/kg	2000	3400	< 250 U	< 250 U
Metals					
Arsenic	mg/kg	20	2.37	2.53	1.83
Cadmium	mg/kg	2	3.91	< 1 U	< 1 U
Chromium	mg/kg	2000	10	11.3	6.86
Lead	mg/kg	250	177	13.2	13.7
Mercury	mg/kg	2	< 1 U	< 1 U	< 1 U
Organochlorine Pesticides					
4,4'-DDD	mg/kg	2.4	6.8 J	< 0.01 U	< 0.01 U
4,4'-DDE	mg/kg	2.9	7.6	0.1	0.16
4,4'-DDT	mg/kg	3	68 J	0.15	0.16
Aldrin	mg/kg	0.059	< 0.01 U	< 0.01 U	< 0.01 U
Alpha-BHC	mg/kg	0.16	< 0.01 U	< 0.01 U	< 0.01 U
Beta-BHC	mg/kg	0.56	< 0.01 U	< 0.01 U	< 0.01 U
cis-Chlordane	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U
Delta-BHC	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U
Dieldrin	mg/kg	0.063	0.099	< 0.01 U	< 0.01 U
Endosulfan I	mg/kg	NE	0.048	< 0.01 U	< 0.01 U
Endosulfan II	mg/kg	NE	0.097	< 0.01 U	< 0.01 U
Endosulfan Sulfate	mg/kg	480	< 0.01 U	< 0.01 U	< 0.01 U
Endrin	mg/kg	24	< 0.01 UJ	< 0.01 U	< 0.01 U
Endrin Aldehyde	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U
Endrin ketone	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U
Heptachlor	mg/kg	0.22	< 0.01 UJ	< 0.01 U	< 0.01 U
Heptachlor Epoxide	mg/kg	0.11	< 0.01 U	< 0.01 U	< 0.01 U
Lindane	mg/kg	0.01	< 0.01 U	< 0.01 U	< 0.01 U
Methoxychlor	mg/kg	400	< 0.01 UJ	< 0.01 U	< 0.01 U
Toxaphene	mg/kg	0.91	< 1 UJ	< 1 U	< 1 U
trans-Chlordane	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U
Chlorinated Herbicides					
3,5-Dichlorobenzoic acid	ug/kg	NE	< 36.5 U	< 37.8 U	< 35.7 U
Acifluorfen	ug/kg	NE	< 72.9 U	< 75.6 U	< 71.3 U
Bentazone	ug/kg	2400000	< 31.9 U	< 33.1 U	< 31.2 U
Chloramben	ug/kg	1200000	< 18.2 U	< 18.9 U	< 17.8 U
Chlorthal-dimethyl	ug/kg	800000	< 27.3 U	< 28.4 U	< 26.7 U
Picloram	ug/kg	5600000	< 45.6 U	< 47.3 U	< 44.6 U
2,4,5-T	ug/kg	800000	< 45.6 U	< 47.3 U	< 44.6 U
2,4-D	ug/kg	800000	963	< 28.4 U	< 26.7 U
2,4-DB	ug/kg	640000	< 22.8 U	< 23.6 U	< 22.3 U
Dalapon	ug/kg	2400000	< 182 U	< 189 U	< 178 U
Dicamba	ug/kg	2400000	< 31.9 U	< 33.1 U	< 31.2 U
Dichloroprop	ug/kg	NE	< 22.8 U	< 23.6 U	< 22.3 U
Dinoseb	ug/kg	80000	< 27.3 U	< 28.4 U	< 26.7 U
MCPA	ug/kg	40000	< 2550 U	< 2650 U	< 2500 U
MCPP	ug/kg	80000	< 4010 U	< 4160 U	< 3920 U
Silvex	ug/kg	640000	< 18.2 U	< 18.9 U	< 17.8 U

Notes

mg/kg = milligrams per kilogram

ug/kg = micrograms per kilogram

NE = Not Established

-- = Not analyzed

* = Organophosphorous Pesticides were not detected in any of the three composite samples.

** = MTCA cleanup level of Gasoline when benzene is not present at the Site.

X = Chromatographic pattern does not match quantitation standard. However, the listed values are considered detections based on field screening evidence (moderate sheen and slight odor).

U = Analyte not detected at or above the listed Reporting Limit.

UJ = Analyte not detected and the listed Reporting Limit is an estimate.

J = Listed value is an estimate.

MTCA = Model Toxics Control Act

Bolded value indicates analyte detected at the listed concentration.

Shading indicates analyte detected at a concentration greater than the corresponding MTCA cleanup level.

Table 2. USTs Pit Soil Samples Analytical Data

Project No. 190245, Pangborn Airport Site, East Wenatchee, Washington

Sample Location			UST 1 - Heating Oil Tank Pit					UST 2 - Gasoline Tank Pit				
Sample Identification			UST1-N-5.0	UST1-S-5.0	UST1-E-5.0	UST1-W-5.0	UST1-B-8.0*	UST2-N-3.0	UST2-S-3.0	UST2-E-3.0	UST2-W-3.0	UST2-B-5.5*
Sample Depth			5 ft bgs	5 ft bgs	5 ft bgs	5 ft bgs	8 ft bgs	3 ft bgs	3 ft bgs	3 ft bgs	3 ft bgs	5.5 ft bgs
Sample Date			07/30/2019	07/30/2019	07/30/2019	07/30/2019	07/30/2019	07/30/2019	07/30/2019	07/30/2019	07/30/2019	07/30/2019
Analyte	Unit	MTCA Method A or B Cleanup Level										
Total Petroleum Hydrocarbons												
Gasoline Range Organics	mg/kg	100	--	--	--	--	--	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Diesel Range Organics	mg/kg	2000	< 50 U	< 50 U	700	< 50 U	440 X	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Motor Oil Range Organics	mg/kg	2000	< 250 U	< 250 U	950	< 250 U	1500	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U
BTEX												
Benzene	mg/kg	0.03	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U
Toluene	mg/kg	7	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U
Ethylbenzene	mg/kg	6	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U
Total Xylenes	mg/kg	9	< 0.06 U	< 0.06 U	< 0.06 U	< 0.06 U	< 0.06 U	< 0.06 U	< 0.06 U	< 0.06 U	< 0.06 U	< 0.06 U
Metals												
Arsenic	mg/kg	20	--	--	--	--	2.14	--	--	--	--	1.23
Cadmium	mg/kg	2	--	--	--	--	1.44	--	--	--	--	< 1 U
Chromium	mg/kg	2000	--	--	--	--	6.77 J	--	--	--	--	5.76 J
Lead	mg/kg	250	--	--	--	--	360	--	--	--	--	3.59
Mercury	mg/kg	2	--	--	--	--	< 1 U	--	--	--	--	< 1 U
Volatile Organic Compounds												
1,2-Dibromoethane (EDB)	mg/kg	0.005	--	--	--	--	--	--	--	--	--	< 0.05 U
1,2-Dichloroethane (EDC)	mg/kg	11	--	--	--	--	--	--	--	--	--	< 0.05 U
Methyl tert-butyl ether (MTBE)	mg/kg	0.1	--	--	--	--	--	--	--	--	--	< 0.05 U
n-Hexane	mg/kg	4800	--	--	--	--	--	--	--	--	--	< 0.25 U

Notes

ft bgs = feet below existing ground surface

mg/kg = milligrams per kilogram

-- = Not analyzed

* Sample was additionally analyzed for Toxicity Characteristic Leachate Procedure (TCLP) lead, polycyclic aromatic hydrocarbons (PAHs), poly-chlorinated biphenyls (PCBs). PAHs and PCBs were not detected and TCLP lead was detected (1.5 ug/l) below the MTCA Method A Cleanup Level of 5 ug/l.

Please see the laboratory report in Appendix C for details.

** = MTCA cleanup level of Gasoline when benzene is not present at the Site.

X = Chromatographic pattern does not match quantitation standard. However, the listed values are considered detections based on field screening evidence (moderate sheen and slight odor).

U = Analyte not detected at or above the listed Reporting Limit.

J = Listed value is an estimate.

MTCA = Model Toxics Control Act

Bolded value indicates analyte detected at the listed concentration.

Shading indicates analyte detected at a concentration greater than the corresponding MTCA cleanup level.

Table 3. Soil Stockpile Samples Analytical Data

Project No. 190245, Pangborn Airport Site, East Wenatchee, Washington

Sample Location			Soil Stockpile 1 and 2					Soil Stockpile 3			Soil Stockpile 4		
Sample Identification			PILE1&2-SOIL1-080619	PILE1&2-SOIL2-080619	PILE1&2-SOIL3-080619	PILE1&2-SOIL4-080619	PILE1&2-SOIL5-080619	PILE3-SOIL1-080619	PILE3-SOIL2-080619	PILE3-SOIL3-080619	PILE4-SOIL1-080619	PILE4-SOIL2-080619	PILE4-SOIL3-080619
Sample Depth			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sample Date			08/06/2019	08/06/2019	08/06/2019	08/06/2019	08/06/2019	08/06/2019	08/06/2019	08/06/2019	08/06/2019	08/06/2019	08/06/2019
Analyte	Unit	MTCA Method A or B Cleanup Level											
Total Petroleum Hydrocarbons													
Gasoline Range Organics	mg/kg	100**	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	69	--	--	--
Diesel Range Organics	mg/kg	2000	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	800	840	830	--	--	--
Motor Oil Range Organics	mg/kg	2000	< 250 U	< 250 U	< 250 U	< 250 U	< 250 U	3100	3500	3400	--	--	--
BTEX													
Benzene	mg/kg	0.03	--	--	--	--	--	< 0.02 U	< 0.02 U	< 0.02 U	--	--	--
Toluene	mg/kg	7	--	--	--	--	--	< 0.02 U	< 0.02 U	0.34	--	--	--
Ethylbenzene	mg/kg	6	--	--	--	--	--	< 0.02 U	< 0.02 U	0.2	--	--	--
Total Xylenes	mg/kg	9	--	--	--	--	--	< 0.06 U	0.075	6.4	--	--	--
Metals													
Arsenic	mg/kg	20	1.4	1.34	1.93 J	1.3 J	1.71	--	--	--	1.82	--	--
Cadmium	mg/kg	2	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	< 1 U	--	--
Chromium	mg/kg	2000	6.78	6.63	7.45	9.5	9.22	--	--	--	7.03	--	--
Lead	mg/kg	250	4.1	3.77	8.91	3.79	3.32	--	--	--	17	--	--
Mercury	mg/kg	2	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	< 1 U	--	--
Organochlorine Pesticides													
4,4'-DDD	mg/kg	2.4	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	0.01	--	--	--	0.21	< 1 U	0.36
4,4'-DDE	mg/kg	2.9	0.059	0.023	0.19	0.042	0.15	--	--	--	2.6	< 1 U	0.41
4,4'-DDT	mg/kg	3	0.19 J	0.029 J	0.49 J	0.039 J	0.45 J	--	--	--	7.1	7.5	3.5
Aldrin	mg/kg	0.059	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--	--	< 0.01 U	< 0.01 U	< 0.01 U
Alpha-BHC	mg/kg	0.16	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--	--	< 0.01 U	< 0.01 U	< 0.01 U
Beta-BHC	mg/kg	0.56	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--	--	< 0.01 U	< 0.01 U	< 0.01 U
cis-Chlordane	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--	--	< 0.01 U	< 0.01 U	< 0.01 U
Delta-BHC	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--	--	< 0.01 U	< 0.01 U	< 0.01 U
Dieldrin	mg/kg	0.063	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	0.016	--	--	--	0.068	0.017	0.014
Endosulfan I	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--	--	< 0.01 U	4.4	3.1
Endosulfan II	mg/kg	NE	< 0.01 UJ	< 0.01 UJ	< 0.01 UJ	< 0.01 UJ	< 0.01 UJ	--	--	--	0.055 J	2.5	1.7
Endosulfan Sulfate	mg/kg	480	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--	--	0.061	< 0.01 U	< 0.01 U
Endrin	mg/kg	24	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--	--	0.024	< 0.01 U	< 0.01 U
Endrin Aldehyde	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--	--	< 0.01 U	< 0.01 U	< 0.01 U
Endrin ketone	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--	--	< 0.01 U	< 0.01 U	< 0.01 U
Heptachlor	mg/kg	0.22	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--	--	< 0.01 U	< 0.01 U	< 0.01 U
Heptachlor Epoxide	mg/kg	0.11	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--	--	< 0.01 U	< 0.01 U	< 0.01 U
Lindane	mg/kg	0.01	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--	--	< 0.01 U	< 0.01 U	< 0.01 U
Methoxychlor	mg/kg	400	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--	--	< 0.01 U	< 0.01 U	< 0.01 U
Toxaphene	mg/kg	0.91	< 1 U	< 1 U	< 5 U	< 1 U	< 5 U	--	--	--	< 15 U	< 1 U	< 1 U
trans-Chlordane	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--	--	< 0.01 U	< 0.01 U	< 0.01 U
Chlorinated Herbicides													
3,5-Dichlorobenzoic acid	ug/kg	NE	< 38.6 U	< 40.9 U	< 40.1 U	< 34.5 U	< 37.5 U	--	--	--	< 36.7 U	< 36.1 U	< 40.4 U
Acifluorfen	ug/kg	NE	< 77.2 UJ	< 81.8 UJ	< 80.1 UJ	< 69.1 UJ	< 74.9 UJ	--	--	--	< 73.5 UJ	< 72.3 UJ	< 80.8 UJ
Bentazone	ug/kg	2400000	< 33.8 U	< 35.8 U	< 35.0 U	< 30.2 U	< 32.8 U	--	--	--	< 32.1 U	< 31.6 U	< 35.4 U
Chloramben	ug/kg	1200000	< 19.3 U	< 20.5 U	< 20.0 U	< 17.3 U	< 18.7 U	--	--	--	< 18.4 U	< 18.1 U	< 20.2 U
Chlorthal-dimethyl	ug/kg	800000	< 28.9 U	< 30.7 U	< 30.0 U	< 25.9 U	< 28.1 U	--	--	--	< 27.6 U	< 27.1 U	< 30.3 U
Picloram	ug/kg	5600000	< 48.2 U	< 51.1 U	< 50.1 U	< 43.2 U	< 46.8 U	--	--	--	< 45.9 U	< 45.2 U	< 50.5 U
2,4,5-T	ug/kg	800000	< 48.2 U	< 51.1 U	< 50.1 U	< 43.2 U	< 46.8 U	--	--	--	< 45.9 U	< 45.2 U	< 50.5 U
2,4-D	ug/kg	800000	< 28.9 U	< 30.7 U	< 30.0 U	< 25.9 U	< 28.1 U	--	--	--	< 27.6 U	< 27.1 U	< 30.3 U
2,4-DB	ug/kg	640000	< 24.1 U	< 25.6 U	< 25.0 U	< 21.6 U	< 23.4 U	--	--	--	< 23.0 U	< 22.6 U	< 25.3 U
Dalapon	ug/kg	2400000	< 193 U	< 205 U	< 200 U	< 173 U	< 187 U	--	--	--	< 184 U	< 181 U	< 202 U
Dicamba	ug/kg	2400000	< 33.8 U	< 35.8 U	< 35.0 U	< 30.2 U	< 32.8 U	--	--	--	< 32.1 U	< 31.6 U	< 35.4 U
Dichloroprop	ug/kg	NE	< 24.1 U	< 25.6 U	< 25.0 U	< 21.6 U	< 23.4 U	--	--	--	< 23.0 U	< 22.6 U	< 25.3 U
Dinoseb	ug/kg	80000	< 28.9 U	< 30.7 U	< 30.0 U	< 25.9 U	< 28.1 U	--	--	--	< 27.6 U	< 27.1 U	< 30.3 U
MCPA	ug/kg	40000	< 2700 UJ	< 2860 UJ	< 2800 UJ	< 2420 UJ	< 2620 UJ	--	--	--	< 2570 UJ	< 2530 UJ	< 2830 UJ

Table 3. Soil Stockpile Samples Analytical Data

Project No. 190245, Pangborn Airport Site, East Wenatchee, Washington

Sample Location			Soil Stockpile 1 and 2					Soil Stockpile 3			Soil Stockpile 4		
Sample Identification			PILE1&2-SOIL1-080619	PILE1&2-SOIL2-080619	PILE1&2-SOIL3-080619	PILE1&2-SOIL4-080619	PILE1&2-SOIL5-080619	PILE3-SOIL1-080619	PILE3-SOIL2-080619	PILE3-SOIL3-080619	PILE4-SOIL1-080619	PILE4-SOIL2-080619	PILE4-SOIL3-080619
Sample Depth			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sample Date			08/06/2019	08/06/2019	08/06/2019	08/06/2019	08/06/2019	08/06/2019	08/06/2019	08/06/2019	08/06/2019	08/06/2019	08/06/2019
Analyte	Unit	MTCA Method A or B Cleanup Level											
MCP	ug/kg	80000	< 4240 UJ	< 4500 UJ	< 4410 UJ	< 3800 UJ	< 4120 UJ	--	--	--	< 4040 UJ	< 3970 UJ	< 4450 UJ
Silvex	ug/kg	640000	< 19.3 U	< 20.5 U	< 20.0 U	< 17.3 U	< 18.7 U	--	--	--	< 18.4 U	< 18.1 U	< 20.2 U
Organophosphorus Pesticides													
Azinphosmethyl	ug/kg	240000	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Chlorpyrifos	ug/kg	80000	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Coumaphos	ug/kg	NE	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Demeton	ug/kg	3200	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Diazinon	ug/kg	56000	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Dichlorvos	ug/kg	3400	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Dimethoate	ug/kg	16000	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Disulfoton	ug/kg	3200	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
EPN	ug/kg	800	< 43.0 UJ	< 46.1 UJ	< 47.1 UJ	< 45.0 UJ	< 46.0 UJ	--	--	--	< 45.0 UJ	< 47.8 UJ	< 43.9 UJ
Ethoprop	ug/kg	NE	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Fensulfothion	ug/kg	NE	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Fenthion	ug/kg	NE	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Malathion	ug/kg	1600000	< 43.0 UJ	< 46.1 UJ	< 47.1 UJ	< 45.0 UJ	< 46.0 UJ	--	--	--	< 45.0 UJ	< 47.8 UJ	< 439 UJ
Merphos	ug/kg	2400	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Mevinphos	ug/kg	NE	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Monocrotophos	ug/kg	NE	< 43.0 UJ	< 46.1 UJ	< 47.1 UJ	< 45.0 UJ	< 46.0 UJ	--	--	--	< 45.0 UJ	< 47.8 UJ	< 43.9 UJ
Naled	ug/kg	160000	< 43.0 UJ	< 46.1 UJ	< 47.1 UJ	< 45.0 UJ	< 46.0 UJ	--	--	--	< 45.0 UJ	< 47.8 UJ	< 43.9 UJ
Parathion	ug/kg	480000	< 43.0 UJ	< 46.1 UJ	< 47.1 UJ	< 45.0 UJ	< 46.0 UJ	--	--	--	< 45.0 UJ	< 47.8 UJ	159 J
Parathion-methyl	ug/kg	20000	< 43.0 UJ	< 46.1 UJ	< 47.1 UJ	< 45.0 UJ	< 46.0 UJ	--	--	--	< 45.0 UJ	< 47.8 UJ	< 43.9 UJ
Phorate	ug/kg	16000	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Prothiofos	ug/kg	NE	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Ronnel	ug/kg	4000000	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Sulfotep	ug/kg	40000	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Sulprofos	ug/kg	NE	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
TEPP	ug/kg	NE	< 43.0 UJ	< 46.1 UJ	< 47.1 UJ	< 45.0 UJ	< 46.0 UJ	--	--	--	< 45.0 UJ	< 47.8 UJ	< 43.9 UJ
Tetrachlorvinphos	ug/kg	NE	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U
Trichloronat	ug/kg	NE	< 43.0 U	< 46.1 U	< 47.1 U	< 45.0 U	< 46.0 U	--	--	--	< 45.0 U	< 47.8 U	< 43.9 U

Notes
mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram
NA = Not Applicable
NE = Not Established
-- = Not analyzed
* = Soil represented by this sample was segregated
** = MTCA cleanup level of Gasoline when benzene is not present at the Site.
X = Chromatographic pattern does not match quantitation standard. However, the listed values are considered detections based on field screening evidence (moderate sheen and slight odor).
U = Analyte not detected at or above the listed Reporting Limit.
UJ = Analyte not detected and the listed Reporting Limit is an estimate.
J = Listed value is an estimate.
MTCA = Model Toxics Control Act
Bolded value indicates analyte detected at the listed concentration.
Shading indicates analyte detected at a concentration greater than the

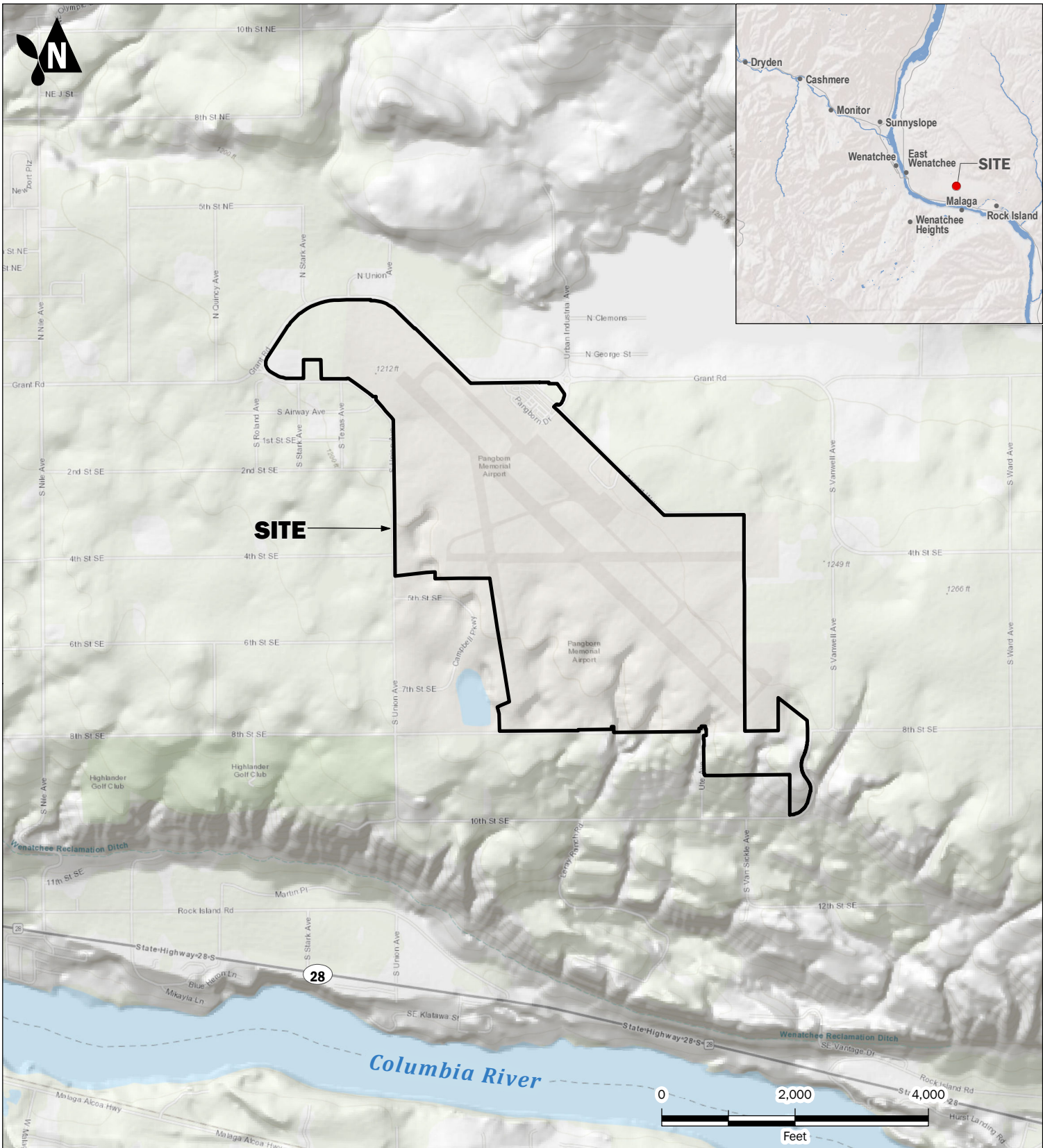
Table 4. Mass Excavation Soil Samples Analytical Data
Project No. 190245, Pangborn Airport Site, East Wenatchee, Washington


Sample Location			Mass Excavation Footprint					
Sample Identification			MASSEX-1-2.5	MASSEX-2-2.5	MASSEX-3-2.5	MASSEX-4-1.5	MASSEX-5-2.0	MASSEX-6-2.0
Sample Depth			2.5 ft bgs	2.5 ft bgs	2.5 ft bgs	1.5 ft bgs	2 ft bgs	2 ft bgs
Sample Date			07/31/2019	07/31/2019	07/31/2019	07/31/2019	07/31/2019	07/31/2019
Analyte	Unit	MTCA Method A or B Cleanup Level						
Total Petroleum Hydrocarbons								
Gasoline Range Organics	mg/kg	100**	--	< 5 U	--	--	< 5 U	< 5 U
Diesel Range Organics	mg/kg	2000	--	< 50 U	< 50 U	--	< 50 U	840 X
Motor Oil Range Organics	mg/kg	2000	--	< 250 U	< 250 U	--	< 250 U	3500
BTEX								
Benzene	mg/kg	0.03	--	< 0.02 U	--	--	< 0.02 U	< 0.02 U
Toluene	mg/kg	7	--	< 0.02 U	--	--	< 0.02 U	< 0.02 U
Ethylbenzene	mg/kg	6	--	< 0.02 U	--	--	< 0.02 U	< 0.02 U
Total Xylenes	mg/kg	9	--	< 0.06 U	--	--	< 0.06 U	< 0.06 U
Metals								
Arsenic	mg/kg	20	--	< 1 U	--	--	< 1 U	1.11
Cadmium	mg/kg	2	--	< 1 U	--	--	< 1 U	< 1 U
Chromium	mg/kg	2000	--	4.67	--	--	7.37	6.15
Lead	mg/kg	250	--	2.8	--	--	2.6	13.2
Mercury	mg/kg	2	--	< 1 U	--	--	< 1 U	< 1 U
Organochlorine Pesticides								
4,4'-DDD	mg/kg	2.4	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	0.033
4,4'-DDE	mg/kg	2.9	< 0.01 U	0.14	< 0.01 U	0.047	0.017	0.07
4,4'-DDT	mg/kg	3	< 0.01 UJ	0.32 J	0.018 J	0.21 J	0.037 J	0.53 J
Aldrin	mg/kg	0.059	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Alpha-BHC	mg/kg	0.16	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Beta-BHC	mg/kg	0.56	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
cis-Chlordane	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Delta-BHC	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Dieldrin	mg/kg	0.063	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Endosulfan I	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Endosulfan II	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Endosulfan Sulfate	mg/kg	480	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Endrin	mg/kg	24	< 0.01 U	0.036	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Endrin Aldehyde	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Endrin ketone	mg/kg	NE	< 0.01 U	0.011	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Heptachlor	mg/kg	0.22	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Heptachlor Epoxide	mg/kg	0.11	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Lindane	mg/kg	0.01	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Methoxychlor	mg/kg	400	< 0.01 UJ	< 0.05 UJ	< 0.01 UJ	< 0.01 UJ	< 0.01 UJ	< 0.01 UJ
Toxaphene	mg/kg	0.91	< 1 U	< 2 U	< 1 U	< 1 U	< 1 U	< 1 U
trans-Chlordane	mg/kg	NE	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U
Organophosphorus Pesticides								
Azinphosmethyl	ug/kg	240000	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Chlorpyrifos	ug/kg	80000	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Coumaphos	ug/kg	NE	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Demeton	ug/kg	3200	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Diazinon	ug/kg	56000	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Dichlorvos	ug/kg	3400	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Dimethoate	ug/kg	16000	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Disulfoton	ug/kg	3200	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
EPN	ug/kg	800	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Ethoprop	ug/kg	NE	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Fensulfothion	ug/kg	NE	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Fenthion	ug/kg	NE	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Malathion	ug/kg	1600000	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	164	67.1
Merphos	ug/kg	2400	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Mevinphos	ug/kg	NE	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Monocrotophos	ug/kg	NE	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Naled	ug/kg	160000	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Parathion	ug/kg	480000	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Parathion-methyl	ug/kg	20000	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Phorate	ug/kg	16000	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Prothiofos	ug/kg	NE	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Ronnel	ug/kg	4000000	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Sulfotep	ug/kg	40000	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Sulprofos	ug/kg	NE	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
TEPP	ug/kg	NE	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Tetrachlorvinphos	ug/kg	NE	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Trichloronat	ug/kg	NE	< 47.9 U	< 51.8 U	< 49.1 U	< 52.7 U	< 48.3 U	< 47.2 U
Chlorinated Herbicides								
3,5-Dichlorobenzoic acid	ug/kg	NE	< 38.5 U	< 39.4 U	< 41 U	< 42.6 U	< 41.8 U	< 41.7 U
Acifluorfen	ug/kg	NE	< 77 U	< 78.8 U	< 82 U	< 85.1 U	< 83.6 U	< 83.5 U
Bentazone	ug/kg	2400000	< 33.7 U	< 34.5 U	< 35.9 U	< 37.2 U	< 36.6 U	< 36.5 U
Chloramben	ug/kg	1200000	< 19.2 U	< 19.7 U	< 20.5 U	< 21.3 U	< 20.9 U	< 20.9 U
Chlorthal-dimethyl	ug/kg	800000	< 28.9 U	< 29.6 U	< 30.7 U	< 31.9 U	< 31.4 U	< 31.3 U
Picloram	ug/kg	5600000	< 48.1 U	< 49.3 U	< 51.2 U	< 53.2 U	< 52.3 U	< 52.2 U
2,4,5-T	ug/kg	800000	< 48.1 U	< 49.3 U	< 51.2 U	< 53.2 U	< 52.3 U	< 52.2 U
2,4-D	ug/kg	800000	< 28.9 U	< 29.6 U	< 30.7 U	< 31.9 U	< 31.4 U	40.1
2,4-DB	ug/kg	640000	< 24.1 U	< 24.6 U	< 25.6 U	< 26.6 U	< 26.1 U	< 26.1 U
Dalapon	ug/kg	2400000	< 192 U	< 197 U	< 205 U	< 213 U	< 209 U	< 209 U
Dicamba	ug/kg	2400000	< 33.7 U	< 34.5 U	< 35.9 U	< 37.2 U	< 36.6 U	< 36.5 U
Dichloroprop	ug/kg	NE	< 24.1 U	< 24.6 U	< 25.6 U	< 26.6 U	< 26.1 U	< 26.1 U
Dinoseb	ug/kg	80000	< 28.9 U	< 29.6 U	< 30.7 U	< 31.9 U	< 31.4 U	< 31.3 U
MCPA	ug/kg	40000	< 2690 U	< 2760 U	< 2870 U	< 2980 U	< 2930 U	< 2920 U
MCPP	ug/kg	80000	< 4230 U	< 4330 U	< 4510 U	< 4680 U	< 4600 U	< 4590 U
Silvex	ug/kg	640000	< 19.2 U	< 19.7 U	< 20.5 U	< 21.3 U	< 20.9 U	< 20.9 U

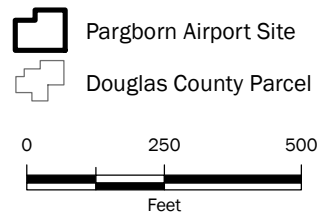
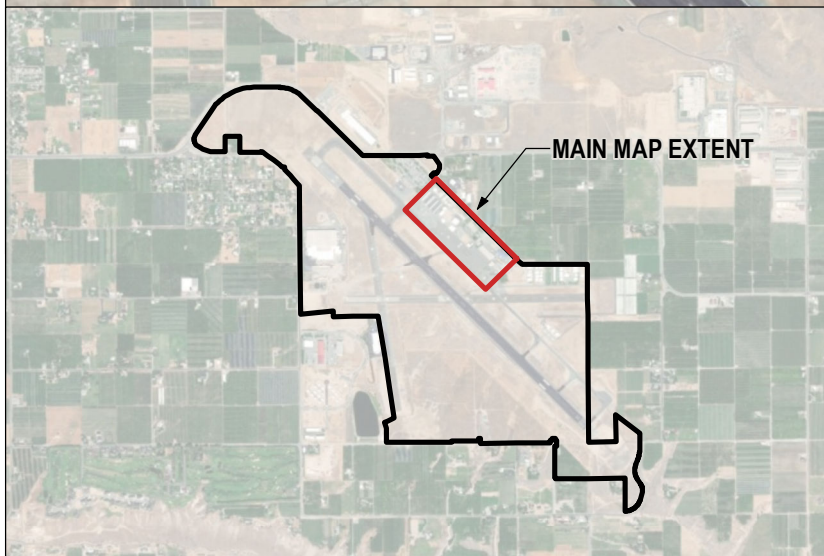
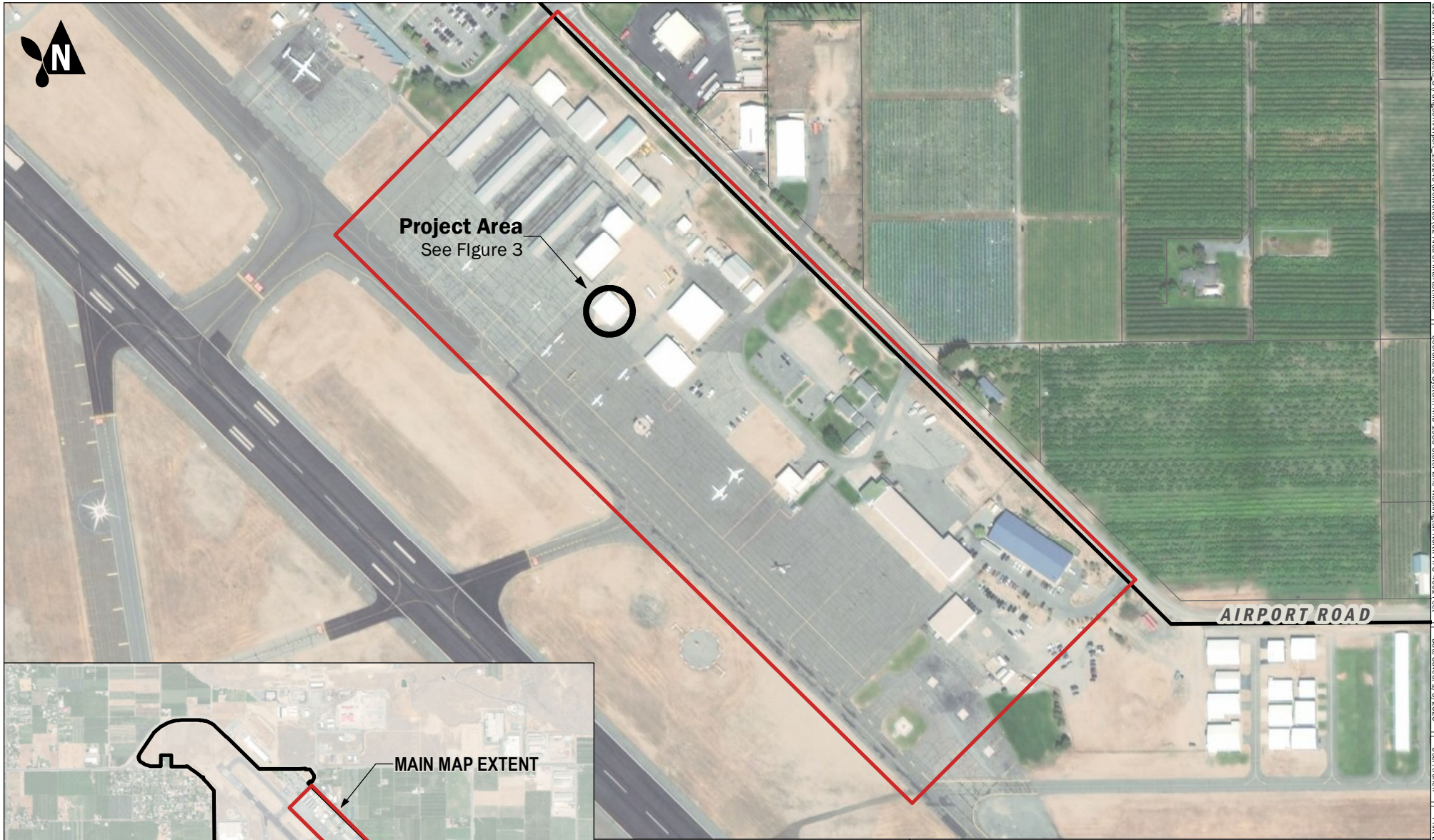
Notes
ft bgs = feet below existing ground surface
mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram
NE = Not Established
-- = Not analyzed
** = MTCA cleanup level of Gasoline when benzene is not present at the Site.

X = Chromatographic pattern does not match quantitation standard. However, the listed values are considered detections based on field screen.
U = Analyte not detected at or above the listed Reporting Limit.
UJ = Analyte not detected and the listed Reporting Limit is an estimate.
J = Listed value is an estimate.
MTCA = Model Toxics Control Act
Bolded value indicates analyte detected at the listed concentration.
Shading indicates analyte detected at a concentration greater than the corresponding MTCA cleanup level.

FIGURES




<h3>Vicinity Map</h3> <p>Pangborn Memorial Airport 1 Pangborn Drive East Wenatchee, Washington</p>		
	JAN-2020	BY: FK / TDR
	PROJECT NO. 190245	REVISED BY: ---
		FIGURE NO. 1



Project Area Map

Pangborn Memorial Airport
1 Pangborn Drive
East Wenatchee, Washington

	JAN-2020	BY: FK / TDR	FIGURE NO. 2
	PROJECT NO. 190245	REVISED BY: ---	



MASSEX-6-2.0
Motor Oil Range Organics: **3500** mg/kg (2 ft)

Heating Oil Tank (UST1)
Excavation Limits

UST1-B-8.0
Lead: **360** mg/kg (8 ft)

Soil Generated
for Stockpile 4

MASSEX-4-1.5

MASSEX-5-2.0

UST1-W-5.0

UST1-N-5.0

UST1-E-5.0

UST1-S-5.0

Approximate Extent of Residual
Petroleum Contaminated Soil

MASSEX-3-2.5

Soil Generated for Stockpile 3
(UST excavation and overburden)

Approximate Limits of
Mass Excavation

Soil Generated for Stockpile 1 & 2

MASSEX-1-2.5

**FORMER BUILDING
3750**

Soil Generated for Stockpile 3
(UST excavation and overburden)

MASSEX-2-2.5

UST2-N-3.0

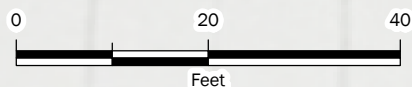
UST2-B-5.5

UST2-W-3.0

UST2-E-3.0

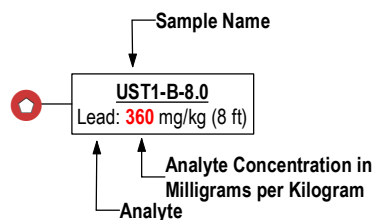
UST2-S-3.0

Gasoline Tank (UST2)
Excavation Limits



- Analytes detected at a concentration greater than the MTCA Method A or B Cleanup Level
- Analytes detected at a concentration below the MTCA Method A or B Cleanup Level
- Analytes Not Detected
- Soil Sample Location

Notes: 1) Site features are approximate.
2) Basemap sourced from Google Earth Pro, July 2017.



UST=Underground Storage Tank
MTCA=Model Toxics Control Act

Excavation Map

Pangborn Memorial Airport
1 Pangborn Drive
East Wenatchee, Washington



JAN-2020
PROJECT NO.
190245

BY:
FK / TDR
REVISED BY:

FIGURE NO.
3

APPENDIX A

UST Removal Documents



30-DAY NOTICE FOR UNDERGROUND STORAGE TANK SYSTEMS

UST ID #: _____

County: _____

This form provides Ecology 30-days' advanced notice for projects, as required by Chapter 173-360A WAC. Instructions are on the back page.

Please ✓ the appropriate box: ☐ Intent to Install ☒ Intent to Close ☐ Change-in-Service

I. SITE INFORMATION			II. OWNER/OPERATOR INFORMATION		
Tag or UBI # (if applicable):			Owner/Operator Name: <u>PANGBORN AIRPORT</u>		
UST ID # (if applicable):			Business Name: <u>PANGBORN AIRPORT</u>		
Site Name: <u>PANGBORN AIRPORT</u>			Mailing Address: <u>1 PANGBORN ROAD</u>		
Site Address: <u>1 PANGBORN ROAD</u>			City: <u>EAST WENATCHEE</u> State: <u>WA</u> Zip: <u>98802</u>		
City: <u>EAST WENATCHEE</u>			Phone: <u>509-884-2494</u>		
Phone: <u>509-319-2580</u>			Email: <u>RON@FLYEAT.ORG</u>		
III. CERTIFIED SERVICE PROVIDER(S) Check the appropriate boxes. If more than one service provider is required for this project, fill out both sections.					
Note: Individuals performing UST services MUST be ICC-certified or have passed another qualifying exam approved by the Department of Ecology.					
1) <input type="checkbox"/> Installer <input checked="" type="checkbox"/> Decommissioner <input type="checkbox"/> Site Assessor					
Company Name: <u>HYDROCON, LLC</u>			Certification Type: <u>DECOMMISSIONING</u>		
Service Provider Name: <u>DAVID BORYS</u>			Cert. No.: <u>26781</u> Exp. Date: <u>10/3/19</u>		
Provider Phone: <u>360-703-6079</u>			Provider Email: <u>DAVIDB@HYDROCONLLC.NET</u>		
2) <input type="checkbox"/> Installer <input type="checkbox"/> Decommissioner <input checked="" type="checkbox"/> Site Assessor					
Company Name: <u>HYDROCON, LLC</u>			Certification Type: <u>SITE ASSESSOR</u>		
Service Provider Name: <u>DAVID BORYS</u>			Cert. No.: <u>8451793</u> Exp. Date: <u>7/8/20</u>		
Provider Phone: <u>360-703-6079</u>			Provider Email: <u>DAVIDB@HYDROCONLLC.NET</u>		
IV. TANK AND/OR PIPING INFORMATION					
TANK ID	TANK CAPACITY	SUBSTANCE STORED	PIPING INSTALLATION OR REPLACEMENT ONLY (Y/N)	DATE PROJECT IS EXPECTED TO BEGIN	COMMENTS
<u>1</u>	<u>APPROX. 300 GAL</u>	<u>HEATING OIL</u>	<u>N</u>	<u>7/30/2019</u>	<u>TANKS WERE DISCOVERED DURING CONSTRUCTION WORK.</u>
<u>2</u>	<u>APPROX. 1000 GAL</u>	<u>GASOLINE</u>	<u>N</u>	<u>7/30/2019</u>	
<u>3</u>	<u>APPROX. 1000 GAL</u>	<u>GASOLINE</u>	<u>N</u>	<u>7/30/2019</u>	



International Code Council
Eastern Regional Office
900 Montclair Road
Birmingham, AL 35213



David Borys
510 Allen St Ste B
Kelso, WA 98626-4139

2047



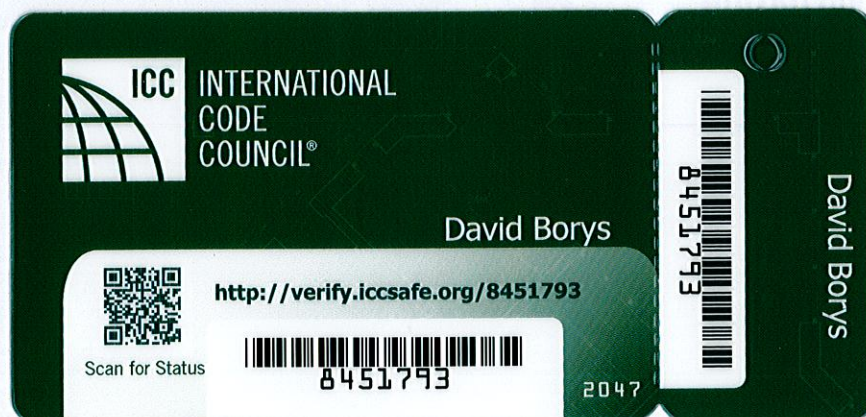
Attached is your new **myICCID** card, which may be used to verify your ICC Membership status, as well as the current ICC certifications you hold. Simply scan the QR code* or visit verify.iccsafe.org.

Any new certifications or changes to your Membership status will be reflected in your unique webpage available by scanning this code. *Note: you will not receive a new wallet card with each change in Membership or certification status, but the information on your **myICCID** page will be updated.*

If this is your first certification, congratulations! You have demonstrated a commitment to your profession by successfully achieving ICC certification. Your certification information can be found on ICC's website by either scanning the QR code on this card or visiting verify.iccsafe.org.

Renewal: You will receive notification by email and mail when your Membership is due for renewal.

If you have questions about this card, contact ICC at 1-888-422-7233.



2047

* QR codes can be scanned using many free scanner applications. Most newer smartphones have a QR scanner already loaded; if yours does not, visit your phone's application store (Android Market, Apple App Store, Blackberry App World, etc.) to download a free scanner. More information on QR codes can be found at www.mobile-qr-codes.org/how-do-i-use-qr-codes.html.



We'll pay you for your scrap metal!

Wenatchee Valley Salvage & Recycling
295 Urban Industrial Ave

East Wenatchee, WA 98802

Ticket No :2085620

Date :8/2/19

Phone :(509)886-7161

Fax :(509)881-2004

Customer: RAITASL178CZ
SHANE LEE RAITANO
6603 V PL

LONG BEACH, WA 98631-3688

Truck : 1
Location: FLOOR

Gross :	0	lb	Scale 1	In	1:48 pm
Tare :	0	lb	Scale 1	Out	12:00 am
Net :	0	lb			
	0.000	lb			

Weigh Master: CIS CIS

Remarks: Thanks

Driver:

Your Signature

I the undersigned affirm under penalty of the law that the property that is subject to this transaction is not to the best of my knowledge stolen.

Material \$	38.50
Delivery \$	0.00
Misc \$	0.00
Tax \$	0.00
Total \$	38.50
Received \$	38.50
Check #	81108

MATERIAL	QTY	UNIT-\$	Gross	Tare	Net	TOTAL-\$
20UNPREPARED	1540.000 lb	0.0250	27,800.00	26,260.00	1,540.00	38.50
						\$38.50

Pangborn



PERMANENT CLOSURE NOTICE
FOR UNDERGROUND STORAGE TANKS

UST ID #: _____

County: _____

This notice certifies that permanent closure activities were performed and conducted in accordance with Chapter 173-360A WAC. Instructions are found on the back page.

I. UST FACILITY			II. OWNER/OPERATOR INFORMATION			
Facility Compliance Tag #: A4151			Owner/Operator Name: Pangborn Memorial Airport			
UST ID #: 1653			Business Name: Pangborn Memorial Airport			
Site Name: Pangborn Memorial Airport			Address: One Pangborn Drive			
Site Address: One Pangborn Drive			City: East Wenatchee		State: WA	Zip: 98802
City: East Wenatchee			Phone: 509-884-2494			
Phone: 509-884-2494			Email: ron@flyeat.org			
III. CERTIFIED UST DECOMMISSIONER						
Company Name: HydroCon Environmental, LLC			Service Provider Name: David Borys			
Address: 314 W 15th Street, Suite 300			Certification Type: Decommissioner			
City: Vancouver		State: WA	Zip: 98660	Cert. No.: 1035105		Exp. Date: October 3, 2019
Provider Phone: 360-719-0982			Provider Email: davidb@hydroconllc.net			
Provider Signature: <i>David Borys</i>			Date: 10/15/2019			
IV. TANK INFORMATION						
TANK ID	TANK CAPACITY	LAST SUBSTANCE STORED	removal	CLOSURE METHOD		CLOSURE DATE
				closed-in-place	change-in-service	
C	1,000 gallons	Gasoline	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	07/30/2019
Unknown	1100 gallons	Heating Oil	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	07/30/2019
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
V. REQUIRED SIGNATURE						
Signature acknowledges UST(s) comply with UST regulation WAC 173-360A-0810 Permanent Closure Requirements.						
11/22/19	<i>Ron Russ</i>			Ron Russ		
Date	Signature of Tank Owner/Operator or Authorized Representative			Print or Type Name		



SITE CHECK/SITE ASSESSMENT CHECKLIST **FOR UNDERGROUND STORAGE TANKS**

UST ID #: 1653
 County: Douglas

This checklist certifies that site check or site assessment activities were performed in accordance with Chapter 173-360A WAC. Instructions are found on the last page.

I. UST FACILITY		II. OWNER/OPERATOR INFORMATION	
Facility Compliance Tag #:	A4151	Owner/Operator Name: Pangborn Memorial Airport	
UST ID #:	1653	Business Name: Pangborn Memorial Airport	
Site Name:	Pangborn Memorial Airport	Address: One Pangborn Drive	
Site Address:	One Pangborn Drive	City: East Wenatchee	State: WA Zip: 98802
City:	East Wenatchee	Phone: 509-884-2494	
Phone:	509-884-2494	Email:	
III. CERTIFIED SITE ASSESSOR			
Service Provider Name: David Borys		Company Name: HydroCon Environmental, LLC	
Cell Phone: 360-719-0982		Address: 314 W 15th Street, Suite 300	
Email: davidb@hydroconllc.net			
Certification #: 1035105	Exp. Date: 7/26/2020	City: Vancouver	State: WA Zip: 98660
IV. TANK INFORMATION			
TANK ID	TANK CAPACITY	LAST SUBSTANCE STORED	DATE SITE CHECK OR ASSESSMENT CONDUCTED
C	<1000 gallons	Unleaded	07/30/2019
unknown	1100 gallons	Heating Oil	07/30/2019
V. REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT (check one)			
<input checked="" type="checkbox"/> Release investigation following permanent UST system closure (i.e. tank removal or closure-in-place).			
<input type="checkbox"/> Release investigation following a failed tank and/or line tightness test.			
<input type="checkbox"/> Release investigation following discovery of contaminated soil and/or groundwater.			
<input type="checkbox"/> Release investigation directed by Ecology to determine if the UST system is the source of offsite impacts.			
<input type="checkbox"/> UST system is undergoing a "change-in-service", which is changing from storing a regulated substance (e.g. gasoline) to storing a non-regulated substance (e.g. water).			
<input type="checkbox"/> Directed by Ecology for UST system permanently closed or abandoned before 12/22/1988.			
<input type="checkbox"/> Other (describe):			

VI. CHECKLIST		
<p>The site assessor must check each of the following items and include it in the report. Sections referenced below can be found in the Ecology publication <i>Guidance for Site Checks and Site Assessments for Underground Storage Tanks.</i></p>		<p>YES NO</p>
1. The location of the UST site is shown on a vicinity map.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. A brief summary of information obtained during the site inspection is provided (Section 3.2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. A summary of UST system data is provided (Section 3.1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. The soils characteristics at the UST site are described. (Section 5.2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Is there any apparent groundwater in the tank excavation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. A brief description of the surrounding land use is provided. (Section 3.1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. The name and address of the laboratory used to perform analyses is provided. The methods used to collect and analyze the samples, including the number and types of samples collected, are also documented in the report. The data from the laboratory is appended to the report.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. The following items are provided in one or more sketches:		
• Location and ID number for all field samples collected	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• If applicable, groundwater samples are distinguished from soil samples	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Location of samples collected from stockpiled excavated soil	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Tank and piping locations and limits of excavation pit	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Adjacent structures and streets	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Approximate locations of any on-site and nearby utilities	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. If sampling procedures are different from those specified in the guidance, has justification for using these alternative sampling procedures been provided? (Section 3.4)	<input type="checkbox"/>	<input type="checkbox"/>
10. A table is provided showing laboratory results for each sample collected including; sample ID number, constituents analyzed for and corresponding concentration, analytical method, and detection limit for that method. Any sample exceeding MTCA Method A cleanup standards are highlighted or bolded.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Any factors that may have compromised the quality of the data or validity of the results are described.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. The results of this site check/site assessment indicate that a confirmed release of a regulated substance has occurred. The requirements for reporting confirmed releases can be found in WAC 173-360-372.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
VII. REQUIRED SIGNATURES		
<p><i>Signature acknowledges the Site Check or Site Assessment complies with UST regulations WAC 173-360A-0730 through 0750.</i></p>		
David Borys		08/07/2019
Print or Type Name	Signature of Certified Site Assessor	Date

SITE CHECK/SITE ASSESSMENT CHECKLIST

FOR UNDERGROUND STORAGE TANKS

INSTRUCTIONS

This checklist must accompany the results of a Site Check Report, which is performed if a release of petroleum or other regulated substance is suspected. It is also required to accompany a Site Assessment Report, which is required following the permanent closure or “change-in-service” of an underground storage tank system. This form is required to be filled out whether or not contamination is found. This checklist is to be completed by the Site Assessor and submitted **within thirty days of completing** these activities to the following address:

Dept. of Ecology
UST Section
PO Box 47655
Olympia, WA 98504-7655

- I./II. UST Facility and Owner/Operator Information:** Fill out these sections completely. If you do not know your UST ID number, include the facility compliance tag number.
- III. Service Provider Information:** It is the responsibility of the ICC-certified Site Assessor to ensure that sampling and documentation procedures are completed in accordance with Ecology’s *Guidance for Site Checks and Site Assessment for Underground Storage Tanks*.
- IV. Tank Information:** Use the same Tank identification numbers listed on the facility’s Business License which is based on the most recent UST Addendum on file with Ecology. List the last substance stored in each tank, the tank sizes and the date the site check or site assessment was completed.
- V. Required Signature:** The Site Assessor signature certifies these procedures were followed.

All confirmed releases must be reported to Ecology by the owner within 24 hours and by service providers within 72 hours of discovery. A Site Characterization Report must be submitted to Ecology within 90 days after confirming a release.

Further questions? Please contact your regional office below and ask for a tank inspector to assist you.

Regional Office

Central (509) 575-2490

Eastern (509) 329-3400

HQ (360) 407-7170

Northwest (425) 649-7000

Southwest (360) 407-6300

Counties Served

Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima

Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln,
Pend Oreille, Spokane, Stevens, Walla Walla, Whitman

Federal facilities in Western Washington

Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom

Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason,
Pacific, Pierce, Skamania, Thurston, Wahkiakum

or find a complete list of UST inspectors at:
www.ecy.wa.gov/programs/tcp/ust-lust/people.html

INTERNATIONAL CODE COUNCIL

DAVID S BORYS

The International Code Council attests that the individual named on this certificate has satisfactorily demonstrated knowledge as required by the International Code Council by successfully completing the prescribed written examination based on codes and standards then in effect, and is hereby issued this certification as:

UST DECOMMISSIONING

Given this day of October 03, 2017



William R. Bryant
President, Board of Directors

Certificate No. 1035105



Dominic Sims
Chief Executive Officer



INTERNATIONAL
CODE
COUNCIL®



APPENDIX B

Wells Map and Logs

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. ^S28506

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission (select one)

☒ Construction 292405
☐ Decommission ORIGINAL INSTALLATION Notice of Intent Number _____

Type of Well (select one)

☐ Resource Protection
☒ Geotech Soil Boring

Consulting Firm Geoengeers inc
 Unique Ecology Well ID _____
 Tag No. _____

Property Owner port of douglas co.

Site Address pangborne airport

City wenatchee County douglas

Location nw 1/4-1/4 se 1/4 Sec 16 Twn 22 R 21 Select One ☒ EWM ☐ WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s, t, r) Lat Deg _____ Lat Min/Sec _____

still REQUIRED) Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

☒ Driller ☐ Engineer ☐ Trainee Name (Print) David Thompson

Driller/Engineer /Trainee Signature [Signature]

Driller or Trainee License No. 2493

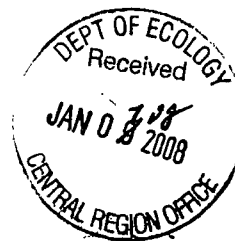
Cased or Uncased Diameter 7.75" Static Level N/A

Work/Decommission Start Date 1-22-04

Work/Decommission Completed Date 1-22-04

If trainee, licensed driller's
 Signature and License No. 2493

Construction/Design	Well Data	Formation Description
<u>Hole plug</u>	<u>B711051001</u> <u>7.75" Auger</u> <u>No 6/w</u> <u>Hole plug</u>	<u>BRN</u> <u>Sand</u>



WATER WELL REPORT

Start Card No. W45071

STATE OF WASHINGTON

Unique Well I.D. #

Water Right Permit No. 64-304328

(1) OWNER: Name BATTERMAN, LEONARD Address P.O. BOX 1060 WENATCHEE, WA 98807-1060
(2) LOCATION OF WELL: County DOUGLAS
(2a) STREET ADDRESS OF WELL (or nearest address), - SW 1/4 SW 1/4 Sec 10 T 22 N., R 21 WM

(3) PROPOSED USE: IRRIGATION

(4) TYPE OF WORK: Owner's Number of well
(If more than one)
DEEPEMED Method: ROTARY

(5) DIMENSIONS: Diameter of well 8 inches
Drilled 31 ft. Depth of completed well 221 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 7 " Dia. from +2 ft. to 220 ft.
WELDED " Dia. from ft. to ft.
" Dia. from ft. to ft.

Perforations: YES

Type of perforator used SPAR
SIZE of perforations 1 in. by 1/4 in.
126 perforations from 170 ft. to 205 ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: NO

Manufacturer's Name
Type Model No.
Diam. slot size from ft. to ft.
Diam. slot size from ft. to ft.

Gravel packed: NO
Gravel placed from ft. to ft. Size of gravel ft.

Surface seal: NO To what depth? ft.
Material used in seal
Did any strata contain unusable water? NO
Type of water? Depth of strata ft.
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type H.P.

(8) WATER LEVELS: Land-surface elevation
above mean sea level ... ft.
Static level 148 ft. below top of well Date 10/03/94
Artesian Pressure lbs. per square inch Date
Artesian water controlled by

(9) WELL TESTS: Drawdown is amount water level is lowered below static level.

Was a pump test made? NO If yes, by whom?
Yield: gal./min with ft. drawdown after hrs.

Recovery data

Time Water Level Time Water Level Time Water Level

Date of test / /

Bailer test gal./min. ft. drawdown after hrs.

Air test 15 gal./min. w/ stem set at ft. for hrs.

Artesian flow g.p.m. Date

Temperature of water Was a chemical analysis made? NO

(10) WELL LOG

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change in formation.

MATERIAL

BASALT GRAVEL WITH WATER
BASALT GRAVEL CLAY
BASALT GRAVEL WITH WATER
BASALT GRAVEL

FROM	TO
190	210
210	215
215	218
218	221

NOV 8 1994

NOV - 2 1994

Work started 09/27/94

Completed 10/03/94

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME PONDEROSA DRILLING

(Person, firm, or corporation) (Type or print)

ADDRESS 6010 BROADWAY

[SIGNED] *Ryan W. Hoffman* License No. 2095

Contractor's

Registration No. PO-ND-EI*248JE

Date 10/10/94

WATER WELL REPORT

STATE OF WASHINGTON

Application No.

Permit No.

(1) OWNER: Name WILLIAM C STANGER Address 3802 10th ST S.E. E WENATCHEE
LOCATION OF WELL: County DOUGLAS NE 1/4 NW 1/4 Sec. 21 T. 22 N., R. 21 W.M.
and distance from section or subdivision corner Lot 5 OF OVERLOOK ACRES IN

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 280 ft. Depth of completed well 280 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6" Diam. from 2+ ft. to 278 ft.
Threaded ☐ " Diam. from " ft. to " ft.
Welded ☒ " Diam. from " ft. to " ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations " in. by " in.
perforations from " ft. to " ft.
perforations from " ft. to " ft.
perforations from " ft. to " ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam. " Slot size " from " ft. to " ft.
Diam. " Slot size " from " ft. to " ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from " ft. to " ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal BENTONITE
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation 1180 ft.
above mean sea level
Static level " ft. below top of well Date
Artesian pressure " lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: gal./min. with " ft. drawdown after " hrs.
" " " " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)
Time Water Level Time Water Level Time Water Level

Date of test
Bailer test: " gal./min. with " ft. drawdown after " hrs.
Artesian flow " g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Top Soil	0	4
GRAVEL FINE W/ SAND	4	280
BEN MED TO FINE		
400' ABOVE COLUMBIA RIVER		
NO WATER ENCOUNTERED		
FROM 0 - 280		

RECEIVED

MAY 22 1979

DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

RECEIVED

MAY 22 1979

DEPARTMENT OF ECOLOGY
SPOKANE REGIONAL OFFICE

Work started 1/15, 19 79 Completed 1/16, 19 79

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME B+B WELL DRILLING
(Person, firm, or corporation) (Type or print)

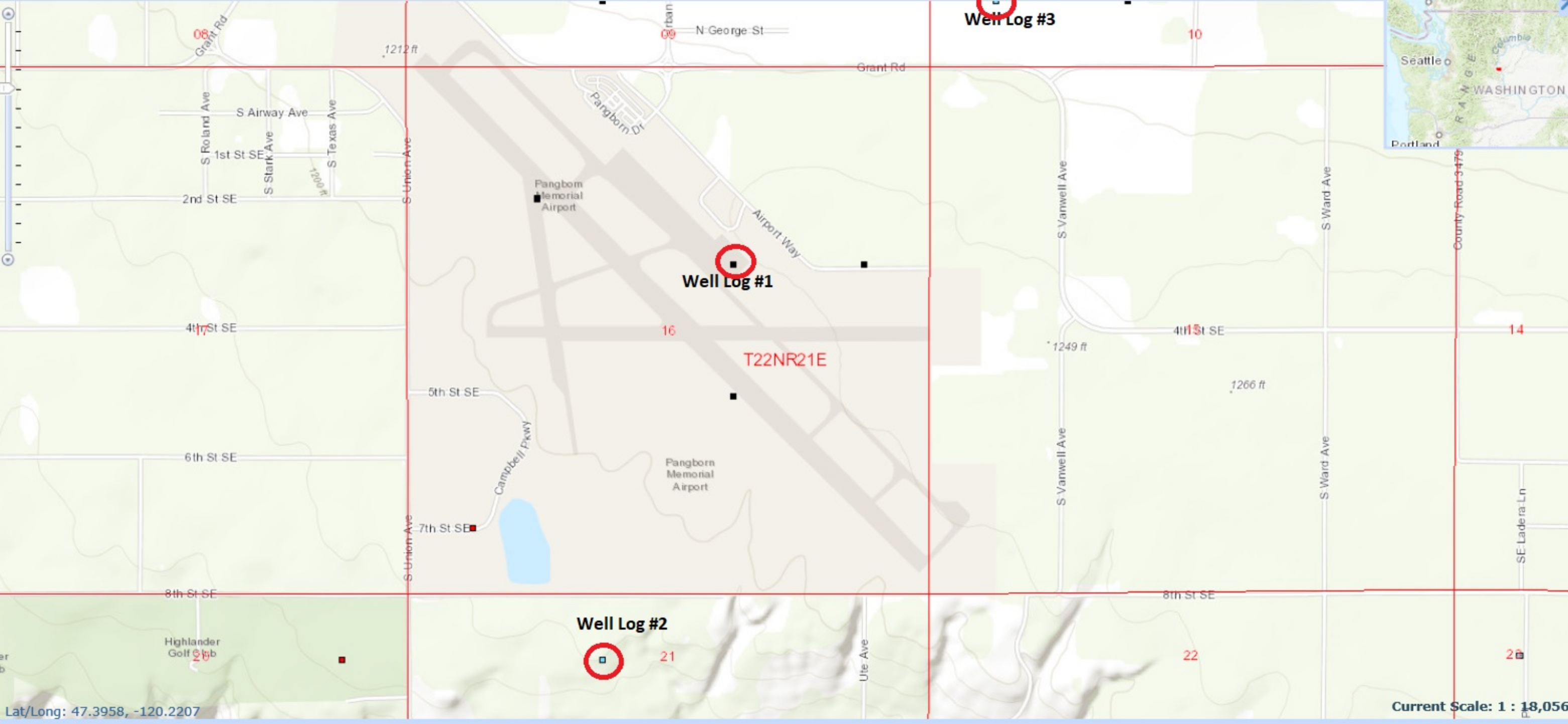
Address RT 7 Box 600-A YAKIMA WASH

[Signed] KEN H BLACKMAN
(Well Driller)

License No. 790 Date 1/16, 19 79

(USE ADDITIONAL SHEETS IF NECESSARY)

5/24/79



APPENDIX C

Contaminated Soil Disposal Documents

Date	Ticket	Tons	Type
10/24/2019	852265	3.13	ASBESTOS
	Total	3.13	
10/22/2019	851825	12.63	ASPHALT
10/22/2019	851857	13.12	ASPHALT
10/22/2019	851868	12.43	ASPHALT
10/24/2019	852231	306	ASPHALT
10/24/2019	852280	2.46	ASPHALT
	Total	352.9	
10/22/2019	851842	12.27	CONCRETE
10/22/2019	851881	12.19	CONCRETE
	Total	24.46	
10/11/2019	850830	12.72	Contaminated Soil
10/11/2019	850832	13.6	Contaminated Soil
10/11/2019	850838	15	Contaminated Soil
10/11/2019	850839	14.77	Contaminated Soil
10/11/2019	850846	15.58	Contaminated Soil
10/11/2019	85850	13.1	Contaminated Soil
10/11/2019	850856	14.31	Contaminated Soil
10/11/2019	850858	15.24	Contaminated Soil
10/11/2019	850865	13.83	Contaminated Soil
10/11/2019	850869	16.34	Contaminated Soil
10/11/2019	850872	13.86	Contaminated Soil
10/11/2019	850874	17.29	Contaminated Soil
10/11/2019	850886	14.64	Contaminated Soil
10/11/2019	850888	16.01	Contaminated Soil
10/24/2019	852186	3.08	Contaminated Soil
10/24/2019	852220	3.21	Contaminated Soil
	Total	212.58	
10/3/2019	849455	0.14	SOIL
	Total	0.14	

Customer ID:
22-05247-33000
Customer Name:
CENTRAL SERVICES INC
Service Period:
OCTOBER 2019
Invoice Date:
11/01/2019
Invoice Number:
0036155-1048-8

How To Contact Us

Visit **wm.com**

To setup your online profile, sign up for paperless statements, manage your account, view holiday schedules, pay your invoice or schedule a pickup



Customer Service:
(509) 884-2802

Your Payment Is Due

11/30/2019

If full payment of the invoiced amount is not received within your contractual terms, you may be charged a monthly late charge of 2.5% of the unpaid amount, with a minimum monthly charge of \$5, or such late charge allowed under applicable law, regulation or contract.

Your Total Due

\$10,156.77

See Reverse for Important Messages

Previous Balance	Payments	Adjustments	Current Charges	Total Due
184.68	(184.68)	0.00	10,156.77	10,156.77

Details for Service Location:

Central Services Inc, 740 NE 3rd St 3, Bend OR 97701-4700

Customer ID: 22-05247-33000

Description	Date	Ticket	Quantity	Unit of Measure	Rate	Amount
Vehicle#: 0	10/03/19	849455				0.00
Cd tons			.14	TON	72.77	31.86
Minimum charge applied						0.00
Refuse tax						1.15
Refuse tax						0.01
Fuel surcharge - landfill			1.00	PCT	6.36	2.80
Regulatory cost recovery			1.00	PCT	3.60	1.58
Waste water management - percent (landfill taxable)			1.00	PCT	6.50	2.86
Chelan douglas health district fee			.14	TON	1.00	0.14
Standard environmental fee - small (landfill)			1.00	LOD	12.00	12.00
Ticket Total						52.40
Vehicle#: t001	10/11/19	850830				0.00
Po#:5741						0.00
Cont. Soil - petroleum, pmt is rgc			12.72	TON	35.00	445.20

----- Please detach and send the lower portion with payment ----- (no cash or staples) -----



GREATER WENATCHEE LANDFILL
191 WEBB RD
EAST WENATCHEE, WA 98802

(509) 884-2802

Invoice Date	Invoice Number	Customer ID (Include with your payment)
11/01/2019	0036155-1048-8	22-05247-33000
Payment Terms	Total Due	Amount
Total Due by 11/30/2019	\$10,156.77	

Code:

Approved:

1048000220524733000000361550000101567700001015677 4

0094168 01 WB 0 409 **AUTO T1 0 7306 97701-470003 -C01-P94262-11

113911.38

CENTRAL SERVICES INC
740 NE 3RD ST 3
BEND OR 97701-4700



THINK GREEN.

GREATER WENATCHEE LANDFILL
PO BOX 541065
LOS ANGELES, CA 90054-1065

Printed on
recycled paper.

740-0508736-1048-4

Customer ID:

22-05247-33000

Customer Name:

CENTRAL SERVICES INC

Service Period:

OCTOBER 2019

Invoice Date:

11/01/2019

Invoice Number:

0036155-1048-8

Details for Service Location:

Customer ID: 22-05247-33000

Central Services Inc, 740 NE 3rd St 3, Bend OR 97701-4700

Description	Date	Ticket	Quantity	Unit of Measure	Rate	Amount
Refuse tax						16.03
Refuse tax						2.75
Refuse tax						0.46
Chelan douglas health district fee			12.72	TON	1.00	12.72
6% Fea fee			12.72	TON	6.00	76.32
Profile # 114703wa						0.00
Generator pangborn memorial airport, one pangborn dr, e						0.00
Manifest#: 114703wa						0.00
Ticket Total						553.48
Vehicle#: grey	10/11/19	850832				0.00
Po#:5741						0.00
Cont. Soil - petroleum, pmt is rgc			13.60	TON	35.00	476.00
Refuse tax						17.14
Refuse tax						0.49
Refuse tax						2.94
Chelan douglas health district fee			13.60	TON	1.00	13.60
6% Fea fee			13.60	TON	6.00	81.60
Profile # 114703wa						0.00
Generator pangborn memorial airport, one pangborn dr, e						0.00
Manifest#: 114703wa						0.00
Ticket Total						591.77
Vehicle#: t001	10/11/19	850838				0.00
Po#:5741						0.00
Cont. Soil - petroleum, pmt is rgc			15.00	TON	35.00	525.00
Refuse tax						18.90
Refuse tax						3.24
Refuse tax						0.54
Chelan douglas health district fee			15.00	TON	1.00	15.00
6% Fea fee			15.00	TON	6.00	90.00
Profile # 114703wa						0.00
Generator pangborn memorial airport, one pangborn dr, e						0.00
Manifest#: 114703wa						0.00
Ticket Total						652.68
Vehicle#: grey	10/11/19	850839				0.00
Po#:5741						0.00
Cont. Soil - petroleum, pmt is rgc			14.77	TON	35.00	516.95
Refuse tax						18.61
Refuse tax						0.53
Refuse tax						3.19
Chelan douglas health district fee			14.77	TON	1.00	14.77
6% Fea fee			14.77	TON	6.00	88.62
Profile # 114703wa						0.00
Generator pangborn memorial airport, one pangborn dr, e						0.00
Manifest#: 114703wa						0.00
Ticket Total						642.67
Vehicle#: t001	10/11/19	850846				0.00
Po#:5741						0.00
Cont. Soil - petroleum, pmt is rgc			15.58	TON	35.00	545.30
Refuse tax						19.63
Refuse tax						0.56
Refuse tax						3.37
Chelan douglas health district fee			15.58	TON	1.00	15.58
6% Fea fee			15.58	TON	6.00	93.48
Profile # 114703wa						0.00
Generator pangborn memorial airport, one pangborn dr, e						0.00
Manifest#: 114703wa						0.00
Ticket Total						677.92

THINK GREEN.



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recycled paper.

Details for Service Location:
Central Services Inc, 740 NE 3rd St 3, Bend OR 97701-4700

Customer ID: 22-05247-33000

Description	Date	Ticket	Quantity	Unit of Measure	Rate	Amount
Vehicle#: grey	10/11/19	850850				0.00
Po#:5741						0.00
Cont. Soil - petroleum, pmt is rgc			13.10	TON	35.00	458.50
Refuse tax						16.51
Refuse tax						2.83
Refuse tax						0.47
Chelan douglas health district fee			13.10	TON	1.00	13.10
6% Fea fee			13.10	TON	6.00	78.60
Profile # 114703wa						0.00
Generator pangborn memorial airport, one pangborn dr, e						0.00
Manifest#: 114703wa						0.00
Ticket Total						570.01
Vehicle#: t001	10/11/19	850856				0.00
Po#:5741						0.00
Cont. Soil - petroleum, pmt is rgc			14.31	TON	35.00	500.85
Refuse tax						18.03
Refuse tax						0.52
Refuse tax						3.09
Chelan douglas health district fee			14.31	TON	1.00	14.31
6% Fea fee			14.31	TON	6.00	85.86
Profile # 114703wa						0.00
Generator pangborn memorial airport, one pangborn dr, e						0.00
Manifest#: 114703wa						0.00
Ticket Total						622.66
Vehicle#: grey	10/11/19	850858				0.00
Po#:5741						0.00
Cont. Soil - petroleum, pmt is rgc			15.24	TON	35.00	533.40
Refuse tax						19.20
Refuse tax						3.29
Refuse tax						0.55
Chelan douglas health district fee			15.24	TON	1.00	15.24
6% Fea fee			15.24	TON	6.00	91.44
Profile # 114703wa						0.00
Generator pangborn memorial airport, one pangborn dr, e						0.00
Manifest#: 114703wa						0.00
Ticket Total						663.12
Vehicle#: t001	10/11/19	850865				0.00
Po#:5741						0.00
Cont. Soil - petroleum, pmt is rgc			13.83	TON	35.00	484.05
Refuse tax						17.43
Refuse tax						2.99
Refuse tax						0.50
Chelan douglas health district fee			13.83	TON	1.00	13.83
6% Fea fee			13.83	TON	6.00	82.98
Profile # 114703wa						0.00
Generator pangborn memorial airport, one pangborn dr, e						0.00
Manifest#: 114703wa						0.00
Ticket Total						601.78
Vehicle#: grey	10/11/19	850869				0.00
Po#:5741						0.00
Cont. Soil - petroleum, pmt is rgc			16.34	TON	35.00	571.90
Refuse tax						20.59
Refuse tax						3.53
Refuse tax						0.59
Chelan douglas health district fee			16.34	TON	1.00	16.34
6% Fea fee			16.34	TON	6.00	98.04
Profile # 114703wa						0.00
Generator pangborn memorial airport, one pangborn dr, e						0.00
Manifest#: 114703wa						0.00
Ticket Total						710.99
Vehicle#: t001	10/11/19	850872				0.00
Po#:5741						0.00
Cont. Soil - petroleum, pmt is rgc			13.86	TON	35.00	485.10

Customer ID:

22-05247-33000

Customer Name:

CENTRAL SERVICES INC

Service Period:

OCTOBER 2019

Invoice Date:

11/01/2019

Invoice Number:

0036155-1048-8

Details for Service Location:

Central Services Inc, 740 NE 3rd St 3, Bend OR 97701-4700

Customer ID: 22-05247-33000

Description	Date	Ticket	Quantity	Unit of Measure	Rate	Amount
Refuse tax						17.46
Refuse tax						2.99
Refuse tax						0.50
Chelan douglas health district fee			13.86	TON	1.00	13.86
6% Fea fee			13.86	TON	6.00	83.16
Profile # 114703wa						0.00
Generator pangborn memorial airport, one pangborn dr, e						0.00
Manifest#: 114703wa						0.00
Ticket Total						603.07
Vehicle#: grey	10/11/19	850874				0.00
Po#:5741						0.00
Cont. Soil - petroleum, pmt is rgc			17.29	TON	35.00	605.15
Refuse tax						21.79
Refuse tax						0.62
Refuse tax						3.73
Chelan douglas health district fee			17.29	TON	1.00	17.29
6% Fea fee			17.29	TON	6.00	103.74
Profile # 114703wa						0.00
Generator pangborn memorial airport, one pangborn dr, e						0.00
Manifest#: 114703wa						0.00
Ticket Total						752.32
Vehicle#: t001	10/11/19	850886				0.00
Po#:5741						0.00
Cont. Soil - petroleum, pmt is rgc			14.64	TON	35.00	512.40
Refuse tax						18.45
Refuse tax						3.16
Refuse tax						0.53
Chelan douglas health district fee			14.64	TON	1.00	14.64
6% Fea fee			14.64	TON	6.00	87.84
Profile # 114703wa						0.00
Generator pangborn memorial airport, one pangborn dr, e						0.00
Manifest#: 114703wa						0.00
Ticket Total						637.02
Vehicle#: grey	10/11/19	850888				0.00
Po#:5741						0.00
Cont. Soil - petroleum, pmt is rgc			16.01	TON	35.00	560.35
Refuse tax						20.17
Refuse tax						0.58
Refuse tax						3.46
Chelan douglas health district fee			16.01	TON	1.00	16.01
6% Fea fee			16.01	TON	6.00	96.06
Profile # 114703wa						0.00
Generator pangborn memorial airport, one pangborn dr, e						0.00
Manifest#: 114703wa						0.00
Ticket Total						696.63
Vehicle#: 351	10/22/19	851825				0.00
Po#:5741.1						0.00
Asphalt clean/ton			12.63	TON	0.00	0.00
Ticket Total						0.00
Vehicle#: 351	10/22/19	851842				0.00
Po#:5741.1						0.00
Concrete - clean			12.27	TON	8.40	103.07
Refuse tax						0.44
Standard environmental fee - large (landfill)			1.00	LOD	24.00	24.00
Fuel surcharge - landfill			1.00	PCT	6.30	8.78
Regulatory cost recovery			1.00	PCT	3.60	5.02

THINK GREEN.



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APPENDIX D

Chemical Laboratory Reports

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

September 3, 2019

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

Dear Mr Khan:

Included are the additional results from the testing of material submitted on August 1, 2019 from the 190245, F&BI 908015 project. There are 4 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Data Aspect
ASP0903R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 1, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC 190245, F&BI 908015 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
908015 -01	MassEx-1-2.5
908015 -02	MassEx-2-2.5
908015 -03	MassEx-3-2.5
908015 -04	MassEx-4-1.5
908015 -05	MassEx-5-2.0
908015 -06	MassEx-6-2.0

The NWTPH-Dx analysis of sample MassEx-3-2.5 was requested outside of the holding time. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/03/19

Date Received: 08/01/19

Project: 190245, F&BI 908015

Date Extracted: 08/29/19

Date Analyzed: 08/29/19

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u>	<u>Diesel Range</u>	<u>Motor Oil Range</u>	<u>Surrogate</u>
Laboratory ID	(C ₁₀ -C ₂₅)	(C ₂₅ -C ₃₆)	(% Recovery)
			(Limit 53-144)
MassEx-3-2.5 ht	<50	<250	109
908015-03			
Method Blank	<50	<250	90
09-2147 MB			

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/03/19

Date Received: 08/01/19

Project: 190245, F&BI 908015

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

Laboratory Code: 908567-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	1,300	136 b	130 b	64-133	5 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	108	58-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

908015

SAMPLE CHAIN OF CUSTODY

ME 08-01-19

602

Report To Friedman & Bruya, Inc.

Company Aspect Consulting

Address _____

City, State, ZIP _____

Phone 206 713 2136 Email F.Kahn@aspectconsulting.com

SAMPLERS (signature) _____

PROJECT NAME _____

PO # 140

REMARKS _____

INVOICE TO 190 245

Page # _____ of _____

URNAROUND TIME VS2

☒ Standard Turnaround
☐ RUSH
Rush charges authorized by: _____

SAMPLE DISPOSAL

☐ Dispose after 30 days
☐ Archive Samples
☒ Other Will contact lab

						ANALYSES REQUESTED											Notes	
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	MTCA 5 Methods	Chlorinated Herbicides	Chlorinated Pesticides	Organophosphorus Pesticides		
Mass Ex-1-2.5	01A-E	7-31-19	1035	Soil	1													(X) SDTAT
Mass Ex-2-2.5	02		1045			(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	8/5/19 ME
Mass Ex-3-2.5	03		1055											(X)	(X)	(X)	(X)	8/26/19
Mass Ex-4-4.5	04		1155											(X)	(X)	(X)	(X)	
Mass Ex-5-2.0	05		1150											(X)	(X)	(X)	(X)	ME
Mass Ex-6-2.0	06		1145			(X)	(X)	(X)	(X)					(X)	(X)	(X)	(X)	

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Relinquished by: _____

B. J. Sullivan

Aspect Consulting

7/31/19

1400

Received by: _____

Nhan Phan

FCBI

8/1/19

1030

Relinquished by: _____

Received by: _____

Samples received at

4

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
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3012 16th Avenue West
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August 22, 2019

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

Dear Mr Khan:

Included are the results from the testing of material submitted on August 1, 2019 from the 190245, F&BI 908015 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: Data Aspect
ASP0822R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 1, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC 190245, F&BI 908015 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
908015 -01	MassEx-1-2.5
908015 -02	MassEx-2-2.5
908015 -03	MassEx-3-2.5
908015 -04	MassEx-4-1.5
908015 -05	MassEx-5-2.0
908015 -06	MassEx-6-2.0

The samples were sent to Fremont Analytical for chlorinated herbicide and organophosphorus pesticide analyses. The report is enclosed.

The 8081B calibration standard failed the acceptance criteria for several pesticides. The data were flagged accordingly.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/22/19

Date Received: 08/01/19

Project: 190245, F&BI 908015

Date Extracted: 08/07/19

Date Analyzed: 08/07/19

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
MassEx-2-2.5 908015-02	<0.02	<0.02	<0.02	<0.06	<5	81
MassEx-5-2.0 908015-05	<0.02	<0.02	<0.02	<0.06	<5	81
MassEx-6-2.0 908015-06	<0.02	<0.02	<0.02	<0.06	<5	74
Method Blank 09-1909 MB	<0.02	<0.02	<0.02	<0.06	<5	74

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/22/19

Date Received: 08/01/19

Project: 190245, F&BI 908015

Date Extracted: 08/07/19

Date Analyzed: 08/07/19

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 53-144)
MassEx-2-2.5 908015-02	<50	<250	102
MassEx-5-2.0 908015-05	<50	<250	98
MassEx-6-2.0 908015-06	840 x	3,500	98
Method Blank 09-1931 MB	<50	<250	99

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MassEx-2-2.5	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	190245, F&BI 908015
Date Extracted:	08/06/19	Lab ID:	908015-02
Date Analyzed:	08/06/19	Data File:	908015-02.099
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Arsenic	<1
Cadmium	<1
Chromium	4.67
Lead	2.80
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MassEx-5-2.0	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	190245, F&BI 908015
Date Extracted:	08/06/19	Lab ID:	908015-05
Date Analyzed:	08/06/19	Data File:	908015-05.102
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Arsenic	<1
Cadmium	<1
Chromium	7.37
Lead	2.60
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MassEx-6-2.0	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	190245, F&BI 908015
Date Extracted:	08/06/19	Lab ID:	908015-06
Date Analyzed:	08/07/19	Data File:	908015-06.032
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Arsenic	1.11
Cadmium	<1
Chromium	6.15
Lead	13.2
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	190245, F&BI 908015
Date Extracted:	08/06/19	Lab ID:	I9-470 mb2
Date Analyzed:	08/07/19	Data File:	I9-470 mb2.031
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	MassEx-1-2.5	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	190245, F&BI 908015
Date Extracted:	08/07/19	Lab ID:	908015-01 1/6
Date Analyzed:	08/07/19	Data File:	080709.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	84	50	150
DBC	99	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	<0.01
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01
4,4'-DDT	<0.01 ca
Endrin Aldehyde	<0.01
Methoxychlor	<0.01 ca
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	MassEx-2-2.5	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	190245, F&BI 908015
Date Extracted:	08/07/19	Lab ID:	908015-02 1/6
Date Analyzed:	08/07/19	Data File:	080710.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	78	50	150
DBC	97	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	0.14
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	0.036
4,4'-DDD	<0.01
Endosulfan II	<0.01
4,4'-DDT	0.32 ca
Endrin Aldehyde	<0.01
Methoxychlor	<0.05 ca
Endosulfan Sulfate	<0.01
Endrin Ketone	0.011
Toxaphene	<2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	MassEx-3-2.5	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	190245, F&BI 908015
Date Extracted:	08/07/19	Lab ID:	908015-03 1/6
Date Analyzed:	08/07/19	Data File:	080715.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	88	50	150
DBC	109	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	<0.01
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01
4,4'-DDT	0.018 ca
Endrin Aldehyde	<0.01
Methoxychlor	<0.01 ca
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	MassEx-4-1.5	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	190245, F&BI 908015
Date Extracted:	08/07/19	Lab ID:	908015-04 1/6
Date Analyzed:	08/07/19	Data File:	080716.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	77	50	150
DBC	96	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	0.047
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01
4,4'-DDT	0.21 ca
Endrin Aldehyde	<0.01
Methoxychlor	<0.01 ca
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	MassEx-5-2.0	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	190245, F&BI 908015
Date Extracted:	08/07/19	Lab ID:	908015-05 1/6
Date Analyzed:	08/07/19	Data File:	080717.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	86	50	150
DBC	100	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	0.017
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01
4,4'-DDT	0.037 ca
Endrin Aldehyde	<0.01
Methoxychlor	<0.01 ca
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	MassEx-6-2.0	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	190245, F&BI 908015
Date Extracted:	08/07/19	Lab ID:	908015-06 1/6
Date Analyzed:	08/07/19	Data File:	080718.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	70	50	150
DBC	88	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	0.070
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	0.033
Endosulfan II	<0.01
4,4'-DDT	0.53 ca
Endrin Aldehyde	<0.01
Methoxychlor	<0.01 ca
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	190245, F&BI 908015
Date Extracted:	08/07/19	Lab ID:	09-1932 mb 1/6
Date Analyzed:	08/07/19	Data File:	080706.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	86	50	150
DBC	105	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	<0.01
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01
4,4'-DDT	<0.01 ca
Endrin Aldehyde	<0.01
Methoxychlor	<0.01 ca
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/22/19

Date Received: 08/01/19

Project: 190245, F&BI 908015

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

Laboratory Code: 908098-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	98	69-120
Toluene	mg/kg (ppm)	0.5	102	70-117
Ethylbenzene	mg/kg (ppm)	0.5	104	65-123
Xylenes	mg/kg (ppm)	1.5	102	66-120
Gasoline	mg/kg (ppm)	20	130	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/22/19

Date Received: 08/01/19

Project: 190245, F&BI 908015

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

Laboratory Code: 908015-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	108	106	64-133	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	104	58-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/22/19

Date Received: 08/01/19

Project: 190245, F&BI 908015

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	103	96	80-120	7
Cadmium	mg/kg (ppm)	10	102	96	80-120	6
Chromium	mg/kg (ppm)	50	103	96	80-120	7
Lead	mg/kg (ppm)	50	103	97	80-120	6
Mercury	mg/kg (ppm)	5	107	102	80-120	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/22/19

Date Received: 08/01/19

Project: 190245, F&BI 908015

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

Laboratory Code: 908015-02 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
alpha-BHC	mg/kg (ppm)	0.1	<0.01	80	78	45-111	3
gamma-BHC (Lindane)	mg/kg (ppm)	0.1	<0.01	84	81	50-117	4
beta-BHC	mg/kg (ppm)	0.1	<0.01	88	86	49-109	2
delta-BHC	mg/kg (ppm)	0.1	<0.01	86	83	39-114	4
Heptachlor	mg/kg (ppm)	0.1	<0.01	91	92	40-131	1
Aldrin	mg/kg (ppm)	0.1	<0.01	91	91	44-121	0
Heptachlor Epoxide	mg/kg (ppm)	0.1	<0.01	89	89	46-122	0
trans-Chlordane	mg/kg (ppm)	0.1	<0.01	87	87	41-129	0
cis-Chlordane	mg/kg (ppm)	0.1	<0.01	90	89	44-120	1
4,4'-DDE	mg/kg (ppm)	0.1	0.13	22 b	18 b	50-150	20 b
Endosulfan I	mg/kg (ppm)	0.1	<0.01	87	87	45-124	0
Dieldrin	mg/kg (ppm)	0.1	<0.01	86	86	45-130	0
Endrin	mg/kg (ppm)	0.1	0.033	84 b	80 b	50-140	5 b
4,4'-DDD	mg/kg (ppm)	0.1	<0.01	95	95	26-155	0
Endosulfan II	mg/kg (ppm)	0.1	<0.01	94	93	40-135	1
4,4'-DDT	mg/kg (ppm)	0.1	0.29	0	0	50-150	1
Endrin Aldehyde	mg/kg (ppm)	0.1	<0.01	116	115	35-139	1
Methoxychlor	mg/kg (ppm)	0.1	0.019	73	72	28-162	1
Endosulfan Sulfate	mg/kg (ppm)	0.1	<0.01	92	92	40-141	0
Endrin Ketone	mg/kg (ppm)	0.1	0.010	90	91	41-147	1
Toxaphene	mg/kg (ppm)	4	<1	75	76	50-150	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/22/19

Date Received: 08/01/19

Project: 190245, F&BI 908015

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

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
alpha-BHC	mg/kg (ppm)	0.1	88	56-113
gamma-BHC (Lindane)	mg/kg (ppm)	0.1	91	58-120
beta-BHC	mg/kg (ppm)	0.1	96	70-130
delta-BHC	mg/kg (ppm)	0.1	98	70-130
Heptachlor	mg/kg (ppm)	0.1	96	56-124
Aldrin	mg/kg (ppm)	0.1	99	70-130
Heptachlor Epoxide	mg/kg (ppm)	0.1	97	70-130
trans-Chlordane	mg/kg (ppm)	0.1	94	60-123
cis-Chlordane	mg/kg (ppm)	0.1	98	70-130
4,4'-DDE	mg/kg (ppm)	0.1	99	70-130
Endosulfan I	mg/kg (ppm)	0.1	95	62-124
Dieldrin	mg/kg (ppm)	0.1	95	70-130
Endrin	mg/kg (ppm)	0.1	105	56-147
4,4'-DDD	mg/kg (ppm)	0.1	103	54-137
Endosulfan II	mg/kg (ppm)	0.1	88	42-140
4,4'-DDT	mg/kg (ppm)	0.1	93	25-169
Endrin Aldehyde	mg/kg (ppm)	0.1	105	21-135
Methoxychlor	mg/kg (ppm)	0.1	103	54-154
Endosulfan Sulfate	mg/kg (ppm)	0.1	95	39-148
Endrin Ketone	mg/kg (ppm)	0.1	99	46-134
Toxaphene	mg/kg (ppm)	4	101	56-145

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



Fremont
Analytical

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

RE: 908015
Work Order Number: 1908081

August 20, 2019

Attention Michael Erdahl:

Fremont Analytical, Inc. received 6 sample(s) on 8/6/2019 for the analyses presented in the following report.

Herbicides by EPA Method 8151A
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: Friedman & Bruya
Project: 908015
Work Order: 1908081

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1908081-001	Mass Ex-1-2.5	07/31/2019 10:35 AM	08/06/2019 2:47 PM
1908081-002	Mass Ex-2-2.5	07/31/2019 10:45 AM	08/06/2019 2:47 PM
1908081-003	Mass Ex-3-2.5	07/31/2019 10:55 AM	08/06/2019 2:47 PM
1908081-004	Mass Ex-4-1.5	07/31/2019 11:55 AM	08/06/2019 2:47 PM
1908081-005	Mass Ex-5-2.0	07/31/2019 11:50 AM	08/06/2019 2:47 PM
1908081-006	Mass Ex-6-2.0	07/31/2019 11:45 AM	08/06/2019 2:47 PM

CLIENT: Friedman & Bruya**Project:** 908015

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:

- * - 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: 1908081
Date Reported: 8/20/2019

Client: Friedman & Bruya

Collection Date: 7/31/2019 10:35:00 AM

Project: 908015

Lab ID: 1908081-001

Matrix: Soil

Client Sample ID: Mass Ex-1-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Herbicides by EPA Method 8151A				Batch ID: 25481		Analyst: SB
Dicamba	ND	33.7		µg/Kg-dry	1	8/20/2019 11:04:33 AM
2,4-D	ND	28.9		µg/Kg-dry	1	8/20/2019 11:04:33 AM
2,4-DP	ND	24.1		µg/Kg-dry	1	8/20/2019 11:04:33 AM
2,4,5-TP (Silvex)	ND	19.2		µg/Kg-dry	1	8/20/2019 11:04:33 AM
2,4,5-T	ND	48.1		µg/Kg-dry	1	8/20/2019 11:04:33 AM
Dinoseb	ND	28.9		µg/Kg-dry	1	8/20/2019 11:04:33 AM
Dalapon	ND	192		µg/Kg-dry	1	8/20/2019 11:04:33 AM
2,4-DB	ND	24.1		µg/Kg-dry	1	8/20/2019 11:04:33 AM
MCPP	ND	4,230		µg/Kg-dry	1	8/20/2019 11:04:33 AM
MCPA	ND	2,690		µg/Kg-dry	1	8/20/2019 11:04:33 AM
Picloram	ND	48.1		µg/Kg-dry	1	8/20/2019 11:04:33 AM
Bentazon	ND	33.7		µg/Kg-dry	1	8/20/2019 11:04:33 AM
Chloramben	ND	19.2		µg/Kg-dry	1	8/20/2019 11:04:33 AM
Acifluorfen	ND	77.0		µg/Kg-dry	1	8/20/2019 11:04:33 AM
3,5-Dichlorobenzoic acid	ND	38.5		µg/Kg-dry	1	8/20/2019 11:04:33 AM
4-Nitrophenol	ND	28.9		µg/Kg-dry	1	8/20/2019 11:04:33 AM
Dacthal (DCPA)	ND	28.9		µg/Kg-dry	1	8/20/2019 11:04:33 AM
Surr: 2,4-Dichlorophenylacetic acid	24.2	15.3 - 163		%Rec	1	8/20/2019 11:04:33 AM

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428 Analyst: SB

DDVP	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Mevinphos	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
TEPP	ND	47.9	QH	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Demeton, Total	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Ethoprophos	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Naled	ND	47.9	QH	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Sulfotepp	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Monocrotophos	ND	47.9	QH	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Phorate	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Dimethoate	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Diazinon	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Disulfoton	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Parathion, methyl	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Fenchorphos	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Malathion	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Dursban	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Fenthion	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Parathion	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM

Original



Client: Friedman & Bruya

Collection Date: 7/31/2019 10:35:00 AM

Project: 908015

Lab ID: 1908081-001

Matrix: Soil

Client Sample ID: Mass Ex-1-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

Trichloronate	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Merphos	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Stirophos	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Prothiofos	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Fensulfothion	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Sulprofos	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
EPN	ND	47.9	QH	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Guthion	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Coumaphos	ND	47.9	H	µg/Kg-dry	1	8/13/2019 9:27:11 AM
Surr: Triphenylphosphate	74.0	10.7 - 154	H	%Rec	1	8/13/2019 9:27:11 AM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)

Batch ID: R53097

Analyst: CJ

Percent Moisture	4.85	0.500		wt%	1	8/7/2019 1:25:20 PM
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Analytical Report

Work Order: 1908081
Date Reported: 8/20/2019

Client: Friedman & Bruya

Collection Date: 7/31/2019 10:45:00 AM

Project: 908015

Lab ID: 1908081-002

Matrix: Soil

Client Sample ID: Mass Ex-2-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 25481

Analyst: SB

Dicamba	ND	34.5		µg/Kg-dry	1	8/20/2019 11:25:00 AM
2,4-D	ND	29.6		µg/Kg-dry	1	8/20/2019 11:25:00 AM
2,4-DP	ND	24.6		µg/Kg-dry	1	8/20/2019 11:25:00 AM
2,4,5-TP (Silvex)	ND	19.7		µg/Kg-dry	1	8/20/2019 11:25:00 AM
2,4,5-T	ND	49.3		µg/Kg-dry	1	8/20/2019 11:25:00 AM
Dinoseb	ND	29.6		µg/Kg-dry	1	8/20/2019 11:25:00 AM
Dalapon	ND	197		µg/Kg-dry	1	8/20/2019 11:25:00 AM
2,4-DB	ND	24.6		µg/Kg-dry	1	8/20/2019 11:25:00 AM
MCPP	ND	4,330		µg/Kg-dry	1	8/20/2019 11:25:00 AM
MCPA	ND	2,760		µg/Kg-dry	1	8/20/2019 11:25:00 AM
Picloram	ND	49.3		µg/Kg-dry	1	8/20/2019 11:25:00 AM
Bentazon	ND	34.5		µg/Kg-dry	1	8/20/2019 11:25:00 AM
Chloramben	ND	19.7		µg/Kg-dry	1	8/20/2019 11:25:00 AM
Acifluorfen	ND	78.8		µg/Kg-dry	1	8/20/2019 11:25:00 AM
3,5-Dichlorobenzoic acid	ND	39.4		µg/Kg-dry	1	8/20/2019 11:25:00 AM
4-Nitrophenol	ND	29.6		µg/Kg-dry	1	8/20/2019 11:25:00 AM
Dacthal (DCPA)	ND	29.6		µg/Kg-dry	1	8/20/2019 11:25:00 AM
Surr: 2,4-Dichlorophenylacetic acid	24.6	15.3 - 163		%Rec	1	8/20/2019 11:25:00 AM

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

DDVP	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Mevinphos	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
TEPP	ND	51.8	QH	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Demeton, Total	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Ethoprophos	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Naled	ND	51.8	QH	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Sulfotepp	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Monocrotophos	ND	51.8	QH	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Phorate	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Dimethoate	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Diazinon	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Disulfoton	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Parathion, methyl	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Fenchophos	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Malathion	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Dursban	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Fenthion	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Parathion	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM

Original



Analytical Report

Work Order: 1908081
Date Reported: 8/20/2019

Client: Friedman & Bruya

Collection Date: 7/31/2019 10:45:00 AM

Project: 908015

Lab ID: 1908081-002

Matrix: Soil

Client Sample ID: Mass Ex-2-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

Trichloronate	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Merphos	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Stirophos	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Prothiofos	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Fensulfothion	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Sulprofos	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
EPN	ND	51.8	QH	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Guthion	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Coumaphos	ND	51.8	H	µg/Kg-dry	1	8/13/2019 9:46:01 AM
Surr: Triphenylphosphate	71.1	10.7 - 154	H	%Rec	1	8/13/2019 9:46:01 AM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)

Batch ID: R53097

Analyst: CJ

Percent Moisture	5.30	0.500		wt%	1	8/7/2019 1:25:20 PM
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Analytical Report

Work Order: 1908081
Date Reported: 8/20/2019

Client: Friedman & Bruya

Collection Date: 7/31/2019 10:55:00 AM

Project: 908015

Lab ID: 1908081-003

Matrix: Soil

Client Sample ID: Mass Ex-3-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Herbicides by EPA Method 8151A				Batch ID: 25481		Analyst: SB
Dicamba	ND	35.9		µg/Kg-dry	1	8/20/2019 11:45:24 AM
2,4-D	ND	30.7		µg/Kg-dry	1	8/20/2019 11:45:24 AM
2,4-DP	ND	25.6		µg/Kg-dry	1	8/20/2019 11:45:24 AM
2,4,5-TP (Silvex)	ND	20.5		µg/Kg-dry	1	8/20/2019 11:45:24 AM
2,4,5-T	ND	51.2		µg/Kg-dry	1	8/20/2019 11:45:24 AM
Dinoseb	ND	30.7		µg/Kg-dry	1	8/20/2019 11:45:24 AM
Dalapon	ND	205		µg/Kg-dry	1	8/20/2019 11:45:24 AM
2,4-DB	ND	25.6		µg/Kg-dry	1	8/20/2019 11:45:24 AM
MCPP	ND	4,510		µg/Kg-dry	1	8/20/2019 11:45:24 AM
MCPA	ND	2,870		µg/Kg-dry	1	8/20/2019 11:45:24 AM
Picloram	ND	51.2		µg/Kg-dry	1	8/20/2019 11:45:24 AM
Bentazon	ND	35.9		µg/Kg-dry	1	8/20/2019 11:45:24 AM
Chloramben	ND	20.5		µg/Kg-dry	1	8/20/2019 11:45:24 AM
Acifluorfen	ND	82.0		µg/Kg-dry	1	8/20/2019 11:45:24 AM
3,5-Dichlorobenzoic acid	ND	41.0		µg/Kg-dry	1	8/20/2019 11:45:24 AM
4-Nitrophenol	ND	30.7		µg/Kg-dry	1	8/20/2019 11:45:24 AM
Dacthal (DCPA)	ND	30.7		µg/Kg-dry	1	8/20/2019 11:45:24 AM
Surr: 2,4-Dichlorophenylacetic acid	21.2	15.3 - 163		%Rec	1	8/20/2019 11:45:24 AM

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428 Analyst: SB

DDVP	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Mevinphos	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
TEPP	ND	49.1	QH	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Demeton, Total	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Ethoprophos	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Naled	ND	49.1	QH	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Sulfotepp	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Monocrotophos	ND	49.1	QH	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Phorate	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Dimethoate	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Diazinon	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Disulfoton	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Parathion, methyl	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Fenchophos	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Malathion	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Dursban	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Fenthion	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Parathion	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM

Original



Client: Friedman & Bruya

Collection Date: 7/31/2019 10:55:00 AM

Project: 908015

Lab ID: 1908081-003

Matrix: Soil

Client Sample ID: Mass Ex-3-2.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

Trichloronate	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Merphos	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Stirophos	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Prothiofos	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Fensulfothion	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Sulprofos	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
EPN	ND	49.1	QH	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Guthion	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Coumaphos	ND	49.1	H	µg/Kg-dry	1	8/13/2019 10:23:50 AM
Surr: Triphenylphosphate	102	10.7 - 154	H	%Rec	1	8/13/2019 10:23:50 AM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)

Batch ID: R53097

Analyst: CJ

Percent Moisture	5.08	0.500	wt%	1	8/7/2019 1:25:20 PM
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Analytical Report

Work Order: 1908081
Date Reported: 8/20/2019

Client: Friedman & Bruya

Collection Date: 7/31/2019 11:55:00 AM

Project: 908015

Lab ID: 1908081-004

Matrix: Soil

Client Sample ID: Mass Ex-4-1.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 25481

Analyst: SB

Dicamba	ND	37.2		µg/Kg-dry	1	8/20/2019 12:05:48 PM
2,4-D	ND	31.9		µg/Kg-dry	1	8/20/2019 12:05:48 PM
2,4-DP	ND	26.6		µg/Kg-dry	1	8/20/2019 12:05:48 PM
2,4,5-TP (Silvex)	ND	21.3		µg/Kg-dry	1	8/20/2019 12:05:48 PM
2,4,5-T	ND	53.2		µg/Kg-dry	1	8/20/2019 12:05:48 PM
Dinoseb	ND	31.9		µg/Kg-dry	1	8/20/2019 12:05:48 PM
Dalapon	ND	213		µg/Kg-dry	1	8/20/2019 12:05:48 PM
2,4-DB	ND	26.6		µg/Kg-dry	1	8/20/2019 12:05:48 PM
MCPP	ND	4,680		µg/Kg-dry	1	8/20/2019 12:05:48 PM
MCPA	ND	2,980		µg/Kg-dry	1	8/20/2019 12:05:48 PM
Picloram	ND	53.2		µg/Kg-dry	1	8/20/2019 12:05:48 PM
Bentazon	ND	37.2		µg/Kg-dry	1	8/20/2019 12:05:48 PM
Chloramben	ND	21.3		µg/Kg-dry	1	8/20/2019 12:05:48 PM
Acifluorfen	ND	85.1		µg/Kg-dry	1	8/20/2019 12:05:48 PM
3,5-Dichlorobenzoic acid	ND	42.6		µg/Kg-dry	1	8/20/2019 12:05:48 PM
4-Nitrophenol	ND	31.9		µg/Kg-dry	1	8/20/2019 12:05:48 PM
Dacthal (DCPA)	ND	31.9		µg/Kg-dry	1	8/20/2019 12:05:48 PM
Surr: 2,4-Dichlorophenylacetic acid	24.6	15.3 - 163		%Rec	1	8/20/2019 12:05:48 PM

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

DDVP	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Mevinphos	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
TEPP	ND	52.7	QH	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Demeton, Total	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Ethoprophos	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Naled	ND	52.7	QH	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Sulfotepp	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Monocrotophos	ND	52.7	QH	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Phorate	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Dimethoate	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Diazinon	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Disulfoton	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Parathion, methyl	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Fenchophos	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Malathion	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Dursban	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Fenthion	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Parathion	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM

Original



Analytical Report

Work Order: 1908081
Date Reported: 8/20/2019

Client: Friedman & Bruya

Collection Date: 7/31/2019 11:55:00 AM

Project: 908015

Lab ID: 1908081-004

Matrix: Soil

Client Sample ID: Mass Ex-4-1.5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

Trichloronate	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Merphos	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Stirophos	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Prothiofos	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Fensulfothion	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Sulprofos	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
EPN	ND	52.7	QH	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Guthion	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Coumaphos	ND	52.7	H	µg/Kg-dry	1	8/13/2019 10:42:44 AM
Surr: Triphenylphosphate	76.4	10.7 - 154	H	%Rec	1	8/13/2019 10:42:44 AM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)

Batch ID: R53097

Analyst: CJ

Percent Moisture	8.56	0.500		wt%	1	8/7/2019 1:25:20 PM
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Analytical Report

Work Order: 1908081
Date Reported: 8/20/2019

Client: Friedman & Bruya

Collection Date: 7/31/2019 11:50:00 AM

Project: 908015

Lab ID: 1908081-005

Matrix: Soil

Client Sample ID: Mass Ex-5-2.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 25481

Analyst: SB

Dicamba	ND	36.6		µg/Kg-dry	1	8/20/2019 12:26:16 PM
2,4-D	ND	31.4		µg/Kg-dry	1	8/20/2019 12:26:16 PM
2,4-DP	ND	26.1		µg/Kg-dry	1	8/20/2019 12:26:16 PM
2,4,5-TP (Silvex)	ND	20.9		µg/Kg-dry	1	8/20/2019 12:26:16 PM
2,4,5-T	ND	52.3		µg/Kg-dry	1	8/20/2019 12:26:16 PM
Dinoseb	ND	31.4		µg/Kg-dry	1	8/20/2019 12:26:16 PM
Dalapon	ND	209		µg/Kg-dry	1	8/20/2019 12:26:16 PM
2,4-DB	ND	26.1		µg/Kg-dry	1	8/20/2019 12:26:16 PM
MCPP	ND	4,600		µg/Kg-dry	1	8/20/2019 12:26:16 PM
MCPA	ND	2,930		µg/Kg-dry	1	8/20/2019 12:26:16 PM
Picloram	ND	52.3		µg/Kg-dry	1	8/20/2019 12:26:16 PM
Bentazon	ND	36.6		µg/Kg-dry	1	8/20/2019 12:26:16 PM
Chloramben	ND	20.9		µg/Kg-dry	1	8/20/2019 12:26:16 PM
Acifluorfen	ND	83.6		µg/Kg-dry	1	8/20/2019 12:26:16 PM
3,5-Dichlorobenzoic acid	ND	41.8		µg/Kg-dry	1	8/20/2019 12:26:16 PM
4-Nitrophenol	ND	31.4		µg/Kg-dry	1	8/20/2019 12:26:16 PM
Dacthal (DCPA)	ND	31.4		µg/Kg-dry	1	8/20/2019 12:26:16 PM
Surr: 2,4-Dichlorophenylacetic acid	22.4	15.3 - 163		%Rec	1	8/20/2019 12:26:16 PM

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

DDVP	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Mevinphos	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
TEPP	ND	48.3	QH	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Demeton, Total	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Ethoprophos	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Naled	ND	48.3	QH	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Sulfotepp	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Monocrotophos	ND	48.3	QH	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Phorate	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Dimethoate	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Diazinon	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Disulfoton	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Parathion, methyl	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Fenchophos	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Malathion	164	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Dursban	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Fenthion	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Parathion	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM

Original



Analytical Report

Work Order: 1908081
Date Reported: 8/20/2019

Client: Friedman & Bruya

Collection Date: 7/31/2019 11:50:00 AM

Project: 908015

Lab ID: 1908081-005

Matrix: Soil

Client Sample ID: Mass Ex-5-2.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

Trichloronate	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Merphos	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Stirophos	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Prothiofos	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Fensulfothion	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Sulprofos	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
EPN	ND	48.3	QH	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Guthion	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Coumaphos	ND	48.3	H	µg/Kg-dry	1	8/13/2019 11:01:37 AM
Surr: Triphenylphosphate	72.1	10.7 - 154	H	%Rec	1	8/13/2019 11:01:37 AM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)

Batch ID: R53097

Analyst: CJ

Percent Moisture	5.45	0.500		wt%	1	8/7/2019 1:25:20 PM
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Analytical Report

Work Order: 1908081
Date Reported: 8/20/2019

Client: Friedman & Bruya

Collection Date: 7/31/2019 11:45:00 AM

Project: 908015

Lab ID: 1908081-006

Matrix: Soil

Client Sample ID: Mass Ex-6-2.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 25481

Analyst: SB

Dicamba	ND	36.5		µg/Kg-dry	1	8/20/2019 12:46:44 PM
2,4-D	40.1	31.3		µg/Kg-dry	1	8/20/2019 12:46:44 PM
2,4-DP	ND	26.1		µg/Kg-dry	1	8/20/2019 12:46:44 PM
2,4,5-TP (Silvex)	ND	20.9		µg/Kg-dry	1	8/20/2019 12:46:44 PM
2,4,5-T	ND	52.2		µg/Kg-dry	1	8/20/2019 12:46:44 PM
Dinoseb	ND	31.3		µg/Kg-dry	1	8/20/2019 12:46:44 PM
Dalapon	ND	209		µg/Kg-dry	1	8/20/2019 12:46:44 PM
2,4-DB	ND	26.1		µg/Kg-dry	1	8/20/2019 12:46:44 PM
MCPP	ND	4,590		µg/Kg-dry	1	8/20/2019 12:46:44 PM
MCPA	ND	2,920		µg/Kg-dry	1	8/20/2019 12:46:44 PM
Picloram	ND	52.2		µg/Kg-dry	1	8/20/2019 12:46:44 PM
Bentazon	ND	36.5		µg/Kg-dry	1	8/20/2019 12:46:44 PM
Chloramben	ND	20.9		µg/Kg-dry	1	8/20/2019 12:46:44 PM
Acifluorfen	ND	83.5		µg/Kg-dry	1	8/20/2019 12:46:44 PM
3,5-Dichlorobenzoic acid	ND	41.7		µg/Kg-dry	1	8/20/2019 12:46:44 PM
4-Nitrophenol	ND	31.3		µg/Kg-dry	1	8/20/2019 12:46:44 PM
Dacthal (DCPA)	ND	31.3		µg/Kg-dry	1	8/20/2019 12:46:44 PM
Surr: 2,4-Dichlorophenylacetic acid	101	15.3 - 163		%Rec	1	8/20/2019 12:46:44 PM

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

DDVP	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Mevinphos	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
TEPP	ND	47.2	QH	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Demeton, Total	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Ethoprophos	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Naled	ND	47.2	QH	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Sulfotepp	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Monocrotophos	ND	47.2	QH	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Phorate	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Dimethoate	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Diazinon	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Disulfoton	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Parathion, methyl	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Fenchophos	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Malathion	67.1	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Dursban	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Fenthion	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Parathion	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM

Original



Analytical Report

Work Order: 1908081
Date Reported: 8/20/2019

Client: Friedman & Bruya

Collection Date: 7/31/2019 11:45:00 AM

Project: 908015

Lab ID: 1908081-006

Matrix: Soil

Client Sample ID: Mass Ex-6-2.0

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

Trichloronate	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Merphos	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Stirophos	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Prothiofos	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Fensulfothion	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Sulprofos	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
EPN	ND	47.2	QH	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Guthion	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Coumaphos	ND	47.2	H	µg/Kg-dry	1	8/13/2019 11:20:34 AM
Surr: Triphenylphosphate	75.3	10.7 - 154	H	%Rec	1	8/13/2019 11:20:34 AM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)

Batch ID: R53097

Analyst: CJ

Percent Moisture	5.60	0.500		wt%	1	8/7/2019 1:25:20 PM
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Work Order: 1908081
CLIENT: Friedman & Bruya
Project: 908015

QC SUMMARY REPORT

Herbicides by EPA Method 8151A

Sample ID: MB-25481	SampType: MBLK	Units: µg/Kg			Prep Date: 8/13/2019			RunNo: 53370			
Client ID: MBLKS	Batch ID: 25481				Analysis Date: 8/20/2019			SeqNo: 1055792			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	ND	35.0									
2,4-D	ND	30.0									
2,4-DP	ND	25.0									
2,4,5-TP (Silvex)	ND	20.0									
2,4,5-T	ND	50.0									
Dinoseb	ND	30.0									
Dalapon	ND	200									
2,4-DB	ND	25.0									
MCPP	ND	4,400									
MCPA	ND	2,800									
Picloram	ND	50.0									
Bentazon	ND	35.0									
Chloramben	ND	20.0									
Acifluorfen	ND	80.0									
3,5-Dichlorobenzoic acid	ND	40.0									
4-Nitrophenol	ND	30.0									
Dacthal (DCPA)	ND	30.0									
Surr: 2,4-Dichlorophenylacetic acid	969		1,000		96.9	15.3	163				

Sample ID: LCS-25481	SampType: LCS	Units: µg/Kg				Prep Date: 8/13/2019			RunNo: 53370		
Client ID: LCSS	Batch ID: 25481	Analysis Date: 8/20/2019							SeqNo: 1055793		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	186	35.0	200.0	0	93.2	21.2	167				
2,4-D	200	30.0	200.0	0	99.9	32	176				
2,4-DP	187	25.0	200.0	0	93.6	25.8	171				
2,4,5-TP (Silvex)	189	20.0	200.0	0	94.3	23.6	164				
2,4,5-T	185	50.0	200.0	0	92.3	25	166				
Dinoseb	62.7	30.0	200.0	0	31.4	5	168				
Dalapon	994	200	1,000	0	99.4	29.2	195				

Work Order: 1908081
CLIENT: Friedman & Bruya
Project: 908015

QC SUMMARY REPORT

Herbicides by EPA Method 8151A

Sample ID: LCS-25481	SampType: LCS	Units: µg/Kg			Prep Date: 8/13/2019			RunNo: 53370			
Client ID: LCSS	Batch ID: 25481				Analysis Date: 8/20/2019			SeqNo: 1055793			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-DB	202	25.0	200.0	0	101	8.11	184				
MCPP	869	4,400	1,000	0	86.9	17.3	191				
MCPA	830	2,800	1,000	0	83.1	13.6	192				
Picloram	212	50.0	200.0	0	106	5	175				
Bentazon	181	35.0	200.0	0	90.7	21.5	170				
Chloramben	148	20.0	200.0	0	74.2	5	114				
Acifluorfen	119	80.0	200.0	0	59.5	5	168				
3,5-Dichlorobenzoic acid	194	40.0	200.0	0	97.1	26.2	174				
4-Nitrophenol	164	30.0	200.0	0	82.2	5.02	160				
Dacthal (DCPA)	191	30.0	200.0	0	95.3	18	168				
Surr: 2,4-Dichlorophenylacetic acid	997		1,000		99.7	15.3	163				

Sample ID: 1908094-002AMS	SampType: MS	Units: µg/Kg-dry				Prep Date: 8/13/2019			RunNo: 53370		
Client ID: BATCH	Batch ID: 25481	Analysis Date: 8/20/2019							SeqNo: 1055852		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	127	30.3	173.3	0	73.2	5	136				
2,4-D	146	26.0	173.3	0	84.0	5	151				
2,4-DP	139	21.7	173.3	0	80.1	5	149				
2,4,5-TP (Silvex)	146	17.3	173.3	0	84.5	5.43	140				
2,4,5-T	141	43.3	173.3	0	81.1	6.68	133				
Dinoseb	118	26.0	173.3	0	68.1	5	141				
Dalapon	599	173	866.6	0	69.1	5	179				
2,4-DB	171	21.7	173.3	0	98.8	5.57	160				
MCP	630	3,810	866.6	0	72.7	5	174				
MCPA	606	2,430	866.6	0	69.9	5	154				
Picloram	100	43.3	173.3	0	58.0	5	139				
Bentazon	142	30.3	173.3	0	81.7	5.31	146				
Chloramben	91.1	17.3	173.3	0	52.6	5	134				
Acifluorfen	102	69.3	173.3	0	59.0	5	168				

Work Order: 1908081
CLIENT: Friedman & Bruya
Project: 908015

QC SUMMARY REPORT

Herbicides by EPA Method 8151A

Sample ID: 1908094-002AMS		SampType: MS		Units: µg/Kg-dry		Prep Date: 8/13/2019			RunNo: 53370		
Client ID: BATCH		Batch ID: 25481					Analysis Date: 8/20/2019			SeqNo: 1055852	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

3,5-Dichlorobenzoic acid	136	34.7	173.3	0	78.6	6.99	144				
4-Nitrophenol	145	26.0	173.3	0	83.7	10.2	139				
Dacthal (DCPA)	44.8	26.0	173.3	0	25.8	5	156				
Surr: 2,4-Dichlorophenylacetic acid	698		866.6		80.6	15.3	163				

Sample ID: 1908094-002AMSD		SampType: MSD			Units: µg/Kg-dry		Prep Date: 8/13/2019			RunNo: 53370		
Client ID: BATCH		Batch ID: 25481			Analysis Date: 8/20/2019			SeqNo: 1055853				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Dicamba	150	32.5	185.8	0	81.0	5	136	126.9	17.0	30	
2,4-D	173	27.9	185.8	0	93.1	5	151	145.5	17.3	30	
2,4-DP	166	23.2	185.8	0	89.3	5	149	138.9	17.7	30	
2,4,5-TP (Silvex)	174	18.6	185.8	0	93.4	5.43	140	146.5	17.0	30	
2,4,5-T	167	46.5	185.8	0	89.6	6.68	133	140.6	16.9	30	
Dinoseb	137	27.9	185.8	0	74.0	5	141	118.0	15.2	30	
Dalapon	660	186	929.0	0	71.0	5	179	598.5	9.72	30	
2,4-DB	206	23.2	185.8	0	111	5.57	160	171.3	18.5	30	
MCPP	764	4,090	929.0	0	82.2	5	174	0		30	
MCPA	732	2,600	929.0	0	78.8	5	154	0		30	
Picloram	117	46.5	185.8	0	62.9	5	139	100.5	15.1	30	
Bentazon	172	32.5	185.8	0	92.3	5.31	146	141.6	19.1	30	
Chloramben	129	18.6	185.8	0	69.6	5	134	91.08	34.6	30	R
Acifluorfen	117	74.3	185.8	0	63.1	5	168	102.3	13.7	30	
3,5-Dichlorobenzoic acid	162	37.2	185.8	0	87.2	6.99	144	136.3	17.3	30	
4-Nitrophenol	174	27.9	185.8	0	93.4	10.2	139	145.1	17.9	30	
Dacthal (DCPA)	48.1	27.9	185.8	0	25.9	5	156	44.80	7.14	30	
Surr: 2,4-Dichlorophenylacetic acid	827		929.0		89.0	15.3	163		0		

NOTES:

R - High RPD observed, spike recovery is within range.

Work Order: 1908081
CLIENT: Friedman & Bruya
Project: 908015

QC SUMMARY REPORT

Herbicides by EPA Method 8151A

Sample ID: 1908094-002ADUP		SampType: DUP		Units: µg/Kg-dry		Prep Date: 8/13/2019			RunNo: 53370		
Client ID: BATCH		Batch ID: 25481					Analysis Date: 8/20/2019			SeqNo: 1055854	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	ND	35.3						0		30	
2,4-D	ND	30.3						0		30	
2,4-DP	ND	25.2						0		30	
2,4,5-TP (Silvex)	ND	20.2						0		30	
2,4,5-T	ND	50.5						0		30	
Dinoseb	ND	30.3						0		30	
Dalapon	ND	202						0		30	
2,4-DB	ND	25.2						0		30	
MCPP	ND	4,440						0		30	
MCPA	ND	2,830						0		30	
Picloram	ND	50.5						0		30	
Bentazon	ND	35.3						0		30	
Chloramben	ND	20.2						0		30	
Acifluorfen	ND	80.8						0		30	
3,5-Dichlorobenzoic acid	ND	40.4						0		30	
4-Nitrophenol	ND	30.3						0		30	
Dacthal (DCPA)	ND	30.3						0		30	
Surr: 2,4-Dichlorophenylacetic acid	865		1,010		85.6	15.3	163		0		

Work Order: 1908081
CLIENT: Friedman & Bruya
Project: 908015

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: MB-25428	SampType: MBLK	Units: µg/Kg			Prep Date: 8/8/2019			RunNo: 53228			
Client ID: MBLKS	Batch ID: 25428	Analysis Date: 8/13/2019						SeqNo: 1052172			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	ND	50.0									
Mevinphos	ND	50.0									
TEPP	ND	50.0									Q
Demeton, Total	ND	50.0									
Ethoprophos	ND	50.0									
Naled	ND	50.0									Q
Sulfotepp	ND	50.0									
Monocrotophos	ND	50.0									Q
Phorate	ND	50.0									
Dimethoate	ND	50.0									
Diazinon	ND	50.0									
Disulfoton	ND	50.0									
Parathion, methyl	ND	50.0									
Fenchorphos	ND	50.0									
Malathion	ND	50.0									
Dursban	ND	50.0									
Fenthion	ND	50.0									
Parathion	ND	50.0									
Trichloronate	ND	50.0									
Merphos	ND	50.0									
Stirophos	ND	50.0									
Prothiofos	ND	50.0									
Fensulfothion	ND	50.0									
Sulprofos	ND	50.0									
EPN	ND	50.0									Q
Guthion	ND	50.0									
Coumaphos	ND	50.0									
Surr: Triphenylphosphate	15.9		20.00		79.6	10.7	154				

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Work Order: 1908081
CLIENT: Friedman & Bruya
Project: 908015

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: LCS-25428	SampType: LCS	Units: µg/Kg				Prep Date: 8/8/2019			RunNo: 53228		
Client ID: LCSS	Batch ID: 25428	Analysis Date: 8/13/2019						SeqNo: 1052173			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	16.1	50.0	20.00	0	80.5	7.85	133				
Mevinphos	14.4	50.0	20.00	0	72.1	28.7	131				
TEPP	8.72	50.0	20.00	0	43.6	5	119				
Demeton, Total	13.0	50.0	20.00	0	65.2	31.4	149				
Ethoprophos	15.1	50.0	20.00	0	75.5	31.9	144				
Naled	12.5	50.0	20.00	0	62.4	10	147				
Sulfotepp	15.4	50.0	20.00	0	76.8	26.9	144				
Monocrotophos	11.6	50.0	20.00	0	58.0	10	129				
Phorate	14.4	50.0	20.00	0	72.1	40.9	118				
Dimethoate	15.1	50.0	20.00	0	75.7	23.6	127				
Diazinon	14.9	50.0	20.00	0	74.4	37.1	132				
Disulfoton	14.5	50.0	20.00	0	72.7	37.9	122				
Parathion, methyl	15.2	50.0	20.00	0	75.8	16.8	143				
Fenchorphos	15.6	50.0	20.00	0	78.0	36.7	117				
Malathion	13.4	50.0	20.00	0	67.4	26.9	131				
Dursban	15.3	50.0	20.00	0	76.6	40.8	124				
Fenthion	14.8	50.0	20.00	0	74.0	36.6	127				
Parathion	15.3	50.0	20.00	0	76.6	37.6	129				
Trichloronate	15.3	50.0	20.00	0	76.5	41.5	123				
Merphos	5.22	50.0	20.00	0	26.1	10	122				
Stirophos	15.1	50.0	20.00	0	75.3	20.6	126				
Prothiofos	14.7	50.0	20.00	0	73.3	37.1	135				
Fensulfothion	15.3	50.0	20.00	0	76.4	14.6	152				
Sulprofos	13.1	50.0	20.00	0	65.5	34.6	137				
EPN	14.5	50.0	20.00	0	72.5	26.7	150				
Guthion	13.7	50.0	20.00	0	68.7	5	151				
Coumaphos	14.4	50.0	20.00	0	72.1	10	152				
Surr: Triphenylphosphate	16.8		20.00		84.1	10.7	154				

Work Order: 1908081
CLIENT: Friedman & Bruya
Project: 908015

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: 1908081-002ADUP		SampType: DUP		Units: µg/Kg-dry		Prep Date: 8/8/2019			RunNo: 53228		
Client ID: Mass Ex-2-2.5		Batch ID: 25428		Analysis Date: 8/13/2019						SeqNo: 1052176	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	ND	48.2						0		30	H
Mevinphos	ND	48.2						0		30	H
TEPP	ND	48.2						0		30	QH
Demeton, Total	ND	48.2						0		30	H
Ethoprophos	ND	48.2						0		30	H
Naled	ND	48.2						0		30	QH
Sulfotepp	ND	48.2						0		30	H
Monocrotophos	ND	48.2						0		30	QH
Phorate	ND	48.2						0		30	H
Dimethoate	ND	48.2						0		30	H
Diazinon	ND	48.2						0		30	H
Disulfoton	ND	48.2						0		30	H
Parathion, methyl	ND	48.2						0		30	H
Fenchorphos	ND	48.2						0		30	H
Malathion	ND	48.2						0		30	H
Dursban	ND	48.2						0		30	H
Fenthion	ND	48.2						0		30	H
Parathion	ND	48.2						0		30	H
Trichloronate	ND	48.2						0		30	H
Merphos	ND	48.2						0		30	H
Stirophos	ND	48.2						0		30	H
Prothiofos	ND	48.2						0		30	H
Fensulfothion	ND	48.2						0		30	H
Sulprofos	ND	48.2						0		30	H
EPN	ND	48.2						0		30	QH
Guthion	ND	48.2						0		30	H
Coumaphos	ND	48.2						0		30	H
Surr: Triphenylphosphate	13.8		19.27		71.8	10.7	154		0		H

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Work Order: 1908081
CLIENT: Friedman & Bruya
Project: 908015

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: 1908133-008AMS		SampType: MS		Units: µg/Kg-dry		Prep Date: 8/8/2019		RunNo: 53228			
Client ID: BATCH		Batch ID: 25428				Analysis Date: 8/13/2019		SeqNo: 1053315			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	12.8	48.2	19.26	0	66.4	5	138				
Mevinphos	6.73	48.2	19.26	0	34.9	5	148				
TEPP	0.00	48.2	19.26	0	0	5	121				S
Demeton, Total	10.8	48.2	19.26	0	56.0	24.3	141				
Ethoprophos	11.3	48.2	19.26	0	58.6	13.2	145				
Naled	0.00	48.2	19.26	0	0	5	121				S
Sulfotepp	11.6	48.2	19.26	0	60.2	26.8	120				
Monocrotophos	0.00	48.2	19.26	0	0	5	196				S
Phorate	12.5	48.2	19.26	0	65.0	29.4	122				
Dimethoate	13.9	48.2	19.26	0	72.2	5	161				
Diazinon	12.9	48.2	19.26	0	67.2	9.74	142				
Disulfoton	13.0	48.2	19.26	0	67.4	23.9	137				
Parathion, methyl	12.4	48.2	19.26	0	64.3	5.64	177				
Fenchorphos	12.2	48.2	19.26	0	63.1	25.3	131				
Malathion	287	48.2	19.26	343.0	-290	23.5	121				S
Dursban	12.6	48.2	19.26	0	65.6	28.2	128				
Fenthion	12.0	48.2	19.26	0	62.1	24.2	136				
Parathion	185	48.2	19.26	158.9	137	5	173				
Trichloronate	16.1	48.2	19.26	0	83.8	28.5	122				
Merphos	0.00	48.2	19.26	0	0	5	90.1				S
Stirophos	12.1	48.2	19.26	0	63.0	9.46	152				
Prothiofos	16.1	48.2	19.26	0	83.3	23.7	157				
Fensulfothion	10.7	48.2	19.26	0	55.3	5	174				
Sulprofos	13.1	48.2	19.26	0	67.8	12	173				
EPN	14.5	48.2	19.26	0	75.1	13.8	157				
Guthion	13.9	48.2	19.26	0	71.9	5	177				
Coumaphos	15.9	48.2	19.26	0	82.6	5	232				
Surr: Triphenylphosphate	14.6		19.26		75.9	10.7	154				

NOTES:

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

Work Order: 1908081
CLIENT: Friedman & Bruya
Project: 908015

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: 1908133-008AMSD	SampType: MSD	Units: µg/Kg-dry				Prep Date: 8/8/2019			RunNo: 53228		
Client ID: BATCH	Batch ID: 25428	Analysis Date: 8/13/2019							SeqNo: 1053317		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	14.2	47.1	18.84	0	75.2	5	138	0		30	
Mevinphos	7.59	47.1	18.84	0	40.3	5	148	0		30	
TEPP	0.00	47.1	18.84	0	0	5	121	0		30	S
Demeton, Total	12.5	47.1	18.84	0	66.1	24.3	141	0		30	
Ethoprophos	12.6	47.1	18.84	0	66.8	13.2	145	0		30	
Naled	0.00	47.1	18.84	0	0	5	121	0		30	S
Sulfotepp	12.2	47.1	18.84	0	64.7	26.8	120	0		30	
Monocrotophos	0.00	47.1	18.84	0	0	5	196	0		30	S
Phorate	13.3	47.1	18.84	0	70.4	29.4	122	0		30	
Dimethoate	13.4	47.1	18.84	0	71.0	5	161	0		30	
Diazinon	13.3	47.1	18.84	0	70.7	9.74	142	0		30	
Disulfoton	16.6	47.1	18.84	0	87.9	23.9	137	0		30	
Parathion, methyl	14.0	47.1	18.84	0	74.5	5.64	177	0		30	
Fenchorphos	12.8	47.1	18.84	0	67.7	25.3	131	0		30	
Malathion	132	47.1	18.84	343.0	-1,120	23.5	121	287.2	74.0	30	RS
Dursban	13.6	47.1	18.84	0	72.4	28.2	128	0		30	
Fenthion	12.6	47.1	18.84	0	66.9	24.2	136	0		30	
Parathion	120	47.1	18.84	158.9	-208	5	173	185.2	43.0	30	RS
Trichloronate	17.9	47.1	18.84	0	94.9	28.5	122	0		30	
Merphos	0.00	47.1	18.84	0	0	5	90.1	0		30	S
Stirophos	12.6	47.1	18.84	0	66.8	9.46	152	0		30	
Prothiofos	15.7	47.1	18.84	0	83.4	23.7	157	0		30	
Fensulfothion	11.4	47.1	18.84	0	60.6	5	174	0		30	
Sulprofos	13.7	47.1	18.84	0	72.5	12	173	0		30	
EPN	14.3	47.1	18.84	0	76.1	13.8	157	0		30	
Guthion	14.1	47.1	18.84	0	74.9	5	177	0		30	
Coumaphos	16.4	47.1	18.84	0	86.9	5	232	0		30	
Surr: Triphenylphosphate	13.3		18.84		70.5	10.7	154		0		

NOTES:

SR - Outlying spike recovery(ies) and high RPD due to suspected sample inhomogeneity. The method is in control as indicated by the LCS.

Work Order: 1908081
CLIENT: Friedman & Bruya
Project: 908015

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID: 1908081-001ADUP		SampType: DUP			Units: wt%		Prep Date: 8/7/2019			RunNo: 53097		
Client ID: Mass Ex-1-2.5		Batch ID: R53097						Analysis Date: 8/7/2019			SeqNo: 1049173	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Percent Moisture	4.73	0.500						4.850	2.57	20		

Sample ID: 1908081-004ADUP		SampType: DUP			Units: wt%		Prep Date: 8/7/2019			RunNo: 53097		
Client ID: Mass Ex-4-1.5		Batch ID: R53097						Analysis Date: 8/7/2019			SeqNo: 1049177	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Percent Moisture	8.24	0.500						8.564	3.85	20		

Client Name: **FB**
 Logged by: **Carissa True**

Work Order Number: **1908081**
 Date Received: **8/6/2019 2:47:00 PM**

Chain of Custody

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

Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐
 4. Shipping container/cooler in good condition? Yes ☒ No ☐
 5. Custody Seals present on shipping container/cooler?
 (Refer to comments for Custody Seals not intact) Yes ☐ No ☒ Not Required ☐
 6. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
 7. Were all items received at a temperature of $>0^{\circ}\text{C}$ to 10.0°C * Yes ☒ No ☐ NA ☐
 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 condition(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 ☒

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: Date:
 By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
 Regarding:
 Client Instructions:

19. Additional remarks:

Item Information

Item #	Temp $^{\circ}\text{C}$
Cooler 1	6.6
Sample 1	9.0

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

1908081

TURNAROUND TIME

SH

SAMPLE DISPOSAL

pose after 30 days

urn samples

I call with instructions

Page 28 of 28

1

SAMPLE CHAIN OF CUSTODY

ME 08-01-19

Page # 602 of 605

Report To Fisherman Fish Lab

Company Aspect Consulting

Address _____

City, State, ZIP _____

Phone 206 713 2136 Email F.Kahn@aspectconsulting.com

SAMPLERS (signature)		PROJECT NAME		INVOICE TO	
<u>[Signature]</u>		<u>190</u>		<u>190 245</u>	
REMARKS		INVOICE TO		SAMPLE DISPOSAL	
				<input type="checkbox"/> Standard Turnaround <input type="checkbox"/> RUSH <input type="checkbox"/> Rush charges authorized by: _____ <input type="checkbox"/> Dispose after 30 days <input type="checkbox"/> Archive Samples <input checked="" type="checkbox"/> Other Will Collect Lab	

							ANALYSES REQUESTED											
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars		TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	MTCA 5 Metals	Chlorinated Herbicides	Chlorinated Pesticides	Organophosphorus Pesticides	Notes
Mass Ex-1-2.5	01A-E	7-31-19	1035	Soil	1													(X) STDAT
Mass Ex-2-2.5	02		1045					(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	6/5/19 ME
Mass Ex-3-2.5	03		1055												(X)	(X)	(X)	
Mass Ex-4-1.5	04		1155												(X)	(X)	(X)	
Mass Ex-5-2.0	05		1150					(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	
Mass Ex-6-2.0	06		1145					(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
<u>[Signature]</u>		<u>Bill Sullivan</u>		<u>Aspect Consulting</u>		<u>7/31/19</u>	<u>1400</u>
Received by: <u>[Signature]</u>		<u>Nhan Phan</u>		<u>FBI</u>		<u>8/1/19</u>	<u>1030</u>
Relinquished by: _____							
Received by: _____				<u>Samples received at</u>		<u>4</u>	<u>00</u>

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 6, 2019

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

Dear Mr Khan:

Included are the results from the testing of material submitted on August 1, 2019 from the Pangborn, F&BI 908014 project. There are 7 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: Data Aspect
ASP0806R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 1, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Pangborn, F&BI 908014 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
908014 -01	UST2-B-5.5
908014 -02	UST2-W-3.0
908014 -03	UST2-E-3.0
908014 -04	UST2-N-3.0
908014 -05	UST2-S-3.0
908014 -06	UST1-B-8.0
908014 -07	UST1-N-5.0
908014 -08	UST1-W-5.0
908014 -09	UST1-E-5.0
908014 -10	UST1-S-5.0

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/06/19

Date Received: 08/01/19

Project: Pangborn, F&BI 908014

Date Extracted: 08/01/19

Date Analyzed: 08/01/19

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
UST2-B-5.5 908014-01	<0.02	<0.02	<0.02	<0.06	<5	91
UST2-W-3.0 908014-02	<0.02	<0.02	<0.02	<0.06	<5	90
UST2-E-3.0 908014-03	<0.02	<0.02	<0.02	<0.06	<5	91
UST2-N-3.0 908014-04	<0.02	<0.02	<0.02	<0.06	<5	91
UST2-S-3.0 908014-05	<0.02	<0.02	<0.02	<0.06	<5	92
Method Blank 09-1814 MB	<0.02	<0.02	<0.02	<0.06	<5	103

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/06/19

Date Received: 08/01/19

Project: Pangborn, F&BI 908014

Date Extracted: 08/01/19

Date Analyzed: 08/01/19

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES
USING METHOD 8021B**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
UST1-B-8.0 908014-06	<0.02	<0.02	<0.02	<0.06	91
UST1-N-5.0 908014-07	<0.02	<0.02	<0.02	<0.06	93
UST1-W-5.0 908014-08	<0.02	<0.02	<0.02	<0.06	92
UST1-E-5.0 908014-09	<0.02	<0.02	<0.02	<0.06	95
UST1-S-5.0 908014-10	<0.02	<0.02	<0.02	<0.06	94
Method Blank 09-1888 MB	<0.02	<0.02	<0.02	<0.06	93

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/06/19

Date Received: 08/01/19

Project: Pangborn, F&BI 908014

Date Extracted: 08/02/19

Date Analyzed: 08/02/19

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 53-144)
UST1-B-8.0 908014-06	440 x	1,500	105
UST1-N-5.0 908014-07	<50	<250	103
UST1-W-5.0 908014-08	<50	<250	103
UST1-E-5.0 908014-09	700	950	106
UST1-S-5.0 908014-10	<50	<250	102
Method Blank 09-1889 MB2	<50	<250	97

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/06/19

Date Received: 08/01/19

Project: Pangborn, F&BI 908014

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

Laboratory Code: 907592-03 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	
			Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	82	66-121
Toluene	mg/kg (ppm)	0.5	96	72-128
Ethylbenzene	mg/kg (ppm)	0.5	98	69-132
Xylenes	mg/kg (ppm)	1.5	100	69-131
Gasoline	mg/kg (ppm)	20	85	61-153

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/06/19

Date Received: 08/01/19

Project: Pangborn, F&BI 908014

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

Laboratory Code: 907579-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	112	114	64-133	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	116	58-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

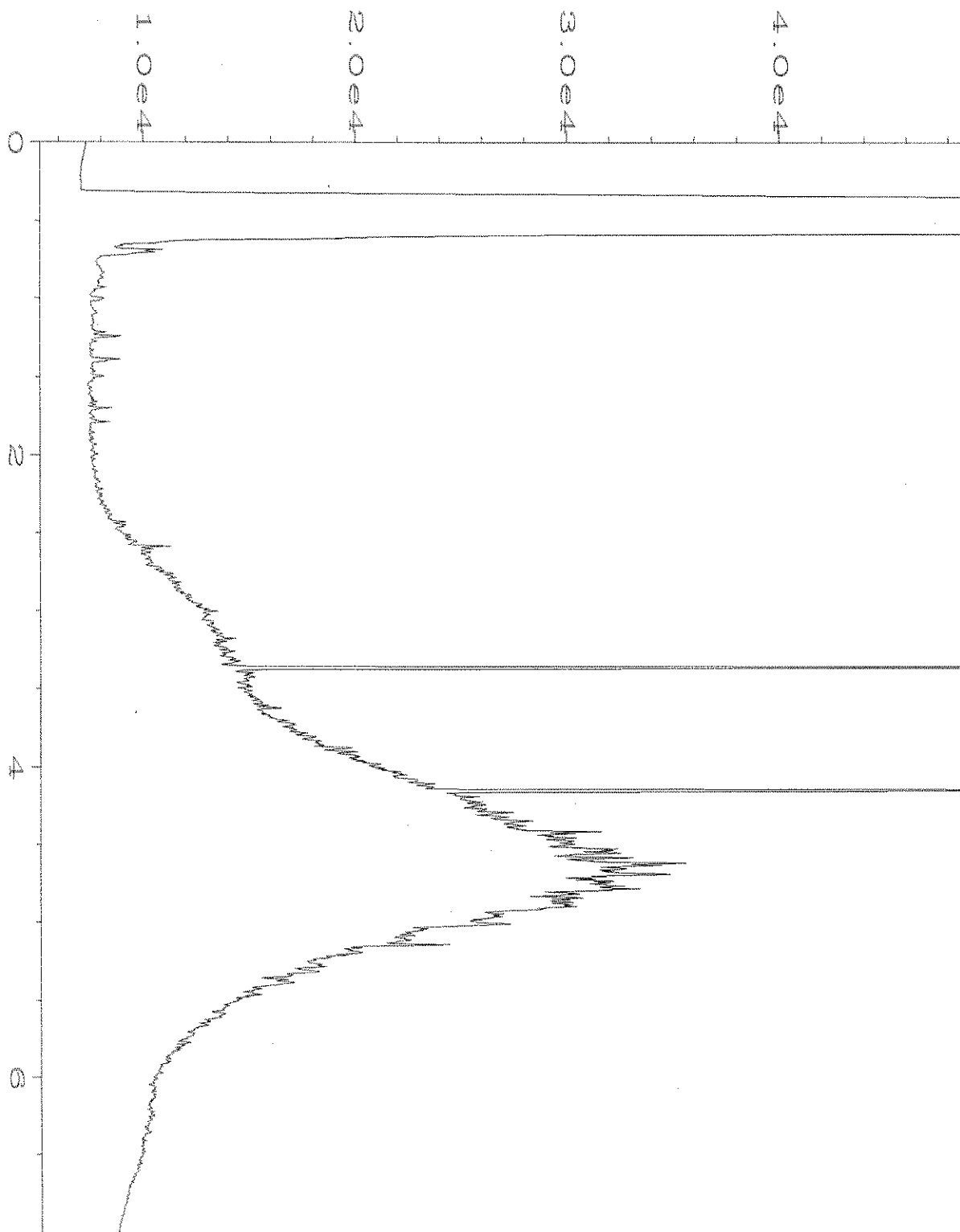
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

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

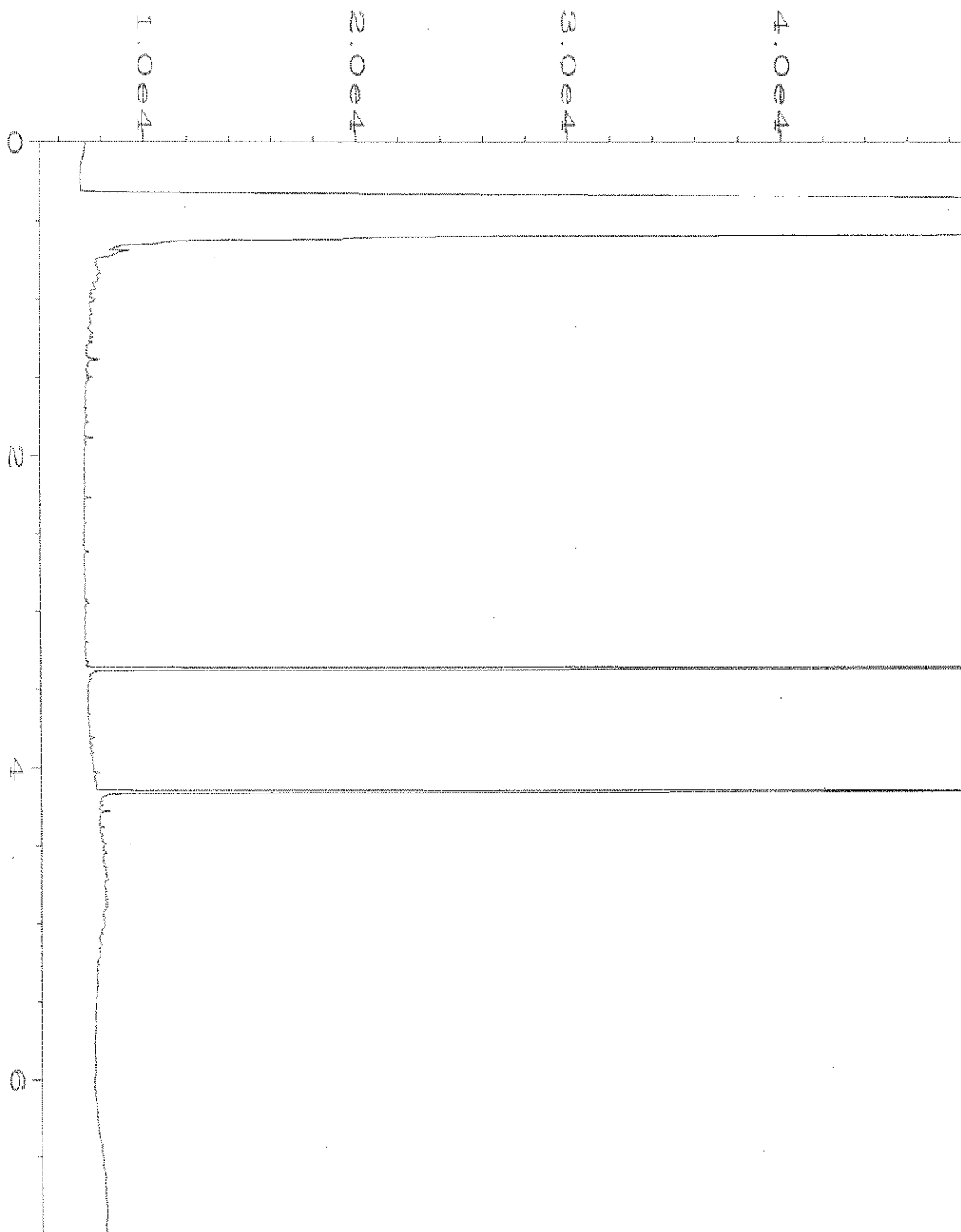
ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

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

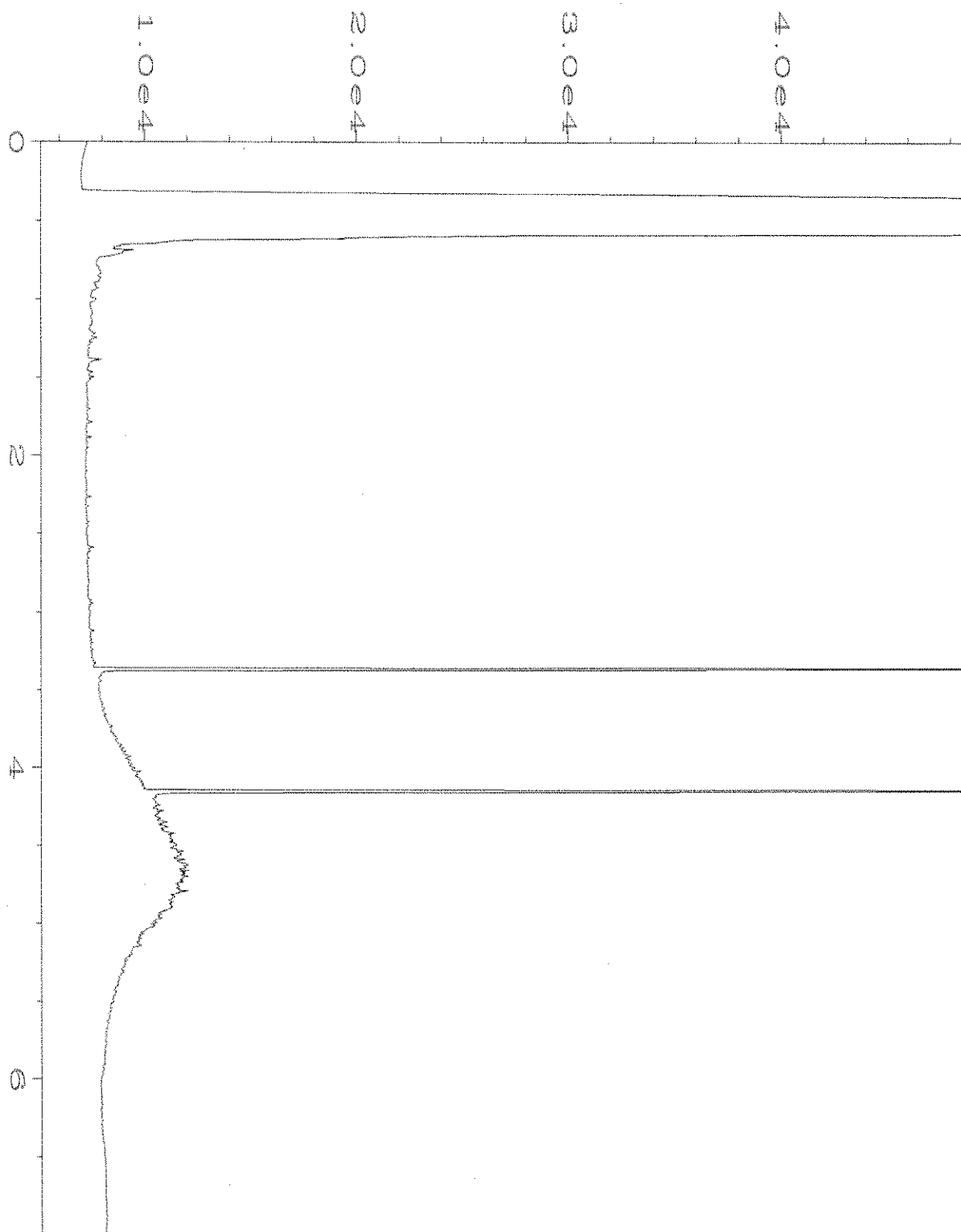
x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.



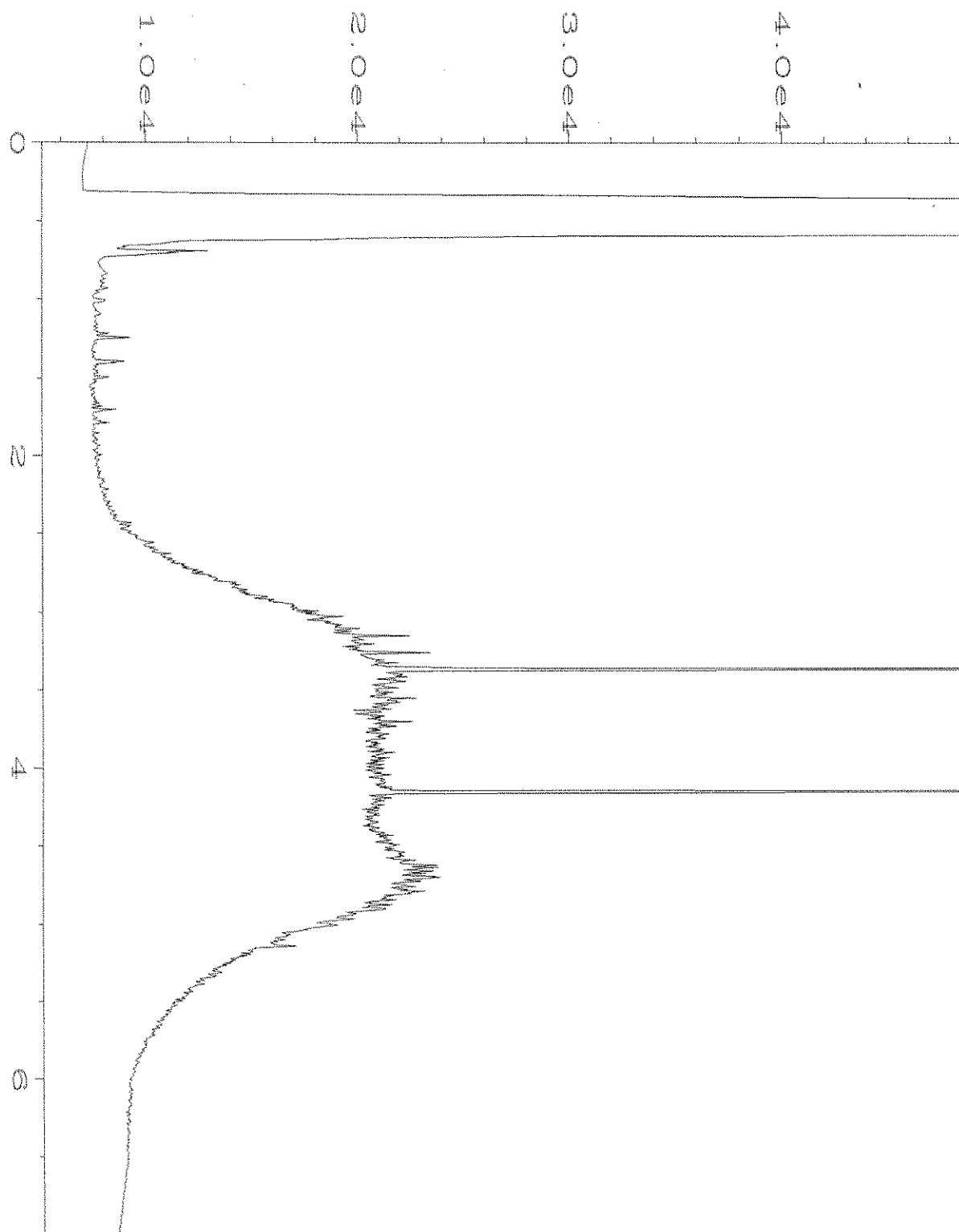
Data File Name	: C:\HPCHEM\6\DATA\08-02-19\011F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 11
Instrument	: GC6	Injection Number	: 1
Sample Name	: 908014-06	Sequence Line	: 3
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 02 Aug 19 10:18 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	05 Aug 19 08:23 AM		



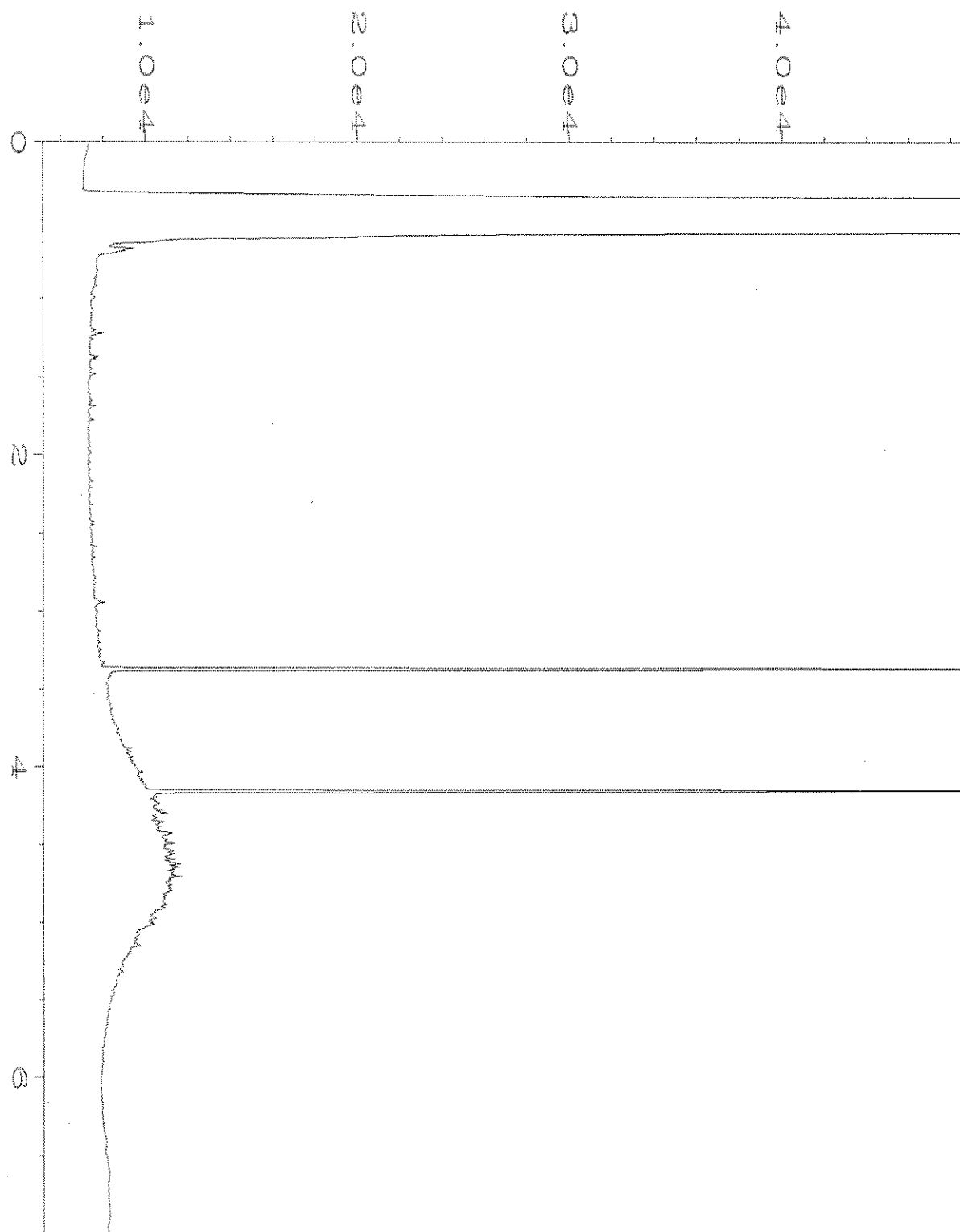
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Operator	: TL	Vial Number	: 12
Instrument	: GC6	Injection Number	: 1
Sample Name	: 908014-07	Sequence Line	: 3
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 02 Aug 19 10:29 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	: 05 Aug 19 08:23 AM		



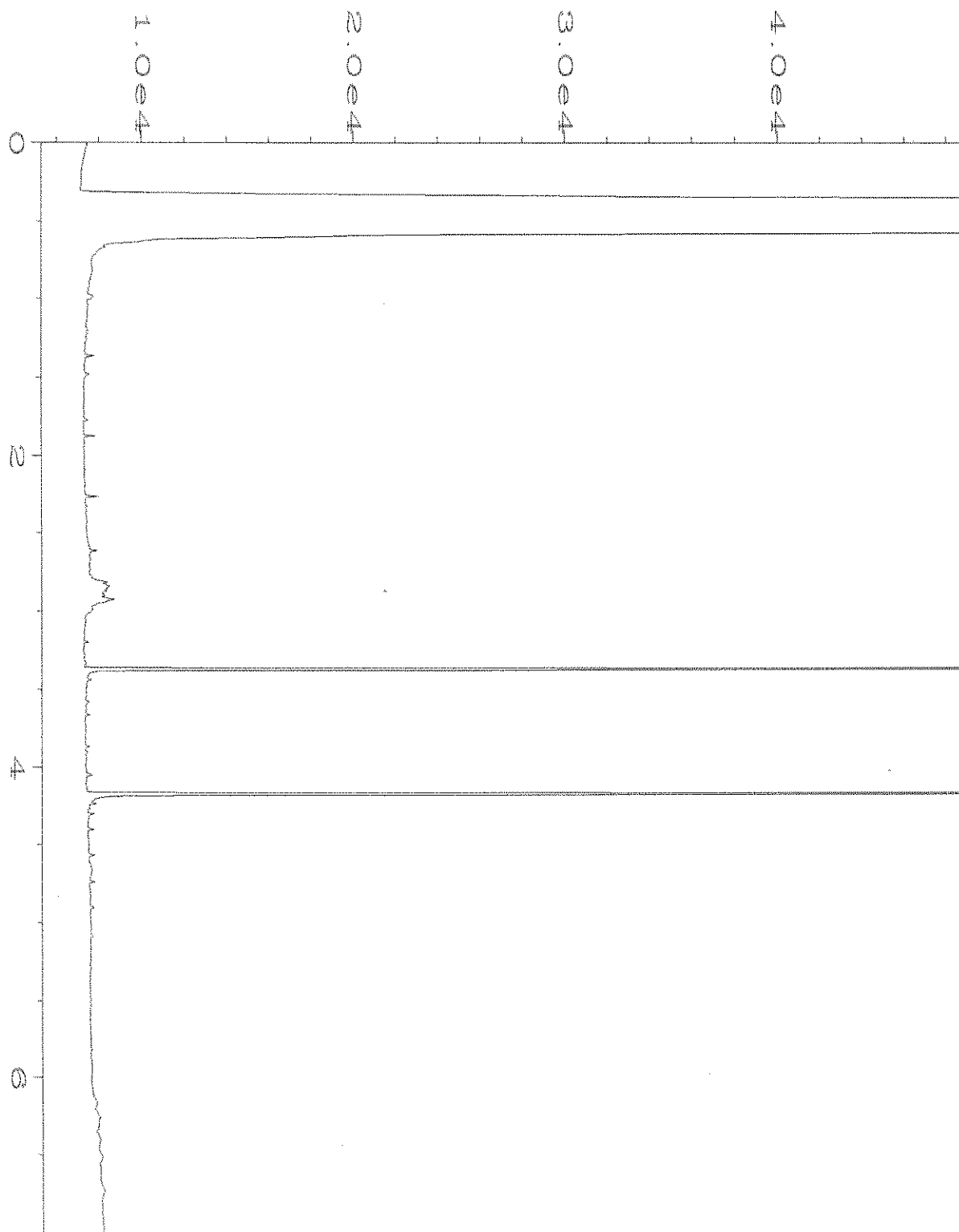
Data File Name	: C:\HPCHEM\6\DATA\08-02-19\013F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 13
Instrument	: GC6	Injection Number	: 1
Sample Name	: 908014-08	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 02 Aug 19 10:41 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	05 Aug 19 08:23 AM		



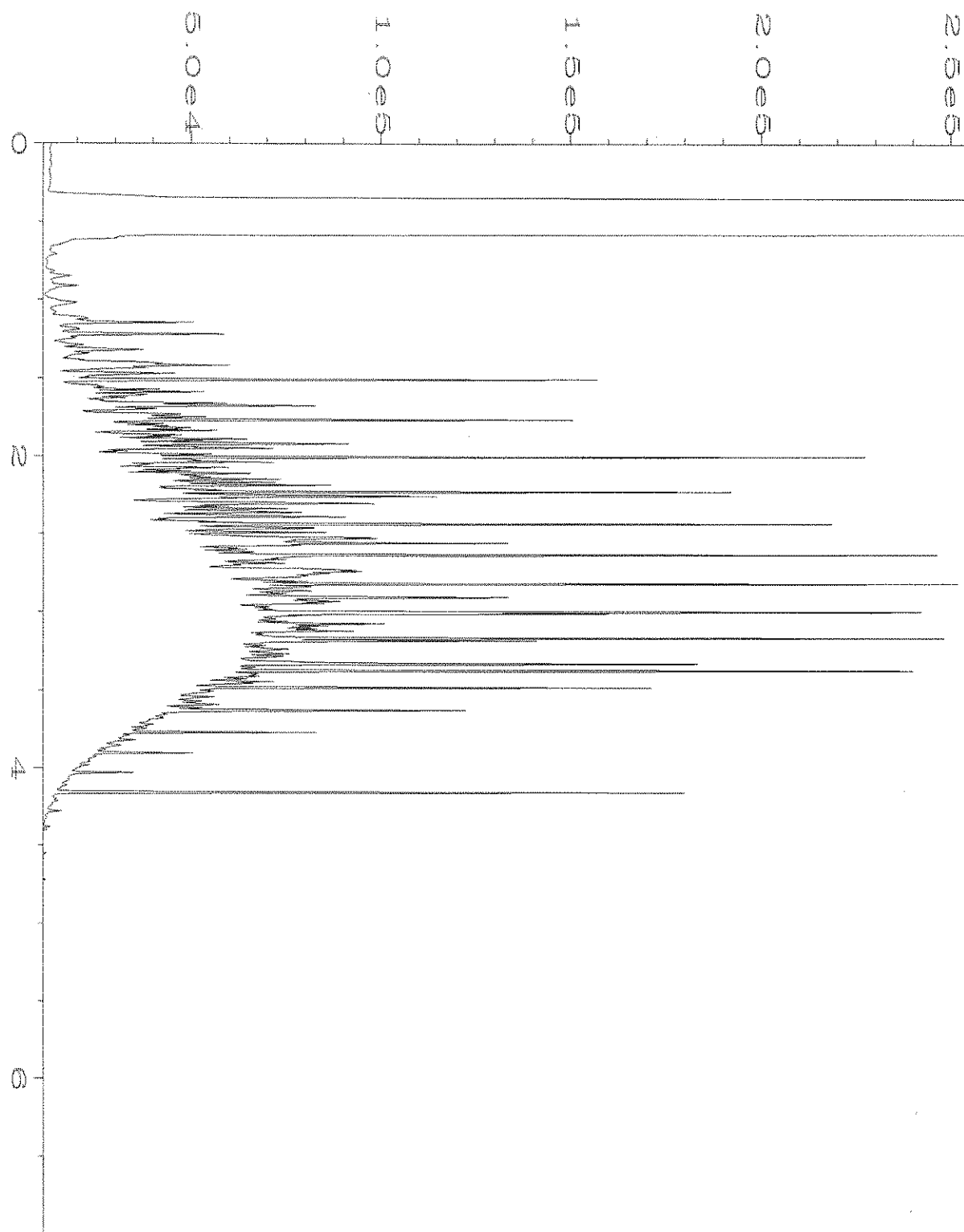
Data File Name	: C:\HPCHEM\6\DATA\08-02-19\014F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 14
Instrument	: GC6	Injection Number	: 1
Sample Name	: 908014-09	Sequence Line	: 3
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 02 Aug 19 10:52 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	: 05 Aug 19 08:23 AM		



Data File Name	: C:\HPCHEM\6\DATA\08-02-19\015F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 15
Instrument	: GC6	Injection Number	: 1
Sample Name	: 908014-10	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 02 Aug 19 11:03 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	05 Aug 19 08:23 AM		



Data File Name	: C:\HPCHEM\6\DATA\08-02-19\006F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 6
Instrument	: GC6	Injection Number	: 1
Sample Name	: 09-1889 mb2	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 02 Aug 19 09:24 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	05 Aug 19 08:23 AM		



Data File Name	: C:\HPCHEM\6\DATA\08-02-19\005F0601.D	Page Number	: 1
Operator	: TL	Vial Number	: 5
Instrument	: GC6	Injection Number	: 1
Sample Name	: 1000 Dx 57-78B	Sequence Line	: 6
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 02 Aug 19 03:03 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	05 Aug 19 08:24 AM		

Report To Ias.h Keenan

Company Aspect Consulting

Address,

City, State, ZIP

Phone 206 713 2136 Email fhr@hrntransf.ty.com

SAMPLE CHAIN OF CUSTODY

David Bar/5

ME 08/01/19
Page # 1 of 1

SAMPLERS (*signature*)

PROJECT NAME

Pangborn

REMARKS

PO#

INVOICE TO

54261

TURNAROUND TIME

☒ Standard Turnaround
☐ RUSH _____

Rush charges authorized by:

SAMPLE DISPOSAL

~~Dispose after 30 days~~

☐ Archive Samples

Other



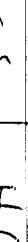
					ANALYSES REQUESTED											
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars (<u>NP</u>)	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM				Notes
VST a -B-5.5	01 AE	7-30-14	1633	Soil	<u>5</u>			X	X							
VST a -W-3.0	02		1637													
VST a -E-3.0	03		1641													
VST a -N-3.0	04		1646													
VST a -S-3.0	05		1650					X								
VST I -B-8.0	06		1748			X										
VST I -N-5.0	07		1753													
VST I -W-5.0	08		1756													
VST I -E-5.0	09		1800													
VST I -S-5.0	10		1803			X			X							Samples received at <u>4</u> °C

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: 	David Boys	HCF	7/31/19	8:30
Received by: 	Bill Sullivan	Aspect	7/31/19	0830
Relinquished by:				
Received by: 	Nathan Phan	FABI	8/1/19	1030

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

June 7, 2019

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

Dear Mr Khan:

Included are the results from the testing of material submitted on May 30, 2019 from the Pangborn Airport 190245, F&BI 905594 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: Data Aspect
ASP0607R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on May 30, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Pangborn Airport 190245, F&BI 905594 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
905594 -01	EXCA-Comp-1
905594 -02	EXCA-Comp-2
905594 -03	EXCA-Comp-3

The samples were sent to Fremont Analytical for organophosphorus pesticide and chlorinated herbicide analyses. The report is enclosed.

The 8081B calibration standard failed the acceptance criteria for several analytes in sample EXCA-Comp-1. The data were flagged accordingly. The sample was reanalyzed with similar effect, therefore the failing calibration standard is due to high levels of contamination present in the sample.

Several 8081B compounds failed below the acceptance criteria in the matrix spike samples. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/07/19

Date Received: 05/30/19

Project: Pangborn Airport 190245, F&BI 905594

Date Extracted: 05/31/19

Date Analyzed: 05/31/19

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u>	<u>Diesel Range</u>	<u>Motor Oil Range</u>	<u>Surrogate</u>
Laboratory ID	(C ₁₀ -C ₂₅)	(C ₂₅ -C ₃₆)	(% Recovery)
			(Limit 56-165)
EXCA-Comp-1	680 x	3,400	103
905594-01			
EXCA-Comp-2	<50	<250	104
905594-02			
EXCA-Comp-3	<50	<250	105
905594-03			
Method Blank	<50	<250	96
09-1262 MB			

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	EXCA-Comp-1	Client:	Aspect Consulting, LLC
Date Received:	05/30/19	Project:	Pangborn Airport 190245
Date Extracted:	05/31/19	Lab ID:	905594-01
Date Analyzed:	05/31/19	Data File:	905594-01.093
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Arsenic	2.37
Cadmium	3.91
Chromium	10.0
Lead	177
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	EXCA-Comp-2	Client:	Aspect Consulting, LLC
Date Received:	05/30/19	Project:	Pangborn Airport 190245
Date Extracted:	05/31/19	Lab ID:	905594-02
Date Analyzed:	05/31/19	Data File:	905594-02.094
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Arsenic	2.53
Cadmium	<1
Chromium	11.3
Lead	13.2
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	EXCA-Comp-3	Client:	Aspect Consulting, LLC
Date Received:	05/30/19	Project:	Pangborn Airport 190245
Date Extracted:	05/31/19	Lab ID:	905594-03
Date Analyzed:	05/31/19	Data File:	905594-03.095
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Arsenic	1.83
Cadmium	<1
Chromium	6.86
Lead	13.7
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	Pangborn Airport 190245
Date Extracted:	05/31/19	Lab ID:	I9-345 mb2
Date Analyzed:	05/31/19	Data File:	I9-345 mb2.092
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	EXCA-Comp-1	Client:	Aspect Consulting, LLC
Date Received:	05/30/19	Project:	Pangborn Airport 190245
Date Extracted:	06/03/19	Lab ID:	905594-01 1/6
Date Analyzed:	06/03/19	Data File:	060329.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	66	50	150
DBC	113	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01 ca
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	7.2 ve
Endosulfan I	0.048
Dieldrin	0.099
Endrin	<0.01 ca
4,4'-DDD	14 ve ca
Endosulfan II	0.097
4,4'-DDT	16 ca ve
Endrin Aldehyde	<0.01
Methoxychlor	<0.01 ca
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<1 ca

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	EXCA-Comp-1	Client:	Aspect Consulting, LLC
Date Received:	05/30/19	Project:	Pangborn Airport 190245
Date Extracted:	06/03/19	Lab ID:	905594-01 1/1200
Date Analyzed:	06/05/19	Data File:	060507.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	86 d	50	150
DBC	102 d	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<2
gamma-BHC (Lindane)	<2
beta-BHC	<2
delta-BHC	<2
Heptachlor	<2
Aldrin	<2
Heptachlor Epoxide	<2
trans-Chlordane	<2
cis-Chlordane	<2
4,4'-DDE	7.6
Endosulfan I	<2
Dieldrin	<2
Endrin	<2
4,4'-DDD	6.8 ca
Endosulfan II	<2
4,4'-DDT	68 ca
Endrin Aldehyde	<2
Methoxychlor	<2
Endosulfan Sulfate	<2
Endrin Ketone	<2
Toxaphene	<200

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	EXCA-Comp-2	Client:	Aspect Consulting, LLC
Date Received:	05/30/19	Project:	Pangborn Airport 190245
Date Extracted:	06/03/19	Lab ID:	905594-02 1/6
Date Analyzed:	06/04/19	Data File:	060424.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	80	50	150
DBC	85	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	0.10
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01
4,4'-DDT	0.15
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	EXCA-Comp-3	Client:	Aspect Consulting, LLC
Date Received:	05/30/19	Project:	Pangborn Airport 190245
Date Extracted:	06/03/19	Lab ID:	905594-03 1/6
Date Analyzed:	06/04/19	Data File:	060425.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	81	50	150
DBC	85	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	0.16
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01
4,4'-DDT	0.16
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Pangborn Airport 190245
Date Extracted:	06/03/19	Lab ID:	09-1274 mb 1/6
Date Analyzed:	06/03/19	Data File:	060322.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	82	50	150
DBC	92	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01 ca
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	<0.01
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01 ca
4,4'-DDD	<0.01
Endosulfan II	<0.01
4,4'-DDT	<0.01 ca
Endrin Aldehyde	<0.01
Methoxychlor	<0.01 ca
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<1 ca

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/07/19

Date Received: 05/30/19

Project: Pangborn Airport 190245, F&BI 905594

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

Laboratory Code: 905593-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	58	107	101	63-146	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	110	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/07/19

Date Received: 05/30/19

Project: Pangborn Airport 190245, F&BI 905594

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

Laboratory Code: 905561-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	89	92	75-125	3
Cadmium	mg/kg (ppm)	10	<5	102	104	75-125	2
Chromium	mg/kg (ppm)	50	7.94	92	92	75-125	0
Lead	mg/kg (ppm)	50	<5	98	100	75-125	2
Mercury	mg/kg (ppm)	5	<5	84	91	75-125	8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	94	80-120
Cadmium	mg/kg (ppm)	10	105	80-120
Chromium	mg/kg (ppm)	50	112	80-120
Lead	mg/kg (ppm)	50	111	80-120
Mercury	mg/kg (ppm)	5	107	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/07/19

Date Received: 05/30/19

Project: Pangborn Airport 190245, F&BI 905594

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

Laboratory Code: 905594-01 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
alpha-BHC	mg/kg (ppm)	0.1	<0.01	93	90	45-111	3
gamma-BHC (Lindane)	mg/kg (ppm)	0.1	<0.01	99	96	50-117	3
beta-BHC	mg/kg (ppm)	0.1	<0.01	103	106	49-109	3
delta-BHC	mg/kg (ppm)	0.1	<0.01	115 vo	118 vo	39-114	3
Heptachlor	mg/kg (ppm)	0.1	<0.01	78	76	40-131	3
Aldrin	mg/kg (ppm)	0.1	<0.01	92	89	44-121	3
Heptachlor Epoxide	mg/kg (ppm)	0.1	<0.01	110	104	46-122	6
trans-Chlordane	mg/kg (ppm)	0.1	<0.01	1296 vo	1262 vo	41-129	3
cis-Chlordane	mg/kg (ppm)	0.1	<0.01	96	99	44-120	3
4,4'-DDE	mg/kg (ppm)	0.1	7.1	266 b	12 b	50-150	183 b
Endosulfan I	mg/kg (ppm)	0.1	0.047	89 b	80 b	45-124	11 b
Dieldrin	mg/kg (ppm)	0.1	0.097	115 b	91 b	45-130	23 b
Endrin	mg/kg (ppm)	0.1	<0.01	106	91	50-140	15
4,4'-DDD	mg/kg (ppm)	0.1	14	0 b	0 b	26-155	
Endosulfan II	mg/kg (ppm)	0.1	0.095	125 b	98 b	40-135	24 b
4,4'-DDT	mg/kg (ppm)	0.1	16	2009 b	882 b	50-150	78 b
Endrin Aldehyde	mg/kg (ppm)	0.1	<0.01	278 vo	213 vo	35-139	26 vo
Methoxychlor	mg/kg (ppm)	0.1	<0.01	218 vo	170 vo	28-162	25 vo
Endosulfan Sulfate	mg/kg (ppm)	0.1	<0.01	96	115	40-141	18
Endrin Ketone	mg/kg (ppm)	0.1	<0.01	140	142	41-147	1
Toxaphene	mg/kg (ppm)	4	0.048	108	140	50-150	26 vo

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 06/07/19

Date Received: 05/30/19

Project: Pangborn Airport 190245, F&BI 905594

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

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
alpha-BHC	mg/kg (ppm)	0.1	95	56-113
gamma-BHC (Lindane)	mg/kg (ppm)	0.1	95	58-120
beta-BHC	mg/kg (ppm)	0.1	98	70-130
delta-BHC	mg/kg (ppm)	0.1	107	70-130
Heptachlor	mg/kg (ppm)	0.1	89	56-124
Aldrin	mg/kg (ppm)	0.1	100	70-130
Heptachlor Epoxide	mg/kg (ppm)	0.1	95	70-130
trans-Chlordane	mg/kg (ppm)	0.1	96	60-123
cis-Chlordane	mg/kg (ppm)	0.1	102	70-130
4,4'-DDE	mg/kg (ppm)	0.1	108	70-130
Endosulfan I	mg/kg (ppm)	0.1	93	62-124
Dieldrin	mg/kg (ppm)	0.1	97	70-130
Endrin	mg/kg (ppm)	0.1	106	56-147
4,4'-DDD	mg/kg (ppm)	0.1	97	54-137
Endosulfan II	mg/kg (ppm)	0.1	90	42-140
4,4'-DDT	mg/kg (ppm)	0.1	103	25-169
Endrin Aldehyde	mg/kg (ppm)	0.1	94	21-135
Methoxychlor	mg/kg (ppm)	0.1	114	54-154
Endosulfan Sulfate	mg/kg (ppm)	0.1	99	39-148
Endrin Ketone	mg/kg (ppm)	0.1	91	46-134
Toxaphene	mg/kg (ppm)	4	88	56-145

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

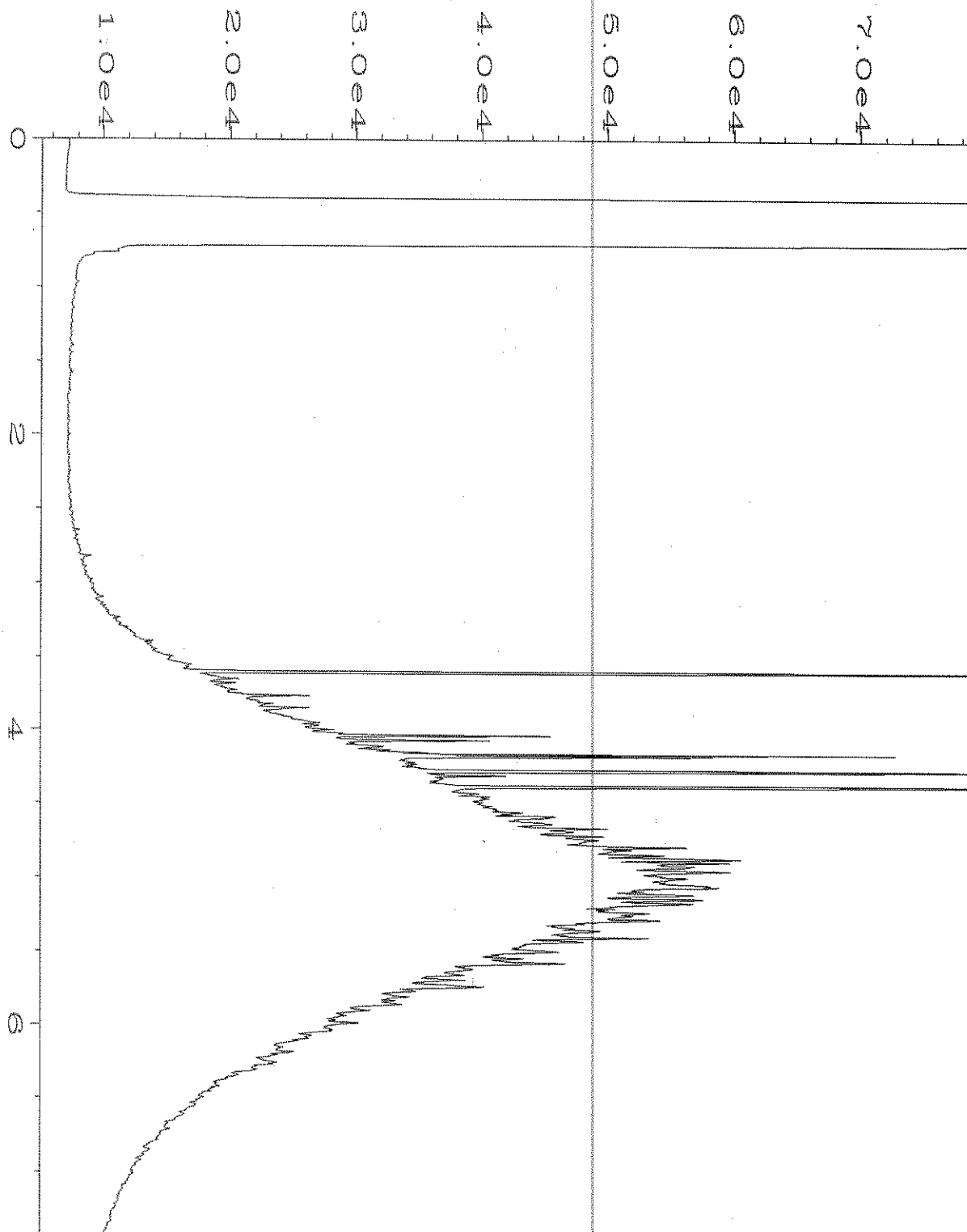
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

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

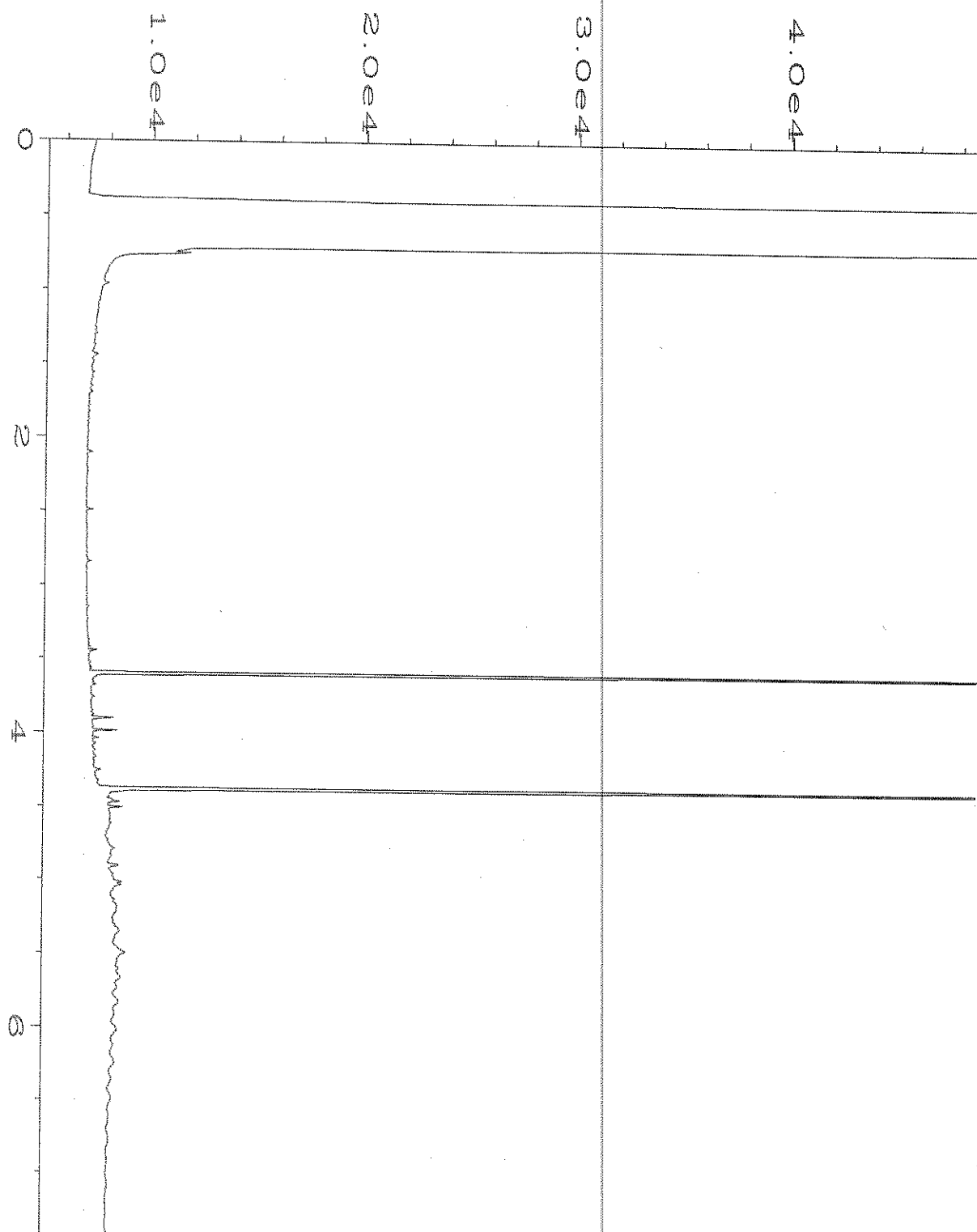
ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

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

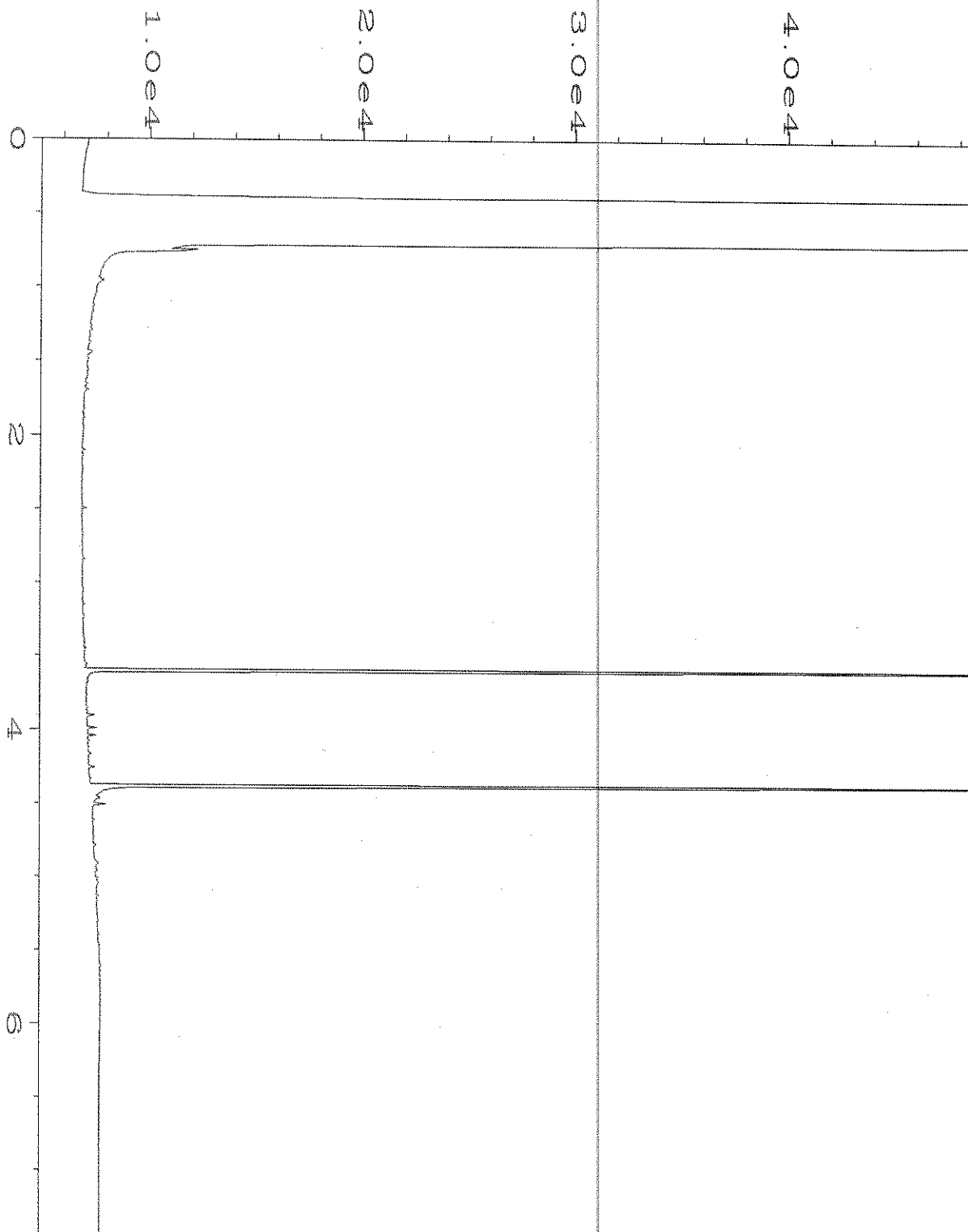
x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.



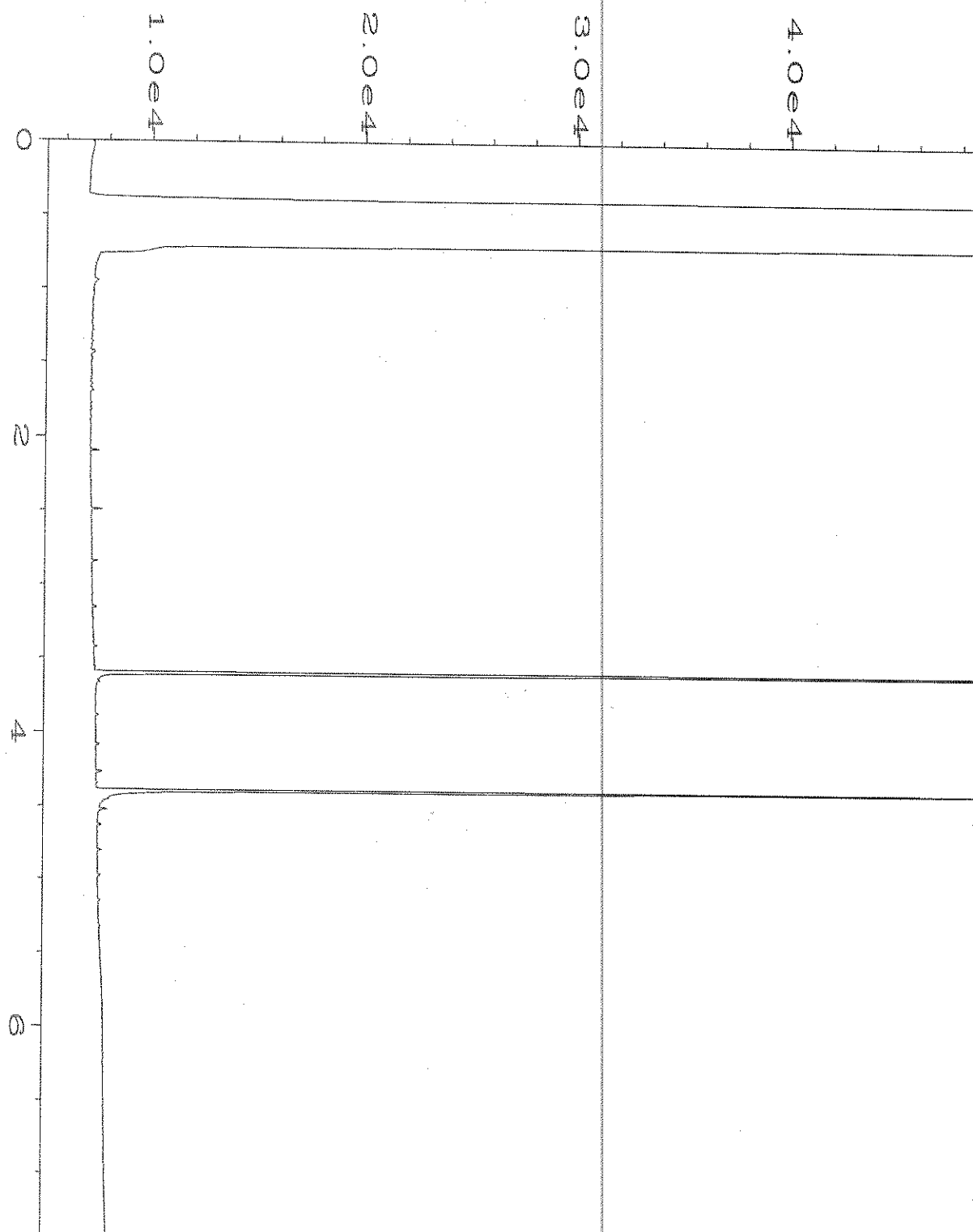
Data File Name	: C:\HPCHEM\1\DATA\05-31-19\017F0601.D	Page Number	: 1
Operator	: TL	Vial Number	: 17
Instrument	: GC1	Injection Number	: 1
Sample Name	: 905594-01	Sequence Line	: 6
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 31 May 19 10:45 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	: 03 Jun 19 07:06 AM		



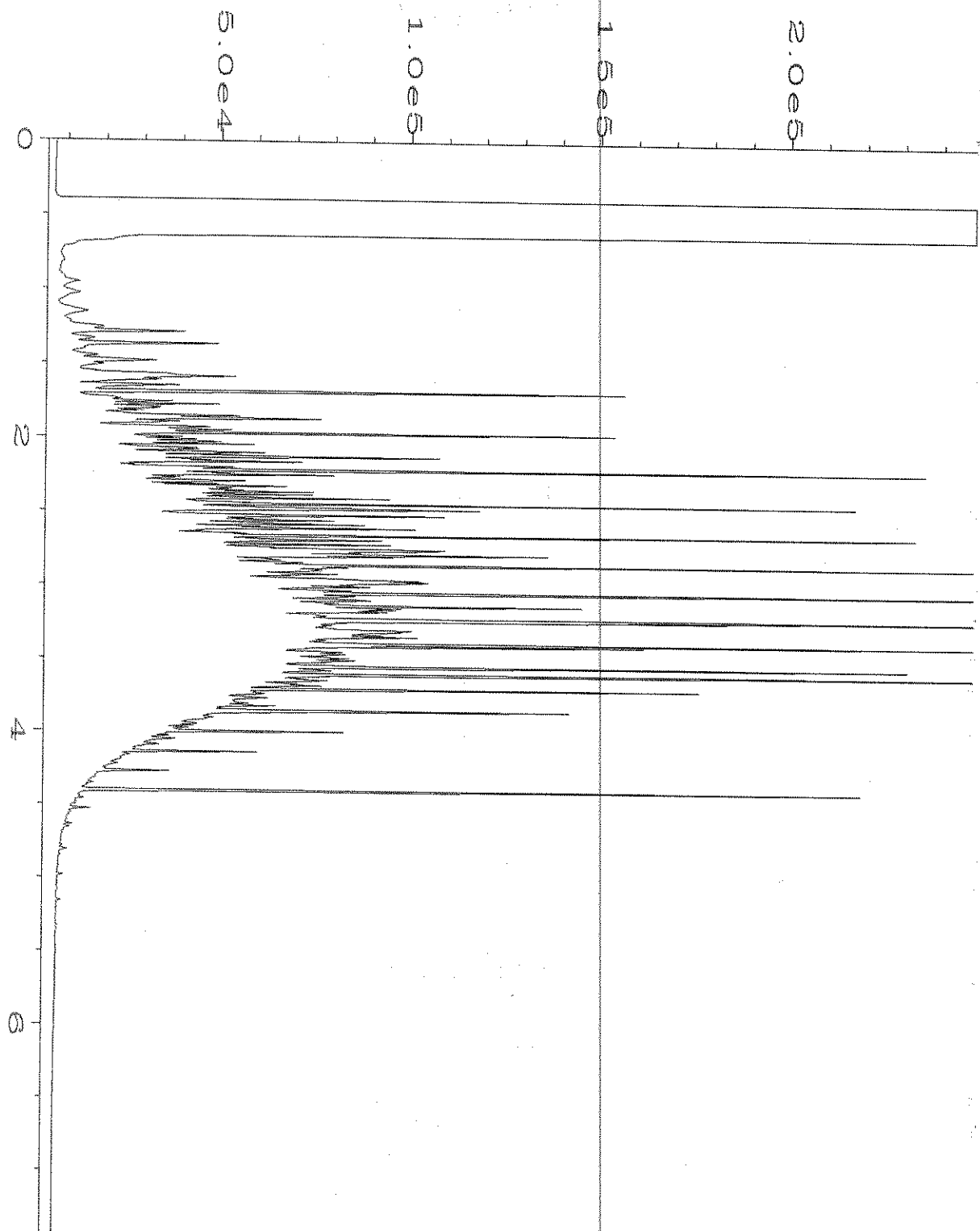
Data File Name	: C:\HPCHEM\1\DATA\05-31-19\018F0601.D	Page Number	: 1
Operator	: TL	Vial Number	: 18
Instrument	: GC1	Injection Number	: 1
Sample Name	: 905594-02	Sequence Line	: 6
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 31 May 19 10:57 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	03 Jun 19 07:06 AM		



Data File Name	: C:\HPCHEM\1\DATA\05-31-19\019F0801.D	Page Number	: 1
Operator	: TL	Vial Number	: 19
Instrument	: GC1	Injection Number	: 1
Sample Name	: 905594-03	Sequence Line	: 8
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 31 May 19 12:28 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	03 Jun 19 07:08 AM		



Data File Name	: C:\HPCHEM\1\DATA\05-31-19\008F0601.D	Page Number	: 1
Operator	: TL	Vial Number	: 8
Instrument	: GC1	Injection Number	: 1
Sample Name	: 09-1262 mb	Sequence Line	: 6
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 31 May 19 09:06 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	03 Jun 19 07:05 AM		



Data File Name	: C:\HPCHEM\1\DATA\05-31-19\005F0901.D	Page Number	: 1
Operator	: TL	Vial Number	: 5
Instrument	: GC1	Injection Number	: 1
Sample Name	: 1000 Dx 57-78B	Sequence Line	: 9
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 31 May 19 02:51 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	03 Jun 19 07:06 AM		



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

RE: 905594
Work Order Number: 1905416

June 06, 2019

Attention Michael Erdahl:

Fremont Analytical, Inc. received 3 sample(s) on 5/30/2019 for the analyses presented in the following report.

Herbicides by EPA Method 8151A
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,

Mike Ridgeway
Laboratory Director

DoD/ELAP Certification #L 17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

CLIENT: Friedman & Bruya
Project: 905594
Work Order: 1905416

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1905416-001	EXCA-COMP-1	05/28/2019 1:00 PM	05/30/2019 2:07 PM
1905416-002	EXCA-COMP-2	05/28/2019 1:30 PM	05/30/2019 2:07 PM
1905416-003	EXCA-COMP-3	05/28/2019 1:45 PM	05/30/2019 2:07 PM

CLIENT: Friedman & Bruya**Project:** 905594

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.

Original version: OP Pest will be re-analyzed.

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: 1905416
Date Reported: 6/6/2019

Client: Friedman & Bruya

Collection Date: 5/28/2019 1:00:00 PM

Project: 905594

Lab ID: 1905416-001

Matrix: Soil

Client Sample ID: EXCA-COMP-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 24773

Analyst: SB

Dicamba	ND	31.9		µg/Kg-dry	1	6/3/2019 1:08:40 PM
2,4-D	963	27.3		µg/Kg-dry	1	6/3/2019 1:08:40 PM
2,4-DP	ND	22.8		µg/Kg-dry	1	6/3/2019 1:08:40 PM
2,4,5-TP (Silvex)	ND	18.2		µg/Kg-dry	1	6/3/2019 1:08:40 PM
2,4,5-T	ND	45.6		µg/Kg-dry	1	6/3/2019 1:08:40 PM
Dinoseb	ND	27.3		µg/Kg-dry	1	6/3/2019 1:08:40 PM
Dalapon	ND	182		µg/Kg-dry	1	6/3/2019 1:08:40 PM
2,4-DB	ND	22.8		µg/Kg-dry	1	6/3/2019 1:08:40 PM
MCPP	ND	4,010		µg/Kg-dry	1	6/3/2019 1:08:40 PM
MCPA	ND	2,550		µg/Kg-dry	1	6/3/2019 1:08:40 PM
Picloram	ND	45.6	Q	µg/Kg-dry	1	6/3/2019 1:08:40 PM
Bentazon	ND	31.9		µg/Kg-dry	1	6/3/2019 1:08:40 PM
Chloramben	ND	18.2		µg/Kg-dry	1	6/3/2019 1:08:40 PM
Acifluorfen	ND	72.9		µg/Kg-dry	1	6/3/2019 1:08:40 PM
3,5-Dichlorobenzoic acid	ND	36.5		µg/Kg-dry	1	6/3/2019 1:08:40 PM
4-Nitrophenol	ND	27.3		µg/Kg-dry	1	6/3/2019 1:08:40 PM
Dacthal (DCPA)	ND	27.3		µg/Kg-dry	1	6/3/2019 1:08:40 PM
Surr: 2,4-Dichlorophenylacetic acid	75.0	20.5 - 175		%Rec	1	6/3/2019 1:08:40 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 24782

Analyst: SB

DDVP	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Mevinphos	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
TEPP	ND	43.3	Q	µg/Kg-dry	1	6/5/2019 8:27:54 PM
Demeton, Total	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Ethoprophos	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Naled	ND	43.3	Q	µg/Kg-dry	1	6/5/2019 8:27:54 PM
Sulfotepp	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Monocrotophos	ND	43.3	Q	µg/Kg-dry	1	6/5/2019 8:27:54 PM
Phorate	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Dimethoate	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Diazinon	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Disulfoton	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Parathion, methyl	ND	43.3	Q	µg/Kg-dry	1	6/5/2019 8:27:54 PM
Fenchorphos	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Malathion	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Dursban	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM



Analytical Report

Work Order: 1905416
Date Reported: 6/6/2019

Client: Friedman & Bruya

Collection Date: 5/28/2019 1:00:00 PM

Project: 905594

Lab ID: 1905416-001

Matrix: Soil

Client Sample ID: EXCA-COMP-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 24782

Analyst: SB

Fenthion	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Parathion	ND	43.3	Q	µg/Kg-dry	1	6/5/2019 8:27:54 PM
Trichloronate	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Merphos	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Stirophos	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Prothiofos	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Fensulfothion	ND	43.3	Q	µg/Kg-dry	1	6/5/2019 8:27:54 PM
Sulprofos	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
EPN	ND	43.3	Q	µg/Kg-dry	1	6/5/2019 8:27:54 PM
Guthion	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Coumaphos	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Surr: Triphenylphosphate	266	10.7 - 154	S	%Rec	1	6/5/2019 8:27:54 PM

NOTES:

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

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Q - Indicates an analyte with an initial calibration verification that does not meet established acceptance criteria (Tetraethyl pyrophosphate)

Sample Moisture (Percent Moisture)

Batch ID: R51815

Analyst: PA

Percent Moisture	2.48	0.500		wt%	1	5/31/2019 9:19:06 AM
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Analytical Report

Work Order: 1905416
Date Reported: 6/6/2019

Client: Friedman & Bruya

Collection Date: 5/28/2019 1:30:00 PM

Project: 905594

Lab ID: 1905416-002

Matrix: Soil

Client Sample ID: EXCA-COMP-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 24773

Analyst: SB

Dicamba	ND	33.1		µg/Kg-dry	1	6/3/2019 1:29:04 PM
2,4-D	ND	28.4		µg/Kg-dry	1	6/3/2019 1:29:04 PM
2,4-DP	ND	23.6		µg/Kg-dry	1	6/3/2019 1:29:04 PM
2,4,5-TP (Silvex)	ND	18.9		µg/Kg-dry	1	6/3/2019 1:29:04 PM
2,4,5-T	ND	47.3		µg/Kg-dry	1	6/3/2019 1:29:04 PM
Dinoseb	ND	28.4		µg/Kg-dry	1	6/3/2019 1:29:04 PM
Dalapon	ND	189		µg/Kg-dry	1	6/3/2019 1:29:04 PM
2,4-DB	ND	23.6		µg/Kg-dry	1	6/3/2019 1:29:04 PM
MCPP	ND	4,160		µg/Kg-dry	1	6/3/2019 1:29:04 PM
MCPA	ND	2,650		µg/Kg-dry	1	6/3/2019 1:29:04 PM
Picloram	ND	47.3	Q	µg/Kg-dry	1	6/3/2019 1:29:04 PM
Bentazon	ND	33.1		µg/Kg-dry	1	6/3/2019 1:29:04 PM
Chloramben	ND	18.9		µg/Kg-dry	1	6/3/2019 1:29:04 PM
Acifluorfen	ND	75.6		µg/Kg-dry	1	6/3/2019 1:29:04 PM
3,5-Dichlorobenzoic acid	ND	37.8		µg/Kg-dry	1	6/3/2019 1:29:04 PM
4-Nitrophenol	ND	28.4		µg/Kg-dry	1	6/3/2019 1:29:04 PM
Dacthal (DCPA)	ND	28.4		µg/Kg-dry	1	6/3/2019 1:29:04 PM
Surr: 2,4-Dichlorophenylacetic acid	58.1	20.5 - 175		%Rec	1	6/3/2019 1:29:04 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 24782

Analyst: SB

DDVP	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Mevinphos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
TEPP	ND	50.1	Q	µg/Kg-dry	1	6/6/2019 12:38:56 PM
Demeton, Total	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Ethoprophos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Naled	ND	50.1	Q	µg/Kg-dry	1	6/6/2019 12:38:56 PM
Sulfotepp	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Monocrotophos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Phorate	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Dimethoate	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Diazinon	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Disulfoton	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Parathion, methyl	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Fenchorphos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Malathion	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Dursban	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM



Analytical Report

Work Order: 1905416
Date Reported: 6/6/2019

Client: Friedman & Bruya

Collection Date: 5/28/2019 1:30:00 PM

Project: 905594

Lab ID: 1905416-002

Matrix: Soil

Client Sample ID: EXCA-COMP-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 24782

Analyst: SB

Fenthion	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Parathion	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Trichloronate	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Merphos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Stirophos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Prothiofos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Fensulfothion	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Sulprofos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
EPN	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Guthion	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Coumaphos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Surr: Triphenylphosphate	82.0	10.7 - 154		%Rec	1	6/6/2019 12:38:56 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Q - Indicates an analyte with an initial calibration verification that does not meet established acceptance criteria (Tetraethyl pyrophosphate)

Sample Moisture (Percent Moisture)

Batch ID: R51815

Analyst: PA

Percent Moisture	2.78	0.500		wt%	1	5/31/2019 9:19:06 AM
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Analytical Report

Work Order: 1905416
Date Reported: 6/6/2019

Client: Friedman & Bruya

Collection Date: 5/28/2019 1:45:00 PM

Project: 905594

Lab ID: 1905416-003

Matrix: Soil

Client Sample ID: EXCA-COMP-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 24773

Analyst: SB

Dicamba	ND	31.2		µg/Kg-dry	1	6/3/2019 2:50:19 PM
2,4-D	ND	26.7		µg/Kg-dry	1	6/3/2019 2:50:19 PM
2,4-DP	ND	22.3		µg/Kg-dry	1	6/3/2019 2:50:19 PM
2,4,5-TP (Silvex)	ND	17.8		µg/Kg-dry	1	6/3/2019 2:50:19 PM
2,4,5-T	ND	44.6		µg/Kg-dry	1	6/3/2019 2:50:19 PM
Dinoseb	ND	26.7		µg/Kg-dry	1	6/3/2019 2:50:19 PM
Dalapon	ND	178		µg/Kg-dry	1	6/3/2019 2:50:19 PM
2,4-DB	ND	22.3		µg/Kg-dry	1	6/3/2019 2:50:19 PM
MCPP	ND	3,920		µg/Kg-dry	1	6/3/2019 2:50:19 PM
MCPA	ND	2,500		µg/Kg-dry	1	6/3/2019 2:50:19 PM
Picloram	ND	44.6	Q	µg/Kg-dry	1	6/3/2019 2:50:19 PM
Bentazon	ND	31.2		µg/Kg-dry	1	6/3/2019 2:50:19 PM
Chloramben	ND	17.8		µg/Kg-dry	1	6/3/2019 2:50:19 PM
Acifluorfen	ND	71.3		µg/Kg-dry	1	6/3/2019 2:50:19 PM
3,5-Dichlorobenzoic acid	ND	35.7		µg/Kg-dry	1	6/3/2019 2:50:19 PM
4-Nitrophenol	ND	26.7		µg/Kg-dry	1	6/3/2019 2:50:19 PM
Dacthal (DCPA)	ND	26.7		µg/Kg-dry	1	6/3/2019 2:50:19 PM
Surr: 2,4-Dichlorophenylacetic acid	60.2	20.5 - 175		%Rec	1	6/3/2019 2:50:19 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 24782

Analyst: SB

DDVP	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Mevinphos	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
TEPP	ND	49.0	Q	µg/Kg-dry	1	6/5/2019 10:02:15 PM
Demeton, Total	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Ethoprophos	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Naled	ND	49.0	Q	µg/Kg-dry	1	6/5/2019 10:02:15 PM
Sulfotepp	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Monocrotophos	ND	49.0	Q	µg/Kg-dry	1	6/5/2019 10:02:15 PM
Phorate	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Dimethoate	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Diazinon	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Disulfoton	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Parathion, methyl	ND	49.0	Q	µg/Kg-dry	1	6/5/2019 10:02:15 PM
Fenchorphos	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Malathion	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Dursban	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM



Analytical Report

Work Order: 1905416
Date Reported: 6/6/2019

Client: Friedman & Bruya

Collection Date: 5/28/2019 1:45:00 PM

Project: 905594

Lab ID: 1905416-003

Matrix: Soil

Client Sample ID: EXCA-COMP-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 24782

Analyst: SB

Fenthion	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Parathion	ND	49.0	Q	µg/Kg-dry	1	6/5/2019 10:02:15 PM
Trichloronate	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Merphos	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Stirophos	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Prothiofos	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Fensulfothion	ND	49.0	Q	µg/Kg-dry	1	6/5/2019 10:02:15 PM
Sulprofos	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
EPN	ND	49.0	Q	µg/Kg-dry	1	6/5/2019 10:02:15 PM
Guthion	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Coumaphos	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Surr: Triphenylphosphate	61.1	10.7 - 154		%Rec	1	6/5/2019 10:02:15 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Q - Indicates an analyte with an initial calibration verification that does not meet established acceptance criteria (Tetraethyl pyrophosphate)

Sample Moisture (Percent Moisture)

Batch ID: R51815

Analyst: PA

Percent Moisture	3.12	0.500		wt%	1	5/31/2019 9:19:06 AM
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Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Herbicides by EPA Method 8151A

Sample ID: MB-24773	SampType: MBLK	Units: µg/Kg			Prep Date: 5/31/2019			RunNo: 51859			
Client ID: MBLKS	Batch ID: 24773	Analysis Date: 6/3/2019						SeqNo: 1023131			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	ND	35.0									
2,4-D	ND	30.0									
2,4-DP	ND	25.0									
2,4,5-TP (Silvex)	ND	20.0									
2,4,5-T	ND	50.0									
Dinoseb	ND	30.0									
Dalapon	ND	200									
2,4-DB	ND	25.0									
MCP	ND	4,400									
MCPA	ND	2,800									
Picloram	ND	50.0									Q
Bentazon	ND	35.0									
Chloramben	ND	20.0									
Acifluorfen	ND	80.0									
3,5-Dichlorobenzoic acid	ND	40.0									
4-Nitrophenol	ND	30.0									
Dacthal (DCPA)	ND	30.0									
Surr: 2,4-Dichlorophenylacetic acid	1,050		1,000		105	20.5	175				

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample ID: LCS-24773	SampType: LCS	Units: µg/Kg				Prep Date: 5/31/2019			RunNo: 51859		
Client ID: LCSS	Batch ID: 24773	Analysis Date: 6/3/2019						SeqNo: 1023132			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	127	35.0	200.0	0	63.7	21.8	163				
2,4-D	97.6	30.0	200.0	0	48.8	22.4	130				
2,4-DP	152	25.0	200.0	0	75.9	21.3	157				
2,4,5-TP (Silvex)	150	20.0	200.0	0	74.9	21.2	138				
2,4,5-T	87.0	50.0	200.0	0	43.5	15.3	156				
Dinoseb	59.6	30.0	200.0	0	29.8	5	165				

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Herbicides by EPA Method 8151A

Sample ID: LCS-24773	SampType: LCS	Units: µg/Kg			Prep Date: 5/31/2019			RunNo: 51859			
Client ID: LCSS	Batch ID: 24773				Analysis Date: 6/3/2019			SeqNo: 1023132			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dalapon	962	200	1,000	0	96.2	20.6	192				
2,4-DB	235	25.0	200.0	0	118	5	164				
MCP	956	4,400	1,000	0	95.6	17.3	166				
MCPA	713	2,800	1,000	0	71.3	19.8	193				
Picloram	55.5	50.0	200.0	0	27.7	5	175				
Bentazon	187	35.0	200.0	0	93.7	7.59	162				
Chloramben	74.7	20.0	200.0	0	37.4	5	147				
Acifluorfen	130	80.0	200.0	0	65.0	5	163				
3,5-Dichlorobenzoic acid	149	40.0	200.0	0	74.6	10.9	172				
4-Nitrophenol	185	30.0	200.0	0	92.5	5	163				
Dacthal (DCPA)	36.9	30.0	200.0	0	18.5	5	164				
Surr: 2,4-Dichlorophenylacetic acid	1,110		1,000		111	20.5	175				

Sample ID: 1905416-002ADUP		SampType: DUP		Units: µg/Kg-dry		Prep Date: 5/31/2019			RunNo: 51859			
Client ID: EXCA-COMP-2		Batch ID: 24773					Analysis Date: 6/3/2019			SeqNo: 1023135		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Dicamba	ND	33.9						0		30		
2,4-D	ND	29.0						0		30		
2,4-DP	ND	24.2						0		30		
2,4,5-TP (Silvex)	ND	19.4						0		30		
2,4,5-T	ND	48.4						0		30		
Dinoseb	ND	29.0						0		30		
Dalapon	ND	194						0		30		
2,4-DB	ND	24.2						0		30		
MCP	ND	4,260						0		30		
MCPA	ND	2,710						0		30		
Picloram	ND	48.4						0		30	Q	
Bentazon	ND	33.9						0		30		
Chloramben	ND	19.4						0		30		

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Herbicides by EPA Method 8151A

Sample ID: 1905416-002ADUP	SampType: DUP	Units: µg/Kg-dry			Prep Date: 5/31/2019			RunNo: 51859			
Client ID: EXCA-COMP-2	Batch ID: 24773				Analysis Date: 6/3/2019			SeqNo: 1023135			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acifluorfen	ND	77.4						0		30	
3,5-Dichlorobenzoic acid	ND	38.7						0		30	
4-Nitrophenol	ND	29.0						0		30	
Dacthal (DCPA)	ND	29.0						0		30	
Surr: 2,4-Dichlorophenylacetic acid	555		967.6		57.4	20.5	175		0		

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample ID: 1905416-002AMS	SampType: MS	Units: µg/Kg-dry				Prep Date: 5/31/2019			RunNo: 51859		
Client ID: EXCA-COMP-2	Batch ID: 24773	Analysis Date: 6/3/2019							SeqNo: 1023136		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	40.8	34.6	198.0	0	20.6	31.9	118				S
2,4-D	69.9	29.7	198.0	0	35.3	12.4	134				
2,4-DP	83.4	24.7	198.0	0	42.1	27.2	129				
2,4,5-TP (Silvex)	89.4	19.8	198.0	0	45.1	28.6	134				
2,4,5-T	63.4	49.5	198.0	0	32.0	13.1	147				
Dinoseb	87.7	29.7	198.0	0	44.3	10	179				
Dalapon	358	198	989.9	0	36.2	5	160				
2,4-DB	205	24.7	198.0	0	104	33.3	151				
MCP	563	4,360	989.9	0	56.9	30.2	157				
MCPA	531	2,770	989.9	0	53.6	13.7	147				
Picloram	24.7	49.5	198.0	0	12.5	5	153				
Bentazon	148	34.6	198.0	0	74.6	15	140				
Chloramben	34.2	19.8	198.0	0	17.3	5	162				
Acifluorfen	89.5	79.2	198.0	0	45.2	15	140				
3,5-Dichlorobenzoic acid	94.2	39.6	198.0	0	47.6	10	164				
4-Nitrophenol	181	29.7	198.0	0	91.3	21.9	121				
Dacthal (DCPA)	10.8	29.7	198.0	0	5.44	5	132				
Surr: 2,4-Dichlorophenylacetic acid	616		989.9		62.3	20.5	175				

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Herbicides by EPA Method 8151A

Sample ID: 1905416-002AMS	SampType: MS	Units: µg/Kg-dry	Prep Date: 5/31/2019	RunNo: 51859							
Client ID: EXCA-COMP-2	Batch ID: 24773		Analysis Date: 6/3/2019	SeqNo: 1023136							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:

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

Sample ID: 1905416-002AMSD	SampType: MSD	Units: µg/Kg-dry				Prep Date: 5/31/2019			RunNo: 51859		
Client ID: EXCA-COMP-2	Batch ID: 24773	Analysis Date: 6/3/2019							SeqNo: 1023137		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	50.1	35.6	203.7	0	24.6	31.9	118	40.83	20.3	30	S
2,4-D	75.4	30.6	203.7	0	37.0	12.4	134	69.90	7.63	30	
2,4-DP	89.9	25.5	203.7	0	44.1	27.2	129	83.37	7.49	30	
2,4,5-TP (Silvex)	101	20.4	203.7	0	49.8	28.6	134	89.39	12.6	30	
2,4,5-T	75.1	50.9	203.7	0	36.9	13.1	147	63.35	17.0	30	
Dinoseb	133	30.6	203.7	0	65.4	10	179	87.68	41.2	30	R
Dalapon	463	204	1,018	0	45.5	5	160	358.3	25.5	30	
2,4-DB	195	25.5	203.7	0	95.6	33.3	151	205.3	5.28	30	
MCPP	657	4,480	1,018	0	64.5	30.2	157	0		30	
MCPA	622	2,850	1,018	0	61.1	13.7	147	0		30	
Picloram	32.1	50.9	203.7	0	15.8	5	153	0		30	
Bentazon	162	35.6	203.7	0	79.5	15	140	147.6	9.20	30	
Chloramben	46.7	20.4	203.7	0	22.9	5	162	34.16	31.0	30	
Acifluorfen	120	81.5	203.7	0	58.8	15	140	89.53	28.9	30	
3,5-Dichlorobenzoic acid	109	40.7	203.7	0	53.4	10	164	94.24	14.3	30	
4-Nitrophenol	209	30.6	203.7	0	102	21.9	121	180.8	14.3	30	
Dacthal (DCPA)	17.6	30.6	203.7	0	8.65	5	132	0		30	
Surr: 2,4-Dichlorophenylacetic acid	620		1,018		60.9	20.5	175		0		

NOTES:

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

R - High RPD observed, spike recovery is within range.

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: MB-24782	SampType: MBLK	Units: µg/Kg				Prep Date: 6/3/2019			RunNo: 51910		
Client ID: MBLKS	Batch ID: 24782	Analysis Date: 6/5/2019						SeqNo: 1024454			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	ND	50.0									
Mevinphos	ND	50.0									
TEPP	ND	50.0									Q
Demeton, Total	ND	50.0									
Ethoprophos	ND	50.0									
Naled	ND	50.0									Q
Sulfotepp	ND	50.0									
Monocrotophos	ND	50.0									Q
Phorate	ND	50.0									
Dimethoate	ND	50.0									
Diazinon	ND	50.0									
Disulfoton	ND	50.0									
Parathion, methyl	ND	50.0									Q
Fenchorphos	ND	50.0									
Malathion	ND	50.0									
Dursban	ND	50.0									
Fenthion	ND	50.0									
Parathion	ND	50.0									Q
Trichloronate	ND	50.0									
Merphos	ND	50.0									
Stirophos	ND	50.0									
Prothiofos	ND	50.0									
Fensulfothion	ND	50.0									Q
Sulprofos	ND	50.0									
EPN	ND	50.0									Q
Guthion	ND	50.0									
Coumaphos	ND	50.0									
Surr: Triphenylphosphate	15.3		20.00		76.7	10.7	154				

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Q - Indicates an analyte with an initial calibration verification that does not meet established acceptance criteria (Tetraethyl pyrophosphate)

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: LCS-24782	SampType: LCS	Units: µg/Kg				Prep Date: 6/3/2019			RunNo: 51910		
Client ID: LCSS	Batch ID: 24782	Analysis Date: 6/5/2019						SeqNo: 1024455			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	11.6	50.0	20.00	0	58.0	7.85	133				
Mevinphos	14.0	50.0	20.00	0	69.8	28.7	131				
TEPP	15.9	50.0	20.00	0	79.6	5	119				
Demeton, Total	15.5	50.0	20.00	0	77.7	31.4	149				
Ethoprophos	13.8	50.0	20.00	0	68.9	31.9	144				
Naled	14.6	50.0	20.00	0	73.0	10	147				
Sulfotepp	13.8	50.0	20.00	0	68.9	26.9	144				
Monocrotophos	14.4	50.0	20.00	0	72.2	10	129				
Phorate	14.9	50.0	20.00	0	74.6	40.9	118				
Dimethoate	15.0	50.0	20.00	0	74.8	23.6	127				
Diazinon	13.2	50.0	20.00	0	66.0	37.1	132				
Disulfoton	15.2	50.0	20.00	0	76.2	37.9	122				
Parathion, methyl	15.9	50.0	20.00	0	79.3	16.8	143				
Fenchorphos	14.3	50.0	20.00	0	71.6	36.7	117				
Malathion	12.6	50.0	20.00	0	63.0	26.9	131				
Dursban	14.1	50.0	20.00	0	70.3	40.8	124				
Fenthion	13.4	50.0	20.00	0	66.8	36.6	127				
Parathion	13.1	50.0	20.00	0	65.5	37.6	129				
Trichloronate	14.2	50.0	20.00	0	71.0	41.5	123				
Merphos	10.7	50.0	20.00	0	53.6	10	122				
Stirophos	12.6	50.0	20.00	0	63.0	20.6	126				
Prothiofos	12.7	50.0	20.00	0	63.4	37.1	135				
Fensulfothion	13.8	50.0	20.00	0	69.2	14.6	152				
Sulprofos	12.8	50.0	20.00	0	64.0	34.6	137				
EPN	14.6	50.0	20.00	0	73.0	26.7	150				
Guthion	16.4	50.0	20.00	0	82.1	5	151				
Coumaphos	16.2	50.0	20.00	0	81.2	10	152				
Surr: Triphenylphosphate	17.0		20.00		85.0	10.7	154				

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: 1905416-001ADUP		SampType: DUP		Units: µg/Kg-dry		Prep Date: 6/3/2019			RunNo: 51910		
Client ID: EXCA-COMP-1		Batch ID: 24782					Analysis Date: 6/5/2019			SeqNo: 1024457	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	ND	47.7						0		30	
Mevinphos	ND	47.7						0		30	
TEPP	ND	47.7						0		30	Q
Demeton, Total	ND	47.7						0		30	
Ethoprophos	ND	47.7						0		30	
Naled	ND	47.7						0		30	Q
Sulfotepp	ND	47.7						0		30	
Monocrotophos	ND	47.7						0		30	Q
Phorate	ND	47.7						0		30	
Dimethoate	ND	47.7						0		30	
Diazinon	ND	47.7						0		30	
Disulfoton	ND	47.7						0		30	
Parathion, methyl	ND	47.7						0		30	Q
Fenchorphos	ND	47.7						0		30	
Malathion	ND	47.7						0		30	
Dursban	ND	47.7						0		30	
Fenthion	ND	47.7						0		30	
Parathion	ND	47.7						0		30	Q
Trichloronate	ND	47.7						0		30	
Merphos	ND	47.7						0		30	
Stirophos	ND	47.7						0		30	
Prothiofos	ND	47.7						0		30	
Fensulfothion	ND	47.7						0		30	Q
Sulprofos	ND	47.7						0		30	
EPN	ND	47.7						0		30	Q
Guthion	ND	47.7						0		30	
Coumaphos	ND	47.7						0		30	
Surr: Triphenylphosphate	46.0		19.10		241	10.7	154		0		S

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: 1905416-001ADUP	SampType: DUP	Units: µg/Kg-dry	Prep Date: 6/3/2019	RunNo: 51910							
Client ID: EXCA-COMP-1	Batch ID: 24782		Analysis Date: 6/5/2019	SeqNo: 1024457							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:

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

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Q - Indicates an analyte with an initial calibration verification that does not meet established acceptance criteria (Tetraethyl pyrophosphate)

Sample ID: 1905416-001AMS	SampType: MS	Units: µg/Kg-dry				Prep Date: 6/3/2019			RunNo: 51910		
Client ID: EXCA-COMP-1	Batch ID: 24782	Analysis Date: 6/5/2019						SeqNo: 1024458			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	11.4	49.2	19.68	0	58.2	5	138				
Mevinphos	8.60	49.2	19.68	0	43.7	5	148				
TEPP	15.7	49.2	19.68	0	79.6	5	121				
Demeton, Total	16.2	49.2	19.68	0	82.3	24.3	141				
Ethoprophos	12.6	49.2	19.68	0	63.9	13.2	145				
Naled	7.23	49.2	19.68	0	36.7	5	121				
Sulfotepp	13.5	49.2	19.68	0	68.7	26.8	120				
Monocrotophos	0.00	49.2	19.68	0	0	5	196				S
Phorate	13.9	49.2	19.68	0	70.5	29.4	122				
Dimethoate	20.2	49.2	19.68	0	102	5	161				
Diazinon	22.7	49.2	19.68	0	115	9.74	142				
Disulfoton	20.9	49.2	19.68	0	106	23.9	137				
Parathion, methyl	43.4	49.2	19.68	0	221	5.64	177				S
Fenchorphos	13.0	49.2	19.68	0	65.8	25.3	131				
Malathion	24.2	49.2	19.68	0	123	23.5	121				S
Dursban	10.4	49.2	19.68	0	52.7	28.2	128				
Fenthion	13.0	49.2	19.68	0	66.2	24.2	136				
Parathion	17.3	49.2	19.68	0	88.0	5	173				
Trichloronate	50.7	49.2	19.68	0	258	28.5	122				S
Merphos	46.1	49.2	19.68	0	234	5	90.1				S
Stirophos	7.17	49.2	19.68	0	36.4	9.46	152				
Prothiofos	11.6	49.2	19.68	0	59.0	23.7	157				

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: 1905416-001AMS		SampType: MS		Units: µg/Kg-dry		Prep Date: 6/3/2019		RunNo: 51910			
Client ID: EXCA-COMP-1		Batch ID: 24782				Analysis Date: 6/5/2019		SeqNo: 1024458			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fensulfothion	10.1	49.2	19.68	0	51.2	5	174				
Sulprofos	10.6	49.2	19.68	0	54.1	12	173				
EPN	10.9	49.2	19.68	0	55.5	13.8	157				
Guthion	36.2	49.2	19.68	0	184	5	177				S
Coumaphos	12.5	49.2	19.68	0	63.3	5	232				
Surr: Triphenylphosphate	42.0		19.68		213	10.7	154				S

NOTES:

S - Outlying spike recovery(ies) observed.

S - Outlying surrogate recovery(ies) observed.

Sample ID: 1905416-001AMSD		SampType: MSD		Units: µg/Kg-dry		Prep Date: 6/3/2019			RunNo: 51910		
Client ID: EXCA-COMP-1		Batch ID: 24782		Analysis Date: 6/5/2019						SeqNo: 1024459	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	8.67	44.9	17.97	0	48.2	5	138	0		30	
Mevinphos	3.77	44.9	17.97	0	21.0	5	148	0		30	
TEPP	14.2	44.9	17.97	0	79.1	5	121	0		30	
Demeton, Total	13.2	44.9	17.97	0	73.5	24.3	141	0		30	
Ethoprophos	10.9	44.9	17.97	0	60.5	13.2	145	0		30	
Naled	6.20	44.9	17.97	0	34.5	5	121	0		30	
Sulfotepp	11.8	44.9	17.97	0	65.5	26.8	120	0		30	
Monocrotophos	0.00	44.9	17.97	0	0	5	196	0		30	S
Phorate	13.0	44.9	17.97	0	72.1	29.4	122	0		30	
Dimethoate	9.96	44.9	17.97	0	55.4	5	161	0		30	
Diazinon	15.9	44.9	17.97	0	88.3	9.74	142	0		30	
Disulfoton	18.8	44.9	17.97	0	104	23.9	137	0		30	
Parathion, methyl	26.0	44.9	17.97	0	145	5.64	177	0		30	
Fenchorphos	12.4	44.9	17.97	0	69.0	25.3	131	0		30	
Malathion	18.4	44.9	17.97	0	102	23.5	121	0		30	
Dursban	10.7	44.9	17.97	0	59.8	28.2	128	0		30	
Fenthion	11.7	44.9	17.97	0	64.8	24.2	136	0		30	

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: 1905416-001AMSD		SampType: MSD		Units: µg/Kg-dry		Prep Date: 6/3/2019			RunNo: 51910		
Client ID: EXCA-COMP-1		Batch ID: 24782					Analysis Date: 6/5/2019			SeqNo: 1024459	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Parathion	15.2	44.9	17.97	0	84.8	5	173	0		30	
Trichloronate	67.2	44.9	17.97	0	374	28.5	122	50.73	28.0	30	S
Merphos	28.1	44.9	17.97	0	157	5	90.1	46.08	48.3	30	S
Stirophos	5.00	44.9	17.97	0	27.8	9.46	152	0		30	
Prothiofos	12.2	44.9	17.97	0	67.8	23.7	157	0		30	
Fensulfothion	21.6	44.9	17.97	0	120	5	174	0		30	
Sulprofos	13.8	44.9	17.97	0	76.9	12	173	0		30	
EPN	16.3	44.9	17.97	0	90.5	13.8	157	0		30	
Guthion	26.1	44.9	17.97	0	145	5	177	0		30	
Coumaphos	10.2	44.9	17.97	0	56.8	5	232	0		30	
Surr: Triphenylphosphate	30.8		17.97		171	10.7	154		0		S

NOTES:

S - Outlying spike recovery(ies) observed.

S - Outlying surrogate recovery(ies) observed.

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID: 1905301-013BDUP		SampType: DUP		Units: wt%		Prep Date: 5/31/2019			RunNo: 51815		
Client ID: BATCH		Batch ID: R51815		Analysis Date: 5/31/2019			SeqNo: 1022345				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	6.61	0.500						6.534	1.19	20	

Client Name: **FB**
 Logged by: **Clare Griggs**

Work Order Number: **1905416**
 Date Received: **5/30/2019 2:07:00 PM**

Chain of Custody

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

Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐
 4. Shipping container/cooler in good condition? Yes ☒ No ☐
 5. Custody Seals present on shipping container/cooler?
 (Refer to comments for Custody Seals not intact) Yes ☐ No ☐ Not Required ☒
 6. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
 7. Were all items received at a temperature of $>0^{\circ}\text{C}$ to 10.0°C * Yes ☒ No ☐ NA ☐
 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 condition(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 ☐

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: Date:
 By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
 Regarding:
 Client Instructions:

19. Additional remarks:

Item Information

Item #	Temp $^{\circ}\text{C}$
Cooler	7.1
Sample	6.6

* Note: DoD/ELAP and TNI require items to be received at $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$

19054116

Phone # (206) 285-8282 Fax # (206) 283-5044

TURNAROUND TIME

☐ Standard (2 Weeks)

☒ RUSH 5-cls



Rush charges authorized by: ME

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
	Michael Erdahl	Friedman & Bryna	5/30/19	12:45
Received by: 	Michael Erdahl	FAI	5/30/19	1407
Relinquished by:				
Received by:				

SAMPLE CHAIN OF CUSTODY

ME 05/24/14 05/30/14

Page # 1 of 1

905594

Report To Faithful+Gould

Company Aspect Consulting

Address 710 2nd Ave Ste 550

City, State, ZIP Seattle, WA 98104

Phone 206 838-5836 Email frank@aspectconsulting.com

SAMPLERS (signature) Bill Sullivan

TURNAROUND TIME

☒ Standard Turnaround

☐ RUSH

Rush charges authorized by: _____

PROJECT NAME

Pangborn Airport

INVOICE TO

190245

REMARKS

Surface Characterization

INVOICE TO

Aspect

SAMPLE DISPOSAL

☒ Dispose after 30 days

☐ Archive Samples

☐ Other

ANALYSES REQUESTED

ANALYSES REQUESTED																	
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	MTCA-5*	Chlor. Res. 8151	Chlor. Res. 8081	Org. Res. 8090	Notes
EXCA-CAMP-1	01A-B	5-28-14	1300	SOIL Camp.	2		✓						✓	✓	✓	✓	402 VOCs
EXCA-CAMP-1	C-F	5-28-14	1300	SOIL	1									✓	✓	✓	402 VOCs
EXCA-CAMP-2	02A-B	5-28-14	1330	SOIL	2		✓						✓	✓	✓	✓	402 VOCs
EXCA-CAMP-2	C-F	5-28-14	1330	SOIL	1									✓	✓	✓	VOCs
EXCA-CAMP-3	03A-B	5-28-14	1345	SOIL	2									✓	✓	✓	402 VOCs
EXCA-CAMP-3	C-F	5-28-14	1345	SOIL	1		✓						✓	✓	✓	✓	VOCs

SIGNATURE

Relinquished by: _____

PRINT NAME

Bill Sullivan

COMPANY

Aspect

DATE

5/28/14

TIME

1530

Received by: _____

Relinquished by: _____

Received by: _____

Received by: _____

Samples received at 5:00

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 26, 2019

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

Dear Mr Khan:

Included are the results from the testing of material submitted on August 7, 2019 from the Pangborn Airport Site 190245, F&BI 908106 project. There are 35 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: Data Aspect
ASP0826R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 7, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Pangborn Airport Site 190245, F&BI 908106 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
908106 -01	Pile1&2-Soil1-080619
908106 -02	Pile1&2-Soil2-080619
908106 -03	Pile1&2-Soil3-080619
908106 -04	Pile1&2-Soil4-080619
908106 -05	Pile1&2-Soil5-080619
908106 -06	Pile3-Soil1-080619
908106 -07	Pile3-Soil2-080619
908106 -08	Pile3-Soil3-080619
908106 -09	Pile4-Soil1-080619
908106 -10	Pile4-Soil2-080619
908106 -11	Pile4-Soil3-080619
908106 -12	Pile1&2-Soil6-080619

Samples Pile1&2-Soil1-080619, Pile1&2-Soil2-080619, Pile1&2-Soil3-080619, Pile1&2-Soil4-080619, Pile1&2-Soil5-080619, Pile4-Soil1-080619, Pile4-Soil2-080619, and Pile4-Soil3-080619 were sent to Fremont Analytical for organophosphorus pesticide and chlorinated herbicide analyses. The report is enclosed.

A 6020B internal standard failed the acceptance criteria. The samples were diluted and reanalyzed with acceptable results. Both data sets were reported.

The 6020B calibration standard failed the acceptance criteria for arsenic in samples Pile1&2-Soil3-080619 and Pile1&2-Soil4-080619. The data were flagged accordingly.

The 8081B calibration standard failed the acceptance criteria for several pesticides. The data were flagged accordingly.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/26/19

Date Received: 08/07/19

Project: Pangborn Airport Site 190245, F&BI 908106

Date Extracted: 08/08/19

Date Analyzed: 08/08/19

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u>	<u>Gasoline Range</u>	<u>Surrogate</u> <u>(% Recovery)</u>
Laboratory ID		(Limit 50-150)
Pile1&2-Soil1-080619 908106-01	<5	96
Pile1&2-Soil2-080619 908106-02	<5	98
Pile1&2-Soil3-080619 908106-03	<5	97
Pile1&2-Soil4-080619 908106-04	<5	97
Pile1&2-Soil5-080619 908106-05	<5	98
Method Blank 09-1911 MB	<5	99

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/26/19

Date Received: 08/07/19

Project: Pangborn Airport Site 190245, F&BI 908106

Date Extracted: 08/08/19

Date Analyzed: 08/08/19 and 08/13/19

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
Pile3-Soil1-080619 908106-06	<0.02	<0.02	<0.02	<0.06	<5	80
Pile3-Soil2-080619 908106-07	<0.02	<0.02	<0.02	0.075	<5	79
Pile3-Soil3-080619 908106-08	<0.02	0.34	0.20	6.4	69	119
Method Blank 09-1911 MB	<0.02	<0.02	<0.02	<0.06	<5	83

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/26/19

Date Received: 08/07/19

Project: Pangborn Airport Site 190245, F&BI 908106

Date Extracted: 08/08/19

Date Analyzed: 08/08/19

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 56-165)
Pile1&2-Soil1-080619 908106-01	<50	<250	92
Pile1&2-Soil2-080619 908106-02	<50	<250	101
Pile1&2-Soil3-080619 908106-03	<50	<250	104
Pile1&2-Soil4-080619 908106-04	<50	<250	94
Pile1&2-Soil5-080619 908106-05	<50	<250	103
Pile3-Soil1-080619 908106-06	800	3,100	94
Pile3-Soil2-080619 908106-07	840	3,500	95
Pile3-Soil3-080619 908106-08	830	3,400	105
Method Blank 09-1931 MB2	<50	<250	94
Method Blank 09-1936 MB2	<50	<250	106

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Pile1&2-Soil1-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-01
Date Analyzed:	08/08/19	Data File:	908106-01.100
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Arsenic	1.40
Cadmium	<1
Chromium	6.18 J
Lead	4.10
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Pile1&2-Soil1-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-01 x5
Date Analyzed:	08/09/19	Data File:	908106-01 x5.094
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	6.78
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Pile1&2-Soil2-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-02
Date Analyzed:	08/08/19	Data File:	908106-02.101
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Arsenic	1.34
Cadmium	<1
Chromium	5.72 J
Lead	3.77
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Pile1&2-Soil2-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-02 x5
Date Analyzed:	08/09/19	Data File:	908106-02 x5.095
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	6.63
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Pile1&2-Soil3-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-03
Date Analyzed:	08/08/19	Data File:	908106-03.112
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Arsenic	1.93 ca
Cadmium	<1
Chromium	6.53 J
Lead	8.91
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Pile1&2-Soil3-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-03 x5
Date Analyzed:	08/09/19	Data File:	908106-03 x5.096
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Arsenic	<5
Chromium	7.45

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Pile1&2-Soil4-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-04
Date Analyzed:	08/08/19	Data File:	908106-04.113
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Arsenic	1.30 ca
Cadmium	<1
Chromium	6.00 J
Lead	3.79
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Pile1&2-Soil4-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-04 x5
Date Analyzed:	08/09/19	Data File:	908106-04 x5.106
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Arsenic	<5
Chromium	9.50

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Pile1&2-Soil5-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-05
Date Analyzed:	08/08/19	Data File:	908106-05.126
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Arsenic	1.71
Cadmium	<1
Chromium	6.39 J
Lead	3.32
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Pile1&2-Soil5-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-05 x5
Date Analyzed:	08/09/19	Data File:	908106-05 x5.107
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Chromium	9.22
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Pile4-Soil1-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-09
Date Analyzed:	08/08/19	Data File:	908106-09.136
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Arsenic	1.82
Cadmium	<1
Chromium	7.03
Lead	17.0
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	I9-479 mb2
Date Analyzed:	08/08/19	Data File:	I9-479 mb2.054
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
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Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Pile1&2-Soil1-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-01 1/6
Date Analyzed:	08/08/19	Data File:	080820.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	71	50	150
DBC	95	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	0.059
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01 ca
4,4'-DDT	0.19 ca
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Pile1&2-Soil2-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-02 1/6
Date Analyzed:	08/08/19	Data File:	080821.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	70	50	150
DBC	86	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	0.023
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01 ca
4,4'-DDT	0.029 ca
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Pile1&2-Soil3-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-03 1/6
Date Analyzed:	08/08/19	Data File:	080822.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	78	50	150
DBC	95	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	0.19
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01 ca
4,4'-DDT	0.49 ca
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Pile1&2-Soil4-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-04 1/6
Date Analyzed:	08/08/19	Data File:	080823.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	70	50	150
DBC	88	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	0.042
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01 ca
4,4'-DDT	0.039 ca
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Pile1&2-Soil5-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-05 1/6
Date Analyzed:	08/08/19	Data File:	080824.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	69	50	150
DBC	107	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	0.15
Endosulfan I	<0.01
Dieldrin	0.016
Endrin	<0.01
4,4'-DDD	0.010
Endosulfan II	<0.01 ca
4,4'-DDT	0.45 ca
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Pile4-Soil1-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-09 1/6
Date Analyzed:	08/08/19	Data File:	080825.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	73	50	150
DBC	103	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	2.5 ve
Endosulfan I	<0.01
Dieldrin	0.068
Endrin	0.024
4,4'-DDD	0.21
Endosulfan II	0.055 ca
4,4'-DDT	7.2 ca ve
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	0.061
Endrin Ketone	<0.01
Toxaphene	<15

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Pile4-Soil1-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-09 1/300
Date Analyzed:	08/13/19	Data File:	081310.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	74 d	50	150
DBC	89 d	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.5
gamma-BHC (Lindane)	<0.5
beta-BHC	<0.5
delta-BHC	<0.5
Heptachlor	<0.5
Aldrin	<0.5
Heptachlor Epoxide	<0.5
trans-Chlordane	<0.5
cis-Chlordane	<0.5
4,4'-DDE	2.6
Endosulfan I	<0.5
Dieldrin	<0.5
Endrin	<0.5
4,4'-DDD	<0.5
Endosulfan II	<0.5
4,4'-DDT	7.1
Endrin Aldehyde	<0.5
Methoxychlor	<0.5
Endosulfan Sulfate	<0.5
Endrin Ketone	<0.5
Toxaphene	<50

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Pile4-Soil2-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-10 1/6
Date Analyzed:	08/08/19	Data File:	080826.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	144	50	150
DBC	73	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	0.84 ve
Endosulfan I	4.3 ve
Dieldrin	0.017
Endrin	<0.01
4,4'-DDD	0.52 ve
Endosulfan II	2.3 ca ve
4,4'-DDT	6.7 ca ve
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Pile4-Soil2-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-10 1/600
Date Analyzed:	08/13/19	Data File:	081308.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	104 d	50	150
DBC	76 d	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<1
gamma-BHC (Lindane)	<1
beta-BHC	<1
delta-BHC	<1
Heptachlor	<1
Aldrin	<1
Heptachlor Epoxide	<1
trans-Chlordane	<1
cis-Chlordane	<1
4,4'-DDE	<1
Endosulfan I	4.4
Dieldrin	<1
Endrin	<1
4,4'-DDD	<1
Endosulfan II	2.5
4,4'-DDT	7.5
Endrin Aldehyde	<1
Methoxychlor	<1
Endosulfan Sulfate	<1
Endrin Ketone	<1
Toxaphene	<100

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Pile4-Soil3-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-11 1/6
Date Analyzed:	08/08/19	Data File:	080827.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	87	50	150
DBC	72	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	0.41
Endosulfan I	2.8 ve
Dieldrin	0.014
Endrin	<0.01
4,4'-DDD	0.36
Endosulfan II	1.5 ca ve
4,4'-DDT	3.1 ca ve
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Pile4-Soil3-080619	Client:	Aspect Consulting, LLC
Date Received:	08/07/19	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	908106-11 1/300
Date Analyzed:	08/13/19	Data File:	081309.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	108 d	50	150
DBC	76 d	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.5
gamma-BHC (Lindane)	<0.5
beta-BHC	<0.5
delta-BHC	<0.5
Heptachlor	<0.5
Aldrin	<0.5
Heptachlor Epoxide	<0.5
trans-Chlordane	<0.5
cis-Chlordane	<0.5
4,4'-DDE	<0.5
Endosulfan I	3.1
Dieldrin	<0.5
Endrin	<0.5
4,4'-DDD	<0.5
Endosulfan II	1.7
4,4'-DDT	3.5
Endrin Aldehyde	<0.5
Methoxychlor	<0.5
Endosulfan Sulfate	<0.5
Endrin Ketone	<0.5
Toxaphene	<50

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Organochlorine Pesticides By EPA Method 8081B

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Pangborn Airport Site 190245
Date Extracted:	08/08/19	Lab ID:	09-1932 mb2 1/6
Date Analyzed:	08/08/19	Data File:	080819.D
Matrix:	Soil	Instrument:	GC7
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	85	50	150
DBC	103	50	150

Compounds:	Concentration mg/kg (ppm)
alpha-BHC	<0.01
gamma-BHC (Lindane)	<0.01
beta-BHC	<0.01
delta-BHC	<0.01
Heptachlor	<0.01
Aldrin	<0.01
Heptachlor Epoxide	<0.01
trans-Chlordane	<0.01
cis-Chlordane	<0.01
4,4'-DDE	<0.01
Endosulfan I	<0.01
Dieldrin	<0.01
Endrin	<0.01
4,4'-DDD	<0.01
Endosulfan II	<0.01 ca
4,4'-DDT	<0.01 ca
Endrin Aldehyde	<0.01
Methoxychlor	<0.01
Endosulfan Sulfate	<0.01
Endrin Ketone	<0.01
Toxaphene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/26/19

Date Received: 08/07/19

Project: Pangborn Airport Site 190245, F&BI 908106

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

Laboratory Code: 908106-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent	Acceptance Criteria
			Recovery LCS	
Benzene	mg/kg (ppm)	0.5	86	69-120
Toluene	mg/kg (ppm)	0.5	89	70-117
Ethylbenzene	mg/kg (ppm)	0.5	91	65-123
Xylenes	mg/kg (ppm)	1.5	92	66-120
Gasoline	mg/kg (ppm)	20	105	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/26/19

Date Received: 08/07/19

Project: Pangborn Airport Site 190245, F&BI 908106

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

Laboratory Code: 908015-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	108	106	64-133	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	104	58-147

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/26/19

Date Received: 08/07/19

Project: Pangborn Airport Site 190245, F&BI 908106

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

Laboratory Code: 908103-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	86	94	63-146	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	84	79-144

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/26/19

Date Received: 08/07/19

Project: Pangborn Airport Site 190245, F&BI 908106

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

Laboratory Code: 908098-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	79	83	75-125	5
Cadmium	mg/kg (ppm)	10	<5	94	93	75-125	1
Chromium	mg/kg (ppm)	50	19.4	86	93	75-125	8
Lead	mg/kg (ppm)	50	9.43	89	91	75-125	2
Mercury	mg/kg (ppm)	5	<5	93	97	75-125	4

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	97	80-120
Cadmium	mg/kg (ppm)	10	100	80-120
Chromium	mg/kg (ppm)	50	111	80-120
Lead	mg/kg (ppm)	50	109	80-120
Mercury	mg/kg (ppm)	5	107	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/26/19

Date Received: 08/07/19

Project: Pangborn Airport Site 190245, F&BI 908106

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

Laboratory Code: 908015-02 1/6 (Matrix Spike) 1/6

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
alpha-BHC	mg/kg (ppm)	0.1	<0.01	80	78	45-111	3
gamma-BHC (Lindane)	mg/kg (ppm)	0.1	<0.01	84	81	50-117	4
beta-BHC	mg/kg (ppm)	0.1	<0.01	88	86	49-109	2
delta-BHC	mg/kg (ppm)	0.1	<0.01	86	83	39-114	4
Heptachlor	mg/kg (ppm)	0.1	<0.01	91	92	40-131	1
Aldrin	mg/kg (ppm)	0.1	<0.01	91	91	44-121	0
Heptachlor Epoxide	mg/kg (ppm)	0.1	<0.01	89	89	46-122	0
trans-Chlordane	mg/kg (ppm)	0.1	<0.01	87	87	41-129	0
cis-Chlordane	mg/kg (ppm)	0.1	<0.01	90	89	44-120	1
4,4'-DDE	mg/kg (ppm)	0.1	0.13	22 b	18 b	50-150	20 b
Endosulfan I	mg/kg (ppm)	0.1	<0.01	87	87	45-124	0
Dieldrin	mg/kg (ppm)	0.1	<0.01	86	86	45-130	0
Endrin	mg/kg (ppm)	0.1	0.033	84 b	80 b	50-140	5 b
4,4'-DDD	mg/kg (ppm)	0.1	<0.01	95	95	26-155	0
Endosulfan II	mg/kg (ppm)	0.1	<0.01	94	93	40-135	1
4,4'-DDT	mg/kg (ppm)	0.1	0.29	0	0	50-150	1
Endrin Aldehyde	mg/kg (ppm)	0.1	<0.01	116	115	35-139	1
Methoxychlor	mg/kg (ppm)	0.1	0.019	73	72	28-162	1
Endosulfan Sulfate	mg/kg (ppm)	0.1	<0.01	92	92	40-141	0
Endrin Ketone	mg/kg (ppm)	0.1	0.010	90	91	41-147	1
Toxaphene	mg/kg (ppm)	4	<0.1	75	76	50-150	1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/26/19

Date Received: 08/07/19

Project: Pangborn Airport Site 190245, F&BI 908106

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

Laboratory Code: Laboratory Control Sample 1/6

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
alpha-BHC	mg/kg (ppm)	0.1	88	56-113
gamma-BHC (Lindane)	mg/kg (ppm)	0.1	91	58-120
beta-BHC	mg/kg (ppm)	0.1	96	70-130
delta-BHC	mg/kg (ppm)	0.1	98	70-130
Heptachlor	mg/kg (ppm)	0.1	96	56-124
Aldrin	mg/kg (ppm)	0.1	99	70-130
Heptachlor Epoxide	mg/kg (ppm)	0.1	97	70-130
trans-Chlordane	mg/kg (ppm)	0.1	94	60-123
cis-Chlordane	mg/kg (ppm)	0.1	98	70-130
4,4'-DDE	mg/kg (ppm)	0.1	99	70-130
Endosulfan I	mg/kg (ppm)	0.1	95	62-124
Dieldrin	mg/kg (ppm)	0.1	95	70-130
Endrin	mg/kg (ppm)	0.1	105	56-147
4,4'-DDD	mg/kg (ppm)	0.1	103	54-137
Endosulfan II	mg/kg (ppm)	0.1	88	42-140
4,4'-DDT	mg/kg (ppm)	0.1	93	25-169
Endrin Aldehyde	mg/kg (ppm)	0.1	105	21-135
Methoxychlor	mg/kg (ppm)	0.1	103	54-154
Endosulfan Sulfate	mg/kg (ppm)	0.1	95	39-148
Endrin Ketone	mg/kg (ppm)	0.1	99	46-134
Toxaphene	mg/kg (ppm)	4	101	56-145

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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

RE: 908106
Work Order Number: 1908133

August 22, 2019

Attention Michael Erdahl:

Fremont Analytical, Inc. received 8 sample(s) on 8/8/2019 for the analyses presented in the following report.

Herbicides by EPA Method 8151A
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 #L 17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

CLIENT: Friedman & Bruya
Project: 908106
Work Order: 1908133

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1908133-001	Pile 1&2-Soil1-080619	08/06/2019 11:20 AM	08/08/2019 9:41 AM
1908133-002	Pile 1&2-Soil2-080619	08/06/2019 11:24 AM	08/08/2019 9:41 AM
1908133-003	Pile 1&2-Soil3-080619	08/06/2019 11:28 AM	08/08/2019 9:41 AM
1908133-004	Pile 1&2-Soil4-080619	08/06/2019 11:32 AM	08/08/2019 9:41 AM
1908133-005	Pile 1&2-Soil5-080619	08/06/2019 11:36 AM	08/08/2019 9:41 AM
1908133-006	Pile 4-Soil1-080619	08/06/2019 12:00 PM	08/08/2019 9:41 AM
1908133-007	Pile 4-Soil2-080619	08/06/2019 12:05 PM	08/08/2019 9:41 AM
1908133-008	Pile 4-Soil3-080619	08/06/2019 12:10 PM	08/08/2019 9:41 AM

CLIENT: Friedman & Bruya**Project:** 908106

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:

- * - 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: 1908133
Date Reported: 8/22/2019

Client: Friedman & Bruya

Collection Date: 8/6/2019 11:20:00 AM

Project: 908106

Lab ID: 1908133-001

Matrix: Soil

Client Sample ID: Pile 1&2-Soil1-080619

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 25481

Analyst: SB

Dicamba	ND	33.8		µg/Kg-dry	1	8/21/2019 4:25:42 PM
2,4-D	ND	28.9		µg/Kg-dry	1	8/21/2019 4:25:42 PM
2,4-DP	ND	24.1		µg/Kg-dry	1	8/21/2019 4:25:42 PM
2,4,5-TP (Silvex)	ND	19.3		µg/Kg-dry	1	8/21/2019 4:25:42 PM
2,4,5-T	ND	48.2		µg/Kg-dry	1	8/21/2019 4:25:42 PM
Dinoseb	ND	28.9		µg/Kg-dry	1	8/21/2019 4:25:42 PM
Dalapon	ND	193		µg/Kg-dry	1	8/21/2019 4:25:42 PM
2,4-DB	ND	24.1		µg/Kg-dry	1	8/21/2019 4:25:42 PM
MCPP	ND	4,240	Q	µg/Kg-dry	1	8/21/2019 4:25:42 PM
MCPA	ND	2,700	Q	µg/Kg-dry	1	8/21/2019 4:25:42 PM
Picloram	ND	48.2		µg/Kg-dry	1	8/21/2019 4:25:42 PM
Bentazon	ND	33.8		µg/Kg-dry	1	8/21/2019 4:25:42 PM
Chloramben	ND	19.3		µg/Kg-dry	1	8/21/2019 4:25:42 PM
Acifluorfen	ND	77.2		µg/Kg-dry	1	8/21/2019 4:25:42 PM
3,5-Dichlorobenzoic acid	ND	38.6		µg/Kg-dry	1	8/21/2019 4:25:42 PM
4-Nitrophenol	ND	28.9		µg/Kg-dry	1	8/21/2019 4:25:42 PM
Dacthal (DCPA)	ND	28.9		µg/Kg-dry	1	8/21/2019 4:25:42 PM
Surr: 2,4-Dichlorophenylacetic acid	95.3	15.3 - 163		%Rec	1	8/21/2019 4:25:42 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

DDVP	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Mevinphos	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
TEPP	ND	43.0	Q	µg/Kg-dry	1	8/13/2019 11:58:28 AM
Demeton, Total	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Ethoprophos	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Naled	ND	43.0	Q	µg/Kg-dry	1	8/13/2019 11:58:28 AM
Sulfotepp	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Monocrotophos	ND	43.0	Q	µg/Kg-dry	1	8/13/2019 11:58:28 AM
Phorate	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Dimethoate	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Diazinon	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Disulfoton	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Parathion, methyl	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Fenchophos	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Malathion	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Dursban	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM



Analytical Report

Work Order: 1908133
Date Reported: 8/22/2019

Client: Friedman & Bruya

Collection Date: 8/6/2019 11:20:00 AM

Project: 908106

Lab ID: 1908133-001

Matrix: Soil

Client Sample ID: Pile 1&2-Soil1-080619

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

Fenthion	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Parathion	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Trichloronate	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Merphos	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Stirophos	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Prothiofos	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Fensulfothion	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Sulprofos	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
EPN	ND	43.0	Q	µg/Kg-dry	1	8/13/2019 11:58:28 AM
Guthion	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Coumaphos	ND	43.0		µg/Kg-dry	1	8/13/2019 11:58:28 AM
Surr: Triphenylphosphate	84.6	10.7 - 154		%Rec	1	8/13/2019 11:58:28 AM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)

Batch ID: R53175

Analyst: ZR

Percent Moisture	3.12	0.500		wt%	1	8/12/2019 8:25:15 AM
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Analytical Report

Work Order: 1908133
Date Reported: 8/22/2019

Client: Friedman & Bruya

Collection Date: 8/6/2019 11:24:00 AM

Project: 908106

Lab ID: 1908133-002

Matrix: Soil

Client Sample ID: Pile 1&2-Soil2-080619

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 25481

Analyst: SB

Dicamba	ND	35.8		µg/Kg-dry	1	8/21/2019 4:46:11 PM
2,4-D	ND	30.7		µg/Kg-dry	1	8/21/2019 4:46:11 PM
2,4-DP	ND	25.6		µg/Kg-dry	1	8/21/2019 4:46:11 PM
2,4,5-TP (Silvex)	ND	20.5		µg/Kg-dry	1	8/21/2019 4:46:11 PM
2,4,5-T	ND	51.1		µg/Kg-dry	1	8/21/2019 4:46:11 PM
Dinoseb	ND	30.7		µg/Kg-dry	1	8/21/2019 4:46:11 PM
Dalapon	ND	205		µg/Kg-dry	1	8/21/2019 4:46:11 PM
2,4-DB	ND	25.6		µg/Kg-dry	1	8/21/2019 4:46:11 PM
MCPP	ND	4,500	Q	µg/Kg-dry	1	8/21/2019 4:46:11 PM
MCPA	ND	2,860	Q	µg/Kg-dry	1	8/21/2019 4:46:11 PM
Picloram	ND	51.1		µg/Kg-dry	1	8/21/2019 4:46:11 PM
Bentazon	ND	35.8		µg/Kg-dry	1	8/21/2019 4:46:11 PM
Chloramben	ND	20.5		µg/Kg-dry	1	8/21/2019 4:46:11 PM
Acifluorfen	ND	81.8		µg/Kg-dry	1	8/21/2019 4:46:11 PM
3,5-Dichlorobenzoic acid	ND	40.9		µg/Kg-dry	1	8/21/2019 4:46:11 PM
4-Nitrophenol	ND	30.7		µg/Kg-dry	1	8/21/2019 4:46:11 PM
Dacthal (DCPA)	ND	30.7		µg/Kg-dry	1	8/21/2019 4:46:11 PM
Surr: 2,4-Dichlorophenylacetic acid	84.7	15.3 - 163		%Rec	1	8/21/2019 4:46:11 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

DDVP	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Mevinphos	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
TEPP	ND	46.1	Q	µg/Kg-dry	1	8/13/2019 12:36:25 PM
Demeton, Total	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Ethoprophos	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Naled	ND	46.1	Q	µg/Kg-dry	1	8/13/2019 12:36:25 PM
Sulfotepp	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Monocrotophos	ND	46.1	Q	µg/Kg-dry	1	8/13/2019 12:36:25 PM
Phorate	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Dimethoate	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Diazinon	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Disulfoton	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Parathion, methyl	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Fenchophos	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Malathion	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Dursban	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM



Analytical Report

Work Order: 1908133
Date Reported: 8/22/2019

Client: Friedman & Bruya

Collection Date: 8/6/2019 11:24:00 AM

Project: 908106

Lab ID: 1908133-002

Matrix: Soil

Client Sample ID: Pile 1&2-Soil2-080619

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

Fenthion	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Parathion	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Trichloronate	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Merphos	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Stirophos	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Prothiofos	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Fensulfothion	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Sulprofos	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
EPN	ND	46.1	Q	µg/Kg-dry	1	8/13/2019 12:36:25 PM
Guthion	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Coumaphos	ND	46.1		µg/Kg-dry	1	8/13/2019 12:36:25 PM
Surr: Triphenylphosphate	65.2	10.7 - 154		%Rec	1	8/13/2019 12:36:25 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)

Batch ID: R53175

Analyst: ZR

Percent Moisture	3.29	0.500		wt%	1	8/12/2019 8:25:15 AM
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Analytical Report

Work Order: 1908133
Date Reported: 8/22/2019

Client: Friedman & Bruya

Collection Date: 8/6/2019 11:28:00 AM

Project: 908106

Lab ID: 1908133-003

Matrix: Soil

Client Sample ID: Pile 1&2-Soil3-080619

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 25481

Analyst: SB

Dicamba	ND	35.0		µg/Kg-dry	1	8/21/2019 5:06:41 PM
2,4-D	ND	30.0		µg/Kg-dry	1	8/21/2019 5:06:41 PM
2,4-DP	ND	25.0		µg/Kg-dry	1	8/21/2019 5:06:41 PM
2,4,5-TP (Silvex)	ND	20.0		µg/Kg-dry	1	8/21/2019 5:06:41 PM
2,4,5-T	ND	50.1		µg/Kg-dry	1	8/21/2019 5:06:41 PM
Dinoseb	ND	30.0		µg/Kg-dry	1	8/21/2019 5:06:41 PM
Dalapon	ND	200		µg/Kg-dry	1	8/21/2019 5:06:41 PM
2,4-DB	ND	25.0		µg/Kg-dry	1	8/21/2019 5:06:41 PM
MCPP	ND	4,410	Q	µg/Kg-dry	1	8/21/2019 5:06:41 PM
MCPA	ND	2,800	Q	µg/Kg-dry	1	8/21/2019 5:06:41 PM
Picloram	ND	50.1		µg/Kg-dry	1	8/21/2019 5:06:41 PM
Bentazon	ND	35.0		µg/Kg-dry	1	8/21/2019 5:06:41 PM
Chloramben	ND	20.0		µg/Kg-dry	1	8/21/2019 5:06:41 PM
Acifluorfen	ND	80.1		µg/Kg-dry	1	8/21/2019 5:06:41 PM
3,5-Dichlorobenzoic acid	ND	40.1		µg/Kg-dry	1	8/21/2019 5:06:41 PM
4-Nitrophenol	ND	30.0		µg/Kg-dry	1	8/21/2019 5:06:41 PM
Dacthal (DCPA)	ND	30.0		µg/Kg-dry	1	8/21/2019 5:06:41 PM
Surr: 2,4-Dichlorophenylacetic acid	87.4	15.3 - 163		%Rec	1	8/21/2019 5:06:41 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

DDVP	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Mevinphos	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
TEPP	ND	47.1	Q	µg/Kg-dry	1	8/13/2019 12:55:19 PM
Demeton, Total	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Ethoprophos	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Naled	ND	47.1	Q	µg/Kg-dry	1	8/13/2019 12:55:19 PM
Sulfotepp	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Monocrotophos	ND	47.1	Q	µg/Kg-dry	1	8/13/2019 12:55:19 PM
Phorate	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Dimethoate	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Diazinon	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Disulfoton	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Parathion, methyl	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Fenchophos	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Malathion	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Dursban	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM



Analytical Report

Work Order: 1908133
Date Reported: 8/22/2019

Client: Friedman & Bruya

Collection Date: 8/6/2019 11:28:00 AM

Project: 908106

Lab ID: 1908133-003

Matrix: Soil

Client Sample ID: Pile 1&2-Soil3-080619

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

Fenthion	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Parathion	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Trichloronate	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Merphos	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Stirophos	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Prothiofos	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Fensulfothion	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Sulprofos	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
EPN	ND	47.1	Q	µg/Kg-dry	1	8/13/2019 12:55:19 PM
Guthion	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Coumaphos	ND	47.1		µg/Kg-dry	1	8/13/2019 12:55:19 PM
Surr: Triphenylphosphate	67.0	10.7 - 154		%Rec	1	8/13/2019 12:55:19 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)

Batch ID: R53175

Analyst: ZR

Percent Moisture	3.13	0.500		wt%	1	8/12/2019 8:25:15 AM
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Analytical Report

Work Order: 1908133
Date Reported: 8/22/2019

Client: Friedman & Bruya

Collection Date: 8/6/2019 11:32:00 AM

Project: 908106

Lab ID: 1908133-004

Matrix: Soil

Client Sample ID: Pile 1&2-Soil4-080619

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 25481

Analyst: SB

Dicamba	ND	30.2		µg/Kg-dry	1	8/21/2019 5:27:04 PM
2,4-D	ND	25.9		µg/Kg-dry	1	8/21/2019 5:27:04 PM
2,4-DP	ND	21.6		µg/Kg-dry	1	8/21/2019 5:27:04 PM
2,4,5-TP (Silvex)	ND	17.3		µg/Kg-dry	1	8/21/2019 5:27:04 PM
2,4,5-T	ND	43.2		µg/Kg-dry	1	8/21/2019 5:27:04 PM
Dinoseb	ND	25.9		µg/Kg-dry	1	8/21/2019 5:27:04 PM
Dalapon	ND	173		µg/Kg-dry	1	8/21/2019 5:27:04 PM
2,4-DB	ND	21.6		µg/Kg-dry	1	8/21/2019 5:27:04 PM
MCPP	ND	3,800	Q	µg/Kg-dry	1	8/21/2019 5:27:04 PM
MCPA	ND	2,420	Q	µg/Kg-dry	1	8/21/2019 5:27:04 PM
Picloram	ND	43.2		µg/Kg-dry	1	8/21/2019 5:27:04 PM
Bentazon	ND	30.2		µg/Kg-dry	1	8/21/2019 5:27:04 PM
Chloramben	ND	17.3		µg/Kg-dry	1	8/21/2019 5:27:04 PM
Acifluorfen	ND	69.1		µg/Kg-dry	1	8/21/2019 5:27:04 PM
3,5-Dichlorobenzoic acid	ND	34.5		µg/Kg-dry	1	8/21/2019 5:27:04 PM
4-Nitrophenol	ND	25.9		µg/Kg-dry	1	8/21/2019 5:27:04 PM
Dacthal (DCPA)	ND	25.9		µg/Kg-dry	1	8/21/2019 5:27:04 PM
Surr: 2,4-Dichlorophenylacetic acid	93.7	15.3 - 163		%Rec	1	8/21/2019 5:27:04 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

DDVP	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Mevinphos	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
TEPP	ND	45.0	Q	µg/Kg-dry	1	8/13/2019 1:14:23 PM
Demeton, Total	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Ethoprophos	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Naled	ND	45.0	Q	µg/Kg-dry	1	8/13/2019 1:14:23 PM
Sulfotepp	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Monocrotophos	ND	45.0	Q	µg/Kg-dry	1	8/13/2019 1:14:23 PM
Phorate	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Dimethoate	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Diazinon	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Disulfoton	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Parathion, methyl	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Fenchophos	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Malathion	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Dursban	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM



Analytical Report

Work Order: 1908133
Date Reported: 8/22/2019

Client: Friedman & Bruya

Collection Date: 8/6/2019 11:32:00 AM

Project: 908106

Lab ID: 1908133-004

Matrix: Soil

Client Sample ID: Pile 1&2-Soil4-080619

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

Fenthion	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Parathion	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Trichloronate	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Merphos	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Stirophos	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Prothiofos	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Fensulfothion	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Sulprofos	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
EPN	ND	45.0	Q	µg/Kg-dry	1	8/13/2019 1:14:23 PM
Guthion	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Coumaphos	ND	45.0		µg/Kg-dry	1	8/13/2019 1:14:23 PM
Surr: Triphenylphosphate	67.2	10.7 - 154		%Rec	1	8/13/2019 1:14:23 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)

Batch ID: R53175

Analyst: ZR

Percent Moisture	3.02	0.500		wt%	1	8/12/2019 8:25:15 AM
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Analytical Report

Work Order: 1908133
Date Reported: 8/22/2019

Client: Friedman & Bruya

Collection Date: 8/6/2019 11:36:00 AM

Project: 908106

Lab ID: 1908133-005

Matrix: Soil

Client Sample ID: Pile 1&2-Soil5-080619

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 25481

Analyst: SB

Dicamba	ND	32.8		µg/Kg-dry	1	8/21/2019 5:47:31 PM
2,4-D	ND	28.1		µg/Kg-dry	1	8/21/2019 5:47:31 PM
2,4-DP	ND	23.4		µg/Kg-dry	1	8/21/2019 5:47:31 PM
2,4,5-TP (Silvex)	ND	18.7		µg/Kg-dry	1	8/21/2019 5:47:31 PM
2,4,5-T	ND	46.8		µg/Kg-dry	1	8/21/2019 5:47:31 PM
Dinoseb	ND	28.1		µg/Kg-dry	1	8/21/2019 5:47:31 PM
Dalapon	ND	187		µg/Kg-dry	1	8/21/2019 5:47:31 PM
2,4-DB	ND	23.4		µg/Kg-dry	1	8/21/2019 5:47:31 PM
MCPP	ND	4,120	Q	µg/Kg-dry	1	8/21/2019 5:47:31 PM
MCPA	ND	2,620	Q	µg/Kg-dry	1	8/21/2019 5:47:31 PM
Picloram	ND	46.8		µg/Kg-dry	1	8/21/2019 5:47:31 PM
Bentazon	ND	32.8		µg/Kg-dry	1	8/21/2019 5:47:31 PM
Chloramben	ND	18.7		µg/Kg-dry	1	8/21/2019 5:47:31 PM
Acifluorfen	ND	74.9		µg/Kg-dry	1	8/21/2019 5:47:31 PM
3,5-Dichlorobenzoic acid	ND	37.5		µg/Kg-dry	1	8/21/2019 5:47:31 PM
4-Nitrophenol	ND	28.1		µg/Kg-dry	1	8/21/2019 5:47:31 PM
Dacthal (DCPA)	ND	28.1		µg/Kg-dry	1	8/21/2019 5:47:31 PM
Surr: 2,4-Dichlorophenylacetic acid	91.5	15.3 - 163		%Rec	1	8/21/2019 5:47:31 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

DDVP	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Mevinphos	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
TEPP	ND	46.0	Q	µg/Kg-dry	1	8/13/2019 1:33:24 PM
Demeton, Total	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Ethoprophos	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Naled	ND	46.0	Q	µg/Kg-dry	1	8/13/2019 1:33:24 PM
Sulfotepp	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Monocrotophos	ND	46.0	Q	µg/Kg-dry	1	8/13/2019 1:33:24 PM
Phorate	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Dimethoate	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Diazinon	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Disulfoton	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Parathion, methyl	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Fenchophos	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Malathion	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Dursban	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM



Analytical Report

Work Order: 1908133
Date Reported: 8/22/2019

Client: Friedman & Bruya

Collection Date: 8/6/2019 11:36:00 AM

Project: 908106

Lab ID: 1908133-005

Matrix: Soil

Client Sample ID: Pile 1&2-Soil5-080619

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

Fenthion	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Parathion	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Trichloronate	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Merphos	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Stirophos	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Prothiofos	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Fensulfothion	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Sulprofos	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
EPN	ND	46.0	Q	µg/Kg-dry	1	8/13/2019 1:33:24 PM
Guthion	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Coumaphos	ND	46.0		µg/Kg-dry	1	8/13/2019 1:33:24 PM
Surr: Triphenylphosphate	51.5	10.7 - 154		%Rec	1	8/13/2019 1:33:24 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)

Batch ID: R53175

Analyst: ZR

Percent Moisture	5.04	0.500		wt%	1	8/12/2019 8:25:15 AM
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Analytical Report

Work Order: 1908133
Date Reported: 8/22/2019

Client: Friedman & Bruya

Collection Date: 8/6/2019 12:00:00 PM

Project: 908106

Lab ID: 1908133-006

Matrix: Soil

Client Sample ID: Pile 4-Soil1-080619

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 25481

Analyst: SB

Dicamba	ND	32.1		µg/Kg-dry	1	8/21/2019 6:07:58 PM
2,4-D	ND	27.6		µg/Kg-dry	1	8/21/2019 6:07:58 PM
2,4-DP	ND	23.0		µg/Kg-dry	1	8/21/2019 6:07:58 PM
2,4,5-TP (Silvex)	ND	18.4		µg/Kg-dry	1	8/21/2019 6:07:58 PM
2,4,5-T	ND	45.9		µg/Kg-dry	1	8/21/2019 6:07:58 PM
Dinoseb	ND	27.6		µg/Kg-dry	1	8/21/2019 6:07:58 PM
Dalapon	ND	184		µg/Kg-dry	1	8/21/2019 6:07:58 PM
2,4-DB	ND	23.0		µg/Kg-dry	1	8/21/2019 6:07:58 PM
MCPP	ND	4,040	Q	µg/Kg-dry	1	8/21/2019 6:07:58 PM
MCPA	ND	2,570	Q	µg/Kg-dry	1	8/21/2019 6:07:58 PM
Picloram	ND	45.9		µg/Kg-dry	1	8/21/2019 6:07:58 PM
Bentazon	ND	32.1		µg/Kg-dry	1	8/21/2019 6:07:58 PM
Chloramben	ND	18.4		µg/Kg-dry	1	8/21/2019 6:07:58 PM
Acifluorfen	ND	73.5		µg/Kg-dry	1	8/21/2019 6:07:58 PM
3,5-Dichlorobenzoic acid	ND	36.7		µg/Kg-dry	1	8/21/2019 6:07:58 PM
4-Nitrophenol	ND	27.6		µg/Kg-dry	1	8/21/2019 6:07:58 PM
Dacthal (DCPA)	ND	27.6		µg/Kg-dry	1	8/21/2019 6:07:58 PM
Surr: 2,4-Dichlorophenylacetic acid	97.5	15.3 - 163		%Rec	1	8/21/2019 6:07:58 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

DDVP	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Mevinphos	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
TEPP	ND	45.0	Q	µg/Kg-dry	1	8/13/2019 1:52:29 PM
Demeton, Total	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Ethoprophos	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Naled	ND	45.0	Q	µg/Kg-dry	1	8/13/2019 1:52:29 PM
Sulfotepp	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Monocrotophos	ND	45.0	Q	µg/Kg-dry	1	8/13/2019 1:52:29 PM
Phorate	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Dimethoate	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Diazinon	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Disulfoton	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Parathion, methyl	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Fenchophos	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Malathion	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Dursban	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM



Analytical Report

Work Order: 1908133
Date Reported: 8/22/2019

Client: Friedman & Bruya

Collection Date: 8/6/2019 12:00:00 PM

Project: 908106

Lab ID: 1908133-006

Matrix: Soil

Client Sample ID: Pile 4-Soil1-080619

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

Fenthion	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Parathion	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Trichloronate	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Merphos	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Stirophos	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Prothiofos	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Fensulfothion	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Sulprofos	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
EPN	ND	45.0	Q	µg/Kg-dry	1	8/13/2019 1:52:29 PM
Guthion	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Coumaphos	ND	45.0		µg/Kg-dry	1	8/13/2019 1:52:29 PM
Surr: Triphenylphosphate	78.1	10.7 - 154		%Rec	1	8/13/2019 1:52:29 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)

Batch ID: R53175

Analyst: ZR

Percent Moisture	4.50	0.500		wt%	1	8/12/2019 8:25:15 AM
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Analytical Report

Work Order: 1908133
Date Reported: 8/22/2019

Client: Friedman & Bruya

Collection Date: 8/6/2019 12:05:00 PM

Project: 908106

Lab ID: 1908133-007

Matrix: Soil

Client Sample ID: Pile 4-Soil2-080619

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 25481

Analyst: SB

Dicamba	ND	31.6		µg/Kg-dry	1	8/21/2019 6:28:22 PM
2,4-D	ND	27.1		µg/Kg-dry	1	8/21/2019 6:28:22 PM
2,4-DP	ND	22.6		µg/Kg-dry	1	8/21/2019 6:28:22 PM
2,4,5-TP (Silvex)	ND	18.1		µg/Kg-dry	1	8/21/2019 6:28:22 PM
2,4,5-T	ND	45.2		µg/Kg-dry	1	8/21/2019 6:28:22 PM
Dinoseb	ND	27.1		µg/Kg-dry	1	8/21/2019 6:28:22 PM
Dalapon	ND	181		µg/Kg-dry	1	8/21/2019 6:28:22 PM
2,4-DB	ND	22.6		µg/Kg-dry	1	8/21/2019 6:28:22 PM
MCPP	ND	3,970	Q	µg/Kg-dry	1	8/21/2019 6:28:22 PM
MCPA	ND	2,530	Q	µg/Kg-dry	1	8/21/2019 6:28:22 PM
Picloram	ND	45.2		µg/Kg-dry	1	8/21/2019 6:28:22 PM
Bentazon	ND	31.6		µg/Kg-dry	1	8/21/2019 6:28:22 PM
Chloramben	ND	18.1		µg/Kg-dry	1	8/21/2019 6:28:22 PM
Acifluorfen	ND	72.3		µg/Kg-dry	1	8/21/2019 6:28:22 PM
3,5-Dichlorobenzoic acid	ND	36.1		µg/Kg-dry	1	8/21/2019 6:28:22 PM
4-Nitrophenol	ND	27.1		µg/Kg-dry	1	8/21/2019 6:28:22 PM
Dacthal (DCPA)	ND	27.1		µg/Kg-dry	1	8/21/2019 6:28:22 PM
Surr: 2,4-Dichlorophenylacetic acid	111	15.3 - 163		%Rec	1	8/21/2019 6:28:22 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

DDVP	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Mevinphos	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
TEPP	ND	47.8	Q	µg/Kg-dry	1	8/13/2019 2:11:33 PM
Demeton, Total	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Ethoprophos	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Naled	ND	47.8	Q	µg/Kg-dry	1	8/13/2019 2:11:33 PM
Sulfotepp	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Monocrotophos	ND	47.8	Q	µg/Kg-dry	1	8/13/2019 2:11:33 PM
Phorate	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Dimethoate	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Diazinon	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Disulfoton	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Parathion, methyl	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Fenchophos	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Malathion	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Dursban	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM



Analytical Report

Work Order: 1908133
Date Reported: 8/22/2019

Client: Friedman & Bruya

Collection Date: 8/6/2019 12:05:00 PM

Project: 908106

Lab ID: 1908133-007

Matrix: Soil

Client Sample ID: Pile 4-Soil2-080619

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

Fenthion	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Parathion	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Trichloronate	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Merphos	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Stirophos	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Prothiofos	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Fensulfothion	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Sulprofos	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
EPN	ND	47.8	Q	µg/Kg-dry	1	8/13/2019 2:11:33 PM
Guthion	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Coumaphos	ND	47.8		µg/Kg-dry	1	8/13/2019 2:11:33 PM
Surr: Triphenylphosphate	82.8	10.7 - 154		%Rec	1	8/13/2019 2:11:33 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)

Batch ID: R53175

Analyst: ZR

Percent Moisture	3.06	0.500		wt%	1	8/12/2019 8:25:15 AM
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Analytical Report

Work Order: 1908133
Date Reported: 8/22/2019

Client: Friedman & Bruya

Collection Date: 8/6/2019 12:10:00 PM

Project: 908106

Lab ID: 1908133-008

Matrix: Soil

Client Sample ID: Pile 4-Soil3-080619

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 25481

Analyst: SB

Dicamba	ND	35.4		µg/Kg-dry	1	8/21/2019 6:48:46 PM
2,4-D	ND	30.3		µg/Kg-dry	1	8/21/2019 6:48:46 PM
2,4-DP	ND	25.3		µg/Kg-dry	1	8/21/2019 6:48:46 PM
2,4,5-TP (Silvex)	ND	20.2		µg/Kg-dry	1	8/21/2019 6:48:46 PM
2,4,5-T	ND	50.5		µg/Kg-dry	1	8/21/2019 6:48:46 PM
Dinoseb	ND	30.3		µg/Kg-dry	1	8/21/2019 6:48:46 PM
Dalapon	ND	202		µg/Kg-dry	1	8/21/2019 6:48:46 PM
2,4-DB	ND	25.3		µg/Kg-dry	1	8/21/2019 6:48:46 PM
MCPP	ND	4,450	Q	µg/Kg-dry	1	8/21/2019 6:48:46 PM
MCPA	ND	2,830	Q	µg/Kg-dry	1	8/21/2019 6:48:46 PM
Picloram	ND	50.5		µg/Kg-dry	1	8/21/2019 6:48:46 PM
Bentazon	ND	35.4		µg/Kg-dry	1	8/21/2019 6:48:46 PM
Chloramben	ND	20.2		µg/Kg-dry	1	8/21/2019 6:48:46 PM
Acifluorfen	ND	80.8		µg/Kg-dry	1	8/21/2019 6:48:46 PM
3,5-Dichlorobenzoic acid	ND	40.4		µg/Kg-dry	1	8/21/2019 6:48:46 PM
4-Nitrophenol	ND	30.3		µg/Kg-dry	1	8/21/2019 6:48:46 PM
Dacthal (DCPA)	ND	30.3		µg/Kg-dry	1	8/21/2019 6:48:46 PM
Surr: 2,4-Dichlorophenylacetic acid	84.9	15.3 - 163		%Rec	1	8/21/2019 6:48:46 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

DDVP	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Mevinphos	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
TEPP	ND	43.9	Q	µg/Kg-dry	1	8/13/2019 2:49:42 PM
Demeton, Total	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Ethoprophos	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Naled	ND	43.9	Q	µg/Kg-dry	1	8/13/2019 2:49:42 PM
Sulfotepp	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Monocrotophos	ND	43.9	Q	µg/Kg-dry	1	8/13/2019 2:49:42 PM
Phorate	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Dimethoate	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Diazinon	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Disulfoton	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Parathion, methyl	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Fenchophos	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Malathion	333	439	JD	µg/Kg-dry	10	8/15/2019 10:16:27 AM
Dursban	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM



Analytical Report

Work Order: 1908133
Date Reported: 8/22/2019

Client: Friedman & Bruya

Collection Date: 8/6/2019 12:10:00 PM

Project: 908106

Lab ID: 1908133-008

Matrix: Soil

Client Sample ID: Pile 4-Soil3-080619

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 25428

Analyst: SB

Fenthion	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Parathion	159	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Trichloronate	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Merphos	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Stirophos	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Prothiofos	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Fensulfothion	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Sulprofos	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
EPN	ND	43.9	Q	µg/Kg-dry	1	8/13/2019 2:49:42 PM
Guthion	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Coumaphos	ND	43.9		µg/Kg-dry	1	8/13/2019 2:49:42 PM
Surr: Triphenylphosphate	76.2	10.7 - 154		%Rec	1	8/13/2019 2:49:42 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample Moisture (Percent Moisture)

Batch ID: R53175

Analyst: ZR

Percent Moisture	2.51	0.500		wt%	1	8/12/2019 8:25:15 AM
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Work Order: 1908133
CLIENT: Friedman & Bruya
Project: 908106

QC SUMMARY REPORT

Herbicides by EPA Method 8151A

Sample ID	MB-25481	SampType:	MBLK		Units:	µg/Kg		Prep Date:	8/13/2019		RunNo:	53370	
Client ID:	MBLKS	Batch ID:	25481					Analysis Date:	8/20/2019		SeqNo:	1055792	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual
Dicamba		ND	35.0										
2,4-D		ND	30.0										
2,4-DP		ND	25.0										
2,4,5-TP (Silvex)		ND	20.0										
2,4,5-T		ND	50.0										
Dinoseb		ND	30.0										
Dalapon		ND	200										
2,4-DB		ND	25.0										
MCPP		ND	4,400										
MCPA		ND	2,800										
Picloram		ND	50.0										
Bentazon		ND	35.0										
Chloramben		ND	20.0										
Acifluorfen		ND	80.0										
3,5-Dichlorobenzoic acid		ND	40.0										
4-Nitrophenol		ND	30.0										
Dacthal (DCPA)		ND	30.0										
Surr: 2,4-Dichlorophenylacetic acid		969		1,000		96.9	15.3	163					

Sample ID	LCS-25481	SampType: LCS		Units: µg/Kg		Prep Date: 8/13/2019			RunNo: 53370		
Client ID:	LCSS	Batch ID: 25481					Analysis Date: 8/20/2019			SeqNo: 1055793	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	186	35.0	200.0	0	93.2	21.2	167				
2,4-D	200	30.0	200.0	0	99.9	32	176				
2,4-DP	187	25.0	200.0	0	93.6	25.8	171				
2,4,5-TP (Silvex)	189	20.0	200.0	0	94.3	23.6	164				
2,4,5-T	185	50.0	200.0	0	92.3	25	166				
Dinoseb	62.7	30.0	200.0	0	31.4	5	168				
Dalapon	994	200	1,000	0	99.4	29.2	195				

Work Order: 1908133
CLIENT: Friedman & Bruya
Project: 908106

QC SUMMARY REPORT

Herbicides by EPA Method 8151A

Sample ID	LCS-25481	SampType:	LCS	Units:	µg/Kg	Prep Date:	8/13/2019	RunNo:	53370		
Client ID:	LCSS	Batch ID:	25481			Analysis Date:	8/20/2019	SeqNo:	1055793		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-DB	202	25.0	200.0	0	101	8.11	184				
MCPP	869	4,400	1,000	0	86.9	17.3	191				
MCPA	830	2,800	1,000	0	83.1	13.6	192				
Picloram	212	50.0	200.0	0	106	5	175				
Bentazon	181	35.0	200.0	0	90.7	21.5	170				
Chloramben	148	20.0	200.0	0	74.2	5	114				
Acifluorfen	119	80.0	200.0	0	59.5	5	168				
3,5-Dichlorobenzoic acid	194	40.0	200.0	0	97.1	26.2	174				
4-Nitrophenol	164	30.0	200.0	0	82.2	5.02	160				
Dacthal (DCPA)	191	30.0	200.0	0	95.3	18	168				
Surr: 2,4-Dichlorophenylacetic acid	997		1,000		99.7	15.3	163				

Sample ID	1908094-002AMS	SampType:	MS		Units:	µg/Kg-dry		Prep Date:	8/13/2019		RunNo:	53370		
Client ID:	BATCH	Batch ID:	25481						Analysis Date:	8/20/2019		SeqNo:	1055852	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual	
Dicamba		127	30.3	173.3	0	73.2	5	136						
2,4-D		146	26.0	173.3	0	84.0	5	151						
2,4-DP		139	21.7	173.3	0	80.1	5	149						
2,4,5-TP (Silvex)		146	17.3	173.3	0	84.5	5.43	140						
2,4,5-T		141	43.3	173.3	0	81.1	6.68	133						
Dinoseb		118	26.0	173.3	0	68.1	5	141						
Dalapon		599	173	866.6	0	69.1	5	179						
2,4-DB		171	21.7	173.3	0	98.8	5.57	160						
MCP		630	3,810	866.6	0	72.7	5	174						
MCPA		606	2,430	866.6	0	69.9	5	154						
Picloram		100	43.3	173.3	0	58.0	5	139						
Bentazon		142	30.3	173.3	0	81.7	5.31	146						
Chloramben		91.1	17.3	173.3	0	52.6	5	134						
Acifluorfen		102	69.3	173.3	0	59.0	5	168						

Work Order: 1908133
CLIENT: Friedman & Bruya
Project: 908106

QC SUMMARY REPORT

Herbicides by EPA Method 8151A

Sample ID	1908094-002AMS	SampType:	MS	Units:	µg/Kg-dry	Prep Date:	8/13/2019	RunNo:	53370		
Client ID:	BATCH	Batch ID:	25481			Analysis Date:	8/20/2019	SeqNo:	1055852		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

3,5-Dichlorobenzoic acid	136	34.7	173.3	0	78.6	6.99	144				
4-Nitrophenol	145	26.0	173.3	0	83.7	10.2	139				
Dacthal (DCPA)	44.8	26.0	173.3	0	25.8	5	156				
Surr: 2,4-Dichlorophenylacetic acid	698		866.6		80.6	15.3	163				

Sample ID	1908094-002AMSD	SampType:	MSD	Units:	µg/Kg-dry	Prep Date:	8/13/2019	RunNo:	53370		
Client ID:	BATCH	Batch ID:	25481	Analysis Date:				8/20/2019	SeqNo:	1055853	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Dicamba	150	32.5	185.8	0	81.0	5	136	126.9	17.0	30	
2,4-D	173	27.9	185.8	0	93.1	5	151	145.5	17.3	30	
2,4-DP	166	23.2	185.8	0	89.3	5	149	138.9	17.7	30	
2,4,5-TP (Silvex)	174	18.6	185.8	0	93.4	5.43	140	146.5	17.0	30	
2,4,5-T	167	46.5	185.8	0	89.6	6.68	133	140.6	16.9	30	
Dinoseb	137	27.9	185.8	0	74.0	5	141	118.0	15.2	30	
Dalapon	660	186	929.0	0	71.0	5	179	598.5	9.72	30	
2,4-DB	206	23.2	185.8	0	111	5.57	160	171.3	18.5	30	
MCPP	764	4,090	929.0	0	82.2	5	174	630.1	19.2	30	
MCPA	732	2,600	929.0	0	78.8	5	154	606.0	18.9	30	
Picloram	117	46.5	185.8	0	62.9	5	139	100.5	15.1	30	
Bentazon	172	32.5	185.8	0	92.3	5.31	146	141.6	19.1	30	
Chloramben	129	18.6	185.8	0	69.6	5	134	91.08	34.6	30	R
Acifluorfen	117	74.3	185.8	0	63.1	5	168	102.3	13.7	30	
3,5-Dichlorobenzoic acid	162	37.2	185.8	0	87.2	6.99	144	136.3	17.3	30	
4-Nitrophenol	174	27.9	185.8	0	93.4	10.2	139	145.1	17.9	30	
Dacthal (DCPA)	48.1	27.9	185.8	0	25.9	5	156	44.80	7.14	30	
Surr: 2,4-Dichlorophenylacetic acid	827		929.0		89.0	15.3	163		0		

NOTES:

R - High RPD observed, spike recovery is within range.

Work Order: 1908133
CLIENT: Friedman & Bruya
Project: 908106

QC SUMMARY REPORT

Herbicides by EPA Method 8151A

Sample ID	1908094-002ADUP	SampType:	DUP		Units:	µg/Kg-dry		Prep Date:	8/13/2019		RunNo:	53370	
Client ID:	BATCH	Batch ID:	25481					Analysis Date:	8/20/2019		SeqNo:	1055854	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Dicamba	ND	35.3						0	0	30			
2,4-D	ND	30.3						0	0	30			
2,4-DP	ND	25.2						0	0	30			
2,4,5-TP (Silvex)	ND	20.2						0	0	30			
2,4,5-T	ND	50.5						0	0	30			
Dinoseb	ND	30.3						0	0	30			
Dalapon	ND	202						0	0	30			
2,4-DB	ND	25.2						0	0	30			
MCPP	ND	4,440						0	0	30			
MCPA	ND	2,830						0	0	30			
Picloram	ND	50.5						0	0	30			
Bentazon	ND	35.3						0	0	30			
Chloramben	ND	20.2						0	0	30			
Acifluorfen	ND	80.8						0	0	30			
3,5-Dichlorobenzoic acid	ND	40.4						0	0	30			
4-Nitrophenol	ND	30.3						0	0	30			
Dacthal (DCPA)	ND	30.3						0	0	30			
Surr: 2,4-Dichlorophenylacetic acid	865		1,010		85.6	15.3	163		0				

Work Order: 1908133
CLIENT: Friedman & Bruya
Project: 908106

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID	MB-25428	SampType:	MBLK		Units:	µg/Kg		Prep Date:	8/8/2019		RunNo:	53228	
Client ID:	MBLKS	Batch ID:	25428					Analysis Date:	8/13/2019		SeqNo:	1052172	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual
DDVP		ND	50.0										
Mevinphos		ND	50.0										
TEPP		ND	50.0										Q
Demeton, Total		ND	50.0										
Ethoprophos		ND	50.0										
Naled		ND	50.0										Q
Sulfotepp		ND	50.0										
Monocrotophos		ND	50.0										Q
Phorate		ND	50.0										
Dimethoate		ND	50.0										
Diazinon		ND	50.0										
Disulfoton		ND	50.0										
Parathion, methyl		ND	50.0										
Fenchorphos		ND	50.0										
Malathion		ND	50.0										
Dursban		ND	50.0										
Fenthion		ND	50.0										
Parathion		ND	50.0										
Trichloronate		ND	50.0										
Merphos		ND	50.0										
Stirophos		ND	50.0										
Prothiofos		ND	50.0										
Fensulfothion		ND	50.0										
Sulprofos		ND	50.0										
EPN		ND	50.0										Q
Guthion		ND	50.0										
Coumaphos		ND	50.0										
Surr: Triphenylphosphate		15.9		20.00		79.6	10.7	154					

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Work Order: 1908133
CLIENT: Friedman & Bruya
Project: 908106

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID	LCS-25428	SampType:	LCS	Units:	µg/Kg	Prep Date:	8/8/2019	RunNo:	53228		
Client ID:	LCSS	Batch ID:	25428			Analysis Date:	8/13/2019	SeqNo:	1052173		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	16.1	50.0	20.00	0	80.5	7.85	133				
Mevinphos	14.4	50.0	20.00	0	72.1	28.7	131				
TEPP	8.72	50.0	20.00	0	43.6	5	119				
Demeton, Total	13.0	50.0	20.00	0	65.2	31.4	149				
Ethoprophos	15.1	50.0	20.00	0	75.5	31.9	144				
Naled	12.5	50.0	20.00	0	62.4	10	147				
Sulfotepp	15.4	50.0	20.00	0	76.8	26.9	144				
Monocrotophos	11.6	50.0	20.00	0	58.0	10	129				
Phorate	14.4	50.0	20.00	0	72.1	40.9	118				
Dimethoate	15.1	50.0	20.00	0	75.7	23.6	127				
Diazinon	14.9	50.0	20.00	0	74.4	37.1	132				
Disulfoton	14.5	50.0	20.00	0	72.7	37.9	122				
Parathion, methyl	15.2	50.0	20.00	0	75.8	16.8	143				
Fenchorphos	15.6	50.0	20.00	0	78.0	36.7	117				
Malathion	13.4	50.0	20.00	0	67.4	26.9	131				
Dursban	15.3	50.0	20.00	0	76.6	40.8	124				
Fenthion	14.8	50.0	20.00	0	74.0	36.6	127				
Parathion	15.3	50.0	20.00	0	76.6	37.6	129				
Trichloronate	15.3	50.0	20.00	0	76.5	41.5	123				
Merphos	5.22	50.0	20.00	0	26.1	10	122				
Stirophos	15.1	50.0	20.00	0	75.3	20.6	126				
Prothiofos	14.7	50.0	20.00	0	73.3	37.1	135				
Fensulfothion	15.3	50.0	20.00	0	76.4	14.6	152				
Sulprofos	13.1	50.0	20.00	0	65.5	34.6	137				
EPN	14.5	50.0	20.00	0	72.5	26.7	150				
Guthion	13.7	50.0	20.00	0	68.7	5	151				
Coumaphos	14.4	50.0	20.00	0	72.1	10	152				
Surr: Triphenylphosphate	16.8		20.00		84.1	10.7	154				



Date: 8/22/2019

Work Order: 1908133
 CLIENT: Friedman & Bruya
 Project: 908106

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID	1908081-002ADUP	SampType:	DUP	Units:	µg/Kg-dry	Prep Date:	8/8/2019	RunNo:	53228		
Client ID:	BATCH	Batch ID:	25428			Analysis Date:	8/13/2019	SeqNo:	1052176		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	ND	48.2						0	0	30	H
Mevinphos	ND	48.2						0	0	30	H
TEPP	ND	48.2						0	0	30	QH
Demeton, Total	ND	48.2						0	0	30	H
Ethoprophos	ND	48.2						0	0	30	H
Naled	ND	48.2						0	0	30	QH
Sulfotepp	ND	48.2						0	0	30	H
Monocrotophos	ND	48.2						0	0	30	QH
Phorate	ND	48.2						0	0	30	H
Dimethoate	ND	48.2						0	0	30	H
Diazinon	ND	48.2						0	0	30	H
Disulfoton	ND	48.2						0	0	30	H
Parathion, methyl	ND	48.2						0	0	30	H
Fenchorphos	ND	48.2						0	0	30	H
Malathion	ND	48.2						0	0	30	H
Dursban	ND	48.2						0	0	30	H
Fenthion	ND	48.2						0	0	30	H
Parathion	ND	48.2						0	0	30	H
Trichloronate	ND	48.2						0	0	30	H
Merphos	ND	48.2						0	0	30	H
Stirophos	ND	48.2						0	0	30	H
Prothiofos	ND	48.2						0	0	30	H
Fensulfothion	ND	48.2						0	0	30	H
Sulprofos	ND	48.2						0	0	30	H
EPN	ND	48.2						0	0	30	QH
Guthion	ND	48.2						0	0	30	H
Coumaphos	ND	48.2						0	0	30	H
Surr: Triphenylphosphate	13.8		19.27		71.8	10.7	154		0		H

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Work Order: 1908133
CLIENT: Friedman & Bruya
Project: 908106

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID	1908133-008AMS	SampType:	MS	Units:	µg/Kg-dry	Prep Date:	8/8/2019	RunNo:	53228		
Client ID:	Pile 4-Soil3-080619	Batch ID:	25428			Analysis Date:	8/13/2019	SeqNo:	1053315		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	12.8	48.2	19.26	0	66.4	5	138				
Mevinphos	6.73	48.2	19.26	0	34.9	5	148				
TEPP	2.93	48.2	19.26	0	15.2	5	121				
Demeton, Total	10.8	48.2	19.26	0	56.0	24.3	141				
Ethoprophos	11.3	48.2	19.26	0	58.6	13.2	145				
Naled	2.69	48.2	19.26	0	14.0	5	121				
Sulfotepp	11.6	48.2	19.26	0	60.2	26.8	120				
Monocrotophos	2.75	48.2	19.26	0	14.3	5	196				
Phorate	12.5	48.2	19.26	0	65.0	29.4	122				
Dimethoate	13.9	48.2	19.26	0	72.2	5	161				
Diazinon	12.9	48.2	19.26	0	67.2	9.74	142				
Disulfoton	13.0	48.2	19.26	0	67.4	23.9	137				
Parathion, methyl	12.4	48.2	19.26	0	64.3	5.64	177				
Fenchorphos	12.2	48.2	19.26	0	63.1	25.3	131				
Malathion	287	48.2	19.26	343.0	-290	23.5	121				S
Dursban	12.6	48.2	19.26	0	65.6	28.2	128				
Fenthion	12.0	48.2	19.26	0	62.1	24.2	136				
Parathion	185	48.2	19.26	158.9	137	5	173				
Trichloronate	16.1	48.2	19.26	0	83.8	28.5	122				
Merphos	2.35	48.2	19.26	0	12.2	5	90.1				
Stirophos	12.1	48.2	19.26	0	63.0	9.46	152				
Prothiofos	16.1	48.2	19.26	0	83.3	23.7	157				
Fensulfothion	10.7	48.2	19.26	0	55.3	5	174				
Sulprofos	13.1	48.2	19.26	0	67.8	12	173				
EPN	14.5	48.2	19.26	0	75.1	13.8	157				
Guthion	13.9	48.2	19.26	0	71.9	5	177				
Coumaphos	15.9	48.2	19.26	0	82.6	5	232				
Surr: Triphenylphosphate	14.6		19.26		75.9	10.7	154				

NOTES:

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

Work Order: 1908133
CLIENT: Friedman & Bruya
Project: 908106

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID	1908133-008AMSD	SampType:	MSD	Units:	µg/Kg-dry	Prep Date:	8/8/2019	RunNo:	53228		
Client ID:	Pile 4-Soil3-080619	Batch ID:	25428	Analysis Date:				8/13/2019	SeqNo:	1053317	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	14.2	47.1	18.84	0	75.2	5	138	12.80	10.2	30	
Mevinphos	7.59	47.1	18.84	0	40.3	5	148	6.726	12.0	30	
TEPP	2.79	47.1	18.84	0	14.8	5	121	2.932	4.95	30	
Demeton, Total	12.5	47.1	18.84	0	66.1	24.3	141	10.79	14.4	30	
Ethoprophos	12.6	47.1	18.84	0	66.8	13.2	145	11.30	10.8	30	
Naled	2.56	47.1	18.84	0	13.6	5	121	2.692	5.02	30	
Sulfotepp	12.2	47.1	18.84	0	64.7	26.8	120	11.60	5.01	30	
Monocrotophos	0.00	47.1	18.84	0	15.3	5	196	2.751	4.59	30	
Phorate	13.3	47.1	18.84	0	70.4	29.4	122	12.52	5.77	30	
Dimethoate	13.4	47.1	18.84	0	71.0	5	161	13.90	3.87	30	
Diazinon	13.3	47.1	18.84	0	70.7	9.74	142	12.94	2.82	30	
Disulfoton	16.6	47.1	18.84	0	87.9	23.9	137	12.99	24.2	30	
Parathion, methyl	14.0	47.1	18.84	0	74.5	5.64	177	12.39	12.5	30	
Fenchorphos	12.8	47.1	18.84	0	67.7	25.3	131	12.16	4.79	30	
Malathion	132	47.1	18.84	343.0	-1,120	23.5	121	287.2	74.0	30	RS
Dursban	13.6	47.1	18.84	0	72.4	28.2	128	12.64	7.55	30	
Fenthion	12.6	47.1	18.84	0	66.9	24.2	136	11.97	5.19	30	
Parathion	120	47.1	18.84	158.9	-208	5	173	185.2	43.0	30	RS
Trichloronate	17.9	47.1	18.84	0	94.9	28.5	122	16.13	10.2	30	
Merphos	2.26	47.1	18.84	0	12.0	5	90.1	2.347	3.63	30	
Stirophos	12.6	47.1	18.84	0	66.8	9.46	152	12.13	3.68	30	
Prothiofos	15.7	47.1	18.84	0	83.4	23.7	157	16.06	2.12	30	
Fensulfothion	11.4	47.1	18.84	0	60.6	5	174	10.65	6.90	30	
Sulprofos	13.7	47.1	18.84	0	72.5	12	173	13.06	4.54	30	
EPN	14.3	47.1	18.84	0	76.1	13.8	157	14.47	0.894	30	
Guthion	14.1	47.1	18.84	0	74.9	5	177	13.85	1.87	30	
Coumaphos	16.4	47.1	18.84	0	86.9	5	232	15.91	2.82	30	
Surr: Triphenylphosphate	13.3		18.84		70.5	10.7	154		0		

NOTES:

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

Work Order: 1908133
CLIENT: Friedman & Bruya
Project: 908106

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID	1908144-001ADUP	SampType:	DUP	Units:	wt%	Prep Date:	8/12/2019	RunNo:	53175		
Client ID:	BATCH	Batch ID:	R53175			Analysis Date:	8/12/2019	SeqNo:	1050883		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	10.2	0.500						9.402	8.18	20	

Sample ID	1908133-008ADUP	SampType:	DUP	Units:	wt%	Prep Date:	8/12/2019	RunNo:	53175		
Client ID:	Pile 4-Soil3-080619	Batch ID:	R53175			Analysis Date:	8/12/2019	SeqNo:	1050899		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	2.59	0.500						2.509	3.13	20	

Client Name: **FB**
 Logged by: **Carissa True**

Work Order Number: **1908133**
 Date Received: **8/8/2019 9:41:00 AM**

Chain of Custody

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

Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐
 4. Shipping container/cooler in good condition? Yes ☒ No ☐
 5. Custody Seals present on shipping container/cooler?
 (Refer to comments for Custody Seals not intact) Yes ☐ No ☒ Not Required ☐
 6. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
 7. Were all items received at a temperature of >0°C to 10.0°C * Yes ☒ No ☐ NA ☐
 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 condition(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 ☐

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes ☒ No ☐ NA ☐

Person Notified: Michael Erdahl Date: 8/9/2019
 By Whom: Carissa True Via: ☒ eMail ☐ Phone ☐ Fax ☐ In Person
 Regarding: Confirming sampling date.
 Client Instructions: Sampled on 8/6/19.

19. Additional remarks:

Item Information

Item #	Temp °C
Cooler 1	5.6
Sample 1	4.4

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

1908133

of

Phone # (206) 285-8282 Fax # (206) 283-5044

TURNAROUND TIME

☒ Standard (2 Weeks)

☐ RUSH _____



Rush charges authorized by: _____

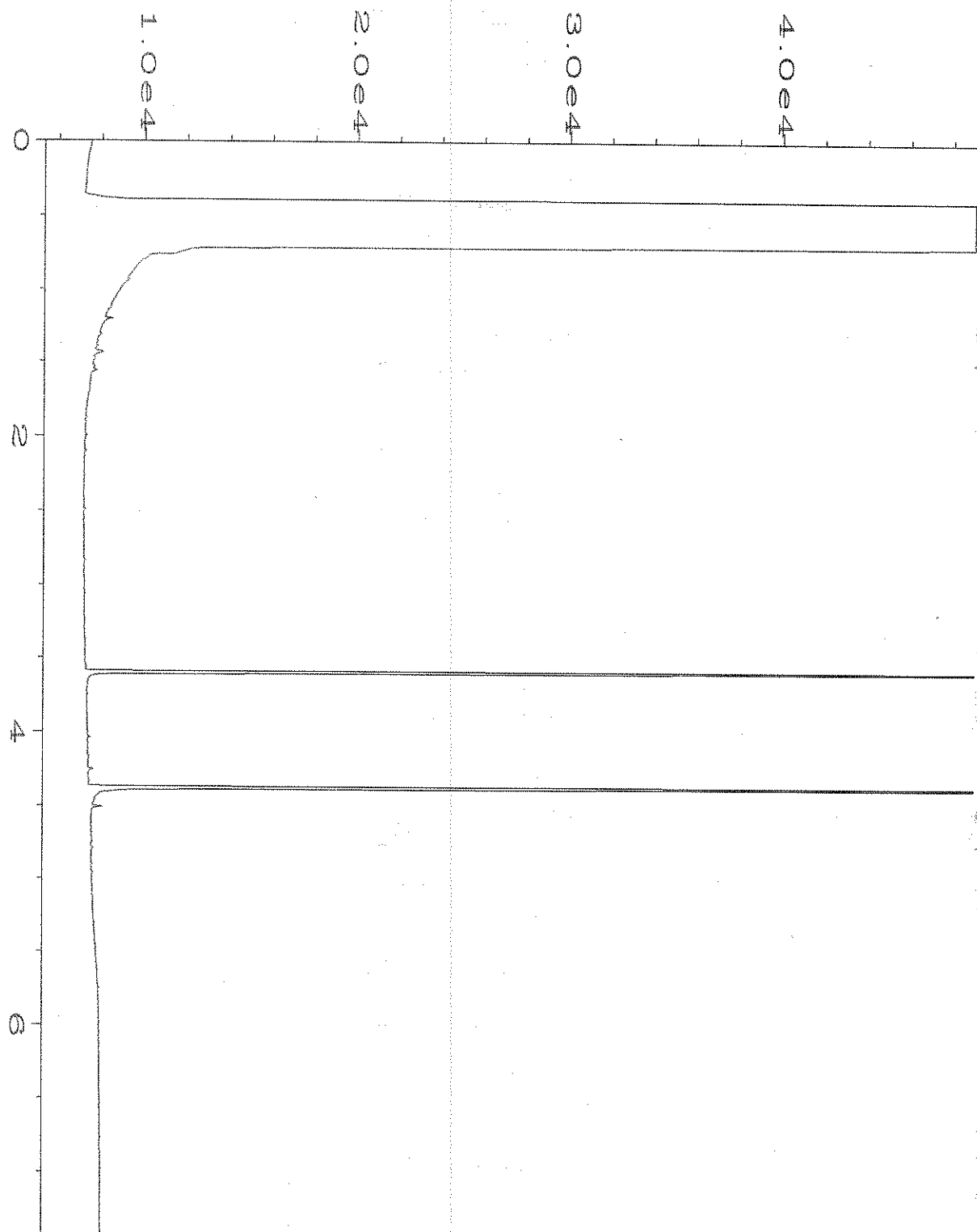
SAMPLE DISPOSAL

☐ Dispose after 30 days

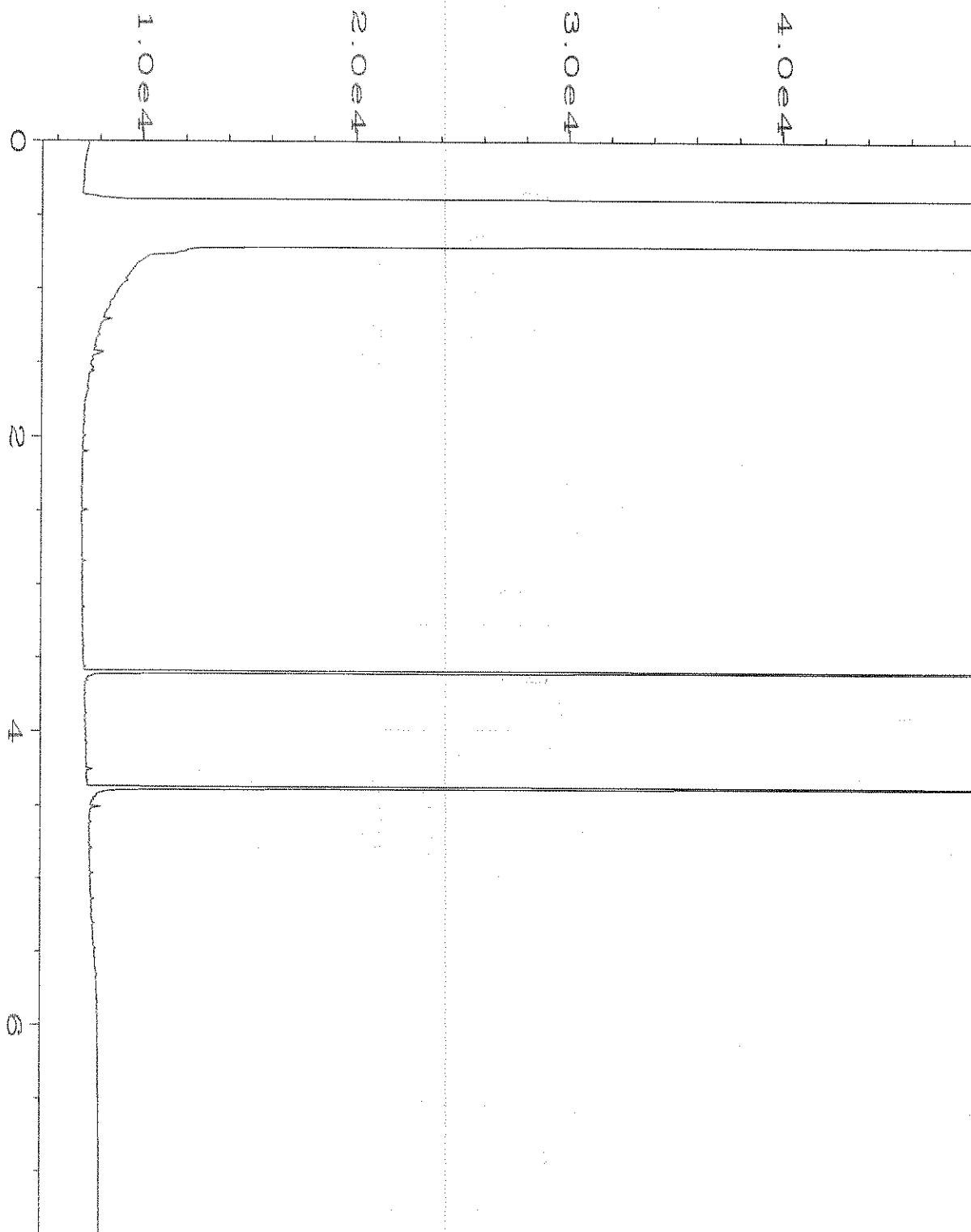
☐ Return samples

☐ Will call with instructions

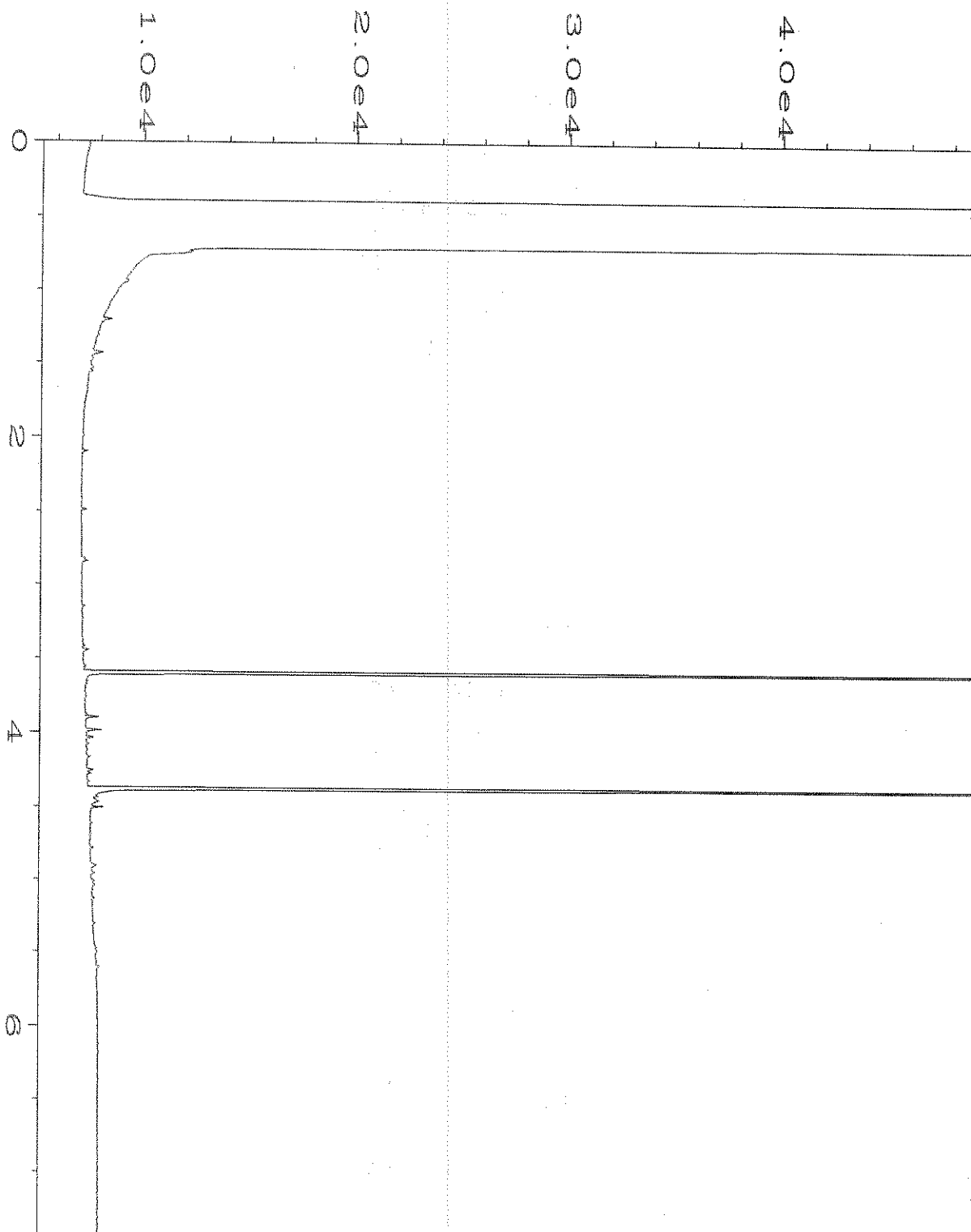
SIGNATURE		PRINT NAME	COMPANY	DATE	TIME
Reinquished by:		Michael Erdahl	Friedman & Bryua	4/8/19	7:55am
Received by:		Carter Johnson	FBI	4/8/19	0941
Relinquished by:					



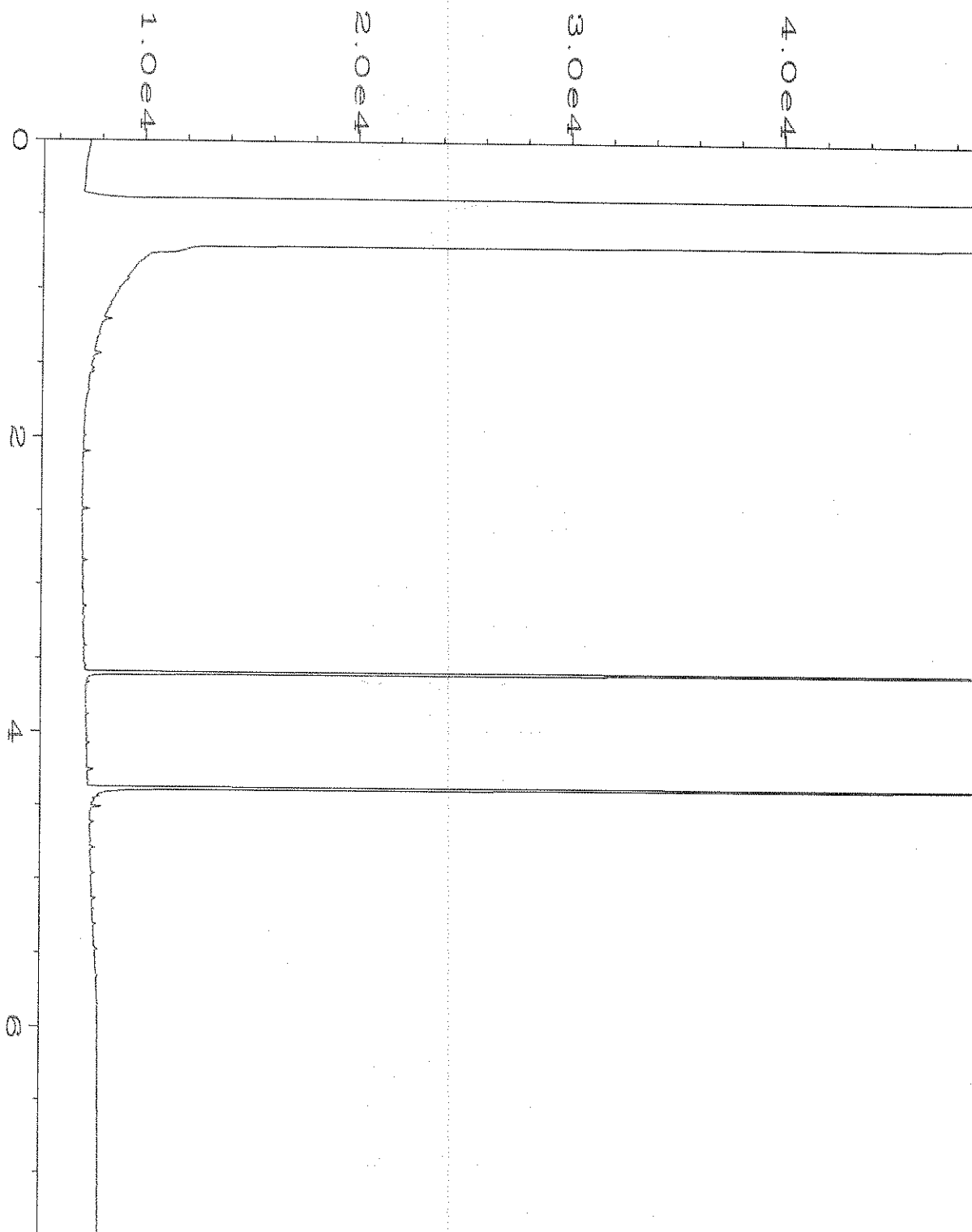
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Operator	: TL	Vial Number	: 15
Instrument	: GC1	Injection Number	: 1
Sample Name	: 908106-01	Sequence Line	: 3
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 08 Aug 19 11:42 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	09 Aug 19 09:11 AM		



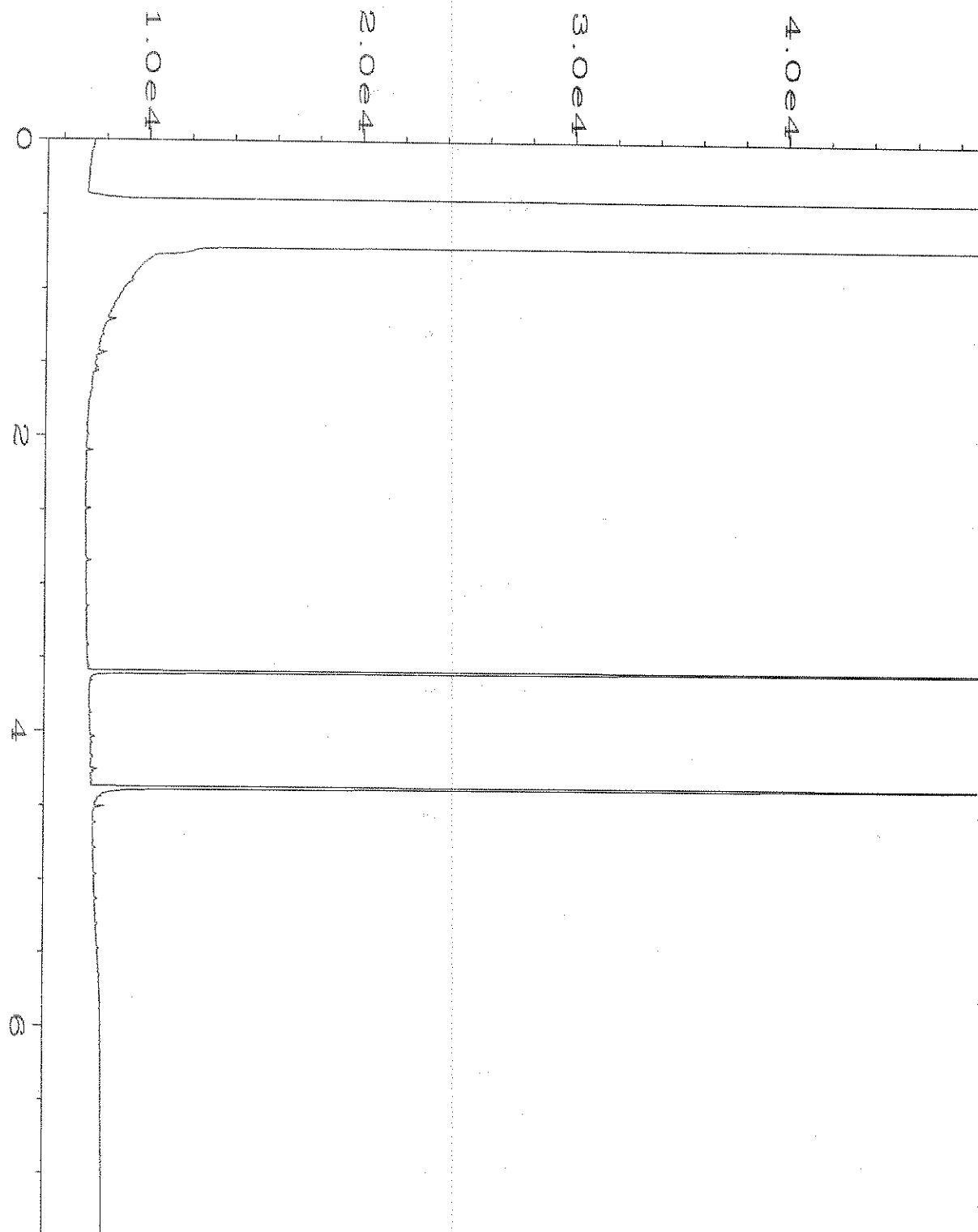
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Instrument	: GC1	Injection Number	: 1
Sample Name	: 908106-02	Sequence Line	: 3
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 08 Aug 19 11:53 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	: 09 Aug 19 09:11 AM		



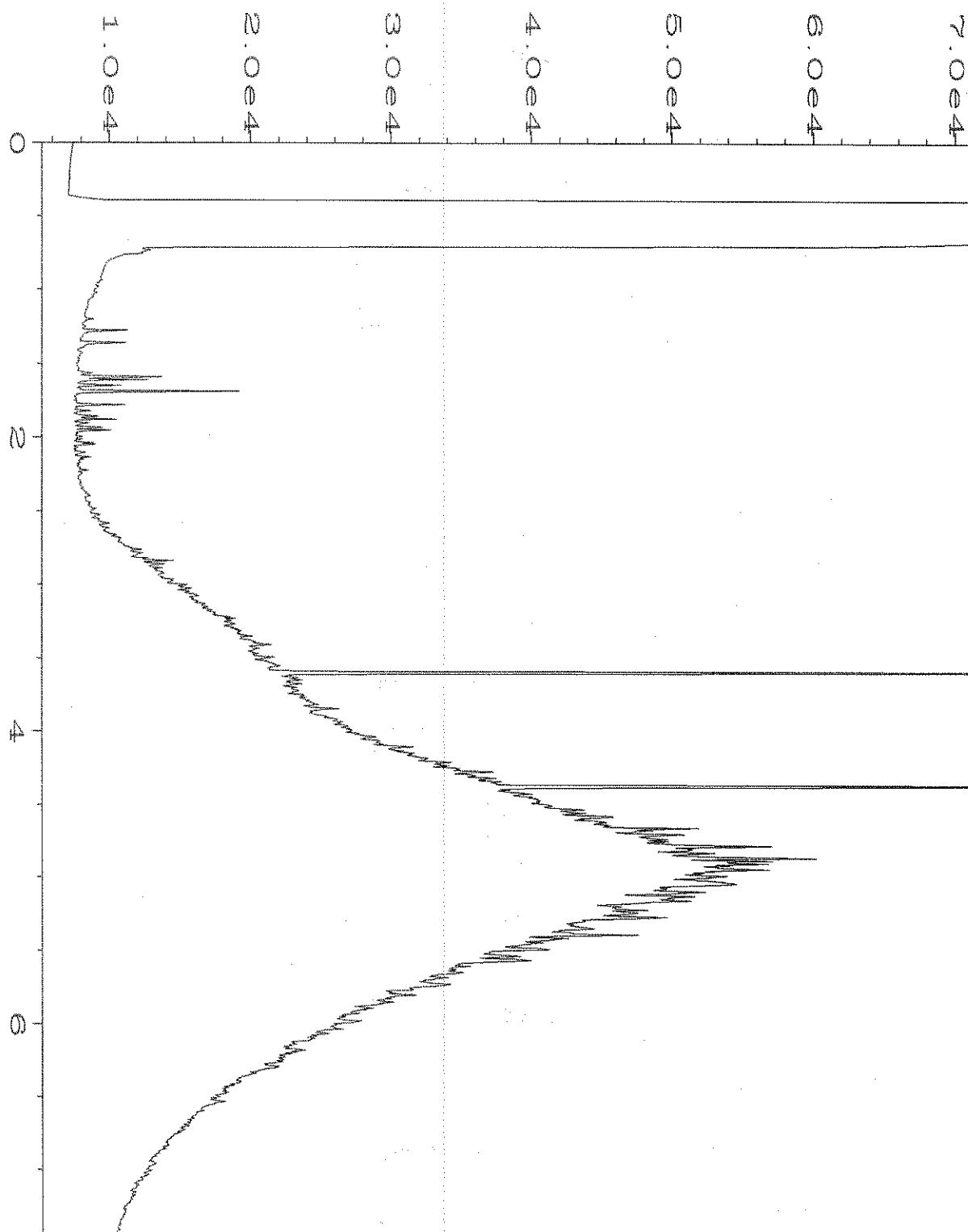
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Instrument	: GC1	Injection Number	: 1
Sample Name	: 908106-03	Sequence Line	: 3
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 08 Aug 19 12:05 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	09 Aug 19 09:11 AM		



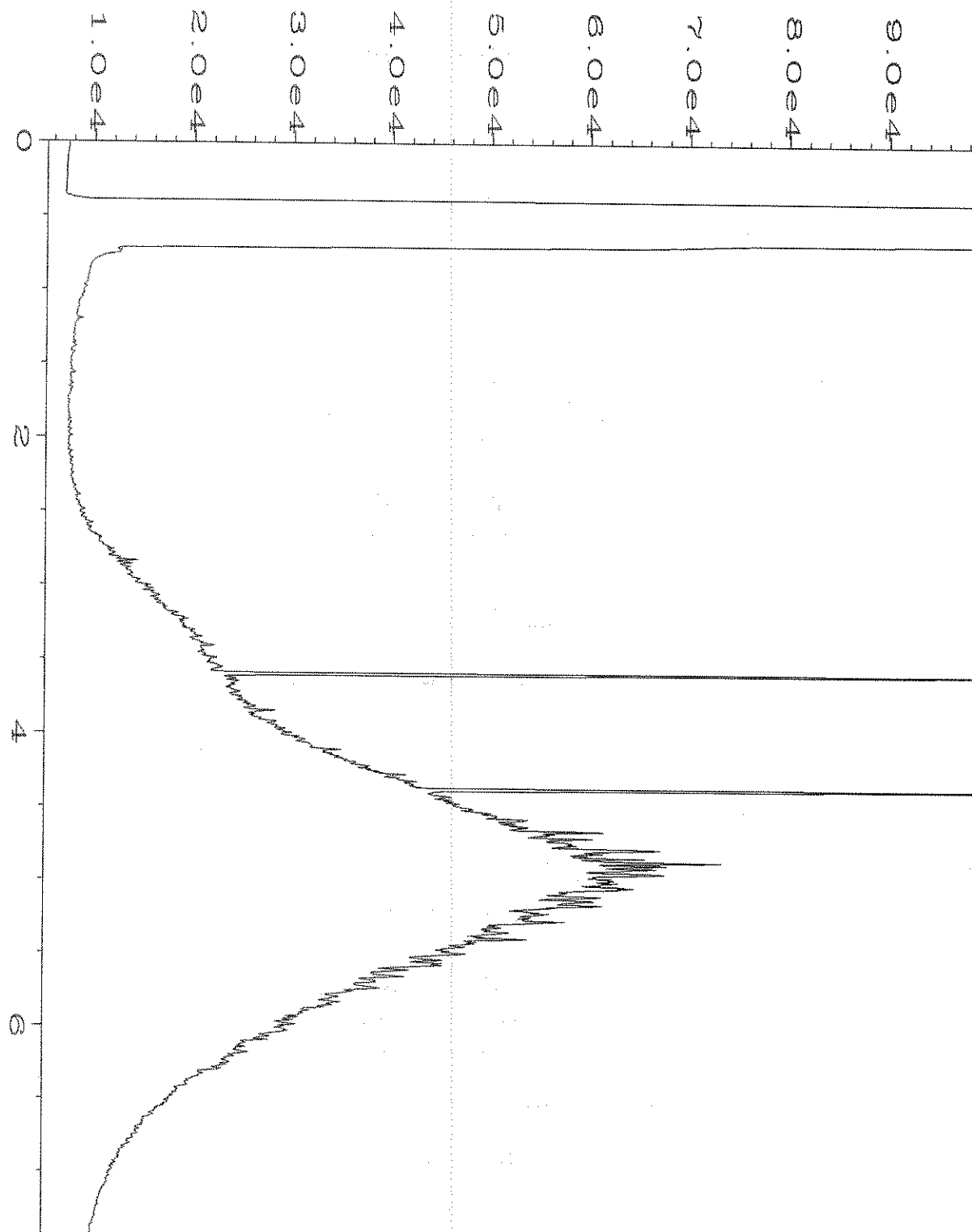
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Operator	: TL	Vial Number	: 18
Instrument	: GC1	Injection Number	: 1
Sample Name	: 908106-04	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 08 Aug 19 12:17 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	09 Aug 19 09:11 AM		



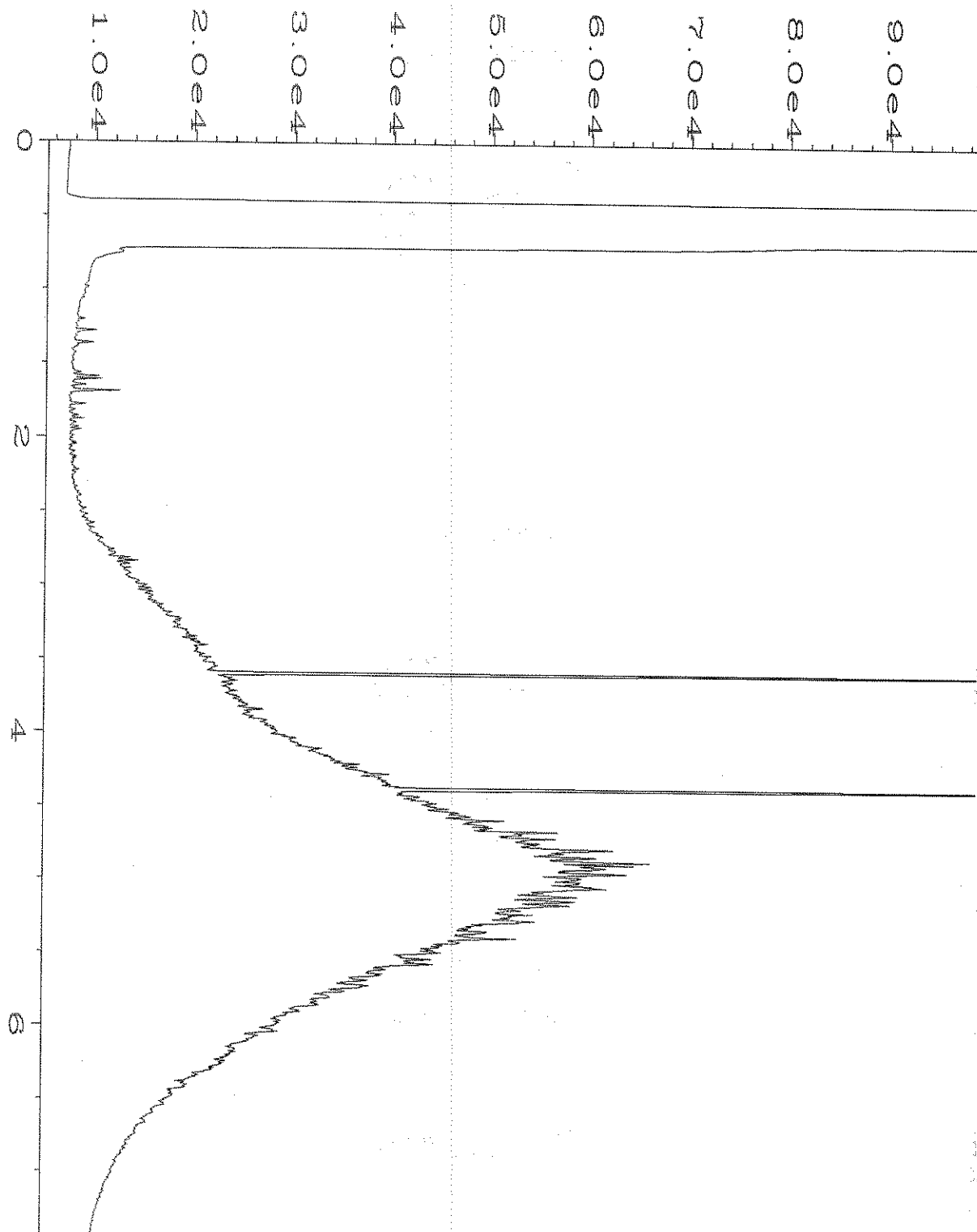
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Instrument	: GC1	Injection Number	: 1
Sample Name	: 908106-05	Sequence Line	: 3
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 08 Aug 19 12:28 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	09 Aug 19 09:11 AM		



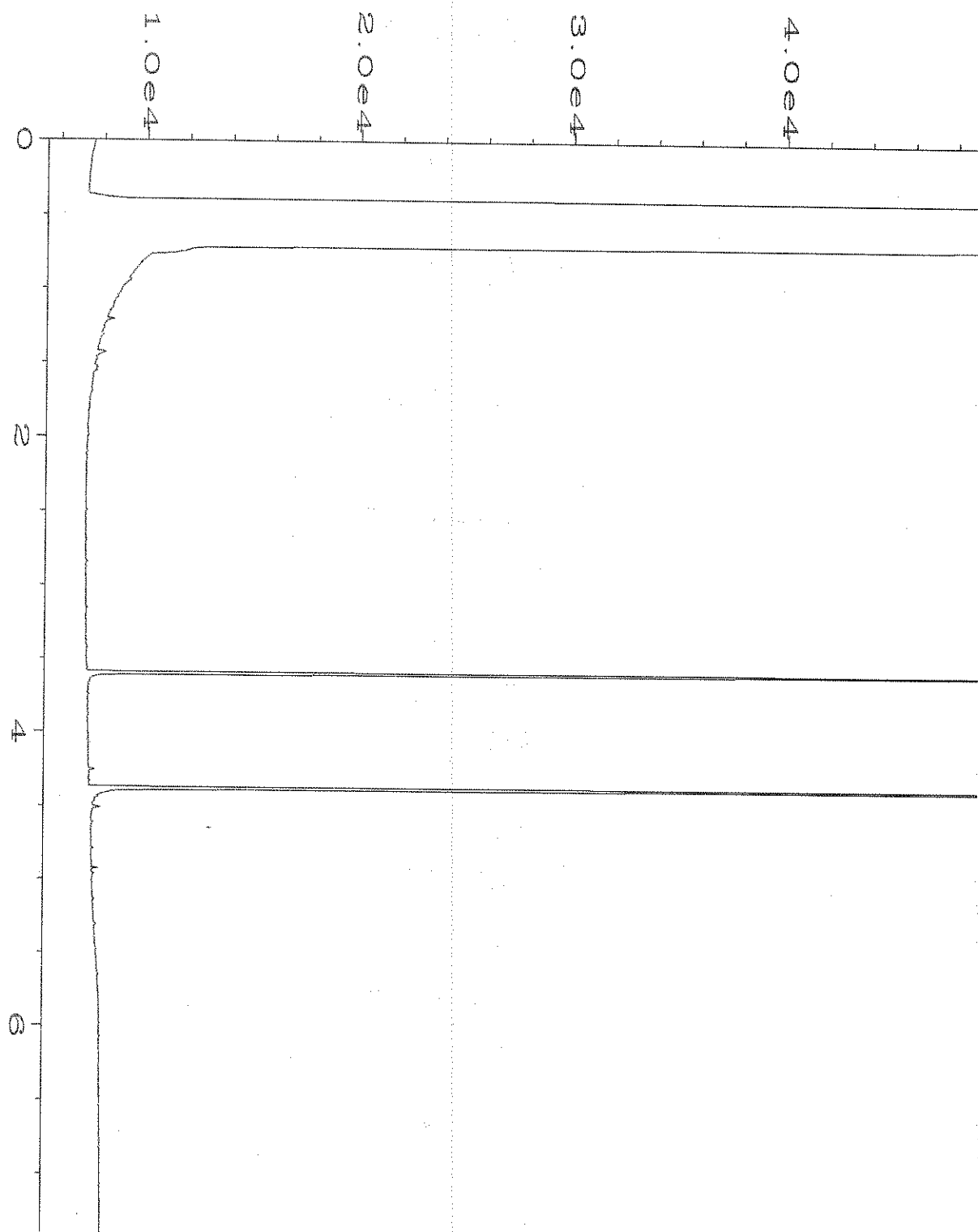
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Instrument	: GC1	Injection Number	: 1
Sample Name	: 908106-06	Sequence Line	: 3
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 08 Aug 19 12:40 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	09 Aug 19 09:12 AM		



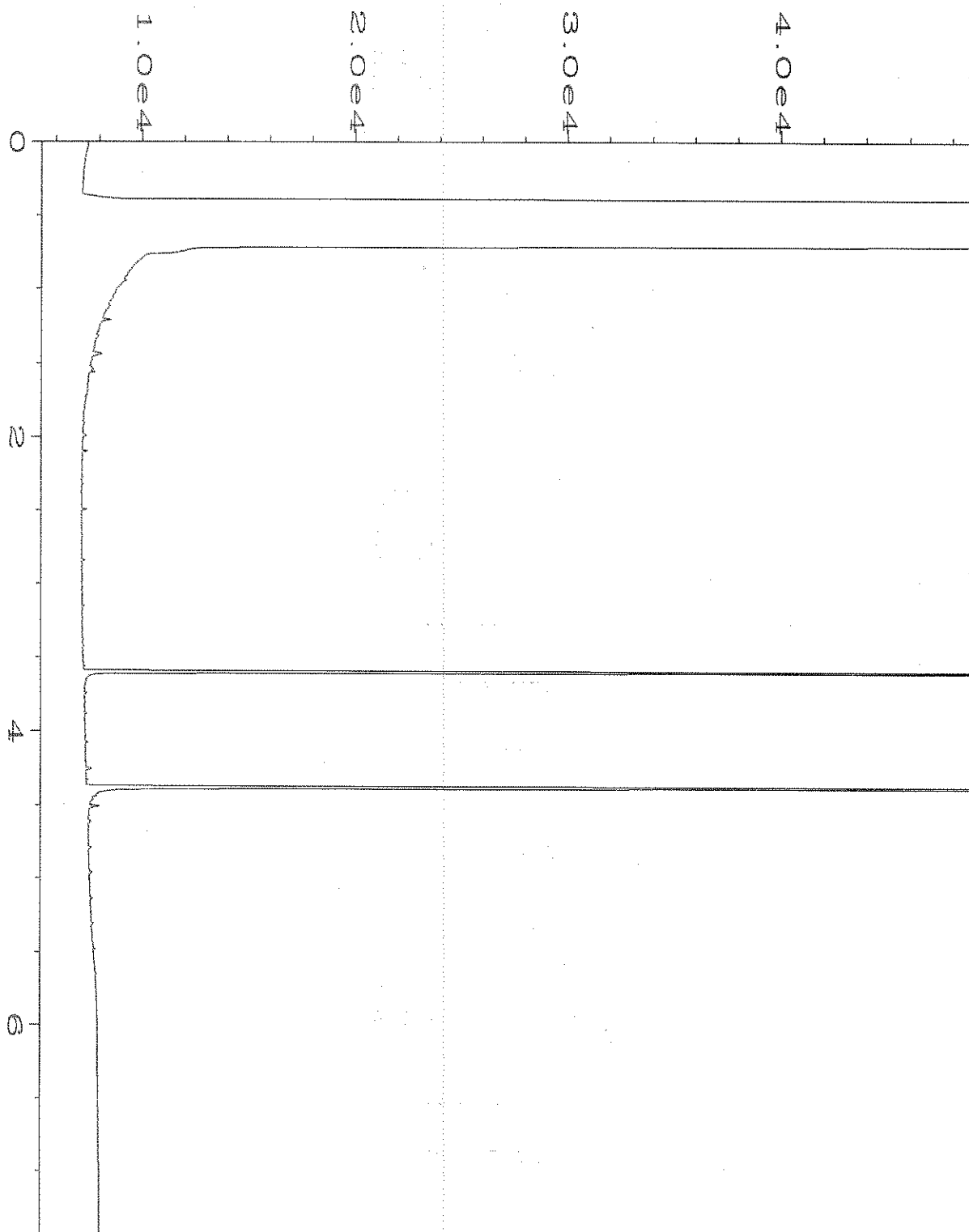
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Operator	: TL	Vial Number	: 21
Instrument	: GC1	Injection Number	: 1
Sample Name	: 908106-07	Sequence Line	: 3
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 08 Aug 19 12:52 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	09 Aug 19 09:12 AM		



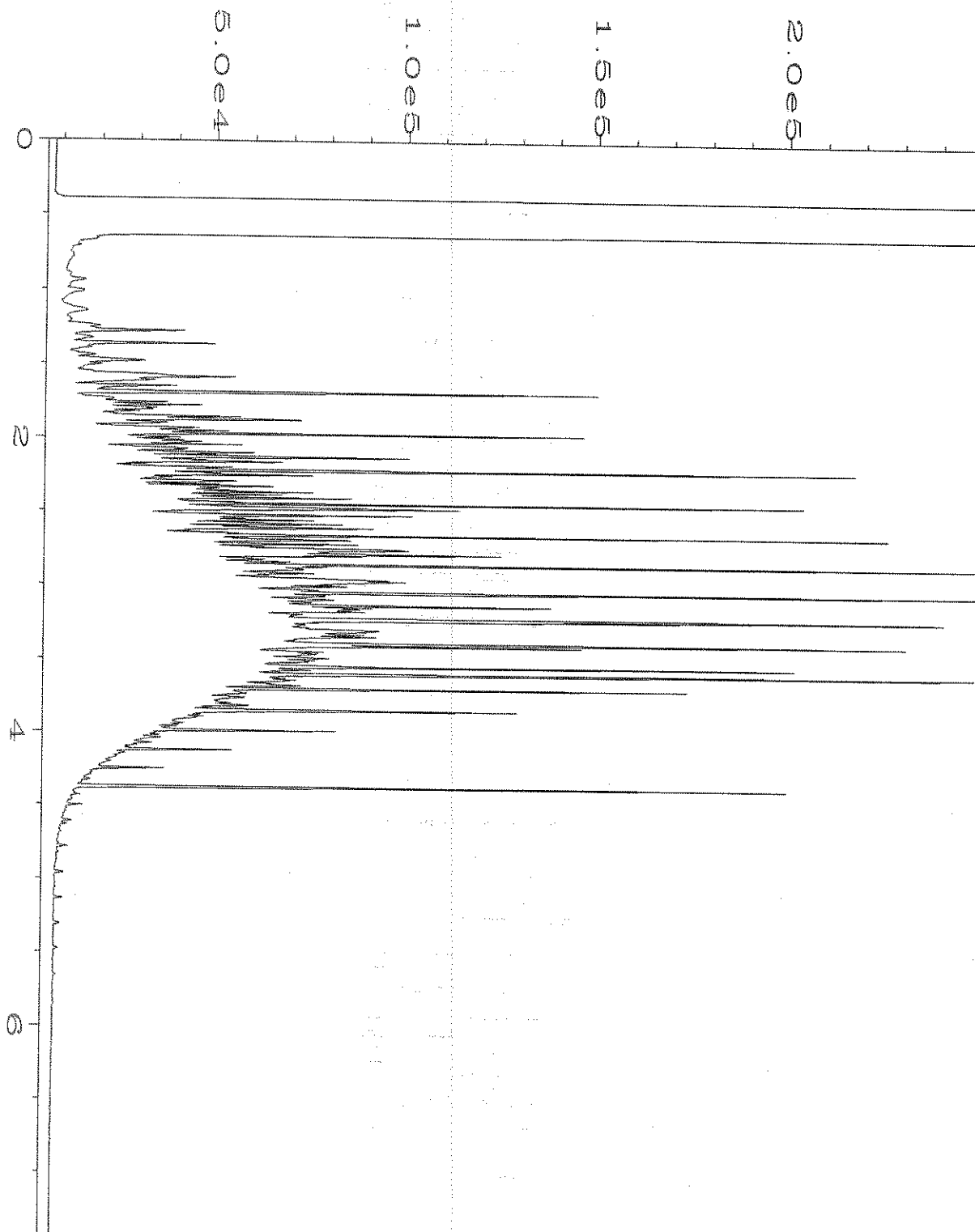
Data File Name	: C:\HPCHEM\1\DATA\08-08-19\022F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 22
Instrument	: GC1	Injection Number	: 1
Sample Name	: 908106-08	Sequence Line	: 3
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 08 Aug 19 01:04 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	09 Aug 19 09:12 AM		



Data File Name	: C:\HPCHEM\1\DATA\08-08-19\013F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 13
Instrument	: GC1	Injection Number	: 1
Sample Name	: 09-1931 mb2	Sequence Line	: 3
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 08 Aug 19 11:18 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	09 Aug 19 09:12 AM		



Data File Name	: C:\HPCHEM\1\DATA\08-08-19\014F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 14
Instrument	: GC1	Injection Number	: 1
Sample Name	: 09-1936 mb2	Sequence Line	: 3
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 08 Aug 19 11:30 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	: 09 Aug 19 09:12 AM		



Data File Name	: C:\HPCHEM\1\DATA\08-08-19\005F0901.D	Page Number	: 1
Operator	: TL	Vial Number	: 5
Instrument	: GC1	Injection Number	: 1
Sample Name	: 1000 Dx 57-78B	Sequence Line	: 9
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 08 Aug 19 06:09 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	09 Aug 19 09:11 AM		

908106

SAMPLE CHAIN OF CUSTODY ME 08/07/19

007 CI 3

2

Report To FASIH KHANCompany ASPECT CONSULTINGAddress SEATTLECity, State, ZIP WAPhone Email FKHMAN@ASPECTCONSULTING, LLC

SAMPLERS (signature) <u>[Signature]</u>		PROJECT NAME <u>PANJABORN AIRPORT SITE</u>	PO # <u>190245</u>
REMARKS		INVOICE TO <u>ASPECT</u>	

Page # <u>1</u> of <u>2</u>
TURNAROUND TIME • Standard Turnaround • RUSH Rush charges authorized by: <u> </u>
SAMPLE DISPOSAL • Dispose after 30 days • Archive Samples • Other: <u> </u>

						ANALYSES REQUESTED										Notes	
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	HERBICIDES	ORGANOPHOSPHOROUS PESTICIDES	ORGANOCHLORINE PESTICIDES		MTCA 5 METALS
Pile 122-Soil 1-080619	01AB	8/6/19	1120	Soil	2		X	X					X	X	X	X	X
Pile 122-Soil 2-080619	02		1124		2		X	X					X	X	X	X	X
Pile 122-Soil 3-080619	03		1128		2		X	X					X	X	X	X	X
Pile 122-Soil 4-080619	04		1138		2		X	X					X	X	X	X	X
Pile 122-Soil 5-080619	05		1136		2		X	X					X	X	X	X	X
Pile 3-Soil 1-080619	06AF		1140		2		X	X	X								
Pile 3-Soil 2-080619	07		1145		2		X	X	X								
Pile 3-Soil 3-080619	08		1150		2		X	X	X								
Pile 4-Soil 1-080619	09AB		1200		2								X	X	X	X	X
Pile 4-Soil 2-080619	10AB		1205		2								X	X	X	X	X

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
<u>[Signature]</u>	Bill Schima	Aspect	8/6/19	1445
Relinquished by: <u>[Signature]</u>				
Received by: <u>m/m/ane</u>	Nhan Phan	FERI	8/7/19	0915
Relinquished by: <u> </u>				
Received by: <u> </u>				

Samples received at 180C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

August 14, 2019

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

Dear Mr Khan:

Included are the additional results from the testing of material submitted on August 1, 2019 from the Pangborn PO 190245, F&BI 908014 project. There are 22 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Data Aspect
ASP0814R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 1, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Pangborn PO 190245, F&BI 908014 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
908014 -01	UST2-B-5.5
908014 -02	UST2-W-3.0
908014 -03	UST2-E-3.0
908014 -04	UST2-N-3.0
908014 -05	UST2-S-3.0
908014 -06	UST1-B-8.0
908014 -07	UST1-N-5.0
908014 -08	UST1-W-5.0
908014 -09	UST1-E-5.0
908014 -10	UST1-S-5.0

A 6020A internal standard failed the acceptance criteria for sample UST1-B-8.0. The sample was diluted and reanalyzed with acceptable results. Both data sets were reported.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/14/19

Date Received: 08/01/19

Project: Pangborn PO 190245, F&BI 908014

Date Extracted: 08/06/19

Date Analyzed: 08/06/19

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

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C ₁₀ -C ₂₅)	<u>Motor Oil Range</u> (C ₂₅ -C ₃₆)	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 48-168)
UST2-B-5.5 908014-01	<50	<250	91
UST2-W-3.0 908014-02	<50	<250	91
UST2-E-3.0 908014-03	<50	<250	89
UST2-N-3.0 908014-04	<50	<250	89
UST2-S-3.0 908014-05	<50	<250	96
Method Blank 09-1928 MB	<50	<250	88

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	UST2-B-5.5	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	Pangborn PO 190245, F&BI 908014
Date Extracted:	08/06/19	Lab ID:	908014-01
Date Analyzed:	08/07/19	Data File:	908014-01.082
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Arsenic	1.23
Cadmium	<1
Chromium	5.76 J
Lead	3.59
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	UST2-B-5.5	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	Pangborn PO 190245, F&BI 908014
Date Extracted:	08/06/19	Lab ID:	908014-01 x5
Date Analyzed:	08/07/19	Data File:	908014-01 x5.081
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Chromium	5.84
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	UST1-B-8.0	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	Pangborn PO 190245, F&BI 908014
Date Extracted:	08/06/19	Lab ID:	908014-06
Date Analyzed:	08/07/19	Data File:	908014-06.084
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Arsenic	2.14
Cadmium	1.44
Chromium	6.77 J
Lead	360
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	UST1-B-8.0	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	Pangborn PO 190245, F&BI 908014
Date Extracted:	08/06/19	Lab ID:	908014-06 x5
Date Analyzed:	08/07/19	Data File:	908014-06 x5.083
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Chromium	7.38
----------	------

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	NA	Project:	Pangborn PO 190245, F&BI 908014
Date Extracted:	08/06/19	Lab ID:	I9-470 mb2
Date Analyzed:	08/07/19	Data File:	I9-470 mb2.031
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
----------	------------------------------

Arsenic	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	UST2-B-5.5	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	Pangborn PO 190245, F&BI 908014
Date Extracted:	08/06/19	Lab ID:	908014-01 1/5
Date Analyzed:	08/06/19	Data File:	080624.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	72	31	163
Benzo(a)anthracene-d12	84	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01
1-Methylnaphthalene	<0.01
2-Methylnaphthalene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	UST1-B-8.0	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	Pangborn PO 190245, F&BI 908014
Date Extracted:	08/06/19	Lab ID:	908014-06 1/50
Date Analyzed:	08/06/19	Data File:	080625.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	80 d	31	163
Benzo(a)anthracene-d12	87 d	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1
1-Methylnaphthalene	<0.1
2-Methylnaphthalene	<0.1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Pangborn PO 190245, F&BI 908014
Date Extracted:	08/06/19	Lab ID:	09-1916 mb2 1/5
Date Analyzed:	08/06/19	Data File:	080618.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	84	31	163
Benzo(a)anthracene-d12	88	24	168

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01
1-Methylnaphthalene	<0.01
2-Methylnaphthalene	<0.01

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	UST2-B-5.5	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	Pangborn PO 190245, F&BI 908014
Date Extracted:	08/07/19	Lab ID:	908014-01
Date Analyzed:	08/07/19	Data File:	080734.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	93	107
Toluene-d8	95	87	110
4-Bromofluorobenzene	96	85	112

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Benzene	<0.03
Toluene	<0.05
1,2-Dibromoethane (EDB)	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Pangborn PO 190245, F&BI 908014
Date Extracted:	08/07/19	Lab ID:	09-1878 mb
Date Analyzed:	08/07/19	Data File:	080710.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	93	107
Toluene-d8	101	87	110
4-Bromofluorobenzene	97	85	112

Compounds:	Concentration mg/kg (ppm)
Hexane	<0.25
Methyl t-butyl ether (MTBE)	<0.05
1,2-Dichloroethane (EDC)	<0.05
Benzene	<0.03
Toluene	<0.05
1,2-Dibromoethane (EDB)	<0.05
Ethylbenzene	<0.05
m,p-Xylene	<0.1
o-Xylene	<0.05
Naphthalene	<0.05

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	UST2-B-5.5	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	Pangborn PO 190245, F&BI 908014
Date Extracted:	08/06/19	Lab ID:	908014-01 1/6
Date Analyzed:	08/06/19	Data File:	080614.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	82	31	119

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	UST1-B-8.0	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	Pangborn PO 190245, F&BI 908014
Date Extracted:	08/06/19	Lab ID:	908014-06 1/6
Date Analyzed:	08/06/19	Data File:	080615.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	79	31	119

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Pangborn PO 190245, F&BI 908014
Date Extracted:	08/06/19	Lab ID:	09-1920 mb2 1/6
Date Analyzed:	08/06/19	Data File:	080613.D
Matrix:	Soil	Instrument:	GC9
Units:	mg/kg (ppm) Dry Weight	Operator:	IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	87	31	119

Compounds:	Concentration mg/kg (ppm)
Aroclor 1221	<0.02
Aroclor 1232	<0.02
Aroclor 1016	<0.02
Aroclor 1242	<0.02
Aroclor 1248	<0.02
Aroclor 1254	<0.02
Aroclor 1260	<0.02
Aroclor 1262	<0.02
Aroclor 1268	<0.02

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/14/19

Date Received: 08/01/19

Project: Pangborn PO 190245, F&BI 908014

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

Laboratory Code: 908089-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	72	82	82	73-135	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	84	74-139

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/14/19

Date Received: 08/01/19

Project: Pangborn PO 190245, F&BI 908014

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	103	96	80-120	7
Cadmium	mg/kg (ppm)	10	102	96	80-120	6
Chromium	mg/kg (ppm)	50	103	96	80-120	7
Lead	mg/kg (ppm)	50	103	97	80-120	6
Mercury	mg/kg (ppm)	5	107	102	80-120	5

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/14/19

Date Received: 08/01/19

Project: Pangborn PO 190245, F&BI 908014

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL
SAMPLES FOR PAHS BY EPA METHOD 8270D SIM**

Laboratory Code: 907557-01 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.17	<0.01	76	44-129
2-Methylnaphthalene	mg/kg (ppm)	0.17	<0.01	80	45-135
1-Methylnaphthalene	mg/kg (ppm)	0.17	<0.01	80	40-141
Acenaphthylene	mg/kg (ppm)	0.17	<0.01	77	52-121
Acenaphthene	mg/kg (ppm)	0.17	<0.01	78	51-123
Fluorene	mg/kg (ppm)	0.17	<0.01	78	37-137
Phenanthrene	mg/kg (ppm)	0.17	<0.01	79	34-141
Anthracene	mg/kg (ppm)	0.17	<0.01	79	32-124
Fluoranthene	mg/kg (ppm)	0.17	<0.01	85	16-160
Pyrene	mg/kg (ppm)	0.17	<0.01	79	10-180
Benz(a)anthracene	mg/kg (ppm)	0.17	<0.01	85	23-144
Chrysene	mg/kg (ppm)	0.17	<0.01	83	32-149
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	<0.01	79	23-176
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	<0.01	80	42-139
Benzo(a)pyrene	mg/kg (ppm)	0.17	<0.01	81	21-163
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	<0.01	72	23-170
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	<0.01	73	31-146
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	<0.01	66	37-133

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/14/19

Date Received: 08/01/19

Project: Pangborn PO 190245, F&BI 908014

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL
SAMPLES FOR PAHS BY EPA METHOD 8270D SIM**

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	87	88	58-121	1
2-Methylnaphthalene	mg/kg (ppm)	0.17	89	89	58-123	0
1-Methylnaphthalene	mg/kg (ppm)	0.17	89	90	60-124	1
Acenaphthylene	mg/kg (ppm)	0.17	84	84	54-121	0
Acenaphthene	mg/kg (ppm)	0.17	88	88	54-123	0
Fluorene	mg/kg (ppm)	0.17	87	86	56-127	1
Phenanthrene	mg/kg (ppm)	0.17	88	89	55-122	1
Anthracene	mg/kg (ppm)	0.17	85	87	50-120	2
Fluoranthene	mg/kg (ppm)	0.17	89	85	54-129	5
Pyrene	mg/kg (ppm)	0.17	83	83	53-127	0
Benz(a)anthracene	mg/kg (ppm)	0.17	89	91	51-115	2
Chrysene	mg/kg (ppm)	0.17	93	94	55-129	1
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	80	81	56-123	1
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	84	83	54-131	1
Benzo(a)pyrene	mg/kg (ppm)	0.17	78	77	51-118	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	88	87	49-148	1
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	91	94	50-141	3
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	87	92	52-131	6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/14/19

Date Received: 08/01/19

Project: Pangborn PO 190245, F&BI 908014

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

Laboratory Code: 907493-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Hexane	mg/kg (ppm)	2.5	<0.25	44	43	10-95	2
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	74	76	17-134	3
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	84	87	22-124	4
Benzene	mg/kg (ppm)	2.5	<0.03	78	80	26-114	3
Toluene	mg/kg (ppm)	2.5	<0.05	89	92	34-112	3
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	93	101	32-126	8
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	90	94	34-115	4
m,p-Xylene	mg/kg (ppm)	5	<0.1	93	98	25-125	5
o-Xylene	mg/kg (ppm)	2.5	<0.05	90	93	27-126	3
Naphthalene	mg/kg (ppm)	2.5	<0.05	89	90	24-139	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Hexane	mg/kg (ppm)	2.5	76	55-107
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	84	72-122
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	97	73-111
Benzene	mg/kg (ppm)	2.5	90	72-106
Toluene	mg/kg (ppm)	2.5	99	74-111
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	104	77-117
Ethylbenzene	mg/kg (ppm)	2.5	98	75-112
m,p-Xylene	mg/kg (ppm)	5	102	77-115
o-Xylene	mg/kg (ppm)	2.5	99	76-115
Naphthalene	mg/kg (ppm)	2.5	94	73-122

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/14/19

Date Received: 08/01/19

Project: Pangborn PO 190245, F&BI 908014

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

Laboratory Code: 908068-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Control Limits
Aroclor 1016	mg/kg (ppm)	0.083	<0.002	66	50-150
Aroclor 1260	mg/kg (ppm)	0.083	<0.002	66	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	mg/kg (ppm)	0.083	91	93	47-158	2
Aroclor 1260	mg/kg (ppm)	0.083	103	107	69-147	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

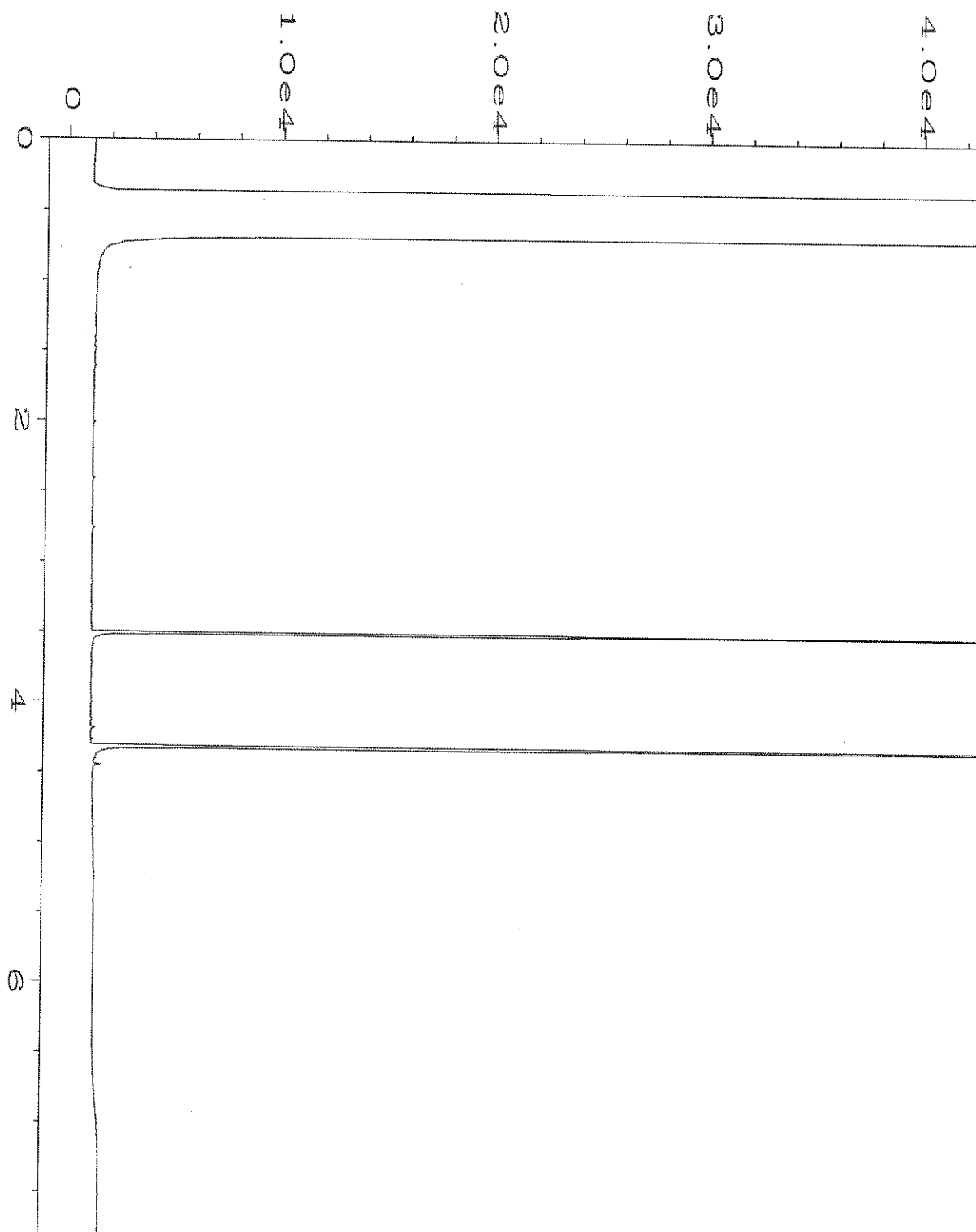
nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

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

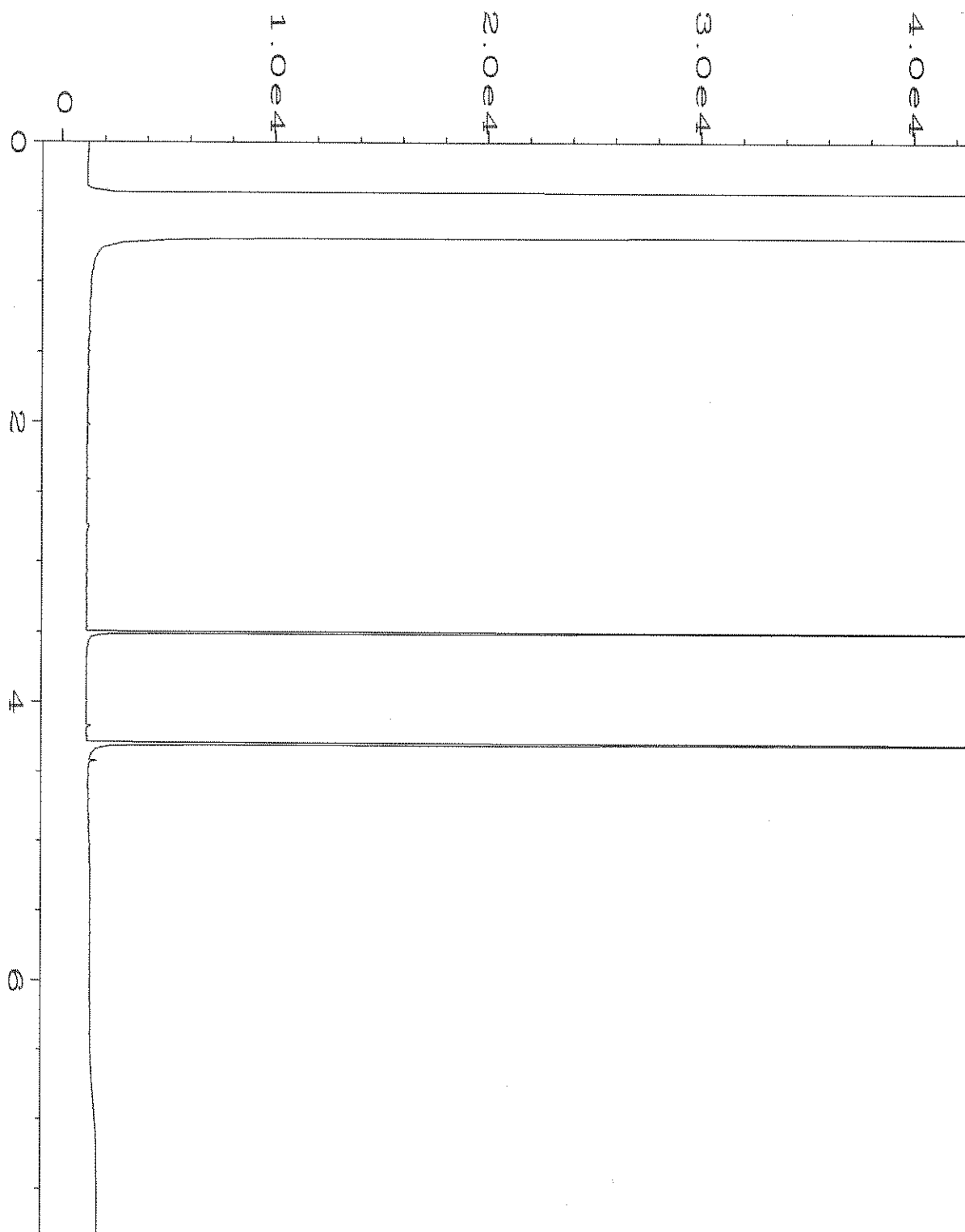
ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

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

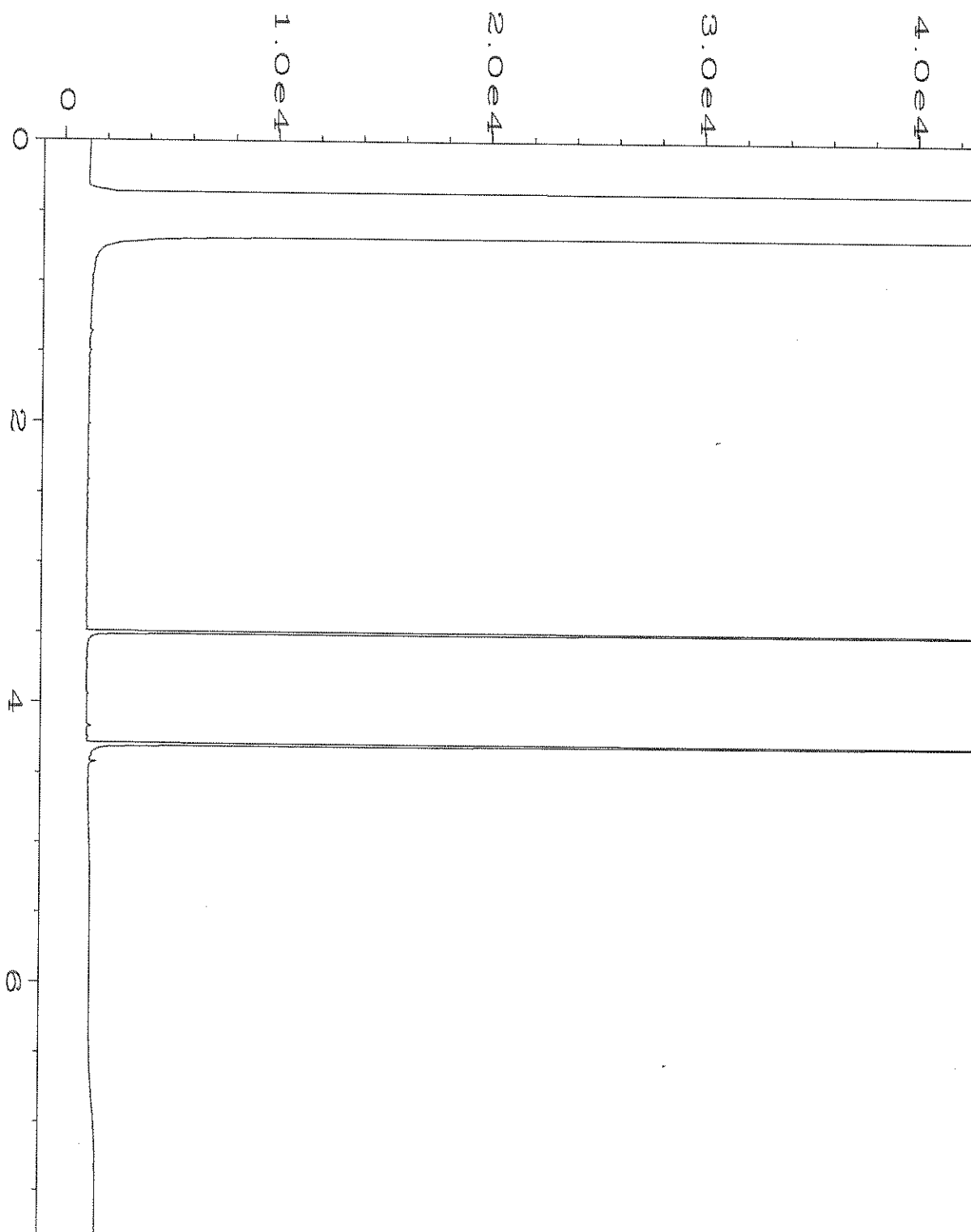
x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.



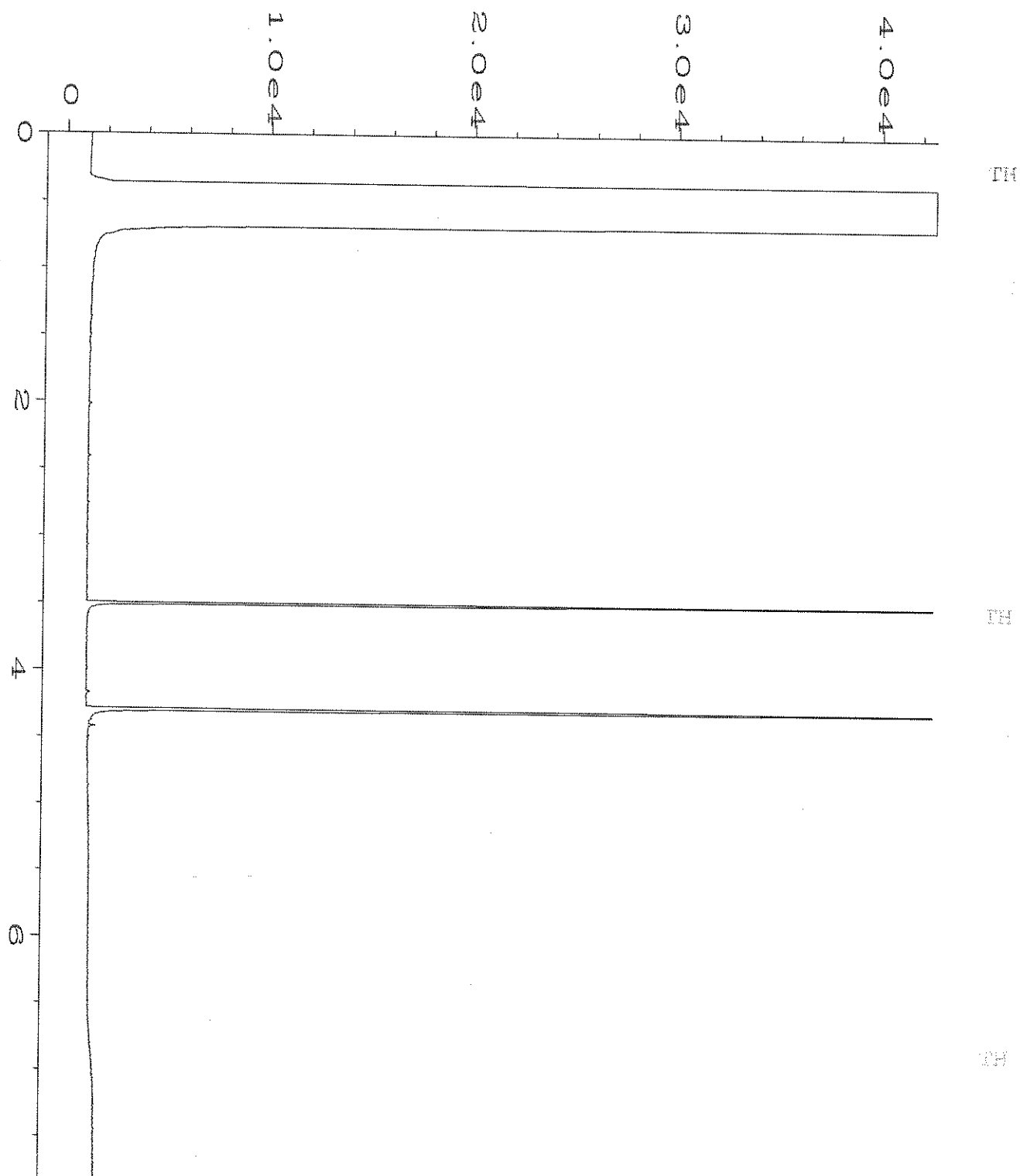
Data File Name	: C:\HPCHEM\4\DATA\08-06-19\017F0501.D	Page Number	: 1
Operator	: TL	Vial Number	: 17
Instrument	: GC#4	Injection Number	: 1
Sample Name	: 908014-01	Sequence Line	: 5
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 06 Aug 19 01:49 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	07 Aug 19 09:18 AM		



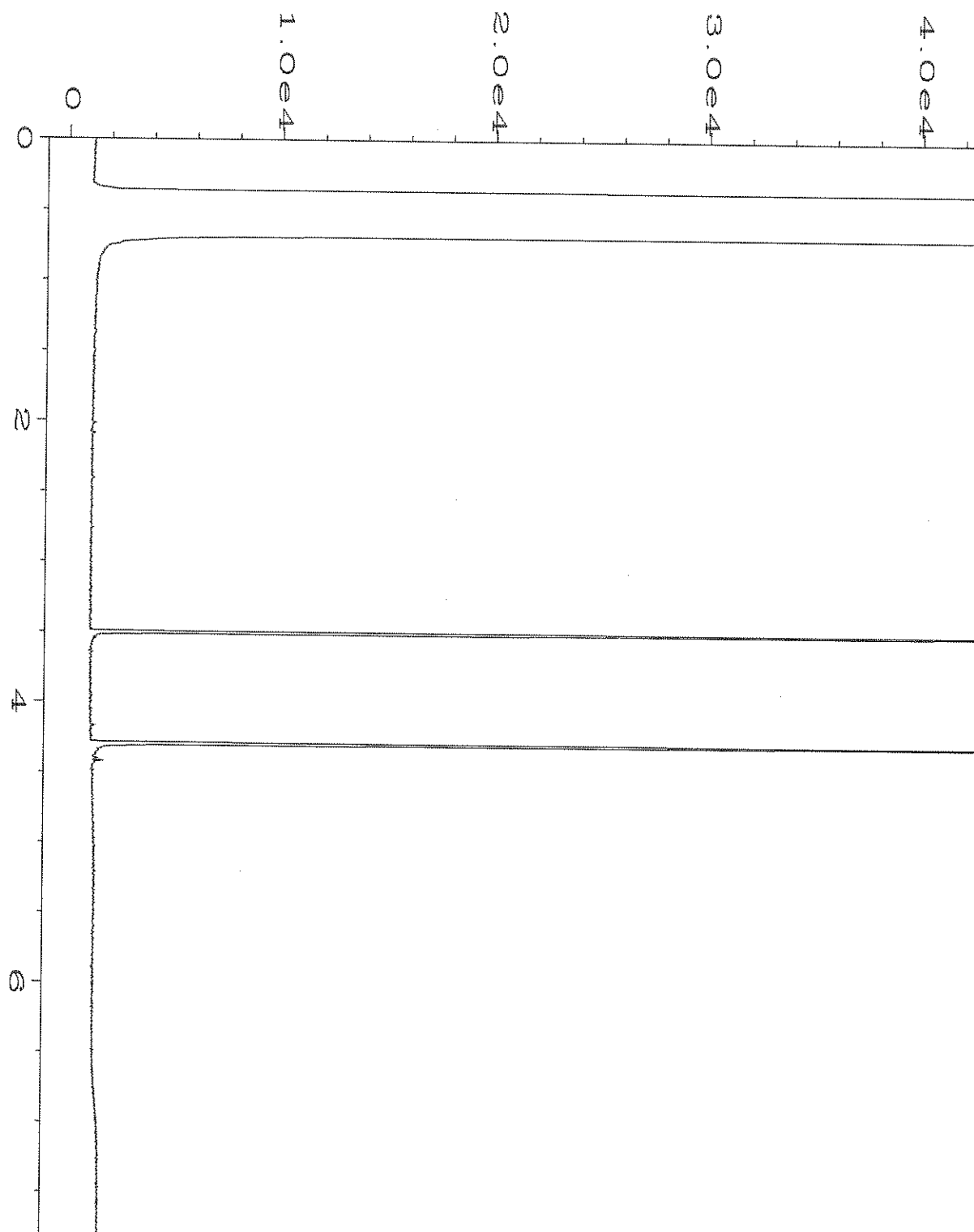
Data File Name	: C:\HPCHEM\4\DATA\08-06-19\018F0501.D	Page Number	: 1
Operator	: TL	Vial Number	: 18
Instrument	: GC#4	Injection Number	: 1
Sample Name	: 908014-02	Sequence Line	: 5
Run Time Bar Code:		Instrument Method:	DX.MTH
Acquired on	: 06 Aug 19 01:59 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	07 Aug 19 09:18 AM		



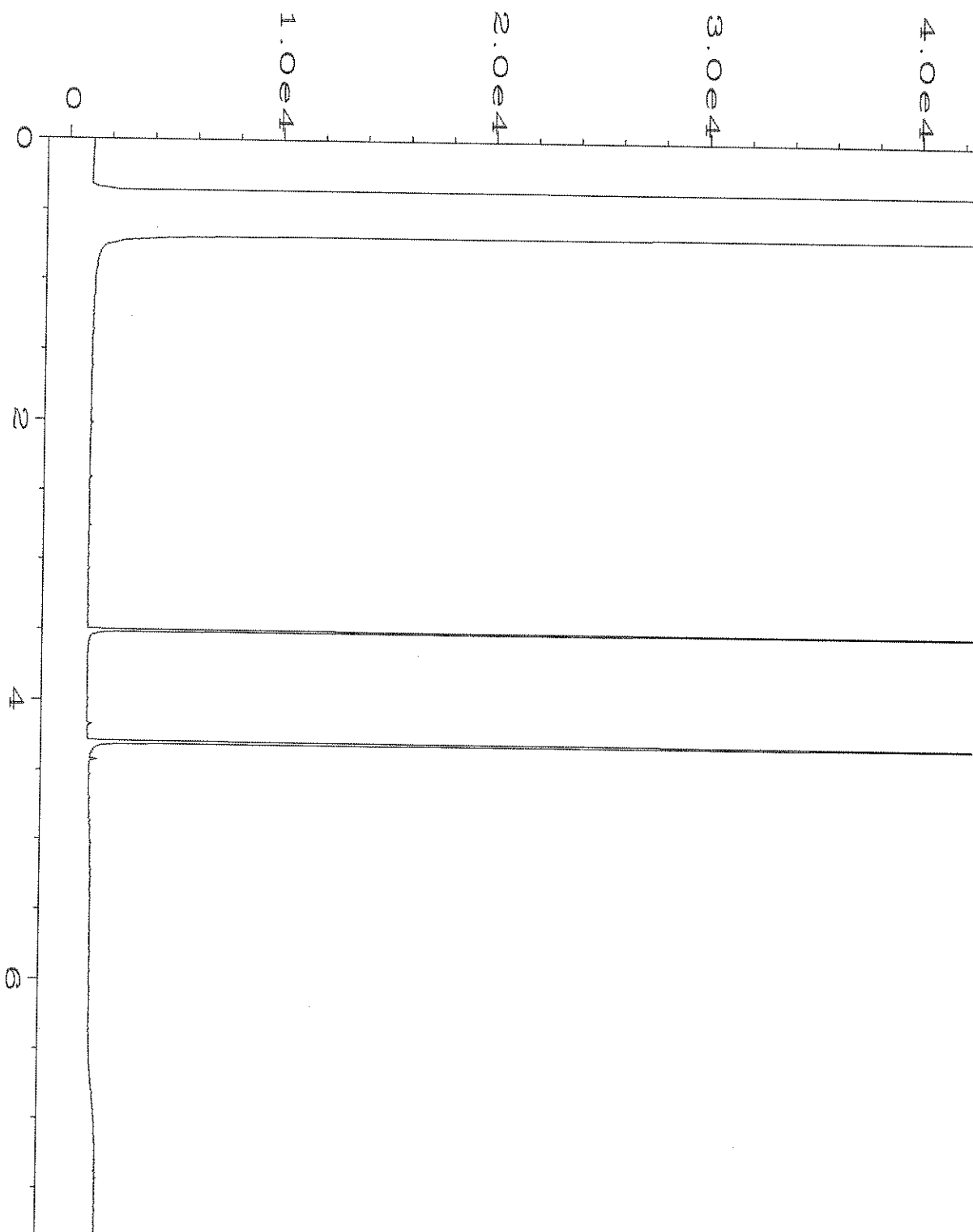
Data File Name	: C:\HPCHEM\4\DATA\08-06-19\019F0501.D	Page Number	: 1
Operator	: TL	Vial Number	: 19
Instrument	: GC#4	Injection Number	: 1
Sample Name	: 908014-03	Sequence Line	: 5
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 06 Aug 19 02:12 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	07 Aug 19 09:18 AM		



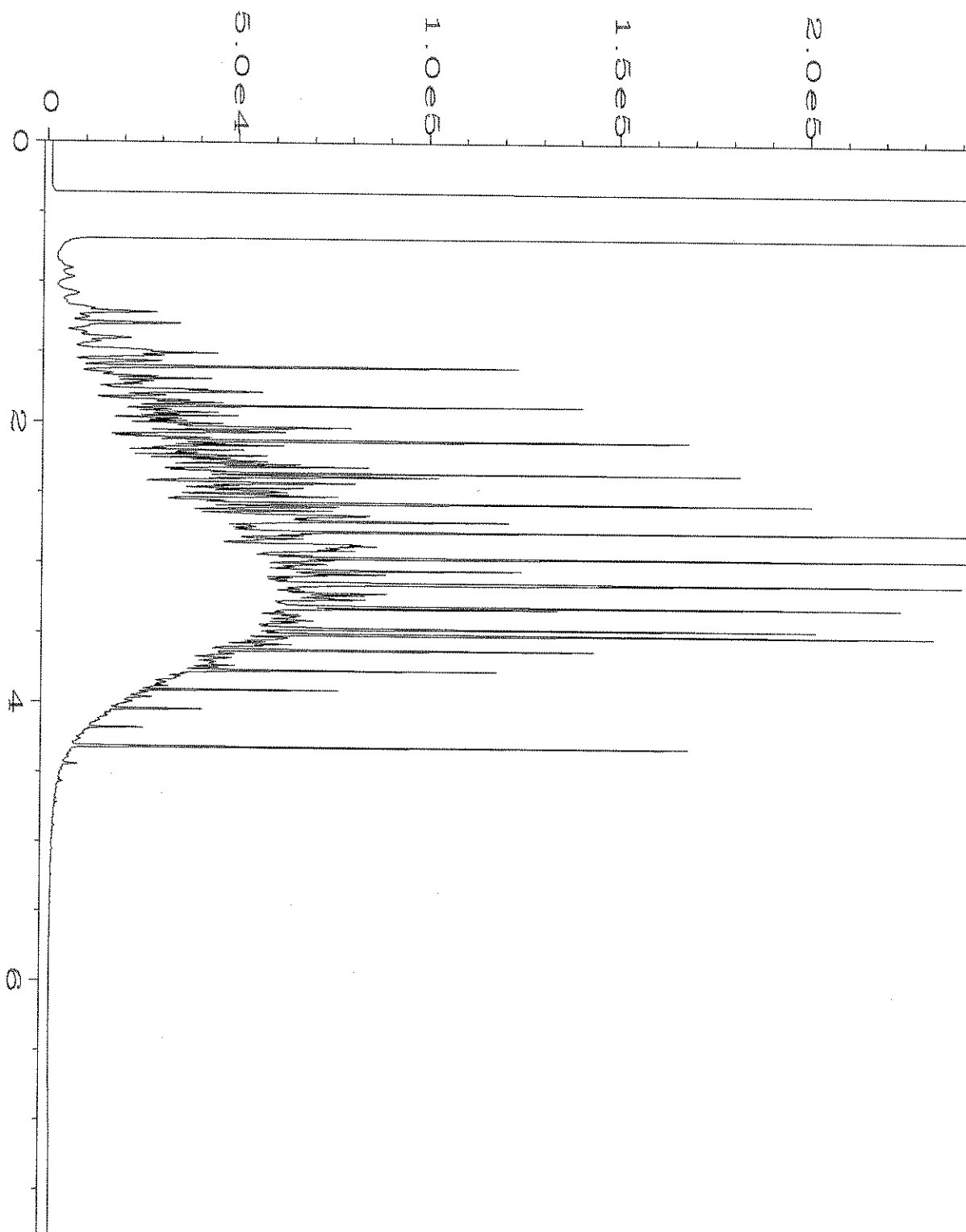
Data File Name	: C:\HPCHEM\4\DATA\08-06-19\020F0501.D	Page Number	: 1
Operator	: TL	Vial Number	: 20
Instrument	: GC#4	Injection Number	: 1
Sample Name	: 908014-04	Sequence Line	: 5
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 06 Aug 19 02:24 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	07 Aug 19 09:18 AM		



Data File Name	: C:\HPCHEM\4\DATA\08-06-19\021F0501.D	Page Number	: 1
Operator	: TL	Vial Number	: 21
Instrument	: GC#4	Injection Number	: 1
Sample Name	: 908014-05	Sequence Line	: 5
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 06 Aug 19 02:37 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	07 Aug 19 09:18 AM		



Data File Name	: C:\HPCHEM\4\DATA\08-06-19\008F0301.D	Page Number	: 1
Operator	: TL	Vial Number	: 8
Instrument	: GC#4	Injection Number	: 1
Sample Name	: 09-1928 mb	Sequence Line	: 3
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 06 Aug 19 10:31 AM	Analysis Method	: DEFAULT.MTH
Report Created on:	07 Aug 19 09:17 AM		



Data File Name	: C:\HPCHEM\4\DATA\08-06-19\005F0601.D	Page Number	: 1
Operator	: TL	Vial Number	: 5
Instrument	: GC#4	Injection Number	: 1
Sample Name	: 1000 Dx 57-78B	Sequence Line	: 6
Run Time Bar Code:		Instrument Method	: DX.MTH
Acquired on	: 06 Aug 19 03:02 PM	Analysis Method	: DEFAULT.MTH
Report Created on:	07 Aug 19 09:19 AM		

Report To 1st Lt. Kehn

Company Aspet Consulting

Address:

City, State, ZIP

Phone 206 713 2136 Email frank@transitfix.com

SAMPLE CHAIN OF CUSTODY

Don't buy

Page # 1 of 1

TURNAROUND TIME

☒ Standard Turnaround
☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

~~Dispose after 30~~

☐ Other _____

Both

ANALYSES REQUESTED															
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars (Avg)	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	naphthalenes PAHs 8270D SIM	MTGAS Metals	PCBs	Notes
VST2-B-55	01 AE	7-30-19	1633	Soil	5			X	X						per fix
VST2-W-3.0	02		1637												o/b ULA mt
VST2-E-3.0	03		1641												
VST2-N-3.0	04		1646												
VST2-S-3.0	05		1650					X							
VST2-B-8.0	06		1748				X								BTEX, EDS, EDC
VST2-N-5.0	07		1753												Hexa, Polyhaline
VST2-W-5.0	08		1756												MTGAS
VST2-E-5.0	09		1800												
VST2-S-5.0	10		1803				X	X							Samples received at 4:00

Friedman & Bruya, Inc.

3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

SIGNATURE

PRINT NAME

COMPANY

DATE _____

[illegible]Relinquished by: [Signature]

1000

五

7/2

2, 3

Received by:

2113

115

17

31

Relinquished by:

13/11/20

	A	-	A	/
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1

Received by:

201

Figure 1

87.1.1.1

2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

September 4, 2019

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

Dear Mr Khan:

Included are the additional results from the testing of material submitted on August 1, 2019 from the Pangborn PO 190245, F&BI 908014 project. There are 5 pages included in this report.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Data Aspect
ASP0904R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 1, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Pangborn PO 190245, F&BI 908014 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting, LLC</u>
908014 -01	UST2-B-5.5
908014 -02	UST2-W-3.0
908014 -03	UST2-E-3.0
908014 -04	UST2-N-3.0
908014 -05	UST2-S-3.0
908014 -06	UST1-B-8.0
908014 -07	UST1-N-5.0
908014 -08	UST1-W-5.0
908014 -09	UST1-E-5.0
908014 -10	UST1-S-5.0

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 6020B and 1311

Client ID:	UST1-B-8.0	Client:	Aspect Consulting, LLC
Date Received:	08/01/19	Project:	Pangborn, F&BI 908014
Date Extracted:	08/29/19	Lab ID:	908014-06
Date Analyzed:	08/30/19	Data File:	908014-06.034
Matrix:	Soil/Solid	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	1.48	5.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis for TCLP Metals By EPA Method 6020B and 1311

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Pangborn, F&BI 908014
Date Extracted:	08/29/19	Lab ID:	I9-532 mb
Date Analyzed:	08/30/19	Data File:	I9-532 mb.032
Matrix:	Soil/Solid	Instrument:	ICPMS2
Units:	mg/L (ppm)	Operator:	SP

Analyte:	Concentration mg/L (ppm)	TCLP Limit
Lead	<1	5.0

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/04/19

Date Received: 08/01/19

Project: Pangborn PO 190245, F&BI 908014

**QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL/SOLID SAMPLES
FOR TCLP METALS USING
EPA METHODS 6020B AND 1311**

Laboratory Code: 908014-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/L (ppm)	1.0	1.48	96	97	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Lead	mg/L (ppm)	1.0	97	80-120

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

908014

Report To Josh KuhnCompany Aspet Consulting

Address _____

City, State, ZIP _____

Phone 206 713 2136 Email frank@aspetconsulting.com

SAMPLE CHAIN OF CUSTODY

SAMPLERS (signature) David BorgsPROJECT NAME Pangborn

PO # _____

REMARKS

INVOICE TO 190345Page # 1 of 1

TURNAROUND TIME

☒ Standard Turnaround☐ RUSHRush charges authorized by: 005

SAMPLE DISPOSAL

☒ Dispose after 30 days☐ Archive Samples☐ Other _____

						ANALYSES REQUESTED										Notes	
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Lanes	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	Naphthalenes PAHs 8270D SIM	MTCA 5 Metals	PCBs	TCLP Pb		
USTB-B-55	01 AE	7-30-11	1633	Soil	5				X	X							pe-FK
USTB-W-3.0	02		1637														o/b 1/4 MC
USTB-E-3.0	03		1641														
USTB-N-3.0	04		1646														
USTB-S-3.0	05		1650					X									VOCs =
USTB-B-8.0	06		1748				X										BTEX, EDC, EDC
USTB-N-5.0	07		1753														Ntrem, Naphthalene
USTB-W-5.0	08		1756														MT 6C
USTB-E-5.0	09		1800														pe-FK 8/1
USTB-S-5.0	10		1803				X	X									Samples received at 4:00

Samples received at 4:00

Friedman & Bruya, Inc.

3912 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

SIGNATURE		PRINT NAME		COMPANY		DATE	TIME
Relinquished by:	<u>David Borgs</u>		<u>David Borgs</u>		<u>HCF</u>	7/31/11	8:30
Received by:	<u>Josh Kuhn</u>		<u>Josh Kuhn</u>		<u>Aspet</u>	7/31/11	08:30
Relinquished by:							
Received by:	<u>Frank</u>		<u>Nhan Phan</u>		<u>FCOI</u>	8/1/11	10:30



Fremont
Analytical

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: 905594
Work Order Number: 1905416

June 06, 2019

Attention Michael Erdahl:

Fremont Analytical, Inc. received 3 sample(s) on 5/30/2019 for the analyses presented in the following report.

Herbicides by EPA Method 8151A
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,

Mike Ridgeway
Laboratory Director

DoD/ELAP Certification #L 17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

CLIENT: Friedman & Bruya
Project: 905594
Work Order: 1905416

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1905416-001	EXCA-COMP-1	05/28/2019 1:00 PM	05/30/2019 2:07 PM
1905416-002	EXCA-COMP-2	05/28/2019 1:30 PM	05/30/2019 2:07 PM
1905416-003	EXCA-COMP-3	05/28/2019 1:45 PM	05/30/2019 2:07 PM

CLIENT: Friedman & Bruya**Project:** 905594

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.

Original version: OP Pest will be re-analyzed.

Rev1: Suspected matrix interference, report is final. 6/7/2019

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: 1905416
Date Reported: 6/6/2019

Client: Friedman & Bruya

Collection Date: 5/28/2019 1:00:00 PM

Project: 905594

Lab ID: 1905416-001

Matrix: Soil

Client Sample ID: EXCA-COMP-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 24773

Analyst: SB

Dicamba	ND	31.9		µg/Kg-dry	1	6/3/2019 1:08:40 PM
2,4-D	963	27.3		µg/Kg-dry	1	6/3/2019 1:08:40 PM
2,4-DP	ND	22.8		µg/Kg-dry	1	6/3/2019 1:08:40 PM
2,4,5-TP (Silvex)	ND	18.2		µg/Kg-dry	1	6/3/2019 1:08:40 PM
2,4,5-T	ND	45.6		µg/Kg-dry	1	6/3/2019 1:08:40 PM
Dinoseb	ND	27.3		µg/Kg-dry	1	6/3/2019 1:08:40 PM
Dalapon	ND	182		µg/Kg-dry	1	6/3/2019 1:08:40 PM
2,4-DB	ND	22.8		µg/Kg-dry	1	6/3/2019 1:08:40 PM
MCPP	ND	4,010		µg/Kg-dry	1	6/3/2019 1:08:40 PM
MCPA	ND	2,550		µg/Kg-dry	1	6/3/2019 1:08:40 PM
Picloram	ND	45.6	Q	µg/Kg-dry	1	6/3/2019 1:08:40 PM
Bentazon	ND	31.9		µg/Kg-dry	1	6/3/2019 1:08:40 PM
Chloramben	ND	18.2		µg/Kg-dry	1	6/3/2019 1:08:40 PM
Acifluorfen	ND	72.9		µg/Kg-dry	1	6/3/2019 1:08:40 PM
3,5-Dichlorobenzoic acid	ND	36.5		µg/Kg-dry	1	6/3/2019 1:08:40 PM
4-Nitrophenol	ND	27.3		µg/Kg-dry	1	6/3/2019 1:08:40 PM
Dacthal (DCPA)	ND	27.3		µg/Kg-dry	1	6/3/2019 1:08:40 PM
Surr: 2,4-Dichlorophenylacetic acid	75.0	20.5 - 175		%Rec	1	6/3/2019 1:08:40 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 24782

Analyst: SB

DDVP	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Mevinphos	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
TEPP	ND	43.3	Q	µg/Kg-dry	1	6/5/2019 8:27:54 PM
Demeton, Total	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Ethoprophos	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Naled	ND	43.3	Q	µg/Kg-dry	1	6/5/2019 8:27:54 PM
Sulfotepp	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Monocrotophos	ND	43.3	Q	µg/Kg-dry	1	6/5/2019 8:27:54 PM
Phorate	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Dimethoate	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Diazinon	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Disulfoton	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Parathion, methyl	ND	43.3	Q	µg/Kg-dry	1	6/5/2019 8:27:54 PM
Fenchorphos	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Malathion	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Dursban	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM



Analytical Report

Work Order: 1905416
Date Reported: 6/6/2019

Client: Friedman & Bruya

Collection Date: 5/28/2019 1:00:00 PM

Project: 905594

Lab ID: 1905416-001

Matrix: Soil

Client Sample ID: EXCA-COMP-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 24782

Analyst: SB

Fenthion	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Parathion	ND	43.3	Q	µg/Kg-dry	1	6/5/2019 8:27:54 PM
Trichloronate	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Merphos	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Stirophos	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Prothiofos	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Fensulfothion	ND	43.3	Q	µg/Kg-dry	1	6/5/2019 8:27:54 PM
Sulprofos	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
EPN	ND	43.3	Q	µg/Kg-dry	1	6/5/2019 8:27:54 PM
Guthion	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Coumaphos	ND	43.3		µg/Kg-dry	1	6/5/2019 8:27:54 PM
Surr: Triphenylphosphate	266	10.7 - 154	S	%Rec	1	6/5/2019 8:27:54 PM

NOTES:

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

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Q - Indicates an analyte with an initial calibration verification that does not meet established acceptance criteria (Tetraethyl pyrophosphate)

Sample Moisture (Percent Moisture)

Batch ID: R51815

Analyst: PA

Percent Moisture	2.48	0.500		wt%	1	5/31/2019 9:19:06 AM
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Analytical Report

Work Order: 1905416
Date Reported: 6/6/2019

Client: Friedman & Bruya

Collection Date: 5/28/2019 1:30:00 PM

Project: 905594

Lab ID: 1905416-002

Matrix: Soil

Client Sample ID: EXCA-COMP-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 24773

Analyst: SB

Dicamba	ND	33.1		µg/Kg-dry	1	6/3/2019 1:29:04 PM
2,4-D	ND	28.4		µg/Kg-dry	1	6/3/2019 1:29:04 PM
2,4-DP	ND	23.6		µg/Kg-dry	1	6/3/2019 1:29:04 PM
2,4,5-TP (Silvex)	ND	18.9		µg/Kg-dry	1	6/3/2019 1:29:04 PM
2,4,5-T	ND	47.3		µg/Kg-dry	1	6/3/2019 1:29:04 PM
Dinoseb	ND	28.4		µg/Kg-dry	1	6/3/2019 1:29:04 PM
Dalapon	ND	189		µg/Kg-dry	1	6/3/2019 1:29:04 PM
2,4-DB	ND	23.6		µg/Kg-dry	1	6/3/2019 1:29:04 PM
MCPP	ND	4,160		µg/Kg-dry	1	6/3/2019 1:29:04 PM
MCPA	ND	2,650		µg/Kg-dry	1	6/3/2019 1:29:04 PM
Picloram	ND	47.3	Q	µg/Kg-dry	1	6/3/2019 1:29:04 PM
Bentazon	ND	33.1		µg/Kg-dry	1	6/3/2019 1:29:04 PM
Chloramben	ND	18.9		µg/Kg-dry	1	6/3/2019 1:29:04 PM
Acifluorfen	ND	75.6		µg/Kg-dry	1	6/3/2019 1:29:04 PM
3,5-Dichlorobenzoic acid	ND	37.8		µg/Kg-dry	1	6/3/2019 1:29:04 PM
4-Nitrophenol	ND	28.4		µg/Kg-dry	1	6/3/2019 1:29:04 PM
Dacthal (DCPA)	ND	28.4		µg/Kg-dry	1	6/3/2019 1:29:04 PM
Surr: 2,4-Dichlorophenylacetic acid	58.1	20.5 - 175		%Rec	1	6/3/2019 1:29:04 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 24782

Analyst: SB

DDVP	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Mevinphos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
TEPP	ND	50.1	Q	µg/Kg-dry	1	6/6/2019 12:38:56 PM
Demeton, Total	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Ethoprophos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Naled	ND	50.1	Q	µg/Kg-dry	1	6/6/2019 12:38:56 PM
Sulfotepp	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Monocrotophos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Phorate	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Dimethoate	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Diazinon	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Disulfoton	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Parathion, methyl	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Fenchorphos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Malathion	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Dursban	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM



Analytical Report

Work Order: 1905416
Date Reported: 6/6/2019

Client: Friedman & Bruya

Collection Date: 5/28/2019 1:30:00 PM

Project: 905594

Lab ID: 1905416-002

Matrix: Soil

Client Sample ID: EXCA-COMP-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 24782

Analyst: SB

Fenthion	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Parathion	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Trichloronate	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Merphos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Stirophos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Prothiofos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Fensulfothion	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Sulprofos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
EPN	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Guthion	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Coumaphos	ND	50.1		µg/Kg-dry	1	6/6/2019 12:38:56 PM
Surr: Triphenylphosphate	82.0	10.7 - 154		%Rec	1	6/6/2019 12:38:56 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Q - Indicates an analyte with an initial calibration verification that does not meet established acceptance criteria (Tetraethyl pyrophosphate)

Sample Moisture (Percent Moisture)

Batch ID: R51815

Analyst: PA

Percent Moisture	2.78	0.500		wt%	1	5/31/2019 9:19:06 AM
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Analytical Report

Work Order: 1905416
Date Reported: 6/6/2019

Client: Friedman & Bruya

Collection Date: 5/28/2019 1:45:00 PM

Project: 905594

Lab ID: 1905416-003

Matrix: Soil

Client Sample ID: EXCA-COMP-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Herbicides by EPA Method 8151A

Batch ID: 24773

Analyst: SB

Dicamba	ND	31.2		µg/Kg-dry	1	6/3/2019 2:50:19 PM
2,4-D	ND	26.7		µg/Kg-dry	1	6/3/2019 2:50:19 PM
2,4-DP	ND	22.3		µg/Kg-dry	1	6/3/2019 2:50:19 PM
2,4,5-TP (Silvex)	ND	17.8		µg/Kg-dry	1	6/3/2019 2:50:19 PM
2,4,5-T	ND	44.6		µg/Kg-dry	1	6/3/2019 2:50:19 PM
Dinoseb	ND	26.7		µg/Kg-dry	1	6/3/2019 2:50:19 PM
Dalapon	ND	178		µg/Kg-dry	1	6/3/2019 2:50:19 PM
2,4-DB	ND	22.3		µg/Kg-dry	1	6/3/2019 2:50:19 PM
MCPP	ND	3,920		µg/Kg-dry	1	6/3/2019 2:50:19 PM
MCPA	ND	2,500		µg/Kg-dry	1	6/3/2019 2:50:19 PM
Picloram	ND	44.6	Q	µg/Kg-dry	1	6/3/2019 2:50:19 PM
Bentazon	ND	31.2		µg/Kg-dry	1	6/3/2019 2:50:19 PM
Chloramben	ND	17.8		µg/Kg-dry	1	6/3/2019 2:50:19 PM
Acifluorfen	ND	71.3		µg/Kg-dry	1	6/3/2019 2:50:19 PM
3,5-Dichlorobenzoic acid	ND	35.7		µg/Kg-dry	1	6/3/2019 2:50:19 PM
4-Nitrophenol	ND	26.7		µg/Kg-dry	1	6/3/2019 2:50:19 PM
Dacthal (DCPA)	ND	26.7		µg/Kg-dry	1	6/3/2019 2:50:19 PM
Surr: 2,4-Dichlorophenylacetic acid	60.2	20.5 - 175		%Rec	1	6/3/2019 2:50:19 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 24782

Analyst: SB

DDVP	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Mevinphos	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
TEPP	ND	49.0	Q	µg/Kg-dry	1	6/5/2019 10:02:15 PM
Demeton, Total	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Ethoprophos	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Naled	ND	49.0	Q	µg/Kg-dry	1	6/5/2019 10:02:15 PM
Sulfotepp	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Monocrotophos	ND	49.0	Q	µg/Kg-dry	1	6/5/2019 10:02:15 PM
Phorate	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Dimethoate	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Diazinon	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Disulfoton	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Parathion, methyl	ND	49.0	Q	µg/Kg-dry	1	6/5/2019 10:02:15 PM
Fenchorphos	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Malathion	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Dursban	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM



Analytical Report

Work Order: 1905416
Date Reported: 6/6/2019

Client: Friedman & Bruya

Collection Date: 5/28/2019 1:45:00 PM

Project: 905594

Lab ID: 1905416-003

Matrix: Soil

Client Sample ID: EXCA-COMP-3

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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Organophosphorus Pesticides by EPA Method 8270-SIM

Batch ID: 24782

Analyst: SB

Fenthion	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Parathion	ND	49.0	Q	µg/Kg-dry	1	6/5/2019 10:02:15 PM
Trichloronate	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Merphos	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Stirophos	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Prothiofos	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Fensulfothion	ND	49.0	Q	µg/Kg-dry	1	6/5/2019 10:02:15 PM
Sulprofos	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
EPN	ND	49.0	Q	µg/Kg-dry	1	6/5/2019 10:02:15 PM
Guthion	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Coumaphos	ND	49.0		µg/Kg-dry	1	6/5/2019 10:02:15 PM
Surr: Triphenylphosphate	61.1	10.7 - 154		%Rec	1	6/5/2019 10:02:15 PM

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Q - Indicates an analyte with an initial calibration verification that does not meet established acceptance criteria (Tetraethyl pyrophosphate)

Sample Moisture (Percent Moisture)

Batch ID: R51815

Analyst: PA

Percent Moisture	3.12	0.500		wt%	1	5/31/2019 9:19:06 AM
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Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Herbicides by EPA Method 8151A

Sample ID: MB-24773	SampType: MBLK	Units: µg/Kg				Prep Date: 5/31/2019			RunNo: 51859		
Client ID: MBLKS	Batch ID: 24773	Analysis Date: 6/3/2019						SeqNo: 1023131			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	ND	35.0									
2,4-D	ND	30.0									
2,4-DP	ND	25.0									
2,4,5-TP (Silvex)	ND	20.0									
2,4,5-T	ND	50.0									
Dinoseb	ND	30.0									
Dalapon	ND	200									
2,4-DB	ND	25.0									
MCP	ND	4,400									
MCPA	ND	2,800									
Picloram	ND	50.0									Q
Bentazon	ND	35.0									
Chloramben	ND	20.0									
Acifluorfen	ND	80.0									
3,5-Dichlorobenzoic acid	ND	40.0									
4-Nitrophenol	ND	30.0									
Dacthal (DCPA)	ND	30.0									
Surr: 2,4-Dichlorophenylacetic acid	1.050		1.000		105	20.5	175				

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample ID: LCS-24773	SampType: LCS	Units: µg/Kg				Prep Date: 5/31/2019			RunNo: 51859		
Client ID: LCSS	Batch ID: 24773	Analysis Date: 6/3/2019						SeqNo: 1023132			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	127	35.0	200.0	0	63.7	21.8	163				
2,4-D	97.6	30.0	200.0	0	48.8	22.4	130				
2,4-DP	152	25.0	200.0	0	75.9	21.3	157				
2,4,5-TP (Silvex)	150	20.0	200.0	0	74.9	21.2	138				
2,4,5-T	87.0	50.0	200.0	0	43.5	15.3	156				
Dinoseb	59.6	30.0	200.0	0	29.8	5	165				

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Herbicides by EPA Method 8151A

Sample ID: LCS-24773	SampType: LCS	Units: µg/Kg			Prep Date: 5/31/2019			RunNo: 51859			
Client ID: LCSS	Batch ID: 24773				Analysis Date: 6/3/2019			SeqNo: 1023132			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dalapon	962	200	1,000	0	96.2	20.6	192				
2,4-DB	235	25.0	200.0	0	118	5	164				
MCPP	956	4,400	1,000	0	95.6	17.3	166				
MCPA	713	2,800	1,000	0	71.3	19.8	193				
Picloram	55.5	50.0	200.0	0	27.7	5	175				
Bentazon	187	35.0	200.0	0	93.7	7.59	162				
Chloramben	74.7	20.0	200.0	0	37.4	5	147				
Acifluorfen	130	80.0	200.0	0	65.0	5	163				
3,5-Dichlorobenzoic acid	149	40.0	200.0	0	74.6	10.9	172				
4-Nitrophenol	185	30.0	200.0	0	92.5	5	163				
Dacthal (DCPA)	36.9	30.0	200.0	0	18.5	5	164				
Surr: 2,4-Dichlorophenylacetic acid	1,110		1,000		111	20.5	175				

Sample ID: 1905416-002ADUP		SampType: DUP		Units: µg/Kg-dry		Prep Date: 5/31/2019			RunNo: 51859			
Client ID: EXCA-COMP-2		Batch ID: 24773					Analysis Date: 6/3/2019			SeqNo: 1023135		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Dicamba	ND	33.9						0		30		
2,4-D	ND	29.0						0		30		
2,4-DP	ND	24.2						0		30		
2,4,5-TP (Silvex)	ND	19.4						0		30		
2,4,5-T	ND	48.4						0		30		
Dinoseb	ND	29.0						0		30		
Dalapon	ND	194						0		30		
2,4-DB	ND	24.2						0		30		
MCP	ND	4,260						0		30		
MCPA	ND	2,710						0		30		
Picloram	ND	48.4						0		30	Q	
Bentazon	ND	33.9						0		30		
Chloramben	ND	19.4						0		30		

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Herbicides by EPA Method 8151A

Sample ID: 1905416-002ADUP	SampType: DUP	Units: µg/Kg-dry			Prep Date: 5/31/2019			RunNo: 51859			
Client ID: EXCA-COMP-2	Batch ID: 24773				Analysis Date: 6/3/2019			SeqNo: 1023135			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Acifluorfen	ND	77.4						0		30	
3,5-Dichlorobenzoic acid	ND	38.7						0		30	
4-Nitrophenol	ND	29.0						0		30	
Dacthal (DCPA)	ND	29.0						0		30	
Surr: 2,4-Dichlorophenylacetic acid	555		967.6		57.4	20.5	175		0		

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Sample ID: 1905416-002AMS	SampType: MS	Units: µg/Kg-dry				Prep Date: 5/31/2019			RunNo: 51859		
Client ID: EXCA-COMP-2	Batch ID: 24773	Analysis Date: 6/3/2019							SeqNo: 1023136		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	40.8	34.6	198.0	0	20.6	31.9	118				S
2,4-D	69.9	29.7	198.0	0	35.3	12.4	134				
2,4-DP	83.4	24.7	198.0	0	42.1	27.2	129				
2,4,5-TP (Silvex)	89.4	19.8	198.0	0	45.1	28.6	134				
2,4,5-T	63.4	49.5	198.0	0	32.0	13.1	147				
Dinoseb	87.7	29.7	198.0	0	44.3	10	179				
Dalapon	358	198	989.9	0	36.2	5	160				
2,4-DB	205	24.7	198.0	0	104	33.3	151				
MCP	563	4,360	989.9	0	56.9	30.2	157				
MCPA	531	2,770	989.9	0	53.6	13.7	147				
Picloram	24.7	49.5	198.0	0	12.5	5	153				
Bentazon	148	34.6	198.0	0	74.6	15	140				
Chloramben	34.2	19.8	198.0	0	17.3	5	162				
Acifluorfen	89.5	79.2	198.0	0	45.2	15	140				
3,5-Dichlorobenzoic acid	94.2	39.6	198.0	0	47.6	10	164				
4-Nitrophenol	181	29.7	198.0	0	91.3	21.9	121				
Dacthal (DCPA)	10.8	29.7	198.0	0	5.44	5	132				
Surr: 2,4-Dichlorophenylacetic acid	616		989.9		62.3	20.5	175				

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Herbicides by EPA Method 8151A

Sample ID: 1905416-002AMS	SampType: MS	Units: µg/Kg-dry	Prep Date: 5/31/2019	RunNo: 51859							
Client ID: EXCA-COMP-2	Batch ID: 24773		Analysis Date: 6/3/2019	SeqNo: 1023136							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:

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

Sample ID: 1905416-002AMSD	SampType: MSD	Units: µg/Kg-dry				Prep Date: 5/31/2019			RunNo: 51859		
Client ID: EXCA-COMP-2	Batch ID: 24773	Analysis Date: 6/3/2019							SeqNo: 1023137		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dicamba	50.1	35.6	203.7	0	24.6	31.9	118	40.83	20.3	30	S
2,4-D	75.4	30.6	203.7	0	37.0	12.4	134	69.90	7.63	30	
2,4-DP	89.9	25.5	203.7	0	44.1	27.2	129	83.37	7.49	30	
2,4,5-TP (Silvex)	101	20.4	203.7	0	49.8	28.6	134	89.39	12.6	30	
2,4,5-T	75.1	50.9	203.7	0	36.9	13.1	147	63.35	17.0	30	
Dinoseb	133	30.6	203.7	0	65.4	10	179	87.68	41.2	30	R
Dalapon	463	204	1,018	0	45.5	5	160	358.3	25.5	30	
2,4-DB	195	25.5	203.7	0	95.6	33.3	151	205.3	5.28	30	
MCPP	657	4,480	1,018	0	64.5	30.2	157	0		30	
MCPA	622	2,850	1,018	0	61.1	13.7	147	0		30	
Picloram	32.1	50.9	203.7	0	15.8	5	153	0		30	
Bentazon	162	35.6	203.7	0	79.5	15	140	147.6	9.20	30	
Chloramben	46.7	20.4	203.7	0	22.9	5	162	34.16	31.0	30	
Acifluorfen	120	81.5	203.7	0	58.8	15	140	89.53	28.9	30	
3,5-Dichlorobenzoic acid	109	40.7	203.7	0	53.4	10	164	94.24	14.3	30	
4-Nitrophenol	209	30.6	203.7	0	102	21.9	121	180.8	14.3	30	
Dacthal (DCPA)	17.6	30.6	203.7	0	8.65	5	132	0		30	
Surr: 2,4-Dichlorophenylacetic acid	620		1,018		60.9	20.5	175		0		

NOTES:

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

R - High RPD observed, spike recovery is within range.

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: MB-24782	SampType: MBLK	Units: µg/Kg				Prep Date: 6/3/2019			RunNo: 51910		
Client ID: MBLKS	Batch ID: 24782					Analysis Date: 6/5/2019			SeqNo: 1024454		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	ND	50.0									
Mevinphos	ND	50.0									
TEPP	ND	50.0									Q
Demeton, Total	ND	50.0									
Ethoprophos	ND	50.0									
Naled	ND	50.0									Q
Sulfotepp	ND	50.0									
Monocrotophos	ND	50.0									Q
Phorate	ND	50.0									
Dimethoate	ND	50.0									
Diazinon	ND	50.0									
Disulfoton	ND	50.0									
Parathion, methyl	ND	50.0									Q
Fenchorphos	ND	50.0									
Malathion	ND	50.0									
Dursban	ND	50.0									
Fenthion	ND	50.0									
Parathion	ND	50.0									Q
Trichloronate	ND	50.0									
Merphos	ND	50.0									
Stirophos	ND	50.0									
Prothiofos	ND	50.0									
Fensulfothion	ND	50.0									Q
Sulprofos	ND	50.0									
EPN	ND	50.0									Q
Guthion	ND	50.0									
Coumaphos	ND	50.0									
Surr: Triphenylphosphate	15.3		20.00		76.7	10.7	154				

NOTES:

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Q - Indicates an analyte with an initial calibration verification that does not meet established acceptance criteria (Tetraethyl pyrophosphate)

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: LCS-24782	SampType: LCS	Units: µg/Kg				Prep Date: 6/3/2019			RunNo: 51910		
Client ID: LCSS	Batch ID: 24782	Analysis Date: 6/5/2019						SeqNo: 1024455			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	11.6	50.0	20.00	0	58.0	7.85	133				
Mevinphos	14.0	50.0	20.00	0	69.8	28.7	131				
TEPP	15.9	50.0	20.00	0	79.6	5	119				
Demeton, Total	15.5	50.0	20.00	0	77.7	31.4	149				
Ethoprophos	13.8	50.0	20.00	0	68.9	31.9	144				
Naled	14.6	50.0	20.00	0	73.0	10	147				
Sulfotepp	13.8	50.0	20.00	0	68.9	26.9	144				
Monocrotophos	14.4	50.0	20.00	0	72.2	10	129				
Phorate	14.9	50.0	20.00	0	74.6	40.9	118				
Dimethoate	15.0	50.0	20.00	0	74.8	23.6	127				
Diazinon	13.2	50.0	20.00	0	66.0	37.1	132				
Disulfoton	15.2	50.0	20.00	0	76.2	37.9	122				
Parathion, methyl	15.9	50.0	20.00	0	79.3	16.8	143				
Fenchorphos	14.3	50.0	20.00	0	71.6	36.7	117				
Malathion	12.6	50.0	20.00	0	63.0	26.9	131				
Dursban	14.1	50.0	20.00	0	70.3	40.8	124				
Fenthion	13.4	50.0	20.00	0	66.8	36.6	127				
Parathion	13.1	50.0	20.00	0	65.5	37.6	129				
Trichloronate	14.2	50.0	20.00	0	71.0	41.5	123				
Merphos	10.7	50.0	20.00	0	53.6	10	122				
Stirophos	12.6	50.0	20.00	0	63.0	20.6	126				
Prothiofos	12.7	50.0	20.00	0	63.4	37.1	135				
Fensulfothion	13.8	50.0	20.00	0	69.2	14.6	152				
Sulprofos	12.8	50.0	20.00	0	64.0	34.6	137				
EPN	14.6	50.0	20.00	0	73.0	26.7	150				
Guthion	16.4	50.0	20.00	0	82.1	5	151				
Coumaphos	16.2	50.0	20.00	0	81.2	10	152				
Surr: Triphenylphosphate	17.0		20.00		85.0	10.7	154				

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: 1905416-001ADUP		SampType: DUP		Units: µg/Kg-dry		Prep Date: 6/3/2019			RunNo: 51910		
Client ID: EXCA-COMP-1		Batch ID: 24782					Analysis Date: 6/5/2019			SeqNo: 1024457	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	ND	47.7						0		30	
Mevinphos	ND	47.7						0		30	
TEPP	ND	47.7						0		30	Q
Demeton, Total	ND	47.7						0		30	
Ethoprophos	ND	47.7						0		30	
Naled	ND	47.7						0		30	Q
Sulfotepp	ND	47.7						0		30	
Monocrotophos	ND	47.7						0		30	Q
Phorate	ND	47.7						0		30	
Dimethoate	ND	47.7						0		30	
Diazinon	ND	47.7						0		30	
Disulfoton	ND	47.7						0		30	
Parathion, methyl	ND	47.7						0		30	Q
Fenchorphos	ND	47.7						0		30	
Malathion	ND	47.7						0		30	
Dursban	ND	47.7						0		30	
Fenthion	ND	47.7						0		30	
Parathion	ND	47.7						0		30	Q
Trichloronate	ND	47.7						0		30	
Merphos	ND	47.7						0		30	
Stirophos	ND	47.7						0		30	
Prothiofos	ND	47.7						0		30	
Fensulfothion	ND	47.7						0		30	Q
Sulprofos	ND	47.7						0		30	
EPN	ND	47.7						0		30	Q
Guthion	ND	47.7						0		30	
Coumaphos	ND	47.7						0		30	
Surr: Triphenylphosphate	46.0		19.10		241	10.7	154		0		S

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: 1905416-001ADUP		SampType: DUP		Units: µg/Kg-dry		Prep Date: 6/3/2019			RunNo: 51910		
Client ID: EXCA-COMP-1		Batch ID: 24782		Analysis Date: 6/5/2019						SeqNo: 1024457	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:

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

Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria

Q - Indicates an analyte with an initial calibration verification that does not meet established acceptance criteria (Tetraethyl pyrophosphate)

Sample ID: 1905416-001AMS	SampType: MS	Units: µg/Kg-dry				Prep Date: 6/3/2019			RunNo: 51910		
Client ID: EXCA-COMP-1	Batch ID: 24782	Analysis Date: 6/5/2019						SeqNo: 1024458			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	11.4	49.2	19.68	0	58.2	5	138				
Mevinphos	8.60	49.2	19.68	0	43.7	5	148				
TEPP	15.7	49.2	19.68	0	79.6	5	121				
Demeton, Total	16.2	49.2	19.68	0	82.3	24.3	141				
Ethoprophos	12.6	49.2	19.68	0	63.9	13.2	145				
Naled	7.23	49.2	19.68	0	36.7	5	121				
Sulfotepp	13.5	49.2	19.68	0	68.7	26.8	120				
Monocrotophos	0.00	49.2	19.68	0	0	5	196				S
Phorate	13.9	49.2	19.68	0	70.5	29.4	122				
Dimethoate	20.2	49.2	19.68	0	102	5	161				
Diazinon	22.7	49.2	19.68	0	115	9.74	142				
Disulfoton	20.9	49.2	19.68	0	106	23.9	137				
Parathion, methyl	43.4	49.2	19.68	0	221	5.64	177				S
Fenchorphos	13.0	49.2	19.68	0	65.8	25.3	131				
Malathion	24.2	49.2	19.68	0	123	23.5	121				S
Dursban	10.4	49.2	19.68	0	52.7	28.2	128				
Fenthion	13.0	49.2	19.68	0	66.2	24.2	136				
Parathion	17.3	49.2	19.68	0	88.0	5	173				
Trichloronate	50.7	49.2	19.68	0	258	28.5	122				S
Merphos	46.1	49.2	19.68	0	234	5	90.1				S
Stirophos	7.17	49.2	19.68	0	36.4	9.46	152				
Prothiofos	11.6	49.2	19.68	0	59.0	23.7	157				

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: 1905416-001AMS		SampType: MS		Units: µg/Kg-dry		Prep Date: 6/3/2019		RunNo: 51910			
Client ID: EXCA-COMP-1		Batch ID: 24782				Analysis Date: 6/5/2019		SeqNo: 1024458			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fensulfothion	10.1	49.2	19.68	0	51.2	5	174				
Sulprofos	10.6	49.2	19.68	0	54.1	12	173				
EPN	10.9	49.2	19.68	0	55.5	13.8	157				
Guthion	36.2	49.2	19.68	0	184	5	177				S
Coumaphos	12.5	49.2	19.68	0	63.3	5	232				
Surr: Triphenylphosphate	42.0		19.68		213	10.7	154				S

NOTES:

S - Outlying spike recovery(ies) observed.

S - Outlying surrogate recovery(ies) observed.

Sample ID: 1905416-001AMSD		SampType: MSD		Units: µg/Kg-dry		Prep Date: 6/3/2019		RunNo: 51910			
Client ID: EXCA-COMP-1		Batch ID: 24782				Analysis Date: 6/5/2019		SeqNo: 1024459			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DDVP	8.67	44.9	17.97	0	48.2	5	138	0		30	
Mevinphos	3.77	44.9	17.97	0	21.0	5	148	0		30	
TEPP	14.2	44.9	17.97	0	79.1	5	121	0		30	
Demeton, Total	13.2	44.9	17.97	0	73.5	24.3	141	0		30	
Ethoprophos	10.9	44.9	17.97	0	60.5	13.2	145	0		30	
Naled	6.20	44.9	17.97	0	34.5	5	121	0		30	
Sulfotepp	11.8	44.9	17.97	0	65.5	26.8	120	0		30	
Monocrotophos	0.00	44.9	17.97	0	0	5	196	0		30	S
Phorate	13.0	44.9	17.97	0	72.1	29.4	122	0		30	
Dimethoate	9.96	44.9	17.97	0	55.4	5	161	0		30	
Diazinon	15.9	44.9	17.97	0	88.3	9.74	142	0		30	
Disulfoton	18.8	44.9	17.97	0	104	23.9	137	0		30	
Parathion, methyl	26.0	44.9	17.97	0	145	5.64	177	0		30	
Fenchorphos	12.4	44.9	17.97	0	69.0	25.3	131	0		30	
Malathion	18.4	44.9	17.97	0	102	23.5	121	0		30	
Dursban	10.7	44.9	17.97	0	59.8	28.2	128	0		30	
Fenthion	11.7	44.9	17.97	0	64.8	24.2	136	0		30	

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Organophosphorus Pesticides by EPA Method 8270-SIM

Sample ID: 1905416-001AMSD		SampType: MSD		Units: µg/Kg-dry		Prep Date: 6/3/2019		RunNo: 51910			
Client ID: EXCA-COMP-1		Batch ID: 24782				Analysis Date: 6/5/2019		SeqNo: 1024459			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Parathion	15.2	44.9	17.97	0	84.8	5	173	0		30	
Trichloronate	67.2	44.9	17.97	0	374	28.5	122	50.73	28.0	30	S
Merphos	28.1	44.9	17.97	0	157	5	90.1	46.08	48.3	30	S
Stirophos	5.00	44.9	17.97	0	27.8	9.46	152	0		30	
Prothiofos	12.2	44.9	17.97	0	67.8	23.7	157	0		30	
Fensulfothion	21.6	44.9	17.97	0	120	5	174	0		30	
Sulprofos	13.8	44.9	17.97	0	76.9	12	173	0		30	
EPN	16.3	44.9	17.97	0	90.5	13.8	157	0		30	
Guthion	26.1	44.9	17.97	0	145	5	177	0		30	
Coumaphos	10.2	44.9	17.97	0	56.8	5	232	0		30	
Surr: Triphenylphosphate	30.8		17.97		171	10.7	154		0		S

NOTES:

S - Outlying spike recovery(ies) observed.

S - Outlying surrogate recovery(ies) observed.

Work Order: 1905416
CLIENT: Friedman & Bruya
Project: 905594

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID: 1905301-013BDUP		SampType: DUP		Units: wt%		Prep Date: 5/31/2019			RunNo: 51815		
Client ID: BATCH		Batch ID: R51815		Analysis Date: 5/31/2019			SeqNo: 1022345				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	6.61	0.500						6.534	1.19	20	

Client Name: **FB**
 Logged by: **Clare Griggs**

Work Order Number: **1905416**
 Date Received: **5/30/2019 2:07:00 PM**

Chain of Custody

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

Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐
 4. Shipping container/cooler in good condition? Yes ☒ No ☐
 5. Custody Seals present on shipping container/cooler?
 (Refer to comments for Custody Seals not intact) Yes ☐ No ☐ Not Required ☒
 6. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
 7. Were all items received at a temperature of $>0^{\circ}\text{C}$ to 10.0°C * Yes ☒ No ☐ NA ☐
 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 condition(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 ☐

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: Date:
 By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
 Regarding:
 Client Instructions:

19. Additional remarks:

Item Information

Item #	Temp $^{\circ}\text{C}$
Cooler	7.1
Sample	6.6

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

19054110

Company Friedman and Bruya, Inc.

City, State, ZIP Seattle, WA 98119Phone # (206) 285-8282 Fax # (206) 283-5044

TURNAROUND TIME

☐ Standard (2 Weeks)

☒ RUSH 5-6 wks



Rush charges authorized by: M.C.

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
	Michael Erdahl	Friedman & Bryna	5/30/19	12:45
Received by: 	Michael Erdahl	FAI	5/30/19	1407
Relinquished by:				
Received by:				

APPENDIX E

Report Limitation and Guidelines for Use

REPORT LIMITATIONS AND USE GUIDELINES

Reliance Conditions for Third Parties

This report was prepared for the exclusive use of the Client. No other party may rely on this report or the product of our services without the express written consent of Aspect Consulting, LLC (Aspect). This limitation is to provide our firm with reasonable protection against liability claims by third parties with whom there would otherwise be no contractual conditions or limitations and guidelines governing their use of the report. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and recognized standards of professionals in the same locality and involving similar conditions.

Services for Specific Purposes, Persons and Projects

Aspect has performed the services in general accordance with the scope and limitations of our Agreement. This report has been prepared for the exclusive use of the Client and their authorized third parties, approved in writing by Aspect. This report is not intended for use by others, and the information contained herein is not applicable to other properties.

This report is not, and should not, be construed as a warranty or guarantee regarding the presence or absence of hazardous substances or petroleum products that may affect the subject property. The report is not intended to make any representation concerning title or ownership to the subject property. If real property records were reviewed, they were reviewed for the sole purpose of determining the subject property's historical uses. All findings, conclusions, and recommendations stated in this report are based on the data and information provided to Aspect, current use of the subject property, and observations and conditions that existed on the date and time of the report.

Aspect structures its services to meet the specific needs of our clients. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and subject property. This report should not be applied for any purpose or project except the purpose described in the Agreement.

This Report Is Project-Specific

Aspect considered a number of unique, project-specific factors when establishing the Scope of Work for this project and report. You should not rely on this report if it was:

- Not prepared for you
- Not prepared for the specific purpose identified in the Agreement
- Not prepared for the specific real property assessed
- Completed before important changes occurred concerning the subject property, project or governmental regulatory actions

If changes are made to the project or subject property after the date of this report, Aspect should be retained to assess the impact of the changes with respect to the conclusions contained in the report.

Geoscience Interpretations

The geoscience practices (geotechnical engineering, geology, and environmental science) require interpretation of spatial information that can make them less exact than other engineering and natural science disciplines. It is important to recognize this limitation in evaluating the content of the report. If you are unclear how these "Report Limitations and Use Guidelines" apply to your project or site, you should contact Aspect.

Discipline-Specific Reports Are Not Interchangeable

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually address any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding the subject property.

Environmental Regulations Are Not Static

Some hazardous substances or petroleum products may be present near the subject property in quantities or under conditions that may have led, or may lead, to contamination of the subject property, but are not included in current local, state or federal regulatory definitions of hazardous substances or petroleum products or do not otherwise present potential liability. Changes may occur in the standards for appropriate inquiry or regulatory definitions of hazardous substance and petroleum products; therefore, this report has a limited useful life.

Property Conditions Change Over Time

This report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time (for example, Phase I ESA reports are applicable for 180 days), by events such as a change in property use or occupancy, or by natural events, such as floods, earthquakes, slope failure or groundwater fluctuations. If more than six months have passed since issuance of our report, or if any of the described events may have occurred following the issuance of the report, you should contact Aspect so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Phase I ESAs – Uncertainty Remains After Completion

Aspect has performed the services in general accordance with the scope and limitations of our Agreement and the current version of the “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process”, ASTM E1527, and U.S. Environmental Protection Agency (EPA)'s Federal Standard 40 CFR Part 312 "Innocent Landowners, Standards for Conducting All Appropriate Inquiries".

No ESA can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with subject property. Performance of an ESA study is intended to reduce, but not eliminate, uncertainty regarding the potential for environmental conditions affecting the subject property. There is always a potential that areas with contamination that were not identified during this ESA exist at the subject property or in the study area. Further evaluation of such potential would require additional research, subsurface exploration, sampling and/or testing.

Historical Information Provided by Others

Aspect has relied upon information provided by others in our description of historical conditions and in our review of regulatory databases and files. The available data does not provide definitive information with regard to all past uses, operations or incidents affecting the subject property or adjacent properties. Aspect makes no warranties or guarantees regarding the accuracy or completeness of information provided or compiled by others.

Exclusion of Mold, Fungus, Radon, Lead, and HBM

Aspect's services do not include the investigation, detection, prevention or assessment of the presence of molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detection, assessment, prevention or abatement of molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts. Aspect's services also do not include the investigation or assessment of hazardous building materials (HBM) such as asbestos, polychlorinated biphenyls (PCBs) in light ballasts, lead based paint, asbestos-containing building materials, urea-formaldehyde insulation in on-site structures or debris or any other HBMs. Aspect's services do not include an evaluation of radon or lead in drinking water, unless specifically requested.