REMOVAL SITE EVALUATION REPORT

Treoil Industries Biorefinery
Removal Site Evaluation
Ferndale, Whatcom County, Washington

Contract No.: 68HE0720D0005
Task Order Nos.: 68HE0722F0074
68HE0722F0075

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LIST OF ABBREVIATIONS AND ACRONYMS

°F	degrees Fahrenheit
ACM	asbestos-contaminated material
ALS	ALS Environmental
AOC	areas of concern
AST	Aboveground Storage Tank
ASTM	ASTM International
bgs	below ground surface
BTU	British thermal unit
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Contaminant of concern
CWA	Clean Water Act
CY	cubic yard
DQO	Data Quality Objective
DRO	diesel-range organics
E&E	Ecology and Environment, Inc.
Ecology	Washington State Department of Ecology
EMT	Environmental Monitoring and Technologies, Inc.
EPA	U.S. Environmental Protection Agency
EQM	Environmental Quality Management
ERRS	Emergency and Rapid Response Services
FOG	fats, oil, and grease
FP	Flashpoint
FTIR	Fourier Transform Infrared Spectroscopy
HASP	Health and Safety Plan
Haz CAT	Hazard Categorization
HazMat	Hazardous Materials
HEM	Hexane Extractable Material
ID	Identification

LIST OF ABBREVIATIONS AND ACRONYMS (CONTINUED)

IDW	Investigation-Derived Waste
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MSD	Matrix Spike Duplicate
MTCA	Model Toxics Control Act
NaOH	Sodium hydroxide
NWTPH	Northwest total petroleum hydrocarbons
NWTPH-Dx	Northwest total petroleum hydrocarbons – diesel range organics
OLEM	Office of Land and Emergency Management
OPA	Oil Pollution Act
OSC	On-Scene Coordinator
PACM	Presumed asbestos containing material
PAH	polycyclic aromatic hydrocarbons
PDF	portable document format
PPE	Personal Protective Equipment
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RDMP	Regional Data Management Plan
RRO	residual range organic
RSE	Removal Site Evaluation
SAP	Sampling and Analysis Plan
SEMS	Superfund Enterprise Management System
SOW	Scope of Work
SSDMP	Site-Specific Data Management Plan
SSID	Site/Spill Identification
START	Superfund Technical Assessment and Response Team
SVOC	Semi-volatile organic compound
TAL	Target Analyte List

LIST OF ABBREVIATIONS AND ACRONYMS (CONTINUED)

TCLP	Toxicity Characteristic Leaching Procedure
TOX	Total organic halides
TPH	Total Petroleum Hydrocarbons
U.S.C	United States Code
USCD	U.S. Climate Data
VOC	volatile organic compound
WESTON®	Weston Solutions, Inc.
WSP	WSP USA, Inc.
WOTUS	Waters of the United States
WRCC	Western Regional Climate Center

EXECUTIVE SUMMARY

The U.S. Environmental Protection Agency (EPA) tasked Weston Solutions, Inc. (WESTON®), the Superfund Technical Assessment and Response Team (START) contractor, to support the EPA during the Removal Site Evaluation (RSE) at the Treoil Industries Biorefinery (Site) located in Ferndale, Whatcom County, Washington. START provided technical support and documentation of on-site activities conducted by EPA during the RSE. This work was completed under START Contract No. 68HE0720D0005 and Task Order (TO) Nos. 68HE0722F0074 and 68HE0722F0075. The RSE was initiated following a Site visit conducted in February 2022. The Site visit was initiated to document current Site conditions and evaluate whether further action was warranted after the Washington State Department of Ecology (Ecology) contacted EPA about new Site activity.

RSE field activities were completed between June 21, 2022, and June 23, 2022. START and Emergency and Rapid Response Services (ERRS), collected one surface soil sample, seven sludge samples, one treated sludge sample, and four liquid samples for waste characterization. In addition, ERRS collected freeboard measurements and visually characterized the samples for viscosity from aboveground storage tanks (ASTs) with observable remnant material of unknown composition.

Samples were submitted to an accredited laboratory for analysis. START conducted field analysis on select samples. To help ERRS identify the appropriate disposal waste streams, laboratory samples were analyzed for a suite of waste disposal constituents of concern (COCs) and oil and grease. Most samples resembled petroleum as verified by the analytical data, indicating the presence of an oil waste material. The concentrations of most COCs fell below federal hazardous waste disposal criteria as provided by the Resource Conservation and Recovery Act (RCRA). Concentrations of COCs above federal regulatory levels, however, were observed in Tank 37. In addition, material from Tank 35 had a high pH which was designated as a characteristic hazardous waste under RCRA for corrosivity.

1 INTRODUCTION

EPA is granted removal response authority through several federal statutes and regulations. Section 104(a)(1) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Title 42 of the United States Code (U.S.C.), Section (§) 9604(a)(1) authorizes EPA to act, consistent with the National Contingency Plan (NCP), to remove or arrange for the removal of or take any action deemed necessary to protect human health and the environmental from a release or substantial threat of release of a hazardous substance. Section 311(c) of the Clean Water Act (CWA), 33 U.S.C. § 1321(c), as amended by the Oil Pollution Act (OPA), 33 U.S.C. 2701 et seq., grants EPA the authority to ensure effective and immediate removal of a discharge and mitigation or prevention of a substantial threat of discharge of oil to navigable waters of the United States (WOTUS) in accordance with the NCP and any area contingency plan. The NCP, Title 40 of the Code of Federal Regulations (CFR) Part 300, establishes procedures for conducting responses to oil and hazardous substances and designates the On-Scene Coordinator (OSC) as the director and coordinator of response actions at the scene of a discharge of oil or release of hazardous substances.

The U.S. Environmental Protection Agency (EPA) tasked Weston Solutions, Inc. (WESTON®), under Superfund Technical Assessment and Response Team (START) Contract No. 68HE0720D0005 and Task Order (TO) Nos. 68HE0722F0074 and 68HE0722F0075, to support EPA during a Removal Site Evaluation (RSE) at the Treoil Industries Biorefinery (Site) located in Ferndale, Whatcom County, Washington. A Site Location Map is provided as **Figure 1-1**.

EPA and its contractors previously conducted investigations at the Site under the START-IV contract, including an RSE in 2017 (Ecology and Environment, Inc [E&E], 2017a). The results of the 2017 RSE identified discharges of oily materials to the ground surface and stormwater conveyances, as well as a substantial threat of discharges of oil to WOTUS. The investigation also confirmed releases of hazardous substances to the environment at the Site as well as the threat of future releases. EPA's 2017 RSE resulted in an emergency oil removal carried out under its CWA/OPA authority concurrent with a Time-Critical Removal Action (TCRA) under its CERCLA authority. Following the removal of oil and hazardous substances, EPA outlined

recommendations for future Site characterization through a Proposed Sampling Approach Memorandum (E&E, 2017b).

1.1 PROJECT OBJECTIVES

The objectives of this RSE are defined in TO Nos. 68HE0722F0074 and 68HE0722F0075, dated May 24, 2022, and are summarized herein. The purpose of this RSE is to characterize and update EPA's understanding of discharges or substantial threats of discharge of oil to WOTUS and releases or threats of release of hazardous substances to the environment following the 2017 emergency removal action. The sample data collected will allow EPA to characterize the types of waste present on-site, estimate the volume of material in aboveground storage tanks (ASTs), in surface soil, and within a secondary containment (identified as Secondary Containment C [E&E], 2017a), determine whether Site-related contamination poses new risks pursuant to OPA and CERCLA and ultimately determine whether a further additional action is needed.

1.2 SCOPE OF WORK

START completed the following scope of work (SOW) requirements:

- Develop a site-specific Sampling and Analysis Plan (SAP) including Data Quality Objectives (DQOs). (WESTON, 2022a).
- Develop a Site-Specific Data Management Plan (SSDMP) (WESTON, 2022b).
- Develop a site-specific Health and Safety Plan (HASP).
- Collect and submit samples for waste characterization.
- Estimate the volume of material from each tank inspected or sampled.
- Review and validate analytical results.
- Compare analytical results to applicable waste disposal criteria.
- Compile findings into an RSE report.

Field activities were conducted, including the collection and subsequent laboratory analysis of soil, liquid, sludge, and treated solid samples; limited Hazardous Materials (HazMat) Hazard Categorization (Haz CAT) included select Char tests, pH testing, data management, analysis of

select samples using Raman or Fourier Transform Infrared Spectroscopy (FTIR), and documentation of RSE activities.

1.3 REPORT FORMAT

This RSE report has been organized as follows:

- Section 1 – Introduction
- Section 2 – Site Background
- Section 3 – Removal Site Evaluation
- Section 4 – Analytical Methodology and Data Validation
- Section 5 – Summary of Results
- Section 6 – Conclusion
- Section 7 – References

The appendices are as follows:

- Appendix A – Photograph Log
- Appendix B – Table 1 and Table 2 – Solid and Liquid Analytical Results
- Appendix C – Data Validation Reports
- Appendix D – Laboratory Data Packages

2 SITE BACKGROUND

Information regarding the Site location and setting, Site history, and summary of previous investigations are included in the following subsections.

2.1 SITE LOCATION AND DESCRIPTION

Site Name:	Treoil Industries Biorefinery
Location:	4242 Aldergrove Road, Ferndale, WA, 98248
SEMS ID:	WAH000050091
SSID:	10PZ
Latitude, Longitude:	48.8789186° North, 122.710728° West

Notes:
ID Identification
SEMS Superfund Enterprise Management System
SSID Site/Spill Identification Number

The Site is located on industrial biorefinery property in the northwest portion of unincorporated Whatcom County, approximately 5 miles northwest of the City of Ferndale, Washington (**Figure 1**), 8 miles south of the U.S./Canadian border, and 4 miles north of the Lummi Nation Reservation. Biorefinery operations were conducted on an approximately 3.5-acre footprint of a 34-acre parcel. The developed portion of the property is surrounded by wetlands and other woodland/meadow habitat.

2.2 SITE FEATURES

The Site consists of two primary warehouse buildings, three separate tank farms within a secondary containment, a distillation tower, additional tank farm structures, and piping. The property also has three shipping containers, two mobile home structures, two former laboratory trailers, and numerous pieces of abandoned heavy equipment and collision-damaged vehicles located on Site. In addition, 33 ASTs, which are situated outside of the secondary containment structure, are dispersed throughout the property. (E&E 2017a, WESTON 2022c). **Figure 2** shows the locations of various Site features.

2.3 ENVIRONMENTAL SETTING

2.3.1 Climate

The climate near Ferndale, Washington, is typified by moderately cool winters and warm summers. The coldest temperatures occur between November and March. February is the coldest month with an average low temperature of 35 degrees Fahrenheit (°F). Summer high temperatures peak July through August with average highs of 73°F. Precipitation primarily occurs between October and March and measures approximately 30 inches annually (U.S. Climate Data [USCD], 2022; Western Regional Climate Center [WRCC], 2022).

2.3.2 Land Use

The Site is wholly located within Section 8 of Township 39 North, Range 1 East, which is zoned for Heavy Impact Industrial Use, according to Whatcom County. A BNSF line borders the property to the east and south. Approximately half a mile to the west is a small industrial gas facility and slightly further west is the British Petroleum Cherry Point petroleum refinery. An area of low-density residential land use is located approximately 0.2 mile east of the Site. An estimated 120 people reside within a 1-mile radius of the Site.

2.4 PREVIOUS INVESTIGATIONS

2.4.1 Removal Site Evaluation

EPA conducted an RSE in 2000 to determine potential threat of discharge of oil to WOTUS (E&E, 2000). EPA's RSE report referenced the Washington Department of Ecology's (Ecology) files showing "many years of poor housekeeping" at the Site. At that time, the OSC conducting the RSE was led to believe that the tall oil (a viscous by-product of wood pulp manufacturing) in ASTs was solidified and immobile. Based on this information, the OSC determined there was not a threat of discharge of oil to WOTUS. The final report outlined several suggested actions at the Site for the removal of drums and chemical containers, the removal of sludge and water in the secondary containment, the removal of uncontained sandblast material, and the removal of stained soil.

2.4.2 Site Hazard Assessment

Between 2000 and 2001, Ecology and Whatcom County conducted a Site Hazard Assessment under the Model Toxic Control Act (MTCA) and placed the biorefinery on the Hazardous Sites List for confirmed contamination of soils with metals, petroleum hydrocarbons, and polycyclic aromatic hydrocarbons (PAHs) (Ecology, Whatcom County, 2001).

2.4.3 Dangerous Waste Compliance Inspection

In 2006, an inspection was conducted by Ecology to determine whether waste stored on site was in compliance with Washington State Dangerous Waste regulations (Ecology, 2006). The inspection identified several areas that were not in compliance with regulations. A Compliance Report was issued to T.G. Energy/Treoil Industries, Ltd. for corrective actions to occur within 90 days of the issuance.

2.4.4 Inspections

In 2014, inspections were conducted by Whatcom County Health Department and Ecology's Hazardous Waste and Water Quality program following a formal complaint about the Site (Ecology, Whatcom County, 2015). In 2015, Ecology issued an Amended Administrative Order to comply with State Dangerous Waste regulations.

2.4.5 Emergency Removal Site Evaluation

In 2017, EPA carried out an RSE in response to a request for assistance from Ecology. The request from Ecology came as the agency struggled to get the owner to comply with the 2015 Amended Administrative Order (see section 2.4.5). The RSE documented the presence of hazardous substances in several hundred containers throughout the Site (E&E 2017a). There was evidence of chemical releases, threats of release, and improper storage and labeling of containers. EPA also documented instances of ASTs actively leaking oil, failing or non-existent secondary containment, and a direct pathway for uncontained oil to flow to WOTUS. As a result, EPA conducted an emergency action to remove the oil and hazardous substances.

EPA reported the removal of:

- 93,000 gallons of liquid tall oil and tall oil derivative wastes
- 275 tons of soil, sludge, and debris
- 430 containers, 35 drums, and 9 cylinders of hazardous chemicals
- 8 cubic yards (CY) of asbestos-containing material (ACM)

2.4.6 Site Visit

In early 2022, EPA observed renewed activity on-site from aerial photographs taken after the 2017 emergency removal. In February 2022, EPA returned to conduct a Site visit and observed that three ASTs (Tanks 1, 2, and 3) in which EPA had sealed in 2017 following the removal of all pumpable liquid tall oil had since become unsealed and filled with unknown oily material. Free oily material was observed floating on top of what was estimated to be over 100,000 gallons of water sitting inside secondary containment. Oil was seen floating on puddles in roadways and extensive staining of surface soil was observed in several areas of the Site. New containers with unknown material were also identified during the Site walk. A lack of control over the Site was allowing trespassers and vandals uncontrolled access to the property. Site features observed during the February 2022 Site visit are depicted in **Figure 2** (WESTON 2022c).

3 REMOVAL SITE EVALUATION

EPA, START, and ERRS contractors continued field work in support of the third EPA RSE on the Site. RSE activities occurred from June 21, 2022, to June 23, 2022, and included sample collection, photographic documentation, and HazCat characterization in accordance with the EPA-approved SAP and SSDMP. Digital photographs are provided in Appendix A. Specific information regarding these activities is provided in the following subsections.

The RSE provides information for determining CERCLA and OPA designations for the waste. The oil on-site was previously identified as tall oil. Tall oil is listed specifically within the petroleum and non-petroleum oils subject to OPA/CWA by US Coast Guard Admiral Card's 1995 memo (EPA, 2022).

The Site contains both CERCLA- and OPA-designated materials. The findings and delineation of the two are outlined throughout the remainder of this report.

3.1 SAMPLING STRATEGY

The RSE sampling strategy developed between EPA, ERRS, and START consisted of establishing key samples needed to determine the varying waste streams, and to determine whether Site wastes should be considered OPA or CERCLA wastes. ASTs, soil, bins, and secondary containment structures across the Site were evaluated for the presence of liquid, sludge, and solid phase constituents. These constituents were sampled and sent to an analytical laboratory for hazardous substances determination, and to help determine the nature and extent of Site-related contaminated soil and their associated risks to human health and the environment. To maintain continuity between previous investigations, sampling point identifications established during the 2017 RSE were repurposed for this RSE and were expanded upon, as needed.

3.1.1 Waste Stream Analysis

START collected samples of the waste sources during the RSE to support ERRS in determining the waste streams and to provide intended disposal facilities with profiles of the waste. This was accomplished through both discrete and composite sampling.

3.1.1.1 CERCLA Sampling TO 68HE0722F0075

Areas of concern (AOCs) that required sample collection and characterization under CERCLA Response Authority included Tank 20 (mixed waste), containers with suspected solvents or emulsifiers, (volatile organic compounds [VOCs]/semi-volatile organic compounds [SVOCs]), and other AOCs, as needed.

Liquid and sludge samples were collected from Tank 20 for analysis of Total Target Analyte List (TAL) Metals, SVOCs, VOCs, Flashpoint (FP), British thermal units (BTUs), and total organic halides (TOX). Additionally, ERRS treated one sample with diatomaceous earth to test the treatability and solidification potential of the material. START submitted this sample analysis of RCRA Metals through the Toxicity Characteristic Leaching Procedure (TCLP).

Based on field and laboratory analytical results (discussed in Section 5), substances from Tank 35 and Tank 37 were reclassified as a CERCLA waste.

3.1.1.2 OPA Sampling TO 68HE0722F0074

AOCs that required sample collection and characterization under OPA Response Authority included the Secondary Containment Area C, tanks previously characterized with oil/sludge, and soil around Tanks 1 through 3.

Two liquid samples were collected from Secondary Containment C. The first sample was collected as a composite from the east and west side of the containment area. The second sample was taken as a discrete sample from the north side of the containment area. These samples were submitted for analyses of TAL Metals, SVOCs, VOCs, and TOX. An additional sample was collected within the discrete collection from the north end for Fats, Oils and Grease (FOG) Hexane Extractable Material (HEM).

A sludge sample was collected from Tanks 1, 37, and 38 for analyses of TAL metals, BTU, SVOCs, VOCs, FP, TOX, and northwest total petroleum hydrocarbons (NWTPH). Two composite sludge samples were collected for analyses of TAL metals, BTU, SVOCs, VOCs, FP, TOX, and NWTPH; one composite sample was from Tanks 11 and 12 (CT01-SL01) and one composite sample was from Tanks 13, 14, and 15 (CT02-SL01). Analysis for HEM was conducted on Tank 1, and the composite samples were collected from Tanks 11 through 15 (CT01-SL01 and CT02-SL01). A duplicate sample was submitted from Tank 38.

A liquid sample was taken from Tank 2 and Tank 35 for analyses of TAL Metals, FP, BTU, SVOCs, VOCs, TOX, and NWTPH. A duplicate sample was submitted from Tank 35.

One composite soil sample was collected around Tanks 1, 2, and 3 for analyses of TAL Metals and NWTPH. A duplicate sample was submitted for soils. Soil was sampled under OPA authority, however laboratory analytical results revealed the presence of low concentrations of CERCLA hazardous substances in soil.

3.2 PRELIMINARY FIELD ACTIVITIES

START arrived on-site on June 20, 2022, to ensure that the gate had been opened and to establish the supply trailer at the Site. The sample processing and equipment staging area was located just north of the gate, with sampling operations beginning on June 21, 2022. Field activities were initiated with a walk-through of the Site to identify the key sample locations and AOCs.

3.3 SAMPLING ACTIVITIES

Sampling activities were conducted at or within secondary containment structures, totes, ASTs, and surface soil, and followed the procedures detailed in the SAP (WESTON, 2022a). Samples were placed into appropriated laboratory containers, labeled, and placed into a cooler on ice for storage and shipment to the fixed analytical laboratory. START used Scribe software to track and manage samples and sample information.

3.3.1 Secondary Containment Sampling

On June 21, 2022, two grab (i.e., discrete, single location) samples were collected from Secondary Containment C. START observed an oily sheen and deposits of oily sludge on and in the water within Secondary Containment C.

3.3.2 Tote Samples

On June 22, 2022, two samples were collected from Tote 1 and Tote 2 and were analyzed in the field utilizing Raman/FTIR instrumentation to screen the material for the presence of fatty acids commonly associated with tall oil.

3.3.3 AST Sampling

A boom lift was used to facilitate ERRS efforts with tank inspections and sample collection from various ASTs that could not be safely accessed using ladders or other means. In addition, a Van Veen grab sampler and Stainless-Steel Bailer were used to retrieve AST samples, depending on the media type.

On June 21, 2022, composite samples were collected from Tanks 11 through 15. These consisted of one sample set from Tanks 11 and 12, and one sample set from Tanks 13, 14, and 15.

The boom lift was used to collect a grab sample from Tanks 1, 2 and 20. It was determined that Tank 3 was void of any content.

On June 22, 2022, samples were collected from Tanks 35, 37, and 38. Tank 35 was a liquid-only sample; Tank 38 was a sludge sample.

On-site field analysis for pH was completed on composite samples from Tanks 11, 12, 13, 14, and 15, along with grab samples from Tanks 20, 35, 37, and 38. Additional field analyses for Char Test Complex, Thermal Analysis, Raman/FTIR, and oil test strips were conducted from composite samples from Tanks 11, 12, 13, 14, and 15.

3.3.4 Soil Sampling

On June 22, 2022, a composite surface soil sample was collected from the area around Tanks 1, 2, and 3 with a duplicate. START observed staining and odors in the soil while sampling. In addition, START observed refuse up to 3" below ground surface (bgs) while collecting a surface sample.

3.4 EQUIPMENT DECONTAMINATION

Equipment decontamination was carried out in accordance with the SAP (WESTON, 2022a). In general, equipment used during the sample collection process was thoroughly pre-cleaned before initial use, between use, and at the end of the RSE field effort. Equipment decontamination included gross wipe-down with absorbent pads, cleaning with a commercial off the shelf degreaser to remove oil, and multiple rinses with deionized water.

The Van Veen decontamination posed difficulty with standard decontamination solutions due to the tarlike residue left after sampling an AST with sludge. After several unsuccessful attempts at decontamination, the equipment was left on-site for subsequent disposal.

3.5 DEVIATIONS FROM SAMPLING AND ANALYSIS PLAN

All deviations were approved by EPA and are documented as follows:

1. While in the field, EPA directed START to collect a second liquid sample from Secondary Containment C. The characterization of the north side of the containment varied from the remaining areas. Based on this request, START collected one sample that contained a mix of liquid from the east and west sides of the containment and one sample that was a discrete sample from the north end.
2. The SAP identified potentially collecting samples of presumed asbestos containing material (PACM); however, it was later understood that confirmed ACM had been removed during the 2017 removal action. No samples were collected.
3. Due to the height of the ASTs, placing material directly into sample jars was a safety concern while ERRS was in the boom lift. EPA and ERRS decided that the sample material would be placed in clean 5-gallon buckets then transferred into appropriate sample jars by START.

3.6 FIELD DOCUMENTATION

A field logbook was maintained during the RSE and represents descriptive detailing of Site activities and observations so that an accurate, factual account of field procedures may be reconstructed.

3.7 INVESTIGATION-DERIVED WASTE

Investigation-derived wastes (IDW), including personal protective equipment (PPE), plastic scoops, and plastic sheeting were double bagged and disposed of as solid waste.

Decontamination of non-disposable sampling equipment generated minimal amounts of decontamination fluid. These fluids were allowed to evaporate on-site. Additionally, due to the consistency of the material within Tank 20, the stainless-steel Van Veen grab sampler was bagged and left on-site as IDW due to failed decontamination efforts.

4 ANALYTICAL METHODOLOGY AND DATA VALIDATION

Liquid, sludge, and solid samples were sent for laboratory analysis in accordance with the site-specific SAP (WESTON, 2022a). Samples were submitted to Environmental Monitoring and Technologies, Inc. (EMT), located at 509 N. 3rd Avenue, Des Plaines, Illinois, for analysis by the following methods:

- SVOCs by EPA 8270B/D
- VOCs by EPA 8260B/D
- BTU by EPA 5050
- FOG HEM by EPA 9071B
- FP by ASTM D92-90
- TAL Metals by EPA 6010 and 7471
- TCLP
    - RCRA metals by EPA 6010D and 6020B
    - SVOC by EPA 1311/8270D
    - VOCs by EPA 1311/8260B

Liquid and sludge samples were submitted to ALS Environmental (ALS) located at 301 Fulling Mill Road, Middletown, Pennsylvania, for the following method:

- TOX by EPA 9076 and 9020

Liquid and sludge samples were submitted to ALS located at 1317 S 13th Avenue, Kelso, Washington, for the following method:

- Diesel Range Organics (DRO) by NWTPH-Dx

4.1 DATA VALIDATION

Data validation was performed by a qualified START chemist as listed in the EPA Region 10 Emergency Management Program Standard Operating Guidance 144J (Analytical Data Validation) (EPA, 2016) and in accordance with the EPA Guidance for Labeling Externally

Validated Laboratory Analytical Data for Superfund Use (EPA, 2009) and National Functional Guidelines for Superfund Methods Data Review (EPA, 2020), where applicable to the analyses performed.

The following final qualifiers were used during data validation:

J = The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control (QC) criteria limits were not met.

R = The sample results are rejected (analyte may or may not be present) due to gross deficiencies in QC criteria. Any reported value is unusable. Resampling and/or reanalysis is necessary for verification.

U = The material was analyzed for the analyte, but it was not detected. The associated numerical value is the sample quantitation limit.

UJ = The material was analyzed for the analyte, but it was not detected. The reported detection limit is estimated because QC criteria were not met.

4.2 DATA USABILITY

In general, the data were determined to be of acceptable quality for their intended use; however, several exceptions are discussed herein. START and ERRS reviewed the analytical results to verify that the data were acceptable for their intended use in meeting the objectives of the RSE. This section summarizes the validation findings for solid, sludge, treated, liquid, rinsate, and trip blank samples. A complete and detailed evaluation is included in Appendix C – Data Validation Reports.

All samples were validated according to Stage 2B protocol. Additionally, approximately 10% of the sample results were validated according to the Stage 4 protocol.

Findings of the data validation are summarized below:

Data from samples collected by START were validated in accordance with the USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review (EPA, 2020a), USEPA National Functional Guidelines for Organic Superfund Methods Data Review (EPA, 2020b), Quality Assurance/Quality Control Guidance for Removal Activities (EPA, 1990), and/or the analytical methods. Approximately 96% of the data were of acceptable overall quality for their

intended use in meeting the objectives of the RSE with the following exceptions: fifty-five TCLP VOC sample results were rejected due to exceeding holding time limits and exceeding temperature limits, and twenty SVOC and TCLP SVOC results were rejected due to excessively low matrix spike/matrix spike duplicate (MS/MSD) recoveries.

4.3 DATA REPORTING

In accordance with the EPA Region 10 Regional Data Management Plan (RDMP) (EPA, 2018), field data was managed in accordance with the SSDMP (WESTON, 2022c), which was updated as conditions required. Following collection, field data was processed to generate a Scribe-compatible file. Following the data validation review, results will be integrated with the 2017 analytical data under Scribe ID 3162.

4.4 DATA STORAGE

A standard data management system included the use of Site photographs, sample management and tracking procedures, document control, and inventory procedures for both laboratory data and field measurements. Scribe software was used to create chain-of-custody forms and labels. Scribe was also used to manage and track sample information for samples submitted to laboratories.

5 SUMMARY OF RESULTS

Table 5-1 presents a summary of the samples collected during the RSE and the constituents analyzed. The following subsections present a discussion of sample analytical results.

ERRS was responsible for identifying the appropriate state and federal criteria to profile hazardous waste for transportation and disposal options. This information was provided to EPA and START to facilitate appropriate laboratory methods for the potential constituents of concern (COCs).

Analytical data were compared to the Maximum Concentration of Contaminants for the Toxicity Characteristic (40 CFR §261.24 (b)), as a cursory evaluation for disposal requirements. In comparing total metals samples to the toxicity characteristic, the 20 times rule (EPA, 1992) was implemented where results were reported in milligrams per kilogram (mg/kg). In addition, some samples were analyzed for petroleum products to help in determining whether a waste stream should be considered CERCLA or OPA waste. Appendix B presents a summary of field and laboratory analytical results. Appendix D presents the raw, unvalidated laboratory results.

Some of the ASTs sampled during the RSE contained multiple phases of material. START field staff sampled the individual phases from each AST and documented each phase present. In some instances, the laboratory observed phases that differed from what START identified in the field. This may have been due to separation and settling during shipment, or reaction with preservative in the sampling container. Additionally, results of certain samples identified by START as being liquid were reported in mg/kg by the laboratory, based on their professional judgment of the matrix.

It should be noted that the subsections below provide only a cursory summary of whether the sampled materials constitute RCRA hazardous waste. Further analysis of sample results pertaining to disposal options was conducted separately by ERRS.

Table 5-1 Analytical Summary

Location	Sample ID	Date	Media	pH (Field Analysis)	Metals (SW6010D/SW 7471B)	VOCs (SW8260B/D)	SVOCs (SW8270D)	TPH-DRO/RRO (NWTPH-Dx)	TPH-Oil & Grease (SW9071B)	Ignitability (WC-ASTM D92-90)	BTUs (WC-SW5050)	TOX (WC-SW846 9020B)	TOX (WC-SW846 9023)	TCLP VOCs (SW1311 / SW8260B)	TCLP SVOCs (SW1311 / SW8270D)	TCLP Metals (SW1311 / SW6010D)	TCLP Metals (SW1311 / SW6020 B)
Secondaary Containment C	TRE-SC01-LQ-01	6/21/2022	Liquid	--	x	x	x	--	--	--	--	x	--	x	x	x	--
Secondaary Containment C	TRE-SC01-LQ-02	6/21/2022	Liquid	--	x	x	x	--	x	--	--	x	--	x	x	x	--
Tank 20	TRE-TK20-LQ-01	6/21/2022	Liquid	x	x	x	x	--	--	--	x	x	--	x	x	--	--
Tank 20	TRE TK20 TD 01	6/21/2022	Treated Sludge	--	x	--	--	--	--	--	--	--	--	x	x	--	x
Tank 20	TRE-TK20-SL-02	6/21/2022	Sludge	x	x	x	x	--	--	x	x	--	x	x	x	--	x
Tank 35	TRE-TK35-LQ-01	6/22/2022	Liquid	x	x	x	x	x	--	--	x	--	x	x	x	--	--
Tank 01	TRE-TK01-SL-02	6/21/2022	Sludge	--	x	x	x	x	x	--	x	--	x	x	x	--	x
Tank 37	TRE-TK37-SL-01	6/22/2022	Sludge	x	x	x	x	x	--	--	x	--	x	x	x	x	--
Tank 38	TRE-TK38-SL-01	6/22/2022	Sludge	x	x	x	x	x	--	--	x	--	x	x	x	--	x
Tanks 11 & 12	TRE-CT01-SL-01	6/21/2022	Sludge	x	x	x	x	x	x	--	x	--	x	x	x	x	--
Tanks 13, 14 & 15	TRE-CT02-SL-01	6/21/2022	Sludge	x	x	x	x	x	--	--	x	--	x	x	x	x	--
Tanks 13, 14 & 15	TRE-CT02-SL-01-1	6/21/2022	Sludge	x	--	--	--	--	x	--	--	--	--	x	x	--	--
Soil	TRE-SS01-SD-01	6/22/2022	Soil	--	x	--	--	x	--	--	--	--	--	x	x	--	x

Notes:
x - Indicates analytical parameter completeed on associated sample
"--" - Not analyzed or not available
RRO - Residual Range Organics

5.1 SECONDARY CONTAINMENT – LIQUID RESULTS

SC01-LQ-01 and SC01-LQ-02 were collected from Secondary Containment C. Several metals were detected in both samples; however, none of the detections approached RCRA threshold values or indicated that this is a mixed waste stream.

Only one VOC was detected in both samples; methylene chloride was detected at 16.6 mg/kg and 13 mg/kg in samples SC01-LQ01 and SC01-LQ-02, respectively. It should be noted that methylene chloride is a common laboratory contaminant.

Oil & grease was reported at a concentration of 506,000 mg/kg (approx. 50%) in sample SC01-LQ-02.

TOX were detected at concentrations less than 0.1 mg/kg in both samples.

Results for Total SVOCs, and TCLP analyses of VOCs, SVOCs, and selenium were below laboratory detection limits.

5.2 AST – SOLID GRAB SAMPLE RESULTS

Four samples TK01-SL-02, TK20-SL-01, TK-37-SL-01, TK38-SL-01 were collected from ASTs 01, 20, 37 and 38, respectively. START observed that each of these contained a thick sludge throughout the container, except for Tank 20, which also had a liquid phase. The viscosity of the materials is presented in **Table 5-2**, Summary of Tank Contents.

Four samples (TK01-SL-02, TK20-SL-01, TK-37-SL-01, TK38-SL-01) were placed on ice and, after cooling, were observed to separate into three phases. The phases consisted of an aqueous phase resembling water, a non-aqueous phase resembling a fatty substance, and a non-aqueous phase resembling oily sludge. The samples were analyzed for VOCs, SVOCs, RCRA metals including mercury, TCLP, TOX, and NWTPH. In addition, TK01-SL-02 was analyzed for HEM.

5.2.1 Tank 01 - TK01-SL-02

Several metals were detected; however, none of the detections approached RCRA toxicity characteristic threshold values or suggest this is a mixed waste stream.

Four individual VOCs were detected above method detection limits, including: m,p-Xylene, o-Xylene, methylene chloride, and toluene. There are no regulatory values for toxicity characteristic for any of the VOCs detected.

Oil & grease was detected at 375,000 mg/kg, NWTPH DRO was detected at 160,000 mg/kg, and NWTPH Residual Range Organics (RRO) was detected at 32,000 mg/kg, indicating a presence of oil.

TOX was reported at 37 mg/kg.

TCLP analysis of metals was conducted for chromium and selenium. Selenium was not detected, and chromium was detected at a value of 0.141 milligrams per liter (mg/L), well below the RCRA toxicity characteristic threshold of 5 mg/L.

SVOCs and TCLP analyses of VOCs and SVOCs were not detected.

5.2.2 Tank 37 - TK-37-SL-01

Multiple metals, VOCs, and SVOCs were detected above reporting limits. The majority of SVOC detections fell within the phenol family. Additionally, TCLP analyses on metals, VOCs, and SVOCs resulted in detections and exceedances above the RCRA toxicity characteristic levels. The TCLP result for total cresol was 360 mg/L, exceeding the D026 RCRA toxicity characteristic threshold of 200 mg/L for hazardous waste.

TCLP analysis of chromium resulted in a value of 4.82 mg/L, just below the RCRA toxicity characteristic threshold of 5 mg/L.

NWTPH resulted in a value of 62,000 mg/kg for DRO and 33,000 mg/kg for RRO.

TOX was not detected.

5.2.3 Tank 38 - TK38-SL-01

Several analytes were detected but did not exceed any RCRA toxicity characteristic threshold values. VOCs were not detected above method detection limits. Multiple metals were detected above their reporting limits but did not exceed any RCRA toxicity characteristic threshold values.

NWTPH results indicate that the samples resemble a petroleum product at 300,000 mg/kg DRO and 48,000 mg/kg RRO.

TOX was detected at a value of 16.3 mg/kg.

5.2.4 Tank 20 - TK20-SL-01

Several metals were detected above reporting limits but not exceeding RCRA toxicity characteristic threshold values.

Multiple SVOCs and TCLP SVOCs were detected above reporting limits; these analytes all fall within the phenol family. None of these analytes exceed the RCRA toxicity characteristic values.

VOCs were not detected above method detection limits.

TOX was not detected above the method detection limit.

An FP analysis was conducted per the open cup method without the fume hood and during testing, the sample off-gassed significantly without the ability for the laboratory staff to mitigate the noxious plume. Due to laboratory staff safety concerns, all remaining FP analyses were terminated.

5.3 AST – SOLID, COMPOSITE SAMPLE RESULT

Composite samples CT01-SL-01 and CT02-SL-02 were collected from Tanks 11, 12, 13, 14, and 15. START observed that each of these contained a thick sludge with no liquid phase. Samples were placed on ice and once cooled, it was observed that some of the material separated into multiple phases. This is consistent with other solid samples. The samples were analyzed for VOCs, SVOCs, RCRA metals including mercury, TCLP, TOX, and NWTPH. In addition, samples CT01-SL-01 and CT02-SL-01-1 were analyzed for oil & grease.

5.3.1 CT01-SL-01

This was a composite sample from Tank 11 and Tank 12. Several analytes were detected but did not exceed any RCRA toxicity characteristic threshold values. VOCs were not detected above method detection limits. Multiple metals were detected above their reporting limits but did not exceed any RCRA toxicity characteristic threshold values. NWTPH results indicate that the samples resemble a petroleum product with DRO at 87,000 mg/kg and 57,000 for RRO. Oil & grease was detected at 978,000 mg/kg – approximately 98%; indicating the sample was almost completely comprised of HEM.

5.3.2 CT02-SL-01 and CT02-SL-01-1

This sample was a composite sample from Tanks 13, 14, and 15. Several analytes were detected but did not exceed any RCRA toxicity characteristic threshold values. VOCs were not detected above method detection limits. Multiple metals were detected above their reporting limits but did not exceed any RCRA toxicity characteristic threshold values. NWTPH results indicate that the samples resemble a petroleum product at 99,000 mg/kg for DRO and 63,000 mg/kg for RRO. HEM was detected at 1,030,000 mg/kg – approximately 100%; indicating the sample was comprised completely of HEM.

5.4 AST – LIQUID RESULT

Samples TK02-LQ-01, TK20-LQ-01, and TK35-LQ-01 were collected from ASTs. Tank 20 contained multiple phases, providing both a liquid and a sludge sample. The samples were analyzed for VOCs, SVOCs, RCRA metals including mercury, TCLP, TOX, and NWTPH. In addition, TK35-LQ-01 was analyzed for oil & grease.

5.4.1 TK02-LQ-01

Several analytes were detected but did not exceed any RCRA toxicity characteristic threshold values. VOCs were not detected above method detection limits. Multiple metals were detected above their reporting limits but did not exceed any RCRA toxicity characteristic threshold values. NWTPH results indicate that the sample resembles a petroleum product with DRO at 38 mg/kg and RRO at 40 mg/kg.

5.4.2 TK20-LQ-01

Several analytes were detected but did not exceed any RCRA toxicity characteristic threshold values. SVOCs were detected above reporting limits; these analytes fall within the phenol family. VOCs were not detected above method detection limits. Several metals were detected above reporting limits but did not exceed any RCRA toxicity characteristic threshold values.

5.4.3 TK35-LQ-01

Tank 35 contained transparent liquid that was slightly thicker than water. The pH of the sample was taken in the field utilizing a pH meter with Method 9040C. The pH of the material was 14. The substance reacted violently with the sample preservative, hydrochloric acid. The pH of the material characterizes it as a designated RCRA hazardous waste (D002, Corrosive). Multiple metals were detected above their reporting limits but did not exceed any RCRA toxicity characteristic threshold values. Sodium was detected above limits at 138,000 mg/kg, which likely contributes to the reactivity that was noted. Given the pH and concentration of sodium, Tank 35 likely contains a high percentage of sodium hydroxide (NaOH).

5.5 TREATED – SOLID RESULT

TK20-TD-01 was a sludge sample collected from Tank 20 and solidified with diatomaceous earth. The mixture was tested for total metals and TCLP for VOCs, SVOCs and Metals. Several analytes were detected but did not exceed RCRA toxicity characteristic threshold values. Several metals were detected above reporting limits but not exceeding RCRA toxicity characteristic threshold values.

5.6 SOIL RESULTS

Composite sample SS01-SD-01 was collected from the surface soil around Tanks 1 through 3. Several metals were detected above laboratory reporting limits, however, none of the metals were above the toxicity characteristic using the 20x rule.

Total petroleum hydrocarbons (TPH) were detected in both the diesel range and residual range. The DRO result was 95,000 mg/kg and the RRO result was 41,000 mg/kg.

Results for TCLP analyses of VOCs SVOCs, and Metals were all below laboratory reporting limits.

5.7 FIELD ANALYTICAL SAMPLE RESULTS

Field analysis for pH char testing using Ramen/FTIR technologies were implemented during the RSE. Results and observations of field analysis are summarized below.

1. Tank 35 material pH tested at 14; this was consistent with violent reactions observed with sample preservatives, leading to unpreserved samples being sent for laboratory analysis. The viscosity of this sample was the consistency of maple syrup.
2. Tanks 11 and 12 (CT01-SL-01) and Tanks 13, 14, and 15 (CT02-SL-01) showed a positive oil test; char test indicated vapors that ignite, black charring residue; Raman/FTIR indicated abietic acid. Both composite samples had a viscosity of 60,000 centipoise.
3. Samples collected from Tote 1 and Tote 2 were analyzed on June 22, 2022, utilizing Raman/FTIR with results showing methyl oleate. Laboratory analytical samples were not collected from these totes.
4. Visual analysis of subsurface soil indicated that contamination occurs primarily at 1-inch bgs but up to at least 3 inches bgs around Tanks 1, 2, and 3.

5.8 TANK CHARACTERIZATION AND VOLUME

ERRS conducted the volumetric calculations for the quantity of material in assessed ASTs. During field activities, a freeboard measurement was obtained using a weighted tape measure from the tank top to the liquid/sludge line inside the tank. The tank dimensions were obtained from the 2017 report (EQM, 2017). A tank calculator application was used to derive the volume of material from the AST dimensions and freeboard measurement.

(https://www.calculatorsoup.com/calculators/construction/tank.php).

ERRS also sampled the tank contents to visually describe the material viscosity using a Viscosity Scale Reference Guide (Smooth-On, 2022).

The characterized tank contents are described in **Table 5-2**.

Table 5-2 Summary of Tank Contents

Tank	Volume of Material (gallons)	Tank Size	Description	Viscosity
T11	11,409	37.5’ L x 10.50' D	Tall Oil Sludge	Honey like
T12	11,409	37.5’ L x 10.50' D	Tall Oil Sludge	Honey like
T13	14,346	37.5’ L x 10.50' D	Tall Oil Sludge	Honey like
T14	9,943	37.5’ L x 10.50' D	Tall Oil Sludge	Honey like
T15	9,943	37.5’ L x 10.50' D	Tall Oil Sludge	Honey like
T1	9,943	37.5’ L x 10.50' D	Sludge	Molasses like
T2	22,161	37.5’ L x 10.50' D	Liquid	Water like
T17	517	8’L x 5.5’ W x 3.75’ H	Sludge	Tar/Asphalt consistency
T19	9,729	12’D x 21’H	Sludge	Peanut butter like
T20	18,563	37.5’ L x 10.50' D	Liquid	Water like
T20	5,700		Black Tar Sludge	Thick black tar
T35	954	5' D x 15’H	Strong Base Solution	Maple syrup like
T37	3,383	6' D x 20' H	Sludge	Tar like with water mix
T38	881	10' D x 20' H	Sludge	Honey like
T4	5,726	37.5’ L x 10.50' D	Tall Oil Sludge	Honey like
T32	6,673	30’ H x 18' D	Tall Oil Sludge	Lard like

6 CONCLUSION

EPA completed an RSE at the Treoil Industries Biorefinery Site with the assistance of START and ERRS contractors to assess, categorize, and quantify waste streams, including secondary containment, ASTs, and other miscellaneous containers. The RSE was initiated after EPA's February 2022 Site visit showed that no apparent cleanup actions had occurred since EPA's 2017 emergency RSE and removal action. Furthermore, Site conditions had deteriorated as new operations involving accumulation of wrecked automobiles and reuse of ASTs that were sealed after the 2017 action were observed.

Field work for the RSE was conducted between June 21 and June 23, 2022. EPA, START, and ERRS mobilized to the Site to collect samples for waste stream analysis, to obtain waste volume estimates, and determine disposal criteria for material in ASTs and suspected hazardous waste on-site. START collected samples with the assistance of ERRS using a boom lift at some locations. Thirteen samples (not including QC samples) consisting of solid, sludge, liquid, and soil samples were collected for field and laboratory analysis.

An analytical laboratory tested samples for various CERCLA and OPA COCs. Secondary Containment samples detected high concentrations of oil & grease, indicating the presence of oil and were characterized as OPA waste. In addition, results from most AST samples resemble petroleum products, indicating the presence of oil and, therefore, characterized as OPA waste. Tank 20 was identified as CERCLA waste based on previous investigations, however, analytes were detected but did not exceed any TCLP threshold. Tank 35 and Tank 37 contained RCRA hazardous waste and were reassigned as CERCLA waste.

Fifteen ASTs were assessed for the presence and volume of their contents. Based on this assessment, it is estimated that approximately 141,280 gallons of waste are present in those 15 ASTs. Analytical data indicates that CERCLA- and OPA-regulated waste are present in the ASTs. Given the current, observed state of poor housekeeping and maintenance practices, and a secondary containment full of contaminated precipitation, there is the potential for a significant release of hazardous substances into the environment and potential for discharge of oil to WOTUS.

EPA will use the information presented in this report to determine whether additional action is warranted to reduce the threat of a release that may endanger human health and the environment.

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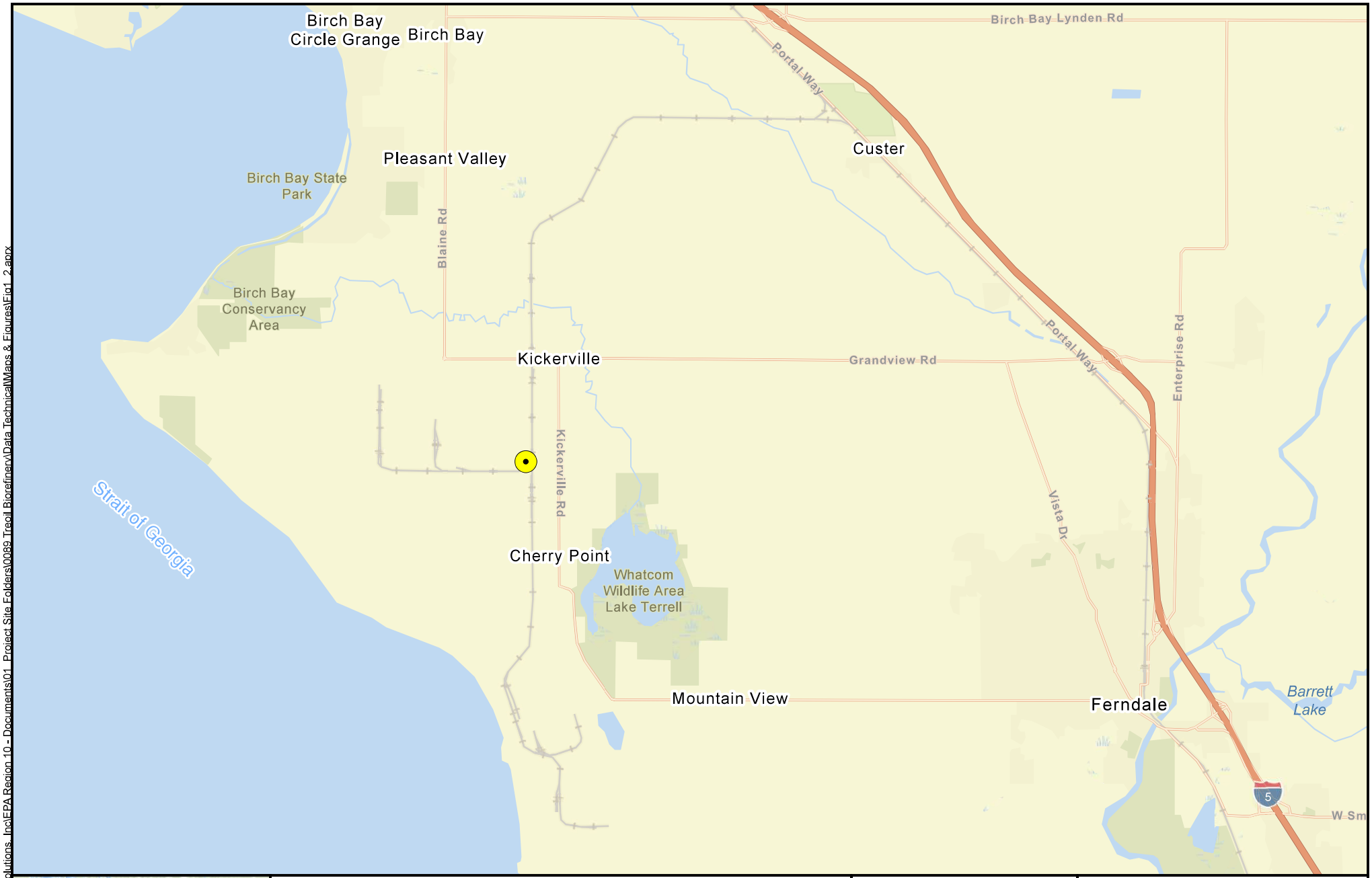
FIGURES



Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere
Source:
Background: ESRI World Street Map
Task Order No.:
68HE0722F0074

N

0 1.25 2.5 5 Miles

Legend:

Site Location

EPA Region 10

Weston Solutions Inc.
START V

FIGURE 1
SITE LOCATION MAP
TREOIL INDUSTRIES BIOREFINERY
4242 ALDERGROVE ROAD
FERNDALE, WHATCOM COUNTY, WASHINGTON
NOVEMBER 2022

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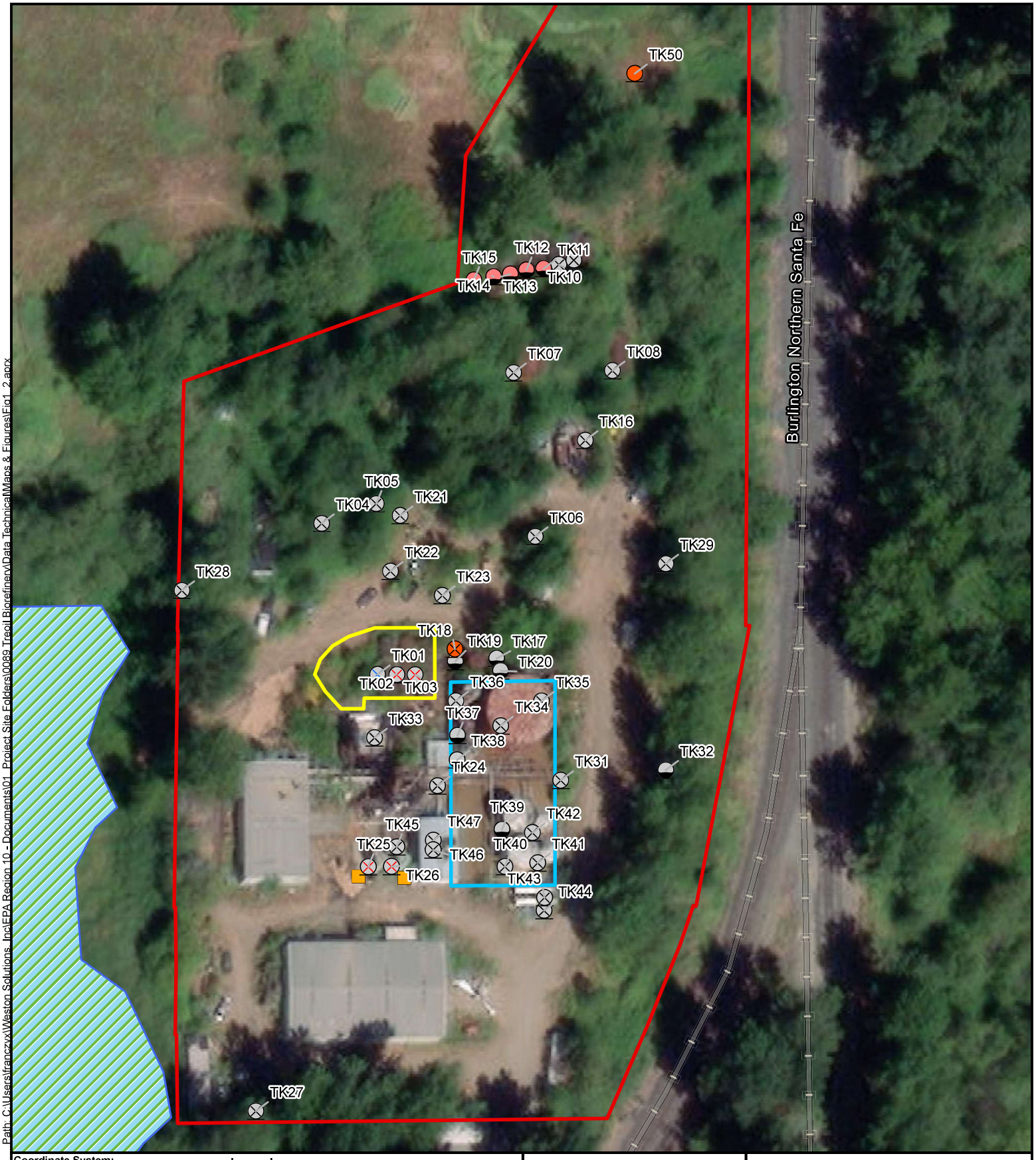

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Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere
Source:
Background: ESRI World Imagery
Task Order No.:
68HE0722F0074

Legend:

Above Ground Storage Tanks (AST)
- Pumpable Oil Removed
- Solid/Sludge Non-Pumpable
- Tank Removed
- Empty/Residual
- Other Contents
- Product/Oil/Sludge
- Residual Water

- Unknown Containers
- Wetlands
- 2022 Spill Area
- Secondary Containment
- Site Boundary

N

0 75 150 300 Feet

EPA Region 10

Weston Solutions Inc.
START V

FIGURE 2
SITE VICINITY MAP
TREOIL INDUSTRIES BIOREFINERY
4242 ALDERGROVE ROAD
FERNDALE, WHATCOM COUNTY, WASHINGTON

NOVEMBER 2022

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Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere
Source:
Background: ESRI World Imagery
Task Order No.:
68HE0722F0074

Legend:

- Secondary Containment Sample Location
- Surface Soil Sample Location
- Above ground Storage Tank (AST) Sample Location
- Pumpable Oil Removed
- Residual Water
- Empty/Residual
- Product/Oil/Sludge
- Residual Water

N

0 50 100 200 Feet

EPA Region 10

Weston Solutions Inc.
START V

FIGURE 3
SAMPLE LOCATION MAP
TREOIL INDUSTRIES BIOREFINERY
4242 ALDERGROVE ROAD
FERNDALE, WHATCOM COUNTY, WASHINGTON

NOVEMBER 2022

APPENDIX A
PHOTOGRAPH LOG

PHOTOGRAPH LOG

Project Name: Treoil Industries Biorefinery	Site Location: Ferndale, Washington	Project No. 68HE0722F0074/F0075

Photo No. 1	Date: 6/21/2022
Photo Coordinates	
Lat	
Long	
Direction Photo Taken: North Facing	
Description: Site Entrance	

Photo No. 2	Date: 6/22/2022
Photo Coordinates	
Lat	
Long	
Direction Photo Taken: East Side	
Description: Secondary Containment C Liquid Sample	

PHOTOGRAPH LOG

Project Name: Treoil Industries Biorefinery	Site Location: Ferndale, Washington	Project No. 68HE0722F0074/F0075

Photo No. 3	Date: 06/22/2022

Photo Coordinates	
Lat	48.879367
Long	-122.710655

Direction Photo Taken: East Facing

Description:

Secondary Containment Weatherd AST

Photo No. 4	Date: 06/21/2022

Photo Coordinates	
Lat	48.879451
Long	-122.7102

Direction Photo Taken: Facing East

Description:

Tank 20

PHOTOGRAPH LOG

Project Name: Treoil Industries Biorefinery	Site Location: Ferndale, Washington	Project No. 68HE0722F0074/F0075

Photo No. 5	Date: 06/21/2022
Photo Coordinates	
Lat	
Long	
Direction Photo Taken: South of Tank 1	
Description: Soil Contamination Depth	

Photo No. 6	Date: 06/21/2022
Photo Coordinates	
Lat	
Long	
Direction Photo Taken: East Side Tank 1	
Description: Soil contamination depth	

PHOTOGRAPH LOG

Project Name: Treoil Industries Biorefinery	Site Location: Ferndale, Washington	Project No. 68HE0722F0074/F0075

Photo No. 7	Date: 6/22/2022
Photo Coordinates	
Lat	
Long	
Direction Photo Taken:	
Description: Hazardous Materials found within buildings.	

Photo No. 8	Date: 06/21/2022
Photo Coordinates	
Lat	48.879394
Long	-122.710786
Direction Photo Taken: Facing NorthEast	
Description: Material discharge with standing water	

PHOTOGRAPH LOG

Project Name: Treoil Industries Biorefinery	Site Location: Ferndale, Washington	Project No. 68HE0722F0074/F0075

Photo No. 9	Date: 06/21/2022

Photo Coordinates	
Lat	48.879564
Long	-122.710542

Direction Photo Taken: Facing Southwest

Description:

Material discharge, contaminated soil east side of Tank 1

Photo No. 10	Date: 06/22/2022

Photo Coordinates	
Lat	48.879337
Long	-122.710734

Direction Photo Taken: Facing West

Description:

Material discharge, soil contamination South side of Tanks 1,2,3

PHOTOGRAPH LOG

Project Name: Treoil Industries Biorefinery	Site Location: Ferndale, Washington	Project No. 68HE0722F0074/F0075

Photo No. 11	Date: 06/21/2022
Photo Coordinates	
Lat	48.879495
Long	-122.710423
Direction Photo Taken: Facing South	
Description: Discrete sample area of Secondary Containment, North end	

Photo No. 12	Date: 06/21/2022
Photo Coordinates	
Lat	48.879195
Long	-122.710502
Direction Photo Taken: Facing East	
Description: Secondary Containment West Side of sample area	

PHOTOGRAPH LOG

Project Name: Treoil Industries Biorefinery	Site Location: Ferndale, Washington	Project No. 68HE0722F0074/F0075

Photo No. 13	Date: 06/22/2022

Photo Coordinates	
Lat	48.879396
Long	-122.710695

Direction Photo Taken: Facing North

Description:

Tank 1 weathering

Photo No. 14	Date: 06/21/2022

Photo Coordinates	
Lat	48.879537
Long	-122.710706

Direction Photo Taken: Facing South

Description:

Tank 13

PHOTOGRAPH LOG

Project Name: Treoil Industries Biorefinery	Site Location: Ferndale, Washington	Project No. 68HE0722F0074/F0075

Photo No. 15	Date: 06/22/2022

Photo Coordinates	
Lat	48.879458
Long	-122.710456

Direction Photo Taken: Facing East

Description:

Tank 20 and Secondary Containment

Photo No. 16	Date: 06/22/2022

Photo Coordinates	
Lat	48.879444
Long	-122.71029

Direction Photo Taken: Facing South East

Description:

Overgrowth around Tank 20

PHOTOGRAPH LOG

Project Name: Treoil Industries Biorefinery	Site Location: Ferndale, Washington	Project No. 68HE0722F0074/F0075

Photo No. 17	Date: 06/21/2022
Photo Coordinates	
Lat	48.879513
Long	-122.7107

Direction Photo Taken:
Facing South

Description:

Overgrowth around Tanks 1,2, 3

APPENDIX B
ANALYTICAL RESULTS

Appendix B
Liquid Analytical Results

Analyte	CAS.NO	Units	EPA Hazardous Total	EPA Hazardous TCLP	Location	Secondary Containment	Secondary Containment	Tank 02	Tank 20	Tank 35	Tank 35
					Sample ID	TRE-SC01-LQ-02	TRE-SC01-LQ-01	TRE-TK02-LQ-01	TRE-TK20-LQ-01	TRE-TK35-LQ-01	TRE-TK35-LQ-01D
					Date	6/21/2022	6/21/2022	6/21/2022	6/21/2022	6/22/2022	6/22/2022
					Type	FS	FS	FD	FS	FS	FD
					Media	Product	Product	Product	Product	Product	Product
pH											
pH	--	pH	--	--	--	--	--	--	4	14	14
Metals-SW6010D											
Aluminum	7429-90-5	mg/kg	--	--	--	**2 JQK**	**5.72 JQK**	0.764 U	**25.9**	**510 JK**	**303 JK**
Antimony	7440-36-0	mg/kg	--	--	--	0.482 U	0.476 U	0.442 U	0.491 U	0.491 U	0.476 U
Arsenic	7440-38-2	mg/kg	100	--	--	0.347 U	0.343 U	0.318 U	0.353 U	0.353 U	0.343 U
Barium	7440-39-3	mg/kg	2000	--	--	0.188 U	0.186 U	0.172 U	0.191 U	0.191 U	0.186 U
Beryllium	7440-41-7	mg/kg	--	--	--	0.0289 U	0.0286 U	0.0265 U	0.0294 U	0.0294 U	0.0285 U
Cadmium	7440-43-9	mg/kg	20	--	--	0.0241 U	**0.0309 JQK**	0.0221 U	0.0245 U	0.0245 U	0.0238 U
Calcium	7440-70-2	mg/kg	--	--	--	**53.2**	**74.8**	**11.2**	12.2 UB	4.91 U	4.76 U
Chromium	7440-47-3	mg/kg	100	--	--	0.333 U	**0.359 JQK**	0.305 U	0.339 U	0.338 U	0.328 U
Cobalt	7440-48-4	mg/kg	--	--	--	0.188 U	0.186 U	0.172 U	0.191 U	0.191 U	0.186 U
Copper	7440-50-8	mg/kg	--	--	--	0.284 U	0.281 U	0.261 U	0.289 U	0.289 U	0.281 U
Iron	7439-89-6	mg/kg	--	--	--	31.9 UB	**298**	**77.5**	**796**	**71.1**	31.2 UB
Lead	7439-92-1	mg/kg	100	--	--	0.289 U	**2.74**	0.265 U	**0.348 JQK**	0.294 U	0.285 U
Magnesium	7439-95-4	mg/kg	--	--	--	2.43 UB	3.38 UB	1.77 U	1.96 U	1.96 U	1.9 U
Manganese	7439-96-5	mg/kg	--	--	--	**1.14 JQK**	**1.44**	**0.431 JQK**	**3.61**	**1.78**	**0.804 JQK**
Nickel	7440-02-0	mg/kg	--	--	--	0.212 U	**0.248 JQK**	0.194 U	**0.277 JQK**	0.216 U	0.209 U
Potassium	7440-09-7	mg/kg	--	--	--	**316 JL**	**374 JL**	**12.1**	**9.14 JQK**	**48.2**	**32.4**
Selenium	7782-49-2	mg/kg	20	--	--	0.347 U	0.343 U	0.318 U	0.353 U	0.353 U	0.343 U
Silver	7440-22-4	mg/kg	100	--	--	0.241 U	0.238 U	0.221 U	0.245 U	0.245 U	0.238 U
Sodium	7440-23-5	mg/kg	--	--	--	**159 JH**	**188 JH**	**37.8**	**10.8 JQK**	**138000 JH**	**143000 JH**
Thallium	7440-28-0	mg/kg	--	--	--	0.463 U	0.457 U	0.424 U	0.471 U	0.471 U	0.457 U
Vanadium	7440-62-2	mg/kg	--	--	--	0.164 U	0.162 U	0.15 U	0.167 U	0.167 U	0.162 U
Zinc	7440-66-6	mg/kg	--	--	--	**4.84**	**12.7**	0.95 U	**1.49 JQK**	**3.66 JQK**	**3.55 JQK**
Metals-SW7471B											
Mercury	7439-97-6	mg/kg	4	--	--	0.028 U	0.029 U	0.026 U	0.028 U	0.028 UJK	0.029 UJK
VOCs-SW8260B/D											
1,1,1-Trichloroethane	71-55-6	mg/kg	--	--	--	6.13 U	6.13 U	6.13 U	6.13 U	6.13 UJK	6.13 UJK
1,1,2,2-Tetrachloroethane	79-34-5	mg/kg	--	--	--	5.4 U	5.4 U	5.4 U	5.4 U	5.4 UJK	5.4 UJK
1,1,2-Trichloroethane	79-00-5	mg/kg	--	--	--	3.2 U	3.2 U	3.2 U	3.2 U	3.2 UJK	3.2 UJK
1,1-Dichloroethane	75-34-3	mg/kg	--	--	--	3.53 U	3.53 U	3.53 U	3.53 U	3.53 UJK	3.53 UJK
1,1-Dichloroethene	75-35-4	mg/kg	14	--	--	7.4 U	7.4 U	7.4 U	7.4 U	7.4 UJK	7.4 UJK
1,2-Dibromo-3-chloropropane	96-12-8	mg/kg	--	--	--	13.7 U	13.7 U	13.7 U	13.7 U	13.7 UJK	13.7 UJK
1,2-Dibromoethane	106-93-4	mg/kg	--	--	--	4.22 U	4.22 U	4.22 U	4.22 U	4.22 UJK	4.22 UJK
1,2-Dichloroethane	107-06-2	mg/kg	10	--	--	3.69 U	3.69 U	3.69 U	3.69 U	3.69 UJK	3.69 UJK
1,2-Dichloropropane	78-87-5	mg/kg	--	--	--	3.59 U	3.59 U	3.59 U	3.59 U	3.59 UJK	3.59 UJK
1,3-Dichloropropene, Total	542-75-6	mg/kg	--	--	--	6.07 U	6.07 U	6.07 U	6.07 U	6.07 UJK	6.07 UJK
1-Butanol	71-36-3	mg/kg	--	--	--	391 U	391 U	391 U	391 U	391 UJK	391 UJK
2-Butanone	78-93-3	mg/kg	4000	--	--	20.2 U	20.2 U	20.2 U	20.2 U	20.2 UJK	20.2 UJK
2-Hexanone	591-78-6	mg/kg	--	--	--	8.78 U	8.78 U	8.78 U	8.78 U	8.78 UJK	8.78 UJK
4-Methyl-2-pentanone	108-10-1	mg/kg	--	--	--	9.59 U	9.59 U	9.59 U	9.59 U	9.59 UJK	9.59 UJK
Acetone	67-64-1	mg/kg	--	--	--	35.8 U	35.8 U	35.8 U	35.8 U	35.8 UJK	35.8 UJK
Acrolein	107-02-8	mg/kg	--	--	--	67.5 U	67.5 U	67.5 U	67.5 U	67.5 UJK	67.5 UJK
Acrylonitrile	107-13-1	mg/kg	--	--	--	5.57 U	5.57 U	5.57 U	5.57 U	5.57 UJK	5.57 UJK
Benzene	71-43-2	mg/kg	10	--	--	2.75 U	2.75 U	2.75 U	2.75 U	2.75 UJK	2.75 UJK
Bromodichloromethane	75-27-4	mg/kg	--	--	--	9.01 U	9.01 U	9.01 U	9.01 U	9.01 UJK	9.01 UJK
Bromoform	75-25-2	mg/kg	--	--	--	12 U	12 U	12 U	12 U	12 UJK	12 UJK
Bromomethane	74-83-9	mg/kg	--	--	--	54.5 U	54.5 U	54.5 U	54.5 U	54.5 UJK	54.5 UJK
Carbon disulfide	75-15-0	mg/kg	--	--	--	5.84 U	5.84 U	5.84 U	5.84 U	5.84 UJK	5.84 UJK
Carbon tetrachloride	56-23-5	mg/kg	10	--	--	3.06 U	3.06 U	3.06 U	3.06 U	3.06 UJK	3.06 UJK

Appendix B
Liquid Analytical Results

Analyte	CAS.NO	Units	EPA Hazardous Total	EPA Hazardous TCLP	Location	Secondary Containment	Secondary Containment	Tank 02	Tank 20	Tank 35	Tank 35
					Sample ID	TRE-SC01-LQ-02	TRE-SC01-LQ-01	TRE-TK02-LQ-01	TRE-TK20-LQ-01	TRE-TK35-LQ-01	TRE-TK35-LQ-01D
					Date	6/21/2022	6/21/2022	6/21/2022	6/21/2022	6/22/2022	6/22/2022
					Type	FS	FS	FD	FS	FS	FD
					Media	Product	Product	Product	Product	Product	Product
Chlorobenzene	108-90-7	mg/kg	2000	--	--	10.6 U	10.6 U	10.6 U	10.6 U	10.6 UJK	10.6 UJK
Chloroethane	75-00-3	mg/kg	--	--	--	27.1 U	27.1 U	27.1 U	27.1 U	27.1 UJK	27.1 UJK
Chloroform	67-66-3	mg/kg	120	--	--	4.91 U	4.91 U	4.91 U	4.91 U	4.91 UJK	4.91 UJK
Chloromethane	74-87-3	mg/kg	--	--	--	6.39 U	6.39 U	6.39 U	6.39 U	6.39 UJK	6.39 UJK
cis-1,2-Dichloroethene	156-59-2	mg/kg	--	--	--	4.79 U	4.79 U	4.79 U	4.79 U	4.79 UJK	4.79 UJK
cis-1,3-Dichloropropene	10061-01-5	mg/kg	--	--	--	3.1 U	3.1 U	3.1 U	3.1 U	3.1 UJK	3.1 UJK
Dibromochloromethane	124-48-1	mg/kg	--	--	--	3.38 U	3.38 U	3.38 U	3.38 U	3.38 UJK	3.38 UJK
Ethylbenzene	100-41-4	mg/kg	--	--	--	11.2 U	11.2 U	11.2 U	11.2 U	11.2 UJK	11.2 UJK
m,p-Xylene	179601-23-1	mg/kg	--	--	--	5.45 U	5.45 U	5.45 U	5.45 U	5.45 UJK	5.45 UJK
Methyl tert-butyl ether	1634-04-4	mg/kg	--	--	--	2.56 U	2.56 U	2.56 U	2.56 U	2.56 UJK	2.56 UJK
Methylene chloride	75-09-2	mg/kg	--	--	--	**13 JQK**	**16.6 JQK**	**14.7 JQK**	**9.1 JQK**	**4.56 JQK**	4.07 UJK
o-Xylene	95-47-6	mg/kg	--	--	--	3.14 U	3.14 U	3.14 U	3.14 U	3.14 UJK	3.14 UJK
Styrene	100-42-5	mg/kg	--	--	--	2.99 U	2.99 U	2.99 U	2.99 U	2.99 UJK	2.99 UJK
Tetrachloroethene	127-18-4	mg/kg	14	--	--	4.35 U	4.35 U	4.35 U	4.35 U	4.35 UJK	4.35 UJK
Toluene	108-88-3	mg/kg	--	--	--	3.56 U	3.56 U	3.56 U	3.56 U	3.56 UJK	3.56 UJK
trans-1,2-Dichloroethene	156-60-5	mg/kg	--	--	--	3.38 U	3.38 U	3.38 U	3.38 U	3.38 UJK	3.38 UJK
trans-1,3-Dichloropropene	10061-02-6	mg/kg	--	--	--	2.97 U	2.97 U	2.97 U	2.97 U	2.97 UJK	2.97 UJK
Trichloroethene	79-01-6	mg/kg	10	--	--	3.84 U	3.84 U	3.84 U	3.84 U	3.84 UJK	3.84 UJK
Vinyl acetate	108-05-4	mg/kg	--	--	--	15.5 U	15.5 U	15.5 U	15.5 U	15.5 UJK	15.5 UJK
Vinyl chloride	75-01-4	mg/kg	4	--	--	5.65 U	5.65 U	5.65 U	5.65 U	5.65 UJK	5.65 UJK
Xylenes, Total	1330-20-7	mg/kg	--	--	--	8.59 U	8.59 U	8.59 U	8.59 U	8.59 UJK	8.59 UJK
SVOCs-SW8270D											
1,2,4-Trichlorobenzene	120-82-1	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
1,2-Dichlorobenzene	95-50-1	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
1,3-Dichlorobenzene	541-73-1	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
1,4-Dichlorobenzene	106-46-7	mg/kg	150	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
2,4,5-Trichlorophenol	95-95-4	mg/kg	8000	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
2,4,6-Trichlorophenol	88-06-2	mg/kg	40	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
2,4-Dichlorophenol	120-83-2	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
2,4-Dimethylphenol	105-67-9	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
2,4-Dinitrophenol	51-28-5	mg/kg	--	--	--	738 U	778 U	623 U	872 U	722 UJK	565 UJK
2,4-Dinitrotoluene	121-14-2	mg/kg	2.6	--	--	73.8 U	77.8 U	62.3 U	87.2 U	72.2 UJK	56.5 UJK
2,6-Dinitrotoluene	606-20-2	mg/kg	--	--	--	44.3 U	46.7 U	37.4 U	52.3 U	43.3 UJK	33.9 UJK
2-Chloronaphthalene	91-58-7	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
2-Chlorophenol	95-57-8	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
2-Methylnaphthalene	91-57-6	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
2-Methylphenol	95-48-7	mg/kg	4000	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
2-Nitroaniline	88-74-4	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
2-Nitrophenol	88-75-5	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
3 & 4-Methylphenol	84989-04-8	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	**117**	21.7 UJK	16.9 UJK
3,3'-Dichlorobenzidine	91-94-1	mg/kg	--	--	--	44.3 U	46.7 U	37.4 U	52.3 U	43.3 UJK	33.9 UJK
3-Nitroaniline	99-09-2	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
4,6-Dinitro-2-methylphenol	534-52-1	mg/kg	--	--	--	738 U	778 U	623 U	872 U	722 UJK	565 UJK
4-Bromophenyl-phenylether	101-55-3	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
4-Chloro-3-methylphenol	59-50-7	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
4-Chloroaniline	106-47-8	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
4-Chlorophenyl-phenylether	7005-72-3	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
4-Nitroaniline	100-01-6	mg/kg	--	--	--	44.3 U	46.7 U	37.4 U	52.3 U	43.3 UJK	33.9 UJK
4-Nitrophenol	100-02-7	mg/kg	--	--	--	44.3 U	46.7 U	37.4 U	52.3 U	43.3 UJK	33.9 UJK
Acenaphthene	83-32-9	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Acenaphthylene	208-96-8	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK

Appendix B
Liquid Analytical Results

Analyte	CAS.NO	Units	EPA Hazardous Total	EPA Hazardous TCLP	Location	Secondary Containment	Secondary Containment	Tank 02	Tank 20	Tank 35	Tank 35
					Sample ID	TRE-SC01-LQ-02	TRE-SC01-LQ-01	TRE-TK02-LQ-01	TRE-TK20-LQ-01	TRE-TK35-LQ-01	TRE-TK35-LQ-01D
					Date	6/21/2022	6/21/2022	6/21/2022	6/21/2022	6/22/2022	6/22/2022
					Type	FS	FS	FD	FS	FS	FD
					Media	Product	Product	Product	Product	Product	Product
Aniline	62-53-3	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Anthracene	120-12-7	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Azobenzene as 1,2-Diphenylhydrazine	103-33-3	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Benzidine	92-87-5	mg/kg	--	--	--	44.3 U	46.7 U	37.4 U	52.3 U	43.3 UJK	33.9 UJK
Benzo(a)anthracene	56-55-3	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Benzo(a)pyrene	50-32-8	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Benzo(b)fluoranthene	205-99-2	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Benzo(g,h,i)perylene	191-24-2	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Benzo(k)fluoranthene	207-08-9	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Benzoic acid	65-85-0	mg/kg	--	--	--	738 U	778 U	623 U	872 U	722 UJK	565 UJK
Benzyl alcohol	100-51-6	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Bis(2-chloroethoxy)methane	111-91-1	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Bis(2-chloroethyl)ether	111-44-4	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Bis(2-chloroisopropyl)ether	108-60-1	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Bis(2-ethylhexyl)phthalate	117-81-7	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Butyl benzyl phthalate	85-68-7	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Carbazole	86-74-8	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Chrysene	218-01-9	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Dibenzo(a,h)anthracene	53-70-3	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Diethyl phthalate	84-66-2	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Dimethyl phthalate	131-11-3	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Di-n-butyl phthalate	84-74-2	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Di-n-octyl phthalate	117-84-0	mg/kg	--	--	--	73.8 U	77.8 U	62.3 U	87.2 U	72.2 UJK	56.5 UJK
Fluoranthene	206-44-0	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Fluorene	86-73-7	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Hexachlorobenzene	118-74-1	mg/kg	2.6	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Hexachlorobutadiene	87-68-3	mg/kg	10	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Hexachlorocyclopentadiene	77-47-4	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Hexachloroethane	67-72-1	mg/kg	60	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	--	--	--	66.4 U	70 U	56.1 U	78.5 U	65 UJK	50.8 UJK
Isophorone	78-59-1	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Naphthalene	91-20-3	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Nitrobenzene	98-95-3	mg/kg	40	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
N-Nitrosodi-n-propylamine	621-64-7	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
N-Nitrosodiphenylamine	86-30-6	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Pentachlorophenol	87-86-5	mg/kg	2000	--	--	73.8 U	77.8 U	62.3 U	87.2 U	72.2 UJK	56.5 UJK
Phenanthrene	85-01-8	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Phenol	108-95-2	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	**187**	21.7 UJK	16.9 UJK
Pyrene	129-00-0	mg/kg	--	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
Pyridine	110-86-1	mg/kg	100	--	--	22.1 U	23.3 U	18.7 U	26.2 U	21.7 UJK	16.9 UJK
TCLP-SW1311 / VOCs-SW8260B											
1,1-Dichloroethene	75-35-4	mg/L	--	0.7	--	0.0217 UJK	0.0217 UJK	0.0217 UJK	0.0867 UJK	0.0867 UR	0.0867 UR
1,2-Dichloroethane	107-06-2	mg/L	--	0.5	--	0.0205 UJK	0.0205 UJK	0.0205 UJK	0.0822 UJK	0.0822 UR	0.0822 UR
1,4-Dichlorobenzene	106-46-7	mg/L	--	7.5	--	0.0915 UJK	0.0915 UJK	0.0915 UJK	0.366 UJK	0.366 UR	0.366 UR
2-Butanone	78-93-3	mg/L	--	200	--	0.34 UJK	0.34 UJK	0.34 UJK	**3.64 JQK**	1.36 UR	1.36 UR
Benzene	71-43-2	mg/L	--	0.5	--	0.0144 UJK	0.0144 UJK	0.0144 UJK	0.0576 UJK	0.0576 UR	0.0576 UR
Carbon tetrachloride	56-23-5	mg/L	--	0.5	--	0.14 UJK	0.14 UJK	0.14 UJK	0.558 UJK	0.558 UR	0.558 UR
Chlorobenzene	108-90-7	mg/L	--	100	--	0.026 UJK	0.026 UJK	0.026 UJK	0.104 UJK	0.104 UR	0.104 UR
Chloroform	67-66-3	mg/L	--	6	--	0.0366 UJK	0.0366 UJK	0.0366 UJK	0.146 UJK	0.146 UR	0.146 UR
Tetrachloroethene	127-18-4	mg/L	--	0.7	--	0.0292 UJK	0.0292 UJK	0.0292 UJK	0.117 UJK	0.117 UR	0.117 UR
Trichloroethene	79-01-6	mg/L	--	0.5	--	0.0243 UJK	0.0243 UJK	0.0243 UJK	0.097 UJK	0.097 UR	0.097 UR

Appendix B
Liquid Analytical Results

Analyte	CAS.NO	Units	EPA Hazardous Total	EPA Hazardous TCLP	Location	Secondary Containment	Secondary Containment	Tank 02	Tank 20	Tank 35	Tank 35
					Sample ID	TRE-SC01-LQ-02	TRE-SC01-LQ-01	TRE-TK02-LQ-01	TRE-TK20-LQ-01	TRE-TK35-LQ-01	TRE-TK35-LQ-01D
					Date	6/21/2022	6/21/2022	6/21/2022	6/21/2022	6/22/2022	6/22/2022
					Type	FS	FS	FD	FS	FS	FD
					Media	Product	Product	Product	Product	Product	Product
Vinyl chloride	75-01-4	mg/L	--	0.2	--	0.0357 UJK	0.0357 UJK	0.0357 UJK	0.143 UJK	0.143 UR	0.143 UR
TCLP-SW1311 / SVOCs-SW8270D											
1,4-Dichlorobenzene	106-46-7	mg/L	--	7.5	--	0.013 UJK	0.0051 UJK	0.0052 UJK	0.257 UJK	0.0259 UJK	0.052 UJK
2,4,5-Trichlorophenol	95-95-4	mg/L	--	400	--	0.006 UJK	0.0024 UJK	0.0024 UJK	0.119 UJK	0.012 UJK	0.0241 UJK
2,4,6-Trichlorophenol	88-06-2	mg/L	--	2	--	0.0113 UJK	0.0045 UJK	0.0046 UJK	0.224 UJK	0.0226 UJK	0.0453 UJK
2,4-Dinitrotoluene	121-14-2	mg/L	--	0.13	--	0.0117 UJK	0.0046 UJK	0.0047 UJK	0.232 UJK	0.0234 UJK	0.0468 UJK
2-Methylphenol	95-48-7	mg/L	--	200	--	0.0085 UJK	0.0034 UJK	0.1 UBJK	**33.3 JK**	0.017 UJK	0.034 UJK
3 & 4-Methylphenol	84989-04-8	mg/L	--	--	--	0.0083 UJK	0.217 UBJK	0.337 UBJK	**97.8 JK**	0.0166 UJK	0.0333 UJK
Cresols, Total	1319-77-3	mg/L	--	200	--	0.0422 UJK	0.217 UBJK	0.437 UBJK	**131 JK**	0.0844 UJK	0.169 UJK
Hexachlorobenzene	118-74-1	mg/L	--	0.13	--	0.0076 UJK	0.003 UJK	0.0031 UJK	0.152 UJK	0.0153 UJK	0.0307 UJK
Hexachlorobutadiene	87-68-3	mg/L	--	0.5	--	0.0116 UJK	0.0046 UJK	0.0047 UJK	0.23 UJK	0.0232 UJK	0.0465 UJK
Hexachloroethane	67-72-1	mg/L	--	3	--	0.0102 UJK	0.004 UJK	0.0041 UJK	0.202 UJK	0.0204 UJK	0.0409 UJK
Nitrobenzene	98-95-3	mg/L	--	2	--	0.0065 UJK	0.0026 UJK	0.0026 UJK	0.128 UJK	0.0129 UJK	0.0259 UJK
Pentachlorophenol	87-86-5	mg/L	--	100	--	0.117 UJK	0.0463 UJK	0.0472 UJK	2.32 UJK	0.234 UJK	0.469 UJK
Pyridine	110-86-1	mg/L	--	5	--	0.0843 UJK	0.0334 UJK	0.0341 UJK	1.67 UJK	0.169 UJK	0.338 UJK
TCLP-1311 / Metals-SW6010 D											
Selenium	7782-49-2	mg/L	--	1	--	1 UJK	1 UJK	--	--	--	--
NWTPH											
C12 - C25 DRO	THPC12C25DRO	mg/L	--	--	--	--	--	**38 JK**	--	**150 JK**	**23 JK**
C25 - C36 RRO	THPC25C36RRO	mg/L	--	--	--	--	--	**40 JK**	--	**27 JK**	**8.1 JK**
FOG HEM-SW9071B											
Oil and Grease (HEM)	OG_HEM	mg/kg	--	--	--	**506000 JK**	--	--	--	--	--
BTUs-WC-SW5050											
Heat Content in BTU	HCinBTU	BTU/Pound	--	--	--	--	--	550 U	550 U	550 U	550 U
TOX-WC-SW846 9020B											
Halogen, Total Organic (TOX)	TOX	mg/L	--	--	--	**0.0177 JQK**	**0.0105 JQK**	**0.0104 JQK**	0.0073 UJK	--	--
Halogen, Total Organic (TOX)	TOX	mg/kg	--	--	--	--	--	--	--	0.88 UJK	0.88 UJK

Notes
H - High Bias
J - The reported result is an estimated value
L - Low Bias
K - Unknown Bias
Q - The reported concentration is less than the sample quantitation for the specific analyte in the sample
R - Unusable for all purposes
UB - Not detected because of blank contamination
U - Analyte included in the analysis, but not de
FS - Field Sample
FD - Field Duplicate
mg/kg - Milligrams per Kilogram
mg/L - milligrams per liter
"--" - Not analyzed or not available
BTU - British Thermal Units
°F - Degrees Fahrenheit
Bold - Result exceeds laboratory reporting limits
Inverse - Laboratory detection limit is greater than screening criteria

Appendix B
Solid Analytical Results

Analyte	CAS.NO	Units	EPA Hazardous Total	EPA Hazardous TCLP	Location	TK 11 & 12	TK 13, 14, & 15	TK 13, 14, & 15	SS01	SS01	TK01	TK20	TK20	TK37	TK38	TK38
					Sample ID	TRE-CT01-SL-01	TRE-CT02-SL-01	TRE-CT02-SL-01-1	TRE-SS01-SD-01	TRE-SS01-SD-01D	TRE-TK01-SL-02	TRE-TK20-SL-02	TRE-TK20-TD-01	TRE-TK37-SL-01	TRE-TK38-SL-01	TRE-TK38-SL-01D
					Date	6/21/2022	6/21/2022	6/21/2022	6/22/2022	6/22/2022	6/21/2022	6/21/2022	6/21/2022	6/22/2022	6/22/2022	6/22/2022
					Type	FS	FS	FS	FS	FD	FS	FS	FS	FS	FS	FD
					Media	Product	Product	Product	Surface Soil	Surface Soil	Product	Product	Product	Product	Product	Product
pH		pH														
pH	--	pH	--	--	--	5	4	4	--	--	--	4	--	5	5	5
Metals-SW6010D																
Aluminum	7429-90-5	mg/kg	--	--	--	**1 JQK**	0.856 U	--	**6260**	**8070**	**10.7**	**206**	**3760**	**228**	**0.854 JQK**	**1.13 JQK**
Antimony	7440-36-0	mg/kg	--	--	--	0.484 U	0.495 U	--	**0.975 JQK**	**0.891 JQK**	0.493 U	0.457 U	**1.02 JQK**	0.496 U	0.484 U	**0.629 JQK**
Arsenic	7440-38-2	mg/kg	100	--	--	0.348 U	0.356 U	--	**0.91 JQK**	**1.21 JQK**	0.355 U	**0.729 JQK**	**41.9**	0.357 U	0.348 U	0.351 U
Barium	7440-39-3	mg/kg	2000	--	--	0.189 U	0.193 U	--	**40.7**	**37.1**	**0.511 JQK**	**0.199 JQK**	**161**	0.193 U	0.189 U	0.19 U
Beryllium	7440-41-7	mg/kg	--	--	--	0.029 U	0.0297 U	--	0.028 U	0.0298 U	0.0296 U	0.0274 U	**0.194**	0.0297 U	0.029 U	0.0293 U
Cadmium	7440-43-9	mg/kg	20	--	--	**0.058 JQK**	0.0248 U	--	**0.145**	**0.32**	0.0247 U	0.0229 U	**0.0575 JQK**	0.0248 U	0.0242 U	0.0244 U
Calcium	7440-70-2	mg/kg	--	--	--	**14**	4.95 U	--	**3540**	**3430**	**51.2**	**11.6**	**1260**	8.75 UB	4.84 U	4.88 U
Chromium	7440-47-3	mg/kg	100	--	--	**1.63**	**1.05 JQK**	--	**27**	**29.5**	**17.8**	**9.1**	**8.1**	**9.99**	**5.07**	**7.11**
Cobalt	7440-48-4	mg/kg	--	--	--	0.189 U	0.193 U	--	**5.43**	**6.32**	0.192 U	**0.197 JQK**	**8.94**	0.193 U	0.189 U	0.19 U
Copper	7440-50-8	mg/kg	--	--	--	**0.421 JQK**	0.292 U	--	**20.3**	**22.2**	**6.5**	**19.9**	**6.45**	**1.81**	**3.14**	**4.66**
Iron	7439-89-6	mg/kg	--	--	--	**362**	**208**	--	**19600**	**21100**	**932**	**1270**	**4610**	**1030**	**395**	**544**
Lead	7439-92-1	mg/kg	100	--	--	0.29 U	0.297 U	--	**38.5**	**51.8**	**1.15 JQK**	**3.31**	**6.44**	**2.8**	0.29 U	0.293 U
Magnesium	7439-95-4	mg/kg	--	--	--	1.93 U	1.98 U	--	**4190**	**4160**	**6.44**	3.37 UB	**513**	**11.3**	1.94 U	1.95 U
Manganese	7439-96-5	mg/kg	--	--	--	**2.25**	**0.794 JQK**	--	**217**	**262**	**2.95**	**4.07**	**531**	**7.44**	0.203 U	0.205 U
Nickel	7440-02-0	mg/kg	--	--	--	**1.17 JQK**	0.218 U	--	**25.6**	**24.4**	**2.36**	**2.78**	**3.91**	**1.59**	0.213 U	0.215 U
Potassium	7440-09-7	mg/kg	--	--	--	5.44 U	**8.42 JQK**	--	**2640 JL**	**2260 JL**	**13200 JL**	**6.51 JQK**	**917 JL**	**7.57 JQK**	**22**	**37.1**
Selenium	7782-49-2	mg/kg	20	--	--	0.348 U	0.356 U	--	0.336 U	0.357 U	0.355 U	**0.373 JQK**	0.345 U	0.357 U	0.348 U	0.351 U
Silver	7440-22-4	mg/kg	100	--	--	0.646 UB	0.248 U	--	0.784 UB	0.836 UB	0.247 U	0.229 U	2.4 U	0.248 U	0.242 U	2.44 U
Sodium	7440-23-5	mg/kg	--	--	--	**10.9 JQK**	5.94 U	--	**379 JH**	**242 JH**	**4690 JH**	**5.61 JQK**	**628 JH**	**56**	**12.8**	**13.2**
Thallium	7440-28-0	mg/kg	--	--	--	0.464 U	0.475 U	--	0.448 U	0.476 U	0.474 U	0.439 U	0.46 U	0.476 U	0.464 U	0.468 U
Vanadium	7440-62-2	mg/kg	--	--	--	0.164 U	0.168 U	--	**27.8**	**29**	0.168 U	**0.334 JQK**	**14.4**	0.169 U	0.164 U	0.166 U
Zinc	7440-66-6	mg/kg	--	--	--	1.04 U	1.06 U	--	**93.7**	**96.3**	**3.66 JQK**	**3.22 JQK**	**25.8**	**2.87 JQK**	1.04 U	1.05 U
Metals-SW7471B																
Mercury	7439-97-6	mg/kg	4	--	--	0.029 UJK	0.028 UJK	--	0.028 U	0.03 U	0.027 U	0.028 U	0.03 U	0.028 U	0.029 U	0.028 U
VOCs-SW8260B/D																
1,1,1-Trichloroethane	71-55-6	mg/kg	--	--	--	6.13 U	6.13 U	--	--	--	6.13 U	6.13 U	--	6.13 U	6.13 U	6.13 U
1,1,2,2-Tetrachloroethane	79-34-5	mg/kg	--	--	--	5.4 U	5.4 U	--	--	--	5.4 U	5.4 U	--	5.4 U	5.4 U	5.4 U
1,1,2-Trichloroethane	79-00-5	mg/kg	--	--	--	3.2 U	3.2 U	--	--	--	3.2 U	3.2 U	--	3.2 U	3.2 U	3.2 U
1,1-Dichloroethane	75-34-3	mg/kg	--	--	--	3.53 U	3.53 U	--	--	--	3.53 U	3.53 U	--	3.53 U	3.53 U	3.53 U
1,1-Dichloroethene	75-35-4	mg/kg	14	--	--	7.4 U	7.4 U	--	--	--	7.4 U	7.4 U	--	7.4 U	7.4 U	7.4 U
1,2-Dibromo-3-chloropropane	96-12-8	mg/kg	--	--	--	13.7 U	13.7 U	--	--	--	13.7 U	13.7 U	--	13.7 U	13.7 U	13.7 U
1,2-Dibromoethane	106-93-4	mg/kg	--	--	--	4.22 U	4.22 U	--	--	--	4.22 U	4.22 U	--	4.22 U	4.22 U	4.22 U
1,2-Dichloroethane	107-06-2	mg/kg	10	--	--	3.69 U	3.69 U	--	--	--	3.69 U	3.69 U	--	3.69 U	3.69 U	3.69 U
1,2-Dichloropropane	78-87-5	mg/kg	--	--	--	3.59 U	3.59 U	--	--	--	3.59 U	3.59 U	--	3.59 U	3.59 U	3.59 U
1,3-Dichloropropene, Total	542-75-6	mg/kg	--	--	--	6.07 U	6.07 U	--	--	--	6.07 U	6.07 U	--	6.07 U	6.07 U	6.07 U
1-Butanol	71-36-3	mg/kg	--	--	--	391 U	391 U	--	--	--	391 U	391 U	--	391 U	391 U	391 U
2-Butanone	78-93-3	mg/kg	4000	--	--	20.2 U	20.2 U	--	--	--	20.2 U	20.2 U	--	20.2 U	20.2 U	20.2 U
2-Hexanone	591-78-6	mg/kg	--	--	--	8.78 U	8.78 U	--	--	--	8.78 U	8.78 U	--	8.78 U	8.78 U	8.78 U
4-Methyl-2-pentanone	108-10-1	mg/kg	--	--	--	9.59 U	9.59 U	--	--	--	9.59 U	9.59 U	--	9.59 U	9.59 U	9.59 U
Acetone	67-64-1	mg/kg	--	--	--	35.8 U	35.8 U	--	--	--	35.8 U	35.8 U	--	35.8 U	35.8 U	35.8 U
Acrolein	107-02-8	mg/kg	--	--	--	67.5 U	67.5 U	--	--	--	67.5 U	67.5 U	--	67.5 U	67.5 U	67.5 U
Acrylonitrile	107-13-1	mg/kg	--	--	--	5.57 U	5.57 U	--	--	--	5.57 U	5.57 U	--	5.57 U	5.57 U	5.57 U
Benzene	71-43-2	mg/kg	10	--	--	2.75 U	2.75 U	--	--	--	2.75 U	2.75 U	--	2.75 U	2.75 U	2.75 U
Bromodichloromethane	75-27-4	mg/kg	--	--	--	9.01 U	9.01 U	--	--	--	9.01 U	9.01 U	--	9.01 U	9.01 U	9.01 U
Bromoform	75-25-2	mg/kg	--	--	--	12 U	12 U	--	--	--	12 U	12 U	--	12 U	12 U	12 U
Bromomethane	74-83-9	mg/kg	--	--	--	54.5 U	54.5 U	--	--	--	54.5 U	54.5 U	--	54.5 U	54.5 U	54.5 U
Carbon disulfide	75-15-0	mg/kg	--	--	--	5.84 U	5.84 U	--	--	--	5.84 U	5.84 U	--	5.84 U	5.84 U	5.84 U
Carbon tetrachloride	56-23-5	mg/kg	10	--	--	3.06 U	3.06 U	--	--	--	3.06 U	3.06 U	--	3.06 U	3.06 U	3.06 U
Chlorobenzene	108-90-7	mg/kg	2000	--	--	10.6 U	10.6 U	--	--	--	10.6 U	10.6 U	--	10.6 U	10.6 U	10.6 U
Chloroethane	75-00-3	mg/kg	--	--	--	27.1 U	27.1 U	--	--	--	27.1 U	27.1 U	--	27.1 U	27.1 U	27.1 U
Chloroform	67-66-3	mg/kg	120	--	--	4.91 U	4.91 U	--	--	--	4.91 U	4.91 U	--	4.91 U	4.91 U	4.91 U
Chloromethane	74-87-3	mg/kg	--	--	--	6.39 U	6.39 U	--	--	--	6.39 U	6.39 U	--	6.39 U	6.39 U	6.39 U
cis-1,2-Dichloroethene	156-59-2	mg/kg	--	--	--	4.79 U	4.79 U	--	--	--	4.79 U	4.79 U	--	4.79 U	4.79 U	4.79 U
cis-1,3-Dichloropropene	10061-01-5	mg/kg	--	--	--	3.1 U	3.1 U	--	--	--	3.1 U	3.1 U	--	3.1 U	3.1 U	3.1 U
Dibromochloromethane	124-48-1	mg/kg	--	--	--	3.38 U	3.38 U	--	--	--	3.38 U	3.38 U	--	3.38 U	3.38 U	3.38 U
Ethylbenzene	100-41-4	mg/kg	--	--	--	11.2 U	11.2 U	--	--	--	11.2 U	11.2 U	--	11.2 U	11.2 U	11.2 U
m,p-Xylene	179601-23-1	mg/kg	--	--	--	5.45 U	5.45 U	--	--	--	**13.4 JQK**	**10.7 JQK**	--	5.45 U	5.45 U	5.45 U
Methyl tert-butyl ether	1634-04-4	mg/kg	--	--	--	2.56 U	2.56 U	--	--	--	2.56 U	2.56 U	--	2.56 U	2.56 U	2.56 U
Methylene chloride	75-09-2	mg/kg	--	--	--	**16.4 JQK**	4.07 U	--	--	--	**12.7 JQK**	**14.9 JQK**	--	**6.88 JQK**	**9.2 JQK**	**10.1 JQK**
o-Xylene	95-47-6	mg/kg	--	--	--	3.14 U	3.14 U	--	--	--	**6.5 JQK**	**6.1 JQK**	--	3.14 U	3.14 U	3.14 U
Styrene	100-42-5	mg/kg	--	--	--	2.99 U	2.99 U	--	--	--	2.99 U	2.99 U	--	2.99 U	2.99 U	2.99 U

Appendix B
Solid Analytical Results

Analyte	CAS.NO	Units	EPA Hazardous Total	EPA Hazardous TCLP	Location	TK 11 & 12	TK 13, 14, & 15	TK 13, 14, & 15	SS01	SS01	TK01	TK20	TK20	TK37	TK38	TK38
					Sample ID	TRE-CT01-SL-01	TRE-CT02-SL-01	TRE-CT02-SL-01-1	TRE-SS01-SD-01	TRE-SS01-SD-01D	TRE-TK01-SL-02	TRE-TK20-SL-02	TRE-TK20-TD-01	TRE-TK37-SL-01	TRE-TK38-SL-01	TRE-TK38-SL-01D
					Date	6/21/2022	6/21/2022	6/21/2022	6/22/2022	6/22/2022	6/21/2022	6/21/2022	6/21/2022	6/22/2022	6/22/2022	6/22/2022
					Type	FS	FS	FS	FS	FD	FS	FS	FS	FS	FS	FD
					Media	Product	Product	Product	Surface Soil	Surface Soil	Product	Product	Product	Product	Product	Product
Tetrachloroethene	127-18-4	mg/kg	14	--	--	4.35 U	4.35 U	--	--	--	4.35 U	4.35 U	--	4.35 U	4.35 U	4.35 U
Toluene	108-88-3	mg/kg	--	--	--	3.56 U	3.56 U	--	--	--	**5.1 JQK**	**4.2 JQK**	--	3.56 U	3.56 U	3.56 U
trans-1,2-Dichloroethene	156-60-5	mg/kg	--	--	--	3.38 U	3.38 U	--	--	--	3.38 U	3.38 U	--	3.38 U	3.38 U	3.38 U
trans-1,3-Dichloropropene	10061-02-6	mg/kg	--	--	--	2.97 U	2.97 U	--	--	--	2.97 U	2.97 U	--	2.97 U	2.97 U	2.97 U
Trichloroethene	79-01-6	mg/kg	10	--	--	3.84 U	3.84 U	--	--	--	3.84 U	3.84 U	--	3.84 U	3.84 U	3.84 U
Vinyl acetate	108-05-4	mg/kg	--	--	--	15.5 U	15.5 U	--	--	--	15.5 U	15.5 U	--	15.5 U	15.5 U	15.5 U
Vinyl chloride	75-01-4	mg/kg	4	--	--	5.65 U	5.65 U	--	--	--	5.65 U	5.65 U	--	5.65 U	5.65 U	5.65 U
Xylenes, Total	1330-20-7	mg/kg	--	--	--	8.59 U	8.59 U	--	--	--	**19.9 JQK**	**16.8 JQK**	--	8.59 U	8.59 U	8.59 U
SVOCs-SW8270D																
1,2,4-Trichlorobenzene	120-82-1	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
1,2-Dichlorobenzene	95-50-1	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
1,3-Dichlorobenzene	541-73-1	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
1,4-Dichlorobenzene	106-46-7	mg/kg	150	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
2,4,5-Trichlorophenol	95-95-4	mg/kg	8000	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
2,4,6-Trichlorophenol	88-06-2	mg/kg	40	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
2,4-Dichlorophenol	120-83-2	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
2,4-Dimethylphenol	105-67-9	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	**863**	107 U	106 U
2,4-Dinitrophenol	51-28-5	mg/kg	--	--	--	3090 UJK	1230 U	--	--	--	4000 U	3470 U	--	3040 U	3550 UR	3550 U
2,4-Dinitrotoluene	121-14-2	mg/kg	2.6	--	--	309 UJK	123 U	--	--	--	400 U	347 U	--	304 U	355 U	355 U
2,6-Dinitrotoluene	606-20-2	mg/kg	--	--	--	185 UJK	73.7 U	--	--	--	240 U	208 U	--	182 U	213 U	213 U
2-Chloronaphthalene	91-58-7	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
2-Chlorophenol	95-57-8	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
2-Methylnaphthalene	91-57-6	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
2-Methylphenol	95-48-7	mg/kg	4000	--	--	92.7 UJK	36.9 U	--	--	--	120 U	**1930**	--	**742**	107 U	106 U
2-Nitroaniline	88-74-4	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
2-Nitrophenol	88-75-5	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
3 & 4-Methylphenol	84980-04-8	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	**5450**	--	**2350**	107 U	106 U
3,3 -Dichlorobenzidine	91-94-1	mg/kg	--	--	--	185 UJK	73.7 U	--	--	--	240 U	208 U	--	182 U	213 UR	213 U
3-Nitroaniline	99-09-2	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 JK, U	106 U
4,6-Dinitro-2-methylphenol	534-52-1	mg/kg	--	--	--	3090 UJK	1230 U	--	--	--	4000 U	3470 U	--	3040 U	3550 UR	3550 U
4-Bromophenyl-phenylether	101-55-3	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
4-Chloro-3-methylphenol	59-50-7	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
4-Chloroaniline	106-47-8	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 JK, U	106 U
4-Chlorophenyl-phenylether	7005-72-3	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
4-Nitroaniline	100-01-6	mg/kg	--	--	--	185 UJK	73.7 U	--	--	--	240 U	208 U	--	182 U	213 JK, U	213 U
4-Nitrophenol	100-02-7	mg/kg	--	--	--	185 UJK	73.7 U	--	--	--	240 U	208 U	--	182 U	213 U	213 U
Acenaphthene	83-32-9	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Acenaphthylene	208-96-8	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Aniline	62-53-3	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 JK, U	106 U
Anthracene	120-12-7	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Azobenzene as 1,2-Diphenylhydrazine	103-33-3	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Benzidine	92-87-5	mg/kg	--	--	--	185 UJK	73.7 U	--	--	--	240 U	208 U	--	182 U	213 UR	213 U
Benzo(a)anthracene	56-55-3	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Benzo(a)pyrene	50-32-8	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Benzo(b)fluoranthene	205-99-2	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Benzo(g,h,i)perylene	191-24-2	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Benzo(k)fluoranthene	207-08-9	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Benzoic acid	65-85-0	mg/kg	--	--	--	3090 UJK	1230 U	--	--	--	4000 U	3470 U	--	3040 U	3550 UR	3550 U
Benzyl alcohol	100-51-6	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Bis(2-chloroethoxy)methane	111-91-1	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Bis(2-chloroethyl)ether	111-44-4	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Bis(2-chloroisopropyl)ether	108-60-1	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Bis(2-ethylhexyl)phthalate	117-81-7	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Butyl benzyl phthalate	85-68-7	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Carbazole	86-74-8	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Chrysene	218-01-9	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Dibenzo(a,h)anthracene	53-70-3	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Diethyl phthalate	84-66-2	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Dimethyl phthalate	131-11-3	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Di-n-butyl phthalate	84-74-2	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Di-n-octyl phthalate	117-84-0	mg/kg	--	--	--	309 UJK	123 U	--	--	--	400 U	347 U	--	304 U	355 U	355 U
Fluoranthene	206-44-0	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Fluorene	86-73-7	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Hexachlorobenzene	118-74-1	mg/kg	2.6	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U

Appendix B
Solid Analytical Results

Analyte	CAS.NO	Units	EPA Hazardous Total	EPA Hazardous TCLP	Location	TK 11 & 12	TK 13, 14, & 15	TK 13, 14, & 15	SS01	SS01	TK01	TK20	TK20	TK37	TK38	TK38
					Sample ID	TRE-CT01-SL-01	TRE-CT02-SL-01	TRE-CT02-SL-01-1	TRE-SS01-SD-01	TRE-SS01-SD-01D	TRE-TK01-SL-02	TRE-TK20-SL-02	TRE-TK20-TD-01	TRE-TK37-SL-01	TRE-TK38-SL-01	TRE-TK38-SL-01D
					Date	6/21/2022	6/21/2022	6/21/2022	6/22/2022	6/22/2022	6/21/2022	6/21/2022	6/21/2022	6/22/2022	6/22/2022	6/22/2022
					Type	FS	FS	FS	FS	FD	FS	FS	FS	FS	FS	FD
					Media	Product	Product	Product	Surface Soil	Surface Soil	Product	Product	Product	Product	Product	Product
Hexachlorobutadiene	87-68-3	mg/kg	10	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Hexachlorocyclopentadiene	77-47-4	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Hexachloroethane	67-72-1	mg/kg	60	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	--	--	--	278 UJK	111 U	--	--	--	360 U	312 U	--	274 U	320 U	319 U
Isophorone	78-59-1	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Naphthalene	91-20-3	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Nitrobenzene	98-95-3	mg/kg	40	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
N-Nitrosodi-n-propylamine	621-64-7	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
N-Nitrosodiphenylamine	86-30-6	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Pentachlorophenol	87-86-5	mg/kg	2000	--	--	309 UJK	123 U	--	--	--	400 U	347 U	--	304 U	355 U	355 U
Phenanthrene	85-01-8	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Phenol	108-95-2	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	**5440**	--	**1750**	107 U	106 U
Pyrene	129-00-0	mg/kg	--	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
Pyridine	110-86-1	mg/kg	100	--	--	92.7 UJK	36.9 U	--	--	--	120 U	104 U	--	91.2 U	107 U	106 U
TCLP-SW1311 /VOCs- SW8260B																
1,1-Dichloroethene	75-35-4	mg/L	--	0.7	--	**R**	**R**	**R**	0.0217 UJK	0.0217 UJK	0.0867 UJK	0.0867 UJK	0.0867 UJK	0.217 UJK	0.217 UJK	0.217 UJK
1,2-Dichloroethane	107-06-2	mg/L	--	0.5	--	**R**	**R**	**R**	0.0205 UJK	0.0205 UJK	0.0822 UJK	0.0822 UJK	0.0822 UJK	0.205 UJK	0.205 UJK	0.205 UJK
1,4-Dichlorobenzene	106-46-7	mg/L	--	7.5	--	**R**	**R**	**R**	0.0915 UJK	0.0915 UJK	0.366 UJK	0.366 UJK	0.366 UJK	0.915 UJK	0.915 UJK	0.915 UJK
2-Butanone	78-93-3	mg/L	--	200	--	**R**	**R**	**R**	0.34 UJK	0.34 UJK	1.36 UJK	1.36 UJK	**2.3 JQK**	**23.9 JK**	3.4 UJK	3.4 UJK
Benzene	71-43-2	mg/L	--	0.5	--	**R**	**R**	**R**	0.0144 UJK	0.0144 UJK	0.0576 UJK	0.0576 UJK	0.0576 U	0.144 UJK	0.144 UJK	0.144 UJK
Carbon tetrachloride	56-23-5	mg/L	--	0.5	--	**R**	**R**	**R**	0.14 UJK	0.14 UJK	0.558 UJK	0.558 UJK	0.558 U	1.4 UJK	1.4 UJK	1.4 UJK
Chlorobenzene	108-90-7	mg/L	--	100	--	**R**	**R**	**R**	0.026 UJK	0.026 UJK	0.104 UJK	0.104 UJK	0.104 U	0.26 UJK	0.26 UJK	0.26 UJK
Chloroform	67-66-3	mg/L	--	6	--	**R**	**R**	**R**	0.0366 UJK	0.0366 UJK	0.146 UJK	0.146 UJK	0.146 U	0.366 UJK	0.366 UJK	0.366 UJK
Tetrachloroethene	127-18-4	mg/L	--	0.7	--	**R**	**R**	**R**	0.0292 UJK	0.0292 UJK	0.117 UJK	0.117 UJK	0.117 U	0.292 UJK	0.292 UJK	0.292 UJK
Trichloroethene	79-01-6	mg/L	--	0.5	--	**R**	**R**	**R**	0.0243 UJK	0.0243 UJK	0.097 UJK	0.097 UJK	0.097 U	0.243 UJK	0.243 UJK	0.243 UJK
Vinyl chloride	75-01-4	mg/L	--	0.2	--	**R**	**R**	**R**	0.0357 UJK	0.0357 UJK	0.143 UJK	0.143 UJK	0.143 U	0.357 UJK	0.357 UJK	0.357 UJK
TCLP-SW1311 / SVOCs-SW8270D																
1,4-Dichlorobenzene	106-46-7	mg/L	--	7.5	--	0.0102 UJK	0.0129 UJK	0.0052 UJK	0.0052 UJK	0.0052 UJK	114 UJK	0.12 UJK	**R**	1.26 UJK	276 UJK	**R**
2,4,5-Trichlorophenol	95-95-4	mg/L	--	400	--	0.0047 UJK	0.006 UJK	0.0024 UJK	0.0024 UJK	0.0024 UJK	114 UJK	0.0556 UJK	0.129 UJK	0.584 UJK	276 UJK	133 UJK
2,4,6-Trichlorophenol	88-06-2	mg/L	--	2	--	0.0089 UJK	0.0112 UJK	0.0046 UJK	0.0045 UJK	0.0046 UJK	114 UJK	0.105 UJK	0.244 UJK	1.1 UJK	276 UJK	133 UJK
2,4-Dinitrotoluene	121-14-2	mg/L	--	0.13	--	0.0092 UJK	0.0116 UJK	0.0047 UJK	0.0047 UJK	0.0047 UJK	378 UJK	0.108 UJK	0.252 UJK	1.14 UJK	921 UJK	**R**
2-Methylphenol	95-48-7	mg/L	--	200	--	**0.0404 JK**	0.0084 UJK	0.0034 UJK	0.0034 UJK	0.0034 UJK	114 UJK	**12.7 JK**	**26.9 JK**	**87.6 JK**	276 UJK	133 UJK
3 & 4-Methylphenol	84989-04-8	mg/L	--	--	--	**0.0379 JK**	0.0082 UJK	0.0034 UJK	0.0033 UJK	0.0034 UJK	114 UJK	**35.4 JK**	**76.5 JK**	**272 JK**	276 UJK	133 UJK
Cresols, Total	1319-77-3	mg/L	--	200	--	0.0332 UJK	0.0419 UJK	0.0171 UJK	0.0169 UJK	0.0171 UJK	227 UJK	**48.1 JK**	**103 JK**	**360 JK**	552 UJK	265 UJK
Hexachlorobenzene	118-74-1	mg/L	--	0.13	--	0.006 UJK	0.0076 UJK	0.0031 UJK	0.0031 UJK	0.0031 UJK	114 UJK	0.0709 UJK	0.165 UJK	0.745 UJK	276 UJK	**R**
Hexachlorobutadiene	87-68-3	mg/L	--	0.5	--	0.0091 UJK	0.0115 UJK	0.0047 UJK	0.0046 UJK	0.0047 UJK	114 UJK	0.107 UJK	**R**	1.13 UJK	276 UJK	**R**
Hexachloroethane	67-72-1	mg/L	--	3	--	0.008 UJK	0.0101 UJK	0.0041 UJK	0.0041 UJK	0.0041 UJK	114 UJK	0.0946 UJK	**R**	0.994 UJK	276 UJK	**R**
Nitrobenzene	98-95-3	mg/L	--	2	--	0.0051 UJK	0.0064 UJK	0.0026 UJK	0.0026 UJK	0.0026 UJK	114 UJK	0.06 UJK	0.14 UJK	0.631 UJK	276 UJK	**R**
Pentachlorophenol	87-86-5	mg/L	--	100	--	0.0919 UJK	0.116 UJK	0.0472 UJK	0.0467 UJK	0.0473 UJK	378 UJK	**R**	**R**	11.4 UJK	921 UJK	**R**
Pyridine	110-86-1	mg/L	--	5	--	0.0663 UJK	0.0837 UJK	0.0341 UJK	0.0337 UJK	0.0341 UJK	114 UJK	**R**	**R**	8.22 UJK	276 UJK	**R**
TCLP-1311 / Metals-SW6010 D																
Chromium	7440-47-3	mg/L	--	5	--	--	--	--	--	--	--	--	--	**4.82**	--	--
Selenium	7782-49-2	mg/L	--	1	--	0.05 U	0.05 U	--	--	--	--	--	--	1 U	--	--
TCLP-1311 / Metals-SW6020 B																
Arsenic	7440-38-2	mg/L	--	5	--	--	--	--	--	--	--	--	**0.0638**	--	--	--
Barium	7440-39-3	mg/L	--	100	--	--	--	--	--	--	--	--	**0.156**	--	--	--
Chromium	7440-47-3	mg/L	--	5	--	--	--	--	0.05 U	--	**0.141**	0.05 U	0.05 U	--	0.05 U	0.05 U
Lead	7439-92-1	mg/L	--	5	--	--	--	--	0.05 U	--	--	--	0.05 U	--	--	--
Selenium	7782-49-2	mg/L	--	1	--	--	--	--	0.05 U	--	0.05 U	0.05 U	0.05 U	--	--	--
NWTPH																
C12 - C25 DRO	THPC12C25DRO	mg/kg	--	--	--	**87000 JK**	**99000 JK**	--	**95000 JK**	**120000 JK**	**160000 JK**	--	--	**62000 JK**	**300000 JK**	**130000 JK**
C25 - C36 RRO	THPC25C36RRO	mg/kg	--	--	--	**57000 JK**	**63000 JK**	--	**41000 JK**	**52000 JK**	**32000 JK**	--	--	**33000 JK**	**48000 JK**	**34000 JK**
FOG HEM-SW9071B																
Oil and Grease (HEM)	OG_HEM	mg/kg	--	--	--	**978000 JK**	--	**1030000 JK**	--	--	**375000 JK**	--	--	--	--	--
WC-ASTM D92-90																
Ignitability (open cup)	IgnitabilityOC	°F	--	--	--	--	--	--	--	--	--	>180 UJK	--	--	--	--
WC-S2540G-11																
Moisture	MOISTURE	%	--	--	--	**3.2**	**1.7**	--	--	--	**7.1**	**24.7**	--	**22.7**	**6.8**	**8.5**
Total Solids	TSP	%	--	--	--	**96.8**	**98.3**	--	--	--	**92.9**	**75.3**	--	**77.3**	**93.2**	**91.5**
WC-SM2540G																
Total Solids	TSP	%	--	--	--	**97.4 H**	**99 H**	--	**81.9**	**82.3**	**96.8 H**	**63.2 H**	**84.6 H**	**90.2**	**97.9**	**97.9**
WC-SOI																
Solids, Total	SolidsTotal	%	--	--	--	**91.4**	**97.5**	--	**89.2**	**89.5**	**87.3**	--	--	**86.4**	**90**	**90.3**
BTUs-WC-SW5050																

Appendix B
Solid Analytical Results

Analyte	CAS.NO	Units	EPA Hazardous Total	EPA Hazardous TCLP	Location	TK 11 & 12	TK 13, 14, & 15	TK 13, 14, & 15	SS01	SS01	TK01	TK20	TK20	TK37	TK38	TK38
					Sample ID	TRE-CT01-SL-01	TRE-CT02-SL-01	TRE-CT02-SL-01-1	TRE-SS01-SD-01	TRE-SS01-SD-01D	TRE-TK01-SL-02	TRE-TK20-SL-02	TRE-TK20-TD-01	TRE-TK37-SL-01	TRE-TK38-SL-01	TRE-TK38-SL-01D
					Date	6/21/2022	6/21/2022	6/21/2022	6/22/2022	6/22/2022	6/21/2022	6/21/2022	6/21/2022	6/22/2022	6/22/2022	6/22/2022
					Type	FS	FS	FS	FS	FD	FS	FS	FS	FS	FS	FD
					Media	Product	Product	Product	Surface Soil	Surface Soil	Product	Product	Product	Product	Product	Product
Heat Content in BTU	HCinBTU	BTU/Pound	--	--	--	**15900**	**16900**	--	--	--	550 U	550 U	--	**16100**	**16100**	**15700**
TOX-WC-SW846 9023																
Halogen, Total Organic (TOX)	TOX	mg/kg	--	--	--	1.3 UJK	**2.3 JQK**	--	--	--	**3.7 JQK**	1.8 UJK	--	1.7 UJK	**16.3 JK**	**15.1 JK**

Notes
H - High Bias
J - The reported result is an estimated value
L - Low Bias
K - Unknown Bias
Q - The reported concentration is less than the sample quantitation for the specific analyte in the sample
R - Unusable for all purposes
UB - Not detected because of blank contamination
U - Analyte included in the analysis, but not detected
FS - Field Sample
FD - Field Duplicate
mg/kg - Milligrams per Kilogram
mg/L - milligrams per liter
"--" - Not analyzed or not available
BTU - British Thermal Units
°F - Degrees Fahrenheit
Bold - Result exceeds laboratory reporting limits
Inverse - Laboratory detection limit is greater than screening criteria
Highlight - Result Exceed's Screening Criteria