Canal Interim Remedial Measure Design Work Plan

Former TRW Union Springs Facility

PREPARED FOR
ZF Active Safety and Electronics US LLC

DATE
12 June 2026

BCP SITE REFERENCE
C706019



SIGNATURE PAGE

Canal Interim Remedial Measure Design Work Plan

Former TRW Union Springs Facility

I, Stephen Mirabello, PE certify that I am currently a New York State registered professional engineer and that this Interim Remedial Measure Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (DER-10) and DER Green Remediation (DER-31).



_____

Stephen A. Mirabello, P.E.

Principal Engineer

ERM Consulting & Engineering, Inc.

Date: 12 June 2026

SIGNATURE PAGE

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CONTENTS

1. INTRODUCTION 1
1.1 SITE LOCATION AND DESCRIPTION 3
1.1.1 Area Definitions 4
1.2 PURPOSE OF DOCUMENT 5
1.3 PROJECT TEAM ROLES AND CHAIN OF COMMUNICATION 6
1.3.1 NYSDEC and New York State Department of Health (NYSDOH): Project Team Organization 6
1.3.2 Engineer of Record 7
1.3.3 Remediation Contractor 7
1.4 PROJECT MEETINGS 7
1.5 PERMITS AND AUTHORIZATIONS 7
1.6 DESIGN DRAWINGS 8
1.7 REMEDIAL ACTION HEALTH AND SAFETY PLAN 8
1.8 INTERIM REMEDIAL MEASURE—REGULATORY BASIS 8
1.9 NATURE AND EXTENT OF CONTAMINATED AREA OF CONCERN 9
1.9.1 Soil 9
1.9.2 Groundwater 9
1.9.3 Pore water & Surface Water 10
1.9.4 Sediment 10
2. SUMMARY OF SELECTED REMEDY 12
2.1 IN SITU SORPTION AND SOLIDIFICATION—AREA 7 12
2.2 EXCAVATION AND CAPPING—AREA 8 13
2.3 EXCAVATION AND COVER SYSTEM—AREA 9 14
2.4 PRE-DESIGN GEOTECHNICAL INVESTIGATION 14
2.4.1 Phase 1 Treatability Study 15
2.4.2 Phase 2 Treatability Study 15
2.4.3 Phase 3 Treatability Study 17
3. DESIGN 19
3.1 PREPARATION 19
3.1.1 Utility Clearance 19
3.1.2 Mobilization 19
3.1.3 Traffic Control 19
3.1.4 Site Security 19
3.2 MONITORING FEATURE ABANDONMENT 20
3.3 SANITATION AND STORMWATER SEWER LINE 21
3.4 MATERIALS MANAGEMENT 21
3.5 BUILDING DEMOLITION 22
3.6 ENCOUNTERED DEBRIS 23
3.7 EXCAVATION SLOPING REQUIREMENTS 23
3.7.1 Area 7 Excavation Limits and Water Management 23
3.8 EMBANKMENT GRADING DESIGN 24
3.9 EARTHWORK 24
3.9.1 Area 7 Earthwork 24
3.9.2 Area 8 Earthwork 26
3.9.3 Area 9 Earthwork 26
3.10 PERMEABLE REACTIVE BARRIER DESIGN 26
3.11 SUPPLEMENTAL REMEDIATION PIPING INFRASTRUCTURE 27

3.12 STORMWATER MANAGEMENT (PERMANENT FEATURES) 27
3.12.1 Culvert 1 28
3.12.2 Spillway 1 28
3.12.3 Flume 1 29
3.12.4 Water Quality Considerations 29
3.13 ODOR MANAGEMENT 29
3.14 RESTORATION DESIGN 30
3.14.1 Cleanup and Demobilization 30
3.15 COMPATIBILITY WITH UPGRADIENT INJECTION ACTIVITIES 31

4. REMEDIAL ACTION SUPPORT PLANS 34

4.1 QUALITY ASSURANCE PROJECT PLAN 34
4.2 SAMPLING AND ANALYSIS PLAN 34
4.3 SOIL MANAGEMENT PLAN 34
4.3.1 Erosion and Sediment Controls 35
4.4 WASTE MANAGEMENT PLAN 35
4.5 WATER MANAGEMENT PLAN 35
4.6 MONITORING PLANS 36
4.6.1 Community Air Monitoring Plan 36
4.6.2 Vibration and Settlement Monitoring Plan 36
4.7 OPERATIONS AND MAINTENANCE PLAN 36
4.7.1 Routine Maintenance Activities 36
4.7.2 Non-Routine Maintenance Activities 36
4.8 UPDATED REMEDIAL DESIGN AND FINAL REMEDIAL ACTION SCHEDULE 37

5. GREEN AND SUSTAINABLE DESIGN CONSIDERATIONS 38

6. POST-CONSTRUCTION 39

6.1 POST-CONSTRUCTION MONITORING ACTIVITIES 40
6.2 PROPOSED COMPLIANCE SAMPLING 41
6.3 WETLAND RESTORATION MONITORING 42
6.3.1 Post-Construction Reporting Construction Completion Report 42
6.3.2 Additional Reporting 43

7. REFERENCES 44

APPENDIX A DESIGN DRAWINGS
APPENDIX B HEALTH AND SAFETY PLAN
APPENDIX C XDD SUMMARY REPORTS
APPENDIX D BORING LOGS
APPENDIX E CONSTRUCTION QUALITY ASSURANCE PLAN
APPENDIX F SAMPLING AND ANALYSIS PLAN
APPENDIX G SOIL MANAGEMENT PLAN
APPENDIX H WASTE MANAGEMENT PLAN
APPENDIX I WATER MANAGEMENT PLAN
APPENDIX J COMMUNITY AIR MONITORING PLAN
APPENDIX K VIBRATION AND SETTLEMENT MONITORING PLAN
APPENDIX L JOINT APPLICATION PERMIT

LIST OF FIGURES

FIGURE 1: SITE LOCATION AND SURROUNDING AREA 1
FIGURE 2: SITE AREAS OF CONCERN 2
FIGURE 3: SITE IRM AREA NUMBERS 5
FIGURE 4: FEATURES TO BE ABANDONED AND DEMOLISHED 20
FIGURE 5: PROPOSED MONITORING WELLS, PIEZOMETERS AND POINT OF COMPLIANCE 41

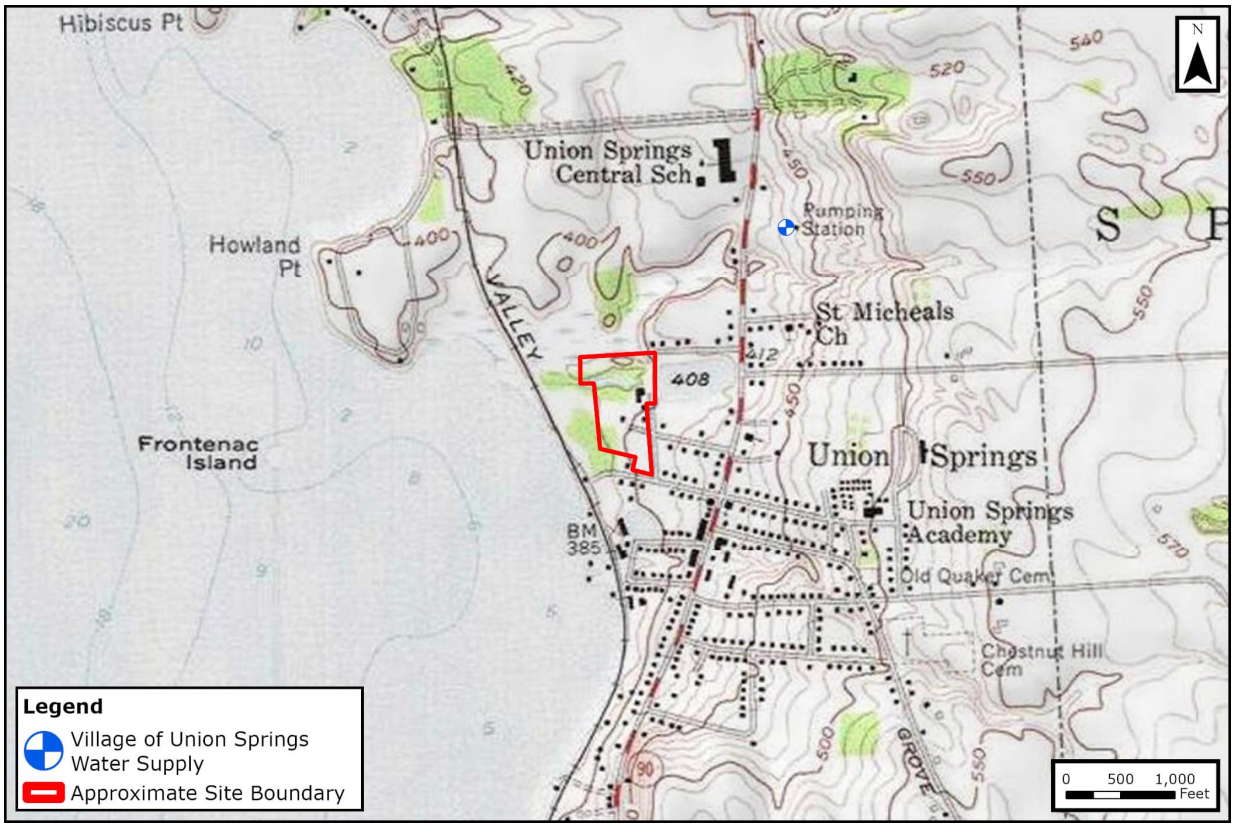
Acronym	Description
AA	Alternatives Analysis
AC	activated carbon
ACOE	United States Army Corps of Engineers
amsl	above mean sea level
AOC	area(s) of concern
BCP	Brownfield Cleanup Program
C	cohesion
CAMP	Community Air Monitoring Program
Canal 1	Buried Canal AOC
Canal 2	Open Canal AOC
CCR	construction completion report
cDCE	cis-1,2-dichlorethene
cm/s	centimeters per second
COC	constituents of concern
CQAP	Construction Quality Assurance Plan
CVOC	chlorinated volatile organic compound
CY	cubic yards
DER	NYSDEC Division of Environmental Remediation
DER-10	NYSDEC Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation
DOW	Division of Water
DWP	Design Work Plan
EOR	engineer of record
ERM	ERM Consulting & Engineering, Inc
GCM	grossly contaminated material
GLC	glacio-lacustrine clay
HASP	health and safety plan
HDPE	high-density polyethylene
IRM	Interim Remedial Measure
ISS	in situ sorption and solidification
ITRC	Interstate Technology & Regulatory Council
LEAF	Leaching Environmental Assessment Framework
LPW	LPW Development, LLC
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	Operation and Maintenance
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbon
PC	Portland cement
PCN	polychlorinated naphthalene
PFAS	Per- and polyfluorinated substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonic acid
POC	point of compliance
ppt	parts per trillion
PRB	Permeable reactive barrier
psi	pounds per square inch

Acronym	Description
RCM	reactive core mat
Regulators	New York State Department of Environmental Conservation and New York State Department of Health
RI	Remedial Investigation
SAP	Sampling and Analysis Plan
Site	the Former Union Springs Facility at 107 Salem Street, Union Springs, New York
SVOC	semivolatile organic compound
TCE	trichloroethene
TRW	TRW Automotive U.S. LLC
USEPA	United States Environmental Protection Agency
VC	vinyl chloride
Village	Village of Union Springs
VOC	volatile organic compound
WOH	weight of hammer
XDD	XDD Environmental, LLC
ZF	ZF Active Safety and Electronics US LLC
ZVI	Zero-valent iron
Φ	friction angle

1. INTRODUCTION

ERM Consulting & Engineering, Inc. (ERM) prepared this Canal Interim Remedial Measure (IRM) Design Work Plan (DWP) on behalf of ZF Active Safety and Electronics US LLC (ZF; formerly TRW Automotive U.S. LLC [TRW]) for the Former Union Springs Facility at 107 Salem Street, Union Springs, New York (Figure 1; hereafter called the "Site"). ZF entered into a Brownfield Cleanup Agreement with the New York State Department of Environmental Conservation (NYSDEC) on 7 January 2016 as a volunteer. The portion of the formerly owned ZF properties currently regulated under the Brownfield Cleanup Agreement has been assigned Brownfield Cleanup Program (BCP) Site Number C706019 by the NYSDEC.

FIGURE 1: SITE LOCATION AND SURROUNDING AREA

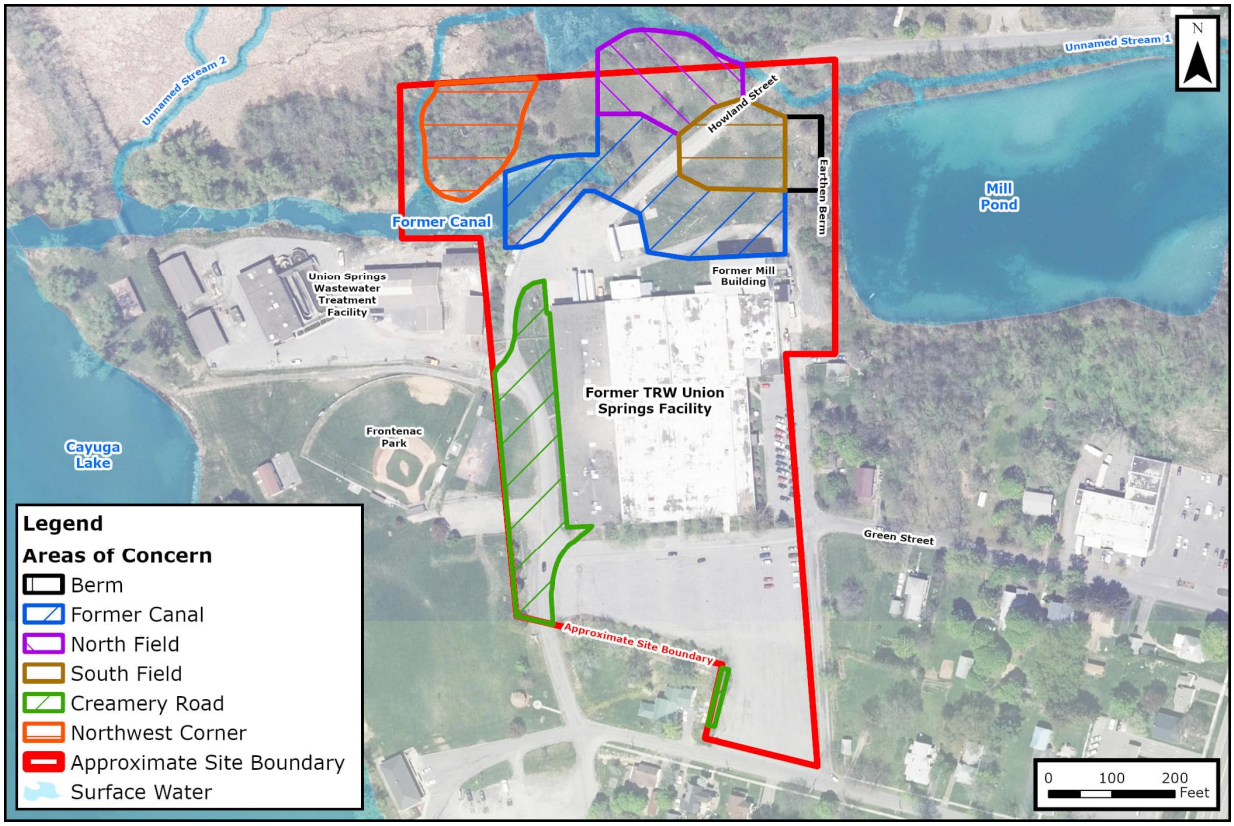


From December 2015 to September 2017, ERM conducted a Remedial Investigation (RI) to satisfy the requirements of the NYSDEC Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10; NYSDEC 2010). A draft RI and Alternatives Analysis (AA) Report, which summarized the findings of the RI, was prepared and submitted to the NYSDEC and New York State Department of Health (collectively, Regulators) for review on 13 April 2018. The Regulators provided a comment letter to the RI report on 17 September 2018. ERM conducted additional Site characterization activities and submitted a revised report and response letter to the RI report on 25 August 2021. Based on follow-up discussions and correspondence with the NYSDEC, the revised report included the removal of the AA section of the RI report. The NYSDEC provided a second round of comments on 22 June 2022 (NYSDEC 2022a). A revised RI report and response to comment letter was submitted in

May 2023 (ERM 2023a). The NYSDEC submitted a letter of clarification in January 2025 that acknowledged the RI report was comprehensive and demonstrated that the nature and extent of contamination at the Site had been defined; however, they deferred further review pending completion of the proposed IRMs and pilot studies (NYSDEC 2025).

ZF has been managing portions of the Site using IRMs to expedite Site remediation in some areas of concern (AOC) and to pilot test remedial technologies to support the evaluation of proposed remedial strategies for the AOCs identified in the original RI report (Figure 2). Separate pilot test work plans and an IRM DWP were previously submitted to the NYSDEC for the North Field AOC (ERM 2019a; ERM 2019b; NYSDEC 2019a); the South Field AOC (ERM 2019c; ERM 2019d; NYSDEC 2019b); and the Creamery Road and Berm Area AOCs (ERM 2019e; NYSDEC 2019c). The North Field and South Field AOC pilot tests have been completed, and final reports were submitted in 2025. The construction completion report (CCR) for the phytoremediation (ERM 2022a; ERM 2022b) was accepted by the NYSDEC on 8 August 2022 (NYSDEC 2022b) and the final report was submitted 18 July 2025 (ERM 2025a). The CCR for the bioremediation (ERM 2022c; ERM 2022d) was accepted by the NYSDEC on 5 January 2024 (NYSDEC 2024a) and the final report was submitted 17 July 2025 (ERM 2025b). The CCR for the shallow soil and building crack sealing IRM (ERM 2022e; ERM 2023a; ERM 2023b) was accepted by the NYSDEC on 5 January 2024 (NYSDEC 2024b).

FIGURE 2: SITE AREAS OF CONCERN



DWPs presenting the remedial goals, design basis, and design (30 Percent) for the Buried Canal AOC IRMs (Canal 1; ERM 2019f) and Open Canal AOC (Canal 2; ERM 2020a) were submitted to the Regulators for review. The 2019 proposed IRM for Canal 1 consisted of

proposed excavation and transport of soil to a permitted facility for disposal or incineration. The 2020 proposed IRM for Canal 2 consisted of the excavation of 2 feet of sediment, transport and disposal at a permitted facility, installation of a reactive core mat, and reconstruction of the wetland. Modifications were made to the Canal 1 DWP (NYSDEC 2019d; ERM 2019g) and the Regulators made the Canal 1 IRM (30 Percent) DWP available for a 30-day public comment period. The DWP was accepted on 30 March 2020 (NYSDEC 2020a). The preliminary remedial approach outlined for the Canal 2 IRM DWP was developed in consultation with the Regulators (NYSDEC 2020b; ERM 2020b; NYSDEC 2020c; ERM 2020c; ERM 2020d) and accepted via email on 26 August 2020 (NYSDEC 2020d).

Geotechnical and waste characterization data were collected to support the design of the IRM excavation of Canal 1 in December 2020. Interpretation of the data showed the underlying geotechnical conditions (e.g., full penetration through lacustrine clays under weight of hammer [WOH] in standard penetration testing [N-values of 0 indicating very soft and extremely weak soil type which is a red flag when considering excavation and earth support systems like sheet piles], artesian conditions in underlying glacial till) at the Site posed several engineering challenges for an IRM excavation. Three sequential bench-scale pilot studies (ERM 2021a; ERM 2023c; ERM 2025c) were performed to assess the potential for in situ sorption and solidification (ISS) as an alternate remedial approach for the proposed Canal 1 IRM. With the success of the ISS bench-scale treatability studies, this DWP outlines a fundamental change in the remedial approach for Canal 1 previously accepted by the NYSDEC on 30 March 2020 (NYSDEC 2020a). There is no change in the remedial strategy proposed for the Canal 2 IRM, which was preliminarily accepted by NYSDEC.

1.1 SITE LOCATION AND DESCRIPTION

The Site is an active commercial/industrial facility in the Village of Union Springs (the Village). The Village lies within the Town of Springport and is southwest of the City of Auburn, New York. The current land usage of adjacent properties includes residential, commercial, recreational, the Village's wastewater treatment plant, and vacant land.

Site topography is relatively flat with the highest elevation present on a berm that serves as a dam confining the west end of a mill pond (approximately 408 feet above mean sea level [amsl]) and the lowest elevation present along the former canal (approximately 382 feet amsl). Ground surface topography slopes gently to the west towards Cayuga Lake.

The Site was developed in approximately 1790 and has a long industrial history. The former mill building was constructed in the 1830s and was connected to Cayuga Lake by a canal that transected the northern portion of the Site. Additional buildings were historically present north of the former canal, including a plaster mill, a sawmill, and a cooper shop. The 5.8-acre mill pond is east of the former mill building.

Beginning in 1932, the Site was used by several companies for manufacturing electrical components for the automotive industry. These companies include General Products Corporation (1932 through 1962), Gulf & Western, Inc. (1962 through 1985), Wickes Manufacturing Company (1985 through 1990), and TRW (1990 through 1997). Several new buildings were constructed in stages, starting in the 1950s. Chlorinated solvents were reportedly used at the facility as part of these companies' manufacturing processes. At some point between 1932 and 1973, a portion of the former canal and a portion of the field north of

the former mill building were filled to construct Howland Street and a shipping and receiving area in the northern portion of the facility.

LPW Development, LLC (LPW) acquired the facility and associated properties from TRW ZF in 1997. The newer portions of the facility are leased to various manufacturing and commercial tenants. Chemical use by LPW's tenants is not well documented. ZF no longer conducts manufacturing activities at the Site. ZF occupies a portion of the building solely related to environmental assessment/cleanup activities and operates a groundwater treatment system. LPW currently has two tenants in the building. One manufactures, finishes, and stores home goods, including the use of various epoxies, alcohol-based solvents, acetone, and curing and hardening agents. The second tenant operates a commercial laundry facility associated with a local resort and spa that uses industrial laundry detergents and products (water-based and no solvent-based dry cleaning).

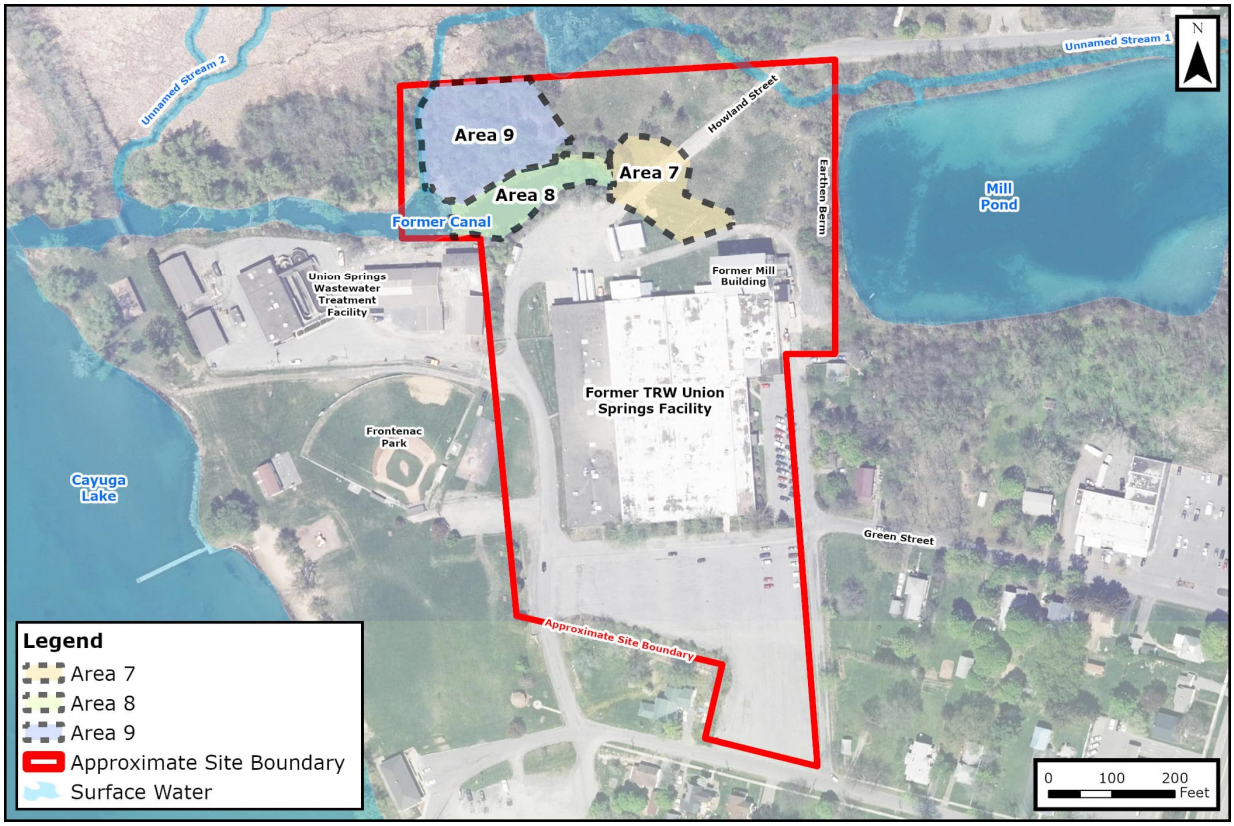
Environmental investigation and remediation activities have been conducted by other consulting firms at the Site since 1989. ERM's involvement began in 1997, with a significant amount of characterization work having been conducted from 2011 through 2017. Several remedial activities have been conducted, including underground storage tank removal, contaminated soil excavation, dual-phase extraction, groundwater recovery and treatment, in situ chemical oxidation, and several IRMS (i.e., soil cover, vapor intrusion, bioremediation pilot test, phytoremediation pilot test).

1.1.1 AREA DEFINITIONS

Historically, the naming conventions of different areas of the Site has changed. Discussion of historical work and documents cited in this DWP will refer to the names that were used at the time of the historical work and documents cited. At this time and going forward the areas of the Site will be referred to by the area number (Figure 3 below).

- The parts of the Site associated with the former canal have been referred to as the Former Canal AOC and the Canal AOC. These designations apply to both the buried and open portions of the canal, respectively.
- The buried portion of the canal has been referred to as the Buried Canal AOC, Canal 1, and Area 7.
- The open portion of the canal has been referred to as the Open Canal AOC, Canal 2, and Area 8.
- Area 9 refers to the Northwest Corner AOC; the area immediately north and west of Area 8.

FIGURE 3: SITE IRM AREA NUMBERS



1.2 PURPOSE OF DOCUMENT

The purpose of this IRM DWP is to outline the objectives, methods and the schedule for the proposed IRMs in Areas 7, 8, and 9 is to mitigate the potential for ecological and human exposure to contaminants present in the surficial soils, groundwater, and sediments. IRM to achieve the purpose in Area 7 include:

- The ISS mixing zone in Area 7 will extend 5 to 14 feet below grade surface from 383 to 373 feet amsl, nominally 2 to 3 feet into the underlying clay to reduce the hydraulic conductivity of the soil to reduce groundwater flow through the shallow soil.
- After mixing is completed, the expanded material (swell) will be excavated to elevations ranging from 381.5' to 380' amsl) and a minimum 60-mil thick high-density polyethylene (HDPE) geomembrane liner will be placed to create an impervious surface between the stabilized material and the overlying cover material.
- Above the HDPE geomembrane liner will be 6 to 10 feet of cover material.
- A permeable reactive barrier (PRB) zone containing 60 percent zero-valent iron (ZVI), 25 percent masonry sand, and 15 percent pond sand will extend 10 feet from the downgradient end of the ISS mixing zone to passively treat groundwater flowing through the permeable zone (Appendix A, Sheet 8).
- The remaining cover material will be structural sand overlain by a 6-inch layer of topsoil in the vegetated areas. Other final conditions include stone or pavement for the uppermost layer.

IRMs to achieve the purpose in Area 8 include:

- Removal of 2 feet of sediments that are impacted above class C criteria, per the Screening and Assessment of Contaminated Sediment guidance (NYSDEC 2014).
- Install an active cap system to minimize residual groundwater flux to surface water—the active cap system will integrate a reactive core mat (RCM) (and/or bulk amendment of sand with activated carbon) to provide for the sorption of residual organic contaminants.

IRMs to achieve the purpose in Area 9 include:

- Install a soil cover system using NYSDEC-approved beneficial reuse soil from the top 5 feet of soil excavated from IRM 7 or imported backfill. The cover system will cover shallow metals and polycyclic aromatic hydrocarbons (PAHs) soil impacts.

1.3 PROJECT TEAM ROLES AND CHAIN OF COMMUNICATION

The project team will consist of ZF, ERM, the selected remediation contractor, and subcontractors, as applicable. The general roles and lines of communication are described below:

- ZF:
  ZF is the responsible party for the IRM and will provide overall project direction, including review and approval of key technical and construction-related decisions.
- ERM:
  ERM serves as the Engineer of Record and will provide design, engineering, and construction support services for the IRM. ERM's responsibilities include:
  - Providing technical oversight and interpretation of the design documents
  - Supporting implementation of the IRM in accordance with this IRM DWP
  - Responding to contractor requests for information (RFIs)
  - Conducting Site observations and documenting construction progress
  - Coordinating with ZF and supporting communication with NYSDEC

  ERM will coordinate closely with ZF and the contractor to support implementation of the remedial design and will review, advise and approve, but not dictate the contractor's means or methods. ERM will oversee the implementation of all aspects of the IRM.
- Remediation Contractor:
  The remediation contractor will be responsible for execution of the work in accordance with the contract documents, including management of construction activities, means and methods, Site safety, and coordination of subcontractors.
- Subcontractors:
  Subcontractors will perform specialized elements of the work under the direction of the remediation contractor.

1.3.1 NYSDEC AND NEW YORK STATE DEPARTMENT OF HEALTH (NYSDOH): PROJECT TEAM ORGANIZATION

The following individuals will be involved in the implementation of this IRM.

Title-Role	Name
Partner-In-Charge	Ernie Rossano
Principal Consultant- Project Manager	Rob Sents
NY Engineer of Record	Stephen A. Mirabello

Title-Role	Name
ISS & Sediment Capping Subject Matter Expert	Mac Bonner
Health and Safety Lead	Dave Nickel

The NYSDEC Project Manager is Abigail Beckman and the NYSDOH contact is Julia Kenney.

1.3.2 ENGINEER OF RECORD

The engineer of record (EOR) for this IRM is Stephen A Mirabello; NYS Professional Engineer License No. 089550. The EOR has the responsibility for the design and implementation of this IRM. The EOR will be responsible for certification of the CCR, which verifies that the IRM activities were observed by personnel under their supervision. Further, the EOR will verify in the CCR that the requirements set forth in this IRM DWP and any other relevant provisions of New York State Environmental Conservation Law Article 27, Title 14, have been achieved.

1.3.3 REMEDIATION CONTRACTOR

Bids will be solicited from remediation contractors, which will include a screening of each contractor's safety record, qualifications with technically similar projects, financial stability, and insurance. Bid evaluation will include a review of these qualifications, technical approach, and methods, and the price to complete the work.

Following selection of the contractor, ERM will prepare a Notice of Award letter for the successful bidder and a Subcontractor Work Authorization for contracting implementation of the IRM.

1.4 PROJECT MEETINGS

Weekly construction progress meetings will be held throughout the duration of construction. Meetings will include representatives from ZF, ERM, the remedial contractor, and NYSDEC. Subcontractors will attend as appropriate based on the planned work activities and topics for the given week.

Meetings will be structured to review ongoing and upcoming construction activities, discuss Site conditions and safety considerations, address any technical or schedule-related issues, and coordinate regulatory oversight.

A virtual attendance option will be provided to allow participation by all parties as needed.

1.5 PERMITS AND AUTHORIZATIONS

The implementation of all mitigation measures will be performed in accordance with technical requirements of applicable local construction codes. The local authority of the Town of Union Springs will be consulted, and local permits will be obtained if necessary. It is anticipated that state or local permits listed below will be required.

- Joint application permit (work within a wetland/within buffer of wetland) permit with NYSDEC and U.S. Army Corps of Engineers (ACOE; Appendix L).
- State Pollutant Discharge Elimination System (SPDES)—SPDES permit will not be required for this project; however, the substantive technical requirements of the permit will be met per 6 NYCRR part 375-1.12.
- Excavation and fill within the 100-year floodplain.

- Water Quality Certification—Note, if an ACOE permit is needed, then a 401 Water Quality Certification issued by the NYSDEC would be required, even if the project is exempted from NYSDEC-issued permits related to the ACOE-regulated activity.
- Temporary sanitary sewer relocation and restoration—the Village of Union Springs. The Department's Division of Water (DOW) will also review details regarding the sewer relocation and restoration. The DER will coordinate the review with DOW. Note, if a permanent bypass/re-route were to be proposed, that would require review and approval by the Village and DOW. The DOW will be notified prior to the start of the temporary sewer relocation work.
- Hydrant use permit—It is expected the contractor will utilize public water for dust control and any other construction needs.

1.6 DESIGN DRAWINGS

Design Drawings are included as part of this DWP (Appendix A). The drawings identify the work to be completed on Site. As-built drawings will be included as part of the post-construction activities mentioned in Section 6. Any deviations from the approved design drawings will be reviewed/approved by NYSDEC prior to field implementation.

1.7 REMEDIAL ACTION HEALTH AND SAFETY PLAN

ERM maintains a Site-specific health and safety plan (HASP) for activities conducted at the Site. The procedures set forth in the HASP are designed to minimize the risk of exposure to chemical and physical hazards that may be present at the Site. These procedures generally conform to applicable federal, state, and local regulations, including Occupational Safety and Health Administration (OSHA) requirements governing activities at hazardous waste sites contained in 29 CFR 1910.120 (Hazardous Waste Operations and Emergency Response). Specific practices and procedures, including the level of personal protective equipment, are based on a review of currently available information for the Site. Every potential safety hazard associated with this investigation may not be predicted. The HASP does not attempt to establish rules to cover every contingency that may arise, but it does provide a basic framework for the safe completion of field activities and plans for reasonable contingencies. The approved RI HASP will be revised to address potential risks associated with the tasks outlined in this IRM DWP. The revised HASP will be reviewed and approved by ERM's senior health and safety team prior to mobilization to the Site. The HASP will be provided in Appendix B.

1.8 INTERIM REMEDIAL MEASURE—REGULATORY BASIS

This IRM will be performed under the NYSDEC's BCP and is predicated on future use of the Site as described in the NYSDEC's Soil Cleanup Guidance Policy CP-51 (NYSDEC 2010b). The Site's current and anticipated future is mixed use with portions of the Site being used for commercial purposes, portions of the Site abutting the municipal park, the mill pond parcel and the residence to the southwest classified as restricted residential. As identified during the RI, media of interest in the Former Canal AOC (Areas 7 and 8) are: (1) soil, (2) groundwater, (3) surface water, and (4) sediment; and soil and sediment in Northwest Corner (Area 9). The overall objective of the remedy is to achieve the remedial goals defined in 6 NYCRR Part 375 and NYSDEC DER-10 Section 4.1(c), the NYSDEC Generic Remedial Action Objectives (RAOs), and the Site-specific RAOs for each environmental medium. In particular, the remedy will:

- Be protective of public health and the environment, given the intended use of the Site;
- Prevent impacts to humans from ingestion/direct contact with contaminated soil;
- Prevent impacts to humans from inhalation exposure to contaminants volatilizing from soil;
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain; and
- Mitigate migration of contaminants that would result in soil, groundwater, surface water or sediment contamination.

The proposed IRM includes the treatment and/or removal of identifiable sources of contaminated media within the Canal 1 AOC (Area 7). The preliminary design for Canal 2 IRM (Area 8) has been approved by the NYSDEC to address sediment and surface water (ERM, 2020a) and the remedial strategy has not changed since the 2020 submittal. The Area 7, Area 8, and Area 9 IRMs have been merged into this one Remedial DWP. Remediation of upgradient groundwater will be managed under a separate IRM or will be managed as part of the final remedy.

1.9 NATURE AND EXTENT OF CONTAMINATED AREA OF CONCERN

A detailed account of the nature and extent of contamination at the Site is presented in the RI report and in the *Comprehensive Report: Site Characterization and Remedial Investigation*, dated July 2015 (ERM 2015). Contamination in the Former Canal and Northwest Corner AOCs in excess of applicable standards consists of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), metals, polychlorinated biphenyls, polychlorinated naphthalenes (PCNs), Per- and polyfluoroalkyl substances (PFAS) and pesticides. VOCs contamination is primarily comprised of chlorinated VOCs (CVOCs), particularly chlorinated ethanes and chlorinated ethenes, and BTEX compounds (namely benzenes, toluenes, ethylbenzenes, and xylenes) and naphthalenes. For the purposes of this DWP, a summary of the characteristics and constituents of concern (COCs) proximal to the proposed IRM area is presented below.

1.9.1 SOIL

As manufacturing expanded at the Site in the 1950s, well prior to TRW's occupation at the Site, several additions were made to the mill building. To accommodate these expansions, a portion of the canal and the area north of the mill building were filled to extend Howland Street and to construct the shipping and receiving parking lot. In Area 7, several inches to several feet of decayed organic material is present above the glaciolacustrine clay (GLC) and is overlain by fill material, including industrial and construction debris, and reworked native and imported soil.

PAHs, CVOCs, PCNs, pesticides, and metals were detected in the upper 20 feet of soil at concentrations above applicable regulatory criteria. The likely source of these impacts is the historical filling and disposal in Areas 7, 8, and 9, north of the main building on Site.

1.9.2 GROUNDWATER

COCs present within the materials used to backfill the canal are one of two sources that impact shallow groundwater (i.e., defined as less than 20 feet below ground surface) quality in this AOC. The second source is dissolved phase CVOCs that migrate into the Canal AOC with groundwater flow from the South and North Field AOCs. Groundwater within Area 7 flows to the west and discharges to Area 8. Upward vertical hydraulic gradients in the underlying

hydrogeologic unit limit the potential for contaminated shallow groundwater to migrate downward. Evidence of intrinsic biodegradation was observed within the South Field and Canal AOCs, based on the presence of relatively high concentrations in groundwater of the breakdown products cis-1,2-dichlorethene (cDCE), vinyl chloride (VC), ethane, and ethene concentrations, as compared to the parent compound, trichloroethene (TCE).

PAHs and PCNs were detected in shallow groundwater at concentrations above applicable regulatory criteria. These COCs do not typically generate large-scale groundwater plumes because they exhibit low solubility, and PAHs have a strong tendency to sorb to organic particulates present in soil. Perfluorooctanoic acid (PFOA) was detected in groundwater collected from two monitoring wells within the Canal AOC. In February 2023, New York State issued an addendum to TOGS 1.1.1 (NYSDEC 1998; 2023b) including a maximum allowable groundwater effluent concentration of 6.7 nanograms per liter (ng/L) for PFOA, 2.7 ng/L and for perfluorooctane sulfonic acid (PFOS). PFOA has been historically detected at a maximum concentration of 110 ng/L, and PFOS at 7.8 ng/L.

1.9.3 PORE WATER & SURFACE WATER

Pore water samples (i.e., groundwater samples collected from the soil/sediment immediately below or adjacent to a surface water body) collected in and immediately adjacent to Area 8 contained CVOCs (primarily cDCE and VC). CVOCs were also detected at moderate concentrations in surface water in the upstream portion of Area 8, indicating that CVOC-impacted groundwater discharges to surface water in this area. CVOC concentrations in surface water decreased significantly and rapidly, before reaching the BCP boundary, in the downstream direction from the point of discharge.

Pesticides were detected in two surface water samples collected from the upstream portion of the canal at low concentrations, but above the applicable regulatory criteria. Pesticide concentrations decreased significantly in the downstream direction and were non-detect before reaching the BCP boundary. Trace concentrations of PCNs were detected in surface water; there are no applicable regulatory standards for PCNs in surface water. PFAS were also detected at very low levels in surface water in the canal. The maximum detection of PFOA was 9.8 ng/L and the maximum detection of PFOS was 2.1 ng/L.

Various COCs were detected at low concentrations in surface water within the upstream (eastern) portion of the canal, some of which were present at concentrations above Class A (NYSDEC 1998) New York water quality criteria, which is indicative of a *de minimis* potential for ecological risk. As source areas on the Site are remediated or controlled in the future, these COC concentrations in surface water at the eastern end of the canal would be expected to decrease over time.

1.9.4 SEDIMENT

Impacts to sediment within Area 8 were only evident at sample locations closest to Area 7, in an area known to receive groundwater discharge from the Site. There is a significant decreasing concentration gradient with distance from Area 7 in a downstream direction (i.e., westward toward the BCP boundary). There is no evidence that significant contaminant migration has occurred in the canal outside of the BCP boundary toward Cayuga Lake, and the sediment samples collected closest to Cayuga Lake were not impacted with Site-related constituents.

CVOCs (cDCE and VC), PAHs, PCNs, pesticides, and metals were detected in shallow sediment at concentrations above Class A criteria, but below Class C criteria with the exception of sample locations SD-3, SD-9 and SD-10 at the head of the canal. PAHs exceeded Class C sediment quality guidelines at sampling location SD-9. Cadmium exceeded the NYSDEC's sediment guidance values at sampling locations SD-3 and SD-10.

2. SUMMARY OF SELECTED REMEDY

2.1 IN SITU SORPTION AND SOLIDIFICATION—AREA 7

The initial conceptual remedial design for Area 7 involved excavation and off-Site disposal of grossly contaminated material (GCM) impacted by Site COCs (i.e., VOCs, PCNs, SVOCs, metals, and pesticides). The excavation would then be converted into a PRB that would use a hardwood-mulch-aggregate mixture to effect in situ biological reductive dechlorination of CVOCs in groundwater migrating from the North and South Field AOCs through this area before discharging to surface water in Area 8. A Buried Former Canal IRM (30 Percent) Work Plan summarizing the conceptual scope of the IRM was submitted to NYSDEC in December 2019 (ERM 2019f). A public comment period for the work plan ended in February 2020, with no further revision required for the work plan. ERM completed additional pre-design activities (e.g., a geotechnical evaluation, sediment sampling and characterization) during 2020 to support design of the IRM for both Areas 7 and 8.

Based on the significant geotechnical and constructability issues associated with conducting a large-scale excavation at this Site (e.g., likely failures due to limited or no bearing capacity associated with the GLC underlying the proposed excavation with WOH in standard penetration testing, artesian conditions in underlying glacial till) the approach was modified to the use of ISS to significantly enhance the constructability, protectiveness, and sustainability of the remedy. In this context, ISS includes in situ solidification and sorption of VOCs and SVOCs. The sorption function is provided by activated carbon to sorb the organic COCs, and the solidification function is provided by Portland cement (PC) to bind and significantly reduce the leachability and permeability of the treated soils. The pozzolanic reaction (i.e., a chemical reaction that occurs when a pozzolan reacts with calcium hydroxide in the presence of water to form cementitious compounds, primarily calcium silicate hydrate, the same material responsible for strength in PC) can be limited by high VOCs and SVOCs; however, the inclusion of the activated carbon allows for sorption of the VOCs and SVOCs and preserving the solidification provided by the PC.

From an earthworks standpoint, the use of ISS reduces the excavation, transportation, and off-Site disposal volume by approximately 10,000 cubic yards. ISS also significantly reduces associated trucking traffic and potential odor issues, making this a greener and more sustainable remedial strategy (discussed further, below). ISS will:

- Minimize construction risk associated with artesian conditions beneath the GLC;
- Minimize the need for dewatering and the generation of excavation water that would require on- or off-Site treatment and disposal or discharge;
- Significantly reduce the amount of soil that would be transported off-Site for disposal;
- Provide structural support above and for the upper portion (nominally 2 to 3 feet) of the GLC, and thereby minimize settlement and provide support for the final cover of asphalt roadways, grassed areas, etc.; and
- Be less disruptive to the environment and local community by reducing truck traffic, direct and indirect carbon, greenhouse gas emissions, total energy usage, and the overall construction duration.

The intent of the ISS remedy is to create a monolith that minimizes the leachability potential of COCs to groundwater and surface water. In addition, it will create a low permeability zone

(less than $1x10^{-6}$ centimeters per second [cm/s]) that would minimize groundwater flux through the monolith and promote groundwater flow around the monolith. The physical binding of COCs coupled with the reduction in hydraulic permeability will reduce the COCs at the point of compliance (POC; the surface water of the canal). After mixing is completed, swell will be excavated to elevations ranging from 381.5' to 380' amsl) and a minimum 60-mil thick HDPE geomembrane liner will be placed to create an impervious surface between the stabilized material and the overlying cover material. Soils installed above the monolith to final grade will consist of imported backfill consisting of a sand to prevent ponding and a PRB along the western edge consisting of a sand and ZVI mixture as a contingent measure to manage the migration of COCs from upgradient sources. Design drawings are presented in Appendix A.

2.2 EXCAVATION AND CAPPING—AREA 8

The intent of an excavation and capping IRM in Area 8 for GCM is to physically remove the more impacted canal sediments to a depth of 2 feet below the existing bathymetric surface (top of sediment). This will remove the primary areas of impact. Following the excavation, an active capping system will be installed with an integrated RCM (and/or bulk amendment of sand with activated carbon) at the bottom of the sediment cap.

The active cap will minimize upward migration or flux of residual contaminants in sediment or groundwater into the overlying cap material and surface water. Pore water samples were collected from monitoring wells within the sediment screened from 2 to 4 ft bgs (i.e. just below the proposed installation depth of the active cap) in July 2020 and were analyzed for full suite of RI analytes (i.e. VOC, SVOC, metals, pesticides, herbicides, PCNs). Only cDCE (9.2-13 µg/l), VC (0.57-4.8 µg/l), and lead (<0.010- 0.047mg/l), were detected slightly above the New York State water quality standards. Pore water concentrations are being compared to the NYSDEC surface water quality standards as benchmark against for the overlying surface water, which represents the POC. If a conservative dilution factor of 1:1 to 5:1 were to be applied to account for the mixing of pore water with surface water compliance will be met with minimal in-media treatment. Upward vertical gradients have been calculated within the canal between 0.047 and 0.056 ft/ft.

Installation of the active cap within Area 8 provides the sorptive function for organic COCs to minimize contaminant flux for residual low-level VOCs, SVOC and lead in sediments remaining beneath the cap. The active cap will also serve to demarcate the base of the excavation. When covered by a minimum of 1.5 feet of NYSDEC-approved sand (or amended sand), topped by 0.5 foot of organic soil, and restored with native wetland vegetation, the active cap will reduce the likelihood of disturbance by burrowing organisms. It is also the case that the micro-organisms & biologically active zone (BAG) is typically understood to be nominally in the shallow 0 – 0.5 foot thickness or zone which will also be within the active cap.

To estimate lifespan, ERM calculated an advective flux of contaminants from the pore water into the surface water through the sediment. Grain size analysis of sediments in the canal was used to estimate a permeability estimate of 5.0×10^{-8} centimeters per second. Normalizing the values to a per square foot basis and assuming an effective porosity of 0.25 results in an estimated hydraulic flux of 8.31×10^{-3} liters per day between the pore water and the canal (per square foot). To be conservative, ERM used the highest porewater concentration of cDCE (13 µg/l), lead (47.3 µg/l), arsenic (3.7 µg/l), TCE (0.90 µg/l), VC (4.8 µg/l), and total PCNs (33.9 µg/l) to estimate contaminant content of the pore water flux. Vendor specs indicate that

a granulated activated carbon RCM has a carbon content of 0.1814 kilograms per square foot. Using adsorption capacity values for each contaminant suggests that lead is the limiting contaminant for RCM lifespan, calculated at 1,263 years. Including a 4x safety factor into the calculations to compensate for competing contaminant sorption, ERM estimates that the RCM will have a lifespan of over 300 years and if a bulk amendment active cap were installed in lieu of an RCM the lifespan would be significantly longer due to the increased amount of amendment available per square foot.

The organic-rich wetland sediments will also promote sorption and natural attenuation processes that further degrade and/or sorb residual VOCs and bind lead, thereby providing flux minimization. Given the limited groundwater to surface water interaction between underlying pore water and surface water, contaminant flux through the active cap is expected to be minimal. Under these conditions, the activated cap is anticipated to have an effective lifespan on the order of centuries, without the need for replacement or significant performance decline. A detailed longevity model was not warranted given the low residual concentrations and the natural attenuation capacity of the organic-rich sediments within the restored wetland system in Area 8 (Appendix A Drawing 10).

2.3 EXCAVATION AND COVER SYSTEM—AREA 9

The proposed partial excavation and installation of a soil cover system in Area 9 is intended to prevent direct contact with shallowly impacted soil. Within the 100-year FEMA Q3 Floodplain, approximately 2 feet of soil and sediment will be excavated, staged, and transported off-Site to a permitted disposal facility. This partial excavation will allow for the installation of a 2-foot-thick soil cover system without altering the existing surface grade (see Appendix A, Drawing 6).

Outside of the 100-year FEMA Q3 Floodplain, a 2-foot soil cover system will be placed over shallowly impacted soil without excavation. Where applicable, and contingent upon analytical testing and NYSDEC approval, soil generated from the top 5 feet of excavation in Area 7 may be reused in accordance with the beneficial use regulations. Alternatively, cover soil will be imported from an NYSDEC-approved source. Following installation, the area will be restored with native vegetation and integrated into the shoreline restoration efforts planned for Area 8 (see Appendix A, Drawing 10).

2.4 PRE-DESIGN GEOTECHNICAL INVESTIGATION

ERM conducted a geotechnical investigation to determine overall soil properties (e.g., soil index properties, grain size distribution). Soil strength properties were also determined (cohesion, C, and friction angle, Φ) for the target excavation area. The geotechnical investigation was performed to verify the subsurface conditions for full-scale construction and excavation conditions. Eight borings were installed with six shallow borings, and 2 deeper borings were installed through the Area 7 fill and the underlying GLC to intersect the deeper till layer. The clay is predominantly WOH material according to *ASTM D1586 / D1586M – 18 Standard Test Method for Standard Penetration Test.* The WOH material was a primary driver for the modification to the ISS approach which is discussed otherwise within this design report.

2.4.1 PHASE 1 TREATABILITY STUDY

The proposed Area 7 Phase 1 bench-scale treatability study was discussed with the NYSDEC, and the concept of the study was approved both verbally and in an email dated 3 December 2020. On 10 and 11 December 2020, ERM collected soil samples from 8 to 16 feet below surface grade using direct-push sampling equipment within the most highly impacted portion of the proposed IRM excavation area, which was identified using field and analytical data collected during previous investigations, to incorporate conservatism into the Phase 1 bench-scale treatability study. Boring and test pit logs, along with analytical data from previous investigations, were used to target highly impacted soil within the proposed IRM area (e.g., soil borings and test pits CB-73, B-200, TP-3, MW-101, B-209). All bulk soil samples were collected following the NYSDEC-approved HASP, the Community Air Monitoring Program (CAMP), and in general accord with the drilling methods approved during previous investigations completed at the Site (ERM, 2015).

Bulk soil samples were submitted to a courier from XDD Environmental, LLC (XDD) and transported under proper chain of custody procedures to XDD, ERM's selected treatability laboratory, in Stratham, New Hampshire. XDD's summary report of the Phase 1 bench-scale treatability study is provided as Appendix C and includes a summary of the means and methods for setting up the study and the laboratory report for the data generated as part of this study.

The objective of the Phase 1 bench-scale treatability study was to evaluate if Site COCs could be sorbed and solidified using ISS. Specifically, activated carbon (AC) and organoclay were tested for efficiency and capacity to adsorb the organic COCs (primarily SVOCs, VOCs, and PCNs) and PC was tested for efficiency and capacity to solidify the zone targeted with ISS, which would address metals. The Phase 1 results demonstrated significant reductions in leachability from the test samples, indicating that ISS is a viable technology for use in Area 7. Both doses of PC tested met the Interstate Technology & Regulatory Council (ITRC) target permeability guidance maximum of $1x10^{-6}$ cm/s (ITRC 2011). A single-batch extraction equilibrium test was used to evaluate sorption performance, which is useful for screening purposes for the mixed material.

The Phase 1 bench-scale treatability study provided valuable information on the feasibility of using ISS, with carbon substrates showing significant reduction with a single-batch extraction. AC outperformed organoclay, with PCN concentrations reduced to below the proposed Site-specific criterion. A Phase 2 treatability was designed based on the results of the Phase 1 bench-scale treatability study.

2.4.2 PHASE 2 TREATABILITY STUDY

Bulk soil samples were collected for the Phase 2 bench-scale treatability study from areas within Canal 1, where the highest concentrations of COCs were observed during Site characterization activities. The Phase 2 bench-scale treatability study included a combination of single-batch extraction and a modified Leaching Environmental Assessment Framework (LEAF 1315) flux-based leaching to more accurately assess long-term flow around/through the mix mass. Further detail on these leaching methods is provided in the ITRC guidance (ITRC, July 2011) and USEPA SW-846 modified Method 1315 Mass Transfer Rates of Constituents in Monolithic or Compacted Granular Materials Using a Semi-Dynamic Tank Leaching Procedures (USEPA 2013).

In addition, permeability and compressive strength testing were completed on the amended test conditions. The primary goals of the Phase 1 and 2 treatability studies (in alignment with ITRC guidance) included:

1. Lower the permeability of the mix mass to promote groundwater flow around the mix mass. ITRC guidance targets a maximum permeability of $1x10^{-6}$ cm/s;
2. Create a low permeability monolith that effectively binds contaminants within it;
3. Minimize leachability of COCs from the monolith;
4. Evaluate the sorptive capacity within the monolith for PCNs, VOCs, and SVOCs using AC;
5. Optimize reagent selection and support the development of the remedial design; and
6. Refine PC dosing for Phase 2 and full scale to achieve target performance criteria for unconfined compressive strength of no less than 50 pounds per square inch (psi).

XDD was retained by ERM to perform a bench-scale evaluation of in situ solidification. XDD utilized a modified LEAF 1315 method to minimize potential volatility loss to represent mass transfer of volatile contaminants into groundwater. A detailed summary is included in the Phase 2 Summary Report provided in Appendix C.

Geotechnical analysis of each condition was performed prior to the initiation of the modified LEAF 1315 study to ensure the treatments conformed to the ITRC guidelines. Initial results after 14-day curing indicated that the compression test failed at PC contributions of 3 percent, 7 percent, 10 percent, 12 percent, and 15 percent. The results at 15 percent PC indicated that it was likely the monolith would achieve the minimum compression strength; however, 20 percent PC was chosen for the Phase 2 study to be conservative. The following five sets of conditions were evaluated in the modified LEAF study:

1. Control (untreated soil)
2. 20 percent PC by dry weight of soil (20 percent PC)
3. 20 percent PC and 2 percent AC by dry weight of soil (2 percent AC)
4. 20 percent PC and 4 percent AC by dry weight of soil (4 percent AC)
5. 20 percent PC, 2 percent AC, and 2 percent sodium persulfate by dry weight of soil (2 percent AC/ 2 percent SP)

The LEAF 1315 method includes nine total sampling events; however, due to costing concerns related to the number of sample methods required, each individual sample method was staggered across the nine events. It was determined that with the reduced number of sampling events, sufficient data for trend analysis would still be available. Therefore, each analyte was sampled fewer than nine times.

Both the 2 percent AC and 4 percent AC treatment options resulted in significant reductions of the leachability of PCNs and VOCs compared to the control. The 4 percent AC treatment routinely outperformed the 2 percent AC treatment by as much as an order of magnitude. There were no significant differences between the results for PFAS across any of the treatment options versus the control.

The cylinders used in the 2 percent AC and 4 percent AC tests were tested for compression strength and permeability. Both cylinders achieved the permeability goal (less than $1x10^{-6}$ cm/s) with 2 percent AC testing at $2.49x10^{-7}$ cm/s and 4 percent AC testing at $6.90x10^{-7}$

cm/s. Both cylinders also passed the compression test with 2 percent AC testing at a peak stress of 112.7 psi and 4 percent AC testing at 81.5 psi.

The results of the ISS treatability study indicate that while the 2 percent AC and 4 percent AC treatment options show potential for achieving the goals of an ISS remedial alternative at the Site, ERM recommends the 4 percent AC treatment option for full-scale remediation. The 4 percent AC treatment option outperformed the 2 percent AC treatment in PCN leachate reduction and therefore provides a significant benefit over the other treatment options. The 4 percent AC treatment resulted in no VOC detections and order of magnitude lower PCN detections than the other options. The 2 percent AC/ 2 percent sodium persulfate treatment produced similar final results as the 2 percent AC, but the results did not indicate the significant added cost of the sodium persulfate provided a measurable performance benefit.

The addition of 20 percent PC to each treatment to meet the compression strength criteria results in a high (10.5 to 12) pH in the leachate that remained through the LEAF monitoring period. All four treatment options that utilized PC also resulted in detections of aluminum and antimony. These metals are found in PC and have not been detected above regulatory criteria in either the control sample or the soils sampled from the AOC. Metals can be mobilized into groundwater at higher pH values.

The results indicate the potential for long-term, low-rate diffusion from the monolith into the surrounding groundwater; however, that diffusate will be significantly diluted by the upgradient pH neutral (and non-detect aluminum/antimony) groundwater. According to Section 4.2.3 of ITRC (2011), leachability test concentrations are not considered to be representative of POC data and should not be directly compared to standards other than for screening purposes.

As an additional measure to further address the edge effect of flow groundwater, the design will include the installation of geomembrane over the top of the monolith. This will minimize contact with flow around groundwater, reducing the pH and potential flux of COCs from the monolith in groundwater. A Phase 3 treatability study was conducted in order to address the potential treatment options for the diffusate and to evaluate treatment options for influx of CVOC impacted groundwater from the Southfield AOC.

2.4.3 PHASE 3 TREATABILITY STUDY

An increase in pH is likely as groundwater flowing through the ISS treatment area contacts the PC, potentially mobilizing metals to concentrations above regulatory criteria. Regardless of whether metals are mobilized, there remains a chance that the pH would not neutralize before reaching the POC. While the ISS treatability demonstrated success in reducing the leachability of VOCs in soil (i.e., leachate concentrations of VOCs were below groundwater criteria) there remains a continual influx of VOC-impacted groundwater flowing downgradient through the Former Canal AOC. Other remedies are in place to address the source of the VOC impacts in upgradient groundwater (i.e., enhanced in situ biodegradation); however, there may be VOCs remaining above criteria that need to be treated prior to discharge to the POC.

The specific goals of the Phase 3 treatability study were to evaluate the potential for a pH adjustment downgradient of the ISS treatment area in a series of batch test reactors, and to evaluate the potential for ZVI to reduce VOCs below groundwater criteria.

The pH buffering testing was conducted by dose testing monoliths, made with Site soil, 4 percent AC and 20 percent PC, submerged in a vessel containing acids water solutions. Acids

were added to the solutions, and pH rebound was monitored over time. These tests were not successful, in that the acids were short lived; therefore, a full-scale implementation would require continuous dosing. This will degrade the surface integrity of the monolith over time. The surface area-to-solution ratio used in laboratory leach testing can overstate potential contaminant mobility or pH elevation, particularly in systems involving cementitious materials, due to exaggerated interaction between the monolith and the leachate. This results in elevated contaminant detections in leachate that are not directly representative of field conditions and according to the ITRC guidance should not be used for comparison against screening criteria (ITRC 2011).

In the bench-scale study, the use of cement led to an elevated pH in the leachate, consistent with expected behavior. However, we anticipate a more moderate pH shift under full-scale conditions due to the significantly lower surface-area-to-groundwater ratio. Based on the information generated in the buffering study and as an added safeguard, the full-scale design includes installation of a geomembrane over the top of the monolith, anchored along its sides, to minimize direct interaction between groundwater flow and the monolith.

To evaluate the use of ZVI as an amendment for a PRB, a series of bench-scale dose-response tests were conducted using two commercially available ZVI products of different particle sizes. The results indicated that granular ZVI, with an average particle size of approximately 325 microns, outperformed a finer-grained ZVI product in terms of reactivity, and will have a longer life span. A subsequent dose-response test was performed to evaluate the residence time required for effective treatment of Site groundwater, and a minimum residence time of 5 days was determined to be necessary.

To support PRB design, geotechnical and permeability testing was conducted on three commercially available sands—cement sand, mason sand, and pond sand—and various blends of these sands with ZVI. The results informed the selection of a reactive media blend that met two key design objectives: achieving a minimum five-day residence time and maintaining sufficient hydraulic conductivity to prevent groundwater mounding or flow impedance at full scale.

Based on these findings, a four-column bench study was conducted to simulate PRB performance under different configurations. The study included the following conditions: (1) a 10-foot control column with sampling ports at 5 and 10 feet; (2) a 5-foot column containing a 50:50 blend of ZVI and sand; (3) a 10-foot column with the same 50:50 blend; and (4) a 5-foot column with a 60:40 ZVI-to-sand ratio.

The highest performing column in the treatability study was the 5-foot column with a 60:40 ZVI-to-sand ratio. The preliminary data showed a 98 percent reduction in VOC concentration; however, cDCE was detected at 10 micrograms per liter, which is equal to the effluent limitation of 10 micrograms per liter. For the purpose of this design, a 10-foot PRB with a 60:40 ZVI-to-sand ratio will be used to successfully treat Site groundwater within the targeted five-day residence time. The Phase 3 treatability report was not yet available at the time of the completion of the DWP; only preliminary laboratory data was available. The treatability report will be included in the final design (100 percent design) work plan. This report will include the means and methods for setup, analytical reports, and summary of results.

3. DESIGN

3.1 PREPARATION

The following Site preparation elements are essential to the construction and completion of the design. Site preparation will be implemented prior to the initiation of full-scale construction activities.

3.1.1 UTILITY CLEARANCE

Dig Safely New York will be notified prior to the initiation of intrusive activities at the Site. They are required by law to identify, locate, and mark member-company utilities in areas proposed for subsurface intrusive investigation. An independent underground utility locating service will be contracted by ERM to scan, clear, and mark the utilities within the proposed IRM areas to a minimum distance of 10 feet outside of each excavation area prior to the initiation of the intrusive work.

Work completed within the critical zones (i.e., less than 10 linear feet) of known utilities will be conducted following ERM's Subsurface Clearance Procedures and Policies. This will require hand clearance to locate utilities within the proposed excavation areas and may result in adjustments to the proposed scope of work to maintain the health and safety of personnel, prevent property damage, or avoid or minimize interferences to Site activities.

3.1.2 MOBILIZATION

The initial mobilization activity will consist of an on-Site meeting with the Engineer and Construction Manager, and the Contractor's construction supervisor to review the details of the project, tour the Site, and discuss implementation details, safety concerns, quality control, and soil staging activities, etc. ERM will coordinate with our remedial subcontractors and review engineering plans and submittals that are relevant to the IRM. ERM will coordinate with the Village and LPW to determine the best areas for staging heavy equipment for excavating and grading, imported soil, and excavated soil that will minimize the handling of materials and interference with commercial access. Once these areas have been identified, equipment, supplies, and materials will be mobilized and temporarily staged at the Site. As part of the process, the remedial subcontractor will obtain any permits required by the Town of Springport, the Village, or other applicable authorities with jurisdiction over the IRM work areas.

3.1.3 TRAFFIC CONTROL

Traffic will predominantly flow one way on Site. A sitewide Traffic Control Plan is shown on Sheet 05. All incoming vehicles used to complete the design will enter on Salem Street and exit the Site on Howland Street. At no point will traffic associated with the work be allowed to queue on public roads. The staging and stockpiling area and construction area will be accessible by a stabilized entrance capable of handling the vehicles and equipment necessary for completion of the design.

3.1.4 SITE SECURITY

Currently, the Site can be closed to public access via lockable gates along Howland Street and Creamery Road. A third gate will be constructed along Salem Street north of 16 Salem Street to disallow any road access to the Site. Each gate is currently or will be affixed with signage

marking the Site as an active construction site. These gates will block Site access from the south, east, and west. Access from the north is restricted by the wetlands north of the BCP boundary and the canal. Temporary fencing and signage will be put in place to dissuade any public access from the north.

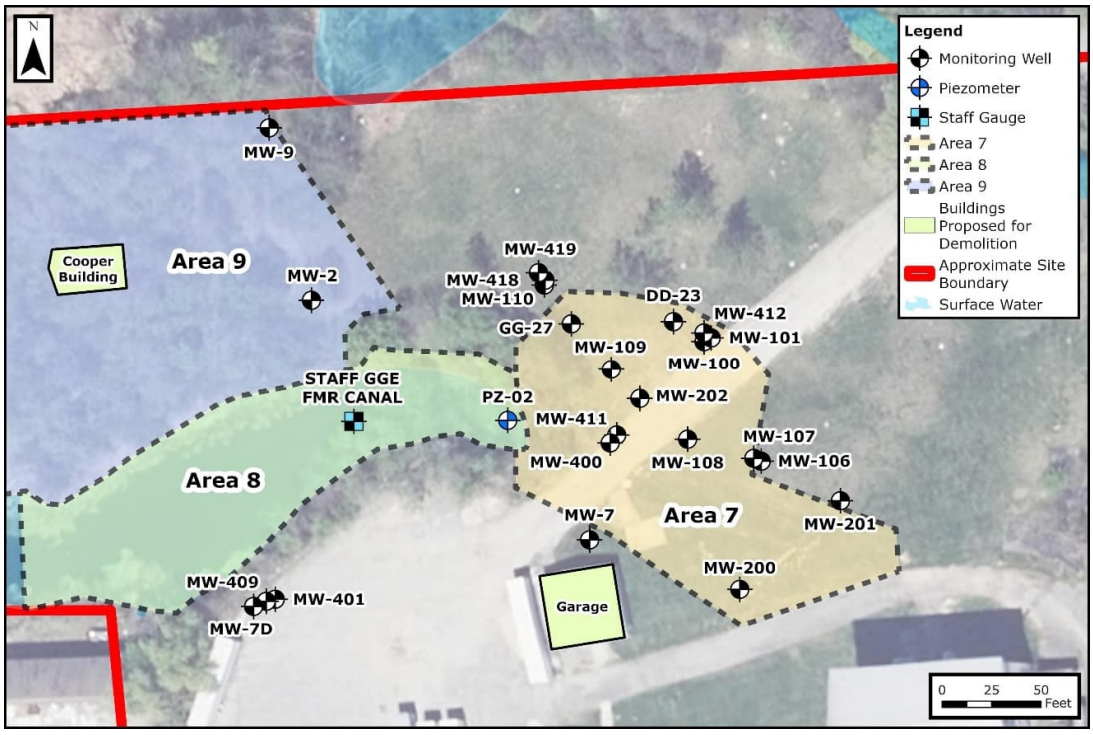
3.2 MONITORING FEATURE ABANDONMENT

Several monitoring features including monitoring wells, piezometers, and staff gauges lie within the area of disturbance of the proposed IRMs. These features will be decontaminated, decommissioned, and demolished as part of the preparations for the IRMs. All monitoring well decommissioning will be performed in accordance with NYSDEC Program Policy CP-43, Groundwater Monitoring Well Decommissioning Policy. The contractor will identify proposed locations for support areas within the designated areas, including staging, stockpiling, dewatering, equipment access, and other construction-related activities. If monitoring wells are located within these areas, the contractor will decommission such wells prior to use of the area in accordance with CP-43. All currently known monitoring features to be abandoned are shown on Figure 4.

The contractor will submit a monitoring well decommissioning plan to ERM and NYSDEC for review and approval at least 7 days prior to performing decommissioning activities.

Monitoring wells decommissioned outside of the ISS treatment area will be replaced where warranted and in consultation with the NYSDEC, to support long-term post-remediation monitoring and evaluation of site condition, as part of Site restoration activities. Replacement well locations and quantities will be focused on establishing an optimized post-remediation monitoring network with sufficient spatial coverage to evaluate remedial objectives and long-term Site conditions.

FIGURE 4: FEATURES TO BE ABANDONED AND DEMOLISHED



3.3 SANITATION AND STORMWATER SEWER LINE

Subsurface utility lines run through the DWP footprint or in very close proximity and will require protection or bypass as part of the work. The location of these lines relative to the IRM footprint will be a focus of the preparatory subsurface clearance.

The first is a sanitary sewer that traverses northeast to southwest across the Area 7 footprint and is found at a depth of approximately 8 feet below grade surface. The sanitary sewer will be bypassed during excavation activities and then subsequently replaced. Prior to disturbance or temporary relocation of existing sanitary sewer infrastructure, ZF's selected remedial contractor shall prepare and submit a temporary sanitary sewer bypass plan for review and approval by the NYSDEC and other applicable parties. The bypass system shall be designed to maintain continuous conveyance of sanitary flows during construction activities. The bypass plan shall, at a minimum, include:

- Estimated flow rates and assumptions;
- Pump sizing and operational capacity;
- Pipe, hose, and conveyance routing;
- Backup pumping and standby power provisions, as applicable;
- High-level alarms and monitoring procedures;
- Inspection and maintenance requirements;
- Spill prevention and containment measures;
- Emergency response and contingency procedures for equipment failure, overflow, or release conditions; and
- Coordination procedures with the publicly owned treatment works operator and applicable regulatory agencies.

The bypass system shall be designed, installed, operated, monitored, and maintained by the Contractor in accordance with applicable regulatory requirements and approved submittals.

The second line is a stormwater sewer pipe that runs from southeast to northwest throughout the footprint of Area 7. Based on the proximity to the area of disturbance, the pipeline is likely to be exposed and will require appropriate protection. The stormwater sewer pipe will be removed and restored as part of the work. All pipe penetrations at the edge of the Work footprint will be temporarily plugged in the event of removal and reinstallation. The catch basins associated with the storm sewer will be protected with compost filter sock or other equivalent inlet protection(s).

For all lines, the backfill and compaction of pipe conduit material will be in accordance with applicable local and state / Department of Transportation construction codes. The location of the pipelines is shown on Sheet 06 in the design drawings.

3.4 MATERIALS MANAGEMENT

Materials to be staged and stockpiled on Site will be placed in the locations shown on the design drawings on Sheet 03. All materials will be stockpiled according to the Stockpile Detail shown on Sheet 17 of the Design Drawings. The soil excavated as part of the Phase I excavation for Area 7 is anticipated to be beneficial reuse material. The excavated beneficial reuse material will be stockpiled on Site.

Prior to mobilization, one or more disposal facilities for the excavated soil will be selected. Prior to off-Site disposal, waste classification will be performed for disposal and evaluation for potential beneficial reuse on Site, by sampling and analysis in accordance with the requirements of the potential disposal facility(ies). If soil meets the requirements for beneficial reuse in accordance with DER-10 Chapter 5.4(e)(4) and 6 NYCRR 375-6.8(a)/(b), the NYSDEC will be petitioned to allow the soil to be used as clean cover elsewhere on Site (e.g., Area 9). If soil does not meet the requirements for beneficial reuse, soil will be transported in triaxle trucks, dump trailers, or roll-off boxes to the selected off-Site disposal facility(ies). Any wastewater generated as part of the completion of work will be transported via vacuum truck or drums to an off-Site disposal facility or treated with a temporary groundwater treatment system and discharge under a permit. All off-Site transport vehicles (or roll-off boxes) will be equipped with a weatherproof tarp that will be secured over each shipment leaving the Site or upon placement of waste within the container.

Each transport vehicle will be visually inspected and decontaminated if required to ensure that no loose soil or other material is tracked off Site. Particular attention will be paid to removing materials from tires, undercarriages, and portions of vehicles that may have been in contact with soil materials during loading operations.

The waste materials will be manifested on either non-hazardous waste manifest forms or hazardous waste manifest forms, as appropriate. Weight tickets will be obtained from the disposal facility(ies) for each shipment of waste from the Site. Transport vehicles will not exceed New York State Department of Transportation weight limits, and the necessary and up-to-day waste transporter permits.

3.5 BUILDING DEMOLITION

The freestanding metal garage and remnants of the Cooper Building on Site will be demolished as part of this work. These building are shown on Figure 4. The garage is a standalone structure that lies within the footprint of Area 7 and the Cooper Building is the remnants of a standalone structure within Area 9. Prior to remedial action, the Contractor will demolish the garage exterior walls and roof. Building debris will be segregated and disposed of separately from soils unless otherwise approved by the property owner and the disposal facility.

The Cooper Building has been documented by ERM in a Historic Resource Inventory structure form as an addition to the New York State Historic Preservation Office (SHPO) record for the Howland Mill Complex (Resource Identification No.: 01148.000172). This form was provided to SHPO concurrent with a Phase IA Literature Search and Sensitivity Assessment (Phase IA) for the Project submitted on 18 July 2025 (ERM, 2025C). No further cultural resources efforts were recommended for the building. The building is in a state of continuous ruin and is in danger of collapse at any time. As a safety measure, the Cooper Building will be demolished at the start of Project work. This proposed management approach for the Cooper Building was reviewed by SHPO subject matter experts, and on 12 August 2025 a consolidated response stated SHPO had no comments regarding impacts to historic or archaeological resources (NYSHPO, 2024). The remnants of the building (i.e. rough-cut stone foundation and walls, with no remaining wood, doors or windows) will be toppled inward toward the interior area of the structure to control the direction of collapse and maintain site safety. The displaced stones will remain in place to preserve and document the original location of the structure.

3.6 ENCOUNTERED DEBRIS

Debris encountered during construction activities will be managed according to applicable state and federal regulations. All debris will be managed in advance of ISS for each active cell as the mixing progresses and will be identified, categorized, and either reused, recycled, or disposed of in accordance with applicable waste management protocols. Where necessary, debris will be excavated and staged using a skeleton bucket, mechanically demolished using a hoe ram or equivalent mechanical means, to allow for efficient management of debris. Recovered materials will be segregated and sized on Site to comply with disposal facility acceptance requirements. Clean rock or concrete rubble may be reused on Site as backfill or subbase material, if it meets regulatory requirements and is approved by the NYSDEC. If the debris suspected of being hazardous waste, the material will be sampled to identify its waste classification prior to being disposed of off Site in accordance with applicable state and federal regulations.

3.7 EXCAVATION SLOPING REQUIREMENTS

As discussed in Section 2.4, a geotechnical investigation was performed as the basis for the slope design. Soil strength and property information were collected. The geotechnical information will be provided to the contractors. ERM will verify that the contractors proposed excavation support system and/or excavation sloping (to access the ISS mix platform) meets appropriate factors of safety. ERM will also verify the design addresses the GLC geotechnical properties (low strength properties of the underlying material). Boring logs are provided in Appendix D.

The ultimate excavation sloping will be implemented in accordance with the OSHA 1926 Subpart P 1926.651 Safety and Health Regulations for Construction, Specific Excavation Requirements (OSHA 2001).

3.7.1 AREA 7 EXCAVATION LIMITS AND WATER MANAGEMENT

The detailed civil engineering design has been prepared to address backfill and grading, and stormwater requirements. A brief discussion of key civil design concepts is presented below and depicted on the Drawing 6 (Appendix A).

The design profile addresses the backfill and restoration along the centerline of the excavation. Excavation will be implemented from the roadway edge at nominally station 2+30 and terminate at the boundary where the buried canal intersects with the existing open canal at nominally station 30, generally over a 200-foot length.

ERM will develop a water management approach that complies with NYSDEC permitting requirements during the detailed design and permitting stage. The presumptive approach, which may be adjusted pending permitting requirements, follows. ISS implementation does not necessitate overall dewatering but management of contact water within the excavation and therefore overall required dewatering will be minimized. Maintenance sumps will be installed proximal to the operable remediation area and/or ISS Area. Water extracted from the excavation area will be containerized as it is generated in one or more fractionation tanks, pending characterization per permit requirements. If non-compliant sample results are obtained, the excavation water associated with those samples will be treated to enable permit compliance and either conveyed to the Village's treatment works, discharged to surface water if permit compliant, or managed at an off-Site permitted treatment facility. Water discharge

will not occur until samples are collected and tested and verify compliance with discharge requirements.

ERM will also be integrated with contingent mobilization and operation of a water treatment system to treat excavation / soil management pad water, if needed for compliance with permit requirements. ERM will structure the bid form to retain flexibility around this approach. Specifically, the base bid pay items would include requirements around excavation water maintenance, dewatering, containerization, characterization, and verification of permit compliance. An alternate pay item will also be integrated which requires contingent mobilization and operation of a water treatment system to treat excavation contact water / soil management pad water for compliance with permit requirements.

3.8 EMBANKMENT GRADING DESIGN

The embankments are graded with maximum slopes of 3 Horizontal to 1 Vertical (3H:1V) or 2H:1V if slopes are lined with rip rap. The embankment in the northeast of Area 8 and west of Area 7 is a 3H:1V slope. The embankment in the south of Area 8 is a 2H:1V slope. Grading on the eastern end of this profile will also be designed to tie into the existing access road. The design profiles are provided in Drawing 9.

3.9 EARTHWORK

3.9.1 AREA 7 EARTHWORK

The following subsections describe the earthwork planned for the IRM work for Area 7, formerly referred to as Canal 1. Area 7 will be excavated in two lifts down to predetermined elevations to allow for the segregation of soils that were characterized with analytical data and field data during pre-design investigations. This will be followed by ISS portion of the remedy to minimize leachability within the mix area and manage GCM by solidification.

3.9.1.1 AREA 7 LIFT 1

Lift 1 will be an excavation from existing grade down to 387 feet amsl, within Area 7, with an excavation slope down to 387 feet amsl of 2H:1V. In situ pre-design data indicate that Lift 1 may be suitable for beneficial reuse per DER-10. However, in accordance with NYSDEC, Lift 1 soils will be staged/ stockpiled in areas shown on Drawing 3 (Appendix A) and sampled for beneficial reuse confirmation, with the results submitted to NYSDEC for review and written approval prior to use as backfill of these soils on Site, or disposal offsite if necessitated by analytical results. If deemed suitable for beneficial reuse, material will be placed as backfill within Area 7, as the soil cover in Area 9, or on former Area 5 from 404 feet amsl to 390 feet amsl on a 3H:1V slope, as shown on Drawing 09. The estimated quantity of soil generated in Lift 1 is estimated to be 4,500 cubic yards (CY).

3.9.1.2 AREA 7 LIFT 2

The second lift excavation for Area 7 will be from 387 amsl to 383 feet amsl. The 383 feet amsl excavation floor will act as the mixing platform. This soil will be segregated from Lift 1 soil, staged/ stockpiled, and reused pending waste characterization, or disposed of offsite if necessitated by analytical results. The excavation down to 383 feet amsl provides several feet between the expected groundwater table and the mixing platform to provide a stable platform for mixing equipment. Large stone blocks were identified on the southern edge of the former

Canal 1 during the RI; these will be removed, staged, and evaluated for potential contamination (e.g., visual staining, proximity or contact with COCs, field screen, laboratory data). If there is no evidence of contamination, the NYSDEC will be petitioned for use as fill for the same purposes as Area 7 Lift 1 soil. Otherwise, they will be managed as contaminated media. The estimated quantity of soil generated in Lift 2 is 3,000 CY.

3.9.1.3 AREA 7 ISS

Mixing will be conducted sequentially with skeleton buckets or mixing heads on excavators. Mixing will take place from 383 feet amsl to 373 feet amsl. AC will be mixed first. Following a thorough mixing, a wait time of 24 to 72 hours will be given to prevent early encapsulation of COCs or the PC, to maximize sorption. Following the pause, PC mixing will be conducted. The ISS mix will be allowed to cure for 3 to 7 days to allow for equipment support, while allowing the material to be rippable. A test patch within the first mix cell to be completed will allow for the evaluation of the optimal timing to support equipment, while allowing the material to be in rippable condition. This will also provide time to evaluate field quality control samples.

Material swell of between 35 to 40 percent is expected—this swell will be progressively excavated from the ISS mix, stockpiled, and managed in stages, in accordance with analytical results and Site management requirements. Once the swell has been removed to between 381.5 and 380 feet amsl elevation, a minimum 60-mil thick HDPE geomembrane will be installed at the top of the stabilized material to provide additional stabilization and remedial measures. The liner perimeter will be fixed in place by an anchor trench and overlain with ~ 5' of clean fill material. The limits of the liner are shown in the Drawings on Sheet 07. The edges of the liner will be anchored as shown in the Drawings on Sheet 14 to prevent uplift and undermining of the liner by the groundwater flow and expected swell. The estimated quantity of ISS in Area 7 is 6,800 CY.

3.9.1.4 AREA 7 ISS BUFFER

A buffer zone between the downgradient extent of ISS treatment and the open canal is not warranted or included as the impacted soils extending to the canal interface will be treated. The ISS design is intended to address the delineated extent of impacted material. The majority of the ISS monolith will be covered with a HDPE geomembrane to minimize hydraulic contact between the treated material and surrounding groundwater. By limiting shallow groundwater interaction with the monolith, the geomembrane will significantly reduce the potential for contaminant flux from the monolith or retard potential pH and metals flux to surrounding shallow groundwater and adjacent surface water, supporting the conclusion that a buffer zone between the monolith and the abutting surface water body is not necessary. Geomembranes have a permeability of 10^{-13} cm/sec are not considered permeable within this context.

In consideration of hydraulically upgradient and flow around groundwater, and as an additional contingency measure further discussed in Section 3.11, a groundwater collection pipe network will be installed along the hydraulic downgradient side of the monolith to facilitate groundwater management via extraction for treatment and recirculation. Slotted piping will be installed along the upgradient side of the monolith to allow for substrate injection and/or groundwater recirculation, as appropriate, following ISS construction. These features provide operational flexibility and multiple layers of treatment contingency by allowing for active management and treatment of groundwater conditions should post-construction monitoring indicate such actions are beneficial. Collectively, the geomembrane cover, the contaminant leachability reduction

achieved through ISS, and the proposed groundwater management infrastructure provide for a contingent system to manage potential for contaminant migration and provide a robust remedial framework that minimizes the need for a buffer zone while also avoiding unnecessary fill placement within the adjacent wetland based on Site constraints.

3.9.2 AREA 8 EARTHWORK

Area 8, formerly referred to as Canal 2, will be excavated in one phase. Several shallow contaminated soil samples were collected at the bottom of Area 8 and the excavations will be 2 feet deep to remove the contaminated material. The Area 8 excavation plan has been updated in the DWP drawings to tie into the excavation plan for Area 7 Phase 2 and Area 9, as shown on Sheet 06. In earlier submitted design reports, Area 8 was shown to have a 2-foot cut on top of existing elevation contours. The current excavation contours representative of the 2-foot cut have been updated, as shown on Sheet 06, to reflect a field practical excavation design that still accomplishes the earlier design intent—to excavate 2 feet of material while also maintaining uniform slopes. The southern slope of Area 8 will be a 2H:1V. The northern slope will be 3H:1L. Any grossly impacted material observed at the bottom of the 2-foot cut will be excavated to the extent feasible. The depth and extent of additional excavation, if necessary, will be determined by an evaluation of field conditions by the project team, with the final limits determined by what may be safely and practically removed.

3.9.3 AREA 9 EARTHWORK

Due to some shallow contaminated soil samples collected in Area 9, the area has been delineated in the DWP as an area for general 1-foot excavation. The intermediate grades shown on Sheet 06 reflect the design intent of a minimum 1-foot excavation across the limits of Area 9, except for areas adjacent to Area 8 that will tie-in to the respective 2-foot excavation and restoration. Beneficial reuse material excavated from Area 7 Phase 1 will be used for backfill in footprint of Area 9, where required.

Within the footprint of the wetlands in Area 9, intermediate excavation grades will be down to the expected groundwater table elevation. The design intent for the wetlands is to have 1 foot of fill material above the groundwater table within the delineation of the wetlands to promote vegetative growth and wetland rehabilitation. The final grading plan shown on Sheet 09 accomplishes the design intent of 1 foot of fill material within the footprint of the wetlands above the groundwater table.

3.10 PERMEABLE REACTIVE BARRIER DESIGN

PRBs are installations that include reactive materials or amendments placed within a specific groundwater flux zone. The flux zone is designed to affect treatment as contaminated groundwater passes through it; in some cases, additional remediation occurs downgradient of the PRB due to migration of remedial amendments and generation of a treatment zone out of the PRB. PRBs are passive systems that take advantage of groundwater flow within the treatment zone. PRBs are designed to be relatively higher transmissivity zones that cause groundwater to preferentially flow into and through the PRB. PRBs are designed to intercept any contaminant plume as it migrates with groundwater flow.

ERM calculated a targeted permeability for the PRB based on historical groundwater influx across Area 7 and into Area 8. ERM matched the targeted permeability to a materials blend that will be of a reasonable width for construction, achievable under field mixing conditions,

and cost effective. Calculations included a safety factor against damming to ensure that the material over the monolith and the PRB would allow all incoming water to pass through while also ensuring enough residence time to allow the PRB to treat VOCs.

A PRB will be installed as part of the backfill of Area 7. The PRB will extend 5 to 10 feet horizontally from the downgradient end of the ISS mixing zone to passively treat groundwater flowing through the permeable zone. The proposed PRB (~100 feet long x 10 feet wide x 5 feet deep) is designed to place ZVI-amended substrate within the targeted study area to support a biological treatment zone. The PRB will consist of 60 percent ZVI, 25 percent mason sand, and 15 percent pond sand to achieve an ideal groundwater residence time as determined in the Phase III Treatability Study.

3.11 SUPPLEMENTAL REMEDIATION PIPING INFRASTRUCTURE

As part of Site restoration following ISS activities, a manhole and associated piping network will be installed after the placement of the geomembrane atop the ISS monolith, and prior to backfilling to Site grade. The installation of this infrastructure is intended as a contingency measure to provide flexibility for future groundwater management or supplemental treatment, if deemed necessary based on post-remedial monitoring data.

The proposed piping network will include slotted extraction piping along the hydraulically downgradient (western) edge of the monolith, which will provide the option to collect groundwater flow migrating around the monolith. In addition, solid conveyance piping will be installed leading to slotted distribution piping along the hydraulically upgradient side of the monolith. This configuration is designed to enable potential future implementation of targeted remedial strategies, such as groundwater extraction and treatment, recirculation, or injection of amendments (e.g., carbon-based substrates) to further enhance in situ remediation of CVOCs remaining in groundwater. Two independent injection points along the northeastern limits of Area 7 are also included in this infrastructure. All piping utilized in this infrastructure will be chemically compatible for the liquids to be contained therein.

The proactive installation of piping is a common engineering practice and permits the Site to retain flexibility to implement supplemental treatment approaches efficiently, if warranted, without requiring intrusive excavation through restored areas at a later date.

3.12 STORMWATER MANAGEMENT (PERMANENT FEATURES)

Permanent drainage controls (e.g., culverts, spillways, flumes, outlet structures) will be installed to manage stormwater, minimize surface ponding of water, and minimize erosion following construction. Hydrology and hydraulics calculations were completed to design and size permanent drainage control structures in accordance with the New York State Stormwater Management Design Manual, and the New York State Standards and Specifications for Erosion and Sediment Control. HydroCAD and Macra1 were used to support the design of Culvert 1, Spillway 1, and Flume 1 to evaluate post-remediation runoff conveyance and system stability. The analysis was based on the final grading plan and included delineation of contributing catchments, estimation of time of concentration, and development of runoff curve numbers. The locations of these control structures are presented in Drawing 12.

Modeling was conducted for up to the 100-year, 24-hour storm event to evaluate routing of flow through the Site and to support sizing of conveyance features.

The analysis demonstrates that:

- The proposed conveyance system provides increased hydraulic capacity relative to existing culverts and roadway crossings.
- Runoff from smaller storm events is conveyed through Culvert 1, while larger events are routed through Spillway 1 and Flume 1.
- Spillway flow velocities remain below erosive thresholds, and flume armoring is designed to resist calculated shear stresses.
- Conveyance features are designed with adequate freeboard and minimize upstream ponding for design storm events.

3.12.1 CULVERT 1

Culvert 1 conveys stormwater from the influent area to Area 8, replacing an existing undersized 10-inch HDPE pipe. Culvert 1 consists of a shallow inlet drop box to an underground 24-inch HDPE pipe, designed such that the pipe has a 0.5 percent slope and outfalls above the typical water surface of the Open Canal, minimizing tailwater conditions. The 24-inch pipe size was selected to minimize surface ponding of the influent area when conveying the 100-year, 24-hour storm event from the culvert watershed.

Outlet protection for Culvert 1 is designed using Figure 3.16 of the New York State Standards and Specifications for Erosion and Sediment Control (NYSDEC 2016).

Based on the maximum flow in the 100-year, 24-hour storm event, the outlet protection consists of a d50 riprap size of 0.4 foot and a minimum apron length of 13 feet.

3.12.2 SPILLWAY 1

Mill Pond Spillway 1 is an off-embankment auxiliary spillway intended to safely convey stormwater flow for larger return period storm events or potential breach of the dam from the influent area across the roadway to the top of the Open Canal, replacing three existing 30-inch corrugated metal roadway culverts. These three existing culverts are located approximately 700 feet west of the dam embankment and function as separate downstream drainage conveyance features that are not physically integrated into the dam structure. Spillway 1 is conservatively sized to convey flow for an extended catchment that includes stormwater from the Mill Pond watershed. Spillway 1 is tied into existing grade, as shown on Sheet 10, and consists of a drive-through roadway swale.

In compliance with the New York State Stormwater Management Design Manual, Spillway 1 is designed to convey the 10-year, 24-hour storm event with greater than 6 inches of freeboard, and to have a non-erosive peak velocity (less than 5.0 feet per second) in the 2-year, 24-hour storm event.

Spillway 1 is designed to provide greater capacity than the three existing 30-inch corrugated metal roadway pipes it will replace. In addition, the design would direct water related to a breach of the dam away from downgradient infrastructure to minimize injury and economic loss and maintain the Village's mill pond dam classification governed under New York Codes, Rules and Regulations Title 6, Part 673.5 – Dam Hazard Classifications.

3.12.3 FLUME 1

Flume 1 conveys stormwater from Spillway 1 into the Open Canal. Flume 1 is graded to have a 22 percent downhill slope and a 3-foot channel bottom.

In compliance with the New York State Stormwater Management Design Manual, Flume 1 is designed with 3:1 side slopes and a channel depth of 1 foot that provides greater than 6 inches of freeboard through the 25-year, 24-hour storm event.

12-inch-thick Reno Mattresses were selected as protective channel lining for Flume 1 to provide a factor of safety on allowable tractive shear stress of 1.2 in the 25-year, 24-hour storm event.

3.12.4 WATER QUALITY CONSIDERATIONS

This project is being implemented as an environmental remediation action and does not constitute new development or redevelopment as defined under the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-25-001).

Accordingly, post-construction stormwater management criteria outlined in Part II.C.2 of the permit, including Water Quality Volume (WQv) and Runoff Reduction Volume (RRv), are not applicable and were not calculated.

Notwithstanding the above, the design incorporates measures consistent with the intent of the New York State Stormwater Management Design Manual to protect receiving waters, including:

- Establishment of vegetative cover over Area 7 to promote infiltration and reduce runoff potential
- Maintenance of existing drainage patterns to the extent practicable
- Design of non-erosive conveyance features and stable outlet protection

These measures minimize erosion and sediment transport and support the protection of surface water quality.

3.13 ODOR MANAGEMENT

Odor generation during field activities is expected to be minimal; however, ERM has planned for the potential necessity for odor mitigation measures. Odors generated during excavation, mixing, and any other activities will be managed through the use of Rusmar long-duration foam (e.g., RusFoam® OC or AC-645, AC-667SE) or an equivalent emissions control product as a key odor suppression surfactant technology. During the Phase 2 Treatability Study, the surfactant was added to the amended test conditions at a dosage that is expected to be applied in the field (initially diluted at a 6.5:1 ratio [6.5 parts water to 1 part surfactant] and applied under the specific test conditions at a dosage of 1.79% by soil volume) in anticipation of necessity in the field.

A December 2019 foam pilot test was conducted to evaluate odor control effectiveness during excavation of impacted material. RusFoam® OC was applied using a Rusmar NTC-8 unit within test pits and to stockpiled materials representing both worst-case and typical odor-generating conditions. Application consisted of covering exposed materials with foam until full surface coverage was visually achieved. Odor observations collected over 15-minute monitoring intervals before and after foam application indicated a consistent and significant reduction in odor intensity following application.

Based on these pilot conditions, field implementation will target surface coverage of all exposed odor-generating materials using equivalent equipment and methods, with reapplication as necessary to maintain an effective foam blanket. Foam application rates will be governed by the need to maintain full visual coverage and the maximum sustained output of the application equipment used during the pilot test. There are project-specific and manufacturer guidance on the use of Rusmar foams for odor suppression during remediation. There are not single or universal application rates and dosage depends on:

- Contamination concentration type and volatility;
- Excavation and ISS activity level;
- Temperature/wind/sunlight;
- Desired foam longevity; and
- Whether the foam is being used for active excavation versus overnight/weekend cover.

In addition to foam application, supplemental odor management controls will be implemented as needed, including operational measures (e.g., minimizing the extent and duration of open excavations, sequencing work to reduce simultaneous odor-generating activities, prompt treatment or covering of exposed materials, and real-time observation of odor conditions).

A temporary movable perimeter fence (minimum 6 feet in height) consisting of chain link with a visual barrier, will be installed around active remediation areas. Odor-suppressing materials may be affixed to the fence to enhance control. If required based on field observations, an additional perimeter fence may be installed near the Site boundary, particularly in the prevailing downwind direction and closest to sensitive receptors, to provide a secondary level of odor diffusion and suppression.

If field observations indicate that the above measures are insufficient to control odors, additional controls will be implemented in coordination with NYSDEC and NYSDOH.

3.14 RESTORATION DESIGN

Exposed soil areas will be stabilized with regionally appropriate native grass and forb wetland and upland seed mixes, as well as native wetland and upland woody vegetation. Wetland and upland shrubs and trees will be selected from a local nursery to provide locally acclimated plants to improve planting success. These areas include IRM areas with a soil cover, as well as areas outside of the IRM areas disturbed during construction activities. Vegetation will be re-established with vegetated soil cover for all construction and adjacent disturbed areas. The top 4 inches of the soil cover will include the necessary amendments to enable the re-establishment of a hardy vegetative stand. Roadways will have subgrade installed and then be re-paved. The Restoration Plan on Sheet 10 provides the vegetation types and planting rate to be replanted on Site. The wetlands will be graded and restored to contain hummocks as shown on the hummocks detail on Sheet 10.

3.14.1 CLEANUP AND DEMOBILIZATION

Once the remedial action is complete, all construction equipment will be decontaminated and removed from the Site—including any temporary enclosures or trailers. All disturbed areas will be restored in kind to the extent reasonably possible or as agreed upon with the property owner.

3.15 COMPATIBILITY WITH UPGRADIENT INJECTION ACTIVITIES

A pilot-scale injection program is underway within the hydraulically upgradient South Field AOC to promote reductive dechlorination in shallow groundwater (HGU-1). The injection area is located approximately 120 to 200 feet upgradient of the Former Canal AOC where ISS will be implemented, and the anticipated radius of influence of injected amendments (approximately 20 feet) indicates no direct areal overlap with the ISS treatment zone.

Injection amendments include emulsified vegetable oil (EVO), iron substrates, bioaugmentation culture, sodium ascorbate (oxygen scavenger), and sodium bicarbonate (pH buffer). These materials are either consumed rapidly (hours to days), remain localized near the injection points, or are present at low concentrations, and are not expected to adversely affect PC hydration, curing, or strength development within the ISS treatment area.

Injection activities are expected to temporarily modify groundwater geochemistry within the treatment zone, including development of reducing conditions, minor pH decreases (generally remaining within ranges suitable for cement hydration), and localized increases in total organic carbon and dissolved iron. These effects attenuate with distance and are not expected to persist or occur at concentrations that would impact ISS implementation or performance in the downgradient canal area.

Overall, based on separation distance, limited amendment transport, and transient geochemical effects, the upgradient injections are not expected to interfere with or diminish the effectiveness of the ISS IRM. Further details were presented in the South Field AOC injection Work Plan (ERM 2026).

In the case that injected materials reach the planned ISS area, any potential complications with the injected materials and the ISS cement/additives should be considered. The first consideration is any potential effect the injectate may have on the efficacy of the treatment additives or the curing of the PC. The first concern is the potential for acidification in groundwater due to the formation of organic acids. During the in situ microcosm study, pH dropped as low as 6.23 standard units from a baseline of 6.85 in MW-509 and from a baseline of 7.07 to 6.56 in MW-510. These locations were monitored for 9 months post-injection. From this data, it is not anticipated that the injections would have a significant effect on groundwater pH downgradient. Based on ASTM C1602, the amended groundwater pH would be considered neutral and would not be expected to adversely affect the hydration, curing, or strength development of the cement in the ISS mixture. While the ASTM C1602 does not provide a numerical range for the pH of water used in the preparation of cement, the guidance for water used with hydraulic cement lists a target range of 5 to 8.5 (NYDOT, 2023).

The second consideration is the effect of the injection materials (i.e., EVO, oxygen scavenger, iron) within the ISS cement mixture. A Lee et al. (2013) study indicates the impact radius of 20 feet at any given injection location. The closest planned direct push location to the Former Canal AOC is 70 feet. ERM has calculated that the injection will deliver approximately 0.03% weight by total soil weight of EVO as an initial concentration. This de minimis amount would not be expected to adversely affect the curing of PC. This addition would be negligible compared to the mass of PCNs and other COCs already present and accounted for in the bench-scale testing. As part of the ISS bench-scale testing, Portland dose tests were completed on worst-cases scenario soils from within the canal (i.e. soil from areas with the

highest COC concentrations with some oily residuals) with Portland ratios from 3 to 20 percent tested to ensure the ISS monolith would exceed ISS remediation goals (ERM 2023).

While no study could be found directly linking EVO and cement curing, a product from Atlas Construction Supply, Inc. called “Atlas Bio-Guard” (https://www.atlasform.com) is a biodegradable water-based form release agent formulated from natural EVO. It is designed to prevent concrete adhesion to formwork. According to manufacturer specifications, the release agent does not adversely affect the adhesion of curing compounds or the hydration and strength development of the cementitious material when used as directed, making it a comparison of interest for considering potential ISS strength impacts in the proposed ISS company of the Canal IRM.

The proposed pilot study will use the industry practice of using sodium ascorbate to remove dissolved oxygen and lower oxidation-reduction potential to anaerobic conditions in the water used to prepare batches of amendment prior to injection. At these low dosages (approximately 0.3 grams per liter), oxygen is rapidly consumed by sodium ascorbate in the batch tank, resulting in an anaerobic injectate ready for EVO and/or bioaugmentation. Once injected into the aquifer, any remaining ascorbate is rapidly consumed by reactions with dissolved oxygen and biological processes in situ. Sodium ascorbate will be consumed within hours of use and will have no impact on the proposed downgradient IRM/ISS monolith.

Sodium bicarbonate will be added to the injectate batch bank to buffer the pH and support stability of the amendment. Any added bicarbonate will be partially consumed by reactions in the injectate or aquifer. At the dilute concentrations used, the consumption of sodium bicarbonate is estimated at minutes to hours. Any residual sodium bicarbonate that is not consumed prior to injection would be rapidly consumed and diluted in situ within hours. The planned injection and ISS mixing will be separated by several months; there is a strong assurance that the ISS performance will not be impacted by the use of sodium bicarbonate in the injectate.

Nanoscale magnetite and liquid iron substrate are included in the amendment to support reductive dechlorination. Their addition may cause localized, temporary changes in groundwater chemistry (e.g., lower ORP, small increases in dissolved iron) but these effects are limited to the immediate injection zone and do not generate persistent, mobile iron at appreciable concentrations beyond the immediate treatment zone (Johnson et al. 2025). At the distance of the Canal IRM/ISS area (>70 ft), iron concentrations are expected to be negligible, and there is no anticipated impact on cement hydration, curing, or strength, making the amendment compatible with the proposed downstream ISS implementation.

In situ amendment consumption rates vary by site conditions (e.g., aquifer heterogeneity, microbial community, electron acceptor availability, etc.), extensive field and pilot studies have shown that EVO amendments generally remain near the injection zone and support long-term reducing conditions without substantial transport far downgradient. Summaries of case histories for EVO substrates (e.g., Terra Systems’ SRS®) indicate that total organic carbon distribution from an EVO injection is typically limited to approximately 20 feet from injection points and can persist for months to years depending on site characteristics and substrate loading. Independent column and field research also demonstrates that EVO supports sustained microbial activity and TCE dechlorination within the treatment zone, with limited evidence of meaningful migration beyond the immediate radius of influence.

The distance between the proposed hydraulically upgradient EVO injection area and the Canal IRM/ISS mixing zone (greater than 70 feet) substantially exceeds the historically observed EVO radius of influence in similar silty soils, making advective transport of EVO carbon to the canal IRM zone unlikely. Moreover, commercially available EVO release agents used in geotechnical applications (e.g., form release) are not shown to adversely impact cement hydration or strength development. Based on the current proposed schedules, there will be a three-month, or greater gap anticipated between the pilot EVO injection and implementation of the Canal IRM further reducing the potential for available EVO in the subsurface at the time of the ISS work. Taken together, the benefits of reducing CVOC concentrations in groundwater throughout the pilot study area and collecting data on the longevity of these effects support multiple aspects of the overall site management strategy with minimal risk of negatively impacting the downgradient ISS cement curing performance.

4. REMEDIAL ACTION SUPPORT PLANS

The following sections describe supplementary plans to the Remedial Action plan.

4.1 QUALITY ASSURANCE PROJECT PLAN

The Construction Quality Assurance Plan (CQAP) details the quality assurance program that will be implemented to verify that the construction is performed in accordance with the approved design. The CQAP includes submittals, approvals, inspections, observations, testing, and documentation required during pre-construction and construction periods. The CQAP identifies the necessary procedures for an orderly, accurate, and efficient data collection and analysis program for the project that will achieve the following objectives:

- Identify staff with the appropriate qualifications to complete data quality monitoring.
- Enable proper management of samples in the field and the laboratory.
- Establish realistic data quality goals.
- Facilitate collection of accurate, complete, and verifiable data.

The CQAP also describes the responsibilities and authority for all parties involved in the Remedial Action and the minimum qualifications of the quality assurance personnel and organizations. The CQAP is provided in Appendix E.

4.2 SAMPLING AND ANALYSIS PLAN

This Sampling and Analysis Plan (SAP) addresses sampling activities to be conducted as part of the IRM at the Former TRW Union Springs Facility, located at 107 Salem Street, Union Springs, New York. The SAP addresses sampling of imported fill materials and excavated sediment (for disposal characterization). The SAP includes information on sampling equipment and procedures, and sample handling and analysis. The SAP is provided in Appendix F.

4.3 SOIL MANAGEMENT PLAN

Soil management activities will be conducted in accordance with the detailed Soil Management Plan provided in Appendix G. The overall objectives of soil management for this project are to support the implementation of IRMs, ensure proper characterization and handling of excavated materials, and maintain protection of human health and the environment during all construction activities.

Excavation will occur within IRM Areas 7, 8, and 9 where excavated soils, sediment, stone and ISS swell will be stockpiled, characterized, and managed for either beneficial reuse on Site or off-Site disposal, depending on analytical results. Beneficial reuse is planned where feasible to minimize off-Site disposal volumes, consistent with NYSDEC requirements. The excavated materials will be segregated based on pre-design characterization data, field screening data, visual inspection, and physical properties (e.g., need to dewatering, media conditioning requiring to increase the physical strength and decrease the mobility of free liquids, turning sediment into a solid matrix suitable for transport and disposal) to allow for proper characterization with analytical data, conditioning, followed by the appropriate management.

Imported materials will include clean sand, soil, and structural fill. All imported materials will be pre-characterized to demonstrate compliance with NYSDEC soil cleanup objectives prior to delivery to the Site.

Soil stockpile areas will be constructed with protective liners, perimeter controls, and stormwater management features to prevent releases from happening to the surrounding environment. Stockpiles will be covered daily and during inclement weather to control dust, minimize contact water generation, and reduce potential exposures.

Waste characterization sampling will be conducted in accordance with NYSDEC DER-10 guidelines and the requirement of the off-Site permitted receiving facilities. Excavated soil failing to meet beneficial reuse criteria will be managed for off-Site disposal at permitted facilities as either non-hazardous or hazardous waste, depending on analytical results and waste classification. Transportation and disposal will be conducted in compliance with applicable local, state, and federal regulations, including manifesting and daily tracking by the construction manager.

Health and safety measures will be implemented throughout soil management activities, including controlled access to work zones, air monitoring for VOCs and particulates, and erosion and sediment controls to protect adjacent wetlands and surface water bodies. Upon completion of construction and soil management activities, all temporary infrastructure will be removed, and the Site will be restored in accordance with the approved restoration plan.

For additional details regarding soil management procedures, sampling protocols, and disposal considerations, refer to Appendix G—Soil Management Plan.

4.3.1 EROSION AND SEDIMENT CONTROLS

Temporary erosion and sediment controls will be constructed prior to general disturbance associated with the Canal AOC remedial construction. The design criteria for all temporary erosion and sediment controls specified on the design drawings and technical specifications were based on the New York State Standards and Specifications for Erosion and Sediment Control (NYSDEC 2016).

Two turbidity curtains will be installed across the Open Canal. Compost filter socks will be used on the slopes entering at the intersection with the Open Canal, and a silt fence will be used along the west and north sides of the disturbed earthworks areas. A fabric drop inlet will be installed to protect the storm sewer inlets. The construction entrances will be stabilized with geotextile fabric and stone. Stockpiles will be stabilized and located as shown on the Final Design Drawings (Drawing 03). Locations, details, and schedules for the controls are provided in the Erosion and Sediment Control Plan in the Final Design Drawings (Drawings 03, 17, and 18).

4.4 WASTE MANAGEMENT PLAN

The Waste Management Plan has been prepared for the IRM activities to describe the types of wastes anticipated to be generated during the Remedial Action and the respective dispositions for the waste. In addition, this plan includes waste storage/stockpiling, waste characterization, consolidation, and other waste management requirements. The Remedial Action Waste Management Plan is provided in Appendix H.

4.5 WATER MANAGEMENT PLAN

The work discussed in the Water Management Plan will consist of all activities necessary to perform water management during project implementation, including water generated during soil, sediment, and waste excavation and consolidation in accordance with the design drawings

and subbase grading plan. All contact water generated during these activities will be treated on Site by the contact water treatment system. The Water Management Plan is provided in Appendix I.

4.6 MONITORING PLANS

The following sections describe the monitoring plans that will be implemented during and/or following the IRM construction.

4.6.1 COMMUNITY AIR MONITORING PLAN

A CAMP involves real-time monitoring for VOCs and particulate matter (i.e., dust) at the downwind perimeter of each designated work area during intrusive activities. Given that VOCs are considered a COC at the Site, this CAMP will include VOC and particulate matter monitoring as a precaution. The CAMP is provided in Appendix J.

4.6.2 VIBRATION AND SETTLEMENT MONITORING PLAN

The Vibration and Settlement Monitoring Plan specifies the monitoring requirements and criteria necessary to protect nearby utilities and other facilities and will be signed and sealed by a Registered New York Professional Engineer. The plan will provide monitoring of subsurface utilities and any structures adjacent to or within the Site. Where applicable, monitoring will also include settlement and deflection monitoring to ensure differential settlement or deflection does not occur as a result of construction activities to a point that would cause damage. The Vibration and Settlement Monitoring Plan is provided in Appendix K.

4.7 OPERATIONS AND MAINTENANCE PLAN

This Operation and Maintenance (O&M) Plan provides a brief description of the measures necessary to operate and maintain the mechanical components of the remedy selected for the Site. An O&M Plan will be developed and provided in the CCR.

4.7.1 ROUTINE MAINTENANCE ACTIVITIES

The O&M Plan will include/address the following routine maintenance activities:

- Post-Closure inspections for vegetation, settlement, stormwater drainage controls, and groundwater monitoring system.
- Description of potential operating problems.
- Take note of the condition in and around the Site for trespassers, erosion.
- Equipment manufacturer literature and data.
- Description of equipment.

Operator(s) who are conducting the O&M work will take note of the condition of the finished grades throughout the Site. Operator(s) will maintain photologs during routine maintenance activities to ensure vegetation is established.

4.7.2 NON-ROUTINE MAINTENANCE ACTIVITIES

The O&M Plan will include/address the following non-routine maintenance activities:

- Site inspections will be conducted following catastrophic events such as severe storms, tornadoes, hurricanes, natural and man-made fires, and any event which could result in slope instability.
- Any other event that may result in widespread waste exposure.

4.8 UPDATED REMEDIAL DESIGN AND FINAL REMEDIAL ACTION SCHEDULE

This IRM is anticipated to begin following regulatory approval and the subsequent selection of the subcontractor(s). The anticipated premobilization approval process schedule is presented below. A detailed field schedule will be developed during procurement or following selection of supporting remedial subcontracts, which will be submitted to the NYSDEC. Schedule may be modified based on permit and/or permit-equivalent requirements, acceptable construction windows, or for unforeseen changes to the project.

Activity	Timeframe
Submit draft IRM (95%) Work Plan for Review	4 November 2025
NYSDEC provides comments	13 April 2026
Submit DWP for NYSDEC and Public Review Period	12 June 2026
Start of 45-day Public Review Period	24 June 2026
Work Plan Approval	14 August 2026
Start of Procurement	14 August 2026
Mobilization	22 January 2027
Site Preparation	5 February 2027
Remedy Implementation	5 March 2027
Stormwater Infrastructure Installation	23 July 2027
Site Restoration	20 August 2027
Demobilization	17 August 2027
Construction Completion Report Submittal	30 October 2027

5. GREEN AND SUSTAINABLE DESIGN CONSIDERATIONS

A key focus in this IRM design is alignment with the NYSDEC DER-31 guidance emphasizing sustainable remediation practices. Traditional excavation and disposal/incineration involves dredging or excavating contaminated soils and sediments, followed by transportation and disposal in landfills or incineration facilities. Landfill disposal consumes valuable space, requires continuous monitoring and management, and remains a long-term liability. While incineration does reduce waste volume and ensures total destruction, it also results in air emissions and requires significant energy input.

NYSDEC's DER-31 promotes practices that minimize the environmental footprint of remediation projects. The Canal IRM strategies align with these goals by: minimizing transportation and the need for energy-intensive treatment, thus reducing energy consumption and greenhouse gas emissions; making efforts to minimize waste generation and resource consumption; treating sediments in place and conserving landfill space; reducing physical disturbance and promoting natural recovery processes via ecosystem restoration; and promoting long-term effectiveness and sustainability via more passive remediation approaches.

As an in situ remedial option that treats contaminated soils in place, ISS offers significant green and sustainable advantages over excavation alone requiring both disposal and incineration of waste, as the remedial option in Area 7.

The top 2 feet of sediment will be removed in Area 8 and replaced with an RCM and/or active cap over the contaminated sediments to provide a reactive barrier that sequesters contaminants. Subsequently covering the active cap and rebuilding the wetland in the open portion of the Former Canal AOC will promote natural recovery and result in a net positive environmental impact. These techniques minimize negative environmental impacts, conserve resources, and align with NYSDEC DER-31 guidance by prioritizing sustainable remediation practices.

6. POST-CONSTRUCTION

The selected remedial measures have been developed to satisfy the Site-specific and generic RAOs for soil, sediment, groundwater, and surface water as established under 6 NYCRR Part 375 and DER-10 Section 4.1(c). These RAOs focus on preventing direct exposure to contaminated media, mitigating contaminant migration to groundwater and surface water, and protecting ecological receptors from adverse impacts. The remedy achieves these objectives through a combination of targeted source removal, ISS treatment, and engineered isolation systems designed to be protective of human health and the environment based on the intended future use of the Site.

In IRM Areas 8 and 9, shallow excavation and removal of impacted soils and sediment, in combination with the installation of 2 feet of clean cover will remove potential exposure pathways and direct sources of contaminant migration. In addition, Area 8 includes the placement of a active cover at the base of the 2 feet of clean overlying material will provide long-term containment and isolation of residual impacts from potential migration. Reconstruction of the wetland will restore ecological function, enhance natural attenuation, and promote long-term stability of the remediated area.

Within the IRM Area 7, a combination of excavation of the upper 5 feet of soil, in combination by an ISS utilizing carbon and PC, will stabilize and treat residual contaminants, and reduce mobility and leachability. Installation of a ZVI PRB along the downgradient boundary will provide ongoing treatment of remaining VOC-impacted groundwater migrating toward the open canal, effectively minimizing the exposure pathway as groundwater discharges to surface water. Collectively, these measures are designed to achieve the RAOs by controlling direct exposure, mitigating contaminant migration, and ensuring long-term protection of human and ecological receptors.

This section presents the planned post-construction activities that will confirm successful implementation of the remedy and long-term attainment of the RAOs. These activities include performance monitoring, construction documentation, and verification sampling to demonstrate compliance with the remedial design objectives and overall protectiveness of the completed remedy.

Post-construction activities will be implemented to verify that the completed remedial elements meet the design intent and achieve the RAOs for soil, sediment, groundwater, and surface water. These activities will include construction documentation, performance monitoring, inspection and maintenance of engineered controls, and verification sampling. Construction documentation will consist of as-built drawings, photographs, and daily field reports confirming that the work was completed in accordance with the approved design specifications and quality assurance/quality control (QA/QC) requirements.

Following completion of construction, a performance monitoring program will be initiated to evaluate the effectiveness of the remedial components. This program will include collection and analysis of post-construction soil, sediment, surface water, and groundwater samples, as applicable, to confirm contaminant reductions and the attainment of RAO-based cleanup criteria. Inspection and maintenance activities will be conducted to ensure the continued integrity and performance of the cover system, active cover systems, wetland reconstruction, and the PRB system. Inspection frequency, monitoring locations, analytical parameters, and reporting requirements will be further detailed in the CCR and the Site Management Plan.

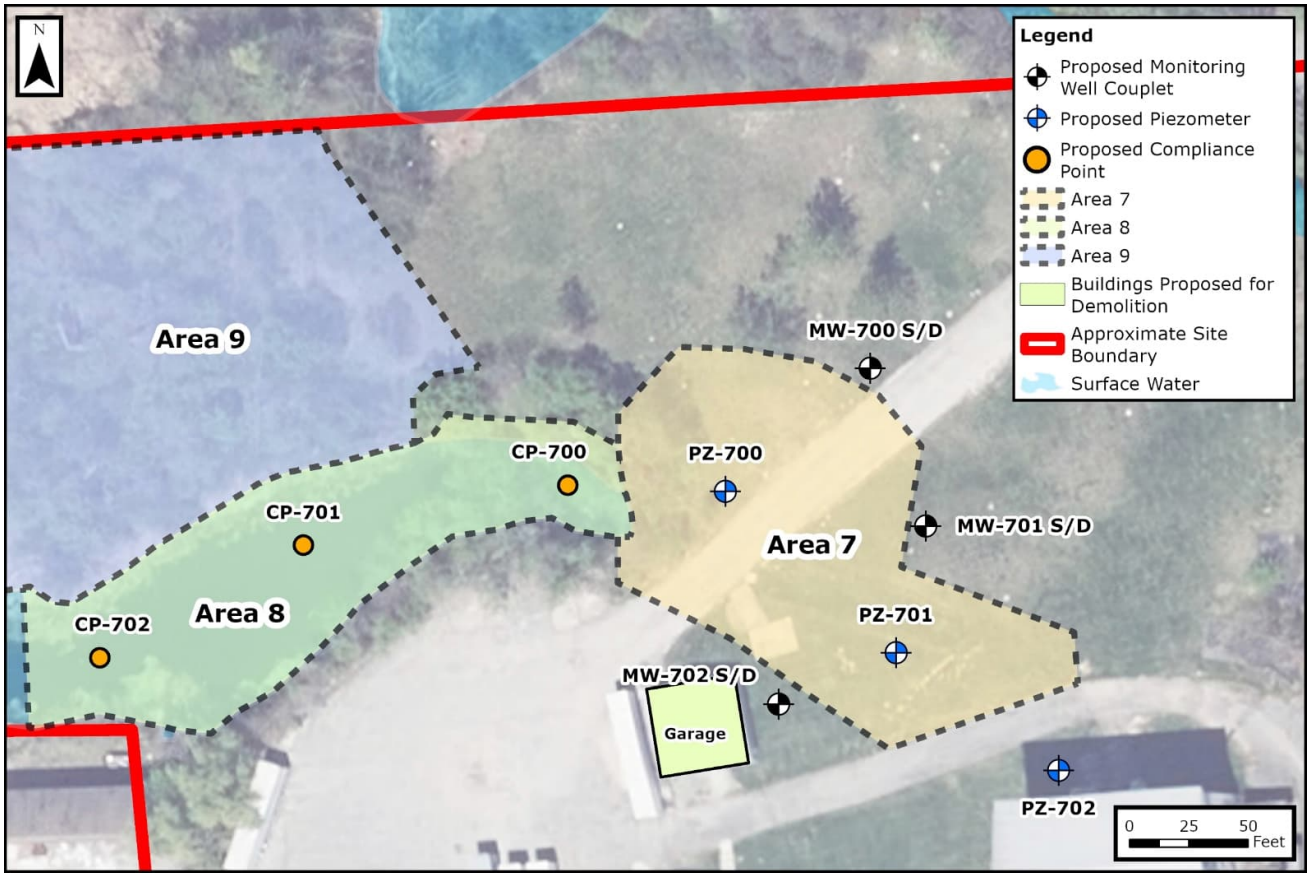
The results of post-construction verification activities will be used to confirm successful implementation of the remedy and to support a determination that the RAOs have been achieved. Any necessary corrective actions identified through these activities will be coordinated with NYSDEC to ensure continued compliance with the remedial objectives and the long-term protectiveness of the Site.

6.1 POST-CONSTRUCTION MONITORING ACTIVITIES

Post-construction monitoring is proposed to assess the effectiveness of the IRM and protection of downgradient receptors (Figure 5). Specifically, the proposed monitoring includes installing three shallow and deep monitoring well couplets (MW-700 S/D, MW-701 S/D, MW-702 S/D) immediately upgradient of the ISS monolith to monitor influent groundwater quality entering the ISS treatment zone, and groundwater elevations with pressure transducers. In addition to these wells, two piezometers (PZ-700 and PZ-701) will be set over the monolith and a third (PZ-702) installed south of the monolith. Wells and piezometers will be installed by an NYSDEC-registered driller who will be contracted to install the wells for the pilot test. The wells will be installed using means and methods typically used on the Site and be constructed of 2-inch diameter, 5-foot 0.010-slot polyvinyl chloride well screen and riser. A pressure transducer network will be installed for a period of approximately 5 years to gauge the hydraulic response to the PRB. The data collected will be used to determine the monitoring period.

Surface water sampling locations will be established within Area 8 as POCs. One will be approximately 25 feet downgradient from the toe of the ISS monolith (CP-700), a second POC (CP-701) will be located at the approximate midpoint of Area 8, and a third POC (CP-702) will be downgradient portion of the reconstructed wetland in Area 8, prior to the confluence with the influent tributary, to ensure protection of downgradient surface water quality and to monitor groundwater prior to leaving the BCP boundary. The data collected will be used to determine the duration of post-IRM monitoring period.

FIGURE 5: PROPOSED MONITORING WELLS, PIEZOMETERS AND POINT OF COMPLIANCE



6.2 PROPOSED COMPLIANCE SAMPLING

Groundwater and surface water monitoring will be conducted to evaluate the compliance and temporal changes in water chemistry within the IRM areas. The proposed frequency and overall duration of compliance monitoring will be quarterly for at least 2 years. The frequency and duration of ongoing sampling will be assessed at that time and mutually agreed upon with the NYSDEC.

Each of the newly installed monitoring wells and surface water compliance sampling points shown on Figure 5 will be included in each of the compliance monitoring events. For all monitoring events, groundwater samples will be collected following Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures, and field measurements including pH, oxidation reduction potential, conductivity, and dissolved oxygen will be recorded. Compliance surface water samples will be grab samples, and surface water chemistry will be measured for the same parameters using a calibrated multi-parameter water quality instrument. Sampling logs will be completed for each monitoring well and compliance sampling location for each sampling event to document the field parameters. Groundwater samples will be analyzed by an Environmental Laboratory Approval Program certified laboratory for:

- VOCs by United States Environmental Protection Agency (USEPA) Method 8260B;
- SVOCs by USEPA Method 8260B (which includes 2-chloronaphthalene, which will be the proxy for PCNs as the most water soluble monochlorinated derivative);
- Pesticides by USEPA Method 525.3/ 531.2; and

- U.S. Resource Conservation and Recovery Act 8 Metals by 6010/6020.

Each event will include the following quality assurance and quality control samples: duplicate, matrix spike & matrix spike duplicate, trip blank, and equipment rinsate blank. Laboratory reports will be Category B NYSDEC Analytical Laboratory Data Package and will be validated by a third party, who will provide Data Usability Summary Reports.

The frequency of monitoring events and duration of the performance monitoring period will be reviewed and potentially revised, based on interpretation of the results.

6.3 WETLAND RESTORATION MONITORING

The monitoring program will also include post-construction monitoring of the newly constructed wetland itself, conducted in accordance with NYSDEC wetland mitigation monitoring guidelines, to evaluate hydrologic function, vegetative establishment, and ecological performance. Restoration monitoring will be conducted over a five-year period. Two field visits will be conducted during the growing season each year. The rate of survival of woody stems will be counted as well as the review of the herbaceous coverage to the point that herbaceous cover reaches 85%. Replanting may be required if woody stems are unsuccessful. Environmental monitors will also monitor the growth of invasive species. Invasive species will be removed by a qualified contractor.

6.3.1 POST-CONSTRUCTION REPORTING CONSTRUCTION COMPLETION REPORT

Following the completion of all IRM activities, a CCR will be prepared to document this IRM. The CCR will be prepared in general accordance with DER-10, Section 5.8 (NYSDEC, 2010a). The CCR will include the following components:

- A description of the IRM, as constructed, pursuant to this DWP.
- A summary of activities completed including, but not limited to, the following:
  - A description of problems encountered and their resolution.
  - A description of deviations from the DWP, if any, and why each change was made.
  - A listing of waste streams and their final disposition.
  - Restoration activities.
- Governing documents including HASP, CQAP, Soil Management Plan, Stormwater Management Plan, Community Air Monitoring Plan, and any other relevant governing documents.
- Remedial program elements including contractors and consultants, Site preparation, general Site controls, nuisance controls, CAMP results and daily and monthly reporting
- Imported backfill documentation including details on cement batch information.
- All permits and other approvals obtained during the IRM, including landfill approval letters, local permits and approvals from the WWTP.
- Tables and figures containing all pre- and post-remedial data that document the completion of the remedial action. The figures will include the volume of contaminated soil or sediment which was remediated, as well as contamination remaining at the Site to be managed.
- All fully executed manifests documenting any off-Site transport of waste material.

- A tabular summary of all performance monitoring results and other sampling and chemical analyses performed as part of this IRM.
- As-built drawings bearing the seal and signature of the EOR.

6.3.2 ADDITIONAL REPORTING

The NYSDEC has requested a summary of all IRMs and pilot studies be included in a revised version of the draft RI report (NYSDEC 2025).

The implementation of this IRM DWP will be considered a substantial component to the final Site remedy. Before developing an AA report, updates will be required for the conceptual site model. The series of IRMs performed on the Site will have altered the Site hydrogeology and geochemistry. Each IRM has been implemented to address immediate risks to human health and the environment. A complete evaluation of the IRMs, results, and remaining Site conditions will be essential for accurately defining the scope of the remaining contamination, assessing current risks, and developing a comprehensive and effective set of remedial alternatives in the AA report.

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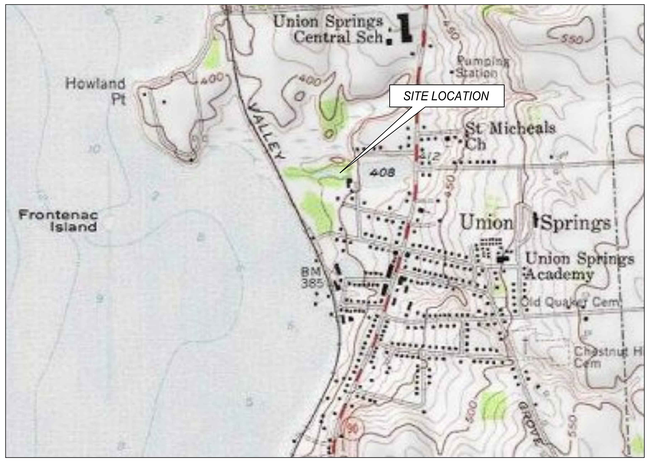
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APPENDIX A DESIGN DRAWINGS

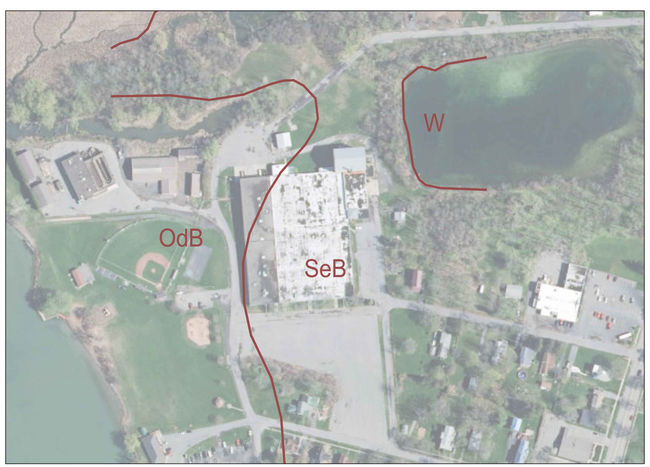
DESIGN OF AREA 7, 8 AND 9
INTERIM REMEDIAL MEASURES WORK PLAN

FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

SITE LOCATION MAP



SITE VICINITY AERIAL



SOIL SURVEY STAFF, NATURAL RESOURCES CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE. WEB SOIL SURVEY. AVAILABLE ONLINE AT HTTPS://WEBSOILSURVEY.NRCS.USDA.GOV/. ACCESSED JANUARY 2021

REVISION F
RESPONSE TO COMMENTS FROM NYSDEC
NOT FOR CONSTRUCTION

JUNE 2026

PREPARED FOR
TRW AUTOMOTIVE U.S. LLC

PREPARED BY

ERM

Environmental Resources Management

Syracuse Office 315-445-2534

STATE OF NEW YORK
STEPHEN ANTHONY MIRABELLO
LICENSED PROFESSIONAL ENGINEER
089550
6/30/26

STEPHEN MIRABELLO, P.E.
NEW YORK PROFESSIONAL ENGINEER LICENSE NO. PE 089550

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DRAWING INDEX

00	COVER SHEET
01	GENERAL NOTES AND LEGEND
02	EXISTING CONDITIONS
03	EROSION AND SEDIMENT CONTROL PLAN
04	UTILITY MANAGEMENT PLAN AND PROFILES
05	TRAFFIC CONTROL PLAN
06	EXCAVATION PLAN
07	AREA 7 PHASE 2: IN SITU SORPTION AND SOLIDIFICATION PLAN AND PROFILE
08	AREA 7 PHASE 3: SUPPLEMENTAL REMEDIAL PIPING INFRASTRUCTURE
09	FINAL GRADING PLAN
10	AREA 7, 8, AND 9 RESTORATION PLAN
11	GRADING PROFILES
12	CULVERT AND FLUME DESIGN
13	ACCESS ROAD DESIGN
14	CONSTRUCTION DETAILS (1 OF 2)
15	CONSTRUCTION DETAILS (2 OF 2)
16	STORMWATER DETAILS
17	EROSION AND SEDIMENT CONTROL DETAILS (1 OF 2)
18	EROSION AND SEDIMENT CONTROL DETAILS (2 OF 2)

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GENERAL NOTES:

1. KNOW WHAT'S BELOW - CONTRACTOR TO CALL BEFORE YOU DIG! CALL NEW YORK ONE CALL AT 811 AT LEAST THREE FULL BUSINESS DAYS (NOT COUNTING WEEKENDS OR HOLIDAYS) PRIOR TO BEGINNING WORK. MAINTAIN CONFIRMATION FOR THE DURATION OF EXCAVATION ACTIVITIES. PRESERVE AND PROTECT MARKED-OUT UTILITIES.
2. PRIOR TO EXCAVATION OR ANY OTHER LAND DISTURBANCE ACTIVITIES, EXISTING SURFACE AND SUBSURFACE UTILITIES/STRUCTURES WITHIN THE PROJECT SITE (OR WHICH MAY BE AFFECTED BY OR INTERFERE WITH THE PROPOSED WORK), SHALL BE LOCATED BY CONTRACTOR UNLESS OTHERWISE DIRECTED BY THE OWNER'S REPRESENTATIVE.
3. ALL IMPORTED STONE OR SOIL SHALL BE DEMONSTRATED TO BE IN COMPLIANCE WITH THE LATEST VERSION OF THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) REGULATIONS (6 NYCRR PART 360). ALL IMPORTED MATERIALS MUST BE PRE-APPROVED BY THE NYSDEC AND THE OWNER'S REPRESENTATIVE PRIOR TO BRINING ON-SITE.
4. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK AND SHALL COMPLY WITH ALL OWNER AND OWNER'S REPRESENTATIVE HEALTH AND SAFETY REQUIREMENTS.
5. ANY EXISTING SITE FEATURE THAT IS DAMAGED OR REMOVED DURING THE WORK SHALL BE REPAIRED OR REPLACED UNLESS OTHERWISE NOTED.
6. PLAN LOCATIONS AND DIMENSIONS SHALL BE STRICTLY ADHERED TO UNLESS OTHERWISE DIRECTED BY THE OWNER'S REPRESENTATIVE.
7. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS PRIOR TO ORDERING AND/OR FABRICATING ANY MATERIALS.
8. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, PROCEDURES AND SEQUENCES, EXCEPT FOR THE OVERALL SEQUENCE OF CONSTRUCTION. THE CONSTRUCTION SHALL BE SEQUENCED IN ACCORDANCE WITH THE SOIL EROSION & SEDIMENT CONTROL PLAN.
9. CONTRACTOR SHALL PATCH, REPAIR AND FINISH OR REPLACE ALL SURFACES, EQUIPMENT, OR FEATURES RESTORING SAID SURFACES, EQUIPMENT OR FEATURES DAMAGED DURING THE WORK TO THEIR PRE-WORK OR AS-DESIGNED CONDITION.
10. FABRICATION AND INSTALLATION OF ALL MATERIALS, FINISHES, ETC. SHALL BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, UNLESS OTHERWISE SPECIFIED IN THE DESIGN
11. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH LOCAL BUILDING CODES AND THE NEW YORK DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE STANDARDS UNLESS OTHERWISE SPECIFIED.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF UTILITIES, WHETHER SHOWN OR NOT SHOWN ON THE DRAWINGS, AND SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED IN THE REPAIR OF ANY DAMAGE TO SAME RESULTING FROM THE CONTRACTOR'S WORK ASSOCIATED WITH THIS PROJECT. ANY DISCREPANCIES SHOULD BE REPORTED TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.
13. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE DONE TO THEM OR INTERRUPTION OF SERVICE DUE TO THE CONTRACTOR'S NEGLIGENCE SHALL BE IMMEDIATELY AND COMPLETELY REPAIRED AT HIS/HER EXPENSE.
14. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THERE IS SUFFICIENT COVER ON ALL PIPING DURING CONSTRUCTION TO PREVENT DAMAGE TO, OR FAILURE OF PIPES AS REQUIRED BY MANUFACTURER'S GUIDANCE FOR PIPE SIZE AND MATERIAL.
15. ALL EXCAVATIONS SHALL BE KEPT DRY AT ALL TIMES UNLESS OTHERWISE NOTED.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR PERMITS AS DESCRIBED IN THE TECHNICAL SPECIFICATIONS.

SURVEY INFORMATION

1. EXISTING SITE SURVEY PERFORMED BY RICHARD M. RYBINSKI. L.S., 8236 INDIAN HILL ROAD, MANLIUS NY 13104 FROM 2011 TO JUNE 2020. ADDITIONAL SURVEY PROVIDED BY THEW ASSOCIATED FROM JUNE 2020 TO DECEMBER 2022.
2. THESE PLANS ARE BASED ON SURVEY INFORMATION AVAILABLE AT THE TIME THEY WERE PREPARED AND ACTUAL CONDITIONS MAY VARY.
3. THE EXISTING SURVEY'S COORDINATE SYSTEM IS NEW YORK STATE PLANE, CENTRAL ZONE, US FOOT COORDINATE SYSTEM.
4. THE EXISTING SURVEY'S HORIZONTAL DATUM IS NAD 1983 AND VERTICAL DATUM IS NAVD 1929.
5. CONTRACTOR SHALL PROVIDE A PRE-CONSTRUCTION SURVEY OF THE WORK AREA TO THE LIMITS OF DISTURBANCE AS SHOWN PRIOR TO CONSTRUCTION. SURVEY REQUIREMENTS ARE FOUND IN THE TECHNICAL SPECIFICATIONS.

LEGEND

EXISTING CONDITIONS

- 400 — EXISTING GROUND INDEX CONTOUR (INTERVAL = 5 FT.)
- 399 — EXISTING GROUND INTERMEDIATE CONTOUR
- BORING LOCATIONS
- STORM SEWER MANHOLE
- WATER VALVE
- HYDRANT
- SANITARY SEWER MANHOLE
- UTILITY POLE
- SURVEY CONTROL POINTS
- EXISTING WELLS
- SAMPLE LOCATION
- STAFF GAUGE
- PROPERTY LINE
- CHAIN-LINK FENCE
- BRUSH LINE
- BURIED CULVERT
- G — GAS LINE
- W — WATER LINE
- UE — UNDERGROUND ELECTRIC LINE
- OP — OVERHEAD POWER LINE
- SW — STORMWATER LINE
- SS — SANITARY SEWER LINE
- FM — SEWER FORCE MAIN
- 100-YEAR FEMAQ3 FLOODPLAIN
- 100-FT WETLAND BUFFER
- MHW — MEAN HIGH WATER LEVEL
- SS-507 — CLEAN SAMPLE LOCATIONS
- SS-507 — IMPACTED SAMPLE LOCATIONS
- WETLAND
- OPEN WATER/STREAMS/PONDS
- CONCRETE

CONSTRUCTION/PROPOSED CONDITIONS

- 400 — PROPOSED GROUND INDEX CONTOUR (INTERVAL = 5 FT.)
- 399 — PROPOSED GROUND INTERMEDIATE CONTOUR
- AREA 7 LIMITS
- AREA 8 LIMITS
- AREA 9 LIMITS
- LOD — LIMIT OF DISTURBANCE
- LOL — LIMIT OF LINER
- LE — LIMIT OF EXCAVATION
- C — LIMIT OF CAP
- TRAFFIC FLOW
- INGRESS
- EGRESS
- ALLOWABLE STAGING AREAS
- NON-ALLOWABLE STAGING AREAS
- TEMPORARY CONSTRUCTION FENCE
- SF — SILT FENCE
- FS — COMPOST FILTER SOCK
- TC — TURBIDITY CURTAIN
- CD — COFFERDAM
- SB — SORBENT BOOM
- GUIDE RAIL
- STABILIZED CONSTRUCTION ENTRANCE
- FABRIC DROP INLET
- PROPOSED MANHOLE
- ASPHALT
- GABION BASKET
- RENO MATTRESS
- LAWN SEED MIX FOR RESTORATION
- FORMER CANAL CENTER
- STONE FOR RESTORATION
- UPLAND FORESTED AREA FOR RESTORATION
- NEW ENGLAND CONSERVATION/WILDLIFE MIX FOR RESTORATION
- WETLAND SHRUBS FOR RESTORATION
- BENEFICIAL RE-USE MATERIAL
- STABILIZATION MIX ZONE
- CAP MATERIAL
- STRUCTURAL SAND
- BACKFILL MATERIAL
- NATIVE SUBGRADE
- TREES FOR RESTORATION
- PRB MATERIAL (60% ZVI, 25% MASON SAND, 15% POND SAND)

1302 — DRAWING NUMBER WHERE DETAIL IS LOCATED / DETAIL DESIGNATION

1101 — DRAWING NUMBER WHERE PROFILE IS LOCATED / PROFILE DESIGNATION

DIRECTION OF PROFILE VIEW

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW ARTICLE 145 FOR ANY PERSON TO ALTER ANY DOCUMENT THAT BEARS THE SEAL OF A PROFESSIONAL ENGINEER, UNLESS THE PERSON IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER.

STATE OF NEW YORK — STEPHEN ANTHONY MIRABELLO — LICENSED PROFESSIONAL ENGINEER — 089550

Rev.	Date	Description	By	Chk
F	JUNE 2026	RESPONSE TO COMMENTS FROM NYSDEC	DF	JR
E	JULY 2025	ISSUED FOR PERMIT	DF	JR
D	JULY 2023	ISSUED FOR PERMIT	DF	JR
C	NOV 2022	ISSUED FOR PERMIT	DF	JR
B	AUG 2021	ISSUED FOR PERMIT	MB	JR
A	JAN 2021	ISSUED FOR REVIEW	MB	JR

DRAWN BY: JH | CADD Review: MB | CHECKED BY: SM

ERM

Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN

FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

GENERAL NOTES AND LEGEND

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	01	F
DATE DRAWN: JAN 2021			

REVISIONS TO BE MADE ON THE CADD FILE ONLY

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DATE	MW-2 SURFACE ELEVATION FT ASML	MW-2 DEPTH TO WATER FT	MW-2 WATER ELEVATION FT AMSL	MW-9 SURFACE ELEVATION FT ASML	MW-9 DEPTH TO WATER FT	MW-9 WATER ELEVATION FT AMSL	Staff Gauge Former Canal SURFACE ELEVATION FT ASML	Staff Gauge Former Canal DEPTH TO WATER FT	Staff Gauge Former Canal WATER ELEVATION FT AMSL
18-Nov-2011	387.21	5.46	381.75	-	-	-	-	-	-
12-Dec-2012	387.21	5.8	381.41	389.39	5.47	383.92	-	-	-
14-Jan-2015	387.21	5.71	381.5	389.39	5.81	383.58	-	-	-
12-Dec-2016	387.21	5.73	381.48	389.39	5.31	384.08	380.82	0.8	380.02
11-Jan-2018	387.21	5.38	381.83	389.39	5.15	384.24	380.82	0.6	380.22
23-Jan-2018	387.21	5.68	381.53	389.39	5.36	384.03	380.82	0.5	380.32
21-Feb-2018	387.21	5.3	381.91	389.39	5.9	383.49	380.82	0.35	380.47
09-Mar-2018	387.21	6.15	381.06	389.39	5.91	383.48	380.82	0.25	380.57
14-Mar-2018	387.21	5.82	381.39	389.39	5.85	383.54	380.82	0.25	380.57
26-Mar-2018	387.21	7.7	379.51	389.39	6.5	382.89	380.82	0.25	380.57
12-Apr-2018	387.21	6.74	380.47	389.39	6.06	383.33	380.82	0.25	380.57
19-Apr-2018	387.21	7.57	379.64	389.39	6.39	383	380.82	0.25	380.57
03-May-2018	387.21	6.79	380.42	389.39	6.11	383.28	380.82	1.05	379.77
11-Jul-2018	387.21	5.87	381.34	389.39	5.8	383.59	380.82	1.1	379.72
31-Jul-2018	387.21	5.15	382.06	389.39	5.1	384.29	380.82	1.1	379.72
17-Oct-2018	387.21	5.94	381.27	389.39	6.12	383.27	380.82	0.5	380.32
30-Oct-2018	387.21	7.43	379.78	389.39	6.41	382.98	380.82	1.6	379.22
14-Nov-2018	387.21	6.5	380.71	389.39	6.2	383.19	380.82	0.85	379.97
20-Nov-2018	387.21	8.92	378.29	389.39	5.51	383.88	380.82	0.95	379.87
27-Nov-2018	387.21	6.02	381.19	389.39	5.73	383.66	380.82	1.1	379.72
04-Dec-2018	387.21	6.93	380.28	389.39	6.38	382.81	380.82	1.1	379.72
20-Dec-2018	387.21	6.92	380.29	389.39	6.32	383.07	380.82	1.45	379.37
02-Jan-2019	387.21	6.81	380.4	389.39	6.7	382.69	380.82	1.7	379.12
08-Jan-2019	-	-	-	-	-	-	380.82	1.9	378.92
15-Jan-2019	-	-	-	-	-	-	380.82	1.9	378.92
27-Feb-2019	-	-	-	-	-	-	380.82	1.15	379.67
23-Apr-2019	-	-	-	-	-	-	380.82	1.2	379.62
01-May-2019	-	-	-	-	-	-	380.82	1.7	379.12
16-May-2019	-	-	-	-	-	-	380.82	1.8	379.02
28-May-2019	-	-	-	-	-	-	380.82	1.8	379.02
11-Jun-2019	-	-	-	-	-	-	380.82	1.3	379.52
02-Jul-2019	-	-	-	-	-	-	380.82	1.85	378.97
10-Jul-2019	-	-	-	-	-	-	380.82	1.6	379.22
17-Jul-2019	-	-	-	-	-	-	380.82	1.6	379.22
06-Aug-2019	-	-	-	-	-	-	380.82	1.6	379.22
13-Aug-2019	-	-	-	-	-	-	380.82	1.8	379.02
27-Aug-2019	-	-	-	-	-	-	380.82	1.5	379.32
04-Sep-2019	-	-	-	-	-	-	380.82	1.6	379.22
01-Oct-2019	-	-	-	-	-	-	380.82	1.5	379.32
25-Oct-2019	-	-	-	-	-	-	380.82	0.8	380.02
21-Nov-2019	-	-	-	-	-	-	380.82	1.1	379.72
26-Nov-2019	-	-	-	-	-	-	380.82	1.1	379.72
30-Mar-2020	-	-	-	-	-	-	380.82	1.4	379.42
09-Jun-2020	-	-	-	-	-	-	380.82	1.9	378.92
16-Dec-2020	-	-	-	-	-	-	380.82	-1.68	382.5
26-Jan-2021	-	-	-	-	-	-	380.82	1.7	379.12
14-Sep-2021	-	-	-	-	-	-	380.82	1.4	379.42
08-Dec-2021	-	-	-	-	-	-	380.82	1.4	379.42
22-Mar-2022	-	-	-	-	-	-	380.82	1.7	379.12
14-Jun-2022	-	-	-	-	-	-	380.82	1.6	379.22
23-Aug-2022	-	-	-	-	-	-	380.82	1.6	379.22
20-Dec-2022	-	-	-	-	-	-	380.82	-	-
27-Mar-2023	-	-	-	-	-	-	380.82	1	379.82
27-Jun-2023	-	-	-	-	-	-	380.82	1.3	379.52
11-Sep-2023	-	-	-	-	-	-	380.82	1.4	379.42
12-Dec-2023	-	-	-	-	-	-	380.82	1.2	379.62
18-Jun-2024	-	-	-	-	-	-	380.82	1.6	379.22

NOTE:

1. SEE DRAWING NO. 01 FOR GENERAL NOTES AND LEGEND.
2. ALL SITE TRAFFIC SHALL BE DIRECTED PER DRAWING NO. 05 TRAFFIC CONTROL PLAN.
3. ALL VEGETATION IS NOT INDICATED ON DRAWING. CONTRACTOR RESPONSIBLE FOR IDENTIFYING CURRENT CONDITIONS.
4. CONTRACTOR IS RESPONSIBLE FOR ENSURING PUBLIC AND PRIVATE ROADS OUTSIDE OF THE LOD ARE FREE OF SOIL OR OTHER MATERIALS FROM THE PROPERTY. THE CONTRACTOR SHALL MAINTAIN THE PROPERTY ROADS TO MINIMIZE THE TRACKING OF SOIL MATERIALS ONTO PUBLIC ROADS AND SHALL INSPECT AND CLEAN PUBLIC ROADS, AS NECESSARY. THE CONTRACTOR SHALL INSPECT THE TIRES OF EXITING VEHICLES AND USE A TIRE-WASH STATION TO CLEAN TIRES, AS NECESSARY. ALL WATER FROM THE TIRE WASHING SHALL BE COLLECTED AND CONTAINED.
5. UTILITY LOCATIONS ARE APPROXIMATE. ERM TO PROVIDE SUB-SURFACE CLEARANCE OF KNOWN EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL EXISTING STRUCTURES, EASEMENTS, PIPES, AND UTILITIES.
6. ALL EXISTING MONITORING WELLS WITHIN THE LIMITS OF DISTURBANCE SHALL BE PROPERLY ABANDONED BY OTHERS PRIOR TO THE START OF WORK.
7. PER REQUIREMENTS IN THE NYSECL ARTICLE 24 (THE FRESHWATER WETLANDS ACT) AND 6 NYCRR PART 663 (PERMIT ISSUANCE STANDARDS), NO STOCKPILING OF ANY UNCONSOLIDATED MATERIALS (SOILS, GRAVEL, ETC.) WITHIN 100 FEET FROM STATE REGULATED WETLAND).

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STATE OF NEW YORK
STEPHEN ANTHONY MICHELTO
089550
LICENSED PROFESSIONAL ENGINEER

Rev.	Date	Description	By	Chk
F	JUNE 2026	RESPONSE TO COMMENTS FROM NYSDEC	DF	JR
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DRAWN BY JH | CADD Review MB | CHECKED BY SM

Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN

FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

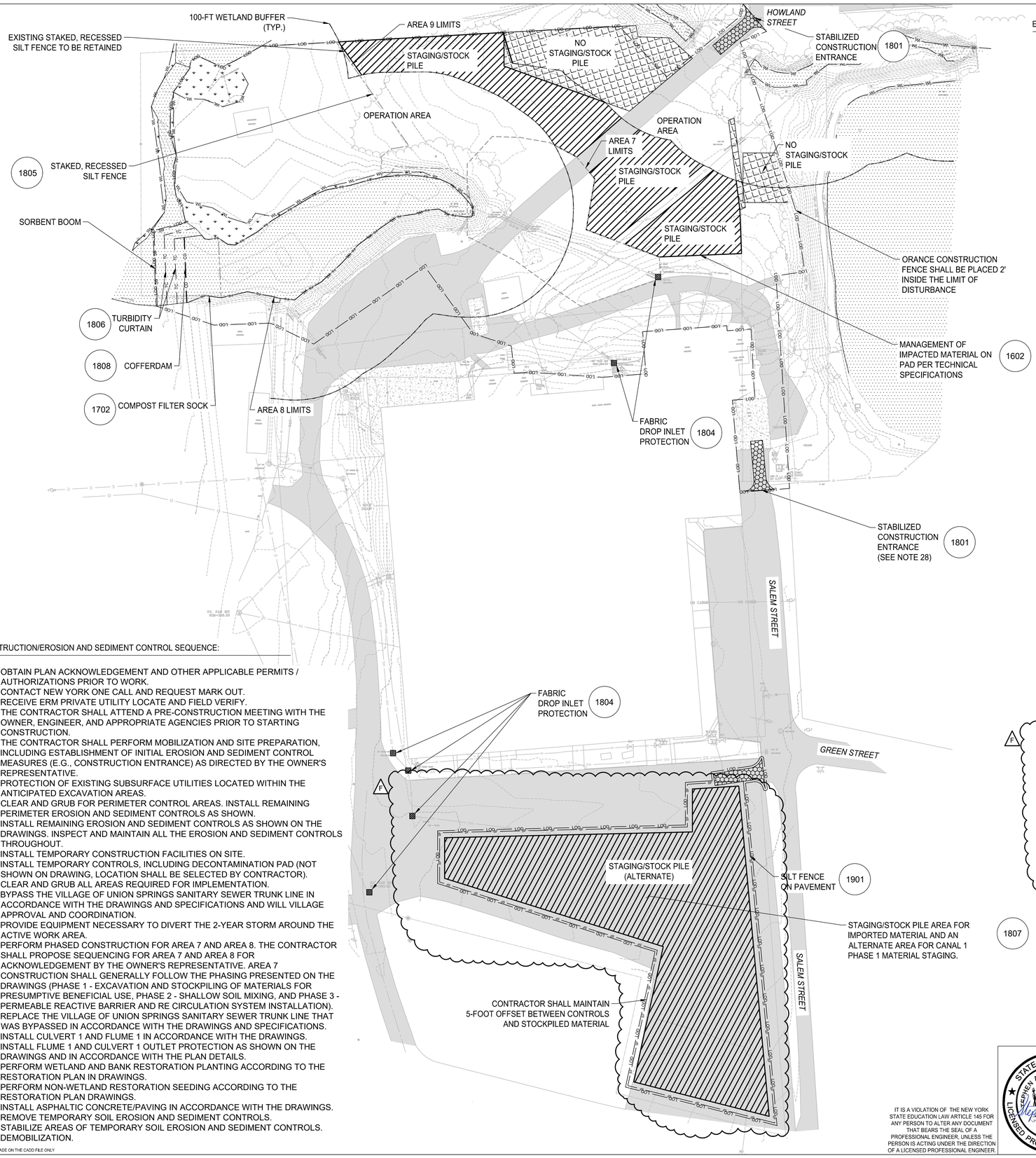
EXISTING CONDITIONS

SCALE: AS SHOWN
DATE DRAWN: JAN 2021
PROJECT NUMBER: 0820721
DRAWING: 02
REV.: F

SCALE (IN FEET): 0 20 40

REVISIONS TO BE MADE ON THE CADD FILE ONLY.

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CONSTRUCTION/EROSION AND SEDIMENT CONTROL SEQUENCE:

1. OBTAIN PLAN ACKNOWLEDGEMENT AND OTHER APPLICABLE PERMITS / AUTHORIZATIONS PRIOR TO WORK.
2. CONTACT NEW YORK ONE CALL AND REQUEST MARK OUT.
3. RECEIVE ERM PRIVATE UTILITY LOCATE AND FIELD VERIFY.
4. THE CONTRACTOR SHALL ATTEND A PRE-CONSTRUCTION MEETING WITH THE OWNER, ENGINEER, AND APPROPRIATE AGENCIES PRIOR TO STARTING CONSTRUCTION.
5. THE CONTRACTOR SHALL PERFORM MOBILIZATION AND SITE PREPARATION, INCLUDING ESTABLISHMENT OF INITIAL EROSION AND SEDIMENT CONTROL MEASURES (E.G., CONSTRUCTION ENTRANCE) AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
6. PROTECTION OF EXISTING SUBSURFACE UTILITIES LOCATED WITHIN THE ANTICIPATED EXCAVATION AREAS.
7. CLEAR AND GRUB FOR PERIMETER CONTROL AREAS. INSTALL REMAINING PERIMETER EROSION AND SEDIMENT CONTROLS AS SHOWN.
8. INSTALL REMAINING EROSION AND SEDIMENT CONTROLS AS SHOWN ON THE DRAWINGS. INSPECT AND MAINTAIN ALL THE EROSION AND SEDIMENT CONTROLS THROUGHOUT.
9. INSTALL TEMPORARY CONSTRUCTION FACILITIES ON SITE.
10. INSTALL TEMPORARY CONTROLS, INCLUDING DECONTAMINATION PAD (NOT SHOWN ON DRAWING, LOCATION SHALL BE SELECTED BY CONTRACTOR).
11. CLEAR AND GRUB ALL AREAS REQUIRED FOR IMPLEMENTATION.
12. BYPASS THE VILLAGE OF UNION SPRINGS SANITARY SEWER TRUNK LINE IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS AND WILL VILLAGE APPROVAL AND COORDINATION.
13. PROVIDE EQUIPMENT NECESSARY TO DIVERT THE 2-YEAR STORM AROUND THE ACTIVE WORK AREA.
14. PERFORM PHASED CONSTRUCTION FOR AREA 7 AND AREA 8. THE CONTRACTOR SHALL PROPOSE SEQUENCING FOR AREA 7 AND AREA 8 FOR ACKNOWLEDGEMENT BY THE OWNER'S REPRESENTATIVE. AREA 7 CONSTRUCTION SHALL GENERALLY FOLLOW THE PHASING PRESENTED ON THE DRAWINGS (PHASE 1 - EXCAVATION AND STOCKPILING OF MATERIALS FOR PRESUMPTIVE BENEFICIAL USE, PHASE 2 - SHALLOW SOIL MIXING, AND PHASE 3 - PERMEABLE REACTIVE BARRIER AND RE CIRCULATION SYSTEM INSTALLATION).
15. REPLACE THE VILLAGE OF UNION SPRINGS SANITARY SEWER TRUNK LINE THAT WAS BYPASSED IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
16. INSTALL CULVERT 1 AND FLUME 1 IN ACCORDANCE WITH THE DRAWINGS.
17. INSTALL FLUME 1 AND CULVERT 1 OUTLET PROTECTION AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE PLAN DETAILS.
18. PERFORM WETLAND AND BANK RESTORATION PLANTING ACCORDING TO THE RESTORATION PLAN IN DRAWINGS.
19. PERFORM NON-WETLAND RESTORATION SEEDING ACCORDING TO THE RESTORATION PLAN DRAWINGS.
20. INSTALL ASPHALTIC CONCRETE/PAVING IN ACCORDANCE WITH THE DRAWINGS.
21. REMOVE TEMPORARY SOIL EROSION AND SEDIMENT CONTROLS.
22. STABILIZE AREAS OF TEMPORARY SOIL EROSION AND SEDIMENT CONTROLS.
23. DEMOBILIZATION.

EROSION AND SEDIMENT CONTROL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THESE DRAWINGS AND SPECIFICATIONS, AND THE NEW YORK STATE BLUE BOOK. IN THE CASE THAT CONTROL MEASURES CONFLICT, NYS PROCEDURES SHALL TAKE PRECEDENCE.
2. CONTRACTOR SHALL MANAGE CONTACT WATER FROM EXCAVATION AREAS BY PUMPING THE WATER TO THE ON-SITE WATER TREATMENT SYSTEM.
3. WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACTOR'S PREPARED EXCAVATION SECTION OF THE CONTRACTOR'S CONSTRUCTION PLAN.
4. NO DISTURBANCE SHALL BE PERMITTED BEYOND THE EROSION AND SEDIMENT CONTROL (I.E. LIMIT OF DISTURBANCE).
5. CONTRACTOR SHALL PREPARE, SUBMIT AND IMPLEMENT, WITH THE PRIOR APPROVAL OF THE ENGINEER, A CONTINGENCY PLAN FOR MANAGING STORMWATER FLOWS IN THE PROJECT AREA DURING SIGNIFICANT EVENTS SO AS NOT TO IMPACT NEIGHBORING PROPERTIES. SPECIFIC ACTIONS TO BE IMPLEMENTED SHALL BE IDENTIFIED IN THE CONTINGENCY PLAN, BUT AT A MINIMUM SHALL INCLUDE THE FOLLOWING:
   i. EXCAVATION, BACKFILLING, AND ANY OTHER GROUND-DISTURBING ACTIVITIES SHALL CEASE.
   ii. EXCAVATED MATERIAL SHALL BE TRANSPORTED TO THE SEDIMENT MANAGEMENT AREA AND PROTECTED FROM WIND AND PRECIPITATION TRANSPORT.
   iii. EQUIPMENT SHALL BE MOVED FROM THE EXCAVATION AREA TO THE SEDIMENT MANAGEMENT AREA FOR THE DURATION OF THE EVENT.
6. IN THE EVENT OF A BLOWOUT OR OTHER SIGNIFICANT EROSION RESULTING FROM A RAIN EVENT OR OTHERWISE, CONTRACTOR SHALL FOLLOW PROCEDURE OUTLINED IN THE SWPPP OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
7. CONTRACTOR SHALL INSPECT EROSION AND SEDIMENT CONTROLS DAILY TO ASSURE PROPER PERFORMANCE AND STABILITY. PARTICULAR ATTENTION SHOULD BE GIVEN TO THE EXCAVATION SUPPORT SYSTEMS. ANY UNSTABLE OR SETTLED AREAS SHALL BE REINFORCED BY CONTRACTOR IMMEDIATELY.
8. MINOR REPAIRS TO EROSION AND SEDIMENT CONTROLS (I.E. RESTAKING SILT FENCE, REMOVING ACCUMULATED SEDIMENT) SHALL BE PERFORMED BY CONTRACTOR WITHIN 1 BUSINESS DAY OF OBSERVATION OF THE DAMAGE. MAJOR REPAIRS (I.E. MATERIAL REPLACEMENT) SHALL BE PERFORMED BY CONTRACTOR WITHIN 5 BUSINESS DAYS OF THE OBSERVATION.
9. CONTRACTOR SHALL MAINTAIN THE AREA OF INGRESS AND EGRESS AND CONSTRUCTION ACCESS IN A CONDITION WHICH SHALL PREVENT TRACKING OF SOIL/SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY OR STREETS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL AGGREGATE. ALL SOIL/SEDIMENT SPILLED, DROPPED, OR WASHED ONTO PUBLIC RIGHTS-OF-WAY SHALL BE REMOVED BY CONTRACTOR IMMEDIATELY. ANY ROADWAYS WITH SEDIMENT DROPPED ONTO THEM SHALL BE SWEPT BY CONTRACTOR THE SAME DAY. CONTRACTOR SHALL ADJUST CONTROLS WHENEVER NECESSARY IF TRACKING OF SEDIMENT INTO THE PUBLIC RIGHT-OF-WAY / ROADWAYS OCCURS.
10. CONTRACTOR SHALL CLEAN WHEELS TO REMOVE SEDIMENT FROM ENTERING INTO THE PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO A STATE APPROVED SEDIMENT-TRAPPING DEVICE. CONTRACTOR SHALL PREVENT ALL SEDIMENT FROM ENTERING STORM DRAINS, DITCHES, OR WATERCOURSES.
11. IN CONSTRUCTION AREAS WHERE MACHINERY SHALL BE OPERATED AND SOFT SOILS / SUBGRADES EXIST, INCLUDING THE UNDERLYING GLACIO-LUCUSTRINE CLAY IN AREA 7 AND 8 AND THE AREA 8 SEDIMENTS, THE CONTRACTOR SHALL INSTALL TIMBER CRANE MATS OR TIMBER PLANK MATS OR ALTERNATE TEMPORARY ROADWAYS SELECTED BY THE CONTRACTOR.
12. CONTRACTOR SHALL INSTALL AND MAINTAIN SILT FENCE IN ADDITIONAL AREAS AS SHOWN HEREIN. EXISTING SILT FENCE MAY BE IN PLACE AT THE TIME OF CONSTRUCTION AND MAY BE RETAINED BY THE CONTRACTOR SO LONG AS IT IS NOT DAMAGED AND IS FUNCTIONING PROPERLY. CONTRACTOR IS RESPONSIBLE FOR THE PERFORMANCE, INSTALLATION, REPLACEMENT AND MAINTENANCE OF ALL SILT FENCE. MAINTENANCE SHALL BE PERFORMED BY CONTRACTOR AS NEEDED AND MATERIAL REMOVED WHEN BULGES DEVELOP IN THE SILT FENCE.
13. CONTRACTOR SHALL TEMPORARILY SEED STOCKPILES AND ALL OTHER AREAS THAT REMAIN DISTURBED BUT INACTIVE FOR AT LEAST FOURTEEN (14) DAYS.
14. CONTRACTOR SHALL SURROUND ALL STOCKPILE AREAS FOR UNCONSOLIDATED SOILS WITH STAKED, RECESSED SILT FENCE OR FILTER SOCKS. PER REQUIREMENTS IN THE NYSECL ARTICLE 24 (THE FRESHWATER WETLANDS ACT) AND 6 NYCRR PART 663 (PERMIT ISSUANCE STANDARDS), THE CONTRACTOR SHALL NOT STOCKPILE ANY UNCONSOLIDATED MATERIALS (SOILS, GRAVEL, ETC.) WITHIN 100 FEET OF STATE REGULATED WETLANDS. THE 100-FOOT WETLAND BUFFER IS SHOWN HEREIN.
15. CONTRACTOR SHALL INSTALL AND FILTER SOCKS IN AREAS AS SHOWN HEREIN.
16. CONTRACTOR SHALL INSPECT FILTER SOCKS WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED BY CONTRACTOR IN THE MANNER REQUIRED BY THE MANUFACTURER OR REPLACED WITHIN 24 HOURS OF INSPECTION NOTIFICATION.
17. ACCUMULATED SEDIMENT SHALL BE REMOVED BY CONTRACTOR WHEN IT REACHES HALF THE ABOVE GROUND HEIGHT OF THE SOCK AND FENCE AND DISPOSED OF IN ACCORDANCE WITH RECEIVING FACILITY REQUIREMENTS.
18. CONTRACTOR SHALL REPLACE BIODEGRADABLE FILTER SOCKS AFTER 6 MONTHS; PHOTODEGRADABLE FILTER SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED BY CONTRACTOR ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
19. UPON STABILIZATION OF THE WATERSHED AREA CONTRIBUTING TO THE SOCK, STAKES SHALL BE REMOVED BY CONTRACTOR. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED IN ACCORDANCE WITH THE STABILIZATION PLAN. FOR REMOVAL THE MESH CAN BE CUT AND THE COMPOST SPREAD AS AN ADDITIONAL MULCH TO ACT AS A SOIL SUPPLEMENT.
20. THE COMPOST INFILL SHALL BE WELL DECOMPOSED (MATURED AT LEAST 3 MONTHS), WEED-FREE, ORGANIC MATTER. IT SHALL BE AEROBICALLY COMPOSED, POSSES NO OBJECTIONABLE ODORS, AND CONTAIN LESS THAN 1% BY DRY WEIGHT, OF MANMADE FOREIGN MATTER. THE PHYSICAL PARAMETERS OF THE COMPOST SHALL MEET THE STANDARDS LISTED IN THE LATEST EDITION OF THE NEW YORK STATE BLUE BOOK - TABLE 5.2.
21. CONTRACTOR SHALL INSPECT THE TURBIDITY CURTAIN DAILY AND REPAIRED OR REPLACED IMMEDIATELY. REMOVAL OF SEDIMENT DEPOSITED BEHIND THE CURTAIN SHALL BE DONE BY HAND BY THE CONTRACTOR PRIOR TO REMOVAL OF THE BARRIER OR AS OTHERWISE ACKNOWLEDGED BY THE OWNER'S REPRESENTATIVE. ALL REMOVED SILT SHALL BE STABILIZED AWAY FROM THE WATERBODY. THE CONTRACTOR SHALL REMOVE THE BARRIER BY CAREFULLY PULLING IT TOWARD THE CONSTRUCTION SITE TO MINIMIZE THE RELEASE OF ATTACHED SEDIMENT. ANY FLOATING CONSTRUCTION OR NATURAL DEBRIS SHALL BE IMMEDIATELY REMOVED TO PREVENT DAMAGE TO THE TURBIDITY CURTAIN.
22. IF THE TURBIDITY CURTAIN IS ORIENTED IN A MANNER THAT FACES THE PREVAILING WINDS, CONTRACTOR SHALL FREQUENTLY CHECK THE ANCHORAGE.
23. THE SPECIFIED COFFERDAM TO BE USED (WHETHER SOIL DAM, AQUATUBE, OR PORTA DAM OR ALTERNATE) SHALL BE SELECTED BY THE CONTRACTOR AND ACKNOWLEDGED BY THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL REVIEW EXISTING SEDIMENT INVESTIGATION FOR WATER DEPTH, BATHYMETRY, AND SOIL PROPERTIES AND SHALL COORDINATE WITH COFFERDAM SUPPLIERS TO CONFIRM THE SUITABILITY OF THEIR PRODUCT FOR THIS PROJECT. COFFERDAM DESIGN/ENGINEERING IS EXCLUDED FROM THESE DRAWINGS.
24. ~~CONTRACTOR SHALL REPAIR ANY HOLES, LEAKS, OR TORN AREAS OF THE COFFERDAM IMMEDIATELY.~~
25. ANY SHIFTING, MOVEMENT, OR SETTLING OF THE COFFERDAM SHALL BE ADDRESSED BY CONTRACTOR IMMEDIATELY TO PROTECT WORKERS IN THE CONSTRUCTION AREA.
26. A QUALIFIED INSPECTOR (AS DEFINED BY THE NYSDEC SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY, PERMIT NO. GP-0-25-001 (CGP)) SHALL CONDUCT SITE INSPECTIONS AT LEAST ONCE EVERY 7 CALENDAR DAYS WHERE SOIL DISTURBANCES ARE ONGOING. AT NO TIME SHALL DISTURBANCE EXCEED 5 ACRES UNLESS DER AND DOW IS NOTIFIED PRIOR TO DISTURBANCE. WHERE SOIL DISTURBANCE ACTIVITIES HAVE BEEN TEMPORARILY SUSPENDED AND TEMPORARY STABILIZATION MEASURES HAVE BEEN APPLIED TO ALL DISTURBED AREAS, THE QUALIFIED INSPECTOR MAY CONDUCT A SITE INSPECTION AT LEAST ONCE EVERY 30 CALENDAR DAYS AFTER NOTIFYING THE DER AND DOW PROGRAM CONTACTS.
27. WHERE A QUALIFIED INSPECTOR IDENTIFIES CORRECTIVE ACTIONS THAT NEED TO BE TAKEN, CORRECTIVE ACTIONS MUST BEGIN WITHIN ONE BUSINESS DAY AND BE COMPLETED WITHIN 5 BUSINESS DAYS WHERE THE CORRECTIVE ACTION DOES NOT REQUIRE ENGINEERING DESIGN. WHEN THE CORRECTIVE ACTION REQUIRES ENGINEERING DESIGN, BEGIN THE ENGINEERING DESIGN PROCESS WITHIN 5 BUSINESS DAYS AND COMPLETE THE CORRECTIVE ACTION IN A REASONABLE TIME FRAME BUT NO LATER THAN WITHIN 60 CALENDAR DAYS. NOTE THAT THE CONSTRUCTION ACTIVITY MUST ALSO COMPLY WITH ANY WATER QUALITY STANDARDS THAT ARE DEFINED BY SUCH MEASURES OF PURITY OR QUALITY FOR ANY WATERS IN RELATION TO THEIR REASONABLE AND NECESSARY USE AS PROMULGATED IN 6 NYCRR PART 700 ET SEQ.
28. IF CREAMERY ROAD IS DAMAGED DURING CONSTRUCTION AS THE RESULT OF CONSTRUCTION TRAFFIC OR DIVERTED TRAFFIC (E.G., TRUCKS DELIVERING TO THE SITE'S OWNER AND/OR TENANTS), CREAMERY ROAD SHALL BE RESTORED. RESTORATION SHALL BE CONDUCTED IN ACCORDANCE WITH REQUIREMENTS OF THE VILLAGE OF UNION SPRINGS AND/OR TOWN OF SPRINGPORT.

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STATE OF NEW YORK · STEPHEN ANTHONY MIRABELLA · 089550 · LICENSED PROFESSIONAL ENGINEER

Rev.	Date	Description	By	Chk
F	JUNE 2026	RESPONSE TO COMMENTS FROM NYSDEC	DF	JR
E	JULY 2025	ISSUED FOR PERMIT	DF	JR
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B	AUG 2021	ISSUED FOR PERMIT	MB	JR
A	JAN 2021	ISSUED FOR REVIEW	MB	JR

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Environmental Resources Management

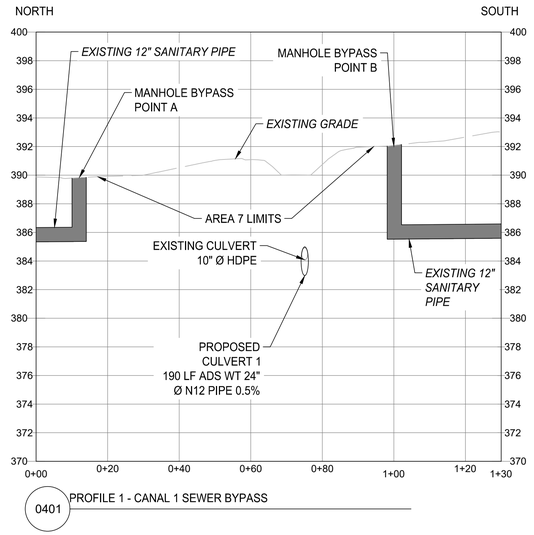
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DESIGN OF AREA 7, 8, AND 9 INTERIM REMEDIAL MEASURES WORK PLAN

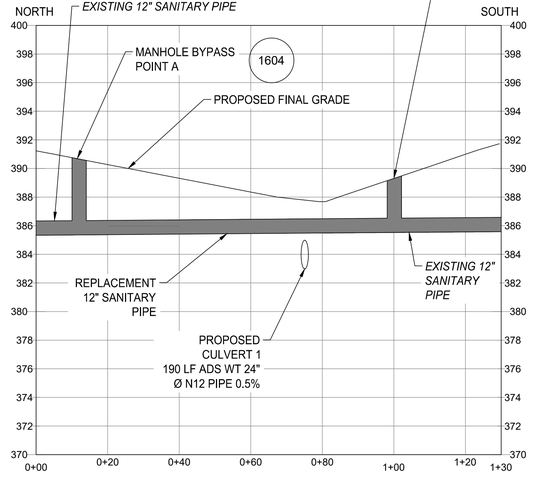
FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

EROSION AND SEDIMENT CONTROL PLAN

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	03	F
DATE DRAWN: JAN 2021			



0401 PROFILE 1 - CANAL 1 SEWER BYPASS



0402 PROFILE 2 - CANAL 1 RECONSTRUCTED SEWER

NOTE:
1. REPLACEMENT SEWER PIPE SHALL BE EXCAVATED AND PLACED WITH THE MATERIAL MIXED DURING PHASE 3. SEE DRAWING NOs. 07 AND 08 FOR ADDITIONAL DETAILS.

0 20
SCALE (IN FEET)

AREA 9 LIMITS

AREA 8 LIMITS

AREA 7 LIMITS

EXISTING 10" Ø HDPE CULVERT TO BE REPLACED WITH A 24" Ø HDPE CULVERT

VILLAGE OF UNION SPRINGS 12" SANITARY SEWER INTERSECTION WITH AREA 7 LIMITS

1504 VILLAGE OF UNION SPRINGS 12" SANITARY SEWER BYPASS - POINT A (SEE NOTES 3 AND 4)

0401 1+30 1504 VILLAGE OF UNION SPRINGS 12" SANITARY SEWER BYPASS POINT B (SEE NOTES 3 AND 4)

VILLAGE OF UNION SPRINGS 12" SANITARY SEWER INTERSECTION WITH AREA 7 LIMITS

0402 0+00

ACTIVE GROUNDWATER RECOVERY SUMP DISCHARGE

GAS LINE IN PROPOSED RE-GRADING AREA

WATER LINE IN PROPOSED RE-GRADING AREA

UNDERGROUND ELECTRIC LINE IN PROPOSED RE-GRADING AREA

0 20 40
SCALE (IN FEET)

NOTE:
1. ERM TO PROVIDE SUB-SURFACE CLEARANCE OF EXISTING UTILITIES. CONTRACTOR TO VERIFY LOCATIONS ON SITE BEFORE STARTING WORK.
2. SEE TECHNICAL SPECIFICATIONS FOR DETAILED UTILITY MANAGEMENT REQUIREMENTS.
3. THE TEMPORARY COMPONENTS OF THE BY-PASS SYSTEM ARE NOT SHOWN, AND ARE THE RESPONSIBILITY OF THE CONTRACTOR TO DESIGN AND IMPLEMENT. CONTRACTOR SHALL PROVIDE 24-HOUR SUPERVISION OF BYPASS OPERATION IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
4. CONTRACTOR MAY DESIGN AND PROPOSE A TEMPORARY SUPPORT AND BRACING SYSTEM IN LIEU OF BYPASS TO BE REVIEWED AND APPROVED BY THE OWNER'S REPRESENTATIVE.

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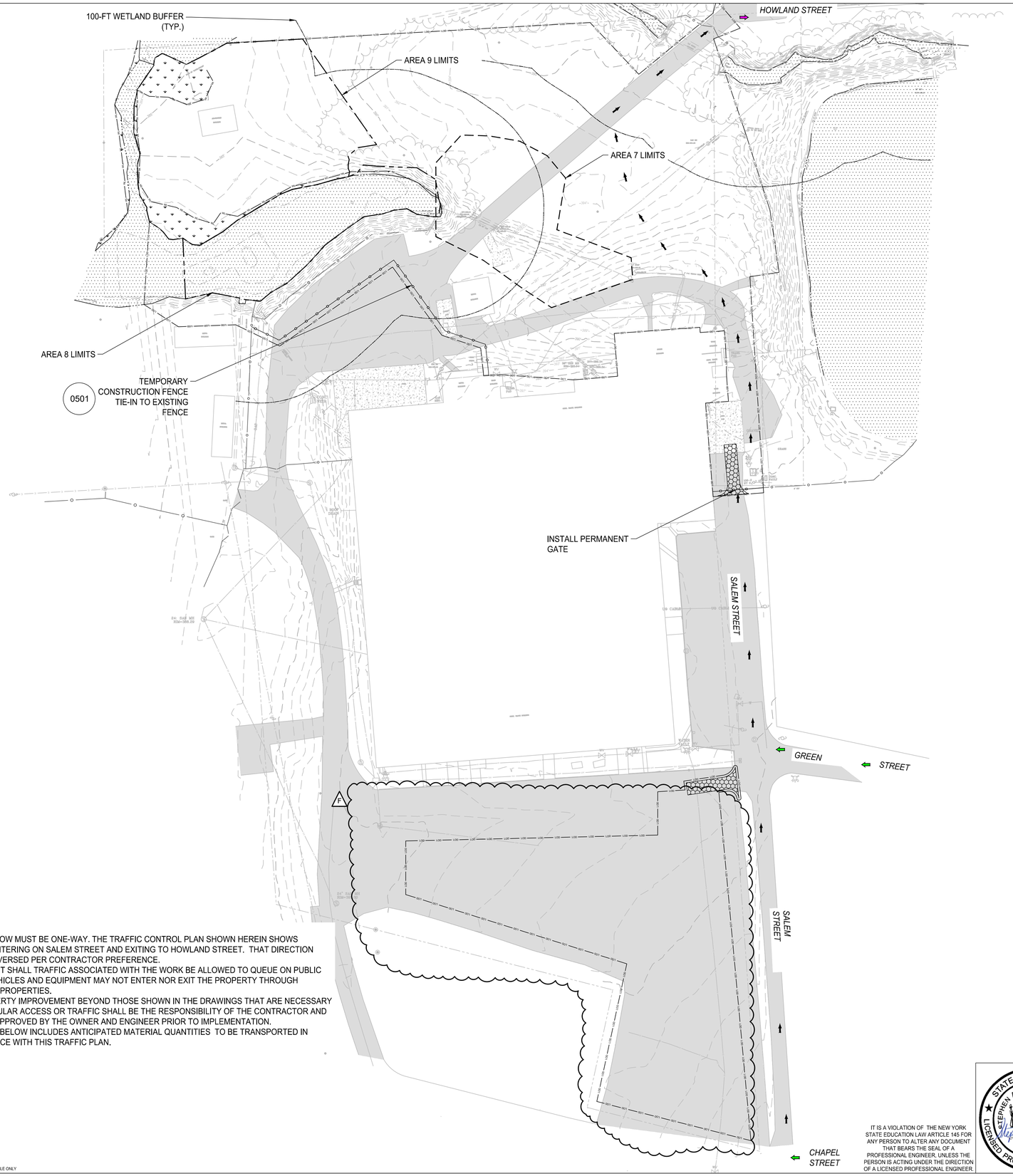
DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN
FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

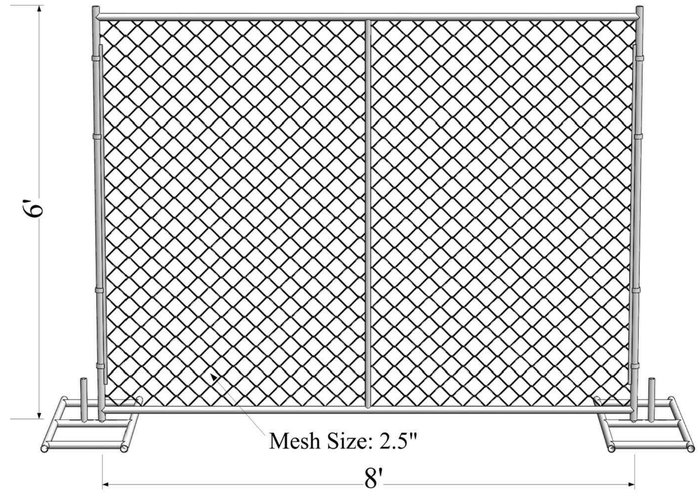
UTILITY MANAGEMENT PLAN AND PROFILES

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	04	F
DATE DRAWN JAN 2021			

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0501 TEMPORARY CONSTRUCTION FENCE

NOT TO SCALE

NOTES:

1. TRAFFIC FLOW MUST BE ONE-WAY. THE TRAFFIC CONTROL PLAN SHOWN HEREIN SHOWS TRAFFIC ENTERING ON SALEM STREET AND EXITING TO HOWLAND STREET. THAT DIRECTION MAY BE REVERSED PER CONTRACTOR PREFERENCE.
2. AT NO POINT SHALL TRAFFIC ASSOCIATED WITH THE WORK BE ALLOWED TO QUEUE ON PUBLIC ROADS. VEHICLES AND EQUIPMENT MAY NOT ENTER NOR EXIT THE PROPERTY THROUGH ADJOINING PROPERTIES.
3. ANY PROPERTY IMPROVEMENT BEYOND THOSE SHOWN IN THE DRAWINGS THAT ARE NECESSARY FOR VEHICULAR ACCESS OR TRAFFIC SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE APPROVED BY THE OWNER AND ENGINEER PRIOR TO IMPLEMENTATION.
4. THE TABLE BELOW INCLUDES ANTICIPATED MATERIAL QUANTITIES TO BE TRANSPORTED IN ACCORDANCE WITH THIS TRAFFIC PLAN.

N

0 50 100

SCALE (IN FEET)

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STATE OF NEW YORK
STEPHEN ANTHONY MIRABELLO
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LICENSED PROFESSIONAL ENGINEER

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Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN

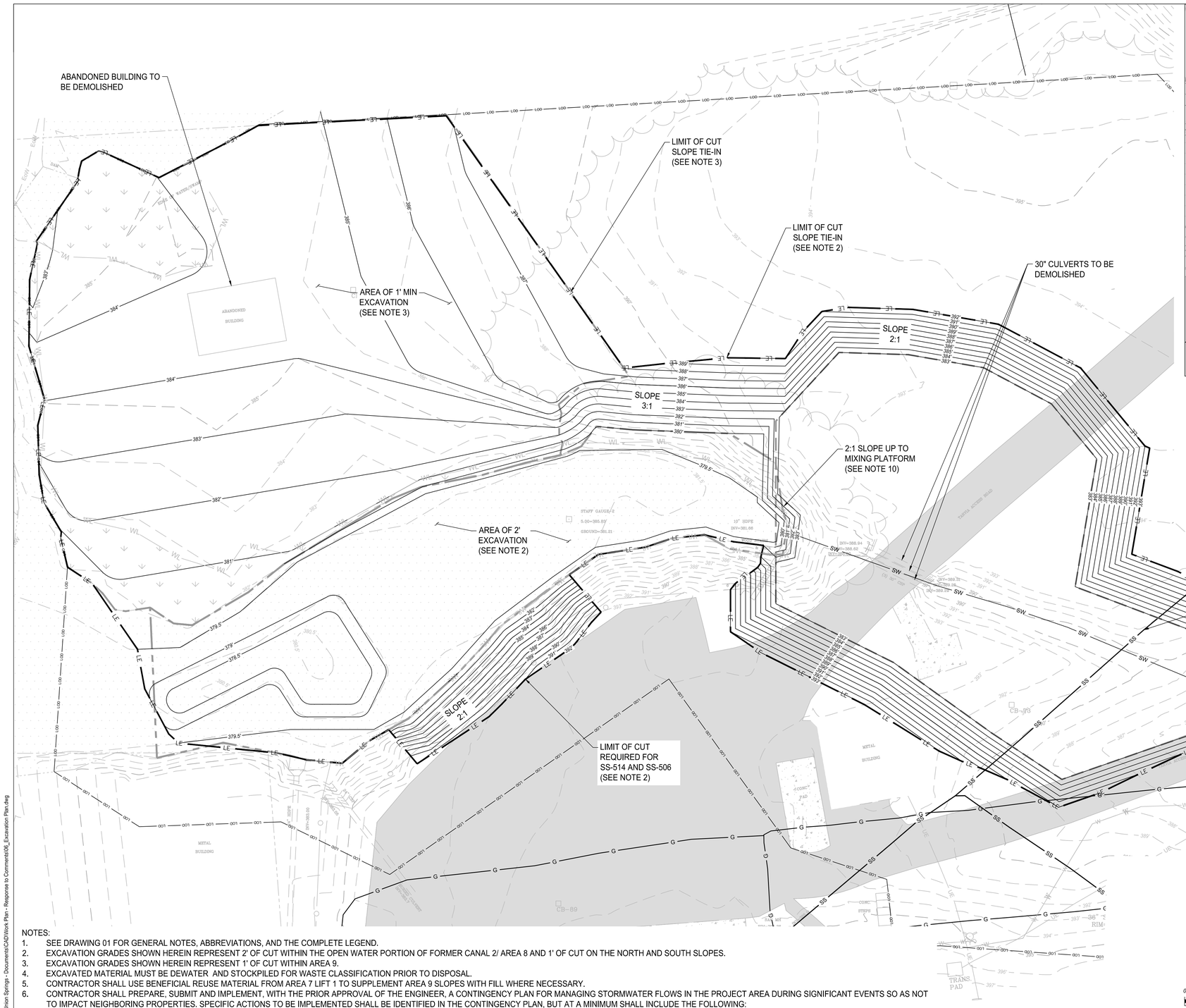
FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

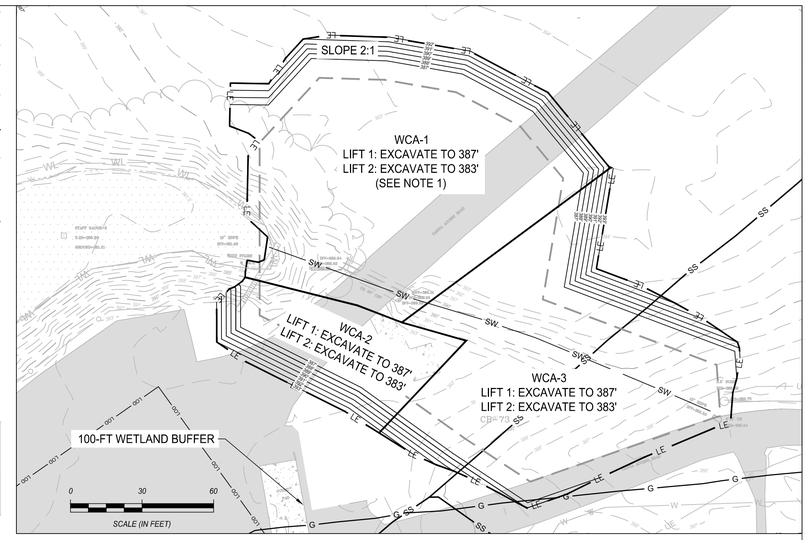
TRAFFIC CONTROL PLAN

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	05	F
DATE DRAWN: JAN 2021			

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PHASE 1 LIFT 1 EXCAVATION AND STOCKPILING FOR MATERIALS PRESUMPTIVE BENEFICIAL REUSE AND DISPOSAL

NOTES:

1. THE WASTE CHARACTERIZATION AREA (WCA) LIMITS SHOWN HEREIN REPRESENT THE MINIMUM LIMITS OF EXCAVATION. THE ELEVATIONS SHOWN IN THE PLAN VIEW MUST BE MET FOR EACH WCA IN ITS ENTIRETY. THE EXCAVATION VOLUMES IN THESE NOTES ASSUMES VERTICAL EXCAVATION LIMITS. THE CONTRACTOR SHALL DESIGN AND SUBMIT AN EXCAVATION SUPPORT SYSTEM TO ACHIEVE THE MINIMUM EXCAVATION SHOWN. EXCAVATION SUPPORT SYSTEM ENGINEERING/DESIGN IS EXCLUDED FROM THESE DRAWINGS. ELEVATIONS FOR PHASE 1 LIFT 2 MAY CHANGE DURING CONSTRUCTION BASED ON SEASONAL CHANGES IN GROUNDWATER.
2. LIFT 1 IS ASSUMED TO BE BENEFICIAL REUSE MATERIAL AS REPRESENTED BY THE EXCAVATION GRADES SHOWN HEREIN. THE VOLUME OF BENEFICIAL REUSE MATERIAL IS APPROXIMATELY 4,500 CY.
3. WITHIN WASTE CHARACTERIZATION AREA (WCA) 1, EXCAVATED MATERIAL 0-3 FEET BELOW GRADE SHALL BE STOCK PILED AS RE-USE MATERIAL. EXCAVATED MATERIAL 3-6 FEET BELOW GRADE SHALL BE STOCK PILED SEPARATELY TO BE TESTED. WCA-2 AND WCA-3 MAY BE STOCKPILED AS RE-USE MATERIAL TO THE DEPTHS SHOWN WITHOUT TESTING.

NOTES:

1. SEE DRAWING 01 FOR GENERAL NOTES, ABBREVIATIONS, AND THE COMPLETE LEGEND.
2. EXCAVATION GRADES SHOWN HEREIN REPRESENT 2' OF CUT WITHIN THE OPEN WATER PORTION OF FORMER CANAL 2/ AREA 8 AND 1' OF CUT ON THE NORTH AND SOUTH SLOPES.
3. EXCAVATION GRADES SHOWN HEREIN REPRESENT 1' OF CUT WITHIN AREA 9.
4. EXCAVATED MATERIAL MUST BE DEWATER AND STOCKPILED FOR WASTE CLASSIFICATION PRIOR TO DISPOSAL.
5. CONTRACTOR SHALL USE BENEFICIAL REUSE MATERIAL FROM AREA 7 LIFT 1 TO SUPPLEMENT AREA 9 SLOPES WITH FILL WHERE NECESSARY.
6. CONTRACTOR SHALL PREPARE, SUBMIT AND IMPLEMENT, WITH THE PRIOR APPROVAL OF THE ENGINEER, A CONTINGENCY PLAN FOR MANAGING STORMWATER FLOWS IN THE PROJECT AREA DURING SIGNIFICANT EVENTS SO AS NOT TO IMPACT NEIGHBORING PROPERTIES. SPECIFIC ACTIONS TO BE IMPLEMENTED SHALL BE IDENTIFIED IN THE CONTINGENCY PLAN, BUT AT A MINIMUM SHALL INCLUDE THE FOLLOWING:
   - 6.1. EXCAVATION, BACKFILLING, AND ANY OTHER GROUND-DISTURBING ACTIVITIES SHALL CEASE.
   - 6.2. EXCAVATED MATERIAL SHALL BE TRANSPORTED TO THE SEDIMENT MANAGEMENT AREA AND PROTECTED FROM WIND AND PRECIPITATION TRANSPORT.
   - 6.3. EQUIPMENT SHALL BE MOVED FROM THE EXCAVATION AREA TO THE SEDIMENT MANAGEMENT AREA FOR THE DURATION OF THE EVENT.
7. CONTRACTOR SHALL MANAGE CONTACT WATER FROM EXCAVATION AREAS BY PUMPING THE WATER TO THE ON-SITE WATER TREATMENT SYSTEM.
8. WHEN RAIN IS ANTICIPATED, TURBIDITY SHALL BE MANAGED AS REQUIRED IN THE TECHNICAL SPECIFICATIONS.
9. AS SET FORTH BY DER-10 SECTION 4.1 (F)2, TWO FEET OF SEDIMENT WILL BE REMOVED OVER THE PROPOSED FOOT PRINT TO MINIMIZE POTENTIAL EXPOSURE. AN ACTIVE CAPPING SYSTEM WILL BE INSTALLED INCLUDING A REACTIVE CORE MAT TO MINIMIZE/ RETARD THE POTENTIAL UPWARD MIGRATION OF RESIDUAL CONTAMINATION PRESENT BELOW THE CAP, TO IMPEDE BURROWING, AND TO ACT AS A DEMARCATION LAYER.
10. MIXING PLATFORM MAY BE ADJUSTED BASED ON WATER TABLE CONDITIONS DURING IMPLEMENTATION.

SEQUENCE OF CONSTRUCTION:

1. CONTRACTOR SHALL FOLLOW INITIAL CONSTRUCTION SEQUENCE AS OUTLINED ON DRAWING NO. 06. DETAILED SEQUENCE FOR THE EXCAVATION OF AREA 7, 8, AND 9 IS AS FOLLOWS:
2. CONTRACTOR SHALL MANAGE CONTACT WATER IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS THROUGH TO THE COMPLETION OF FINAL SITE RESTORATION.
3. COMMENCE EXCAVATION, AND PROCEED FROM THE UPGRADIENT REGION TOWARD THE DOWNGRADIENT. SEE PLAN FOR EXCAVATION DEPTHS.
4. COMPLETE EXCAVATION, BACKFILL AND RESTORE THE AREA IN ACCORDANCE WITH THE FINAL GRADING AND RESTORATION PLAN (DRAWINGS 09 AND 10).

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6/15/26

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Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN

FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

EXCAVATION PLAN

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	06	F

DATE DRAWN: JAN 2021

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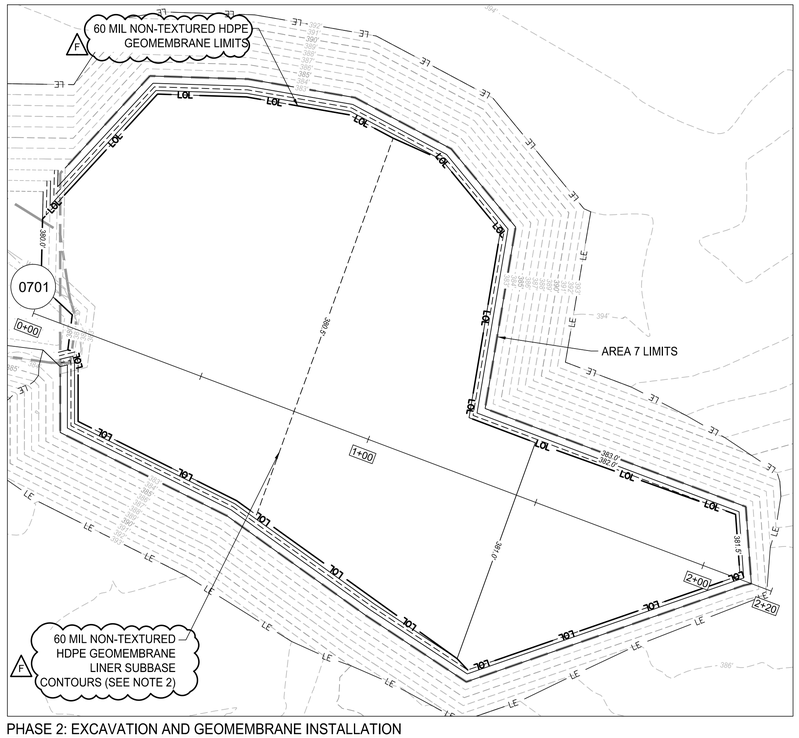
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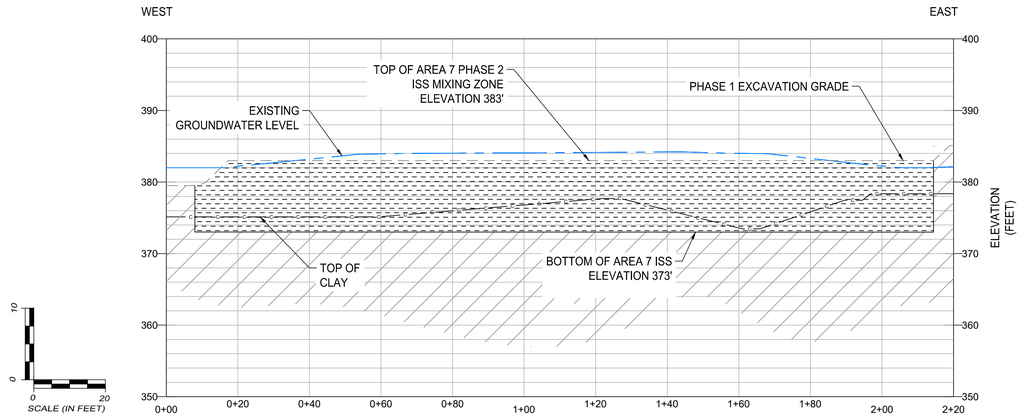
PHASE 2: SHALLOW SOIL MIXING GRID

NOTES:

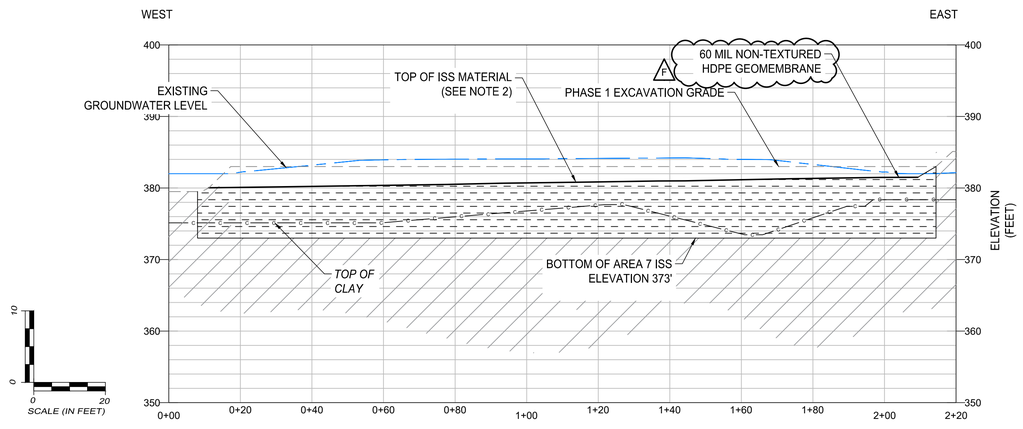
1. INITIAL QUALITY CONTROL TESTING SHALL BEGIN WITH 1 SAMPLE TAKEN FOR EVERY 200 CUBIC YARDS OF MATERIAL EXCAVATED FOR THE FIRST 2,000 CUBIC YARDS.



PHASE 2: EXCAVATION AND GEOMEMBRANE INSTALLATION



0701 PROFILE 1: IN SITU SORPTION AND SOLIDIFICATION



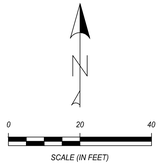
0701 PROFILE 1: ISS MATERIAL EXCAVATION AND GEOMEMBRANE LINER INSTALLATION

MATERIAL LEGEND

- ISS MIX ZONE
- NATIVE SUBGRADE

NOTES:

1. THE TOP OF IN SITU SORPTION AND SOLIDIFICATION (ISS) MIX ZONE SHALL BE 383' AMSL, THE BOTTOM OF ISS SHALL BE 373' AMSL AS SHOWN HEREIN. THE VOLUME OF MATERIAL WITHIN THE SHALLOW MIXING ZONE IS APPROXIMATELY 6,800 CY.
2. THE TOP OF STABILIZED MATERIAL SHALL BE LIMITED TO THE 60 MIL NON-TEXTURED HDPE GEOMEMBRANE SUBBASE CONTOURS SHOWN HEREIN. ANY SWELL GENERATED DURING MIXING ACTIVITIES SHALL BE STOCKPILED FOR WASTE CLASSIFICATION AND OFF-SITE DISPOSAL. THE VOLUME OF SWELL MATERIAL TO BE DISPOSED OFF-SITE IS 1,500 CY.
3. MIX DESIGN AND ADDITIONAL SPECIFICATIONS CAN BE FOUND IN THE TECHNICAL SPECIFICATIONS.



F

Table 1(a) – High Density Polyethylene (HDPE) Geomembrane -Smooth — U.S. (Standard) Units

Properties	Test Method	Test Value							Testing Frequency (minimum)
		30 mils	40 mils	50 mils	60 mils	80 mils	100 mils	120 mils	
Thickness (min. ave.) - mils	D5199	nom.	nom.	nom.	nom.	nom.	nom.	nom.	per roll
• lowest individual of 10 values - %		-10	-10	-10	-10	-10	-10	-10	
Formulated Density (min. ave.) - g/cc	D 1505/D 792	0.940	0.940	0.940	0.940	0.940	0.940	0.940	200,000 lb
Tensile Properties *(1)* (min. ave.)	D 6693 Type IV								20,000 lb
• yield strength - lb/in.		63	84	105	126	168	210	252	
• break strength - lb/in.		114	152	190	228	304	380	456	
• yield elongation - %		12	12	12	12	12	12	12	
• break elongation - %		700	700	700	700	700	700	700	
Tear Resistance (min. ave.) - lb	D 1004	21	28	35	42	56	70	84	45,000 lb
Puncture Resistance (min. ave.) - lb	D 4833	54	72	90	108	144	180	216	45,000 lb
Stress Crack Resistance *(2)* - hr.	D5397 (App.)	500	500	500	500	500	500	500	per GRI-GM10
Carbon Black Content (range) - %	D 4218 *(3)*	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	20,000 lb
Carbon Black Dispersion	D 5596	note *(4)*	note *(4)*	note *(4)*	note *(4)*	note *(4)*	note *(4)*	note *(4)*	45,000 lb
Oxidative Induction Time (OIT) (min. ave.)*(5)*									200,000 lb
(a) Standard OIT - min.	D 8117	100	100	100	100	100	100	100	
— or —									
(b) High Pressure OIT - min.	D 5885	400	400	400	400	400	400	400	
Oven Aging at 85°C *(5), (6)*	D 5721								
(a) Standard OIT (min. ave.) - % retained after 90 days	D 8117	55	55	55	55	55	55	55	per each formulation
— or —									
(b) High Pressure OIT (min. ave.) - % retained after 90 days	D 5885	80	80	80	80	80	80	80	
UV Resistance *(7)*	D 7238								
(a) Standard OIT (min. ave.)	D 8117	N.R. *(8)*	N.R. *(8)*	N.R. *(8)*	N.R. *(8)*	N.R. *(8)*	N.R. *(8)*	N.R. *(8)*	per each formulation
— or —									
(b) High Pressure OIT (min. ave.) - % retained after 1600 hrs *(9)*	D 5885	50	50	50	50	50	50	50	

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STATE OF NEW YORK — STEPHEN ANTHONY MORABITO — 089550 — LICENSED PROFESSIONAL ENGINEER

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B	AUG 2021	ISSUED FOR PERMIT	MB	JR
A	JAN 2021	ISSUED FOR REVIEW	MB	JR

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Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9 INTERIM REMEDIAL MEASURES WORK PLAN

FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

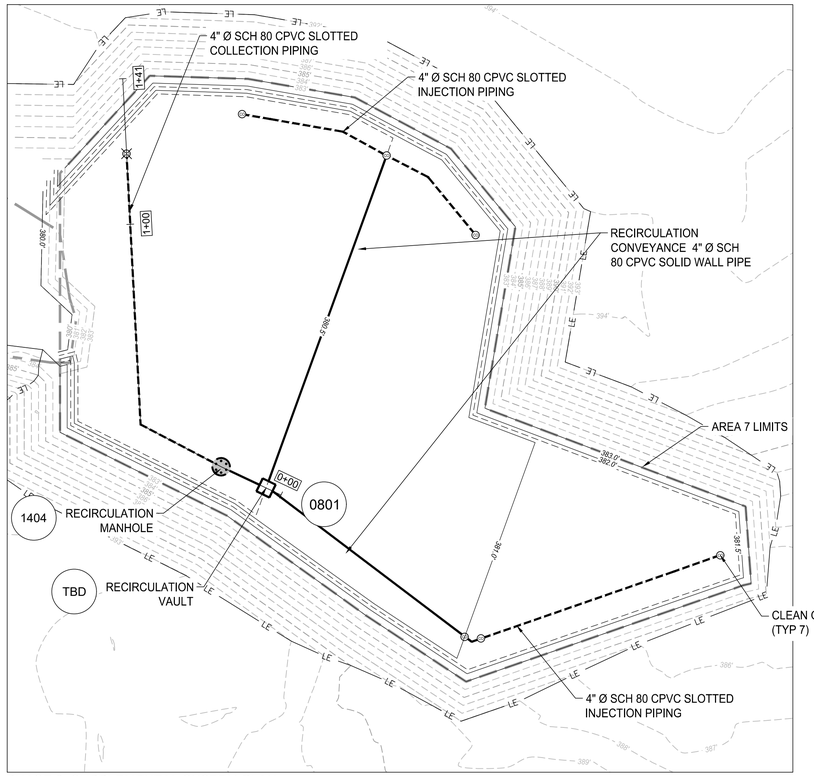
AREA 7 PHASE 2: IN SITU SORPTION AND SOLIDIFICATION PLAN AND PROFILE

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	07	F

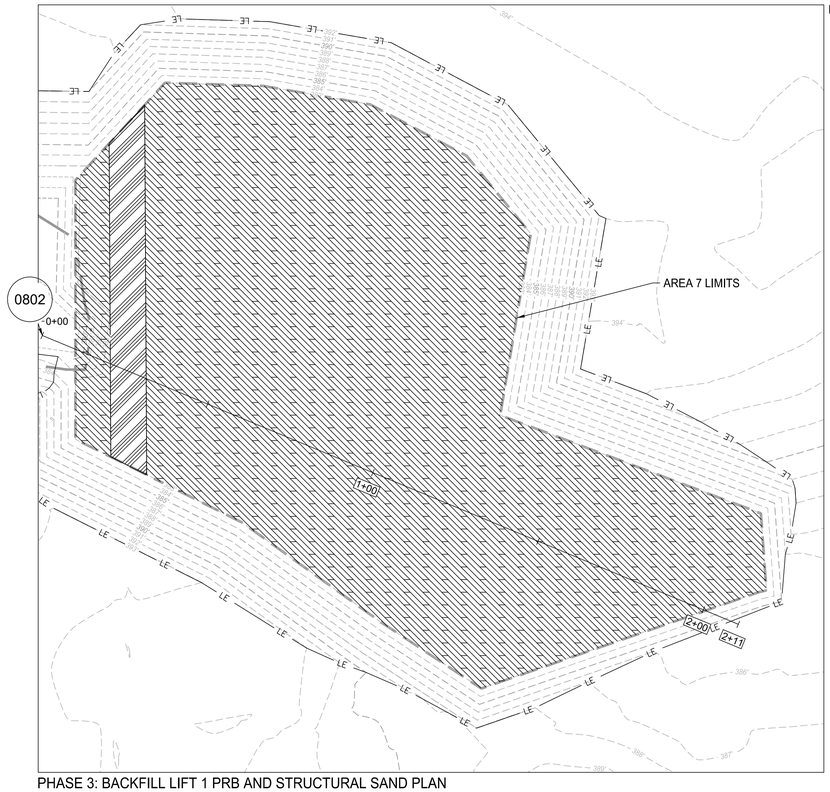
DATE DRAWN JAN 2021

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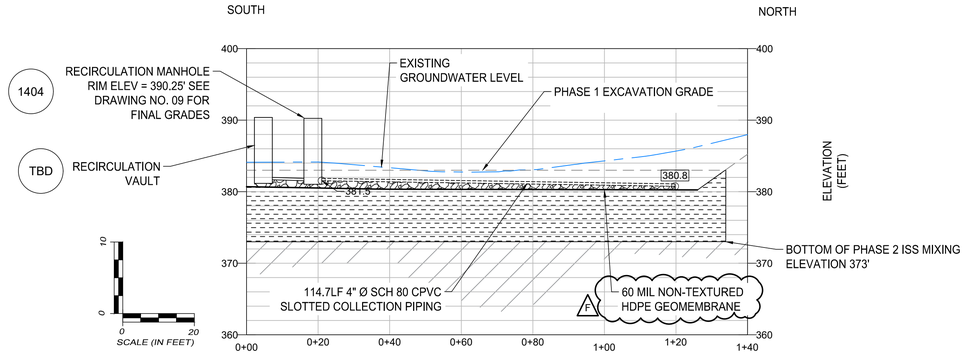
PHASE 3: SUPPLEMENTAL SYSTEM PLAN



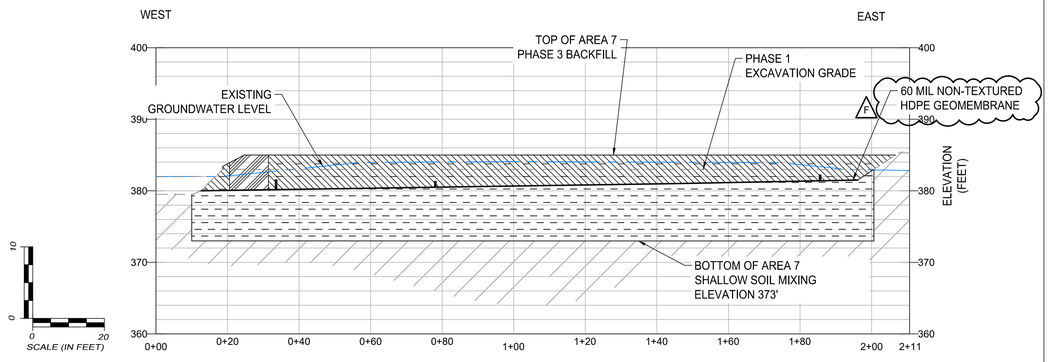
PHASE 3: BACKFILL LIFT 1 PRB AND STRUCTURAL SAND PLAN

NOTES:

1. THE CONTOURS SHOWN HERE-IN REPRESENT THE AREA 7 FINAL GRADES AFTER THE INSTALLATION OF THE PRB AND FIRST LIFT OF STRUCTURAL SAND BACKFILL.
2. THE SUPPLEMENTAL REMEDIATION SYSTEM INCLUDES SLOTTED COLLECTION PIPING AND SOLID CONVEYANCE PIPING AS SHOWN ON THE PLAN AS DASHED AND CONTINUOUS LINES RESPECTIVELY.
3. THE SUPPLEMENTAL REMEDIATION SYSTEM IS SUBJECT TO CHANGE PENDING THE RESULTS OF THE ONGOING TREATABILITY STUDY.



0801 PROFILE 1



0802 PROFILE 2

MATERIAL LEGEND

- BENEFITIAL REUSE MATERIAL
- ISS MIX ZONE
- STRUCTURAL SAND
- DENSE GRADED AGGREGATE
- NATIVE SUBGRADE
- F PRB MATERIAL (60% ZVI, 25% MASON SAND, 15% POND SAND)

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Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9 INTERIM REMEDIAL MEASURES WORK PLAN

FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

AREA 7 PHASE 3: SUPPLEMENTAL REMEDIATION PIPING INFRASTRUCTURE

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	08	F

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AREA 9 LIMITS

AREA 7 LIMITS

AREA 8 LIMITS

1505 INACTIVE CAPPING SYSTEM

SLOPE 20:1

SLOPE 3:1

SLOPE 13:1

MEAN HIGH WATER LEVEL (EL. 383.5')

1604 9-FT GABION BASKET

1606 PIPE OUTLET PROTECTOR

1604 6-FT GABION BASKET

1605 FLUME

1402 ASPHALT

END OF GUIDE RAIL TERMINATE WITH POST

1602 STORMWATER CULVERT

1404 BYPASS MANHOLE

REMOVE EXISTING 3.5' SUMP AND FILL WITH #57 STONE

1601 INSTALL INLET RIM = 386.74'

FORMER AREA 5 LIMITS

INACTIVE CAPPING SYSTEM DETAIL 1505

SOUTH SLOPE SURFACE SHALL BE RIPRAP D50=6"

1504 ACTIVE CAPPING SYSTEM

END OF GUIDE RAIL TERMINATE AT POST

CORRUGATED-BEAM GUIDE RAIL 1506

1404 RECIRCULATION MANHOLE

1404 BYPASS MANHOLE

1602 CULVERT 1
190 LF ADS WT
24" Ø N12 PIPE
@ 0.5%

2%

2%

NOTES:

1. SEE DRAWING NO. 01 FOR GENERAL NOTES, ABBREVIATIONS, AND THE COMPLETE LEGEND.
2. SLOPES SHALL BE GRADED AS SHOWN, AT NO LOCATION SHALL THE FINAL GRADES EXCEED 2.5:1 OR BE LESS THAN 1% WITHOUT APPROVAL OF THE ENGINEER.
3. THE SOIL COVER SHALL BE PLACED OVER THE EXCAVATION GRADES (SEE DRAWING NO. 09).
4. THE FINAL CONTOURS DEPICT THE TOP OF 2-FOOT THICK FINAL COVER SYSTEM WITHIN THE LIMITS OF OPEN WATER IN FORMER CANAL 2/AREA 8, THE TOP OF THE 1 FOOT COVER SYSTEM ON THE NORTH AND SOUTH SLOPES OF AREA 8, AND BENEFICIAL REUSE MATERIAL EXCAVATED FROM AREA 7 DURING PHASE 1 GRADED ELSEWHERE WITHIN THE LOD AND PLACED AT EXISTING AREA 5.
5. THE EXISTING ON-SITE ROADS ARE A MIX OF ASPHALT AND STONE. ANY ROADS REMAINING IN PLACE AT THE TIME OF RESTORATION MAY BE BURIED BENEATH THE PROPOSED ASPHALT SHOWN HERE-IN SO LONG AS THE GRADING PLAN PRESENTED ABOVE IS MET. ANY EXISTING ROAD MATERIAL ABOVE THE GRADES PRESENTED ABOVE SHALL BE REMOVED AND DISPOSED OF.
6. METAL BUILDING SHALL BE DEMOLISHED BY THE CONTRACTOR AND DISPOSED OF OFFSITE. FINAL GRADES SHALL BE INCLUSIVE OF THE REMOVAL OF THE BUILDING.

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089550
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Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
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FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

FINAL GRADING PLAN

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	09	F

DATE DRAWN: JAN 2021

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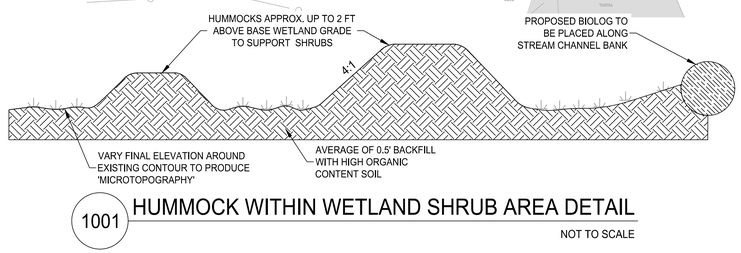
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CAYUGA CO.
NEW YORK

1001 WETLAND RESTORATION

F EDGE OF WATER

1001 WETLAND RESTORATION



1001 HUMMOCK WITHIN WETLAND SHRUB AREA DETAIL

NOT TO SCALE

ASPHALT
GABION BASKET
RENO MATTRESS
LAWN SEED MIX FOR RESTORATION
FORMER CANAL CENTER
STONE FOR RESTORATION
UPLAND FORESTED AREA FOR RESTORATION
NEW ENGLAND CONSERVATION/WILDLIFE MIX
WETLAND SHRUBS FOR RESTORATION
F TREES FOR RESTORATION

NOTES:

F CONTRACTOR SHALL RESTORE THE AREA WITHIN THE LOD IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:

1. IN ADDITION TO THE EROSIONS AND SEDIMENT CONTROLS SHOWN ON DRAWING NO 03, STAKED AND RECESSED SILT FENCE OR COMPOST FILTER SOCK SHALL BE PLACED BETWEEN GRADING AREAS AND WETLANDS, AS SHOWN IN THE RESTORATION PLAN. SILT FENCE OR COMPOST FILTER SOCK SHALL BE MONITORED AND MAINTAINED UNTIL ROOTED VEGETATION IS ESTABLISH OVER AT LEAST 85% OF DISTURBED AREA.
2. COIR LOGS SHALL BE PLACED AT THE EDGE OF WATER LEVEL TO PROVIDE ADDITIONAL SOIL STABILITY. COIR LOGS MUST BE STAKED WITH WOODEN STAKES, AND LEFT TO DECAY IN PLACE AFTER PLANTING. NATIVE PLANT SEED MIX SHOULD BE BROADCAST ON COIR LOGS WHEN SEEDING AREA.
3. COIR MATS SHALL BE PLACED ON ALL SLOPES 3:1 OR GREATER WHICH DO NOT HAVE RIP RAP ON THE SURFACE. COIR MATS MUST BE STAKED WITH WOODEN STAKES, AND LEFT TO DECAY IN PLACE. NATIVE PLANT SEED MIX SHOULD BE BROADCAST ON COIR MATS WHEN SEEDING AREA.
4. TOP SOIL MATERIAL AND INSTALLATION SHALL BE MEET THE REQUIREMENTS IN THE TECHNICAL SPECIFICATIONS.
5. WETLAND MITIGATION AREA SHALL BE PLANTED WITH:
   5.1. 1 PIN OAK (QUERCUS PALUSTRIS)
   5.2. 2 RED MAPLE (ACER RUBRUM)
   5.3. 3 BLACK WILLOW (SALIX NIGRA)
   5.4. 1 SWAMP WHITE OAK (QUERCUS BICOLOR)
   5.5. 3 SILVER MAPLE (ACER SACCHARINUM)
   SAPLINGS SHALL BE AT MINIMUM 2-3 INCH CALIPER. SIMILAR WETLAND TOLERANT SPECIES CAN BE USED AS WELL IF SOME SPECIES ARE NOT AVAILABLE WITH THE OWNER'S REPRESENTATIVE APPROVAL.
6. TREES SHALL BE INTER-PLANTED WITH:
   6.1. 24 SOUTHERN ARROWWOOD (VIBURNUM DENTATUM)
   6.2. 24 WINTERBERRY (ILEX VERTICILLATA)
   6.3. 24 RED OSIER DOGWOOD (CORNUS SERICEA)
   6.4. 24 SILKY DOGWOOD (CORNUS AMOMUM)
   THESE SHRUBS SHALL BE IN GALLON CONTAINERS. THEY SHALL BE PLANTED IN CLUSTERS OF 4 PLANTS PER SPECIES IN LOW AREAS NEAR WETLAND EDGE.
7. SEED MIX SHALL BE MULCHED WITH SEED-FREE STRAW (OR SIMILAR), TO HOLD SEED AND MOISTURE UNTIL GERMINATION AND ROOTED VEGETATION IS ESTABLISHED.
8. THE GROUND WITHIN THE WETLAND AREA SHALL BE SEEDED WITH A CUSTOM SEED MIX WITH THE FOLLOWING SEEDS AND PLANTING RATIOS:
   8.1. FORMER CANAL CENTER
      8.1.1. SOFTSTEM BULRUSH (SCHOENOPLECTUS TABERNAEMONTANI) - 1 PLUG PER 12 INCHES, A 500 PLUGS.
      8.1.2. WOOL GRASS (SCIRPUS CYPERINUS) - 0.1 LB/ACRE.
      8.1.3. PICKERELWEED (PONTEDERIA CORDATA) - 1 RHIZOME EVERY 24 INCHES, 200 RHIZOMES.
   8.2. BETWEEN THE EDGE OF WATER AND ORDINARY HIHG-WATER ELEVATION
      8.2.1. SOFT RUSH (JUNCUS EFFUSUS) - 1 LB/200 SQ FT.
      8.2.2. CARDINAL FLOWER (LOBELIA CARDINALIS) - 1 LB/ACRE.
      8.2.3. MARSH MARIGOLD (CALTHA PALUSTRIS) - 1 PLUG PER 12 INCHES, 200 PLUGS.
      8.2.4. HARLEQUIN BLUEFLAG (IRIS VERSICOLOR) - 1 RHIZOME EVERY 24 INCHES, 150 RHIZOMES.
9. SEED MIX SHOULD BE MULCHED WITH SEED-FREE STRAW (OR SIMILAR), TO HOLD SEED AND MOISTURE UNTIL GERMINATION AND ROOTED VEGETATION IS ESTABLISHED.
10. DISTURBED AREA ADJACENT TO WETLAND RESTORATION AREA SHALL BE SEEDED WITH NEW ENGLAND WETLAND PLANTS' NEW ENGLAND CONSERVATION/WILDLIFE MIX (APPENDIX C) (OR SIMILAR), AT A RATIO OF 1 POUND / 1,750 SQUARE FEET PER PACKAGE DIRECTIONS. THIS AREA SHALL BE LEFT TO GROW, AND NOT MOWED, TO PRODUCE HABITAT FOR GRASSLAND SPECIES.
11. THE DISTURBED AREA ADJACENT TO THE WETLAND RESTORATION AREA THAT WILL CONTINUE TO BE MOWED AFTER THE RESTORATION, SHALL BE SEEDED WITH NATURE'S SEED'S NORTHEAST SEED BLEND (APPENDIX C) (OR SIMILAR), AT A RATIO OF 3 POUNDS / 1,000 SQUARE FEET PER THE PACKAGE DIRECTIONS.
12. SEEDED AREAS SHALL BE MULCHED WITH SEED-FREE STRAW, OR SIMILAR, WHICH SHALL BE MAINTAINED UNTIL ROOTED VEGETATION IS ESTABLISHED TO COVER 85% OF THE DISTURBED AREA.
13. AREA 8 SHALL BE PLANTED WITH 575 RHIZOMES OF BROADLEAF CATTAIL (TYPHA LATIFOLIA). BROADLEAF CATTAIL SEED WILL ALSO BE BROADCAST OVER THE SAME AREA
14. SEEDED AREAS SHALL BE MULCHED WITH SEED-FREE STRAW, OR SIMILAR, WHICH SHALL BE MAINTAINED UNTIL ROOTED VEGETATION IS ESTABLISHED TO COVER 85% OF THE DISTURBED AREA.
15. THE AREA DIRECTLY ADJACENT TO THE WETLAND RECONSTRUCTION SHALL BE PLANTED WITH:
   15.1. 24 BLACK CHOKEBERRY (ARONIA MELANOCARPA)
   15.2. 24 NANNBERRY (VIBURNUM LENTAGO)
   15.3. 24 COMMON NINEBARK (PHYSOCARAPUS OPULIFOLIUS)
   NANNYBERRY SHRUBS SHOULD BE PLANTED IN CLUSTERS OF FOUR. NINEBARK AND CHOKEBERRY SHOULD BE PLANTED INTERMITTENTLY THROUGHOUT THE AREA. SHRUBS WILL BE 1 GALLON CONTAINERS.
16. DISTURBED AREA ADJACENT TO WETLAND RESTORATION AREA SHALL BE SEEDED WITH NEW ENGLAND WETLAND PLANTS' NEW ENGLAND CONSERVATION/WILDLIFE MIX (OR SIMILAR), AT A RATIO OF 1 POUND / 1,750 SQUARE FEET PER PACKAGE DIRECTIONS. THIS AREA SHALL BE LEFT TO GROW, AND NOT MOWED, TO PRODUCE HABITAT FOR GRASSLAND SPECIES.
17. UPLAND TREES SHALL BE PLANTED AT THE TOP OF THE RESTORED BANKS. THEY INCLUDE:
   17.1. 10 SUGAR MAPLE (ACER SACCHARUM)
   17.2. 10 RED OAK (QUERCUS RUBRA)
   17.3. 10 TULIP POPLAR (LIRIODENDRON TULIPIFERA)
   THESE SAPLINGS SHALL BE AT LEAST 2-3 INCH CALIPER.
18. TREES SHALL BE STAKED TO HOLD IN PLACE UNTIL THEY SINK DEEPER ROOTS. SHRUBS SHALL BE PLANTED IN TREE TUBES TO PROTECT THEM FROM DEER/RABBIT GRAZING. TUBES SHALL BE MAINTAINED FOR AT LEAST 2 YEARS TO PROTECT PLANTS.
19. MITIGATION AREA SHALL BE MONITORED TWICE PER YEAR DURING THE GROWING SEASON, FOR AT LEAST 2 YEARS. DURING THESE VISITS, THE ESTABLISHMENT OF ROOTED VEGETATION AND GROWTH OF TREES AND SHRUBS SHALL BE MONITORED AND RECORDED. THESE VISITS WILL ALSO PREVENT THE ESTABLISHMENT OF NON-NATIVE INVASIVE SPECIES, PER MITIGATION MONITORING AND MAINTENANCE PLAN.

N

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089550
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DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN

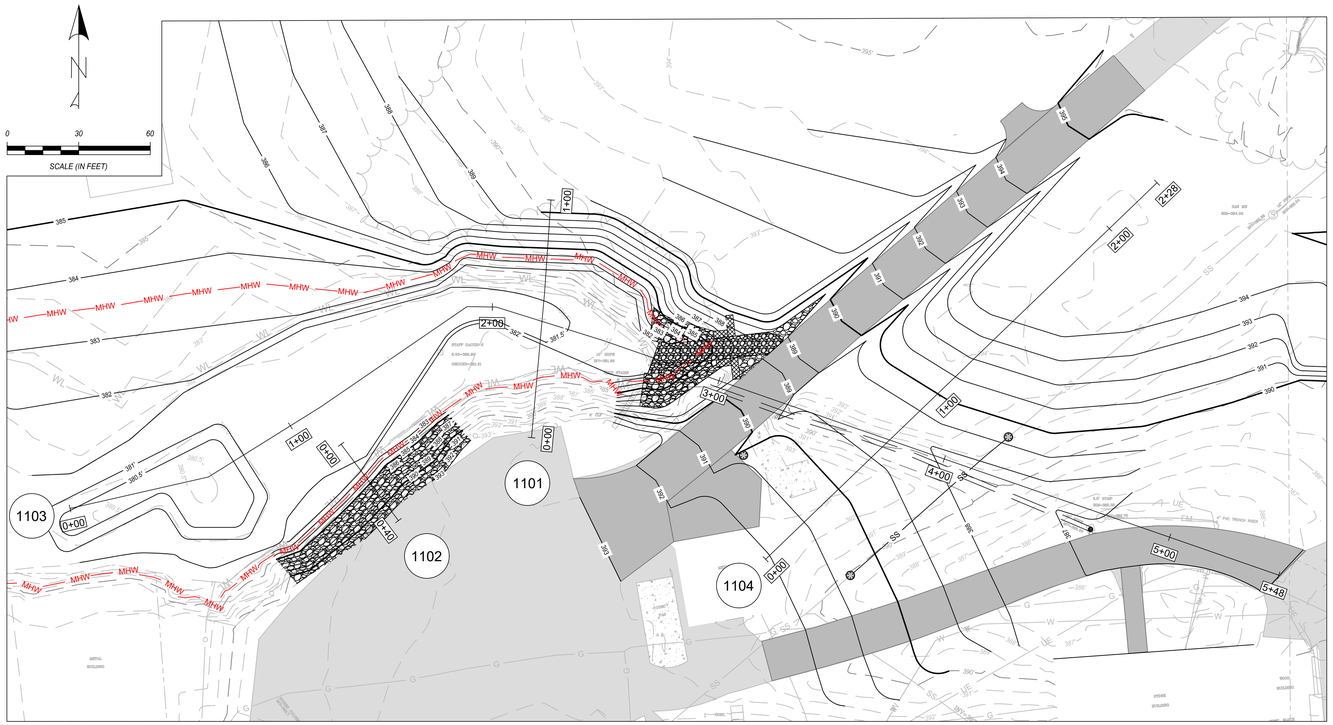
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UNION SPRINGS, NEW YORK

AREA 7, 8, AND 9 RESTORATION PLAN

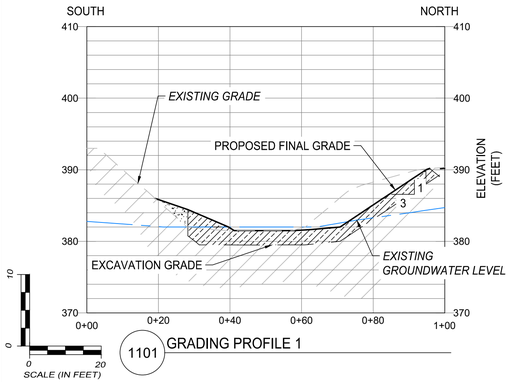
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AS SHOWN	0820721	10	F
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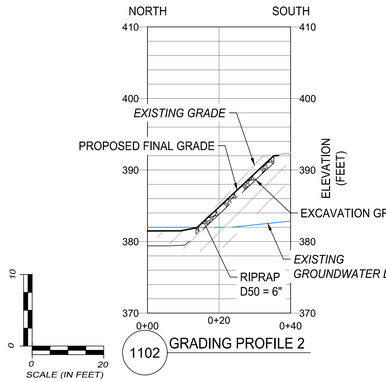
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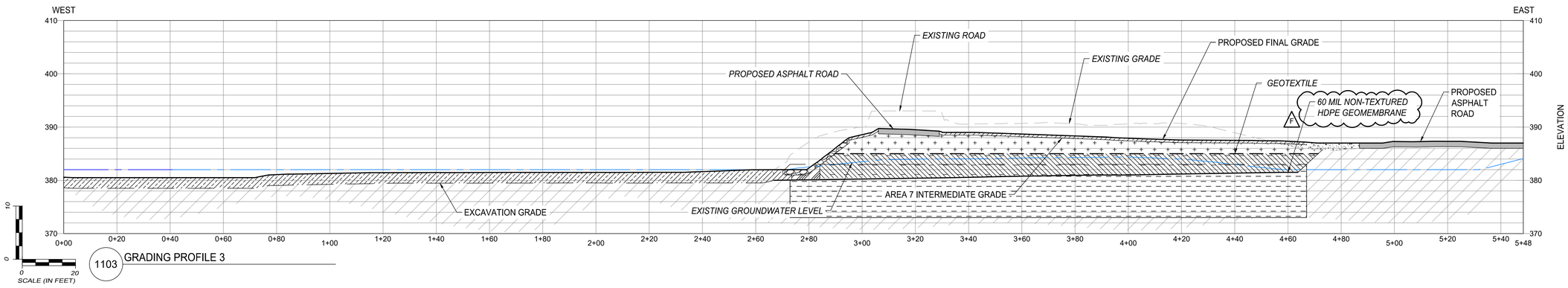
GRADING PLAN VIEW



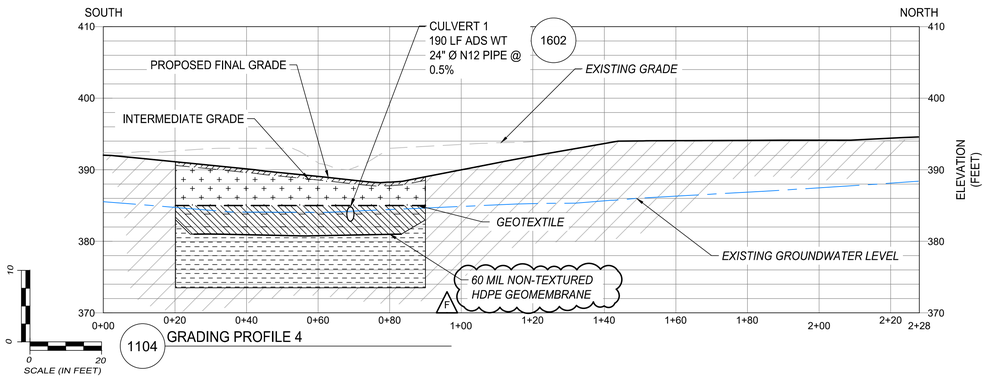
1101 GRADING PROFILE 1



1102 GRADING PROFILE 2



1103 GRADING PROFILE 3



1104 GRADING PROFILE 4

BENEFICIAL REUSE MATERIAL

STABILIZATION MIX ZONE

CAP MATERIAL

STRUCTURAL SAND

BACKFILL MATERIAL

DENSE GRADED AGGREGATE

NATIVE SUBGRADE

ASPHALT

PRB MATERIAL (60% ZVI, 25% MASON SAND, 15% POND SAND)

NOTES:
1. THE GROUNDWATER CONTOURS PRESENTED ON THESE PROFILES AND ALL PROFILES IN THIS DRAWING SET ARE BASED ON A GROUNDWATER MEASUREMENT EVENT ON OCTOBER 2018 AND REPRESENTS NORMAL GROUNDWATER LEVELS. GROUNDWATER DATA IS PROVIDED IN THE BID DOCUMENTS.

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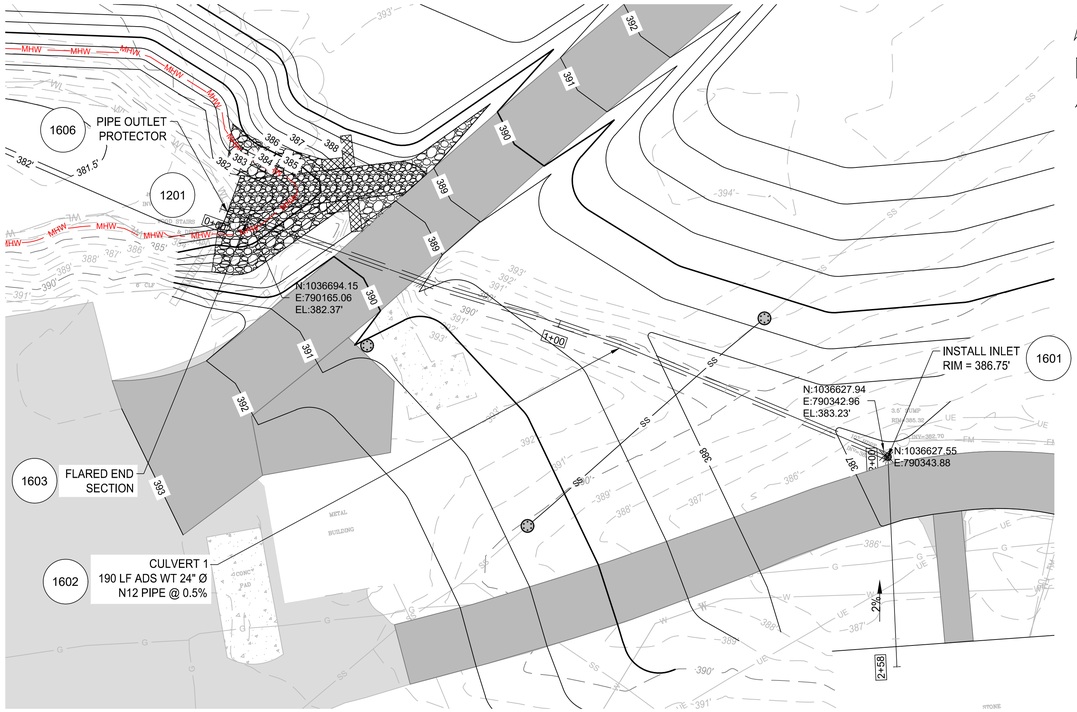
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GRADING PROFILES

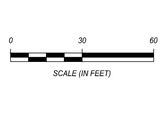
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DATE DRAWN: JAN 2021			

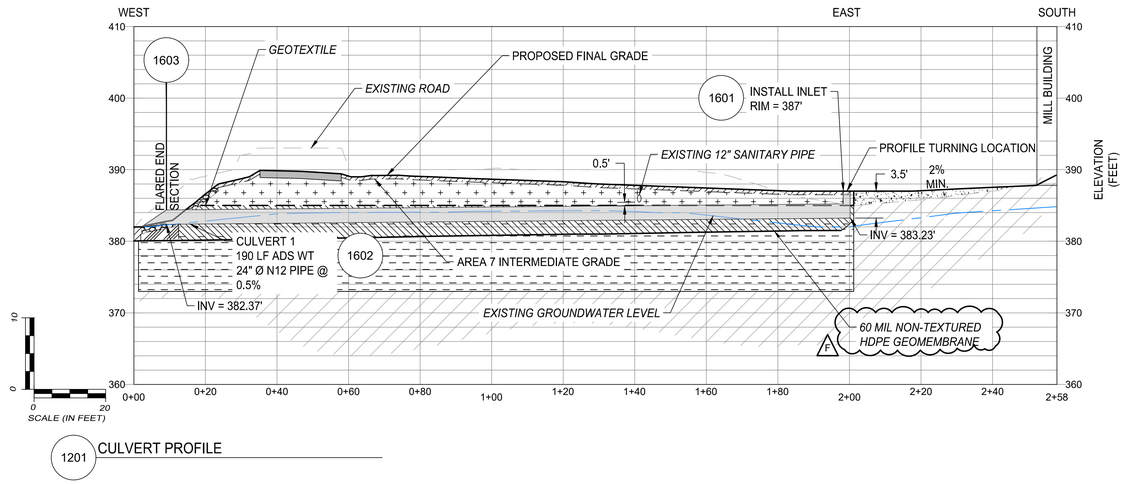
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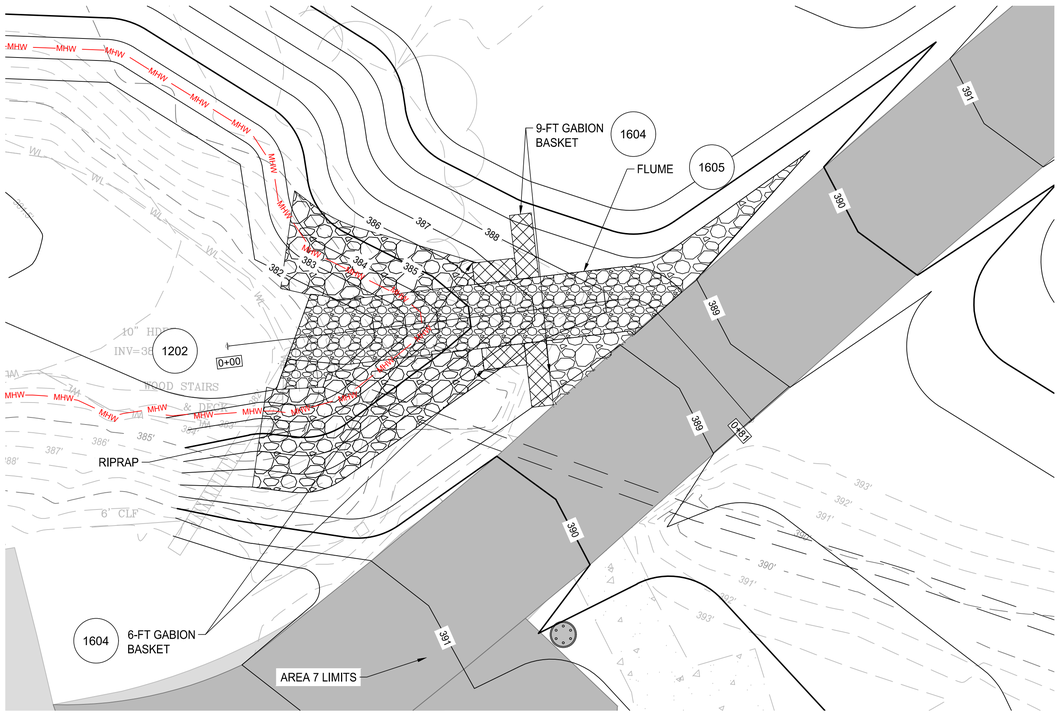
CULVERT PLAN VIEW



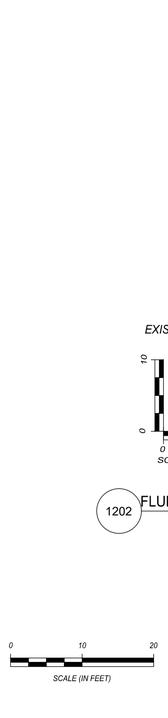


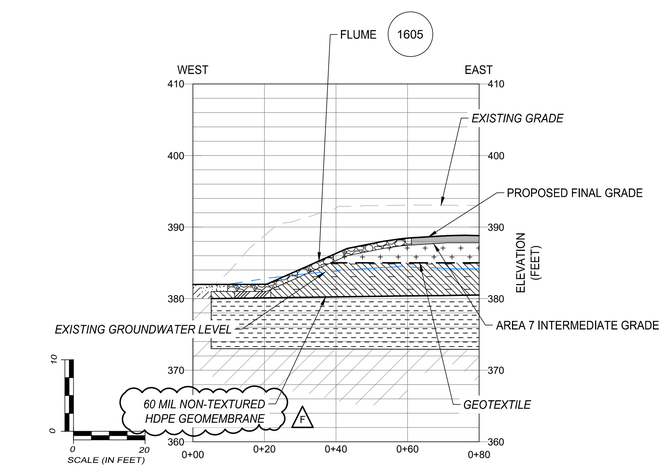
1201 CULVERT PROFILE

NOTES:
1. CULVERT SHALL BE TRENCHED INTO THE MATERIAL MIXED DURING PHASE 2. ADDITIONAL DETAILS ARE SHOWN ON DRAWING NOs. 07 AND 08.



FLUME PLAN VIEW





1202 FLUME PROFILE

- BENEFICIAL REUSE MATERIAL
- STABILIZATION MIX ZONE
- CAP MATERIAL
- STRUCTURAL SAND
- BACKFILL MATERIAL
- DENSE GRADED AGGREGATE
- NATIVE SUBGRADE
- ASPHALT
- PRB MATERIAL (60% ZVI, 25% MASON SAND, 15% POND SAND)

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STATE OF NEW YORK · STEPHEN ANTHONY MIRABELLA · 089550 · LICENSED PROFESSIONAL ENGINEER

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A	JAN 2021	ISSUED FOR REVIEW	MB	JR

DRAWN BY JH · CADD Review MB · CHECKED BY SM

ERM
Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9 INTERIM REMEDIAL MEASURES WORK PLAN

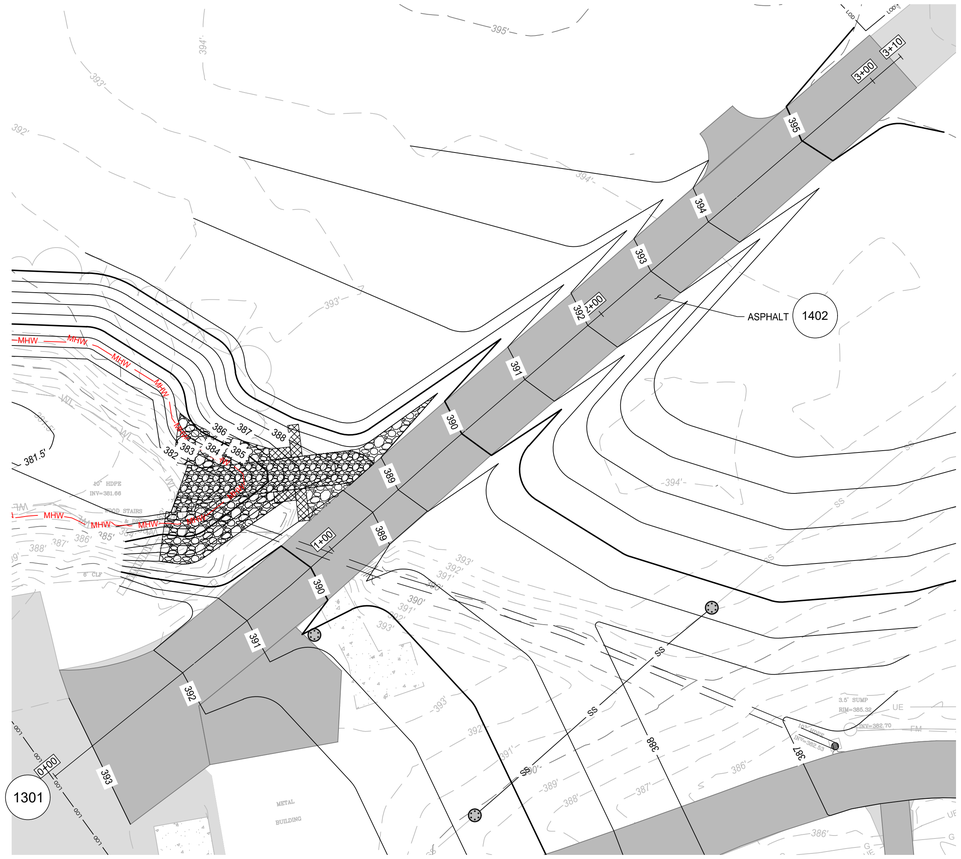
FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

CULVERT AND FLUME DESIGN

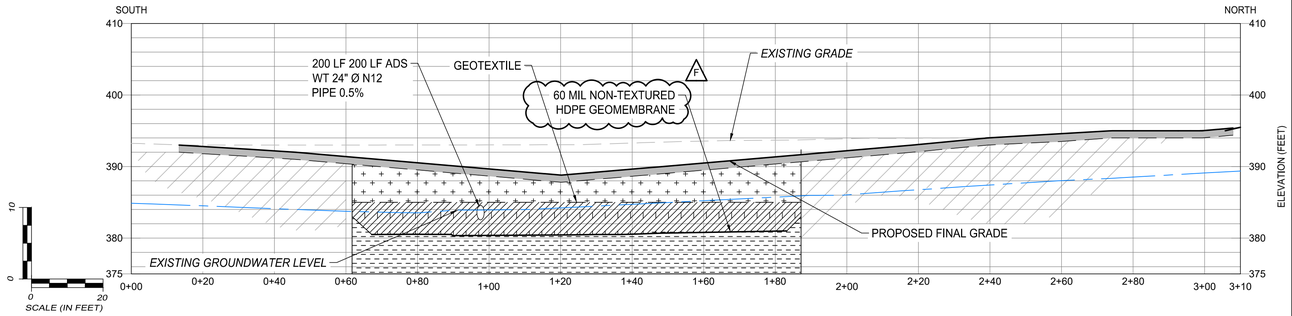
SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	12	F
DATE DRAWN: JAN 2021			

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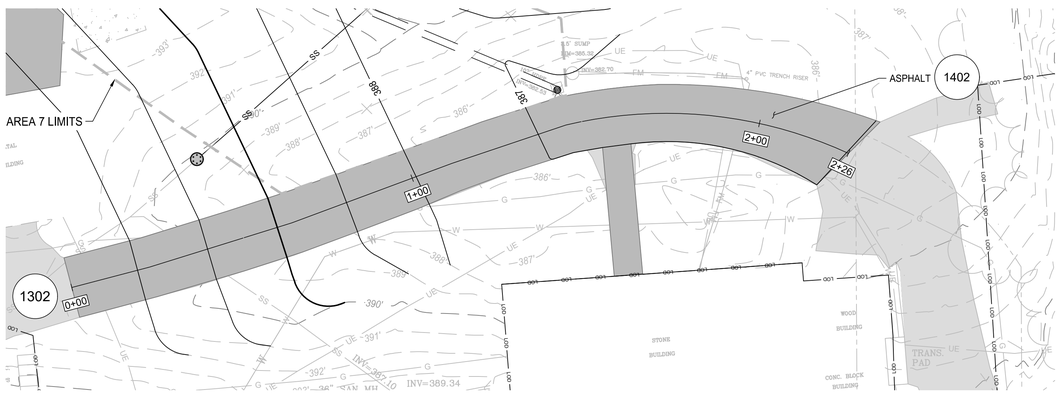
REVISIONS TO BE MADE ON THE CADD FILE ONLY



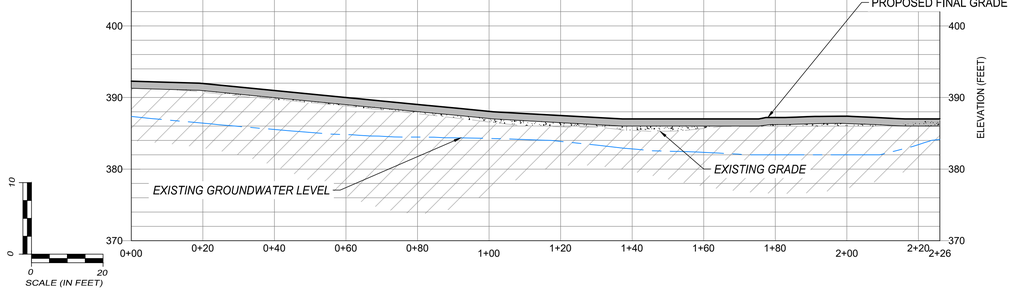
ACCESS ROAD 1 PLAN VIEW



1301 ACCESS ROAD 1 PROFILE



ACCESS ROAD 2 PLAN VIEW



1302 ACCESS ROAD 2 PROFILE

BENEFICIAL REUSE MATERIAL

STABILIZATION MIX ZONE

CAP MATERIAL

STRUCTURAL SAND

BACKFILL MATERIAL

DENSE GRADED AGGREGATE

NATIVE SUBGRADE

ASPHALT

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STATE OF NEW YORK · STEPHEN ANTHONY MARBELLO · 089550 · LICENSED PROFESSIONAL ENGINEER

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DRAWN BY JH | CADD Review MB | CHECKED BY SM

Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN

FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

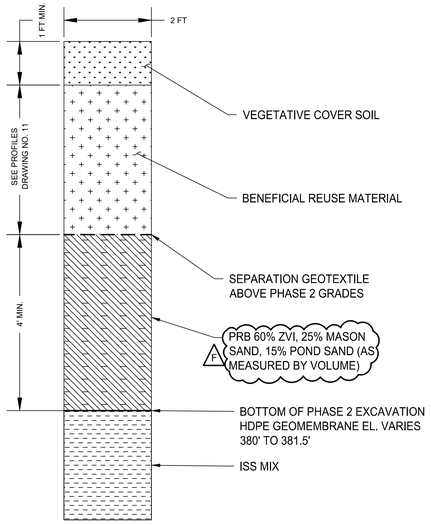
ACCESS ROADS DESIGN

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	13	F

DATE DRAWN JAN 2021

REVISIONS TO BE MADE ON THE CADD FILE ONLY

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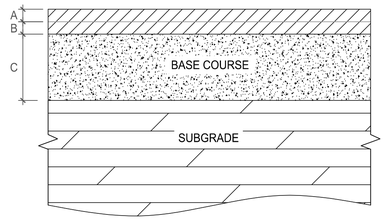


NOTES:

1. PRB MATERIAL IMPLEMENTED WHEN SHOWN IN PLAN OTHERWISE JUST STRUCTURAL SAND.

1401 TRENCH TYPE 2: PRB PERIMETER DETAIL

NOT TO SCALE



FULL DEPTH SECTION

STANDARD DUTY PAVING

A = 3" ASPHALT CONCRETE - SURFACE COURSE
B = 3" ASPHALT CONCRETE - BINDER COURSE
C = 6" AGGREGATE BASE

STRUCTURAL FILL COMPOSITION

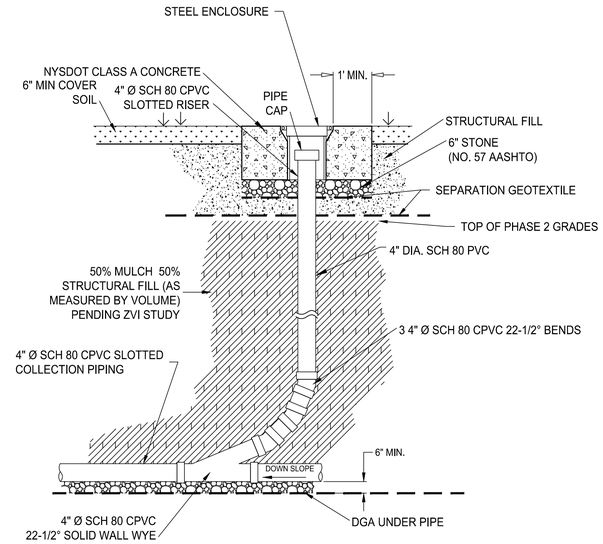
U.S. STANDARD SIEVE SIZE	PERCENT FINER BY WEIGHT
2"	100
3/4"	100
3/8"	80 -100
NO. 4	40 - 90
NO. 10	30 - 70
NO. 40	20 - 50
NO. 100	15 - 40
NO. 200	8 - 12

NOTES:

1. SUBGRADE COMPACTION: (PER SPECIFICATIONS)
2. THE AGGREGRATE BASE COURSE SHALL CONSIST OF CRUSH STONE, GRAVEL OR OTHER ACCEPTABLE LOCAL MATERIAL, UNIFORMLY SPREAD AND COMPACTED WITH A POWER ROLLER WEIGHING NOT LESS THAN 10 TONS.
3. ALL SUBGRADE AND PAVEMENT OPERATIONS AND MATERIALS SHALL MEET THE MINIMUM REQUIREMENTS OF THE CURRENT NEW YORK DOT STANDARD SPECIFICATION.
4. PROVIDE TACK COAT BETWEEN BASE COURSE AND SURFACE COURSE IF NEW YORK DOT SPECIFICATIONS REQUIRE OR CONDITIONS WARRANT.
5. WHEN MEETING AN EXISTING PAVEMENT, ADD A 12"W X 2"D KEY BE MILLED IN EXISTING SURFACE AND A 24"W LAYER OF PETROMAT BE INSTALLED BETWEEN BASE AND SURFACE COURSES TO PREVENT CRACKS FROM REFLECTING THROUGH PAVEMENT.

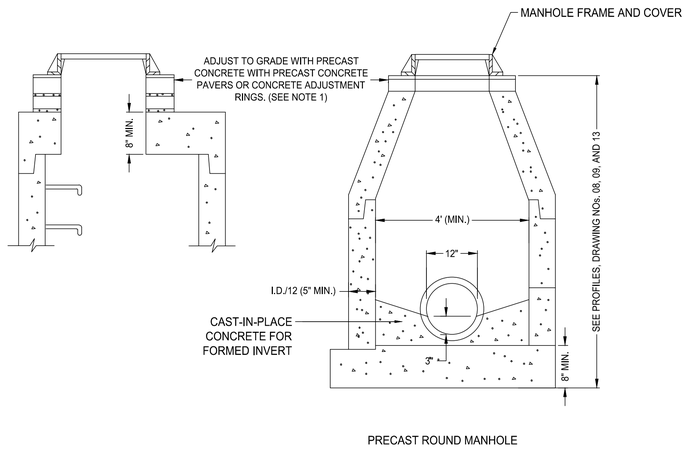
1402 ASPHALT PAVING DETAIL

NOT TO SCALE



1403 CLEAN OUT DETAIL

NOT TO SCALE



PRECAST ROUND MANHOLE

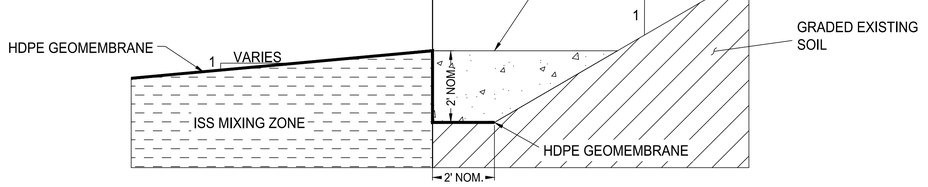
NOTES:

1. FINISHING PIPE ENTRIES - THE BELLS OF CONCRETE PIPE SHALL BE CUT OFF AT EVERY PIPE ENTRY WHERE THE BELL ENTERS A STRUCTURE. CONNECTIONS BETWEEN THE STRUCTURE AND PIPE SHALL BE MADE BY EITHER; USING A RESILIENT CONNECTOR MEETING THE REQUIREMENTS OF ASTM C1478 M OR BY COMPLETELY FILLING THE SPACE AROUND EACH PIPE WITH CONCRETE GROUTING MATERIAL OR CONCRETE REPAIR MATERIAL. IN CASE OF LARGE SPACES AROUND PIPES, CONCRETE PAVERS COMPLETELY BEDDED IN GROUT OR CONCRETE REPAIR MATERIAL, MAY BE USED.

1404 MANHOLE DETAIL

NOT TO SCALE

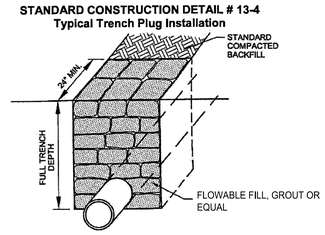
MANHOLE DETAIL FURNISHED AS PER NYSDOT #M6048R1 (DRAWING NO. 4 OF 4)



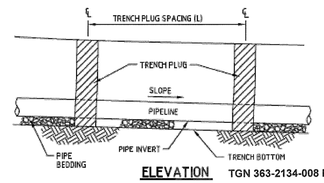
1405 HDPE GEOMEMBRANE TRENCHING DETAIL

NOT TO SCALE

STANDARD CONSTRUCTION DETAIL # 13-4
Typical Trench Plug Installation



SECTION VIEW



ELEVATION TGN 363-2134-008 March 2012

PA DEP

MAXIMUM SPACING AND MATERIALS FOR TRENCH PLUGS		
Trench Slope (%)	Spacing L (ft)	Plug Material
< 5	1000	*Flowable fill, grout or equal
5 -15	500	*Flowable fill, grout or equal
15 - 25	300	*Flowable fill, grout or equal
25 - 35	200	*Flowable fill, grout or equal
35 - 100	100	*Flowable fill, grout or equal
> 100	50	*Flowable fill, grout or equal

***TOPSOIL MAY NOT BE USED TO FILL SACKS.**

Impervious trench plugs are required for all stream, river, wetland, or other water body crossings.

1406 TRENCH PLUG DETAIL

NOT TO SCALE

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STATE OF NEW YORK · STEPHEN ANTHONY MIRABELLA · 089550 · LICENSED PROFESSIONAL ENGINEER

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DRAWN BY JH | CADD Review MB | CHECKED BY SM

Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN

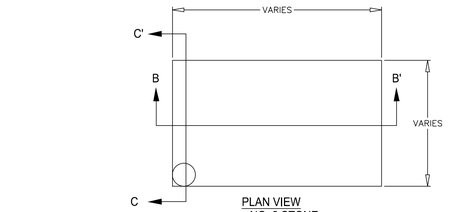
FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

CONSTRUCTION DETAILS (1 OF 2)

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	14	F
DATE DRAWN JAN 2021			

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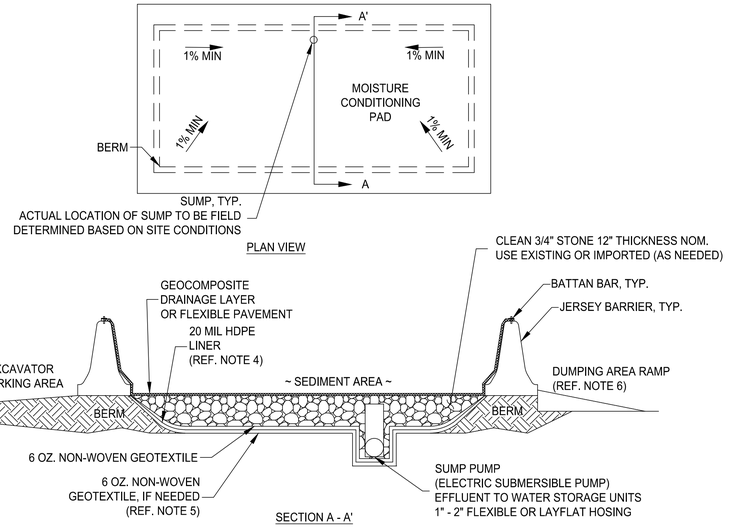
REVISIONS TO BE MADE ON THE CADD FILE ONLY



NOTES
1. FOLLOWING EXCAVATION, IF SUBGRADE HAS SIGNIFICANT GRAVEL OR DEBRIS LARGER THAN 2" IN DIAMETER, SUBGRADE GEOTEXTILE SHALL BE INSTALLED, OR THE LARGER GRAVEL, DEBRIS SHALL BE REMOVED MANUALLY.

1501 DECONTAMINATION PAD

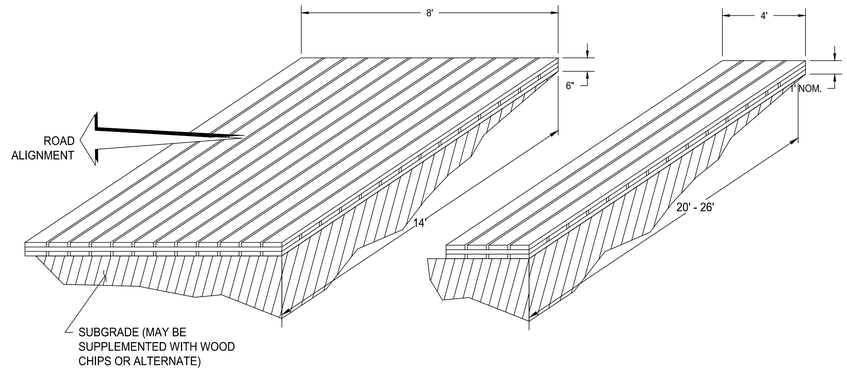
NOT TO SCALE



NOTES
1. COMPONENTS, MATERIALS, AND DIMENSIONS MAY CHANGE BASED ON FIELD CONDITIONS SO LONG AS PAD IS A MINIMUM OF 3,000 SF. RESURFACING OF EXISTING PAVED SURFACES MAY ALSO BE SUBMITTED FOR CONSIDERATION.
2. THE SURFACE OF THE PAD SHALL BE SLOPED SO FREE-DRAINING LIQUIDS CAN BE COLLECTED AND TRANSFERRED TO THE WATER STORAGE AND TREATMENT AREA.
3. PLASTIC DRAWING NO.ING SHALL BE USED TO TEMPORARILY COVER STOCKPILED MATERIALS, AS NEEDED, TO REDUCE EXPOSURE TO SUBSTANTIAL PRECIPITATION EVENTS. COVER TO BE REMOVED AFTER PRECIPITATION EVENTS.
4. HEAVY EQUIPMENT SHALL NOT ENTER THE BERMED AREA TO PREVENT TRACKING, STRESS, AND IMPACTS TO THE LINER. DURING SOLIDIFICATION OPERATIONS CONTRACTOR SHALL MINIMIZE IMPACTS TO LINER.
5. FOLLOWING EXCAVATION, IF SUBGRADE HAS MINIMAL GRAVEL LARGER THAN 2" IN DIAMETER, SUBGRADE GEOTEXTILE SHALL NOT BE REQUIRED. LARGER GRAVEL, STICKS, ETC. SHALL BE REMOVED MANUALLY, AS NECESSARY.
6. DUMPING AREA RAMP MAY BE BUILT UP WITH STONE OR SOIL AS NECESSARY TO ENABLE TRUCKS TO DUMP OVER THE JERSEY BARRIER.

1502 SOIL/SEDIMENT STORAGE AND MOISTURE CONDITIONING PAD

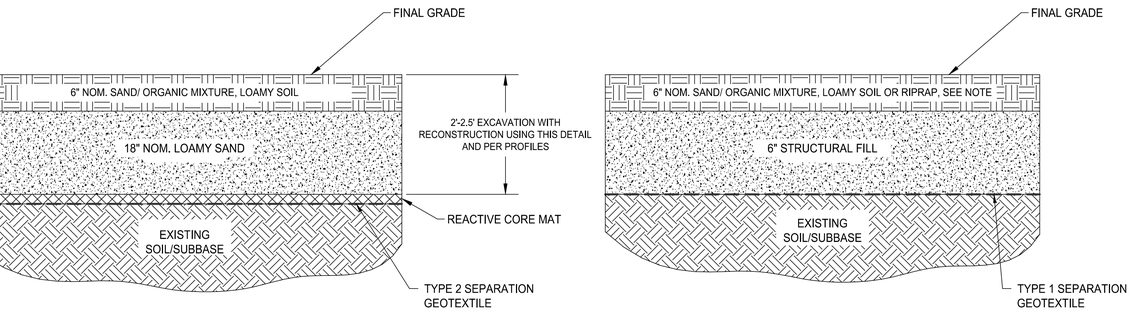
NOT TO SCALE



NOTE:
1. CRANE MATS SHALL BE USED BY EXCAVATORS WHILE PERFORMING WORK IN THE WETLAND AREA, AS NECESSARY.
2. TEMPORARY ROADS MAY BE TIMBER PLANK MAT OR ENGINEER ACKNOWLEDGED EQUIVALENT.

1503 TEMPORARY ROAD DETAIL

NOT TO SCALE



DESIGN NOTES:

1. AS SET FORTH BY DER-10 SECTION 4.1 (F)2, TWO FEET OF SEDIMENT SHALL REMOVED OVER THE PROPOSED FOOT PRINT TO MINIMIZE POTENTIAL EXPOSURE. AN ACTIVE CAPPING SYSTEM SHALL BE INSTALLED INCLUDING A REACTIVE CORE MAT TO MINIMIZE/ RETARD THE POTENTIAL UPWARD MIGRATION OF RESIDUAL CONTAMINATION PRESENT BELOW THE CAP, TO IMPEDE BURROWING AND TO ACT AS A DEMARCATION LAYER.
2. THE HORIZONTAL EXTENT WAS DETERMINED BASED ON THE AVAILABLE DATA AND THE RISK ASSESSMENT COMPLETED FOR THE SITE. NO SAND/ORGANIC MIXTURE SHALL BE PLACED BELOW THE WATER TABLE ELEVATION OF 382' AMSL. BENEATH THE WATER TABLE THE ACTIVE CAP SHALL CONSIST OF REACTIVE CORE MAT AND 24" LOAMY SAND.

1504 ACTIVE CAPPING SYSTEM DETAIL

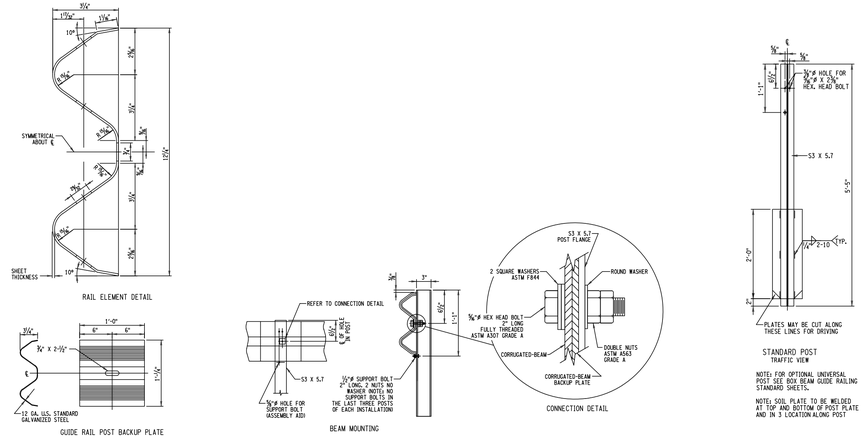
NOT TO SCALE

DESIGN NOTES:

1. THE INACTIVE CAP ON THE NORTH SLOPE OF CANAL 2 SHALL CONSIST OF 6" OF STRUCTURAL FILL AND 6" OF SAND/ORGANIC MXITURE, LOAMY SOIL.
2. THE INACTIVE CAP ON THE SOUTH SLOPE OF CANAL 2 SHALL CONSIST OF 6" OF STRUCTURAL FILL AND 6" OF RIPRAP D50=4.5".

1505 CAPPING SYSTEM DETAIL

NOT TO SCALE



CORRUGATED-BEAM GUIDE RAIL DETAIL FURNISHED AS PER NYSDOT #EB 13-028 DRAWING NO. 606-07

1506 CORRUGATED-BEAM GUIDE RAIL DETAIL

NOT TO SCALE

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DRAWN BY JH | CADD Review MB | CHECKED BY SM

Environmental Resources Management

ERM

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UNION SPRINGS, NEW YORK

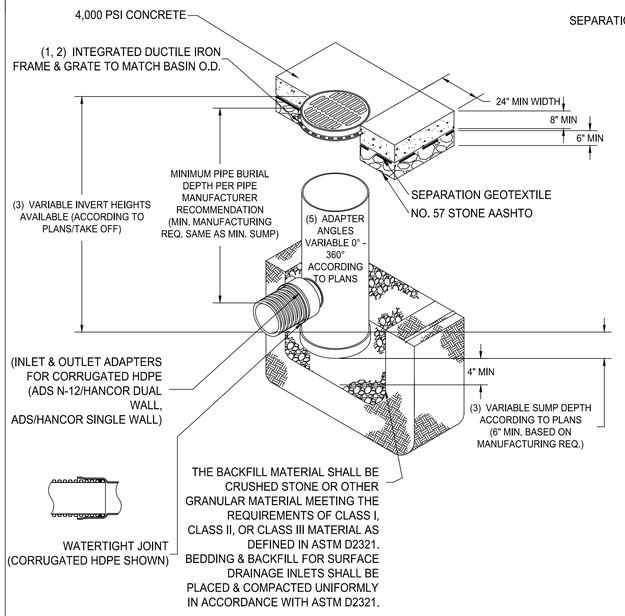
CONSTRUCTION DETAILS (2 OF 2)

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	15	F

DATE DRAWN: JAN 2021

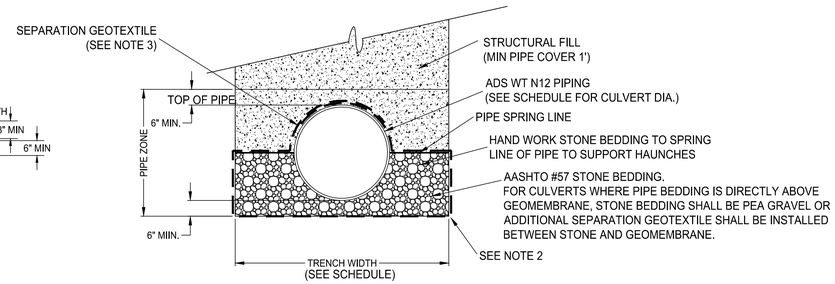
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1601 NYLOPLAST DROP INLET

SOURCE: ADS NOT TO SCALE

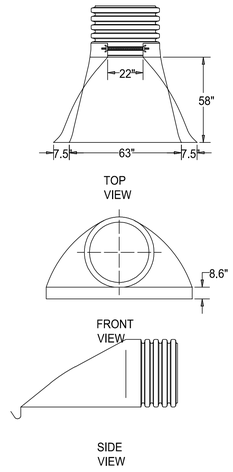


CULVERT INSIDE DIAMETER (IN.)	MIN. TRENCH WIDTH (IN., NOMINAL)
24	48

NOTES:
1. ALL BACKFILL MATERIAL SHALL BE COMPACTED IN 8" LIFTS UNLESS OTHERWISE SPECIFIED.
2. BOTTOM OF TRENCH SHALL BE FIRM. REMOVE ALL LOOSE MATERIAL. WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE OWNER'S REPRESENTATIVE AND REPLACE WITH AGGREGATE/GEOTEXTILE.
3. GEOTEXTILE SHALL BE OVERLAPPED (ALONG TRENCH AXIS).
4. TRENCH PLUGS SHALL BE CONSTRUCTED OF ON-SITE CLAY MATERIAL OR MATERIAL OTHERWISE ACKNOWLEDGED BY OWNER'S REPRESENTATIVE. TRENCH PLUGS SHALL BE KEYED INTO THE BOTTOM AND SIDES OF THE TRENCH AT A MINIMUM DISTANCE OF 6 INCHES. A MINIMUM OF 2 TRENCH PLUGS PER CULVERT TRENCH SHALL BE INSTALLED AND A MINIMUM OF 1 PER 100' OF CULVERT PIPE. A PLUG SHALL BE INSTALLED WITHIN 5 FEET OF THE INLET AND 5 FEET OF THE OUTLET OF EACH CULVERT.

1602 CULVERT #1 TRENCH DETAIL

NOT TO SCALE

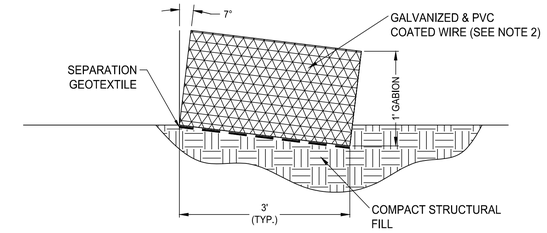


ADS FLARED END SECTION SPECIFICATION

NOTES:
1. THE ADS FLARED END SECTION SHALL BE HIGH DENSITY POLYETHYLENE MEETING ASTM D3350 MINIMUM CELL CLASSIFICATION 213320C; CONTACT MANUFACTURER FOR ADDITIONAL CELL CLASSIFICATION INFORMATION. WHEN PROVIDED, THE METAL THREADED FASTENING ROD SHALL BE STAINLESS STEEL.
2. INSTALLATION SHALL BE IN ACCORDANCE WITH ADS INSTALLATION INSTRUCTIONS AND WITH THOSE ISSUES BY STATE OR LOCAL AUTHORITIES. CONTACT YOUR LOCAL ADS REPRESENTATIVE OR VISIT WWW.ASD-PIPE.COM FOR THE LATEST INSTALLATION INSTRUCTIONS.

1603 ADS FLARED END SECTION FOR 24" ADS HDPE PIPING SYSTEM

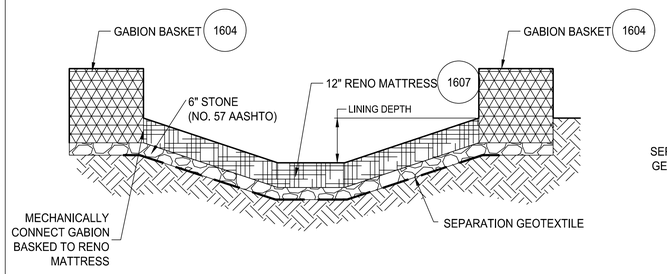
SOURCE: ADS NOT TO SCALE



NOTES:
1. FILL GABION BASKETS AND MATTRESSES WITH D_{50} = 5" STONE.
2. GABION BELOW THE WATER TABLE MUST BE COATED WITH PVC.

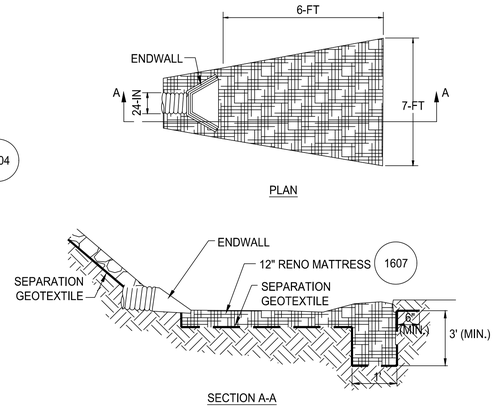
1604 GABION BASKET

NOT TO SCALE



1605 FLUME #1 DETAIL

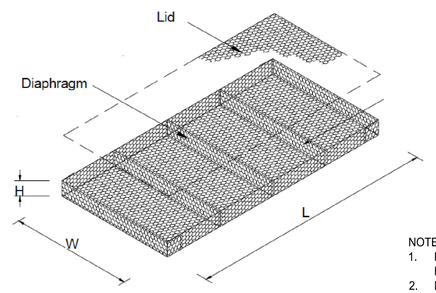
NOT TO SCALE



NOTE:
1. OUTLET LINING LAYOUT AS PER PLANS.

1606 PIPE OUTLET PROTECTION

NOT TO SCALE



NOTE:
1. REFER TO GEOSOLUTIONS INC. FOR ADDITIONAL SPECIFICATIONS: https://www.geosolutionsinc.com/products/pdfs/2005-PSS-Reno-mattress-galvanized-PVC.pdf
2. MATTRESS SHALL BE GALVANIZED BUT DOES NOT HAVE TO PVC COATED ABOVE ELEVATION 384'. MATTRESS SHALL BE PVC COATED BELOW ELEVATION 384'.
3. FILL MATTRESSES WITH D_{50} = 5" STONE.

Table of sizes for Reno mattresses

L=Length ft (m)	W=Width ft (m)	H=Height in (mm)	# of cells
9 (2.7)	6 (1.8)	6 (150)	3
12 (3.6)	6 (1.8)	6 (150)	4
9 (2.7)	6 (1.8)	9 (230)	3
12 (3.6)	6 (1.8)	9 (230)	4
12 (3.6)	6 (1.8)	12 (300)	4

1607 RENO MATTRESS GALVANIZED AND PVC COATED

SOURCE: MACAFERRI NOT TO SCALE

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STATE OF NEW YORK · STEPHEN ANTHONY ISABELLO · LICENSED PROFESSIONAL ENGINEER · 089550

Rev.	Date	Description	By	Chk
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E	JULY 2025	ISSUED FOR PERMIT	DF	JR
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C	NOV 2022	ISSUED FOR PERMIT	DF	JR
B	AUG 2021	ISSUED FOR PERMIT	MB	JR
A	JAN 2021	ISSUED FOR REVIEW	MB	JR

DRAWN BY: JH | CADD Review: MB | CHECKED BY: SM

ERM

Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN
FORMER TRW UNION SPRINGS
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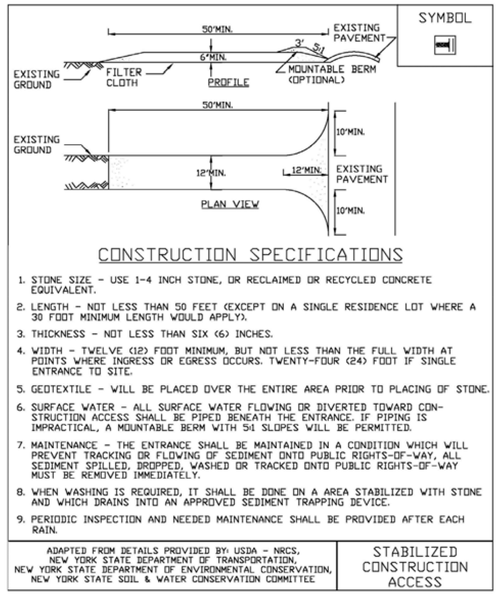
STORMWATER DETAILS

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	16	F
DATE DRAWN: JAN 2021			

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REVISIONS TO BE MADE ON THE CADD FILE ONLY

Figure 2.1

Stabilized Construction Access



CONSTRUCTION SPECIFICATIONS

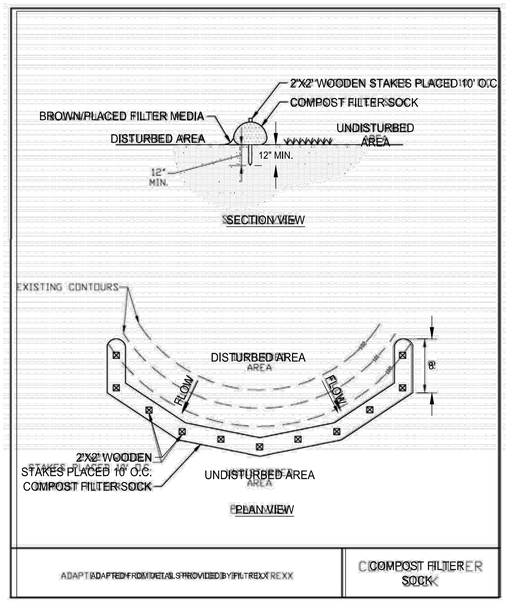
1. STONE SIZE - USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ACCESS SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STABILIZED CONSTRUCTION ACCESS

Figure 5.2

Compost Filter Sock

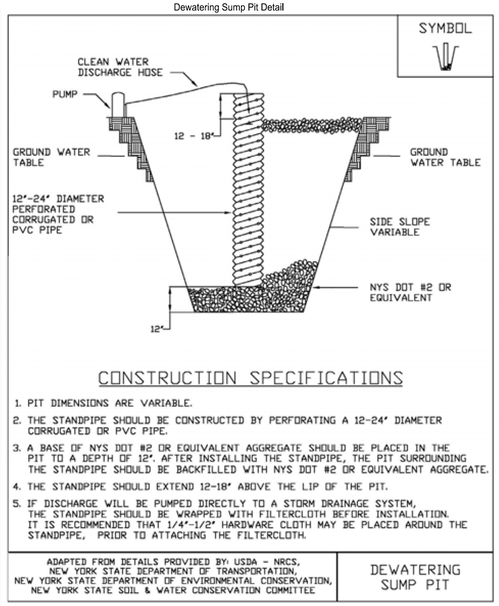


ADAPTED FROM DETAILS PROVIDED BY: FILTREXX

COMPOST FILTER SOCK

Figure 3.3

Dewatering Sump Pit Detail

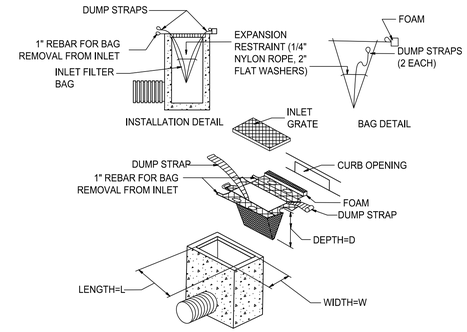


CONSTRUCTION SPECIFICATIONS

1. PIT DIMENSIONS ARE VARIABLE.
2. THE STANDPIPE SHOULD BE CONSTRUCTED BY PERFORATING A 12-24" DIAMETER CORRUGATED OR PVC PIPE.
3. A BASE OF NYS DOT #2 OR EQUIVALENT AGGREGATE SHOULD BE PLACED IN THE PIT TO A DEPTH OF 12". AFTER INSTALLING THE STANDPIPE, THE PIT SURROUNDING THE STANDPIPE SHOULD BE BACKFILLED WITH NYS DOT #2 OR EQUIVALENT AGGREGATE.
4. THE STANDPIPE SHOULD EXTEND 12-18" ABOVE THE LIP OF THE PIT.
5. IF DISCHARGE WILL BE PUMPED DIRECTLY TO A STORM DRAINAGE SYSTEM, THE STANDPIPE SHOULD BE WRAPPED WITH FILTERCLOTH BEFORE INSTALLATION. IT IS RECOMMENDED THAT 1/4"-1/2" HARDWARE CLOTH MAY BE PLACED AROUND THE STANDPIPE, PRIOR TO ATTACHING THE FILTERCLOTH.

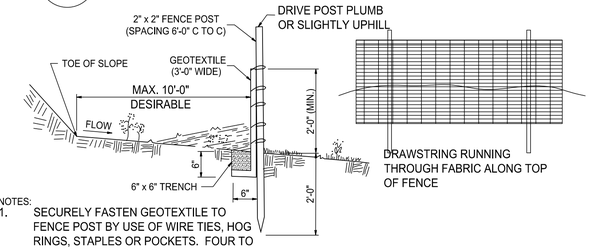
ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

DEWATERING SUMP PIT



1701 STABILIZED CONSTRUCTION ACCESS

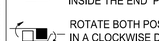
NOT TO SCALE



NOTES:
1. SECURELY FASTEN GEOTEXTILE TO FENCE POST BY USE OF WIRE TIES, HOG RINGS, STAPLES OR POCKETS. FOUR TO SIX FASTENERS PER POST.
2. BURY BOTTOM 1'-0" OF GEOTEXTILE AND TAMP IN PLACE.
3. SECURELY FASTEN ENDS OF INDIVIDUAL ROLLS OF GEOTEXTILE TO A POST BY WRAPPING EACH END OF THE GEOTEXTILE AROUND THE POST TWICE AND ATTACHING AS SPECIFIED IN NOTE 1 ABOVE. SPLICING OF INDIVIDUAL ROLLS SHALL NOT OCCUR AT LOW POINTS.
4. SET SILT FENCE WITHIN PROJECT LIMITS. 10'-0" DESIRABLE.

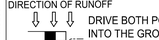


PLACE THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE.



ROTATE BOTH POSTS AT LEAST 360 DEGREES IN A CLOCKWISE DIRECTION TO CREATE A TIGHT SEAL WITH THE GEOTEXTILE.

DIRECTION OF RUNOFF

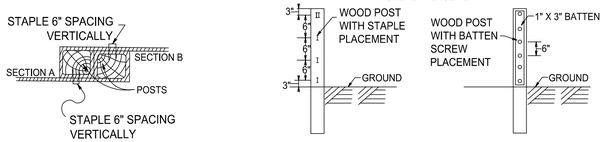


DRIVE BOTH POSTS ABOUT 10 INCHES INTO THE GROUND AND BURY FLAP.

FASTENERS FOR WOOD POSTS

	GAUGE	CROWN	LEGS	STAPLES/POST
WIRE STAPLES	17 MIN.	3/4" WIDE	1/2" LONG	5 MIN.
			PHILLIPS HEADS	
SCREWS		LENGTH		SCREW/POST
		2 "	2"	6 MIN.

SOURCE: GA SWCC

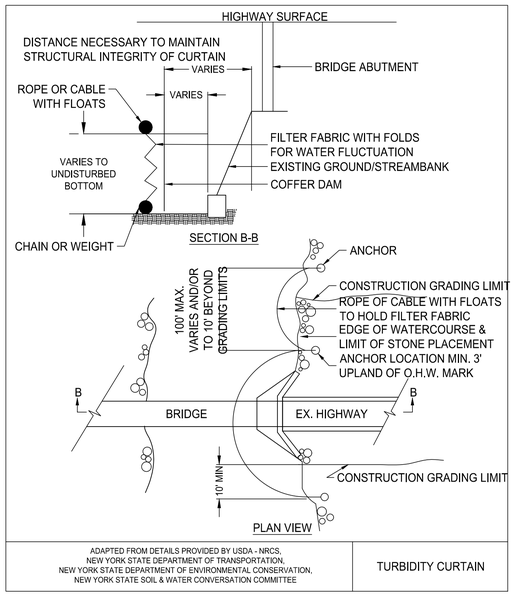


1702 COMPOST FILTER SOCK

NOT TO SCALE

Figure 5.35

Turbidity Curtain

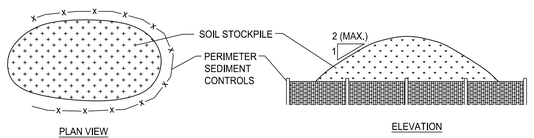


ADAPTED FROM DETAILS PROVIDED BY USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONVERSATION COMMITTEE

TURBIDITY CURTAIN

1703 DEWATERING SUMP PIT

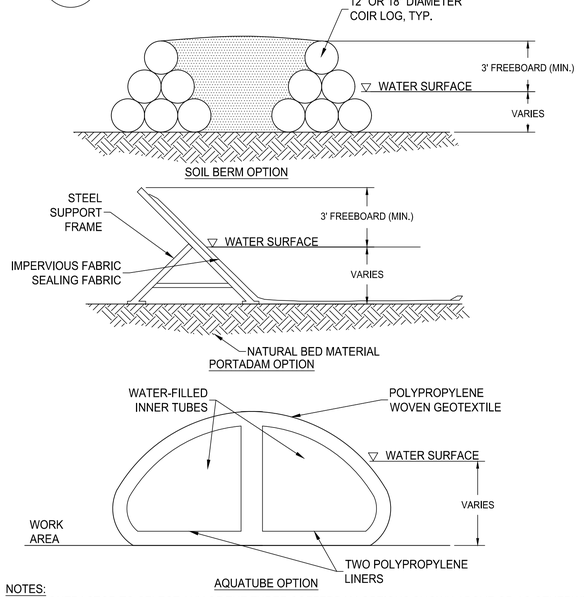
NOT TO SCALE



NOTES:
1. THE DETAIL PRESENTED ABOVE ONLY APPLIES TO STOCKPILES OF IMPORT MATERIALS. ALL EXCAVATED AND CONTAMINATED MATERIALS SHALL BE STOCKPILED AND STORED ON A SOIL/SEDIMENT STORAGE AND MOISTURE CONDITIONING PAD AS SHOWN IN DETAIL 1602.
2. THE STOCKPILE AREA SHALL BE LINED WITH A TARP.
3. PERIMETER SEDIMENT CONTROLS (E.G. HAYBALES, FILTER SOCK, SILT FENCE) TO BE PLACED AROUND THE PERIMETER OF THE STOCKPILE. IMMEDIATELY APPLY TEMPORARY SEEDING TO STOCKPILES WHICH WILL BE IN PLACE FOR 14 DAYS OR MORE.

1704 FABRIC DROP INLET PROTECTION

NOT TO SCALE



NOTES:
1. CONTRACTOR TO SELECT ANY OF THE THREE COFFERDAM OPTIONS SHOWN ABOVE OR AS OTHERWISE ACKNOWLEDGED BY ENGINEER BUT SHALL PROVIDE THE REQUIRED CREST HEIGHT
2. CONTRACTOR SHALL REVIEW EXISTING SEDIMENT INVESTIGATION FOR WATER DEPTH, BATHYMETRY, AND SOIL PARAMETERS AND WILL WORK WITH PORTA DAM AND/OR AQUATUBE PERSONNEL TO CONFIRM THE APPLICABILITY OF PRODUCT FOR THIS PROJECT.
3. CONTRACTOR SHALL MAINTAIN A CONSTANT CREST HEIGHT ALONG ENTIRE DAM.

1705 STAKE, RECESSED SILT FENCE

NOT TO SCALE

1706 TURBIDITY CURTAIN

NOT TO SCALE

1707 STOCKPILE

NOT TO SCALE

1708 COFFER DAM DETAIL

NOT TO SCALE

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DRAWN BY JH | CADD Review MB | CHECKED BY SM

ERM

Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN
FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

EROSION AND SEDIMENT CONTROL DETAILS (1 OF 2)

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	17	F

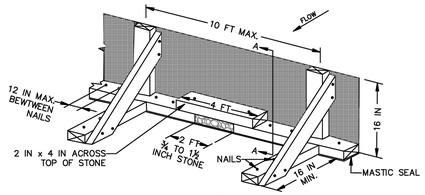
DATE DRAWN JAN 2021

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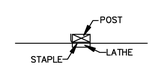
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Detail E-2

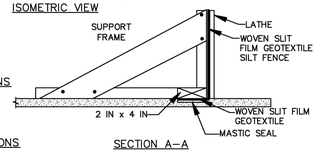
Silt Fence on Pavement



ISOMETRIC VIEW



JOINING ADJACENT SECTIONS OF GEOTEXTILE



SECTION A–A

CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH X 4 INCH LUMBER.
2. USE WOVEN SLIT FILM GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS.
3. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H–1 MATERIALS.
4. SPACE UPRIGHT SUPPORTS NO MORE THAN 10 FEET APART.
5. PROVIDE A TWO FOOT OPENING BETWEEN EVERY SET OF SUPPORTS AND PLACE STONE IN THE OPENING OVER GEOTEXTILE.
6. KEEP SILT FENCE TAUT AND SECURELY STAPLE TO THE UPSLOPE SIDE OF UPRIGHT SUPPORTS. EXTEND GEOTEXTILE UNDER 2x4.
7. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, FOLD, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. ATTACH LATHE.
8. PROVIDE A MASTIC SEAL BETWEEN PAVEMENT, GEOTEXTILE, AND 2x4 TO PREVENT SEDIMENT–LADEN WATER FROM ESCAPING BENEATH SILT FENCE INSTALLATION.
9. SECURE BOARDS TO PAVEMENT WITH 40D 5 INCH MINIMUM LENGTH NAILS.
10. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. MAINTAIN WATER TIGHT SEAL ALONG BOTTOM. REPLACE STONE IF DISPLACED.

Maryland Standards and Specifications
For Soil Erosion and Sediment Control

1801 SILT FENCE ON PAVEMENT

NOT TO SCALE

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ERM

Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
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FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

EROSION AND SEDIMENT CONTROL DETAILS (2 OF 2)

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	18	F
DATE DRAWN JAN 2021			

APPENDIX B HEALTH AND SAFETY PLAN

The approved RI Health and Safety Plan will be revised to address potential risks associated with the tasks outlined in this IRMWP. The revised Health and Safety Plan will be reviewed and approved by ERM's senior health and safety team prior to mobilization to the Site.

APPENDIX C XDD SUMMARY REPORTS

July 13, 2021, *via E-Mail (Rob.sents@erm.com)*

Rob Sents
Environmental Resources Management
5784 Widewaters Pkwy
Syracuse, NY 13214

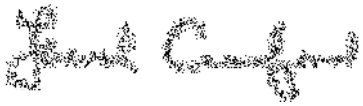
RE: Bench-Scale Phase 1 Test Results Report
Former TRW Union Springs Property, Union Springs, NY
XDD Project No. 20049

Dear Mr. Sents,

XDD ENVIRONMENTAL, LLC (XDD) appreciates the opportunity to provide Environmental Resources Management (ERM) with the results of the Phase 1 bench-scale testing services in support of remedial activities at the Former TRW Union Springs Property, located in Union Springs, New York (site). The bench-scale testing focused on the evaluation of in situ solidification / stabilization (ISS) technologies to treat impacted site soils. The bench-scale testing was performed in accordance with the scope of work described in ERM's Work Authorization signed and dated January 8, 2021, with modifications as noted in this report.

If you have any questions regarding the information presented in this report, please do not hesitate to call me at 603.778.1100.

Sincerely,
XDD Environmental



Laurel Crawford, Project Manager

cc: Mac Bonner (ERM)
Bridget Joy, Michael Marley (XDD)

INTRODUCTION

XDD Environmental (XDD) was retained by Environmental Resources Management (ERM) to perform a bench-scale evaluation of in situ solidification / stabilization (ISS) technologies on soils from the Former TRW Union Springs Property located in Union Springs, New York (site). The bench-scale tests evaluated the effects of ISS using various combinations and dosages of cement, carbon, and organoclay on the reduction in the leachability of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated naphthalene's (PCNs), pesticides, and metals (collectively, the site contaminants of concern [COCs]) from two site soils. In addition to the leachability evaluation, treated soils (for select test conditions) were evaluated for compressive strength and permeability to water. Due to the complexity of the range in site COCs concentrations and types, and the proposed remedial approaches (i.e., ISS and a bio-barrier), an initial phase of bench-scale tests (Phase 1) were performed to refine an appropriate remedial approach. The Phase 1 was designed with the expectation that a second, bench-scale testing phase (Phase 2) would be needed to refine the remedial approach design parameters. This report summarizes the results of the Phase 1 bench-scale tests.

The goals of the Phase 1 bench-scale tests were as follows:

- Determine the reduction in leachability of COCs from the treated soils for the conditions tested, with the goal of achieving a level of COCs mass flux reduction to groundwater from the ISS treated soils acceptable to the New York State Department of Environmental Conservation (NYSDEC).
- Determine the effects of treatment on soil strength and permeability, with the goal of achieving a permeability of 5 x 10^{-6} centimeters/second (cm/sec) or lower, and a soil compressive strength between 20 and 50 pounds per square inch (psi).
- Determine the degree of swell (i.e., expansion in soil volume) due to the addition of ISS amendments.
- Based on the results of the Phase 1 tests, refine the ISS amendments and dosages for evaluation in a Phase 2 bench-scale testing, at a later date.

PHASE 1 EXPERIMENTAL TEST SETUP

Site soils were received from ERM for use in the Phase 1 bench-scale testing. The two soils tested, WCA-S-COMP (south) and WCA-N-COMP (north), were collected from two different areas from the site. Each soil type was homogenized, large rocks and fragments (i.e., capacitors, debris) removed, and then the soil was stored at approximately 38 degrees Fahrenheit (°F) (3.3 degrees Celsius [°C]) prior to use in the bench tests. The Phase 1 test conditions and analyses

performed for each soil type are shown on Table 1. Two ISS conceptual design approaches were tested, as follows:

- Monolith Approach – a relatively high cement mixture (10% by weight of dry soil), with amendments per Table 1 with the goal of reducing the leachability of COCs from soils while meeting the permeability and compressive strength requirements.
- Permeable Approach – due to concerns that too high of a cement loading might cause the amended soils to have too low of a permeability potentially resulting in on-site flooding. Accordingly, this approach evaluated a lower cement loading (3% by weight of dry soil), with amendments per Table 1, to determine if the leachability of COCs could be reduced to a level comparable to the Monolith Approach.

Depending on the test condition, the following ISS amendments were evaluated (Table 1):

- ISS Amendments
  - Cement – Portland Cement Type I/II
  - Carbon – Rempak, a powdered activated carbon (PAC) provided by Calgon Carbon
  - Organoclay – Organoclay SS-199, provided by CETCO
- Water – tap water (to be representative of potable water that would be used in a field application) was added at a dose of 80 percent (%) of the total sum of the dry weight of the amendments (i.e., cement, carbon, organoclay), which dose is sufficient for cement curing. In the calculation of water amount to be added , the percent moisture of the soil was taken into account to ensure the total liquid in the soil (native soil moisture plus liquid added) ranged between 0.9% and 1.5% of the soil porosity (dry-weight basis), as recommended by Peroxychem. The design 80% of the total dry weight of amendments fell within the recommended 0.9% and 1.5%.
- Surfactant – ERM was planning to use a surfactant, AC-645 (Rusmar, Inc.), during the ISS field application as a foam cover for odor control; therefore, due to the unknown effects of the surfactant on the ISS amendments (i.e., non-target demand on the carbon or organoclay, and effects on the cement curing), the surfactant was added to select test conditions at a dosage that is expected to be applied in the field (initially diluted at a 6.5:1 ratio [6.5 parts water to 1 part surfactant] and applied under the specific test conditions at a dosage of 1.79% by soil volume).

As mentioned previously, a primary goal of the bench-scale tests was to evaluate the reduction in leachability of the COCs from the soils as a result of ISS treatment. As such, three different extraction procedures were performed for analysis of the leachate from the treated soils,

depending on the test condition. Eurofins TestAmerica conducted the Toxicity Characteristic Leaching Procedure (TCLP) and Synthetic Precipitation Leaching Procedure (SPLP) following United States Environmental Protection Agency (USEPA) Methods 1311 and 1312, respectively. The third leaching procedure was a modified SPLP procedure conducted in XDD's in-house laboratory (refer to Table 1 – "Water in Contact with Monolith Cores") based on a modified reduced scope of the ANSI Method 16.1-2003. For this procedure, a sample of the treated material (monolith core) was placed in an enclosed glass container filled with distilled water for 6 days, after which the water was submitted for COCs analysis.

Eurofins TestAmerica conducted the following COC analyses on the leachates:

- VOCs using USEPA Method 8260D
- PCNs using USEPA Method 8270D SIM
- Organochlorine Pesticides using USEPA 8081B
- Target analyte list (TAL) metals using USEPA Method 6020
- Mercury using USEPA Method 7470A

In addition to the above analyses, SVOCs were analyzed on the solid material for select test conditions using USEPA Method 8270E[1].

JLT Laboratories, Inc. conducted the compressive strength testing using American Society for Testing and Materials (ASTM) Method D 1633 and the permeability testing using ASTM D 5084.

For each test condition, the amendments were mixed with water and then added to the soils. The soils and stabilizers were fully blended, and then added to the appropriate sample containers, depending on the test condition and analyses. The samples designated for the compressive strength and permeability tests and the in-house leachate tests were placed into cylindrical molds, which were tamped to remove trapped air and then covered and allowed to cure. The compressive strength tests were performed after a curing period of 7 or 28 days depending on the test condition. The permeability tests were conducted on samples that had cured for 28 days. The monolith cores designated for the in-house leachate procedure were cured for 7 days, then placed in dedicated containers filled with distilled water for 6 days, after which the leachate (i.e., distilled water in contact with monolith) was submitted to Eurofins

[1] The analyte list for method 8270E includes 2-chloronaphthalene, which is one of the site COCs. It is an analyte that is not included on the lists for the other methods. Therefore, SVOCs analysis on the solid material was conducted to evaluate this analyte.

TestAmerica for analysis. Samples for SPLP and TCLP analyses were placed in sealed tedlar bags and allowed to cure for 7 days prior to sending to Eurofins TestAmerica for testing.

The Phase 1 tests were conducted at ambient laboratory temperatures (20 °C). The controls consisted of soil with no amendments and were carried through the same procedures and conditions as the treated soils.

RESULTS

The analytical results for the Phase 1 tests are presented in Tables 2A through 2D. Table 2A summarizes the COC data for all the bench test conditions and also shows the baseline analyses results conducted on the soils prior to setting up the bench tests. Table 2B summarizes the COC data for the test conditions on the baseline soils only. Tables 2C and 2D summarize the COC data for the 3% cement (Permeable Approach) test conditions and 10% cement (Monolith Approach) test conditions, respectively. Analytical reports associated with the bench-scale test conditions are provided in Appendix A.

A summary of the compressive strength and permeability results is shown in the table below, with laboratory reports provided in Appendix A:

Test Condition	Age (days)	Compressive Strength (psi)	Permeability (cm/sec)
South: 3% P.C., PAC, surfactant	7	6.4	Not measured
South: 10% P.C.	7	48.1	Not measured
South: 10% P.C., OC, surfactant	7	26.4	Not measured
South: 3% P.C., OC, surfactant	28	4.8	1.29×10^{-6}
South: 10% P.C., PAC	28	19.7	9.15×10^{-7}
South: 10% P.C., PAC, surfactant	28	38.8	1.36×10^{-6}
North: 10% P.C., OC	28	40.7	4.75×10^{-7}

Notes:
P.C. = Portland cement
PAC = powdered activated carbon
OC = organoclay
psi = pounds per square inch
cm/sec = centimeters per second

For the swell evaluation, the swell was measured only for the test condition with 10% cement, 7% organoclay, and surfactant for each soil type. The measured swell was:

1. South soils: 24% increase
2. North soils: 33.6% increase

DISCUSSION

Again, an overall objective of the Phase 1 testing was to develop data in order to refine the ISS amendments and dosages for evaluation in Phase 2 bench-scale testing, at a later date. The Phase 1 ISS tests conducted on both soil types showed varying degrees of success with the primary goal of significant COCs leachate reduction, for the conditions tested. In general, the majority of the COCs concentrations measured in the leachates of the treated samples were reduced to below groundwater protective criteria for both soil types (Tables 2A through 2D):

- Metals – The 3% and 10% cement test conditions showed significant reductions in leachate concentrations of metals from the soils. Only aluminum and antimony were detected above regulatory criteria for some of the test conditions. Aluminum in the 3% cement treated test conditions showed an increase in leachate concentration compared to the controls for both soil types. One component of this measured increase in metals concentrations is likely due to the cement, which can contain calcium, aluminum, iron, and magnesium. In addition, the increase in pH in the pore waters, as a result of the cement addition, can increase the mobility of some metals.
- Pesticides – Pesticides were not detected in the leachate in any of the test conditions for either soil type, and were not detected in the baseline leachate.
- VOCs – VOCs VOCs were significantly reduced in the leachate compared to baseline concentrations; however, vinyl chloride was detected in the leachate above groundwater protection criteria for all test conditions for both soil types. Trichloroethene was detected above criteria in leachate from select test conditions for the south area soils only.
- PCNs – Compared to the total PCN concentrations in leachate from the baseline soils (low concentrations in the WCA-S-COMP and not detected in the WCA-N-COMP soil's leachate), the ISS treatments resulted in negligible PCN concentrations measured in the leachate.
- SVOCs – SVOCs were analyzed on the solid materials (solid phase, not leachate) for some of the 10% cement test conditions. Naphthalene and phenols were detected above soil cleanup criteria and will need to be evaluated further in Phase 2 of the bench-scale tests. It is important to note that the treatments are not intended to destroy the COCs but to reduce their leachability.
- pH – All test conditions resulted in an elevated pH. This is due to the basic nature of constituents within cement which results in a temporary elevated pH in groundwater that comes into contact with the cement.

For the compressive strength testing, all the 10% cement test conditions met the minimum 20 psi target value, but the 3% cement test conditions did not meet the criteria.

The treated soils measured permeabilities, for the four treated conditions selected for testing, met the goal of 5 x 10^{-6} cm/sec or lower, for both the 3% and 10% cement conditions.

In general, the results indicate that the surfactant did not have a significant impact on the COCs leachability and geotechnical characteristics compared to the same test condition without surfactant addition.

The Phase 1 test results show that the addition of carbon slightly outperformed the addition of a similar amount of organoclay. The results suggests that further testing of carbon as an amendment in Phase 2 to determine if a lower dose of carbon could be as effective at meeting the test objectives as the 7% carbon tested in Phase 1.

Although the data developed from the addition of the 3% and 10% cement performed similarly in terms of COCs leachability, the 3% cement addition test conditions demonstrated compressive strength values lower than the minimum 20 psi desired.

NEXT STEPS

After consultation with ERM on the Phase 1 test results, it was decided that cement, carbon, and sodium persulfate would be evaluated as amendments in the Phase 2 testing. The actual Phase 2 test conditions are still in development / refinement. As of the date of this report, the Phase 2 testing would consist of the following test conditions for the North and South soil types:

1. Control
2. 7% cement by weight of dry soil
3. 7% cement and 2% carbon, by weight of dry soil
4. 7% cement and 4% carbon, by weight of dry soil
5. 7% cement, 2% carbon, and 2% sodium persulfate by weight of dry soil

As stated above, the preliminary Phase 2 test conditions are subject to change / refinement. Additional Phase 2 test modifications are under consideration. One potential modification is further evaluation of the 3% cement with carbon scenario. While the 3% cement failed the compressive strength test criteria, the 3% cement with carbon did achieve a similar COCs leaching treatment as the 10% cement, and an adequate soils permeability. Additional testing

of the 3% cement with adjustments to the amount of water added (moisture content can have a significant impact of treated soils strength) or to the cement amendments may help achieve a higher compressive strength without affecting COCs leachability reductions. A second potential modification to the Phase 2 testing is for option 5 above, which blends sodium persulfate and carbon into a single treatment application. This treatment approach may result in inefficient reaction of the sodium persulfate with the carbon (XDD have measured this inefficiency of use of an oxidant when blending permanganate and carbon in prior tests). An additional test that evaluates the treatability effectiveness of a blend of 7% cement with 2% sodium persulfate (no carbon added) may be worth evaluation.

The Phase 2 testing would consist of leachability testing using both the SPLP and Leaching Environmental Assessment Framework (LEAF) Method 1315 extraction procedures. The LEAF extraction procedure will be used to estimate potential impacts of the proposed field application of the selected ISS process to groundwater by assessing sequential leachate extractions from each sample. Analyses of the leachates will consist of VOCs, SVOCs, PCNs, and TAL Metals. Measurements of compressive strength and permeability would also be included in the Phase 2 testing.

Tables

Table 1
Phase 1 ISS Bench Test Setup
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

TEST CONDITION [1]	AMENDMENT [2]					ANALYSES														
	Cement Dosage	Carbon Dosage	Organo-clay Dosage	Water Dosage	Surfactant Dosage	Water Analytical - Water in Contact with Monolith Cores [3]				SPLP Analytical				Monolith/ Solid [4]	TCLP Analytical [5]			Geotechnical		
	% Weight/% dry weight soil					PCNs	Pesti-cides	Metals	VOCs	PCNs	Pesti-cides	Metals	VOCs	SVOCs	Pesti-cides	Metals	VOCs	UCS (7 days)	UCS (28 days)	Permea-bility (28 days)
Monolith Approach																				
Cement	**10%**			**6.2%**	**1.8%**	2	2	2	2					1 [S]	1 [S]	1 [S]	1 [S]	1 [S]		
Cement, Carbon, Surfactant	**10%**	**7%**		**13.6%**		2	2	2	2					1 [S]	1 [S]	1 [S]	1 [S]		1 [S]	1 [S]
Cement, Carbon, Surfactant	**10%**	**7%**		**11.8%**	**1.8%**	2	2	2	2					1 [N]	1 [N]	1 [N]	1 [N]		1 [S]	1 [S]
Cement, Organoclay	**10%**		**7%**	**13.6%**		2	2	2	2					1 [N]	1 [N]	1 [N]	1 [N]		1 [N]	1 [N]
Cement, Organoclay, Surfactant	**10%**		**7%**	**11.8%**	**1.8%**	2	2	2	2					1 [S]	1 [S]	1 [S]	1 [S]	1 [S]		
Permeable Approach																				
Control - soil with no amendments										2	2	2	2				2			
Low Dose Cement, Carbon, Surfactant	**3%**	**7%**		**6.2%**	**1.8%**					2	2	2	2				2	1 [S]		
Low Dose Cement, Organoclay, Surfactant	**3%**		**7%**	**6.2%**	**1.8%**					2	2	2	2				2		1 [S]	1 [S]
					Total Analyses	**10**	**10**	**10**	**10**	**6**	**6**	**6**	**6**	**5**	**5**	**5**	**11**	**3**	**4**	**4**

Notes:

SPLP = Synthetic Precipitation Leaching Procedure
TCLP = Toxicity Characteristic Leaching Procedure
PCNs = polychlorinated naphthalenes
VOCs = volatile organic compounds
SVOCs = semivolatile organic compounds
UCS = unconfined compressive strength

[1] Two soil types were tested. In most cases, analyses were conducted on both soil types (denoted by a "2" on the table). For analyses denoted with a "1", one of the two soil types was tested as follows:
[S] = analyses will be run on COMP-S soils
[N] = analyses will be run on COMP-N soils

[2] Amendments used were as follows:.
Cement: Portland Type I/II Cement
Carbon: Rempak, a powdered activated carbon supplied by Calgon Carbon.
Organoclay: Organoclay SS-199, provided by CETCO
Surfactant: AC-645 by Rusmar Inc. Initially diluted at a 6.5:1 ratio (6.5 parts tap water, 1 part surfactant), then applied at a dosage of 1.79% by volume.

[3] XDD conducted an in-house method of submerging each monolith in an enclosed glass container filled with distilled water for 6 days, after which the water was submitted for analysis.

[4] SVOCs run on the monolith samples were milled to 1 cm size or smaller pieces prior to analysis.

[5] TCLPs run on the monolith samples were milled to 1 cm size or smaller pieces prior to extraction and analysis.

Table 2A
Summary of Laboratory Analytical Data - Baseline and ISS Bench
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

	Analyte	Unit	NYCRR 675 Protection of GW	NYCRR 675 Restricted Commercial	6CRR-NY 376.4 Land Disposal Restrictions Non-WW	268.48 Universal Treatment Standards	BASELINE SOIL		Unit	NY 703.6 Table 3 GW Discharge to Class A Waters	NYSDEC 375-6 Soil Cleanup Objective, Unrestricted Use	3% Cement Test Conditions						10% Cement Test Conditions [1]									
												South Area			North Area			South Area					North Area				
							WCA-S-COMP	WCA-N-COMP				Control	3% P.C., PAC, surf	3% P.C., OC, surf	Control	3% P.C., PAC, surf	3% P.C., OC, surf	10% P.C.	10% P.C., PAC	10% P.C., PAC, surf	10% P.C., OC	10% P.C., OC, surf	10% P.C.	10% P.C., PAC	10% P.C., PAC, surf	10% P.C., OC	10% P.C., OC, surf
Metals	Aluminum	mg/kg	NS	NS	NS	NS	9,980	7,030	mg/L	2								1.4	1.7	0.81	0.90	1.2	1.1	0.77	1.0	0.65	0.66
	Antimony	mg/kg	NS	NS	NS	NS	88.4	16.1	mg/L	0.006								**0.043**	**0.015 J**	**0.017 J**	**0.027**	**0.016 J**	0.02 U	**0.021**	**0.032**	**0.050**	**0.020**
	Arsenic	mg/kg	16	16	NS	NS	12.5	8.1	mg/L	0.05								0.0071 J	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
	Barium	mg/kg	820	400	NS	NS	251	102	mg/L	2								0.027 J	0.049 J	0.047 J	0.028 J	0.024 J	0.038 J	0.026 J	0.067 J	0.036 J	0.040 J
	Beryllium	mg/kg	47	590	NS	NS	0.34 J	0.28 J	mg/L	NS								0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
	Cadmium	mg/kg	7.5	9.3	NS	NS	2.6	399	mg/L	0.01								0.004 U	0.00063 J	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
	Calcium	mg/kg	NS	NS	NS	NS	31,700	119,000	mg/L	NS								47.0	84.4	78.4	49.1	42.7	72.5	42.4	58.2	50.2	49.2
	Chromium	mg/kg	NS	1500	NS	NS	37.6	15.3	mg/L	NS								0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	Cobalt	mg/kg	NS	NS	NS	NS	10.7 J	7.7 J	mg/L	NS								0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	Copper	mg/kg	1,720	270	NS	NS	457	843	mg/L	0.4								0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
	Iron	mg/kg	NS	NS	NS	NS	41,400	33,800	mg/L	0.6								0.36	0.091 J	0.15 U	0.14 J	0.33	0.21	0.15 U	0.15 U	0.15 U	0.15 U
	Lead	mg/kg	450	1000	NS	NS	48.7	83.8	mg/L	0.05								0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
	Magnesium	mg/kg	NS	NS	NS	NS	9,240	11,000	mg/L	NS								5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
	Manganese	mg/kg	2,000	10,000	NS	NS	421	300	mg/L	0.6								0.015 U	0.0012 J	0.015 U	0.00084 J	0.00097 J	0.015 U	0.015 U	0.015 U	0.00084 J	0.015 U
	Mercury	mg/kg	0.73	2.8	NS	NS	0.11	0.15	µg/L	1.4								0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
	Nickel	mg/kg	130	310	NS	NS	59.4	22.4	mg/L	0.2								0.0054 J	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
	Potassium	mg/kg	NS	NS	NS	NS	1,080 J	1,360 J	mg/L	NS								4.6 J	5.4	5.4	5.0	4.4 J	4.5 J	3.0 J	4.3 J	3.9 J	4.5 J
	Selenium	mg/kg	4	1,500	NS	NS	1.2 J	6.6 U	mg/L	0.02								0.0090 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	Sodium	mg/kg	NS	NS	NS	NS	179 J	422 J	mg/L	NS								8.5 B	7.9 B	8.8 B	29.0 B	25.3 B	8.7 B	4.3 J B	4.7 J B	25.2 B	24.0 B
	Vanadium	mg/kg	NS	NS	NS	NS	16.1	13.5 J	mg/L	NS								0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	Zinc	mg/kg	2,480	10,000	NS	NS	346	412	mg/L	5								0.03 U	0.0037 J	0.0023 J	0.0026 J	0.0024 J	0.0037 J	0.0015 J	0.0016 J	0.0040 J	0.0035 J
SPLP Metals	Aluminum								mg/L	2		0.2 U	**2.4**	**4.3**	0.31	**3.0**	**2.7**										
	Antimony								mg/L	0.006		**0.36**	**0.18**	**0.44**	**0.66**	**0.79**	**0.90**										
	Arsenic								mg/L	0.05		0.0046 J	0.015 U	0.015 U	0.015 U	0.0055 J	0.015 U										
	Barium								mg/L	2		0.080 J	0.038 J	0.040 J	0.065 J	0.032 J	0.041 J										
	Beryllium								mg/L	NS		0.00020 J	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U										
	Calcium								mg/L	NS		35.6	75.9	70.4	41.6	67.3	80.1										
	Copper								mg/L	0.4		0.025 U	0.025 U	0.021 J	0.025 U	0.014 J	0.059										
	Iron								mg/L	0.6		0.15 U	0.15	0.56	0.11 J	0.098 J	0.43										
	Magnesium								mg/L	NS		6.3	5 U	0.17 J	7.3	5 U	5 U										
	Manganese								mg/L	0.6		0.013 J	0.015 U	0.015 U	0.039	0.015 U	0.015 U										
	Nickel								mg/L	0.2		0.04 U	0.04 U	0.0055 J	0.04 U	0.04 U	0.0083 J										
	Potassium								mg/L	NS		1.8 J	1.9 J	2.3 J	1.5 J	1.4 J	1.8 J										
	Sodium								mg/L	NS		12.4 B	8.7 B	25.3 B	12.1 B	9.7 B	30.0 B										
	Vanadium								mg/L	NS		0.05 U	0.014 J	0.010 J	0.05 U	0.061	0.067										
	Zinc								mg/L	5		0.0013 J B	0.0033 J B	0.0030 J B	0.0053 J B	0.0029 J B	0.0035 J B										
TCLP Metals	Aluminum								mg/L									0.48 J	1 U			1 U			1 U	1 U	
	Antimony								mg/L									0.83	0.52			0.74			2.4	1.4	
	Barium	mg/L	NS	NS	21	7.6	1.2	0.70 J	mg/L									0.27 J	0.33 J			0.30 J			0.47 J	0.36 J	
	Cadmium	mg/L	NS	NS	0.11	0.19	0.0063 J	0.039	mg/L									0.0035 J	0.046			0.0070 J			0.02 U	0.02 U	
	Calcium								mg/L									767	805			742			776	852	
	Chromium	mg/L	NS	NS	0.6	0.33	0.0050 U	0.050 U	mg/L									0.05 U	0.05 U			0.05 U			0.05 U	0.029 J	
	Copper								mg/L									0.13 U	0.054 J			0.13 U			0.059 J	0.14	
	Iron								mg/L									0.46 J	0.75 U			0.75 U			0.75 U	0.75 U	
	Lead	mg/L	NS	NS	0.75	0.37	0.022 J	0.012 J	mg/L									ND U	ND U			ND U			ND U	ND U	
	Magnesium								mg/L									25.9	26.3			24.6 J			14.5 J	3.7 J	
	Manganese								mg/L									0.079	0.17			0.20			0.075 U	0.075 U	
	Mercury	µg/L	NS	NS	25	0.009	0.24 B	0.20 U	µg/L									0.2 U	0.2 U			0.2 U			0.2 U	0.2 U	
	Potassium								mg/L									12.0 J B	12.2 J B			11.2 J B			13.3 J B	14.7 J B	
	Vanadium								mg/L									0.25 U	0.25 U			0.25 U			0.047 J	0.080 J	
	Zinc								mg/L									0.011 J B	0.016 J B			0.015 J B			0.0094 J B	0.0084 J B	

Table 2A
Summary of Laboratory Analytical Data - Baseline and ISS Bench
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte		Unit	NYCRR 675 Protection of GW	NYCRR 675 Restricted Commercial	6CRR-NY 376.4 Land Disposal Restrictions Non-WW	268.48 Universal Treatment Standards	BASELINE SOIL		Unit	NY 703.6 Table 3 GW Discharge to Class A Waters	NYSDEC 375-6 Soil Cleanup Objective, Unrestricted Use	3% Cement Test Conditions						10% Cement Test Conditions [1]									
												South Area			North Area			South Area					North Area				
							WCA-S-COMP	WCA-N-COMP				Control	3% P.C., PAC, surf	3% P.C., OC, surf	Control	3% P.C., PAC, surf	3% P.C., OC, surf	10% P.C.	10% P.C., PAC	10% P.C., PAC, surf	10% P.C., OC	10% P.C., OC, surf	10% P.C.	10% P.C., PAC	10% P.C., PAC, surf	10% P.C., OC	10% P.C., OC, surf
Pesticides	4,4'-DDD	µg/kg	92,000	14,000	NS	87	780	11 U	µg/L	0.3								0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	4,4'-DDT	µg/kg	47,000	136,000	NS	87	380	11 U	µg/L	0.2								0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
SPLP Pesticides	All compounds	mg/L	NS	NS	NS	NS	ND	ND	mg/L			ND	ND	ND	ND	ND	ND										
TCLP Pesticides	All compounds	mg/L	NS	NS	NS	NS	ND	ND	mg/L									ND	ND			ND			ND	ND	
VOCs	1,1-Dichloroethene	µg/kg	330	500,000	NS	6,000	95 U	78 J	µg/L	NS								0.99 J	1 U	1 U	1 U	0.89 J	1 U	1 U	1 U	1 U	1 U
	1,3-Dichlorobenzene	µg/kg	2400	280,000	NS	6,000	95 U	98 U	µg/L	3								0.41 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,4-Dichlorobenzene	µg/kg	1800	130,000	NS	6,000	95 U	98 U	µg/L	3								0.40 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-Butanone	µg/kg	120	6,000	36,000	36,000	480 U*+	490 U	µg/L	NS								38	5 U	5 U	9.2	30	22	5 U	5 U	29	6.3
	Acetone	µg/kg	50	500,000	160,000	160,000	480 U	490 U	µg/L	NS								230	54	120	68	210	180	11	7.8	220	56
	Benzene	µg/kg	60	44,000	10,000	10,000	95 U	98 U	µg/L	1								0.76 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	Carbon disulfide	µg/kg	NS	NS	NS	NS	95 U	98 U	µg/L	120								3.2	1.2	1.1	1.2	3.5	4.3	2.3	2.4	7.6	2.0
	Chlorobenzene	µg/kg	1100	500,000	6,000	6,000	95 U	98 U	µg/L	NS								0.45 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	Chloroform	µg/kg	370	350,000	NS	6,000	95 U	98 U	µg/L	7								1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	cis-1,2-Dichloroethene	µg/kg	250	500,000	NS	NS	2,600	29,000	µg/L	NS								380	1.4	1.3	82	280	73	1.5	1.8	230	41
	Ethylbenzene	µg/kg	1,000	390,000	10,000	10,000	95 U	150	µg/L	NS								4.4	1 U	1 U	0.80 J	2.6	1 U	1 U	1 U	1 U	1 U
	Toluene	µg/kg	700	500,000	10,000	10,000	95 U	87 J	µg/L	NS								3.0	1 U	1 U	1.2	3.8	1 U	1 U	1 U	0.93 J	1 U
	trans-1,2-Dichloroethene	µg/kg	190	500,000	NS	30,000	95 U	1,200	µg/L	NS								3.4	1 U	1 U	1.0	3.8	0.89 J	1 U	1 U	2.6	0.50 J
	Trichloroethene	µg/kg	470	200,000	6,000	6,000	1,200	10,000	µg/L	5								**6.0**	1 U	1 U	2.6	**8.0**	1.4	1 U	1 U	3.0	0.69 J
	Vinyl chloride	µg/kg	20	13,000	NS	6,000	120	790	µg/L	2								**250**	**3.3**	**2.2**	**40**	**140**	**38**	**2.7**	**3.4**	**110**	**23**
	Xylene, Total	µg/kg	1,600	500,000	30,000	30,000	190 U	290	µg/L	NS								14	2 U	2 U	2.0	6.6	2 U	2 U	2 U	2 U	2 U
	Total Conc	µg/kg					4,015	43,359	µg/L	NS								935	60	125	208	689	320	17.5	15.4	603	129
	Total Estimated Conc. (TICs)	µg/kg							µg/L	NS								1351.3	0.0*T	0.0*T	166.1	584.2	0.0*T	0.0*T	0.0*T	11.0	0.0*T
SPLP VOCs	1,1-Dichloroethene								mg/L	NS		0.00082 J	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U										
	Chlorobenzene								mg/L	NS		0.00045 J	0.0010 U	0.00054 J	0.0010 U	0.0010 U	0.0010 U										
	Trichloroethene								mg/L	0.005		**0.039**	0.0010 U	**0.010**	0.0016	0.0010 U	0.0014										
	Vinyl chloride								mg/L	0.002		**0.052**	**0.0031**	**0.024**	**0.019**	**0.0032**	**0.013**										
	Total Conc								mg/L			0.09227	0.0031	0.03454	0.0206	0.0032	0.0144										
TCLP VOCs	2-Butanone	mg/L	NS	NS	NS	NS	0.024 J	0.050 U	mg/L									0.05 U	0.05 U			0.05 U			0.05 U	0.05 U	
	Trichloroethene	mg/L	NS	NS	NS	NS	0.010 U	0.0042 J	mg/L									0.01 U	0.01 U			0.01 U			0.01 U	0.01 U	
	Vinyl chloride	mg/L	NS	NS	NS	NS	0.022	0.031	mg/L									0.014	0.01 U			0.01 U			0.01 U	0.0053 J	
	Total Conc	mg/L					0.046	0.0352	mg/L									0.014	0			0			0	0.0053	
PCNs	Dichloronaphthalene	µg/kg	NS	NS	NS	NS	540,000	35,000	µg/L	NS								73	12	7.8	47	53	5	2.4 U	0.52 J	4.2	6.4
	Hexachloronaphthalene	µg/kg	NS	NS	NS	NS	7,600 J	3,600 U	µg/L	NS								2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
	Monochloronaphthalene	µg/kg	NS	NS	NS	NS	80,000	8,000 F2	µg/L	NS								110	3.7	2.9	41	43	2.8	2.4 U	2.4 U	2.4 U	2.4 U
	Pentachloronaphthalene	µg/kg	NS	NS	NS	NS	190,000	7,200	µg/L	NS								2.5	2.1 J	1.2 J	2.5	3.2	2.4 U	2.4 U	2.4 U	0.55 J	1.0 J
	Tetrachloronaphthalene	µg/kg	NS	NS	NS	NS	2,800,000	63,000	µg/L	NS								14	10	5.9	14	17	0.43 J	2.4 U	0.58 J	1.7 J	6.7
	Trichloronaphthalene	µg/kg	NS	NS	NS	NS	3,900,000	88,000	µg/L	NS								57	31	17	49	62	3.2	0.39 J	1.1 J	5.1	14
	Total Conc	µg/kg					7,517,600	201,200	µg/L	NS								256.5	58.8	34.8	153.5	178.2	11.43	0.39	2.2	11.55	28.1
SPLP PCNs	Dichloronaphthalene	mg/L	NS	NS	NS	NS	0.076	0.025 U	µg/L			100	2.7 U	64	4.3	2.7 U	3.7										
	Monochloronaphthalene	mg/L	NS	NS	NS	NS	0.13	0.025 U	µg/L			170	2.7 U	60	2.1 J	2.7 U	2.7 U										
	Octachloronaphthalene	mg/L	NS	NS	NS	NS	0.027	0.025 U	µg/L			2.6 U	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U										
	Tetrachloronaphthalene	mg/L	NS	NS	NS	NS	0.025 U	0.025 U	µg/L			4.6	2.7 U	3.6	2.7 U	2.7 U	2.7 U										
	Trichloronaphthalene	mg/L	NS	NS	NS	NS	0.025 U	0.025 U	µg/L			49	2.7 U	40	3.6	2.7 U	2.8										
	Total Conc	mg/L					0.233	ND	µg/L			323.6	0.0	167.6	10.0	0.0	6.5										
TCLP PCNs	Dichloronaphthalene	mg/L	NS	NS	NS	NS	0.076	0.025 U																			
	Monochloronaphthalene	mg/L	NS	NS	NS	NS	0.13	0.025 U																			
	Octachloronaphthalene	mg/L	NS	NS	NS	NS	0.027	0.025 U																			
	Total Conc	mg/L					0.233	ND																			

Table 2A
Summary of Laboratory Analytical Data - Baseline and ISS Bench
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte		Unit	NYCRR 675 Protection of GW	NYCRR 675 Restricted Commercial	6CRR-NY 376.4 Land Disposal Restrictions Non-WW	268.48 Universal Treatment Standards	BASELINE SOIL		Unit	NY 703.6 Table 3 GW Discharge to Class A Waters	NYSDEC 375-6 Soil Cleanup Objective, Unrestricted Use	3% Cement Test Conditions						10% Cement Test Conditions [1]									
												South Area			North Area			South Area					North Area				
							WCA-S-COMP	WCA-N-COMP				Control	3% P.C., PAC, surf	3% P.C., OC, surf	Control	3% P.C., PAC, surf	3% P.C., OC, surf	10% P.C.	10% P.C., PAC	10% P.C., PAC, surf	10% P.C., OC	10% P.C., OC, surf	10% P.C.	10% P.C., PAC	10% P.C., PAC, surf	10% P.C., OC	10% P.C., OC, surf
SVOCs	2-Methylnaphthalene								µg/kg		NS							20,000 U	3,900 U			8,500 U			1,900 U	35 J	
	2-Methylphenol								µg/kg		330							20,000 U	3,900 U			8,500 U			87 J	46 J	
	4-Methylphenol								µg/kg		330							20,000 U	3,900 U			8,500 U			1,900 U	100 J	
	Acetophenone								µg/kg		NS							20,000 U	3,900 U			8,500 U			1,900 U	39 J	
	Benzo[b]fluoranthene								µg/kg		1,000							2,000 U	390 U			850 U			190 U	21 J	
	Bis(2-ethylhexyl) phthalate								µg/kg		NS							20,000 U	390 J			8,500 U			350 J	120 J	
	Di-n-butyl phthalate								µg/kg		NS							2,100 J	260 J			8,500 U			20,000	8,300	
	Naphthalene								µg/kg		12,000							**35,000**	**20,000**			**44,000**			120 J	290 J	
	N-Nitrosodiphenylamine								µg/kg		NS							20,000 U	3,900 U			8,500 U			440 J	610 J	
	Phenanthrene								µg/kg		100,000							20,000 U	3,900 U			8,500 U			1,900 U	26 J	
	Phenol								µg/kg		330							20,000 U	3,900 U			8,500 U			**2,400**	**1,100**	
	Total Conc								µg/kg		NS							37,100	20,650			44,000			23,397	10,687	
	Total Estimated Conc. (TICs)								µg/kg		NS							2,067,000	744,500			2,295,000			570,100	979,700	
General	Corrosivity	SU	NS	NS	NS	NS	7.4 HF	7.7 HF	SU			7.5 HF	10.4 HF	10.6 HF	7.4 HF	10.9 HF	10.8 HF		11.4 HF	11.3 HF					11.7 HF	11.9 HF	
	pH, Lab	SU	NS	NS	NS	NS	7.4 HF	7.7 HF	SU			7.5 HF	10.4 HF	10.6 HF	7.4 HF	10.9 HF	10.8 HF		11.4 HF	11.3 HF					11.7 HF	11.9 HF	
	Temperature	deg C	NS	NS	NS	NS	20.3 HF	20.4 HF	deg C			21.2 HF	21.1 HF	22.0 HF	21.4 HF	21.7 HF	21.1 HF		21.4 HF	21.1 HF					21.1 HF	21.1 HF	
TICs	1-Chloronaphthalene	µg/kg	NS	NS	NS	NS		3,100 TJN																			
	2-Pentene, 2,3,4-trimethyl-	µg/kg	NS	NS	NS	NS		780 TJN																			
	Diisobutylene	µg/kg	NS	NS	NS	NS		1,900 TJN																			
	Naphthalene	µg/kg	NS	NS	NS	NS		51,000 TJN																			
	TICs (Calculated), Total	µg/kg	NS	NS	NS	NS		58,430 TJN																			
	Unknown TIC1	µg/kg	NS	NS	NS	NS		1,100 TJ																			
	Unknown TIC2	µg/kg	NS	NS	NS	NS		550 TJ																			

Notes:
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
µg/L = micrograms per liter
µg/kg = micrograms per kilogram
SU = Standard pH units
deg C = degrees Celsius
U = Compound not detected at concentrations above the laboratory reporting limit (RL).
J = The analyte was positively identified; associated numerical value is the approximate concentration of the analyte in the sample.
T = Result is a tentatively identified compound (TIC) and an estimated value.
N = Presumptive evidence of material.
*+ = LCS and/or LCSD is outside acceptance limits, high biased.
*- = LCS and/or LCSD is outside acceptance limits, low biased.
B = Compound was found in the blank and sample
HF = Field parameter with a holding time of 15 minutes
NS = No standard

P.C. = Portland Cement
PAC = powdered activated carbon
OC = organoclay
blank cells = Not analyzed
[1] The metals, PCNs, pesticides, and VOCs results were obtained from water that had been in contact with monolithic cylindrical samples (1.75 x 4-inch). The monolithic cylindrical samples were cured for 7 days, and then submerged in approximatley 1 liter of distilled water for a leaching period of 7 days. The remaining data for these test conditions (TCLP metals, TCLP pesticides, TCLP VOCs, and SVOCs) were obtained from separately prepared monolithic samples using standard EPA methods.

Exceedance of Protection of GW
Exceedance of Restricted Commercial
Exceedance of LDR
Exceedance of UTS
Exceedance of Protection of GW & LDR
Exceedance of Protection of GW & Restricted Commercial
Exceedance of GW Discharge to Class A Waters
Exceedance of NYSDEC 375-6 Soil Cleanup Objective, Unrestricted Use

Table 2B
Summary of Laboratory Analytical Data - Baseline Data
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte		Unit	NYCRR 675 Protection of GW	NYCRR 675 Restricted Commercial	6CRR-NY 376.4 Land Disposal Restrictions Non-WW	268.48 Universal Treatment Standards	BASELINE SOIL	
							WCA-S-COMP	WCA-N-COMP
Metals	Aluminum	mg/kg	NS	NS	NS	NS	9,980	7,030
	Antimony	mg/kg	NS	NS	NS	NS	88.4	16.1
	Arsenic	mg/kg	16	16	NS	NS	12.5	8.1
	Barium	mg/kg	820	400	NS	NS	251	102
	Beryllium	mg/kg	47	590	NS	NS	0.34 J	0.28 J
	Cadmium	mg/kg	7.5	9.3	NS	NS	2.6	399
	Calcium	mg/kg	NS	NS	NS	NS	31,700	119,000
	Chromium	mg/kg	NS	1500	NS	NS	37.6	15.3
	Cobalt	mg/kg	NS	NS	NS	NS	10.7 J	7.7 J
	Copper	mg/kg	1,720	270	NS	NS	457	843
	Iron	mg/kg	NS	NS	NS	NS	41,400	33,800
	Lead	mg/kg	450	1000	NS	NS	48.7	83.8
	Magnesium	mg/kg	NS	NS	NS	NS	9,240	11,000
	Manganese	mg/kg	2,000	10,000	NS	NS	421	300
	Mercury	mg/kg	0.73	2.8	NS	NS	0.11	0.15
	Nickel	mg/kg	130	310	NS	NS	59.4	22.4
	Potassium	mg/kg	NS	NS	NS	NS	1,080 J	1,360 J
	Selenium	mg/kg	4	1,500	NS	NS	1.2 J	6.6 U
	Sodium	mg/kg	NS	NS	NS	NS	179 J	422 J
	Vanadium	mg/kg	NS	NS	NS	NS	16.1	13.5 J
	Zinc	mg/kg	2,480	10,000	NS	NS	346	412
TCLP Metals	Barium	mg/L	NS	NS	21	7.6	1.2	0.70 J
	Cadmium	mg/L	NS	NS	0.11	0.19	0.0063 J	0.039
	Lead	mg/L	NS	NS	0.75	0.37	0.022 J	0.012 J
	Mercury	µg/L	NS	NS	25	0.009	0.24 B	0.20 U
Pesticides	4,4'-DDD	µg/kg	92,000	14,000	NS	87	780	11 U
	4,4'-DDT	µg/kg	47,000	136,000	NS	87	380	11 U
SPLP Pesticides	All compounds	mg/L	NS	NS	NS	NS	ND	ND
TCLP Pesticides	All compounds	mg/L	NS	NS	NS	NS	ND	ND
VOCs	1,1-Dichloroethene	µg/kg	330	500,000	NS	6,000	95 U	78 J
	cis-1,2-Dichloroethene	µg/kg	250	500,000	NS	NS	2,600	29,000
	Ethylbenzene	µg/kg	1,000	390,000	10,000	10,000	95 U	150
	Toluene	µg/kg	700	500,000	10,000	10,000	95 U	87 J
	trans-1,2-Dichloroethene	µg/kg	190	500,000	NS	30,000	95 U	1,200
	Trichloroethene	µg/kg	470	200,000	6,000	6,000	1,200	10,000
	Vinyl chloride	µg/kg	20	13,000	NS	6,000	120	790
	Xylene, Total	µg/kg	1,600	500,000	30,000	30,000	190 U	290
	Total Conc	µg/kg					4,015	43,359
TCLP VOCs	2-Butanone	mg/L	NS	NS	NS	NS	0.024 J	0.050 U
	Trichloroethene	mg/L	NS	NS	NS	NS	0.010 U	0.0042 J
	Vinyl chloride	mg/L	NS	NS	NS	NS	0.022	0.031
	Total Conc	mg/L					0.046	0.0352
PCNs	Dichloronaphthalene	µg/kg	NS	NS	NS	NS	540,000	35,000
	Hexachloronaphthalene	µg/kg	NS	NS	NS	NS	7,600 J	3,600 U
	Monochloronaphthalene	µg/kg	NS	NS	NS	NS	80,000	8,000 F2
	Pentachloronaphthalene	µg/kg	NS	NS	NS	NS	190,000	7,200
	Tetrachloronaphthalene	µg/kg	NS	NS	NS	NS	2,800,000	63,000
	Trichloronaphthalene	µg/kg	NS	NS	NS	NS	3,900,000	88,000
	Total Conc	µg/kg					7,517,600	201,200
SPLP PCNs	Dichloronaphthalene	mg/L	NS	NS	NS	NS	0.076	0.025 U
	Monochloronaphthalene	mg/L	NS	NS	NS	NS	0.13	0.025 U
	Octachloronaphthalene	mg/L	NS	NS	NS	NS	0.027	0.025 U
	Total Conc	mg/L					0.233	ND
TCLP PCNs	Dichloronaphthalene	mg/L	NS	NS	NS	NS	0.076	0.025 U
	Monochloronaphthalene	mg/L	NS	NS	NS	NS	0.13	0.025 U
	Octachloronaphthalene	mg/L	NS	NS	NS	NS	0.027	0.025 U
	Total Conc	mg/L					0.233	ND
General	Corrosivity	SU	NS	NS	NS	NS	7.4 HF	7.7 HF
	pH, Lab	SU	NS	NS	NS	NS	7.4 HF	7.7 HF
	Temperature	deg C	NS	NS	NS	NS	20.3 HF	20.4 HF
TICs	1-Chloronaphthalene	µg/kg	NS	NS	NS	NS		3,100 TJN
	2-Pentene, 2,3,4-trimethyl-	µg/kg	NS	NS	NS	NS		780 TJN
	Diisobutylene	µg/kg	NS	NS	NS	NS		1,900 TJN
	Naphthalene	µg/kg	NS	NS	NS	NS		51,000 TJN
	TICs (Calculated), Total	µg/kg	NS	NS	NS	NS		58,430 TJN
	Unknown TIC1	µg/kg	NS	NS	NS	NS		1,100 TJ
	Unknown TIC2	µg/kg	NS	NS	NS	NS		550 TJ

Notes:
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
µg/L = micrograms per liter
µg/kg = micrograms per kilogram
SU = Standard pH units
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*- = LCS and/or LCSD is outside acceptance limits, low biased.
B = Compound was found in the blank and sample
HF = Field parameter with a holding time of 15 minutes
NS = No standard
blank cells = Not analyzed

Exceedance of Protection of GW
Exceedance of Restricted Commercial
Exceedance of LDR
Exceedance of UTS
Exceedance of Protection of GW & LDR
Exceedance of Protection of GW & Restricted Commercial

Table 2C
Summary of Laboratory Analytical Data - ISS Bench 3% Test Conditions
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte		Unit	NY 703.6 Table 3 GW Discharge to Class A Waters	3% Cement Test Conditions					
				South Area			North Area		
				Control	3% P.C., PAC, surf	3% P.C., OC, surf	Control	3% P.C., PAC, surf	3% P.C., OC, surf
SPLP Metals	Aluminum	mg/L	2	0.2 U	**2.4**	**4.3**	0.31	**3.0**	**2.7**
	Antimony	mg/L	0.006	**0.36**	**0.18**	**0.44**	**0.66**	**0.79**	**0.90**
	Arsenic	mg/L	0.05	0.0046 J	0.015 U	0.015 U	0.015 U	0.0055 J	0.015 U
	Barium	mg/L	2	0.080 J	0.038 J	0.040 J	0.065 J	0.032 J	0.041 J
	Beryllium	mg/L	NS	0.00020 J	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
	Calcium	mg/L	NS	35.6	75.9	70.4	41.6	67.3	80.1
	Copper	mg/L	0.4	0.025 U	0.025 U	0.021 J	0.025 U	0.014 J	0.059
	Iron	mg/L	0.6	0.15 U	0.15	0.56	0.11 J	0.098 J	0.43
	Magnesium	mg/L	NS	6.3	5 U	0.17 J	7.3	5 U	5 U
	Manganese	mg/L	0.6	0.013 J	0.015 U	0.015 U	0.039	0.015 U	0.015 U
	Nickel	mg/L	0.2	0.04 U	0.04 U	0.0055 J	0.04 U	0.04 U	0.0083 J
	Potassium	mg/L	NS	1.8 J	1.9 J	2.3 J	1.5 J	1.4 J	1.8 J
	Sodium	mg/L	NS	12.4 B	8.7 B	25.3 B	12.1 B	9.7 B	30.0 B
	Vanadium	mg/L	NS	0.05 U	0.014 J	0.010 J	0.05 U	0.061	0.067
	Zinc	mg/L	5	0.0013 J B	0.0033 J B	0.0030 J B	0.0053 J B	0.0029 J B	0.0035 J B
SPLP Pesticides	All compounds	mg/L		ND	ND	ND	ND	ND	ND
SPLP VOCs	1,1-Dichloroethene	mg/L	NS	0.00082 J	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
	Chlorobenzene	mg/L	NS	0.00045 J	0.0010 U	0.00054 J	0.0010 U	0.0010 U	0.0010 U
	Trichloroethene	mg/L	0.005	**0.039**	0.0010 U	**0.010**	0.0016	0.0010 U	0.0014
	Vinyl chloride	mg/L	0.002	**0.052**	**0.0031**	**0.024**	**0.019**	**0.0032**	**0.013**
	Total Conc	mg/L		0.09227	0.0031	0.03454	0.0206	0.0032	0.0144
SPLP PCNs	Dichloronaphthalene	µg/L		100	2.7 U	64	4.3	2.7 U	3.7
	Monochloronaphthalene	µg/L		170	2.7 U	60	2.1 J	2.7 U	2.7 U
	Tetrachloronaphthalene	µg/L		4.6	2.7 U	3.6	2.7 U	2.7 U	2.7 U
	Trichloronaphthalene	µg/L		49	2.7 U	40	3.6	2.7 U	2.8
	Total Conc	µg/L		323.6	0.0	167.6	10.0	0.0	6.5
General	Corrosivity	SU		7.5 HF	10.4 HF	10.6 HF	7.4 HF	10.9 HF	10.8 HF
	pH, Lab	SU		7.5 HF	10.4 HF	10.6 HF	7.4 HF	10.9 HF	10.8 HF
	Temperature	deg C		21.2 HF	21.1 HF	22.0 HF	21.4 HF	21.7 HF	21.1 HF

Notes:
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
µg/L = micrograms per liter
µg/kg = micrograms per kilogram
SU = Standard pH units
deg C = degrees Celsius
U = Compound not detected at concentrations above the laboratory reporting limit (RL).
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N = Presumptive evidence of material.
*+ = LCS and/or LCSD is outside acceptance limits, high biased.
*- = LCS and/or LCSD is outside acceptance limits, low biased.
B = Compound was found in the blank and sample
HF = Field parameter with a holding time of 15 minutes
NS = No standard
P.C. = Portland Cement
PAC = powdered activated carbon
OC = organoclay
blank cells = Not analyzed
Exceedance of GW Discharge to Class A Waters

Table 2D
Summary of Laboratory Analytical Data - ISS Bench 10% Test Conditions
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte		Unit	NY 703.6 Table 3 GW Discharge to Class A Waters	NYSDEC 375-6 Soil Cleanup Objective, Unrestricted Use	10% Cement Test Conditions [1]									
					South Area					North Area				
					10% P.C.	10% P.C., PAC	10% P.C., PAC, surf	10% P.C., OC	10% P.C., OC, surf	10% P.C.	10% P.C., PAC	10% P.C., PAC, surf	10% P.C., OC	10% P.C., OC, surf
Metals	Aluminum	mg/L	2		1.4	1.7	0.81	0.90	1.2	1.1	0.77	1.0	0.65	0.66
	Antimony	mg/L	0.006		**0.043**	**0.015 J**	**0.017 J**	**0.027**	**0.016 J**	0.02 U	**0.021**	**0.032**	**0.050**	**0.020**
	Arsenic	mg/L	0.05		0.0071 J	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
	Barium	mg/L	2		0.027 J	0.049 J	0.047 J	0.028 J	0.024 J	0.038 J	0.026 J	0.067 J	0.036 J	0.040 J
	Cadmium	mg/L	0.01		0.004 U	0.00063 J	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
	Calcium	mg/L	NS		47.0	84.4	78.4	49.1	42.7	72.5	42.4	58.2	50.2	49.2
	Iron	mg/L	0.6		0.36	0.091 J	0.15 U	0.14 J	0.33	0.21	0.15 U	0.15 U	0.15 U	0.15 U
	Manganese	mg/L	0.6		0.015 U	0.0012 J	0.015 U	0.00084 J	0.00097 J	0.015 U	0.015 U	0.015 U	0.00084 J	0.015 U
	Nickel	mg/L	0.2		0.0054 J	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
	Potassium	mg/L	NS		4.6 J	5.4	5.4	5.0	4.4 J	4.5 J	3.0 J	4.3 J	3.9 J	4.5 J
	Selenium	mg/L	0.02		0.0090 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	Sodium	mg/L	NS		8.5 B	7.9 B	8.8 B	29.0 B	25.3 B	8.7 B	4.3 J B	4.7 J B	25.2 B	24.0 B
	Zinc	mg/L	5		0.03 U	0.0037 J	0.0023 J	0.0026 J	0.0024 J	0.0037 J	0.0015 J	0.0016 J	0.0040 J	0.0035 J
TCLP Metals	Aluminum	mg/L			0.48 J	1 U			1 U			1 U	1 U	
	Antimony	mg/L			0.83	0.52			0.74			2.4	1.4	
	Barium	mg/L			0.27 J	0.33 J			0.30 J			0.47 J	0.36 J	
	Cadmium	mg/L			0.0035 J	0.046			0.0070 J			0.02 U	0.02 U	
	Calcium	mg/L			767	805			742			776	852	
	Chromium	mg/L			0.05 U	0.05 U			0.05 U			0.05 U	0.029 J	
	Copper	mg/L			0.13 U	0.054 J			0.13 U			0.059 J	0.14	
	Iron	mg/L			0.46 J	0.75 U			0.75 U			0.75 U	0.75 U	
	Magnesium	mg/L			25.9	26.3			24.6 J			14.5 J	3.7 J	
	Manganese	mg/L			0.079	0.17			0.20			0.075 U	0.075 U	
	Potassium	mg/L			12.0 J B	12.2 J B			11.2 J B			13.3 J B	14.7 J B	
	Vanadium	mg/L			0.25 U	0.25 U			0.25 U			0.047 J	0.080 J	
	Zinc	mg/L			0.011 J B	0.016 J B			0.015 J B			0.0094 J B	0.0084 J B	
Pesticides	4,4'-DDD	µg/L	0.3		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
	4,4'-DDT	µg/L	0.2		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
TCLP Pesticides	All compounds	mg/L			ND U	ND U			ND U			ND U	ND U	
VOCs	1,1-Dichloroethene	µg/L	NS		0.99 J	1 U	1 U	1 U	0.89 J	1 U	1 U	1 U	1 U	1 U
	1,3-Dichlorobenzene	µg/L	3		0.41 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,4-Dichlorobenzene	µg/L	3		0.40 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	2-Butanone	µg/L	NS		38	5 U	5 U	9.2	30	22	5 U	5 U	29	6.3
	Acetone	µg/L	NS		230	54	120	68	210	180	11	7.8	220	56
	Benzene	µg/L	1		0.76 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	Carbon disulfide	µg/L	120		3.2	1.2	1.1	1.2	3.5	4.3	2.3	2.4	7.6	2.0
	Chlorobenzene	µg/L	NS		0.45 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	cis-1,2-Dichloroethene	µg/L	NS		380	1.4	1.3	82	280	73	1.5	1.8	230	41
	Ethylbenzene	µg/L	NS		4.4	1 U	1 U	0.80 J	2.6	1 U	1 U	1 U	1 U	1 U
	Toluene	µg/L	NS		3.0	1 U	1 U	1.2	3.8	1 U	1 U	1 U	0.93 J	1 U
	trans-1,2-Dichloroethene	µg/L	NS		3.4	1 U	1 U	1.0	3.8	0.89 J	1 U	1 U	2.6	0.50 J
	Trichloroethene	µg/L	5		**6.0**	1 U	1 U	2.6	**8.0**	1.4	1 U	1 U	3.0	0.69 J
	Vinyl chloride	µg/L	2		**250**	**3.3**	**2.2**	**40**	**140**	**38**	**2.7**	**3.4**	**110**	**23**
	Xylene, Total	µg/L	NS		14	2 U	2 U	2.0	6.6	2 U	2 U	2 U	2 U	2 U
	Total Conc	µg/L	NS		935	60	125	208	689	320	17.5	15.4	603	129
	Total Estimated Conc. (TICs)	µg/L	NS		1351.3	0.0*T	0.0*T	166.1	584.2	0.0*T	0.0*T	0.0*T	11.0	0.0*T
TCLP VOCs	Vinyl chloride	mg/L			0.014	0.01 U			0.01 U			0.01 U	0.0053 J	
	Total Conc	mg/L			0.014	0			0			0	0.0053	
PCNs	Dichloronaphthalene	µg/L	NS		73	12	7.8	47	53	5	2.4 U	0.52 J	4.2	6.4
	Monochloronaphthalene	µg/L	NS		110	3.7	2.9	41	43	2.8	2.4 U	2.4 U	2.4 U	2.4 U
	Pentachloronaphthalene	µg/L	NS		2.5	2.1 J	1.2 J	2.5	3.2	2.4 U	2.4 U	2.4 U	0.55 J	1.0 J
	Tetrachloronaphthalene	µg/L	NS		14	10	5.9	14	17	0.43 J	2.4 U	0.58 J	1.7 J	6.7
	Trichloronaphthalene	µg/L	NS		57	31	17	49	62	3.2	0.39 J	1.1 J	5.1	14
	Total Conc	µg/L	NS		256.5	58.8	34.8	153.5	178.2	11.43	0.39	2.2	11.55	28.1
SVOCs	2-Methylnaphthalene	µg/kg		NS	20,000 U	3,900 U			8,500 U			1,900 U	35 J	
	2-Methylphenol	µg/kg		330	20,000 U	3,900 U			8,500 U			87 J	46 J	
	4-Methylphenol	µg/kg		330	20,000 U	3,900 U			8,500 U			1,900 U	100 J	
	Acetophenone	µg/kg		NS	20,000 U	3,900 U			8,500 U			1,900 U	39 J	
	Benzo[b]fluoranthene	µg/kg		1,000	2,000 U	390 U			850 U			190 U	21 J	
	Bis(2-ethylhexyl) phthalate	µg/kg		NS	20,000 U	390 J			8,500 U			350 J	120 J	
	Di-n-butyl phthalate	µg/kg		NS	2,100 J	260 J			8,500 U			20,000	8,300	
	Naphthalene	µg/kg		12,000	**35,000**	**20,000**			**44,000**			120 J	290 J	
	N-Nitrosodiphenylamine	µg/kg		NS	20,000 U	3,900 U			8,500 U			440 J	610 J	
	Phenanthrene	µg/kg		100,000	20,000 U	3,900 U			8,500 U			1,900 U	26 J	
	Phenol	µg/kg		330	20,000 U	3,900 U			8,500 U			**2,400**	**1,100**	
	Total Conc	µg/kg		NS	37,100	20,650			44,000			23,397	10,687	
	Total Estimated Conc. (TICs)	µg/kg		NS	2,067,000	744,500			2,295,000			570,100	979,700	
General	Corrosivity	SU				11.4 HF	11.3 HF					11.7 HF	11.9 HF	
	pH, Lab	SU				11.4 HF	11.3 HF					11.7 HF	11.9 HF	
	Temperature	deg C				21.4 HF	21.1 HF					21.1 HF	21.1 HF	

Notes:
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
µg/L = micrograms per liter
µg/kg = micrograms per kilogram
SU = Standard pH units
deg C = degrees Celsius
U = Compound not detected at concentrations above the laboratory reporting limit (RL).
J = The analyte was positively identified; associated numerical value is the approximate concentration of the analyte in the sample.
T = Result is a tentatively identified compound (TIC) and an estimated value.
N = Presumptive evidence of material.
*+ = LCS and/or LCSD is outside acceptance limits, high biased.
*- = LCS and/or LCSD is outside acceptance limits, low biased.
B = Compound was found in the blank and sample
HF = Field parameter with a holding time of 15 minutes
NS = No standard
P.C. = Portland Cement
PAC = powdered activated carbon
OC = organoclay
blank cells = Not analyzed
Exceedance of GW Discharge to Class A Waters
Exceedance of NYSDEC 375-6 Soil Cleanup Objective, Unrestricted Use
[1] The metals, PCNs, pesticides, and VOCs results were obtained from water that had been in contact with monolithic cylindrical samples (1.75 x 4-inch). The monolithic cylindrical samples were cured for 7 days, and then submerged in approximatley 1 liter of distilled water for a leaching period of 7 days. The remaining data for these test conditions (TCLP metals, TCLP pesticides, TCLP VOCs, and SVOCs) were obtained from separately prepared monolithic samples using standard EPA methods.

Appendix A

Analytical Laboratory Reports

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Edison
777 New Durham Road
Edison, NJ 08817
Tel: (732)549-3900

Laboratory Job ID: 460-228664-1
Client Project/Site: TRW - Union Springs

For:
ERM-Northeast
5784 Widewaters Pkwy
Dewitt, New York 13214

Attn: Mr. Robert Sents

Authorized for release by:
3/10/2021 10:11:55 AM

Grace Chang, Project Manager II
(732)593-2579
Grace.Chang@Eurofinset.com

LINKS

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Have a Question? Ask The Expert

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www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 5
Detection Summary 10
Client Sample Results 15
Surrogate Summary 43
QC Sample Results 46
QC Association Summary 69
Lab Chronicle 77
Certification Summary 83
Method Summary 84
Sample Summary 85
Chain of Custody 86
Receipt Checklists 89

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

GC/MS Semi VOA TICs

Qualifier	Qualifier Description
A	The tentatively identified compound is a suspected aldol-condensation product.
J	Indicates an Estimated Value for TICs
N	Presumptive evidence of material.
T	Result is a tentatively identified compound (TIC) and an estimated value.

GC Semi VOA

Qualifier	Qualifier Description
*3	ISTD response or retention time outside acceptable limits.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 460-228664-1

Laboratory: Eurofins TestAmerica, Edison

Narrative

CASE NARRATIVE

Client: ERM-Northeast

Project: TRW - Union Springs

Report Number: 460-228664-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) as a result of a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes or interferences which exceed the calibration range of the instrument.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 2/24/2021 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.6º C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

TCLP VOLATILE ORGANIC COMPOUNDS

Samples S: 10% P.C. (460-228664-3), S: 10% P.C., PAC (460-228664-4), N: 10% P.C., PAC, surf (460-228664-5), N: 10% P.C., OC (460-228664-6) and S: 10% P.C., OC, surf (460-228664-7) were analyzed for TCLP Volatile Organic Compounds in accordance with EPA SW-846 Method 8260D - TCLP/1311. The samples were leached on 02/26/2021 and analyzed on 02/27/2021.

Samples S: 10% P.C. (460-228664-3)[10X], S: 10% P.C., PAC (460-228664-4)[10X], N: 10% P.C., PAC, surf (460-228664-5)[10X], N: 10% P.C., OC (460-228664-6)[10X] and S: 10% P.C., OC, surf (460-228664-7)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the TCLP volatiles analysis.

All quality control parameters were within the acceptance limits.

SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples S: 10% P.C. (460-228664-3), S: 10% P.C., PAC (460-228664-4), N: 10% P.C., PAC, surf (460-228664-5), N: 10% P.C., OC (460-228664-6) and S: 10% P.C., OC, surf (460-228664-7) were analyzed for semivolatile organic compounds (GC/MS) in accordance with EPA SW-846 Methods 8270E. The samples were prepared on 02/25/2021 and analyzed on 02/26/2021 and 02/27/2021.

2,4,6-Tribromophenol (Surr), 2-Fluorobiphenyl, 2-Fluorophenol (Surr), Nitrobenzene-d5 (Surr), Phenol-d5 (Surr) and Terphenyl-d14 (Surr) failed the surrogate recovery criteria low for S: 10% P.C. (460-228664-3). 2,4,6-Tribromophenol (Surr) failed the surrogate recovery criteria

Job ID: 460-228664-1 (Continued)

Laboratory: Eurofins TestAmerica, Edison (Continued)

low for S: 10% P.C., PAC (460-228664-4). 2,4,6-Tribromophenol (Surr) and Terphenyl-d14 (Surr) failed the surrogate recovery criteria low for N: 10% P.C., PAC, surf (460-228664-5). 2,4,6-Tribromophenol (Surr) failed the surrogate recovery criteria low for N: 10% P.C., OC (460-228664-6). 2,4,6-Tribromophenol (Surr), 2-Fluorobiphenyl, 2-Fluorophenol (Surr), Nitrobenzene-d5 (Surr), Phenol-d5 (Surr) and Terphenyl-d14 (Surr) failed the surrogate recovery criteria low for S: 10% P.C., OC, surf (460-228664-7). Refer to the QC report for details.

Several analytes failed the recovery criteria low for the MS of sample 460-228674-3 in batch 460-761121.

Several analytes failed the recovery criteria low for the MSD of sample 460-228674-3 in batch 460-761121. 2,4-Dinitrophenol, 4,6-Dinitro-2-methylphenol and Pentachlorophenol exceeded the RPD limit.

Refer to the QC report for details.

Samples S: 10% P.C. (460-228664-3)[50X], S: 10% P.C., PAC (460-228664-4)[10X], N: 10% P.C., PAC, surf (460-228664-5)[5X], N: 10% P.C., OC (460-228664-6)[2X] and S: 10% P.C., OC, surf (460-228664-7)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The following sample was diluted due to abundance of target analytes: S: 10% P.C. (460-228664-3). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

The following samples were diluted to bring the concentration of target analytes within the calibration range: S: 10% P.C., PAC (460-228664-4) and N: 10% P.C., PAC, surf (460-228664-5). Elevated reporting limits (RLs) are provided.

The continuing calibration verification (CCV) analyzed in batch 460-761121 was outside the method criteria for the following analyte(s): Indeno[1,2,3-cd]pyrene, Hexachlorocyclopentadiene and Benzaldehyde. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Six surrogates are used for this analysis. The laboratory's SOP allows one acid and one base of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. The following samples contained an allowable number of surrogate compounds outside limits: S: 10% P.C., PAC (460-228664-4) and N: 10% P.C., PAC, surf (460-228664-5). These results have been reported and qualified.

The following samples were diluted to bring the concentration of target analytes within the calibration range: N: 10% P.C., OC (460-228664-6). Elevated reporting limits (RLs) are provided.

The following samples were diluted due to abundance of target analytes: S: 10% P.C., OC, surf (460-228664-7). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

The continuing calibration verification (CCV) analyzed in batch 460-761284 was outside the method criteria for the following analyte(s): Benzaldehyde. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Six surrogates are used for this analysis. The laboratory's SOP allows one acid and one base of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. The following samples contained an allowable number of surrogate compounds outside limits: N: 10% P.C., OC (460-228664-6). These results have been reported and qualified.

No other difficulties were encountered during the semivolatiles analysis.

All other quality control parameters were within the acceptance limits.

TCLP PESTICIDES

Samples S: 10% P.C. (460-228664-3), S: 10% P.C., PAC (460-228664-4), N: 10% P.C., PAC, surf (460-228664-5), N: 10% P.C., OC (460-228664-6) and S: 10% P.C., OC, surf (460-228664-7) were analyzed for TCLP pesticides in accordance with EPA SW-846 Methods 1311/ 8081B. The samples were leached on 02/25/2021, prepared on 02/26/2021 and analyzed on 03/01/2021 and 03/09/2021.

Job ID: 460-228664-1 (Continued)

Laboratory: Eurofins TestAmerica, Edison (Continued)

No difficulties were encountered during the TCLP pesticides analysis.

All quality control parameters were within the acceptance limits.

SPLP PESTICIDES

Samples N: Control (460-228664-1), S: Control (460-228664-2), N: 3% P.C., PAC, surf (460-228664-8), N: 3% P.C., OC, surf (460-228664-9), S: 3% P.C., PAC, surf (460-228664-10) and S: 3% P.C., OC, surf (460-228664-11) were analyzed for SPLP Pesticides in accordance with EPA SW-846 Methods 1312/ 8081B. The samples were leached on 02/26/2021, prepared on 02/27/2021 and analyzed on 03/01/2021 and 03/09/2021.

Internal standard (ISTD) response for the following samples exceeded the control limit on secondary : S: Control (460-228664-2), S: 10% P.C., OC, surf (460-228664-7) and S: 3% P.C., OC, surf (460-228664-11). As such, the sample results associated with this ISTD were reported from the other column, which met ISTD acceptance criteria.

No difficulties were encountered during the SPLP Pesticides analysis.

All quality control parameters were within the acceptance limits.

SPLP SEMIVOLATILE ORGANIC COMPOUNDS - SELECTED ION MODE (SIM)

Samples N: Control (460-228664-1), S: Control (460-228664-2), N: 3% P.C., PAC, surf (460-228664-8), N: 3% P.C., OC, surf (460-228664-9), S: 3% P.C., PAC, surf (460-228664-10) and S: 3% P.C., OC, surf (460-228664-11) were analyzed for SPLP semivolatile organic compounds - Selected Ion Mode (SIM) in accordance with EPA SW-846 Method 8270D SIM - SPLP/1312. The samples were leached on 03/03/2021, prepared on 03/04/2021 and analyzed on 03/05/2021.

Samples S: Control (460-228664-2)[10X] and S: 3% P.C., OC, surf (460-228664-11)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the SPLP SVOC SIM analysis.

All quality control parameters were within the acceptance limits.

TCLP METALS

Samples S: 10% P.C. (460-228664-3), S: 10% P.C., PAC (460-228664-4), N: 10% P.C., PAC, surf (460-228664-5), N: 10% P.C., OC (460-228664-6) and S: 10% P.C., OC, surf (460-228664-7) were analyzed for TCLP metals in accordance with 6010D. The samples were leached on 02/25/2021, and prepared and analyzed on 02/26/2021.

Potassium and Zinc were detected in method blank LB 460-761025/1-E at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Calcium failed the recovery criteria low for the MS of sample 460-228594-1 in batch 460-761233.

Refer to the QC report for details.

The presence of the '4' qualifier in the data indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Refer to the QC report for details.

Cadmium and Lead exceeded the RPD limit for the duplicate of sample 460-228594-1. Refer to the QC report for details.

The leachate blank for preparation batch 460-761025 and analytical batch 460-761233 contained Potassium and Zinc above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

Job ID: 460-228664-1 (Continued)

Laboratory: Eurofins TestAmerica, Edison (Continued)

No other difficulties were encountered during the TCLP metals analysis.

All other quality control parameters were within the acceptance limits.

SPLP METALS

Samples N: Control (460-228664-1), S: Control (460-228664-2), N: 3% P.C., PAC, surf (460-228664-8), N: 3% P.C., OC, surf (460-228664-9), S: 3% P.C., PAC, surf (460-228664-10) and S: 3% P.C., OC, surf (460-228664-11) were analyzed for Metals in accordance with 6010D. The samples were leached on 02/26/2021, prepared on 03/01/2021 and analyzed on 03/03/2021.

Zinc was detected in method blank LB 460-761267/1-H at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

The method blank for preparation batch 460-761267 and 460-761630 and analytical batch 460-762209 contained Sodium and Zinc above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

No other difficulties were encountered during the Metals analysis.

All other quality control parameters were within the acceptance limits.

Sodium was detected in method blank MB 460-761630/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

TCLP MERCURY

Samples S: 10% P.C. (460-228664-3), S: 10% P.C., PAC (460-228664-4), N: 10% P.C., PAC, surf (460-228664-5), N: 10% P.C., OC (460-228664-6) and S: 10% P.C., OC, surf (460-228664-7) were analyzed for TCLP mercury in accordance with EPA SW-846 Methods 1311/7470A. The samples were leached on 02/25/2021, and prepared and analyzed on 02/26/2021.

No difficulties were encountered during the TCLP Hg analysis.

All quality control parameters were within the acceptance limits.

SPLP MERCURY

Samples N: Control (460-228664-1), S: Control (460-228664-2), N: 3% P.C., PAC, surf (460-228664-8), N: 3% P.C., OC, surf (460-228664-9), S: 3% P.C., PAC, surf (460-228664-10) and S: 3% P.C., OC, surf (460-228664-11) were analyzed for SPLP mercury in accordance with EPA SW-846 Methods 1312/7470A. The samples were leached on 02/26/2021, and prepared and analyzed on 03/02/2021.

No difficulties were encountered during the SPLP Hg analysis.

All quality control parameters were within the acceptance limits.

SPLP VOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples N: Control (460-228664-1), S: Control (460-228664-2), N: 3% P.C., PAC, surf (460-228664-8), N: 3% P.C., OC, surf (460-228664-9), S: 3% P.C., PAC, surf (460-228664-10) and S: 3% P.C., OC, surf (460-228664-11) were analyzed for SPLP volatile organic compounds (GC/MS) in accordance with EPA SW-846 Method 8260D - SPLP/1312. The samples were leached on 02/27/2021 and analyzed on 02/28/2021.

No difficulties were encountered during the SPLP volatiles analysis.

All quality control parameters were within the acceptance limits.

Job ID: 460-228664-1 (Continued)

Laboratory: Eurofins TestAmerica, Edison (Continued)

CORROSIVITY (PH)

Samples N: Control (460-228664-1), S: Control (460-228664-2), S: 10% P.C. (460-228664-3), S: 10% P.C., PAC (460-228664-4), N: 10% P.C., PAC, surf (460-228664-5), N: 10% P.C., OC (460-228664-6), S: 10% P.C., OC, surf (460-228664-7), N: 3% P.C., PAC, surf (460-228664-8), N: 3% P.C., OC, surf (460-228664-9), S: 3% P.C., PAC, surf (460-228664-10) and S: 3% P.C., OC, surf (460-228664-11) were analyzed for corrosivity (pH) in accordance with EPA SW-846 Method 9045D. The samples were analyzed on 03/08/2021.

Temperature was detected in method blank MB 460-763191/2 at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

No other difficulties were encountered during the corrosivity (pH) analysis.

All other quality control parameters were within the acceptance limits.

PERCENT SOLIDS/PERCENT MOISTURE

Samples N: Control (460-228664-1), S: Control (460-228664-2), S: 10% P.C. (460-228664-3), S: 10% P.C., PAC (460-228664-4), N: 10% P.C., PAC, surf (460-228664-5), N: 10% P.C., OC (460-228664-6), S: 10% P.C., OC, surf (460-228664-7), N: 3% P.C., PAC, surf (460-228664-8), N: 3% P.C., OC, surf (460-228664-9), S: 3% P.C., PAC, surf (460-228664-10) and S: 3% P.C., OC, surf (460-228664-11) were analyzed for percent solids/percent moisture in accordance with EPA Method CLPISM01.2 (Exhibit D) Modified. The samples were analyzed on 02/25/2021.

Percent Moisture exceeded the RPD limit for the duplicate of sample 460-228662-3. Percent Moisture exceeded the RPD limit for the duplicate of sample 460-228679-3. Refer to the QC report for details.

No other difficulties were encountered during the %solids/moisture analysis.

All other quality control parameters were within the acceptance limits.

Detection Summary

Client: ERM-Northeast
Project/Site: TRW - Union Springs

Job ID: 460-228664-1

Client Sample ID: N: Control — Lab Sample ID: 460-228664-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.019		0.0010	0.00017	mg/L	1		8260D	SPLP
Trichloroethene	0.0016		0.0010	0.00031	mg/L	1		8260D	SPLP
Monochloronaphthalene, Total	2.1	J	2.7	1.3	ug/L	1		8270D SIM	SPLP East
Dichloronaphthalene, Total	4.3		2.7	1.3	ug/L	1		8270D SIM	SPLP East
Trichloronaphthalene, Total	3.6		2.7	1.3	ug/L	1		8270D SIM	SPLP East
Aluminum	0.31		0.20	0.077	mg/L	1		6010D	SPLP East
Antimony	0.66		0.020	0.0037	mg/L	1		6010D	SPLP East
Barium	0.065	J	0.20	0.013	mg/L	1		6010D	SPLP East
Calcium	41.6		5.0	0.15	mg/L	1		6010D	SPLP East
Iron	0.11	J	0.15	0.081	mg/L	1		6010D	SPLP East
Magnesium	7.3		5.0	0.14	mg/L	1		6010D	SPLP East
Manganese	0.039		0.015	0.00076	mg/L	1		6010D	SPLP East
Potassium	1.5	J	5.0	0.14	mg/L	1		6010D	SPLP East
Sodium	12.1	B	5.0	0.084	mg/L	1		6010D	SPLP East
Zinc	0.0053	J B	0.030	0.0012	mg/L	1		6010D	SPLP East
pH	7.4	HF	0.1	0.1	SU	1		9045D	Total/NA
Temperature	21.4	HF	0.1	0.1	Degrees C	1		9045D	Total/NA
Corrosivity	7.4	HF	0.1	0.1	SU	1		9045D	Total/NA

Client Sample ID: S: Control — Lab Sample ID: 460-228664-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.052		0.0010	0.00017	mg/L	1		8260D	SPLP
1,1-Dichloroethene	0.00082	J	0.0010	0.00026	mg/L	1		8260D	SPLP
Trichloroethene	0.039		0.0010	0.00031	mg/L	1		8260D	SPLP
Chlorobenzene	0.00045	J	0.0010	0.00038	mg/L	1		8260D	SPLP
Tetrachloronaphthalene, Total	4.6		2.6	1.3	ug/L	1		8270D SIM	SPLP East
Monochloronaphthalene, Total - DL	170		26	13	ug/L	10		8270D SIM	SPLP East
Dichloronaphthalene, Total - DL	100		26	13	ug/L	10		8270D SIM	SPLP East
Trichloronaphthalene, Total - DL	49		26	13	ug/L	10		8270D SIM	SPLP East
Antimony	0.36		0.020	0.0037	mg/L	1		6010D	SPLP East
Arsenic	0.0046	J	0.015	0.0033	mg/L	1		6010D	SPLP East
Barium	0.080	J	0.20	0.013	mg/L	1		6010D	SPLP East
Beryllium	0.00020	J	0.0020	0.00017	mg/L	1		6010D	SPLP East
Calcium	35.6		5.0	0.15	mg/L	1		6010D	SPLP East
Magnesium	6.3		5.0	0.14	mg/L	1		6010D	SPLP East
Manganese	0.013	J	0.015	0.00076	mg/L	1		6010D	SPLP East
Potassium	1.8	J	5.0	0.14	mg/L	1		6010D	SPLP East
Sodium	12.4	B	5.0	0.084	mg/L	1		6010D	SPLP East
Zinc	0.0013	J B	0.030	0.0012	mg/L	1		6010D	SPLP East
pH	7.5	HF	0.1	0.1	SU	1		9045D	Total/NA
Temperature	21.2	HF	0.1	0.1	Degrees C	1		9045D	Total/NA
Corrosivity	7.5	HF	0.1	0.1	SU	1		9045D	Total/NA

Client Sample ID: S: 10% P.C. — Lab Sample ID: 460-228664-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.014		0.010	0.0017	mg/L	10		8260D	TCLP
Di-n-butyl phthalate	2100	J	20000	740	ug/Kg	50	☼	8270E	Total/NA
Naphthalene	35000		20000	340	ug/Kg	50	☼	8270E	Total/NA
Aluminum	0.48	J	1.0	0.38	mg/L	5		6010D	TCLP
Antimony	0.83		0.10	0.019	mg/L	5		6010D	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Edison

Client Sample ID: S: 10% P.C. (Continued) — Lab Sample ID: 460-228664-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.27	J	1.0	0.066	mg/L	5		6010D	TCLP
Cadmium	0.0035	J	0.020	0.0016	mg/L	5		6010D	TCLP
Calcium	767		25.0	0.76	mg/L	5		6010D	TCLP
Iron	0.46	J	0.75	0.40	mg/L	5		6010D	TCLP
Magnesium	25.9		25.0	0.71	mg/L	5		6010D	TCLP
Manganese	0.079		0.075	0.0038	mg/L	5		6010D	TCLP
Potassium	12.0	J B	25.0	0.71	mg/L	5		6010D	TCLP
Zinc	0.011	J B	0.15	0.0061	mg/L	5		6010D	TCLP
pH	11.4	HF	0.1	0.1	SU	1		9045D	Total/NA
Temperature	21.4	HF	0.1	0.1	Degrees C	1		9045D	Total/NA
Corrosivity	11.4	HF	0.1	0.1	SU	1		9045D	Total/NA

Client Sample ID: S: 10% P.C., PAC — Lab Sample ID: 460-228664-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Bis(2-ethylhexyl) phthalate	390	J	3900	210	ug/Kg	10	☼	8270E	Total/NA
Di-n-butyl phthalate	260	J	3900	150	ug/Kg	10	☼	8270E	Total/NA
Naphthalene	20000		3900	67	ug/Kg	10	☼	8270E	Total/NA
Antimony	0.52		0.10	0.019	mg/L	5		6010D	TCLP
Barium	0.33	J	1.0	0.066	mg/L	5		6010D	TCLP
Cadmium	0.046		0.020	0.0016	mg/L	5		6010D	TCLP
Calcium	805		25.0	0.76	mg/L	5		6010D	TCLP
Copper	0.054	J	0.13	0.035	mg/L	5		6010D	TCLP
Magnesium	26.3		25.0	0.71	mg/L	5		6010D	TCLP
Manganese	0.17		0.075	0.0038	mg/L	5		6010D	TCLP
Potassium	12.2	J B	25.0	0.71	mg/L	5		6010D	TCLP
Zinc	0.016	J B	0.15	0.0061	mg/L	5		6010D	TCLP
pH	11.3	HF	0.1	0.1	SU	1		9045D	Total/NA
Temperature	21.1	HF	0.1	0.1	Degrees C	1		9045D	Total/NA
Corrosivity	11.3	HF	0.1	0.1	SU	1		9045D	Total/NA

Client Sample ID: N: 10% P.C., PAC, surf — Lab Sample ID: 460-228664-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylphenol	87	J	1900	71	ug/Kg	5	☼	8270E	Total/NA
Bis(2-ethylhexyl) phthalate	350	J	1900	100	ug/Kg	5	☼	8270E	Total/NA
Di-n-butyl phthalate	20000		1900	72	ug/Kg	5	☼	8270E	Total/NA
Naphthalene	120	J	1900	33	ug/Kg	5	☼	8270E	Total/NA
N-Nitrosodiphenylamine	440	J	1900	160	ug/Kg	5	☼	8270E	Total/NA
Phenol	2400		1900	70	ug/Kg	5	☼	8270E	Total/NA
Antimony	2.4		0.10	0.019	mg/L	5		6010D	TCLP
Barium	0.47	J	1.0	0.066	mg/L	5		6010D	TCLP
Calcium	776		25.0	0.76	mg/L	5		6010D	TCLP
Copper	0.059	J	0.13	0.035	mg/L	5		6010D	TCLP
Magnesium	14.5	J	25.0	0.71	mg/L	5		6010D	TCLP
Potassium	13.3	J B	25.0	0.71	mg/L	5		6010D	TCLP
Vanadium	0.047	J	0.25	0.036	mg/L	5		6010D	TCLP
Zinc	0.0094	J B	0.15	0.0061	mg/L	5		6010D	TCLP
pH	11.7	HF	0.1	0.1	SU	1		9045D	Total/NA
Temperature	21.1	HF	0.1	0.1	Degrees C	1		9045D	Total/NA
Corrosivity	11.7	HF	0.1	0.1	SU	1		9045D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: N: 10% P.C., OC — Lab Sample ID: 460-228664-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.0053	J	0.010	0.0017	mg/L	10		8260D	TCLP
2-Methylnaphthalene	35	J	760	21	ug/Kg	2	☼	8270E	Total/NA
2-Methylphenol	46	J	760	28	ug/Kg	2	☼	8270E	Total/NA
4-Methylphenol	100	J	760	48	ug/Kg	2	☼	8270E	Total/NA
Acetophenone	39	J	760	37	ug/Kg	2	☼	8270E	Total/NA
Benzo[b]fluoranthene	21	J	76	20	ug/Kg	2	☼	8270E	Total/NA
Bis(2-ethylhexyl) phthalate	120	J	760	40	ug/Kg	2	☼	8270E	Total/NA
Di-n-butyl phthalate	8300		760	29	ug/Kg	2	☼	8270E	Total/NA
Naphthalene	290	J	760	13	ug/Kg	2	☼	8270E	Total/NA
N-Nitrosodiphenylamine	610	J	760	63	ug/Kg	2	☼	8270E	Total/NA
Phenanthrene	26	J	760	13	ug/Kg	2	☼	8270E	Total/NA
Phenol	1100		760	28	ug/Kg	2	☼	8270E	Total/NA
Antimony	1.4		0.10	0.019	mg/L	5		6010D	TCLP
Barium	0.36	J	1.0	0.066	mg/L	5		6010D	TCLP
Calcium	852		25.0	0.76	mg/L	5		6010D	TCLP
Chromium	0.029	J	0.050	0.025	mg/L	5		6010D	TCLP
Copper	0.14		0.13	0.035	mg/L	5		6010D	TCLP
Magnesium	3.7	J	25.0	0.71	mg/L	5		6010D	TCLP
Potassium	14.7	J B	25.0	0.71	mg/L	5		6010D	TCLP
Vanadium	0.080	J	0.25	0.036	mg/L	5		6010D	TCLP
Zinc	0.0084	J B	0.15	0.0061	mg/L	5		6010D	TCLP
pH	11.9	HF	0.1	0.1	SU	1		9045D	Total/NA
Temperature	21.1	HF	0.1	0.1	Degrees C	1		9045D	Total/NA
Corrosivity	11.9	HF	0.1	0.1	SU	1		9045D	Total/NA

Client Sample ID: S: 10% P.C., OC, surf — Lab Sample ID: 460-228664-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.0054	J	0.010	0.0031	mg/L	10		8260D	TCLP
Vinyl chloride	0.0068	J	0.010	0.0017	mg/L	10		8260D	TCLP
Naphthalene	44000		8500	150	ug/Kg	20	☼	8270E	Total/NA
Antimony	0.74		0.10	0.019	mg/L	5		6010D	TCLP
Barium	0.30	J	1.0	0.066	mg/L	5		6010D	TCLP
Cadmium	0.0070	J	0.020	0.0016	mg/L	5		6010D	TCLP
Calcium	742		25.0	0.76	mg/L	5		6010D	TCLP
Magnesium	24.6	J	25.0	0.71	mg/L	5		6010D	TCLP
Manganese	0.20		0.075	0.0038	mg/L	5		6010D	TCLP
Potassium	11.2	J B	25.0	0.71	mg/L	5		6010D	TCLP
Zinc	0.015	J B	0.15	0.0061	mg/L	5		6010D	TCLP
pH	11.5	HF	0.1	0.1	SU	1		9045D	Total/NA
Temperature	21.1	HF	0.1	0.1	Degrees C	1		9045D	Total/NA
Corrosivity	11.5	HF	0.1	0.1	SU	1		9045D	Total/NA

Client Sample ID: N: 3% P.C., PAC, surf — Lab Sample ID: 460-228664-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.0032		0.0010	0.00017	mg/L	1		8260D	SPLP
Aluminum	3.0		0.20	0.077	mg/L	1		6010D	SPLP East
Antimony	0.79		0.020	0.0037	mg/L	1		6010D	SPLP East
Arsenic	0.0055	J	0.015	0.0033	mg/L	1		6010D	SPLP East
Barium	0.032	J	0.20	0.013	mg/L	1		6010D	SPLP East
Calcium	67.3		5.0	0.15	mg/L	1		6010D	SPLP East

This Detection Summary does not include radiochemical test results.

Client Sample ID: N: 3% P.C., PAC, surf (Continued) — Lab Sample ID: 460-228664-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	0.014	J	0.025	0.0069	mg/L	1		6010D	SPLP East
Iron	0.098	J	0.15	0.081	mg/L	1		6010D	SPLP East
Potassium	1.4	J	5.0	0.14	mg/L	1		6010D	SPLP East
Sodium	9.7	B	5.0	0.084	mg/L	1		6010D	SPLP East
Vanadium	0.061		0.050	0.0072	mg/L	1		6010D	SPLP East
Zinc	0.0029	J B	0.030	0.0012	mg/L	1		6010D	SPLP East
pH	10.9	HF	0.1	0.1	SU	1		9045D	Total/NA
Temperature	21.7	HF	0.1	0.1	Degrees C	1		9045D	Total/NA
Corrosivity	10.9	HF	0.1	0.1	SU	1		9045D	Total/NA

Client Sample ID: N: 3% P.C., OC, surf — Lab Sample ID: 460-228664-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.013		0.0010	0.00017	mg/L	1		8260D	SPLP
Trichloroethene	0.0014		0.0010	0.00031	mg/L	1		8260D	SPLP
Dichloronaphthalene, Total	3.7		2.7	1.3	ug/L	1		8270D SIM	SPLP East
Trichloronaphthalene, Total	2.8		2.7	1.3	ug/L	1		8270D SIM	SPLP East
Aluminum	2.7		0.20	0.077	mg/L	1		6010D	SPLP East
Antimony	0.90		0.020	0.0037	mg/L	1		6010D	SPLP East
Barium	0.041	J	0.20	0.013	mg/L	1		6010D	SPLP East
Calcium	80.1		5.0	0.15	mg/L	1		6010D	SPLP East
Copper	0.059		0.025	0.0069	mg/L	1		6010D	SPLP East
Iron	0.43		0.15	0.081	mg/L	1		6010D	SPLP East
Nickel	0.0083	J	0.040	0.0041	mg/L	1		6010D	SPLP East
Potassium	1.8	J	5.0	0.14	mg/L	1		6010D	SPLP East
Sodium	30.0	B	5.0	0.084	mg/L	1		6010D	SPLP East
Vanadium	0.067		0.050	0.0072	mg/L	1		6010D	SPLP East
Zinc	0.0035	J B	0.030	0.0012	mg/L	1		6010D	SPLP East
pH	10.8	HF	0.1	0.1	SU	1		9045D	Total/NA
Temperature	21.1	HF	0.1	0.1	Degrees C	1		9045D	Total/NA
Corrosivity	10.8	HF	0.1	0.1	SU	1		9045D	Total/NA

Client Sample ID: S: 3% P.C., PAC, surf — Lab Sample ID: 460-228664-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.0031		0.0010	0.00017	mg/L	1		8260D	SPLP
Aluminum	2.4		0.20	0.077	mg/L	1		6010D	SPLP East
Antimony	0.18		0.020	0.0037	mg/L	1		6010D	SPLP East
Barium	0.038	J	0.20	0.013	mg/L	1		6010D	SPLP East
Calcium	75.9		5.0	0.15	mg/L	1		6010D	SPLP East
Iron	0.15		0.15	0.081	mg/L	1		6010D	SPLP East
Potassium	1.9	J	5.0	0.14	mg/L	1		6010D	SPLP East
Sodium	8.7	B	5.0	0.084	mg/L	1		6010D	SPLP East
Vanadium	0.014	J	0.050	0.0072	mg/L	1		6010D	SPLP East
Zinc	0.0033	J B	0.030	0.0012	mg/L	1		6010D	SPLP East
pH	10.4	HF	0.1	0.1	SU	1		9045D	Total/NA
Temperature	21.1	HF	0.1	0.1	Degrees C	1		9045D	Total/NA
Corrosivity	10.4	HF	0.1	0.1	SU	1		9045D	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ERM-Northeast
Project/Site: TRW - Union Springs

Job ID: 460-228664-1

Client Sample ID: S: 3% P.C., OC, surf

Lab Sample ID: 460-228664-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.024		0.0010	0.00017	mg/L	1		8260D	SPLP
Trichloroethene	0.010		0.0010	0.00031	mg/L	1		8260D	SPLP
Chlorobenzene	0.00054	J	0.0010	0.00038	mg/L	1		8260D	SPLP
Monochloronaphthalene, Total	60		13	6.6	ug/L	5		8270D SIM	SPLP East
Dichloronaphthalene, Total	64		13	6.6	ug/L	5		8270D SIM	SPLP East
Tetrachloronaphthalene, Total	3.6		2.7	1.3	ug/L	1		8270D SIM	SPLP East
Trichloronaphthalene, Total	40		13	6.6	ug/L	5		8270D SIM	SPLP East
Aluminum	4.3		0.20	0.077	mg/L	1		6010D	SPLP East
Antimony	0.44		0.020	0.0037	mg/L	1		6010D	SPLP East
Barium	0.040	J	0.20	0.013	mg/L	1		6010D	SPLP East
Calcium	70.4		5.0	0.15	mg/L	1		6010D	SPLP East
Copper	0.021	J	0.025	0.0069	mg/L	1		6010D	SPLP East
Iron	0.56		0.15	0.081	mg/L	1		6010D	SPLP East
Magnesium	0.17	J	5.0	0.14	mg/L	1		6010D	SPLP East
Nickel	0.0055	J	0.040	0.0041	mg/L	1		6010D	SPLP East
Potassium	2.3	J	5.0	0.14	mg/L	1		6010D	SPLP East
Sodium	25.3	B	5.0	0.084	mg/L	1		6010D	SPLP East
Vanadium	0.010	J	0.050	0.0072	mg/L	1		6010D	SPLP East
Zinc	0.0030	J B	0.030	0.0012	mg/L	1		6010D	SPLP East
pH	10.6	HF	0.1	0.1	SU	1		9045D	Total/NA
Temperature	22.0	HF	0.1	0.1	Degrees C	1		9045D	Total/NA
Corrosivity	10.6	HF	0.1	0.1	SU	1		9045D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: N: Control
Date Collected: 02/18/21 11:08
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-1
Matrix: Solid

Method: 8260D - Volatile Organic Compounds by GC/MS - SPLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	**0.019**		0.0010	0.00017	mg/L			02/28/21 17:57	1
1,1-Dichloroethene	ND		0.0010	0.00026	mg/L			02/28/21 17:57	1
Chloroform	ND		0.0010	0.00033	mg/L			02/28/21 17:57	1
1,2-Dichloroethane	ND		0.0010	0.00043	mg/L			02/28/21 17:57	1
2-Butanone (MEK)	ND		0.0050	0.0019	mg/L			02/28/21 17:57	1
Carbon tetrachloride	ND		0.0010	0.00021	mg/L			02/28/21 17:57	1
Trichloroethene	**0.0016**		0.0010	0.00031	mg/L			02/28/21 17:57	1
Benzene	ND		0.0010	0.00020	mg/L			02/28/21 17:57	1
Tetrachloroethene	ND		0.0010	0.00025	mg/L			02/28/21 17:57	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			02/28/21 17:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*119*		*75 - 123*		*02/28/21 17:57*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*02/28/21 17:57*	*1*
Dibromofluoromethane (Surr)	*117*		*77 - 124*		*02/28/21 17:57*	*1*
4-Bromofluorobenzene	*110*		*76 - 120*		*02/28/21 17:57*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**2.1**	**J**	2.7	1.3	ug/L		03/04/21 19:38	03/05/21 11:36	1
Dichloronaphthalene, Total	**4.3**		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 11:36	1
Hexachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 11:36	1
Heptachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 11:36	1
Octachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 11:36	1
Pentachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 11:36	1
Tetrachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 11:36	1
Trichloronaphthalene, Total	**3.6**		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 11:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*82*		*30 - 123*	*03/04/21 19:38*	*03/05/21 11:36*	*1*
Nitrobenzene-d5	*92*		*33 - 139*	*03/04/21 19:38*	*03/05/21 11:36*	*1*
Terphenyl-d14	*80*		*42 - 150*	*03/04/21 19:38*	*03/05/21 11:36*	*1*

Method: 8081B - Organochlorine Pesticides (GC) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
gamma-BHC (Lindane)	ND		0.000020	0.000012	mg/L		02/27/21 14:44	03/01/21 12:31	1
Chlordane (technical)	ND		0.00050	0.000055	mg/L		02/27/21 14:44	03/01/21 12:31	1
Endrin	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/01/21 12:31	1
Heptachlor	ND		0.000020	0.0000030	mg/L		02/27/21 14:44	03/01/21 12:31	1
Heptachlor epoxide	ND		0.000020	0.0000050	mg/L		02/27/21 14:44	03/01/21 12:31	1
Methoxychlor	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/01/21 12:31	1
Toxaphene	ND		0.00050	0.00011	mg/L		02/27/21 14:44	03/01/21 12:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*67*		*10 - 150*	*02/27/21 14:44*	*03/01/21 12:31*	*1*
Tetrachloro-m-xylene	*84*		*10 - 150*	*02/27/21 14:44*	*03/01/21 12:31*	*1*
DCB Decachlorobiphenyl	*61*		*10 - 150*	*02/27/21 14:44*	*03/01/21 12:31*	*1*
DCB Decachlorobiphenyl	*76*		*10 - 150*	*02/27/21 14:44*	*03/01/21 12:31*	*1*

Client Sample ID: N: Control

Lab Sample ID: 460-228664-1

Date Collected: 02/18/21 11:08

Matrix: Solid

Date Received: 02/24/21 17:00

Method: 6010D - Metals (ICP) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.31**		0.20	0.077	mg/L		03/01/21 11:32	03/03/21 17:55	1
Antimony	**0.66**		0.020	0.0037	mg/L		03/01/21 11:32	03/03/21 17:55	1
Arsenic	ND		0.015	0.0033	mg/L		03/01/21 11:32	03/03/21 17:55	1
Barium	**0.065**	**J**	0.20	0.013	mg/L		03/01/21 11:32	03/03/21 17:55	1
Beryllium	ND		0.0020	0.00017	mg/L		03/01/21 11:32	03/03/21 17:55	1
Cadmium	ND		0.0040	0.00033	mg/L		03/01/21 11:32	03/03/21 17:55	1
Calcium	**41.6**		5.0	0.15	mg/L		03/01/21 11:32	03/03/21 17:55	1
Chromium	ND		0.010	0.0050	mg/L		03/01/21 11:32	03/03/21 17:55	1
Cobalt	ND		0.050	0.0020	mg/L		03/01/21 11:32	03/03/21 17:55	1
Copper	ND		0.025	0.0069	mg/L		03/01/21 11:32	03/03/21 17:55	1
Iron	**0.11**	**J**	0.15	0.081	mg/L		03/01/21 11:32	03/03/21 17:55	1
Lead	ND		0.010	0.0024	mg/L		03/01/21 11:32	03/03/21 17:55	1
Magnesium	**7.3**		5.0	0.14	mg/L		03/01/21 11:32	03/03/21 17:55	1
Manganese	**0.039**		0.015	0.00076	mg/L		03/01/21 11:32	03/03/21 17:55	1
Nickel	ND		0.040	0.0041	mg/L		03/01/21 11:32	03/03/21 17:55	1
Potassium	**1.5**	**J**	5.0	0.14	mg/L		03/01/21 11:32	03/03/21 17:55	1
Selenium	ND		0.020	0.0059	mg/L		03/01/21 11:32	03/03/21 17:55	1
Silver	ND		0.010	0.0058	mg/L		03/01/21 11:32	03/03/21 17:55	1
Sodium	**12.1**	**B**	5.0	0.084	mg/L		03/01/21 11:32	03/03/21 17:55	1
Thallium	ND		0.020	0.0041	mg/L		03/01/21 11:32	03/03/21 17:55	1
Vanadium	ND		0.050	0.0072	mg/L		03/01/21 11:32	03/03/21 17:55	1
Zinc	**0.0053**	**J B**	0.030	0.0012	mg/L		03/01/21 11:32	03/03/21 17:55	1

Method: 7470A - Mercury (CVAA) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/02/21 12:08	03/02/21 15:35	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.4**	**HF**	0.1	0.1	SU			03/08/21 14:03	1
Temperature	**21.4**	**HF**	0.1	0.1	Degrees C			03/08/21 14:03	1
Corrosivity	**7.4**	**HF**	0.1	0.1	SU			03/08/21 14:03	1
Percent Moisture	**24.3**		1.0	1.0	%			02/25/21 10:51	1
Percent Solids	**75.7**		1.0	1.0	%			02/25/21 10:51	1

Client Sample ID: S: Control

Lab Sample ID: 460-228664-2

Date Collected: 02/18/21 17:40

Matrix: Solid

Date Received: 02/24/21 17:00

Method: 8260D - Volatile Organic Compounds by GC/MS - SPLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	**0.052**		0.0010	0.00017	mg/L			02/28/21 18:20	1
1,1-Dichloroethene	**0.00082**	**J**	0.0010	0.00026	mg/L			02/28/21 18:20	1
Chloroform	ND		0.0010	0.00033	mg/L			02/28/21 18:20	1
1,2-Dichloroethane	ND		0.0010	0.00043	mg/L			02/28/21 18:20	1
2-Butanone (MEK)	ND		0.0050	0.0019	mg/L			02/28/21 18:20	1
Carbon tetrachloride	ND		0.0010	0.00021	mg/L			02/28/21 18:20	1
Trichloroethene	**0.039**		0.0010	0.00031	mg/L			02/28/21 18:20	1
Benzene	ND		0.0010	0.00020	mg/L			02/28/21 18:20	1
Tetrachloroethene	ND		0.0010	0.00025	mg/L			02/28/21 18:20	1

Client Sample ID: S: Control
Date Collected: 02/18/21 17:40
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-2
Matrix: Solid

Method: 8260D - Volatile Organic Compounds by GC/MS - SPLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	**0.00045**	**J**	0.0010	0.00038	mg/L			02/28/21 18:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*75 - 123*		*02/28/21 18:20*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*02/28/21 18:20*	*1*
Dibromofluoromethane (Surr)	*111*		*77 - 124*		*02/28/21 18:20*	*1*
4-Bromofluorobenzene	*97*		*76 - 120*		*02/28/21 18:20*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachloronaphthalene, Total	ND		2.6	1.3	ug/L		03/04/21 19:38	03/05/21 12:04	1
Heptachloronaphthalene, Total	ND		2.6	1.3	ug/L		03/04/21 19:38	03/05/21 12:04	1
Octachloronaphthalene, Total	ND		2.6	1.3	ug/L		03/04/21 19:38	03/05/21 12:04	1
Pentachloronaphthalene, Total	ND		2.6	1.3	ug/L		03/04/21 19:38	03/05/21 12:04	1
Tetrachloronaphthalene, Total	**4.6**		2.6	1.3	ug/L		03/04/21 19:38	03/05/21 12:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*83*		*30 - 123*	*03/04/21 19:38*	*03/05/21 12:04*	*1*
Nitrobenzene-d5	*86*		*33 - 139*	*03/04/21 19:38*	*03/05/21 12:04*	*1*
Terphenyl-d14	*74*		*42 - 150*	*03/04/21 19:38*	*03/05/21 12:04*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - SPLP East - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**170**		26	13	ug/L		03/04/21 19:38	03/05/21 14:52	10
Dichloronaphthalene, Total	**100**		26	13	ug/L		03/04/21 19:38	03/05/21 14:52	10
Trichloronaphthalene, Total	**49**		26	13	ug/L		03/04/21 19:38	03/05/21 14:52	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*95*		*30 - 123*	*03/04/21 19:38*	*03/05/21 14:52*	*10*
Nitrobenzene-d5	*97*		*33 - 139*	*03/04/21 19:38*	*03/05/21 14:52*	*10*
Terphenyl-d14	*78*		*42 - 150*	*03/04/21 19:38*	*03/05/21 14:52*	*10*

Method: 8081B - Organochlorine Pesticides (GC) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
gamma-BHC (Lindane)	ND		0.000020	0.000012	mg/L		02/27/21 14:44	03/09/21 05:21	1
Chlordane (technical)	ND		0.00050	0.000055	mg/L		02/27/21 14:44	03/09/21 05:21	1
Endrin	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/09/21 05:21	1
Heptachlor	ND		0.000020	0.0000030	mg/L		02/27/21 14:44	03/09/21 05:21	1
Heptachlor epoxide	ND		0.000020	0.0000050	mg/L		02/27/21 14:44	03/09/21 05:21	1
Methoxychlor	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/09/21 05:21	1
Toxaphene	ND		0.00050	0.00011	mg/L		02/27/21 14:44	03/09/21 05:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*21*	**3*	*10 - 150*	*02/27/21 14:44*	*03/09/21 05:21*	*1*
Tetrachloro-m-xylene	*90*		*10 - 150*	*02/27/21 14:44*	*03/09/21 05:21*	*1*
DCB Decachlorobiphenyl	*36*	**3*	*10 - 150*	*02/27/21 14:44*	*03/09/21 05:21*	*1*
DCB Decachlorobiphenyl	*71*		*10 - 150*	*02/27/21 14:44*	*03/09/21 05:21*	*1*

Method: 6010D - Metals (ICP) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.077	mg/L		03/01/21 11:32	03/03/21 18:19	1

Client Sample ID: S: Control

Lab Sample ID: 460-228664-2

Date Collected: 02/18/21 17:40

Matrix: Solid

Date Received: 02/24/21 17:00

Method: 6010D - Metals (ICP) - SPLP East (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.36**		0.020	0.0037	mg/L		03/01/21 11:32	03/03/21 18:19	1
Arsenic	**0.0046**	**J**	0.015	0.0033	mg/L		03/01/21 11:32	03/03/21 18:19	1
Barium	**0.080**	**J**	0.20	0.013	mg/L		03/01/21 11:32	03/03/21 18:19	1
Beryllium	**0.00020**	**J**	0.0020	0.00017	mg/L		03/01/21 11:32	03/03/21 18:19	1
Cadmium	ND		0.0040	0.00033	mg/L		03/01/21 11:32	03/03/21 18:19	1
Calcium	**35.6**		5.0	0.15	mg/L		03/01/21 11:32	03/03/21 18:19	1
Chromium	ND		0.010	0.0050	mg/L		03/01/21 11:32	03/03/21 18:19	1
Cobalt	ND		0.050	0.0020	mg/L		03/01/21 11:32	03/03/21 18:19	1
Copper	ND		0.025	0.0069	mg/L		03/01/21 11:32	03/03/21 18:19	1
Iron	ND		0.15	0.081	mg/L		03/01/21 11:32	03/03/21 18:19	1
Lead	ND		0.010	0.0024	mg/L		03/01/21 11:32	03/03/21 18:19	1
Magnesium	**6.3**		5.0	0.14	mg/L		03/01/21 11:32	03/03/21 18:19	1
Manganese	**0.013**	**J**	0.015	0.00076	mg/L		03/01/21 11:32	03/03/21 18:19	1
Nickel	ND		0.040	0.0041	mg/L		03/01/21 11:32	03/03/21 18:19	1
Potassium	**1.8**	**J**	5.0	0.14	mg/L		03/01/21 11:32	03/03/21 18:19	1
Selenium	ND		0.020	0.0059	mg/L		03/01/21 11:32	03/03/21 18:19	1
Silver	ND		0.010	0.0058	mg/L		03/01/21 11:32	03/03/21 18:19	1
Sodium	**12.4**	**B**	5.0	0.084	mg/L		03/01/21 11:32	03/03/21 18:19	1
Thallium	ND		0.020	0.0041	mg/L		03/01/21 11:32	03/03/21 18:19	1
Vanadium	ND		0.050	0.0072	mg/L		03/01/21 11:32	03/03/21 18:19	1
Zinc	**0.0013**	**J B**	0.030	0.0012	mg/L		03/01/21 11:32	03/03/21 18:19	1

Method: 7470A - Mercury (CVAA) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/02/21 12:08	03/02/21 15:37	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.5**	**HF**	0.1	0.1	SU			03/08/21 14:07	1
Temperature	**21.2**	**HF**	0.1	0.1	Degrees C			03/08/21 14:07	1
Corrosivity	**7.5**	**HF**	0.1	0.1	SU			03/08/21 14:07	1
Percent Moisture	**35.3**		1.0	1.0	%			02/25/21 10:51	1
Percent Solids	**64.7**		1.0	1.0	%			02/25/21 10:51	1

Client Sample ID: S: 10% P.C.

Lab Sample ID: 460-228664-3

Date Collected: 02/18/21 15:00

Matrix: Solid

Date Received: 02/24/21 17:00

Percent Solids: 84.4

Method: 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.010	0.0026	mg/L			02/27/21 20:37	10
1,2-Dichloroethane	ND		0.010	0.0043	mg/L			02/27/21 20:37	10
2-Butanone (MEK)	ND		0.050	0.019	mg/L			02/27/21 20:37	10
Benzene	ND		0.010	0.0020	mg/L			02/27/21 20:37	10
Carbon tetrachloride	ND		0.010	0.0021	mg/L			02/27/21 20:37	10
Chlorobenzene	ND		0.010	0.0038	mg/L			02/27/21 20:37	10
Chloroform	ND		0.010	0.0033	mg/L			02/27/21 20:37	10
Tetrachloroethene	ND		0.010	0.0025	mg/L			02/27/21 20:37	10
Trichloroethene	ND		0.010	0.0031	mg/L			02/27/21 20:37	10
Vinyl chloride	**0.014**		0.010	0.0017	mg/L			02/27/21 20:37	10

Client Sample ID: S: 10% P.C.
Date Collected: 02/18/21 15:00
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-3
Matrix: Solid
Percent Solids: 84.4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*75 - 123*		*02/27/21 20:37*	*10*
Dibromofluoromethane (Surr)	*108*		*77 - 124*		*02/27/21 20:37*	*10*
Toluene-d8 (Surr)	*91*		*80 - 120*		*02/27/21 20:37*	*10*
4-Bromofluorobenzene	*100*		*76 - 120*		*02/27/21 20:37*	*10*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-Trichlorophenol	ND		20000	2000	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
2,4,6-Trichlorophenol	ND		7900	2500	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
2,4-Dichlorophenol	ND		7900	1300	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
2,4-Dimethylphenol	ND		20000	860	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
2,4-Dinitrophenol	ND		16000	9600	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
2,4-Dinitrotoluene	ND		4000	2100	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
2,6-Dinitrotoluene	ND		4000	1400	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
2-Chloronaphthalene	ND		20000	910	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
2-Chlorophenol	ND		20000	700	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
2-Methylnaphthalene	ND		20000	550	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
2-Methylphenol	ND		20000	730	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
2-Nitroaniline	ND		20000	730	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
2-Nitrophenol	ND		20000	2000	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
3,3'-Dichlorobenzidine	ND		7900	3000	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
3-Nitroaniline	ND		20000	2200	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
4,6-Dinitro-2-methylphenol	ND		16000	8000	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
4-Bromophenyl phenyl ether	ND		20000	780	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
4-Chloro-3-methylphenol	ND		20000	1100	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
4-Chloroaniline	ND		20000	3500	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
4-Chlorophenyl phenyl ether	ND		20000	690	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
4-Methylphenol	ND		20000	1200	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
4-Nitroaniline	ND		20000	2200	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
4-Nitrophenol	ND		40000	3200	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Acenaphthene	ND		20000	560	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Acenaphthylene	ND		20000	200	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Acetophenone	ND		20000	960	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Anthracene	ND		20000	600	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Atrazine	ND		7900	1200	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Benzaldehyde	ND		20000	3200	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Benzo[a]anthracene	ND		2000	680	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Benzo[a]pyrene	ND		2000	520	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Benzo[b]fluoranthene	ND		2000	510	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Benzo[g,h,i]perylene	ND		20000	580	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Benzo[k]fluoranthene	ND		2000	380	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Biphenyl	ND		20000	260	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
bis (2-chloroisopropyl) ether	ND		20000	350	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Bis(2-chloroethoxy)methane	ND		20000	1500	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Bis(2-chloroethyl)ether	ND		2000	680	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Bis(2-ethylhexyl) phthalate	ND		20000	1000	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Butyl benzyl phthalate	ND		20000	920	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Caprolactam	ND		20000	3000	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Carbazole	ND		20000	750	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Chrysene	ND		20000	330	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50

Client Sample ID: S: 10% P.C.
Date Collected: 02/18/21 15:00
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-3
Matrix: Solid
Percent Solids: 84.4

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		2000	850	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Dibenzofuran	ND		20000	280	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Diethyl phthalate	ND		20000	280	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Dimethyl phthalate	ND		20000	4500	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Di-n-butyl phthalate	**2100**	**J**	20000	740	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Di-n-octyl phthalate	ND		20000	1000	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Fluoranthene	ND		20000	680	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Fluorene	ND		20000	270	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Hexachlorobenzene	ND		2000	930	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Hexachlorobutadiene	ND		4000	420	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Hexachlorocyclopentadiene	ND		20000	1700	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Hexachloroethane	ND		2000	670	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Indeno[1,2,3-cd]pyrene	ND		2000	760	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Isophorone	ND		7900	5700	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Naphthalene	**35000**		20000	340	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Nitrobenzene	ND		2000	470	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
N-Nitrosodi-n-propylamine	ND		2000	1400	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
N-Nitrosodiphenylamine	ND		20000	1600	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Pentachlorophenol	ND		16000	4000	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Phenanthrene	ND		20000	340	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Phenol	ND		20000	720	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50
Pyrene	ND		20000	490	ug/Kg	☼	02/25/21 15:34	02/26/21 18:49	50

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Aldol condensation product	*510000*	*T A J*	*ug/Kg*	☼	*2.81*		*02/25/21 15:34*	*02/26/21 18:49*	*50*
Naphthalene, 1-chloro-	*110000*	*T J N*	*ug/Kg*	☼	*6.74*	*90-13-1*	*02/25/21 15:34*	*02/26/21 18:49*	*50*
Naphthalene, 1,4-dichloro-	*280000*	*T J N*	*ug/Kg*	☼	*7.66*	*1825-31-6*	*02/25/21 15:34*	*02/26/21 18:49*	*50*
Naphthalene, 1,3,7-trichloro-	*470000*	*T J N*	*ug/Kg*	☼	*8.44*	*55720-37-1*	*02/25/21 15:34*	*02/26/21 18:49*	*50*
Naphthalene, 2,3,6-trichloro-	*130000*	*T J N*	*ug/Kg*	☼	*8.76*	*55720-40-6*	*02/25/21 15:34*	*02/26/21 18:49*	*50*
Tetrachloroisophthalonitrile	*38000*	*T J N*	*ug/Kg*	☼	*8.96*	*1897-45-6*	*02/25/21 15:34*	*02/26/21 18:49*	*50*
Naphthalene, 1,3,5,7-tetrachloro-	*93000*	*T J N*	*ug/Kg*	☼	*9.13*	*53555-64-9*	*02/25/21 15:34*	*02/26/21 18:49*	*50*
1,2-Benzenedicarbonitrile, 3,4,5,6-tetrachloro-	*67000*	*T J N*	*ug/Kg*	☼	*9.33*	*1953-99-7*	*02/25/21 15:34*	*02/26/21 18:49*	*50*
Tetrachloroterephthalonitrile	*78000*	*T J N*	*ug/Kg*	☼	*9.43*	*1897-41-2*	*02/25/21 15:34*	*02/26/21 18:49*	*50*
Naphthalene, 1,4,6,7-tetrachloro-	*100000*	*T J N*	*ug/Kg*	☼	*9.54*	*55720-43-9*	*02/25/21 15:34*	*02/26/21 18:49*	*50*
Naphthalene, 1,2,3,4-tetrachloro-	*64000*	*T J N*	*ug/Kg*	☼	*9.67*	*20020-02-4*	*02/25/21 15:34*	*02/26/21 18:49*	*50*
Unknown	*18000*	*T J*	*ug/Kg*	☼	*9.96*		*02/25/21 15:34*	*02/26/21 18:49*	*50*
Unknown	*34000*	*T J*	*ug/Kg*	☼	*10.20*		*02/25/21 15:34*	*02/26/21 18:49*	*50*
Unknown	*28000*	*T J*	*ug/Kg*	☼	*10.32*		*02/25/21 15:34*	*02/26/21 18:49*	*50*
Unknown	*31000*	*T J*	*ug/Kg*	☼	*10.60*		*02/25/21 15:34*	*02/26/21 18:49*	*50*
Unknown	*16000*	*T J*	*ug/Kg*	☼	*12.79*		*02/25/21 15:34*	*02/26/21 18:49*	*50*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*0*	*S1-*	*10 - 123*	*02/25/21 15:34*	*02/26/21 18:49*	*50*
2-Fluorobiphenyl	*0*	*S1-*	*14 - 103*	*02/25/21 15:34*	*02/26/21 18:49*	*50*
2-Fluorophenol (Surr)	*0*	*S1-*	*10 - 105*	*02/25/21 15:34*	*02/26/21 18:49*	*50*
Nitrobenzene-d5 (Surr)	*0*	*S1-*	*11 - 104*	*02/25/21 15:34*	*02/26/21 18:49*	*50*
Phenol-d5 (Surr)	*0*	*S1-*	*15 - 100*	*02/25/21 15:34*	*02/26/21 18:49*	*50*
Terphenyl-d14 (Surr)	*0*	*S1-*	*12 - 126*	*02/25/21 15:34*	*02/26/21 18:49*	*50*

Client Sample ID: S: 10% P.C.
Date Collected: 02/18/21 15:00
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-3
Matrix: Solid
Percent Solids: 84.4

Method: 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000055	mg/L		02/26/21 09:07	03/01/21 11:18	1
Endrin	ND		0.00050	0.0000040	mg/L		02/26/21 09:07	03/01/21 11:18	1
gamma-BHC (Lindane)	ND		0.00050	0.000012	mg/L		02/26/21 09:07	03/01/21 11:18	1
Heptachlor	ND		0.00050	0.0000030	mg/L		02/26/21 09:07	03/01/21 11:18	1
Heptachlor epoxide	ND		0.00050	0.0000050	mg/L		02/26/21 09:07	03/01/21 11:18	1
Methoxychlor	ND		0.00050	0.0000040	mg/L		02/26/21 09:07	03/01/21 11:18	1
Toxaphene	ND		0.0050	0.00011	mg/L		02/26/21 09:07	03/01/21 11:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*37*		*10 - 150*	*02/26/21 09:07*	*03/01/21 11:18*	*1*
DCB Decachlorobiphenyl	*40*		*10 - 150*	*02/26/21 09:07*	*03/01/21 11:18*	*1*
Tetrachloro-m-xylene	*50*		*10 - 150*	*02/26/21 09:07*	*03/01/21 11:18*	*1*
Tetrachloro-m-xylene	*51*		*10 - 150*	*02/26/21 09:07*	*03/01/21 11:18*	*1*

Method: 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.48**	**J**	1.0	0.38	mg/L		02/26/21 12:27	02/26/21 17:44	5
Antimony	**0.83**		0.10	0.019	mg/L		02/26/21 12:27	02/26/21 17:44	5
Arsenic	ND		0.075	0.017	mg/L		02/26/21 12:27	02/26/21 17:44	5
Barium	**0.27**	**J**	1.0	0.066	mg/L		02/26/21 12:27	02/26/21 17:44	5
Beryllium	ND		0.010	0.00085	mg/L		02/26/21 12:27	02/26/21 17:44	5
Cadmium	**0.0035**	**J**	0.020	0.0016	mg/L		02/26/21 12:27	02/26/21 17:44	5
Calcium	**767**		25.0	0.76	mg/L		02/26/21 12:27	02/26/21 17:44	5
Chromium	ND		0.050	0.025	mg/L		02/26/21 12:27	02/26/21 17:44	5
Cobalt	ND		0.25	0.010	mg/L		02/26/21 12:27	02/26/21 17:44	5
Copper	ND		0.13	0.035	mg/L		02/26/21 12:27	02/26/21 17:44	5
Iron	**0.46**	**J**	0.75	0.40	mg/L		02/26/21 12:27	02/26/21 17:44	5
Lead	ND		0.050	0.012	mg/L		02/26/21 12:27	02/26/21 17:44	5
Magnesium	**25.9**		25.0	0.71	mg/L		02/26/21 12:27	02/26/21 17:44	5
Manganese	**0.079**		0.075	0.0038	mg/L		02/26/21 12:27	02/26/21 17:44	5
Nickel	ND		0.20	0.021	mg/L		02/26/21 12:27	02/26/21 17:44	5
Potassium	**12.0**	**J B**	25.0	0.71	mg/L		02/26/21 12:27	02/26/21 17:44	5
Selenium	ND		0.10	0.029	mg/L		02/26/21 12:27	02/26/21 17:44	5
Silver	ND		0.050	0.029	mg/L		02/26/21 12:27	02/26/21 17:44	5
Thallium	ND		0.10	0.021	mg/L		02/26/21 12:27	02/26/21 17:44	5
Vanadium	ND		0.25	0.036	mg/L		02/26/21 12:27	02/26/21 17:44	5
Zinc	**0.011**	**J B**	0.15	0.0061	mg/L		02/26/21 12:27	02/26/21 17:44	5

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		02/26/21 12:17	02/26/21 15:33	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.4**	**HF**	0.1	0.1	SU			03/08/21 14:09	1
Temperature	**21.4**	**HF**	0.1	0.1	Degrees C			03/08/21 14:09	1
Corrosivity	**11.4**	**HF**	0.1	0.1	SU			03/08/21 14:09	1
Percent Moisture	**15.6**		1.0	1.0	%			02/25/21 09:07	1
Percent Solids	**84.4**		1.0	1.0	%			02/25/21 09:07	1

Client: ERM-Northeast
Project/Site: TRW - Union Springs

Job ID: 460-228664-1

Client Sample ID: S: 10% P.C., PAC
Date Collected: 02/18/21 15:30
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-4
Matrix: Solid
Percent Solids: 84.9

Method: 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.010	0.0026	mg/L			02/27/21 21:00	10
1,2-Dichloroethane	ND		0.010	0.0043	mg/L			02/27/21 21:00	10
2-Butanone (MEK)	ND		0.050	0.019	mg/L			02/27/21 21:00	10
Benzene	ND		0.010	0.0020	mg/L			02/27/21 21:00	10
Carbon tetrachloride	ND		0.010	0.0021	mg/L			02/27/21 21:00	10
Chlorobenzene	ND		0.010	0.0038	mg/L			02/27/21 21:00	10
Chloroform	ND		0.010	0.0033	mg/L			02/27/21 21:00	10
Tetrachloroethene	ND		0.010	0.0025	mg/L			02/27/21 21:00	10
Trichloroethene	ND		0.010	0.0031	mg/L			02/27/21 21:00	10
Vinyl chloride	ND		0.010	0.0017	mg/L			02/27/21 21:00	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*75 - 123*		*02/27/21 21:00*	*10*
Dibromofluoromethane (Surr)	*115*		*77 - 124*		*02/27/21 21:00*	*10*
Toluene-d8 (Surr)	*97*		*80 - 120*		*02/27/21 21:00*	*10*
4-Bromofluorobenzene	*105*		*76 - 120*		*02/27/21 21:00*	*10*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-Trichlorophenol	ND		3900	400	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
2,4,6-Trichlorophenol	ND		1600	500	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
2,4-Dichlorophenol	ND		1600	250	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
2,4-Dimethylphenol	ND		3900	170	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
2,4-Dinitrophenol	ND		3100	1900	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
2,4-Dinitrotoluene	ND		790	420	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
2,6-Dinitrotoluene	ND		790	280	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
2-Chloronaphthalene	ND		3900	180	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
2-Chlorophenol	ND		3900	140	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
2-Methylnaphthalene	ND		3900	110	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
2-Methylphenol	ND		3900	150	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
2-Nitroaniline	ND		3900	150	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
2-Nitrophenol	ND		3900	390	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
3,3'-Dichlorobenzidine	ND		1600	590	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
3-Nitroaniline	ND		3900	440	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
4,6-Dinitro-2-methylphenol	ND		3100	1600	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
4-Bromophenyl phenyl ether	ND		3900	150	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
4-Chloro-3-methylphenol	ND		3900	220	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
4-Chloroaniline	ND		3900	690	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
4-Chlorophenyl phenyl ether	ND		3900	140	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
4-Methylphenol	ND		3900	240	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
4-Nitroaniline	ND		3900	450	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
4-Nitrophenol	ND		7900	630	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Acenaphthene	ND		3900	110	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Acenaphthylene	ND		3900	39	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Acetophenone	ND		3900	190	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Anthracene	ND		3900	120	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Atrazine	ND		1600	230	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Benzaldehyde	ND		3900	640	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Benzo[a]anthracene	ND		390	140	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Benzo[a]pyrene	ND		390	100	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10

Client Sample ID: S: 10% P.C., PAC
Date Collected: 02/18/21 15:30
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-4
Matrix: Solid
Percent Solids: 84.9

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND		390	100	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Benzo[g,h,i]perylene	ND		3900	110	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Benzo[k]fluoranthene	ND		390	76	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Biphenyl	ND		3900	52	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
bis (2-chloroisopropyl) ether	ND		3900	71	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Bis(2-chloroethoxy)methane	ND		3900	300	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Bis(2-chloroethyl)ether	ND		390	140	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Bis(2-ethylhexyl) phthalate	**390**	**J**	3900	210	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Butyl benzyl phthalate	ND		3900	180	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Caprolactam	ND		3900	610	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Carbazole	ND		3900	150	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Chrysene	ND		3900	66	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Dibenz(a,h)anthracene	ND		390	170	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Dibenzofuran	ND		3900	55	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Diethyl phthalate	ND		3900	56	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Dimethyl phthalate	ND		3900	890	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Di-n-butyl phthalate	**260**	**J**	3900	150	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Di-n-octyl phthalate	ND		3900	210	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Fluoranthene	ND		3900	140	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Fluorene	ND		3900	53	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Hexachlorobenzene	ND		390	190	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Hexachlorobutadiene	ND		790	83	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Hexachlorocyclopentadiene	ND		3900	340	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Hexachloroethane	ND		390	130	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Indeno[1,2,3-cd]pyrene	ND		390	150	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Isophorone	ND		1600	1100	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Naphthalene	**20000**		3900	67	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Nitrobenzene	ND		390	94	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
N-Nitrosodi-n-propylamine	ND		390	280	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
N-Nitrosodiphenylamine	ND		3900	320	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Pentachlorophenol	ND		3100	800	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Phenanthrene	ND		3900	68	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Phenol	ND		3900	140	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10
Pyrene	ND		3900	97	ug/Kg	☼	02/25/21 15:34	02/26/21 19:11	10

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Aldol condensation product	*270000*	*T A J*	*ug/Kg*	☼	*2.82*		*02/25/21 15:34*	*02/26/21 19:11*	*10*
Naphthalene, 1-chloro-	*32000*	*T J N*	*ug/Kg*	☼	*6.74*	*90-13-1*	*02/25/21 15:34*	*02/26/21 19:11*	*10*
Naphthalene, 2,3-dichloro-	*5200*	*T J N*	*ug/Kg*	☼	*7.56*	*2050-75-1*	*02/25/21 15:34*	*02/26/21 19:11*	*10*
Naphthalene, 1,5-dichloro-	*100000*	*T J N*	*ug/Kg*	☼	*7.66*	*1825-30-5*	*02/25/21 15:34*	*02/26/21 19:11*	*10*
4-Chloro-1,8-naphthalic anhydride	*21000*	*T J N*	*ug/Kg*	☼	*8.36*	*4053-08-1*	*02/25/21 15:34*	*02/26/21 19:11*	*10*
Naphthalene, 2,3,6-trichloro-	*120000*	*T J N*	*ug/Kg*	☼	*8.45*	*55720-40-6*	*02/25/21 15:34*	*02/26/21 19:11*	*10*
Naphthalene, 1,3,7-trichloro-	*54000*	*T J N*	*ug/Kg*	☼	*8.77*	*55720-37-1*	*02/25/21 15:34*	*02/26/21 19:11*	*10*
Tetrachloroterephthalonitrile	*13000*	*T J N*	*ug/Kg*	☼	*8.97*	*1897-41-2*	*02/25/21 15:34*	*02/26/21 19:11*	*10*
Naphthalene, 1,3,5,7-tetrachloro-	*22000*	*T J N*	*ug/Kg*	☼	*9.33*	*53555-64-9*	*02/25/21 15:34*	*02/26/21 19:11*	*10*
Naphthalene, 1,4,6,7-tetrachloro-	*37000*	*T J N*	*ug/Kg*	☼	*9.55*	*55720-43-9*	*02/25/21 15:34*	*02/26/21 19:11*	*10*
Naphthalene, 1,2,3,4-tetrachloro-	*22000*	*T J N*	*ug/Kg*	☼	*9.68*	*20020-02-4*	*02/25/21 15:34*	*02/26/21 19:11*	*10*
Unknown	*4300*	*T J*	*ug/Kg*	☼	*9.84*		*02/25/21 15:34*	*02/26/21 19:11*	*10*
Unknown	*15000*	*T J*	*ug/Kg*	☼	*9.96*		*02/25/21 15:34*	*02/26/21 19:11*	*10*
Unknown	*17000*	*T J*	*ug/Kg*	☼	*10.29*		*02/25/21 15:34*	*02/26/21 19:11*	*10*

Client Sample ID: S: 10% P.C., PAC

Date Collected: 02/18/21 15:30
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-4

Matrix: Solid
Percent Solids: 84.9

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Unknown	3700	T J	ug/Kg	☼	10.87		02/25/21 15:34	02/26/21 19:11	10
Unknown	8300	T J	ug/Kg	☼	12.72		02/25/21 15:34	02/26/21 19:11	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	6	S1-	10 - 123	02/25/21 15:34	02/26/21 19:11	10
2-Fluorobiphenyl	25		14 - 103	02/25/21 15:34	02/26/21 19:11	10
2-Fluorophenol (Surr)	19		10 - 105	02/25/21 15:34	02/26/21 19:11	10
Nitrobenzene-d5 (Surr)	23		11 - 104	02/25/21 15:34	02/26/21 19:11	10
Phenol-d5 (Surr)	24		15 - 100	02/25/21 15:34	02/26/21 19:11	10
Terphenyl-d14 (Surr)	17		12 - 126	02/25/21 15:34	02/26/21 19:11	10

Method: 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000055	mg/L		02/26/21 09:07	03/01/21 11:33	1
Endrin	ND		0.00050	0.0000040	mg/L		02/26/21 09:07	03/01/21 11:33	1
gamma-BHC (Lindane)	ND		0.00050	0.000012	mg/L		02/26/21 09:07	03/01/21 11:33	1
Heptachlor	ND		0.00050	0.0000030	mg/L		02/26/21 09:07	03/01/21 11:33	1
Heptachlor epoxide	ND		0.00050	0.0000050	mg/L		02/26/21 09:07	03/01/21 11:33	1
Methoxychlor	ND		0.00050	0.0000040	mg/L		02/26/21 09:07	03/01/21 11:33	1
Toxaphene	ND		0.0050	0.00011	mg/L		02/26/21 09:07	03/01/21 11:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	42		10 - 150	02/26/21 09:07	03/01/21 11:33	1
DCB Decachlorobiphenyl	49		10 - 150	02/26/21 09:07	03/01/21 11:33	1
Tetrachloro-m-xylene	40		10 - 150	02/26/21 09:07	03/01/21 11:33	1
Tetrachloro-m-xylene	49		10 - 150	02/26/21 09:07	03/01/21 11:33	1

Method: 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		1.0	0.38	mg/L		02/26/21 12:27	02/26/21 17:48	5
Antimony	**0.52**		0.10	0.019	mg/L		02/26/21 12:27	02/26/21 17:48	5
Arsenic	ND		0.075	0.017	mg/L		02/26/21 12:27	02/26/21 17:48	5
Barium	**0.33**	**J**	1.0	0.066	mg/L		02/26/21 12:27	02/26/21 17:48	5
Beryllium	ND		0.010	0.00085	mg/L		02/26/21 12:27	02/26/21 17:48	5
Cadmium	**0.046**		0.020	0.0016	mg/L		02/26/21 12:27	02/26/21 17:48	5
Calcium	**805**		25.0	0.76	mg/L		02/26/21 12:27	02/26/21 17:48	5
Chromium	ND		0.050	0.025	mg/L		02/26/21 12:27	02/26/21 17:48	5
Cobalt	ND		0.25	0.010	mg/L		02/26/21 12:27	02/26/21 17:48	5
Copper	**0.054**	**J**	0.13	0.035	mg/L		02/26/21 12:27	02/26/21 17:48	5
Iron	ND		0.75	0.40	mg/L		02/26/21 12:27	02/26/21 17:48	5
Lead	ND		0.050	0.012	mg/L		02/26/21 12:27	02/26/21 17:48	5
Magnesium	**26.3**		25.0	0.71	mg/L		02/26/21 12:27	02/26/21 17:48	5
Manganese	**0.17**		0.075	0.0038	mg/L		02/26/21 12:27	02/26/21 17:48	5
Nickel	ND		0.20	0.021	mg/L		02/26/21 12:27	02/26/21 17:48	5
Potassium	**12.2**	**J B**	25.0	0.71	mg/L		02/26/21 12:27	02/26/21 17:48	5
Selenium	ND		0.10	0.029	mg/L		02/26/21 12:27	02/26/21 17:48	5
Silver	ND		0.050	0.029	mg/L		02/26/21 12:27	02/26/21 17:48	5
Thallium	ND		0.10	0.021	mg/L		02/26/21 12:27	02/26/21 17:48	5
Vanadium	ND		0.25	0.036	mg/L		02/26/21 12:27	02/26/21 17:48	5
Zinc	**0.016**	**J B**	0.15	0.0061	mg/L		02/26/21 12:27	02/26/21 17:48	5

Client Sample ID: S: 10% P.C., PAC

Date Collected: 02/18/21 15:30
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-4

Matrix: Solid
Percent Solids: 84.9

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		02/26/21 12:17	02/26/21 15:34	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.3**	**HF**	0.1	0.1	SU			03/08/21 14:10	1
Temperature	**21.1**	**HF**	0.1	0.1	Degrees C			03/08/21 14:10	1
Corrosivity	**11.3**	**HF**	0.1	0.1	SU			03/08/21 14:10	1
Percent Moisture	**15.1**		1.0	1.0	%			02/25/21 09:07	1
Percent Solids	**84.9**		1.0	1.0	%			02/25/21 09:07	1

Client Sample ID: N: 10% P.C., PAC, surf

Date Collected: 02/18/21 11:00
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-5

Matrix: Solid
Percent Solids: 86.6

Method: 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.010	0.0026	mg/L			02/27/21 21:22	10
1,2-Dichloroethane	ND		0.010	0.0043	mg/L			02/27/21 21:22	10
2-Butanone (MEK)	ND		0.050	0.019	mg/L			02/27/21 21:22	10
Benzene	ND		0.010	0.0020	mg/L			02/27/21 21:22	10
Carbon tetrachloride	ND		0.010	0.0021	mg/L			02/27/21 21:22	10
Chlorobenzene	ND		0.010	0.0038	mg/L			02/27/21 21:22	10
Chloroform	ND		0.010	0.0033	mg/L			02/27/21 21:22	10
Tetrachloroethene	ND		0.010	0.0025	mg/L			02/27/21 21:22	10
Trichloroethene	ND		0.010	0.0031	mg/L			02/27/21 21:22	10
Vinyl chloride	ND		0.010	0.0017	mg/L			02/27/21 21:22	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 123*		*02/27/21 21:22*	*10*
Dibromofluoromethane (Surr)	*105*		*77 - 124*		*02/27/21 21:22*	*10*
Toluene-d8 (Surr)	*93*		*80 - 120*		*02/27/21 21:22*	*10*
4-Bromofluorobenzene	*105*		*76 - 120*		*02/27/21 21:22*	*10*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-Trichlorophenol	ND		1900	190	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
2,4,6-Trichlorophenol	ND		770	250	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
2,4-Dichlorophenol	ND		770	120	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
2,4-Dimethylphenol	ND		1900	84	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
2,4-Dinitrophenol	ND		1500	940	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
2,4-Dinitrotoluene	ND		390	210	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
2,6-Dinitrotoluene	ND		390	140	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
2-Chloronaphthalene	ND		1900	88	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
2-Chlorophenol	ND		1900	68	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
2-Methylnaphthalene	ND		1900	53	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
2-Methylphenol	**87**	**J**	1900	71	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
2-Nitroaniline	ND		1900	71	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
2-Nitrophenol	ND		1900	190	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
3,3'-Dichlorobenzidine	ND		770	290	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
3-Nitroaniline	ND		1900	220	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
4,6-Dinitro-2-methylphenol	ND		1500	780	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5

Client Sample ID: N: 10% P.C., PAC, surf
Date Collected: 02/18/21 11:00
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-5
Matrix: Solid
Percent Solids: 86.6

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Bromophenyl phenyl ether	ND		1900	76	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
4-Chloro-3-methylphenol	ND		1900	110	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
4-Chloroaniline	ND		1900	340	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
4-Chlorophenyl phenyl ether	ND		1900	67	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
4-Methylphenol	ND		1900	120	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
4-Nitroaniline	ND		1900	220	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
4-Nitrophenol	ND		3900	310	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Acenaphthene	ND		1900	54	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Acenaphthylene	ND		1900	19	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Acetophenone	ND		1900	94	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Anthracene	ND		1900	58	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Atrazine	ND		770	110	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Benzaldehyde	ND		1900	320	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Benzo[a]anthracene	ND		190	67	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Benzo[a]pyrene	ND		190	51	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Benzo[b]fluoranthene	ND		190	49	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Benzo[g,h,i]perylene	ND		1900	56	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Benzo[k]fluoranthene	ND		190	37	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Biphenyl	ND		1900	25	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
bis (2-chloroisopropyl) ether	ND		1900	35	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Bis(2-chloroethoxy)methane	ND		1900	150	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Bis(2-chloroethyl)ether	ND		190	67	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Bis(2-ethylhexyl) phthalate	**350**	**J**	1900	100	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Butyl benzyl phthalate	ND		1900	90	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Caprolactam	ND		1900	300	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Carbazole	ND		1900	73	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Chrysene	ND		1900	32	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Dibenz(a,h)anthracene	ND		190	83	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Dibenzofuran	ND		1900	27	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Diethyl phthalate	ND		1900	28	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Dimethyl phthalate	ND		1900	430	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Di-n-butyl phthalate	**20000**		1900	72	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Di-n-octyl phthalate	ND		1900	100	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Fluoranthene	ND		1900	67	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Fluorene	ND		1900	26	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Hexachlorobenzene	ND		190	91	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Hexachlorobutadiene	ND		390	41	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Hexachlorocyclopentadiene	ND		1900	170	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Hexachloroethane	ND		190	66	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Indeno[1,2,3-cd]pyrene	ND		190	75	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Isophorone	ND		770	550	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Naphthalene	**120**	**J**	1900	33	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Nitrobenzene	ND		190	46	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
N-Nitrosodi-n-propylamine	ND		190	140	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
N-Nitrosodiphenylamine	**440**	**J**	1900	160	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Pentachlorophenol	ND		1500	390	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Phenanthrene	ND		1900	34	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Phenol	**2400**		1900	70	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5
Pyrene	ND		1900	48	ug/Kg	☼	02/25/21 15:34	02/26/21 19:34	5

Client Sample ID: N: 10% P.C., PAC, surf

Date Collected: 02/18/21 11:00
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-5

Matrix: Solid
Percent Solids: 86.6

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Unknown	2500	T J	ug/Kg	☼	2.61		02/25/21 15:34	02/26/21 19:34	5
Aldol condensation product	530000	T A J	ug/Kg	☼	2.85		02/25/21 15:34	02/26/21 19:34	5
1,2,4-Trithiolane	6000	T J N	ug/Kg	☼	5.03	289-16-7	02/25/21 15:34	02/26/21 19:34	5
Phthalic anhydride	1900	T J N	ug/Kg	☼	6.32	85-44-9	02/25/21 15:34	02/26/21 19:34	5
1,2,4,5-Tetrathiane	4600	T J N	ug/Kg	☼	6.78	291-22-5	02/25/21 15:34	02/26/21 19:34	5
Naphthalene, 2,3-dichloro-	3300	T J N	ug/Kg	☼	7.65	2050-75-1	02/25/21 15:34	02/26/21 19:34	5
Naphthalene, 2,3,6-trichloro-	5400	T J N	ug/Kg	☼	8.43	55720-40-6	02/25/21 15:34	02/26/21 19:34	5
Unknown	1600	T J	ug/Kg	☼	9.03		02/25/21 15:34	02/26/21 19:34	5
Phenol, 2-[(4-hydroxyphenyl)methyl]-	3700	T J N	ug/Kg	☼	9.44	2467-03-0	02/25/21 15:34	02/26/21 19:34	5
Phenol, 4,4'-methylenebis-	5500	T J N	ug/Kg	☼	9.69	620-92-8	02/25/21 15:34	02/26/21 19:34	5
Unknown	1900	T J	ug/Kg	☼	10.69		02/25/21 15:34	02/26/21 19:34	5
Unknown	2000	T J	ug/Kg	☼	10.92		02/25/21 15:34	02/26/21 19:34	5
Hexadecane	1700	T J N	ug/Kg	☼	13.96	544-76-3	02/25/21 15:34	02/26/21 19:34	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	9	S1-	10 - 123	02/25/21 15:34	02/26/21 19:34	5
2-Fluorobiphenyl	15		14 - 103	02/25/21 15:34	02/26/21 19:34	5
2-Fluorophenol (Surr)	25		10 - 105	02/25/21 15:34	02/26/21 19:34	5
Nitrobenzene-d5 (Surr)	20		11 - 104	02/25/21 15:34	02/26/21 19:34	5
Phenol-d5 (Surr)	32		15 - 100	02/25/21 15:34	02/26/21 19:34	5
Terphenyl-d14 (Surr)	1	S1-	12 - 126	02/25/21 15:34	02/26/21 19:34	5

Method: 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000055	mg/L		02/26/21 09:07	03/01/21 11:47	1
Endrin	ND		0.00050	0.0000040	mg/L		02/26/21 09:07	03/01/21 11:47	1
gamma-BHC (Lindane)	ND		0.00050	0.000012	mg/L		02/26/21 09:07	03/01/21 11:47	1
Heptachlor	ND		0.00050	0.0000030	mg/L		02/26/21 09:07	03/01/21 11:47	1
Heptachlor epoxide	ND		0.00050	0.0000050	mg/L		02/26/21 09:07	03/01/21 11:47	1
Methoxychlor	ND		0.00050	0.0000040	mg/L		02/26/21 09:07	03/01/21 11:47	1
Toxaphene	ND		0.0050	0.00011	mg/L		02/26/21 09:07	03/01/21 11:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	51		10 - 150	02/26/21 09:07	03/01/21 11:47	1
DCB Decachlorobiphenyl	53		10 - 150	02/26/21 09:07	03/01/21 11:47	1
Tetrachloro-m-xylene	41		10 - 150	02/26/21 09:07	03/01/21 11:47	1
Tetrachloro-m-xylene	46		10 - 150	02/26/21 09:07	03/01/21 11:47	1

Method: 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		1.0	0.38	mg/L		02/26/21 12:27	02/26/21 17:52	5
Antimony	**2.4**		0.10	0.019	mg/L		02/26/21 12:27	02/26/21 17:52	5
Arsenic	ND		0.075	0.017	mg/L		02/26/21 12:27	02/26/21 17:52	5
Barium	**0.47**	**J**	1.0	0.066	mg/L		02/26/21 12:27	02/26/21 17:52	5
Beryllium	ND		0.010	0.00085	mg/L		02/26/21 12:27	02/26/21 17:52	5
Cadmium	ND		0.020	0.0016	mg/L		02/26/21 12:27	02/26/21 17:52	5
Calcium	**776**		25.0	0.76	mg/L		02/26/21 12:27	02/26/21 17:52	5
Chromium	ND		0.050	0.025	mg/L		02/26/21 12:27	02/26/21 17:52	5
Cobalt	ND		0.25	0.010	mg/L		02/26/21 12:27	02/26/21 17:52	5
Copper	**0.059**	**J**	0.13	0.035	mg/L		02/26/21 12:27	02/26/21 17:52	5
Iron	ND		0.75	0.40	mg/L		02/26/21 12:27	02/26/21 17:52	5

Client Sample ID: N: 10% P.C., PAC, surf

Lab Sample ID: 460-228664-5
Date Collected: 02/18/21 11:00
Matrix: Solid
Date Received: 02/24/21 17:00
Percent Solids: 86.6

Method: 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.050	0.012	mg/L		02/26/21 12:27	02/26/21 17:52	5
Magnesium	**14.5**	**J**	25.0	0.71	mg/L		02/26/21 12:27	02/26/21 17:52	5
Manganese	ND		0.075	0.0038	mg/L		02/26/21 12:27	02/26/21 17:52	5
Nickel	ND		0.20	0.021	mg/L		02/26/21 12:27	02/26/21 17:52	5
Potassium	**13.3**	**J B**	25.0	0.71	mg/L		02/26/21 12:27	02/26/21 17:52	5
Selenium	ND		0.10	0.029	mg/L		02/26/21 12:27	02/26/21 17:52	5
Silver	ND		0.050	0.029	mg/L		02/26/21 12:27	02/26/21 17:52	5
Thallium	ND		0.10	0.021	mg/L		02/26/21 12:27	02/26/21 17:52	5
Vanadium	**0.047**	**J**	0.25	0.036	mg/L		02/26/21 12:27	02/26/21 17:52	5
Zinc	**0.0094**	**J B**	0.15	0.0061	mg/L		02/26/21 12:27	02/26/21 17:52	5

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		02/26/21 12:17	02/26/21 15:36	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.7**	**HF**	0.1	0.1	SU			03/08/21 14:12	1
Temperature	**21.1**	**HF**	0.1	0.1	Degrees C			03/08/21 14:12	1
Corrosivity	**11.7**	**HF**	0.1	0.1	SU			03/08/21 14:12	1
Percent Moisture	**13.4**		1.0	1.0	%			02/25/21 09:07	1
Percent Solids	**86.6**		1.0	1.0	%			02/25/21 09:07	1

Client Sample ID: N: 10% P.C., OC

Lab Sample ID: 460-228664-6
Date Collected: 02/18/21 12:30
Matrix: Solid
Date Received: 02/24/21 17:00
Percent Solids: 86.9

Method: 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.010	0.0026	mg/L			02/27/21 21:45	10
1,2-Dichloroethane	ND		0.010	0.0043	mg/L			02/27/21 21:45	10
2-Butanone (MEK)	ND		0.050	0.019	mg/L			02/27/21 21:45	10
Benzene	ND		0.010	0.0020	mg/L			02/27/21 21:45	10
Carbon tetrachloride	ND		0.010	0.0021	mg/L			02/27/21 21:45	10
Chlorobenzene	ND		0.010	0.0038	mg/L			02/27/21 21:45	10
Chloroform	ND		0.010	0.0033	mg/L			02/27/21 21:45	10
Tetrachloroethene	ND		0.010	0.0025	mg/L			02/27/21 21:45	10
Trichloroethene	ND		0.010	0.0031	mg/L			02/27/21 21:45	10
Vinyl chloride	**0.0053**	**J**	0.010	0.0017	mg/L			02/27/21 21:45	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*75 - 123*		*02/27/21 21:45*	*10*
Dibromofluoromethane (Surr)	*106*		*77 - 124*		*02/27/21 21:45*	*10*
Toluene-d8 (Surr)	*87*		*80 - 120*		*02/27/21 21:45*	*10*
4-Bromofluorobenzene	*98*		*76 - 120*		*02/27/21 21:45*	*10*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-Trichlorophenol	ND		760	78	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
2,4,6-Trichlorophenol	ND		310	98	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
2,4-Dichlorophenol	ND		310	49	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2

Client Sample ID: N: 10% P.C., OC
Date Collected: 02/18/21 12:30
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-6
Matrix: Solid
Percent Solids: 86.9

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dimethylphenol	ND		760	33	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
2,4-Dinitrophenol	ND		610	370	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
2,4-Dinitrotoluene	ND		150	82	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
2,6-Dinitrotoluene	ND		150	55	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
2-Chloronaphthalene	ND		760	35	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
2-Chlorophenol	ND		760	27	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
2-Methylnaphthalene	**35**	**J**	760	21	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
2-Methylphenol	**46**	**J**	760	28	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
2-Nitroaniline	ND		760	28	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
2-Nitrophenol	ND		760	76	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
3,3'-Dichlorobenzidine	ND		310	110	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
3-Nitroaniline	ND		760	86	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
4,6-Dinitro-2-methylphenol	ND		610	310	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
4-Bromophenyl phenyl ether	ND		760	30	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
4-Chloro-3-methylphenol	ND		760	43	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
4-Chloroaniline	ND		760	140	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
4-Chlorophenyl phenyl ether	ND		760	27	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
4-Methylphenol	**100**	**J**	760	48	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
4-Nitroaniline	ND		760	87	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
4-Nitrophenol	ND		1500	120	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Acenaphthene	ND		760	22	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Acenaphthylene	ND		760	7.7	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Acetophenone	**39**	**J**	760	37	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Anthracene	ND		760	23	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Atrazine	ND		310	45	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Benzaldehyde	ND		760	130	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Benzo[a]anthracene	ND		76	27	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Benzo[a]pyrene	ND		76	20	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Benzo[b]fluoranthene	**21**	**J**	76	20	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Benzo[g,h,i]perylene	ND		760	22	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Benzo[k]fluoranthene	ND		76	15	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Biphenyl	ND		760	10	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
bis (2-chloroisopropyl) ether	ND		760	14	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Bis(2-chloroethoxy)methane	ND		760	59	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Bis(2-chloroethyl)ether	ND		76	27	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Bis(2-ethylhexyl) phthalate	**120**	**J**	760	40	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Butyl benzyl phthalate	ND		760	36	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Caprolactam	ND		760	120	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Carbazole	ND		760	29	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Chrysene	ND		760	13	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Dibenz(a,h)anthracene	ND		76	33	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Dibenzofuran	ND		760	11	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Diethyl phthalate	ND		760	11	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Dimethyl phthalate	ND		760	170	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Di-n-butyl phthalate	**8300**		760	29	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Di-n-octyl phthalate	ND		760	40	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Fluoranthene	ND		760	27	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Fluorene	ND		760	10	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Hexachlorobenzene	ND		76	36	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2

Client Sample ID: N: 10% P.C., OC
Date Collected: 02/18/21 12:30
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-6
Matrix: Solid
Percent Solids: 86.9

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorobutadiene	ND		150	16	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Hexachlorocyclopentadiene	ND		760	67	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Hexachloroethane	ND		76	26	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Indeno[1,2,3-cd]pyrene	ND		76	30	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Isophorone	ND		310	220	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Naphthalene	**290**	**J**	760	13	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Nitrobenzene	ND		76	18	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
N-Nitrosodi-n-propylamine	ND		76	55	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
N-Nitrosodiphenylamine	**610**	**J**	760	63	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Pentachlorophenol	ND		610	160	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Phenanthrene	**26**	**J**	760	13	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Phenol	**1100**		760	28	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2
Pyrene	ND		760	19	ug/Kg	☼	02/25/21 15:34	02/27/21 06:27	2

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Unknown	*68000*	*T J*	*ug/Kg*	☼	*2.29*		*02/25/21 15:34*	*02/27/21 06:27*	*2*
Aldol condensation product	*320000*	*T A J*	*ug/Kg*	☼	*2.75*		*02/25/21 15:34*	*02/27/21 06:27*	*2*
Naphthalene, 1,5-dichloro-	*9900*	*T J N*	*ug/Kg*	☼	*7.53*	*1825-30-5*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
1-Tetradecanamine, N,N-dimethyl-	*6000*	*T J N*	*ug/Kg*	☼	*8.04*	*112-75-4*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
Naphthalene, 2,3,6-trichloro-	*18000*	*T J N*	*ug/Kg*	☼	*8.31*	*55720-40-6*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
E-15-Heptadecenal	*7100*	*T J N*	*ug/Kg*	☼	*8.41*	*1000130-97-9*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
Tetradecane	*18000*	*T J N*	*ug/Kg*	☼	*8.80*	*629-59-4*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
1-Hexadecanamine, N,N-dimethyl-	*26000*	*T J N*	*ug/Kg*	☼	*8.88*	*112-69-6*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
1-Octadecanamine, N,N-dimethyl-	*93000*	*T J N*	*ug/Kg*	☼	*9.66*	*124-28-7*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
1,1'-Biphenyl, 2,2',3,4,4',5'-hexachloro-	*6400*	*T J N*	*ug/Kg*	☼	*10.16*	*35065-28-2*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
1,1'-Biphenyl, 3,3',4,4',5,5'-hexachloro-	*8300*	*T J N*	*ug/Kg*	☼	*10.25*	*32774-16-6*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
1,1'-Biphenyl, 2,2',4,4',5,5'-hexachloro-	*11000*	*T J N*	*ug/Kg*	☼	*10.44*	*35065-27-1*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
Unknown	*14000*	*T J*	*ug/Kg*	☼	*10.65*		*02/25/21 15:34*	*02/27/21 06:27*	*2*
2,2',3,3',4,5',6-Heptachlorobiphenyl	*13000*	*T J N*	*ug/Kg*	☼	*10.78*	*40186-70-7*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
1,1'-Biphenyl, 2,2',3,3',5,5',6-heptachloro-	*9400*	*T J N*	*ug/Kg*	☼	*10.98*	*52663-67-9*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
Unknown	*22000*	*T J*	*ug/Kg*	☼	*13.84*		*02/25/21 15:34*	*02/27/21 06:27*	*2*
Unknown	*15000*	*T J*	*ug/Kg*	☼	*15.64*		*02/25/21 15:34*	*02/27/21 06:27*	*2*
Unknown	*290000*	*T J*	*ug/Kg*	☼	*16.57*		*02/25/21 15:34*	*02/27/21 06:27*	*2*
Unknown	*6600*	*T J*	*ug/Kg*	☼	*17.13*		*02/25/21 15:34*	*02/27/21 06:27*	*2*
Unknown	*18000*	*T J*	*ug/Kg*	☼	*17.40*		*02/25/21 15:34*	*02/27/21 06:27*	*2*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*9*	*S1-*	*10 - 123*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
2-Fluorobiphenyl	*32*		*14 - 103*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
2-Fluorophenol (Surr)	*25*		*10 - 105*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
Nitrobenzene-d5 (Surr)	*18*		*11 - 104*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
Phenol-d5 (Surr)	*27*		*15 - 100*	*02/25/21 15:34*	*02/27/21 06:27*	*2*
Terphenyl-d14 (Surr)	*33*		*12 - 126*	*02/25/21 15:34*	*02/27/21 06:27*	*2*

Client Sample ID: N: 10% P.C., OC
Date Collected: 02/18/21 12:30
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-6
Matrix: Solid
Percent Solids: 86.9

Method: 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000055	mg/L		02/26/21 09:07	03/01/21 12:02	1
Endrin	ND		0.00050	0.0000040	mg/L		02/26/21 09:07	03/01/21 12:02	1
gamma-BHC (Lindane)	ND		0.00050	0.000012	mg/L		02/26/21 09:07	03/01/21 12:02	1
Heptachlor	ND		0.00050	0.0000030	mg/L		02/26/21 09:07	03/01/21 12:02	1
Heptachlor epoxide	ND		0.00050	0.0000050	mg/L		02/26/21 09:07	03/01/21 12:02	1
Methoxychlor	ND		0.00050	0.0000040	mg/L		02/26/21 09:07	03/01/21 12:02	1
Toxaphene	ND		0.0050	0.00011	mg/L		02/26/21 09:07	03/01/21 12:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*42*		*10 - 150*	*02/26/21 09:07*	*03/01/21 12:02*	*1*
DCB Decachlorobiphenyl	*50*		*10 - 150*	*02/26/21 09:07*	*03/01/21 12:02*	*1*
Tetrachloro-m-xylene	*48*		*10 - 150*	*02/26/21 09:07*	*03/01/21 12:02*	*1*
Tetrachloro-m-xylene	*58*		*10 - 150*	*02/26/21 09:07*	*03/01/21 12:02*	*1*

Method: 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		1.0	0.38	mg/L		02/26/21 12:27	02/26/21 17:56	5
Antimony	**1.4**		0.10	0.019	mg/L		02/26/21 12:27	02/26/21 17:56	5
Arsenic	ND		0.075	0.017	mg/L		02/26/21 12:27	02/26/21 17:56	5
Barium	**0.36**	**J**	1.0	0.066	mg/L		02/26/21 12:27	02/26/21 17:56	5
Beryllium	ND		0.010	0.00085	mg/L		02/26/21 12:27	02/26/21 17:56	5
Cadmium	ND		0.020	0.0016	mg/L		02/26/21 12:27	02/26/21 17:56	5
Calcium	**852**		25.0	0.76	mg/L		02/26/21 12:27	02/26/21 17:56	5
Chromium	**0.029**	**J**	0.050	0.025	mg/L		02/26/21 12:27	02/26/21 17:56	5
Cobalt	ND		0.25	0.010	mg/L		02/26/21 12:27	02/26/21 17:56	5
Copper	**0.14**		0.13	0.035	mg/L		02/26/21 12:27	02/26/21 17:56	5
Iron	ND		0.75	0.40	mg/L		02/26/21 12:27	02/26/21 17:56	5
Lead	ND		0.050	0.012	mg/L		02/26/21 12:27	02/26/21 17:56	5
Magnesium	**3.7**	**J**	25.0	0.71	mg/L		02/26/21 12:27	02/26/21 17:56	5
Manganese	ND		0.075	0.0038	mg/L		02/26/21 12:27	02/26/21 17:56	5
Nickel	ND		0.20	0.021	mg/L		02/26/21 12:27	02/26/21 17:56	5
Potassium	**14.7**	**J B**	25.0	0.71	mg/L		02/26/21 12:27	02/26/21 17:56	5
Selenium	ND		0.10	0.029	mg/L		02/26/21 12:27	02/26/21 17:56	5
Silver	ND		0.050	0.029	mg/L		02/26/21 12:27	02/26/21 17:56	5
Thallium	ND		0.10	0.021	mg/L		02/26/21 12:27	02/26/21 17:56	5
Vanadium	**0.080**	**J**	0.25	0.036	mg/L		02/26/21 12:27	02/26/21 17:56	5
Zinc	**0.0084**	**J B**	0.15	0.0061	mg/L		02/26/21 12:27	02/26/21 17:56	5

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		02/26/21 12:17	02/26/21 15:38	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.9**	**HF**	0.1	0.1	SU			03/08/21 14:13	1
Temperature	**21.1**	**HF**	0.1	0.1	Degrees C			03/08/21 14:13	1
Corrosivity	**11.9**	**HF**	0.1	0.1	SU			03/08/21 14:13	1
Percent Moisture	**13.1**		1.0	1.0	%			02/25/21 09:07	1
Percent Solids	**86.9**		1.0	1.0	%			02/25/21 09:07	1

Client: ERM-Northeast
Project/Site: TRW - Union Springs

Job ID: 460-228664-1

Client Sample ID: S: 10% P.C., OC, surf
Date Collected: 02/18/21 16:00
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-7
Matrix: Solid
Percent Solids: 78.1

Method: 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.010	0.0026	mg/L			02/27/21 22:08	10
1,2-Dichloroethane	ND		0.010	0.0043	mg/L			02/27/21 22:08	10
2-Butanone (MEK)	ND		0.050	0.019	mg/L			02/27/21 22:08	10
Benzene	ND		0.010	0.0020	mg/L			02/27/21 22:08	10
Carbon tetrachloride	ND		0.010	0.0021	mg/L			02/27/21 22:08	10
Chlorobenzene	ND		0.010	0.0038	mg/L			02/27/21 22:08	10
Chloroform	ND		0.010	0.0033	mg/L			02/27/21 22:08	10
Tetrachloroethene	ND		0.010	0.0025	mg/L			02/27/21 22:08	10
Trichloroethene	**0.0054**	**J**	0.010	0.0031	mg/L			02/27/21 22:08	10
Vinyl chloride	**0.0068**	**J**	0.010	0.0017	mg/L			02/27/21 22:08	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 123*		*02/27/21 22:08*	*10*
Dibromofluoromethane (Surr)	*106*		*77 - 124*		*02/27/21 22:08*	*10*
Toluene-d8 (Surr)	*93*		*80 - 120*		*02/27/21 22:08*	*10*
4-Bromofluorobenzene	*102*		*76 - 120*		*02/27/21 22:08*	*10*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-Trichlorophenol	ND		8500	860	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
2,4,6-Trichlorophenol	ND		3400	1100	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
2,4-Dichlorophenol	ND		3400	540	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
2,4-Dimethylphenol	ND		8500	370	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
2,4-Dinitrophenol	ND		6800	4200	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
2,4-Dinitrotoluene	ND		1700	910	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
2,6-Dinitrotoluene	ND		1700	610	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
2-Chloronaphthalene	ND		8500	390	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
2-Chlorophenol	ND		8500	300	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
2-Methylnaphthalene	ND		8500	240	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
2-Methylphenol	ND		8500	320	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
2-Nitroaniline	ND		8500	320	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
2-Nitrophenol	ND		8500	850	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
3,3'-Dichlorobenzidine	ND		3400	1300	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
3-Nitroaniline	ND		8500	950	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
4,6-Dinitro-2-methylphenol	ND		6800	3500	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
4-Bromophenyl phenyl ether	ND		8500	340	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
4-Chloro-3-methylphenol	ND		8500	480	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
4-Chloroaniline	ND		8500	1500	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
4-Chlorophenyl phenyl ether	ND		8500	300	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
4-Methylphenol	ND		8500	530	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
4-Nitroaniline	ND		8500	970	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
4-Nitrophenol	ND		17000	1400	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Acenaphthene	ND		8500	240	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Acenaphthylene	ND		8500	85	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Acetophenone	ND		8500	420	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Anthracene	ND		8500	260	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Atrazine	ND		3400	500	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Benzaldehyde	ND		8500	1400	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Benzo[a]anthracene	ND		850	300	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Benzo[a]pyrene	ND		850	230	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20

Client Sample ID: S: 10% P.C., OC, surf
Date Collected: 02/18/21 16:00
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-7
Matrix: Solid
Percent Solids: 78.1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND		850	220	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Benzo[g,h,i]perylene	ND		8500	250	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Benzo[k]fluoranthene	ND		850	170	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Biphenyl	ND		8500	110	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
bis (2-chloroisopropyl) ether	ND		8500	150	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Bis(2-chloroethoxy)methane	ND		8500	660	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Bis(2-chloroethyl)ether	ND		850	290	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Bis(2-ethylhexyl) phthalate	ND		8500	450	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Butyl benzyl phthalate	ND		8500	400	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Caprolactam	ND		8500	1300	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Carbazole	ND		8500	320	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Chrysene	ND		8500	140	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Dibenz(a,h)anthracene	ND		850	370	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Dibenzofuran	ND		8500	120	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Diethyl phthalate	ND		8500	120	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Dimethyl phthalate	ND		8500	1900	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Di-n-butyl phthalate	ND		8500	320	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Di-n-octyl phthalate	ND		8500	450	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Fluoranthene	ND		8500	300	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Fluorene	ND		8500	110	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Hexachlorobenzene	ND		850	400	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Hexachlorobutadiene	ND		1700	180	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Hexachlorocyclopentadiene	ND		8500	740	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Hexachloroethane	ND		850	290	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Indeno[1,2,3-cd]pyrene	ND		850	330	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Isophorone	ND		3400	2400	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Naphthalene	**44000**		8500	150	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Nitrobenzene	ND		850	200	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
N-Nitrosodi-n-propylamine	ND		850	620	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
N-Nitrosodiphenylamine	ND		8500	700	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Pentachlorophenol	ND		6800	1700	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Phenanthrene	ND		8500	150	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Phenol	ND		8500	310	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20
Pyrene	ND		8500	210	ug/Kg	☼	02/25/21 15:34	02/27/21 07:14	20

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Aldol condensation product	*330000*	*T A J*	*ug/Kg*	☼	*2.65*		*02/25/21 15:34*	*02/27/21 07:14*	*20*
Naphthalene, 1-chloro-	*78000*	*T J N*	*ug/Kg*	☼	*6.60*	*90-13-1*	*02/25/21 15:34*	*02/27/21 07:14*	*20*
Naphthalene, 1,5-dichloro-	*190000*	*T J N*	*ug/Kg*	☼	*7.53*	*1825-30-5*	*02/25/21 15:34*	*02/27/21 07:14*	*20*
Naphthalene, 2,3,6-trichloro-	*370000*	*T J N*	*ug/Kg*	☼	*8.31*	*55720-40-6*	*02/25/21 15:34*	*02/27/21 07:14*	*20*
Naphthalene, 1,3,7-trichloro-	*130000*	*T J N*	*ug/Kg*	☼	*8.64*	*55720-37-1*	*02/25/21 15:34*	*02/27/21 07:14*	*20*
1-Perchloroethenyl-4-ethynylbenzene	*35000*	*T J N*	*ug/Kg*	☼	*8.80*	*1000283-76-9*	*02/25/21 15:34*	*02/27/21 07:14*	*20*
1-Hexadecanamine, N,N-dimethyl-	*59000*	*T J N*	*ug/Kg*	☼	*8.88*	*112-69-6*	*02/25/21 15:34*	*02/27/21 07:14*	*20*
1,2-Benzenedicarbonitrile, 3,4,5,6-tetrachloro-	*86000*	*T J N*	*ug/Kg*	☼	*9.01*	*1953-99-7*	*02/25/21 15:34*	*02/27/21 07:14*	*20*
Tetrachloroisophthalonitrile	*63000*	*T J N*	*ug/Kg*	☼	*9.21*	*1897-45-6*	*02/25/21 15:34*	*02/27/21 07:14*	*20*
Tetrachloroterephthalonitrile	*62000*	*T J N*	*ug/Kg*	☼	*9.35*	*1897-41-2*	*02/25/21 15:34*	*02/27/21 07:14*	*20*
Naphthalene, 1,3,5,7-tetrachloro-	*96000*	*T J N*	*ug/Kg*	☼	*9.43*	*53555-64-9*	*02/25/21 15:34*	*02/27/21 07:14*	*20*
Naphthalene, 1,4,6,7-tetrachloro-	*100000*	*T J N*	*ug/Kg*	☼	*9.55*	*55720-43-9*	*02/25/21 15:34*	*02/27/21 07:14*	*20*

Client Sample ID: S: 10% P.C., OC, surf

Date Collected: 02/18/21 16:00
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-7

Matrix: Solid
Percent Solids: 78.1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Unknown	89000	T J	ug/Kg	☼	9.64		02/25/21 15:34	02/27/21 07:14	20
Unknown	20000	T J	ug/Kg	☼	10.07		02/25/21 15:34	02/27/21 07:14	20
Unknown	26000	T J	ug/Kg	☼	13.82		02/25/21 15:34	02/27/21 07:14	20
Unknown	140000	T J	ug/Kg	☼	14.95		02/25/21 15:34	02/27/21 07:14	20
Unknown	21000	T J	ug/Kg	☼	15.62		02/25/21 15:34	02/27/21 07:14	20
Unknown	360000	T J	ug/Kg	☼	16.45		02/25/21 15:34	02/27/21 07:14	20
Unknown	17000	T J	ug/Kg	☼	17.10		02/25/21 15:34	02/27/21 07:14	20
Unknown	23000	T J	ug/Kg	☼	17.35		02/25/21 15:34	02/27/21 07:14	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 123	02/25/21 15:34	02/27/21 07:14	20
2-Fluorobiphenyl	0	S1-	14 - 103	02/25/21 15:34	02/27/21 07:14	20
2-Fluorophenol (Surr)	0	S1-	10 - 105	02/25/21 15:34	02/27/21 07:14	20
Nitrobenzene-d5 (Surr)	0	S1-	11 - 104	02/25/21 15:34	02/27/21 07:14	20
Phenol-d5 (Surr)	0	S1-	15 - 100	02/25/21 15:34	02/27/21 07:14	20
Terphenyl-d14 (Surr)	0	S1-	12 - 126	02/25/21 15:34	02/27/21 07:14	20

Method: 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000055	mg/L		02/26/21 09:07	03/09/21 05:34	1
Endrin	ND		0.00050	0.0000040	mg/L		02/26/21 09:07	03/09/21 05:34	1
gamma-BHC (Lindane)	ND		0.00050	0.000012	mg/L		02/26/21 09:07	03/09/21 05:34	1
Heptachlor	ND		0.00050	0.0000030	mg/L		02/26/21 09:07	03/09/21 05:34	1
Heptachlor epoxide	ND		0.00050	0.0000050	mg/L		02/26/21 09:07	03/09/21 05:34	1
Methoxychlor	ND		0.00050	0.0000040	mg/L		02/26/21 09:07	03/09/21 05:34	1
Toxaphene	ND		0.0050	0.00011	mg/L		02/26/21 09:07	03/09/21 05:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	18	*3	10 - 150	02/26/21 09:07	03/09/21 05:34	1
DCB Decachlorobiphenyl	48		10 - 150	02/26/21 09:07	03/09/21 05:34	1
Tetrachloro-m-xylene	17	*3	10 - 150	02/26/21 09:07	03/09/21 05:34	1
Tetrachloro-m-xylene	59		10 - 150	02/26/21 09:07	03/09/21 05:34	1

Method: 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		1.0	0.38	mg/L		02/26/21 12:27	02/26/21 18:08	5
Antimony	**0.74**		0.10	0.019	mg/L		02/26/21 12:27	02/26/21 18:08	5
Arsenic	ND		0.075	0.017	mg/L		02/26/21 12:27	02/26/21 18:08	5
Barium	**0.30**	**J**	1.0	0.066	mg/L		02/26/21 12:27	02/26/21 18:08	5
Beryllium	ND		0.010	0.00085	mg/L		02/26/21 12:27	02/26/21 18:08	5
Cadmium	**0.0070**	**J**	0.020	0.0016	mg/L		02/26/21 12:27	02/26/21 18:08	5
Calcium	**742**		25.0	0.76	mg/L		02/26/21 12:27	02/26/21 18:08	5
Chromium	ND		0.050	0.025	mg/L		02/26/21 12:27	02/26/21 18:08	5
Cobalt	ND		0.25	0.010	mg/L		02/26/21 12:27	02/26/21 18:08	5
Copper	ND		0.13	0.035	mg/L		02/26/21 12:27	02/26/21 18:08	5
Iron	ND		0.75	0.40	mg/L		02/26/21 12:27	02/26/21 18:08	5
Lead	ND		0.050	0.012	mg/L		02/26/21 12:27	02/26/21 18:08	5
Magnesium	**24.6**	**J**	25.0	0.71	mg/L		02/26/21 12:27	02/26/21 18:08	5
Manganese	**0.20**		0.075	0.0038	mg/L		02/26/21 12:27	02/26/21 18:08	5
Nickel	ND		0.20	0.021	mg/L		02/26/21 12:27	02/26/21 18:08	5

Client Sample ID: S: 10% P.C., OC, surf

Lab Sample ID: 460-228664-7
Date Collected: 02/18/21 16:00
Matrix: Solid
Date Received: 02/24/21 17:00
Percent Solids: 78.1

Method: 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	**11.2**	**J B**	25.0	0.71	mg/L		02/26/21 12:27	02/26/21 18:08	5
Selenium	ND		0.10	0.029	mg/L		02/26/21 12:27	02/26/21 18:08	5
Silver	ND		0.050	0.029	mg/L		02/26/21 12:27	02/26/21 18:08	5
Thallium	ND		0.10	0.021	mg/L		02/26/21 12:27	02/26/21 18:08	5
Vanadium	ND		0.25	0.036	mg/L		02/26/21 12:27	02/26/21 18:08	5
Zinc	**0.015**	**J B**	0.15	0.0061	mg/L		02/26/21 12:27	02/26/21 18:08	5

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		02/26/21 12:17	02/26/21 15:40	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.5**	**HF**	0.1	0.1	SU			03/08/21 14:17	1
Temperature	**21.1**	**HF**	0.1	0.1	Degrees C			03/08/21 14:17	1
Corrosivity	**11.5**	**HF**	0.1	0.1	SU			03/08/21 14:17	1
Percent Moisture	**21.9**		1.0	1.0	%			02/25/21 09:07	1
Percent Solids	**78.1**		1.0	1.0	%			02/25/21 09:07	1

Client Sample ID: N: 3% P.C., PAC, surf

Lab Sample ID: 460-228664-8
Date Collected: 02/18/21 13:30
Matrix: Solid
Date Received: 02/24/21 17:00

Method: 8260D - Volatile Organic Compounds by GC/MS - SPLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	**0.0032**		0.0010	0.00017	mg/L			02/28/21 18:43	1
1,1-Dichloroethene	ND		0.0010	0.00026	mg/L			02/28/21 18:43	1
Chloroform	ND		0.0010	0.00033	mg/L			02/28/21 18:43	1
1,2-Dichloroethane	ND		0.0010	0.00043	mg/L			02/28/21 18:43	1
2-Butanone (MEK)	ND		0.0050	0.0019	mg/L			02/28/21 18:43	1
Carbon tetrachloride	ND		0.0010	0.00021	mg/L			02/28/21 18:43	1
Trichloroethene	ND		0.0010	0.00031	mg/L			02/28/21 18:43	1
Benzene	ND		0.0010	0.00020	mg/L			02/28/21 18:43	1
Tetrachloroethene	ND		0.0010	0.00025	mg/L			02/28/21 18:43	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			02/28/21 18:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 123*		*02/28/21 18:43*	*1*
Toluene-d8 (Surr)	*91*		*80 - 120*		*02/28/21 18:43*	*1*
Dibromofluoromethane (Surr)	*101*		*77 - 124*		*02/28/21 18:43*	*1*
4-Bromofluorobenzene	*100*		*76 - 120*		*02/28/21 18:43*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 12:32	1
Dichloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 12:32	1
Hexachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 12:32	1
Heptachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 12:32	1
Octachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 12:32	1
Pentachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 12:32	1
Tetrachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 12:32	1

Client Sample ID: N: 3% P.C., PAC, surf
Date Collected: 02/18/21 13:30
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-8
Matrix: Solid

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - SPLP East (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 12:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*86*		*30 - 123*	*03/04/21 19:38*	*03/05/21 12:32*	*1*
Nitrobenzene-d5	*97*		*33 - 139*	*03/04/21 19:38*	*03/05/21 12:32*	*1*
Terphenyl-d14	*82*		*42 - 150*	*03/04/21 19:38*	*03/05/21 12:32*	*1*

Method: 8081B - Organochlorine Pesticides (GC) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
gamma-BHC (Lindane)	ND		0.000020	0.000012	mg/L		02/27/21 14:44	03/01/21 13:00	1
Chlordane (technical)	ND		0.00050	0.000055	mg/L		02/27/21 14:44	03/01/21 13:00	1
Endrin	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/01/21 13:00	1
Heptachlor	ND		0.000020	0.0000030	mg/L		02/27/21 14:44	03/01/21 13:00	1
Heptachlor epoxide	ND		0.000020	0.0000050	mg/L		02/27/21 14:44	03/01/21 13:00	1
Methoxychlor	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/01/21 13:00	1
Toxaphene	ND		0.00050	0.00011	mg/L		02/27/21 14:44	03/01/21 13:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*75*		*10 - 150*	*02/27/21 14:44*	*03/01/21 13:00*	*1*
Tetrachloro-m-xylene	*83*		*10 - 150*	*02/27/21 14:44*	*03/01/21 13:00*	*1*
DCB Decachlorobiphenyl	*64*		*10 - 150*	*02/27/21 14:44*	*03/01/21 13:00*	*1*
DCB Decachlorobiphenyl	*65*		*10 - 150*	*02/27/21 14:44*	*03/01/21 13:00*	*1*

Method: 6010D - Metals (ICP) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3.0**		0.20	0.077	mg/L		03/01/21 11:32	03/03/21 18:23	1
Antimony	**0.79**		0.020	0.0037	mg/L		03/01/21 11:32	03/03/21 18:23	1
Arsenic	**0.0055**	**J**	0.015	0.0033	mg/L		03/01/21 11:32	03/03/21 18:23	1
Barium	**0.032**	**J**	0.20	0.013	mg/L		03/01/21 11:32	03/03/21 18:23	1
Beryllium	ND		0.0020	0.00017	mg/L		03/01/21 11:32	03/03/21 18:23	1
Cadmium	ND		0.0040	0.00033	mg/L		03/01/21 11:32	03/03/21 18:23	1
Calcium	**67.3**		5.0	0.15	mg/L		03/01/21 11:32	03/03/21 18:23	1
Chromium	ND		0.010	0.0050	mg/L		03/01/21 11:32	03/03/21 18:23	1
Cobalt	ND		0.050	0.0020	mg/L		03/01/21 11:32	03/03/21 18:23	1
Copper	**0.014**	**J**	0.025	0.0069	mg/L		03/01/21 11:32	03/03/21 18:23	1
Iron	**0.098**	**J**	0.15	0.081	mg/L		03/01/21 11:32	03/03/21 18:23	1
Lead	ND		0.010	0.0024	mg/L		03/01/21 11:32	03/03/21 18:23	1
Magnesium	ND		5.0	0.14	mg/L		03/01/21 11:32	03/03/21 18:23	1
Manganese	ND		0.015	0.00076	mg/L		03/01/21 11:32	03/03/21 18:23	1
Nickel	ND		0.040	0.0041	mg/L		03/01/21 11:32	03/03/21 18:23	1
Potassium	**1.4**	**J**	5.0	0.14	mg/L		03/01/21 11:32	03/03/21 18:23	1
Selenium	ND		0.020	0.0059	mg/L		03/01/21 11:32	03/03/21 18:23	1
Silver	ND		0.010	0.0058	mg/L		03/01/21 11:32	03/03/21 18:23	1
Sodium	**9.7**	**B**	5.0	0.084	mg/L		03/01/21 11:32	03/03/21 18:23	1
Thallium	ND		0.020	0.0041	mg/L		03/01/21 11:32	03/03/21 18:23	1
Vanadium	**0.061**		0.050	0.0072	mg/L		03/01/21 11:32	03/03/21 18:23	1
Zinc	**0.0029**	**J B**	0.030	0.0012	mg/L		03/01/21 11:32	03/03/21 18:23	1

Method: 7470A - Mercury (CVAA) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/02/21 12:08	03/02/21 15:40	1

Client Sample ID: N: 3% P.C., PAC, surf

Lab Sample ID: 460-228664-8

Date Collected: 02/18/21 13:30
Matrix: Solid
Date Received: 02/24/21 17:00

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**10.9**	**HF**	0.1	0.1	SU			03/08/21 14:18	1
Temperature	**21.7**	**HF**	0.1	0.1	Degrees C			03/08/21 14:18	1
Corrosivity	**10.9**	**HF**	0.1	0.1	SU			03/08/21 14:18	1
Percent Moisture	**33.4**		1.0	1.0	%			02/25/21 10:51	1
Percent Solids	**66.6**		1.0	1.0	%			02/25/21 10:51	1

Client Sample ID: N: 3% P.C., OC, surf

Lab Sample ID: 460-228664-9

Date Collected: 02/18/21 14:00
Matrix: Solid
Date Received: 02/24/21 17:00

Method: 8260D - Volatile Organic Compounds by GC/MS - SPLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	**0.013**		0.0010	0.00017	mg/L			02/28/21 19:05	1
1,1-Dichloroethene	ND		0.0010	0.00026	mg/L			02/28/21 19:05	1
Chloroform	ND		0.0010	0.00033	mg/L			02/28/21 19:05	1
1,2-Dichloroethane	ND		0.0010	0.00043	mg/L			02/28/21 19:05	1
2-Butanone (MEK)	ND		0.0050	0.0019	mg/L			02/28/21 19:05	1
Carbon tetrachloride	ND		0.0010	0.00021	mg/L			02/28/21 19:05	1
Trichloroethene	**0.0014**		0.0010	0.00031	mg/L			02/28/21 19:05	1
Benzene	ND		0.0010	0.00020	mg/L			02/28/21 19:05	1
Tetrachloroethene	ND		0.0010	0.00025	mg/L			02/28/21 19:05	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			02/28/21 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*111*		*75 - 123*		*02/28/21 19:05*	*1*
Toluene-d8 (Surr)	*91*		*80 - 120*		*02/28/21 19:05*	*1*
Dibromofluoromethane (Surr)	*106*		*77 - 124*		*02/28/21 19:05*	*1*
4-Bromofluorobenzene	*104*		*76 - 120*		*02/28/21 19:05*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:00	1
Dichloronaphthalene, Total	**3.7**		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:00	1
Hexachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:00	1
Heptachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:00	1
Octachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:00	1
Pentachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:00	1
Tetrachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:00	1
Trichloronaphthalene, Total	**2.8**		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*87*		*30 - 123*	*03/04/21 19:38*	*03/05/21 13:00*	*1*
Nitrobenzene-d5	*100*		*33 - 139*	*03/04/21 19:38*	*03/05/21 13:00*	*1*
Terphenyl-d14	*84*		*42 - 150*	*03/04/21 19:38*	*03/05/21 13:00*	*1*

Method: 8081B - Organochlorine Pesticides (GC) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
gamma-BHC (Lindane)	ND		0.000020	0.000012	mg/L		02/27/21 14:44	03/01/21 13:15	1
Chlordane (technical)	ND		0.00050	0.000055	mg/L		02/27/21 14:44	03/01/21 13:15	1
Endrin	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/01/21 13:15	1
Heptachlor	ND		0.000020	0.0000030	mg/L		02/27/21 14:44	03/01/21 13:15	1

Client Sample ID: N: 3% P.C., OC, surf
Date Collected: 02/18/21 14:00
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-9
Matrix: Solid

Method: 8081B - Organochlorine Pesticides (GC) - SPLP East (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlor epoxide	ND		0.000020	0.0000050	mg/L		02/27/21 14:44	03/01/21 13:15	1
Methoxychlor	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/01/21 13:15	1
Toxaphene	ND		0.00050	0.00011	mg/L		02/27/21 14:44	03/01/21 13:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*71*		*10 - 150*	*02/27/21 14:44*	*03/01/21 13:15*	*1*
Tetrachloro-m-xylene	*84*		*10 - 150*	*02/27/21 14:44*	*03/01/21 13:15*	*1*
DCB Decachlorobiphenyl	*64*		*10 - 150*	*02/27/21 14:44*	*03/01/21 13:15*	*1*
DCB Decachlorobiphenyl	*68*		*10 - 150*	*02/27/21 14:44*	*03/01/21 13:15*	*1*

Method: 6010D - Metals (ICP) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2.7**		0.20	0.077	mg/L		03/01/21 11:32	03/03/21 18:27	1
Antimony	**0.90**		0.020	0.0037	mg/L		03/01/21 11:32	03/03/21 18:27	1
Arsenic	ND		0.015	0.0033	mg/L		03/01/21 11:32	03/03/21 18:27	1
Barium	**0.041**	**J**	0.20	0.013	mg/L		03/01/21 11:32	03/03/21 18:27	1
Beryllium	ND		0.0020	0.00017	mg/L		03/01/21 11:32	03/03/21 18:27	1
Cadmium	ND		0.0040	0.00033	mg/L		03/01/21 11:32	03/03/21 18:27	1
Calcium	**80.1**		5.0	0.15	mg/L		03/01/21 11:32	03/03/21 18:27	1
Chromium	ND		0.010	0.0050	mg/L		03/01/21 11:32	03/03/21 18:27	1
Cobalt	ND		0.050	0.0020	mg/L		03/01/21 11:32	03/03/21 18:27	1
Copper	**0.059**		0.025	0.0069	mg/L		03/01/21 11:32	03/03/21 18:27	1
Iron	**0.43**		0.15	0.081	mg/L		03/01/21 11:32	03/03/21 18:27	1
Lead	ND		0.010	0.0024	mg/L		03/01/21 11:32	03/03/21 18:27	1
Magnesium	ND		5.0	0.14	mg/L		03/01/21 11:32	03/03/21 18:27	1
Manganese	ND		0.015	0.00076	mg/L		03/01/21 11:32	03/03/21 18:27	1
Nickel	**0.0083**	**J**	0.040	0.0041	mg/L		03/01/21 11:32	03/03/21 18:27	1
Potassium	**1.8**	**J**	5.0	0.14	mg/L		03/01/21 11:32	03/03/21 18:27	1
Selenium	ND		0.020	0.0059	mg/L		03/01/21 11:32	03/03/21 18:27	1
Silver	ND		0.010	0.0058	mg/L		03/01/21 11:32	03/03/21 18:27	1
Sodium	**30.0**	**B**	5.0	0.084	mg/L		03/01/21 11:32	03/03/21 18:27	1
Thallium	ND		0.020	0.0041	mg/L		03/01/21 11:32	03/03/21 18:27	1
Vanadium	**0.067**		0.050	0.0072	mg/L		03/01/21 11:32	03/03/21 18:27	1
Zinc	**0.0035**	**J B**	0.030	0.0012	mg/L		03/01/21 11:32	03/03/21 18:27	1

Method: 7470A - Mercury (CVAA) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/02/21 12:08	03/02/21 15:41	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**10.8**	**HF**	0.1	0.1	SU			03/08/21 14:21	1
Temperature	**21.1**	**HF**	0.1	0.1	Degrees C			03/08/21 14:21	1
Corrosivity	**10.8**	**HF**	0.1	0.1	SU			03/08/21 14:21	1
Percent Moisture	**31.6**		1.0	1.0	%			02/25/21 10:51	1
Percent Solids	**68.4**		1.0	1.0	%			02/25/21 10:51	1

Client: ERM-Northeast
Project/Site: TRW - Union Springs

Job ID: 460-228664-1

Client Sample ID: S: 3% P.C., PAC, surf

Date Collected: 02/18/21 14:20
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-10

Matrix: Solid

Method: 8260D - Volatile Organic Compounds by GC/MS - SPLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	**0.0031**		0.0010	0.00017	mg/L			02/28/21 19:28	1
1,1-Dichloroethene	ND		0.0010	0.00026	mg/L			02/28/21 19:28	1
Chloroform	ND		0.0010	0.00033	mg/L			02/28/21 19:28	1
1,2-Dichloroethane	ND		0.0010	0.00043	mg/L			02/28/21 19:28	1
2-Butanone (MEK)	ND		0.0050	0.0019	mg/L			02/28/21 19:28	1
Carbon tetrachloride	ND		0.0010	0.00021	mg/L			02/28/21 19:28	1
Trichloroethene	ND		0.0010	0.00031	mg/L			02/28/21 19:28	1
Benzene	ND		0.0010	0.00020	mg/L			02/28/21 19:28	1
Tetrachloroethene	ND		0.0010	0.00025	mg/L			02/28/21 19:28	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			02/28/21 19:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*75 - 123*		*02/28/21 19:28*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*02/28/21 19:28*	*1*
Dibromofluoromethane (Surr)	*112*		*77 - 124*		*02/28/21 19:28*	*1*
4-Bromofluorobenzene	*108*		*76 - 120*		*02/28/21 19:28*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:28	1
Dichloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:28	1
Hexachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:28	1
Heptachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:28	1
Octachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:28	1
Pentachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:28	1
Tetrachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:28	1
Trichloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*83*		*30 - 123*	*03/04/21 19:38*	*03/05/21 13:28*	*1*
Nitrobenzene-d5	*95*		*33 - 139*	*03/04/21 19:38*	*03/05/21 13:28*	*1*
Terphenyl-d14	*87*		*42 - 150*	*03/04/21 19:38*	*03/05/21 13:28*	*1*

Method: 8081B - Organochlorine Pesticides (GC) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
gamma-BHC (Lindane)	ND		0.000020	0.000012	mg/L		02/27/21 14:44	03/01/21 13:30	1
Chlordane (technical)	ND		0.00050	0.000055	mg/L		02/27/21 14:44	03/01/21 13:30	1
Endrin	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/01/21 13:30	1
Heptachlor	ND		0.000020	0.0000030	mg/L		02/27/21 14:44	03/01/21 13:30	1
Heptachlor epoxide	ND		0.000020	0.0000050	mg/L		02/27/21 14:44	03/01/21 13:30	1
Methoxychlor	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/01/21 13:30	1
Toxaphene	ND		0.00050	0.00011	mg/L		02/27/21 14:44	03/01/21 13:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*82*		*10 - 150*	*02/27/21 14:44*	*03/01/21 13:30*	*1*
Tetrachloro-m-xylene	*91*		*10 - 150*	*02/27/21 14:44*	*03/01/21 13:30*	*1*
DCB Decachlorobiphenyl	*87*		*10 - 150*	*02/27/21 14:44*	*03/01/21 13:30*	*1*
DCB Decachlorobiphenyl	*85*		*10 - 150*	*02/27/21 14:44*	*03/01/21 13:30*	*1*

Client Sample ID: S: 3% P.C., PAC, surf

Lab Sample ID: 460-228664-10

Date Collected: 02/18/21 14:20

Matrix: Solid

Date Received: 02/24/21 17:00

Method: 6010D - Metals (ICP) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2.4**		0.20	0.077	mg/L		03/01/21 11:32	03/03/21 18:31	1
Antimony	**0.18**		0.020	0.0037	mg/L		03/01/21 11:32	03/03/21 18:31	1
Arsenic	ND		0.015	0.0033	mg/L		03/01/21 11:32	03/03/21 18:31	1
Barium	**0.038**	**J**	0.20	0.013	mg/L		03/01/21 11:32	03/03/21 18:31	1
Beryllium	ND		0.0020	0.00017	mg/L		03/01/21 11:32	03/03/21 18:31	1
Cadmium	ND		0.0040	0.00033	mg/L		03/01/21 11:32	03/03/21 18:31	1
Calcium	**75.9**		5.0	0.15	mg/L		03/01/21 11:32	03/03/21 18:31	1
Chromium	ND		0.010	0.0050	mg/L		03/01/21 11:32	03/03/21 18:31	1
Cobalt	ND		0.050	0.0020	mg/L		03/01/21 11:32	03/03/21 18:31	1
Copper	ND		0.025	0.0069	mg/L		03/01/21 11:32	03/03/21 18:31	1
Iron	**0.15**		0.15	0.081	mg/L		03/01/21 11:32	03/03/21 18:31	1
Lead	ND		0.010	0.0024	mg/L		03/01/21 11:32	03/03/21 18:31	1
Magnesium	ND		5.0	0.14	mg/L		03/01/21 11:32	03/03/21 18:31	1
Manganese	ND		0.015	0.00076	mg/L		03/01/21 11:32	03/03/21 18:31	1
Nickel	ND		0.040	0.0041	mg/L		03/01/21 11:32	03/03/21 18:31	1
Potassium	**1.9**	**J**	5.0	0.14	mg/L		03/01/21 11:32	03/03/21 18:31	1
Selenium	ND		0.020	0.0059	mg/L		03/01/21 11:32	03/03/21 18:31	1
Silver	ND		0.010	0.0058	mg/L		03/01/21 11:32	03/03/21 18:31	1
Sodium	**8.7**	**B**	5.0	0.084	mg/L		03/01/21 11:32	03/03/21 18:31	1
Thallium	ND		0.020	0.0041	mg/L		03/01/21 11:32	03/03/21 18:31	1
Vanadium	**0.014**	**J**	0.050	0.0072	mg/L		03/01/21 11:32	03/03/21 18:31	1
Zinc	**0.0033**	**J B**	0.030	0.0012	mg/L		03/01/21 11:32	03/03/21 18:31	1

Method: 7470A - Mercury (CVAA) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/02/21 12:08	03/02/21 15:43	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**10.4**	**HF**	0.1	0.1	SU			03/08/21 14:22	1
Temperature	**21.1**	**HF**	0.1	0.1	Degrees C			03/08/21 14:22	1
Corrosivity	**10.4**	**HF**	0.1	0.1	SU			03/08/21 14:22	1
Percent Moisture	**26.1**		1.0	1.0	%			02/25/21 10:51	1
Percent Solids	**73.9**		1.0	1.0	%			02/25/21 10:51	1

Client Sample ID: S: 3% P.C., OC, surf

Lab Sample ID: 460-228664-11

Date Collected: 02/18/21 14:40

Matrix: Solid

Date Received: 02/24/21 17:00

Method: 8260D - Volatile Organic Compounds by GC/MS - SPLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	**0.024**		0.0010	0.00017	mg/L			02/28/21 19:50	1
1,1-Dichloroethene	ND		0.0010	0.00026	mg/L			02/28/21 19:50	1
Chloroform	ND		0.0010	0.00033	mg/L			02/28/21 19:50	1
1,2-Dichloroethane	ND		0.0010	0.00043	mg/L			02/28/21 19:50	1
2-Butanone (MEK)	ND		0.0050	0.0019	mg/L			02/28/21 19:50	1
Carbon tetrachloride	ND		0.0010	0.00021	mg/L			02/28/21 19:50	1
Trichloroethene	**0.010**		0.0010	0.00031	mg/L			02/28/21 19:50	1
Benzene	ND		0.0010	0.00020	mg/L			02/28/21 19:50	1
Tetrachloroethene	ND		0.0010	0.00025	mg/L			02/28/21 19:50	1

Client Sample ID: S: 3% P.C., OC, surf
Date Collected: 02/18/21 14:40
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-11
Matrix: Solid

Method: 8260D - Volatile Organic Compounds by GC/MS - SPLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	0.00054	J	0.0010	0.00038	mg/L			02/28/21 19:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*75 - 123*		*02/28/21 19:50*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*02/28/21 19:50*	*1*
Dibromofluoromethane (Surr)	*107*		*77 - 124*		*02/28/21 19:50*	*1*
4-Bromofluorobenzene	*103*		*76 - 120*		*02/28/21 19:50*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	60		13	6.6	ug/L		03/04/21 19:38	03/05/21 15:20	5
Dichloronaphthalene, Total	64		13	6.6	ug/L		03/04/21 19:38	03/05/21 15:20	5
Hexachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:56	1
Heptachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:56	1
Octachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:56	1
Pentachloronaphthalene, Total	ND		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:56	1
Tetrachloronaphthalene, Total	3.6		2.7	1.3	ug/L		03/04/21 19:38	03/05/21 13:56	1
Trichloronaphthalene, Total	40		13	6.6	ug/L		03/04/21 19:38	03/05/21 15:20	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*89*		*30 - 123*	*03/04/21 19:38*	*03/05/21 13:56*	*1*
2-Fluorobiphenyl	*97*		*30 - 123*	*03/04/21 19:38*	*03/05/21 15:20*	*5*
Nitrobenzene-d5	*93*		*33 - 139*	*03/04/21 19:38*	*03/05/21 13:56*	*1*
Nitrobenzene-d5	*102*		*33 - 139*	*03/04/21 19:38*	*03/05/21 15:20*	*5*
Terphenyl-d14	*90*		*42 - 150*	*03/04/21 19:38*	*03/05/21 13:56*	*1*
Terphenyl-d14	*92*		*42 - 150*	*03/04/21 19:38*	*03/05/21 15:20*	*5*

Method: 8081B - Organochlorine Pesticides (GC) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
gamma-BHC (Lindane)	ND		0.000020	0.000012	mg/L		02/27/21 14:44	03/09/21 05:46	1
Chlordane (technical)	ND		0.00050	0.000055	mg/L		02/27/21 14:44	03/09/21 05:46	1
Endrin	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/09/21 05:46	1
Heptachlor	ND		0.000020	0.0000030	mg/L		02/27/21 14:44	03/09/21 05:46	1
Heptachlor epoxide	ND		0.000020	0.0000050	mg/L		02/27/21 14:44	03/09/21 05:46	1
Methoxychlor	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/09/21 05:46	1
Toxaphene	ND		0.00050	0.00011	mg/L		02/27/21 14:44	03/09/21 05:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*17*	*3	*10 - 150*	*02/27/21 14:44*	*03/09/21 05:46*	*1*
Tetrachloro-m-xylene	*102*		*10 - 150*	*02/27/21 14:44*	*03/09/21 05:46*	*1*
DCB Decachlorobiphenyl	*17*	*3	*10 - 150*	*02/27/21 14:44*	*03/09/21 05:46*	*1*
DCB Decachlorobiphenyl	*76*		*10 - 150*	*02/27/21 14:44*	*03/09/21 05:46*	*1*

Method: 6010D - Metals (ICP) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	4.3		0.20	0.077	mg/L		03/01/21 11:32	03/03/21 18:35	1
Antimony	0.44		0.020	0.0037	mg/L		03/01/21 11:32	03/03/21 18:35	1
Arsenic	ND		0.015	0.0033	mg/L		03/01/21 11:32	03/03/21 18:35	1
Barium	0.040	J	0.20	0.013	mg/L		03/01/21 11:32	03/03/21 18:35	1
Beryllium	ND		0.0020	0.00017	mg/L		03/01/21 11:32	03/03/21 18:35	1
Cadmium	ND		0.0040	0.00033	mg/L		03/01/21 11:32	03/03/21 18:35	1

Client: ERM-Northeast
Project/Site: TRW - Union Springs

Job ID: 460-228664-1

Client Sample ID: S: 3% P.C., OC, surf
Date Collected: 02/18/21 14:40
Date Received: 02/24/21 17:00

Lab Sample ID: 460-228664-11
Matrix: Solid

Method: 6010D - Metals (ICP) - SPLP East (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	70.4		5.0	0.15	mg/L		03/01/21 11:32	03/03/21 18:35	1
Chromium	ND		0.010	0.0050	mg/L		03/01/21 11:32	03/03/21 18:35	1
Cobalt	ND		0.050	0.0020	mg/L		03/01/21 11:32	03/03/21 18:35	1
Copper	0.021	J	0.025	0.0069	mg/L		03/01/21 11:32	03/03/21 18:35	1
Iron	0.56		0.15	0.081	mg/L		03/01/21 11:32	03/03/21 18:35	1
Lead	ND		0.010	0.0024	mg/L		03/01/21 11:32	03/03/21 18:35	1
Magnesium	0.17	J	5.0	0.14	mg/L		03/01/21 11:32	03/03/21 18:35	1
Manganese	ND		0.015	0.00076	mg/L		03/01/21 11:32	03/03/21 18:35	1
Nickel	0.0055	J	0.040	0.0041	mg/L		03/01/21 11:32	03/03/21 18:35	1
Potassium	2.3	J	5.0	0.14	mg/L		03/01/21 11:32	03/03/21 18:35	1
Selenium	ND		0.020	0.0059	mg/L		03/01/21 11:32	03/03/21 18:35	1
Silver	ND		0.010	0.0058	mg/L		03/01/21 11:32	03/03/21 18:35	1
Sodium	25.3	B	5.0	0.084	mg/L		03/01/21 11:32	03/03/21 18:35	1
Thallium	ND		0.020	0.0041	mg/L		03/01/21 11:32	03/03/21 18:35	1
Vanadium	0.010	J	0.050	0.0072	mg/L		03/01/21 11:32	03/03/21 18:35	1
Zinc	0.0030	J B	0.030	0.0012	mg/L		03/01/21 11:32	03/03/21 18:35	1

Method: 7470A - Mercury (CVAA) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/02/21 12:08	03/02/21 15:21	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	10.6	HF	0.1	0.1	SU			03/08/21 14:23	1
Temperature	22.0	HF	0.1	0.1	Degrees C			03/08/21 14:23	1
Corrosivity	10.6	HF	0.1	0.1	SU			03/08/21 14:23	1
Percent Moisture	35.2		1.0	1.0	%			02/25/21 10:51	1
Percent Solids	64.8		1.0	1.0	%			02/25/21 10:51	1

Surrogate Summary

Client: ERM-Northeast
Project/Site: TRW - Union Springs

Job ID: 460-228664-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	DBFM	BFB
Lab Sample ID	Client Sample ID	(75-123)	(80-120)	(77-124)	(76-120)
LCS 460-761351/5	Lab Control Sample	103	95	104	103
LCS 460-761449/5	Lab Control Sample	102	93	105	102
LCSD 460-761351/6	Lab Control Sample Dup	101	96	101	107
LCSD 460-761449/6	Lab Control Sample Dup	100	91	100	104
MB 460-761351/10	Method Blank	109	98	111	104
MB 460-761449/10	Method Blank	109	92	106	101

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(75-123)	(77-124)	(80-120)	(76-120)
460-228664-3	S: 10% P.C.	107	108	91	100
460-228664-4	S: 10% P.C., PAC	113	115	97	105
460-228664-5	N: 10% P.C., PAC, surf	106	105	93	105
460-228664-6	N: 10% P.C., OC	105	106	87	98
460-228664-7	S: 10% P.C., OC, surf	106	106	93	102
LB 460-761082/1-A	Method Blank	106	106	89	94

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid **Prep Type: SPLP**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	DBFM	BFB
Lab Sample ID	Client Sample ID	(75-123)	(80-120)	(77-124)	(76-120)
460-228664-1	N: Control	119	97	117	110
460-228664-2	S: Control	112	93	111	97
460-228664-8	N: 3% P.C., PAC, surf	104	91	101	100
460-228664-9	N: 3% P.C., OC, surf	111	91	106	104
460-228664-10	S: 3% P.C., PAC, surf	115	97	112	108
460-228664-11	S: 3% P.C., OC, surf	109	92	107	103
LB 460-761379/1-A	Method Blank	107	93	108	102

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene

Surrogate Summary

Client: ERM-Northeast
Job ID: 460-228664-1
Project/Site: TRW - Union Springs

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		FBP	NBZ	TPHL
Lab Sample ID	Client Sample ID	(30-123)	(33-139)	(42-150)
LCS 500-587348/2-A	Lab Control Sample	82	95	90
LCSD 500-587348/3-A	Lab Control Sample Dup	80	89	87
MB 500-587348/1-A	Method Blank	66	86	87

Surrogate Legend

FBP = 2-Fluorobiphenyl
NBZ = Nitrobenzene-d5
TPHL = Terphenyl-d14

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Solid **Prep Type: SPLP East**

		Percent Surrogate Recovery (Acceptance Limits)		
		FBP	NBZ	TPHL
Lab Sample ID	Client Sample ID	(30-123)	(33-139)	(42-150)
460-228664-1	N: Control	82	92	80
460-228664-2 - DL	S: Control	95	97	78
460-228664-2	S: Control	83	86	74
460-228664-8	N: 3% P.C., PAC, surf	86	97	82
460-228664-9	N: 3% P.C., OC, surf	87	100	84
460-228664-10	S: 3% P.C., PAC, surf	83	95	87
460-228664-11	S: 3% P.C., OC, surf	89	93	90
460-228664-11	S: 3% P.C., OC, surf	97	102	92
LB 500-587098/1-B	Method Blank	79	88	84

Surrogate Legend

FBP = 2-Fluorobiphenyl
NBZ = Nitrobenzene-d5
TPHL = Terphenyl-d14

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	PHL	TPHL
Lab Sample ID	Client Sample ID	(10-123)	(14-103)	(10-105)	(11-104)	(15-100)	(12-126)
460-228664-3	S: 10% P.C.	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
460-228664-4	S: 10% P.C., PAC	6 S1-	25	19	23	24	17
460-228664-5	N: 10% P.C., PAC, surf	9 S1-	15	25	20	32	1 S1-
460-228664-6	N: 10% P.C., OC	9 S1-	32	25	18	27	33
460-228664-7	S: 10% P.C., OC, surf	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
460-228674-A-3-A MS	Matrix Spike	54	56	54	54	55	64
460-228674-A-3-B MSD	Matrix Spike Duplicate	42	46	51	49	53	51
LCS 460-760984/2-A	Lab Control Sample	80	78	76	78	77	93
MB 460-760984/1-A	Method Blank	83	79	77	81	78	101

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)

Surrogate Summary

Client: ERM-Northeast
Job ID: 460-228664-1
Project/Site: TRW - Union Springs

TPHL = Terphenyl-d14 (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TCX1	TCX2	DCBP1	DCBP2
Lab Sample ID	Client Sample ID	(10-150)	(10-150)	(10-150)	(10-150)
LCS 460-761052/2-A	Lab Control Sample	77	73	83	76
LCS 460-761374/2-A	Lab Control Sample	68	69	69	63
LCSD 460-761052/3-A	Lab Control Sample Dup	77	73	84	85
LCSD 460-761374/3-A	Lab Control Sample Dup	72	74	76	64
MB 460-761052/1-A	Method Blank	79	76	95	92
MB 460-761374/1-A	Method Blank	73	72	58	48

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCBP = DCB Decachlorobiphenyl

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1	DCBP2	TCX1	TCX2
Lab Sample ID	Client Sample ID	(10-150)	(10-150)	(10-150)	(10-150)
460-228664-3	S: 10% P.C.	40	37	51	50
460-228664-4	S: 10% P.C., PAC	49	42	49	40
460-228664-5	N: 10% P.C., PAC, surf	53	51	46	41
460-228664-6	N: 10% P.C., OC	50	42	58	48
460-228664-7	S: 10% P.C., OC, surf	48	18 *3	59	17 *3
LB 460-761025/1-C	Method Blank	59	59	59	56

Surrogate Legend

DCBP = DCB Decachlorobiphenyl
TCX = Tetrachloro-m-xylene

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid **Prep Type: SPLP East**

		Percent Surrogate Recovery (Acceptance Limits)			
		TCX1	TCX2	DCBP1	DCBP2
Lab Sample ID	Client Sample ID	(10-150)	(10-150)	(10-150)	(10-150)
460-228664-1	N: Control	84	67	76	61
460-228664-2	S: Control	90	21 *3	71	36 *3
460-228664-8	N: 3% P.C., PAC, surf	83	75	65	64
460-228664-9	N: 3% P.C., OC, surf	84	71	68	64
460-228664-10	S: 3% P.C., PAC, surf	91	82	85	87
460-228664-11	S: 3% P.C., OC, surf	102	17 *3	76	17 *3
LB 460-761267/1-D	Method Blank	75	76	78	70

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCBP = DCB Decachlorobiphenyl

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 460-761351/10
Matrix: Solid
Analysis Batch: 761351

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.0010	0.00026	mg/L			02/27/21 14:36	1
1,2-Dichloroethane	ND		0.0010	0.00043	mg/L			02/27/21 14:36	1
2-Butanone (MEK)	ND		0.0050	0.0019	mg/L			02/27/21 14:36	1
Carbon tetrachloride	ND		0.0010	0.00021	mg/L			02/27/21 14:36	1
Chloroform	ND		0.0010	0.00033	mg/L			02/27/21 14:36	1
Benzene	ND		0.0010	0.00020	mg/L			02/27/21 14:36	1
Tetrachloroethene	ND		0.0010	0.00025	mg/L			02/27/21 14:36	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			02/27/21 14:36	1
Trichloroethene	ND		0.0010	0.00031	mg/L			02/27/21 14:36	1
Vinyl chloride	ND		0.0010	0.00017	mg/L			02/27/21 14:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*75 - 123*		*02/27/21 14:36*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*02/27/21 14:36*	*1*
Dibromofluoromethane (Surr)	*111*		*77 - 124*		*02/27/21 14:36*	*1*
4-Bromofluorobenzene	*104*		*76 - 120*		*02/27/21 14:36*	*1*

Lab Sample ID: LCS 460-761351/5
Matrix: Solid
Analysis Batch: 761351

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1-Dichloroethene			0.0200	0.0192		mg/L		96	68 - 133		
1,2-Dichloroethane			0.0200	0.0209		mg/L		104	75 - 121		
2-Butanone (MEK)			0.100	0.110		mg/L		110	69 - 128		
Carbon tetrachloride			0.0200	0.0204		mg/L		102	56 - 131		
Chloroform			0.0200	0.0204		mg/L		102	78 - 125		
Benzene			0.0200	0.0183		mg/L		91	78 - 126		
Tetrachloroethene			0.0200	0.0214		mg/L		107	70 - 127		
Chlorobenzene			0.0200	0.0200		mg/L		100	80 - 119		
Trichloroethene			0.0200	0.0186		mg/L		93	71 - 121		
Vinyl chloride			0.0200	0.0162		mg/L		81	61 - 144		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 123*
Toluene-d8 (Surr)	*95*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*77 - 124*
4-Bromofluorobenzene	*103*		*76 - 120*

Lab Sample ID: LCSD 460-761351/6
Matrix: Solid
Analysis Batch: 761351

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene			0.0200	0.0187		mg/L		93	68 - 133	3	30
1,2-Dichloroethane			0.0200	0.0192		mg/L		96	75 - 121	8	30
2-Butanone (MEK)			0.100	0.0949		mg/L		95	69 - 128	15	30
Carbon tetrachloride			0.0200	0.0202		mg/L		101	56 - 131	1	30

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 460-761351/6
Matrix: Solid
Analysis Batch: 761351

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloroform			0.0200	0.0192		mg/L		96	78 - 125	6	30
Benzene			0.0200	0.0176		mg/L		88	78 - 126	4	30
Tetrachloroethene			0.0200	0.0199		mg/L		100	70 - 127	7	30
Chlorobenzene			0.0200	0.0192		mg/L		96	80 - 119	4	30
Trichloroethene			0.0200	0.0185		mg/L		92	71 - 121	1	30
Vinyl chloride			0.0200	0.0153		mg/L		76	61 - 144	6	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 123*
Toluene-d8 (Surr)	*96*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*77 - 124*
4-Bromofluorobenzene	*107*		*76 - 120*

Lab Sample ID: MB 460-761449/10
Matrix: Solid
Analysis Batch: 761449

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.0010	0.00026	mg/L			02/28/21 15:18	1
1,2-Dichloroethane	ND		0.0010	0.00043	mg/L			02/28/21 15:18	1
2-Butanone (MEK)	ND		0.0050	0.0019	mg/L			02/28/21 15:18	1
Carbon tetrachloride	ND		0.0010	0.00021	mg/L			02/28/21 15:18	1
Chloroform	ND		0.0010	0.00033	mg/L			02/28/21 15:18	1
Benzene	ND		0.0010	0.00020	mg/L			02/28/21 15:18	1
Tetrachloroethene	ND		0.0010	0.00025	mg/L			02/28/21 15:18	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			02/28/21 15:18	1
Trichloroethene	ND		0.0010	0.00031	mg/L			02/28/21 15:18	1
Vinyl chloride	ND		0.0010	0.00017	mg/L			02/28/21 15:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*75 - 123*		*02/28/21 15:18*	*1*
Toluene-d8 (Surr)	*92*		*80 - 120*		*02/28/21 15:18*	*1*
Dibromofluoromethane (Surr)	*106*		*77 - 124*		*02/28/21 15:18*	*1*
4-Bromofluorobenzene	*101*		*76 - 120*		*02/28/21 15:18*	*1*

Lab Sample ID: LCS 460-761449/5
Matrix: Solid
Analysis Batch: 761449

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene			0.0200	0.0194		mg/L		97	68 - 133
1,2-Dichloroethane			0.0200	0.0207		mg/L		103	75 - 121
2-Butanone (MEK)			0.100	0.105		mg/L		105	69 - 128
Carbon tetrachloride			0.0200	0.0216		mg/L		108	56 - 131
Chloroform			0.0200	0.0205		mg/L		103	78 - 125
Benzene			0.0200	0.0180		mg/L		90	78 - 126
Tetrachloroethene			0.0200	0.0205		mg/L		103	70 - 127
Chlorobenzene			0.0200	0.0198		mg/L		99	80 - 119

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 460-761449/5
Matrix: Solid
Analysis Batch: 761449

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Trichloroethene			0.0200	0.0187		mg/L		93	71 - 121		
Vinyl chloride			0.0200	0.0169		mg/L		84	61 - 144		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 123*
Toluene-d8 (Surr)	*93*		*80 - 120*
Dibromofluoromethane (Surr)	*105*		*77 - 124*
4-Bromofluorobenzene	*102*		*76 - 120*

Lab Sample ID: LCSD 460-761449/6
Matrix: Solid
Analysis Batch: 761449

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene			0.0200	0.0189		mg/L		95	68 - 133	2	30
1,2-Dichloroethane			0.0200	0.0197		mg/L		99	75 - 121	5	30
2-Butanone (MEK)			0.100	0.103		mg/L		103	69 - 128	2	30
Carbon tetrachloride			0.0200	0.0209		mg/L		105	56 - 131	3	30
Chloroform			0.0200	0.0203		mg/L		102	78 - 125	1	30
Benzene			0.0200	0.0180		mg/L		90	78 - 126	0	30
Tetrachloroethene			0.0200	0.0202		mg/L		101	70 - 127	2	30
Chlorobenzene			0.0200	0.0195		mg/L		97	80 - 119	2	30
Trichloroethene			0.0200	0.0189		mg/L		95	71 - 121	1	30
Vinyl chloride			0.0200	0.0164		mg/L		82	61 - 144	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 123*
Toluene-d8 (Surr)	*91*		*80 - 120*
Dibromofluoromethane (Surr)	*100*		*77 - 124*
4-Bromofluorobenzene	*104*		*76 - 120*

Lab Sample ID: LB 460-761082/1-A
Matrix: Solid
Analysis Batch: 761351

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.010	0.0026	mg/L			02/27/21 15:44	10
1,2-Dichloroethane	ND		0.010	0.0043	mg/L			02/27/21 15:44	10
2-Butanone (MEK)	ND		0.050	0.019	mg/L			02/27/21 15:44	10
Carbon tetrachloride	ND		0.010	0.0021	mg/L			02/27/21 15:44	10
Chloroform	ND		0.010	0.0033	mg/L			02/27/21 15:44	10
Benzene	ND		0.010	0.0020	mg/L			02/27/21 15:44	10
Tetrachloroethene	ND		0.010	0.0025	mg/L			02/27/21 15:44	10
Chlorobenzene	ND		0.010	0.0038	mg/L			02/27/21 15:44	10
Trichloroethene	ND		0.010	0.0031	mg/L			02/27/21 15:44	10
Vinyl chloride	ND		0.010	0.0017	mg/L			02/27/21 15:44	10

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LB 460-761082/1-A
Matrix: Solid
Analysis Batch: 761351

Client Sample ID: Method Blank
Prep Type: TCLP

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*106*		*75 - 123*		*02/27/21 15:44*	*10*
Toluene-d8 (Surr)	*89*		*80 - 120*		*02/27/21 15:44*	*10*
Dibromofluoromethane (Surr)	*106*		*77 - 124*		*02/27/21 15:44*	*10*
4-Bromofluorobenzene	*94*		*76 - 120*		*02/27/21 15:44*	*10*

Lab Sample ID: LB 460-761379/1-A
Matrix: Solid
Analysis Batch: 761449

Client Sample ID: Method Blank
Prep Type: SPLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.0010	0.00026	mg/L			02/28/21 16:49	1
1,2-Dichloroethane	ND		0.0010	0.00043	mg/L			02/28/21 16:49	1
2-Butanone (MEK)	ND		0.0050	0.0019	mg/L			02/28/21 16:49	1
Carbon tetrachloride	ND		0.0010	0.00021	mg/L			02/28/21 16:49	1
Chloroform	ND		0.0010	0.00033	mg/L			02/28/21 16:49	1
Benzene	ND		0.0010	0.00020	mg/L			02/28/21 16:49	1
Tetrachloroethene	ND		0.0010	0.00025	mg/L			02/28/21 16:49	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			02/28/21 16:49	1
Trichloroethene	ND		0.0010	0.00031	mg/L			02/28/21 16:49	1
Vinyl chloride	ND		0.0010	0.00017	mg/L			02/28/21 16:49	1

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*107*		*75 - 123*		*02/28/21 16:49*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*02/28/21 16:49*	*1*
Dibromofluoromethane (Surr)	*108*		*77 - 124*		*02/28/21 16:49*	*1*
4-Bromofluorobenzene	*102*		*76 - 120*		*02/28/21 16:49*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 500-587348/1-A
Matrix: Solid
Analysis Batch: 587404

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 587348

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.5	1.3	ug/L		03/04/21 19:38	03/05/21 10:40	1
Dichloronaphthalene, Total	ND		2.5	1.3	ug/L		03/04/21 19:38	03/05/21 10:40	1
Hexachloronaphthalene, Total	ND		2.5	1.3	ug/L		03/04/21 19:38	03/05/21 10:40	1
Heptachloronaphthalene, Total	ND		2.5	1.3	ug/L		03/04/21 19:38	03/05/21 10:40	1
Octachloronaphthalene, Total	ND		2.5	1.3	ug/L		03/04/21 19:38	03/05/21 10:40	1
Pentachloronaphthalene, Total	ND		2.5	1.3	ug/L		03/04/21 19:38	03/05/21 10:40	1
Tetrachloronaphthalene, Total	ND		2.5	1.3	ug/L		03/04/21 19:38	03/05/21 10:40	1
Trichloronaphthalene, Total	ND		2.5	1.3	ug/L		03/04/21 19:38	03/05/21 10:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	*66*		*30 - 123*	*03/04/21 19:38*	*03/05/21 10:40*	*1*
Nitrobenzene-d5	*86*		*33 - 139*	*03/04/21 19:38*	*03/05/21 10:40*	*1*
Terphenyl-d14	*87*		*42 - 150*	*03/04/21 19:38*	*03/05/21 10:40*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 500-587348/2-A
Matrix: Solid
Analysis Batch: 587404

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 587348

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Monochloronaphthalene, Total			10.0	7.11		ug/L		71	40 - 130		
Dichloronaphthalene, Total			10.0	7.25		ug/L		72	40 - 130		
Tetrachloronaphthalene, Total			10.0	7.78		ug/L		78	40 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*82*		*30 - 123*
Nitrobenzene-d5	*95*		*33 - 139*
Terphenyl-d14	*90*		*42 - 150*

Lab Sample ID: LCSD 500-587348/3-A
Matrix: Solid
Analysis Batch: 587404

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 587348

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Monochloronaphthalene, Total			10.0	7.25		ug/L		73	40 - 130	2	20
Dichloronaphthalene, Total			10.0	7.08		ug/L		71	40 - 130	2	20
Tetrachloronaphthalene, Total			10.0	7.69		ug/L		77	40 - 130	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*80*		*30 - 123*
Nitrobenzene-d5	*89*		*33 - 139*
Terphenyl-d14	*87*		*42 - 150*

Lab Sample ID: LB 500-587098/1-B
Matrix: Solid
Analysis Batch: 587404

Client Sample ID: Method Blank
Prep Type: SPLP East
Prep Batch: 587348

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.6	1.3	ug/L		03/04/21 19:38	03/05/21 11:08	1
Dichloronaphthalene, Total	ND		2.6	1.3	ug/L		03/04/21 19:38	03/05/21 11:08	1
Hexachloronaphthalene, Total	ND		2.6	1.3	ug/L		03/04/21 19:38	03/05/21 11:08	1
Heptachloronaphthalene, Total	ND		2.6	1.3	ug/L		03/04/21 19:38	03/05/21 11:08	1
Octachloronaphthalene, Total	ND		2.6	1.3	ug/L		03/04/21 19:38	03/05/21 11:08	1
Pentachloronaphthalene, Total	ND		2.6	1.3	ug/L		03/04/21 19:38	03/05/21 11:08	1
Tetrachloronaphthalene, Total	ND		2.6	1.3	ug/L		03/04/21 19:38	03/05/21 11:08	1
Trichloronaphthalene, Total	ND		2.6	1.3	ug/L		03/04/21 19:38	03/05/21 11:08	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*79*		*30 - 123*	*03/04/21 19:38*	*03/05/21 11:08*	*1*
Nitrobenzene-d5	*88*		*33 - 139*	*03/04/21 19:38*	*03/05/21 11:08*	*1*
Terphenyl-d14	*84*		*42 - 150*	*03/04/21 19:38*	*03/05/21 11:08*	*1*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 460-760984/1-A
Matrix: Solid
Analysis Batch: 761121

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 760984

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-Trichlorophenol	ND		330	34	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
2,4,6-Trichlorophenol	ND		130	42	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
2,4-Dichlorophenol	ND		130	21	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
2,4-Dimethylphenol	ND		330	15	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
2,4-Dinitrophenol	ND		270	160	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
2,4-Dinitrotoluene	ND		67	36	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
2,6-Dinitrotoluene	ND		67	24	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
2-Chloronaphthalene	ND		330	15	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
2-Chlorophenol	ND		330	12	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
2-Methylnaphthalene	ND		330	9.3	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
2-Methylphenol	ND		330	12	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
2-Nitroaniline	ND		330	12	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
2-Nitrophenol	ND		330	33	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
3,3'-Dichlorobenzidine	ND		130	50	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
3-Nitroaniline	ND		330	37	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
4,6-Dinitro-2-methylphenol	ND		270	140	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
4-Bromophenyl phenyl ether	ND		330	13	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
4-Chloro-3-methylphenol	ND		330	19	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
4-Chloroaniline	ND		330	59	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
4-Chlorophenyl phenyl ether	ND		330	12	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
4-Methylphenol	ND		330	21	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
4-Nitroaniline	ND		330	38	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
4-Nitrophenol	ND		670	54	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Acenaphthene	ND		330	9.4	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Acenaphthylene	ND		330	3.3	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Acetophenone	ND		330	16	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Anthracene	ND		330	10	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Atrazine	ND		130	19	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Benzaldehyde	ND		330	55	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Benzo[a]anthracene	ND		33	12	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Benzo[a]pyrene	ND		33	8.8	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Benzo[b]fluoranthene	ND		33	8.6	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Benzo[g,h,i]perylene	ND		330	9.8	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Benzo[k]fluoranthene	ND		33	6.5	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Biphenyl	ND		330	4.4	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
bis (2-chloroisopropyl) ether	ND		330	6.0	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Bis(2-chloroethoxy)methane	ND		330	26	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Bis(2-chloroethyl)ether	ND		33	12	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Bis(2-ethylhexyl) phthalate	ND		330	17	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Butyl benzyl phthalate	ND		330	16	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Caprolactam	ND		330	51	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Carbazole	ND		330	13	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Chrysene	ND		330	5.6	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Dibenz(a,h)anthracene	ND		33	14	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Dibenzofuran	ND		330	4.6	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Diethyl phthalate	ND		330	4.8	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Dimethyl phthalate	ND		330	75	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Di-n-butyl phthalate	ND		330	12	ug/Kg		02/25/21 15:34	02/26/21 08:47	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 460-760984/1-A
Matrix: Solid
Analysis Batch: 761121

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 760984

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate	ND		330	18	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Fluoranthene	ND		330	12	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Fluorene	ND		330	4.5	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Hexachlorobenzene	ND		33	16	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Hexachlorobutadiene	ND		67	7.0	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Hexachlorocyclopentadiene	ND		330	29	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Hexachloroethane	ND		33	11	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Indeno[1,2,3-cd]pyrene	ND		33	13	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Isophorone	ND		130	96	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Naphthalene	ND		330	5.7	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Nitrobenzene	ND		33	7.9	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
N-Nitrosodi-n-propylamine	ND		33	24	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
N-Nitrosodiphenylamine	ND		330	27	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Pentachlorophenol	ND		270	68	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Phenanthrene	ND		330	5.8	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Phenol	ND		330	12	ug/Kg		02/25/21 15:34	02/26/21 08:47	1
Pyrene	ND		330	8.2	ug/Kg		02/25/21 15:34	02/26/21 08:47	1

Tentatively Identified Compound	*MB Est. Result*	*MB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Aldol condensation product	*556*	*T A J*	*ug/Kg*		*2.82*		*02/25/21 15:34*	*02/26/21 08:47*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*83*		*10 - 123*	*02/25/21 15:34*	*02/26/21 08:47*	*1*
2-Fluorobiphenyl	*79*		*14 - 103*	*02/25/21 15:34*	*02/26/21 08:47*	*1*
2-Fluorophenol (Surr)	*77*		*10 - 105*	*02/25/21 15:34*	*02/26/21 08:47*	*1*
Nitrobenzene-d5 (Surr)	*81*		*11 - 104*	*02/25/21 15:34*	*02/26/21 08:47*	*1*
Phenol-d5 (Surr)	*78*		*15 - 100*	*02/25/21 15:34*	*02/26/21 08:47*	*1*
Terphenyl-d14 (Surr)	*101*		*12 - 126*	*02/25/21 15:34*	*02/26/21 08:47*	*1*

Lab Sample ID: LCS 460-760984/2-A
Matrix: Solid
Analysis Batch: 761121

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 760984

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,5-Trichlorophenol	3330	2490		ug/Kg		75	64 - 112
2,4,6-Trichlorophenol	3330	2610		ug/Kg		78	63 - 113
2,4-Dichlorophenol	3330	2690		ug/Kg		81	66 - 113
2,4-Dimethylphenol	3330	2620		ug/Kg		79	63 - 107
2,4-Dinitrophenol	6670	3650		ug/Kg		55	25 - 150
2,4-Dinitrotoluene	3330	2880		ug/Kg		86	65 - 124
2,6-Dinitrotoluene	3330	2710		ug/Kg		81	67 - 121
2-Chloronaphthalene	3330	2640		ug/Kg		79	65 - 109
2-Chlorophenol	3330	2550		ug/Kg		76	63 - 106
2-Methylnaphthalene	3330	2630		ug/Kg		79	64 - 108
2-Methylphenol	3330	2710		ug/Kg		81	63 - 108
2-Nitroaniline	3330	2840		ug/Kg		85	59 - 119
2-Nitrophenol	3330	2630		ug/Kg		79	64 - 112
3,3'-Dichlorobenzidine	3330	1410		ug/Kg		42	17 - 101

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 460-760984/2-A
Matrix: Solid
Analysis Batch: 761121

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 760984

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
3-Nitroaniline	3330	2040		ug/Kg		61	31 - 102
4,6-Dinitro-2-methylphenol	6670	4940		ug/Kg		74	44 - 136
4-Bromophenyl phenyl ether	3330	2670		ug/Kg		80	67 - 113
4-Chloro-3-methylphenol	3330	2720		ug/Kg		81	66 - 114
4-Chloroaniline	3330	1430		ug/Kg		43	20 - 98
4-Chlorophenyl phenyl ether	3330	2800		ug/Kg		84	66 - 110
4-Methylphenol	3330	2400		ug/Kg		72	61 - 108
4-Nitroaniline	3330	2340		ug/Kg		70	50 - 110
4-Nitrophenol	6670	4810		ug/Kg		72	47 - 123
Acenaphthene	3330	2400		ug/Kg		72	53 - 110
Acenaphthylene	3330	2650		ug/Kg		80	64 - 108
Acetophenone	3330	2530		ug/Kg		76	61 - 103
Anthracene	3330	2620		ug/Kg		79	67 - 114
Atrazine	1330	1730		ug/Kg		130	44 - 145
Benzaldehyde	1330	1510		ug/Kg		113	43 - 150
Benzo[a]anthracene	3330	2580		ug/Kg		77	67 - 115
Benzo[a]pyrene	3330	3040		ug/Kg		91	73 - 123
Benzo[b]fluoranthene	3330	3260		ug/Kg		98	70 - 125
Benzo[g,h,i]perylene	3330	2650		ug/Kg		80	61 - 113
Benzo[k]fluoranthene	3330	2950		ug/Kg		88	67 - 115
Biphenyl	3330	2620		ug/Kg		79	65 - 110
bis (2-chloroisopropyl) ether	3330	2790		ug/Kg		84	49 - 109
Bis(2-chloroethoxy)methane	3330	2540		ug/Kg		76	62 - 107
Bis(2-chloroethyl)ether	3330	2510		ug/Kg		75	60 - 107
Bis(2-ethylhexyl) phthalate	3330	2860		ug/Kg		86	59 - 111
Butyl benzyl phthalate	3330	2780		ug/Kg		83	62 - 113
Caprolactam	1330	1490		ug/Kg		112	59 - 140
Carbazole	3330	2540		ug/Kg		76	64 - 113
Chrysene	3330	2550		ug/Kg		76	71 - 122
Dibenz(a,h)anthracene	3330	2990		ug/Kg		90	66 - 119
Dibenzofuran	3330	2720		ug/Kg		82	65 - 108
Diethyl phthalate	3330	2590		ug/Kg		78	63 - 109
Dimethyl phthalate	3330	2600		ug/Kg		78	65 - 109
Di-n-butyl phthalate	3330	2690		ug/Kg		81	66 - 114
Di-n-octyl phthalate	3330	3380		ug/Kg		102	65 - 122
Fluoranthene	3330	2520		ug/Kg		76	61 - 106
Fluorene	3330	2770		ug/Kg		83	65 - 109
Hexachlorobenzene	3330	2780		ug/Kg		83	61 - 113
Hexachlorobutadiene	3330	2810		ug/Kg		84	62 - 109
Hexachlorocyclopentadiene	3330	1920		ug/Kg		58	42 - 118
Hexachloroethane	3330	2590		ug/Kg		78	61 - 102
Indeno[1,2,3-cd]pyrene	3330	3080		ug/Kg		92	62 - 121
Isophorone	3330	2690		ug/Kg		81	63 - 107
Naphthalene	3330	2570		ug/Kg		77	63 - 106
Nitrobenzene	3330	2660		ug/Kg		80	63 - 110
N-Nitrosodi-n-propylamine	3330	2730		ug/Kg		82	61 - 108
N-Nitrosodiphenylamine	3330	2650		ug/Kg		79	67 - 113
Pentachlorophenol	6670	3910		ug/Kg		59	44 - 126
Phenanthrene	3330	2590		ug/Kg		78	66 - 112

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 460-760984/2-A
Matrix: Solid
Analysis Batch: 761121

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 760984

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Phenol			3330	2680		ug/Kg		81	63 - 110		
Pyrene			3330	2710		ug/Kg		81	61 - 111		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*80*		*10 - 123*
2-Fluorobiphenyl	*78*		*14 - 103*
2-Fluorophenol (Surr)	*76*		*10 - 105*
Nitrobenzene-d5 (Surr)	*78*		*11 - 104*
Phenol-d5 (Surr)	*77*		*15 - 100*
Terphenyl-d14 (Surr)	*93*		*12 - 126*

Lab Sample ID: 460-228674-A-3-A MS
Matrix: Solid
Analysis Batch: 761121

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 760984

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
2,4,5-Trichlorophenol	ND	F1	3580	1810	F1	ug/Kg	☼	51	64 - 112		
2,4,6-Trichlorophenol	ND	F1	3580	1910	F1	ug/Kg	☼	53	63 - 113		
2,4-Dichlorophenol	ND	F1	3580	2030	F1	ug/Kg	☼	57	66 - 113		
2,4-Dimethylphenol	ND	F1	3580	1980	F1	ug/Kg	☼	55	63 - 107		
2,4-Dinitrophenol	ND	F1 F2	7170	435	F1	ug/Kg	☼	6	25 - 150		
2,4-Dinitrotoluene	ND	F1	3580	2090	F1	ug/Kg	☼	58	65 - 124		
2,6-Dinitrotoluene	ND	F1	3580	2090	F1	ug/Kg	☼	58	67 - 121		
2-Chloronaphthalene	ND	F1	3580	1950	F1	ug/Kg	☼	54	65 - 109		
2-Chlorophenol	ND	F1	3580	1920	F1	ug/Kg	☼	53	63 - 106		
2-Methylnaphthalene	ND	F1	3580	1960	F1	ug/Kg	☼	55	64 - 108		
2-Methylphenol	ND	F1	3580	2070	F1	ug/Kg	☼	58	63 - 108		
2-Nitroaniline	ND	F1	3580	2190		ug/Kg	☼	61	59 - 119		
2-Nitrophenol	ND	F1	3580	1850	F1	ug/Kg	☼	52	64 - 112		
3,3'-Dichlorobenzidine	ND		3580	1890		ug/Kg	☼	53	17 - 101		
3-Nitroaniline	ND		3580	1820		ug/Kg	☼	51	31 - 102		
4,6-Dinitro-2-methylphenol	ND	F1 F2	7170	1460	F1	ug/Kg	☼	20	44 - 136		
4-Bromophenyl phenyl ether	ND	F1	3580	2050	F1	ug/Kg	☼	57	67 - 113		
4-Chloro-3-methylphenol	ND	F1	3580	1990	F1	ug/Kg	☼	56	66 - 114		
4-Chloroaniline	ND		3580	1720		ug/Kg	☼	48	20 - 98		
4-Chlorophenyl phenyl ether	ND	F1	3580	2050	F1	ug/Kg	☼	57	66 - 110		
4-Methylphenol	ND	F1	3580	1850	F1	ug/Kg	☼	52	61 - 108		
4-Nitroaniline	ND	F1	3580	1720	F1	ug/Kg	☼	48	50 - 110		
4-Nitrophenol	ND	F1	7170	3450		ug/Kg	☼	48	47 - 123		
Acenaphthene	ND	F1	3580	1760	F1	ug/Kg	☼	49	53 - 110		
Acenaphthylene	ND	F1	3580	2010	F1	ug/Kg	☼	56	64 - 108		
Acetophenone	ND	F1	3580	1900	F1	ug/Kg	☼	53	61 - 103		
Anthracene	ND	F1	3580	1970	F1	ug/Kg	☼	55	67 - 114		
Atrazine	ND		1430	1290		ug/Kg	☼	90	44 - 145		
Benzaldehyde	ND		1430	1150	E	ug/Kg	☼	80	43 - 150		
Benzo[a]anthracene	ND	F1	3580	1920	F1	ug/Kg	☼	53	67 - 115		
Benzo[a]pyrene	ND	F1	3580	2250	F1	ug/Kg	☼	63	73 - 123		
Benzo[b]fluoranthene	ND	F1	3580	2430	F1	ug/Kg	☼	68	70 - 125		

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 460-228674-A-3-A MS
Matrix: Solid
Analysis Batch: 761121

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 760984

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[g,h,i]perylene	ND	F1	3580	1980	F1	ug/Kg	☼	55	61 - 113
Benzo[k]fluoranthene	ND	F1	3580	2170	F1	ug/Kg	☼	61	67 - 115
Biphenyl	ND	F1	3580	1980	F1	ug/Kg	☼	55	65 - 110
bis (2-chloroisopropyl) ether	ND		3580	2020		ug/Kg	☼	56	49 - 109
Bis(2-chloroethoxy)methane	ND	F1	3580	1900	F1	ug/Kg	☼	53	62 - 107
Bis(2-chloroethyl)ether	ND	F1	3580	1810	F1	ug/Kg	☼	51	60 - 107
Bis(2-ethylhexyl) phthalate	ND	F1	3580	2110		ug/Kg	☼	59	59 - 111
Butyl benzyl phthalate	ND	F1	3580	2060	F1	ug/Kg	☼	57	62 - 113
Caprolactam	ND		1430	1030		ug/Kg	☼	72	59 - 140
Carbazole	ND	F1	3580	1880	F1	ug/Kg	☼	52	64 - 113
Chrysene	ND	F1	3580	1950	F1	ug/Kg	☼	55	71 - 122
Dibenz(a,h)anthracene	ND	F1	3580	2170	F1	ug/Kg	☼	61	66 - 119
Dibenzofuran	ND	F1	3580	2050	F1	ug/Kg	☼	57	65 - 108
Diethyl phthalate	ND	F1	3580	1940	F1	ug/Kg	☼	54	63 - 109
Dimethyl phthalate	ND	F1	3580	1960	F1	ug/Kg	☼	55	65 - 109
Di-n-butyl phthalate	ND	F1	3580	1990	F1	ug/Kg	☼	56	66 - 114
Di-n-octyl phthalate	ND	F1	3580	2440		ug/Kg	☼	68	65 - 122
Fluoranthene	ND	F1	3580	1880	F1	ug/Kg	☼	52	61 - 106
Fluorene	ND	F1	3580	2030	F1	ug/Kg	☼	57	65 - 109
Hexachlorobenzene	ND	F1	3580	2060	F1	ug/Kg	☼	58	61 - 113
Hexachlorobutadiene	ND	F1	3580	1930	F1	ug/Kg	☼	54	62 - 109
Hexachlorocyclopentadiene	ND	F1	3580	810	F1	ug/Kg	☼	23	42 - 118
Hexachloroethane	ND	F1	3580	1740	F1	ug/Kg	☼	49	61 - 102
Indeno[1,2,3-cd]pyrene	ND	F1	3580	2330		ug/Kg	☼	65	62 - 121
Isophorone	ND	F1	3580	2020	F1	ug/Kg	☼	57	63 - 107
Naphthalene	ND	F1	3580	1900	F1	ug/Kg	☼	53	63 - 106
Nitrobenzene	ND	F1	3580	1920	F1	ug/Kg	☼	54	63 - 110
N-Nitrosodi-n-propylamine	ND	F1	3580	2030	F1	ug/Kg	☼	57	61 - 108
N-Nitrosodiphenylamine	ND	F1	3580	1970	F1	ug/Kg	☼	55	67 - 113
Pentachlorophenol	ND	F1 F2	7170	2070	F1	ug/Kg	☼	29	44 - 126
Phenanthrene	ND	F1	3580	1980	F1	ug/Kg	☼	55	66 - 112
Phenol	ND	F1	3580	2020	F1	ug/Kg	☼	56	63 - 110
Pyrene	ND	F1	3580	2020	F1	ug/Kg	☼	56	61 - 111

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*54*		*10 - 123*
2-Fluorobiphenyl	*56*		*14 - 103*
2-Fluorophenol (Surr)	*54*		*10 - 105*
Nitrobenzene-d5 (Surr)	*54*		*11 - 104*
Phenol-d5 (Surr)	*55*		*15 - 100*
Terphenyl-d14 (Surr)	*64*		*12 - 126*

Lab Sample ID: 460-228674-A-3-B MSD
Matrix: Solid
Analysis Batch: 761121

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 760984

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-Trichlorophenol	ND	F1	3580	1580	F1	ug/Kg	☼	44	64 - 112	13	30

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 460-228674-A-3-B MSD
Matrix: Solid
Analysis Batch: 761121

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 760984

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,6-Trichlorophenol	ND	F1	3580	1540	F1	ug/Kg	☼	43	63 - 113	21	30
2,4-Dichlorophenol	ND	F1	3580	1770	F1	ug/Kg	☼	49	66 - 113	14	30
2,4-Dimethylphenol	ND	F1	3580	1830	F1	ug/Kg	☼	51	63 - 107	8	30
2,4-Dinitrophenol	ND	F1 F2	7170	234	J F1 F2	ug/Kg	☼	3	25 - 150	60	30
2,4-Dinitrotoluene	ND	F1	3580	1750	F1	ug/Kg	☼	49	65 - 124	18	30
2,6-Dinitrotoluene	ND	F1	3580	1820	F1	ug/Kg	☼	51	67 - 121	14	30
2-Chloronaphthalene	ND	F1	3580	1620	F1	ug/Kg	☼	45	65 - 109	19	30
2-Chlorophenol	ND	F1	3580	1800	F1	ug/Kg	☼	50	63 - 106	6	30
2-Methylnaphthalene	ND	F1	3580	1630	F1	ug/Kg	☼	45	64 - 108	19	30
2-Methylphenol	ND	F1	3580	1950	F1	ug/Kg	☼	55	63 - 108	6	30
2-Nitroaniline	ND	F1	3580	1950	F1	ug/Kg	☼	54	59 - 119	12	30
2-Nitrophenol	ND	F1	3580	1660	F1	ug/Kg	☼	46	64 - 112	11	30
3,3'-Dichlorobenzidine	ND		3580	1610		ug/Kg	☼	45	17 - 101	16	30
3-Nitroaniline	ND		3580	1750		ug/Kg	☼	49	31 - 102	4	30
4,6-Dinitro-2-methylphenol	ND	F1 F2	7170	640	F1 F2	ug/Kg	☼	9	44 - 136	78	30
4-Bromophenyl phenyl ether	ND	F1	3580	1590	F1	ug/Kg	☼	44	67 - 113	25	30
4-Chloro-3-methylphenol	ND	F1	3580	1870	F1	ug/Kg	☼	52	66 - 114	6	30
4-Chloroaniline	ND		3580	1660		ug/Kg	☼	46	20 - 98	4	30
4-Chlorophenyl phenyl ether	ND	F1	3580	1670	F1	ug/Kg	☼	47	66 - 110	21	30
4-Methylphenol	ND	F1	3580	1720	F1	ug/Kg	☼	48	61 - 108	8	30
4-Nitroaniline	ND	F1	3580	1690	F1	ug/Kg	☼	47	50 - 110	2	30
4-Nitrophenol	ND	F1	7170	2990	F1	ug/Kg	☼	42	47 - 123	14	30
Acenaphthene	ND	F1	3580	1460	F1	ug/Kg	☼	41	53 - 110	18	30
Acenaphthylene	ND	F1	3580	1680	F1	ug/Kg	☼	47	64 - 108	18	30
Acetophenone	ND	F1	3580	1730	F1	ug/Kg	☼	48	61 - 103	9	30
Anthracene	ND	F1	3580	1590	F1	ug/Kg	☼	44	67 - 114	21	30
Atrazine	ND		1430	1130		ug/Kg	☼	79	44 - 145	13	30
Benzaldehyde	ND		1430	1050		ug/Kg	☼	73	43 - 150	9	30
Benzo[a]anthracene	ND	F1	3580	1530	F1	ug/Kg	☼	43	67 - 115	22	30
Benzo[a]pyrene	ND	F1	3580	1800	F1	ug/Kg	☼	50	73 - 123	22	30
Benzo[b]fluoranthene	ND	F1	3580	1940	F1	ug/Kg	☼	54	70 - 125	23	30
Benzo[g,h,i]perylene	ND	F1	3580	1550	F1	ug/Kg	☼	43	61 - 113	25	30
Benzo[k]fluoranthene	ND	F1	3580	1710	F1	ug/Kg	☼	48	67 - 115	24	30
Biphenyl	ND	F1	3580	1610	F1	ug/Kg	☼	45	65 - 110	21	30
bis (2-chloroisopropyl) ether	ND		3580	1740		ug/Kg	☼	49	49 - 109	14	30
Bis(2-chloroethoxy)methane	ND	F1	3580	1740	F1	ug/Kg	☼	49	62 - 107	9	30
Bis(2-chloroethyl)ether	ND	F1	3580	1720	F1	ug/Kg	☼	48	60 - 107	5	30
Bis(2-ethylhexyl) phthalate	ND	F1	3580	1630	F1	ug/Kg	☼	46	59 - 111	25	30
Butyl benzyl phthalate	ND	F1	3580	1670	F1	ug/Kg	☼	47	62 - 113	21	30
Caprolactam	ND		1430	948		ug/Kg	☼	66	59 - 140	9	30
Carbazole	ND	F1	3580	1580	F1	ug/Kg	☼	44	64 - 113	17	30
Chrysene	ND	F1	3580	1590	F1	ug/Kg	☼	44	71 - 122	21	30
Dibenz(a,h)anthracene	ND	F1	3580	1720	F1	ug/Kg	☼	48	66 - 119	23	30
Dibenzofuran	ND	F1	3580	1690	F1	ug/Kg	☼	47	65 - 108	19	30
Diethyl phthalate	ND	F1	3580	1720	F1	ug/Kg	☼	48	63 - 109	12	30
Dimethyl phthalate	ND	F1	3580	1780	F1	ug/Kg	☼	50	65 - 109	9	30
Di-n-butyl phthalate	ND	F1	3580	1590	F1	ug/Kg	☼	44	66 - 114	22	30
Di-n-octyl phthalate	ND	F1	3580	1870	F1	ug/Kg	☼	52	65 - 122	27	30
Fluoranthene	ND	F1	3580	1520	F1	ug/Kg	☼	42	61 - 106	21	30

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 460-228674-A-3-B MSD
Matrix: Solid
Analysis Batch: 761121

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 760984

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluorene	ND	F1	3580	1680	F1	ug/Kg	☼	47	65 - 109	19	30
Hexachlorobenzene	ND	F1	3580	1570	F1	ug/Kg	☼	44	61 - 113	27	30
Hexachlorobutadiene	ND	F1	3580	1570	F1	ug/Kg	☼	44	62 - 109	21	30
Hexachlorocyclopentadiene	ND	F1	3580	637	F1	ug/Kg	☼	18	42 - 118	24	30
Hexachloroethane	ND	F1	3580	1420	F1	ug/Kg	☼	40	61 - 102	21	30
Indeno[1,2,3-cd]pyrene	ND	F1	3580	1770	F1	ug/Kg	☼	49	62 - 121	27	30
Isophorone	ND	F1	3580	1860	F1	ug/Kg	☼	52	63 - 107	9	30
Naphthalene	ND	F1	3580	1620	F1	ug/Kg	☼	45	63 - 106	16	30
Nitrobenzene	ND	F1	3580	1750	F1	ug/Kg	☼	49	63 - 110	9	30
N-Nitrosodi-n-propylamine	ND	F1	3580	1880	F1	ug/Kg	☼	52	61 - 108	8	30
N-Nitrosodiphenylamine	ND	F1	3580	1620	F1	ug/Kg	☼	45	67 - 113	19	30
Pentachlorophenol	ND	F1 F2	7170	1370	F1 F2	ug/Kg	☼	19	44 - 126	40	30
Phenanthrene	ND	F1	3580	1590	F1	ug/Kg	☼	44	66 - 112	22	30
Phenol	ND	F1	3580	1920	F1	ug/Kg	☼	54	63 - 110	5	30
Pyrene	ND	F1	3580	1620	F1	ug/Kg	☼	45	61 - 111	22	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*42*		*10 - 123*
2-Fluorobiphenyl	*46*		*14 - 103*
2-Fluorophenol (Surr)	*51*		*10 - 105*
Nitrobenzene-d5 (Surr)	*49*		*11 - 104*
Phenol-d5 (Surr)	*53*		*15 - 100*
Terphenyl-d14 (Surr)	*51*		*12 - 126*

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 460-761052/1-A
Matrix: Solid
Analysis Batch: 761068

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 761052

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000055	mg/L		02/25/21 22:54	02/26/21 11:45	1
Chlordane (technical)	ND		0.0050	0.000055	mg/L		02/25/21 22:54	02/26/21 11:45	1
Endrin	ND		0.00050	0.0000040	mg/L		02/25/21 22:54	02/26/21 11:45	1
Endrin	ND		0.00050	0.0000040	mg/L		02/25/21 22:54	02/26/21 11:45	1
gamma-BHC (Lindane)	ND		0.00050	0.000012	mg/L		02/25/21 22:54	02/26/21 11:45	1
gamma-BHC (Lindane)	ND		0.00050	0.000012	mg/L		02/25/21 22:54	02/26/21 11:45	1
Heptachlor	ND		0.00050	0.0000030	mg/L		02/25/21 22:54	02/26/21 11:45	1
Heptachlor	ND		0.00050	0.0000030	mg/L		02/25/21 22:54	02/26/21 11:45	1
Heptachlor epoxide	ND		0.00050	0.0000050	mg/L		02/25/21 22:54	02/26/21 11:45	1
Heptachlor epoxide	ND		0.00050	0.0000050	mg/L		02/25/21 22:54	02/26/21 11:45	1
Methoxychlor	ND		0.00050	0.0000040	mg/L		02/25/21 22:54	02/26/21 11:45	1
Methoxychlor	ND		0.00050	0.0000040	mg/L		02/25/21 22:54	02/26/21 11:45	1
Toxaphene	ND		0.0050	0.00011	mg/L		02/25/21 22:54	02/26/21 11:45	1
Toxaphene	ND		0.0050	0.00011	mg/L		02/25/21 22:54	02/26/21 11:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*76*		*10 - 150*	*02/25/21 22:54*	*02/26/21 11:45*	*1*

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 460-761052/1-A
Matrix: Solid
Analysis Batch: 761068

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 761052

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	79		10 - 150	02/25/21 22:54	02/26/21 11:45	1
DCB Decachlorobiphenyl	92		10 - 150	02/25/21 22:54	02/26/21 11:45	1
DCB Decachlorobiphenyl	95		10 - 150	02/25/21 22:54	02/26/21 11:45	1

Lab Sample ID: LCS 460-761052/2-A
Matrix: Solid
Analysis Batch: 761068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 761052

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Endrin			0.000800	0.000822		mg/L		103	67 - 132		
Endrin			0.000800	0.000852		mg/L		107	67 - 132		
gamma-BHC (Lindane)			0.000800	0.000855		mg/L		107	65 - 134		
gamma-BHC (Lindane)			0.000800	0.000788		mg/L		98	65 - 134		
Heptachlor			0.000800	0.000819		mg/L		102	63 - 128		
Heptachlor			0.000800	0.000831		mg/L		104	63 - 128		
Heptachlor epoxide			0.000800	0.000800		mg/L		100	66 - 128		
Heptachlor epoxide			0.000800	0.000788		mg/L		99	66 - 128		
Methoxychlor			0.000800	0.000891		mg/L		111	42 - 151		
Methoxychlor			0.000800	0.000775		mg/L		97	42 - 151		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	73		10 - 150
Tetrachloro-m-xylene	77		10 - 150
DCB Decachlorobiphenyl	76		10 - 150
DCB Decachlorobiphenyl	83		10 - 150

Lab Sample ID: LCSD 460-761052/3-A
Matrix: Solid
Analysis Batch: 761068

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 761052

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Endrin			0.000800	0.000790		mg/L		99	67 - 132	4	30
Endrin			0.000800	0.000818		mg/L		102	67 - 132	4	30
gamma-BHC (Lindane)			0.000800	0.000808		mg/L		101	65 - 134	6	30
gamma-BHC (Lindane)			0.000800	0.000751		mg/L		94	65 - 134	5	30
Heptachlor			0.000800	0.000780		mg/L		98	63 - 128	5	30
Heptachlor			0.000800	0.000790		mg/L		99	63 - 128	5	30
Heptachlor epoxide			0.000800	0.000769		mg/L		96	66 - 128	4	30
Heptachlor epoxide			0.000800	0.000756		mg/L		95	66 - 128	4	30
Methoxychlor			0.000800	0.000860		mg/L		107	42 - 151	4	30
Methoxychlor			0.000800	0.000745		mg/L		93	42 - 151	4	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	73		10 - 150
Tetrachloro-m-xylene	77		10 - 150
DCB Decachlorobiphenyl	85		10 - 150
DCB Decachlorobiphenyl	84		10 - 150

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 460-761374/1-A
Matrix: Solid
Analysis Batch: 761633

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 761374

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.00050	0.000055	mg/L		02/27/21 14:44	03/01/21 15:51	1
Chlordane (technical)	ND		0.00050	0.000055	mg/L		02/27/21 14:44	03/01/21 15:51	1
Endrin	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/01/21 15:51	1
Endrin	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/01/21 15:51	1
gamma-BHC (Lindane)	ND		0.000020	0.000012	mg/L		02/27/21 14:44	03/01/21 15:51	1
gamma-BHC (Lindane)	ND		0.000020	0.000012	mg/L		02/27/21 14:44	03/01/21 15:51	1
Heptachlor	ND		0.000020	0.0000030	mg/L		02/27/21 14:44	03/01/21 15:51	1
Heptachlor	ND		0.000020	0.0000030	mg/L		02/27/21 14:44	03/01/21 15:51	1
Heptachlor epoxide	ND		0.000020	0.0000050	mg/L		02/27/21 14:44	03/01/21 15:51	1
Heptachlor epoxide	ND		0.000020	0.0000050	mg/L		02/27/21 14:44	03/01/21 15:51	1
Methoxychlor	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/01/21 15:51	1
Methoxychlor	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/01/21 15:51	1
Toxaphene	ND		0.00050	0.00011	mg/L		02/27/21 14:44	03/01/21 15:51	1
Toxaphene	ND		0.00050	0.00011	mg/L		02/27/21 14:44	03/01/21 15:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*72*		*10 - 150*	*02/27/21 14:44*	*03/01/21 15:51*	*1*
Tetrachloro-m-xylene	*73*		*10 - 150*	*02/27/21 14:44*	*03/01/21 15:51*	*1*
DCB Decachlorobiphenyl	*48*		*10 - 150*	*02/27/21 14:44*	*03/01/21 15:51*	*1*
DCB Decachlorobiphenyl	*58*		*10 - 150*	*02/27/21 14:44*	*03/01/21 15:51*	*1*

Lab Sample ID: LCS 460-761374/2-A
Matrix: Solid
Analysis Batch: 761633

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 761374

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Endrin			0.000800	0.000691		mg/L		86	67 - 132		
Endrin			0.000800	0.000745		mg/L		93	67 - 132		
gamma-BHC (Lindane)			0.000800	0.000736		mg/L		92	65 - 134		
gamma-BHC (Lindane)			0.000800	0.000786		mg/L		98	65 - 134		
Heptachlor			0.000800	0.000711		mg/L		89	63 - 128		
Heptachlor			0.000800	0.000751		mg/L		94	63 - 128		
Heptachlor epoxide			0.000800	0.000736		mg/L		92	66 - 128		
Heptachlor epoxide			0.000800	0.000774		mg/L		97	66 - 128		
Methoxychlor			0.000800	0.000653		mg/L		82	42 - 151		
Methoxychlor			0.000800	0.000669		mg/L		84	42 - 151		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*69*		*10 - 150*
Tetrachloro-m-xylene	*68*		*10 - 150*
DCB Decachlorobiphenyl	*63*		*10 - 150*
DCB Decachlorobiphenyl	*69*		*10 - 150*

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCSD 460-761374/3-A
Matrix: Solid
Analysis Batch: 761633

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 761374

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Endrin			0.000800	0.000699		mg/L		87	67 - 132	1	30
Endrin			0.000800	0.000782		mg/L		98	67 - 132	5	30
gamma-BHC (Lindane)			0.000800	0.000765		mg/L		96	65 - 134	4	30
gamma-BHC (Lindane)			0.000800	0.000795		mg/L		99	65 - 134	1	30
Heptachlor			0.000800	0.000723		mg/L		90	63 - 128	2	30
Heptachlor			0.000800	0.000758		mg/L		95	63 - 128	1	30
Heptachlor epoxide			0.000800	0.000747		mg/L		93	66 - 128	1	30
Heptachlor epoxide			0.000800	0.000793		mg/L		99	66 - 128	2	30
Methoxychlor			0.000800	0.000619		mg/L		77	42 - 151	5	30
Methoxychlor			0.000800	0.000707		mg/L		88	42 - 151	6	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*74*		*10 - 150*
Tetrachloro-m-xylene	*72*		*10 - 150*
DCB Decachlorobiphenyl	*64*		*10 - 150*
DCB Decachlorobiphenyl	*76*		*10 - 150*

Lab Sample ID: LB 460-761025/1-C
Matrix: Solid
Analysis Batch: 761535

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 761052

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000055	mg/L		02/26/21 09:07	03/01/21 10:34	1
Endrin	ND		0.00050	0.0000040	mg/L		02/26/21 09:07	03/01/21 10:34	1
gamma-BHC (Lindane)	ND		0.00050	0.000012	mg/L		02/26/21 09:07	03/01/21 10:34	1
Heptachlor	ND		0.00050	0.0000030	mg/L		02/26/21 09:07	03/01/21 10:34	1
Heptachlor epoxide	ND		0.00050	0.0000050	mg/L		02/26/21 09:07	03/01/21 10:34	1
Methoxychlor	ND		0.00050	0.0000040	mg/L		02/26/21 09:07	03/01/21 10:34	1
Toxaphene	ND		0.0050	0.00011	mg/L		02/26/21 09:07	03/01/21 10:34	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*56*		*10 - 150*	*02/26/21 09:07*	*03/01/21 10:34*	*1*
Tetrachloro-m-xylene	*59*		*10 - 150*	*02/26/21 09:07*	*03/01/21 10:34*	*1*
DCB Decachlorobiphenyl	*59*		*10 - 150*	*02/26/21 09:07*	*03/01/21 10:34*	*1*
DCB Decachlorobiphenyl	*59*		*10 - 150*	*02/26/21 09:07*	*03/01/21 10:34*	*1*

Lab Sample ID: LB 460-761267/1-D
Matrix: Solid
Analysis Batch: 761633

Client Sample ID: Method Blank
Prep Type: SPLP East
Prep Batch: 761374

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.00050	0.000055	mg/L		02/27/21 14:44	03/01/21 16:07	1
Endrin	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/01/21 16:07	1
gamma-BHC (Lindane)	ND		0.000020	0.000012	mg/L		02/27/21 14:44	03/01/21 16:07	1
Heptachlor	ND		0.000020	0.0000030	mg/L		02/27/21 14:44	03/01/21 16:07	1
Heptachlor epoxide	ND		0.000020	0.0000050	mg/L		02/27/21 14:44	03/01/21 16:07	1
Methoxychlor	ND		0.000020	0.0000040	mg/L		02/27/21 14:44	03/01/21 16:07	1
Toxaphene	ND		0.00050	0.00011	mg/L		02/27/21 14:44	03/01/21 16:07	1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Surrogate	LB %Recovery	LB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	*76*		*10 - 150*	*02/27/21 14:44*	*03/01/21 16:07*	*1*
Tetrachloro-m-xylene	*75*		*10 - 150*	*02/27/21 14:44*	*03/01/21 16:07*	*1*
DCB Decachlorobiphenyl	*70*		*10 - 150*	*02/27/21 14:44*	*03/01/21 16:07*	*1*
DCB Decachlorobiphenyl	*78*		*10 - 150*	*02/27/21 14:44*	*03/01/21 16:07*	*1*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 460-761212/1-A
Matrix: Solid
Analysis Batch: 761233

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 761212

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.077	mg/L		02/26/21 12:27	02/26/21 16:32	1
Antimony	ND		0.020	0.0037	mg/L		02/26/21 12:27	02/26/21 16:32	1
Arsenic	ND		0.015	0.0033	mg/L		02/26/21 12:27	02/26/21 16:32	1
Barium	ND		0.20	0.013	mg/L		02/26/21 12:27	02/26/21 16:32	1
Beryllium	ND		0.0020	0.00017	mg/L		02/26/21 12:27	02/26/21 16:32	1
Cadmium	ND		0.0040	0.00033	mg/L		02/26/21 12:27	02/26/21 16:32	1
Calcium	ND		5.0	0.15	mg/L		02/26/21 12:27	02/26/21 16:32	1
Chromium	ND		0.010	0.0050	mg/L		02/26/21 12:27	02/26/21 16:32	1
Cobalt	ND		0.050	0.0020	mg/L		02/26/21 12:27	02/26/21 16:32	1
Copper	ND		0.025	0.0069	mg/L		02/26/21 12:27	02/26/21 16:32	1
Iron	ND		0.15	0.081	mg/L		02/26/21 12:27	02/26/21 16:32	1
Lead	ND		0.010	0.0024	mg/L		02/26/21 12:27	02/26/21 16:32	1
Magnesium	ND		5.0	0.14	mg/L		02/26/21 12:27	02/26/21 16:32	1
Manganese	ND		0.015	0.00076	mg/L		02/26/21 12:27	02/26/21 16:32	1
Nickel	ND		0.040	0.0041	mg/L		02/26/21 12:27	02/26/21 16:32	1
Potassium	ND		5.0	0.14	mg/L		02/26/21 12:27	02/26/21 16:32	1
Selenium	ND		0.020	0.0059	mg/L		02/26/21 12:27	02/26/21 16:32	1
Silver	ND		0.010	0.0058	mg/L		02/26/21 12:27	02/26/21 16:32	1
Thallium	ND		0.020	0.0041	mg/L		02/26/21 12:27	02/26/21 16:32	1
Vanadium	ND		0.050	0.0072	mg/L		02/26/21 12:27	02/26/21 16:32	1
Zinc	ND		0.030	0.0012	mg/L		02/26/21 12:27	02/26/21 16:32	1

Lab Sample ID: LCS 460-761212/2-A
Matrix: Solid
Analysis Batch: 761233

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 761212

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	5.00	5.34		mg/L		107	80 - 120
Antimony	1.00	1.02		mg/L		102	80 - 120
Arsenic	5.00	5.25		mg/L		105	80 - 120
Barium	10.0	10.11		mg/L		101	80 - 120
Beryllium	1.00	1.02		mg/L		102	80 - 120
Cadmium	1.00	1.05		mg/L		105	80 - 120
Calcium	20.0	20.53		mg/L		103	80 - 120
Chromium	5.00	5.12		mg/L		102	80 - 120
Cobalt	1.00	1.07		mg/L		107	80 - 120
Copper	1.00	1.01		mg/L		101	80 - 120
Iron	1.00	1.05		mg/L		105	80 - 120
Lead	5.00	5.32		mg/L		106	80 - 120
Magnesium	20.0	20.71		mg/L		104	80 - 120

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 460-761212/2-A
Matrix: Solid
Analysis Batch: 761233

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 761212

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Manganese	1.00	1.05		mg/L		105	80 - 120
Nickel	1.00	1.08		mg/L		108	80 - 120
Potassium	20.0	20.55		mg/L		103	80 - 120
Selenium	1.00	1.07		mg/L		107	80 - 120
Silver	0.500	0.498		mg/L		100	80 - 120
Thallium	1.00	1.08		mg/L		108	80 - 120
Vanadium	0.500	0.527		mg/L		105	80 - 120
Zinc	1.00	1.06		mg/L		106	80 - 120

Lab Sample ID: MB 460-761630/1-A
Matrix: Solid
Analysis Batch: 762209

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 761630

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.077	mg/L		03/01/21 11:32	03/03/21 17:44	1
Antimony	ND		0.020	0.0037	mg/L		03/01/21 11:32	03/03/21 17:44	1
Arsenic	ND		0.015	0.0033	mg/L		03/01/21 11:32	03/03/21 17:44	1
Barium	ND		0.20	0.013	mg/L		03/01/21 11:32	03/03/21 17:44	1
Beryllium	ND		0.0020	0.00017	mg/L		03/01/21 11:32	03/03/21 17:44	1
Cadmium	ND		0.0040	0.00033	mg/L		03/01/21 11:32	03/03/21 17:44	1
Calcium	ND		5.0	0.15	mg/L		03/01/21 11:32	03/03/21 17:44	1
Chromium	ND		0.010	0.0050	mg/L		03/01/21 11:32	03/03/21 17:44	1
Cobalt	ND		0.050	0.0020	mg/L		03/01/21 11:32	03/03/21 17:44	1
Copper	ND		0.025	0.0069	mg/L		03/01/21 11:32	03/03/21 17:44	1
Iron	ND		0.15	0.081	mg/L		03/01/21 11:32	03/03/21 17:44	1
Lead	ND		0.010	0.0024	mg/L		03/01/21 11:32	03/03/21 17:44	1
Magnesium	ND		5.0	0.14	mg/L		03/01/21 11:32	03/03/21 17:44	1
Manganese	ND		0.015	0.00076	mg/L		03/01/21 11:32	03/03/21 17:44	1
Nickel	ND		0.040	0.0041	mg/L		03/01/21 11:32	03/03/21 17:44	1
Potassium	ND		5.0	0.14	mg/L		03/01/21 11:32	03/03/21 17:44	1
Selenium	ND		0.020	0.0059	mg/L		03/01/21 11:32	03/03/21 17:44	1
Silver	ND		0.010	0.0058	mg/L		03/01/21 11:32	03/03/21 17:44	1
Sodium	0.664	J	5.0	0.084	mg/L		03/01/21 11:32	03/03/21 17:44	1
Thallium	ND		0.020	0.0041	mg/L		03/01/21 11:32	03/03/21 17:44	1
Vanadium	ND		0.050	0.0072	mg/L		03/01/21 11:32	03/03/21 17:44	1
Zinc	ND		0.030	0.0012	mg/L		03/01/21 11:32	03/03/21 17:44	1

Lab Sample ID: LCS 460-761630/2-A
Matrix: Solid
Analysis Batch: 762209

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 761630

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	2.00	2.20		mg/L		110	80 - 120
Antimony	0.500	0.493		mg/L		99	80 - 120
Arsenic	2.00	2.07		mg/L		104	80 - 120
Barium	2.00	2.09		mg/L		104	80 - 120
Beryllium	0.0500	0.0515		mg/L		103	80 - 120
Cadmium	0.0500	0.0524		mg/L		105	80 - 120
Calcium	20.0	20.76		mg/L		104	80 - 120

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 460-761630/2-A
Matrix: Solid
Analysis Batch: 762209

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 761630

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	0.200	0.206		mg/L		103	80 - 120
Cobalt	0.500	0.527		mg/L		105	80 - 120
Copper	0.250	0.259		mg/L		103	80 - 120
Iron	1.00	1.03		mg/L		103	80 - 120
Lead	0.500	0.524		mg/L		105	80 - 120
Magnesium	20.0	20.27		mg/L		101	80 - 120
Manganese	0.500	0.511		mg/L		102	80 - 120
Nickel	0.500	0.531		mg/L		106	80 - 120
Potassium	20.0	20.69		mg/L		103	80 - 120
Selenium	2.00	2.00		mg/L		100	80 - 120
Silver	0.0500	0.0520		mg/L		104	80 - 120
Sodium	20.0	21.03		mg/L		105	80 - 120
Thallium	2.00	2.13		mg/L		107	80 - 120
Vanadium	0.500	0.521		mg/L		104	80 - 120
Zinc	0.500	0.531		mg/L		106	80 - 120

Lab Sample ID: LB 460-761025/1-E ^5
Matrix: Solid
Analysis Batch: 761233

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 761212

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		1.0	0.38	mg/L		02/26/21 12:27	02/26/21 18:21	5
Antimony	ND		0.10	0.019	mg/L		02/26/21 12:27	02/26/21 18:21	5
Arsenic	ND		0.075	0.017	mg/L		02/26/21 12:27	02/26/21 18:21	5
Barium	ND		1.0	0.066	mg/L		02/26/21 12:27	02/26/21 18:21	5
Beryllium	ND		0.010	0.00085	mg/L		02/26/21 12:27	02/26/21 18:21	5
Cadmium	ND		0.020	0.0016	mg/L		02/26/21 12:27	02/26/21 18:21	5
Calcium	ND		25.0	0.76	mg/L		02/26/21 12:27	02/26/21 18:21	5
Chromium	ND		0.050	0.025	mg/L		02/26/21 12:27	02/26/21 18:21	5
Cobalt	ND		0.25	0.010	mg/L		02/26/21 12:27	02/26/21 18:21	5
Copper	ND		0.13	0.035	mg/L		02/26/21 12:27	02/26/21 18:21	5
Iron	ND		0.75	0.40	mg/L		02/26/21 12:27	02/26/21 18:21	5
Lead	ND		0.050	0.012	mg/L		02/26/21 12:27	02/26/21 18:21	5
Magnesium	ND		25.0	0.71	mg/L		02/26/21 12:27	02/26/21 18:21	5
Manganese	ND		0.075	0.0038	mg/L		02/26/21 12:27	02/26/21 18:21	5
Nickel	ND		0.20	0.021	mg/L		02/26/21 12:27	02/26/21 18:21	5
Potassium	1.18	J	25.0	0.71	mg/L		02/26/21 12:27	02/26/21 18:21	5
Selenium	ND		0.10	0.029	mg/L		02/26/21 12:27	02/26/21 18:21	5
Silver	ND		0.050	0.029	mg/L		02/26/21 12:27	02/26/21 18:21	5
Thallium	ND		0.10	0.021	mg/L		02/26/21 12:27	02/26/21 18:21	5
Vanadium	ND		0.25	0.036	mg/L		02/26/21 12:27	02/26/21 18:21	5
Zinc	0.00759	J	0.15	0.0061	mg/L		02/26/21 12:27	02/26/21 18:21	5

Lab Sample ID: 460-228594-A-1-P MS
Matrix: Solid
Analysis Batch: 761233

Client Sample ID: Matrix Spike
Prep Type: TCLP
Prep Batch: 761212

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	ND		5.00	5.38		mg/L		108	75 - 125

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 460-228594-A-1-P MS
Matrix: Solid
Analysis Batch: 761233

Client Sample ID: Matrix Spike
Prep Type: TCLP
Prep Batch: 761212

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	ND		1.00	0.989		mg/L		99	75 - 125
Arsenic	ND		5.00	5.20		mg/L		104	75 - 125
Barium	0.44	J	10.0	10.06		mg/L		96	75 - 125
Beryllium	ND		1.00	0.993		mg/L		99	75 - 125
Cadmium	0.0026	J	1.00	1.01		mg/L		101	75 - 125
Calcium	812		20.0	795.0	4	mg/L		-85	75 - 125
Chromium	ND		5.00	5.01		mg/L		100	75 - 125
Cobalt	ND		1.00	1.01		mg/L		101	75 - 125
Copper	ND		1.00	1.01		mg/L		101	75 - 125
Iron	ND		1.00	1.05		mg/L		105	75 - 125
Lead	0.045	J	5.00	5.06		mg/L		100	75 - 125
Magnesium	13.5	J	20.0	32.50		mg/L		95	75 - 125
Manganese	0.49		1.00	1.47		mg/L		98	75 - 125
Nickel	ND		1.00	1.03		mg/L		103	75 - 125
Potassium	21.1	J B	20.0	39.28		mg/L		91	75 - 125
Selenium	ND		1.00	1.09		mg/L		109	75 - 125
Silver	ND		0.500	0.489		mg/L		98	75 - 125
Thallium	ND		1.00	1.01		mg/L		101	75 - 125
Vanadium	ND		0.500	0.523		mg/L		105	75 - 125
Zinc	0.065	J B	1.00	1.11		mg/L		104	75 - 125

Lab Sample ID: 460-228594-A-1-O DU
Matrix: Solid
Analysis Batch: 761233

Client Sample ID: Duplicate
Prep Type: TCLP
Prep Batch: 761212

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	ND		ND		mg/L		NC	20
Antimony	ND		ND		mg/L		NC	20
Arsenic	ND		0.0685	J	mg/L		NC	20
Barium	0.44	J	0.484	J	mg/L		9	20
Beryllium	ND		0.000908	J	mg/L		NC	20
Cadmium	0.0026	J	0.00667	J F5	mg/L		87	20
Calcium	812		808.5		mg/L		0.4	20
Chromium	ND		0.0255	J	mg/L		NC	20
Cobalt	ND		ND		mg/L		NC	20
Copper	ND		ND		mg/L		NC	20
Iron	ND		ND		mg/L		NC	20
Lead	0.045	J	0.0675	F5	mg/L		40	20
Magnesium	13.5	J	13.42	J	mg/L		0.6	20
Manganese	0.49		0.488		mg/L		0.9	20
Nickel	ND		ND		mg/L		NC	20
Potassium	21.1	J B	20.43	J	mg/L		3	20
Selenium	ND		0.0304	J	mg/L		NC	20
Silver	ND		ND		mg/L		NC	20
Thallium	ND		ND		mg/L		NC	20
Vanadium	ND		ND		mg/L		NC	20
Zinc	0.065	J B	0.0690	J	mg/L		6	20

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LB 460-761267/1-H
Matrix: Solid
Analysis Batch: 762209

Client Sample ID: Method Blank
Prep Type: SPLP East
Prep Batch: 761630

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.077	mg/L		03/01/21 11:32	03/03/21 18:39	1
Antimony	ND		0.020	0.0037	mg/L		03/01/21 11:32	03/03/21 18:39	1
Arsenic	ND		0.015	0.0033	mg/L		03/01/21 11:32	03/03/21 18:39	1
Barium	ND		0.20	0.013	mg/L		03/01/21 11:32	03/03/21 18:39	1
Beryllium	ND		0.0020	0.00017	mg/L		03/01/21 11:32	03/03/21 18:39	1
Cadmium	ND		0.0040	0.00033	mg/L		03/01/21 11:32	03/03/21 18:39	1
Calcium	ND		5.0	0.15	mg/L		03/01/21 11:32	03/03/21 18:39	1
Chromium	ND		0.010	0.0050	mg/L		03/01/21 11:32	03/03/21 18:39	1
Cobalt	ND		0.050	0.0020	mg/L		03/01/21 11:32	03/03/21 18:39	1
Copper	ND		0.025	0.0069	mg/L		03/01/21 11:32	03/03/21 18:39	1
Iron	ND		0.15	0.081	mg/L		03/01/21 11:32	03/03/21 18:39	1
Lead	ND		0.010	0.0024	mg/L		03/01/21 11:32	03/03/21 18:39	1
Magnesium	ND		5.0	0.14	mg/L		03/01/21 11:32	03/03/21 18:39	1
Manganese	ND		0.015	0.00076	mg/L		03/01/21 11:32	03/03/21 18:39	1
Nickel	ND		0.040	0.0041	mg/L		03/01/21 11:32	03/03/21 18:39	1
Potassium	ND		5.0	0.14	mg/L		03/01/21 11:32	03/03/21 18:39	1
Selenium	ND		0.020	0.0059	mg/L		03/01/21 11:32	03/03/21 18:39	1
Silver	ND		0.010	0.0058	mg/L		03/01/21 11:32	03/03/21 18:39	1
Sodium	ND		5.0	0.084	mg/L		03/01/21 11:32	03/03/21 18:39	1
Thallium	ND		0.020	0.0041	mg/L		03/01/21 11:32	03/03/21 18:39	1
Vanadium	ND		0.050	0.0072	mg/L		03/01/21 11:32	03/03/21 18:39	1
Zinc	0.00439	J	0.030	0.0012	mg/L		03/01/21 11:32	03/03/21 18:39	1

Lab Sample ID: 460-228664-1 MS
Matrix: Solid
Analysis Batch: 762209

Client Sample ID: N: Control
Prep Type: SPLP East
Prep Batch: 761630

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	0.31		2.00	2.47		mg/L		108	75 - 125
Antimony	0.66		0.500	1.15		mg/L		100	75 - 125
Arsenic	ND		2.00	2.17		mg/L		108	75 - 125
Barium	0.065	J	2.00	2.21		mg/L		107	75 - 125
Beryllium	ND		0.0500	0.0531		mg/L		106	75 - 125
Cadmium	ND		0.0500	0.0536		mg/L		107	75 - 125
Calcium	41.6		20.0	62.01		mg/L		102	75 - 125
Chromium	ND		0.200	0.211		mg/L		105	75 - 125
Cobalt	ND		0.500	0.540		mg/L		108	75 - 125
Copper	ND		0.250	0.271		mg/L		108	75 - 125
Iron	0.11	J	1.00	1.16		mg/L		105	75 - 125
Lead	ND		0.500	0.534		mg/L		107	75 - 125
Magnesium	7.3		20.0	28.09		mg/L		104	75 - 125
Manganese	0.039		0.500	0.562		mg/L		105	75 - 125
Nickel	ND		0.500	0.543		mg/L		109	75 - 125
Potassium	1.5	J	20.0	22.70		mg/L		106	75 - 125
Selenium	ND		2.00	2.07		mg/L		103	75 - 125
Silver	ND		0.0500	0.0519		mg/L		104	75 - 125
Sodium	12.1	B	20.0	33.52		mg/L		107	75 - 125
Thallium	ND		2.00	2.16		mg/L		108	75 - 125
Vanadium	ND		0.500	0.538		mg/L		108	75 - 125

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 460-228664-1 MS
Matrix: Solid
Analysis Batch: 762209

Client Sample ID: N: Control
Prep Type: SPLP East
Prep Batch: 761630

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	0.0053	J B	0.500	0.543		mg/L		107	75 - 125

Lab Sample ID: 460-228664-1 DU
Matrix: Solid
Analysis Batch: 762209

Client Sample ID: N: Control
Prep Type: SPLP East
Prep Batch: 761630

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	0.31		0.315		mg/L		2	20
Antimony	0.66		0.658		mg/L		0.4	20
Arsenic	ND		0.00485	J	mg/L		NC	20
Barium	0.065	J	0.0662	J	mg/L		2	20
Beryllium	ND		ND		mg/L		NC	20
Cadmium	ND		ND		mg/L		NC	20
Calcium	41.6		41.55		mg/L		0.1	20
Chromium	ND		ND		mg/L		NC	20
Cobalt	ND		ND		mg/L		NC	20
Copper	ND		ND		mg/L		NC	20
Iron	0.11	J	0.106	J	mg/L		6	20
Lead	ND		ND		mg/L		NC	20
Magnesium	7.3		7.25		mg/L		0.4	20
Manganese	0.039		0.0391		mg/L		0.2	20
Nickel	ND		ND		mg/L		NC	20
Potassium	1.5	J	1.59	J	mg/L		4	20
Selenium	ND		ND		mg/L		NC	20
Silver	ND		ND		mg/L		NC	20
Sodium	12.1	B	12.11		mg/L		0.2	20
Thallium	ND		0.00444	J	mg/L		NC	20
Vanadium	ND		ND		mg/L		NC	20
Zinc	0.0053	J B	0.00601	J	mg/L		12	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 460-761211/1-A
Matrix: Solid
Analysis Batch: 761243

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 761211

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		02/26/21 12:17	02/26/21 15:03	1

Lab Sample ID: LCS 460-761211/2-A
Matrix: Solid
Analysis Batch: 761243

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 761211

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	4.71		ug/L		94	80 - 120

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: MB 460-761627/1-A
Matrix: Solid
Analysis Batch: 761692

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 761627

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/01/21 11:20	03/01/21 14:04	1

Lab Sample ID: MB 460-761910/1-A
Matrix: Solid
Analysis Batch: 761985

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 761910

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/02/21 12:08	03/02/21 15:17	1

Lab Sample ID: LCS 460-761910/2-A
Matrix: Solid
Analysis Batch: 761985

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 761910

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	4.43		ug/L		89	80 - 120

Lab Sample ID: LB 460-761025/1-D
Matrix: Solid
Analysis Batch: 761243

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 761211

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		02/26/21 12:17	02/26/21 15:47	1

Lab Sample ID: 460-228594-A-1-M MS
Matrix: Solid
Analysis Batch: 761243

Client Sample ID: Matrix Spike
Prep Type: TCLP
Prep Batch: 761211

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		5.00	5.00		ug/L		100	75 - 125

Lab Sample ID: 460-228594-A-1-L DU
Matrix: Solid
Analysis Batch: 761243

Client Sample ID: Duplicate
Prep Type: TCLP
Prep Batch: 761211

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Mercury	ND		ND		ug/L		NC	20

Lab Sample ID: LB 460-761267/1-G
Matrix: Solid
Analysis Batch: 761692

Client Sample ID: Method Blank
Prep Type: SPLP East
Prep Batch: 761627

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/01/21 11:20	03/01/21 14:58	1

Lab Sample ID: 460-228664-11 MS
Matrix: Solid
Analysis Batch: 761985

Client Sample ID: S: 3% P.C., OC, surf
Prep Type: SPLP East
Prep Batch: 761910

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		5.00	4.40		ug/L		88	75 - 125

Method: 7470A - Mercury (CVAA)

Lab Sample ID: 460-228664-11 DU
Matrix: Solid
Analysis Batch: 761985

Client Sample ID: S: 3% P.C., OC, surf
Prep Type: SPLP East
Prep Batch: 761910

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Mercury	ND			ND		ug/L				NC	20

Method: 9045D - pH

Lab Sample ID: MB 460-763191/2
Matrix: Solid
Analysis Batch: 763191

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.5		0.1		0.1	SU			03/08/21 13:58	1
Temperature	22.9		0.1		0.1	Degrees C			03/08/21 13:58	1
Corrosivity	5.5		0.1		0.1	SU			03/08/21 13:58	1

Lab Sample ID: LCSSRM 460-763191/3
Matrix: Solid
Analysis Batch: 763191

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits		
pH			8.31	8.2		SU		98.7	97.6 - 102.4		
Corrosivity			8.31	8.2		SU		98.7	97.6 - 102.4		

Lab Sample ID: 460-228664-1 DU
Matrix: Solid
Analysis Batch: 763191

Client Sample ID: N: Control
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.4	HF		7.3		SU				1	10
Temperature	21.4	HF		21.4		Degrees C				0	10
Corrosivity	7.4	HF		7.3		SU				1	10

Method: Moisture - Percent Moisture

Lab Sample ID: 460-228679-A-3 DU
Matrix: Solid
Analysis Batch: 760893

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	11.9			8.0	F3	%				40	20
Percent Solids	88.1			92.0		%				4	20

Lab Sample ID: 460-228662-A-3 DU
Matrix: Solid
Analysis Batch: 760935

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	18.5			12.6	F3	%				38	20
Percent Solids	81.5			87.4		%				7	20

GC/MS VOA

Leach Batch: 761082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-3	S: 10% P.C.	TCLP	Solid	1311	
460-228664-4	S: 10% P.C., PAC	TCLP	Solid	1311	
460-228664-5	N: 10% P.C., PAC, surf	TCLP	Solid	1311	
460-228664-6	N: 10% P.C., OC	TCLP	Solid	1311	
460-228664-7	S: 10% P.C., OC, surf	TCLP	Solid	1311	
LB 460-761082/1-A	Method Blank	TCLP	Solid	1311	

Analysis Batch: 761351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-3	S: 10% P.C.	TCLP	Solid	8260D	761082
460-228664-4	S: 10% P.C., PAC	TCLP	Solid	8260D	761082
460-228664-5	N: 10% P.C., PAC, surf	TCLP	Solid	8260D	761082
460-228664-6	N: 10% P.C., OC	TCLP	Solid	8260D	761082
460-228664-7	S: 10% P.C., OC, surf	TCLP	Solid	8260D	761082
LB 460-761082/1-A	Method Blank	TCLP	Solid	8260D	761082
MB 460-761351/10	Method Blank	Total/NA	Solid	8260D	
LCS 460-761351/5	Lab Control Sample	Total/NA	Solid	8260D	
LCSD 460-761351/6	Lab Control Sample Dup	Total/NA	Solid	8260D	

Leach Batch: 761379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-1	N: Control	SPLP	Solid	1312	
460-228664-2	S: Control	SPLP	Solid	1312	
460-228664-8	N: 3% P.C., PAC, surf	SPLP	Solid	1312	
460-228664-9	N: 3% P.C., OC, surf	SPLP	Solid	1312	
460-228664-10	S: 3% P.C., PAC, surf	SPLP	Solid	1312	
460-228664-11	S: 3% P.C., OC, surf	SPLP	Solid	1312	
LB 460-761379/1-A	Method Blank	SPLP	Solid	1312	

Analysis Batch: 761449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-1	N: Control	SPLP	Solid	8260D	761379
460-228664-2	S: Control	SPLP	Solid	8260D	761379
460-228664-8	N: 3% P.C., PAC, surf	SPLP	Solid	8260D	761379
460-228664-9	N: 3% P.C., OC, surf	SPLP	Solid	8260D	761379
460-228664-10	S: 3% P.C., PAC, surf	SPLP	Solid	8260D	761379
460-228664-11	S: 3% P.C., OC, surf	SPLP	Solid	8260D	761379
LB 460-761379/1-A	Method Blank	SPLP	Solid	8260D	761379
MB 460-761449/10	Method Blank	Total/NA	Solid	8260D	
LCS 460-761449/5	Lab Control Sample	Total/NA	Solid	8260D	
LCSD 460-761449/6	Lab Control Sample Dup	Total/NA	Solid	8260D	

GC/MS Semi VOA

Leach Batch: 587098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-1	N: Control	SPLP East	Solid	1312	
460-228664-2 - DL	S: Control	SPLP East	Solid	1312	
460-228664-2	S: Control	SPLP East	Solid	1312	
460-228664-8	N: 3% P.C., PAC, surf	SPLP East	Solid	1312	
460-228664-9	N: 3% P.C., OC, surf	SPLP East	Solid	1312	

GC/MS Semi VOA (Continued)

Leach Batch: 587098 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-10	S: 3% P.C., PAC, surf	SPLP East	Solid	1312	
460-228664-11	S: 3% P.C., OC, surf	SPLP East	Solid	1312	
LB 500-587098/1-B	Method Blank	SPLP East	Solid	1312	

Prep Batch: 587348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-1	N: Control	SPLP East	Solid	3510C	587098
460-228664-2 - DL	S: Control	SPLP East	Solid	3510C	587098
460-228664-2	S: Control	SPLP East	Solid	3510C	587098
460-228664-8	N: 3% P.C., PAC, surf	SPLP East	Solid	3510C	587098
460-228664-9	N: 3% P.C., OC, surf	SPLP East	Solid	3510C	587098
460-228664-10	S: 3% P.C., PAC, surf	SPLP East	Solid	3510C	587098
460-228664-11	S: 3% P.C., OC, surf	SPLP East	Solid	3510C	587098
LB 500-587098/1-B	Method Blank	SPLP East	Solid	3510C	587098
MB 500-587348/1-A	Method Blank	Total/NA	Solid	3510C	
LCS 500-587348/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 500-587348/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	

Analysis Batch: 587404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-1	N: Control	SPLP East	Solid	8270D SIM	587348
460-228664-2	S: Control	SPLP East	Solid	8270D SIM	587348
460-228664-2 - DL	S: Control	SPLP East	Solid	8270D SIM	587348
460-228664-8	N: 3% P.C., PAC, surf	SPLP East	Solid	8270D SIM	587348
460-228664-9	N: 3% P.C., OC, surf	SPLP East	Solid	8270D SIM	587348
460-228664-10	S: 3% P.C., PAC, surf	SPLP East	Solid	8270D SIM	587348
460-228664-11	S: 3% P.C., OC, surf	SPLP East	Solid	8270D SIM	587348
460-228664-11	S: 3% P.C., OC, surf	SPLP East	Solid	8270D SIM	587348
LB 500-587098/1-B	Method Blank	SPLP East	Solid	8270D SIM	587348
MB 500-587348/1-A	Method Blank	Total/NA	Solid	8270D SIM	587348
LCS 500-587348/2-A	Lab Control Sample	Total/NA	Solid	8270D SIM	587348
LCSD 500-587348/3-A	Lab Control Sample Dup	Total/NA	Solid	8270D SIM	587348

Prep Batch: 760984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-3	S: 10% P.C.	Total/NA	Solid	3546	
460-228664-4	S: 10% P.C., PAC	Total/NA	Solid	3546	
460-228664-5	N: 10% P.C., PAC, surf	Total/NA	Solid	3546	
460-228664-6	N: 10% P.C., OC	Total/NA	Solid	3546	
460-228664-7	S: 10% P.C., OC, surf	Total/NA	Solid	3546	
MB 460-760984/1-A	Method Blank	Total/NA	Solid	3546	
LCS 460-760984/2-A	Lab Control Sample	Total/NA	Solid	3546	
460-228674-A-3-A MS	Matrix Spike	Total/NA	Solid	3546	
460-228674-A-3-B MSD	Matrix Spike Duplicate	Total/NA	Solid	3546	

Analysis Batch: 761121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-3	S: 10% P.C.	Total/NA	Solid	8270E	760984
460-228664-4	S: 10% P.C., PAC	Total/NA	Solid	8270E	760984
460-228664-5	N: 10% P.C., PAC, surf	Total/NA	Solid	8270E	760984
MB 460-760984/1-A	Method Blank	Total/NA	Solid	8270E	760984

GC/MS Semi VOA (Continued)

Analysis Batch: 761121 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 460-760984/2-A	Lab Control Sample	Total/NA	Solid	8270E	760984
460-228674-A-3-A MS	Matrix Spike	Total/NA	Solid	8270E	760984
460-228674-A-3-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8270E	760984

Analysis Batch: 761284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-6	N: 10% P.C., OC	Total/NA	Solid	8270E	760984
460-228664-7	S: 10% P.C., OC, surf	Total/NA	Solid	8270E	760984

GC Semi VOA

Leach Batch: 761025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-3	S: 10% P.C.	TCLP	Solid	1311	
460-228664-4	S: 10% P.C., PAC	TCLP	Solid	1311	
460-228664-5	N: 10% P.C., PAC, surf	TCLP	Solid	1311	
460-228664-6	N: 10% P.C., OC	TCLP	Solid	1311	
460-228664-7	S: 10% P.C., OC, surf	TCLP	Solid	1311	
LB 460-761025/1-C	Method Blank	TCLP	Solid	1311	

Prep Batch: 761052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-3	S: 10% P.C.	TCLP	Solid	3510C	761025
460-228664-4	S: 10% P.C., PAC	TCLP	Solid	3510C	761025
460-228664-5	N: 10% P.C., PAC, surf	TCLP	Solid	3510C	761025
460-228664-6	N: 10% P.C., OC	TCLP	Solid	3510C	761025
460-228664-7	S: 10% P.C., OC, surf	TCLP	Solid	3510C	761025
LB 460-761025/1-C	Method Blank	TCLP	Solid	3510C	761025
MB 460-761052/1-A	Method Blank	Total/NA	Solid	3510C	
LCS 460-761052/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 460-761052/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	

Analysis Batch: 761068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 460-761052/1-A	Method Blank	Total/NA	Solid	8081B	761052
LCS 460-761052/2-A	Lab Control Sample	Total/NA	Solid	8081B	761052
LCSD 460-761052/3-A	Lab Control Sample Dup	Total/NA	Solid	8081B	761052

Leach Batch: 761267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-1	N: Control	SPLP East	Solid	1312	
460-228664-2	S: Control	SPLP East	Solid	1312	
460-228664-8	N: 3% P.C., PAC, surf	SPLP East	Solid	1312	
460-228664-9	N: 3% P.C., OC, surf	SPLP East	Solid	1312	
460-228664-10	S: 3% P.C., PAC, surf	SPLP East	Solid	1312	
460-228664-11	S: 3% P.C., OC, surf	SPLP East	Solid	1312	
LB 460-761267/1-D	Method Blank	SPLP East	Solid	1312	

Prep Batch: 761374

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-1	N: Control	SPLP East	Solid	3510C	761267

GC Semi VOA (Continued)

Prep Batch: 761374 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-2	S: Control	SPLP East	Solid	3510C	761267
460-228664-8	N: 3% P.C., PAC, surf	SPLP East	Solid	3510C	761267
460-228664-9	N: 3% P.C., OC, surf	SPLP East	Solid	3510C	761267
460-228664-10	S: 3% P.C., PAC, surf	SPLP East	Solid	3510C	761267
460-228664-11	S: 3% P.C., OC, surf	SPLP East	Solid	3510C	761267
LB 460-761267/1-D	Method Blank	SPLP East	Solid	3510C	761267
MB 460-761374/1-A	Method Blank	Total/NA	Solid	3510C	
LCS 460-761374/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 460-761374/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	

Analysis Batch: 761535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-1	N: Control	SPLP East	Solid	8081B	761374
460-228664-3	S: 10% P.C.	TCLP	Solid	8081B	761052
460-228664-4	S: 10% P.C., PAC	TCLP	Solid	8081B	761052
460-228664-5	N: 10% P.C., PAC, surf	TCLP	Solid	8081B	761052
460-228664-6	N: 10% P.C., OC	TCLP	Solid	8081B	761052
460-228664-8	N: 3% P.C., PAC, surf	SPLP East	Solid	8081B	761374
460-228664-9	N: 3% P.C., OC, surf	SPLP East	Solid	8081B	761374
460-228664-10	S: 3% P.C., PAC, surf	SPLP East	Solid	8081B	761374
LB 460-761025/1-C	Method Blank	TCLP	Solid	8081B	761052

Analysis Batch: 761633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 460-761267/1-D	Method Blank	SPLP East	Solid	8081B	761374
MB 460-761374/1-A	Method Blank	Total/NA	Solid	8081B	761374
LCS 460-761374/2-A	Lab Control Sample	Total/NA	Solid	8081B	761374
LCSD 460-761374/3-A	Lab Control Sample Dup	Total/NA	Solid	8081B	761374

Analysis Batch: 763330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-2	S: Control	SPLP East	Solid	8081B	761374
460-228664-7	S: 10% P.C., OC, surf	TCLP	Solid	8081B	761052
460-228664-11	S: 3% P.C., OC, surf	SPLP East	Solid	8081B	761374

Metals

Leach Batch: 761025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-3	S: 10% P.C.	TCLP	Solid	1311	
460-228664-4	S: 10% P.C., PAC	TCLP	Solid	1311	
460-228664-5	N: 10% P.C., PAC, surf	TCLP	Solid	1311	
460-228664-6	N: 10% P.C., OC	TCLP	Solid	1311	
460-228664-7	S: 10% P.C., OC, surf	TCLP	Solid	1311	
LB 460-761025/1-D	Method Blank	TCLP	Solid	1311	
LB 460-761025/1-E ^5	Method Blank	TCLP	Solid	1311	
460-228594-A-1-M MS	Matrix Spike	TCLP	Solid	1311	
460-228594-A-1-P MS	Matrix Spike	TCLP	Solid	1311	
460-228594-A-1-L DU	Duplicate	TCLP	Solid	1311	
460-228594-A-1-O DU	Duplicate	TCLP	Solid	1311	

Metals

Prep Batch: 761211

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-3	S: 10% P.C.	TCLP	Solid	7470A	761025
460-228664-4	S: 10% P.C., PAC	TCLP	Solid	7470A	761025
460-228664-5	N: 10% P.C., PAC, surf	TCLP	Solid	7470A	761025
460-228664-6	N: 10% P.C., OC	TCLP	Solid	7470A	761025
460-228664-7	S: 10% P.C., OC, surf	TCLP	Solid	7470A	761025
LB 460-761025/1-D	Method Blank	TCLP	Solid	7470A	761025
MB 460-761211/1-A	Method Blank	Total/NA	Solid	7470A	
LCS 460-761211/2-A	Lab Control Sample	Total/NA	Solid	7470A	
460-228594-A-1-M MS	Matrix Spike	TCLP	Solid	7470A	761025
460-228594-A-1-L DU	Duplicate	TCLP	Solid	7470A	761025

Prep Batch: 761212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-3	S: 10% P.C.	TCLP	Solid	3010A	761025
460-228664-4	S: 10% P.C., PAC	TCLP	Solid	3010A	761025
460-228664-5	N: 10% P.C., PAC, surf	TCLP	Solid	3010A	761025
460-228664-6	N: 10% P.C., OC	TCLP	Solid	3010A	761025
460-228664-7	S: 10% P.C., OC, surf	TCLP	Solid	3010A	761025
LB 460-761025/1-E ^5	Method Blank	TCLP	Solid	3010A	761025
MB 460-761212/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 460-761212/2-A	Lab Control Sample	Total/NA	Solid	3010A	
460-228594-A-1-P MS	Matrix Spike	TCLP	Solid	3010A	761025
460-228594-A-1-O DU	Duplicate	TCLP	Solid	3010A	761025

Analysis Batch: 761233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-3	S: 10% P.C.	TCLP	Solid	6010D	761212
460-228664-4	S: 10% P.C., PAC	TCLP	Solid	6010D	761212
460-228664-5	N: 10% P.C., PAC, surf	TCLP	Solid	6010D	761212
460-228664-6	N: 10% P.C., OC	TCLP	Solid	6010D	761212
460-228664-7	S: 10% P.C., OC, surf	TCLP	Solid	6010D	761212
LB 460-761025/1-E ^5	Method Blank	TCLP	Solid	6010D	761212
MB 460-761212/1-A	Method Blank	Total/NA	Solid	6010D	761212
LCS 460-761212/2-A	Lab Control Sample	Total/NA	Solid	6010D	761212
460-228594-A-1-P MS	Matrix Spike	TCLP	Solid	6010D	761212
460-228594-A-1-O DU	Duplicate	TCLP	Solid	6010D	761212

Analysis Batch: 761243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-3	S: 10% P.C.	TCLP	Solid	7470A	761211
460-228664-4	S: 10% P.C., PAC	TCLP	Solid	7470A	761211
460-228664-5	N: 10% P.C., PAC, surf	TCLP	Solid	7470A	761211
460-228664-6	N: 10% P.C., OC	TCLP	Solid	7470A	761211
460-228664-7	S: 10% P.C., OC, surf	TCLP	Solid	7470A	761211
LB 460-761025/1-D	Method Blank	TCLP	Solid	7470A	761211
MB 460-761211/1-A	Method Blank	Total/NA	Solid	7470A	761211
LCS 460-761211/2-A	Lab Control Sample	Total/NA	Solid	7470A	761211
460-228594-A-1-M MS	Matrix Spike	TCLP	Solid	7470A	761211
460-228594-A-1-L DU	Duplicate	TCLP	Solid	7470A	761211

Metals

Leach Batch: 761267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-1	N: Control	SPLP East	Solid	1312	
460-228664-2	S: Control	SPLP East	Solid	1312	
460-228664-8	N: 3% P.C., PAC, surf	SPLP East	Solid	1312	
460-228664-9	N: 3% P.C., OC, surf	SPLP East	Solid	1312	
460-228664-10	S: 3% P.C., PAC, surf	SPLP East	Solid	1312	
460-228664-11	S: 3% P.C., OC, surf	SPLP East	Solid	1312	
LB 460-761267/1-G	Method Blank	SPLP East	Solid	1312	
LB 460-761267/1-H	Method Blank	SPLP East	Solid	1312	
460-228664-1 MS	N: Control	SPLP East	Solid	1312	
460-228664-11 MS	S: 3% P.C., OC, surf	SPLP East	Solid	1312	
460-228664-1 DU	N: Control	SPLP East	Solid	1312	
460-228664-11 DU	S: 3% P.C., OC, surf	SPLP East	Solid	1312	

Prep Batch: 761627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 460-761267/1-G	Method Blank	SPLP East	Solid	7470A	761267
MB 460-761627/1-A	Method Blank	Total/NA	Solid	7470A	

Prep Batch: 761630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-1	N: Control	SPLP East	Solid	3010A	761267
460-228664-2	S: Control	SPLP East	Solid	3010A	761267
460-228664-8	N: 3% P.C., PAC, surf	SPLP East	Solid	3010A	761267
460-228664-9	N: 3% P.C., OC, surf	SPLP East	Solid	3010A	761267
460-228664-10	S: 3% P.C., PAC, surf	SPLP East	Solid	3010A	761267
460-228664-11	S: 3% P.C., OC, surf	SPLP East	Solid	3010A	761267
LB 460-761267/1-H	Method Blank	SPLP East	Solid	3010A	761267
MB 460-761630/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 460-761630/2-A	Lab Control Sample	Total/NA	Solid	3010A	
460-228664-1 MS	N: Control	SPLP East	Solid	3010A	761267
460-228664-1 DU	N: Control	SPLP East	Solid	3010A	761267

Analysis Batch: 761692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 460-761267/1-G	Method Blank	SPLP East	Solid	7470A	761627
MB 460-761627/1-A	Method Blank	Total/NA	Solid	7470A	761627

Prep Batch: 761910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-1	N: Control	SPLP East	Solid	7470A	761267
460-228664-2	S: Control	SPLP East	Solid	7470A	761267
460-228664-8	N: 3% P.C., PAC, surf	SPLP East	Solid	7470A	761267
460-228664-9	N: 3% P.C., OC, surf	SPLP East	Solid	7470A	761267
460-228664-10	S: 3% P.C., PAC, surf	SPLP East	Solid	7470A	761267
460-228664-11	S: 3% P.C., OC, surf	SPLP East	Solid	7470A	761267
MB 460-761910/1-A	Method Blank	Total/NA	Solid	7470A	
LCS 460-761910/2-A	Lab Control Sample	Total/NA	Solid	7470A	
460-228664-11 MS	S: 3% P.C., OC, surf	SPLP East	Solid	7470A	761267
460-228664-11 DU	S: 3% P.C., OC, surf	SPLP East	Solid	7470A	761267

QC Association Summary

Client: ERM-Northeast
Project/Site: TRW - Union Springs

Job ID: 460-228664-1

Metals

Analysis Batch: 761985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-1	N: Control	SPLP East	Solid	7470A	761910
460-228664-2	S: Control	SPLP East	Solid	7470A	761910
460-228664-8	N: 3% P.C., PAC, surf	SPLP East	Solid	7470A	761910
460-228664-9	N: 3% P.C., OC, surf	SPLP East	Solid	7470A	761910
460-228664-10	S: 3% P.C., PAC, surf	SPLP East	Solid	7470A	761910
460-228664-11	S: 3% P.C., OC, surf	SPLP East	Solid	7470A	761910
MB 460-761910/1-A	Method Blank	Total/NA	Solid	7470A	761910
LCS 460-761910/2-A	Lab Control Sample	Total/NA	Solid	7470A	761910
460-228664-11 MS	S: 3% P.C., OC, surf	SPLP East	Solid	7470A	761910
460-228664-11 DU	S: 3% P.C., OC, surf	SPLP East	Solid	7470A	761910

Analysis Batch: 762209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-1	N: Control	SPLP East	Solid	6010D	761630
460-228664-2	S: Control	SPLP East	Solid	6010D	761630
460-228664-8	N: 3% P.C., PAC, surf	SPLP East	Solid	6010D	761630
460-228664-9	N: 3% P.C., OC, surf	SPLP East	Solid	6010D	761630
460-228664-10	S: 3% P.C., PAC, surf	SPLP East	Solid	6010D	761630
460-228664-11	S: 3% P.C., OC, surf	SPLP East	Solid	6010D	761630
LB 460-761267/1-H	Method Blank	SPLP East	Solid	6010D	761630
MB 460-761630/1-A	Method Blank	Total/NA	Solid	6010D	761630
LCS 460-761630/2-A	Lab Control Sample	Total/NA	Solid	6010D	761630
460-228664-1 MS	N: Control	SPLP East	Solid	6010D	761630
460-228664-1 DU	N: Control	SPLP East	Solid	6010D	761630

General Chemistry

Analysis Batch: 760893

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-3	S: 10% P.C.	Total/NA	Solid	Moisture	
460-228664-4	S: 10% P.C., PAC	Total/NA	Solid	Moisture	
460-228664-5	N: 10% P.C., PAC, surf	Total/NA	Solid	Moisture	
460-228664-6	N: 10% P.C., OC	Total/NA	Solid	Moisture	
460-228664-7	S: 10% P.C., OC, surf	Total/NA	Solid	Moisture	
460-228679-A-3 DU	Duplicate	Total/NA	Solid	Moisture	

Analysis Batch: 760935

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-1	N: Control	Total/NA	Solid	Moisture	
460-228664-2	S: Control	Total/NA	Solid	Moisture	
460-228664-8	N: 3% P.C., PAC, surf	Total/NA	Solid	Moisture	
460-228664-9	N: 3% P.C., OC, surf	Total/NA	Solid	Moisture	
460-228664-10	S: 3% P.C., PAC, surf	Total/NA	Solid	Moisture	
460-228664-11	S: 3% P.C., OC, surf	Total/NA	Solid	Moisture	
460-228680-A-1 MS	Matrix Spike	Total/NA	Solid	Moisture	
460-228680-A-1 MSD	Matrix Spike Duplicate	Total/NA	Solid	Moisture	
460-228680-A-1 MSS	Matrix Spike	Total/NA	Solid	Moisture	
460-228662-A-3 DU	Duplicate	Total/NA	Solid	Moisture	

QC Association Summary

Client: ERM-Northeast
Project/Site: TRW - Union Springs

Job ID: 460-228664-1

General Chemistry

Analysis Batch: 763191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228664-1	N: Control	Total/NA	Solid	9045D	
460-228664-2	S: Control	Total/NA	Solid	9045D	
460-228664-3	S: 10% P.C.	Total/NA	Solid	9045D	
460-228664-4	S: 10% P.C., PAC	Total/NA	Solid	9045D	
460-228664-5	N: 10% P.C., PAC, surf	Total/NA	Solid	9045D	
460-228664-6	N: 10% P.C., OC	Total/NA	Solid	9045D	
460-228664-7	S: 10% P.C., OC, surf	Total/NA	Solid	9045D	
460-228664-8	N: 3% P.C., PAC, surf	Total/NA	Solid	9045D	
460-228664-9	N: 3% P.C., OC, surf	Total/NA	Solid	9045D	
460-228664-10	S: 3% P.C., PAC, surf	Total/NA	Solid	9045D	
460-228664-11	S: 3% P.C., OC, surf	Total/NA	Solid	9045D	
MB 460-763191/2	Method Blank	Total/NA	Solid	9045D	
LCSSRM 460-763191/3	Lab Control Sample	Total/NA	Solid	9045D	
460-228664-1 DU	N: Control	Total/NA	Solid	9045D	

Lab Chronicle

Client: ERM-Northeast
Job ID: 460-228664-1
Project/Site: TRW - Union Springs

Client Sample ID: N: Control
Lab Sample ID: 460-228664-1
Date Collected: 02/18/21 11:08
Matrix: Solid
Date Received: 02/24/21 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP	Leach	1312			761379	02/27/21 15:19	BJB	TAL EDI
SPLP	Analysis	8260D		1	761449	02/28/21 17:57	AMS	TAL EDI
SPLP East	Leach	1312			587098	03/03/21 12:56	CMS	TAL CHI
SPLP East	Prep	3510C			587348	03/04/21 19:38	ACK	TAL CHI
SPLP East	Analysis	8270D SIM		1	587404	03/05/21 11:36	GWB	TAL CHI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	3510C			761374	02/27/21 14:44	ATF	TAL EDI
SPLP East	Analysis	8081B		1	761535	03/01/21 12:31	FAM	TAL EDI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	3010A			761630	03/01/21 11:32	IBS	TAL EDI
SPLP East	Analysis	6010D		1	762209	03/03/21 17:55	YZH	TAL EDI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	7470A			761910	03/02/21 12:08	RBS	TAL EDI
SPLP East	Analysis	7470A		1	761985	03/02/21 15:35	RBS	TAL EDI
Total/NA	Analysis	9045D		1	763191	03/08/21 14:03	YAH	TAL EDI
Total/NA	Analysis	Moisture		1	760935	02/25/21 10:51	MMC	TAL EDI

Client Sample ID: S: Control
Lab Sample ID: 460-228664-2
Date Collected: 02/18/21 17:40
Matrix: Solid
Date Received: 02/24/21 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP	Leach	1312			761379	02/27/21 15:19	BJB	TAL EDI
SPLP	Analysis	8260D		1	761449	02/28/21 18:20	AMS	TAL EDI
SPLP East	Leach	1312			587098	03/03/21 12:56	CMS	TAL CHI
SPLP East	Prep	3510C			587348	03/04/21 19:38	ACK	TAL CHI
SPLP East	Analysis	8270D SIM		1	587404	03/05/21 12:04	GWB	TAL CHI
SPLP East	Leach	1312	DL		587098	03/03/21 12:56	CMS	TAL CHI
SPLP East	Prep	3510C	DL		587348	03/04/21 19:38	ACK	TAL CHI
SPLP East	Analysis	8270D SIM	DL	10	587404	03/05/21 14:52	GWB	TAL CHI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	3510C			761374	02/27/21 14:44	ATF	TAL EDI
SPLP East	Analysis	8081B		1	763330	03/09/21 05:21	FAM	TAL EDI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	3010A			761630	03/01/21 11:32	IBS	TAL EDI
SPLP East	Analysis	6010D		1	762209	03/03/21 18:19	YZH	TAL EDI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	7470A			761910	03/02/21 12:08	RBS	TAL EDI
SPLP East	Analysis	7470A		1	761985	03/02/21 15:37	RBS	TAL EDI
Total/NA	Analysis	9045D		1	763191	03/08/21 14:07	YAH	TAL EDI
Total/NA	Analysis	Moisture		1	760935	02/25/21 10:51	MMC	TAL EDI

Lab Chronicle

Client: ERM-Northeast
Job ID: 460-228664-1
Project/Site: TRW - Union Springs

Client Sample ID: S: 10% P.C.
Lab Sample ID: 460-228664-3
Date Collected: 02/18/21 15:00
Matrix: Solid
Date Received: 02/24/21 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			761082	02/26/21 04:26	BJB	TAL EDI
TCLP	Analysis	8260D		10	761351	02/27/21 20:37	AMS	TAL EDI
TCLP	Leach	1311			761025	02/25/21 17:00	JDP	TAL EDI
TCLP	Prep	3510C			761052	02/26/21 09:07	JMS	TAL EDI
TCLP	Analysis	8081B		1	761535	03/01/21 11:18	FAM	TAL EDI
TCLP	Leach	1311			761025	02/25/21 17:00	JDP	TAL EDI
TCLP	Prep	3010A			761212	02/26/21 12:27	IBS	TAL EDI
TCLP	Analysis	6010D		5	761233	02/26/21 17:44	YZH	TAL EDI
TCLP	Leach	1311			761025	02/25/21 17:00	JDP	TAL EDI
TCLP	Prep	7470A			761211	02/26/21 12:17	RBS	TAL EDI
TCLP	Analysis	7470A		1	761243	02/26/21 15:33	RBS	TAL EDI
Total/NA	Analysis	9045D		1	763191	03/08/21 14:09	YAH	TAL EDI
Total/NA	Analysis	Moisture		1	760893	02/25/21 09:07	MMC	TAL EDI

Client Sample ID: S: 10% P.C.
Lab Sample ID: 460-228664-3
Date Collected: 02/18/21 15:00
Matrix: Solid
Date Received: 02/24/21 17:00
Percent Solids: 84.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			760984	02/25/21 15:34	DMS	TAL EDI
Total/NA	Analysis	8270E		50	761121	02/26/21 18:49	DAN	TAL EDI

Client Sample ID: S: 10% P.C., PAC
Lab Sample ID: 460-228664-4
Date Collected: 02/18/21 15:30
Matrix: Solid
Date Received: 02/24/21 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			761082	02/26/21 04:26	BJB	TAL EDI
TCLP	Analysis	8260D		10	761351	02/27/21 21:00	AMS	TAL EDI
TCLP	Leach	1311			761025	02/25/21 17:00	JDP	TAL EDI
TCLP	Prep	3510C			761052	02/26/21 09:07	JMS	TAL EDI
TCLP	Analysis	8081B		1	761535	03/01/21 11:33	FAM	TAL EDI
TCLP	Leach	1311			761025	02/25/21 17:00	JDP	TAL EDI
TCLP	Prep	3010A			761212	02/26/21 12:27	IBS	TAL EDI
TCLP	Analysis	6010D		5	761233	02/26/21 17:48	YZH	TAL EDI
TCLP	Leach	1311			761025	02/25/21 17:00	JDP	TAL EDI
TCLP	Prep	7470A			761211	02/26/21 12:17	RBS	TAL EDI
TCLP	Analysis	7470A		1	761243	02/26/21 15:34	RBS	TAL EDI
Total/NA	Analysis	9045D		1	763191	03/08/21 14:10	YAH	TAL EDI
Total/NA	Analysis	Moisture		1	760893	02/25/21 09:07	MMC	TAL EDI

Lab Chronicle

Client: ERM-Northeast
Project/Site: TRW - Union Springs

Job ID: 460-228664-1

Client Sample ID: S: 10% P.C., PAC

Lab Sample ID: 460-228664-4
Date Collected: 02/18/21 15:30
Matrix: Solid
Date Received: 02/24/21 17:00
Percent Solids: 84.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			760984	02/25/21 15:34	DMS	TAL EDI
Total/NA	Analysis	8270E		10	761121	02/26/21 19:11	DAN	TAL EDI

Client Sample ID: N: 10% P.C., PAC, surf

Lab Sample ID: 460-228664-5
Date Collected: 02/18/21 11:00
Matrix: Solid
Date Received: 02/24/21 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			761082	02/26/21 04:26	BJB	TAL EDI
TCLP	Analysis	8260D		10	761351	02/27/21 21:22	AMS	TAL EDI
TCLP	Leach	1311			761025	02/25/21 17:00	JDP	TAL EDI
TCLP	Prep	3510C			761052	02/26/21 09:07	JMS	TAL EDI
TCLP	Analysis	8081B		1	761535	03/01/21 11:47	FAM	TAL EDI
TCLP	Leach	1311			761025	02/25/21 17:00	JDP	TAL EDI
TCLP	Prep	3010A			761212	02/26/21 12:27	IBS	TAL EDI
TCLP	Analysis	6010D		5	761233	02/26/21 17:52	YZH	TAL EDI
TCLP	Leach	1311			761025	02/25/21 17:00	JDP	TAL EDI
TCLP	Prep	7470A			761211	02/26/21 12:17	RBS	TAL EDI
TCLP	Analysis	7470A		1	761243	02/26/21 15:36	RBS	TAL EDI
Total/NA	Analysis	9045D		1	763191	03/08/21 14:12	YAH	TAL EDI
Total/NA	Analysis	Moisture		1	760893	02/25/21 09:07	MMC	TAL EDI

Client Sample ID: N: 10% P.C., PAC, surf

Lab Sample ID: 460-228664-5
Date Collected: 02/18/21 11:00
Matrix: Solid
Date Received: 02/24/21 17:00
Percent Solids: 86.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			760984	02/25/21 15:34	DMS	TAL EDI
Total/NA	Analysis	8270E		5	761121	02/26/21 19:34	DAN	TAL EDI

Client Sample ID: N: 10% P.C., OC

Lab Sample ID: 460-228664-6
Date Collected: 02/18/21 12:30
Matrix: Solid
Date Received: 02/24/21 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			761082	02/26/21 04:26	BJB	TAL EDI
TCLP	Analysis	8260D		10	761351	02/27/21 21:45	AMS	TAL EDI
TCLP	Leach	1311			761025	02/25/21 17:00	JDP	TAL EDI
TCLP	Prep	3510C			761052	02/26/21 09:07	JMS	TAL EDI
TCLP	Analysis	8081B		1	761535	03/01/21 12:02	FAM	TAL EDI
TCLP	Leach	1311			761025	02/25/21 17:00	JDP	TAL EDI
TCLP	Prep	3010A			761212	02/26/21 12:27	IBS	TAL EDI
TCLP	Analysis	6010D		5	761233	02/26/21 17:56	YZH	TAL EDI
TCLP	Leach	1311			761025	02/25/21 17:00	JDP	TAL EDI
TCLP	Prep	7470A			761211	02/26/21 12:17	RBS	TAL EDI
TCLP	Analysis	7470A		1	761243	02/26/21 15:38	RBS	TAL EDI

Client Sample ID: N: 10% P.C., OC
Lab Sample ID: 460-228664-6
Date Collected: 02/18/21 12:30
Matrix: Solid
Date Received: 02/24/21 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	763191	03/08/21 14:13	YAH	TAL EDI
Total/NA	Analysis	Moisture		1	760893	02/25/21 09:07	MMC	TAL EDI

Client Sample ID: N: 10% P.C., OC
Lab Sample ID: 460-228664-6
Date Collected: 02/18/21 12:30
Matrix: Solid
Date Received: 02/24/21 17:00
Percent Solids: 86.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			760984	02/25/21 15:34	DMS	TAL EDI
Total/NA	Analysis	8270E		2	761284	02/27/21 06:27	YAH	TAL EDI

Client Sample ID: S: 10% P.C., OC, surf
Lab Sample ID: 460-228664-7
Date Collected: 02/18/21 16:00
Matrix: Solid
Date Received: 02/24/21 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			761082	02/26/21 04:26	BJB	TAL EDI
TCLP	Analysis	8260D		10	761351	02/27/21 22:08	AMS	TAL EDI
TCLP	Leach	1311			761025	02/25/21 17:00	JDP	TAL EDI
TCLP	Prep	3510C			761052	02/26/21 09:07	JMS	TAL EDI
TCLP	Analysis	8081B		1	763330	03/09/21 05:34	FAM	TAL EDI
TCLP	Leach	1311			761025	02/25/21 17:00	JDP	TAL EDI
TCLP	Prep	3010A			761212	02/26/21 12:27	IBS	TAL EDI
TCLP	Analysis	6010D		5	761233	02/26/21 18:08	YZH	TAL EDI
TCLP	Leach	1311			761025	02/25/21 17:00	JDP	TAL EDI
TCLP	Prep	7470A			761211	02/26/21 12:17	RBS	TAL EDI
TCLP	Analysis	7470A		1	761243	02/26/21 15:40	RBS	TAL EDI
Total/NA	Analysis	9045D		1	763191	03/08/21 14:17	YAH	TAL EDI
Total/NA	Analysis	Moisture		1	760893	02/25/21 09:07	MMC	TAL EDI

Client Sample ID: S: 10% P.C., OC, surf
Lab Sample ID: 460-228664-7
Date Collected: 02/18/21 16:00
Matrix: Solid
Date Received: 02/24/21 17:00
Percent Solids: 78.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			760984	02/25/21 15:34	DMS	TAL EDI
Total/NA	Analysis	8270E		20	761284	02/27/21 07:14	YAH	TAL EDI

Client Sample ID: N: 3% P.C., PAC, surf
Lab Sample ID: 460-228664-8
Date Collected: 02/18/21 13:30
Matrix: Solid
Date Received: 02/24/21 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP	Leach	1312			761379	02/27/21 15:19	BJB	TAL EDI
SPLP	Analysis	8260D		1	761449	02/28/21 18:43	AMS	TAL EDI

Lab Chronicle

Client: ERM-Northeast
Job ID: 460-228664-1
Project/Site: TRW - Union Springs

Client Sample ID: N: 3% P.C., PAC, surf
Lab Sample ID: 460-228664-8
Date Collected: 02/18/21 13:30
Matrix: Solid
Date Received: 02/24/21 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Leach	1312			587098	03/03/21 12:56	CMS	TAL CHI
SPLP East	Prep	3510C			587348	03/04/21 19:38	ACK	TAL CHI
SPLP East	Analysis	8270D SIM		1	587404	03/05/21 12:32	GWB	TAL CHI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	3510C			761374	02/27/21 14:44	ATF	TAL EDI
SPLP East	Analysis	8081B		1	761535	03/01/21 13:00	FAM	TAL EDI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	3010A			761630	03/01/21 11:32	IBS	TAL EDI
SPLP East	Analysis	6010D		1	762209	03/03/21 18:23	YZH	TAL EDI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	7470A			761910	03/02/21 12:08	RBS	TAL EDI
SPLP East	Analysis	7470A		1	761985	03/02/21 15:40	RBS	TAL EDI
Total/NA	Analysis	9045D		1	763191	03/08/21 14:18	YAH	TAL EDI
Total/NA	Analysis	Moisture		1	760935	02/25/21 10:51	MMC	TAL EDI

Client Sample ID: N: 3% P.C., OC, surf
Lab Sample ID: 460-228664-9
Date Collected: 02/18/21 14:00
Matrix: Solid
Date Received: 02/24/21 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP	Leach	1312			761379	02/27/21 15:19	BJB	TAL EDI
SPLP	Analysis	8260D		1	761449	02/28/21 19:05	AMS	TAL EDI
SPLP East	Leach	1312			587098	03/03/21 12:56	CMS	TAL CHI
SPLP East	Prep	3510C			587348	03/04/21 19:38	ACK	TAL CHI
SPLP East	Analysis	8270D SIM		1	587404	03/05/21 13:00	GWB	TAL CHI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	3510C			761374	02/27/21 14:44	ATF	TAL EDI
SPLP East	Analysis	8081B		1	761535	03/01/21 13:15	FAM	TAL EDI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	3010A			761630	03/01/21 11:32	IBS	TAL EDI
SPLP East	Analysis	6010D		1	762209	03/03/21 18:27	YZH	TAL EDI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	7470A			761910	03/02/21 12:08	RBS	TAL EDI
SPLP East	Analysis	7470A		1	761985	03/02/21 15:41	RBS	TAL EDI
Total/NA	Analysis	9045D		1	763191	03/08/21 14:21	YAH	TAL EDI
Total/NA	Analysis	Moisture		1	760935	02/25/21 10:51	MMC	TAL EDI

Client Sample ID: S: 3% P.C., PAC, surf
Lab Sample ID: 460-228664-10
Date Collected: 02/18/21 14:20
Matrix: Solid
Date Received: 02/24/21 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP	Leach	1312			761379	02/27/21 15:19	BJB	TAL EDI
SPLP	Analysis	8260D		1	761449	02/28/21 19:28	AMS	TAL EDI

Client Sample ID: S: 3% P.C., PAC, surf
Lab Sample ID: 460-228664-10

Date Collected: 02/18/21 14:20
Matrix: Solid
Date Received: 02/24/21 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Leach	1312			587098	03/03/21 12:56	CMS	TAL CHI
SPLP East	Prep	3510C			587348	03/04/21 19:38	ACK	TAL CHI
SPLP East	Analysis	8270D SIM		1	587404	03/05/21 13:28	GWB	TAL CHI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	3510C			761374	02/27/21 14:44	ATF	TAL EDI
SPLP East	Analysis	8081B		1	761535	03/01/21 13:30	FAM	TAL EDI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	3010A			761630	03/01/21 11:32	IBS	TAL EDI
SPLP East	Analysis	6010D		1	762209	03/03/21 18:31	YZH	TAL EDI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	7470A			761910	03/02/21 12:08	RBS	TAL EDI
SPLP East	Analysis	7470A		1	761985	03/02/21 15:43	RBS	TAL EDI
Total/NA	Analysis	9045D		1	763191	03/08/21 14:22	YAH	TAL EDI
Total/NA	Analysis	Moisture		1	760935	02/25/21 10:51	MMC	TAL EDI

Client Sample ID: S: 3% P.C., OC, surf
Lab Sample ID: 460-228664-11

Date Collected: 02/18/21 14:40
Matrix: Solid
Date Received: 02/24/21 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP	Leach	1312			761379	02/27/21 15:19	BJB	TAL EDI
SPLP	Analysis	8260D		1	761449	02/28/21 19:50	AMS	TAL EDI
SPLP East	Leach	1312			587098	03/03/21 12:56	CMS	TAL CHI
SPLP East	Prep	3510C			587348	03/04/21 19:38	ACK	TAL CHI
SPLP East	Analysis	8270D SIM		1	587404	03/05/21 13:56	GWB	TAL CHI
SPLP East	Leach	1312			587098	03/03/21 12:56	CMS	TAL CHI
SPLP East	Prep	3510C			587348	03/04/21 19:38	ACK	TAL CHI
SPLP East	Analysis	8270D SIM		5	587404	03/05/21 15:20	GWB	TAL CHI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	3510C			761374	02/27/21 14:44	ATF	TAL EDI
SPLP East	Analysis	8081B		1	763330	03/09/21 05:46	FAM	TAL EDI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	3010A			761630	03/01/21 11:32	IBS	TAL EDI
SPLP East	Analysis	6010D		1	762209	03/03/21 18:35	YZH	TAL EDI
SPLP East	Leach	1312			761267	02/26/21 17:00	JDP	TAL EDI
SPLP East	Prep	7470A			761910	03/02/21 12:08	RBS	TAL EDI
SPLP East	Analysis	7470A		1	761985	03/02/21 15:21	RBS	TAL EDI
Total/NA	Analysis	9045D		1	763191	03/08/21 14:23	YAH	TAL EDI
Total/NA	Analysis	Moisture		1	760935	02/25/21 10:51	MMC	TAL EDI

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Accreditation/Certification Summary

Client: ERM-Northeast
Job ID: 460-228664-1
Project/Site: TRW - Union Springs

Laboratory: Eurofins TestAmerica, Edison

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	11452	04-01-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
7470A	7470A	Solid	Mercury
9045D		Solid	Temperature
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Laboratory: Eurofins TestAmerica, Chicago

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2903	04-30-21
Georgia	State	N/A	04-29-21
Georgia (DW)	State	939	04-30-21
Hawaii	State	NA	04-30-20 *
Illinois	NELAP	IL00035	04-29-21
Indiana	State	C-IL-02	06-29-21
Iowa	State	082	05-01-22
Kansas	NELAP	E-10161	10-31-21
Kentucky (UST)	State	AI # 108083	04-30-20 *
Kentucky (WW)	State	KY90023	12-31-21
Louisiana	NELAP	02046	06-30-21
Mississippi	State	NA	04-30-20 *
New York	NELAP	12019	04-01-21
North Carolina (WW/SW)	State	291	12-31-21
North Dakota	State	R-194	04-29-21
Oklahoma	State	8908	08-31-21
South Carolina	State	77001003	04-29-21
USDA	US Federal Programs	P330-18-00018	02-11-24
Wisconsin	State	999580010	08-31-21
Wyoming	State	8TMS-Q	04-30-20 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: ERM-Northeast
Project/Site: TRW - Union Springs

Job ID: 460-228664-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	TAL EDI
8270D SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL CHI
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	TAL EDI
8081B	Organochlorine Pesticides (GC)	SW846	TAL EDI
6010D	Metals (ICP)	SW846	TAL EDI
7470A	Mercury (CVAA)	SW846	TAL EDI
9045D	pH	SW846	TAL EDI
Moisture	Percent Moisture	EPA	TAL EDI
1311	TCLP Extraction	SW846	TAL EDI
1312	SPLP Extraction	SW846	TAL CHI
1312	SPLP Extraction	SW846	TAL EDI
3010A	Preparation, Total Metals	SW846	TAL EDI
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL CHI
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL EDI
3546	Microwave Extraction	SW846	TAL EDI
5030C	Purge and Trap	SW846	TAL EDI
7470A	Preparation, Mercury	SW846	TAL EDI

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Sample Summary

Client: ERM-Northeast
Project/Site: TRW - Union Springs

Job ID: 460-228664-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
460-228664-1	N: Control	Solid	02/18/21 11:08	02/24/21 17:00	
460-228664-2	S: Control	Solid	02/18/21 17:40	02/24/21 17:00	
460-228664-3	S: 10% P.C.	Solid	02/18/21 15:00	02/24/21 17:00	
460-228664-4	S: 10% P.C., PAC	Solid	02/18/21 15:30	02/24/21 17:00	
460-228664-5	N: 10% P.C., PAC, surf	Solid	02/18/21 11:00	02/24/21 17:00	
460-228664-6	N: 10% P.C., OC	Solid	02/18/21 12:30	02/24/21 17:00	
460-228664-7	S: 10% P.C., OC, surf	Solid	02/18/21 16:00	02/24/21 17:00	
460-228664-8	N: 3% P.C., PAC, surf	Solid	02/18/21 13:30	02/24/21 17:00	
460-228664-9	N: 3% P.C., OC, surf	Solid	02/18/21 14:00	02/24/21 17:00	
460-228664-10	S: 3% P.C., PAC, surf	Solid	02/18/21 14:20	02/24/21 17:00	
460-228664-11	S: 3% P.C., OC, surf	Solid	02/18/21 14:40	02/24/21 17:00	

Eurofins TestAmerica, Edison
777 New Durham Road

Edison, NJ 08817-2859
phone 732.549.3900 fax 732.549.3679

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Rob Senft	Site Contact: Laurel Crawford	Date: 2/18/2021	COC No:
ERM Consulting & Engineering, Inc.	Tel/Fax:	Grace Chang	Carrier: Fedex	1 of 1 COCs
5784 Widewater Pkwy	**Analysis Turnaround Time**			Sampler: Laurel Crawford
Syracuse, NY 13214	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(315) 445-2554	TAT if different from Below _____			Walk-in Client:
(xxx) xxx-xxxx FAX	☑ Standard but if possible w/o additional costs, results soon as possible and staggered if some analyses completed sooner than others			Lab Sampling:
Project Name: Former TRW Union Springs				Job / SDG No.: 228664
Site: Union Springs, NY	☐ 1 day			
Project # : 46031778				

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)		SPLP 8270 SIM PCN	8081B SPLP Pesticides	6010D SPLP TAL Metals, + final pH	8260D SPLP volatiles, + final pH	8270E TCL SVOCs + 20 TICs *		8081B TCLP Pesticides	6010D TCLP TAL Metals, + final pH	8260D TCLP volatiles, + final pH					Sample Specific Notes:
N: Control	2/18/21	18:10		S	4	N			x	x	x	x										SPLP PCN - Chicago 1
S: Control	2/18/21	17:40		S	4	N			x	x	x	x										SPLP PCN - Chicago 2
S: 10% P.C.	2/18/21	15:00		S	4	N							x		x	x	x					3
S: 10% P.C., PAC	2/18/21	15:30		S	4	N							x		x	x	x					4
N: 10% P.C., PAC, surf	2/18/21	11:00		S	4	N							x		x	x	x					5
N: 10% P.C., OC	2/18/21	12:30		S	4	N							x		x	x	x					6
S: 10% P.C., OC, surf	2/18/21	16:00		S	4	N							x		x	x	x					7
N: 3% P.C., PAC, surf	2/18/21	13:30		S	4	N			x	x	x	x										SPLP PCN - sent to Chicago 8
N: 3% P.C., OC, surf	2/18/21	14:00		S	4	N			x	x	x	x										SPLP PCN - Chicago 9
S: 3% P.C., PAC, surf	2/18/21	14:20		S	4	N			x	x	x	x										SPLP PCN - Chicago 10
S: 3% P.C., OC, surf	2/18/21	14:40		S	4	N			x	x	x	x										SPLP PCN - Chicago 11

460-228664 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: Invoice ERM, results go to ERM team and lcrawford@xdd-llc.com.
*** SVOC analysis on soil (not TCLP) - please include 2-chloronaphthalene on SVOC list (if not already on standard list)**

3.6°C

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: _____ Corr'd: _____	Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

CS# 14846644

3/10/2021

Eurofins TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 228664

Number of Coolers: 1 IR Gun # 11

Cooler Temperatures

	RAW	CORRECTED		RAW	CORRECTED		RAW	CORRECTED
Cooler #1:	3.6 °C	3.6 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

** Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

EDS-WI-038, Rev 4.1
10/22/2019

Initials: AG **Date:** 2/24/21

Chain of Custody Record

Eurofins TestAmerica, Edison
777 New Durham Road

Edison NJ 08817-2859
phone 732 549 3900 fax 732 549 3679

eurofins Environment Testing TestAmerica

460-228664 COC

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Rob Sents	Site Contact: Laurel Crawford	Date: 2/18/2021	COC No
ERM Consulting & Engineering, Inc	Tel/Fax:	Grace Chang	Carrier: Fedex	1 of 1 COCs
5784 Widewater Pkwy	**Analysis Turnaround Time**			Sampler Laurel Crawford
Syracuse, NY 13214	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(315) 445-2554	TAT if different from Below _____			Walk-in Client
(xxx) xxx-xxxx FAX	☑ Standard but if possible w/o additional costs, results soon as possible and staggered if some analyses completed sooner than others			Lab Sampling
Project Name Former TRW Union Springs				Job / SDG No
Site Union Springs NY	☐ 1 day			460-228664
Project # 46031778				

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y / N)	SPLP 8270 SIM PCN	8081B SPLP Pesticides	6010D SPLP TAL Metals, + final pH	8260D SPLP volatiles, + final pH	8270E TCL SVOCs + 20 TICs *	8081B TCLP Pesticides	6010D TCLP TAL Metals, + final pH	8260D TCLP volatiles, + final pH	Sample Specific Notes
1	N Control	2/18/21	18 10		S	4	N		x	x	x	x					SPLP PCN - Chicago
2	S Control	2/18/21	17 40		S	4	N		x	x	x	x					SPLP PCN - Chicago
3	S 10% P C	2/18/21	15 00		S	4	N						x	x	x	x	
4	S 10% P C , PAC	2/18/21	15 30		S	4	N						x	x	x	x	
5	N 10% P C PAC, surf	2/18/21	11 00		S	4	N						x	x	x	x	
6	N 10% P C OC	2/18/21	12 30		S	4	N						x	x	x	x	
7	S 10% P C , OC, surf	2/18/21	16 00		S	4	N						x	x	x	x	
8	N 3% P C , PAC, surf	2/18/21	13 30		S	4	N		x	x	x	x					SPLP PCN - sent to Chicago
9	N 3% P C , OC, surf	2/18/21	14 00		S	4	N		x	x	x	x					SPLP PCN - Chicago
10	S 3% P C , PAC, surf	2/18/21	14 20		S	4	N		x	x	x	x					SPLP PCN - Chicago
11	S 3% P C , OC, surf	2/18/21	14 40		S	4	N		x	x	x	x					SPLP PCN - Chicago

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: Invoice ERM, results go to ERM team and lcrawford@xdd-llc.com.
*** SVOC analysis on soil (not TCLP) - please include 2-chloronaphthalene on SVOC list (if not already on standard list)**

Custody Seals Intact ☐ Yes ☐ No	Custody Seal No.	Cooler Temp (°C) Obs'd 0.5 Corr'd -2.0	Therm ID No

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
[signature]	XDD	2/22/21 1700			
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by: Paula Buckley	Company EDT	Date/Time 2/24/21 1040

Form No. CA-C-WI-002, Rev. 4.22, dated 4/10/2019

Login Sample Receipt Checklist

Client: ERM-Northeast

Job Number: 460-228664-1

Login Number: 228664
List Number: 1
Creator: DiGuardia, Joseph L

List Source: Eurofins TestAmerica, Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ERM-Northeast

Job Number: 460-228664-1

Login Number: 228664
List Number: 2
Creator: Scott, Sherri L

List Source: Eurofins TestAmerica, Chicago
List Creation: 02/25/21 09:05 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	-2.0 samples not frozen
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins TestAmerica, Edison
777 New Durham Road
Edison, NJ 08817
Tel: (732)549-3900

Laboratory Job ID: 460-228889-1
Client Project/Site: Former TRW Union Springs

For:
ERM-Northeast
5784 Widewaters Pkwy
Dewitt, New York 13214

Attn: Tim Daniluk

Authorized for release by:
3/10/2021 10:08:45 AM

Grace Chang, Project Manager II
(732)593-2579
Grace.Chang@Eurofinset.com

LINKS

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www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 5
Detection Summary 8
Client Sample Results 13
Surrogate Summary 42
QC Sample Results 44
QC Association Summary 59
Lab Chronicle 63
Certification Summary 67
Method Summary 68
Sample Summary 69
Chain of Custody 70
Receipt Checklists 73

Definitions/Glossary

Client: ERM-Northeast
Job ID: 460-228889-1
Project/Site: Former TRW Union Springs

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS VOA TICs

Qualifier	Qualifier Description
J	Indicates an Estimated Value for TICs
N	Presumptive evidence of material.
T	Result is a tentatively identified compound (TIC) and an estimated value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
*3	ISTD response or retention time outside acceptable limits.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 460-228889-1

Laboratory: Eurofins TestAmerica, Edison

Narrative

CASE NARRATIVE

Client: ERM-Northeast

Project: Former TRW Union Springs

Report Number: 460-228889-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) as a result of a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes or interferences which exceed the calibration range of the instrument.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 2/26/2021 12:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.3º C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples S: 10% P.C. (460-228889-1), S: 10% P.C., PAC (460-228889-2), S: 10% P.C., PAC, surf (460-228889-3), S: 10% P.C., OC (460-228889-4), S: 10% P.C., OC, surf (460-228889-5), N: 10% P.C. (460-228889-6), N: 10% P.C., PAC (460-228889-7), N: 10% P.C., PAC, surf (460-228889-8), N: 10% P.C., OC (460-228889-9) and N: 10% P.C., OC, surf (460-228889-10) were analyzed for Volatile Organic Compounds (GC/MS) in accordance with EPA SW-846 Method 8260D. The samples were analyzed on 03/03/2021 and 03/04/2021.

The continuing calibration verification (CCV) analyzed in batch 460-762234 was outside the method criteria for the following analyte: Dichlorodifluoromethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

No difficulties were encountered during the Volatiles analysis.

All quality control parameters were within the acceptance limits.

SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS) - SELECTED ION MODE (SIM)

Samples S: 10% P.C. (460-228889-1), S: 10% P.C., PAC (460-228889-2), S: 10% P.C., PAC, surf (460-228889-3), S: 10% P.C., OC (460-228889-4), S: 10% P.C., OC, surf (460-228889-5), N: 10% P.C. (460-228889-6), N: 10% P.C., PAC (460-228889-7), N: 10% P.C., PAC, surf (460-228889-8), N: 10% P.C., OC (460-228889-9) and N: 10% P.C., OC, surf (460-228889-10) were analyzed for Semivolatile Organic Compounds (GC/MS) - Selected Ion Mode (SIM) in accordance with EPA SW-846 Method 8270D SIM. The samples were prepared on

Job ID: 460-228889-1 (Continued)

Laboratory: Eurofins TestAmerica, Edison (Continued)

03/02/2021 and analyzed on 03/04/2021 and 03/05/2021.

Samples S: 10% P.C. (460-228889-1)[10X], S: 10% P.C., PAC (460-228889-2)[5X], S: 10% P.C., OC (460-228889-4)[4X] and S: 10% P.C., OC, surf (460-228889-5)[4X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the SVOC SIM analysis.

All quality control parameters were within the acceptance limits.

PESTICIDES

Samples S: 10% P.C. (460-228889-1), S: 10% P.C., PAC (460-228889-2), S: 10% P.C., PAC, surf (460-228889-3), S: 10% P.C., OC (460-228889-4), S: 10% P.C., OC, surf (460-228889-5), N: 10% P.C. (460-228889-6), N: 10% P.C., PAC (460-228889-7), N: 10% P.C., PAC, surf (460-228889-8), N: 10% P.C., OC (460-228889-9) and N: 10% P.C., OC, surf (460-228889-10) were analyzed for Pesticides in accordance with EPA SW-846 Methods 8081B. The samples were prepared on 02/28/2021 and analyzed on 03/03/2021.

Internal standard (ISTD) response for the following samples exceeded the control limit on secondary column S: 10% P.C. (460-228889-1) and S: 10% P.C., OC (460-228889-4). As such, the sample results associated with this ISTD were reported from the other column, which met ISTD acceptance criteria.

No difficulties were encountered during the pesticides analysis.

All quality control parameters were within the acceptance limits.

METALS

Samples S: 10% P.C. (460-228889-1), S: 10% P.C., PAC (460-228889-2), S: 10% P.C., PAC, surf (460-228889-3), S: 10% P.C., OC (460-228889-4), S: 10% P.C., OC, surf (460-228889-5), N: 10% P.C. (460-228889-6), N: 10% P.C., PAC (460-228889-7), N: 10% P.C., PAC, surf (460-228889-8), N: 10% P.C., OC (460-228889-9) and N: 10% P.C., OC, surf (460-228889-10) were analyzed for Metals in accordance with 6010D. The samples were prepared on 03/02/2021 and analyzed on 03/04/2021.

Sodium was detected in method blank MB 460-761792/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Calcium and Sodium failed the recovery criteria low for the MS of sample 460-228907-1 in batch 460-762425.

Refer to the QC report for details.

The presence of the '4' qualifier in the data indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Refer to the QC report for details.

The method blank for preparation batch 460-761792 and analytical batch 460-762425 contained Sodium above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

No other difficulties were encountered during the Metals analysis.

All other quality control parameters were within the acceptance limits.

TOTAL MERCURY

Samples S: 10% P.C. (460-228889-1), S: 10% P.C., PAC (460-228889-2), S: 10% P.C., PAC, surf (460-228889-3), S: 10% P.C., OC (460-228889-4), S: 10% P.C., OC, surf (460-228889-5), N: 10% P.C. (460-228889-6), N: 10% P.C., PAC (460-228889-7), N: 10% P.C., PAC, surf (460-228889-8), N: 10% P.C., OC (460-228889-9) and N: 10% P.C., OC, surf (460-228889-10) were analyzed for total mercury in accordance with EPA SW-846 Methods 7470A. The samples were prepared and analyzed on 03/05/2021.

Job ID: 460-228889-1 (Continued)

Laboratory: Eurofins TestAmerica, Edison (Continued)

No difficulties were encountered during the Hg analysis.

All quality control parameters were within the acceptance limits.

Detection Summary

Client: ERM-Northeast
Project/Site: Former TRW Union Springs

Job ID: 460-228889-1

Client Sample ID: S: 10% P.C.

Lab Sample ID: 460-228889-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethene	0.99	J	1.0	0.26	ug/L	1		8260D	Total/NA
1,3-Dichlorobenzene	0.41	J	1.0	0.34	ug/L	1		8260D	Total/NA
1,4-Dichlorobenzene	0.40	J	1.0	0.33	ug/L	1		8260D	Total/NA
2-Butanone (MEK)	38		5.0	1.9	ug/L	1		8260D	Total/NA
Acetone	230		5.0	4.4	ug/L	1		8260D	Total/NA
Benzene	0.76	J	1.0	0.20	ug/L	1		8260D	Total/NA
Carbon disulfide	3.2		1.0	0.82	ug/L	1		8260D	Total/NA
Chlorobenzene	0.45	J	1.0	0.38	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	380		1.0	0.22	ug/L	1		8260D	Total/NA
Ethylbenzene	4.4		1.0	0.30	ug/L	1		8260D	Total/NA
Toluene	3.0		1.0	0.38	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	3.4		1.0	0.24	ug/L	1		8260D	Total/NA
Trichloroethene	6.0		1.0	0.31	ug/L	1		8260D	Total/NA
Vinyl chloride	250		1.0	0.17	ug/L	1		8260D	Total/NA
Xylenes, Total	14		2.0	0.65	ug/L	1		8260D	Total/NA
Pentachloronaphthalene, Total	2.5		2.4	0.41	ug/L	1		8270D SIM	Total/NA
Tetrachloronaphthalene, Total	14		2.4	0.29	ug/L	1		8270D SIM	Total/NA
Dichloronaphthalene, Total - DL	73		24	2.6	ug/L	10		8270D SIM	Total/NA
Monochloronaphthalene, Total - DL	110		24	3.7	ug/L	10		8270D SIM	Total/NA
Trichloronaphthalene, Total - DL	57		24	2.8	ug/L	10		8270D SIM	Total/NA
Aluminum	1.4		0.20	0.077	mg/L	1		6010D	Total/NA
Antimony	0.043		0.020	0.0037	mg/L	1		6010D	Total/NA
Arsenic	0.0071	J	0.015	0.0033	mg/L	1		6010D	Total/NA
Barium	0.027	J	0.20	0.013	mg/L	1		6010D	Total/NA
Calcium	47.0		5.0	0.15	mg/L	1		6010D	Total/NA
Iron	0.36		0.15	0.081	mg/L	1		6010D	Total/NA
Nickel	0.0054	J	0.040	0.0041	mg/L	1		6010D	Total/NA
Potassium	4.6	J	5.0	0.14	mg/L	1		6010D	Total/NA
Selenium	0.0090	J	0.020	0.0059	mg/L	1		6010D	Total/NA
Sodium	8.5	B	5.0	0.084	mg/L	1		6010D	Total/NA

Client Sample ID: S: 10% P.C., PAC

Lab Sample ID: 460-228889-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	54		5.0	4.4	ug/L	1		8260D	Total/NA
Carbon disulfide	1.2		1.0	0.82	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	1.4		1.0	0.22	ug/L	1		8260D	Total/NA
Vinyl chloride	3.3		1.0	0.17	ug/L	1		8260D	Total/NA
Dichloronaphthalene, Total	12		2.4	0.26	ug/L	1		8270D SIM	Total/NA
Monochloronaphthalene, Total	3.7		2.4	0.37	ug/L	1		8270D SIM	Total/NA
Pentachloronaphthalene, Total	2.1	J	2.4	0.41	ug/L	1		8270D SIM	Total/NA
Tetrachloronaphthalene, Total	10		2.4	0.29	ug/L	1		8270D SIM	Total/NA
Trichloronaphthalene, Total - DL	31		12	1.4	ug/L	5		8270D SIM	Total/NA
Aluminum	1.7		0.20	0.077	mg/L	1		6010D	Total/NA
Antimony	0.015	J	0.020	0.0037	mg/L	1		6010D	Total/NA
Barium	0.049	J	0.20	0.013	mg/L	1		6010D	Total/NA
Cadmium	0.00063	J	0.0040	0.00033	mg/L	1		6010D	Total/NA
Calcium	84.4		5.0	0.15	mg/L	1		6010D	Total/NA
Iron	0.091	J	0.15	0.081	mg/L	1		6010D	Total/NA
Manganese	0.0012	J	0.015	0.00076	mg/L	1		6010D	Total/NA
Potassium	5.4		5.0	0.14	mg/L	1		6010D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: S: 10% P.C., PAC (Continued) — Lab Sample ID: 460-228889-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	7.9	B	5.0	0.084	mg/L	1		6010D	Total/NA
Zinc	0.0037	J	0.030	0.0012	mg/L	1		6010D	Total/NA

Client Sample ID: S: 10% P.C., PAC, surf — Lab Sample ID: 460-228889-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	120		5.0	4.4	ug/L	1		8260D	Total/NA
Carbon disulfide	1.1		1.0	0.82	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	1.3		1.0	0.22	ug/L	1		8260D	Total/NA
Vinyl chloride	2.2		1.0	0.17	ug/L	1		8260D	Total/NA
Dichloronaphthalene, Total	7.8		2.4	0.26	ug/L	1		8270D SIM	Total/NA
Monochloronaphthalene, Total	2.9		2.4	0.37	ug/L	1		8270D SIM	Total/NA
Pentachloronaphthalene, Total	1.2	J	2.4	0.41	ug/L	1		8270D SIM	Total/NA
Tetrachloronaphthalene, Total	5.9		2.4	0.28	ug/L	1		8270D SIM	Total/NA
Trichloronaphthalene, Total	17		2.4	0.28	ug/L	1		8270D SIM	Total/NA
Aluminum	0.81		0.20	0.077	mg/L	1		6010D	Total/NA
Antimony	0.017	J	0.020	0.0037	mg/L	1		6010D	Total/NA
Barium	0.047	J	0.20	0.013	mg/L	1		6010D	Total/NA
Calcium	78.4		5.0	0.15	mg/L	1		6010D	Total/NA
Potassium	5.4		5.0	0.14	mg/L	1		6010D	Total/NA
Sodium	8.8	B	5.0	0.084	mg/L	1		6010D	Total/NA
Zinc	0.0023	J	0.030	0.0012	mg/L	1		6010D	Total/NA

Client Sample ID: S: 10% P.C., OC — Lab Sample ID: 460-228889-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	9.2		5.0	1.9	ug/L	1		8260D	Total/NA
Acetone	68		5.0	4.4	ug/L	1		8260D	Total/NA
Carbon disulfide	1.2		1.0	0.82	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	82		1.0	0.22	ug/L	1		8260D	Total/NA
Ethylbenzene	0.80	J	1.0	0.30	ug/L	1		8260D	Total/NA
Toluene	1.2		1.0	0.38	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	1.0		1.0	0.24	ug/L	1		8260D	Total/NA
Trichloroethene	2.6		1.0	0.31	ug/L	1		8260D	Total/NA
Vinyl chloride	40		1.0	0.17	ug/L	1		8260D	Total/NA
Xylenes, Total	2.0		2.0	0.65	ug/L	1		8260D	Total/NA
Pentachloronaphthalene, Total	2.5		2.4	0.41	ug/L	1		8270D SIM	Total/NA
Tetrachloronaphthalene, Total	14		2.4	0.29	ug/L	1		8270D SIM	Total/NA
Dichloronaphthalene, Total - DL	47		9.6	1.0	ug/L	4		8270D SIM	Total/NA
Monochloronaphthalene, Total - DL	41		9.6	1.5	ug/L	4		8270D SIM	Total/NA
Trichloronaphthalene, Total - DL	49		9.6	1.1	ug/L	4		8270D SIM	Total/NA
Aluminum	0.90		0.20	0.077	mg/L	1		6010D	Total/NA
Antimony	0.027		0.020	0.0037	mg/L	1		6010D	Total/NA
Barium	0.028	J	0.20	0.013	mg/L	1		6010D	Total/NA
Calcium	49.1		5.0	0.15	mg/L	1		6010D	Total/NA
Iron	0.14	J	0.15	0.081	mg/L	1		6010D	Total/NA
Manganese	0.00084	J	0.015	0.00076	mg/L	1		6010D	Total/NA
Potassium	5.0		5.0	0.14	mg/L	1		6010D	Total/NA
Sodium	29.0	B	5.0	0.084	mg/L	1		6010D	Total/NA
Zinc	0.0026	J	0.030	0.0012	mg/L	1		6010D	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ERM-Northeast
Project/Site: Former TRW Union Springs

Job ID: 460-228889-1

Client Sample ID: S: 10% P.C., OC, surf — Lab Sample ID: 460-228889-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1-Dichloroethene	0.89	J	1.0	0.26	ug/L	1		8260D	Total/NA
2-Butanone (MEK)	30		5.0	1.9	ug/L	1		8260D	Total/NA
Acetone	210		5.0	4.4	ug/L	1		8260D	Total/NA
Carbon disulfide	3.5		1.0	0.82	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	280		1.0	0.22	ug/L	1		8260D	Total/NA
Ethylbenzene	2.6		1.0	0.30	ug/L	1		8260D	Total/NA
Toluene	3.8		1.0	0.38	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	3.8		1.0	0.24	ug/L	1		8260D	Total/NA
Trichloroethene	8.0		1.0	0.31	ug/L	1		8260D	Total/NA
Vinyl chloride	140		1.0	0.17	ug/L	1		8260D	Total/NA
Xylenes, Total	6.6		2.0	0.65	ug/L	1		8260D	Total/NA
Pentachloronaphthalene, Total	3.2		2.4	0.41	ug/L	1		8270D SIM	Total/NA
Tetrachloronaphthalene, Total	17		2.4	0.29	ug/L	1		8270D SIM	Total/NA
Dichloronaphthalene, Total - DL	53		9.6	1.0	ug/L	4		8270D SIM	Total/NA
Monochloronaphthalene, Total - DL	43		9.6	1.5	ug/L	4		8270D SIM	Total/NA
Trichloronaphthalene, Total - DL	62		9.6	1.1	ug/L	4		8270D SIM	Total/NA
Aluminum	1.2		0.20	0.077	mg/L	1		6010D	Total/NA
Antimony	0.016	J	0.020	0.0037	mg/L	1		6010D	Total/NA
Barium	0.024	J	0.20	0.013	mg/L	1		6010D	Total/NA
Calcium	42.7		5.0	0.15	mg/L	1		6010D	Total/NA
Iron	0.33		0.15	0.081	mg/L	1		6010D	Total/NA
Manganese	0.00097	J	0.015	0.00076	mg/L	1		6010D	Total/NA
Potassium	4.4	J	5.0	0.14	mg/L	1		6010D	Total/NA
Sodium	25.3	B	5.0	0.084	mg/L	1		6010D	Total/NA
Zinc	0.0024	J	0.030	0.0012	mg/L	1		6010D	Total/NA

Client Sample ID: N: 10% P.C. — Lab Sample ID: 460-228889-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	22		5.0	1.9	ug/L	1		8260D	Total/NA
Acetone	180		5.0	4.4	ug/L	1		8260D	Total/NA
Carbon disulfide	4.3		1.0	0.82	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	73		1.0	0.22	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	0.89	J	1.0	0.24	ug/L	1		8260D	Total/NA
Trichloroethene	1.4		1.0	0.31	ug/L	1		8260D	Total/NA
Vinyl chloride	38		1.0	0.17	ug/L	1		8260D	Total/NA
Dichloronaphthalene, Total	5.0		2.4	0.26	ug/L	1		8270D SIM	Total/NA
Monochloronaphthalene, Total	2.8		2.4	0.37	ug/L	1		8270D SIM	Total/NA
Tetrachloronaphthalene, Total	0.43	J	2.4	0.29	ug/L	1		8270D SIM	Total/NA
Trichloronaphthalene, Total	3.2		2.4	0.28	ug/L	1		8270D SIM	Total/NA
Aluminum	1.1		0.20	0.077	mg/L	1		6010D	Total/NA
Barium	0.038	J	0.20	0.013	mg/L	1		6010D	Total/NA
Calcium	72.5		5.0	0.15	mg/L	1		6010D	Total/NA
Iron	0.21		0.15	0.081	mg/L	1		6010D	Total/NA
Potassium	4.5	J	5.0	0.14	mg/L	1		6010D	Total/NA
Sodium	8.7	B	5.0	0.084	mg/L	1		6010D	Total/NA
Zinc	0.0037	J	0.030	0.0012	mg/L	1		6010D	Total/NA

Client Sample ID: N: 10% P.C., PAC — Lab Sample ID: 460-228889-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	11		5.0	4.4	ug/L	1		8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Edison

Client Sample ID: N: 10% P.C., PAC (Continued) — Lab Sample ID: 460-228889-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon disulfide	2.3		1.0	0.82	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	1.5		1.0	0.22	ug/L	1		8260D	Total/NA
Vinyl chloride	2.7		1.0	0.17	ug/L	1		8260D	Total/NA
Trichloronaphthalene, Total	0.39	J	2.4	0.28	ug/L	1		8270D SIM	Total/NA
Aluminum	0.77		0.20	0.077	mg/L	1		6010D	Total/NA
Antimony	0.021		0.020	0.0037	mg/L	1		6010D	Total/NA
Barium	0.026	J	0.20	0.013	mg/L	1		6010D	Total/NA
Calcium	42.4		5.0	0.15	mg/L	1		6010D	Total/NA
Potassium	3.0	J	5.0	0.14	mg/L	1		6010D	Total/NA
Sodium	4.3	J B	5.0	0.084	mg/L	1		6010D	Total/NA
Zinc	0.0015	J	0.030	0.0012	mg/L	1		6010D	Total/NA

Client Sample ID: N: 10% P.C., PAC, surf — Lab Sample ID: 460-228889-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	7.8		5.0	4.4	ug/L	1		8260D	Total/NA
Carbon disulfide	2.4		1.0	0.82	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	1.8		1.0	0.22	ug/L	1		8260D	Total/NA
Vinyl chloride	3.4		1.0	0.17	ug/L	1		8260D	Total/NA
Dichloronaphthalene, Total	0.52	J	2.4	0.26	ug/L	1		8270D SIM	Total/NA
Tetrachloronaphthalene, Total	0.58	J	2.4	0.29	ug/L	1		8270D SIM	Total/NA
Trichloronaphthalene, Total	1.1	J	2.4	0.28	ug/L	1		8270D SIM	Total/NA
Aluminum	1.0		0.20	0.077	mg/L	1		6010D	Total/NA
Antimony	0.032		0.020	0.0037	mg/L	1		6010D	Total/NA
Barium	0.067	J	0.20	0.013	mg/L	1		6010D	Total/NA
Calcium	58.2		5.0	0.15	mg/L	1		6010D	Total/NA
Potassium	4.3	J	5.0	0.14	mg/L	1		6010D	Total/NA
Sodium	4.7	J B	5.0	0.084	mg/L	1		6010D	Total/NA
Zinc	0.0016	J	0.030	0.0012	mg/L	1		6010D	Total/NA

Client Sample ID: N: 10% P.C., OC — Lab Sample ID: 460-228889-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	29		5.0	1.9	ug/L	1		8260D	Total/NA
Acetone	220		5.0	4.4	ug/L	1		8260D	Total/NA
Carbon disulfide	7.6		1.0	0.82	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	230		1.0	0.22	ug/L	1		8260D	Total/NA
Toluene	0.93	J	1.0	0.38	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	2.6		1.0	0.24	ug/L	1		8260D	Total/NA
Trichloroethene	3.0		1.0	0.31	ug/L	1		8260D	Total/NA
Vinyl chloride	110		1.0	0.17	ug/L	1		8260D	Total/NA
Dichloronaphthalene, Total	4.2		2.4	0.26	ug/L	1		8270D SIM	Total/NA
Pentachloronaphthalene, Total	0.55	J	2.4	0.41	ug/L	1		8270D SIM	Total/NA
Tetrachloronaphthalene, Total	1.7	J	2.4	0.29	ug/L	1		8270D SIM	Total/NA
Trichloronaphthalene, Total	5.1		2.4	0.28	ug/L	1		8270D SIM	Total/NA
Aluminum	0.65		0.20	0.077	mg/L	1		6010D	Total/NA
Antimony	0.050		0.020	0.0037	mg/L	1		6010D	Total/NA
Barium	0.036	J	0.20	0.013	mg/L	1		6010D	Total/NA
Calcium	50.2		5.0	0.15	mg/L	1		6010D	Total/NA
Manganese	0.00084	J	0.015	0.00076	mg/L	1		6010D	Total/NA
Potassium	3.9	J	5.0	0.14	mg/L	1		6010D	Total/NA
Sodium	25.2	B	5.0	0.084	mg/L	1		6010D	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ERM-Northeast
Project/Site: Former TRW Union Springs

Job ID: 460-228889-1

Client Sample ID: N: 10% P.C., OC (Continued) — Lab Sample ID: 460-228889-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Zinc	0.0040	J	0.030	0.0012	mg/L	1		6010D	Total/NA

Client Sample ID: N: 10% P.C., OC, surf — Lab Sample ID: 460-228889-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	6.3		5.0	1.9	ug/L	1		8260D	Total/NA
Acetone	56		5.0	4.4	ug/L	1		8260D	Total/NA
Carbon disulfide	2.0		1.0	0.82	ug/L	1		8260D	Total/NA
cis-1,2-Dichloroethene	41		1.0	0.22	ug/L	1		8260D	Total/NA
trans-1,2-Dichloroethene	0.50	J	1.0	0.24	ug/L	1		8260D	Total/NA
Trichloroethene	0.69	J	1.0	0.31	ug/L	1		8260D	Total/NA
Vinyl chloride	23		1.0	0.17	ug/L	1		8260D	Total/NA
Dichloronaphthalene, Total	6.4		2.4	0.26	ug/L	1		8270D SIM	Total/NA
Pentachloronaphthalene, Total	1.0	J	2.4	0.41	ug/L	1		8270D SIM	Total/NA
Tetrachloronaphthalene, Total	6.7		2.4	0.29	ug/L	1		8270D SIM	Total/NA
Trichloronaphthalene, Total	14		2.4	0.28	ug/L	1		8270D SIM	Total/NA
Aluminum	0.66		0.20	0.077	mg/L	1		6010D	Total/NA
Antimony	0.020		0.020	0.0037	mg/L	1		6010D	Total/NA
Barium	0.040	J	0.20	0.013	mg/L	1		6010D	Total/NA
Calcium	49.2		5.0	0.15	mg/L	1		6010D	Total/NA
Potassium	4.5	J	5.0	0.14	mg/L	1		6010D	Total/NA
Sodium	24.0	B	5.0	0.084	mg/L	1		6010D	Total/NA
Zinc	0.0035	J	0.030	0.0012	mg/L	1		6010D	Total/NA

This Detection Summary does not include radiochemical test results.

Client: ERM-Northeast
Project/Site: Former TRW Union Springs

Job ID: 460-228889-1

Client Sample ID: S: 10% P.C.
Date Collected: 02/25/21 11:00
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-1
Matrix: Water

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.24	ug/L			03/03/21 15:56	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.37	ug/L			03/03/21 15:56	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			03/03/21 15:56	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			03/03/21 15:56	1
1,1-Dichloroethane	ND		1.0	0.26	ug/L			03/03/21 15:56	1
1,1-Dichloroethene	**0.99**	**J**	1.0	0.26	ug/L			03/03/21 15:56	1
1,2,4-Trichlorobenzene	ND		1.0	0.37	ug/L			03/03/21 15:56	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.38	ug/L			03/03/21 15:56	1
1,2-Dibromoethane	ND		1.0	0.50	ug/L			03/03/21 15:56	1
1,2-Dichlorobenzene	ND		1.0	0.21	ug/L			03/03/21 15:56	1
1,2-Dichloroethane	ND		1.0	0.43	ug/L			03/03/21 15:56	1
1,2-Dichloropropane	ND		1.0	0.35	ug/L			03/03/21 15:56	1
1,3-Dichlorobenzene	**0.41**	**J**	1.0	0.34	ug/L			03/03/21 15:56	1
1,4-Dichlorobenzene	**0.40**	**J**	1.0	0.33	ug/L			03/03/21 15:56	1
2-Butanone (MEK)	**38**		5.0	1.9	ug/L			03/03/21 15:56	1
2-Hexanone	ND		5.0	1.1	ug/L			03/03/21 15:56	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	1.3	ug/L			03/03/21 15:56	1
Acetone	**230**		5.0	4.4	ug/L			03/03/21 15:56	1
Benzene	**0.76**	**J**	1.0	0.20	ug/L			03/03/21 15:56	1
Bromodichloromethane	ND		1.0	0.34	ug/L			03/03/21 15:56	1
Bromoform	ND		1.0	0.54	ug/L			03/03/21 15:56	1
Bromomethane	ND		1.0	0.55	ug/L			03/03/21 15:56	1
Carbon disulfide	**3.2**		1.0	0.82	ug/L			03/03/21 15:56	1
Carbon tetrachloride	ND		1.0	0.21	ug/L			03/03/21 15:56	1
Chlorobenzene	**0.45**	**J**	1.0	0.38	ug/L			03/03/21 15:56	1
Chloroethane	ND		1.0	0.32	ug/L			03/03/21 15:56	1
Chloroform	ND		1.0	0.33	ug/L			03/03/21 15:56	1
Chloromethane	ND		1.0	0.40	ug/L			03/03/21 15:56	1
cis-1,2-Dichloroethene	**380**		1.0	0.22	ug/L			03/03/21 15:56	1
cis-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/03/21 15:56	1
Cyclohexane	ND		1.0	0.32	ug/L			03/03/21 15:56	1
Dibromochloromethane	ND		1.0	0.28	ug/L			03/03/21 15:56	1
Dichlorodifluoromethane	ND		1.0	0.31	ug/L			03/03/21 15:56	1
Ethylbenzene	**4.4**		1.0	0.30	ug/L			03/03/21 15:56	1
Isopropylbenzene	ND		1.0	0.34	ug/L			03/03/21 15:56	1
Methyl acetate	ND		5.0	0.79	ug/L			03/03/21 15:56	1
Methyl tert-butyl ether	ND		1.0	0.22	ug/L			03/03/21 15:56	1
Methylcyclohexane	ND		1.0	0.71	ug/L			03/03/21 15:56	1
Methylene Chloride	ND		1.0	0.32	ug/L			03/03/21 15:56	1
Styrene	ND		1.0	0.42	ug/L			03/03/21 15:56	1
Tetrachloroethene	ND		1.0	0.25	ug/L			03/03/21 15:56	1
Toluene	**3.0**		1.0	0.38	ug/L			03/03/21 15:56	1
trans-1,2-Dichloroethene	**3.4**		1.0	0.24	ug/L			03/03/21 15:56	1
trans-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/03/21 15:56	1
Trichloroethene	**6.0**		1.0	0.31	ug/L			03/03/21 15:56	1
Trichlorofluoromethane	ND		1.0	0.32	ug/L			03/03/21 15:56	1
Vinyl chloride	**250**		1.0	0.17	ug/L			03/03/21 15:56	1
Xylenes, Total	**14**		2.0	0.65	ug/L			03/03/21 15:56	1

Client Sample ID: S: 10% P.C.
Date Collected: 02/25/21 11:00
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-1
Matrix: Water

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
1-Pentene, 2,4,4-trimethyl-	17	T J N	ug/L		5.38	107-39-1		03/03/21 15:56	1
2-Pentene, 3,4,4-trimethyl-	8.1	T J N	ug/L		5.63	598-96-9		03/03/21 15:56	1
Unknown	7.2	T J	ug/L		8.95			03/03/21 15:56	1
Bicyclo[2.2.1]heptan-2-one, 1,7,7-trimethyl-, (1R)-	11	T J N	ug/L		11.99	464-49-3		03/03/21 15:56	1
Naphthalene	1100	T J N	ug/L		12.21	91-20-3		03/03/21 15:56	1
2-Benzothiophene #	10	T J N	ug/L		12.28	270-82-6		03/03/21 15:56	1
Naphthalene, 2-chloro-	48	T J N	ug/L		13.64	91-58-7		03/03/21 15:56	1
Naphthalene, 1-chloro-	150	T J N	ug/L		13.68	90-13-1		03/03/21 15:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		75 - 123		03/03/21 15:56	1
Dibromofluoromethane (Surr)	103		77 - 124		03/03/21 15:56	1
Toluene-d8 (Surr)	99		80 - 120		03/03/21 15:56	1
4-Bromofluorobenzene	104		76 - 120		03/03/21 15:56	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 10:31	1
Hexachloronaphthalene, Total	ND		2.4	0.36	ug/L		03/02/21 18:28	03/04/21 10:31	1
Octachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 10:31	1
Pentachloronaphthalene, Total	**2.5**		2.4	0.41	ug/L		03/02/21 18:28	03/04/21 10:31	1
Tetrachloronaphthalene, Total	**14**		2.4	0.29	ug/L		03/02/21 18:28	03/04/21 10:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	85		30 - 123	03/02/21 18:28	03/04/21 10:31	1
Nitrobenzene-d5	85		33 - 139	03/02/21 18:28	03/04/21 10:31	1
Terphenyl-d14	75		42 - 150	03/02/21 18:28	03/04/21 10:31	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloronaphthalene, Total	**73**		24	2.6	ug/L		03/02/21 18:28	03/04/21 15:12	10
Monochloronaphthalene, Total	**110**		24	3.7	ug/L		03/02/21 18:28	03/04/21 15:12	10
Trichloronaphthalene, Total	**57**		24	2.8	ug/L		03/02/21 18:28	03/04/21 15:12	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	102		30 - 123	03/02/21 18:28	03/04/21 15:12	10
Nitrobenzene-d5	101		33 - 139	03/02/21 18:28	03/04/21 15:12	10
Terphenyl-d14	80		42 - 150	03/02/21 18:28	03/04/21 15:12	10

Method: 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 08:51	1
4,4'-DDE	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 08:51	1
4,4'-DDT	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 08:51	1
Aldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 08:51	1
alpha-BHC	ND		0.020	0.0070	ug/L		02/28/21 14:15	03/03/21 08:51	1
beta-BHC	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 08:51	1
cis-Chlordane	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 08:51	1
delta-BHC	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 08:51	1
Dieldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 08:51	1
Endosulfan I	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 08:51	1

Client Sample ID: S: 10% P.C.
Date Collected: 02/25/21 11:00
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-1
Matrix: Water

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endosulfan II	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 08:51	1
Endosulfan sulfate	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 08:51	1
Endrin	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 08:51	1
Endrin aldehyde	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 08:51	1
Endrin ketone	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 08:51	1
gamma-BHC (Lindane)	ND		0.020	0.012	ug/L		02/28/21 14:15	03/03/21 08:51	1
Heptachlor	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 08:51	1
Heptachlor epoxide	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 08:51	1
Methoxychlor	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 08:51	1
Toxaphene	ND		0.50	0.11	ug/L		02/28/21 14:15	03/03/21 08:51	1
trans-Chlordane	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 08:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*11*	**3*	*10 - 150*	*02/28/21 14:15*	*03/03/21 08:51*	*1*
DCB Decachlorobiphenyl	*54*		*10 - 150*	*02/28/21 14:15*	*03/03/21 08:51*	*1*
Tetrachloro-m-xylene	*19*	**3*	*10 - 150*	*02/28/21 14:15*	*03/03/21 08:51*	*1*
Tetrachloro-m-xylene	*81*		*10 - 150*	*02/28/21 14:15*	*03/03/21 08:51*	*1*

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.4**		0.20	0.077	mg/L		03/02/21 04:45	03/04/21 19:25	1
Antimony	**0.043**		0.020	0.0037	mg/L		03/02/21 04:45	03/04/21 19:25	1
Arsenic	**0.0071**	**J**	0.015	0.0033	mg/L		03/02/21 04:45	03/04/21 19:25	1
Barium	**0.027**	**J**	0.20	0.013	mg/L		03/02/21 04:45	03/04/21 19:25	1
Beryllium	ND		0.0020	0.00017	mg/L		03/02/21 04:45	03/04/21 19:25	1
Cadmium	ND		0.0040	0.00033	mg/L		03/02/21 04:45	03/04/21 19:25	1
Calcium	**47.0**		5.0	0.15	mg/L		03/02/21 04:45	03/04/21 19:25	1
Chromium	ND		0.010	0.0050	mg/L		03/02/21 04:45	03/04/21 19:25	1
Cobalt	ND		0.050	0.0020	mg/L		03/02/21 04:45	03/04/21 19:25	1
Copper	ND		0.025	0.0069	mg/L		03/02/21 04:45	03/04/21 19:25	1
Iron	**0.36**		0.15	0.081	mg/L		03/02/21 04:45	03/04/21 19:25	1
Lead	ND		0.010	0.0024	mg/L		03/02/21 04:45	03/04/21 19:25	1
Magnesium	ND		5.0	0.14	mg/L		03/02/21 04:45	03/04/21 19:25	1
Manganese	ND		0.015	0.00076	mg/L		03/02/21 04:45	03/04/21 19:25	1
Nickel	**0.0054**	**J**	0.040	0.0041	mg/L		03/02/21 04:45	03/04/21 19:25	1
Potassium	**4.6**	**J**	5.0	0.14	mg/L		03/02/21 04:45	03/04/21 19:25	1
Selenium	**0.0090**	**J**	0.020	0.0059	mg/L		03/02/21 04:45	03/04/21 19:25	1
Silver	ND		0.010	0.0058	mg/L		03/02/21 04:45	03/04/21 19:25	1
Sodium	**8.5**	**B**	5.0	0.084	mg/L		03/02/21 04:45	03/04/21 19:25	1
Thallium	ND		0.020	0.0041	mg/L		03/02/21 04:45	03/04/21 19:25	1
Vanadium	ND		0.050	0.0072	mg/L		03/02/21 04:45	03/04/21 19:25	1
Zinc	ND		0.030	0.0012	mg/L		03/02/21 04:45	03/04/21 19:25	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/05/21 11:25	03/05/21 14:27	1

Client: ERM-Northeast
Project/Site: Former TRW Union Springs

Job ID: 460-228889-1

Client Sample ID: S: 10% P.C., PAC

Date Collected: 02/25/21 11:10
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-2

Matrix: Water

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.24	ug/L			03/04/21 04:59	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.37	ug/L			03/04/21 04:59	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			03/04/21 04:59	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			03/04/21 04:59	1
1,1-Dichloroethane	ND		1.0	0.26	ug/L			03/04/21 04:59	1
1,1-Dichloroethene	ND		1.0	0.26	ug/L			03/04/21 04:59	1
1,2,4-Trichlorobenzene	ND		1.0	0.37	ug/L			03/04/21 04:59	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.38	ug/L			03/04/21 04:59	1
1,2-Dibromoethane	ND		1.0	0.50	ug/L			03/04/21 04:59	1
1,2-Dichlorobenzene	ND		1.0	0.21	ug/L			03/04/21 04:59	1
1,2-Dichloroethane	ND		1.0	0.43	ug/L			03/04/21 04:59	1
1,2-Dichloropropane	ND		1.0	0.35	ug/L			03/04/21 04:59	1
1,3-Dichlorobenzene	ND		1.0	0.34	ug/L			03/04/21 04:59	1
1,4-Dichlorobenzene	ND		1.0	0.33	ug/L			03/04/21 04:59	1
2-Butanone (MEK)	ND		5.0	1.9	ug/L			03/04/21 04:59	1
2-Hexanone	ND		5.0	1.1	ug/L			03/04/21 04:59	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	1.3	ug/L			03/04/21 04:59	1
Acetone	**54**		5.0	4.4	ug/L			03/04/21 04:59	1
Benzene	ND		1.0	0.20	ug/L			03/04/21 04:59	1
Bromodichloromethane	ND		1.0	0.34	ug/L			03/04/21 04:59	1
Bromoform	ND		1.0	0.54	ug/L			03/04/21 04:59	1
Bromomethane	ND		1.0	0.55	ug/L			03/04/21 04:59	1
Carbon disulfide	**1.2**		1.0	0.82	ug/L			03/04/21 04:59	1
Carbon tetrachloride	ND		1.0	0.21	ug/L			03/04/21 04:59	1
Chlorobenzene	ND		1.0	0.38	ug/L			03/04/21 04:59	1
Chloroethane	ND		1.0	0.32	ug/L			03/04/21 04:59	1
Chloroform	ND		1.0	0.33	ug/L			03/04/21 04:59	1
Chloromethane	ND		1.0	0.40	ug/L			03/04/21 04:59	1
cis-1,2-Dichloroethene	**1.4**		1.0	0.22	ug/L			03/04/21 04:59	1
cis-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 04:59	1
Cyclohexane	ND		1.0	0.32	ug/L			03/04/21 04:59	1
Dibromochloromethane	ND		1.0	0.28	ug/L			03/04/21 04:59	1
Dichlorodifluoromethane	ND		1.0	0.31	ug/L			03/04/21 04:59	1
Ethylbenzene	ND		1.0	0.30	ug/L			03/04/21 04:59	1
Isopropylbenzene	ND		1.0	0.34	ug/L			03/04/21 04:59	1
Methyl acetate	ND		5.0	0.79	ug/L			03/04/21 04:59	1
Methyl tert-butyl ether	ND		1.0	0.22	ug/L			03/04/21 04:59	1
Methylcyclohexane	ND		1.0	0.71	ug/L			03/04/21 04:59	1
Methylene Chloride	ND		1.0	0.32	ug/L			03/04/21 04:59	1
Styrene	ND		1.0	0.42	ug/L			03/04/21 04:59	1
Tetrachloroethene	ND		1.0	0.25	ug/L			03/04/21 04:59	1
Toluene	ND		1.0	0.38	ug/L			03/04/21 04:59	1
trans-1,2-Dichloroethene	ND		1.0	0.24	ug/L			03/04/21 04:59	1
trans-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 04:59	1
Trichloroethene	ND		1.0	0.31	ug/L			03/04/21 04:59	1
Trichlorofluoromethane	ND		1.0	0.32	ug/L			03/04/21 04:59	1
Vinyl chloride	**3.3**		1.0	0.17	ug/L			03/04/21 04:59	1
Xylenes, Total	ND		2.0	0.65	ug/L			03/04/21 04:59	1

Client Sample ID: S: 10% P.C., PAC

Date Collected: 02/25/21 11:10
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-2

Matrix: Water

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L					03/04/21 04:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		75 - 123		03/04/21 04:59	1
Dibromofluoromethane (Surr)	101		77 - 124		03/04/21 04:59	1
Toluene-d8 (Surr)	100		80 - 120		03/04/21 04:59	1
4-Bromofluorobenzene	100		76 - 120		03/04/21 04:59	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloronaphthalene, Total	**12**		2.4	0.26	ug/L		03/02/21 18:28	03/05/21 15:48	1
Heptachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/05/21 15:48	1
Hexachloronaphthalene, Total	ND		2.4	0.36	ug/L		03/02/21 18:28	03/05/21 15:48	1
Monochloronaphthalene, Total	**3.7**		2.4	0.37	ug/L		03/02/21 18:28	03/05/21 15:48	1
Octachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/05/21 15:48	1
Pentachloronaphthalene, Total	**2.1**	**J**	2.4	0.41	ug/L		03/02/21 18:28	03/05/21 15:48	1
Tetrachloronaphthalene, Total	**10**		2.4	0.29	ug/L		03/02/21 18:28	03/05/21 15:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	82		30 - 123	03/02/21 18:28	03/05/21 15:48	1
Nitrobenzene-d5	90		33 - 139	03/02/21 18:28	03/05/21 15:48	1
Terphenyl-d14	87		42 - 150	03/02/21 18:28	03/05/21 15:48	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloronaphthalene, Total	**31**		12	1.4	ug/L		03/02/21 18:28	03/05/21 14:24	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	102		30 - 123	03/02/21 18:28	03/05/21 14:24	5
Nitrobenzene-d5	103		33 - 139	03/02/21 18:28	03/05/21 14:24	5
Terphenyl-d14	92		42 - 150	03/02/21 18:28	03/05/21 14:24	5

Method: 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 09:07	1
4,4'-DDE	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 09:07	1
4,4'-DDT	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:07	1
Aldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 09:07	1
alpha-BHC	ND		0.020	0.0070	ug/L		02/28/21 14:15	03/03/21 09:07	1
beta-BHC	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:07	1
cis-Chlordane	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 09:07	1
delta-BHC	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 09:07	1
Dieldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 09:07	1
Endosulfan I	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 09:07	1
Endosulfan II	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:07	1
Endosulfan sulfate	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 09:07	1
Endrin	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:07	1
Endrin aldehyde	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 09:07	1
Endrin ketone	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 09:07	1
gamma-BHC (Lindane)	ND		0.020	0.012	ug/L		02/28/21 14:15	03/03/21 09:07	1
Heptachlor	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 09:07	1

Client Sample ID: S: 10% P.C., PAC
Lab Sample ID: 460-228889-2
Date Collected: 02/25/21 11:10
Matrix: Water
Date Received: 02/26/21 12:30

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlor epoxide	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 09:07	1
Methoxychlor	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:07	1
Toxaphene	ND		0.50	0.11	ug/L		02/28/21 14:15	03/03/21 09:07	1
trans-Chlordane	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 09:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*54*		*10 - 150*	*02/28/21 14:15*	*03/03/21 09:07*	*1*
DCB Decachlorobiphenyl	*64*		*10 - 150*	*02/28/21 14:15*	*03/03/21 09:07*	*1*
Tetrachloro-m-xylene	*60*		*10 - 150*	*02/28/21 14:15*	*03/03/21 09:07*	*1*
Tetrachloro-m-xylene	*65*		*10 - 150*	*02/28/21 14:15*	*03/03/21 09:07*	*1*

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.7**		0.20	0.077	mg/L		03/02/21 04:45	03/04/21 19:37	1
Antimony	**0.015**	**J**	0.020	0.0037	mg/L		03/02/21 04:45	03/04/21 19:37	1
Arsenic	ND		0.015	0.0033	mg/L		03/02/21 04:45	03/04/21 19:37	1
Barium	**0.049**	**J**	0.20	0.013	mg/L		03/02/21 04:45	03/04/21 19:37	1
Beryllium	ND		0.0020	0.00017	mg/L		03/02/21 04:45	03/04/21 19:37	1
Cadmium	**0.00063**	**J**	0.0040	0.00033	mg/L		03/02/21 04:45	03/04/21 19:37	1
Calcium	**84.4**		5.0	0.15	mg/L		03/02/21 04:45	03/04/21 19:37	1
Chromium	ND		0.010	0.0050	mg/L		03/02/21 04:45	03/04/21 19:37	1
Cobalt	ND		0.050	0.0020	mg/L		03/02/21 04:45	03/04/21 19:37	1
Copper	ND		0.025	0.0069	mg/L		03/02/21 04:45	03/04/21 19:37	1
Iron	**0.091**	**J**	0.15	0.081	mg/L		03/02/21 04:45	03/04/21 19:37	1
Lead	ND		0.010	0.0024	mg/L		03/02/21 04:45	03/04/21 19:37	1
Magnesium	ND		5.0	0.14	mg/L		03/02/21 04:45	03/04/21 19:37	1
Manganese	**0.0012**	**J**	0.015	0.00076	mg/L		03/02/21 04:45	03/04/21 19:37	1
Nickel	ND		0.040	0.0041	mg/L		03/02/21 04:45	03/04/21 19:37	1
Potassium	**5.4**		5.0	0.14	mg/L		03/02/21 04:45	03/04/21 19:37	1
Selenium	ND		0.020	0.0059	mg/L		03/02/21 04:45	03/04/21 19:37	1
Silver	ND		0.010	0.0058	mg/L		03/02/21 04:45	03/04/21 19:37	1
Sodium	**7.9**	**B**	5.0	0.084	mg/L		03/02/21 04:45	03/04/21 19:37	1
Thallium	ND		0.020	0.0041	mg/L		03/02/21 04:45	03/04/21 19:37	1
Vanadium	ND		0.050	0.0072	mg/L		03/02/21 04:45	03/04/21 19:37	1
Zinc	**0.0037**	**J**	0.030	0.0012	mg/L		03/02/21 04:45	03/04/21 19:37	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/05/21 11:25	03/05/21 14:28	1

Client Sample ID: S: 10% P.C., PAC, surf
Lab Sample ID: 460-228889-3
Date Collected: 02/25/21 11:20
Matrix: Water
Date Received: 02/26/21 12:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.24	ug/L			03/04/21 02:31	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.37	ug/L			03/04/21 02:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			03/04/21 02:31	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			03/04/21 02:31	1
1,1-Dichloroethane	ND		1.0	0.26	ug/L			03/04/21 02:31	1

Client Sample ID: S: 10% P.C., PAC, surf
Date Collected: 02/25/21 11:20
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-3
Matrix: Water

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		1.0	0.26	ug/L			03/04/21 02:31	1
1,2,4-Trichlorobenzene	ND		1.0	0.37	ug/L			03/04/21 02:31	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.38	ug/L			03/04/21 02:31	1
1,2-Dibromoethane	ND		1.0	0.50	ug/L			03/04/21 02:31	1
1,2-Dichlorobenzene	ND		1.0	0.21	ug/L			03/04/21 02:31	1
1,2-Dichloroethane	ND		1.0	0.43	ug/L			03/04/21 02:31	1
1,2-Dichloropropane	ND		1.0	0.35	ug/L			03/04/21 02:31	1
1,3-Dichlorobenzene	ND		1.0	0.34	ug/L			03/04/21 02:31	1
1,4-Dichlorobenzene	ND		1.0	0.33	ug/L			03/04/21 02:31	1
2-Butanone (MEK)	ND		5.0	1.9	ug/L			03/04/21 02:31	1
2-Hexanone	ND		5.0	1.1	ug/L			03/04/21 02:31	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	1.3	ug/L			03/04/21 02:31	1
Acetone	**120**		5.0	4.4	ug/L			03/04/21 02:31	1
Benzene	ND		1.0	0.20	ug/L			03/04/21 02:31	1
Bromodichloromethane	ND		1.0	0.34	ug/L			03/04/21 02:31	1
Bromoform	ND		1.0	0.54	ug/L			03/04/21 02:31	1
Bromomethane	ND		1.0	0.55	ug/L			03/04/21 02:31	1
Carbon disulfide	**1.1**		1.0	0.82	ug/L			03/04/21 02:31	1
Carbon tetrachloride	ND		1.0	0.21	ug/L			03/04/21 02:31	1
Chlorobenzene	ND		1.0	0.38	ug/L			03/04/21 02:31	1
Chloroethane	ND		1.0	0.32	ug/L			03/04/21 02:31	1
Chloroform	ND		1.0	0.33	ug/L			03/04/21 02:31	1
Chloromethane	ND		1.0	0.40	ug/L			03/04/21 02:31	1
cis-1,2-Dichloroethene	**1.3**		1.0	0.22	ug/L			03/04/21 02:31	1
cis-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 02:31	1
Cyclohexane	ND		1.0	0.32	ug/L			03/04/21 02:31	1
Dibromochloromethane	ND		1.0	0.28	ug/L			03/04/21 02:31	1
Dichlorodifluoromethane	ND		1.0	0.31	ug/L			03/04/21 02:31	1
Ethylbenzene	ND		1.0	0.30	ug/L			03/04/21 02:31	1
Isopropylbenzene	ND		1.0	0.34	ug/L			03/04/21 02:31	1
Methyl acetate	ND		5.0	0.79	ug/L			03/04/21 02:31	1
Methyl tert-butyl ether	ND		1.0	0.22	ug/L			03/04/21 02:31	1
Methylcyclohexane	ND		1.0	0.71	ug/L			03/04/21 02:31	1
Methylene Chloride	ND		1.0	0.32	ug/L			03/04/21 02:31	1
Styrene	ND		1.0	0.42	ug/L			03/04/21 02:31	1
Tetrachloroethene	ND		1.0	0.25	ug/L			03/04/21 02:31	1
Toluene	ND		1.0	0.38	ug/L			03/04/21 02:31	1
trans-1,2-Dichloroethene	ND		1.0	0.24	ug/L			03/04/21 02:31	1
trans-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 02:31	1
Trichloroethene	ND		1.0	0.31	ug/L			03/04/21 02:31	1
Trichlorofluoromethane	ND		1.0	0.32	ug/L			03/04/21 02:31	1
Vinyl chloride	**2.2**		1.0	0.17	ug/L			03/04/21 02:31	1
Xylenes, Total	ND		2.0	0.65	ug/L			03/04/21 02:31	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ug/L*					*03/04/21 02:31*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 123*		*03/04/21 02:31*	*1*
Dibromofluoromethane (Surr)	*104*		*77 - 124*		*03/04/21 02:31*	*1*

Client Sample ID: S: 10% P.C., PAC, surf
Lab Sample ID: 460-228889-3
Date Collected: 02/25/21 11:20
Matrix: Water
Date Received: 02/26/21 12:30

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*80 - 120*		*03/04/21 02:31*	*1*
4-Bromofluorobenzene	*100*		*76 - 120*		*03/04/21 02:31*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloronaphthalene, Total	**7.8**		2.4	0.26	ug/L		03/02/21 18:28	03/04/21 11:27	1
Heptachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 11:27	1
Hexachloronaphthalene, Total	ND		2.4	0.36	ug/L		03/02/21 18:28	03/04/21 11:27	1
Monochloronaphthalene, Total	**2.9**		2.4	0.37	ug/L		03/02/21 18:28	03/04/21 11:27	1
Octachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 11:27	1
Pentachloronaphthalene, Total	**1.2**	**J**	2.4	0.41	ug/L		03/02/21 18:28	03/04/21 11:27	1
Tetrachloronaphthalene, Total	**5.9**		2.4	0.28	ug/L		03/02/21 18:28	03/04/21 11:27	1
Trichloronaphthalene, Total	**17**		2.4	0.28	ug/L		03/02/21 18:28	03/04/21 11:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*78*		*30 - 123*	*03/02/21 18:28*	*03/04/21 11:27*	*1*
Nitrobenzene-d5	*81*		*33 - 139*	*03/02/21 18:28*	*03/04/21 11:27*	*1*
Terphenyl-d14	*79*		*42 - 150*	*03/02/21 18:28*	*03/04/21 11:27*	*1*

Method: 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 09:23	1
4,4'-DDE	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 09:23	1
4,4'-DDT	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:23	1
Aldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 09:23	1
alpha-BHC	ND		0.020	0.0070	ug/L		02/28/21 14:15	03/03/21 09:23	1
beta-BHC	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:23	1
cis-Chlordane	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 09:23	1
delta-BHC	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 09:23	1
Dieldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 09:23	1
Endosulfan I	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 09:23	1
Endosulfan II	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:23	1
Endosulfan sulfate	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 09:23	1
Endrin	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:23	1
Endrin aldehyde	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 09:23	1
Endrin ketone	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 09:23	1
gamma-BHC (Lindane)	ND		0.020	0.012	ug/L		02/28/21 14:15	03/03/21 09:23	1
Heptachlor	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 09:23	1
Heptachlor epoxide	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 09:23	1
Methoxychlor	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:23	1
Toxaphene	ND		0.50	0.11	ug/L		02/28/21 14:15	03/03/21 09:23	1
trans-Chlordane	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 09:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*58*		*10 - 150*	*02/28/21 14:15*	*03/03/21 09:23*	*1*
DCB Decachlorobiphenyl	*67*		*10 - 150*	*02/28/21 14:15*	*03/03/21 09:23*	*1*
Tetrachloro-m-xylene	*61*		*10 - 150*	*02/28/21 14:15*	*03/03/21 09:23*	*1*
Tetrachloro-m-xylene	*61*		*10 - 150*	*02/28/21 14:15*	*03/03/21 09:23*	*1*

Client Sample ID: S: 10% P.C., PAC, surf
Lab Sample ID: 460-228889-3
Date Collected: 02/25/21 11:20
Matrix: Water
Date Received: 02/26/21 12:30

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.81**		0.20	0.077	mg/L		03/02/21 04:45	03/04/21 19:41	1
Antimony	**0.017**	**J**	0.020	0.0037	mg/L		03/02/21 04:45	03/04/21 19:41	1
Arsenic	ND		0.015	0.0033	mg/L		03/02/21 04:45	03/04/21 19:41	1
Barium	**0.047**	**J**	0.20	0.013	mg/L		03/02/21 04:45	03/04/21 19:41	1
Beryllium	ND		0.0020	0.00017	mg/L		03/02/21 04:45	03/04/21 19:41	1
Cadmium	ND		0.0040	0.00033	mg/L		03/02/21 04:45	03/04/21 19:41	1
Calcium	**78.4**		5.0	0.15	mg/L		03/02/21 04:45	03/04/21 19:41	1
Chromium	ND		0.010	0.0050	mg/L		03/02/21 04:45	03/04/21 19:41	1
Cobalt	ND		0.050	0.0020	mg/L		03/02/21 04:45	03/04/21 19:41	1
Copper	ND		0.025	0.0069	mg/L		03/02/21 04:45	03/04/21 19:41	1
Iron	ND		0.15	0.081	mg/L		03/02/21 04:45	03/04/21 19:41	1
Lead	ND		0.010	0.0024	mg/L		03/02/21 04:45	03/04/21 19:41	1
Magnesium	ND		5.0	0.14	mg/L		03/02/21 04:45	03/04/21 19:41	1
Manganese	ND		0.015	0.00076	mg/L		03/02/21 04:45	03/04/21 19:41	1
Nickel	ND		0.040	0.0041	mg/L		03/02/21 04:45	03/04/21 19:41	1
Potassium	**5.4**		5.0	0.14	mg/L		03/02/21 04:45	03/04/21 19:41	1
Selenium	ND		0.020	0.0059	mg/L		03/02/21 04:45	03/04/21 19:41	1
Silver	ND		0.010	0.0058	mg/L		03/02/21 04:45	03/04/21 19:41	1
Sodium	**8.8**	**B**	5.0	0.084	mg/L		03/02/21 04:45	03/04/21 19:41	1
Thallium	ND		0.020	0.0041	mg/L		03/02/21 04:45	03/04/21 19:41	1
Vanadium	ND		0.050	0.0072	mg/L		03/02/21 04:45	03/04/21 19:41	1
Zinc	**0.0023**	**J**	0.030	0.0012	mg/L		03/02/21 04:45	03/04/21 19:41	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/05/21 11:25	03/05/21 14:30	1

Client Sample ID: S: 10% P.C., OC
Lab Sample ID: 460-228889-4
Date Collected: 02/25/21 11:30
Matrix: Water
Date Received: 02/26/21 12:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.24	ug/L			03/04/21 05:48	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.37	ug/L			03/04/21 05:48	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			03/04/21 05:48	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			03/04/21 05:48	1
1,1-Dichloroethane	ND		1.0	0.26	ug/L			03/04/21 05:48	1
1,1-Dichloroethene	ND		1.0	0.26	ug/L			03/04/21 05:48	1
1,2,4-Trichlorobenzene	ND		1.0	0.37	ug/L			03/04/21 05:48	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.38	ug/L			03/04/21 05:48	1
1,2-Dibromoethane	ND		1.0	0.50	ug/L			03/04/21 05:48	1
1,2-Dichlorobenzene	ND		1.0	0.21	ug/L			03/04/21 05:48	1
1,2-Dichloroethane	ND		1.0	0.43	ug/L			03/04/21 05:48	1
1,2-Dichloropropane	ND		1.0	0.35	ug/L			03/04/21 05:48	1
1,3-Dichlorobenzene	ND		1.0	0.34	ug/L			03/04/21 05:48	1
1,4-Dichlorobenzene	ND		1.0	0.33	ug/L			03/04/21 05:48	1
2-Butanone (MEK)	**9.2**		5.0	1.9	ug/L			03/04/21 05:48	1
2-Hexanone	ND		5.0	1.1	ug/L			03/04/21 05:48	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	1.3	ug/L			03/04/21 05:48	1

Client Sample ID: S: 10% P.C., OC
Date Collected: 02/25/21 11:30
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-4
Matrix: Water

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**68**		5.0	4.4	ug/L			03/04/21 05:48	1
Benzene	ND		1.0	0.20	ug/L			03/04/21 05:48	1
Bromodichloromethane	ND		1.0	0.34	ug/L			03/04/21 05:48	1
Bromoform	ND		1.0	0.54	ug/L			03/04/21 05:48	1
Bromomethane	ND		1.0	0.55	ug/L			03/04/21 05:48	1
Carbon disulfide	**1.2**		1.0	0.82	ug/L			03/04/21 05:48	1
Carbon tetrachloride	ND		1.0	0.21	ug/L			03/04/21 05:48	1
Chlorobenzene	ND		1.0	0.38	ug/L			03/04/21 05:48	1
Chloroethane	ND		1.0	0.32	ug/L			03/04/21 05:48	1
Chloroform	ND		1.0	0.33	ug/L			03/04/21 05:48	1
Chloromethane	ND		1.0	0.40	ug/L			03/04/21 05:48	1
cis-1,2-Dichloroethene	**82**		1.0	0.22	ug/L			03/04/21 05:48	1
cis-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 05:48	1
Cyclohexane	ND		1.0	0.32	ug/L			03/04/21 05:48	1
Dibromochloromethane	ND		1.0	0.28	ug/L			03/04/21 05:48	1
Dichlorodifluoromethane	ND		1.0	0.31	ug/L			03/04/21 05:48	1
Ethylbenzene	**0.80**	**J**	1.0	0.30	ug/L			03/04/21 05:48	1
Isopropylbenzene	ND		1.0	0.34	ug/L			03/04/21 05:48	1
Methyl acetate	ND		5.0	0.79	ug/L			03/04/21 05:48	1
Methyl tert-butyl ether	ND		1.0	0.22	ug/L			03/04/21 05:48	1
Methylcyclohexane	ND		1.0	0.71	ug/L			03/04/21 05:48	1
Methylene Chloride	ND		1.0	0.32	ug/L			03/04/21 05:48	1
Styrene	ND		1.0	0.42	ug/L			03/04/21 05:48	1
Tetrachloroethene	ND		1.0	0.25	ug/L			03/04/21 05:48	1
Toluene	**1.2**		1.0	0.38	ug/L			03/04/21 05:48	1
trans-1,2-Dichloroethene	**1.0**		1.0	0.24	ug/L			03/04/21 05:48	1
trans-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 05:48	1
Trichloroethene	**2.6**		1.0	0.31	ug/L			03/04/21 05:48	1
Trichlorofluoromethane	ND		1.0	0.32	ug/L			03/04/21 05:48	1
Vinyl chloride	**40**		1.0	0.17	ug/L			03/04/21 05:48	1
Xylenes, Total	**2.0**		2.0	0.65	ug/L			03/04/21 05:48	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
1-Pentene, 2,4,4-trimethyl-	*6.1*	*T J N*	*ug/L*		*5.38*	*107-39-1*		*03/04/21 05:48*	*1*
Naphthalene	*150*	*T J N*	*ug/L*		*12.20*	*91-20-3*		*03/04/21 05:48*	*1*
Naphthalene, 1-chloro-	*10*	*T J N*	*ug/L*		*13.67*	*90-13-1*		*03/04/21 05:48*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 123*		*03/04/21 05:48*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 124*		*03/04/21 05:48*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*03/04/21 05:48*	*1*
4-Bromofluorobenzene	*99*		*76 - 120*		*03/04/21 05:48*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 11:55	1
Hexachloronaphthalene, Total	ND		2.4	0.37	ug/L		03/02/21 18:28	03/04/21 11:55	1
Octachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 11:55	1
Pentachloronaphthalene, Total	**2.5**		2.4	0.41	ug/L		03/02/21 18:28	03/04/21 11:55	1
Tetrachloronaphthalene, Total	**14**		2.4	0.29	ug/L		03/02/21 18:28	03/04/21 11:55	1

Client Sample ID: S: 10% P.C., OC

Date Collected: 02/25/21 11:30
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-4

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*84*		*30 - 123*	*03/02/21 18:28*	*03/04/21 11:55*	*1*
Nitrobenzene-d5	*86*		*33 - 139*	*03/02/21 18:28*	*03/04/21 11:55*	*1*
Terphenyl-d14	*80*		*42 - 150*	*03/02/21 18:28*	*03/04/21 11:55*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloronaphthalene, Total	**47**		9.6	1.0	ug/L		03/02/21 18:28	03/04/21 17:33	4
Monochloronaphthalene, Total	**41**		9.6	1.5	ug/L		03/02/21 18:28	03/04/21 17:33	4
Trichloronaphthalene, Total	**49**		9.6	1.1	ug/L		03/02/21 18:28	03/04/21 17:33	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*101*		*30 - 123*	*03/02/21 18:28*	*03/04/21 17:33*	*4*
Nitrobenzene-d5	*108*		*33 - 139*	*03/02/21 18:28*	*03/04/21 17:33*	*4*
Terphenyl-d14	*91*		*42 - 150*	*03/02/21 18:28*	*03/04/21 17:33*	*4*

Method: 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 09:38	1
4,4'-DDE	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 09:38	1
4,4'-DDT	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:38	1
Aldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 09:38	1
alpha-BHC	ND		0.020	0.0070	ug/L		02/28/21 14:15	03/03/21 09:38	1
beta-BHC	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:38	1
cis-Chlordane	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 09:38	1
delta-BHC	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 09:38	1
Dieldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 09:38	1
Endosulfan I	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 09:38	1
Endosulfan II	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:38	1
Endosulfan sulfate	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 09:38	1
Endrin	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:38	1
Endrin aldehyde	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 09:38	1
Endrin ketone	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 09:38	1
gamma-BHC (Lindane)	ND		0.020	0.012	ug/L		02/28/21 14:15	03/03/21 09:38	1
Heptachlor	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 09:38	1
Heptachlor epoxide	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 09:38	1
Methoxychlor	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:38	1
Toxaphene	ND		0.50	0.11	ug/L		02/28/21 14:15	03/03/21 09:38	1
trans-Chlordane	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 09:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*26*	**3*	*10 - 150*	*02/28/21 14:15*	*03/03/21 09:38*	*1*
DCB Decachlorobiphenyl	*65*		*10 - 150*	*02/28/21 14:15*	*03/03/21 09:38*	*1*
Tetrachloro-m-xylene	*34*	**3*	*10 - 150*	*02/28/21 14:15*	*03/03/21 09:38*	*1*
Tetrachloro-m-xylene	*70*		*10 - 150*	*02/28/21 14:15*	*03/03/21 09:38*	*1*

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.90**		0.20	0.077	mg/L		03/02/21 04:45	03/04/21 19:45	1
Antimony	**0.027**		0.020	0.0037	mg/L		03/02/21 04:45	03/04/21 19:45	1
Arsenic	ND		0.015	0.0033	mg/L		03/02/21 04:45	03/04/21 19:45	1
Barium	**0.028**	**J**	0.20	0.013	mg/L		03/02/21 04:45	03/04/21 19:45	1

Client Sample ID: S: 10% P.C., OC
Lab Sample ID: 460-228889-4
Date Collected: 02/25/21 11:30
Matrix: Water
Date Received: 02/26/21 12:30

Method: 6010D - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.0020	0.00017	mg/L		03/02/21 04:45	03/04/21 19:45	1
Cadmium	ND		0.0040	0.00033	mg/L		03/02/21 04:45	03/04/21 19:45	1
Calcium	**49.1**		5.0	0.15	mg/L		03/02/21 04:45	03/04/21 19:45	1
Chromium	ND		0.010	0.0050	mg/L		03/02/21 04:45	03/04/21 19:45	1
Cobalt	ND		0.050	0.0020	mg/L		03/02/21 04:45	03/04/21 19:45	1
Copper	ND		0.025	0.0069	mg/L		03/02/21 04:45	03/04/21 19:45	1
Iron	**0.14**	**J**	0.15	0.081	mg/L		03/02/21 04:45	03/04/21 19:45	1
Lead	ND		0.010	0.0024	mg/L		03/02/21 04:45	03/04/21 19:45	1
Magnesium	ND		5.0	0.14	mg/L		03/02/21 04:45	03/04/21 19:45	1
Manganese	**0.00084**	**J**	0.015	0.00076	mg/L		03/02/21 04:45	03/04/21 19:45	1
Nickel	ND		0.040	0.0041	mg/L		03/02/21 04:45	03/04/21 19:45	1
Potassium	**5.0**		5.0	0.14	mg/L		03/02/21 04:45	03/04/21 19:45	1
Selenium	ND		0.020	0.0059	mg/L		03/02/21 04:45	03/04/21 19:45	1
Silver	ND		0.010	0.0058	mg/L		03/02/21 04:45	03/04/21 19:45	1
Sodium	**29.0**	**B**	5.0	0.084	mg/L		03/02/21 04:45	03/04/21 19:45	1
Thallium	ND		0.020	0.0041	mg/L		03/02/21 04:45	03/04/21 19:45	1
Vanadium	ND		0.050	0.0072	mg/L		03/02/21 04:45	03/04/21 19:45	1
Zinc	**0.0026**	**J**	0.030	0.0012	mg/L		03/02/21 04:45	03/04/21 19:45	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/05/21 11:25	03/05/21 14:32	1

Client Sample ID: S: 10% P.C., OC, surf
Lab Sample ID: 460-228889-5
Date Collected: 02/25/21 11:40
Matrix: Water
Date Received: 02/26/21 12:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.24	ug/L			03/04/21 06:13	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.37	ug/L			03/04/21 06:13	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			03/04/21 06:13	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			03/04/21 06:13	1
1,1-Dichloroethane	ND		1.0	0.26	ug/L			03/04/21 06:13	1
1,1-Dichloroethene	**0.89**	**J**	1.0	0.26	ug/L			03/04/21 06:13	1
1,2,4-Trichlorobenzene	ND		1.0	0.37	ug/L			03/04/21 06:13	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.38	ug/L			03/04/21 06:13	1
1,2-Dibromoethane	ND		1.0	0.50	ug/L			03/04/21 06:13	1
1,2-Dichlorobenzene	ND		1.0	0.21	ug/L			03/04/21 06:13	1
1,2-Dichloroethane	ND		1.0	0.43	ug/L			03/04/21 06:13	1
1,2-Dichloropropane	ND		1.0	0.35	ug/L			03/04/21 06:13	1
1,3-Dichlorobenzene	ND		1.0	0.34	ug/L			03/04/21 06:13	1
1,4-Dichlorobenzene	ND		1.0	0.33	ug/L			03/04/21 06:13	1
2-Butanone (MEK)	**30**		5.0	1.9	ug/L			03/04/21 06:13	1
2-Hexanone	ND		5.0	1.1	ug/L			03/04/21 06:13	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	1.3	ug/L			03/04/21 06:13	1
Acetone	**210**		5.0	4.4	ug/L			03/04/21 06:13	1
Benzene	ND		1.0	0.20	ug/L			03/04/21 06:13	1
Bromodichloromethane	ND		1.0	0.34	ug/L			03/04/21 06:13	1
Bromoform	ND		1.0	0.54	ug/L			03/04/21 06:13	1

Client Sample ID: S: 10% P.C., OC, surf
Date Collected: 02/25/21 11:40
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-5
Matrix: Water

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		1.0	0.55	ug/L			03/04/21 06:13	1
Carbon disulfide	**3.5**		1.0	0.82	ug/L			03/04/21 06:13	1
Carbon tetrachloride	ND		1.0	0.21	ug/L			03/04/21 06:13	1
Chlorobenzene	ND		1.0	0.38	ug/L			03/04/21 06:13	1
Chloroethane	ND		1.0	0.32	ug/L			03/04/21 06:13	1
Chloroform	ND		1.0	0.33	ug/L			03/04/21 06:13	1
Chloromethane	ND		1.0	0.40	ug/L			03/04/21 06:13	1
cis-1,2-Dichloroethene	**280**		1.0	0.22	ug/L			03/04/21 06:13	1
cis-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 06:13	1
Cyclohexane	ND		1.0	0.32	ug/L			03/04/21 06:13	1
Dibromochloromethane	ND		1.0	0.28	ug/L			03/04/21 06:13	1
Dichlorodifluoromethane	ND		1.0	0.31	ug/L			03/04/21 06:13	1
Ethylbenzene	**2.6**		1.0	0.30	ug/L			03/04/21 06:13	1
Isopropylbenzene	ND		1.0	0.34	ug/L			03/04/21 06:13	1
Methyl acetate	ND		5.0	0.79	ug/L			03/04/21 06:13	1
Methyl tert-butyl ether	ND		1.0	0.22	ug/L			03/04/21 06:13	1
Methylcyclohexane	ND		1.0	0.71	ug/L			03/04/21 06:13	1
Methylene Chloride	ND		1.0	0.32	ug/L			03/04/21 06:13	1
Styrene	ND		1.0	0.42	ug/L			03/04/21 06:13	1
Tetrachloroethene	ND		1.0	0.25	ug/L			03/04/21 06:13	1
Toluene	**3.8**		1.0	0.38	ug/L			03/04/21 06:13	1
trans-1,2-Dichloroethene	**3.8**		1.0	0.24	ug/L			03/04/21 06:13	1
trans-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 06:13	1
Trichloroethene	**8.0**		1.0	0.31	ug/L			03/04/21 06:13	1
Trichlorofluoromethane	ND		1.0	0.32	ug/L			03/04/21 06:13	1
Vinyl chloride	**140**		1.0	0.17	ug/L			03/04/21 06:13	1
Xylenes, Total	**6.6**		2.0	0.65	ug/L			03/04/21 06:13	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
1-Pentene, 2,4,4-trimethyl-	*15*	*T J N*	*ug/L*		*5.38*	*107-39-1*		*03/04/21 06:13*	*1*
2-Pentene, 2,3,4-trimethyl-	*6.1*	*T J N*	*ug/L*		*5.63*	*565-77-5*		*03/04/21 06:13*	*1*
Unknown	*7.5*	*T J*	*ug/L*		*8.95*			*03/04/21 06:13*	*1*
Bicyclo[2.2.1]heptan-2-one, 1,7,7-trimethyl-, (.+/-.)-	*9.6*	*T J N*	*ug/L*		*11.99*	*21368-68-3*		*03/04/21 06:13*	*1*
Naphthalene	*480*	*T J N*	*ug/L*		*12.20*	*91-20-3*		*03/04/21 06:13*	*1*
Naphthalene, 2-chloro-	*18*	*T J N*	*ug/L*		*13.64*	*91-58-7*		*03/04/21 06:13*	*1*
Naphthalene, 1-chloro-	*48*	*T J N*	*ug/L*		*13.67*	*90-13-1*		*03/04/21 06:13*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 123*		*03/04/21 06:13*	*1*
Dibromofluoromethane (Surr)	*105*		*77 - 124*		*03/04/21 06:13*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*03/04/21 06:13*	*1*
4-Bromofluorobenzene	*99*		*76 - 120*		*03/04/21 06:13*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 12:23	1
Hexachloronaphthalene, Total	ND		2.4	0.37	ug/L		03/02/21 18:28	03/04/21 12:23	1
Octachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 12:23	1
Pentachloronaphthalene, Total	**3.2**		2.4	0.41	ug/L		03/02/21 18:28	03/04/21 12:23	1

Client Sample ID: S: 10% P.C., OC, surf
Date Collected: 02/25/21 11:40
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-5
Matrix: Water

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloronaphthalene, Total	17		2.4	0.29	ug/L		03/02/21 18:28	03/04/21 12:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*82*		*30 - 123*	*03/02/21 18:28*	*03/04/21 12:23*	*1*
Nitrobenzene-d5	*84*		*33 - 139*	*03/02/21 18:28*	*03/04/21 12:23*	*1*
Terphenyl-d14	*75*		*42 - 150*	*03/02/21 18:28*	*03/04/21 12:23*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloronaphthalene, Total	53		9.6	1.0	ug/L		03/02/21 18:28	03/04/21 18:01	4
Monochloronaphthalene, Total	43		9.6	1.5	ug/L		03/02/21 18:28	03/04/21 18:01	4
Trichloronaphthalene, Total	62		9.6	1.1	ug/L		03/02/21 18:28	03/04/21 18:01	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*100*		*30 - 123*	*03/02/21 18:28*	*03/04/21 18:01*	*4*
Nitrobenzene-d5	*107*		*33 - 139*	*03/02/21 18:28*	*03/04/21 18:01*	*4*
Terphenyl-d14	*87*		*42 - 150*	*03/02/21 18:28*	*03/04/21 18:01*	*4*

Method: 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 09:54	1
4,4'-DDE	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 09:54	1
4,4'-DDT	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:54	1
Aldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 09:54	1
alpha-BHC	ND		0.020	0.0070	ug/L		02/28/21 14:15	03/03/21 09:54	1
beta-BHC	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:54	1
cis-Chlordane	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 09:54	1
delta-BHC	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 09:54	1
Dieldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 09:54	1
Endosulfan I	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 09:54	1
Endosulfan II	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:54	1
Endosulfan sulfate	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 09:54	1
Endrin	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:54	1
Endrin aldehyde	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 09:54	1
Endrin ketone	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 09:54	1
gamma-BHC (Lindane)	ND		0.020	0.012	ug/L		02/28/21 14:15	03/03/21 09:54	1
Heptachlor	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 09:54	1
Heptachlor epoxide	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 09:54	1
Methoxychlor	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 09:54	1
Toxaphene	ND		0.50	0.11	ug/L		02/28/21 14:15	03/03/21 09:54	1
trans-Chlordane	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 09:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*29*		*10 - 150*	*02/28/21 14:15*	*03/03/21 09:54*	*1*
DCB Decachlorobiphenyl	*63*		*10 - 150*	*02/28/21 14:15*	*03/03/21 09:54*	*1*
Tetrachloro-m-xylene	*35*		*10 - 150*	*02/28/21 14:15*	*03/03/21 09:54*	*1*
Tetrachloro-m-xylene	*71*		*10 - 150*	*02/28/21 14:15*	*03/03/21 09:54*	*1*

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	1.2		0.20	0.077	mg/L		03/02/21 04:45	03/04/21 19:49	1

Client Sample ID: S: 10% P.C., OC, surf
Lab Sample ID: 460-228889-5
Date Collected: 02/25/21 11:40
Matrix: Water
Date Received: 02/26/21 12:30

Method: 6010D - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.016**	**J**	0.020	0.0037	mg/L		03/02/21 04:45	03/04/21 19:49	1
Arsenic	ND		0.015	0.0033	mg/L		03/02/21 04:45	03/04/21 19:49	1
Barium	**0.024**	**J**	0.20	0.013	mg/L		03/02/21 04:45	03/04/21 19:49	1
Beryllium	ND		0.0020	0.00017	mg/L		03/02/21 04:45	03/04/21 19:49	1
Cadmium	ND		0.0040	0.00033	mg/L		03/02/21 04:45	03/04/21 19:49	1
Calcium	**42.7**		5.0	0.15	mg/L		03/02/21 04:45	03/04/21 19:49	1
Chromium	ND		0.010	0.0050	mg/L		03/02/21 04:45	03/04/21 19:49	1
Cobalt	ND		0.050	0.0020	mg/L		03/02/21 04:45	03/04/21 19:49	1
Copper	ND		0.025	0.0069	mg/L		03/02/21 04:45	03/04/21 19:49	1
Iron	**0.33**		0.15	0.081	mg/L		03/02/21 04:45	03/04/21 19:49	1
Lead	ND		0.010	0.0024	mg/L		03/02/21 04:45	03/04/21 19:49	1
Magnesium	ND		5.0	0.14	mg/L		03/02/21 04:45	03/04/21 19:49	1
Manganese	**0.00097**	**J**	0.015	0.00076	mg/L		03/02/21 04:45	03/04/21 19:49	1
Nickel	ND		0.040	0.0041	mg/L		03/02/21 04:45	03/04/21 19:49	1
Potassium	**4.4**	**J**	5.0	0.14	mg/L		03/02/21 04:45	03/04/21 19:49	1
Selenium	ND		0.020	0.0059	mg/L		03/02/21 04:45	03/04/21 19:49	1
Silver	ND		0.010	0.0058	mg/L		03/02/21 04:45	03/04/21 19:49	1
Sodium	**25.3**	**B**	5.0	0.084	mg/L		03/02/21 04:45	03/04/21 19:49	1
Thallium	ND		0.020	0.0041	mg/L		03/02/21 04:45	03/04/21 19:49	1
Vanadium	ND		0.050	0.0072	mg/L		03/02/21 04:45	03/04/21 19:49	1
Zinc	**0.0024**	**J**	0.030	0.0012	mg/L		03/02/21 04:45	03/04/21 19:49	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/05/21 11:25	03/05/21 14:34	1

Client Sample ID: N: 10% P.C.
Lab Sample ID: 460-228889-6
Date Collected: 02/25/21 11:50
Matrix: Water
Date Received: 02/26/21 12:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.24	ug/L			03/04/21 02:56	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.37	ug/L			03/04/21 02:56	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			03/04/21 02:56	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			03/04/21 02:56	1
1,1-Dichloroethane	ND		1.0	0.26	ug/L			03/04/21 02:56	1
1,1-Dichloroethene	ND		1.0	0.26	ug/L			03/04/21 02:56	1
1,2,4-Trichlorobenzene	ND		1.0	0.37	ug/L			03/04/21 02:56	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.38	ug/L			03/04/21 02:56	1
1,2-Dibromoethane	ND		1.0	0.50	ug/L			03/04/21 02:56	1
1,2-Dichlorobenzene	ND		1.0	0.21	ug/L			03/04/21 02:56	1
1,2-Dichloroethane	ND		1.0	0.43	ug/L			03/04/21 02:56	1
1,2-Dichloropropane	ND		1.0	0.35	ug/L			03/04/21 02:56	1
1,3-Dichlorobenzene	ND		1.0	0.34	ug/L			03/04/21 02:56	1
1,4-Dichlorobenzene	ND		1.0	0.33	ug/L			03/04/21 02:56	1
2-Butanone (MEK)	**22**		5.0	1.9	ug/L			03/04/21 02:56	1
2-Hexanone	ND		5.0	1.1	ug/L			03/04/21 02:56	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	1.3	ug/L			03/04/21 02:56	1
Acetone	**180**		5.0	4.4	ug/L			03/04/21 02:56	1

Client Sample ID: N: 10% P.C.
Date Collected: 02/25/21 11:50
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-6
Matrix: Water

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	0.20	ug/L			03/04/21 02:56	1
Bromodichloromethane	ND		1.0	0.34	ug/L			03/04/21 02:56	1
Bromoform	ND		1.0	0.54	ug/L			03/04/21 02:56	1
Bromomethane	ND		1.0	0.55	ug/L			03/04/21 02:56	1
Carbon disulfide	**4.3**		1.0	0.82	ug/L			03/04/21 02:56	1
Carbon tetrachloride	ND		1.0	0.21	ug/L			03/04/21 02:56	1
Chlorobenzene	ND		1.0	0.38	ug/L			03/04/21 02:56	1
Chloroethane	ND		1.0	0.32	ug/L			03/04/21 02:56	1
Chloroform	ND		1.0	0.33	ug/L			03/04/21 02:56	1
Chloromethane	ND		1.0	0.40	ug/L			03/04/21 02:56	1
cis-1,2-Dichloroethene	**73**		1.0	0.22	ug/L			03/04/21 02:56	1
cis-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 02:56	1
Cyclohexane	ND		1.0	0.32	ug/L			03/04/21 02:56	1
Dibromochloromethane	ND		1.0	0.28	ug/L			03/04/21 02:56	1
Dichlorodifluoromethane	ND		1.0	0.31	ug/L			03/04/21 02:56	1
Ethylbenzene	ND		1.0	0.30	ug/L			03/04/21 02:56	1
Isopropylbenzene	ND		1.0	0.34	ug/L			03/04/21 02:56	1
Methyl acetate	ND		5.0	0.79	ug/L			03/04/21 02:56	1
Methyl tert-butyl ether	ND		1.0	0.22	ug/L			03/04/21 02:56	1
Methylcyclohexane	ND		1.0	0.71	ug/L			03/04/21 02:56	1
Methylene Chloride	ND		1.0	0.32	ug/L			03/04/21 02:56	1
Styrene	ND		1.0	0.42	ug/L			03/04/21 02:56	1
Tetrachloroethene	ND		1.0	0.25	ug/L			03/04/21 02:56	1
Toluene	ND		1.0	0.38	ug/L			03/04/21 02:56	1
trans-1,2-Dichloroethene	**0.89**	**J**	1.0	0.24	ug/L			03/04/21 02:56	1
trans-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 02:56	1
Trichloroethene	**1.4**		1.0	0.31	ug/L			03/04/21 02:56	1
Trichlorofluoromethane	ND		1.0	0.32	ug/L			03/04/21 02:56	1
Vinyl chloride	**38**		1.0	0.17	ug/L			03/04/21 02:56	1
Xylenes, Total	ND		2.0	0.65	ug/L			03/04/21 02:56	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ug/L*					*03/04/21 02:56*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 123*		*03/04/21 02:56*	*1*
Dibromofluoromethane (Surr)	*104*		*77 - 124*		*03/04/21 02:56*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*03/04/21 02:56*	*1*
4-Bromofluorobenzene	*101*		*76 - 120*		*03/04/21 02:56*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloronaphthalene, Total	**5.0**		2.4	0.26	ug/L		03/02/21 18:28	03/04/21 12:51	1
Heptachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 12:51	1
Hexachloronaphthalene, Total	ND		2.4	0.36	ug/L		03/02/21 18:28	03/04/21 12:51	1
Monochloronaphthalene, Total	**2.8**		2.4	0.37	ug/L		03/02/21 18:28	03/04/21 12:51	1
Octachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 12:51	1
Pentachloronaphthalene, Total	ND		2.4	0.41	ug/L		03/02/21 18:28	03/04/21 12:51	1
Tetrachloronaphthalene, Total	**0.43**	**J**	2.4	0.29	ug/L		03/02/21 18:28	03/04/21 12:51	1
Trichloronaphthalene, Total	**3.2**		2.4	0.28	ug/L		03/02/21 18:28	03/04/21 12:51	1

Client Sample ID: N: 10% P.C.

Date Collected: 02/25/21 11:50
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-6

Matrix: Water

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*77*		*30 - 123*	*03/02/21 18:28*	*03/04/21 12:51*	*1*
Nitrobenzene-d5	*81*		*33 - 139*	*03/02/21 18:28*	*03/04/21 12:51*	*1*
Terphenyl-d14	*57*		*42 - 150*	*03/02/21 18:28*	*03/04/21 12:51*	*1*

Method: 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 10:10	1
4,4'-DDE	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 10:10	1
4,4'-DDT	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:10	1
Aldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 10:10	1
alpha-BHC	ND		0.020	0.0070	ug/L		02/28/21 14:15	03/03/21 10:10	1
beta-BHC	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:10	1
cis-Chlordane	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 10:10	1
delta-BHC	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 10:10	1
Dieldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 10:10	1
Endosulfan I	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 10:10	1
Endosulfan II	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:10	1
Endosulfan sulfate	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 10:10	1
Endrin	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:10	1
Endrin aldehyde	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 10:10	1
Endrin ketone	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 10:10	1
gamma-BHC (Lindane)	ND		0.020	0.012	ug/L		02/28/21 14:15	03/03/21 10:10	1
Heptachlor	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 10:10	1
Heptachlor epoxide	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 10:10	1
Methoxychlor	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:10	1
Toxaphene	ND		0.50	0.11	ug/L		02/28/21 14:15	03/03/21 10:10	1
trans-Chlordane	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 10:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*35*		*10 - 150*	*02/28/21 14:15*	*03/03/21 10:10*	*1*
DCB Decachlorobiphenyl	*43*		*10 - 150*	*02/28/21 14:15*	*03/03/21 10:10*	*1*
Tetrachloro-m-xylene	*64*		*10 - 150*	*02/28/21 14:15*	*03/03/21 10:10*	*1*
Tetrachloro-m-xylene	*70*		*10 - 150*	*02/28/21 14:15*	*03/03/21 10:10*	*1*

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.1**		0.20	0.077	mg/L		03/02/21 04:45	03/04/21 19:53	1
Antimony	ND		0.020	0.0037	mg/L		03/02/21 04:45	03/04/21 19:53	1
Arsenic	ND		0.015	0.0033	mg/L		03/02/21 04:45	03/04/21 19:53	1
Barium	**0.038**	**J**	0.20	0.013	mg/L		03/02/21 04:45	03/04/21 19:53	1
Beryllium	ND		0.0020	0.00017	mg/L		03/02/21 04:45	03/04/21 19:53	1
Cadmium	ND		0.0040	0.00033	mg/L		03/02/21 04:45	03/04/21 19:53	1
Calcium	**72.5**		5.0	0.15	mg/L		03/02/21 04:45	03/04/21 19:53	1
Chromium	ND		0.010	0.0050	mg/L		03/02/21 04:45	03/04/21 19:53	1
Cobalt	ND		0.050	0.0020	mg/L		03/02/21 04:45	03/04/21 19:53	1
Copper	ND		0.025	0.0069	mg/L		03/02/21 04:45	03/04/21 19:53	1
Iron	**0.21**		0.15	0.081	mg/L		03/02/21 04:45	03/04/21 19:53	1
Lead	ND		0.010	0.0024	mg/L		03/02/21 04:45	03/04/21 19:53	1
Magnesium	ND		5.0	0.14	mg/L		03/02/21 04:45	03/04/21 19:53	1
Manganese	ND		0.015	0.00076	mg/L		03/02/21 04:45	03/04/21 19:53	1
Nickel	ND		0.040	0.0041	mg/L		03/02/21 04:45	03/04/21 19:53	1

Client Sample ID: N: 10% P.C.
Lab Sample ID: 460-228889-6
Date Collected: 02/25/21 11:50
Matrix: Water
Date Received: 02/26/21 12:30

Method: 6010D - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium	**4.5**	**J**	5.0	0.14	mg/L		03/02/21 04:45	03/04/21 19:53	1
Selenium	ND		0.020	0.0059	mg/L		03/02/21 04:45	03/04/21 19:53	1
Silver	ND		0.010	0.0058	mg/L		03/02/21 04:45	03/04/21 19:53	1
Sodium	**8.7**	**B**	5.0	0.084	mg/L		03/02/21 04:45	03/04/21 19:53	1
Thallium	ND		0.020	0.0041	mg/L		03/02/21 04:45	03/04/21 19:53	1
Vanadium	ND		0.050	0.0072	mg/L		03/02/21 04:45	03/04/21 19:53	1
Zinc	**0.0037**	**J**	0.030	0.0012	mg/L		03/02/21 04:45	03/04/21 19:53	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/05/21 11:25	03/05/21 14:35	1

Client Sample ID: N: 10% P.C., PAC
Lab Sample ID: 460-228889-7
Date Collected: 02/25/21 12:00
Matrix: Water
Date Received: 02/26/21 12:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.24	ug/L			03/04/21 02:07	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.37	ug/L			03/04/21 02:07	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			03/04/21 02:07	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			03/04/21 02:07	1
1,1-Dichloroethane	ND		1.0	0.26	ug/L			03/04/21 02:07	1
1,1-Dichloroethene	ND		1.0	0.26	ug/L			03/04/21 02:07	1
1,2,4-Trichlorobenzene	ND		1.0	0.37	ug/L			03/04/21 02:07	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.38	ug/L			03/04/21 02:07	1
1,2-Dibromoethane	ND		1.0	0.50	ug/L			03/04/21 02:07	1
1,2-Dichlorobenzene	ND		1.0	0.21	ug/L			03/04/21 02:07	1
1,2-Dichloroethane	ND		1.0	0.43	ug/L			03/04/21 02:07	1
1,2-Dichloropropane	ND		1.0	0.35	ug/L			03/04/21 02:07	1
1,3-Dichlorobenzene	ND		1.0	0.34	ug/L			03/04/21 02:07	1
1,4-Dichlorobenzene	ND		1.0	0.33	ug/L			03/04/21 02:07	1
2-Butanone (MEK)	ND		5.0	1.9	ug/L			03/04/21 02:07	1
2-Hexanone	ND		5.0	1.1	ug/L			03/04/21 02:07	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	1.3	ug/L			03/04/21 02:07	1
Acetone	**11**		5.0	4.4	ug/L			03/04/21 02:07	1
Benzene	ND		1.0	0.20	ug/L			03/04/21 02:07	1
Bromodichloromethane	ND		1.0	0.34	ug/L			03/04/21 02:07	1
Bromoform	ND		1.0	0.54	ug/L			03/04/21 02:07	1
Bromomethane	ND		1.0	0.55	ug/L			03/04/21 02:07	1
Carbon disulfide	**2.3**		1.0	0.82	ug/L			03/04/21 02:07	1
Carbon tetrachloride	ND		1.0	0.21	ug/L			03/04/21 02:07	1
Chlorobenzene	ND		1.0	0.38	ug/L			03/04/21 02:07	1
Chloroethane	ND		1.0	0.32	ug/L			03/04/21 02:07	1
Chloroform	ND		1.0	0.33	ug/L			03/04/21 02:07	1
Chloromethane	ND		1.0	0.40	ug/L			03/04/21 02:07	1
cis-1,2-Dichloroethene	**1.5**		1.0	0.22	ug/L			03/04/21 02:07	1
cis-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 02:07	1
Cyclohexane	ND		1.0	0.32	ug/L			03/04/21 02:07	1
Dibromochloromethane	ND		1.0	0.28	ug/L			03/04/21 02:07	1

Client Sample ID: N: 10% P.C., PAC
Date Collected: 02/25/21 12:00
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-7
Matrix: Water

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		1.0	0.31	ug/L			03/04/21 02:07	1
Ethylbenzene	ND		1.0	0.30	ug/L			03/04/21 02:07	1
Isopropylbenzene	ND		1.0	0.34	ug/L			03/04/21 02:07	1
Methyl acetate	ND		5.0	0.79	ug/L			03/04/21 02:07	1
Methyl tert-butyl ether	ND		1.0	0.22	ug/L			03/04/21 02:07	1
Methylcyclohexane	ND		1.0	0.71	ug/L			03/04/21 02:07	1
Methylene Chloride	ND		1.0	0.32	ug/L			03/04/21 02:07	1
Styrene	ND		1.0	0.42	ug/L			03/04/21 02:07	1
Tetrachloroethene	ND		1.0	0.25	ug/L			03/04/21 02:07	1
Toluene	ND		1.0	0.38	ug/L			03/04/21 02:07	1
trans-1,2-Dichloroethene	ND		1.0	0.24	ug/L			03/04/21 02:07	1
trans-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 02:07	1
Trichloroethene	ND		1.0	0.31	ug/L			03/04/21 02:07	1
Trichlorofluoromethane	ND		1.0	0.32	ug/L			03/04/21 02:07	1
Vinyl chloride	**2.7**		1.0	0.17	ug/L			03/04/21 02:07	1
Xylenes, Total	ND		2.0	0.65	ug/L			03/04/21 02:07	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ug/L*					*03/04/21 02:07*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 123*		*03/04/21 02:07*	*1*
Dibromofluoromethane (Surr)	*104*		*77 - 124*		*03/04/21 02:07*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*03/04/21 02:07*	*1*
4-Bromofluorobenzene	*103*		*76 - 120*		*03/04/21 02:07*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloronaphthalene, Total	ND		2.4	0.26	ug/L		03/02/21 18:28	03/04/21 13:19	1
Heptachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 13:19	1
Hexachloronaphthalene, Total	ND		2.4	0.36	ug/L		03/02/21 18:28	03/04/21 13:19	1
Monochloronaphthalene, Total	ND		2.4	0.37	ug/L		03/02/21 18:28	03/04/21 13:19	1
Octachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 13:19	1
Pentachloronaphthalene, Total	ND		2.4	0.41	ug/L		03/02/21 18:28	03/04/21 13:19	1
Tetrachloronaphthalene, Total	ND		2.4	0.29	ug/L		03/02/21 18:28	03/04/21 13:19	1
Trichloronaphthalene, Total	**0.39**	**J**	2.4	0.28	ug/L		03/02/21 18:28	03/04/21 13:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*84*		*30 - 123*	*03/02/21 18:28*	*03/04/21 13:19*	*1*
Nitrobenzene-d5	*92*		*33 - 139*	*03/02/21 18:28*	*03/04/21 13:19*	*1*
Terphenyl-d14	*74*		*42 - 150*	*03/02/21 18:28*	*03/04/21 13:19*	*1*

Method: 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 10:26	1
4,4'-DDE	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 10:26	1
4,4'-DDT	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:26	1
Aldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 10:26	1
alpha-BHC	ND		0.020	0.0070	ug/L		02/28/21 14:15	03/03/21 10:26	1
beta-BHC	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:26	1
cis-Chlordane	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 10:26	1

Client Sample ID: N: 10% P.C., PAC
Lab Sample ID: 460-228889-7

Date Collected: 02/25/21 12:00
Matrix: Water
Date Received: 02/26/21 12:30

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
delta-BHC	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 10:26	1
Dieldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 10:26	1
Endosulfan I	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 10:26	1
Endosulfan II	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:26	1
Endosulfan sulfate	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 10:26	1
Endrin	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:26	1
Endrin aldehyde	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 10:26	1
Endrin ketone	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 10:26	1
gamma-BHC (Lindane)	ND		0.020	0.012	ug/L		02/28/21 14:15	03/03/21 10:26	1
Heptachlor	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 10:26	1
Heptachlor epoxide	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 10:26	1
Methoxychlor	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:26	1
Toxaphene	ND		0.50	0.11	ug/L		02/28/21 14:15	03/03/21 10:26	1
trans-Chlordane	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 10:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*43*		*10 - 150*	*02/28/21 14:15*	*03/03/21 10:26*	*1*
DCB Decachlorobiphenyl	*50*		*10 - 150*	*02/28/21 14:15*	*03/03/21 10:26*	*1*
Tetrachloro-m-xylene	*61*		*10 - 150*	*02/28/21 14:15*	*03/03/21 10:26*	*1*
Tetrachloro-m-xylene	*61*		*10 - 150*	*02/28/21 14:15*	*03/03/21 10:26*	*1*

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.77**		0.20	0.077	mg/L		03/02/21 04:45	03/04/21 19:57	1
Antimony	**0.021**		0.020	0.0037	mg/L		03/02/21 04:45	03/04/21 19:57	1
Arsenic	ND		0.015	0.0033	mg/L		03/02/21 04:45	03/04/21 19:57	1
Barium	**0.026**	**J**	0.20	0.013	mg/L		03/02/21 04:45	03/04/21 19:57	1
Beryllium	ND		0.0020	0.00017	mg/L		03/02/21 04:45	03/04/21 19:57	1
Cadmium	ND		0.0040	0.00033	mg/L		03/02/21 04:45	03/04/21 19:57	1
Calcium	**42.4**		5.0	0.15	mg/L		03/02/21 04:45	03/04/21 19:57	1
Chromium	ND		0.010	0.0050	mg/L		03/02/21 04:45	03/04/21 19:57	1
Cobalt	ND		0.050	0.0020	mg/L		03/02/21 04:45	03/04/21 19:57	1
Copper	ND		0.025	0.0069	mg/L		03/02/21 04:45	03/04/21 19:57	1
Iron	ND		0.15	0.081	mg/L		03/02/21 04:45	03/04/21 19:57	1
Lead	ND		0.010	0.0024	mg/L		03/02/21 04:45	03/04/21 19:57	1
Magnesium	ND		5.0	0.14	mg/L		03/02/21 04:45	03/04/21 19:57	1
Manganese	ND		0.015	0.00076	mg/L		03/02/21 04:45	03/04/21 19:57	1
Nickel	ND		0.040	0.0041	mg/L		03/02/21 04:45	03/04/21 19:57	1
Potassium	**3.0**	**J**	5.0	0.14	mg/L		03/02/21 04:45	03/04/21 19:57	1
Selenium	ND		0.020	0.0059	mg/L		03/02/21 04:45	03/04/21 19:57	1
Silver	ND		0.010	0.0058	mg/L		03/02/21 04:45	03/04/21 19:57	1
Sodium	**4.3**	**J B**	5.0	0.084	mg/L		03/02/21 04:45	03/04/21 19:57	1
Thallium	ND		0.020	0.0041	mg/L		03/02/21 04:45	03/04/21 19:57	1
Vanadium	ND		0.050	0.0072	mg/L		03/02/21 04:45	03/04/21 19:57	1
Zinc	**0.0015**	**J**	0.030	0.0012	mg/L		03/02/21 04:45	03/04/21 19:57	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/05/21 11:25	03/05/21 14:37	1

Client: ERM-Northeast
Project/Site: Former TRW Union Springs

Job ID: 460-228889-1

Client Sample ID: N: 10% P.C., PAC, surf
Date Collected: 02/25/21 12:10
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-8
Matrix: Water

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.24	ug/L			03/04/21 01:42	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.37	ug/L			03/04/21 01:42	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			03/04/21 01:42	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			03/04/21 01:42	1
1,1-Dichloroethane	ND		1.0	0.26	ug/L			03/04/21 01:42	1
1,1-Dichloroethene	ND		1.0	0.26	ug/L			03/04/21 01:42	1
1,2,4-Trichlorobenzene	ND		1.0	0.37	ug/L			03/04/21 01:42	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.38	ug/L			03/04/21 01:42	1
1,2-Dibromoethane	ND		1.0	0.50	ug/L			03/04/21 01:42	1
1,2-Dichlorobenzene	ND		1.0	0.21	ug/L			03/04/21 01:42	1
1,2-Dichloroethane	ND		1.0	0.43	ug/L			03/04/21 01:42	1
1,2-Dichloropropane	ND		1.0	0.35	ug/L			03/04/21 01:42	1
1,3-Dichlorobenzene	ND		1.0	0.34	ug/L			03/04/21 01:42	1
1,4-Dichlorobenzene	ND		1.0	0.33	ug/L			03/04/21 01:42	1
2-Butanone (MEK)	ND		5.0	1.9	ug/L			03/04/21 01:42	1
2-Hexanone	ND		5.0	1.1	ug/L			03/04/21 01:42	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	1.3	ug/L			03/04/21 01:42	1
Acetone	**7.8**		5.0	4.4	ug/L			03/04/21 01:42	1
Benzene	ND		1.0	0.20	ug/L			03/04/21 01:42	1
Bromodichloromethane	ND		1.0	0.34	ug/L			03/04/21 01:42	1
Bromoform	ND		1.0	0.54	ug/L			03/04/21 01:42	1
Bromomethane	ND		1.0	0.55	ug/L			03/04/21 01:42	1
Carbon disulfide	**2.4**		1.0	0.82	ug/L			03/04/21 01:42	1
Carbon tetrachloride	ND		1.0	0.21	ug/L			03/04/21 01:42	1
Chlorobenzene	ND		1.0	0.38	ug/L			03/04/21 01:42	1
Chloroethane	ND		1.0	0.32	ug/L			03/04/21 01:42	1
Chloroform	ND		1.0	0.33	ug/L			03/04/21 01:42	1
Chloromethane	ND		1.0	0.40	ug/L			03/04/21 01:42	1
cis-1,2-Dichloroethene	**1.8**		1.0	0.22	ug/L			03/04/21 01:42	1
cis-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 01:42	1
Cyclohexane	ND		1.0	0.32	ug/L			03/04/21 01:42	1
Dibromochloromethane	ND		1.0	0.28	ug/L			03/04/21 01:42	1
Dichlorodifluoromethane	ND		1.0	0.31	ug/L			03/04/21 01:42	1
Ethylbenzene	ND		1.0	0.30	ug/L			03/04/21 01:42	1
Isopropylbenzene	ND		1.0	0.34	ug/L			03/04/21 01:42	1
Methyl acetate	ND		5.0	0.79	ug/L			03/04/21 01:42	1
Methyl tert-butyl ether	ND		1.0	0.22	ug/L			03/04/21 01:42	1
Methylcyclohexane	ND		1.0	0.71	ug/L			03/04/21 01:42	1
Methylene Chloride	ND		1.0	0.32	ug/L			03/04/21 01:42	1
Styrene	ND		1.0	0.42	ug/L			03/04/21 01:42	1
Tetrachloroethene	ND		1.0	0.25	ug/L			03/04/21 01:42	1
Toluene	ND		1.0	0.38	ug/L			03/04/21 01:42	1
trans-1,2-Dichloroethene	ND		1.0	0.24	ug/L			03/04/21 01:42	1
trans-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 01:42	1
Trichloroethene	ND		1.0	0.31	ug/L			03/04/21 01:42	1
Trichlorofluoromethane	ND		1.0	0.32	ug/L			03/04/21 01:42	1
Vinyl chloride	**3.4**		1.0	0.17	ug/L			03/04/21 01:42	1
Xylenes, Total	ND		2.0	0.65	ug/L			03/04/21 01:42	1

Client Sample ID: N: 10% P.C., PAC, surf

Lab Sample ID: 460-228889-8

Date Collected: 02/25/21 12:10

Matrix: Water

Date Received: 02/26/21 12:30

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L					03/04/21 01:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		75 - 123		03/04/21 01:42	1
Dibromofluoromethane (Surr)	102		77 - 124		03/04/21 01:42	1
Toluene-d8 (Surr)	98		80 - 120		03/04/21 01:42	1
4-Bromofluorobenzene	102		76 - 120		03/04/21 01:42	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloronaphthalene, Total	**0.52**	**J**	2.4	0.26	ug/L		03/02/21 18:28	03/04/21 13:47	1
Heptachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 13:47	1
Hexachloronaphthalene, Total	ND		2.4	0.36	ug/L		03/02/21 18:28	03/04/21 13:47	1
Monochloronaphthalene, Total	ND		2.4	0.37	ug/L		03/02/21 18:28	03/04/21 13:47	1
Octachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 13:47	1
Pentachloronaphthalene, Total	ND		2.4	0.41	ug/L		03/02/21 18:28	03/04/21 13:47	1
Tetrachloronaphthalene, Total	**0.58**	**J**	2.4	0.29	ug/L		03/02/21 18:28	03/04/21 13:47	1
Trichloronaphthalene, Total	**1.1**	**J**	2.4	0.28	ug/L		03/02/21 18:28	03/04/21 13:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	82		30 - 123	03/02/21 18:28	03/04/21 13:47	1
Nitrobenzene-d5	91		33 - 139	03/02/21 18:28	03/04/21 13:47	1
Terphenyl-d14	70		42 - 150	03/02/21 18:28	03/04/21 13:47	1

Method: 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 10:42	1
4,4'-DDE	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 10:42	1
4,4'-DDT	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:42	1
Aldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 10:42	1
alpha-BHC	ND		0.020	0.0070	ug/L		02/28/21 14:15	03/03/21 10:42	1
beta-BHC	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:42	1
cis-Chlordane	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 10:42	1
delta-BHC	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 10:42	1
Dieldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 10:42	1
Endosulfan I	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 10:42	1
Endosulfan II	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:42	1
Endosulfan sulfate	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 10:42	1
Endrin	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:42	1
Endrin aldehyde	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 10:42	1
Endrin ketone	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 10:42	1
gamma-BHC (Lindane)	ND		0.020	0.012	ug/L		02/28/21 14:15	03/03/21 10:42	1
Heptachlor	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 10:42	1
Heptachlor epoxide	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 10:42	1
Methoxychlor	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:42	1
Toxaphene	ND		0.50	0.11	ug/L		02/28/21 14:15	03/03/21 10:42	1
trans-Chlordane	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 10:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	44		10 - 150	02/28/21 14:15	03/03/21 10:42	1
DCB Decachlorobiphenyl	47		10 - 150	02/28/21 14:15	03/03/21 10:42	1

Client Sample ID: N: 10% P.C., PAC, surf
Lab Sample ID: 460-228889-8
Date Collected: 02/25/21 12:10
Matrix: Water
Date Received: 02/26/21 12:30

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*64*		*10 - 150*	*02/28/21 14:15*	*03/03/21 10:42*	*1*
Tetrachloro-m-xylene	*62*		*10 - 150*	*02/28/21 14:15*	*03/03/21 10:42*	*1*

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.0**		0.20	0.077	mg/L		03/02/21 04:45	03/04/21 20:01	1
Antimony	**0.032**		0.020	0.0037	mg/L		03/02/21 04:45	03/04/21 20:01	1
Arsenic	ND		0.015	0.0033	mg/L		03/02/21 04:45	03/04/21 20:01	1
Barium	**0.067**	**J**	0.20	0.013	mg/L		03/02/21 04:45	03/04/21 20:01	1
Beryllium	ND		0.0020	0.00017	mg/L		03/02/21 04:45	03/04/21 20:01	1
Cadmium	ND		0.0040	0.00033	mg/L		03/02/21 04:45	03/04/21 20:01	1
Calcium	**58.2**		5.0	0.15	mg/L		03/02/21 04:45	03/04/21 20:01	1
Chromium	ND		0.010	0.0050	mg/L		03/02/21 04:45	03/04/21 20:01	1
Cobalt	ND		0.050	0.0020	mg/L		03/02/21 04:45	03/04/21 20:01	1
Copper	ND		0.025	0.0069	mg/L		03/02/21 04:45	03/04/21 20:01	1
Iron	ND		0.15	0.081	mg/L		03/02/21 04:45	03/04/21 20:01	1
Lead	ND		0.010	0.0024	mg/L		03/02/21 04:45	03/04/21 20:01	1
Magnesium	ND		5.0	0.14	mg/L		03/02/21 04:45	03/04/21 20:01	1
Manganese	ND		0.015	0.00076	mg/L		03/02/21 04:45	03/04/21 20:01	1
Nickel	ND		0.040	0.0041	mg/L		03/02/21 04:45	03/04/21 20:01	1
Potassium	**4.3**	**J**	5.0	0.14	mg/L		03/02/21 04:45	03/04/21 20:01	1
Selenium	ND		0.020	0.0059	mg/L		03/02/21 04:45	03/04/21 20:01	1
Silver	ND		0.010	0.0058	mg/L		03/02/21 04:45	03/04/21 20:01	1
Sodium	**4.7**	**J B**	5.0	0.084	mg/L		03/02/21 04:45	03/04/21 20:01	1
Thallium	ND		0.020	0.0041	mg/L		03/02/21 04:45	03/04/21 20:01	1
Vanadium	ND		0.050	0.0072	mg/L		03/02/21 04:45	03/04/21 20:01	1
Zinc	**0.0016**	**J**	0.030	0.0012	mg/L		03/02/21 04:45	03/04/21 20:01	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/05/21 11:25	03/05/21 14:39	1

Client Sample ID: N: 10% P.C., OC
Lab Sample ID: 460-228889-9
Date Collected: 02/25/21 12:20
Matrix: Water
Date Received: 02/26/21 12:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.24	ug/L			03/04/21 04:10	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.37	ug/L			03/04/21 04:10	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			03/04/21 04:10	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			03/04/21 04:10	1
1,1-Dichloroethane	ND		1.0	0.26	ug/L			03/04/21 04:10	1
1,1-Dichloroethene	ND		1.0	0.26	ug/L			03/04/21 04:10	1
1,2,4-Trichlorobenzene	ND		1.0	0.37	ug/L			03/04/21 04:10	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.38	ug/L			03/04/21 04:10	1
1,2-Dibromoethane	ND		1.0	0.50	ug/L			03/04/21 04:10	1
1,2-Dichlorobenzene	ND		1.0	0.21	ug/L			03/04/21 04:10	1
1,2-Dichloroethane	ND		1.0	0.43	ug/L			03/04/21 04:10	1
1,2-Dichloropropane	ND		1.0	0.35	ug/L			03/04/21 04:10	1

Client Sample ID: N: 10% P.C., OC
Lab Sample ID: 460-228889-9
Date Collected: 02/25/21 12:20
Matrix: Water
Date Received: 02/26/21 12:30

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		1.0	0.34	ug/L			03/04/21 04:10	1
1,4-Dichlorobenzene	ND		1.0	0.33	ug/L			03/04/21 04:10	1
2-Butanone (MEK)	**29**		5.0	1.9	ug/L			03/04/21 04:10	1
2-Hexanone	ND		5.0	1.1	ug/L			03/04/21 04:10	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	1.3	ug/L			03/04/21 04:10	1
Acetone	**220**		5.0	4.4	ug/L			03/04/21 04:10	1
Benzene	ND		1.0	0.20	ug/L			03/04/21 04:10	1
Bromodichloromethane	ND		1.0	0.34	ug/L			03/04/21 04:10	1
Bromoform	ND		1.0	0.54	ug/L			03/04/21 04:10	1
Bromomethane	ND		1.0	0.55	ug/L			03/04/21 04:10	1
Carbon disulfide	**7.6**		1.0	0.82	ug/L			03/04/21 04:10	1
Carbon tetrachloride	ND		1.0	0.21	ug/L			03/04/21 04:10	1
Chlorobenzene	ND		1.0	0.38	ug/L			03/04/21 04:10	1
Chloroethane	ND		1.0	0.32	ug/L			03/04/21 04:10	1
Chloroform	ND		1.0	0.33	ug/L			03/04/21 04:10	1
Chloromethane	ND		1.0	0.40	ug/L			03/04/21 04:10	1
cis-1,2-Dichloroethene	**230**		1.0	0.22	ug/L			03/04/21 04:10	1
cis-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 04:10	1
Cyclohexane	ND		1.0	0.32	ug/L			03/04/21 04:10	1
Dibromochloromethane	ND		1.0	0.28	ug/L			03/04/21 04:10	1
Dichlorodifluoromethane	ND		1.0	0.31	ug/L			03/04/21 04:10	1
Ethylbenzene	ND		1.0	0.30	ug/L			03/04/21 04:10	1
Isopropylbenzene	ND		1.0	0.34	ug/L			03/04/21 04:10	1
Methyl acetate	ND		5.0	0.79	ug/L			03/04/21 04:10	1
Methyl tert-butyl ether	ND		1.0	0.22	ug/L			03/04/21 04:10	1
Methylcyclohexane	ND		1.0	0.71	ug/L			03/04/21 04:10	1
Methylene Chloride	ND		1.0	0.32	ug/L			03/04/21 04:10	1
Styrene	ND		1.0	0.42	ug/L			03/04/21 04:10	1
Tetrachloroethene	ND		1.0	0.25	ug/L			03/04/21 04:10	1
Toluene	**0.93**	**J**	1.0	0.38	ug/L			03/04/21 04:10	1
trans-1,2-Dichloroethene	**2.6**		1.0	0.24	ug/L			03/04/21 04:10	1
trans-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 04:10	1
Trichloroethene	**3.0**		1.0	0.31	ug/L			03/04/21 04:10	1
Trichlorofluoromethane	ND		1.0	0.32	ug/L			03/04/21 04:10	1
Vinyl chloride	**110**		1.0	0.17	ug/L			03/04/21 04:10	1
Xylenes, Total	ND		2.0	0.65	ug/L			03/04/21 04:10	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
1-Butanol	*11*	*T J N*	*ug/L*		*5.47*	*71-36-3*		*03/04/21 04:10*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*75 - 123*		*03/04/21 04:10*	*1*
Dibromofluoromethane (Surr)	*103*		*77 - 124*		*03/04/21 04:10*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*03/04/21 04:10*	*1*
4-Bromofluorobenzene	*100*		*76 - 120*		*03/04/21 04:10*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloronaphthalene, Total	**4.2**		2.4	0.26	ug/L		03/02/21 18:28	03/04/21 14:15	1
Heptachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 14:15	1

Client Sample ID: N: 10% P.C., OC

Date Collected: 02/25/21 12:20
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-9

Matrix: Water

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachloronaphthalene, Total	ND		2.4	0.36	ug/L		03/02/21 18:28	03/04/21 14:15	1
Monochloronaphthalene, Total	ND		2.4	0.37	ug/L		03/02/21 18:28	03/04/21 14:15	1
Octachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 14:15	1
Pentachloronaphthalene, Total	**0.55**	**J**	2.4	0.41	ug/L		03/02/21 18:28	03/04/21 14:15	1
Tetrachloronaphthalene, Total	**1.7**	**J**	2.4	0.29	ug/L		03/02/21 18:28	03/04/21 14:15	1
Trichloronaphthalene, Total	**5.1**		2.4	0.28	ug/L		03/02/21 18:28	03/04/21 14:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*77*		*30 - 123*	*03/02/21 18:28*	*03/04/21 14:15*	*1*
Nitrobenzene-d5	*88*		*33 - 139*	*03/02/21 18:28*	*03/04/21 14:15*	*1*
Terphenyl-d14	*58*		*42 - 150*	*03/02/21 18:28*	*03/04/21 14:15*	*1*

Method: 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 10:57	1
4,4'-DDE	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 10:57	1
4,4'-DDT	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:57	1
Aldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 10:57	1
alpha-BHC	ND		0.020	0.0070	ug/L		02/28/21 14:15	03/03/21 10:57	1
beta-BHC	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:57	1
cis-Chlordane	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 10:57	1
delta-BHC	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 10:57	1
Dieldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 10:57	1
Endosulfan I	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 10:57	1
Endosulfan II	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:57	1
Endosulfan sulfate	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 10:57	1
Endrin	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:57	1
Endrin aldehyde	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 10:57	1
Endrin ketone	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 10:57	1
gamma-BHC (Lindane)	ND		0.020	0.012	ug/L		02/28/21 14:15	03/03/21 10:57	1
Heptachlor	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 10:57	1
Heptachlor epoxide	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 10:57	1
Methoxychlor	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 10:57	1
Toxaphene	ND		0.50	0.11	ug/L		02/28/21 14:15	03/03/21 10:57	1
trans-Chlordane	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 10:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*31*		*10 - 150*	*02/28/21 14:15*	*03/03/21 10:57*	*1*
DCB Decachlorobiphenyl	*37*		*10 - 150*	*02/28/21 14:15*	*03/03/21 10:57*	*1*
Tetrachloro-m-xylene	*61*		*10 - 150*	*02/28/21 14:15*	*03/03/21 10:57*	*1*
Tetrachloro-m-xylene	*62*		*10 - 150*	*02/28/21 14:15*	*03/03/21 10:57*	*1*

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.65**		0.20	0.077	mg/L		03/02/21 04:45	03/04/21 20:06	1
Antimony	**0.050**		0.020	0.0037	mg/L		03/02/21 04:45	03/04/21 20:06	1
Arsenic	ND		0.015	0.0033	mg/L		03/02/21 04:45	03/04/21 20:06	1
Barium	**0.036**	**J**	0.20	0.013	mg/L		03/02/21 04:45	03/04/21 20:06	1
Beryllium	ND		0.0020	0.00017	mg/L		03/02/21 04:45	03/04/21 20:06	1
Cadmium	ND		0.0040	0.00033	mg/L		03/02/21 04:45	03/04/21 20:06	1

Client Sample ID: N: 10% P.C., OC
Lab Sample ID: 460-228889-9
Date Collected: 02/25/21 12:20
Matrix: Water
Date Received: 02/26/21 12:30

Method: 6010D - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**50.2**		5.0	0.15	mg/L		03/02/21 04:45	03/04/21 20:06	1
Chromium	ND		0.010	0.0050	mg/L		03/02/21 04:45	03/04/21 20:06	1
Cobalt	ND		0.050	0.0020	mg/L		03/02/21 04:45	03/04/21 20:06	1
Copper	ND		0.025	0.0069	mg/L		03/02/21 04:45	03/04/21 20:06	1
Iron	ND		0.15	0.081	mg/L		03/02/21 04:45	03/04/21 20:06	1
Lead	ND		0.010	0.0024	mg/L		03/02/21 04:45	03/04/21 20:06	1
Magnesium	ND		5.0	0.14	mg/L		03/02/21 04:45	03/04/21 20:06	1
Manganese	**0.00084**	**J**	0.015	0.00076	mg/L		03/02/21 04:45	03/04/21 20:06	1
Nickel	ND		0.040	0.0041	mg/L		03/02/21 04:45	03/04/21 20:06	1
Potassium	**3.9**	**J**	5.0	0.14	mg/L		03/02/21 04:45	03/04/21 20:06	1
Selenium	ND		0.020	0.0059	mg/L		03/02/21 04:45	03/04/21 20:06	1
Silver	ND		0.010	0.0058	mg/L		03/02/21 04:45	03/04/21 20:06	1
Sodium	**25.2**	**B**	5.0	0.084	mg/L		03/02/21 04:45	03/04/21 20:06	1
Thallium	ND		0.020	0.0041	mg/L		03/02/21 04:45	03/04/21 20:06	1
Vanadium	ND		0.050	0.0072	mg/L		03/02/21 04:45	03/04/21 20:06	1
Zinc	**0.0040**	**J**	0.030	0.0012	mg/L		03/02/21 04:45	03/04/21 20:06	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/05/21 11:25	03/05/21 14:40	1

Client Sample ID: N: 10% P.C., OC, surf
Lab Sample ID: 460-228889-10
Date Collected: 02/25/21 12:30
Matrix: Water
Date Received: 02/26/21 12:30

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.24	ug/L			03/04/21 03:46	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.37	ug/L			03/04/21 03:46	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			03/04/21 03:46	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			03/04/21 03:46	1
1,1-Dichloroethane	ND		1.0	0.26	ug/L			03/04/21 03:46	1
1,1-Dichloroethene	ND		1.0	0.26	ug/L			03/04/21 03:46	1
1,2,4-Trichlorobenzene	ND		1.0	0.37	ug/L			03/04/21 03:46	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.38	ug/L			03/04/21 03:46	1
1,2-Dibromoethane	ND		1.0	0.50	ug/L			03/04/21 03:46	1
1,2-Dichlorobenzene	ND		1.0	0.21	ug/L			03/04/21 03:46	1
1,2-Dichloroethane	ND		1.0	0.43	ug/L			03/04/21 03:46	1
1,2-Dichloropropane	ND		1.0	0.35	ug/L			03/04/21 03:46	1
1,3-Dichlorobenzene	ND		1.0	0.34	ug/L			03/04/21 03:46	1
1,4-Dichlorobenzene	ND		1.0	0.33	ug/L			03/04/21 03:46	1
2-Butanone (MEK)	**6.3**		5.0	1.9	ug/L			03/04/21 03:46	1
2-Hexanone	ND		5.0	1.1	ug/L			03/04/21 03:46	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	1.3	ug/L			03/04/21 03:46	1
Acetone	**56**		5.0	4.4	ug/L			03/04/21 03:46	1
Benzene	ND		1.0	0.20	ug/L			03/04/21 03:46	1
Bromodichloromethane	ND		1.0	0.34	ug/L			03/04/21 03:46	1
Bromoform	ND		1.0	0.54	ug/L			03/04/21 03:46	1
Bromomethane	ND		1.0	0.55	ug/L			03/04/21 03:46	1
Carbon disulfide	**2.0**		1.0	0.82	ug/L			03/04/21 03:46	1

Client Sample ID: N: 10% P.C., OC, surf
Date Collected: 02/25/21 12:30
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-10
Matrix: Water

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	ND		1.0	0.21	ug/L			03/04/21 03:46	1
Chlorobenzene	ND		1.0	0.38	ug/L			03/04/21 03:46	1
Chloroethane	ND		1.0	0.32	ug/L			03/04/21 03:46	1
Chloroform	ND		1.0	0.33	ug/L			03/04/21 03:46	1
Chloromethane	ND		1.0	0.40	ug/L			03/04/21 03:46	1
cis-1,2-Dichloroethene	**41**		1.0	0.22	ug/L			03/04/21 03:46	1
cis-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 03:46	1
Cyclohexane	ND		1.0	0.32	ug/L			03/04/21 03:46	1
Dibromochloromethane	ND		1.0	0.28	ug/L			03/04/21 03:46	1
Dichlorodifluoromethane	ND		1.0	0.31	ug/L			03/04/21 03:46	1
Ethylbenzene	ND		1.0	0.30	ug/L			03/04/21 03:46	1
Isopropylbenzene	ND		1.0	0.34	ug/L			03/04/21 03:46	1
Methyl acetate	ND		5.0	0.79	ug/L			03/04/21 03:46	1
Methyl tert-butyl ether	ND		1.0	0.22	ug/L			03/04/21 03:46	1
Methylcyclohexane	ND		1.0	0.71	ug/L			03/04/21 03:46	1
Methylene Chloride	ND		1.0	0.32	ug/L			03/04/21 03:46	1
Styrene	ND		1.0	0.42	ug/L			03/04/21 03:46	1
Tetrachloroethene	ND		1.0	0.25	ug/L			03/04/21 03:46	1
Toluene	ND		1.0	0.38	ug/L			03/04/21 03:46	1
trans-1,2-Dichloroethene	**0.50**	**J**	1.0	0.24	ug/L			03/04/21 03:46	1
trans-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/04/21 03:46	1
Trichloroethene	**0.69**	**J**	1.0	0.31	ug/L			03/04/21 03:46	1
Trichlorofluoromethane	ND		1.0	0.32	ug/L			03/04/21 03:46	1
Vinyl chloride	**23**		1.0	0.17	ug/L			03/04/21 03:46	1
Xylenes, Total	ND		2.0	0.65	ug/L			03/04/21 03:46	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ug/L*					*03/04/21 03:46*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 123*		*03/04/21 03:46*	*1*
Dibromofluoromethane (Surr)	*104*		*77 - 124*		*03/04/21 03:46*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*03/04/21 03:46*	*1*
4-Bromofluorobenzene	*103*		*76 - 120*		*03/04/21 03:46*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloronaphthalene, Total	**6.4**		2.4	0.26	ug/L		03/02/21 18:28	03/04/21 14:44	1
Heptachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 14:44	1
Hexachloronaphthalene, Total	ND		2.4	0.37	ug/L		03/02/21 18:28	03/04/21 14:44	1
Monochloronaphthalene, Total	ND		2.4	0.38	ug/L		03/02/21 18:28	03/04/21 14:44	1
Octachloronaphthalene, Total	ND		2.4	0.46	ug/L		03/02/21 18:28	03/04/21 14:44	1
Pentachloronaphthalene, Total	**1.0**	**J**	2.4	0.41	ug/L		03/02/21 18:28	03/04/21 14:44	1
Tetrachloronaphthalene, Total	**6.7**		2.4	0.29	ug/L		03/02/21 18:28	03/04/21 14:44	1
Trichloronaphthalene, Total	**14**		2.4	0.28	ug/L		03/02/21 18:28	03/04/21 14:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*84*		*30 - 123*	*03/02/21 18:28*	*03/04/21 14:44*	*1*
Nitrobenzene-d5	*91*		*33 - 139*	*03/02/21 18:28*	*03/04/21 14:44*	*1*
Terphenyl-d14	*63*		*42 - 150*	*03/02/21 18:28*	*03/04/21 14:44*	*1*

Client Sample ID: N: 10% P.C., OC, surf
Lab Sample ID: 460-228889-10

Date Collected: 02/25/21 12:30
Matrix: Water
Date Received: 02/26/21 12:30

Method: 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 11:13	1
4,4'-DDE	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 11:13	1
4,4'-DDT	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 11:13	1
Aldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 11:13	1
alpha-BHC	ND		0.020	0.0070	ug/L		02/28/21 14:15	03/03/21 11:13	1
beta-BHC	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 11:13	1
cis-Chlordane	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 11:13	1
delta-BHC	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 11:13	1
Dieldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 11:13	1
Endosulfan I	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/03/21 11:13	1
Endosulfan II	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 11:13	1
Endosulfan sulfate	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/03/21 11:13	1
Endrin	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 11:13	1
Endrin aldehyde	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 11:13	1
Endrin ketone	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/03/21 11:13	1
gamma-BHC (Lindane)	ND		0.020	0.012	ug/L		02/28/21 14:15	03/03/21 11:13	1
Heptachlor	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 11:13	1
Heptachlor epoxide	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/03/21 11:13	1
Methoxychlor	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/03/21 11:13	1
Toxaphene	ND		0.50	0.11	ug/L		02/28/21 14:15	03/03/21 11:13	1
trans-Chlordane	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/03/21 11:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*36*		*10 - 150*	*02/28/21 14:15*	*03/03/21 11:13*	*1*
DCB Decachlorobiphenyl	*43*		*10 - 150*	*02/28/21 14:15*	*03/03/21 11:13*	*1*
Tetrachloro-m-xylene	*59*		*10 - 150*	*02/28/21 14:15*	*03/03/21 11:13*	*1*
Tetrachloro-m-xylene	*63*		*10 - 150*	*02/28/21 14:15*	*03/03/21 11:13*	*1*

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.66**		0.20	0.077	mg/L		03/02/21 04:45	03/04/21 20:10	1
Antimony	**0.020**		0.020	0.0037	mg/L		03/02/21 04:45	03/04/21 20:10	1
Arsenic	ND		0.015	0.0033	mg/L		03/02/21 04:45	03/04/21 20:10	1
Barium	**0.040**	**J**	0.20	0.013	mg/L		03/02/21 04:45	03/04/21 20:10	1
Beryllium	ND		0.0020	0.00017	mg/L		03/02/21 04:45	03/04/21 20:10	1
Cadmium	ND		0.0040	0.00033	mg/L		03/02/21 04:45	03/04/21 20:10	1
Calcium	**49.2**		5.0	0.15	mg/L		03/02/21 04:45	03/04/21 20:10	1
Chromium	ND		0.010	0.0050	mg/L		03/02/21 04:45	03/04/21 20:10	1
Cobalt	ND		0.050	0.0020	mg/L		03/02/21 04:45	03/04/21 20:10	1
Copper	ND		0.025	0.0069	mg/L		03/02/21 04:45	03/04/21 20:10	1
Iron	ND		0.15	0.081	mg/L		03/02/21 04:45	03/04/21 20:10	1
Lead	ND		0.010	0.0024	mg/L		03/02/21 04:45	03/04/21 20:10	1
Magnesium	ND		5.0	0.14	mg/L		03/02/21 04:45	03/04/21 20:10	1
Manganese	ND		0.015	0.00076	mg/L		03/02/21 04:45	03/04/21 20:10	1
Nickel	ND		0.040	0.0041	mg/L		03/02/21 04:45	03/04/21 20:10	1
Potassium	**4.5**	**J**	5.0	0.14	mg/L		03/02/21 04:45	03/04/21 20:10	1
Selenium	ND		0.020	0.0059	mg/L		03/02/21 04:45	03/04/21 20:10	1
Silver	ND		0.010	0.0058	mg/L		03/02/21 04:45	03/04/21 20:10	1
Sodium	**24.0**	**B**	5.0	0.084	mg/L		03/02/21 04:45	03/04/21 20:10	1
Thallium	ND		0.020	0.0041	mg/L		03/02/21 04:45	03/04/21 20:10	1

Client: ERM-Northeast
Project/Site: Former TRW Union Springs

Job ID: 460-228889-1

Client Sample ID: N: 10% P.C., OC, surf
Date Collected: 02/25/21 12:30
Date Received: 02/26/21 12:30

Lab Sample ID: 460-228889-10
Matrix: Water

Method: 6010D - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	ND		0.050	0.0072	mg/L		03/02/21 04:45	03/04/21 20:10	1
Zinc	**0.0035**	**J**	0.030	0.0012	mg/L		03/02/21 04:45	03/04/21 20:10	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/05/21 11:25	03/05/21 14:46	1

Surrogate Summary

Client: ERM-Northeast
Project/Site: Former TRW Union Springs

Job ID: 460-228889-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(75-123)	(77-124)	(80-120)	(76-120)
460-228889-1	S: 10% P.C.	101	103	99	104
460-228889-2	S: 10% P.C., PAC	99	101	100	100
460-228889-3	S: 10% P.C., PAC, surf	97	104	97	100
460-228889-4	S: 10% P.C., OC	101	102	100	99
460-228889-5	S: 10% P.C., OC, surf	102	105	100	99
460-228889-6	N: 10% P.C.	102	104	97	101
460-228889-7	N: 10% P.C., PAC	101	104	101	103
460-228889-8	N: 10% P.C., PAC, surf	99	102	98	102
460-228889-9	N: 10% P.C., OC	104	103	98	100
460-228889-10	N: 10% P.C., OC, surf	101	104	97	103
LCS 460-762116/4	Lab Control Sample	99	101	100	101
LCS 460-762234/4	Lab Control Sample	95	101	100	104
LCSD 460-762116/5	Lab Control Sample Dup	101	103	100	101
LCSD 460-762234/5	Lab Control Sample Dup	98	103	97	103
MB 460-762116/8	Method Blank	98	103	97	99
MB 460-762234/9	Method Blank	100	104	99	102

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		FBP	NBZ	TPHL
Lab Sample ID	Client Sample ID	(30-123)	(33-139)	(42-150)
460-228889-1 - DL	S: 10% P.C.	102	101	80
460-228889-1	S: 10% P.C.	85	85	75
460-228889-2 - DL	S: 10% P.C., PAC	102	103	92
460-228889-2	S: 10% P.C., PAC	82	90	87
460-228889-3	S: 10% P.C., PAC, surf	78	81	79
460-228889-4 - DL	S: 10% P.C., OC	101	108	91
460-228889-4	S: 10% P.C., OC	84	86	80
460-228889-5	S: 10% P.C., OC, surf	82	84	75
460-228889-5 - DL	S: 10% P.C., OC, surf	100	107	87
460-228889-6	N: 10% P.C.	77	81	57
460-228889-7	N: 10% P.C., PAC	84	92	74
460-228889-8	N: 10% P.C., PAC, surf	82	91	70
460-228889-9	N: 10% P.C., OC	77	88	58
460-228889-10	N: 10% P.C., OC, surf	84	91	63
LCS 500-586956/2-A	Lab Control Sample	80	83	83
LCSD 500-586956/3-A	Lab Control Sample Dup	88	91	91
MB 500-586956/1-A	Method Blank	80	87	86

Surrogate Legend

FBP = 2-Fluorobiphenyl
NBZ = Nitrobenzene-d5
TPHL = Terphenyl-d14

Surrogate Summary

Client: ERM-Northeast
Project/Site: Former TRW Union Springs

Job ID: 460-228889-1

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1	DCBP2	TCX1	TCX2
Lab Sample ID	Client Sample ID	(10-150)	(10-150)	(10-150)	(10-150)
460-228889-1	S: 10% P.C.	54	11 *3	81	19 *3
460-228889-2	S: 10% P.C., PAC	64	54	65	60
460-228889-3	S: 10% P.C., PAC, surf	67	58	61	61
460-228889-4	S: 10% P.C., OC	65	26 *3	70	34 *3
460-228889-5	S: 10% P.C., OC, surf	63	29	71	35
460-228889-6	N: 10% P.C.	43	35	70	64
460-228889-7	N: 10% P.C., PAC	50	43	61	61
460-228889-8	N: 10% P.C., PAC, surf	47	44	62	64
460-228889-9	N: 10% P.C., OC	37	31	62	61
460-228889-10	N: 10% P.C., OC, surf	43	36	63	59
LCS 460-761460/2-A	Lab Control Sample	74	67	69	73
LCSD 460-761460/3-A	Lab Control Sample Dup	75	68	68	71
MB 460-761460/1-A	Method Blank	76	63	77	73

Surrogate Legend

DCBP = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 460-762116/8
Matrix: Water
Analysis Batch: 762116

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.24	ug/L			03/03/21 12:17	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.37	ug/L			03/03/21 12:17	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			03/03/21 12:17	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			03/03/21 12:17	1
1,1-Dichloroethane	ND		1.0	0.26	ug/L			03/03/21 12:17	1
1,1-Dichloroethene	ND		1.0	0.26	ug/L			03/03/21 12:17	1
1,2,4-Trichlorobenzene	ND		1.0	0.37	ug/L			03/03/21 12:17	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.38	ug/L			03/03/21 12:17	1
1,2-Dibromoethane	ND		1.0	0.50	ug/L			03/03/21 12:17	1
1,2-Dichlorobenzene	ND		1.0	0.21	ug/L			03/03/21 12:17	1
1,2-Dichloroethane	ND		1.0	0.43	ug/L			03/03/21 12:17	1
1,2-Dichloropropane	ND		1.0	0.35	ug/L			03/03/21 12:17	1
1,3-Dichlorobenzene	ND		1.0	0.34	ug/L			03/03/21 12:17	1
1,4-Dichlorobenzene	ND		1.0	0.33	ug/L			03/03/21 12:17	1
2-Butanone (MEK)	ND		5.0	1.9	ug/L			03/03/21 12:17	1
2-Hexanone	ND		5.0	1.1	ug/L			03/03/21 12:17	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	1.3	ug/L			03/03/21 12:17	1
Acetone	ND		5.0	4.4	ug/L			03/03/21 12:17	1
Benzene	ND		1.0	0.20	ug/L			03/03/21 12:17	1
Bromodichloromethane	ND		1.0	0.34	ug/L			03/03/21 12:17	1
Bromoform	ND		1.0	0.54	ug/L			03/03/21 12:17	1
Bromomethane	ND		1.0	0.55	ug/L			03/03/21 12:17	1
Carbon disulfide	ND		1.0	0.82	ug/L			03/03/21 12:17	1
Carbon tetrachloride	ND		1.0	0.21	ug/L			03/03/21 12:17	1
Chlorobenzene	ND		1.0	0.38	ug/L			03/03/21 12:17	1
Chloroethane	ND		1.0	0.32	ug/L			03/03/21 12:17	1
Chloroform	ND		1.0	0.33	ug/L			03/03/21 12:17	1
Chloromethane	ND		1.0	0.40	ug/L			03/03/21 12:17	1
cis-1,2-Dichloroethene	ND		1.0	0.22	ug/L			03/03/21 12:17	1
cis-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/03/21 12:17	1
Cyclohexane	ND		1.0	0.32	ug/L			03/03/21 12:17	1
Dibromochloromethane	ND		1.0	0.28	ug/L			03/03/21 12:17	1
Dichlorodifluoromethane	ND		1.0	0.31	ug/L			03/03/21 12:17	1
Ethylbenzene	ND		1.0	0.30	ug/L			03/03/21 12:17	1
Isopropylbenzene	ND		1.0	0.34	ug/L			03/03/21 12:17	1
Methyl acetate	ND		5.0	0.79	ug/L			03/03/21 12:17	1
Methyl tert-butyl ether	ND		1.0	0.22	ug/L			03/03/21 12:17	1
Methylcyclohexane	ND		1.0	0.71	ug/L			03/03/21 12:17	1
Methylene Chloride	ND		1.0	0.32	ug/L			03/03/21 12:17	1
Styrene	ND		1.0	0.42	ug/L			03/03/21 12:17	1
Tetrachloroethene	ND		1.0	0.25	ug/L			03/03/21 12:17	1
Toluene	ND		1.0	0.38	ug/L			03/03/21 12:17	1
trans-1,2-Dichloroethene	ND		1.0	0.24	ug/L			03/03/21 12:17	1
trans-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/03/21 12:17	1
Trichloroethene	ND		1.0	0.31	ug/L			03/03/21 12:17	1
Trichlorofluoromethane	ND		1.0	0.32	ug/L			03/03/21 12:17	1
Vinyl chloride	ND		1.0	0.17	ug/L			03/03/21 12:17	1
Xylenes, Total	ND		2.0	0.65	ug/L			03/03/21 12:17	1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 460-762116/8
Matrix: Water
Analysis Batch: 762116

Client Sample ID: Method Blank
Prep Type: Total/NA

Tentatively Identified Compound	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L					03/03/21 12:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		75 - 123		03/03/21 12:17	1
Dibromofluoromethane (Surr)	103		77 - 124		03/03/21 12:17	1
Toluene-d8 (Surr)	97		80 - 120		03/03/21 12:17	1
4-Bromofluorobenzene	99		76 - 120		03/03/21 12:17	1

Lab Sample ID: LCS 460-762116/4
Matrix: Water
Analysis Batch: 762116

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	20.0	22.0		ug/L		110	68 - 128
1,1,2,2-Tetrachloroethane	20.0	20.7		ug/L		103	63 - 139
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	21.5		ug/L		108	59 - 142
1,1,2-Trichloroethane	20.0	20.8		ug/L		104	74 - 125
1,1-Dichloroethane	20.0	20.6		ug/L		103	73 - 130
1,1-Dichloroethene	20.0	21.0		ug/L		105	68 - 133
1,2,4-Trichlorobenzene	20.0	20.6		ug/L		103	64 - 132
1,2-Dibromo-3-Chloropropane	20.0	19.2		ug/L		96	41 - 143
1,2-Dibromoethane	20.0	20.7		ug/L		104	69 - 126
1,2-Dichlorobenzene	20.0	20.6		ug/L		103	79 - 122
1,2-Dichloroethane	20.0	20.2		ug/L		101	75 - 121
1,2-Dichloropropane	20.0	19.8		ug/L		99	76 - 126
1,3-Dichlorobenzene	20.0	21.3		ug/L		106	80 - 121
1,4-Dichlorobenzene	20.0	20.8		ug/L		104	80 - 118
2-Butanone (MEK)	100	109		ug/L		109	69 - 128
2-Hexanone	100	105		ug/L		105	74 - 127
4-Methyl-2-pentanone (MIBK)	100	107		ug/L		107	69 - 128
Acetone	100	107		ug/L		107	61 - 134
Benzene	20.0	21.2		ug/L		106	78 - 126
Bromodichloromethane	20.0	20.4		ug/L		102	72 - 121
Bromoform	20.0	20.0		ug/L		100	38 - 144
Bromomethane	20.0	18.1		ug/L		90	43 - 150
Carbon disulfide	20.0	20.5		ug/L		102	64 - 138
Carbon tetrachloride	20.0	21.7		ug/L		108	56 - 131
Chlorobenzene	20.0	20.5		ug/L		103	80 - 119
Chloroethane	20.0	17.6		ug/L		88	50 - 150
Chloroform	20.0	20.4		ug/L		102	78 - 125
Chloromethane	20.0	17.2		ug/L		86	38 - 150
cis-1,2-Dichloroethene	20.0	20.0		ug/L		100	78 - 121
cis-1,3-Dichloropropene	20.0	20.4		ug/L		102	74 - 125
Cyclohexane	20.0	20.2		ug/L		101	67 - 133
Dibromochloromethane	20.0	20.1		ug/L		101	58 - 130
Dichlorodifluoromethane	20.0	19.1		ug/L		95	31 - 150
Ethylbenzene	20.0	21.9		ug/L		110	78 - 120

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 460-762116/4
Matrix: Water
Analysis Batch: 762116

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Isopropylbenzene			20.0	21.1		ug/L		105	79 - 125		
Methyl acetate			40.0	42.9		ug/L		107	70 - 127		
Methyl tert-butyl ether			20.0	18.7		ug/L		93	65 - 131		
Methylcyclohexane			20.0	22.1		ug/L		111	60 - 139		
Methylene Chloride			20.0	19.6		ug/L		98	74 - 127		
Styrene			20.0	21.0		ug/L		105	75 - 127		
Tetrachloroethene			20.0	20.9		ug/L		105	70 - 127		
Toluene			20.0	20.1		ug/L		101	78 - 119		
trans-1,2-Dichloroethene			20.0	21.0		ug/L		105	74 - 126		
trans-1,3-Dichloropropene			20.0	19.7		ug/L		98	66 - 127		
Trichloroethene			20.0	20.3		ug/L		101	71 - 121		
Trichlorofluoromethane			20.0	19.3		ug/L		96	61 - 140		
Vinyl chloride			20.0	18.5		ug/L		92	61 - 144		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 123*
Dibromofluoromethane (Surr)	*101*		*77 - 124*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene	*101*		*76 - 120*

Lab Sample ID: LCSD 460-762116/5
Matrix: Water
Analysis Batch: 762116

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane			20.0	21.5		ug/L		108	68 - 128	2	30
1,1,2,2-Tetrachloroethane			20.0	21.4		ug/L		107	63 - 139	3	30
1,1,2-Trichloro-1,2,2-trifluoroethane			20.0	23.0		ug/L		115	59 - 142	7	30
1,1,2-Trichloroethane			20.0	22.0		ug/L		110	74 - 125	6	30
1,1-Dichloroethane			20.0	22.6		ug/L		113	73 - 130	9	30
1,1-Dichloroethene			20.0	23.9		ug/L		119	68 - 133	13	30
1,2,4-Trichlorobenzene			20.0	22.1		ug/L		111	64 - 132	7	30
1,2-Dibromo-3-Chloropropane			20.0	19.6		ug/L		98	41 - 143	2	30
1,2-Dibromoethane			20.0	22.4		ug/L		112	69 - 126	8	30
1,2-Dichlorobenzene			20.0	22.4		ug/L		112	79 - 122	8	30
1,2-Dichloroethane			20.0	21.9		ug/L		110	75 - 121	8	30
1,2-Dichloropropane			20.0	21.3		ug/L		106	76 - 126	7	30
1,3-Dichlorobenzene			20.0	22.3		ug/L		112	80 - 121	5	30
1,4-Dichlorobenzene			20.0	21.9		ug/L		109	80 - 118	5	30
2-Butanone (MEK)			100	110		ug/L		110	69 - 128	1	30
2-Hexanone			100	109		ug/L		109	74 - 127	4	30
4-Methyl-2-pentanone (MIBK)			100	113		ug/L		113	69 - 128	5	30
Acetone			100	118		ug/L		118	61 - 134	9	30
Benzene			20.0	22.8		ug/L		114	78 - 126	7	30
Bromodichloromethane			20.0	21.9		ug/L		109	72 - 121	7	30
Bromoform			20.0	22.1		ug/L		111	38 - 144	10	30
Bromomethane			20.0	19.9		ug/L		99	43 - 150	9	30
Carbon disulfide			20.0	23.0		ug/L		115	64 - 138	11	30

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 460-762116/5
Matrix: Water
Analysis Batch: 762116

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon tetrachloride			20.0	21.5		ug/L		108	56 - 131	1	30
Chlorobenzene			20.0	22.6		ug/L		113	80 - 119	9	30
Chloroethane			20.0	20.6		ug/L		103	50 - 150	16	30
Chloroform			20.0	22.7		ug/L		114	78 - 125	11	30
Chloromethane			20.0	19.8		ug/L		99	38 - 150	14	30
cis-1,2-Dichloroethene			20.0	22.7		ug/L		113	78 - 121	12	30
cis-1,3-Dichloropropene			20.0	22.2		ug/L		111	74 - 125	8	30
Cyclohexane			20.0	22.4		ug/L		112	67 - 133	11	30
Dibromochloromethane			20.0	21.5		ug/L		107	58 - 130	6	30
Dichlorodifluoromethane			20.0	19.1		ug/L		96	31 - 150	0	30
Ethylbenzene			20.0	23.5		ug/L		118	78 - 120	7	30
Isopropylbenzene			20.0	22.7		ug/L		113	79 - 125	7	30
Methyl acetate			40.0	47.0		ug/L		118	70 - 127	9	30
Methyl tert-butyl ether			20.0	23.0		ug/L		115	65 - 131	21	30
Methylcyclohexane			20.0	23.8		ug/L		119	60 - 139	7	30
Methylene Chloride			20.0	22.1		ug/L		111	74 - 127	12	30
Styrene			20.0	22.9		ug/L		114	75 - 127	9	30
Tetrachloroethene			20.0	22.7		ug/L		114	70 - 127	8	30
Toluene			20.0	21.9		ug/L		109	78 - 119	8	30
trans-1,2-Dichloroethene			20.0	22.1		ug/L		110	74 - 126	5	30
trans-1,3-Dichloropropene			20.0	22.2		ug/L		111	66 - 127	12	30
Trichloroethene			20.0	22.5		ug/L		112	71 - 121	10	30
Trichlorofluoromethane			20.0	21.6		ug/L		108	61 - 140	11	30
Vinyl chloride			20.0	20.0		ug/L		100	61 - 144	8	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 123*
Dibromofluoromethane (Surr)	*103*		*77 - 124*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene	*101*		*76 - 120*

Lab Sample ID: MB 460-762234/9
Matrix: Water
Analysis Batch: 762234

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.24	ug/L			03/03/21 23:15	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.37	ug/L			03/03/21 23:15	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.31	ug/L			03/03/21 23:15	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			03/03/21 23:15	1
1,1-Dichloroethane	ND		1.0	0.26	ug/L			03/03/21 23:15	1
1,1-Dichloroethene	ND		1.0	0.26	ug/L			03/03/21 23:15	1
1,2,4-Trichlorobenzene	ND		1.0	0.37	ug/L			03/03/21 23:15	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.38	ug/L			03/03/21 23:15	1
1,2-Dibromoethane	ND		1.0	0.50	ug/L			03/03/21 23:15	1
1,2-Dichlorobenzene	ND		1.0	0.21	ug/L			03/03/21 23:15	1
1,2-Dichloroethane	ND		1.0	0.43	ug/L			03/03/21 23:15	1
1,2-Dichloropropane	ND		1.0	0.35	ug/L			03/03/21 23:15	1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 460-762234/9
Matrix: Water
Analysis Batch: 762234

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		1.0	0.34	ug/L			03/03/21 23:15	1
1,4-Dichlorobenzene	ND		1.0	0.33	ug/L			03/03/21 23:15	1
2-Butanone (MEK)	ND		5.0	1.9	ug/L			03/03/21 23:15	1
2-Hexanone	ND		5.0	1.1	ug/L			03/03/21 23:15	1
4-Methyl-2-pentanone (MIBK)	ND		5.0	1.3	ug/L			03/03/21 23:15	1
Acetone	ND		5.0	4.4	ug/L			03/03/21 23:15	1
Benzene	ND		1.0	0.20	ug/L			03/03/21 23:15	1
Bromodichloromethane	ND		1.0	0.34	ug/L			03/03/21 23:15	1
Bromoform	ND		1.0	0.54	ug/L			03/03/21 23:15	1
Bromomethane	ND		1.0	0.55	ug/L			03/03/21 23:15	1
Carbon disulfide	ND		1.0	0.82	ug/L			03/03/21 23:15	1
Carbon tetrachloride	ND		1.0	0.21	ug/L			03/03/21 23:15	1
Chlorobenzene	ND		1.0	0.38	ug/L			03/03/21 23:15	1
Chloroethane	ND		1.0	0.32	ug/L			03/03/21 23:15	1
Chloroform	ND		1.0	0.33	ug/L			03/03/21 23:15	1
Chloromethane	ND		1.0	0.40	ug/L			03/03/21 23:15	1
cis-1,2-Dichloroethene	ND		1.0	0.22	ug/L			03/03/21 23:15	1
cis-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/03/21 23:15	1
Cyclohexane	ND		1.0	0.32	ug/L			03/03/21 23:15	1
Dibromochloromethane	ND		1.0	0.28	ug/L			03/03/21 23:15	1
Dichlorodifluoromethane	ND		1.0	0.31	ug/L			03/03/21 23:15	1
Ethylbenzene	ND		1.0	0.30	ug/L			03/03/21 23:15	1
Isopropylbenzene	ND		1.0	0.34	ug/L			03/03/21 23:15	1
Methyl acetate	ND		5.0	0.79	ug/L			03/03/21 23:15	1
Methyl tert-butyl ether	ND		1.0	0.22	ug/L			03/03/21 23:15	1
Methylcyclohexane	ND		1.0	0.71	ug/L			03/03/21 23:15	1
Methylene Chloride	ND		1.0	0.32	ug/L			03/03/21 23:15	1
Styrene	ND		1.0	0.42	ug/L			03/03/21 23:15	1
Tetrachloroethene	ND		1.0	0.25	ug/L			03/03/21 23:15	1
Toluene	ND		1.0	0.38	ug/L			03/03/21 23:15	1
trans-1,2-Dichloroethene	ND		1.0	0.24	ug/L			03/03/21 23:15	1
trans-1,3-Dichloropropene	ND		1.0	0.22	ug/L			03/03/21 23:15	1
Trichloroethene	ND		1.0	0.31	ug/L			03/03/21 23:15	1
Trichlorofluoromethane	ND		1.0	0.32	ug/L			03/03/21 23:15	1
Vinyl chloride	ND		1.0	0.17	ug/L			03/03/21 23:15	1
Xylenes, Total	ND		2.0	0.65	ug/L			03/03/21 23:15	1

Tentatively Identified Compound	*MB Est. Result*	*MB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ug/L*					*03/03/21 23:15*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 123*		*03/03/21 23:15*	*1*
Dibromofluoromethane (Surr)	*104*		*77 - 124*		*03/03/21 23:15*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*03/03/21 23:15*	*1*
4-Bromofluorobenzene	*102*		*76 - 120*		*03/03/21 23:15*	*1*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 460-762234/4
Matrix: Water
Analysis Batch: 762234

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	20.0	24.1		ug/L		120	68 - 128
1,1,2,2-Tetrachloroethane	20.0	21.2		ug/L		106	63 - 139
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	20.9		ug/L		105	59 - 142
1,1,2-Trichloroethane	20.0	22.3		ug/L		111	74 - 125
1,1-Dichloroethane	20.0	22.7		ug/L		114	73 - 130
1,1-Dichloroethene	20.0	21.6		ug/L		108	68 - 133
1,2,4-Trichlorobenzene	20.0	22.3		ug/L		111	64 - 132
1,2-Dibromo-3-Chloropropane	20.0	20.5		ug/L		102	41 - 143
1,2-Dibromoethane	20.0	22.5		ug/L		112	69 - 126
1,2-Dichlorobenzene	20.0	22.4		ug/L		112	79 - 122
1,2-Dichloroethane	20.0	21.9		ug/L		109	75 - 121
1,2-Dichloropropane	20.0	21.6		ug/L		108	76 - 126
1,3-Dichlorobenzene	20.0	23.0		ug/L		115	80 - 121
1,4-Dichlorobenzene	20.0	22.0		ug/L		110	80 - 118
2-Butanone (MEK)	100	113		ug/L		113	69 - 128
2-Hexanone	100	117		ug/L		117	74 - 127
4-Methyl-2-pentanone (MIBK)	100	123		ug/L		123	69 - 128
Acetone	100	109		ug/L		109	61 - 134
Benzene	20.0	22.9		ug/L		115	78 - 126
Bromodichloromethane	20.0	21.9		ug/L		110	72 - 121
Bromoform	20.0	21.6		ug/L		108	38 - 144
Bromomethane	20.0	22.1		ug/L		111	43 - 150
Carbon disulfide	20.0	24.0		ug/L		120	64 - 138
Carbon tetrachloride	20.0	24.2		ug/L		121	56 - 131
Chlorobenzene	20.0	22.6		ug/L		113	80 - 119
Chloroethane	20.0	22.7		ug/L		114	50 - 150
Chloroform	20.0	22.8		ug/L		114	78 - 125
Chloromethane	20.0	20.1		ug/L		100	38 - 150
cis-1,2-Dichloroethene	20.0	21.8		ug/L		109	78 - 121
cis-1,3-Dichloropropene	20.0	21.6		ug/L		108	74 - 125
Cyclohexane	20.0	22.6		ug/L		113	67 - 133
Dibromochloromethane	20.0	22.0		ug/L		110	58 - 130
Dichlorodifluoromethane	20.0	15.3		ug/L		77	31 - 150
Ethylbenzene	20.0	23.6		ug/L		118	78 - 120
Isopropylbenzene	20.0	22.6		ug/L		113	79 - 125
Methyl acetate	40.0	45.5		ug/L		114	70 - 127
Methyl tert-butyl ether	20.0	23.3		ug/L		116	65 - 131
Methylcyclohexane	20.0	23.9		ug/L		119	60 - 139
Methylene Chloride	20.0	23.3		ug/L		116	74 - 127
Styrene	20.0	23.5		ug/L		117	75 - 127
Tetrachloroethene	20.0	23.0		ug/L		115	70 - 127
Toluene	20.0	21.7		ug/L		109	78 - 119
trans-1,2-Dichloroethene	20.0	22.6		ug/L		113	74 - 126
trans-1,3-Dichloropropene	20.0	21.1		ug/L		105	66 - 127
Trichloroethene	20.0	21.6		ug/L		108	71 - 121
Trichlorofluoromethane	20.0	21.6		ug/L		108	61 - 140
Vinyl chloride	20.0	20.4		ug/L		102	61 - 144

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 460-762234/4
Matrix: Water
Analysis Batch: 762234

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 123*
Dibromofluoromethane (Surr)	*101*		*77 - 124*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene	*104*		*76 - 120*

Lab Sample ID: LCSD 460-762234/5
Matrix: Water
Analysis Batch: 762234

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane			20.0	22.2		ug/L		111	68 - 128	8	30
1,1,2,2-Tetrachloroethane			20.0	21.8		ug/L		109	63 - 139	3	30
1,1,2-Trichloro-1,2,2-trifluoroethane			20.0	24.4		ug/L		122	59 - 142	15	30
1,1,2-Trichloroethane			20.0	22.3		ug/L		111	74 - 125	0	30
1,1-Dichloroethane			20.0	23.0		ug/L		115	73 - 130	1	30
1,1-Dichloroethene			20.0	24.2		ug/L		121	68 - 133	11	30
1,2,4-Trichlorobenzene			20.0	22.4		ug/L		112	64 - 132	0	30
1,2-Dibromo-3-Chloropropane			20.0	21.2		ug/L		106	41 - 143	4	30
1,2-Dibromoethane			20.0	21.4		ug/L		107	69 - 126	5	30
1,2-Dichlorobenzene			20.0	22.0		ug/L		110	79 - 122	2	30
1,2-Dichloroethane			20.0	21.7		ug/L		109	75 - 121	1	30
1,2-Dichloropropane			20.0	21.2		ug/L		106	76 - 126	2	30
1,3-Dichlorobenzene			20.0	22.8		ug/L		114	80 - 121	1	30
1,4-Dichlorobenzene			20.0	21.8		ug/L		109	80 - 118	1	30
2-Butanone (MEK)			100	114		ug/L		114	69 - 128	0	30
2-Hexanone			100	114		ug/L		114	74 - 127	2	30
4-Methyl-2-pentanone (MIBK)			100	119		ug/L		119	69 - 128	3	30
Acetone			100	112		ug/L		112	61 - 134	2	30
Benzene			20.0	22.0		ug/L		110	78 - 126	4	30
Bromodichloromethane			20.0	21.7		ug/L		109	72 - 121	1	30
Bromoform			20.0	21.8		ug/L		109	38 - 144	1	30
Bromomethane			20.0	21.1		ug/L		106	43 - 150	5	30
Carbon disulfide			20.0	23.9		ug/L		119	64 - 138	1	30
Carbon tetrachloride			20.0	23.9		ug/L		119	56 - 131	1	30
Chlorobenzene			20.0	22.0		ug/L		110	80 - 119	3	30
Chloroethane			20.0	21.3		ug/L		106	50 - 150	7	30
Chloroform			20.0	22.5		ug/L		112	78 - 125	2	30
Chloromethane			20.0	19.5		ug/L		98	38 - 150	3	30
cis-1,2-Dichloroethene			20.0	22.5		ug/L		113	78 - 121	3	30
cis-1,3-Dichloropropene			20.0	20.9		ug/L		105	74 - 125	3	30
Cyclohexane			20.0	22.8		ug/L		114	67 - 133	1	30
Dibromochloromethane			20.0	21.8		ug/L		109	58 - 130	1	30
Dichlorodifluoromethane			20.0	14.8		ug/L		74	31 - 150	3	30
Ethylbenzene			20.0	22.7		ug/L		113	78 - 120	4	30
Isopropylbenzene			20.0	22.3		ug/L		111	79 - 125	2	30
Methyl acetate			40.0	50.7		ug/L		127	70 - 127	11	30
Methyl tert-butyl ether			20.0	23.7		ug/L		119	65 - 131	2	30
Methylcyclohexane			20.0	23.3		ug/L		117	60 - 139	2	30

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 460-762234/5
Matrix: Water
Analysis Batch: 762234

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methylene Chloride			20.0	22.8		ug/L		114	74 - 127	2	30
Styrene			20.0	22.6		ug/L		113	75 - 127	4	30
Tetrachloroethene			20.0	21.7		ug/L		108	70 - 127	6	30
Toluene			20.0	21.5		ug/L		107	78 - 119	1	30
trans-1,2-Dichloroethene			20.0	23.6		ug/L		118	74 - 126	4	30
trans-1,3-Dichloropropene			20.0	20.3		ug/L		102	66 - 127	4	30
Trichloroethene			20.0	21.4		ug/L		107	71 - 121	1	30
Trichlorofluoromethane			20.0	20.9		ug/L		104	61 - 140	3	30
Vinyl chloride			20.0	19.2		ug/L		96	61 - 144	6	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 123*
Dibromofluoromethane (Surr)	*103*		*77 - 124*
Toluene-d8 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene	*103*		*76 - 120*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 500-586956/1-A
Matrix: Water
Analysis Batch: 587220

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 586956

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloronaphthalene, Total	ND		2.5	0.27	ug/L		03/02/21 18:28	03/04/21 10:03	1
Heptachloronaphthalene, Total	ND		2.5	0.48	ug/L		03/02/21 18:28	03/04/21 10:03	1
Hexachloronaphthalene, Total	ND		2.5	0.38	ug/L		03/02/21 18:28	03/04/21 10:03	1
Monochloronaphthalene, Total	ND		2.5	0.39	ug/L		03/02/21 18:28	03/04/21 10:03	1
Octachloronaphthalene, Total	ND		2.5	0.48	ug/L		03/02/21 18:28	03/04/21 10:03	1
Pentachloronaphthalene, Total	ND		2.5	0.43	ug/L		03/02/21 18:28	03/04/21 10:03	1
Tetrachloronaphthalene, Total	ND		2.5	0.30	ug/L		03/02/21 18:28	03/04/21 10:03	1
Trichloronaphthalene, Total	ND		2.5	0.29	ug/L		03/02/21 18:28	03/04/21 10:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*80*		*30 - 123*	*03/02/21 18:28*	*03/04/21 10:03*	*1*
Nitrobenzene-d5	*87*		*33 - 139*	*03/02/21 18:28*	*03/04/21 10:03*	*1*
Terphenyl-d14	*86*		*42 - 150*	*03/02/21 18:28*	*03/04/21 10:03*	*1*

Lab Sample ID: LCS 500-586956/2-A
Matrix: Water
Analysis Batch: 587220

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 586956

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichloronaphthalene, Total			10.0	6.99		ug/L		70	40 - 130
Monochloronaphthalene, Total			10.0	6.81		ug/L		68	40 - 130
Tetrachloronaphthalene, Total			10.0	7.54		ug/L		75	40 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*80*		*30 - 123*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 500-586956/2-A
Matrix: Water
Analysis Batch: 587220

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 586956

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Nitrobenzene-d5	*83*		*33 - 139*
Terphenyl-d14	*83*		*42 - 150*

Lab Sample ID: LCSD 500-586956/3-A
Matrix: Water
Analysis Batch: 587220

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 586956

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dichloronaphthalene, Total			10.0	7.16		ug/L		72	40 - 130	2	20
Monochloronaphthalene, Total			10.0	7.27		ug/L		73	40 - 130	6	20
Tetrachloronaphthalene, Total			10.0	7.37		ug/L		74	40 - 130	2	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl	*88*		*30 - 123*
Nitrobenzene-d5	*91*		*33 - 139*
Terphenyl-d14	*91*		*42 - 150*

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 460-761460/1-A
Matrix: Water
Analysis Batch: 761769

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 761460

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/02/21 07:02	1
4,4'-DDD	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/02/21 07:02	1
4,4'-DDE	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/02/21 07:02	1
4,4'-DDE	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/02/21 07:02	1
4,4'-DDT	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/02/21 07:02	1
4,4'-DDT	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/02/21 07:02	1
Aldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/02/21 07:02	1
Aldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/02/21 07:02	1
alpha-BHC	ND		0.020	0.0070	ug/L		02/28/21 14:15	03/02/21 07:02	1
alpha-BHC	ND		0.020	0.0070	ug/L		02/28/21 14:15	03/02/21 07:02	1
beta-BHC	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/02/21 07:02	1
beta-BHC	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/02/21 07:02	1
cis-Chlordane	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/02/21 07:02	1
cis-Chlordane	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/02/21 07:02	1
delta-BHC	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/02/21 07:02	1
delta-BHC	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/02/21 07:02	1
Dieldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/02/21 07:02	1
Dieldrin	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/02/21 07:02	1
Endosulfan I	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/02/21 07:02	1
Endosulfan I	ND		0.020	0.0020	ug/L		02/28/21 14:15	03/02/21 07:02	1
Endosulfan II	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/02/21 07:02	1
Endosulfan II	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/02/21 07:02	1
Endosulfan sulfate	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/02/21 07:02	1
Endosulfan sulfate	ND		0.020	0.0060	ug/L		02/28/21 14:15	03/02/21 07:02	1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 460-761460/1-A
Matrix: Water
Analysis Batch: 761769

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 761460

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endrin	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/02/21 07:02	1
Endrin	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/02/21 07:02	1
Endrin aldehyde	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/02/21 07:02	1
Endrin aldehyde	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/02/21 07:02	1
Endrin ketone	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/02/21 07:02	1
Endrin ketone	ND		0.020	0.0080	ug/L		02/28/21 14:15	03/02/21 07:02	1
gamma-BHC (Lindane)	ND		0.020	0.012	ug/L		02/28/21 14:15	03/02/21 07:02	1
gamma-BHC (Lindane)	ND		0.020	0.012	ug/L		02/28/21 14:15	03/02/21 07:02	1
Heptachlor	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/02/21 07:02	1
Heptachlor	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/02/21 07:02	1
Heptachlor epoxide	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/02/21 07:02	1
Heptachlor epoxide	ND		0.020	0.0050	ug/L		02/28/21 14:15	03/02/21 07:02	1
Methoxychlor	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/02/21 07:02	1
Methoxychlor	ND		0.020	0.0040	ug/L		02/28/21 14:15	03/02/21 07:02	1
Toxaphene	ND		0.50	0.11	ug/L		02/28/21 14:15	03/02/21 07:02	1
Toxaphene	ND		0.50	0.11	ug/L		02/28/21 14:15	03/02/21 07:02	1
trans-Chlordane	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/02/21 07:02	1
trans-Chlordane	ND		0.020	0.0030	ug/L		02/28/21 14:15	03/02/21 07:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*63*		*10 - 150*	*02/28/21 14:15*	*03/02/21 07:02*	*1*
DCB Decachlorobiphenyl	*76*		*10 - 150*	*02/28/21 14:15*	*03/02/21 07:02*	*1*
Tetrachloro-m-xylene	*73*		*10 - 150*	*02/28/21 14:15*	*03/02/21 07:02*	*1*
Tetrachloro-m-xylene	*77*		*10 - 150*	*02/28/21 14:15*	*03/02/21 07:02*	*1*

Lab Sample ID: LCS 460-761460/2-A
Matrix: Water
Analysis Batch: 761769

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 761460

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,4'-DDD	0.800	0.786		ug/L		98	67 - 135
4,4'-DDD	0.800	0.857		ug/L		107	67 - 135
4,4'-DDE	0.800	0.790		ug/L		99	65 - 135
4,4'-DDE	0.800	0.845		ug/L		106	65 - 135
4,4'-DDT	0.800	0.635		ug/L		79	62 - 136
4,4'-DDT	0.800	0.772		ug/L		97	62 - 136
Aldrin	0.800	0.751		ug/L		94	53 - 142
Aldrin	0.800	0.803		ug/L		100	53 - 142
alpha-BHC	0.800	0.746		ug/L		93	65 - 134
alpha-BHC	0.800	0.800		ug/L		100	65 - 134
beta-BHC	0.800	0.851		ug/L		106	72 - 141
beta-BHC	0.800	0.868		ug/L		109	72 - 141
cis-Chlordane	0.800	0.766		ug/L		96	64 - 130
cis-Chlordane	0.800	0.818		ug/L		102	64 - 130
delta-BHC	0.800	0.771		ug/L		96	41 - 147
delta-BHC	0.800	0.825		ug/L		103	41 - 147
Dieldrin	0.800	0.743		ug/L		93	66 - 133
Dieldrin	0.800	0.841		ug/L		105	66 - 133

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 460-761460/2-A
Matrix: Water
Analysis Batch: 761769

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 761460

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Endosulfan I			0.800	0.794		ug/L		99	64 - 132		
Endosulfan I			0.800	0.823		ug/L		103	64 - 132		
Endosulfan II			0.800	0.861		ug/L		108	67 - 134		
Endosulfan II			0.800	0.859		ug/L		107	67 - 134		
Endosulfan sulfate			0.800	0.772		ug/L		96	47 - 158		
Endosulfan sulfate			0.800	0.811		ug/L		101	47 - 158		
Endrin			0.800	0.685		ug/L		86	67 - 132		
Endrin			0.800	0.810		ug/L		101	67 - 132		
Endrin aldehyde			0.800	0.710		ug/L		89	54 - 132		
Endrin aldehyde			0.800	0.791		ug/L		99	54 - 132		
Endrin ketone			0.800	0.773		ug/L		97	68 - 132		
Endrin ketone			0.800	0.807		ug/L		101	68 - 132		
gamma-BHC (Lindane)			0.800	0.760		ug/L		95	65 - 134		
gamma-BHC (Lindane)			0.800	0.821		ug/L		103	65 - 134		
Heptachlor			0.800	0.709		ug/L		89	63 - 128		
Heptachlor			0.800	0.784		ug/L		98	63 - 128		
Heptachlor epoxide			0.800	0.773		ug/L		97	66 - 128		
Heptachlor epoxide			0.800	0.824		ug/L		103	66 - 128		
Methoxychlor			0.800	0.570		ug/L		71	42 - 151		
Methoxychlor			0.800	0.698		ug/L		87	42 - 151		
trans-Chlordane			0.800	0.767		ug/L		96	65 - 132		
trans-Chlordane			0.800	0.835		ug/L		104	65 - 132		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*67*		*10 - 150*
DCB Decachlorobiphenyl	*74*		*10 - 150*
Tetrachloro-m-xylene	*73*		*10 - 150*
Tetrachloro-m-xylene	*69*		*10 - 150*

Lab Sample ID: LCSD 460-761460/3-A
Matrix: Water
Analysis Batch: 761769

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 761460

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD			0.800	0.803		ug/L		100	67 - 135	2	30
4,4'-DDD			0.800	0.893		ug/L		112	67 - 135	4	30
4,4'-DDE			0.800	0.806		ug/L		101	65 - 135	2	30
4,4'-DDE			0.800	0.868		ug/L		109	65 - 135	3	30
4,4'-DDT			0.800	0.633		ug/L		79	62 - 136	0	30
4,4'-DDT			0.800	0.808		ug/L		101	62 - 136	4	30
Aldrin			0.800	0.767		ug/L		96	53 - 142	2	30
Aldrin			0.800	0.826		ug/L		103	53 - 142	3	30
alpha-BHC			0.800	0.759		ug/L		95	65 - 134	2	30
alpha-BHC			0.800	0.816		ug/L		102	65 - 134	2	30
beta-BHC			0.800	0.854		ug/L		107	72 - 141	0	30
beta-BHC			0.800	0.880		ug/L		110	72 - 141	1	30
cis-Chlordane			0.800	0.782		ug/L		98	64 - 130	2	30
cis-Chlordane			0.800	0.839		ug/L		105	64 - 130	2	30

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCSD 460-761460/3-A
Matrix: Water
Analysis Batch: 761769

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 761460

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
delta-BHC			0.800	0.783		ug/L		98	41 - 147	2	30
delta-BHC			0.800	0.840		ug/L		105	41 - 147	2	30
Dieldrin			0.800	0.752		ug/L		94	66 - 133	1	30
Dieldrin			0.800	0.879		ug/L		110	66 - 133	4	30
Endosulfan I			0.800	0.815		ug/L		102	64 - 132	3	30
Endosulfan I			0.800	0.851		ug/L		106	64 - 132	3	30
Endosulfan II			0.800	0.856		ug/L		107	67 - 134	1	30
Endosulfan II			0.800	0.891		ug/L		111	67 - 134	4	30
Endosulfan sulfate			0.800	0.741		ug/L		93	47 - 158	4	30
Endosulfan sulfate			0.800	0.853		ug/L		107	47 - 158	5	30
Endrin			0.800	0.673		ug/L		84	67 - 132	2	30
Endrin			0.800	0.844		ug/L		106	67 - 132	4	30
Endrin aldehyde			0.800	0.744		ug/L		93	54 - 132	5	30
Endrin aldehyde			0.800	0.836		ug/L		105	54 - 132	6	30
Endrin ketone			0.800	0.756		ug/L		95	68 - 132	2	30
Endrin ketone			0.800	0.848		ug/L		106	68 - 132	5	30
gamma-BHC (Lindane)			0.800	0.772		ug/L		97	65 - 134	2	30
gamma-BHC (Lindane)			0.800	0.833		ug/L		104	65 - 134	1	30
Heptachlor			0.800	0.729		ug/L		91	63 - 128	3	30
Heptachlor			0.800	0.807		ug/L		101	63 - 128	3	30
Heptachlor epoxide			0.800	0.787		ug/L		98	66 - 128	2	30
Heptachlor epoxide			0.800	0.845		ug/L		106	66 - 128	2	30
Methoxychlor			0.800	0.560		ug/L		70	42 - 151	2	30
Methoxychlor			0.800	0.742		ug/L		93	42 - 151	6	30
trans-Chlordane			0.800	0.792		ug/L		99	65 - 132	3	30
trans-Chlordane			0.800	0.858		ug/L		107	65 - 132	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl	*68*		*10 - 150*
DCB Decachlorobiphenyl	*75*		*10 - 150*
Tetrachloro-m-xylene	*71*		*10 - 150*
Tetrachloro-m-xylene	*68*		*10 - 150*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 460-761792/1-A
Matrix: Water
Analysis Batch: 762425

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 761792

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.077	mg/L		03/02/21 04:45	03/04/21 18:58	1
Antimony	ND		0.020	0.0037	mg/L		03/02/21 04:45	03/04/21 18:58	1
Arsenic	ND		0.015	0.0033	mg/L		03/02/21 04:45	03/04/21 18:58	1
Barium	ND		0.20	0.013	mg/L		03/02/21 04:45	03/04/21 18:58	1
Beryllium	ND		0.0020	0.00017	mg/L		03/02/21 04:45	03/04/21 18:58	1
Cadmium	ND		0.0040	0.00033	mg/L		03/02/21 04:45	03/04/21 18:58	1
Calcium	ND		5.0	0.15	mg/L		03/02/21 04:45	03/04/21 18:58	1
Chromium	ND		0.010	0.0050	mg/L		03/02/21 04:45	03/04/21 18:58	1
Cobalt	ND		0.050	0.0020	mg/L		03/02/21 04:45	03/04/21 18:58	1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 460-761792/1-A
Matrix: Water
Analysis Batch: 762425

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 761792

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	ND		0.025	0.0069	mg/L		03/02/21 04:45	03/04/21 18:58	1
Iron	ND		0.15	0.081	mg/L		03/02/21 04:45	03/04/21 18:58	1
Lead	ND		0.010	0.0024	mg/L		03/02/21 04:45	03/04/21 18:58	1
Magnesium	ND		5.0	0.14	mg/L		03/02/21 04:45	03/04/21 18:58	1
Manganese	ND		0.015	0.00076	mg/L		03/02/21 04:45	03/04/21 18:58	1
Nickel	ND		0.040	0.0041	mg/L		03/02/21 04:45	03/04/21 18:58	1
Potassium	ND		5.0	0.14	mg/L		03/02/21 04:45	03/04/21 18:58	1
Selenium	ND		0.020	0.0059	mg/L		03/02/21 04:45	03/04/21 18:58	1
Silver	ND		0.010	0.0058	mg/L		03/02/21 04:45	03/04/21 18:58	1
Sodium	0.189	J	5.0	0.084	mg/L		03/02/21 04:45	03/04/21 18:58	1
Thallium	ND		0.020	0.0041	mg/L		03/02/21 04:45	03/04/21 18:58	1
Vanadium	ND		0.050	0.0072	mg/L		03/02/21 04:45	03/04/21 18:58	1
Zinc	ND		0.030	0.0012	mg/L		03/02/21 04:45	03/04/21 18:58	1

Lab Sample ID: LCS 460-761792/2-A
Matrix: Water
Analysis Batch: 762425

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 761792

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	2.00	2.14		mg/L		107	80 - 120
Antimony	0.500	0.474		mg/L		95	80 - 120
Arsenic	2.00	2.05		mg/L		102	80 - 120
Barium	2.00	2.01		mg/L		101	80 - 120
Beryllium	0.0500	0.0512		mg/L		102	80 - 120
Cadmium	0.0500	0.0511		mg/L		102	80 - 120
Calcium	20.0	20.35		mg/L		102	80 - 120
Chromium	0.200	0.202		mg/L		101	80 - 120
Cobalt	0.500	0.512		mg/L		102	80 - 120
Copper	0.250	0.253		mg/L		101	80 - 120
Iron	1.00	1.02		mg/L		102	80 - 120
Lead	0.500	0.511		mg/L		102	80 - 120
Magnesium	20.0	19.94		mg/L		100	80 - 120
Manganese	0.500	0.497		mg/L		99	80 - 120
Nickel	0.500	0.510		mg/L		102	80 - 120
Potassium	20.0	19.86		mg/L		99	80 - 120
Selenium	2.00	1.99		mg/L		100	80 - 120
Silver	0.0500	0.0496		mg/L		99	80 - 120
Sodium	20.0	20.39		mg/L		102	80 - 120
Thallium	2.00	2.08		mg/L		104	80 - 120
Vanadium	0.500	0.514		mg/L		103	80 - 120
Zinc	0.500	0.524		mg/L		105	80 - 120

Lab Sample ID: 460-228907-A-1-C MS
Matrix: Water
Analysis Batch: 762425

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 761792

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	ND		2.00	1.93		mg/L		96	75 - 125
Antimony	ND		0.500	0.427		mg/L		85	75 - 125

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 460-228907-A-1-C MS
Matrix: Water
Analysis Batch: 762425

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 761792

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		2.00	1.90		mg/L		95	75 - 125
Barium	0.053	J	2.00	1.84		mg/L		89	75 - 125
Beryllium	ND		0.0500	0.0461		mg/L		92	75 - 125
Cadmium	0.00093	J	0.0500	0.0470		mg/L		92	75 - 125
Calcium	59.5	F1	20.0	73.93	F1	mg/L		72	75 - 125
Chromium	ND		0.200	0.180		mg/L		90	75 - 125
Cobalt	ND		0.500	0.457		mg/L		91	75 - 125
Copper	ND		0.250	0.224		mg/L		90	75 - 125
Iron	0.14	J	1.00	1.04		mg/L		90	75 - 125
Lead	ND		0.500	0.461		mg/L		92	75 - 125
Magnesium	7.2		20.0	24.47		mg/L		86	75 - 125
Manganese	0.18		0.500	0.612		mg/L		86	75 - 125
Nickel	ND		0.500	0.451		mg/L		90	75 - 125
Potassium	3.3	J	20.0	21.77		mg/L		93	75 - 125
Selenium	ND		2.00	1.85		mg/L		93	75 - 125
Silver	ND		0.0500	0.0471		mg/L		94	75 - 125
Sodium	82.8	B	20.0	97.67	4	mg/L		74	75 - 125
Thallium	ND		2.00	1.88		mg/L		94	75 - 125
Vanadium	ND		0.500	0.467		mg/L		93	75 - 125
Zinc	0.012	J	0.500	0.474		mg/L		92	75 - 125

Lab Sample ID: 460-228907-A-1-B DU
Matrix: Water
Analysis Batch: 762425

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 761792

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	ND		ND		mg/L		NC	20
Antimony	ND		ND		mg/L		NC	20
Arsenic	ND		0.00525	J	mg/L		NC	20
Barium	0.053	J	0.0505	J	mg/L		4	20
Beryllium	ND		ND		mg/L		NC	20
Cadmium	0.00093	J	0.000906	J	mg/L		2	20
Calcium	59.5	F1	56.83		mg/L		5	20
Chromium	ND		ND		mg/L		NC	20
Cobalt	ND		ND		mg/L		NC	20
Copper	ND		ND		mg/L		NC	20
Iron	0.14	J	0.130	J	mg/L		10	20
Lead	ND		ND		mg/L		NC	20
Magnesium	7.2		6.91		mg/L		5	20
Manganese	0.18		0.174		mg/L		5	20
Nickel	ND		ND		mg/L		NC	20
Potassium	3.3	J	3.10	J	mg/L		5	20
Selenium	ND		0.00952	J	mg/L		NC	20
Silver	ND		ND		mg/L		NC	20
Sodium	82.8	B	78.81		mg/L		5	20
Thallium	ND		ND		mg/L		NC	20
Vanadium	ND		ND		mg/L		NC	20
Zinc	0.012	J	0.0117	J	mg/L		6	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 460-762689/1-A
Matrix: Water
Analysis Batch: 762738

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 762689

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.091	ug/L		03/05/21 11:25	03/05/21 14:13	1

Lab Sample ID: LCS 460-762689/2-A
Matrix: Water
Analysis Batch: 762738

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 762689

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			1.00	0.986		ug/L		99	80 - 120		

Lab Sample ID: 460-229201-F-3-B MS
Matrix: Water
Analysis Batch: 762738

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 762689

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	ND		1.00	0.945		ug/L		94	75 - 125		

Lab Sample ID: 460-229201-B-3-A DU
Matrix: Water
Analysis Batch: 762738

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 762689

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Mercury	ND			ND		ug/L				NC	20

GC/MS VOA

Analysis Batch: 762116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228889-1	S: 10% P.C.	Total/NA	Water	8260D	
MB 460-762116/8	Method Blank	Total/NA	Water	8260D	
LCS 460-762116/4	Lab Control Sample	Total/NA	Water	8260D	
LCSD 460-762116/5	Lab Control Sample Dup	Total/NA	Water	8260D	

Analysis Batch: 762234

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228889-2	S: 10% P.C., PAC	Total/NA	Water	8260D	
460-228889-3	S: 10% P.C., PAC, surf	Total/NA	Water	8260D	
460-228889-4	S: 10% P.C., OC	Total/NA	Water	8260D	
460-228889-5	S: 10% P.C., OC, surf	Total/NA	Water	8260D	
460-228889-6	N: 10% P.C.	Total/NA	Water	8260D	
460-228889-7	N: 10% P.C., PAC	Total/NA	Water	8260D	
460-228889-8	N: 10% P.C., PAC, surf	Total/NA	Water	8260D	
460-228889-9	N: 10% P.C., OC	Total/NA	Water	8260D	
460-228889-10	N: 10% P.C., OC, surf	Total/NA	Water	8260D	
MB 460-762234/9	Method Blank	Total/NA	Water	8260D	
LCS 460-762234/4	Lab Control Sample	Total/NA	Water	8260D	
LCSD 460-762234/5	Lab Control Sample Dup	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 586956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228889-1 - DL	S: 10% P.C.	Total/NA	Water	3510C	
460-228889-1	S: 10% P.C.	Total/NA	Water	3510C	
460-228889-2	S: 10% P.C., PAC	Total/NA	Water	3510C	
460-228889-2 - DL	S: 10% P.C., PAC	Total/NA	Water	3510C	
460-228889-3	S: 10% P.C., PAC, surf	Total/NA	Water	3510C	
460-228889-4	S: 10% P.C., OC	Total/NA	Water	3510C	
460-228889-4 - DL	S: 10% P.C., OC	Total/NA	Water	3510C	
460-228889-5 - DL	S: 10% P.C., OC, surf	Total/NA	Water	3510C	
460-228889-5	S: 10% P.C., OC, surf	Total/NA	Water	3510C	
460-228889-6	N: 10% P.C.	Total/NA	Water	3510C	
460-228889-7	N: 10% P.C., PAC	Total/NA	Water	3510C	
460-228889-8	N: 10% P.C., PAC, surf	Total/NA	Water	3510C	
460-228889-9	N: 10% P.C., OC	Total/NA	Water	3510C	
460-228889-10	N: 10% P.C., OC, surf	Total/NA	Water	3510C	
MB 500-586956/1-A	Method Blank	Total/NA	Water	3510C	
LCS 500-586956/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 500-586956/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 587220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228889-1	S: 10% P.C.	Total/NA	Water	8270D SIM	586956
460-228889-1 - DL	S: 10% P.C.	Total/NA	Water	8270D SIM	586956
460-228889-3	S: 10% P.C., PAC, surf	Total/NA	Water	8270D SIM	586956
460-228889-4	S: 10% P.C., OC	Total/NA	Water	8270D SIM	586956
460-228889-4 - DL	S: 10% P.C., OC	Total/NA	Water	8270D SIM	586956
460-228889-5	S: 10% P.C., OC, surf	Total/NA	Water	8270D SIM	586956
460-228889-5 - DL	S: 10% P.C., OC, surf	Total/NA	Water	8270D SIM	586956

GC/MS Semi VOA (Continued)

Analysis Batch: 587220 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228889-6	N: 10% P.C.	Total/NA	Water	8270D SIM	586956
460-228889-7	N: 10% P.C., PAC	Total/NA	Water	8270D SIM	586956
460-228889-8	N: 10% P.C., PAC, surf	Total/NA	Water	8270D SIM	586956
460-228889-9	N: 10% P.C., OC	Total/NA	Water	8270D SIM	586956
460-228889-10	N: 10% P.C., OC, surf	Total/NA	Water	8270D SIM	586956
MB 500-586956/1-A	Method Blank	Total/NA	Water	8270D SIM	586956
LCS 500-586956/2-A	Lab Control Sample	Total/NA	Water	8270D SIM	586956
LCSD 500-586956/3-A	Lab Control Sample Dup	Total/NA	Water	8270D SIM	586956

Analysis Batch: 587404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228889-2 - DL	S: 10% P.C., PAC	Total/NA	Water	8270D SIM	586956
460-228889-2	S: 10% P.C., PAC	Total/NA	Water	8270D SIM	586956

GC Semi VOA

Prep Batch: 761460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228889-1	S: 10% P.C.	Total/NA	Water	3510C	
460-228889-2	S: 10% P.C., PAC	Total/NA	Water	3510C	
460-228889-3	S: 10% P.C., PAC, surf	Total/NA	Water	3510C	
460-228889-4	S: 10% P.C., OC	Total/NA	Water	3510C	
460-228889-5	S: 10% P.C., OC, surf	Total/NA	Water	3510C	
460-228889-6	N: 10% P.C.	Total/NA	Water	3510C	
460-228889-7	N: 10% P.C., PAC	Total/NA	Water	3510C	
460-228889-8	N: 10% P.C., PAC, surf	Total/NA	Water	3510C	
460-228889-9	N: 10% P.C., OC	Total/NA	Water	3510C	
460-228889-10	N: 10% P.C., OC, surf	Total/NA	Water	3510C	
MB 460-761460/1-A	Method Blank	Total/NA	Water	3510C	
LCS 460-761460/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 460-761460/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 761769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 460-761460/1-A	Method Blank	Total/NA	Water	8081B	761460
LCS 460-761460/2-A	Lab Control Sample	Total/NA	Water	8081B	761460
LCSD 460-761460/3-A	Lab Control Sample Dup	Total/NA	Water	8081B	761460

Analysis Batch: 762036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228889-1	S: 10% P.C.	Total/NA	Water	8081B	761460
460-228889-2	S: 10% P.C., PAC	Total/NA	Water	8081B	761460
460-228889-3	S: 10% P.C., PAC, surf	Total/NA	Water	8081B	761460
460-228889-4	S: 10% P.C., OC	Total/NA	Water	8081B	761460
460-228889-5	S: 10% P.C., OC, surf	Total/NA	Water	8081B	761460
460-228889-6	N: 10% P.C.	Total/NA	Water	8081B	761460
460-228889-7	N: 10% P.C., PAC	Total/NA	Water	8081B	761460
460-228889-8	N: 10% P.C., PAC, surf	Total/NA	Water	8081B	761460
460-228889-9	N: 10% P.C., OC	Total/NA	Water	8081B	761460
460-228889-10	N: 10% P.C., OC, surf	Total/NA	Water	8081B	761460

Metals

Prep Batch: 761792

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228889-1	S: 10% P.C.	Total/NA	Water	3010A	
460-228889-2	S: 10% P.C., PAC	Total/NA	Water	3010A	
460-228889-3	S: 10% P.C., PAC, surf	Total/NA	Water	3010A	
460-228889-4	S: 10% P.C., OC	Total/NA	Water	3010A	
460-228889-5	S: 10% P.C., OC, surf	Total/NA	Water	3010A	
460-228889-6	N: 10% P.C.	Total/NA	Water	3010A	
460-228889-7	N: 10% P.C., PAC	Total/NA	Water	3010A	
460-228889-8	N: 10% P.C., PAC, surf	Total/NA	Water	3010A	
460-228889-9	N: 10% P.C., OC	Total/NA	Water	3010A	
460-228889-10	N: 10% P.C., OC, surf	Total/NA	Water	3010A	
MB 460-761792/1-A	Method Blank	Total/NA	Water	3010A	
LCS 460-761792/2-A	Lab Control Sample	Total/NA	Water	3010A	
460-228907-A-1-C MS	Matrix Spike	Total/NA	Water	3010A	
460-228907-A-1-B DU	Duplicate	Total/NA	Water	3010A	

Analysis Batch: 762425

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228889-1	S: 10% P.C.	Total/NA	Water	6010D	761792
460-228889-2	S: 10% P.C., PAC	Total/NA	Water	6010D	761792
460-228889-3	S: 10% P.C., PAC, surf	Total/NA	Water	6010D	761792
460-228889-4	S: 10% P.C., OC	Total/NA	Water	6010D	761792
460-228889-5	S: 10% P.C., OC, surf	Total/NA	Water	6010D	761792
460-228889-6	N: 10% P.C.	Total/NA	Water	6010D	761792
460-228889-7	N: 10% P.C., PAC	Total/NA	Water	6010D	761792
460-228889-8	N: 10% P.C., PAC, surf	Total/NA	Water	6010D	761792
460-228889-9	N: 10% P.C., OC	Total/NA	Water	6010D	761792
460-228889-10	N: 10% P.C., OC, surf	Total/NA	Water	6010D	761792
MB 460-761792/1-A	Method Blank	Total/NA	Water	6010D	761792
LCS 460-761792/2-A	Lab Control Sample	Total/NA	Water	6010D	761792
460-228907-A-1-C MS	Matrix Spike	Total/NA	Water	6010D	761792
460-228907-A-1-B DU	Duplicate	Total/NA	Water	6010D	761792

Prep Batch: 762689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228889-1	S: 10% P.C.	Total/NA	Water	7470A	
460-228889-2	S: 10% P.C., PAC	Total/NA	Water	7470A	
460-228889-3	S: 10% P.C., PAC, surf	Total/NA	Water	7470A	
460-228889-4	S: 10% P.C., OC	Total/NA	Water	7470A	
460-228889-5	S: 10% P.C., OC, surf	Total/NA	Water	7470A	
460-228889-6	N: 10% P.C.	Total/NA	Water	7470A	
460-228889-7	N: 10% P.C., PAC	Total/NA	Water	7470A	
460-228889-8	N: 10% P.C., PAC, surf	Total/NA	Water	7470A	
460-228889-9	N: 10% P.C., OC	Total/NA	Water	7470A	
460-228889-10	N: 10% P.C., OC, surf	Total/NA	Water	7470A	
MB 460-762689/1-A	Method Blank	Total/NA	Water	7470A	
LCS 460-762689/2-A	Lab Control Sample	Total/NA	Water	7470A	
460-229201-F-3-B MS	Matrix Spike	Total/NA	Water	7470A	
460-229201-B-3-A DU	Duplicate	Total/NA	Water	7470A	

QC Association Summary

Client: ERM-Northeast
Project/Site: Former TRW Union Springs

Job ID: 460-228889-1

Metals

Analysis Batch: 762738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-228889-1	S: 10% P.C.	Total/NA	Water	7470A	762689
460-228889-2	S: 10% P.C., PAC	Total/NA	Water	7470A	762689
460-228889-3	S: 10% P.C., PAC, surf	Total/NA	Water	7470A	762689
460-228889-4	S: 10% P.C., OC	Total/NA	Water	7470A	762689
460-228889-5	S: 10% P.C., OC, surf	Total/NA	Water	7470A	762689
460-228889-6	N: 10% P.C.	Total/NA	Water	7470A	762689
460-228889-7	N: 10% P.C., PAC	Total/NA	Water	7470A	762689
460-228889-8	N: 10% P.C., PAC, surf	Total/NA	Water	7470A	762689
460-228889-9	N: 10% P.C., OC	Total/NA	Water	7470A	762689
460-228889-10	N: 10% P.C., OC, surf	Total/NA	Water	7470A	762689
MB 460-762689/1-A	Method Blank	Total/NA	Water	7470A	762689
LCS 460-762689/2-A	Lab Control Sample	Total/NA	Water	7470A	762689
460-229201-F-3-B MS	Matrix Spike	Total/NA	Water	7470A	762689
460-229201-B-3-A DU	Duplicate	Total/NA	Water	7470A	762689

Lab Chronicle

Client: ERM-Northeast
Job ID: 460-228889-1
Project/Site: Former TRW Union Springs

Client Sample ID: S: 10% P.C.
Lab Sample ID: 460-228889-1
Date Collected: 02/25/21 11:00
Matrix: Water
Date Received: 02/26/21 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	762116	03/03/21 15:56	CJM	TAL EDI
Total/NA	Prep	3510C			586956	03/02/21 18:28	JP1	TAL CHI
Total/NA	Analysis	8270D SIM		1	587220	03/04/21 10:31	GWB	TAL CHI
Total/NA	Prep	3510C	DL		586956	03/02/21 18:28	JP1	TAL CHI
Total/NA	Analysis	8270D SIM	DL	10	587220	03/04/21 15:12	GWB	TAL CHI
Total/NA	Prep	3510C			761460	02/28/21 14:15	OXG	TAL EDI
Total/NA	Analysis	8081B		1	762036	03/03/21 08:51	FAM	TAL EDI
Total/NA	Prep	3010A			761792	03/02/21 04:45	GMC	TAL EDI
Total/NA	Analysis	6010D		1	762425	03/04/21 19:25	YZH	TAL EDI
Total/NA	Prep	7470A			762689	03/05/21 11:25	RBS	TAL EDI
Total/NA	Analysis	7470A		1	762738	03/05/21 14:27	RBS	TAL EDI

Client Sample ID: S: 10% P.C., PAC
Lab Sample ID: 460-228889-2
Date Collected: 02/25/21 11:10
Matrix: Water
Date Received: 02/26/21 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	762234	03/04/21 04:59	GXY	TAL EDI
Total/NA	Prep	3510C	DL		586956	03/02/21 18:28	JP1	TAL CHI
Total/NA	Analysis	8270D SIM	DL	5	587404	03/05/21 14:24	GWB	TAL CHI
Total/NA	Prep	3510C			586956	03/02/21 18:28	JP1	TAL CHI
Total/NA	Analysis	8270D SIM		1	587404	03/05/21 15:48	GWB	TAL CHI
Total/NA	Prep	3510C			761460	02/28/21 14:15	OXG	TAL EDI
Total/NA	Analysis	8081B		1	762036	03/03/21 09:07	FAM	TAL EDI
Total/NA	Prep	3010A			761792	03/02/21 04:45	GMC	TAL EDI
Total/NA	Analysis	6010D		1	762425	03/04/21 19:37	YZH	TAL EDI
Total/NA	Prep	7470A			762689	03/05/21 11:25	RBS	TAL EDI
Total/NA	Analysis	7470A		1	762738	03/05/21 14:28	RBS	TAL EDI

Client Sample ID: S: 10% P.C., PAC, surf
Lab Sample ID: 460-228889-3
Date Collected: 02/25/21 11:20
Matrix: Water
Date Received: 02/26/21 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	762234	03/04/21 02:31	GXY	TAL EDI
Total/NA	Prep	3510C			586956	03/02/21 18:28	JP1	TAL CHI
Total/NA	Analysis	8270D SIM		1	587220	03/04/21 11:27	GWB	TAL CHI
Total/NA	Prep	3510C			761460	02/28/21 14:15	OXG	TAL EDI
Total/NA	Analysis	8081B		1	762036	03/03/21 09:23	FAM	TAL EDI
Total/NA	Prep	3010A			761792	03/02/21 04:45	GMC	TAL EDI
Total/NA	Analysis	6010D		1	762425	03/04/21 19:41	YZH	TAL EDI
Total/NA	Prep	7470A			762689	03/05/21 11:25	RBS	TAL EDI
Total/NA	Analysis	7470A		1	762738	03/05/21 14:30	RBS	TAL EDI

Lab Chronicle

Client: ERM-Northeast
Project/Site: Former TRW Union Springs

Job ID: 460-228889-1

Client Sample ID: S: 10% P.C., OC

Lab Sample ID: 460-228889-4

Date Collected: 02/25/21 11:30

Matrix: Water

Date Received: 02/26/21 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	762234	03/04/21 05:48	GXY	TAL EDI
Total/NA	Prep	3510C			586956	03/02/21 18:28	JP1	TAL CHI
Total/NA	Analysis	8270D SIM		1	587220	03/04/21 11:55	GWB	TAL CHI
Total/NA	Prep	3510C	DL		586956	03/02/21 18:28	JP1	TAL CHI
Total/NA	Analysis	8270D SIM	DL	4	587220	03/04/21 17:33	GWB	TAL CHI
Total/NA	Prep	3510C			761460	02/28/21 14:15	OXG	TAL EDI
Total/NA	Analysis	8081B		1	762036	03/03/21 09:38	FAM	TAL EDI
Total/NA	Prep	3010A			761792	03/02/21 04:45	GMC	TAL EDI
Total/NA	Analysis	6010D		1	762425	03/04/21 19:45	YZH	TAL EDI
Total/NA	Prep	7470A			762689	03/05/21 11:25	RBS	TAL EDI
Total/NA	Analysis	7470A		1	762738	03/05/21 14:32	RBS	TAL EDI

Client Sample ID: S: 10% P.C., OC, surf

Lab Sample ID: 460-228889-5

Date Collected: 02/25/21 11:40

Matrix: Water

Date Received: 02/26/21 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	762234	03/04/21 06:13	GXY	TAL EDI
Total/NA	Prep	3510C			586956	03/02/21 18:28	JP1	TAL CHI
Total/NA	Analysis	8270D SIM		1	587220	03/04/21 12:23	GWB	TAL CHI
Total/NA	Prep	3510C	DL		586956	03/02/21 18:28	JP1	TAL CHI
Total/NA	Analysis	8270D SIM	DL	4	587220	03/04/21 18:01	GWB	TAL CHI
Total/NA	Prep	3510C			761460	02/28/21 14:15	OXG	TAL EDI
Total/NA	Analysis	8081B		1	762036	03/03/21 09:54	FAM	TAL EDI
Total/NA	Prep	3010A			761792	03/02/21 04:45	GMC	TAL EDI
Total/NA	Analysis	6010D		1	762425	03/04/21 19:49	YZH	TAL EDI
Total/NA	Prep	7470A			762689	03/05/21 11:25	RBS	TAL EDI
Total/NA	Analysis	7470A		1	762738	03/05/21 14:34	RBS	TAL EDI

Client Sample ID: N: 10% P.C.

Lab Sample ID: 460-228889-6

Date Collected: 02/25/21 11:50

Matrix: Water

Date Received: 02/26/21 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	762234	03/04/21 02:56	GXY	TAL EDI
Total/NA	Prep	3510C			586956	03/02/21 18:28	JP1	TAL CHI
Total/NA	Analysis	8270D SIM		1	587220	03/04/21 12:51	GWB	TAL CHI
Total/NA	Prep	3510C			761460	02/28/21 14:15	OXG	TAL EDI
Total/NA	Analysis	8081B		1	762036	03/03/21 10:10	FAM	TAL EDI
Total/NA	Prep	3010A			761792	03/02/21 04:45	GMC	TAL EDI
Total/NA	Analysis	6010D		1	762425	03/04/21 19:53	YZH	TAL EDI
Total/NA	Prep	7470A			762689	03/05/21 11:25	RBS	TAL EDI
Total/NA	Analysis	7470A		1	762738	03/05/21 14:35	RBS	TAL EDI

Lab Chronicle

Client: ERM-Northeast
Job ID: 460-228889-1
Project/Site: Former TRW Union Springs

Client Sample ID: N: 10% P.C., PAC
Lab Sample ID: 460-228889-7
Date Collected: 02/25/21 12:00
Matrix: Water
Date Received: 02/26/21 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	762234	03/04/21 02:07	GXY	TAL EDI
Total/NA	Prep	3510C			586956	03/02/21 18:28	JP1	TAL CHI
Total/NA	Analysis	8270D SIM		1	587220	03/04/21 13:19	GWB	TAL CHI
Total/NA	Prep	3510C			761460	02/28/21 14:15	OXG	TAL EDI
Total/NA	Analysis	8081B		1	762036	03/03/21 10:26	FAM	TAL EDI
Total/NA	Prep	3010A			761792	03/02/21 04:45	GMC	TAL EDI
Total/NA	Analysis	6010D		1	762425	03/04/21 19:57	YZH	TAL EDI
Total/NA	Prep	7470A			762689	03/05/21 11:25	RBS	TAL EDI
Total/NA	Analysis	7470A		1	762738	03/05/21 14:37	RBS	TAL EDI

Client Sample ID: N: 10% P.C., PAC, surf
Lab Sample ID: 460-228889-8
Date Collected: 02/25/21 12:10
Matrix: Water
Date Received: 02/26/21 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	762234	03/04/21 01:42	GXY	TAL EDI
Total/NA	Prep	3510C			586956	03/02/21 18:28	JP1	TAL CHI
Total/NA	Analysis	8270D SIM		1	587220	03/04/21 13:47	GWB	TAL CHI
Total/NA	Prep	3510C			761460	02/28/21 14:15	OXG	TAL EDI
Total/NA	Analysis	8081B		1	762036	03/03/21 10:42	FAM	TAL EDI
Total/NA	Prep	3010A			761792	03/02/21 04:45	GMC	TAL EDI
Total/NA	Analysis	6010D		1	762425	03/04/21 20:01	YZH	TAL EDI
Total/NA	Prep	7470A			762689	03/05/21 11:25	RBS	TAL EDI
Total/NA	Analysis	7470A		1	762738	03/05/21 14:39	RBS	TAL EDI

Client Sample ID: N: 10% P.C., OC
Lab Sample ID: 460-228889-9
Date Collected: 02/25/21 12:20
Matrix: Water
Date Received: 02/26/21 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	762234	03/04/21 04:10	GXY	TAL EDI
Total/NA	Prep	3510C			586956	03/02/21 18:28	JP1	TAL CHI
Total/NA	Analysis	8270D SIM		1	587220	03/04/21 14:15	GWB	TAL CHI
Total/NA	Prep	3510C			761460	02/28/21 14:15	OXG	TAL EDI
Total/NA	Analysis	8081B		1	762036	03/03/21 10:57	FAM	TAL EDI
Total/NA	Prep	3010A			761792	03/02/21 04:45	GMC	TAL EDI
Total/NA	Analysis	6010D		1	762425	03/04/21 20:06	YZH	TAL EDI
Total/NA	Prep	7470A			762689	03/05/21 11:25	RBS	TAL EDI
Total/NA	Analysis	7470A		1	762738	03/05/21 14:40	RBS	TAL EDI

Lab Chronicle

Client: ERM-Northeast
Job ID: 460-228889-1
Project/Site: Former TRW Union Springs

Client Sample ID: N: 10% P.C., OC, surf
Lab Sample ID: 460-228889-10

Date Collected: 02/25/21 12:30
Matrix: Water
Date Received: 02/26/21 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	762234	03/04/21 03:46	GXY	TAL EDI
Total/NA	Prep	3510C			586956	03/02/21 18:28	JP1	TAL CHI
Total/NA	Analysis	8270D SIM		1	587220	03/04/21 14:44	GWB	TAL CHI
Total/NA	Prep	3510C			761460	02/28/21 14:15	OXG	TAL EDI
Total/NA	Analysis	8081B		1	762036	03/03/21 11:13	FAM	TAL EDI
Total/NA	Prep	3010A			761792	03/02/21 04:45	GMC	TAL EDI
Total/NA	Analysis	6010D		1	762425	03/04/21 20:10	YZH	TAL EDI
Total/NA	Prep	7470A			762689	03/05/21 11:25	RBS	TAL EDI
Total/NA	Analysis	7470A		1	762738	03/05/21 14:46	RBS	TAL EDI

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Accreditation/Certification Summary

Client: ERM-Northeast
Job ID: 460-228889-1
Project/Site: Former TRW Union Springs

Laboratory: Eurofins TestAmerica, Edison

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	11452	04-01-21

Laboratory: Eurofins TestAmerica, Chicago

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2903	04-30-21
Georgia	State	N/A	04-29-21
Georgia (DW)	State	939	04-30-21
Hawaii	State	NA	04-30-20 *
Illinois	NELAP	IL00035	04-29-21
Indiana	State	C-IL-02	06-29-21
Iowa	State	082	05-01-22
Kansas	NELAP	E-10161	10-31-21
Kentucky (UST)	State	AI # 108083	04-30-20 *
Kentucky (WW)	State	KY90023	12-31-21
Louisiana	NELAP	02046	06-30-21
Mississippi	State	NA	04-30-20 *
New York	NELAP	12019	04-01-21
North Carolina (WW/SW)	State	291	12-31-21
North Dakota	State	R-194	04-29-21
Oklahoma	State	8908	08-31-21
South Carolina	State	77001003	04-29-21
USDA	US Federal Programs	P330-18-00018	02-11-24
Wisconsin	State	999580010	08-31-21
Wyoming	State	8TMS-Q	04-30-20 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: ERM-Northeast
Project/Site: Former TRW Union Springs

Job ID: 460-228889-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	TAL EDI
8270D SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL CHI
8081B	Organochlorine Pesticides (GC)	SW846	TAL EDI
6010D	Metals (ICP)	SW846	TAL EDI
7470A	Mercury (CVAA)	SW846	TAL EDI
3010A	Preparation, Total Metals	SW846	TAL EDI
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL CHI
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL EDI
5030C	Purge and Trap	SW846	TAL EDI
7470A	Preparation, Mercury	SW846	TAL EDI

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Sample Summary

Client: ERM-Northeast
Project/Site: Former TRW Union Springs

Job ID: 460-228889-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
460-228889-1	S: 10% P.C.	Water	02/25/21 11:00	02/26/21 12:30	
460-228889-2	S: 10% P.C., PAC	Water	02/25/21 11:10	02/26/21 12:30	
460-228889-3	S: 10% P.C., PAC, surf	Water	02/25/21 11:20	02/26/21 12:30	
460-228889-4	S: 10% P.C., OC	Water	02/25/21 11:30	02/26/21 12:30	
460-228889-5	S: 10% P.C., OC, surf	Water	02/25/21 11:40	02/26/21 12:30	
460-228889-6	N: 10% P.C.	Water	02/25/21 11:50	02/26/21 12:30	
460-228889-7	N: 10% P.C., PAC	Water	02/25/21 12:00	02/26/21 12:30	
460-228889-8	N: 10% P.C., PAC, surf	Water	02/25/21 12:10	02/26/21 12:30	
460-228889-9	N: 10% P.C., OC	Water	02/25/21 12:20	02/26/21 12:30	
460-228889-10	N: 10% P.C., OC, surf	Water	02/25/21 12:30	02/26/21 12:30	

Eurofins TestAmerica, Edison
777 New Durham Road

Edison, NJ 08817-2859
phone 732.549.3900 fax 732.549.3679

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Rob Sents	Site Contact: Laurel Crawford	Date: 2/25/2021	COC No:
ERM Consulting & Engineering, Inc.	Tel/Fax:	Grace Chang	Carrier: Fedex	1 of 1 COCs
5784 Widewater Pkwy	Analysis Turnaround Time			Sampler: Laurel Crawford
Syracuse, NY 13214	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(315) 445-2554	TAT if different from Below _____			Walk-in Client:
(xxx) xxx-xxxx FAX	☑ Standard but if possible w/o additional costs, results soon as possible and staggered if some analyses completed sooner than others			Lab Sampling:
Project Name: Former TRW Union Springs	☐ 1 day			Job / SDG No.: 22889
Site: Union Springs, NY				
Project # : 46031778				

460-228889 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	8270D SIM PCN	8081B TCL Pesticides	6010D TAL Metals	8260D TCL VOCs + 10 TICs	Sample Specific Notes:
S: 10% P.C.	2/25/21	11:00	C	W	7	N		1	2	1	3	PCN - Chicago 1
S: 10% P.C., PAC	2/25/21	11:10	C	W	7	N		1	2	1	3	PCN - Chicago 2
S: 10% P.C., PAC, surf	2/25/21	11:20	C	W	7	N		1	2	1	3	PCN - Chicago 3
S: 10% P.C., OC	2/25/21	11:30	C	W	7	N		1	2	1	3	PCN - Chicago 4
S: 10% P.C., OC, surf	2/25/21	11:40	C	W	7	N		1	2	1	3	PCN - Chicago 5
N: 10% P.C.	2/25/21	11:50	C	W	7	N		1	2	1	3	PCN - Chicago 6
N: 10% P.C., PAC	2/25/21	12:00	C	W	7	N		1	2	1	3	PCN - Chicago 7
N: 10% P.C., PAC, surf	2/25/21	12:10	C	W	7	N		1	2	1	3	PCN - Chicago 8
N: 10% P.C., OC	2/25/21	12:20	C	W	7	N		1	2	1	3	PCN - Chicago 9
N: 10% P.C., OC, surf	2/25/21	12:30	C	W	7	N		1	2	1	3	PCN - Chicago 10
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____								1	1	1,4	1,2	

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: **Invoice ERM, sample receipt confirmation and analytical results go to ERM team and lcrawford@xdd-llc.com.**

COC 149 4846 2.3°C IR#11

Custody Seals Intact: ☑ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd:_____ Corr'd:_____		Therm ID No.:_____
Relinquished by: Laurel Crawford	Company: XDD Environmental	Date/Time: 2/25/21 14:00	Received by:	Company:	Date/Time:
Relinquished by: FedEx	Company:	Date/Time: 2/26/21	Received by:	Company: FedEx Edison	Date/Time: 2/26/21 1230
Relinquished by:	Company:	Date/Time: 1230	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.22, dated 4/10/2019

Eurofins TestAmerica Edison
Receipt Temperature and pH Log

Page ____ of ____

Job Number: 228869

Number of Coolers: 1

IR Gun # 11

Cooler Temperatures

	RAW	CORRECTED		RAW	CORRECTED		RAW	CORRECTED
Cooler #1:	2.3 °C	2.3 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other
1				<2											
2				<2											
3				<2											
4				<2											
5				<2											
6				<2											
7				<2											
8				<2											
9				<2											
10				<2											

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

** Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

EDS-WI-038, Rev 4.1
10/22/2019

Initials: JR

Date: 2/2/21

Eurofins TestAmerica, Edison
777 New Durham Road

Edison NJ 08817-2859
phone 732 549 3900 fax 732 549 3679

Chain of Custody Record

eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Rob Sents	Site Contact: Laurel Crawford	Date: 2/25/2021	COC No
ERM Consulting & Engineering Inc	Tel/Fax:	Grace Chang	Carrier: Fedex	1 of 1 COCs
5784 Widewater Pkwy	**Analysis Turnaround Time**			Sampler Laurel Crawford
Syracuse, NY 13214	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(315) 445-2554	TAT if different from Below ____			Walk-in Client
(xxx) xxx-xxxx FAX	☑ Standard but if possible w/o additional costs, results soon as possible and staggered if some analyses completed sooner than others			Lab Sampling
Project Name Former TRW Union Springs	☐ 1 day			Job / SDG No 460-228889
Site Union Springs NY				
Project # 46031778				

460-228889 COC

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y / N)	8270D SIM PCN	8081B TCL Pesticides	6010D TAL Metals	8260D TCL VOCs + 10 TICs	Sample Specific Notes
S 10% P C	2/25/21	11 00	C	W	7	N		1	2	1	3	PCN - Chicago
S 10% P C PAC	2/25/21	11 10	C	W	7	N		1	2	1	3	PCN - Chicago
S 10% P C , PAC, surf	2/25/21	11 20	C	W	7	N		1	2	1	3	PCN - Chicago
S 10% P C , OC	2/25/21	11 30	C	W	7	N		1	2	1	3	PCN - Chicago
S 10% P C OC, surf	2/25/21	11 40	C	W	7	N		1	2	1	3	PCN - Chicago
N 10% P C	2/25/21	11 50	C	W	7	N		1	2	1	3	PCN - Chicago
N 10% P C , PAC	2/25/21	12 00	C	W	7	N		1	2	1	3	PCN - Chicago
N 10% P C , PAC, surf	2/25/21	12 10	C	W	7	N		1	2	1	3	PCN - Chicago
N 10% P C OC	2/25/21	12 20	C	W	7	N		1	2	1	3	PCN - Chicago
N 10% P C , OC surf	2/25/21	12 30	C	W	7	N		1	2	1	3	PCN - Chicago
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other								1	1	1,4	1,2	

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments: **Invoice ERM, sample receipt confirmation and analytical results go to ERM team and lcrawford@xdd-llc.com.**

Custody Seals Intact ☑ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd 1.8 Corr'd 0.6 | Therm ID No

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Laurel Crawford	XDD Environmental	2/25/21 14 00			
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by	Company	Date/Time
			Ellen Scott	EDD-CHI	2/26/21 1105

Form No. CA-C-WI-002, Rev. 4.22, dated 4/10/2019

Login Sample Receipt Checklist

Client: ERM-Northeast

Job Number: 460-228889-1

Login Number: 228889
List Number: 1
Creator: Rivera, Kenneth

List Source: Eurofins TestAmerica, Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	1484846
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ERM-Northeast

Job Number: 460-228889-1

Login Number: 228889
List Number: 2
Creator: Hernandez, Stephanie

List Source: Eurofins TestAmerica, Chicago
List Creation: 03/01/21 11:40 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.6
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

JLT Laboratories, Inc.
Geotechnical, Geosynthetic and Materials Testing and Research

938 South Central Avenue
Canonsburg, Pennsylvania, 15317
Tel: 724-746-4441 Fax: 724-745-4261
e-mail: jboschuk@jltlabs.com
www.jltlabs.com

March 17, 2021
21LS3925

XDD
22 Marin Way, Unit 3
Stratham, NH 03885

Attn: Laurel Crawford

RE: UNCONFINED STRENGTH & PERMEABILITY TEST RESULTS
PROJECT NO: 20049 (PO: 4741)

Dear Ms. Crawford:

Submitted herein are the results four (4) Permeability and seven (7) Unconfined Strength tests performed on samples for the above referenced project. All testing was performed per ASTM Standards while subject to JLT's internal QA / QC and data validation procedures.

We appreciate the opportunity to provide our services and look forward to working with you again. Should you have any questions, comments or require additional information, please do not hesitate to call. Thank you.

Sincerely,

JLT LABORATORIES, INC.

John Boschuk, Jr., P.E., C.F.E.
President

cc: Accounts Payable

Enclosures
JB\mlb
MSWord\letter\2140
Inv# 7760

UNCONFINED STRENGTH TEST RESULTS

ASTM D-1633

Client : XDD Environmental
Project : 20049
Shipment 1

Job Number: 21LS3925
Print Date : 03/12/2021
Pef'd By : AE/MLB
Chk'd By : JBJr
Page : 1 of 1

Mix ID	Fabrication Date	Test Date	Age Days	Weight gr	Height inches	Diameter inches	Area sq in	Bulk Density pcf	Load lbs	Peak Stress psi
S:10%PC	02/11/2021	02/18/2021	7	331.1	4.00	2.00	3.142	100.3	151	48.1
S:10%PC,OC,Surf	02/11/2021	02/18/2021	7	322.0	4.00	2.00	3.142	97.5	83	26.4
S:3%PC, PAC, Surf	02/12/2021	02/19/2021	7	304.5	3.90	2.00	3.142	94.6	20	6.4
S:10%PC,PAC	02/10/2021	03/10/2021	28	325.4	4.00	2.00	3.142	98.6	62	19.7
S:10%PC,PAC,Surf	02/10/2021	03/10/2021	28	327.2	4.00	2.00	3.142	99.1	122	38.8
N:10%PC,OC	02/10/2021	03/10/2021	28	321.0	3.94	2.00	3.142	98.7	128	40.7
S:3%PC,OC,Surf	02/10/2021	03/10/2021	28	315.9	3.92	2.00	3.142	97.6	15	4.8

SUMMARY OF FLEX WALL PERMEABILITY TEST RESULTS

ASTM D-5084 (Method A)

Client	: XDD Environmental		Print Date	: 03/17/2021	
Project Location	: 20049		Job No.	: 21LS3725	
Sample Number	: S : 10 Percent PC-PAC		Tested By	: MLB	
Fabrication Date	: 02/10/2021		Checked By	: JBJr	
Age , Days	:		Page 1 of 2	Optional	
Start Date	:		Spec. Gravity	: 2.72	Assumed

Physical Property Data

Initial Height (in)	:	5.98	Final Height (in)	:	5.93
Initial Diameter (in)	:	3.00	Final Diameter (in)	:	2.91
Initial Wet Weight (g)	:	1087.00	Final Wet Weight (g)	:	1100.87
Wet Density (pcf)	:	97.88	Wet Density (pcf)	:	106.24
Moisture Content %	:	51.31	Moisture Content %	:	53.24
Dry Density (pcf)	:	64.69	Dry Density (pcf)	:	69.33
Initial Void Ratio	:	1.6238	Final Void Ratio	:	1.4481
Saturation ,%	:	85.9	Saturation ,%	:	100.0

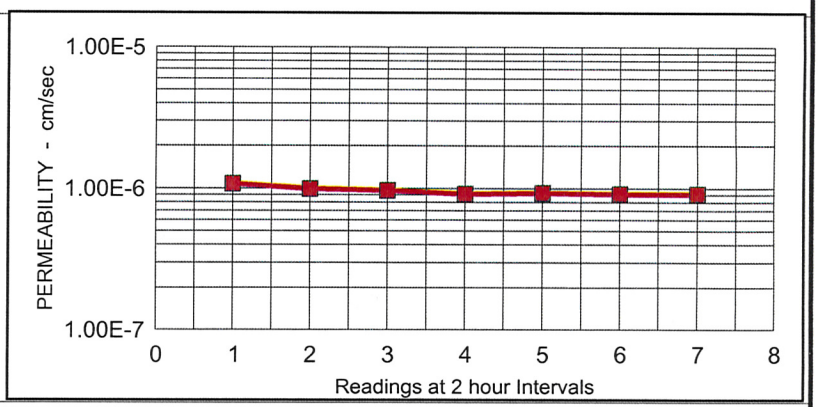
Test Parameters

Fluid	:	De-Aired Water	Effective		
Cell Pressure psi)	:	65.00	Confining Pressure (psi)	:	10
Head Water psi)	:	57.70	Gradient	:	25.13
Tail Water psi)	:	52.30			

Permeability Input Data

For Last Data Point

Flow, Q	(cc)	:	7.1
Length, L	(in)	:	5.93
Area, A	(sqin)	:	6.65
Head, h	**(psi)**	:	**5.40**
Time, t	(min)	:	120
Temp, T	(Deg C)	:	19.8



Computed Permeability

PERMEABILITY, K =	9.15E-007	(cm/sec) at 20 Degrees C
Average of Last 3 Readings	9.20E-007	cm/sec

SUMMARY OF FLEX WALL PERMEABILITY TEST RESULTS

ASTM D-5084 (Method A)

Client	: XDD Environmental		Print Date	: 03/17/2021	
Project Location	: 20049		Job No.	: 21LS3725	
Sample Number	: S : 10 Percent PC-PAC Surface		Tested By	: MLB	
Fabrication Date	: 02/10/2021		Checked By	: JBJr	
Age , Days	:		Page 1 of 2	Optional	
Start Date	:		Spec. Gravity	: 2.72	Assumed

Physical Property Data

Initial Height (in)	: 5.98	Final Height (in)	: 5.89
Initial Diameter (in)	: 3.00	Final Diameter (in)	: 2.97
Initial Wet Weight (g)	: 1093.70	Final Wet Weight (g)	: 1121.87
Wet Density (pcf)	: 98.48	Wet Density (pcf)	: 104.64
Moisture Content %	: 52.71	Moisture Content %	: 56.64
Dry Density (pcf)	: 64.49	Dry Density (pcf)	: 66.80
Initial Void Ratio	: 1.6319	Final Void Ratio	: 1.5407
Saturation ,%	: 87.9	Saturation ,%	: 100.0

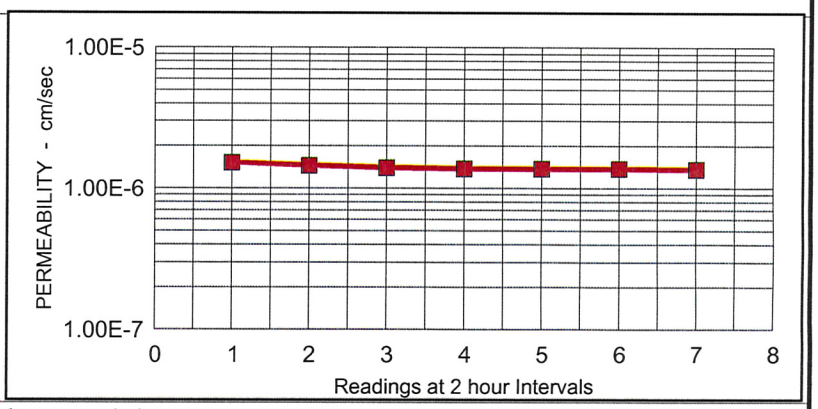
Test Parameters

Fluid	: De-Aired Water	**Effective**	
Cell Pressure psi)	: 65.00	**Confining Pressure (psi)**	: 10
Head Water ɔsi)	: 57.70	Gradient	: 25.30
Tail Water ɔsi)	: 52.30		

Permeability Input Data

For Last Data Point

Flow, Q	(cc)	:	11.1
Length, L	(in)	:	5.89
Area, A	(sqin)	:	6.93
Head, h	**(psi)**	:	**5.40**
Time, t	(min)	:	120
Temp, T	(Deg C)	:	19.8



Computed Permeability

PERMEABILITY, K =	1.36E-006	(cm/sec) at 20 Degrees C
Average of Last 3 Readings	1.37E-006	cm/sec

SUMMARY OF FLEX WALL PERMEABILITY TEST RESULTS

ASTM D-5084 (Method A)

Client	: XDD Environmental		Print Date	: 03/17/2021	
Project Location	: 20049		Job No.	: 21LS3725	
Sample Number	: N : 10 Percent PC-OC		Tested By	: MLB	
Fabrication Date	: 02/10/2021		Checked By	: JBJr	
Age , Days	:		Page 1 of 2	Optional	
Start Date	:		Spec. Gravity	: 2.72	Assumed

Physical Property Data

Initial Height (in)	6.00	Final Height (in)	5.95
Initial Diameter (in)	3.00	Final Diameter (in)	2.96
Initial Wet Weight (g)	1106.10	Final Wet Weight (g)	1125.09
Wet Density (pcf)	99.27	Wet Density (pcf)	104.59
Moisture Content %	54.12	Moisture Content %	56.76
Dry Density (pcf)	64.41	Dry Density (pcf)	66.72
Initial Void Ratio	1.6351	Final Void Ratio	1.5440
Saturation ,%	90.0	Saturation ,%	100.0

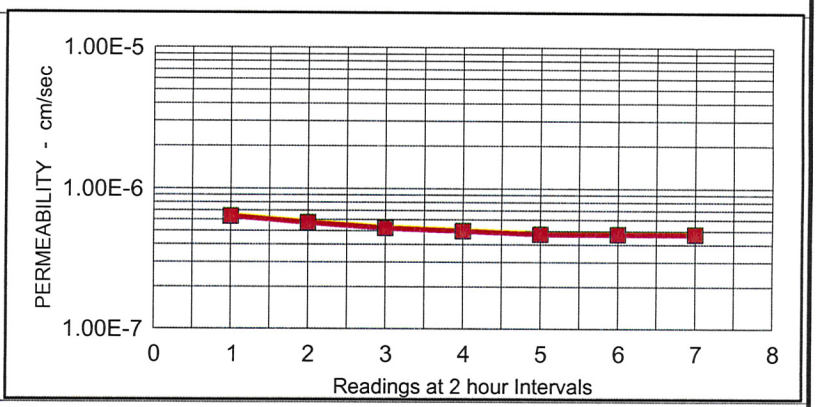
Test Parameters

Fluid	De-Aired Water	**Effective**	
Cell Pressure psi)	65.00	**Confining Pressure (psi)**	**10**
Head Water psi)	57.70	Gradient	25.05
Tail Water psi)	52.30		

Permeability Input Data

For Last Data Point

Flow, Q	(cc)		3.8
Length, L	(in)		5.95
Area, A	(sqin)		6.88
Head, h	**(psi)**		**5.40**
Time, t	(min)		120
Temp, T	(Deg C)		19.8



Computed Permeability

PERMEABILITY, K =	4.75E-007	(cm/sec) at 20 Degrees C
Average of Last 3 Readings	4.75E-007	cm/sec

SUMMARY OF FLEX WALL PERMEABILITY TEST RESULTS

ASTM D-5084 (Method A)

Client	: XDD Environmental		Print Date	: 03/17/2021	
Project Location	: 20049		Job No.	: 21LS3725	
Sample Number	: S : 3 Percent PC Surface		Tested By	: MLB	
Fabrication Date	: 02/10/2021		Checked By	: JBJr	
Age , Days	:		Page 1 of 2	Optional	
Start Date	:		Spec. Gravity	: 2.72	Assumed

Physical Property Data

Initial Height (in)	:	5.95	Final Height (in)	:	5.84
Initial Diameter (in)	:	3.00	Final Diameter (in)	:	2.81
Initial Wet Weight (g)	:	1066.10	Final Wet Weight (g)	:	1030.97
Wet Density (pcf)	:	96.48	Wet Density (pcf)	:	108.35
Moisture Content %	:	54.19	Moisture Content %	:	49.11
Dry Density (pcf)	:	62.57	Dry Density (pcf)	:	72.66
Initial Void Ratio	:	1.7126	Final Void Ratio	:	1.3359
Saturation ,%	:	86.1	Saturation ,%	:	100.0

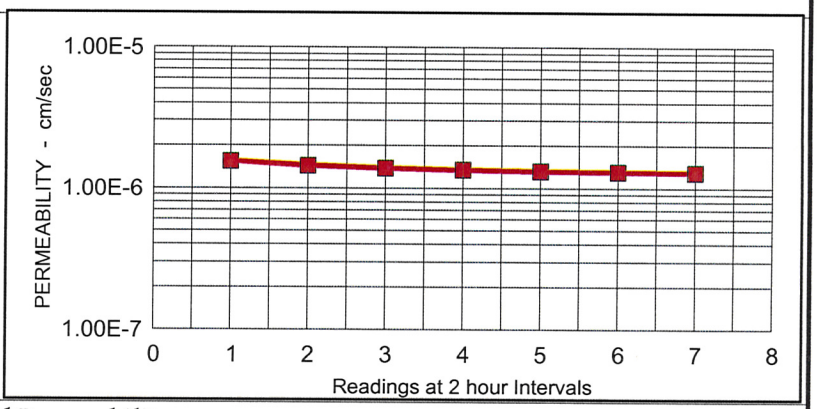
Test Parameters

Fluid	:	De-Aired Water	**Effective**		
Cell Pressure psi)	:	65.00	**Confining Pressure (psi)**	:	10
Head Water psi)	:	57.70	Gradient	:	25.52
Tail Water psi)	:	52.30			

Permeability Input Data

For Last Data Point

Flow, Q	(cc)	:	9.5
Length, L	(in)	:	5.84
Area, A	(sqin)	:	6.20
Head, h	**(psi)**	:	**5.40**
Time, t	(min)	:	120
Temp, T	(Deg C)	:	19.8



Computed Permeability

PERMEABILITY, K =	1.29E-006	**(cm/sec) at 20 Degrees C**
Average of Last 3 Readings	1.31E-006	**cm/sec**

CHAIN OF CUSTODY

Shipment 1

Test Request for Stabilized Test Cylinders

PAGE 1 of 1

CLIENT: XDD

PROJECT ID: 20049

JLT JOB No.: 21S3925

DATE ASSIGNED: 2-18-21

DATE RECEIVED: 2-18-21

DATE COMPLETED: 3-17-21

SAMPLE I.D.	DEPTH (feet)	Other ID	Fabrication Date	Cylinder Size	Permeability D-5084-A			Unconfined Strength D-1633					Notes ~~Other Tests~~
					Age (Days)	Effective Stress	Gradient	Age (Days)	Age (Days)	Age (Days)	Age (Days)	Age (Days)	
S: 10% PC			2/11/21	2x4				7					test on 2/18/21
S: 10% PC, OC, Surf			2/11/21	2x4				7					test on 2/18/21
S: 3% PC, ~~PAC~~, Surf			2/12/21	2x4				7					test on 2/19/21
S: 10% PC, PAC			2/10/21	2x4, 3x6	28			28					test on 3/10/21
S: 10% PC, PAC, Surf			↓	2x4, 3x6	28			28					test on 3/10/21
N: 10% PC, OC				2x4, 3x6	28			28					test on 3/10/21
S: 3% PC, OC, Surf				2x4, 3x6	28			28					test on 3/10/21

COMPLETE THIS SECTION AND INCLUDE WITH SHIPMENT. ALSO FAX COPY AS PRE-NOTIFICATION

SHIPPER: XDD Environmental

ADDRESS: 22 Manor Way
Unit 3
Stratham, NH 03885

CONTACT: Laurel Crawford

TEL: 603-778-1100 EMAIL: LCrawford@xdd-llc.com

SHIP TO: JLT Laboratories Inc.
938 South Central Avenue
Canonsburg, PA 15317
Tel: (724) 746-4441
Fax: (724) 745-4261
e-mail: jboschuk@jltlabs.com or
e-mail: mboschuk@jltlabs.com

NOTES / INSTRUCTIONS Each sample includes an extra 2x4" cylinder if needed

Invoices to: ap@xdd-llc.com

Relinquished By: Laurel Crawford Date: 2/16/21

Received By: [signature] Date: 2-18-21

Client PO No: 4741

JLT GEOTECHNICAL LABORATORY
soilcocstabil.wpd

December 5, 2022 *via E-Mail (rob.sents@erm.com)*

Environmental Resources Management
5784 Widewaters Pkwy
Syracuse, NY 13214

Attn: Rob Sents

RE: Bench-Scale Phase 2 ISS Test Results
Former TRW Union Springs Property, Union Springs, NY

Dear Mr. Sents:

XDD ENVIRONMENTAL, LLC (XDD), doing business as Loureiro Engineering Associates, Inc. (hereinafter "XDD"), appreciates the opportunity to provide Environmental Resources Management (hereinafter "ERM") with the results of the Phase 2 bench-scale testing services in support of remedial activities at the Former TRW Union Springs Property, located in Union Springs, New York (site). The testing was conducted in accordance with discussions between XDD and ERM, and the scope of work described in XDD's proposal "Bench-Scale Phase 2 ISS Testing", dated January 31, 2022, with modifications as noted in this report.

If you have any questions regarding the information presented in this report, please do not hesitate to call me at 603.778.1100.

Sincerely,
XDD Environmental

Laurel Crawford, Laboratory Manager

cc: Mac Bonner, Kevin Warner (ERM)

BENCH-SCALE PHASE 2 ISS TEST RESULTS

Former TRW Union Springs Property
Union Springs, New York

Prepared For:

ENVIRONMENTAL RESOURCES MANAGEMENT
5784 WIDEWATERS PARKWAY, SYRACUSE, NEW YORK 13214

Prepared By:



Doing Business as Loureiro Engineering Associates, Inc.

112 CORPORATE DRIVE, UNIT 2
PORTSMOUTH, NEW HAMPSHIRE 03801
TEL: (603) 778-1100
FAX: (603) 778-2121

December 5, 2022

TABLE OF CONTENTS

1.0 INTRODUCTION 1
2.0 BENCH-SCALE TESTING APPROACH 1
2.1 Soil homogenization and Baseline Analyses 2
2.2 Total Oxidant Demand (TOD) Testing 3
2.3 Geotechnical Testing 3
2.4 Contaminant Leaching Evaluation 3
2.4.1 TCLP Analyses 5
3.0 BENCH-SCALE TESTING RESULTS 5
3.1 Baseline Analyses 5
3.2 Total Oxidant Demand (TOD) Testing 5
3.3 Geotechnical Testing 5
3.4 Contaminant Leaching Evaluation 6
4.0 CONCLUSIONS AND RECOMMENDATIONS 7

LIST OF TABLES

Table 1 Summary of Test Conditions and Analyses
Table 2 In Situ Stabilization Treatability Results: Soil, SPLP, and TCLP Data
Table 3 In Situ Stabilization Treatability Results: LEAF Concentrations
Table 4 In Situ Stabilization Treatability Results: LEAF Leaching Rates
Table 5 In Situ Stabilization Treatability Results: LEAF Mass Flux
Table 6 In Situ Stabilization Treatability Results: LEAF Detected Concentrations Summary

LIST OF APPENDICES

Appendix A Analytical Laboratory Reports
Appendix B Geotechnical Laboratory Reports

1.0 INTRODUCTION

XDD Environmental (XDD) was retained by Environmental Resources Management (ERM) to perform a bench-scale evaluation of in situ solidification / stabilization (ISS) technologies to treat impacted soils from the Former TRW Union Springs Property, Union Springs, New York (site). Site soils are impacted with volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated naphthalenes (PCNs), pesticides, metals, and per- and polyfluoroalkyl substances (PFAS) (collectively, the site contaminants of concern [COCs]). Due to the complexity of the range in site COC concentrations and types, and the proposed remedial approaches (i.e., ISS and a bio-barrier), an initial phase of bench-scale tests (Phase 1) was performed to refine an appropriate remedial approach. The Phase 1 testing was designed with the expectation that a second, bench-scale testing phase (Phase 2) would be needed to refine the remedial approach design parameters. The Phase 1 bench-scale tests evaluated the effects of ISS using various combinations and dosages of cement, carbon, and organoclay on two site soils. Results from the Phase 1 tests were presented in XDD's "Bench-Scale Phase 1 Test Results Report", dated July 21, 2021. Based on the Phase 1 test results, the ISS amendments and dosages were refined for evaluation in the Phase 2 testing. The goals of the Phase 2 testing were as follows:

- Determine the reduction in leachability of COCs from the treated soils for the conditions tested, with the goal of achieving a level of COCs mass flux reduction to groundwater from the ISS treated soils acceptable to the New York State Department of Environmental Conservation (NYSDEC). The COCs leachability was assessed using the United States Environmental Protection Agency (EPA) Leaching Environmental Assessment Framework (LEAF) Method 1315.
- Determine the effects of treatment on soil strength and permeability, with the goal of achieving a permeability of 5×10^{-6} centimeters/second (cm/sec) or lower, and a minimum soil compressive strength of 50 pounds per square inch (psi).
- Conduct EPA Toxicity Characteristic Leaching Procedure (TCLP) Method 1311 analyses on the test condition(s) that perform the best, relative to the other treatments, to determine the potential costs for off-site disposal.
- If the results from one or more ISS technologies tested in Phase 2 demonstrate effectiveness in meeting remedial goals, recommend an ISS technology for a potential full-scale application at the site.

2.0 BENCH-SCALE TESTING APPROACH

The ISS amendments used to construct the test conditions are summarized below. Depending on the test condition, the following were tested on one soil type:

- ISS Amendments
  - Cement – Lafarge Portland Cement (PC) Type I/II
  - Carbon – Rempak, a powdered activated carbon (AC) provided by Calgon Carbon
  - Sodium persulfate (SP)
- Water – tap water (to be representative of potable water that would be used in a field application) was added at a dose sufficient for cement curing.

- Surfactant – ERM will use a surfactant, AC-645 (Rusmar, Inc.), during the ISS field application as a foam cover for odor control; therefore, due to the unknown effects of the surfactant on the ISS amendments (i.e., non-target demand on the PC, AC, or SP, and/or effects on the cement curing), the surfactant was added to the amended test conditions at a dosage that is expected to be applied in the field (initially diluted at a 6.5:1 ratio [6.5 parts water to 1 part surfactant] and applied under the specific test conditions at a dosage of 1.79% by soil volume). The surfactant was added to all test conditions with the exception of the control.

The ISS test conditions that were evaluated were as follows (refer to Table 1 for associated analyses and time points):

- Control – soil only, no amendments added
- Cement only
  - 7% PC
  - 12% PC
  - 15% PC
  - 20% PC
- Cement and Carbon
  - 20% PC, 2% AC
  - 20% PC, 4% AC
- Cement, Carbon, and Sodium Persulfate
  - 20% PC, 2% AC, and 2% SP

The cement dosages were originally proposed to be 7% PC (per dry soil weight) based on the Phase 1 results. Prior to setting up all the test conditions, a monolith was constructed with soil and 7% PC (per dry soil weight basis). After a few days of curing, the 7% PC monolith appeared to have poor consolidation properties and limited strength (i.e., crumbled upon applying limited pressure). Additional monoliths consisting of 12% PC and 15% PC were subsequently constructed and submitted to JLT Laboratories, Inc. (JLT) to conduct unconfined compressive strength (UCS) testing following American Society for Testing and Materials (ASTM) Method D 1633. Based on the UCS test results and following discussions with ERM, it was decided that 20% PC would be constructed for all test conditions and analyses, with the exception of the control (soil only).

2.1 SOIL HOMOGENIZATION AND BASELINE ANALYSES

Site soil samples WCA-S-COMP (south) and WCA-N-COMP (north) were composited together and homogenized as efficiently as possible to minimize volatilization of contaminants. During the homogenization, large rocks and fragments (i.e., capacitors, debris) were removed. The soil was returned to the refrigerator in tightly enclosed containers at approximately 38 degrees Fahrenheit (°F) (3.3 degrees Celsius [°C]).

A sample of the soil was submitted to Eurofins TestAmerica, Pittsburg (Eurofins) for baseline COC analyses on soil and leachate using EPA Synthetic Precipitation Leachate Procedure (SPLP, SW846 Method 1312) (Refer to Table 1). The results were evaluated to establish baseline levels

of COCs of the soil composite and, if needed, modify the proposed test conditions and/or suite of analyses. Based on the analytical data, no changes were made to the testing scheme, aside from the modifications to the PC loading based on the preliminary UCS test results at lower PC dosages (discussed above).

2.2 TOTAL OXIDANT DEMAND (TOD) TESTING

Due to the uncertainty of the demand on the SP from non-target sources such as reduced minerals and naturally occurring organic compounds, a TOD test was conducted for the PC, AC, SP test condition. The TOD test measures the oxidant consumed due to reactions with target sources (the contaminants) and non-target sources such as reduced minerals, naturally occurring organic compounds, AC, Rusmar surfactant, and the activator (cement). The test was conducted sequentially in which 2% SP (by weight of dry soil) dissolved in water and Rusmar surfactant were added to the soils first, and after a period of monitoring the persulfate consumption, PC and AC were mixed in. The two-step process was conducted to mimic how the amendments would be applied in the field. Elevated levels of COCs such as those measured at this site have been observed to negatively affect the curing properties of PC. Therefore, the initial application of SP is intended to reduce a portion of the COCs, followed by the addition of PC and AC to treat the remaining mass and allow for improved curing.

The decomposition of SP over a series of time points was measured by iodometric titration. After a majority of the SP was consumed, PC and AC were added to the test condition. Controls consisted of SP only (no soil or other amendments) dissolved in distilled water.

2.3 GEOTECHNICAL TESTING

JLT conducted preliminary slump cone tests on the PC test conditions to determine the optimal water to cement ratios for curing. The water to cement ratios were then used to set up monoliths for each test condition for the leachability tests and for measurements of UCS and permeability using ASTM D 5084. UCS and permeability measurements were conducted on monoliths for select test conditions depending on the leachability results.

The monoliths were constructed by mixing the pre-determined water content with amendment(s) at their specified weight percentages and then combining with soil. The blends were placed into 2 x 4-inch cylinders for curing. For the PC, AC, SP test condition, the SP was dissolved in water, after which Rusmar surfactant was mixed in followed by combining with the soil. After a 5-day contact period between the SP, surfactant, and soil, PC and AC were blended in and the mixture was placed in a 2 x 4-inch cylinder for curing.

2.4 CONTAMINANT LEACHING EVALUATION

The reduction in leachability of COCs from the ISS treated soils was assessed using the LEAF Method 1315. The LEAF method is a semi-dynamic tank leaching procedure used to determine the rate of mass transport from either monoliths (i.e., concrete material) or compacted granular materials (i.e., unconsolidated material). Monolithic samples are cylindrical while granular materials are compacted into cylindrical molds to a density that approximates the peak field density on a dry basis.

The LEAF method consists of submerging a sample into a specific volume of leaching solution related to the surface area of the material exposed to the solution. The leaching solution consists of deionized water, which is periodically renewed at specified cumulative leaching times as follows:

Interval	Interval Duration (hours)	Interval Duration (days)	Cumulative Leaching Time (days)
1	2.0 +/- 0.25	---	0.08
2	23.0 +/- 0.5	---	1.0
3	23.0 +/- 0.5	---	2.0
4	---	5.0 +/- 0.1	7.0
5	---	7.0 +/- 0.1	14.0
6	---	14.0 +/- 0.1	28.0
7	---	14.0 +/- 0.1	42.0
8	---	7.0 +/- 0.1	49.0
9	---	14.0 +/- 0.1	63.0

For each of the nine intervals, the eluate is analyzed for pH, oxidation-reduction potential (ORP), electrical conductivity, and/or COCs. The eluate COC concentrations for each time point are used to calculate the interval mass flux (i.e., the rate of mass released over an interval), expressed as milligrams per square meter per second (or µg per square centimeter per day, or similar, etc.). The concentrations are multiplied by the ratio of the volume of leachate to the surface area of the sample and divided by the interval-specific time. The liquid-to-surface area (L/A) ratio was approximately 0.009 L per centimeters squared (cm^2) for all test conditions. The same L/A ratio for the monoliths and unconsolidated materials allows for a direct comparison of the results. In situ, the actual L/A ratios are often much less than the laboratory method and as such, the rate of leaching in the laboratory could be considered conservative estimates.

The LEAF samples were prepared and set up in 2 x 4-inch molds in the same manner as for the geotechnical test monoliths, using the water to cement ratios determined by JLT (Section 2.3). Materials used to blend the amendments and soil were made from those that are compatible with best practices for sampling / handling the site COCs. In particular, materials that potentially contain PFAS compounds were avoided.

For each test condition, two, 2 x 4-inch cylinders were prepared and allowed to cure for 28 days. After the 28-day treatment period, the cylinders for all test conditions were submitted to Eurofins for the LEAF extractions and COCs analyses. One of the two cylinders for each test conditions was dedicated to a high-density polyethylene (HDPE) vessel for the PFAS leaching evaluation. The second cylinder was placed into a separate glass vessel for the leaching evaluation of all the other COCs. As shown on Table 1, depending on the test condition, not all eluates and/or COCs were analyzed at each time point.

2.4.1 TCLP Analyses

TCLP analyses were conducted by Eurofins following evaluation of the LEAF results for select test conditions. As shown on Table 1, TCLP was conducted on the two PC, AC test conditions for the entire suite of COCs analysis.

3.0 BENCH-SCALE TESTING RESULTS

3.1 Baseline Analyses

The baseline results for the composited soil compared to the south and norths soils analyzed separately during the Phase 1 tests are shown on Table 2. SPLP analyses were also conducted on the soil composite (Table 2). Laboratory analytical reports are presented in Appendix A.

The baseline results for the composited soil indicate concentrations similar to levels previously measured at the site with the exception of VOCs. The VOCs for the composited soil were comparatively lower, likely due to volatilization during the homogenization procedure and storage duration.

3.2 Total Oxidant Demand (TOD) Testing

The TOD testing was conducted using 2% SP in contact with soil and Rusmar surfactant. The SP concentrations were measured in duplicate samples at time points of 1 hour, 18 hours, and 48 hours. After the first hour, SP concentrations showed no measurable decrease but after 18 hours, a majority of the oxidant was consumed, with only 10% of the original SP remaining. At the end of the test, almost no SP remained, suggesting the TOD is likely greater than the 2% SP tested (i.e., the TOD was not met; if more SP were added, it would be consumed until the demand is met). Although there could be benefit from applying a higher dosage of SP, the original 2% SP proposed for testing with PC and AC was used in the LEAF evaluation since a higher dosage of 2% SP could be cost-prohibitive for full-scale application. As discussed previously, the intent of an initial application of SP is to degrade a portion of the COCs followed by the addition of PC and AC to treat the remaining mass and allow for improved curing.

3.3 Geotechnical Testing

Preliminary UCS Evaluation

Prior to setting up all the test conditions, UCS test conditions consisting of soil and 12% PC and 15% PC (per dry soil weight basis) were constructed. Based on the results shown in the table below, ERM selected a cement dosage of 20% PC to be used in all the Phase 2 test conditions.

Test Condition	UCS (psi)		
	7-day	14-day	28-day
12% PC	37.2	not measured	not measured
15% PC	46.5	75.8	77.7
20% PC	78.9	95.8	not measured

Final Geotechnical Evaluation

Based on the leachability results, two test conditions, 20% PC, 2% AC and 20% PC, 4% AC were selected for UCS and permeability testing. Due to limited sample quantities, the monoliths that were used in the LEAF evaluation were submitted for UCS and permeability testing following the final LEAF time point. The UCS and permeability results are shown in the table below and laboratory reports are provided in Appendix B. Both test conditions met the minimum requirements for compressive strength and permeability.

Test Condition	126-day UCS (psi)	126-day Permeability (cm/sec)
20% PC, 2% AC	112.7	2.49×10^{-7}
20% PC, 4% AC	81.5	7.00×10^{-7}

3.4 CONTAMINANT LEACHING EVALUATION

The LEAF analytical data for the Phase 2 test conditions are presented on Table 3. Table 4 and Table 5 present the COC data as leaching rates and leaching mass flux, respectively. A summary of the total detected compounds and percent reductions compared to the control for each group of COCs is shown on Table 6. Laboratory analytical reports are presented in Appendix A. The data show the following:

- Select VOCs, SVOCs, and metals were detected above New York Department of Environmental Conservation (NYSDEC) Groundwater to Discharge Class A Water Criteria in the control and treated test conditions (excluding any compounds reported as non-detect but with reporting limits above criteria) (Table 3).
    - Detected COCs above criteria in the control included VOCs (chloroform, methylene chloride, and vinyl chloride) and metals (antimony) at one or more time points.
    - All treated test conditions had detections of one or more COCs exceeding criteria. These included VOCs (chloroform, methylene chloride, and vinyl chloride) and metals (aluminum, antimony, and iron) detected at a majority of the analytical time points. SVOCs in exceedance of criteria were also observed in a few instances (phenol in the 20% PC sample [Day 7], and bis(2-ethylhexyl)phthalate in the 20% PC, 2% AC sample [Day 42], the 20% PC, 4% AC sample [Day 42], and the Method Blank [Day 28]).
- When comparing the results of the different treatment technologies, the data suggest that the PC test conditions with AC outperformed the other treatments, with the higher 4% AC dosing demonstrating reduced leachability of COCs compared to the 2% AC dose.
- As shown on Table 6, the treated conditions showed significant reductions in COCs compared to the control. In some instances, COCs in the treated samples were detected at concentrations higher than the control. However, the percent reductions can often be skewed by elevated reporting limits (i.e., if a sample required dilution for analysis), method blank interferences, and components in the amendments themselves. Calcium is a constituent found in cement and a majority of the treated conditions show increases in calcium. For the SP treated test conditions, increases in sodium concentrations

compared to the control were observed, as would be expected. For this reason, the total metals data presented on Table 6 exclude calcium and sodium.

- The COC leaching rate and mass flux into the eluate for the control and treated samples were higher at the earlier time points and generally declined throughout the remaining time points, as would be expected (Tables 4 and 5).
- All test conditions resulted in an elevated pH, as shown on Table 3. This is attributed to the basic nature of constituents within cement, resulting in an elevated pH in groundwater.
- The TCLP data for the treated conditions with AC show no COC exceedances of applicable criteria (Table 2). The TCLP analyses were conducted to estimate disposal costs at the site (i.e., hazardous versus non-hazardous characterization). Although not a direct comparison, the TCLP results were more conservative in that the leached concentrations were higher compared to the LEAF results. This could be attributed to the lower pH of the extraction fluid used in the TCLP (pH 2.9) compared to LEAF (neutral pH), which can result in mobilization of metals. In addition, the samples subjected to the TCLP were tumbled for 18 +/- 2 hours versus the LEAF extractions conducted in a still vessel at different leaching intervals. Thus, it would be likely that more COCs would be leached in the TCLP compared to the LEAF method.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The following general conclusions and recommendations were derived based on the ISS results for the conditions tested at the bench-scale:

- The PC test conditions amended with AC outperformed the other treatments.
- The UCS and permeability conducted on the PC, AC test conditions met the minimum goals for the site.
- In general, a majority of the COCs in the treated samples compared to the control were reduced via oxidation, encapsulation, and/or adsorption mechanisms, with some showing significant reductions in leaching potential indicating that amendment addition is a feasible treatment approach.
- The selection of the most appropriate treatment scheme would depend on costs, regulatory criteria, and other factors such as odor control during application. A cost-benefit analysis would be recommended to aid in selecting an appropriate technology.

Tables

Table 1
Summary of Test Conditions and Analyses
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Test Condition	Analysis	EPA Method/ ASTM Std.	Baseline		TCLP	LEAF Method 1315 Leaching - Target Cumulative Time (Days)									Geotechnical (Days)			
			Soil	SPLP		0.08	1	2	7	14	28	42	49	63	7	14	28	120
Untreated/ Control	VOC	8260D	1	1	1	1		1	1		1	1		1				
	SVOC	8270D	1	1	1	1		1	1		1	1						
	PCNs	8270D SIM	1	1	1		1			1			1	1				
	Metals	6010D, 7470E	1	1	1	1		1	1		1	1		1				
	Pesticides	8081E	1	1	1		1			1			1					
	PFAS	537.1	1	1	1	1				1			1					
	pH	9045	1	1	1	1	1	1	1	1	1	1	1	1				
	ORP	---					1				1			1				
	Sulfate	9038					1				1			1				
	conductivity	9050A					1				1			1				
7% PC	UCS	D-1074				1		1	1		1	1		1	*see note 1*			
12% PC	UCS	D-1074				1		1	1		1	1		1	1			
15% PC	UCS	D-1074				1		1	1		1	1		1	1	1	1	
20% PC	VOC	8260D				1		1	1		1	1		1				
	SVOC	8270D				1		1	1		1	1						
	PCNs	8270D SIM					1			1			1	1				
	Metals	6010D, 7470E				1		1	1		1	1		1				
	Pesticides	8081E					1			1			1					
	PFAS	537.1				1				1			1					
	pH	9045				1	1	1	1	1	1	1	1	1				
	ORP	---					1				1			1				
	Sulfate	9038					1				1			1				
	Conductivity	9050A					1				1			1				
	UCS	D-1074													1	1		
20% PC, 2% AC	VOC	8260D			1	1		1	1		1	1		1				
	SVOC	8270D			1	1		1	1		1	1						
	PCNs	8270D SIM			1		1			1			1	1				
	Metals	6010D, 7470E			1	1		1	1		1	1		1				
	pH	8081E			1		1			1			1					
	Pesticides	537.1			1	1				1			1					
	PFAS	9045			1	1	1	1	1	1	1	1	1	1				
	ORP	---			1		1				1			1				
	Sulfate	9038			1		1				1			1				
	Conductivity	9050A			1		1				1			1				
	Permeability	D-5084															1	1
	UCS	D-1074															1	1
20% PC, 4% AC	VOC	8260D			1	1		1	1		1	1		1				
	SVOC	8270D			1	1		1	1		1	1						
	PCNs	8270D SIM			1		1			1			1	1				
	Metals	6010D, 7470E			1	1		1	1		1	1		1				
	Pesticides	8081E			1		1			1			1					
	PFAS	537.1			1	1				1			1					
	pH	9045			1	1	1	1	1	1	1	1	1	1				
	ORP	---			1		1				1			1				
	Sulfate	9038			1		1				1			1				
	Conductivity	9050A			1		1				1			1				
	Permeability	D-5084															1	1
	UCS	D1074															1	1
20% PC, 2% AC, & 2% SP	VOC	8260D				1		1	1		1	1		1				
	SVOC	8270D				1		1	1		1	1						
	PCNs	8270D SIM					1			1			1	1				
	Metals	6010D, 7470E				1		1	1		1	1		1				
	Pesticides	8081E					1			1			1					
	PFAS	537.1				1				1			1					
	pH	9045				1	1	1	1	1	1	1	1	1				
	ORP	---					1				1			1				
	Sulfate	9038					1				1			1				
	Conductivity	9050A					1				1			1				
	TOD	titration	1															

Notes:
PC = Portland Cement Type I/II
AC = activated carbon, Rempak
SP = sodium persulfate
UCS = unconfined compressive strength
TOD = total oxidant demand
SPLP = Synthetic Precipitation Leaching Procedure, EPA 1312
LEAF = Leaching Environmental Assessment Framework, EPA 1315
TCLP = Toxicity Characteristic Leaching Procedure, EPA 1311
1. Based on visual observations, the 7% PC test conditions were eliminated from further testing.
2. Surfactant (AC-645 by Rusmar Inc.) was added to all test conditions at a dosage of 1.79% by volume from an initial 6.5:1 dilution (6.5 parts tap water, 1 part surfactant).

Table 2
In Situ Stabilization Treatability Results: Soil, SPLP, and TCLP Data
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte		Unit	NYCRR 675 Protection of GW	NYCRR 675 Restricted Commercial	6CRR-NY 376.4 Land Disposal Restrictions Non-WW	268.48 Universal Treatment Standards	NY 703.6 Table 3 GW Discharge to Class A Waters	NYSDEC 375-6 Soil Cleanup Objective, Unrestricted Use	BASELINE SOIL			Phase 2 Test Conditions	
									WCA-S-COMP (12/10/2020)	WCA-N-COMP (12/10/2020)	Baseline S and N Composite (3/15/22)	20% PC, 2% AC (Aug. 2022)	20% PC, 4% AC (Aug. 2022)
Metals	Aluminum	mg/kg	NS	NS	NS	NS			9,980	7,030	13,000		
	Antimony	mg/kg	NS	NS	NS	NS			88.4	16.1	4,900		
	Arsenic	mg/kg	16	16	NS	NS			12.5	8.1	16		
	Barium	mg/kg	820	400	NS	NS			251	102	260		
	Beryllium	mg/kg	47	590	NS	NS			0.34 J	0.28 J	0.42 J		
	Cadmium	mg/kg	7.5	9.3	NS	NS			2.6	**399**	**23**		
	Calcium	mg/kg	NS	NS	NS	NS			31,700	119,000	47,000		
	Chromium	mg/kg	NS	1,500	NS	NS			37.6	15.3	43		
	Cobalt	mg/kg	NS	NS	NS	NS			10.7 J	7.7 J	9.3		
	Copper	mg/kg	1,720	270	NS	NS			**457**	**843**	**890**		
	Iron	mg/kg	NS	NS	NS	NS			41,400	33,800	27,000 B		
	Lead	mg/kg	450	1,000	NS	NS			48.7	83.8	280		
	Magnesium	mg/kg	NS	NS	NS	NS			9,240	11,000	14,000		
	Manganese	mg/kg	2,000	10,000	NS	NS			421	300	340		
	Mercury	mg/kg	0.73	2.8	NS	NS			0.11	0.15	**1.0**		
	Nickel	mg/kg	130	310	NS	NS			59.4	22.4	82		
	Potassium	mg/kg	NS	NS	NS	NS			1,080 J	1,360 J	1,200		
	Selenium	mg/kg	4	1,500	NS	NS			1.2 J	6.6 U	1.8		
	Sodium	mg/kg	NS	NS	NS	NS			179 J	422 J	190 J		
	Vanadium	mg/kg	NS	NS	NS	NS			16.1	13.5 J	23		
	Zinc	mg/kg	2,480	10,000	NS	NS			346	412	540		
SPLP Metals	Antimony	mg/L					0.006				**0.61**		
	Barium	mg/L					2				0.16 J		
	Calcium	mg/L					NS				73		
	Iron	mg/L					0.6				0.1		
	Magnesium	mg/L					NS				8.3		
	Manganese	mg/L					0.6				0.18		
	Potassium	mg/L					NS				1.5 J		
	Sodium	mg/L					NS				4.6 J,B		
	Thallium	mg/L					NS				0.02		
	Zinc	mg/L					5				0.019 J		

Table 2
In Situ Stabilization Treatability Results: Soil, SPLP, and TCLP Data
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte		Unit	NYCRR 675 Protection of GW	NYCRR 675 Restricted Commercial	6CRR-NY 376.4 Land Disposal Restrictions Non-WW	268.48 Universal Treatment Standards	NY 703.6 Table 3 GW Discharge to Class A Waters	NYSDEC 375-6 Soil Cleanup Objective, Unrestricted Use	BASELINE SOIL			Phase 2 Test Conditions	
									WCA-S-COMP (12/10/2020)	WCA-N-COMP (12/10/2020)	Baseline S and N Composite (3/15/22)	20% PC, 2% AC (Aug. 2022)	20% PC, 4% AC (Aug. 2022)
TCLP Metals	Aluminum	mg/L	NS	NS	NS	NS						1.4 J	1.6 J
	Antimony	mg/L	NS	NS	NS	NS						1.1	0.94
	Barium	mg/L	NS	NS	21	7.6			1.2	0.70 J		0.41 J	0.43 J
	Cadmium	mg/L	NS	NS	0.11	0.19			0.0063 J	0.039		0.5 U	0.5 U
	Calcium	mg/L	NS	NS	NS	NS						740	760
	Copper	mg/L	NS	NS	NS	NS						0.32	0.27
	Lead	mg/L	NS	NS	0.75	0.37			0.022 J	0.012 J		0.5 U	0.5 U
	Mercury	µg/L	NS	NS	25	**0.009**			**0.24** B	0.2 U		0.2 U,H	0.2 U,H
	Nickel	mg/L	NS	NS	11	11						0.047 J	0.04 J
	Sodium	mg/L	NS	NS	NS	NS						1,400 B	1,400 B
	Thallium	mg/L	NS	NS	NS	NS						0.038 J,B	0.2 U
	Vanadium	mg/L	NS	NS	NS	NS						0.5 U	0.057 J
Pesticides	4,4'-DDD	µg/kg	92,000	14,000	NS	87			780	11 U			
	4,4'-DDT	µg/kg	47,000	136,000	NS	87			380	11 U			
	Hexachlorobenzene	µg/kg	330	6,000	10,000	10,000					310		
SPLP Pesticides	alpha-BHC	mg/L	NS	NS	NS	NS	NS				0.000016 J		
	alpha-chlordane	mg/L	NS	NS	NS	NS	NS				0.000043 p		
TCLP Pesticides	All compounds	mg/L	NS	NS	NS	NS			ND	ND		ND	ND
Herbicides	2,4,5-TP (Silvex)	µg/kg	3,800	500,000	7,900	7,900			54 U	56 U			
	2,4-Dichlorophenoxyacetic acid	µg/kg	NS	NS	10,000	10,000			54 U	56 U			
	Trichlorophenoxyacetic acid, 2,4,5-	µg/kg	NS	NS	NS	7,900			54 U	56 U			
TCLP Herbicides	All compounds	mg/L	NS	NS	NS	NS			ND	ND			
VOCs	1,1-Dichloroethene	µg/kg	330	500,000	NS	6,000			95 U	78 J	7.0 U	38 U,H	37 U,H
	1,4-Dichlorobenzene	µg/kg	1,800	130,000	NS	6,000			95 U	98 U	2.4 J	38 U,H	37 U,H
	Acetone	µg/kg	**50**	500,000	160,000	160,000			480 U	490 U	13 J	**150** H	150 U,H
	cis-1,2-Dichloroethene	µg/kg	**250**	500,000	NS	NS			**2,600**	**29,000**	180	190 H	44 H
	Methylene chloride	µg/kg	50	500,000	10,000	10,000			95 U	98 U	7.0 U	50 H	37 U,H
	Toluene	µg/kg	700	500,000	30,000	30000			95 U	87 J	7.0 U	38 U,H	37 U,H
	trans-1,2-Dichloroethene	µg/kg	**190**	500,000	NS	30,000			95 U	**1,200**	2.8 J	38 U,H	37 U,H
	trans-1,3-Dichloropropene	µg/kg	NS	NS	NS	18,000			95 U	98 U	3.3 J	38 U,H	37 U,H
	Trichloroethene	µg/kg	**470**	200,000	**6,000**	**6,000**			**1,200**	**10,000**	3.3 J	38 U,H	37 U,H
	Vinyl chloride	µg/kg	**20**	13,000	NS	6,000			**120**	**790**	**92**	38 U,H	**72** H
	Xylene, Total	µg/kg	1,600	500,000	30,000	30,000			190 U	290	13.7 U	75 U,H	74 U,H
SPLP VOCs	cis-1,2-Dichloroethene	mg/L	NS	NS	NS	NS	NS				0.070		
	Methylene chloride	mg/L	NS	NS	NS	NS	**0.005**				**0.015** B		
	trans-1,2-Dichloroethene	mg/L	NS	NS	NS	NS	NS				0.0028 J		
	Trichloroethene	mg/L	NS	NS	NS	NS	0.005				0.0022 J		
	Vinyl chloride	mg/L	NS	NS	NS	NS	**0.002**				**0.029**		

Table 2
In Situ Stabilization Treatability Results: Soil, SPLP, and TCLP Data
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte		Unit	NYCRR 675 Protection of GW	NYCRR 675 Restricted Commercial	6CRR-NY 376.4 Land Disposal Restrictions Non-WW	268.48 Universal Treatment Standards	NY 703.6 Table 3 GW Discharge to Class A Waters	NYSDEC 375-6 Soil Cleanup Objective, Unrestricted Use	BASELINE SOIL			Phase 2 Test Conditions	
									WCA-S-COMP (12/10/2020)	WCA-N-COMP (12/10/2020)	Baseline S and N Composite (3/15/22)	20% PC, 2% AC (Aug. 2022)	20% PC, 4% AC (Aug. 2022)
TCLP VOCs	Acetone	mg/L	NS	NS	NS	NS						0.33 J,H	0.8 U,H,F1
	2-Butanone	mg/L	NS	NS	NS	NS			0.024 J	0.050 U		0.2 U,H	0.2 U,H
	Tetrachloroethene	mg/L	NS	NS	NS	NS			0.010 U	0.010 U		0.09 J,H	0.2 U,H
	Trichloroethene	mg/L	NS	NS	NS	NS			0.010 U	0.0042 J		0.2 U,H	0.2 U,H
	Vinyl chloride	mg/L	NS	NS	NS	NS			0.022	0.031		0.2 U,H	0.2 U,H
PCNs	Dichloronaphthalene	µg/kg	NS	NS	NS	NS			540,000	35,000	430,000		
	Hexachloronaphthalene	µg/kg	NS	NS	NS	NS			7,600 J	3,600 U	150,000 U		
	Monochloronaphthalene	µg/kg	NS	NS	NS	NS			80,000	8,000 F2	120,000 J		
	Pentachloronaphthalene	µg/kg	NS	NS	NS	NS			190,000	7,200	130,000 J		
	Tetrachloronaphthalene	µg/kg	NS	NS	NS	NS			2,800,000	63,000	1,100,000		
	Trichloronaphthalene	µg/kg	NS	NS	NS	NS			3,900,000	88,000	1,700,000		
SPLP PCNs	Dichloronaphthalene	mg/L	NS	NS	NS	NS	0.1				0.063		
	Tetrachloronaphthalene	mg/L	NS	NS	NS	NS	0.1				0.0058		
	Trichloronaphthalene	mg/L	NS	NS	NS	NS	0.1				0.054		
TCLP PCNs	Dichloronaphthalene	mg/L	NS	NS	NS	NS			0.076	0.025 U		0.019	0.0024
	Monochloronaphthalene	mg/L	NS	NS	NS	NS			0.13	0.025 U		0.0097	0.00078 J
	Octachloronaphthalene	mg/L	NS	NS	NS	NS			0.027	0.025 U		0.002 U	0.002 U
	Tetrachloronaphthalene	mg/L	NS	NS	NS	NS			0.025 U	0.025 U		0.0053	0.0017 J
	Trichloronaphthalene	mg/L	NS	NS	NS	NS			0.025 U	0.025 U		0.032	0.0075
SVOCs	Anthracene	µg/kg						100,000			220		
	Benzo[a]anthracene	µg/kg						1,000			75		
	Benzo[a]pyrene	µg/kg						1,000			51		
	Benzo[b]fluroanthene	µg/kg						1,000			81		
	Benzo[k]fluroanthene	µg/kg						800			30		
	Bis(2-ethylhexyl) phthalate	µg/kg						NS			150 J		
	2-chloronaphthalene	µg/kg						NS			4,700 F2		
	Chrysene	µg/kg						1,000			78		
	Dibutylphthalate	µg/kg						NS			1,700 F1		
	Fluoroanthene	µg/kg						100,000			140		
	Indeno[1,2,3-cd]pyrene	µg/kg						500			34		
	N-Nitrosodiphenylamine	µg/kg						NS			110 J		
	Phenanthrene	µg/kg						100,000			44		
	Phenol	µg/kg						330			55 J		
	Pyrene	µg/kg						**100**			**110**		

Table 2
In Situ Stabilization Treatability Results: Soil, SPLP, and TCLP Data
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte		Unit	NYCRR 675 Protection of GW	NYCRR 675 Restricted Commercial	6CRR-NY 376.4 Land Disposal Restrictions Non-WW	268.48 Universal Treatment Standards	NY 703.6 Table 3 GW Discharge to Class A Waters	NYSDEC 375-6 Soil Cleanup Objective, Unrestricted Use	BASELINE SOIL			Phase 2 Test Conditions	
									WCA-S-COMP (12/10/2020)	WCA-N-COMP (12/10/2020)	Baseline S and N Composite (3/15/22)	20% PC, 2% AC (Aug. 2022)	20% PC, 4% AC (Aug. 2022)
SPLP SVOCs	1,4-Dichlorobenzene	mg/L	NS	NS	NS	NS	0.003				0.00017 J		
	2-Chloronaphthalene	mg/L	NS	NS	NS	NS	NS				0.0038		
	Anthracene	mg/L	NS	NS	NS	NS	NS				0.00013 J		
	Benzyl butyl phthalate	mg/L	NS	NS	NS	NS	NS				0.00094 J		
	Dibutylphthalate	mg/L	NS	NS	NS	NS	0.05				0.0049 B		
	Diethyl phthalate	mg/L	NS	NS	NS	NS	NS				0.00094 J		
	Phenanthrene	mg/L	NS	NS	NS	NS	NS				0.000087 J		
TCLP SVOCs	Dibutylphthalate	mg/L	NS	NS	NS	NS	0.05					0.0017 H	0.0017 H
	Phenanthrene	mg/L	NS	NS	NS	NS	NS					0.00019 U,H	0.000077 J,H
PFOA/PFOS	PFOA	µg/kg									0.098 J		
SPLP PFOA/PFOS	PFHpA	ng/L	NS	NS	NS	NS	10				0.33 J		
	PFOA	ng/L	NS	NS	NS	NS	10				1.9		
	PFOS	ng/L	NS	NS	NS	NS	10				0.70 J		
TCLP PFOA/PFOS	PFPeA	ng/L	NS	NS	NS	NS	10					1.9 U	0.54 J
	PFOA	ng/L	NS	NS	NS	NS	10					0.86 J	1.9 U
General	Corrosivity	SU	NS	NS	NS	NS			7.4 HF	7.7 HF			
	pH, Lab	SU	NS	NS	NS	NS			7.4 HF	7.7 HF	7.5 HF		
	Temperature	deg C	NS	NS	NS	NS			20.3 HF	20.4 HF	19.6 HF		
Anions	Sulfate	mg/kg	NS	NS	NS	NS					2,400		
TCLP Anions	Sulfate	mg/L	NS	NS	NS	NS					2,400	270 H,B	260 H,B
TICs	TICs (Calculated), Total	µg/kg	NS	NS	NS	NS				58,430 TJN	515,800 TJN		

Notes:
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
ng/L = nanograms per liter
µg/L = micrograms per liter
µg/kg = micrograms per kilogram
SU = Standard pH units
deg C = degrees Celsius
Red bolded font indicates detected concentrations that are in exceedance of one or more applicable criteria.
U = Compound not detected at concentrations above the laboratory reporting limit (RL).
J = The analyte was positively identified; associated numerical value is the approximate concentration of the analyte in the sample.
T = Result is a tentatively identified compound (TIC) and an estimated value.
N = Presumptive evidence of material.
F1 = MS and/or MSD recovery exceeds control limits.
F2 = MS/MSD RPD exceeds control limits.
p = the RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
B = Compound was found in the blank and sample
HF = Field parameter with a holding time of 15 minutes
H = analyzed outside of hold time
NS = No standard
Blank cells = not analyzed
1. Baseline VOC concentrations for the 3/15/22 composite show an average of 3 grab samples collected. If a COC was detected in only 1 or 2 of the 3 grab samples, the average includes only the detected value(s).

Table 3
In Situ Stabilization Treatability Results: LEAF Concentrations
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte Concentrations		Units	NY 703.6 Table 3 Groundwater Discharge to Class A Waters	CONTROL								
				Cumulative Leaching Time (days)								
				0.08	1	2	7	14	28	42	49	63
VOCs	Acetone	µg/L		20 U		20 U	20 *-U		**13** J	200 U		200 *-U
	Chlorobenzene			5.0 U		**1.9** J	5.0 U		5.0 U	50 *-U		50 U
	Chloroform		7	5.0 U		5.0 U	5.0 U		5.0 U	50 U		**94**
	cis-1,2-Dichloroethene			**2.3** J		**4.2** J	**21**		**160**	**90**		**55**
	Methylene Chloride		5	**5.3**		**11**	**12**		**6.5**	50 U		50 U
	Vinyl Chloride		2	5.0 U		5.0 U	**6.1**		**11**	50 U		50 U
SVOCs	1,4-dichlorobenzene	µg/L	3	0.76 U		**0.069** J	**0.21** J		**0.28** J	**0.15** J		
	2,4-dimethylphenol			0.76 U		0.76 U	0.78 U		0.76 U	0.93 U		
	2-chloronaphthalene			0.14 U		0.14 U	0.15 U		0.14 U	0.18 U		
	Acenaphthene			0.14 U		**0.050** J	**0.067** J		**0.075** J	0.18 U		
	Anthracene			0.14 U		**0.054** J	**0.092** J		0.14 U	0.18 U		
	Benzo[a]anthracene			0.14 U		0.14 U	0.15 U		0.14 U	0.18 U		
	Benzo[a]pyrene			0.14 U		0.14 U	0.15 U		0.14 U	0.18 U		
	Benzo[b]fluroanthene			0.14 U		0.14 U	0.15 U		0.14 U	0.18 U		
	Benzo[k]fluroanthene			0.14 U		0.14 U	0.15 U		0.14 U	0.18 U		
	Benzyl butyl phthalate			0.76 U		0.76 U	**0.84** J		**0.71** J	0.93 U		
	Biphenyl			0.76 U		0.76 U	0.78 U		0.76 U	0.93 U		
	Bis(2-ethylhexyl)phthalate		5	7.6 U		7.6 U	7.8 U		7.6 U	9.3 U		
	Chrysene			0.14 U		0.14 U	0.15 U		0.14 U	0.18 U		
	Dibutylphthalate		50	**2.3**		**0.63** J	**1.4**		**1.2**	0.93 U		
	Diethyl phthalate			0.76 U		**0.68** J	**1.1**		0.76 U	0.93 U		
	Dimethyl phthalate			0.76 U		**0.17** J	0.78 U		0.76 U	0.93 U		
	Fluoranthene			0.14 U		**0.050** J	**0.070** J		0.14 U	0.18 U		
	Fluorene			0.14 U		0.14 U	**0.11** J		**0.057** J	0.18 U		
	Indeno[1,2,3-cd]pyrene			0.14 U		0.14 U	0.15 U		0.14 U	0.18 U		
	N-Nitrosodiphenylamine			0.76 U		0.76 U	0.78 U		0.76 U	0.93 U		
	Phenanthrene			**0.070 J**		0.14 U	**0.15**		**0.11** J	**0.13** J		
	Phenol		2	0.76 U		0.76 U	0.78 U		0.76 U	0.93 U		
	Pyrene			0.14 U		0.14 U	**0.044** J		0.14 U	0.18 U		
PCNs	Monochloronaphthalene	µg/L	100		2.0 U			2.0 U			2.0 U	2.0 U
	Dichloronaphthalene		100		**5.7**			**15**			**21**	**19**
	Tetrachloronaphthalene		100		**1.1** J			**2.6** *+			**2.6**	**3.2**
	Trichloronaphthalene		100		**2.1**			**4.8**			**4.8**	**5.0**
Metals	Aluminum	mg/L	2	0.20 U		0.20 U	0.20 U		0.20 U	**0.051** J		0.20 U
	Antimony		0.006	**0.013**		**0.033**	**0.039**		**0.038**	**0.042**		**0.053**
	Barium		2	**0.0070** J		**0.023** J	**0.054** J		**0.097** J	**0.10** J		**0.13** J
	Cadmium		0.01	0.005 U		0.005 U	0.005 U		**0.00078** J	**0.00045** J		**0.00063** J
	Calcium			**14**		**19**	**46**		**48**	**35**		**29**
	Chromium			0.005 U		0.005 U	0.005 U		0.005 U	0.005 U		0.005 U
	Copper		0.4	0.025 U		0.025 U	0.025 U		0.025 U	**0.0032** J		0.025 U
	Iron		0.6	**0.074** J		0.10 U	0.10 U		0.10 U	0.10 U		0.10 U
	Magnesium			**2.3** J		**2.8** J	**7.1**		**5.7**	**3.4** J		**2.3** J
	Manganese		0.6	**0.029**		**0.048**	**0.18**		**0.15**	**0.068**		**0.029**
	Nickel		0.2	0.04 U		0.040 U	0.040 U		0.040 U	0.040 U		0.040 U
	Potassium			5.0 U		5.0 U	**1.0** J		**0.91** J	5.0 U		5.0 U
	Selenium		0.02	0.01 U		0.01 U	0.01 U		0.01 U	0.01 U		0.01 U
	Sodium			**1.7** J		**1.5** J	**3.1** J		**1.1**	**0.53** J		**0.34** J
	Thallium			**0.0038** J		0.02 U	0.02 U		0.02 U	0.02 U		0.02 U
	Vanadium			0.05 U		0.05 U	0.05 U		0.05 U	0.05 U		0.05 U
	Zinc		5	**0.0032** J		0.02 U	**0.0048** J		**0.005** J	**0.0033** J		**0.0028** J,B
Anions	Sulfate	mg/L	500		**37**				**62**			**15**
Pesticides	4,4'-DDD	µg/L	0.3		0.0017 U			0.0018 U			0.0017 U	
	4,4'-DDE		0.2		0.0017 U			0.0018 U			0.0017 U	
	alpha-Chlordane				0.0017 U			**0.0057** *3p			0.0017 U	
	Dieldrin		0.004		0.0017 U			0.0018 U			0.0017 U	
	Endosulfan II				0.0017 U			**0.0034** p			**0.00061** J,p	
	gamma-Chlordane				0.0017 U			0.0018 *3U			0.0017 U	
	Heptachlor epoxide		0.03		0.0017 U			0.0018 *3U			0.0017 *1U	
	Hexachlorobenzene		0.04		0.0017 U			0.0018 *3U			**0.0044**	
PFOA/ PFOS	PFPeA	ng/L	10	**0.72** J				1.8 U			1.9 U	
	PFHxA		10	**1.6** J				1.8 U			**4.4** *+*1	
	PFHpA		10	**0.81** J				**0.28** J			1.9 U	
	PFOA		10	**3.3**				**1.8**			**3.2**	
	PFNA		10	**0.38** J				1.8 U			1.9 U	
	PFDA		10	**0.72** J				1.8 U			**0.92** J	
	PFBS		10	1.9 U				1.8 U			1.9 U	
	FOSA		10	1.9 U				1.8 U			1.9 U	
	6:2 FTS		10	4.6 U				4.4 U			**16** *+*1	
General Chemistry	pH	SU		**7.2**	**7.3**	**7.7**	**7.7**	**7.7**	**7.7**	**7.8**	**7.9**	**7.9**
	Spec. Cond.	µS/cm			**110**				**300**			**170**
	ORP	mV			**370**				**170**			**240**

Table 3
In Situ Stabilization Treatability Results: LEAF Concentrations
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte Concentrations		Units	NY 703.6 Table 3 Groundwater Discharge to Class A Waters	CEMENT (20% PC) Cumulative Leaching Time (days) 0.08	1	2	7	14	28	42	49	63
VOCs	Acetone	µg/L		20 U		20 U	20 *-U		**16** J	200 U		200 *-U
	Chlorobenzene			5.0 U		**2.1** J	5.0 U		5.0 U	50 *-U		50 U
	Chloroform		7	5.0 U		5.0 U	5.0 U		5.0 U	50 U		**89**
	cis-1,2-Dichloroethene			**3.6** J		**4.1** J	**32**		**150**	**94**		**83**
	Methylene Chloride		5	**5.3**		**11**	**14**		**8.4**	50 U		50 U
	Vinyl Chloride		2	5.0 U		5.0 U	**7.0**		**20**	50 U		50 U
SVOCs	1,4-dichlorobenzene	µg/L	3	0.78 U		0.78 U	0.76 U		0.76 U	**0.068** J		
	2,4-dimethylphenol			**0.31** J		**0.71** J	**1.9**		**0.92**	**0.99**		
	2-chloronaphthalene			**0.36**		**0.82**	**1.8**		**1.4**	**3.1**		
	Acenaphthene			0.15 U		0.15 U	0.14 U		0.14 U	0.18 U		
	Anthracene			0.15 U		0.15 U	**0.046** J		0.14 U	**0.075** J		
	Benzo[a]anthracene			0.15 U		0.15 U	0.14 U		0.14 U	0.18 U		
	Benzo[a]pyrene			0.15 U		0.15 U	0.14 U		0.14 U	0.18 U		
	Benzo[b]fluroanthene			0.15 U		0.15 U	0.14 U		0.14 U	0.18 U		
	Benzo[k]fluroanthene			0.15 U		0.15 U	0.14 U		0.14 U	0.18 U		
	Benzyl butyl phthalate			0.78 U		0.78 U	**0.46** J		0.76 U	0.96 U		
	Biphenyl			0.78 U		0.78 U	0.76 U		0.76 U	**0.14** J		
	Bis(2-ethylhexyl)phthalate		5	7.8 U		7.8 U	7.6 U		7.6 U	9.6 U		
	Chrysene			0.15 U		0.15 U	0.14 U		0.14 U	0.18 U		
	Dibutylphthalate		50	**5.0**		0.78 U	0.76 U		0.76 U	0.96 U		
	Diethyl phthalate			0.78 U		0.78 U	0.76 U		0.76 U	0.96 U		
	Dimethyl phthalate			0.78 U		0.78 U	0.76 U		0.76 U	0.96 U		
	Fluoranthene			0.15 U		0.15 U	0.14 U		0.14 U	0.18 U		
	Fluorene			0.15 U		0.15 U	0.14 U		0.14 U	**0.082** J		
	Indeno[1,2,3-cd]pyrene			0.15 U		0.15 U	0.14 U		0.14 U	0.18 U		
	N-Nitrosodiphenylamine			0.78 U		0.78 U	0.76 U		**0.14** J	**0.32** J		
	Phenanthrene			**0.087** J		0.15 U	**0.10** J		**0.074** J	**0.19**		
	Phenol		2	**0.62** J		**0.93**	**2.1**		**1.2**	**1.4**		
	Pyrene			0.15 U		0.15 U	0.14 U		0.14 U	0.18 U		
PCNs	Monochloronaphthalene	µg/L	100		**20**			**44**			**41**	**50**
	Dichloronaphthalene		100		**22**			**45**			**45**	**54**
	Tetrachloronaphthalene		100		**3.4**			**5.2** *+			**5.4**	**6.3**
	Trichloronaphthalene		100		**6.2**			**11**			**9.1**	**12**
Metals	Aluminum	mg/L	2	**0.12** J		**1.2**	**2.3**		**3.9**	**3.7**		**4.5**
	Antimony		0.006	**0.010**		**0.039**	**0.051**		**0.073**	**0.071**		**0.092**
	Barium		2	**0.088** J		**0.15** J	**0.26**		**0.26**	**0.19** J		**0.16** J
	Cadmium		0.01	0.005 U		0.005 U	0.005 U		0.005 U	0.005 U		**0.00045** J
	Calcium			**29**		**72**	**140**		**140**	**120**		**100**
	Chromium			0.005 U		0.005 U	0.005 U		0.005 U	0.005 U		0.005 U
	Copper		0.4	**0.013** J		**0.027**	**0.079**		**0.15**	**0.12**		**0.12**
	Iron		0.6	**0.073** J		**0.16**	**0.23**		**0.84**	**0.15**		**0.098** J
	Magnesium			5.0 U		5.0 U	5.0 U		5.0 U	5.0 U		5.0 U
	Manganese		0.6	**0.0036** J		0.015 U	0.015 U		0.015 U	0.015 U		0.015 U
	Nickel		0.2	**0.0053** J		**0.0096** J	**0.030** J		**0.044**	**0.031** J		**0.025** J
	Potassium			**1.0** J		**1.3** J	**2.8** J		**3.4** J	**2.2** J		**1.7** J
	Selenium		0.02	0.01 U		0.01 U	0.01 U		0.01 U	0.01 U		**0.0043** J
	Sodium			**2.0** J		**2.3** J	**5.7**		**5.1**	**2.6** J		**1.7** J
	Thallium			0.02 U		0.02 U	**0.0030** J		0.02 U	**0.0065** J,B		0.02 U
	Vanadium			0.05 U		0.05 U	0.05 U		**0.0079** J	0.05 U		**0.0094** J
	Zinc		5	**0.054**		0.02 U	0.02 U		0.02 U	0.02 U		0.02 U
Anions	Sulfate	mg/L	500		**1.8**				**12**			**15**
Pesticides	4,4'-DDD	µg/L	0.3		**0.0094**			0.0017 U			**0.0067**	
	4,4'-DDE		0.2		0.0017 U			0.0017 U			0.0017 U	
	alpha-Chlordane				0.0017 U			0.0017 U			0.0017 U	
	Dieldrin		0.004		0.0017 U			0.0017 U			0.0017 U	
	Endosulfan II				0.0017 U			0.0017 U			0.0017 U	
	gamma-Chlordane				0.0017 U			0.0017 U			0.0017 U	
	Heptachlor epoxide		0.03		0.0017 U			0.0017 U			0.0017 U	
	Hexachlorobenzene		0.04		0.0017 U			0.0017 U			**0.0067**	
PFOA/ PFOS	PFPeA	ng/L	10	**0.55** J				**0.98** J			**0.89** J	
	PFHxA		10	**1.4** J				**1.0** J			**1.4** J	
	PFHpA		10	**0.53** J				**0.50** J			**0.63** J	
	PFOA		10	**3.0**				**3.5**			**3.2**	
	PFNA		10	**0.70** J				**0.64** J			**0.55** J	
	PFDA		10	**0.80** J				**0.45** J			**0.66** J	
	PFBS		10	1.9 U				**0.29** J,I			2.0 U	
	FOSA		10	**0.82** J,B				1.8 U			2.0 U	
	6:2 FTS		10	4.7 U				4.5 U			4.9 U	
General Chemistry	pH	SU		**10.9**	**11.5**	**11.6**	**12.0**	**11.6**	**11.8**	**11.7**	**11.6**	**11.6**
	Spec. Cond.	µS/cm			**670**				**1,500**			**980**
	ORP	mV			**86**				**-42**			**58**

Table 3
In Situ Stabilization Treatability Results: LEAF Concentrations
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte Concentrations		Units	NY 703.6 Table 3 Groundwater Discharge to Class A Waters	CEMENT, CARBON LOW (20% PC, 2% AC) Cumulative Leaching Time (days) 0.08	1	2	7	14	28	42	49	63
VOCs	Acetone	µg/L		20 U		20 U	20 *-U		**28**	20 U		20 *-U
	Chlorobenzene			5.0 U		**2.8** J	5.0 U		5.0 U	5.0 U		5.0 U
	Chloroform		7	5.0 U		5.0 U	5.0 U		5.0 U	5.0 U		**8.8**
	cis-1,2-Dichloroethene			5.0 U		5.0 U	**1.8** J		**13**	**9.9**		**12**
	Methylene Chloride		5	**5.9**		**11**	**17**		**5.7**	**8.9**		**6.8**
	Vinyl Chloride		2	5.0 U		5.0 U	5.0 U		**7.5**	**6.1**		**6.0**
SVOCs	1,4-dichlorobenzene	µg/L	3	0.76 U		0.78 U	0.76 U		0.78 U	0.96 U		
	2,4-dimethylphenol			0.76 U		0.78 U	0.76 U		0.78 U	0.96 U		
	2-chloronaphthalene			0.14 U		0.15 U	0.14 U		0.15 U	0.18 U		
	Acenaphthene			0.14 U		0.15 U	0.14 U		0.15 U	0.18 U		
	Anthracene			0.14 U		0.15 U	0.14 U		0.15 U	0.18 U		
	Benzo[a]anthracene			0.14 U		0.15 U	0.14 U		0.15 U	0.18 U		
	Benzo[a]pyrene			0.14 U		0.15 U	0.14 U		0.15 U	0.18 U		
	Benzo[b]fluroanthene			0.14 U		0.15 U	0.14 U		0.15 U	0.18 U		
	Benzo[k]fluroanthene			0.14 U		0.15 U	0.14 U		0.15 U	0.18 U		
	Benzyl butyl phthalate			0.76 U		0.78 U	**0.53** J		0.78 U	**0.47** J		
	Biphenyl			0.76 U		0.78 U	0.76 U		0.78 U	0.96 U		
	Bis(2-ethylhexyl)phthalate		5	7.6 U		7.8 U	7.6 U		7.8 U	**8.9** J		
	Chrysene			0.14 U		0.15 U	0.14 U		0.15 U	0.18 U		
	Dibutylphthalate		50	**2.7**		0.78 U	0.76 U		0.78 U	0.96 U		
	Diethyl phthalate			0.76 U		0.78 U	0.76 U		0.78 U	0.96 U		
	Dimethyl phthalate			0.76 U		0.78 U	0.76 U		0.78 U	0.96 U		
	Fluoranthene			0.14 U		0.15 U	0.14 U		0.15 U	0.18 U		
	Fluorene			0.14 U		0.15 U	0.14 U		0.15 U	0.18 U		
	Indeno[1,2,3-cd]pyrene			0.14 U		0.15 U	0.14 U		0.15 U	0.18 U		
	N-Nitrosodiphenylamine			0.76 U		0.78 U	0.76 U		0.78 U	0.96 U		
	Phenanthrene			**0.10** J		0.15 U	**0.077** J		0.15 U	**0.17** J		
	Phenol		2	**0.37** J		0.78 U	**0.73** J		**0.68** J	**1.3**		
	Pyrene			0.14 U		0.15 U	0.14 U		0.15 U	0.18 U		
PCNs	Monochloronaphthalene	µg/L	100		**1.8** J			**4.0**			**3.8**	**4.9**
	Dichloronaphthalene		100		**3.8**			**6.5**			**6.0**	**8.2**
	Tetrachloronaphthalene		100		**0.93** J			**1.4** J*+			**1.3** J	**1.7** J
	Trichloronaphthalene		100		**1.6** J			**2.5**			**1.9** J	**2.5**
Metals	Aluminum	mg/L	2	**0.11** J		**1.1**	**2.2**		**3.6**	**3.6**		**4.1**
	Antimony		0.006	**0.012**		**0.037**	**0.057**		**0.082**	**0.079**		**0.10**
	Barium		2	**0.090** J		**0.15** J	**0.26**		**0.25**	**0.19** J		**0.16** J
	Cadmium		0.01	0.005 U		0.005 U	0.005 U		0.005 U	0.005 U		**0.00044** J
	Calcium			**31**		**73**	**140**		**130**	**120**		**110**
	Chromium			0.005 U		0.005 U	0.005 U		0.005 U	0.005 U		0.005 U
	Copper		0.4	**0.011** J		**0.020** J	**0.052**		**0.12**	**0.11**		**0.11**
	Iron		0.6	0.10 U		**0.082** J	**0.22**		0.1 U	0.1 U		0.1 U
	Magnesium			5.0 U		5.0 U	5.0 U		5.0 U	5.0 U		5.0 U
	Manganese		0.6	0.015 U		0.015 U	0.015 U		0.015 U	0.015 U		0.015 U
	Nickel		0.2	**0.0038** J		**0.0069** J	**0.022** J		**0.035** J	**0.028** J		**0.023** J
	Potassium			**0.96** J		**1.3** J	**2.7** J		**3.0** J	**2.3** J		**1.7** J
	Selenium		0.02	0.01 U		0.01 U	0.01 U		**0.0038** J	0.01 U		**0.0041** J
	Sodium			**1.8** J		**2.2** J	**5.3**		**4.9** J	**3.0** J		**1.9** J
	Thallium			0.02 U		0.02 U	0.02 U		0.02 U	0.02 U		0.02 U
	Vanadium			0.05 U		0.05 U	0.05 U		0.05 U	**0.0065** J		**0.0095** J
	Zinc		5	0.02 U		0.02 U	0.02 U		0.02 U	0.02 U		0.02 U
Anions	Sulfate	mg/L	500		**1.7**				**11**			**15**
Pesticides	4,4'-DDD	µg/L	0.3		**0.0056**			**0.0037**			**0.0035**	
	4,4'-DDE		0.2		0.0017 U			0.0018 U			0.0017 U	
	alpha-Chlordane				0.0017 U			0.0018 U			0.0017 U	
	Dieldrin		0.004		0.0017 U			0.0018 U			**0.0010** J	
	Endosulfan II				0.0017 U			0.0018 U			0.0017 U	
	gamma-Chlordane				0.0017 U			0.0018 U			0.0017 U	
	Heptachlor epoxide		0.03		**0.024** p			0.0018 U			0.0017 U	
	Hexachlorobenzene		0.04		0.0017 U			0.0018 U			**0.0050**	
PFOA/ PFOS	PFPeA	ng/L	10	**0.52** J				**0.89** J			**1.2** J	
	PFHxA		10	**1.2** J				**1.1** J			**1.3** J	
	PFHpA		10	**0.56** J				**0.49** J			**0.49** J	
	PFOA		10	**2.9**				**3.4**			**2.9**	
	PFNA		10	**0.45** J				**0.34** J			1.9 U	
	PFDA		10	**0.89** J				**0.62** J			**0.70** J	
	PFBS		10	1.9 U				1.9 U			1.9 U	
	FOSA		10	**0.56** J,B				1.9 U			1.9 U	
	6:2 FTS		10	4.7 U				4.7 U			4.6 U	
General Chemistry	pH	SU		**11.2**	**11.6**	**11.6**	**12.0**	**11.8**	**11.9**	**11.7**	**11.6**	**11.6**
	Spec. Cond.	µS/cm			**800**				**1,500**			**1,000**
	ORP	mV			**71**				**-49**			**50**

Table 3
In Situ Stabilization Treatability Results: LEAF Concentrations
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte Concentrations		Units	NY 703.6 Table 3 Groundwater Discharge to Class A Waters	CEMENT, CARBON HIGH (20% PC, 4% AC) Cumulative Leaching Time (days) 0.08	1	2	7	14	28	42	49	63
VOCs	Acetone	µg/L		20 U		20 U	20 *-U		20 U	20 F1,U		20 *-U
	Chlorobenzene			5.0 U		**2.2** J	5.0 U		5.0 U	5.0 F1,U		5.0 U
	Chloroform		7	5.0 U		5.0 U	5.0 U		5.0 U	5.0 F1,U		**8.5**
	cis-1,2-Dichloroethene			5.0 U		5.0 U	5.0 U		**2.0** J	**2.2** J,F1		**3.5** J
	Methylene Chloride		5	**7.2**		**6.7**	**17** F2,F1		5.0 U	**5.6**		5.0 U
	Vinyl Chloride		2	5.0 U		5.0 U	5.0 U		5.0 U	5.0 U		5.0 U
SVOCs	1,4-dichlorobenzene	µg/L	3	0.78 U		0.78 U	0.78 U		0.78 U	0.96 U		
	2,4-dimethylphenol			0.78 U		0.78 U	0.78 U		0.78 U	0.96 U		
	2-chloronaphthalene			0.15 U		0.15 U	0.15 U		**0.083** J	0.18 U		
	Acenaphthene			0.15 U		0.15 U	0.15 U		**0.066** J	0.18 U		
	Anthracene			0.15 U		0.15 U	0.15 U		0.15 U	0.18 U		
	Benzo[a]anthracene			0.15 U		0.15 U	0.15 U		0.15 U	0.18 U		
	Benzo[a]pyrene			0.15 U		0.15 U	0.15 U		0.15 U	0.18 U		
	Benzo[b]fluroanthene			0.15 U		0.15 U	0.15 U		0.15 U	0.18 U		
	Benzo[k]fluroanthene			0.15 U		0.15 U	0.15 U		0.15 U	0.18 U		
	Benzyl butyl phthalate			0.78 U		0.78 U	**0.53** J		0.78 U	0.96 U		
	Biphenyl			0.78 U		0.78 U	0.78 U		0.78 U	0.96 U		
	Bis(2-ethylhexyl)phthalate		5	7.8 U		7.8 U	7.8 U		7.8 U	**6.1** J		
	Chrysene			0.15 U		0.15 U	0.15 U		0.15 U	0.18 U		
	Dibutylphthalate		50	**3.1**		0.78 U	0.78 U		0.78 U	0.96 U		
	Diethyl phthalate			0.78 U		0.78 U	0.78 U		0.78 U	0.96 U		
	Dimethyl phthalate			0.78 U		0.78 U	0.78 U		0.78 U	0.96 U		
	Fluoranthene			0.15 U		0.15 U	0.15 U		0.15 U	0.18 U		
	Fluorene			0.15 U		0.15 U	0.15 U		0.15 U	0.18 U		
	Indeno[1,2,3-cd]pyrene			0.15 U		0.15 U	0.15 U		0.15 U	0.18 U		
	N-Nitrosodiphenylamine			0.78 U		0.78 U	0.78 U		0.78 U	0.96 U		
	Phenanthrene			**0.087** J		0.15 U	**0.088** J		**0.081** J	**0.13** J		
	Phenol		2	0.78 U		0.78 U	0.78 U		0.78 U	0.96 U		
	Pyrene			0.15 U		0.15 U	0.15 U		0.15 U	0.18 U		
PCNs	Monochloronaphthalene	µg/L	100		2.0 U			2.0 U			2.0 U	**0.51** J
	Dichloronaphthalene		100		**0.56** J			**0.87** J			**0.62** J	**0.74** J
	Tetrachloronaphthalene		100		2.0 U			2.0 *+U			2.0 U	2.0 U
	Trichloronaphthalene		100		2.0 U			**0.65** J			2.0 U	2.0 U
Metals	Aluminum	mg/L	2	**0.12** J		**1.1**	**2.2**		**3.7**	**3.7**		**4.1**
	Antimony		0.006	**0.010**		**0.038**	**0.055**		**0.078**	**0.077**		**0.095**
	Barium		2	**0.099** J		**0.17** J	**0.28**		**0.28**	**0.21**		**0.16** J
	Cadmium		0.01	0.005 U		0.005 U	0.005 U		0.004 U	0.004 U		0.004 U
	Calcium			**31**		**75**	**140**		**150**	**130**		**110**
	Chromium			0.005 U		0.005 U	0.005 U		0.005 U	0.005 U		0.005 U
	Copper		0.4	**0.0045** J		**0.013** J	**0.032**		**0.082**	**0.080**		**0.082**
	Iron		0.6	0.10 U		0.10 U	**0.099** J		**0.090** J	0.1 U		**0.39**
	Magnesium			5.0 U		5.0 U	5.0 U		5.0 U	5.0 U		5.0 U
	Manganese		0.6	0.015 U		0.015 U	0.015 U		0.015 U	0.015 U		0.015 U
	Nickel		0.2	0.04 U		0.04 U	**0.0070** J		**0.016** J	**0.014** J		**0.012** J
	Potassium			**1.0** J		**1.4** J	**2.7** J		**3.0** J	**2.3** J		**1.8** J
	Selenium		0.02	0.01 U		0.01 U	0.01 U		0.01 U	0.01 U		**0.0041** J
	Sodium			**2.1** J		**2.2** J	**4.9** J		**4.6** J	**3.0** J		**2.0** J
	Thallium			0.02 U		0.02 U	0.02 U		0.02 U	0.02 U		0.02 U
	Vanadium			0.05 U		0.05 U	0.05 U		**0.0095** J	0.05 U		**0.0079** J
	Zinc		5	0.02 U		0.02 U	**0.0026** J		**0.0026** J	0.02 U		0.02 U
Anions	Sulfate	mg/L	500		**2.2**				**10**			**14**
Pesticides	4,4'-DDD	µg/L	0.3		**0.0021** p			**0.0015** J			0.0017 U	
	4,4'-DDE		0.2		0.0017 U			0.0016 U			0.0017 U	
	alpha-Chlordane				0.0017 U			0.0016 U			0.0017 U	
	Dieldrin		0.004		0.0017 U			0.0016 U			0.0017 U	
	Endosulfan II				0.0017 U			0.0016 U			0.0017 U	
	gamma-Chlordane				0.0017 U			0.0016 U			0.0017 U	
	Heptachlor epoxide		0.03		0.0017 U			0.0016 U			0.0017 U	
	Hexachlorobenzene		0.04		0.0017 U			0.0016 U			0.0017 U	
PFOA/ PFOS	PFPeA	ng/L	10	**0.58** J				**0.72** J			1.8 U	
	PFHxA		10	**1.5** J				**1.3** J			**1.2** J	
	PFHpA		10	**0.59** J				**0.54** J			**0.48** J	
	PFOA		10	**2.5**				**3.1**			**2.6**	
	PFNA		10	**0.37** J				**0.63** J			**0.53** J	
	PFDA		10	**0.87** J				**0.50** J			**0.59** J	
	PFBS		10	1.9 U				1.8 U			1.8 U	
	FOSA		10	1.9 U				**1.2** J			1.8 U	
	6:2 FTS		10	4.6 U				4.6 U			4.5 U	
General Chemistry	pH	SU		**11.1**	**11.5**	**11.6**	**12.0**	**11.9**	**11.9**	**11.7**	**11.6**	**11.7**
	Spec. Cond.	µS/cm			**590**				**1,600**			**1,100**
	ORP	mV			**97**				**-38**			**41**

Table 3
In Situ Stabilization Treatability Results: LEAF Concentrations
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte Concentrations		Units	NY 703.6 Table 3 Groundwater Discharge to Class A Waters	CEMENT-ACTIVATED PERSULFATE, CARBON LOW (20% PC, 2% AC, 2% SP) Cumulative Leaching Time (days) 0.08	1	2	7	14	28	42	49	63
VOCs	Acetone	µg/L		20 U		20 F2,F1,U	20 *-U		**19** J	**9.3** J		20 F1,*-U
	Chlorobenzene			5.0 U		**2.9** J,F1	5.0 U		5.0 U	5.0 U		5.0 U
	Chloroform		7	5.0 U		5.0 F1,U	5.0 U		5.0 U	5.0 U		**6.6**
	cis-1,2-Dichloroethene			5.0 U		5.0 F1,U	**2.1** J		**15**	**25**		**18** F1
	Methylene Chloride		5	**8.3**		**10**	**17**		**5.0**	**7.8**		4.8 J
	Vinyl Chloride		2	5.0 U		5.0 U	5.0 U		**6.5**	**6.8**		**5.2**
SVOCs	1,4-dichlorobenzene	µg/L	3	0.78 U		0.78 U	0.78 U		0.78 U	0.96 U		
	2,4-dimethylphenol			0.78 U		0.78 U	0.78 U		0.78 U	0.96 U		
	2-chloronaphthalene			0.15 U		**0.058** J	0.15 U		0.15 U	0.18 U		
	Acenaphthene			0.15 U		0.15 U	0.15 U		0.15 U	0.18 U		
	Anthracene			0.15 U		0.15 U	0.15 U		0.15 U	**0.052** J		
	Benzo[a]anthracene			0.15 U		0.15 U	0.15 U		0.15 U	**0.17** J		
	Benzo[a]pyrene			0.15 U		0.15 U	0.15 U		0.15 U	**0.084** J		
	Benzo[b]fluroanthene			0.15 U		0.15 U	0.15 U		0.15 U	**0.16** J		
	Benzo[k]fluroanthene			0.15 U		0.15 U	0.15 U		0.15 U	**0.14** J		
	Benzyl butyl phthalate			0.78 U		0.78 U	**0.53** J		0.78 U	**0.53** J		
	Biphenyl			0.78 U		0.78 U	0.78 U		0.78 U	0.96 U		
	Bis(2-ethylhexyl)phthalate		5	7.8 U		7.8 U	7.8 U		7.8 U	9.6 U		
	Chrysene			0.15 U		0.15 U	0.15 U		0.15 U	**0.17** J		
	Dibutylphthalate		50	**3.2**		0.78 U	0.78 U		0.78 U	0.96 U		
	Diethyl phthalate			0.78 U		0.78 U	0.78 U		0.78 U	0.96 U		
	Dimethyl phthalate			**0.20** J		0.78 U	0.78 U		0.78 U	0.96 U		
	Fluoranthene			0.15 U		0.15 U	0.15 U		0.15 U	**0.088** J		
	Fluorene			0.15 U		0.15 U	0.15 U		0.15 U	0.18 U		
	Indeno[1,2,3-cd]pyrene			0.15 U		0.15 U	0.15 U		0.15 U	**0.15** J		
	N-Nitrosodiphenylamine			0.78 U		0.78 U	0.78 U		0.78 U	0.96 U		
	Phenanthrene			**0.13** J		0.15 U	**0.11** J		**0.067** J	**0.12** J		
	Phenol		2	**0.78**		**0.45** J	**0.94**		**1.4**	0.96 U		
	Pyrene			0.15 U		0.15 U	0.15 U		0.15 U	**0.082** J		
PCNs	Monochloronaphthalene	µg/L	100		**2.5**			**4.2**			**3.6**	**2.9**
	Dichloronaphthalene		100		**6.3**			**7.8**			**6.7**	**5.5**
	Tetrachloronaphthalene		100		**1.9** J			**1.7** J*+			**1.5** J	**1.2** J
	Trichloronaphthalene		100		**2.5**			**2.8**			**2.1**	**1.7** J
Metals	Aluminum	mg/L	2	**0.58**		**1.5**	**2.8**		**3.4**	**2.9**		**2.8**
	Antimony		0.006	**0.018**		**0.048**	**0.070**		**0.086**	**0.082**		**0.098**
	Barium		2	**0.015** J		**0.057** J	**0.10** J		**0.13** J	**0.11** J		**0.088** J
	Cadmium		0.01	0.005 U		0.005 U	0.005 U		0.005 U	0.005 U		**0.00041** J
	Calcium			**10**		**43**	**75**		**100**	**96**		**80**
	Chromium			0.005 U		**0.0017** J	0.005 U		0.005 U	0.005 U		0.005 U
	Copper		0.4	**0.025**		**0.028**	**0.073**		**0.16**	**0.14**		**0.11**
	Iron		0.6	0.10 U		0.1 U	**0.089** J		**0.081** J	0.1 U		0.1 U
	Magnesium			5.0 U		5.0 U	5.0 U		5.0 U	5.0 U		5.0 U
	Manganese		0.6	0.015 U		0.015 U	0.015 U		0.015 U	0.015 U		0.015 U
	Nickel		0.2	**0.0067** J		**0.0088** J	**0.025** J		**0.031** J	**0.020** J		**0.013** J
	Potassium			**1.1** J		**1.5** J	**3.0** J		**2.8** J	**2.0** J		**1.3** J
	Selenium		0.02	0.01 U		0.01 U	0.01 U		0.01 U	0.01 U		**0.0048** J
	Sodium			**34**		**34**	**68**		**35**	**14**		**5.6**
	Thallium			0.02 U		0.02 U	0.02 U		0.02 U	0.02 U		0.02 U
	Vanadium			0.05 U		0.05 U	**0.010** J		**0.016** J	**0.011** J		**0.012** J
	Zinc		5	0.02 U		0.02 U	0.02 U		0.02 U	**0.0029** J		0.02 U
Anions	Sulfate	mg/L	500		**5.3**				**19**			**22**
Pesticides	4,4'-DDD	µg/L	0.3		**0.0070** p			**0.0056**			**0.0033**	
	4,4'-DDE		0.2		**0.0033**			0.0018 U			0.0017 U	
	alpha-Chlordane				0.0018 U			0.0018 U			0.0017 U	
	Dieldrin		0.004		0.0018 U			0.0018 U			**0.0011** J	
	Endosulfan II				0.0018 U			0.0018 U			0.0017 U	
	gamma-Chlordane				0.0018 U			**0.00075** J,p			0.0017 U	
	Heptachlor epoxide		0.03		0.0018 U			0.0018 U			0.0017 U	
	Hexachlorobenzene		0.04		0.0018 U			0.0018 U			**0.0026**	
PFOA/ PFOS	PFPeA	ng/L	10	**0.93** J				**2.1**			**0.88** J	
	PFHxA		10	**1.8** J				**1.1** J			**1.2** J	
	PFHpA		10	**0.79** J				**0.60** J			**0.43** J	
	PFOA		10	**6.0**				**3.6**			**2.6**	
	PFNA		10	**3.5**				**0.40** J			1.9 U	
	PFDA		10	**1.5** J				**0.56** J			**0.73** J	
	PFBS		10	1.9 U				1.8 U			1.9 U	
	FOSA		10	1.9 U				1.8 U			1.9 U	
	6:2 FTS		10	4.7 U				4.5 U			4.7 U	
General Chemistry	pH	SU		**11.1**	**11.3**	**11.6**	**11.9**	**11.8**	**11.8**	**11.6**	**11.5**	**11.5**
	Spec. Cond.	µS/cm			**450**				**1,400**			**800**
	ORP	mV			**91**				**-36**			**60**

Table 3
In Situ Stabilization Treatability Results: LEAF Concentrations
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Notes:
LEAF = Leaching Environmental Assessment Framework
PC = Portland Cement Type I/II
AC = activated carbon
SP = sodium persulfate
mg/L = milligrams per liter
ng/L = nanograms per liter
µg/L = micrograms per liter
mV = millivolts
SU = standard units
ORP = oxidation reduction potential
µS/cm = microsiemens per centimeter, (also expressed in micromhos/cm [µmhos/cm], with 1 µS/cm = 1 µmhos/cm)
Amendment dosages were based on dry weight of soil.
Eurofins TestAmerica, Pittsburg performed the leachate extractions using United States Environmental Protection Agency (EPA) Method 1315.
Bold values indicate detections.
Red bolded font indicates detected concentrations that are in exceedance of applicable criteria.
*- = LCS and/or LCSD is outside acceptance limits, low biased.
*+ = LCS and/or LCSD is outside acceptance limits, high biased.
*1 = LCS/LCSD RPD exceeds control limits.
*3 = ISTD response or retention time outside acceptable limits.
B = compound was found in the blank and sample.
I = value is EMPC (estimated maximum possible concentration).
J = result is less than the RL but greater than or equal to the MDL, concentration is an approximate value.
F1 = MS and/or MSD recovery exceeds control limits.
F2 = MS/MSD RPD exceeds control limits.
U = not detected at the indicated reporting limit.
p = the RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
Blank cells = not analyzed

Table 4

In Situ Stabilization Treatability Results: LEAF Leaching Rates

Former TRW Union Springs Property - Union Springs, New York

NYSDEC BCP Site Number C706019

Analyte Leaching Rate		Units	CONTROL								
			Cumulative Leaching Time (days)								
			0.08	1	2	7	14	28	42	49	63
VOCs	Acetone	µg/L/day	240 U		21 U	4.0 *-U		**0.9** J	14 U		14 *-U
	Chlorobenzene		60 U		**2.0** J	1.0 U		0.4 U	3.6 *-U		3.6 U
	Chloroform		60 U		5.2 U	1.0 U		0.4 U	3.6 U		**6.7**
	cis-1,2-Dichloroethene		**28** J		**4.4** J	**4.2**		**11**	**6.4**		**3.9**
	Methylene Chloride		**64**		**11**	**2.4**		**0.5**	3.6 U		3.6 U
	Vinyl Chloride		60 U		5.2 U	**1.2**		**0.8**	3.6 U		3.6 U
SVOCs	1,4-dichlorobenzene	µg/L/day	9.1 U		**0.07** J	**0.04** J		**0.02** J	**0.01** J		
	2,4-dimethylphenol		9.1 U		0.8 U	0.2 U		0.05 U	0.07 U		
	2-chloronaphthalene		1.7 U		0.1 U	0.03 U		0.01 U	0.01 U		
	Acenaphthene		1.7 U		**0.05** J	**0.01** J		**0.005** J	0.01 U		
	Anthracene		1.7 U		**0.06** J	**0.02** J		0.01 U	0.01 U		
	Benzo[a]anthracene		1.7 U		0.1 U	0.03 U		0.01 U	0.01 U		
	Benzo[a]pyrene		1.7 U		0.1 U	0.03 U		0.01 U	0.01 U		
	Benzo[b]fluroanthene		1.7 U		0.1 U	0.03 U		0.01 U	0.01 U		
	Benzo[k]fluroanthene		1.7 U		0.1 U	0.03 U		0.01 U	0.01 U		
	Benzyl butyl phthalate		9.1 U		0.8 U	**0.2** J		**0.05** J	0.07 U		
	Biphenyl		9.1 U		0.8 U	0.2 U		0.05 U	0.07 U		
	Bis(2-ethylhexyl)phthalate		91 U		7.9 U	1.6 U		0.5 U	0.7 U		
	Chrysene		1.7 U		0.1 U	0.03 U		0.01 U	0.01 U		
	Dibutylphthalate		**28**		**0.7** J	**0.3**		**0.09**	0.07 U		
	Diethyl phthalate		9.1 U		**0.7** J	**0.2**		0.05 U	0.07 U		
	Dimethyl phthalate		9.1 U		**0.2** J	0.2 U		0.05 U	0.07 U		
	Fluoranthene		1.7 U		**0.05** J	**0.01** J		0.01 U	0.01 U		
	Fluorene		1.7 U		0.1 U	**0.02** J		**0.004** J	0.01 U		
	Indeno[1,2,3-cd]pyrene		1.7 U		0.1 U	0.03 U		**0.01**	0.01 U		
	N-Nitrosodiphenylamine		9.1 U		0.8 U	0.2 U		0.05 U	0.07 U		
	Phenanthrene		**0.8** J		0.1 U	**0.03**		**0.008** J	**0.009** J		
	Phenol		9.1 U		0.8 U	0.2 U		0.05 U	0.07 U		
	Pyrene		1.7 U		0.1 U	**0.009** J		0.01 U	0.01 U		
PCNs	Monochloronaphthalene	µg/L/day		2.1 U			0.3 U			0.3 U	0.1 U
	Dichloronaphthalene			**5.9**			**2.1**			**3.0**	**1.4**
	Tetrachloronaphthalene			**1.1** J			**0.4** *+			**0.4**	**0.2**
	Trichloronaphthalene			**2.2**			**0.7**			**0.7**	**0.4**
Metals	Aluminum	mg/L/day	2.4 U		0.2 U	0.04 U		0.01 U	**0.004** J		0.01 U
	Antimony		**0.2**		**0.03**	**0.008**		**0.003**	**0.003**		**0.004**
	Barium		**0.08** J		**0.02** J	**0.01** J		**0.007** J	**0.007** J		**0.009** J
	Cadmium		0.06 U		0.005 U	0.001 U		**0.00006** J	**0.00003** J		**0.00005** J
	Calcium		**168**		**20**	**9.2**		**3.4**	**2.5**		**2.1**
	Chromium		0.06 U		0.005 U	0.001 U		0.0004 U	0.0004 U		0.0004 U
	Copper		0.3 U		0.03 U	0.005 U		0.002 U	**0.0002** J		0.002 U
	Iron		**0.9** J		0.1 U	0.02 U		0.007 U	0.007 U		0.007 U
	Magnesium		**28** J		**2.9** J	**1.4**		**0.4**	**0.2** J		**0.2** J
	Manganese		**0.3**		**0.05**	**0.04**		**0.01**	**0.005**		**0.002**
	Nickel		0.5 U		0.04 U	0.008 U		0.003 U	0.003 U		0.003 U
	Potassium		60 U		5.2 U	**0.2** J		**0.07** J	0.4 U		0.4 U
	Selenium		0.1 U		0.01 U	0.002 U		0.0007 U	0.0007 U		0.0007 U
	Sodium		**20** J		**1.6** J	**0.6** J		**0.08**	**0.04** J		**0.02** J
	Thallium		**0.05** J		0.02 U	0.004 U		0.001 U	0.001 U		0.001 U
	Vanadium		0.6 U		0.05 U	0.01 U		0.004 U	0.004 U		0.004 U
	Zinc		**0.04** J		0.02 U	**0.001** J		**0.0004** J	**0.0002** J		**0.0002** J,B
Anions	Sulfate	mg/L/day		**39**				**4.4**			1.1
Pesticides	4,4'-DDD	µg/L/day		0.002 U			0.0003 U			0.0002 U	
	4,4'-DDE			0.002 U			0.0003 U			0.0002 U	
	alpha-Chlordane			0.002 U			**0.0008** *3p			0.0002 U	
	Dieldrin			0.002 U			0.0003 U			0.0002 U	
	Endosulfan II			0.002 U			**0.0005** p			**0.00009** J,p	
	gamma-Chlordane			0.002 U			0.0003 *3U			0.0002 U	
	Heptachlor epoxide			0.002 U			0.0003 *3U			0.0002 *1U	
	Hexachlorobenzene			0.002 U			0.0003 *3U			**0.0006**	
PFOA/ PFOS	PFPeA	ng/L/day	**8.6** J				0.3 U			0.3 U	
	PFHxA		**19** J				0.3 U			**0.6** *+*1	
	PFHpA		**9.7** J				**0.04** J			0.3 U	
	PFOA		**40**				**0.3**			**0.5**	
	PFNA		**4.6** J				0.3 U			0.3 U	
	PFDA		**8.6** J				0.3 U			**0.1** J	
	PFBS		23 U				0.3 U			0.3 U	
	FOSA		23 U				0.3 U			0.3 U	
	6:2 FTS		55 U				0.6 U			**2.3** *+*1	

Table 4

In Situ Stabilization Treatability Results: LEAF Leaching Rates

Former TRW Union Springs Property - Union Springs, New York

NYSDEC BCP Site Number C706019

Analyte Leaching Rate		Units	CEMENT (20% PC)								
			Cumulative Leaching Time (days)								
			0.08	1	2	7	14	28	42	49	63
VOCs	Acetone	µg/L/day	240 U		21 U	4.0 *-U		**1.1** J	14 U		14 *-U
	Chlorobenzene		60 U		**2.2** J	1.0 U		0.4 U	3.6 *-U		3.6 U
	Chloroform		60 U		5.2 U	1.0 U		0.4 U	3.6 U		**6.4**
	cis-1,2-Dichloroethene		**43** J		**4.3** J	**6.4**		**11**	**6.7**		**5.9**
	Methylene Chloride		**64**		**11**	**2.8**		**0.6**	3.6 U		3.6 U
	Vinyl Chloride		60 U		5.2 U	**1.4**		**1.4**	3.6 U		3.6 U
SVOCs	1,4-dichlorobenzene	µg/L/day	9.4 U		0.8 U	0.2 U		0.05 U	**0.005** J		
	2,4-dimethylphenol		**3.7** J		**0.7** J	**0.4**		**0.07**	**0.07**		
	2-chloronaphthalene		**4.3**		**0.9**	**0.4**		**0.1**	**0.2**		
	Acenaphthene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Anthracene		1.8 U		0.2 U	**0.009** J		0.01 U	**0.005** J		
	Benzo[a]anthracene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Benzo[a]pyrene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Benzo[b]fluroanthene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Benzo[k]fluroanthene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Benzyl butyl phthalate		9.4 U		0.8 U	**0.09** J		0.05 U	0.07 U		
	Biphenyl		9.4 U		0.8 U	0.2 U		0.05 U	**0.01** J		
	Bis(2-ethylhexyl)phthalate		94 U		8.1 U	1.5 U		0.5 U	0.7 U		
	Chrysene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Dibutylphthalate		**60**		0.8 U	0.2 U		0.05 U	0.07 U		
	Diethyl phthalate		9.4 U		0.8 U	0.2 U		0.05 U	0.07 U		
	Dimethyl phthalate		9.4 U		0.8 U	0.2 U		0.05 U	0.07 U		
	Fluoranthene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Fluorene		1.8 U		0.2 U	0.03 U		0.01 U	**0.006** J		
	Indeno[1,2,3-cd]pyrene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	N-Nitrosodiphenylamine		9.4 U		0.8 U	0.2 U		**0.01** J	**0.02** J		
	Phenanthrene		**1.0** J		0.2 U	**0.02** J		**0.005** J	**0.01**		
	Phenol		**7.4** J		**1.0**	**0.4**		**0.09**	**0.1**		
	Pyrene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
PCNs	Monochloronaphthalene	µg/L/day		**21**			**6.3**			**5.9**	**3.6**
	Dichloronaphthalene			**23**			**6.4**			**6.4**	**3.9**
	Tetrachloronaphthalene			**3.5**			**0.7** *+			**0.8**	**0.5**
	Trichloronaphthalene			**6.5**			**1.6**			**1.3**	**0.9**
Metals	Aluminum	mg/L/day	**1.4** J		**1.3**	**0.5**		**0.3**	**0.3**		**0.3**
	Antimony		**0.1**		**0.04**	**0.01**		**0.005**	**0.005**		**0.007**
	Barium		**1.1** J		**0.2** J	**0.05**		**0.02**	**0.01** J		**0.01** J
	Cadmium		0.06 U		0.005 U	0.001 U		0.0004 U	0.0004 U		**0.00003** J
	Calcium		**348**		**75**	**28**		**10**	**8.6**		**7.143**
	Chromium		0.06 U		0.005 U	0.001 U		0.0004 U	0.0004 U		0.0004 U
	Copper		**0.2** J		**0.03**	**0.02**		**0.01**	**0.009**		**0.009**
	Iron		**0.9** J		**0.2**	**0.05**		**0.06**	**0.01**		**0.007** J
	Magnesium		60 U		5.2 U	1.0 U		0.4 U	0.4 U		0.4 U
	Manganese		**0.04** J		0.02 U	0.003 U		0.001 U	0.001 U		0.001 U
	Nickel		**0.06** J		**0.01** J	**0.006** J		**0.003**	**0.002** J		**0.002** J
	Potassium		**12** J		**1.4** J	**0.6** J		**0.2** J	**0.2** J		**0.1** J
	Selenium		0.12 U		0.01 U	0.002 U		0.0007 U	0.0007 U		**0.0003** J
	Sodium		**24** J		**2.4** J	**1.1**		**0.4**	**0.2** J		**0.1** J
	Thallium		0.2 U		0.02 U	**0.0006** J		0.001 U	**0.0005** J,B		0.001 U
	Vanadium		0.6 U		0.05 U	0.01 U		**0.0006** J	0.004 U		**0.0007** J
	Zinc		**0.6**		0.02 U	0.004 U		0.001 U	0.001 U		0.001 U
Anions	Sulfate	mg/L/day		**1.9**				**0.9**			1.1
Pesticides	4,4'-DDD	µg/L/day		**0.01**			0.0002 U			**0.001**	
	4,4'-DDE			0.002 U			0.0002 U			0.0002 U	
	alpha-Chlordane			0.002 U			0.0002 U			0.0002 U	
	Dieldrin			0.002 U			0.0002 U			0.0002 U	
	Endosulfan II			0.002 U			0.0002 U			0.0002 U	
	gamma-Chlordane			0.002 U			0.0002 U			0.0002 U	
	Heptachlor epoxide			0.002 U			0.0002 U			0.0002 U	
	Hexachlorobenzene			0.002 U			0.0002 U			**0.001**	
PFOA/ PFOS	PFPeA	ng/L/day	**6.6** J				**0.1** J			**0.1** J	
	PFHxA		**17** J				**0.1** J			**0.2** J	
	PFHpA		**6.4** J				**0.07** J			**0.09** J	
	PFOA		**36**				**0.5**			**0.5**	
	PFNA		**8.4** J				**0.09** J			**0.08** J	
	PFDA		**9.6** J				**0.06** J			**0.09** J	
	PFBS		23 U				**0.04** J,I			0.3 U	
	FOSA		**9.8** J,B				0.3 U			0.3 U	
	6:2 FTS		56 U				0.6 U			0.7 U	

Table 4

In Situ Stabilization Treatability Results: LEAF Leaching Rates

Former TRW Union Springs Property - Union Springs, New York

NYSDEC BCP Site Number C706019

Analyte Leaching Rate		Units	CEMENT, CARBON LOW (20% PC, 2% AC) Cumulative Leaching Time (days)								
			0.08	1	2	7	14	28	42	49	63
VOCs	Acetone	µg/L/day	240 U		21 U	4.0 *-U		**2.0**	1.4 U		1.4 *-U
	Chlorobenzene		60 U		**2.9** J	1.0 U		0.4 U	0.4 U		0.4 U
	Chloroform		60 U		5.2 U	1.0 U		0.4 U	0.4 U		**0.6**
	cis-1,2-Dichloroethene		60 U		5.2 U	**0.4** J		**0.9**	**0.7**		**0.9**
	Methylene Chloride		**71**		**11**	**3.4**		**0.4**	**0.6**		**0.5**
	Vinyl Chloride		60 U		5.2 U	1.0 U		**0.5**	**0.4**		**0.4**
SVOCs	1,4-dichlorobenzene	µg/L/day	9.1 U		0.8 U	0.2 U		0.06 U	0.07 U		
	2,4-dimethylphenol		9.1 U		0.8 U	0.2 U		0.06 U	0.07 U		
	2-chloronaphthalene		1.7 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Acenaphthene		1.7 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Anthracene		1.7 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Benzo[a]anthracene		1.7 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Benzo[a]pyrene		1.7 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Benzo[b]fluroanthene		1.7 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Benzo[k]fluroanthene		1.7 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Benzyl butyl phthalate		9.1 U		0.8 U	**0.1** J		0.06 U	**0.03** J		
	Biphenyl		9.1 U		0.8 U	0.2 U		0.06 U	0.07 U		
	Bis(2-ethylhexyl)phthalate		91 U		8.1 U	1.5 U		0.56 U	**0.6** J		
	Chrysene		1.7 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Dibutylphthalate		**32**		0.8 U	0.2 U		0.06 U	0.07 U		
	Diethyl phthalate		9.1 U		0.8 U	0.2 U		0.06 U	0.07 U		
	Dimethyl phthalate		9.1 U		0.8 U	0.2 U		0.06 U	0.07 U		
	Fluoranthene		1.7 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Fluorene		1.7 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Indeno[1,2,3-cd]pyrene		1.7 U		0.2 U	0.03 U		0.01 U	0.01 U		
	N-Nitrosodiphenylamine		9.1 U		0.8 U	0.2 U		0.06 U	0.07 U		
	Phenanthrene		**1.2** J		0.2 U	**0.02** J		0.01 U	**0.01** J		
	Phenol		**4.4** J		0.8 U	**0.1** J		**0.05** J	**0.09**		
	Pyrene		1.7 U		0.2 U	0.03 U		0.01 U	0.01 U		
PCNs	Monochloronaphthalene	µg/L/day		**1.9** J			**0.6**			**0.5**	**0.4**
	Dichloronaphthalene			**4.0**			**0.9**			**0.9**	**0.6**
	Tetrachloronaphthalene			**1.0** J			**0.2** J*+			**0.2** J	**0.1** J
	Trichloronaphthalene			**1.7** J			**0.4**			**0.3** J	**0.2**
Metals	Aluminum	mg/L/day	**1.3** J		**1.1**	**0.4**		**0.3**	**0.3**		**0.3**
	Antimony		**0.1**		**0.04**	**0.01**		**0.006**	**0.006**		**0.007**
	Barium		**1.1** J		**0.2** J	**0.05**		**0.02**	**0.01** J		**0.01** J
	Cadmium		0.06 U		0.005 U	0.001 U		0.0004 U	0.0004 U		**0.00003** J
	Calcium		**372**		**76**	**28**		**9.3**	**8.6**		**7.9**
	Chromium		0.06 U		0.005 U	0.001 U		0.0004 U	0.0004 U		0.0004 U
	Copper		**0.1** J		**0.02** J	**0.01**		**0.009**	**0.008**		**0.008**
	Iron		1.2 U		**0.09** J	**0.04**		0.007 U	0.007 U		0.007 U
	Magnesium		60 U		5.2 U	1.0 U		0.4 U	0.4 U		0.4 U
	Manganese		0.2 U		0.02 U	0.003 U		0.001 U	0.001 U		0.001 U
	Nickel		**0.05** J		**0.007** J	**0.004** J		**0.003** J	**0.002** J		**0.002** J
	Potassium		**12** J		**1.4** J	**0.5** J		**0.2** J	**0.2** J		**0.1** J
	Selenium		0.1 U		0.01 U	0.002 U		0.0003 J	0.0007 U		**0.0003** J
	Sodium		**22** J		**2.3** J	**1.1**		**0.4** J	**0.2** J		**0.1** J
	Thallium		0.2 U		0.02 U	0.004 U		0.001 U	0.001 U		0.001 U
	Vanadium		0.6 U		0.05 U	0.01 U		0.004 U	**0.0005** J		**0.0007** J
	Zinc		**0.2** U		0.02 U	0.004 U		0.001 U	0.001 U		0.001 U
Anions	Sulfate	mg/L/day		**1.8**				**0.8**			**1.1**
Pesticides	4,4'-DDD	µg/L/day		**0.006**			**0.0005**			**0.0005**	
	4,4'-DDE			0.002 U			0.0003 U			0.0002 U	
	alpha-Chlordane			0.002 U			0.0003 U			0.0002 U	
	Dieldrin			0.002 U			0.0003 U			**0.0001** J	
	Endosulfan II			0.002 U			0.0003 U			0.0002 U	
	gamma-Chlordane			0.002 U			0.0003 U			0.0002 U	
	Heptachlor epoxide			**0.03** p			0.0003 U			0.0002 U	
	Hexachlorobenzene			0.002 U			0.0003 U			**0.0007**	
PFOA/ PFOS	PFPeA	ng/L/day	**6** J				**0.1** J			**0.2** J	
	PFHxA		**14** J				**0.2** J			**0.2** J	
	PFHpA		**7** J				**0.07** J			**0.07** J	
	PFOA		**35**				**0.5**			**0.4**	
	PFNA		**5** J				**0.05** J			0.3 U	
	PFDA		**11** J				**0.09** J			**0.1** J	
	PFBS		23 U				0.27 U			0.3 U	
	FOSA		**7** J,B				0.3 U			0.3 U	
	6:2 FTS		56 U				0.7 U			0.7 U	

Table 4

In Situ Stabilization Treatability Results: LEAF Leaching Rates

Former TRW Union Springs Property - Union Springs, New York

NYSDEC BCP Site Number C706019

Analyte Leaching Rate		Units	CEMENT, CARBON HIGH (20% PC, 4% AC) Cumulative Leaching Time (days) 0.08	1	2	7	14	28	42	49	63
VOCs	Acetone	µg/L/day	240 U		21 U	4.0 *-U		1.4 U	1.4 F1,U		1.4 *-U
	Chlorobenzene		60 U		**2.3** J	1.0 U		0.4 U	0.4 F1,U		0.4 U
	Chloroform		60 U		5.2 U	1.0 U		0.4 U	0.4 F1,U		**0.6**
	cis-1,2-Dichloroethene		60 U		5.2 U	1.0 U		**0.1** J	**0.2** J,F1		0.3 J
	Methylene Chloride		**86**		**7.0**	**3.4** F2,F1		0.4 U	**0.4**		0.4 U
	Vinyl Chloride		60 U		5.2 U	1.0 U		0.4 U	0.4 U		0.4 U
SVOCs	1,4-dichlorobenzene	µg/L/day	9.4 U		0.8 U	0.2 U		0.06 U	0.07 U		
	2,4-dimethylphenol		9.4 U		0.8 U	0.2 U		0.06 U	0.07 U		
	2-chloronaphthalene		1.8 U		0.2 U	0.03 U		**0.006** J	0.01 U		
	Acenaphthene		1.8 U		0.2 U	0.03 U		**0.005** J	0.01 U		
	Anthracene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Benzo[a]anthracene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Benzo[a]pyrene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Benzo[b]fluroanthene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Benzo[k]fluroanthene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Benzyl butyl phthalate		9.4 U		0.8 U	**0.1** J		0.06 U	0.07 U		
	Biphenyl		9.4 U		0.8 U	0.2 U		0.06 U	0.07 U		
	Bis(2-ethylhexyl)phthalate		94 U		8.1 U	1.6 U		0.6 U	**0.4** J		
	Chrysene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Dibutylphthalate		**37**		0.8 U	0.2 U		0.06 U	0.07 U		
	Diethyl phthalate		9.4 U		0.8 U	0.2 U		0.06 U	0.07 U		
	Dimethyl phthalate		9.4 U		0.8 U	0.2 U		0.06 U	0.07 U		
	Fluoranthene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Fluorene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Indeno[1,2,3-cd]pyrene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	N-Nitrosodiphenylamine		9.4 U		0.8 U	0.2 U		0.06 U	0.07 U		
	Phenanthrene		**1.0** J		0.2 U	**0.02** J		**0.006** J	**0.009** J		
	Phenol		9.4 U		0.8 U	0.2 U		0.06 U	0.07 U		
	Pyrene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
PCNs	Monochloronaphthalene	µg/L/day		2.1 U			0.3 U			0.3 U	**0.04** J
	Dichloronaphthalene			**0.6** J			**0.1** J			**0.09** J	**0.05** J
	Tetrachloronaphthalene			2.1 U			0.3 *+U			0.3 U	0.1 U
	Trichloronaphthalene			2.1 U			**0.09** J			0.3 U	0.1 U
Metals	Aluminum	mg/L/day	**1.4** J		**1.1**	**0.4**		**0.3**	**0.3**		**0.3**
	Antimony		**0.1**		**0.04**	**0.01**		**0.006**	**0.006**		**0.007**
	Barium		**1.2** J		**0.2** J	**0.06**		**0.02**	**0.02**		**0.01** J
	Cadmium		0.06 U		0.005 U	0.001 U		0.0003 U	0.0003 U		0.0003 U
	Calcium		**372**		**78**	**28**		**11**	**9.3**		**7.9**
	Chromium		0.06 U		0.005 U	0.001 U		0.0004 U	0.0004 U		0.0004 U
	Copper		**0.05** J		**0.01** J	**0.006**		**0.006**	**0.006**		**0.006**
	Iron		1.2 U		0.1 U	**0.02** J		**0.006** J	0.007 U		**0.03**
	Magnesium		60 U		5.2 U	1.0 U		0.36 U	0.36 U		0.4 U
	Manganese		0.2 U		0.02 U	0.003 U		0.0011 U	0.0011 U		0.001 U
	Nickel		0.5 U		0.04 U	**0.001** J		**0.001** J	**0.001** J		**0.0009** J
	Potassium		**12** J		**1.5** J	**0.5** J		**0.2** J	**0.2** J		**0.1** J
	Selenium		0.1 U		0.01 U	0.002 U		0.0007 U	0.0007 U		**0.0003** J
	Sodium		**25** J		**2.3** J	**1.0** J		**0.3** J	**0.2** J		**0.1** J
	Thallium		0.2 U		0.02 U	0.004 U		0.0014 U	0.001 U		0.001 U
	Vanadium		0.6 U		0.05 U	0.01 U		**0.0007** J	0.004 U		**0.0006** J
	Zinc		0.2 U		0.02 U	**0.0005** J		**0.0002** J	0.001 U		0.001 U
Anions	Sulfate	mg/L/day		**2.3**				**0.7**			**1.0**
Pesticides	4,4'-DDD	µg/L/day		**0.002** p			**0.0002** J			0.0002 U	
	4,4'-DDE			0.002 U			0.0002 U			0.0002 U	
	alpha-Chlordane			0.002 U			0.0002 U			0.0002 U	
	Dieldrin			0.002 U			0.0002 U			0.0002 U	
	Endosulfan II			0.002 U			0.0002 U			0.0002 U	
	gamma-Chlordane			0.002 U			0.0002 U			0.0002 U	
	Heptachlor epoxide			0.002 U			0.0002 U			0.0002 U	
	Hexachlorobenzene			0.002 U			0.0002 U			0.0002 U	
PFOA/ PFOS	PFPeA	ng/L/day	**7.0** J				**0.1** J			0.3 U	
	PFHxA		**18** J				**0.2** J			**0.2** J	
	PFHpA		**7.1** J				**0.08** J			**0.07** J	
	PFOA		**30**				**0.4**			**0.4**	
	PFNA		**4.4** J				**0.09** J			**0.08** J	
	PFDA		**10** J				**0.07** J			**0.08** J	
	PFBS		23 U				0.3 U			0.3 U	
	FOSA		23 U				**0.2** J			0.3 U	
	6:2 FTS		55 U				0.7 U			0.6 U	

Table 4

In Situ Stabilization Treatability Results: LEAF Leaching Rates

Former TRW Union Springs Property - Union Springs, New York

NYSDEC BCP Site Number C706019

Analyte Leaching Rate		Units	CEMENT-ACTIVATED PERSULFATE, CARBON LOW (20% PC, 2% AC, 2% SP) Cumulative Leaching Time (days)								
			0.08	1	2	7	14	28	42	49	63
VOCs	Acetone	µg/L/day	240 U		21 F2,F1,U	4.0 *-U		**1.4** J	**0.7** J		1.4 F1,*-U
	Chlorobenzene		60 U		**3.0** J,F1	1.0 U		0.4 U	0.4 U		0.4 U
	Chloroform		60 U		5.2 F1,U	1.0 U		0.4 U	0.4 U		**0.5**
	cis-1,2-Dichloroethene		60 U		5.2 F1,U	**0.4** J		**1.1**	**1.8**		**1.3** F1
	Methylene Chloride		**100**		**10**	**3.4**		**0.4**	**0.6**		**0.3** J
	Vinyl Chloride		60 U		5.2 U	1.0 U		**0.5**	**0.5**		**0.4**
SVOCs	1,4-dichlorobenzene	µg/L/day	9.4 U		0.8 U	0.2 U		0.06 U	0.07 U		
	2,4-dimethylphenol		9.4 U		0.8 U	0.2 U		0.06 U	0.07 U		
	2-chloronaphthalene		1.8 U		**0.06** J	0.03 U		0.01 U	0.01 U		
	Acenaphthene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Anthracene		1.8 U		0.2 U	0.03 U		0.01 U	**0.004** J		
	Benzo[a]anthracene		1.8 U		0.2 U	0.03 U		0.01 U	**0.01** J		
	Benzo[a]pyrene		1.8 U		0.2 U	0.03 U		0.01 U	**0.006** J		
	Benzo[b]fluroanthene		1.8 U		0.2 U	0.03 U		0.01 U	**0.01** J		
	Benzo[k]fluroanthene		1.8 U		0.2 U	0.03 U		0.01 U	**0.01** J		
	Benzyl butyl phthalate		9.4 U		0.8 U	**0.1** J		0.06 U	**0.04** J		
	Biphenyl		9.4 U		0.8 U	0.2 U		0.06 U	0.07 U		
	Bis(2-ethylhexyl)phthalate		94 U		8.1 U	1.6 U		0.6 U	0.7 U		
	Chrysene		1.8 U		0.2 U	0.03 U		0.01 U	**0.01** J		
	Dibutylphthalate		**38**		0.8 U	0.2 U		0.06 U	0.07 U		
	Diethyl phthalate		9.4 U		0.8 U	0.2 U		0.06 U	0.07 U		
	Dimethyl phthalate		**2.4** J		0.8 U	0.2 U		0.06 U	0.07 U		
	Fluoranthene		1.8 U		0.2 U	0.03 U		0.01 U	**0.006** J		
	Fluorene		1.8 U		0.2 U	0.03 U		0.01 U	0.01 U		
	Indeno[1,2,3-cd]pyrene		1.8 U		0.2 U	0.03 U		0.01 U	**0.01** J		
	N-Nitrosodiphenylamine		9.4 U		0.8 U	0.2 U		0.06 U	0.069 U		
	Phenanthrene		**1.6** J		0.2 U	**0.02** J		**0.005** J	**0.009** J		
	Phenol		**9.4**		**0.5** J	**0.2**		**0.1**	0.07 U		
	Pyrene		1.8 U		0.2 U	0.03 U		0.01 U	**0.006** J		
PCNs	Monochloronaphthalene	µg/L/day		**2.6**			**0.6**			**0.5**	**0.2**
	Dichloronaphthalene			**6.6**			**1.1**			**1.0**	**0.4**
	Tetrachloronaphthalene			**2.0** J			**0.2** J*+			**0.2** J	**0.09** J
	Trichloronaphthalene			**2.6**			**0.4**			**0.3**	**0.1** J
Metals	Aluminum	mg/L/day	**7.0**		**1.6**	**0.6**		**0.2**	**0.2**		**0.2**
	Antimony		**0.2**		**0.05**	**0.01**		**0.006**	**0.006**		**0.007**
	Barium		**0.2** J		**0.06** J	**0.02** J		**0.009** J	**0.008** J		**0.006** J
	Cadmium		0.06 U		0.005 U	0.001 U		0.0004 U	0.0004 U		**0.00003** J
	Calcium		**120**		**45**	**15**		**7.1**	**6.9**		**5.7**
	Chromium		0.06 U		**0.002** J	0.001 U		0.0004 U	0.0004 U		0.0004 U
	Copper		**0.3**		**0.03**	**0.01**		**0.01**	**0.01**		**0.008**
	Iron		1.2 U		0.10 U	**0.02** J		**0.006** J	0.007 U		0.007 U
	Magnesium		60 U		5.2 U	1.0 U		0.4 U	0.4 U		0.4 U
	Manganese		0.2 U		0.02 U	0.003 U		0.001 U	0.001 U		0.001 U
	Nickel		**0.08** J		**0.009** J	**0.005** J		**0.002** J	**0.001** J		**0.0009** J
	Potassium		**13** J		**1.6** J	**0.6** J		**0.2** J	**0.1** J		**0.09** J
	Selenium		0.1 U		0.01 U	0.002 U		0.0007 U	0.0007 U		**0.0003** J
	Sodium		**408**		**35**	**14**		**2.5**	**1.0**		**0.4**
	Thallium		0.2 U		0.02 U	0.004 U		0.001 U	0.001 U		0.001 U
	Vanadium		0.6 U		0.05 U	**0.002** J		**0.001** J	**0.0008** J		**0.0009** J
	Zinc		0.2 U		0.02 U	0.004 U		0.001 U	**0.0002** J		0.001 U
Anions	Sulfate	mg/L/day		**5.5**				**1.4**			**1.6**
Pesticides	4,4'-DDD	µg/L/day		**0.007** p			**0.0008**			**0.0005**	
	4,4'-DDE			**0.003**			0.0003 U			0.0002 U	
	alpha-Chlordane			0.002 U			0.0003 U			0.0002 U	
	Dieldrin			0.002 U			0.0003 U			**0.0002** J	
	Endosulfan II			0.002 U			0.0003 U			0.0002 U	
	gamma-Chlordane			0.002 U			**0.0001** J,p			0.0002 U	
	Heptachlor epoxide			0.002 U			0.0003 U			0.0002 U	
	Hexachlorobenzene			0.002 U			0.0003 U			**0.0004**	
PFOA/ PFOS	PFPeA	ng/L/day	**11** J				**0.3**			**0.1** J	
	PFHxA		**22** J				**0.2** J			**0.2** J	
	PFHpA		**9.5** J				**0.09** J			**0.06** J	
	PFOA		**72**				**0.5**			**0.4**	
	PFNA		**42**				**0.06** J			0.3 U	
	PFDA		**18** J				**0.08** J			**0.1** J	
	PFBS		23 U				0.3 U			0.3 U	
	FOSA		23 U				0.3 U			0.3 U	
	6:2 FTS		56 U				0.6 U			0.7 U	

Table 4
In Situ Stabilization Treatability Results: LEAF Leaching Rates
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Notes:
LEAF = Leaching Environmental Assessment Framework
PC = Portland Cement Type I/II
AC = activated carbon
SP = sodium persulfate
mg/L = milligrams per liter
ng/L = nanograms per liter
µg/L = micrograms per liter
Amendment dosages were based on dry weight of soil.
Eurofins TestAmerica, Pittsburg performed the leachate extractions using United States Environmental Protection Agency (EPA) Method 1315.
Bold values indicate detections.
Red bolded font indicates detected concentrations that are in exceedance of applicable criteria.
*- = LCS and/or LCSD is outside acceptance limits, low biased.
*+ = LCS and/or LCSD is outside acceptance limits, high biased.
*1 = LCS/LCSD RPD exceeds control limits.
*3 = ISTD response or retention time outside acceptable limits.
B = compound was found in the blank and sample.
I = value is EMPC (estimated maximum possible concentration).
J = result is less than the RL but greater than or equal to the MDL, concentration is an approximate value.
F1 = MS and/or MSD recovery exceeds control limits.
F2 = MS/MSD RPD exceeds control limits.
U = not detected at the indicated reporting limit.
p = the RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
Blank cells = not analyzed

Table 5
In Situ Stabilization Treatability Results: LEAF Mass Flux
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte Leaching Rate		Units	CONTROL								
			Cumulative Leaching Time (days)								
			0.08	1	2	7	14	28	42	49	63
VOCs	Acetone	µg/cm^2-d	2.1 U		0.2 U	0.04 *-U		**0.008** J	0.1 U		0.1 *-U
	Chlorobenzene		0.5 U		**0.02** J	0.009 U		0.003 U	0.03 *-U		0.03 U
	Chloroform		0.5 U		0.05 U	0.009 U		0.003 U	0.03 U		**0.06**
	cis-1,2-Dichloroethene		**0.2** J		**0.04** J	**0.04**		**0.1**	**0.06**		**0.03**
	Methylene Chloride		**0.6**		**0.1**	**0.02**		**0.004**	0.03 U		0.03 U
	Vinyl Chloride		0.5 U		0.05 U	**0.01**		**0.007**	0.03 U		0.03 U
SVOCs	1,4-dichlorobenzene	µg/cm^2-d	0.08 U		**0.0006** J	**0.0004** J		**0.0002** J	**0.0001** J		
	2,4-dimethylphenol		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	2-chloronaphthalene		0.01 U		0.001 U	0.0003 U		0.00009 U	0.0001 U		
	Acenaphthene		0.01 U		**0.0005** J	**0.0001** J		**0.00005** J	0.0001 U		
	Anthracene		0.01 U		**0.0005** J	**0.0002** J		0.00009 U	0.0001 U		
	Benzo[a]anthracene		0.01 U		0.001 U	0.0003 U		0.00009 U	0.0001 U		
	Benzo[a]pyrene		0.01 U		0.001 U	0.0003 U		0.00009 U	0.0001 U		
	Benzo[b]fluroanthene		0.01 U		0.001 U	0.0003 U		0.00009 U	0.0001 U		
	Benzo[k]fluroanthene		0.01 U		0.001 U	0.0003 U		0.00009 U	0.0001 U		
	Benzyl butyl phthalate		0.08 U		0.007 U	**0.001** J		**0.0004** J	0.0006 U		
	Biphenyl		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Bis(2-ethylhexyl)phthalate		0.8 U		0.07 U	0.01 U		0.005 U	0.006 U		
	Chrysene		0.01 U		0.001 U	0.0003 U		0.00009 U	0.0001 U		
	Dibutylphthalate		**0.2**		**0.006** J	**0.002**		**0.0008**	0.0006 U		
	Diethyl phthalate		0.08 U		**0.006** J	**0.002**		0.0005 U	0.0006 U		
	Dimethyl phthalate		0.08 U		**0.002** J	0.001 U		0.0005 U	0.0006 U		
	Fluoranthene		0.01 U		**0.0005** J	**0.0001** J		0.00009 U	0.0001 U		
	Fluorene		0.01 U		0.001 U	**0.0002** J		**0.00004** J	0.0001 U		
	Indeno[1,2,3-cd]pyrene		0.01 U		0.001 U	0.0003 U		**0.00009**	0.0001 U		
	N-Nitrosodiphenylamine		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Phenanthrene		**0.007** J		0.001 U	**0.0003**		**0.00007** J	**0.00008** J		
	Phenol		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Pyrene		0.01 U		0.001 U	**0.00008** J		0.00009 U	0.0001 U		
PCNs	Monochloronaphthalene	µg/cm^2-d		0.02 U			0.003 U			0.003 U	0.001 U
	Dichloronaphthalene			**0.05**			**0.02**			**0.03**	**0.01**
	Tetrachloronaphthalene			**0.01** J			**0.003** *+			**0.003**	**0.002**
	Trichloronaphthalene			**0.02**			**0.006**			**0.006**	**0.003**
Metals	Aluminum	mg/cm^2-d	0.02 U		0.002 U	0.0004 U		0.0001 U	**0.00003** J		0.0001 U
	Antimony		**0.001**		**0.0003**	**0.00007**		**0.00002**	**0.00003**		**0.00003**
	Barium		**0.0007** J		**0.0002** J	**0.0001** J		**0.00006** J	**0.00006** J		**0.00008** J
	Cadmium		0.0005 U		0.00005 U	0.00001 U		**0.0000005** J	**0.0000003** J		**0.0000004** J
	Calcium		**1.5**		**0.2**	**0.08**		**0.03**	**0.02**		**0.02**
	Chromium		0.0005 U		0.00005 U	0.000009 U		0.000003 U	0.000003 U		0.000003 U
	Copper		0.003 U		0.0002 U	0.00004 U		0.00002 U	**0.000002** J		0.00002 U
	Iron		**0.008** J		0.0009 U	0.00018 U		0.00006 U	0.00006 U		0.00006 U
	Magnesium		**0.2** J		**0.03** J	**0.01**		**0.004**	**0.002** J		**0.001** J
	Manganese		**0.003**		**0.0004**	**0.0003**		**0.0001**	**0.00004**		**0.00002**
	Nickel		0.004 U		0.0004 U	0.00007 U		0.00003 U	0.00003 U		0.00003 U
	Potassium		0.5 U		0.05 U	**0.002** J		**0.0006** J	0.003 U		0.003 U
	Selenium		0.001 U		0.00009 U	0.00002 U		0.000006 U	0.000006 U		0.000006 U
	Sodium		**0.2** J		**0.01** J	**0.005** J		**0.0007**	**0.0003** J		**0.0002** J
	Thallium		**0.0004** J		0.0002 U	0.00004 U		0.00001 U	0.00001 U		0.00001 U
	Vanadium		0.005 U		0.0005 U	0.00009 U		0.00003 U	0.00003 U		0.00003 U
	Zinc		**0.0003** J		0.0002 U	**0.000009** J		**0.000003** J	**0.000002** J		**0.000002** J,B
Anions	Sulfate	mg/cm^2-d		**0.3**				**0.04**			**0.01**
Pesticides	4,4'-DDD	µg/cm^2-d		0.00002 U			0.000002 U			0.000002 U	
	4,4'-DDE			0.00002 U			0.000002 U			0.000002 U	
	alpha-Chlordane			0.00002 U			**0.000007** *3p			0.000002 U	
	Dieldrin			0.00002 U			0.000002 U			0.000002 U	
	Endosulfan II			0.00002 U			**0.000004** p			**0.0000008** J,p	
	gamma-Chlordane			0.00002 U			0.000002 *3U			0.000002 U	
	Heptachlor epoxide			0.00002 U			0.000002 *3U			0.000002 *1U	
	Hexachlorobenzene			0.00002 U			0.000002 *3U			**0.000006**	
PFOA/ PFOS	PFPeA	ng/cm^2-d	**0.08** J				0.002 U			0.002 U	
	PFHxA		**0.2** J				0.002 U			**0.006** *+*1	
	PFHpA		**0.09** J				**0.0004** J			0.002 U	
	PFOA		**0.4**				**0.002**			**0.004**	
	PFNA		**0.04** J				0.002 U			0.002 U	
	PFDA		**0.08** J				0.002 U			**0.001** J	
	PFBS		0.2 U				0.002 U			0.002 U	
	FOSA		0.2 U				0.002 U			0.002 U	
	6:2 FTS		0.5 U				0.006 U			**0.02** *+*1	

Table 5
In Situ Stabilization Treatability Results: LEAF Mass Flux
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte Leaching Rate		Units	CEMENT (20% PC) Cumulative Leaching Time (days) 0.08	1	2	7	14	28	42	49	63
VOCs	Acetone	µg/cm^2-d	2.1 U		0.2 U	0.04 *-U		**0.01** J	0.1 U		0.1 *-U
	Chlorobenzene		0.5 U		**0.02** J	0.009 U		0.003 U	0.03 *-U		0.03 U
	Chloroform		0.5 U		0.05 U	0.009 U		0.003 U	0.03 U		**0.06**
	cis-1,2-Dichloroethene		**0.4** J		**0.04** J	**0.06**		**0.1**	**0.06**		**0.05**
	Methylene Chloride		**0.6**		**0.1**	**0.02**		**0.005**	0.03 U		0.03 U
	Vinyl Chloride		0.5 U		0.05 U	**0.01**		**0.01**	0.03 U		0.03 U
SVOCs	1,4-dichlorobenzene	µg/cm^2-d	0.08 U		0.007 U	0.001 U		0.0005 U	**0.00004** J		
	2,4-dimethylphenol		**0.03** J		**0.007** J	**0.003**		**0.0006**	**0.0006**		
	2-chloronaphthalene		**0.04**		**0.008**	**0.003**		**0.0009**	**0.002**		
	Acenaphthene		0.02 U		0.001 U	0.0002 U		0.00009 U	0.0001 U		
	Anthracene		0.02 U		0.001 U	**0.00008** J		0.00009 U	**0.00005** J		
	Benzo[a]anthracene		0.02 U		0.001 U	0.0002 U		0.00009 U	0.0001 U		
	Benzo[a]pyrene		0.02 U		0.001 U	0.0002 U		0.00009 U	0.0001 U		
	Benzo[b]fluroanthene		0.02 U		0.001 U	0.0002 U		0.00009 U	0.0001 U		
	Benzo[k]fluroanthene		0.02 U		0.001 U	0.0002 U		0.00009 U	0.0001 U		
	Benzyl butyl phthalate		0.08 U		0.007 U	**0.0008** J		0.0005 U	0.0006 U		
	Biphenyl		0.08 U		0.007 U	0.001 U		0.0005 U	**0.00009** J		
	Bis(2-ethylhexyl)phthalate		0.8 U		0.072 U	0.01 U		0.005 U	0.006 U		
	Chrysene		0.02 U		0.001 U	0.0002 U		0.00009 U	0.0001 U		
	Dibutylphthalate		**0.5**		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Diethyl phthalate		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Dimethyl phthalate		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Fluoranthene		0.02 U		0.001 U	0.0002 U		0.00009 U	0.0001 U		
	Fluorene		0.02 U		0.001 U	0.0002 U		0.00009 U	**0.00005** J		
	Indeno[1,2,3-cd]pyrene		0.02 U		0.001 U	0.0002 U		**0.00009**	0.0001 U		
	N-Nitrosodiphenylamine		0.08 U		0.007 U	0.001 U		**0.00009** J	**0.0002** J		
	Phenanthrene		**0.009** J		0.001 U	**0.0002** J		**0.00005** J	**0.0001**		
	Phenol		**0.07** J		**0.009**	**0.004**		**0.0008**	**0.0009**		
	Pyrene		0.02 U		0.001 U	0.0002 U		0.00009 U	0.0001 U		
PCNs	Monochloronaphthalene	µg/cm^2-d		**0.2**			**0.06**			**0.05**	**0.03**
	Dichloronaphthalene			**0.2**			**0.06**			**0.06**	**0.03**
	Tetrachloronaphthalene			**0.03**			**0.007** *+			**0.007**	**0.004**
	Trichloronaphthalene			**0.06**			**0.01**			**0.01**	**0.008**
Metals	Aluminum	mg/cm^2-d	**0.01** J		**0.01**	**0.004**		**0.002**	**0.002**		**0.003**
	Antimony		**0.001**		**0.0004**	**0.00009**		**0.00005**	**0.00004**		**0.00006**
	Barium		**0.009** J		**0.001** J	**0.0005**		**0.0002**	**0.0001** J		**0.0001** J
	Cadmium		0.0005 U		0.00005 U	0.000009 U		0.000003 U	0.000003 U		**0.0000003** J
	Calcium		**3.1**		**0.7**	**0.2**		**0.09**	**0.08**		**0.06**
	Chromium		0.0005 U		0.00005 U	0.000009 U		0.000003 U	0.000003 U		0.000003 U
	Copper		**0.001** J		**0.0002**	**0.0001**		**0.0001**	**0.00008**		**0.00008**
	Iron		**0.008** J		**0.001**	**0.0004**		**0.0005**	**0.0001**		**0.00006** J
	Magnesium		0.5 U		0.05 U	0.009 U		0.003 U	0.003 U		0.003 U
	Manganese		**0.0004** J		0.0001 U	0.00003 U		0.00001 U	0.00001 U		0.00001 U
	Nickel		**0.0006** J		**0.00009** J	**0.00005** J		**0.00003**	**0.00002** J		**0.00002** J
	Potassium		**0.1** J		**0.01** J	**0.005** J		**0.002** J	**0.001** J		**0.001** J
	Selenium		0.001 U		0.00009 U	0.00002 U		0.000006 U	0.000006 U		**0.000003** J
	Sodium		**0.2** J		**0.02** J	**0.01**		**0.00323**	**0.002** J		**0.001** J
	Thallium		0.002 U		0.0002 U	**0.000005** J		0.00001 U	**0.000004** J,B		0.00001 U
	Vanadium		0.005 U		0.0005 U	0.00009 U		**0.000005** J	0.00003 U		**0.000006** J
	Zinc		**0.006**		0.0002 U	0.00004 U		0.00001 U	0.00001 U		0.00001 U
Anions	Sulfate	mg/cm^2-d		**0.02**				**0.008**			**0.01**
Pesticides	4,4'-DDD	µg/cm^2-d		**0.00009**			0.000002 U			**0.000008**	
	4,4'-DDE			0.00002 U			0.000002 U			0.000002 U	
	alpha-Chlordane			0.00002 U			0.000002 U			0.000002 U	
	Dieldrin			0.00002 U			0.000002 U			0.000002 U	
	Endosulfan II			0.00002 U			0.000002 U			0.000002 U	
	gamma-Chlordane			0.00002 U			0.000002 U			0.000002 U	
	Heptachlor epoxide			0.00002 U			0.000002 U			0.000002 U	
	Hexachlorobenzene			0.00002 U			0.000002 U			**0.000008**	
PFOA/ PFOS	PFPeA	ng/cm^2-d	**0.06** J				**0.001** J			**0.001** J	
	PFHxA		**0.1** J				**0.001** J			**0.002** J	
	PFHpA		**0.06** J				**0.0006** J			**0.0008** J	
	PFOA		**0.3**				**0.004**			**0.004**	
	PFNA		**0.07** J				**0.0008** J			**0.0007** J	
	PFDA		**0.09** J				**0.0006** J			**0.0008** J	
	PFBS		0.2 U				**0.0004** J,I			0.003 U	
	FOSA		**0.09** J,B				0.002 U			0.003 U	
	6:2 FTS		0.5 U				0.006 U			0.006 U	

Table 5
In Situ Stabilization Treatability Results: LEAF Mass Flux
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte Leaching Rate		Units	CEMENT, CARBON LOW (20% PC, 2% AC) Cumulative Leaching Time (days)								
			0.08	1	2	7	14	28	42	49	63
VOCs	Acetone	µg/cm^2-d	2.1 U		0.2 U	0.04 *-U		**0.02**	0.01 U		0.01 *-U
	Chlorobenzene		0.5 U		**0.03** J	0.009 U		0.003 U	0.003 U		0.003 U
	Chloroform		0.5 U		0.05 U	0.009 U		0.003 U	0.003 U		**0.006**
	cis-1,2-Dichloroethene		0.5 U		0.05 U	**0.003** J		**0.008**	**0.006**		**0.008**
	Methylene Chloride		**0.6**		**0.1**	**0.03**		**0.004**	**0.006**		**0.004**
	Vinyl Chloride		0.5 U		0.05 U	0.009 U		**0.005**	**0.004**		**0.004**
SVOCs	1,4-dichlorobenzene	µg/cm^2-d	0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	2,4-dimethylphenol		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	2-chloronaphthalene		0.01 U		0.001 U	0.0002 U		0.0001 U	0.0001 U		
	Acenaphthene		0.01 U		0.001 U	0.0002 U		0.0001 U	0.0001 U		
	Anthracene		0.01 U		0.001 U	0.0002 U		0.0001 U	0.0001 U		
	Benzo[a]anthracene		0.01 U		0.001 U	0.0002 U		0.0001 U	0.0001 U		
	Benzo[a]pyrene		0.01 U		0.001 U	0.0002 U		0.0001 U	0.0001 U		
	Benzo[b]fluroanthene		0.01 U		0.001 U	0.0002 U		0.0001 U	0.0001 U		
	Benzo[k]fluroanthene		0.01 U		0.001 U	0.0002 U		0.0001 U	0.0001 U		
	Benzyl butyl phthalate		0.08 U		0.007 U	**0.0009** J		0.0005 U	**0.0003** J		
	Biphenyl		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Bis(2-ethylhexyl)phthalate		0.8 U		0.07 U	0.01 U		0.005 U	**0.006** J		
	Chrysene		0.01 U		0.001 U	0.0002 U		0.0001 U	0.0001 U		
	Dibutylphthalate		**0.3**		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Diethyl phthalate		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Dimethyl phthalate		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Fluoranthene		0.01 U		0.001 U	0.0002 U		0.0001 U	0.0001 U		
	Fluorene		0.01 U		0.001 U	0.0002 U		0.0001 U	0.0001 U		
	Indeno[1,2,3-cd]pyrene		0.01 U		0.001 U	0.0002 U		**0.0001**	0.0001 U		
	N-Nitrosodiphenylamine		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Phenanthrene		**0.01** J		0.001 U	**0.0001** J		0.0001 U	**0.0001** J		
	Phenol		**0.04** J		0.007 U	**0.001** J		**0.0004** J	**0.0008**		
	Pyrene		0.01 U		0.001 U	0.0002 U		0.0001 U	0.0001 U		
PCNs	Monochloronaphthalene	µg/cm^2-d		**0.02** J			**0.005**			**0.005**	**0.003**
	Dichloronaphthalene			**0.04**			**0.008**			**0.008**	**0.005**
	Tetrachloronaphthalene			**0.01** J			**0.002** J*+			**0.002** J	**0.001** J
	Trichloronaphthalene			**0.01** J			**0.003**			**0.002** J	**0.002**
Metals	Aluminum	mg/cm^2-d	**0.01** J		**0.01**	**0.004**		**0.002**	**0.002**		**0.003**
	Antimony		**0.001**		**0.0003**	**0.0001**		**0.00005**	**0.00005**		**0.00006**
	Barium		**0.01** J		**0.001** J	**0.0005**		**0.0002**	**0.0001** J		**0.0001** J
	Cadmium		0.0005 U		0.00005 U	0.000009 U		0.000003 U	0.000003 U		**0.0000003** J
	Calcium		**3.3**		**0.7**	**0.2**		**0.08**	**0.08**		**0.07**
	Chromium		0.0005 U		0.00005 U	0.000009 U		0.000003 U	0.000003 U		0.000003 U
	Copper		**0.001** J		**0.0002** J	**0.00009**		**0.00008**	**0.00007**		**0.00007**
	Iron		0.01 U		**0.0008** J	**0.0004**		0.00006 U	0.00006 U		0.00006 U
	Magnesium		0.5 U		0.05 U	0.009 U		0.003 U	0.003 U		0.003 U
	Manganese		0.002 U		0.0001 U	0.00003 U		0.00001 U	0.00001 U		0.00001 U
	Nickel		**0.0004** J		**0.00006** J	**0.00004** J		**0.00002** J	**0.00002** J		**0.00001** J
	Potassium		**0.1** J		**0.01** J	**0.005** J		**0.002** J	**0.001** J		**0.001** J
	Selenium		0.001 U		0.00009 U	0.0000 U		**0.000002** J	0.000006 U		**0.000003** J
	Sodium		**0.2** J		**0.02** J	**0.009**		**0.003** J	**0.002** J		**0.001** J
	Thallium		0.002 U		0.0002 U	0.00004 U		0.00001 U	0.00001 U		0.00001 U
	Vanadium		0.005 U		0.0005 U	0.00009 U		0.00003 U	**0.000004** J		**0.000006** J
	Zinc		0.002 U		0.0002 U	0.00004 U		0.00001 U	0.00001 U		0.00001 U
Anions	Sulfate	mg/cm^2-d		**0.02**				**0.007**			**0.01**
Pesticides	4,4'-DDD	µg/cm^2-d		**0.00005**			**0.000005**			**0.000004**	
	4,4'-DDE			0.00002 U			0.000002 U			0.000002 U	
	alpha-Chlordane			0.00002 U			0.000002 U			0.000002 U	
	Dieldrin			0.00002 U			0.000002 U			**0.000001** J	
	Endosulfan II			0.00002 U			0.000002 U			0.000002 U	
	gamma-Chlordane			0.00002 U			0.000002 U			0.000002 U	
	Heptachlor epoxide			**0.00022** p			0.000002 U			0.000002 U	
	Hexachlorobenzene			0.00002 U			0.000002 U			**0.000006**	
PFOA/ PFOS	PFPeA	ng/cm^2-d	**0.06** J				**0.001** J			**0.002** J	
	PFHxA		**0.1** J				**0.001** J			**0.002** J	
	PFHpA		**0.06** J				**0.0006** J			**0.0006** J	
	PFOA		**0.3**				**0.004**			**0.004**	
	PFNA		**0.05** J				**0.0004** J			0.002 U	
	PFDA		**0.09** J				**0.0008** J			**0.0009** J	
	PFBS		0.2 U				0.002 U			0.002 U	
	FOSA		**0.06** J,B				0.002 U			0.002 U	
	6:2 FTS		0.5 U				0.006 U			0.006 U	

Table 5
In Situ Stabilization Treatability Results: LEAF Mass Flux
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte Leaching Rate		Units	CEMENT, CARBON HIGH (20% PC, 4% AC) Cumulative Leaching Time (days)								
			0.08	1	2	7	14	28	42	49	63
VOCs	Acetone	µg/cm^2-d	2.1 U		0.2 U	0.04 *-U		0.01 U	0.01 F1,U		0.01 *-U
	Chlorobenzene		0.5 U		**0.02** J	0.009 U		0.003 U	0.003 F1,U		0.003 U
	Chloroform		0.5 U		0.05 U	0.009 U		0.003 U	0.003 F1,U		**0.005**
	cis-1,2-Dichloroethene		0.5 U		0.05 U	0.009 U		**0.001** J	**0.001** J,F1		**0.002** J
	Methylene Chloride		**0.8**		**0.06**	**0.03** F2,F1		0.003 U	**0.004**		0.003 U
	Vinyl Chloride		0.5 U		0.05 U	0.009 U		0.003 U	0.003 U		0.003 U
SVOCs	1,4-dichlorobenzene	µg/cm^2-d	0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	2,4-dimethylphenol		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	2-chloronaphthalene		0.02 U		0.001 U	0.0003 U		**0.00005** J	0.0001 U		
	Acenaphthene		0.02 U		0.001 U	0.0003 U		**0.00004** J	0.0001 U		
	Anthracene		0.02 U		0.001 U	0.0003 U		0.0001 U	0.0001 U		
	Benzo[a]anthracene		0.02 U		0.001 U	0.0003 U		0.0001 U	0.0001 U		
	Benzo[a]pyrene		0.02 U		0.001 U	0.0003 U		0.0001 U	0.0001 U		
	Benzo[b]fluroanthene		0.02 U		0.001 U	0.0003 U		0.0001 U	0.0001 U		
	Benzo[k]fluroanthene		0.02 U		0.001 U	0.0003 U		0.0001 U	0.0001 U		
	Benzyl butyl phthalate		0.08 U		0.007 U	**0.0009** J		0.0005 U	0.0006 U		
	Biphenyl		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Bis(2-ethylhexyl)phthalate		0.8 U		0.07 U	0.01 U		0.005 U	**0.004** J		
	Chrysene		0.02 U		0.001 U	0.0003 U		0.0001 U	0.0001 U		
	Dibutylphthalate		**0.3**		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Diethyl phthalate		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Dimethyl phthalate		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Fluoranthene		0.02 U		0.001 U	0.0003 U		0.0001 U	0.0001 U		
	Fluorene		0.02 U		0.001 U	0.0003 U		0.0001 U	0.0001 U		
	Indeno[1,2,3-cd]pyrene		0.02 U		0.001 U	0.0003 U		**0.0001**	0.0001 U		
	N-Nitrosodiphenylamine		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Phenanthrene		**0.009** J		0.001 U	**0.0002** J		**0.00005** J	**0.00008** J		
	Phenol		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Pyrene		0.02 U		0.001 U	0.0003 U		0.0001 U	0.0001 U		
PCNs	Monochloronaphthalene	µg/cm^2-d		0.02 U			0.003 U			0.003 U	**0.0003** J
	Dichloronaphthalene			**0.005** J			**0.001** J			**0.0008** J	**0.0005** J
	Tetrachloronaphthalene			0.02 U			0.003 *+U			0.003 U	0.001 U
	Trichloronaphthalene			0.02 U			**0.0008** J			0.003 U	0.001 U
Metals	Aluminum	mg/cm^2-d	**0.01** J		**0.01**	**0.004**		**0.002**	**0.002**		**0.003**
	Antimony		**0.001**		**0.0004**	**0.0001**		**0.00005**	**0.00005**		**0.00006**
	Barium		**0.01** J		**0.002** J	**0.0005**		**0.0002**	**0.0001**		**0.0001** J
	Cadmium		0.0005 U		0.000046 U	0.000009 U		0.000003 U	0.000003 U		0.000003 U
	Calcium		**3.3**		**0.6942**	**0.2**		**0.1**	**0.08**		**0.07**
	Chromium		0.0005 U		0.00005 U	0.000009 U		0.000003 U	0.000003 U		0.000003 U
	Copper		**0.0** J		**0.0001** J	**0.00006**		**0.00005**	**0.00005**		**0.00005**
	Iron		0.01 U		0.0009 U	**0.0002** J		**0.00006** J	0.00006 U		**0.0002**
	Magnesium		0.5 U		0.05 U	0.009 U		0.003 U	0.003 U		0.003 U
	Manganese		0.002 U		0.0001 U	0.00003 U		0.00001 U	0.00001 U		0.00001 U
	Nickel		0.004 U		0.0004 U	**0.00001** J		**0.00001** J	**0.000009** J		**0.000008** J
	Potassium		**0.1** J		**0.01** J	**0.0048** J		**0.002** J	**0.001** J		**0.001** J
	Selenium		0.001 U		0.00009 U	0.00002 U		0.000006 U	0.000006 U		**0.000003** J
	Sodium		**0.2** J		**0.02** J	**0.0087** J		**0.003** J	**0.002** J		**0.001** J
	Thallium		0.002 U		0.0002 U	0.00004 U		0.00001 U	0.00001 U		0.00001 U
	Vanadium		0.005 U		0.0005 U	0.00009 U		**0.000006** J	0.00003 U		**0.000005** J
	Zinc		0.002 U		0.0002 U	**0.000005** J		**0.000002** J	0.00001 U		0.00001 U
Anions	Sulfate	mg/cm^2-d		**0.02**				**0.006**			**0.009**
Pesticides	4,4'-DDD	µg/cm^2-d		**0.00002** p			**0.000002** J			0.000002 U	
	4,4'-DDE			0.00002 U			0.000002 U			0.000002 U	
	alpha-Chlordane			0.00002 U			0.000002 U			0.000002 U	
	Dieldrin			0.00002 U			0.000002 U			0.000002 U	
	Endosulfan II			0.00002 U			0.000002 U			0.000002 U	
	gamma-Chlordane			0.00002 U			0.000002 U			0.000002 U	
	Heptachlor epoxide			0.00002 U			0.000002 U			0.000002 U	
	Hexachlorobenzene			0.00002 U			0.000002 U			0.000002 U	
PFOA/ PFOS	PFPeA	ng/cm^2-d	**0.06** J				**0.0009** J			0.002 U	
	PFHxA		**0.2** J				**0.002** J			**0.002** J	
	PFHpA		**0.06** J				**0.0007** J			**0.0006** J	
	PFOA		**0.3**				**0.004**			**0.003**	
	PFNA		**0.04** J				**0.0008** J			**0.0007** J	
	PFDA		**0.09** J				**0.0006** J			**0.0007** J	
	PFBS		0.2 U				0.002 U			0.002 U	
	FOSA		0.2 U				**0.002** J			0.002 U	
	6:2 FTS		0.5 U				0.006 U			0.006 U	

Table 5
In Situ Stabilization Treatability Results: LEAF Mass Flux
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Analyte Leaching Rate		Units	CEMENT-ACTIVATED PERSULFATE, CARBON LOW (20% PC, 2% AC, 2% SP) Cumulative Leaching Time (days)								
			0.08	1	2	7	14	28	42	49	63
VOCs	Acetone	µg/cm^2-d	2.1 U		0.2 F2,F1,U	0.04 *-U		**0.01** J	**0.006** J		0.01 F1,*-U
	Chlorobenzene		0.5 U		**0.03** J,F1	0.009 U		0.003 U	0.003 U		0.003 U
	Chloroform		0.5 U		0.05 F1,U	0.009 U		0.003 U	0.003 U		**0.004**
	cis-1,2-Dichloroethene		0.5 U		0.05 F1,U	**0.004** J		**0.010**	**0.02**		0.01 F1
	Methylene Chloride		**0.9**		**0.09**	**0.03**		**0.003**	**0.005**		**0.003** J
	Vinyl Chloride		0.5 U		0.05 U	0.009 U		**0.004**	**0.004**		**0.003**
SVOCs	1,4-dichlorobenzene	µg/cm^2-d	0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	2,4-dimethylphenol		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	2-chloronaphthalene		0.02 U		**0.0005** J	0.0003 U		0.0001 U	0.0001 U		
	Acenaphthene		0.02 U		0.001 U	0.0003 U		0.0001 U	0.0001 U		
	Anthracene		0.02 U		0.001 U	0.0003 U		0.0001 U	**0.00003** J		
	Benzo[a]anthracene		0.02 U		0.001 U	0.0003 U		0.0001 U	**0.0001** J		
	Benzo[a]pyrene		0.02 U		0.001 U	0.0003 U		0.0001 U	**0.00005** J		
	Benzo[b]fluroanthene		0.02 U		0.001 U	0.0003 U		0.0001 U	**0.0001** J		
	Benzo[k]fluroanthene		0.02 U		0.001 U	0.0003 U		0.0001 U	**0.00009** J		
	Benzyl butyl phthalate		0.08 U		0.007 U	**0.0009** J		0.0005 U	**0.0003** J		
	Biphenyl		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Bis(2-ethylhexyl)phthalate		0.8 U		0.07 U	0.01 U		0.005 U	0.006 U		
	Chrysene		0.02 U		0.001 U	0.0003 U		0.0001 U	**0.0001** J		
	Dibutylphthalate		**0.3**		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Diethyl phthalate		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Dimethyl phthalate		**0.02** J		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Fluoranthene		0.02 U		0.001 U	0.0003 U		0.0001 U	**0.00006** J		
	Fluorene		0.02 U		0.001 U	0.0003 U		0.0001 U	0.0001 U		
	Indeno[1,2,3-cd]pyrene		0.02 U		0.001 U	0.0003 U		**0.0001**	**0.0001** J		
	N-Nitrosodiphenylamine		0.08 U		0.007 U	0.001 U		0.0005 U	0.0006 U		
	Phenanthrene		**0.01** J		0.001 U	**0.0002** J		**0.00004** J	**0.00008** J		
	Phenol		**0.08**		**0.004** J	**0.002**		**0.0009**	0.0006 U		
	Pyrene		0.02 U		0.001 U	0.0003 U		0.0001 U	**0.00005** J		
PCNs	Monochloronaphthalene	µg/cm^2-d		**0.02**			**0.005**			**0.005**	**0.002**
	Dichloronaphthalene			**0.06**			**0.01**			**0.008**	**0.003**
	Tetrachloronaphthalene			**0.02** J			**0.002** J*+			**0.002** J	**0.0008** J
	Trichloronaphthalene			**0.02**			**0.004**			**0.003**	**0.001** J
Metals	Aluminum	mg/cm^2-d	**0.06**		**0.01**	**0.005**		**0.002**	**0.002**		**0.002**
	Antimony		**0.002**		**0.0004**	**0.0001**		**0.00005**	**0.00005**		**0.00006**
	Barium		**0.002** J		**0.0005** J	**0.0002** J		**0.00008** J	**0.00007** J		**0.00006** J
	Cadmium		0.0005 U		0.00005 U	0.000009 U		0.000003 U	0.000003 U		**0.0000003** J
	Calcium		**1.1**		**0.4**	**0.1**		**0.06**	**0.06**		**0.05**
	Chromium		0.0005 U		**0.00002** J	0.000009 U		0.000003 U	0.000003 U		0.000003 U
	Copper		**0.003**		**0.0003**	**0.0001**		**0.0001**	**0.00009**		**0.00007**
	Iron		0.01 U		0.0009 U	**0.0002** J		**0.00005** J	0.00006 U		0.00006 U
	Magnesium		0.5 U		0.05 U	0.009 U		0.003 U	0.003 U		0.003 U
	Manganese		0.002 U		0.0001 U	0.00003 U		0.00001 U	0.00001 U		0.00001 U
	Nickel		**0.0007** J		**0.0001** J	**0.00004** J		**0.00002** J	**0.00001** J		**0.000008** J
	Potassium		**0.1** J		**0.01** J	**0.005** J		**0.002** J	**0.001** J		**0.0008** J
	Selenium		0.001 U		0.0001 U	0.00002 U		0.000006 U	0.000006 U		**0.000003** J
	Sodium		**3.6**		**0.3**	**0.1**		**0.02218**	**0.009**		**0.004**
	Thallium		0.002 U		0.0002 U	0.00004 U		0.00001 U	0.00001 U		0.00001 U
	Vanadium		0.005 U		0.0005 U	**0.00002** J		**0.00001** J	**0.000007** J		**0.000008** J
	Zinc		0.002 U		0.0002 U	0.00004 U		0.00001 U	**0.000002** J		0.00001 U
Anions	Sulfate	mg/cm^2-d		**0.05**				**0.01**			**0.01**
Pesticides	4,4'-DDD	µg/cm^2-d		**0.00006** p			**0.000007**			**0.000004**	
	4,4'-DDE			**0.00003**			0.000002 U			0.000002 U	
	alpha-Chlordane			0.00002 U			0.000002 U			0.000002 U	
	Dieldrin			0.00002 U			0.000002 U			**0.000001** J	
	Endosulfan II			0.00002 U			0.000002 U			0.000002 U	
	gamma-Chlordane			0.00002 U			**0.000001** J,p			0.000002 U	
	Heptachlor epoxide			0.00002 U			0.000002 U			0.000002 U	
	Hexachlorobenzene			0.00002 U			0.000002 U			**0.000003**	
PFOA/ PFOS	PFPeA	ng/cm^2-d	**0.1** J				**0.003**			**0.001** J	
	PFHxA		**0.2** J				**0.001** J			**0.002** J	
	PFHpA		**0.08** J				**0.0008** J			**0.0005** J	
	PFOA		**0.6**				**0.005**			**0.003**	
	PFNA		**0.4**				**0.0005** J			0.002 U	
	PFDA		**0.2** J				**0.0007** J			**0.0009** J	
	PFBS		0.2 U				0.002 U			0.002 U	
	FOSA		0.2 U				0.002 U			0.002 U	
	6:2 FTS		0.5 U				0.006 U			0.006 U	

Table 5
In Situ Stabilization Treatability Results: LEAF Mass Flux
Former TRW Union Springs Property - Union Springs, New York
NYSDEC BCP Site Number C706019

Notes:
LEAF = Leaching Environmental Assessment Framework
PC = Portland Cement Type I/II
AC = activated carbon
SP = sodium persulfate
mg/cm^2 -d = milligrams per square centimeter per day
ng/cm^2 -d = nanograms per square centimeter per day
$\mu g/cm^2$ -d = micrograms per square centimeter per day
Amendment dosages were based on dry weight of soil.
Eurofins TestAmerica, Pittsburg performed the leachate extractions using United States Environmental Protection Agency (EPA) Method 1315.
Bold values indicate detections.
Red bolded font indicates detected concentrations that are in exceedance of applicable criteria.
*- = LCS and/or LCSD is outside acceptance limits, low biased.
*+ = LCS and/or LCSD is outside acceptance limits, high biased.
*1 = LCS/LCSD RPD exceeds control limits.
*3 = ISTD response or retention time outside acceptable limits.
B = compound was found in the blank and sample.
I = value is EMPC (estimated maximum possible concentration).
J = result is less than the RL but greater than or equal to the MDL, concentration is an approximate value.
F1 = MS and/or MSD recovery exceeds control limits.
F2 = MS/MSD RPD exceeds control limits.
U = not detected at the indicated reporting limit.
p = the RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
Blank cells = not analyzed

Table 6

In Situ Stabilization Treatability Results: LEAF Detected Concentrations Summary

Former TRW Union Springs Property - Union Springs, New York

NYSDEC BCP Site Number C706019

Cumulative Leaching Time (days)	Control	20% PC		20% PC, 2% AC		20% PC, 4% AC		20% PC, 2% AC, 2% SP	
	Concentration	Concentration	*% Reduction*	Concentration	*% Reduction*	Concentration	*% Reduction*	Concentration	*% Reduction*
Total VOCs (µg/L)									
0.08	7.6	8.9	*-17*	5.9	*22*	7.2	*5*	8.3	*-9*
1									
2	17	17	*-0.6*	14	*19*	8.9	*48*	13	*25*
7	39	53	*-36*	19	*52*	17	*57*	19	*51*
14									
28	191	194	*-2*	54	*72*	2.0	*99*	46	*76*
42	90	94	*-4*	25	*72*	7.8	*91*	49	*46*
49									
63	149	172	*-15*	34	*77*	12	*92*	35	*77*
Total SVOCs (µg/L)									
0.08	2.4	6.4	*-169*	3.2	*-34*	3.2	*-34*	4.3	*-82*
1									
2	1.7	2.5	*-44*	0	*100*	0	*100*	0.5	*70*
7	4.1	6.4	*-57*	1.3	*67*	0.6	*85*	1.6	*61*
14									
28	2.4	3.7	*-54*	0.7	*72*	0.2	*91*	1.5	*40*
42	0.3	6.4	*-2173*	11	*-3771*	6.2	*-2125*	1.7	*-524*
49									
63									
Total Metals (excluding Calcium and Sodium) (mg/L)									
0.08	2.4	1.4	*44*	1.2	*51*	1.2	*49*	1.7	*28*
1									
2	2.9	2.9	*0.6*	2.7	*7.2*	2.7	*6.3*	3.1	*-8.2*
7	8.4	5.8	*31*	5.5	*34*	5.4	*36*	6.2	*26*
14									
28	6.9	8.7	*-26*	7.1	*-2.8*	7.3	*-5.2*	6.7	*2.9*
42	3.7	6.5	*-76*	6.3	*-72*	6.4	*-74*	5.3	*-44*
49									
63	2.5	6.7	*-167*	6.2	*-147*	6.6	*-164*	4.4	*-76*
Total PCNs (µg/L)									
0.08									
1	8.9	52	*-480*	8.1	*9*	0.6	*94*	13	*-48*
2									
7									
14	22	105	*-370*	14	*36*	1.5	*93*	17	*26*
28									
42									
49	28	101	*-254*	13	*54*	0.6	*98*	14	*51*
63	27	122	*-350*	17	*36*	1.3	*95*	11	*58*
Total Pesticides (µg/L)									
0.08									
1	0	0.009	*n/a*	0.03	*n/a*	0.002	*n/a*	0.01	*n/a*
2									
7									
14	0.009	0	*100*	0.004	*59*	0.002	*84*	0.006	*30*
28									
42									
49	0.005	0.01	*-167*	0.01	*-90*	0	*100*	0.007	*-40*
63									
Total PFOA/PFOS (ng/L)									
0.08	7.5	7.8	*-4*	7.1	*6*	6.4	*15*	15	*-93*
1									
2									
7									
14	2.1	7.1	*-240*	6.8	*-229*	8.0	*-284*	8.4	*-302*
28									
42									
49	25	7.3	*70*	6.6	*73*	5.4	*78*	5.8	*76*
63									

Notes:

LEAF = Leaching Environmental Assessment Framework

PC = Portland Cement Type I/II

AC = activated carbon

SP = sodium persulfate

mg/L = milligrams per liter

ng/L = nanograms per liter

µg/L = micrograms per liter

Blank cells = not analyzed

Amendment dosages were based on dry weight of soil.

Eurofins TestAmerica, Pittsburg performed the leachate extractions using United States Environmental Protection Agency (EPA) Method 1315.

n/a = not applicable, percent reduction not calculated because not detected in the control.

Appendix A
Laboratory Analytical Reports

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-135332-1
Client Project/Site: Former TRW Union Springs Property - Unio

For:
ERM-Northeast
5784 Widewaters Pkwy
Dewitt, New York 13214

Attn: Mr. Robert Sents

Authorized for release by:
4/13/2022 3:37:48 PM

Carrie Gamber, Senior Project Manager
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Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Definitions/Glossary 6
Certification Summary 8
Sample Summary 10
Method Summary 11
Lab Chronicle 12
Client Sample Results 17
QC Sample Results 31
QC Association Summary 69
Chain of Custody 75
Field Data Sheets 79
Receipt Checklists 80

Job ID: 180-135332-1

Laboratory: Eurofins Pittsburgh

Narrative

CASE NARRATIVE

Client: ERM-Northeast

Project: Former TRW Union Springs Property - Unio

Report Number: 180-135332-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 3/17/2022 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.8º C.

VOLATILES
The following sample was diluted to bring the concentration of target analytes within the calibration range: TRW BASE (180-135332-5). Elevated reporting limits (RLs) are provided.

Methylene Chloride was detected in method blank LB 180-393515/1-A at a level that was above the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. The associated method blank was non-detect for Methylene Chloride.

Chloroethane, Ethylbenzene, Methyl bromide and Trichloroethene failed the recovery criteria high for the MS of sample TRW BASE (180-135223-5) in batch 180-392127. For the MSD of sample TRW BASE (180-135223-5) in batch 180-392127, 1,1,2,2-Tetrachloroethane failed the recovery criteria low. Chloroethane and Trichloroethene failed the recovery criteria high. Also, 1,1,2,2-Tetrachloroethane exceeded the RPD limit.

The continuing calibration verification (CCV) analyzed in batch 180-392127 was outside the method criteria for the following analyte(s): Carbon Disulfide, Dichlorodifluoro-methane, and Chloromethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in 180-392127 was outside the method criteria for the following analyte(s): Acetone, Bromomethane, and Chloroethane. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in batch 180-394680 was outside the method criteria for the following analyte(s): 1,2-Dibromo-3-Chloropropane(RF). A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in batch 180-394680 was outside the method criteria for the following analyte(s): 2-Butanone, Acetone, Bromoform, Bromomethane, Chloroethane, Chloromethane, Dichlorodifluoromethane, Trichlorofluoromethane, and Vinyl chloride. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As

Job ID: 180-135332-1 (Continued)

Laboratory: Eurofins Pittsburgh (Continued)

indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

SEMIVOLATILES

The following samples were diluted due to the nature of the sample matrix: TRW BASE (180-135332-5), (180-135332-A-5-D MS) and (180-135332-A-5-E MSD). Elevated reporting limits (RLs) are provided.

The following sample required a dilution due to the nature of the sample matrix and to bring the concentration of target analytes within the calibration range: TRW BASE (180-135332-4). Because of the dilutions of some runs, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Dibutylphthalate was detected in method blank LB 180-393202/1-G at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

2-Chloronaphthalene failed the recovery criteria low for the MS of sample TRW BASEMS (180-135332-5) in batch 180-393021. Atrazine and Dibutylphthalate failed the recovery criteria high. For the MSD of sample TRW BASEMSD (180-135332-5) in batch 180-393021, 2,4-Dinitrophenol and 2-Chloronaphthalene failed the recovery criteria low. Atrazine and Dibutylphthalate failed the recovery criteria high. 2-Chloronaphthalene exceeded the RPD limit. The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

The continuing calibration verification (CCV) analyzed in 180-393021 was outside the method criteria for the following analyte: Nitrobenzene-d5 (Surr). As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

PFOA/PFOS

The following samples were pink after concentration to the final volume: TRW BASE (180-135332-6), (180-135332-B-6 MS) and (180-135332-B-6 MSD).

For samples (180-135332-B-6-B MS) and (180-135332-B-6-C MSD), the "I" qualifier means the transition mass ratio for the indicated analyte was below the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty. However, analyst judgment was used to positively identify the analyte.

PESTICIDES

The following sample was diluted due to the abundance of non-target analytes: TRW BASE (180-135332-5) at 1000x. Elevated reporting limits (RLs) are provided. Because of the dilutions, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

The following sample was diluted due to the abundance of non-target analytes: TRW BASE (180-135332-5) at 20x. Elevated reporting limits (RLs) are provided. The surrogates were reported as is.

The DCB Decachlorobiphenyl (Surr) surrogate recovery for the following samples was outside acceptance limits (high biased) on the confirmation column: (MB 180-392824/1-A). The recovery is within acceptance limits on the other column, indicating that the extraction process was in control.

The laboratory control sample (LCS) for 392824 recovered outside control limits for the following analytes: 4,4'-DDE. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

All analytes failed the recovery criteria low for the MS/MSD of sample TRW BASEMS (180-135332-5) in batch 180-394077 due to the level of dilution required.

METALS

The following sample was diluted to bring the concentration of Calcium and/or Antimony within the calibration range of the instrument: TRW BASE (180-135332-5). Elevated reporting limits (RLs) are provided.

Job ID: 180-135332-1 (Continued)

Laboratory: Eurofins Pittsburgh (Continued)

Iron was detected in method blank MB 180-392927/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Sodium and Thallium were detected in method blank LB 180-393202/1-E at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Mercury failed the recovery criteria low for the MS of sample TRW BASEMS (180-135332-5) in batch 180-394303. Mercury failed the recovery criteria low for the MSD of sample TRW BASEMSD (180-135332-5) in batch 180-394303. The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

GENERAL CHEMISTRY

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA TICs

Qualifier	Qualifier Description
J	Indicates an Estimated Value for TICs
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
N	Presumptive evidence of material.
T	Result is a tentatively identified compound (TIC) and an estimated value.

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.

LCMS

Qualifier	Qualifier Description
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: ERM-Northeast
Job ID: 180-135332-1
Project/Site: Former TRW Union Springs Property - Unio

Laboratory: Eurofins Pittsburgh

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	11182	04-02-22 *

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
2540G		Solid	Percent Moisture
2540G		Solid	Percent Solids
EPA 8081B LL	3510C	Solid	Hexachlorobenzene
EPA 8081B LL	3541	Solid	Hexachlorobenzene
EPA 9045D		Solid	Temperature

Laboratory: Eurofins Chicago

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2903	04-29-22
Georgia	State	N/A	04-29-22
Georgia (DW)	State	939	04-30-21 *
Hawaii	State	NA	04-29-22
Illinois	NELAP	IL00035	04-29-22
Indiana	State	C-IL-02	04-29-22
Iowa	State	082	05-01-22
Kansas	NELAP	E-10161	10-31-22
Kentucky (UST)	State	AI # 108083	04-29-22
Kentucky (WW)	State	KY90023	12-31-22
Louisiana	NELAP	02046	06-30-22
Mississippi	State	NA	04-30-22
North Carolina (WW/SW)	State	291	12-31-22
North Dakota	State	R-194	04-29-22
Oklahoma	State	8908	08-31-22
South Carolina	State	77001003	04-29-22
USDA	US Federal Programs	P330-18-00018	02-11-24
Wisconsin	State	999580010	08-31-22
Wyoming	State	8TMS-Q	04-30-22

Laboratory: Eurofins Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	11666	04-02-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
537 (modified)	3535	Solid	6:2 FTS
537 (modified)	3535	Solid	8:2 FTS
537 (modified)	3535	Solid	NEtFOSAA
537 (modified)	3535	Solid	NMeFOSAA
537 (modified)	3535	Solid	Perfluorobutanesulfonic acid (PFBS)
537 (modified)	3535	Solid	Perfluorobutanoic acid (PFBA)
537 (modified)	3535	Solid	Perfluorodecanesulfonic acid (PFDS)
537 (modified)	3535	Solid	Perfluorodecanoic acid (PFDA)

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: ERM-Northeast
Job ID: 180-135332-1
Project/Site: Former TRW Union Springs Property - Unio

Laboratory: Eurofins Sacramento (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
537 (modified)	3535	Solid	Perfluorododecanoic acid (PFDoA)
537 (modified)	3535	Solid	Perfluoroheptanesulfonic acid (PFHpS)
537 (modified)	3535	Solid	Perfluoroheptanoic acid (PFHpA)
537 (modified)	3535	Solid	Perfluorohexanesulfonic acid (PFHxS)
537 (modified)	3535	Solid	Perfluorohexanoic acid (PFHxA)
537 (modified)	3535	Solid	Perfluorononanoic acid (PFNA)
537 (modified)	3535	Solid	Perfluorooctanesulfonamide (FOSA)
537 (modified)	3535	Solid	Perfluorooctanesulfonic acid (PFOS)
537 (modified)	3535	Solid	Perfluorooctanoic acid (PFOA)
537 (modified)	3535	Solid	Perfluoropentanoic acid (PFPeA)
537 (modified)	3535	Solid	Perfluorotetradecanoic acid (PFTeA)
537 (modified)	3535	Solid	Perfluorotridecanoic acid (PFTrDA)
537 (modified)	3535	Solid	Perfluoroundecanoic acid (PFUnA)
537 (modified)	SHAKE	Solid	6:2 FTS
537 (modified)	SHAKE	Solid	8:2 FTS
537 (modified)	SHAKE	Solid	NEtFOSAA
537 (modified)	SHAKE	Solid	NMeFOSAA
537 (modified)	SHAKE	Solid	Perfluorobutanesulfonic acid (PFBS)
537 (modified)	SHAKE	Solid	Perfluorobutanoic acid (PFBA)
537 (modified)	SHAKE	Solid	Perfluorodecanesulfonic acid (PFDS)
537 (modified)	SHAKE	Solid	Perfluorodecanoic acid (PFDA)
537 (modified)	SHAKE	Solid	Perfluorododecanoic acid (PFDoA)
537 (modified)	SHAKE	Solid	Perfluoroheptanesulfonic acid (PFHpS)
537 (modified)	SHAKE	Solid	Perfluoroheptanoic acid (PFHpA)
537 (modified)	SHAKE	Solid	Perfluorohexanesulfonic acid (PFHxS)
537 (modified)	SHAKE	Solid	Perfluorohexanoic acid (PFHxA)
537 (modified)	SHAKE	Solid	Perfluorononanoic acid (PFNA)
537 (modified)	SHAKE	Solid	Perfluorooctanesulfonamide (FOSA)
537 (modified)	SHAKE	Solid	Perfluorooctanesulfonic acid (PFOS)
537 (modified)	SHAKE	Solid	Perfluorooctanoic acid (PFOA)
537 (modified)	SHAKE	Solid	Perfluoropentanoic acid (PFPeA)
537 (modified)	SHAKE	Solid	Perfluorotetradecanoic acid (PFTeA)
537 (modified)	SHAKE	Solid	Perfluorotridecanoic acid (PFTrDA)
537 (modified)	SHAKE	Solid	Perfluoroundecanoic acid (PFUnA)
D 2216		Solid	Percent Moisture
D 2216		Solid	Percent Solids

Sample Summary

Client: ERM-Northeast
Job ID: 180-135332-1
Project/Site: Former TRW Union Springs Property - Unio

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-135332-1	TRW BASE 1	Solid	03/15/22 17:00	03/17/22 14:50
180-135332-2	TRW BASE 2	Solid	03/15/22 17:10	03/17/22 14:50
180-135332-3	TRW BASE 3	Solid	03/15/22 17:20	03/17/22 14:50
180-135332-4	TRW BASE	Solid	03/15/22 17:30	03/17/22 14:50
180-135332-5	TRW BASE	Solid	03/15/22 17:30	03/17/22 14:50
180-135332-6	TRW BASE	Solid	03/15/22 17:30	03/17/22 10:00

Method Summary

Client: ERM-Northeast
Job ID: 180-135332-1
Project/Site: Former TRW Union Springs Property - Unio

Method	Method Description	Protocol	Laboratory
EPA 8260D	Volatile Organic Compounds by GC/MS	SW846	TAL PIT
8270D SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL CHI
EPA 8270E LL	Semivolatile Organic Compounds (GC/MS)	SW846	TAL PIT
EPA 8081B LL	Organochlorine Pesticides (GC)	SW846	TAL PIT
EPA 9056A	Anions, Ion Chromatography	SW846	TAL PIT
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
EPA 6010D	Metals (ICP)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
EPA 7471B	Mercury (CVAA)	SW846	TAL PIT
2540G	SM 2540G	SM22	TAL PIT
D 2216	Percent Moisture	ASTM	TAL SAC
EPA 9045D	pH	SW846	TAL PIT
Moisture	Percent Moisture	EPA	TAL CHI
1312	SPLP Extraction	SW846	TAL CHI
1312	SPLP Extraction	SW846	TAL SAC
3010A	Preparation, Total Metals	SW846	TAL PIT
3050B	Preparation, Metals	SW846	TAL PIT
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL CHI
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL PIT
3520C	Liquid-Liquid Extraction (Continuous)	SW846	TAL PIT
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC
3541	Automated Soxhlet Extraction	SW846	TAL CHI
3541	Automated Soxhlet Extraction (Low Level)	SW846	TAL PIT
5030C	Purge and Trap	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT
7471B	Preparation, Mercury	SW846	TAL PIT
DI Leach	Deionized Water Leaching Procedure	ASTM	TAL PIT
EPA 1312	SPLP Extraction	SW846	TAL PIT
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	TAL SAC

Protocol References:

ASTM = ASTM International
EPA = US Environmental Protection Agency
SM22 = Standard Methods For The Examination Of Water And Wastewater, 22nd Edition
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200
TAL PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058
TAL SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-135332-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW BASE 1
Lab Sample ID: 180-135332-1
Date Collected: 03/15/22 17:00
Matrix: Solid
Date Received: 03/17/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1			392967	03/24/22 16:11	NAF	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW BASE 1
Lab Sample ID: 180-135332-1
Date Collected: 03/15/22 17:00
Matrix: Solid
Date Received: 03/17/22 14:50
Percent Solids: 71.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030C			4.8955 g	5 mL	392148	03/18/22 07:00	KLG	TAL PIT
Total/NA	Analysis	EPA 8260D		1	5 mL	5 mL	392127	03/18/22 13:57	KLG	TAL PIT
	Instrument ID: CHHP3									

Client Sample ID: TRW BASE 2
Lab Sample ID: 180-135332-2
Date Collected: 03/15/22 17:10
Matrix: Solid
Date Received: 03/17/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1			392967	03/24/22 16:11	NAF	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW BASE 2
Lab Sample ID: 180-135332-2
Date Collected: 03/15/22 17:10
Matrix: Solid
Date Received: 03/17/22 14:50
Percent Solids: 71.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030C			5.2643 g	5 mL	392148	03/18/22 07:00	KLG	TAL PIT
Total/NA	Analysis	EPA 8260D		1	5 mL	5 mL	392127	03/18/22 14:20	KLG	TAL PIT
	Instrument ID: CHHP3									

Client Sample ID: TRW BASE 3
Lab Sample ID: 180-135332-3
Date Collected: 03/15/22 17:20
Matrix: Solid
Date Received: 03/17/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1			392967	03/24/22 16:11	NAF	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW BASE 3
Lab Sample ID: 180-135332-3
Date Collected: 03/15/22 17:20
Matrix: Solid
Date Received: 03/17/22 14:50
Percent Solids: 70.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030C			4.9844 g	5 mL	392148	03/18/22 07:00	KLG	TAL PIT
Total/NA	Analysis	EPA 8260D		1	5 mL	5 mL	392127	03/18/22 14:44	KLG	TAL PIT
	Instrument ID: CHHP3									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-135332-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-4
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Leach	1312			1.0 g	1.0 mL	649137	03/28/22 16:03	EA	TAL CHI
SPLP East	Prep	3510C			977.8 mL	5.0 mL	650092	04/04/22 11:22	DAK	TAL CHI
SPLP East	Analysis	8270D SIM		1			650033	04/04/22 17:11	JSB	TAL CHI
	Instrument ID: CMS21									
SPLP East	Leach	1312	DL		1.0 g	1.0 mL	649137	03/28/22 16:03	EA	TAL CHI
SPLP East	Prep	3510C	DL		977.8 mL	5.0 mL	650092	04/04/22 11:22	DAK	TAL CHI
SPLP East	Analysis	8270D SIM	DL	5			650033	04/04/22 17:35	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Analysis	Moisture		1			649827	04/01/22 09:02	LWN	TAL CHI
	Instrument ID: NOEQUIP									

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-4
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50
Percent Solids: 71.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			5.6114 g	2.5 mL	649136	03/29/22 07:16	FRG	TAL CHI
Total/NA	Analysis	8270D SIM		500			650033	04/04/22 14:35	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3541	DL		5.6114 g	2.5 mL	649136	03/29/22 07:16	FRG	TAL CHI
Total/NA	Analysis	8270D SIM	DL	2000			650033	04/04/22 17:59	JSB	TAL CHI
	Instrument ID: CMS21									

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-5
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP	Leach	EPA 1312			25.05 g	500 mL	393515	03/29/22 22:00	BJT	TAL PIT
SPLP	Analysis	EPA 8260D		1	5 mL	5 mL	394680	04/08/22 13:34	J1T	TAL PIT
	Instrument ID: CHHP5									
SPLP	Leach	EPA 1312	DL		25.05 g	500 mL	393515	03/29/22 22:00	BJT	TAL PIT
SPLP	Analysis	EPA 8260D	DL	5	5 mL	5 mL	394680	04/08/22 15:41	J1T	TAL PIT
	Instrument ID: CHHP5									
SPLP East	Leach	EPA 1312			100.04 g	2000 mL	393202	03/27/22 13:13	BJT	TAL PIT
SPLP East	Prep	3520C			1030 mL	1.0 mL	394161	04/04/22 17:15	VJC	TAL PIT
SPLP East	Analysis	EPA 8270E LL		1	1 mL	1 mL	394669	04/08/22 15:38	VVP	TAL PIT
	Instrument ID: CHMSD7									
SPLP East	Leach	EPA 1312			100.04 g	2000 mL	393202	03/27/22 13:13	BJT	TAL PIT
SPLP East	Prep	3510C			1050 mL	1.0 mL	393632	03/30/22 11:45	CBY	TAL PIT
SPLP East	Analysis	EPA 8081B LL		20			394077	04/04/22 14:57	DFE	TAL PIT
	Instrument ID: CHGC15									
SPLP East	Leach	EPA 1312			100.04 g	2000 mL	393202	03/27/22 13:13	BJT	TAL PIT
SPLP East	Prep	3010A			25 mL	25 mL	393596	03/30/22 11:46	RGM	TAL PIT
SPLP East	Analysis	EPA 6010D		1			393827	03/31/22 14:39	RJG	TAL PIT
	Instrument ID: C									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-135332-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-5
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Leach	EPA 1312			100.04 g	2000 mL	393202	03/27/22 13:13	BJT	TAL PIT
SPLP East	Prep	7470A			25 mL	25 mL	393384	03/29/22 05:52	RJR	TAL PIT
SPLP East	Analysis	EPA 7470A		1			393481	03/29/22 14:57	RJR	TAL PIT
	Instrument ID: HGY									
Total/NA	Analysis	2540G		1			392585	03/22/22 12:01	NAF	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	EPA 9045D		1	19.87 g	20 mL	393447	03/29/22 17:43	ELS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-5
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50
Percent Solids: 70.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3541			15.3 g	0.5 mL	392827	03/23/22 20:44	CSC	TAL PIT
Total/NA	Analysis	EPA 8270E LL		3	1 mL	1 mL	393021	03/25/22 12:57	VVP	TAL PIT
	Instrument ID: CH733									
Total/NA	Prep	3541			15.2 g	1.0 mL	392824	03/23/22 18:43	CSC	TAL PIT
Total/NA	Analysis	EPA 8081B LL		1000			394077	04/04/22 12:52	DFE	TAL PIT
	Instrument ID: CHGC15									
Soluble	Leach	DI Leach			10.00 g	100.0 mL	394126	04/04/22 13:24	M1D	TAL PIT
Soluble	Analysis	EPA 9056A		1			394099	04/05/22 00:02	JRB	TAL PIT
	Instrument ID: INTEGRION									
Total/NA	Prep	3050B			1.16 g	100 mL	392927	03/25/22 10:30	RGM	TAL PIT
Total/NA	Analysis	EPA 6010D		1			393677	03/30/22 17:23	RJG	TAL PIT
	Instrument ID: C									
Total/NA	Prep	3050B			1.16 g	100 mL	392927	03/25/22 10:30	RGM	TAL PIT
Total/NA	Analysis	EPA 6010D		1			393827	03/31/22 09:57	RJG	TAL PIT
	Instrument ID: C									
Total/NA	Prep	3050B			1.16 g	100 mL	392927	03/25/22 10:30	RGM	TAL PIT
Total/NA	Analysis	EPA 6010D		5			393827	03/31/22 10:01	RJG	TAL PIT
	Instrument ID: C									
Total/NA	Prep	3050B			1.16 g	100 mL	392927	03/25/22 10:30	RGM	TAL PIT
Total/NA	Analysis	EPA 6010D		50			393827	03/31/22 10:06	RJG	TAL PIT
	Instrument ID: C									
Total/NA	Prep	7471B			0.95 g	100 mL	393889	04/05/22 06:40	RJR	TAL PIT
Total/NA	Analysis	EPA 7471B		1			394303	04/05/22 14:17	RJR	TAL PIT
	Instrument ID: HGY									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-135332-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-6
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Leach	1312			99.99 g	2000 mL	575863	03/28/22 12:20	GSH	TAL SAC
SPLP East	Prep	3535			279.4 mL	10.0 mL	577962	04/05/22 12:30	DVC	TAL SAC
SPLP East	Analysis	537 (modified)		1			578024	04/06/22 09:22	AF	TAL SAC
	Instrument ID: A13									
Total/NA	Analysis	D 2216		1			575366	03/23/22 16:48	KMW	TAL SAC
	Instrument ID: NOEQUIP									

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-6
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 10:00
Percent Solids: 69.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.16 g	10.0 mL	575497	03/24/22 11:16	OP	TAL SAC
Total/NA	Analysis	537 (modified)		1			575734	03/25/22 08:34	AF	TAL SAC
	Instrument ID: A17									

Laboratory References:

TAL CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TAL PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-135332-1
Project/Site: Former TRW Union Springs Property - Unio

Analyst References:

Lab: TAL CHI
- Batch Type: Leach
  - EA = Anne Ethridge
- Batch Type: Prep
  - DAK = Dan Knieriemen
  - FRG = Frances Gachalian
- Batch Type: Analysis
  - JSB = Joshua Burdelik
  - LWN = Larry Nelson

Lab: TAL PIT
- Batch Type: Leach
  - BJT = Bill Trout
  - M1D = Maureen Donlin
- Batch Type: Prep
  - CBY = Charles Yushinski
  - CSC = Chayce Cockroft
  - KLG = Kathy Gordon
  - RGM = Rebecca Manns
  - RJR = Ron Rosenbaum
  - VJC = Vincent Cervone
- Batch Type: Analysis
  - DFE = David Eppinger
  - ELS = Edwin Shireman
  - J1T = Jianwu Tang
  - JRB = James Burzio
  - KLG = Kathy Gordon
  - NAF = Nicholas Frankos
  - RJG = Rob Good
  - RJR = Ron Rosenbaum
  - VVP = Vincent Piccolino

Lab: TAL SAC
- Batch Type: Leach
  - GSH = Greg Harry
- Batch Type: Prep
  - DVC = Diana Castellanos
  - OP = Oscar Pascual-Diaz
- Batch Type: Analysis
  - AF = Ashley Farias
  - KMW = Kelly White

Client Sample ID: TRW BASE 1
Date Collected: 03/15/22 17:00
Date Received: 03/17/22 14:50

Lab Sample ID: 180-135332-1
Matrix: Solid
Percent Solids: 71.4

Method: EPA 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		7.2	2.4	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
1,1,2,2-Tetrachloroethane	ND		7.2	2.2	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Freon-113	ND		7.2	2.9	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
1,1,2-Trichloroethane	ND		7.2	1.4	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
1,1-Dichloroethane	ND		7.2	2.3	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
1,1-Dichloroethene	ND		7.2	3.2	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
1,2,4-Trichlorobenzene	ND		7.2	3.6	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
1,2-Dibromo-3-Chloropropane	ND		7.2	4.6	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
1,2-Dichlorobenzene	ND		7.2	2.4	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
1,2-Dichloroethane	ND		7.2	2.1	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
1,2-Dichloropropane	ND		7.2	1.9	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
1,3-Dichlorobenzene	ND		7.2	4.4	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
1,4-Dichlorobenzene	**2.3**	**J**	7.2	2.1	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
2-Butanone (MEK)	ND		7.2	3.6	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
2-Hexanone	ND		7.2	2.2	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Acetone	**13**	**J**	29	5.6	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Benzene	ND		7.2	2.0	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Bromoform	ND		7.2	3.6	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Methyl bromide	ND		7.2	3.3	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Carbon disulfide	ND		7.2	5.7	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Carbon tetrachloride	ND		7.2	2.9	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Chlorobenzene	ND		7.2	1.9	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Dibromochloromethane	ND		7.2	3.5	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Chloroethane	ND		7.2	4.2	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Chloroform	ND		7.2	2.3	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Methyl chloride	ND		7.2	2.8	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
cis-1,2-Dichloroethene	**210**		7.2	2.2	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
cis-1,3-Dichloropropene	ND		7.2	3.2	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Bromodichloromethane	ND		7.2	3.3	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Freon-12	ND		7.2	3.6	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Ethylbenzene	ND		7.2	2.6	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
1,2-Dibromoethane	ND		7.2	2.0	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Isopropylbenzene (cumene)	ND		7.2	3.7	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Methyl tert-butyl ether	ND		7.2	2.1	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Methylene Chloride	ND		7.2	6.5	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Styrene	ND		7.2	2.1	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Tetrachloroethene	ND		7.2	2.9	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Toluene	ND		7.2	2.1	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
trans-1,2-Dichloroethene	ND		7.2	2.5	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
trans-1,3-Dichloropropene	ND		7.2	3.2	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Trichloroethene	ND		7.2	2.2	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Freon-11	ND		7.2	5.9	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Vinyl chloride	ND		7.2	5.1	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1
Xylenes, Total	ND		14	10	ug/Kg	☼	03/18/22 07:00	03/18/22 13:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*73 - 135*	*03/18/22 07:00*	*03/18/22 13:57*	*1*
4-Bromofluorobenzene (Surr)	*92*		*60 - 124*	*03/18/22 07:00*	*03/18/22 13:57*	*1*
Dibromofluoromethane (Surr)	*105*		*69 - 126*	*03/18/22 07:00*	*03/18/22 13:57*	*1*
Toluene-d8 (Surr)	*115*		*67 - 134*	*03/18/22 07:00*	*03/18/22 13:57*	*1*

Client Sample ID: TRW BASE 1
Lab Sample ID: 180-135332-1

Date Collected: 03/15/22 17:00
Matrix: Solid
Date Received: 03/17/22 14:50
Percent Solids: 71.4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**28.6**		0.1	0.1	%			03/24/22 16:11	1
Percent Solids	**71.4**		0.1	0.1	%			03/24/22 16:11	1

Client Sample ID: TRW BASE 2
Lab Sample ID: 180-135332-2

Date Collected: 03/15/22 17:10
Matrix: Solid
Date Received: 03/17/22 14:50
Percent Solids: 71.5

Method: EPA 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		6.6	2.2	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
1,1,2,2-Tetrachloroethane	ND		6.6	2.0	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Freon-113	ND		6.6	2.7	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
1,1,2-Trichloroethane	ND		6.6	1.3	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
1,1-Dichloroethane	ND		6.6	2.1	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
1,1-Dichloroethene	ND		6.6	3.0	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
1,2,4-Trichlorobenzene	ND		6.6	3.4	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
1,2-Dibromo-3-Chloropropane	ND		6.6	4.3	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
1,2-Dichlorobenzene	ND		6.6	2.2	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
1,2-Dichloroethane	ND		6.6	1.9	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
1,2-Dichloropropane	ND		6.6	1.8	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
1,3-Dichlorobenzene	ND		6.6	4.1	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
1,4-Dichlorobenzene	**2.6**	**J**	6.6	2.0	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
2-Butanone (MEK)	**8.7**		6.6	3.4	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
2-Hexanone	ND		6.6	2.1	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Acetone	**13**	**J**	27	5.2	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Benzene	ND		6.6	1.9	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Bromoform	ND		6.6	3.3	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Methyl bromide	ND		6.6	3.0	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Carbon disulfide	ND		6.6	5.3	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Carbon tetrachloride	ND		6.6	2.7	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Chlorobenzene	ND		6.6	1.7	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Dibromochloromethane	ND		6.6	3.3	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Chloroethane	ND		6.6	3.9	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Chloroform	ND		6.6	2.1	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Methyl chloride	ND		6.6	2.6	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
cis-1,2-Dichloroethene	**150**		6.6	2.0	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
cis-1,3-Dichloropropene	ND		6.6	2.9	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Bromodichloromethane	ND		6.6	3.1	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Freon-12	ND		6.6	3.3	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Ethylbenzene	ND		6.6	2.5	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
1,2-Dibromoethane	ND		6.6	1.8	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Isopropylbenzene (cumene)	ND		6.6	3.5	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Methyl tert-butyl ether	ND		6.6	2.0	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Methylene Chloride	ND		6.6	6.0	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Styrene	ND		6.6	2.0	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Tetrachloroethene	ND		6.6	2.7	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Toluene	ND		6.6	1.9	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
trans-1,2-Dichloroethene	**2.4**	**J**	6.6	2.3	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
trans-1,3-Dichloropropene	ND		6.6	3.0	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Trichloroethene	**3.3**	**J**	6.6	2.1	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1

Client Sample ID: TRW BASE 2
Lab Sample ID: 180-135332-2

Date Collected: 03/15/22 17:10
Matrix: Solid
Date Received: 03/17/22 14:50
Percent Solids: 71.5

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Freon-11	ND		6.6	5.5	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Vinyl chloride	ND		6.6	4.8	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1
Xylenes, Total	ND		13	9.6	ug/Kg	☼	03/18/22 07:00	03/18/22 14:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*73 - 135*	*03/18/22 07:00*	*03/18/22 14:20*	*1*
4-Bromofluorobenzene (Surr)	*97*		*60 - 124*	*03/18/22 07:00*	*03/18/22 14:20*	*1*
Dibromofluoromethane (Surr)	*107*		*69 - 126*	*03/18/22 07:00*	*03/18/22 14:20*	*1*
Toluene-d8 (Surr)	*121*		*67 - 134*	*03/18/22 07:00*	*03/18/22 14:20*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**28.5**		0.1	0.1	%			03/24/22 16:11	1
Percent Solids	**71.5**		0.1	0.1	%			03/24/22 16:11	1

Client Sample ID: TRW BASE 3
Lab Sample ID: 180-135332-3

Date Collected: 03/15/22 17:20
Matrix: Solid
Date Received: 03/17/22 14:50
Percent Solids: 70.7

Method: EPA 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		7.1	2.4	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
1,1,2,2-Tetrachloroethane	ND		7.1	2.2	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Freon-113	ND		7.1	2.8	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
1,1,2-Trichloroethane	ND		7.1	1.4	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
1,1-Dichloroethane	ND		7.1	2.3	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
1,1-Dichloroethene	ND		7.1	3.2	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
1,2,4-Trichlorobenzene	ND		7.1	3.6	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
1,2-Dibromo-3-Chloropropane	ND		7.1	4.6	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
1,2-Dichlorobenzene	ND		7.1	2.4	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
1,2-Dichloroethane	ND		7.1	2.0	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
1,2-Dichloropropane	ND		7.1	1.9	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
1,3-Dichlorobenzene	ND		7.1	4.4	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
1,4-Dichlorobenzene	**2.4**	**J**	7.1	2.1	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
2-Butanone (MEK)	ND		7.1	3.6	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
2-Hexanone	ND		7.1	2.2	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Acetone	ND		28	5.5	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Benzene	ND		7.1	2.0	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Bromoform	ND		7.1	3.6	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Methyl bromide	ND		7.1	3.2	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Carbon disulfide	ND		7.1	5.7	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Carbon tetrachloride	ND		7.1	2.9	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Chlorobenzene	ND		7.1	1.8	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Dibromochloromethane	ND		7.1	3.5	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Chloroethane	ND		7.1	4.1	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Chloroform	ND		7.1	2.3	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Methyl chloride	ND		7.1	2.8	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
cis-1,2-Dichloroethene	**180**		7.1	2.1	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
cis-1,3-Dichloropropene	ND		7.1	3.1	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Bromodichloromethane	ND		7.1	3.3	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1

Client Sample ID: TRW BASE 3
Lab Sample ID: 180-135332-3
Date Collected: 03/15/22 17:20
Matrix: Solid
Date Received: 03/17/22 14:50
Percent Solids: 70.7

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Freon-12	ND		7.1	3.5	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Ethylbenzene	ND		7.1	2.6	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
1,2-Dibromoethane	ND		7.1	1.9	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Isopropylbenzene (cumene)	ND		7.1	3.7	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Methyl tert-butyl ether	ND		7.1	2.1	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Methylene Chloride	ND		7.1	6.4	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Styrene	ND		7.1	2.1	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Tetrachloroethene	ND		7.1	2.9	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Toluene	ND		7.1	2.0	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
trans-1,2-Dichloroethene	**3.2**	**J**	7.1	2.5	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
trans-1,3-Dichloropropene	ND		7.1	3.2	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Trichloroethene	ND		7.1	2.2	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Freon-11	ND		7.1	5.9	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Vinyl chloride	**92**		7.1	5.1	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1
Xylenes, Total	ND		14	10	ug/Kg	☼	03/18/22 07:00	03/18/22 14:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*73 - 135*	*03/18/22 07:00*	*03/18/22 14:44*	*1*
4-Bromofluorobenzene (Surr)	*93*		*60 - 124*	*03/18/22 07:00*	*03/18/22 14:44*	*1*
Dibromofluoromethane (Surr)	*103*		*69 - 126*	*03/18/22 07:00*	*03/18/22 14:44*	*1*
Toluene-d8 (Surr)	*117*		*67 - 134*	*03/18/22 07:00*	*03/18/22 14:44*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**29.3**		0.1	0.1	%			03/24/22 16:11	1
Percent Solids	**70.7**		0.1	0.1	%			03/24/22 16:11	1

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-4
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		0.0000026	0.0000013	g/L		04/04/22 11:22	04/04/22 17:11	1
Hexachloronaphthalene, Total	ND		0.0000026	0.0000013	g/L		04/04/22 11:22	04/04/22 17:11	1
Heptachloronaphthalene, Total	ND		0.0000026	0.0000013	g/L		04/04/22 11:22	04/04/22 17:11	1
Octachloronaphthalene, Total	ND		0.0000026	0.0000013	g/L		04/04/22 11:22	04/04/22 17:11	1
Pentachloronaphthalene, Total	ND		0.0000026	0.0000013	g/L		04/04/22 11:22	04/04/22 17:11	1
Tetrachloronaphthalene, Total	**0.0000058**		0.0000026	0.0000013	g/L		04/04/22 11:22	04/04/22 17:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*91*		*30 - 123*	*04/04/22 11:22*	*04/04/22 17:11*	*1*
Nitrobenzene-d5 (Surr)	*95*		*33 - 139*	*04/04/22 11:22*	*04/04/22 17:11*	*1*
Terphenyl-d14 (Surr)	*95*		*42 - 150*	*04/04/22 11:22*	*04/04/22 17:11*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - SPLP East - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloronaphthalene, Total	**0.000063**		0.000013	0.0000064	g/L		04/04/22 11:22	04/04/22 17:35	5
Trichloronaphthalene, Total	**0.000054**		0.000013	0.0000064	g/L		04/04/22 11:22	04/04/22 17:35	5

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-4
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*104*		*30 - 123*	*04/04/22 11:22*	*04/04/22 17:35*	*5*
Nitrobenzene-d5 (Surr)	*103*		*33 - 139*	*04/04/22 11:22*	*04/04/22 17:35*	*5*
Terphenyl-d14 (Surr)	*98*		*42 - 150*	*04/04/22 11:22*	*04/04/22 17:35*	*5*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**28.1**		0.1	0.1	%			04/01/22 09:02	1
Percent Solids	**71.9**		0.1	0.1	%			04/01/22 09:02	1

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-4
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50
Percent Solids: 71.9

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**120000**	**J**	150000	27000	ug/Kg	☼	03/29/22 07:16	04/04/22 14:35	500
Dichloronaphthalene, Total	**430000**		150000	46000	ug/Kg	☼	03/29/22 07:16	04/04/22 14:35	500
Hexachloronaphthalene, Total	ND		150000	38000	ug/Kg	☼	03/29/22 07:16	04/04/22 14:35	500
Heptachloronaphthalene, Total	ND		150000	32000	ug/Kg	☼	03/29/22 07:16	04/04/22 14:35	500
Octachloronaphthalene, Total	ND		150000	61000	ug/Kg	☼	03/29/22 07:16	04/04/22 14:35	500
Pentachloronaphthalene, Total	**130000**	**J**	150000	31000	ug/Kg	☼	03/29/22 07:16	04/04/22 14:35	500
Tetrachloronaphthalene, Total	**1100000**		150000	42000	ug/Kg	☼	03/29/22 07:16	04/04/22 14:35	500

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*0*	*D*	*42 - 115*	*03/29/22 07:16*	*04/04/22 14:35*	*500*
Nitrobenzene-d5 (Surr)	*0*	*D*	*33 - 124*	*03/29/22 07:16*	*04/04/22 14:35*	*500*
Terphenyl-d14 (Surr)	*0*	*D*	*25 - 150*	*03/29/22 07:16*	*04/04/22 14:35*	*500*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloronaphthalene, Total	**1700000**		620000	88000	ug/Kg	☼	03/29/22 07:16	04/04/22 17:59	2000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*0*	*D*	*42 - 115*	*03/29/22 07:16*	*04/04/22 17:59*	*2000*
Nitrobenzene-d5 (Surr)	*0*	*D*	*33 - 124*	*03/29/22 07:16*	*04/04/22 17:59*	*2000*
Terphenyl-d14 (Surr)	*0*	*D*	*25 - 150*	*03/29/22 07:16*	*04/04/22 17:59*	*2000*

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-5
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - SPLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			04/08/22 13:34	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			04/08/22 13:34	1
Freon-113	ND		5.0	1.9	ug/L			04/08/22 13:34	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			04/08/22 13:34	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			04/08/22 13:34	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			04/08/22 13:34	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			04/08/22 13:34	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			04/08/22 13:34	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			04/08/22 13:34	1

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-5
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - SPLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		5.0	1.5	ug/L			04/08/22 13:34	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			04/08/22 13:34	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			04/08/22 13:34	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			04/08/22 13:34	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			04/08/22 13:34	1
2-Hexanone	ND		5.0	4.2	ug/L			04/08/22 13:34	1
Acetone	ND		20	5.5	ug/L			04/08/22 13:34	1
Benzene	ND		5.0	2.0	ug/L			04/08/22 13:34	1
Bromoform	ND		5.0	2.6	ug/L			04/08/22 13:34	1
Methyl bromide	ND		5.0	4.5	ug/L			04/08/22 13:34	1
Carbon disulfide	ND		5.0	3.0	ug/L			04/08/22 13:34	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			04/08/22 13:34	1
Chlorobenzene	ND		5.0	1.6	ug/L			04/08/22 13:34	1
Dibromochloromethane	ND		5.0	2.4	ug/L			04/08/22 13:34	1
Chloroethane	ND		5.0	2.6	ug/L			04/08/22 13:34	1
Chloroform	ND		5.0	2.1	ug/L			04/08/22 13:34	1
Methyl chloride	ND		5.0	3.9	ug/L			04/08/22 13:34	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			04/08/22 13:34	1
Bromodichloromethane	ND		5.0	2.4	ug/L			04/08/22 13:34	1
Freon-12	ND		5.0	2.9	ug/L			04/08/22 13:34	1
Ethylbenzene	ND		5.0	2.2	ug/L			04/08/22 13:34	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			04/08/22 13:34	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			04/08/22 13:34	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			04/08/22 13:34	1
Methylene Chloride	**15**	**B**	5.0	3.9	ug/L			04/08/22 13:34	1
Styrene	ND		5.0	1.3	ug/L			04/08/22 13:34	1
Tetrachloroethene	ND		5.0	2.0	ug/L			04/08/22 13:34	1
Toluene	ND		5.0	1.7	ug/L			04/08/22 13:34	1
trans-1,2-Dichloroethene	**2.8**	**J**	5.0	2.5	ug/L			04/08/22 13:34	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			04/08/22 13:34	1
Trichloroethene	**2.2**	**J**	5.0	1.5	ug/L			04/08/22 13:34	1
Freon-11	ND		5.0	1.5	ug/L			04/08/22 13:34	1
Vinyl chloride	**29**		5.0	3.7	ug/L			04/08/22 13:34	1
Xylenes, Total	ND		10	4.3	ug/L			04/08/22 13:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*52 - 151*		*04/08/22 13:34*	*1*
4-Bromofluorobenzene (Surr)	*84*		*49 - 118*		*04/08/22 13:34*	*1*
Dibromofluoromethane (Surr)	*95*		*60 - 132*		*04/08/22 13:34*	*1*
Toluene-d8 (Surr)	*99*		*53 - 124*		*04/08/22 13:34*	*1*

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - SPLP - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	**70**		25	7.9	ug/L			04/08/22 15:41	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*52 - 151*		*04/08/22 15:41*	*5*
4-Bromofluorobenzene (Surr)	*82*		*49 - 118*		*04/08/22 15:41*	*5*
Dibromofluoromethane (Surr)	*95*		*60 - 132*		*04/08/22 15:41*	*5*
Toluene-d8 (Surr)	*91*		*53 - 124*		*04/08/22 15:41*	*5*

Client: ERM-Northeast
Job ID: 180-135332-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-5
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.97	0.14	ug/L		04/04/22 17:15	04/08/22 15:38	1
1,4-Dichlorobenzene	**0.17**	**J**	0.97	0.059	ug/L		04/04/22 17:15	04/08/22 15:38	1
2,2'-oxybis[1-chloropropane]	ND		0.18	0.056	ug/L		04/04/22 17:15	04/08/22 15:38	1
2,4-Dichlorophenol	ND		0.18	0.050	ug/L		04/04/22 17:15	04/08/22 15:38	1
2,4-Dimethylphenol	ND		0.97	0.16	ug/L		04/04/22 17:15	04/08/22 15:38	1
2,4-Dinitrophenol	ND		9.7	1.5	ug/L		04/04/22 17:15	04/08/22 15:38	1
2,4-Dinitrotoluene	ND		0.97	0.34	ug/L		04/04/22 17:15	04/08/22 15:38	1
2,6-Dinitrotoluene	ND		0.97	0.17	ug/L		04/04/22 17:15	04/08/22 15:38	1
2-Chloronaphthalene	**3.8**		0.18	0.057	ug/L		04/04/22 17:15	04/08/22 15:38	1
2-Nitroaniline	ND		4.9	0.53	ug/L		04/04/22 17:15	04/08/22 15:38	1
3,3'-Dichlorobenzidine	ND		0.97	0.57	ug/L		04/04/22 17:15	04/08/22 15:38	1
3-Nitroaniline	ND		4.9	0.42	ug/L		04/04/22 17:15	04/08/22 15:38	1
p-Chloroaniline	ND		0.97	0.37	ug/L		04/04/22 17:15	04/08/22 15:38	1
p-Nitroaniline	ND		4.9	0.35	ug/L		04/04/22 17:15	04/08/22 15:38	1
Acenaphthene	ND		0.18	0.063	ug/L		04/04/22 17:15	04/08/22 15:38	1
Anthracene	**0.13**	**J**	0.18	0.048	ug/L		04/04/22 17:15	04/08/22 15:38	1
Atrazine	ND		0.97	0.61	ug/L		04/04/22 17:15	04/08/22 15:38	1
Benzo[a]anthracene	ND		0.18	0.073	ug/L		04/04/22 17:15	04/08/22 15:38	1
Benzo[a]pyrene	ND		0.18	0.051	ug/L		04/04/22 17:15	04/08/22 15:38	1
Benzo[b]fluoranthene	ND		0.18	0.094	ug/L		04/04/22 17:15	04/08/22 15:38	1
Benzo[k]fluoranthene	ND		0.18	0.085	ug/L		04/04/22 17:15	04/08/22 15:38	1
Bis(2-chloroethoxy)methane	ND		0.97	0.15	ug/L		04/04/22 17:15	04/08/22 15:38	1
Dichloroethyl ether	ND		0.18	0.039	ug/L		04/04/22 17:15	04/08/22 15:38	1
Bis(2-ethylhexyl) phthalate	ND		9.7	6.0	ug/L		04/04/22 17:15	04/08/22 15:38	1
Benzyl butyl phthalate	**0.94**	**J**	0.97	0.45	ug/L		04/04/22 17:15	04/08/22 15:38	1
Chrysene	ND		0.18	0.079	ug/L		04/04/22 17:15	04/08/22 15:38	1
Diethyl phthalate	**0.94**	**J**	0.97	0.55	ug/L		04/04/22 17:15	04/08/22 15:38	1
Dimethyl phthalate	ND		0.97	0.19	ug/L		04/04/22 17:15	04/08/22 15:38	1
Dibutylphthalate	**4.9**	**B**	0.97	0.72	ug/L		04/04/22 17:15	04/08/22 15:38	1
Di-n-octyl phthalate	ND		0.97	0.67	ug/L		04/04/22 17:15	04/08/22 15:38	1
Fluoranthene	ND		0.18	0.058	ug/L		04/04/22 17:15	04/08/22 15:38	1
Fluorene	ND		0.18	0.067	ug/L		04/04/22 17:15	04/08/22 15:38	1
Hexachlorobutadiene	ND		0.18	0.067	ug/L		04/04/22 17:15	04/08/22 15:38	1
Hexachlorocyclopentadiene	ND		0.97	0.48	ug/L		04/04/22 17:15	04/08/22 15:38	1
Hexachloroethane	ND		0.97	0.13	ug/L		04/04/22 17:15	04/08/22 15:38	1
Indeno[1,2,3-cd]pyrene	ND		0.18	0.083	ug/L		04/04/22 17:15	04/08/22 15:38	1
Isophorone	ND		0.97	0.18	ug/L		04/04/22 17:15	04/08/22 15:38	1
Nitrobenzene	ND		1.9	0.49	ug/L		04/04/22 17:15	04/08/22 15:38	1
N-Nitrosodiphenylamine	ND		0.97	0.12	ug/L		04/04/22 17:15	04/08/22 15:38	1
Pentachlorophenol	ND		4.9	0.82	ug/L		04/04/22 17:15	04/08/22 15:38	1
Phenanthrene	**0.087**	**J**	0.18	0.053	ug/L		04/04/22 17:15	04/08/22 15:38	1
Phenol	ND		0.97	0.47	ug/L		04/04/22 17:15	04/08/22 15:38	1
Pyrene	ND		0.18	0.052	ug/L		04/04/22 17:15	04/08/22 15:38	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Unknown	*1.9*	*T J*	*ug/L*		*5.19*		*04/04/22 17:15*	*04/08/22 15:38*	*1*
Unknown	*8.0*	*T J*	*ug/L*		*7.62*		*04/04/22 17:15*	*04/08/22 15:38*	*1*
Benzoic acid, 5-chloro-2-hydroxy-	*2.3*	*T J N*	*ug/L*		*8.38*	*321-14-2*	*04/04/22 17:15*	*04/08/22 15:38*	*1*
Unknown	*1.8*	*T J*	*ug/L*		*8.85*		*04/04/22 17:15*	*04/08/22 15:38*	*1*
Naphthalene, 2,3-dichloro-	*11*	*T J N*	*ug/L*		*8.98*	*2050-75-1*	*04/04/22 17:15*	*04/08/22 15:38*	*1*

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-5
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - SPLP East (Continued)

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Unknown	1.9	T J	ug/L		9.56		04/04/22 17:15	04/08/22 15:38	1
Unknown	6.1	T J	ug/L		9.58		04/04/22 17:15	04/08/22 15:38	1
Naphthalene, 1,3,7-trichloro-	2.6	T J N	ug/L		9.65	55720-37-1	04/04/22 17:15	04/08/22 15:38	1
Unknown	5.2	T J	ug/L		9.68		04/04/22 17:15	04/08/22 15:38	1
Naphthalene, 2,3,6-trichloro-	16	T J N	ug/L		9.71	55720-40-6	04/04/22 17:15	04/08/22 15:38	1
Unknown	39	T J	ug/L		10.29		04/04/22 17:15	04/08/22 15:38	1
Unknown	54	T J	ug/L		10.32		04/04/22 17:15	04/08/22 15:38	1
Unknown	6.3	T J	ug/L		10.38		04/04/22 17:15	04/08/22 15:38	1
Unknown	3.5	T J	ug/L		10.40		04/04/22 17:15	04/08/22 15:38	1
9,10-Anthracenedione	14	T J N	ug/L		10.69	84-65-1	04/04/22 17:15	04/08/22 15:38	1
Unknown	1.8	T J	ug/L		10.96		04/04/22 17:15	04/08/22 15:38	1
Triphenyl phosphate	6.3	T J N	ug/L		12.58	115-86-6	04/04/22 17:15	04/08/22 15:38	1
Phosphoric acid, (1,1-dimethylethyl)phenyl diphenyl ester	8.4	T J N	ug/L		14.13	56803-37-3	04/04/22 17:15	04/08/22 15:38	1
Unknown	5.9	T J	ug/L		15.52		04/04/22 17:15	04/08/22 15:38	1
Unknown	1.7	T J	ug/L		17.29		04/04/22 17:15	04/08/22 15:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	73		32 - 124	04/04/22 17:15	04/08/22 15:38	1
2-Fluorobiphenyl (Surr)	71		38 - 105	04/04/22 17:15	04/08/22 15:38	1
2-Fluorophenol (Surr)	43		24 - 105	04/04/22 17:15	04/08/22 15:38	1
Nitrobenzene-d5 (Surr)	66		38 - 105	04/04/22 17:15	04/08/22 15:38	1
Phenol-d5 (Surr)	53		28 - 105	04/04/22 17:15	04/08/22 15:38	1
Terphenyl-d14 (Surr)	58		28 - 112	04/04/22 17:15	04/08/22 15:38	1

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	**0.016**	**J**	0.025	0.0045	ug/L		03/30/22 11:45	04/04/22 14:57	20
beta-BHC	ND		0.025	0.0070	ug/L		03/30/22 11:45	04/04/22 14:57	20
delta-BHC	ND		0.025	0.012	ug/L		03/30/22 11:45	04/04/22 14:57	20
gamma-BHC (Lindane)	ND		0.025	0.0056	ug/L		03/30/22 11:45	04/04/22 14:57	20
alpha-Chlordane	**0.043**	**p**	0.025	0.0070	ug/L		03/30/22 11:45	04/04/22 14:57	20
gamma-Chlordane	ND		0.025	0.0078	ug/L		03/30/22 11:45	04/04/22 14:57	20
4,4'-DDD	ND		0.025	0.010	ug/L		03/30/22 11:45	04/04/22 14:57	20
4,4'-DDE	ND		0.025	0.0056	ug/L		03/30/22 11:45	04/04/22 14:57	20
4,4'-DDT	ND		0.025	0.013	ug/L		03/30/22 11:45	04/04/22 14:57	20
Dieldrin	ND		0.025	0.0052	ug/L		03/30/22 11:45	04/04/22 14:57	20
Endosulfan II	ND		0.025	0.0060	ug/L		03/30/22 11:45	04/04/22 14:57	20
Endrin aldehyde	ND		0.025	0.0099	ug/L		03/30/22 11:45	04/04/22 14:57	20
Endrin ketone	ND		0.025	0.0075	ug/L		03/30/22 11:45	04/04/22 14:57	20
Heptachlor	ND		0.025	0.0086	ug/L		03/30/22 11:45	04/04/22 14:57	20
Heptachlor epoxide	ND		0.025	0.0065	ug/L		03/30/22 11:45	04/04/22 14:57	20
Hexachlorobenzene	ND		0.025	0.017	ug/L		03/30/22 11:45	04/04/22 14:57	20
Methoxychlor	ND		0.025	0.015	ug/L		03/30/22 11:45	04/04/22 14:57	20
Toxaphene	ND		1.9	0.94	ug/L		03/30/22 11:45	04/04/22 14:57	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	0	S1-	39 - 119	03/30/22 11:45	04/04/22 14:57	20
Tetrachloro-m-xylene	0	S1-	39 - 119	03/30/22 11:45	04/04/22 14:57	20

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-5
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - SPLP East (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*96*		*46 - 114*	*03/30/22 11:45*	*04/04/22 14:57*	*20*
DCB Decachlorobiphenyl (Surr)	*121*	*S1+*	*46 - 114*	*03/30/22 11:45*	*04/04/22 14:57*	*20*

Method: EPA 6010D - Metals (ICP) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.91	ug/L		03/30/22 11:46	03/31/22 14:39	1
Aluminum	ND		200	41	ug/L		03/30/22 11:46	03/31/22 14:39	1
Arsenic	ND		10	8.3	ug/L		03/30/22 11:46	03/31/22 14:39	1
Barium	**160**	**J**	200	6.3	ug/L		03/30/22 11:46	03/31/22 14:39	1
Beryllium	ND		4.0	1.5	ug/L		03/30/22 11:46	03/31/22 14:39	1
Calcium	**73000**		5000	320	ug/L		03/30/22 11:46	03/31/22 14:39	1
Cadmium	ND		5.0	0.30	ug/L		03/30/22 11:46	03/31/22 14:39	1
Cobalt	ND		50	1.9	ug/L		03/30/22 11:46	03/31/22 14:39	1
Chromium	ND		5.0	1.6	ug/L		03/30/22 11:46	03/31/22 14:39	1
Copper	ND		25	2.2	ug/L		03/30/22 11:46	03/31/22 14:39	1
Iron	ND		100	72	ug/L		03/30/22 11:46	03/31/22 14:39	1
Potassium	**1500**	**J**	5000	800	ug/L		03/30/22 11:46	03/31/22 14:39	1
Magnesium	**8300**		5000	260	ug/L		03/30/22 11:46	03/31/22 14:39	1
Manganese	**180**		15	2.4	ug/L		03/30/22 11:46	03/31/22 14:39	1
Sodium	**4600**	**J B**	5000	300	ug/L		03/30/22 11:46	03/31/22 14:39	1
Nickel	ND		40	1.9	ug/L		03/30/22 11:46	03/31/22 14:39	1
Lead	ND		10	4.4	ug/L		03/30/22 11:46	03/31/22 14:39	1
Antimony	**610**		10	6.2	ug/L		03/30/22 11:46	03/31/22 14:39	1
Selenium	ND		10	3.7	ug/L		03/30/22 11:46	03/31/22 14:39	1
Thallium	ND		20	3.0	ug/L		03/30/22 11:46	03/31/22 14:39	1
Vanadium	ND		50	5.3	ug/L		03/30/22 11:46	03/31/22 14:39	1
Zinc	**19**	**J**	20	2.6	ug/L		03/30/22 11:46	03/31/22 14:39	1

Method: EPA 7470A - Mercury (CVAA) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		03/29/22 05:52	03/29/22 14:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**29.6**		0.1	0.1	%			03/22/22 12:01	1
Percent Solids	**70.4**		0.1	0.1	%			03/22/22 12:01	1
pH	**7.5**	**HF**	0.1	0.1	SU			03/29/22 17:43	1
Temperature	**19.6**	**HF**	0.1	0.1	Degrees C			03/29/22 17:43	1

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-5
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50
Percent Solids: 70.4

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		28	8.0	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Anthracene	**220**		28	7.2	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Atrazine	ND	F1	280	61	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Benzo[a]anthracene	**75**		28	13	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Benzo[a]pyrene	**51**		28	12	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-5
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50
Percent Solids: 70.4

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	**81**		28	6.9	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Benzo[k]fluoranthene	**30**		28	8.4	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Benzyl butyl phthalate	ND		140	96	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Biphenyl	ND		140	51	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Bis(2-chloroethoxy)methane	ND		140	51	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Bis(2-ethylhexyl) phthalate	**150**	**J**	1400	150	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
2-Chloronaphthalene	**4700**	**F2**	28	6.4	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Chrysene	**78**		28	15	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Dibutylphthalate	**1700**	**F1**	140	61	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
1,4-Dichlorobenzene	ND		140	51	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
3,3'-Dichlorobenzidine	ND		140	130	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Dichloroethyl ether	ND		28	5.1	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
2,4-Dichlorophenol	ND		28	11	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Diethyl phthalate	ND		140	49	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
2,4-Dimethylphenol	ND		140	47	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Dimethyl phthalate	ND		140	55	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
2,4-Dinitrophenol	ND	F1	1400	870	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
2,4-Dinitrotoluene	ND		140	83	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
2,6-Dinitrotoluene	ND		140	54	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Di-n-octyl phthalate	ND		140	81	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Fluoranthene	**140**		28	7.4	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Fluorene	ND		28	5.5	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Hexachlorobutadiene	ND		28	8.2	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Hexachlorocyclopentadiene	ND		140	14	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Hexachloroethane	ND		140	49	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Indeno[1,2,3-cd]pyrene	**34**		28	14	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Isophorone	ND		140	52	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
2-Nitroaniline	ND		710	64	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
3-Nitroaniline	ND		710	35	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Nitrobenzene	ND		280	51	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
N-Nitrosodiphenylamine	**110**	**J**	140	46	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
2,2'-oxybis[1-chloropropane]	ND		28	10	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
p-Chloroaniline	ND		140	37	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Pentachlorophenol	ND		710	220	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Phenanthrene	**44**		28	7.5	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Phenol	**55**	**J**	140	42	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
p-Nitroaniline	ND		710	52	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3
Pyrene	**110**		28	6.6	ug/Kg	☼	03/23/22 20:44	03/25/22 12:57	3

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Unknown	*11000*	*T J*	*ug/Kg*	☼	*8.02*		*03/23/22 20:44*	*03/25/22 12:57*	*3*
Unknown	*40000*	*T J*	*ug/Kg*	☼	*8.89*		*03/23/22 20:44*	*03/25/22 12:57*	*3*
Unknown	*24000*	*T J*	*ug/Kg*	☼	*8.92*		*03/23/22 20:44*	*03/25/22 12:57*	*3*
Naphthalene, 2,3,6-trichloro-	*45000*	*T J N*	*ug/Kg*	☼	*9.56*	*55720-40-6*	*03/23/22 20:44*	*03/25/22 12:57*	*3*
Naphthalene, 1,3,7-trichloro-	*83000*	*T J N*	*ug/Kg*	☼	*9.63*	*55720-37-1*	*03/23/22 20:44*	*03/25/22 12:57*	*3*
Unknown PAH	*15000*	*T J*	*ug/Kg*	☼	*9.72*		*03/23/22 20:44*	*03/25/22 12:57*	*3*
Unknown PAH	*5400*	*T J*	*ug/Kg*	☼	*9.74*		*03/23/22 20:44*	*03/25/22 12:57*	*3*
Unknown PAH	*15000*	*T J*	*ug/Kg*	☼	*9.78*		*03/23/22 20:44*	*03/25/22 12:57*	*3*
Unknown	*40000*	*T J*	*ug/Kg*	☼	*9.95*		*03/23/22 20:44*	*03/25/22 12:57*	*3*
Unknown PAH	*6700*	*T J*	*ug/Kg*	☼	*10.10*		*03/23/22 20:44*	*03/25/22 12:57*	*3*

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-5
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50
Percent Solids: 70.4

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Naphthalene, 1,4,6,7-tetrachloro-	19000	T J N	ug/Kg	☼	10.12	55720-43-9	03/23/22 20:44	03/25/22 12:57	3
Unknown PAH	52000	T J	ug/Kg	☼	10.29		03/23/22 20:44	03/25/22 12:57	3
Naphthalene, 1,2,3,4-tetrachloro-	22000	T J N	ug/Kg	☼	10.37	20020-02-4	03/23/22 20:44	03/25/22 12:57	3
Unknown PAH	41000	T J	ug/Kg	☼	10.48		03/23/22 20:44	03/25/22 12:57	3
Tetrachloroisophthalonitrile	8000	T J N	ug/Kg	☼	10.53	1897-45-6	03/23/22 20:44	03/25/22 12:57	3
Unknown PAH	9100	T J	ug/Kg	☼	10.58		03/23/22 20:44	03/25/22 12:57	3
Unknown PAH	22000	T J	ug/Kg	☼	10.62		03/23/22 20:44	03/25/22 12:57	3
Unknown PAH	31000	T J	ug/Kg	☼	10.68		03/23/22 20:44	03/25/22 12:57	3
Naphthalene, 1,3,5,7-tetrachloro-	21000	T J N	ug/Kg	☼	10.81	53555-64-9	03/23/22 20:44	03/25/22 12:57	3
Unknown	5600	T J	ug/Kg	☼	11.47		03/23/22 20:44	03/25/22 12:57	3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	71		35 - 105	03/23/22 20:44	03/25/22 12:57	3
2-Fluorophenol (Surr)	71		32 - 105	03/23/22 20:44	03/25/22 12:57	3
Nitrobenzene-d5 (Surr)	79		34 - 109	03/23/22 20:44	03/25/22 12:57	3
Phenol-d5 (Surr)	72		34 - 105	03/23/22 20:44	03/25/22 12:57	3
Terphenyl-d14 (Surr)	75		20 - 117	03/23/22 20:44	03/25/22 12:57	3
2,4,6-Tribromophenol (Surr)	62		20 - 119	03/23/22 20:44	03/25/22 12:57	3

Method: EPA 8081B LL - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		120	29	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
beta-BHC	ND		120	32	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
delta-BHC	ND		120	37	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
gamma-BHC (Lindane)	ND		120	30	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
alpha-Chlordane	ND		120	29	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
gamma-Chlordane	ND		120	27	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
4,4'-DDD	ND		120	25	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
4,4'-DDE	ND	*+	120	24	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
4,4'-DDT	ND		120	84	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
Dieldrin	ND		120	29	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
Endosulfan II	ND		120	26	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
Endrin aldehyde	ND		120	42	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
Endrin ketone	ND		120	16	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
Heptachlor	ND		120	37	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
Heptachlor epoxide	ND		120	30	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
Hexachlorobenzene	**310**		120	21	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
Methoxychlor	ND		230	46	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000
Toxaphene	ND		4700	3200	ug/Kg	☼	03/23/22 18:43	04/04/22 12:52	1000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	0	S1- D	26 - 123	03/23/22 18:43	04/04/22 12:52	1000
Tetrachloro-m-xylene	0	S1- D	26 - 123	03/23/22 18:43	04/04/22 12:52	1000
DCB Decachlorobiphenyl (Surr)	0	S1- D	30 - 132	03/23/22 18:43	04/04/22 12:52	1000
DCB Decachlorobiphenyl (Surr)	0	S1- D	30 - 132	03/23/22 18:43	04/04/22 12:52	1000

Method: EPA 9056A - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**2400**		14	9.6	mg/Kg	☼		04/05/22 00:02	1

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-5
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 14:50
Percent Solids: 70.4

Method: EPA 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	**3.8**		0.61	0.13	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Aluminum	**13000**		25	6.1	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Arsenic	**16**		1.2	0.77	mg/Kg	☼	03/25/22 10:30	03/31/22 09:57	1
Barium	**260**		25	4.4	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Beryllium	**0.42**	**J**	0.49	0.13	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Calcium	**47000**		3100	400	mg/Kg	☼	03/25/22 10:30	03/31/22 10:01	5
Cadmium	**23**		0.61	0.090	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Cobalt	**9.3**		6.1	0.86	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Chromium	**43**		0.61	0.56	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Copper	**890**		3.1	1.8	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Iron	**27000**	**B**	12	6.2	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Potassium	**1200**		610	100	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Magnesium	**14000**		610	67	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Manganese	**340**		1.8	0.34	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Sodium	**190**	**J**	610	63	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Nickel	**82**		4.9	0.62	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Lead	**280**		1.2	1.1	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Antimony	**4900**		61	19	mg/Kg	☼	03/25/22 10:30	03/31/22 10:06	50
Selenium	**1.8**		1.2	0.56	mg/Kg	☼	03/25/22 10:30	03/31/22 09:57	1
Thallium	ND		2.5	0.35	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Vanadium	**23**		6.1	0.97	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1
Zinc	**540**		2.5	1.5	mg/Kg	☼	03/25/22 10:30	03/30/22 17:23	1

Method: EPA 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**1.0**		0.030	0.019	mg/Kg	☼	04/05/22 06:40	04/05/22 14:17	1

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-6
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 10:00

Method: 537 (modified) - Fluorinated Alkyl Substances - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.5	2.1	ng/L		04/05/22 12:30	04/06/22 09:22	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	0.44	ng/L		04/05/22 12:30	04/06/22 09:22	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.52	ng/L		04/05/22 12:30	04/06/22 09:22	1
Perfluoroheptanoic acid (PFHpA)	**0.33**	**J**	1.8	0.22	ng/L		04/05/22 12:30	04/06/22 09:22	1
Perfluorooctanoic acid (PFOA)	**1.9**		1.8	0.76	ng/L		04/05/22 12:30	04/06/22 09:22	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		04/05/22 12:30	04/06/22 09:22	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		04/05/22 12:30	04/06/22 09:22	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		04/05/22 12:30	04/06/22 09:22	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		04/05/22 12:30	04/06/22 09:22	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		04/05/22 12:30	04/06/22 09:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		04/05/22 12:30	04/06/22 09:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		04/05/22 12:30	04/06/22 09:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		04/05/22 12:30	04/06/22 09:22	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		04/05/22 12:30	04/06/22 09:22	1
Perfluorooctanesulfonic acid (PFOS)	**0.70**	**J**	1.8	0.48	ng/L		04/05/22 12:30	04/06/22 09:22	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		04/05/22 12:30	04/06/22 09:22	1

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-6
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 10:00

Method: 537 (modified) - Fluorinated Alkyl Substances - SPLP East (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.88	ng/L		04/05/22 12:30	04/06/22 09:22	1
NMeFOSAA	ND		4.5	1.1	ng/L		04/05/22 12:30	04/06/22 09:22	1
NEtFOSAA	ND		4.5	1.2	ng/L		04/05/22 12:30	04/06/22 09:22	1
6:2 FTS	ND		4.5	2.2	ng/L		04/05/22 12:30	04/06/22 09:22	1
8:2 FTS	ND		1.8	0.41	ng/L		04/05/22 12:30	04/06/22 09:22	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*95*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
13C5 PFPeA	*93*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
13C2 PFHxA	*94*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
13C4 PFHpA	*98*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
13C4 PFOA	*99*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
13C5 PFNA	*89*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
13C2 PFDA	*96*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
13C2 PFUnA	*77*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
13C2 PFDoA	*72*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
13C2 PFTeDA	*69*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
13C3 PFBS	*101*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
18O2 PFHxS	*106*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
13C4 PFOS	*96*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
13C8 FOSA	*107*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
d3-NMeFOSAA	*79*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
d5-NEtFOSAA	*81*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
M2-6:2 FTS	*101*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*
M2-8:2 FTS	*93*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:22*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**30.1**		0.1	0.1	%			03/23/22 16:48	1
Percent Solids	**69.9**		0.1	0.1	%			03/23/22 16:48	1

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-6
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 10:00
Percent Solids: 69.9

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.28	0.064	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
Perfluoropentanoic acid (PFPeA)	ND		0.28	0.057	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
Perfluorohexanoic acid (PFHxA)	ND		0.28	0.043	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
Perfluoroheptanoic acid (PFHpA)	ND		0.28	0.053	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
Perfluorooctanoic acid (PFOA)	**0.098**	**J**	0.28	0.074	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
Perfluorononanoic acid (PFNA)	ND		0.28	0.031	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
Perfluorodecanoic acid (PFDA)	ND		0.28	0.067	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
Perfluoroundecanoic acid (PFUnA)	ND		0.28	0.058	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
Perfluorododecanoic acid (PFDoA)	ND		0.28	0.042	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.28	0.029	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.28	0.051	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.28	0.053	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.28	0.040	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1

Client: ERM-Northeast
Job ID: 180-135332-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW BASE
Lab Sample ID: 180-135332-6
Date Collected: 03/15/22 17:30
Matrix: Solid
Date Received: 03/17/22 10:00
Percent Solids: 69.9

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.28	0.068	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.28	0.060	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.28	0.072	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
Perfluorooctanesulfonamide (FOSA)	ND		0.28	0.046	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
NMeFOSAA	ND		0.28	0.032	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
NEtFOSAA	ND		0.28	0.067	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
6:2 FTS	ND		0.28	0.037	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1
8:2 FTS	ND		0.28	0.049	ug/Kg	☼	03/24/22 11:16	03/25/22 08:34	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*30*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
13C5 PFPeA	*98*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
13C2 PFHxA	*97*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
13C4 PFHpA	*85*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
13C4 PFOA	*86*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
13C5 PFNA	*98*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
13C2 PFDA	*112*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
13C2 PFUnA	*104*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
13C2 PFDoA	*102*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
13C2 PFTeDA	*90*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
13C3 PFBS	*109*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
18O2 PFHxS	*85*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
13C4 PFOS	*102*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
13C8 FOSA	*116*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
d3-NMeFOSAA	*86*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
d5-NEtFOSAA	*96*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
M2-6:2 FTS	*111*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*
M2-8:2 FTS	*141*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:34*	*1*

Method: EPA 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 180-392127/6
Matrix: Solid
Analysis Batch: 392127

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	1.7	ug/Kg			03/18/22 09:39	1
1,1,2,2-Tetrachloroethane	ND		5.0	1.5	ug/Kg			03/18/22 09:39	1
Freon-113	ND		5.0	2.0	ug/Kg			03/18/22 09:39	1
1,1,2-Trichloroethane	ND		5.0	0.99	ug/Kg			03/18/22 09:39	1
1,1-Dichloroethane	ND		5.0	1.6	ug/Kg			03/18/22 09:39	1
1,1-Dichloroethene	ND		5.0	2.3	ug/Kg			03/18/22 09:39	1
1,2,4-Trichlorobenzene	ND		5.0	2.5	ug/Kg			03/18/22 09:39	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.2	ug/Kg			03/18/22 09:39	1
1,2-Dichlorobenzene	ND		5.0	1.7	ug/Kg			03/18/22 09:39	1
1,2-Dichloroethane	ND		5.0	1.4	ug/Kg			03/18/22 09:39	1
1,2-Dichloropropane	ND		5.0	1.3	ug/Kg			03/18/22 09:39	1
1,3-Dichlorobenzene	ND		5.0	3.1	ug/Kg			03/18/22 09:39	1
1,4-Dichlorobenzene	ND		5.0	1.5	ug/Kg			03/18/22 09:39	1
2-Butanone (MEK)	ND		5.0	2.5	ug/Kg			03/18/22 09:39	1
2-Hexanone	ND		5.0	1.6	ug/Kg			03/18/22 09:39	1
Acetone	ND		20	3.9	ug/Kg			03/18/22 09:39	1
Benzene	ND		5.0	1.4	ug/Kg			03/18/22 09:39	1
Bromoform	ND		5.0	2.5	ug/Kg			03/18/22 09:39	1
Methyl bromide	ND		5.0	2.3	ug/Kg			03/18/22 09:39	1
Carbon disulfide	ND		5.0	4.0	ug/Kg			03/18/22 09:39	1
Carbon tetrachloride	ND		5.0	2.0	ug/Kg			03/18/22 09:39	1
Chlorobenzene	ND		5.0	1.3	ug/Kg			03/18/22 09:39	1
Dibromochloromethane	ND		5.0	2.5	ug/Kg			03/18/22 09:39	1
Chloroethane	ND		5.0	2.9	ug/Kg			03/18/22 09:39	1
Chloroform	ND		5.0	1.6	ug/Kg			03/18/22 09:39	1
Methyl chloride	ND		5.0	2.0	ug/Kg			03/18/22 09:39	1
cis-1,2-Dichloroethene	ND		5.0	1.5	ug/Kg			03/18/22 09:39	1
cis-1,3-Dichloropropene	ND		5.0	2.2	ug/Kg			03/18/22 09:39	1
Bromodichloromethane	ND		5.0	2.3	ug/Kg			03/18/22 09:39	1
Freon-12	ND		5.0	2.5	ug/Kg			03/18/22 09:39	1
Ethylbenzene	ND		5.0	1.9	ug/Kg			03/18/22 09:39	1
1,2-Dibromoethane	ND		5.0	1.4	ug/Kg			03/18/22 09:39	1
Isopropylbenzene (cumene)	ND		5.0	2.6	ug/Kg			03/18/22 09:39	1
Methyl tert-butyl ether	ND		5.0	1.5	ug/Kg			03/18/22 09:39	1
Methylene Chloride	ND		5.0	4.5	ug/Kg			03/18/22 09:39	1
Styrene	ND		5.0	1.5	ug/Kg			03/18/22 09:39	1
Tetrachloroethene	ND		5.0	2.0	ug/Kg			03/18/22 09:39	1
Toluene	ND		5.0	1.4	ug/Kg			03/18/22 09:39	1
trans-1,2-Dichloroethene	ND		5.0	1.8	ug/Kg			03/18/22 09:39	1
trans-1,3-Dichloropropene	ND		5.0	2.3	ug/Kg			03/18/22 09:39	1
Trichloroethene	ND		5.0	1.6	ug/Kg			03/18/22 09:39	1
Freon-11	ND		5.0	4.2	ug/Kg			03/18/22 09:39	1
Vinyl chloride	ND		5.0	3.6	ug/Kg			03/18/22 09:39	1
Xylenes, Total	ND		10	7.2	ug/Kg			03/18/22 09:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*73 - 135*		*03/18/22 09:39*	*1*
4-Bromofluorobenzene (Surr)	*96*		*60 - 124*		*03/18/22 09:39*	*1*

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 180-392127/6
Matrix: Solid
Analysis Batch: 392127

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*102*		*69 - 126*		*03/18/22 09:39*	*1*
Toluene-d8 (Surr)	*114*		*67 - 134*		*03/18/22 09:39*	*1*

Lab Sample ID: LCS 180-392127/3
Matrix: Solid
Analysis Batch: 392127

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	40.0	33.2		ug/Kg		83	72 - 134
1,1,2,2-Tetrachloroethane	40.0	39.2		ug/Kg		98	36 - 170
Freon-113	40.0	26.7		ug/Kg		67	59 - 135
1,1,2-Trichloroethane	40.0	40.5		ug/Kg		101	66 - 128
1,1-Dichloroethane	40.0	36.3		ug/Kg		91	73 - 124
1,1-Dichloroethene	40.0	35.3		ug/Kg		88	55 - 136
1,2,4-Trichlorobenzene	40.0	40.0		ug/Kg		100	22 - 170
1,2-Dibromo-3-Chloropropane	40.0	37.6		ug/Kg		94	30 - 163
1,2-Dichlorobenzene	40.0	42.4		ug/Kg		106	76 - 120
1,2-Dichloroethane	40.0	39.0		ug/Kg		98	64 - 140
1,2-Dichloropropane	40.0	38.9		ug/Kg		97	77 - 119
1,3-Dichlorobenzene	40.0	42.7		ug/Kg		107	77 - 121
1,4-Dichlorobenzene	40.0	42.7		ug/Kg		107	79 - 120
2-Butanone (MEK)	40.0	37.0		ug/Kg		92	39 - 157
2-Hexanone	40.0	35.1		ug/Kg		88	42 - 152
Acetone	40.0	47.3		ug/Kg		118	23 - 170
Benzene	40.0	38.9		ug/Kg		97	77 - 120
Bromoform	40.0	40.2		ug/Kg		100	37 - 147
Methyl bromide	40.0	36.4		ug/Kg		91	47 - 149
Carbon disulfide	40.0	29.6		ug/Kg		74	40 - 156
Carbon tetrachloride	40.0	36.1		ug/Kg		90	73 - 130
Chlorobenzene	40.0	43.7		ug/Kg		109	79 - 122
Dibromochloromethane	40.0	41.4		ug/Kg		103	60 - 134
Chloroethane	40.0	61.4		ug/Kg		153	37 - 159
Chloroform	40.0	35.9		ug/Kg		90	73 - 126
Methyl chloride	40.0	31.3		ug/Kg		78	46 - 151
cis-1,2-Dichloroethene	40.0	36.7		ug/Kg		92	77 - 118
cis-1,3-Dichloropropene	40.0	39.3		ug/Kg		98	73 - 127
Bromodichloromethane	40.0	38.9		ug/Kg		97	75 - 123
Freon-12	40.0	17.1		ug/Kg		43	26 - 149
Ethylbenzene	40.0	44.0		ug/Kg		110	79 - 119
1,2-Dibromoethane	40.0	38.5		ug/Kg		96	59 - 137
Isopropylbenzene (cumene)	40.0	40.8		ug/Kg		102	70 - 125
Methyl tert-butyl ether	40.0	32.7		ug/Kg		82	58 - 132
Methylene Chloride	40.0	34.7		ug/Kg		87	67 - 131
m-Xylene & p-Xylene	40.0	43.2		ug/Kg		108	77 - 120
o-Xylene	40.0	42.3		ug/Kg		106	78 - 118
Styrene	40.0	41.1		ug/Kg		103	80 - 120
Tetrachloroethene	40.0	41.4		ug/Kg		103	71 - 121
Toluene	40.0	42.8		ug/Kg		107	76 - 120

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-392127/3
Matrix: Solid
Analysis Batch: 392127

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
trans-1,2-Dichloroethene	40.0	36.4		ug/Kg		91	75 - 122
trans-1,3-Dichloropropene	40.0	39.9		ug/Kg		100	68 - 133
Trichloroethene	40.0	37.4		ug/Kg		94	69 - 118
Freon-11	40.0	32.5		ug/Kg		81	32 - 149
Vinyl chloride	40.0	34.6		ug/Kg		86	64 - 134
Xylenes, Total	80.0	85.5		ug/Kg		107	78 - 118

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*73 - 135*
4-Bromofluorobenzene (Surr)	*99*		*60 - 124*
Dibromofluoromethane (Surr)	*99*		*69 - 126*
Toluene-d8 (Surr)	*109*		*67 - 134*

Lab Sample ID: MB 180-394680/9
Matrix: Solid
Analysis Batch: 394680

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			04/08/22 11:51	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			04/08/22 11:51	1
Freon-113	ND		5.0	1.9	ug/L			04/08/22 11:51	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			04/08/22 11:51	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			04/08/22 11:51	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			04/08/22 11:51	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			04/08/22 11:51	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			04/08/22 11:51	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			04/08/22 11:51	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			04/08/22 11:51	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			04/08/22 11:51	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			04/08/22 11:51	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			04/08/22 11:51	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			04/08/22 11:51	1
2-Hexanone	ND		5.0	4.2	ug/L			04/08/22 11:51	1
Acetone	ND		20	5.5	ug/L			04/08/22 11:51	1
Benzene	ND		5.0	2.0	ug/L			04/08/22 11:51	1
Bromoform	ND		5.0	2.6	ug/L			04/08/22 11:51	1
Methyl bromide	ND		5.0	4.5	ug/L			04/08/22 11:51	1
Carbon disulfide	ND		5.0	3.0	ug/L			04/08/22 11:51	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			04/08/22 11:51	1
Chlorobenzene	ND		5.0	1.6	ug/L			04/08/22 11:51	1
Dibromochloromethane	ND		5.0	2.4	ug/L			04/08/22 11:51	1
Chloroethane	ND		5.0	2.6	ug/L			04/08/22 11:51	1
Chloroform	ND		5.0	2.1	ug/L			04/08/22 11:51	1
Methyl chloride	ND		5.0	3.9	ug/L			04/08/22 11:51	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			04/08/22 11:51	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			04/08/22 11:51	1
Bromodichloromethane	ND		5.0	2.4	ug/L			04/08/22 11:51	1
Freon-12	ND		5.0	2.9	ug/L			04/08/22 11:51	1

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 180-394680/9
Matrix: Solid
Analysis Batch: 394680

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		5.0	2.2	ug/L			04/08/22 11:51	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			04/08/22 11:51	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			04/08/22 11:51	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			04/08/22 11:51	1
Methylene Chloride	ND		5.0	3.9	ug/L			04/08/22 11:51	1
Styrene	ND		5.0	1.3	ug/L			04/08/22 11:51	1
Tetrachloroethene	ND		5.0	2.0	ug/L			04/08/22 11:51	1
Toluene	ND		5.0	1.7	ug/L			04/08/22 11:51	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			04/08/22 11:51	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			04/08/22 11:51	1
Trichloroethene	ND		5.0	1.5	ug/L			04/08/22 11:51	1
Freon-11	ND		5.0	1.5	ug/L			04/08/22 11:51	1
Vinyl chloride	ND		5.0	3.7	ug/L			04/08/22 11:51	1
Xylenes, Total	ND		10	4.3	ug/L			04/08/22 11:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*52 - 151*		*04/08/22 11:51*	*1*
4-Bromofluorobenzene (Surr)	*84*		*49 - 118*		*04/08/22 11:51*	*1*
Dibromofluoromethane (Surr)	*94*		*60 - 132*		*04/08/22 11:51*	*1*
Toluene-d8 (Surr)	*94*		*53 - 124*		*04/08/22 11:51*	*1*

Lab Sample ID: LCS 180-394680/6
Matrix: Solid
Analysis Batch: 394680

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	10.0	8.64		ug/L		86	64 - 133
1,1,2,2-Tetrachloroethane	10.0	8.21		ug/L		82	47 - 147
Freon-113	10.0	10.9		ug/L		109	48 - 134
1,1,2-Trichloroethane	10.0	8.58		ug/L		86	59 - 137
1,1-Dichloroethane	10.0	9.12		ug/L		91	59 - 125
1,1-Dichloroethene	10.0	9.60		ug/L		96	49 - 132
1,2,4-Trichlorobenzene	10.0	8.65		ug/L		87	15 - 169
1,2-Dibromo-3-Chloropropane	10.0	7.82		ug/L		78	10 - 170
1,2-Dichlorobenzene	10.0	8.92		ug/L		89	68 - 116
1,2-Dichloroethane	10.0	8.84		ug/L		88	57 - 149
1,2-Dichloropropane	10.0	8.47		ug/L		85	65 - 129
1,3-Dichlorobenzene	10.0	8.89		ug/L		89	70 - 119
1,4-Dichlorobenzene	10.0	9.07		ug/L		91	74 - 117
2-Butanone (MEK)	10.0	8.35		ug/L		84	35 - 158
2-Hexanone	10.0	7.79		ug/L		78	38 - 157
Acetone	10.0	9.04	J	ug/L		90	29 - 163
Benzene	10.0	9.77		ug/L		98	68 - 122
Bromoform	10.0	7.20		ug/L		72	31 - 164
Methyl bromide	10.0	12.8		ug/L		128	20 - 170
Carbon disulfide	10.0	10.7		ug/L		107	32 - 139
Carbon tetrachloride	10.0	8.50		ug/L		85	60 - 135
Chlorobenzene	10.0	8.51		ug/L		85	72 - 123

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-394680/6
Matrix: Solid
Analysis Batch: 394680

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Dibromochloromethane	10.0	7.77		ug/L		78	51 - 144
Chloroethane	10.0	13.0		ug/L		130	10 - 170
Chloroform	10.0	8.73		ug/L		87	62 - 121
Methyl chloride	10.0	16.0		ug/L		160	37 - 170
cis-1,2-Dichloroethene	10.0	9.02		ug/L		90	64 - 122
cis-1,3-Dichloropropene	10.0	8.52		ug/L		85	53 - 140
Bromodichloromethane	10.0	8.54		ug/L		85	63 - 132
Freon-12	10.0	14.6		ug/L		146	21 - 165
Ethylbenzene	10.0	7.84		ug/L		78	66 - 122
1,2-Dibromoethane	10.0	8.23		ug/L		82	55 - 146
Isopropylbenzene (cumene)	10.0	8.92		ug/L		89	54 - 130
Methyl tert-butyl ether	10.0	10.1		ug/L		101	36 - 141
Methylene Chloride	10.0	9.82		ug/L		98	51 - 137
m-Xylene & p-Xylene	10.0	8.06		ug/L		81	61 - 128
o-Xylene	10.0	8.56		ug/L		86	64 - 120
Styrene	10.0	8.62		ug/L		86	68 - 127
Tetrachloroethene	10.0	8.11		ug/L		81	60 - 129
Toluene	10.0	8.51		ug/L		85	67 - 128
trans-1,2-Dichloroethene	10.0	9.64		ug/L		96	62 - 126
trans-1,3-Dichloropropene	10.0	7.88		ug/L		79	57 - 137
Trichloroethene	10.0	8.70		ug/L		87	67 - 121
Freon-11	10.0	12.3		ug/L		123	32 - 157
Vinyl chloride	10.0	13.4		ug/L		134	47 - 147
Xylenes, Total	20.0	16.6		ug/L		83	64 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*52 - 151*
4-Bromofluorobenzene (Surr)	*91*		*49 - 118*
Dibromofluoromethane (Surr)	*101*		*60 - 132*
Toluene-d8 (Surr)	*96*		*53 - 124*

Lab Sample ID: LCSD 180-394680/7
Matrix: Solid
Analysis Batch: 394680

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	10.0	8.27		ug/L		83	64 - 133	4	22
1,1,2,2-Tetrachloroethane	10.0	9.32		ug/L		93	47 - 147	13	35
Freon-113	10.0	11.4		ug/L		114	48 - 134	4	28
1,1,2-Trichloroethane	10.0	9.74		ug/L		97	59 - 137	13	29
1,1-Dichloroethane	10.0	8.89		ug/L		89	59 - 125	3	20
1,1-Dichloroethene	10.0	9.88		ug/L		99	49 - 132	3	23
1,2,4-Trichlorobenzene	10.0	9.01		ug/L		90	15 - 169	4	35
1,2-Dibromo-3-Chloropropane	10.0	10.0		ug/L		100	10 - 170	25	35
1,2-Dichlorobenzene	10.0	9.38		ug/L		94	68 - 116	5	20
1,2-Dichloroethane	10.0	9.19		ug/L		92	57 - 149	4	27
1,2-Dichloropropane	10.0	8.35		ug/L		83	65 - 129	1	23
1,3-Dichlorobenzene	10.0	9.17		ug/L		92	70 - 119	3	18

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 180-394680/7
Matrix: Solid
Analysis Batch: 394680

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dichlorobenzene			10.0	9.28		ug/L		93	74 - 117	2	17
2-Butanone (MEK)			10.0	7.87		ug/L		79	35 - 158	6	35
2-Hexanone			10.0	7.49		ug/L		75	38 - 157	4	35
Acetone			10.0	7.66	J	ug/L		77	29 - 163	16	35
Benzene			10.0	9.29		ug/L		93	68 - 122	5	21
Bromoform			10.0	8.35		ug/L		84	31 - 164	15	35
Methyl bromide			10.0	12.3		ug/L		123	20 - 170	4	30
Carbon disulfide			10.0	9.97		ug/L		100	32 - 139	7	25
Carbon tetrachloride			10.0	8.03		ug/L		80	60 - 135	6	25
Chlorobenzene			10.0	8.91		ug/L		89	72 - 123	5	19
Dibromochloromethane			10.0	8.58		ug/L		86	51 - 144	10	25
Chloroethane			10.0	12.3		ug/L		123	10 - 170	6	29
Chloroform			10.0	8.22		ug/L		82	62 - 121	6	22
Methyl chloride			10.0	13.2		ug/L		132	37 - 170	19	28
cis-1,2-Dichloroethene			10.0	8.33		ug/L		83	64 - 122	8	22
cis-1,3-Dichloropropene			10.0	8.51		ug/L		85	53 - 140	0	26
Bromodichloromethane			10.0	8.18		ug/L		82	63 - 132	4	24
Freon-12			10.0	14.2		ug/L		142	21 - 165	3	26
Ethylbenzene			10.0	8.15		ug/L		82	66 - 122	4	22
1,2-Dibromoethane			10.0	9.11		ug/L		91	55 - 146	10	30
Isopropylbenzene (cumene)			10.0	8.91		ug/L		89	54 - 130	0	22
Methyl tert-butyl ether			10.0	10.6		ug/L		106	36 - 141	4	35
Methylene Chloride			10.0	10.4		ug/L		104	51 - 137	6	35
m-Xylene & p-Xylene			10.0	8.35		ug/L		84	61 - 128	4	21
o-Xylene			10.0	8.81		ug/L		88	64 - 120	3	23
Styrene			10.0	9.24		ug/L		92	68 - 127	7	22
Tetrachloroethene			10.0	8.20		ug/L		82	60 - 129	1	22
Toluene			10.0	8.73		ug/L		87	67 - 128	3	22
trans-1,2-Dichloroethene			10.0	9.38		ug/L		94	62 - 126	3	23
trans-1,3-Dichloropropene			10.0	8.30		ug/L		83	57 - 137	5	25
Trichloroethene			10.0	8.65		ug/L		87	67 - 121	1	23
Freon-11			10.0	10.2		ug/L		102	32 - 157	19	35
Vinyl chloride			10.0	12.8		ug/L		128	47 - 147	4	25
Xylenes, Total			20.0	17.2		ug/L		86	64 - 123	3	21

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*106*		*52 - 151*
4-Bromofluorobenzene (Surr)	*97*		*49 - 118*
Dibromofluoromethane (Surr)	*100*		*60 - 132*
Toluene-d8 (Surr)	*99*		*53 - 124*

Lab Sample ID: LB 180-393515/1-A
Matrix: Solid
Analysis Batch: 394680

Client Sample ID: Method Blank
Prep Type: SPLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			04/08/22 12:42	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			04/08/22 12:42	1

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LB 180-393515/1-A
Matrix: Solid
Analysis Batch: 394680

Client Sample ID: Method Blank
Prep Type: SPLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Freon-113	ND		5.0	1.9	ug/L			04/08/22 12:42	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			04/08/22 12:42	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			04/08/22 12:42	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			04/08/22 12:42	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			04/08/22 12:42	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			04/08/22 12:42	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			04/08/22 12:42	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			04/08/22 12:42	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			04/08/22 12:42	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			04/08/22 12:42	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			04/08/22 12:42	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			04/08/22 12:42	1
2-Hexanone	ND		5.0	4.2	ug/L			04/08/22 12:42	1
Acetone	ND		20	5.5	ug/L			04/08/22 12:42	1
Benzene	ND		5.0	2.0	ug/L			04/08/22 12:42	1
Bromoform	ND		5.0	2.6	ug/L			04/08/22 12:42	1
Methyl bromide	ND		5.0	4.5	ug/L			04/08/22 12:42	1
Carbon disulfide	ND		5.0	3.0	ug/L			04/08/22 12:42	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			04/08/22 12:42	1
Chlorobenzene	ND		5.0	1.6	ug/L			04/08/22 12:42	1
Dibromochloromethane	ND		5.0	2.4	ug/L			04/08/22 12:42	1
Chloroethane	ND		5.0	2.6	ug/L			04/08/22 12:42	1
Chloroform	ND		5.0	2.1	ug/L			04/08/22 12:42	1
Methyl chloride	ND		5.0	3.9	ug/L			04/08/22 12:42	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			04/08/22 12:42	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			04/08/22 12:42	1
Bromodichloromethane	ND		5.0	2.4	ug/L			04/08/22 12:42	1
Freon-12	ND		5.0	2.9	ug/L			04/08/22 12:42	1
Ethylbenzene	ND		5.0	2.2	ug/L			04/08/22 12:42	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			04/08/22 12:42	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			04/08/22 12:42	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			04/08/22 12:42	1
Methylene Chloride	22.8		5.0	3.9	ug/L			04/08/22 12:42	1
Styrene	ND		5.0	1.3	ug/L			04/08/22 12:42	1
Tetrachloroethene	ND		5.0	2.0	ug/L			04/08/22 12:42	1
Toluene	ND		5.0	1.7	ug/L			04/08/22 12:42	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			04/08/22 12:42	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			04/08/22 12:42	1
Trichloroethene	ND		5.0	1.5	ug/L			04/08/22 12:42	1
Freon-11	ND		5.0	1.5	ug/L			04/08/22 12:42	1
Vinyl chloride	ND		5.0	3.7	ug/L			04/08/22 12:42	1
Xylenes, Total	ND		10	4.3	ug/L			04/08/22 12:42	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*52 - 151*		*04/08/22 12:42*	*1*
4-Bromofluorobenzene (Surr)	*87*		*49 - 118*		*04/08/22 12:42*	*1*
Dibromofluoromethane (Surr)	*99*		*60 - 132*		*04/08/22 12:42*	*1*
Toluene-d8 (Surr)	*93*		*53 - 124*		*04/08/22 12:42*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 500-649136/1-A
Matrix: Solid
Analysis Batch: 650033

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 649136

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		83	14	ug/Kg		03/29/22 07:16	04/04/22 13:47	1
Dichloronaphthalene, Total	ND		83	25	ug/Kg		03/29/22 07:16	04/04/22 13:47	1
Hexachloronaphthalene, Total	ND		83	21	ug/Kg		03/29/22 07:16	04/04/22 13:47	1
Heptachloronaphthalene, Total	ND		83	17	ug/Kg		03/29/22 07:16	04/04/22 13:47	1
Octachloronaphthalene, Total	ND		83	33	ug/Kg		03/29/22 07:16	04/04/22 13:47	1
Pentachloronaphthalene, Total	ND		83	17	ug/Kg		03/29/22 07:16	04/04/22 13:47	1
Tetrachloronaphthalene, Total	ND		83	22	ug/Kg		03/29/22 07:16	04/04/22 13:47	1
Trichloronaphthalene, Total	ND		83	12	ug/Kg		03/29/22 07:16	04/04/22 13:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*77*		*42 - 115*	*03/29/22 07:16*	*04/04/22 13:47*	*1*
Nitrobenzene-d5 (Surr)	*88*		*33 - 124*	*03/29/22 07:16*	*04/04/22 13:47*	*1*
Terphenyl-d14 (Surr)	*94*		*25 - 150*	*03/29/22 07:16*	*04/04/22 13:47*	*1*

Lab Sample ID: LCS 500-649136/2-A
Matrix: Solid
Analysis Batch: 650033

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 649136

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Monochloronaphthalene, Total	333	377		ug/Kg		113	39 - 113
Dichloronaphthalene, Total	333	372		ug/Kg		112	33 - 114
Tetrachloronaphthalene, Total	333	387		ug/Kg		116	46 - 116

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*80*		*42 - 115*
Nitrobenzene-d5 (Surr)	*91*		*33 - 124*
Terphenyl-d14 (Surr)	*96*		*25 - 150*

Lab Sample ID: MB 500-650092/1-A
Matrix: Solid
Analysis Batch: 650033

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 650092

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		0.0000025	0.0000013	g/L		04/04/22 11:22	04/04/22 15:35	1
Dichloronaphthalene, Total	ND		0.0000025	0.0000013	g/L		04/04/22 11:22	04/04/22 15:35	1
Hexachloronaphthalene, Total	ND		0.0000025	0.0000013	g/L		04/04/22 11:22	04/04/22 15:35	1
Heptachloronaphthalene, Total	ND		0.0000025	0.0000013	g/L		04/04/22 11:22	04/04/22 15:35	1
Octachloronaphthalene, Total	ND		0.0000025	0.0000013	g/L		04/04/22 11:22	04/04/22 15:35	1
Pentachloronaphthalene, Total	ND		0.0000025	0.0000013	g/L		04/04/22 11:22	04/04/22 15:35	1
Tetrachloronaphthalene, Total	ND		0.0000025	0.0000013	g/L		04/04/22 11:22	04/04/22 15:35	1
Trichloronaphthalene, Total	ND		0.0000025	0.0000013	g/L		04/04/22 11:22	04/04/22 15:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*84*		*30 - 123*	*04/04/22 11:22*	*04/04/22 15:35*	*1*
Nitrobenzene-d5 (Surr)	*88*		*33 - 139*	*04/04/22 11:22*	*04/04/22 15:35*	*1*
Terphenyl-d14 (Surr)	*100*		*42 - 150*	*04/04/22 11:22*	*04/04/22 15:35*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 500-650092/2-A
Matrix: Solid
Analysis Batch: 650033

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 650092

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Monochloronaphthalene, Total			0.0000100	0.0000103		g/L		103	40 - 130		
Dichloronaphthalene, Total			0.0000100	0.00000983		g/L		98	40 - 130		
Tetrachloronaphthalene, Total			0.0000100	0.0000106		g/L		106	40 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*87*		*30 - 123*
Nitrobenzene-d5 (Surr)	*90*		*33 - 139*
Terphenyl-d14 (Surr)	*106*		*42 - 150*

Lab Sample ID: LCSD 500-650092/3-A
Matrix: Solid
Analysis Batch: 650033

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 650092

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Monochloronaphthalene, Total			0.0000100	0.0000108		g/L		108	40 - 130	4	20
Dichloronaphthalene, Total			0.0000100	0.0000103		g/L		103	40 - 130	5	20
Tetrachloronaphthalene, Total			0.0000100	0.0000110		g/L		110	40 - 130	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*90*		*30 - 123*
Nitrobenzene-d5 (Surr)	*94*		*33 - 139*
Terphenyl-d14 (Surr)	*103*		*42 - 150*

Lab Sample ID: LB 500-649137/1-C
Matrix: Solid
Analysis Batch: 650033

Client Sample ID: Method Blank
Prep Type: SPLP East
Prep Batch: 650092

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		0.0000026	0.0000013	g/L		04/04/22 11:22	04/04/22 16:47	1
Dichloronaphthalene, Total	ND		0.0000026	0.0000013	g/L		04/04/22 11:22	04/04/22 16:47	1
Hexachloronaphthalene, Total	ND		0.0000026	0.0000013	g/L		04/04/22 11:22	04/04/22 16:47	1
Heptachloronaphthalene, Total	ND		0.0000026	0.0000013	g/L		04/04/22 11:22	04/04/22 16:47	1
Octachloronaphthalene, Total	ND		0.0000026	0.0000013	g/L		04/04/22 11:22	04/04/22 16:47	1
Pentachloronaphthalene, Total	ND		0.0000026	0.0000013	g/L		04/04/22 11:22	04/04/22 16:47	1
Tetrachloronaphthalene, Total	ND		0.0000026	0.0000013	g/L		04/04/22 11:22	04/04/22 16:47	1
Trichloronaphthalene, Total	ND		0.0000026	0.0000013	g/L		04/04/22 11:22	04/04/22 16:47	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*90*		*30 - 123*	*04/04/22 11:22*	*04/04/22 16:47*	*1*
Nitrobenzene-d5 (Surr)	*95*		*33 - 139*	*04/04/22 11:22*	*04/04/22 16:47*	*1*
Terphenyl-d14 (Surr)	*96*		*42 - 150*	*04/04/22 11:22*	*04/04/22 16:47*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-392827/1-A
Matrix: Solid
Analysis Batch: 393021

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 392827

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		33	12	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
2-Chloronaphthalene	ND		6.7	1.5	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
1,4-Dichlorobenzene	ND		33	12	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
3,3'-Dichlorobenzidine	ND		33	31	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
2,4-Dichlorophenol	ND		6.7	2.6	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Acenaphthene	ND		6.7	1.9	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Anthracene	ND		6.7	1.7	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
2,4-Dimethylphenol	ND		33	11	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Atrazine	ND		67	15	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Benzo[a]anthracene	ND		6.7	3.0	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
2,4-Dinitrophenol	ND		330	210	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Benzo[a]pyrene	ND		6.7	2.9	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
2,4-Dinitrotoluene	ND		33	20	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Benzo[b]fluoranthene	ND		6.7	1.6	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
2,6-Dinitrotoluene	ND		33	13	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Benzo[k]fluoranthene	ND		6.7	2.0	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Bis(2-chloroethoxy)methane	ND		33	12	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Dichloroethyl ether	ND		6.7	1.2	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Bis(2-ethylhexyl) phthalate	ND		330	36	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Benzyl butyl phthalate	ND		33	23	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Chrysene	ND		6.7	3.7	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Diethyl phthalate	ND		33	12	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Dimethyl phthalate	ND		33	13	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Dibutylphthalate	ND		33	15	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Di-n-octyl phthalate	ND		33	19	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Fluoranthene	ND		6.7	1.8	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
2-Nitroaniline	ND		170	15	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Fluorene	ND		6.7	1.3	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
3-Nitroaniline	ND		170	8.5	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Hexachlorobutadiene	ND		6.7	2.0	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Hexachlorocyclopentadiene	ND		33	3.4	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Hexachloroethane	ND		33	12	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Indeno[1,2,3-cd]pyrene	ND		6.7	3.3	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
2,2'-oxybis[1-chloropropane]	ND		6.7	2.5	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Isophorone	ND		33	13	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Nitrobenzene	ND		67	12	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
p-Chloroaniline	ND		33	8.8	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
N-Nitrosodiphenylamine	ND		33	11	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Pentachlorophenol	ND		170	54	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Phenanthrene	ND		6.7	1.8	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Phenol	ND		33	10	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
p-Nitroaniline	ND		170	12	ug/Kg		03/23/22 20:44	03/25/22 09:45	1
Pyrene	ND		6.7	1.6	ug/Kg		03/23/22 20:44	03/25/22 09:45	1

Tentatively Identified Compound	*MB Est. Result*	*MB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ug/Kg*				*03/23/22 20:44*	*03/25/22 09:45*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-392827/1-A
Matrix: Solid
Analysis Batch: 393021

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 392827

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	*77*		*35 - 105*	*03/23/22 20:44*	*03/25/22 09:45*	*1*
2-Fluorophenol (Surr)	*81*		*32 - 105*	*03/23/22 20:44*	*03/25/22 09:45*	*1*
Nitrobenzene-d5 (Surr)	*89*		*34 - 109*	*03/23/22 20:44*	*03/25/22 09:45*	*1*
Phenol-d5 (Surr)	*80*		*34 - 105*	*03/23/22 20:44*	*03/25/22 09:45*	*1*
2,4,6-Tribromophenol (Surr)	*65*		*20 - 119*	*03/23/22 20:44*	*03/25/22 09:45*	*1*
Terphenyl-d14 (Surr)	*90*		*20 - 117*	*03/23/22 20:44*	*03/25/22 09:45*	*1*

Lab Sample ID: LCS 180-392827/2-A
Matrix: Solid
Analysis Batch: 393021

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 392827

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biphenyl	667	529		ug/Kg		79	43 - 100
2-Chloronaphthalene	667	508		ug/Kg		76	47 - 100
1,4-Dichlorobenzene	667	503		ug/Kg		75	41 - 100
3,3'-Dichlorobenzidine	667	445		ug/Kg		67	34 - 101
2,4-Dichlorophenol	667	565		ug/Kg		85	48 - 101
Acenaphthene	667	523		ug/Kg		79	41 - 100
Anthracene	667	540		ug/Kg		81	47 - 100
2,4-Dimethylphenol	667	569		ug/Kg		85	46 - 103
Atrazine	667	555		ug/Kg		83	46 - 102
Benzo[a]anthracene	667	550		ug/Kg		83	47 - 100
2,4-Dinitrophenol	1330	1100		ug/Kg		82	31 - 112
Benzo[a]pyrene	667	514		ug/Kg		77	45 - 101
2,4-Dinitrotoluene	667	560		ug/Kg		84	48 - 106
Benzo[b]fluoranthene	667	514		ug/Kg		77	44 - 100
2,6-Dinitrotoluene	667	571		ug/Kg		86	48 - 109
Benzo[k]fluoranthene	667	479		ug/Kg		72	43 - 100
Bis(2-chloroethoxy)methane	667	535		ug/Kg		80	45 - 100
Dichloroethyl ether	667	549		ug/Kg		82	39 - 101
Bis(2-ethylhexyl) phthalate	667	595		ug/Kg		89	45 - 109
Benzyl butyl phthalate	667	598		ug/Kg		90	45 - 110
Chrysene	667	464		ug/Kg		70	44 - 100
Diethyl phthalate	667	505		ug/Kg		76	45 - 105
Dimethyl phthalate	667	521		ug/Kg		78	46 - 101
Dibutylphthalate	667	547		ug/Kg		82	50 - 105
Di-n-octyl phthalate	667	590		ug/Kg		89	34 - 106
Fluoranthene	667	537		ug/Kg		81	49 - 102
2-Nitroaniline	667	660		ug/Kg		99	40 - 122
Fluorene	667	526		ug/Kg		79	46 - 100
3-Nitroaniline	667	558		ug/Kg		84	39 - 107
Hexachlorobutadiene	667	493		ug/Kg		74	38 - 110
Hexachlorocyclopentadiene	667	604		ug/Kg		91	31 - 116
Hexachloroethane	667	549		ug/Kg		82	40 - 100
Indeno[1,2,3-cd]pyrene	667	555		ug/Kg		83	48 - 104
2,2'-oxybis[1-chloropropane]	667	452		ug/Kg		68	33 - 101
Isophorone	667	601		ug/Kg		90	46 - 105
Nitrobenzene	667	583		ug/Kg		87	43 - 107

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-392827/2-A
Matrix: Solid
Analysis Batch: 393021

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 392827

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
p-Chloroaniline			667	525		ug/Kg		79	38 - 100		
N-Nitrosodiphenylamine			667	559		ug/Kg		84	46 - 100		
Pentachlorophenol			1330	1110		ug/Kg		83	34 - 112		
Phenanthrene			667	529		ug/Kg		79	46 - 100		
Phenol			667	553		ug/Kg		83	42 - 103		
p-Nitroaniline			667	577		ug/Kg		86	41 - 110		
Pyrene			667	542		ug/Kg		81	44 - 102		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*78*		*35 - 105*
2-Fluorophenol (Surr)	*88*		*32 - 105*
Nitrobenzene-d5 (Surr)	*91*		*34 - 109*
Phenol-d5 (Surr)	*87*		*34 - 105*
2,4,6-Tribromophenol (Surr)	*70*		*20 - 119*
Terphenyl-d14 (Surr)	*76*		*20 - 117*

Lab Sample ID: 180-135332-5 MS
Matrix: Solid
Analysis Batch: 393021

Client Sample ID: TRW BASE
Prep Type: Total/NA
Prep Batch: 392827

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Biphenyl	ND		941	600		ug/Kg	☼	64	43 - 100		
2-Chloronaphthalene	4700	F2	941	4430	4	ug/Kg	☼	-29	47 - 100		
1,4-Dichlorobenzene	ND		941	534		ug/Kg	☼	57	41 - 100		
3,3'-Dichlorobenzidine	ND		941	534		ug/Kg	☼	57	34 - 101		
2,4-Dichlorophenol	ND		941	644		ug/Kg	☼	68	48 - 101		
Acenaphthene	ND		941	575		ug/Kg	☼	61	41 - 100		
Anthracene	220		941	762		ug/Kg	☼	58	47 - 100		
2,4-Dimethylphenol	ND		941	651		ug/Kg	☼	69	46 - 103		
Atrazine	ND	F1	941	1010	F1	ug/Kg	☼	107	46 - 102		
Benzo[a]anthracene	75		941	695		ug/Kg	☼	66	47 - 100		
2,4-Dinitrophenol	ND	F1	1880	923	J	ug/Kg	☼	49	31 - 112		
Benzo[a]pyrene	51		941	566		ug/Kg	☼	55	45 - 101		
2,4-Dinitrotoluene	ND		941	621		ug/Kg	☼	66	48 - 106		
Benzo[b]fluoranthene	81		941	590		ug/Kg	☼	54	44 - 100		
2,6-Dinitrotoluene	ND		941	630		ug/Kg	☼	67	48 - 109		
Benzo[k]fluoranthene	30		941	472		ug/Kg	☼	47	43 - 100		
Bis(2-chloroethoxy)methane	ND		941	586		ug/Kg	☼	62	45 - 100		
Dichloroethyl ether	ND		941	603		ug/Kg	☼	64	39 - 101		
Bis(2-ethylhexyl) phthalate	150	J	941	864	J	ug/Kg	☼	92	45 - 109		
Benzyl butyl phthalate	ND		941	678		ug/Kg	☼	72	45 - 110		
Chrysene	78		941	609		ug/Kg	☼	56	44 - 100		
Diethyl phthalate	ND		941	723		ug/Kg	☼	77	45 - 105		
Dimethyl phthalate	ND		941	583		ug/Kg	☼	62	46 - 101		
Dibutylphthalate	1700	F1	941	3830	F1	ug/Kg	☼	227	50 - 105		
Di-n-octyl phthalate	ND		941	674		ug/Kg	☼	72	34 - 106		
Fluoranthene	140		941	705		ug/Kg	☼	60	49 - 102		
2-Nitroaniline	ND		941	730		ug/Kg	☼	78	40 - 122		

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-135332-5 MS
Matrix: Solid
Analysis Batch: 393021

Client Sample ID: TRW BASE
Prep Type: Total/NA
Prep Batch: 392827

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Fluorene	ND		941	530		ug/Kg	☼	56	46 - 100
3-Nitroaniline	ND		941	582	J	ug/Kg	☼	62	39 - 107
Hexachlorobutadiene	ND		941	532		ug/Kg	☼	57	38 - 110
Hexachlorocyclopentadiene	ND		941	455		ug/Kg	☼	48	31 - 116
Hexachloroethane	ND		941	577		ug/Kg	☼	61	40 - 100
Indeno[1,2,3-cd]pyrene	34		941	603		ug/Kg	☼	60	48 - 104
2,2'-oxybis[1-chloropropane]	ND		941	502		ug/Kg	☼	53	33 - 101
Isophorone	ND		941	678		ug/Kg	☼	72	46 - 105
Nitrobenzene	ND		941	663		ug/Kg	☼	70	43 - 107
p-Chloroaniline	ND		941	380		ug/Kg	☼	40	38 - 100
N-Nitrosodiphenylamine	110	J	941	757		ug/Kg	☼	69	46 - 100
Pentachlorophenol	ND		1880	714	J	ug/Kg	☼	38	34 - 112
Phenanthrene	44		941	600		ug/Kg	☼	59	46 - 100
Phenol	55	J	941	806		ug/Kg	☼	80	42 - 103
p-Nitroaniline	ND		941	546	J	ug/Kg	☼	58	41 - 110
Pyrene	110		941	648		ug/Kg	☼	57	44 - 102

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*67*		*35 - 105*
2-Fluorophenol (Surr)	*70*		*32 - 105*
Nitrobenzene-d5 (Surr)	*77*		*34 - 109*
Phenol-d5 (Surr)	*70*		*34 - 105*
2,4,6-Tribromophenol (Surr)	*61*		*20 - 119*
Terphenyl-d14 (Surr)	*66*		*20 - 117*

Lab Sample ID: 180-135332-5 MSD
Matrix: Solid
Analysis Batch: 393021

Client Sample ID: TRW BASE
Prep Type: Total/NA
Prep Batch: 392827

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Biphenyl	ND		935	569		ug/Kg	☼	61	43 - 100	5	25
2-Chloronaphthalene	4700	F2	935	3510	4 F2	ug/Kg	☼	-127	47 - 100	23	22
1,4-Dichlorobenzene	ND		935	527		ug/Kg	☼	56	41 - 100	1	31
3,3'-Dichlorobenzidine	ND		935	522		ug/Kg	☼	56	34 - 101	2	23
2,4-Dichlorophenol	ND		935	617		ug/Kg	☼	66	48 - 101	4	26
Acenaphthene	ND		935	543		ug/Kg	☼	58	41 - 100	6	22
Anthracene	220		935	743		ug/Kg	☼	56	47 - 100	3	26
2,4-Dimethylphenol	ND		935	633		ug/Kg	☼	68	46 - 103	3	26
Atrazine	ND	F1	935	1010	F1	ug/Kg	☼	108	46 - 102	0	23
Benzo[a]anthracene	75		935	667		ug/Kg	☼	63	47 - 100	4	24
2,4-Dinitrophenol	ND	F1	1870	ND	F1	ug/Kg	☼	0	31 - 112	NC	17
Benzo[a]pyrene	51		935	551		ug/Kg	☼	53	45 - 101	3	21
2,4-Dinitrotoluene	ND		935	591		ug/Kg	☼	63	48 - 106	5	20
Benzo[b]fluoranthene	81		935	586		ug/Kg	☼	54	44 - 100	1	26
2,6-Dinitrotoluene	ND		935	612		ug/Kg	☼	65	48 - 109	3	17
Benzo[k]fluoranthene	30		935	467		ug/Kg	☼	47	43 - 100	1	18
Bis(2-chloroethoxy)methane	ND		935	559		ug/Kg	☼	60	45 - 100	5	30
Dichloroethyl ether	ND		935	595		ug/Kg	☼	64	39 - 101	1	28

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-135332-5 MSD
Matrix: Solid
Analysis Batch: 393021

Client Sample ID: TRW BASE
Prep Type: Total/NA
Prep Batch: 392827

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Bis(2-ethylhexyl) phthalate	150	J	935	850	J	ug/Kg	☼	91	45 - 109	2	29
Benzyl butyl phthalate	ND		935	646		ug/Kg	☼	69	45 - 110	5	27
Chrysene	78		935	591		ug/Kg	☼	55	44 - 100	3	26
Diethyl phthalate	ND		935	688		ug/Kg	☼	74	45 - 105	5	23
Dimethyl phthalate	ND		935	551		ug/Kg	☼	59	46 - 101	6	18
Dibutylphthalate	1700	F1	935	3800	F1	ug/Kg	☼	225	50 - 105	1	22
Di-n-octyl phthalate	ND		935	664		ug/Kg	☼	71	34 - 106	1	22
Fluoranthene	140		935	691		ug/Kg	☼	59	49 - 102	2	26
2-Nitroaniline	ND		935	728		ug/Kg	☼	78	40 - 122	0	20
Fluorene	ND		935	496		ug/Kg	☼	53	46 - 100	7	22
3-Nitroaniline	ND		935	540	J	ug/Kg	☼	58	39 - 107	8	21
Hexachlorobutadiene	ND		935	520		ug/Kg	☼	56	38 - 110	2	27
Hexachlorocyclopentadiene	ND		935	413		ug/Kg	☼	44	31 - 116	10	22
Hexachloroethane	ND		935	560		ug/Kg	☼	60	40 - 100	3	27
Indeno[1,2,3-cd]pyrene	34		935	596		ug/Kg	☼	60	48 - 104	1	22
2,2'-oxybis[1-chloropropane]	ND		935	496		ug/Kg	☼	53	33 - 101	1	28
Isophorone	ND		935	657		ug/Kg	☼	70	46 - 105	3	29
Nitrobenzene	ND		935	634		ug/Kg	☼	68	43 - 107	4	28
p-Chloroaniline	ND		935	369		ug/Kg	☼	39	38 - 100	3	31
N-Nitrosodiphenylamine	110	J	935	737		ug/Kg	☼	67	46 - 100	3	26
Pentachlorophenol	ND		1870	633	J	ug/Kg	☼	34	34 - 112	12	28
Phenanthrene	44		935	572		ug/Kg	☼	56	46 - 100	5	27
Phenol	55	J	935	814		ug/Kg	☼	81	42 - 103	1	30
p-Nitroaniline	ND		935	515	J	ug/Kg	☼	55	41 - 110	6	21
Pyrene	110		935	632		ug/Kg	☼	56	44 - 102	3	27

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*64*		*35 - 105*
2-Fluorophenol (Surr)	*69*		*32 - 105*
Nitrobenzene-d5 (Surr)	*73*		*34 - 109*
Phenol-d5 (Surr)	*69*		*34 - 105*
2,4,6-Tribromophenol (Surr)	*59*		*20 - 119*
Terphenyl-d14 (Surr)	*64*		*20 - 117*

Lab Sample ID: MB 180-394161/1-A
Matrix: Solid
Analysis Batch: 394669

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 394161

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		1.0	0.14	ug/L		04/04/22 17:15	04/08/22 10:30	1
2-Chloronaphthalene	ND		0.19	0.059	ug/L		04/04/22 17:15	04/08/22 10:30	1
1,4-Dichlorobenzene	ND		1.0	0.061	ug/L		04/04/22 17:15	04/08/22 10:30	1
3,3'-Dichlorobenzidine	ND		1.0	0.58	ug/L		04/04/22 17:15	04/08/22 10:30	1
2,4-Dichlorophenol	ND		0.19	0.051	ug/L		04/04/22 17:15	04/08/22 10:30	1
Acenaphthene	ND		0.19	0.065	ug/L		04/04/22 17:15	04/08/22 10:30	1
Anthracene	ND		0.19	0.049	ug/L		04/04/22 17:15	04/08/22 10:30	1
2,4-Dimethylphenol	ND		1.0	0.17	ug/L		04/04/22 17:15	04/08/22 10:30	1
Atrazine	ND		1.0	0.63	ug/L		04/04/22 17:15	04/08/22 10:30	1

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-394161/1-A
Matrix: Solid
Analysis Batch: 394669

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 394161

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.19	0.075	ug/L		04/04/22 17:15	04/08/22 10:30	1
2,4-Dinitrophenol	ND		10	1.5	ug/L		04/04/22 17:15	04/08/22 10:30	1
Benzo[a]pyrene	ND		0.19	0.053	ug/L		04/04/22 17:15	04/08/22 10:30	1
2,4-Dinitrotoluene	ND		1.0	0.35	ug/L		04/04/22 17:15	04/08/22 10:30	1
Benzo[b]fluoranthene	ND		0.19	0.097	ug/L		04/04/22 17:15	04/08/22 10:30	1
2,6-Dinitrotoluene	ND		1.0	0.17	ug/L		04/04/22 17:15	04/08/22 10:30	1
Benzo[k]fluoranthene	ND		0.19	0.088	ug/L		04/04/22 17:15	04/08/22 10:30	1
Bis(2-chloroethoxy)methane	ND		1.0	0.15	ug/L		04/04/22 17:15	04/08/22 10:30	1
Dichloroethyl ether	ND		0.19	0.040	ug/L		04/04/22 17:15	04/08/22 10:30	1
Bis(2-ethylhexyl) phthalate	ND		10	6.2	ug/L		04/04/22 17:15	04/08/22 10:30	1
Benzyl butyl phthalate	ND		1.0	0.46	ug/L		04/04/22 17:15	04/08/22 10:30	1
Chrysene	ND		0.19	0.081	ug/L		04/04/22 17:15	04/08/22 10:30	1
Diethyl phthalate	ND		1.0	0.57	ug/L		04/04/22 17:15	04/08/22 10:30	1
Dimethyl phthalate	ND		1.0	0.20	ug/L		04/04/22 17:15	04/08/22 10:30	1
Dibutylphthalate	ND		1.0	0.74	ug/L		04/04/22 17:15	04/08/22 10:30	1
Di-n-octyl phthalate	ND		1.0	0.69	ug/L		04/04/22 17:15	04/08/22 10:30	1
Fluoranthene	ND		0.19	0.060	ug/L		04/04/22 17:15	04/08/22 10:30	1
2-Nitroaniline	ND		5.0	0.55	ug/L		04/04/22 17:15	04/08/22 10:30	1
Fluorene	ND		0.19	0.069	ug/L		04/04/22 17:15	04/08/22 10:30	1
3-Nitroaniline	ND		5.0	0.44	ug/L		04/04/22 17:15	04/08/22 10:30	1
Hexachlorobutadiene	ND		0.19	0.069	ug/L		04/04/22 17:15	04/08/22 10:30	1
Hexachlorocyclopentadiene	ND		1.0	0.50	ug/L		04/04/22 17:15	04/08/22 10:30	1
Hexachloroethane	ND		1.0	0.13	ug/L		04/04/22 17:15	04/08/22 10:30	1
Indeno[1,2,3-cd]pyrene	ND		0.19	0.085	ug/L		04/04/22 17:15	04/08/22 10:30	1
2,2'-oxybis[1-chloropropane]	ND		0.19	0.058	ug/L		04/04/22 17:15	04/08/22 10:30	1
Isophorone	ND		1.0	0.19	ug/L		04/04/22 17:15	04/08/22 10:30	1
Nitrobenzene	ND		2.0	0.50	ug/L		04/04/22 17:15	04/08/22 10:30	1
p-Chloroaniline	ND		1.0	0.38	ug/L		04/04/22 17:15	04/08/22 10:30	1
N-Nitrosodiphenylamine	ND		1.0	0.12	ug/L		04/04/22 17:15	04/08/22 10:30	1
Pentachlorophenol	ND		5.0	0.85	ug/L		04/04/22 17:15	04/08/22 10:30	1
Phenanthrene	ND		0.19	0.055	ug/L		04/04/22 17:15	04/08/22 10:30	1
Phenol	ND		1.0	0.49	ug/L		04/04/22 17:15	04/08/22 10:30	1
p-Nitroaniline	ND		5.0	0.36	ug/L		04/04/22 17:15	04/08/22 10:30	1
Pyrene	ND		0.19	0.054	ug/L		04/04/22 17:15	04/08/22 10:30	1

Tentatively Identified Compound	MB *Est. Result*	MB *Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ug/L*				*04/04/22 17:15*	*04/08/22 10:30*	*1*

Surrogate	MB *%Recovery*	MB *Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*73*		*38 - 105*	*04/04/22 17:15*	*04/08/22 10:30*	*1*
2-Fluorophenol (Surr)	*71*		*24 - 105*	*04/04/22 17:15*	*04/08/22 10:30*	*1*
Nitrobenzene-d5 (Surr)	*74*		*38 - 105*	*04/04/22 17:15*	*04/08/22 10:30*	*1*
Phenol-d5 (Surr)	*68*		*28 - 105*	*04/04/22 17:15*	*04/08/22 10:30*	*1*
2,4,6-Tribromophenol (Surr)	*58*		*32 - 124*	*04/04/22 17:15*	*04/08/22 10:30*	*1*
Terphenyl-d14 (Surr)	*62*		*28 - 112*	*04/04/22 17:15*	*04/08/22 10:30*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-394161/2-A
Matrix: Solid
Analysis Batch: 394669

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 394161

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Biphenyl			20.0	14.7		ug/L		74	47 - 100		
2-Chloronaphthalene			20.0	14.9		ug/L		74	47 - 100		
1,4-Dichlorobenzene			20.0	14.1		ug/L		71	47 - 100		
3,3'-Dichlorobenzidine			20.0	12.4		ug/L		62	38 - 100		
2,4-Dichlorophenol			20.0	15.4		ug/L		77	50 - 100		
Acenaphthene			20.0	14.4		ug/L		72	48 - 100		
Anthracene			20.0	14.3		ug/L		72	49 - 100		
2,4-Dimethylphenol			20.0	14.1		ug/L		71	48 - 100		
Atrazine			20.0	16.5		ug/L		82	48 - 100		
Benzo[a]anthracene			20.0	14.1		ug/L		71	48 - 100		
2,4-Dinitrophenol			40.0	27.1		ug/L		68	34 - 100		
Benzo[a]pyrene			20.0	12.9		ug/L		65	49 - 100		
2,4-Dinitrotoluene			20.0	15.7		ug/L		78	53 - 100		
Benzo[b]fluoranthene			20.0	13.5		ug/L		68	46 - 100		
2,6-Dinitrotoluene			20.0	15.7		ug/L		78	53 - 100		
Benzo[k]fluoranthene			20.0	12.7		ug/L		64	46 - 100		
Bis(2-chloroethoxy)methane			20.0	15.2		ug/L		76	48 - 100		
Dichloroethyl ether			20.0	14.4		ug/L		72	47 - 100		
Bis(2-ethylhexyl) phthalate			20.0	15.4		ug/L		77	48 - 101		
Benzyl butyl phthalate			20.0	13.5		ug/L		67	47 - 101		
Chrysene			20.0	13.2		ug/L		66	48 - 100		
Diethyl phthalate			20.0	14.4		ug/L		72	51 - 100		
Dimethyl phthalate			20.0	15.4		ug/L		77	51 - 100		
Dibutylphthalate			20.0	14.6		ug/L		73	54 - 100		
Di-n-octyl phthalate			20.0	14.4		ug/L		72	37 - 100		
Fluoranthene			20.0	15.2		ug/L		76	52 - 100		
2-Nitroaniline			20.0	15.1		ug/L		75	45 - 102		
Fluorene			20.0	13.7		ug/L		69	49 - 100		
3-Nitroaniline			20.0	14.0		ug/L		70	48 - 100		
Hexachlorobutadiene			20.0	14.3		ug/L		71	40 - 100		
Hexachlorocyclopentadiene			20.0	13.3		ug/L		67	32 - 103		
Hexachloroethane			20.0	14.1		ug/L		71	48 - 100		
Indeno[1,2,3-cd]pyrene			20.0	14.1		ug/L		70	51 - 100		
2,2'-oxybis[1-chloropropane]			20.0	11.7		ug/L		58	26 - 105		
Isophorone			20.0	14.6		ug/L		73	48 - 100		
Nitrobenzene			20.0	15.2		ug/L		76	47 - 100		
p-Chloroaniline			20.0	13.5		ug/L		68	43 - 100		
N-Nitrosodiphenylamine			20.0	14.3		ug/L		72	47 - 100		
Pentachlorophenol			40.0	22.9		ug/L		57	35 - 100		
Phenanthrene			20.0	13.8		ug/L		69	47 - 100		
Phenol			20.0	13.6		ug/L		68	47 - 100		
p-Nitroaniline			20.0	14.4		ug/L		72	52 - 100		
Pyrene			20.0	14.6		ug/L		73	47 - 100		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*76*		*38 - 105*
2-Fluorophenol (Surr)	*78*		*24 - 105*
Nitrobenzene-d5 (Surr)	*75*		*38 - 105*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-394161/2-A
Matrix: Solid
Analysis Batch: 394669

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 394161

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Phenol-d5 (Surr)	73		28 - 105
2,4,6-Tribromophenol (Surr)	63		32 - 124
Terphenyl-d14 (Surr)	72		28 - 112

Lab Sample ID: LCSD 180-394161/3-A
Matrix: Solid
Analysis Batch: 394669

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 394161

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Biphenyl			20.0	15.3		ug/L		77	47 - 100	4	15
2-Chloronaphthalene			20.0	15.1		ug/L		75	47 - 100	2	15
1,4-Dichlorobenzene			20.0	14.9		ug/L		74	47 - 100	5	15
3,3'-Dichlorobenzidine			20.0	12.9		ug/L		65	38 - 100	4	15
2,4-Dichlorophenol			20.0	16.5		ug/L		82	50 - 100	7	15
Acenaphthene			20.0	14.6		ug/L		73	48 - 100	2	15
Anthracene			20.0	14.8		ug/L		74	49 - 100	3	15
2,4-Dimethylphenol			20.0	15.2		ug/L		76	48 - 100	7	15
Atrazine			20.0	16.8		ug/L		84	48 - 100	2	15
Benzo[a]anthracene			20.0	15.2		ug/L		76	48 - 100	7	15
2,4-Dinitrophenol			40.0	25.8		ug/L		64	34 - 100	5	21
Benzo[a]pyrene			20.0	13.7		ug/L		69	49 - 100	6	15
2,4-Dinitrotoluene			20.0	15.9		ug/L		80	53 - 100	2	15
Benzo[b]fluoranthene			20.0	14.6		ug/L		73	46 - 100	7	15
2,6-Dinitrotoluene			20.0	15.9		ug/L		79	53 - 100	1	15
Benzo[k]fluoranthene			20.0	13.6		ug/L		68	46 - 100	7	15
Bis(2-chloroethoxy)methane			20.0	16.5		ug/L		82	48 - 100	8	15
Dichloroethyl ether			20.0	16.3		ug/L		81	47 - 100	12	15
Bis(2-ethylhexyl) phthalate			20.0	16.8		ug/L		84	48 - 101	9	15
Benzyl butyl phthalate			20.0	14.9		ug/L		74	47 - 101	10	15
Chrysene			20.0	13.9		ug/L		69	48 - 100	5	15
Diethyl phthalate			20.0	14.3		ug/L		72	51 - 100	1	15
Dimethyl phthalate			20.0	15.6		ug/L		78	51 - 100	1	15
Dibutylphthalate			20.0	15.2		ug/L		76	54 - 100	4	15
Di-n-octyl phthalate			20.0	16.3		ug/L		81	37 - 100	12	15
Fluoranthene			20.0	15.6		ug/L		78	52 - 100	3	15
2-Nitroaniline			20.0	16.2		ug/L		81	45 - 102	7	15
Fluorene			20.0	13.7		ug/L		69	49 - 100	0	15
3-Nitroaniline			20.0	14.5		ug/L		73	48 - 100	4	15
Hexachlorobutadiene			20.0	14.9		ug/L		74	40 - 100	4	15
Hexachlorocyclopentadiene			20.0	14.0		ug/L		70	32 - 103	5	15
Hexachloroethane			20.0	14.9		ug/L		74	48 - 100	5	15
Indeno[1,2,3-cd]pyrene			20.0	14.9		ug/L		74	51 - 100	6	15
2,2'-oxybis[1-chloropropane]			20.0	12.8		ug/L		64	26 - 105	9	15
Isophorone			20.0	15.9		ug/L		80	48 - 100	9	20
Nitrobenzene			20.0	16.9		ug/L		85	47 - 100	11	15
p-Chloroaniline			20.0	14.2		ug/L		71	43 - 100	5	15
N-Nitrosodiphenylamine			20.0	15.1		ug/L		75	47 - 100	5	15
Pentachlorophenol			40.0	23.5		ug/L		59	35 - 100	2	15

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 180-394161/3-A
Matrix: Solid
Analysis Batch: 394669

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 394161

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Phenanthrene			20.0	14.4		ug/L		72	47 - 100	4	15
Phenol			20.0	14.3		ug/L		71	47 - 100	5	15
p-Nitroaniline			20.0	14.3		ug/L		72	52 - 100	1	15
Pyrene			20.0	15.8		ug/L		79	47 - 100	8	15

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*79*		*38 - 105*
2-Fluorophenol (Surr)	*86*		*24 - 105*
Nitrobenzene-d5 (Surr)	*85*		*38 - 105*
Phenol-d5 (Surr)	*77*		*28 - 105*
2,4,6-Tribromophenol (Surr)	*66*		*32 - 124*
Terphenyl-d14 (Surr)	*78*		*28 - 112*

Lab Sample ID: LB 180-393202/1-G
Matrix: Solid
Analysis Batch: 394911

Client Sample ID: Method Blank
Prep Type: SPLP East
Prep Batch: 394161

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.98	0.14	ug/L		04/04/22 17:15	04/11/22 11:21	1
2-Chloronaphthalene	ND		0.19	0.058	ug/L		04/04/22 17:15	04/11/22 11:21	1
1,4-Dichlorobenzene	ND		0.98	0.060	ug/L		04/04/22 17:15	04/11/22 11:21	1
3,3'-Dichlorobenzidine	ND		0.98	0.57	ug/L		04/04/22 17:15	04/11/22 11:21	1
2,4-Dichlorophenol	ND		0.19	0.050	ug/L		04/04/22 17:15	04/11/22 11:21	1
Acenaphthene	ND		0.19	0.064	ug/L		04/04/22 17:15	04/11/22 11:21	1
Anthracene	ND		0.19	0.048	ug/L		04/04/22 17:15	04/11/22 11:21	1
2,4-Dimethylphenol	ND		0.98	0.16	ug/L		04/04/22 17:15	04/11/22 11:21	1
Atrazine	ND		0.98	0.62	ug/L		04/04/22 17:15	04/11/22 11:21	1
Benzo[a]anthracene	ND		0.19	0.074	ug/L		04/04/22 17:15	04/11/22 11:21	1
2,4-Dinitrophenol	ND		9.8	1.5	ug/L		04/04/22 17:15	04/11/22 11:21	1
Benzo[a]pyrene	ND		0.19	0.052	ug/L		04/04/22 17:15	04/11/22 11:21	1
2,4-Dinitrotoluene	ND		0.98	0.35	ug/L		04/04/22 17:15	04/11/22 11:21	1
Benzo[b]fluoranthene	ND		0.19	0.095	ug/L		04/04/22 17:15	04/11/22 11:21	1
2,6-Dinitrotoluene	ND		0.98	0.17	ug/L		04/04/22 17:15	04/11/22 11:21	1
Benzo[k]fluoranthene	ND		0.19	0.086	ug/L		04/04/22 17:15	04/11/22 11:21	1
Bis(2-chloroethoxy)methane	ND		0.98	0.15	ug/L		04/04/22 17:15	04/11/22 11:21	1
Dichloroethyl ether	ND		0.19	0.039	ug/L		04/04/22 17:15	04/11/22 11:21	1
Bis(2-ethylhexyl) phthalate	ND		9.8	6.1	ug/L		04/04/22 17:15	04/11/22 11:21	1
Benzyl butyl phthalate	ND		0.98	0.45	ug/L		04/04/22 17:15	04/11/22 11:21	1
Chrysene	ND		0.19	0.079	ug/L		04/04/22 17:15	04/11/22 11:21	1
Diethyl phthalate	ND		0.98	0.56	ug/L		04/04/22 17:15	04/11/22 11:21	1
Dimethyl phthalate	ND		0.98	0.20	ug/L		04/04/22 17:15	04/11/22 11:21	1
Dibutylphthalate	0.761	J	0.98	0.73	ug/L		04/04/22 17:15	04/11/22 11:21	1
Di-n-octyl phthalate	ND		0.98	0.67	ug/L		04/04/22 17:15	04/11/22 11:21	1
Fluoranthene	ND		0.19	0.059	ug/L		04/04/22 17:15	04/11/22 11:21	1
2-Nitroaniline	ND		4.9	0.54	ug/L		04/04/22 17:15	04/11/22 11:21	1
Fluorene	ND		0.19	0.068	ug/L		04/04/22 17:15	04/11/22 11:21	1
3-Nitroaniline	ND		4.9	0.43	ug/L		04/04/22 17:15	04/11/22 11:21	1
Hexachlorobutadiene	ND		0.19	0.068	ug/L		04/04/22 17:15	04/11/22 11:21	1

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LB 180-393202/1-G
Matrix: Solid
Analysis Batch: 394911

Client Sample ID: Method Blank
Prep Type: SPLP East
Prep Batch: 394161

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorocyclopentadiene	ND		0.98	0.49	ug/L		04/04/22 17:15	04/11/22 11:21	1
Hexachloroethane	ND		0.98	0.13	ug/L		04/04/22 17:15	04/11/22 11:21	1
Indeno[1,2,3-cd]pyrene	ND		0.19	0.083	ug/L		04/04/22 17:15	04/11/22 11:21	1
2,2'-oxybis[1-chloropropane]	ND		0.19	0.057	ug/L		04/04/22 17:15	04/11/22 11:21	1
Isophorone	ND		0.98	0.18	ug/L		04/04/22 17:15	04/11/22 11:21	1
Nitrobenzene	ND		2.0	0.49	ug/L		04/04/22 17:15	04/11/22 11:21	1
p-Chloroaniline	ND		0.98	0.37	ug/L		04/04/22 17:15	04/11/22 11:21	1
N-Nitrosodiphenylamine	ND		0.98	0.12	ug/L		04/04/22 17:15	04/11/22 11:21	1
Pentachlorophenol	ND		4.9	0.83	ug/L		04/04/22 17:15	04/11/22 11:21	1
Phenanthrene	ND		0.19	0.054	ug/L		04/04/22 17:15	04/11/22 11:21	1
Phenol	ND		0.98	0.48	ug/L		04/04/22 17:15	04/11/22 11:21	1
p-Nitroaniline	ND		4.9	0.36	ug/L		04/04/22 17:15	04/11/22 11:21	1
Pyrene	ND		0.19	0.053	ug/L		04/04/22 17:15	04/11/22 11:21	1

Tentatively Identified Compound	*Est. Result*	*LB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Caprolactam	*0.467*	*J*	*ug/L*		*7.29*	*105-60-2*	*04/04/22 17:15*	*04/11/22 11:21*	*1*
Tentatively Identified Compound	*None*		*ug/L*				*04/04/22 17:15*	*04/11/22 11:21*	*1*

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*84*		*38 - 105*	*04/04/22 17:15*	*04/11/22 11:21*	*1*
2-Fluorophenol (Surr)	*72*		*24 - 105*	*04/04/22 17:15*	*04/11/22 11:21*	*1*
Nitrobenzene-d5 (Surr)	*86*		*38 - 105*	*04/04/22 17:15*	*04/11/22 11:21*	*1*
Phenol-d5 (Surr)	*70*		*28 - 105*	*04/04/22 17:15*	*04/11/22 11:21*	*1*
2,4,6-Tribromophenol (Surr)	*78*		*32 - 124*	*04/04/22 17:15*	*04/11/22 11:21*	*1*
Terphenyl-d14 (Surr)	*75*		*28 - 112*	*04/04/22 17:15*	*04/11/22 11:21*	*1*

Method: EPA 8081B LL - Organochlorine Pesticides (GC)

Lab Sample ID: MB 180-392824/1-A
Matrix: Solid
Analysis Batch: 394077

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 392824

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.083	0.021	ug/Kg		03/23/22 18:43	04/04/22 12:21	1
beta-BHC	ND		0.083	0.023	ug/Kg		03/23/22 18:43	04/04/22 12:21	1
delta-BHC	ND		0.083	0.026	ug/Kg		03/23/22 18:43	04/04/22 12:21	1
gamma-BHC (Lindane)	ND		0.083	0.022	ug/Kg		03/23/22 18:43	04/04/22 12:21	1
alpha-Chlordane	ND		0.083	0.021	ug/Kg		03/23/22 18:43	04/04/22 12:21	1
gamma-Chlordane	ND		0.083	0.019	ug/Kg		03/23/22 18:43	04/04/22 12:21	1
4,4'-DDD	ND		0.083	0.018	ug/Kg		03/23/22 18:43	04/04/22 12:21	1
4,4'-DDE	ND		0.083	0.017	ug/Kg		03/23/22 18:43	04/04/22 12:21	1
4,4'-DDT	ND		0.083	0.060	ug/Kg		03/23/22 18:43	04/04/22 12:21	1
Dieldrin	ND		0.083	0.021	ug/Kg		03/23/22 18:43	04/04/22 12:21	1
Endosulfan II	ND		0.083	0.018	ug/Kg		03/23/22 18:43	04/04/22 12:21	1
Endrin aldehyde	ND		0.083	0.030	ug/Kg		03/23/22 18:43	04/04/22 12:21	1
Endrin ketone	ND		0.083	0.012	ug/Kg		03/23/22 18:43	04/04/22 12:21	1
Heptachlor	ND		0.083	0.026	ug/Kg		03/23/22 18:43	04/04/22 12:21	1
Heptachlor epoxide	ND		0.083	0.021	ug/Kg		03/23/22 18:43	04/04/22 12:21	1

Method: EPA 8081B LL - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 180-392824/1-A
Matrix: Solid
Analysis Batch: 394077

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 392824

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorobenzene	ND		0.083	0.015	ug/Kg		03/23/22 18:43	04/04/22 12:21	1
Methoxychlor	ND		0.17	0.033	ug/Kg		03/23/22 18:43	04/04/22 12:21	1
Toxaphene	ND		3.3	2.3	ug/Kg		03/23/22 18:43	04/04/22 12:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*106*		*26 - 123*	*03/23/22 18:43*	*04/04/22 12:21*	*1*
Tetrachloro-m-xylene	*119*		*26 - 123*	*03/23/22 18:43*	*04/04/22 12:21*	*1*
DCB Decachlorobiphenyl (Surr)	*122*		*30 - 132*	*03/23/22 18:43*	*04/04/22 12:21*	*1*
DCB Decachlorobiphenyl (Surr)	*140*	*S1+*	*30 - 132*	*03/23/22 18:43*	*04/04/22 12:21*	*1*

Lab Sample ID: LCS 180-392824/2-A
Matrix: Solid
Analysis Batch: 394077

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 392824

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	1.67	1.70		ug/Kg		102	30 - 131
beta-BHC	1.67	1.71		ug/Kg		103	26 - 128
delta-BHC	1.67	1.70		ug/Kg		102	20 - 133
gamma-BHC (Lindane)	1.67	1.64		ug/Kg		99	31 - 134
alpha-Chlordane	1.67	1.61		ug/Kg		96	25 - 137
gamma-Chlordane	1.67	1.72		ug/Kg		103	31 - 131
4,4'-DDD	1.67	2.03		ug/Kg		122	32 - 135
4,4'-DDE	1.67	2.16	*+	ug/Kg		130	28 - 128
4,4'-DDT	1.67	1.82		ug/Kg		109	28 - 121
Dieldrin	1.67	2.05		ug/Kg		123	39 - 124
Endosulfan II	1.67	1.74		ug/Kg		104	38 - 125
Endrin aldehyde	1.67	1.89		ug/Kg		113	27 - 124
Endrin ketone	1.67	1.82		ug/Kg		109	46 - 128
Heptachlor	1.67	1.73		ug/Kg		104	24 - 146
Heptachlor epoxide	1.67	1.75		ug/Kg		105	25 - 142
Methoxychlor	1.67	1.91		ug/Kg		115	31 - 136

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*84*		*26 - 123*
Tetrachloro-m-xylene	*96*		*26 - 123*
DCB Decachlorobiphenyl (Surr)	*95*		*30 - 132*
DCB Decachlorobiphenyl (Surr)	*112*		*30 - 132*

Lab Sample ID: 180-135332-5 MS
Matrix: Solid
Analysis Batch: 394077

Client Sample ID: TRW BASE
Prep Type: Total/NA
Prep Batch: 392824

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	ND		2.35	ND	D	ug/Kg	☼	NC	30 - 131
beta-BHC	ND		2.35	ND	D	ug/Kg	☼	NC	26 - 128
delta-BHC	ND		2.35	ND	D	ug/Kg	☼	NC	20 - 133
gamma-BHC (Lindane)	ND		2.35	ND	D	ug/Kg	☼	NC	31 - 134
alpha-Chlordane	ND		2.35	ND	D	ug/Kg	☼	NC	25 - 137

Method: EPA 8081B LL - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 180-135332-5 MS
Matrix: Solid
Analysis Batch: 394077

Client Sample ID: TRW BASE
Prep Type: Total/NA
Prep Batch: 392824

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
gamma-Chlordane	ND		2.35	ND	D	ug/Kg	☼	NC	31 - 131
4,4'-DDD	ND		2.35	ND	D	ug/Kg	☼	NC	32 - 135
4,4'-DDE	ND	*+	2.35	ND	D	ug/Kg	☼	NC	28 - 128
4,4'-DDT	ND		2.35	ND	D	ug/Kg	☼	NC	28 - 121
Dieldrin	ND		2.35	ND	D	ug/Kg	☼	NC	39 - 124
Endosulfan II	ND		2.35	ND	D	ug/Kg	☼	NC	38 - 125
Endrin aldehyde	ND		2.35	ND	D	ug/Kg	☼	NC	27 - 124
Endrin ketone	ND		2.35	ND	D	ug/Kg	☼	NC	46 - 128
Heptachlor	ND		2.35	ND	D	ug/Kg	☼	NC	24 - 146
Heptachlor epoxide	ND		2.35	ND	D	ug/Kg	☼	NC	25 - 142
Methoxychlor	ND		2.35	ND	D	ug/Kg	☼	NC	31 - 136

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*0*	*S1- D*	*26 - 123*
Tetrachloro-m-xylene	*0*	*S1- D*	*26 - 123*
DCB Decachlorobiphenyl (Surr)	*0*	*S1- D*	*30 - 132*
DCB Decachlorobiphenyl (Surr)	*0*	*S1- D*	*30 - 132*

Lab Sample ID: 180-135332-5 MSD
Matrix: Solid
Analysis Batch: 394077

Client Sample ID: TRW BASE
Prep Type: Total/NA
Prep Batch: 392824

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC	ND		2.37	ND	D	ug/Kg	☼	NC	30 - 131	NC	40
beta-BHC	ND		2.37	ND	D	ug/Kg	☼	NC	26 - 128	NC	40
delta-BHC	ND		2.37	ND	D	ug/Kg	☼	NC	20 - 133	NC	40
gamma-BHC (Lindane)	ND		2.37	ND	D	ug/Kg	☼	NC	31 - 134	NC	40
alpha-Chlordane	ND		2.37	ND	D	ug/Kg	☼	NC	25 - 137	NC	40
gamma-Chlordane	ND		2.37	ND	D	ug/Kg	☼	NC	31 - 131	NC	40
4,4'-DDD	ND		2.37	ND	D	ug/Kg	☼	NC	32 - 135	NC	40
4,4'-DDE	ND	*+	2.37	ND	D	ug/Kg	☼	NC	28 - 128	NC	40
4,4'-DDT	ND		2.37	ND	D	ug/Kg	☼	NC	28 - 121	NC	40
Dieldrin	ND		2.37	ND	D	ug/Kg	☼	NC	39 - 124	NC	40
Endosulfan II	ND		2.37	ND	D	ug/Kg	☼	NC	38 - 125	NC	40
Endrin aldehyde	ND		2.37	ND	D	ug/Kg	☼	NC	27 - 124	NC	40
Endrin ketone	ND		2.37	ND	D	ug/Kg	☼	NC	46 - 128	NC	40
Heptachlor	ND		2.37	ND	D	ug/Kg	☼	NC	24 - 146	NC	40
Heptachlor epoxide	ND		2.37	ND	D	ug/Kg	☼	NC	25 - 142	NC	40
Methoxychlor	ND		2.37	ND	D	ug/Kg	☼	NC	31 - 136	NC	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*0*	*S1- D*	*26 - 123*
Tetrachloro-m-xylene	*0*	*S1- D*	*26 - 123*
DCB Decachlorobiphenyl (Surr)	*0*	*S1- D*	*30 - 132*
DCB Decachlorobiphenyl (Surr)	*0*	*S1- D*	*30 - 132*

Method: EPA 8081B LL - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 180-393632/1-A
Matrix: Solid
Analysis Batch: 394241

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 393632

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.00024	ug/L		03/30/22 11:45	04/05/22 12:37	1
beta-BHC	ND		0.0013	0.00037	ug/L		03/30/22 11:45	04/05/22 12:37	1
delta-BHC	ND		0.0013	0.00064	ug/L		03/30/22 11:45	04/05/22 12:37	1
gamma-BHC (Lindane)	ND		0.0013	0.00029	ug/L		03/30/22 11:45	04/05/22 12:37	1
alpha-Chlordane	ND		0.0013	0.00037	ug/L		03/30/22 11:45	04/05/22 12:37	1
gamma-Chlordane	ND		0.0013	0.00041	ug/L		03/30/22 11:45	04/05/22 12:37	1
4,4'-DDD	ND		0.0013	0.00053	ug/L		03/30/22 11:45	04/05/22 12:37	1
4,4'-DDE	ND		0.0013	0.00030	ug/L		03/30/22 11:45	04/05/22 12:37	1
4,4'-DDT	ND		0.0013	0.00069	ug/L		03/30/22 11:45	04/05/22 12:37	1
Dieldrin	ND		0.0013	0.00027	ug/L		03/30/22 11:45	04/05/22 12:37	1
Endosulfan II	ND		0.0013	0.00032	ug/L		03/30/22 11:45	04/05/22 12:37	1
Endrin aldehyde	ND		0.0013	0.00052	ug/L		03/30/22 11:45	04/05/22 12:37	1
Endrin ketone	ND		0.0013	0.00040	ug/L		03/30/22 11:45	04/05/22 12:37	1
Heptachlor	ND		0.0013	0.00045	ug/L		03/30/22 11:45	04/05/22 12:37	1
Heptachlor epoxide	ND		0.0013	0.00034	ug/L		03/30/22 11:45	04/05/22 12:37	1
Hexachlorobenzene	ND		0.0013	0.00091	ug/L		03/30/22 11:45	04/05/22 12:37	1
Methoxychlor	ND		0.0013	0.00078	ug/L		03/30/22 11:45	04/05/22 12:37	1
Toxaphene	ND		0.10	0.049	ug/L		03/30/22 11:45	04/05/22 12:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*75*		*39 - 119*	*03/30/22 11:45*	*04/05/22 12:37*	*1*
Tetrachloro-m-xylene	*91*		*39 - 119*	*03/30/22 11:45*	*04/05/22 12:37*	*1*
DCB Decachlorobiphenyl (Surr)	*74*		*46 - 114*	*03/30/22 11:45*	*04/05/22 12:37*	*1*
DCB Decachlorobiphenyl (Surr)	*92*		*46 - 114*	*03/30/22 11:45*	*04/05/22 12:37*	*1*

Lab Sample ID: LCS 180-393632/2-A
Matrix: Solid
Analysis Batch: 394241

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 393632

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	0.0250	0.0197		ug/L		79	58 - 116
beta-BHC	0.0250	0.0202		ug/L		81	54 - 111
delta-BHC	0.0250	0.0192		ug/L		77	47 - 118
gamma-BHC (Lindane)	0.0250	0.0193		ug/L		77	57 - 116
alpha-Chlordane	0.0250	0.0185		ug/L		74	50 - 117
gamma-Chlordane	0.0250	0.0194		ug/L		78	43 - 115
4,4'-DDD	0.0250	0.0209		ug/L		84	57 - 116
4,4'-DDE	0.0250	0.0209		ug/L		83	55 - 111
4,4'-DDT	0.0250	0.0202		ug/L		81	45 - 107
Dieldrin	0.0250	0.0223		ug/L		89	57 - 111
Endosulfan II	0.0250	0.0208		ug/L		83	54 - 116
Endrin aldehyde	0.0250	0.0218		ug/L		87	43 - 117
Endrin ketone	0.0250	0.0232		ug/L		93	60 - 114
Heptachlor	0.0250	0.0205		ug/L		82	56 - 120
Heptachlor epoxide	0.0250	0.0202		ug/L		81	53 - 118
Methoxychlor	0.0250	0.0220		ug/L		88	46 - 114

Method: EPA 8081B LL - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 180-393632/2-A
Matrix: Solid
Analysis Batch: 394241

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 393632

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*74*		*39 - 119*
Tetrachloro-m-xylene	*88*		*39 - 119*
DCB Decachlorobiphenyl (Surr)	*73*		*46 - 114*
DCB Decachlorobiphenyl (Surr)	*84*		*46 - 114*

Lab Sample ID: LCSD 180-393632/3-A
Matrix: Solid
Analysis Batch: 394241

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 393632

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC			0.0250	0.0217		ug/L		87	58 - 116	9	17
beta-BHC			0.0250	0.0218		ug/L		87	54 - 111	8	18
delta-BHC			0.0250	0.0203		ug/L		81	47 - 118	6	18
gamma-BHC (Lindane)			0.0250	0.0208		ug/L		83	57 - 116	8	19
alpha-Chlordane			0.0250	0.0204		ug/L		82	50 - 117	10	18
gamma-Chlordane			0.0250	0.0217		ug/L		87	43 - 115	11	17
4,4'-DDD			0.0250	0.0234		ug/L		94	57 - 116	11	18
4,4'-DDE			0.0250	0.0237		ug/L		95	55 - 111	13	20
4,4'-DDT			0.0250	0.0233		ug/L		93	45 - 107	14	20
Dieldrin			0.0250	0.0237		ug/L		95	57 - 111	6	21
Endosulfan II			0.0250	0.0238		ug/L		95	54 - 116	14	17
Endrin aldehyde			0.0250	0.0259		ug/L		104	43 - 117	17	23
Endrin ketone			0.0250	0.0265		ug/L		106	60 - 114	13	17
Heptachlor			0.0250	0.0219		ug/L		88	56 - 120	6	18
Heptachlor epoxide			0.0250	0.0221		ug/L		88	53 - 118	9	20
Methoxychlor			0.0250	0.0248		ug/L		99	46 - 114	12	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*77*		*39 - 119*
Tetrachloro-m-xylene	*96*		*39 - 119*
DCB Decachlorobiphenyl (Surr)	*77*		*46 - 114*
DCB Decachlorobiphenyl (Surr)	*93*		*46 - 114*

Lab Sample ID: LB 180-393202/1-F
Matrix: Solid
Analysis Batch: 394077

Client Sample ID: Method Blank
Prep Type: SPLP East
Prep Batch: 393632

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.0013	0.00023	ug/L		03/30/22 11:45	04/04/22 14:41	1
beta-BHC	ND		0.0013	0.00036	ug/L		03/30/22 11:45	04/04/22 14:41	1
delta-BHC	ND		0.0013	0.00062	ug/L		03/30/22 11:45	04/04/22 14:41	1
gamma-BHC (Lindane)	ND		0.0013	0.00028	ug/L		03/30/22 11:45	04/04/22 14:41	1
alpha-Chlordane	ND		0.0013	0.00036	ug/L		03/30/22 11:45	04/04/22 14:41	1
gamma-Chlordane	ND		0.0013	0.00040	ug/L		03/30/22 11:45	04/04/22 14:41	1
4,4'-DDD	ND		0.0013	0.00052	ug/L		03/30/22 11:45	04/04/22 14:41	1
4,4'-DDE	ND		0.0013	0.00029	ug/L		03/30/22 11:45	04/04/22 14:41	1
4,4'-DDT	ND		0.0013	0.00067	ug/L		03/30/22 11:45	04/04/22 14:41	1
Dieldrin	ND		0.0013	0.00027	ug/L		03/30/22 11:45	04/04/22 14:41	1

Method: EPA 8081B LL - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LB 180-393202/1-F
Matrix: Solid
Analysis Batch: 394077

Client Sample ID: Method Blank
Prep Type: SPLP East
Prep Batch: 393632

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endosulfan II	ND		0.0013	0.00031	ug/L		03/30/22 11:45	04/04/22 14:41	1
Endrin aldehyde	ND		0.0013	0.00050	ug/L		03/30/22 11:45	04/04/22 14:41	1
Endrin ketone	ND		0.0013	0.00038	ug/L		03/30/22 11:45	04/04/22 14:41	1
Heptachlor	ND		0.0013	0.00044	ug/L		03/30/22 11:45	04/04/22 14:41	1
Heptachlor epoxide	ND		0.0013	0.00033	ug/L		03/30/22 11:45	04/04/22 14:41	1
Hexachlorobenzene	ND		0.0013	0.00088	ug/L		03/30/22 11:45	04/04/22 14:41	1
Methoxychlor	ND		0.0013	0.00075	ug/L		03/30/22 11:45	04/04/22 14:41	1
Toxaphene	ND		0.097	0.048	ug/L		03/30/22 11:45	04/04/22 14:41	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*86*		*39 - 119*	*03/30/22 11:45*	*04/04/22 14:41*	*1*
Tetrachloro-m-xylene	*100*		*39 - 119*	*03/30/22 11:45*	*04/04/22 14:41*	*1*
DCB Decachlorobiphenyl (Surr)	*100*		*46 - 114*	*03/30/22 11:45*	*04/04/22 14:41*	*1*
DCB Decachlorobiphenyl (Surr)	*114*		*46 - 114*	*03/30/22 11:45*	*04/04/22 14:41*	*1*

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-394126/2-A
Matrix: Solid
Analysis Batch: 394099

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		10	6.8	mg/Kg			04/04/22 17:47	1

Lab Sample ID: LCS 180-394126/1-A
Matrix: Solid
Analysis Batch: 394099

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	250	264		mg/Kg		105	80 - 120

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-575497/1-A
Matrix: Solid
Analysis Batch: 575734

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 575497

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.20	0.046	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
Perfluoropentanoic acid (PFPeA)	ND		0.20	0.041	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.20	0.021	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		03/24/22 11:16	03/25/22 08:14	1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-575497/1-A
Matrix: Solid
Analysis Batch: 575734

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 575497

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.20	0.049	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.052	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
Perfluorooctanesulfonamide (FOSA)	ND		0.20	0.033	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
NMeFOSAA	ND		0.20	0.023	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
NEtFOSAA	ND		0.20	0.048	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
6:2 FTS	ND		0.20	0.027	ug/Kg		03/24/22 11:16	03/25/22 08:14	1
8:2 FTS	ND		0.20	0.035	ug/Kg		03/24/22 11:16	03/25/22 08:14	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*54*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
13C5 PFPeA	*87*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
13C2 PFHxA	*90*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
13C4 PFHpA	*92*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
13C4 PFOA	*89*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
13C5 PFNA	*89*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
13C2 PFDA	*92*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
13C2 PFUnA	*96*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
13C2 PFDoA	*96*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
13C2 PFTeDA	*89*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
13C3 PFBS	*83*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
18O2 PFHxS	*86*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
13C4 PFOS	*87*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
13C8 FOSA	*100*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
d3-NMeFOSAA	*84*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
d5-NEtFOSAA	*85*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
M2-6:2 FTS	*89*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*
M2-8:2 FTS	*82*		*25 - 150*	*03/24/22 11:16*	*03/25/22 08:14*	*1*

Lab Sample ID: LCS 320-575497/2-A
Matrix: Solid
Analysis Batch: 575734

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 575497

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	2.00	2.25		ug/Kg		112	76 - 136
Perfluoropentanoic acid (PFPeA)	2.00	2.21		ug/Kg		110	69 - 129
Perfluorohexanoic acid (PFHxA)	2.00	2.07		ug/Kg		104	71 - 131
Perfluoroheptanoic acid (PFHpA)	2.00	2.39		ug/Kg		120	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	2.20		ug/Kg		110	72 - 132
Perfluorononanoic acid (PFNA)	2.00	2.21		ug/Kg		111	73 - 133
Perfluorodecanoic acid (PFDA)	2.00	2.05		ug/Kg		102	72 - 132
Perfluoroundecanoic acid (PFUnA)	2.00	2.14		ug/Kg		107	66 - 126
Perfluorododecanoic acid (PFDoA)	2.00	2.22		ug/Kg		111	71 - 131
Perfluorotridecanoic acid (PFTrDA)	2.00	2.05		ug/Kg		103	71 - 131

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-575497/2-A
Matrix: Solid
Analysis Batch: 575734

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 575497

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorotetradecanoic acid (PFTeA)	2.00	2.15		ug/Kg		107	67 - 127
Perfluorobutanesulfonic acid (PFBS)	1.77	2.22		ug/Kg		126	69 - 129
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.92		ug/Kg		105	62 - 122
Perfluoroheptanesulfonic acid (PFHpS)	1.90	2.27		ug/Kg		119	76 - 136
Perfluorooctanesulfonic acid (PFOS)	1.86	2.10		ug/Kg		113	68 - 141
Perfluorodecanesulfonic acid (PFDS)	1.93	2.07		ug/Kg		108	71 - 131
Perfluorooctanesulfonamide (FOSA)	2.00	2.05		ug/Kg		102	77 - 137
NMeFOSAA	2.00	2.21		ug/Kg		111	72 - 132
NEtFOSAA	2.00	2.10		ug/Kg		105	72 - 132
6:2 FTS	1.90	1.77		ug/Kg		94	73 - 139
8:2 FTS	1.92	2.20		ug/Kg		115	75 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*55*		*25 - 150*
13C5 PFPeA	*86*		*25 - 150*
13C2 PFHxA	*93*		*25 - 150*
13C4 PFHpA	*89*		*25 - 150*
13C4 PFOA	*91*		*25 - 150*
13C5 PFNA	*95*		*25 - 150*
13C2 PFDA	*94*		*25 - 150*
13C2 PFUnA	*92*		*25 - 150*
13C2 PFDoA	*96*		*25 - 150*
13C2 PFTeDA	*92*		*25 - 150*
13C3 PFBS	*79*		*25 - 150*
18O2 PFHxS	*93*		*25 - 150*
13C4 PFOS	*84*		*25 - 150*
13C8 FOSA	*101*		*25 - 150*
d3-NMeFOSAA	*81*		*25 - 150*
d5-NEtFOSAA	*95*		*25 - 150*
M2-6:2 FTS	*88*		*25 - 150*
M2-8:2 FTS	*80*		*25 - 150*

Lab Sample ID: 180-135332-6 MS
Matrix: Solid
Analysis Batch: 575734

Client Sample ID: TRW BASE
Prep Type: Total/NA
Prep Batch: 575497

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	ND		2.81	3.38		ug/Kg	☼	120	76 - 136
Perfluoropentanoic acid (PFPeA)	ND		2.81	3.01		ug/Kg	☼	107	69 - 129
Perfluorohexanoic acid (PFHxA)	ND		2.81	2.72		ug/Kg	☼	97	71 - 131
Perfluoroheptanoic acid (PFHpA)	ND		2.81	3.44		ug/Kg	☼	122	71 - 131
Perfluorooctanoic acid (PFOA)	0.098	J	2.81	3.17		ug/Kg	☼	109	72 - 132
Perfluorononanoic acid (PFNA)	ND		2.81	3.01		ug/Kg	☼	107	73 - 133
Perfluorodecanoic acid (PFDA)	ND		2.81	3.09		ug/Kg	☼	110	72 - 132

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 180-135332-6 MS
Matrix: Solid
Analysis Batch: 575734

Client Sample ID: TRW BASE
Prep Type: Total/NA
Prep Batch: 575497

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	ND		2.81	3.06		ug/Kg	☼	109	66 - 126
Perfluorododecanoic acid (PFDoA)	ND		2.81	3.21		ug/Kg	☼	114	71 - 131
Perfluorotridecanoic acid (PFTrDA)	ND		2.81	2.81		ug/Kg	☼	100	71 - 131
Perfluorotetradecanoic acid (PFTeA)	ND		2.81	2.92		ug/Kg	☼	104	67 - 127
Perfluorobutanesulfonic acid (PFBS)	ND		2.49	2.89		ug/Kg	☼	116	69 - 129
Perfluorohexanesulfonic acid (PFHxS)	ND		2.56	2.48		ug/Kg	☼	97	62 - 122
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.68	3.03		ug/Kg	☼	113	76 - 136
Perfluorooctanesulfonic acid (PFOS)	ND		2.61	3.17	I	ug/Kg	☼	121	68 - 141
Perfluorodecanesulfonic acid (PFDS)	ND		2.71	2.84		ug/Kg	☼	105	71 - 131
Perfluorooctanesulfonamide (FOSA)	ND		2.81	2.87		ug/Kg	☼	102	77 - 137
NMeFOSAA	ND		2.81	3.24		ug/Kg	☼	115	72 - 132
NEtFOSAA	ND		2.81	3.09		ug/Kg	☼	110	72 - 132
6:2 FTS	ND		2.67	2.86		ug/Kg	☼	107	73 - 139
8:2 FTS	ND		2.69	2.88		ug/Kg	☼	107	75 - 135

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C4 PFBA	*27*		*25 - 150*
13C5 PFPeA	*95*		*25 - 150*
13C2 PFHxA	*107*		*25 - 150*
13C4 PFHpA	*83*		*25 - 150*
13C4 PFOA	*89*		*25 - 150*
13C5 PFNA	*108*		*25 - 150*
13C2 PFDA	*105*		*25 - 150*
13C2 PFUnA	*109*		*25 - 150*
13C2 PFDoA	*105*		*25 - 150*
13C2 PFTeDA	*99*		*25 - 150*
13C3 PFBS	*105*		*25 - 150*
18O2 PFHxS	*103*		*25 - 150*
13C4 PFOS	*95*		*25 - 150*
13C8 FOSA	*119*		*25 - 150*
d3-NMeFOSAA	*93*		*25 - 150*
d5-NEtFOSAA	*104*		*25 - 150*
M2-6:2 FTS	*117*		*25 - 150*
M2-8:2 FTS	*132*		*25 - 150*

Lab Sample ID: 180-135332-6 MSD
Matrix: Solid
Analysis Batch: 575734

Client Sample ID: TRW BASE
Prep Type: Total/NA
Prep Batch: 575497

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	ND		2.65	3.15		ug/Kg	☼	119	76 - 136	7	30

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 180-135332-6 MSD
Matrix: Solid
Analysis Batch: 575734

Client Sample ID: TRW BASE
Prep Type: Total/NA
Prep Batch: 575497

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoropentanoic acid (PFPeA)	ND		2.65	2.70		ug/Kg	☼	102	69 - 129	11	30
Perfluorohexanoic acid (PFHxA)	ND		2.65	2.70		ug/Kg	☼	102	71 - 131	1	30
Perfluoroheptanoic acid (PFHpA)	ND		2.65	2.75		ug/Kg	☼	104	71 - 131	22	30
Perfluorooctanoic acid (PFOA)	0.098	J	2.65	2.96		ug/Kg	☼	108	72 - 132	7	30
Perfluorononanoic acid (PFNA)	ND		2.65	2.72		ug/Kg	☼	103	73 - 133	10	30
Perfluorodecanoic acid (PFDA)	ND		2.65	2.95		ug/Kg	☼	112	72 - 132	5	30
Perfluoroundecanoic acid (PFUnA)	ND		2.65	3.01		ug/Kg	☼	114	66 - 126	2	30
Perfluorododecanoic acid (PFDoA)	ND		2.65	2.80		ug/Kg	☼	106	71 - 131	13	30
Perfluorotridecanoic acid (PFTrDA)	ND		2.65	2.47		ug/Kg	☼	93	71 - 131	13	30
Perfluorotetradecanoic acid (PFTeA)	ND		2.65	2.75		ug/Kg	☼	104	67 - 127	6	30
Perfluorobutanesulfonic acid (PFBS)	ND		2.34	2.71		ug/Kg	☼	116	69 - 129	6	30
Perfluorohexanesulfonic acid (PFHxS)	ND		2.41	2.54		ug/Kg	☼	105	62 - 122	2	30
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.52	2.85		ug/Kg	☼	113	76 - 136	6	30
Perfluorooctanesulfonic acid (PFOS)	ND		2.46	2.95	I	ug/Kg	☼	120	68 - 141	7	30
Perfluorodecanesulfonic acid (PFDS)	ND		2.55	2.25		ug/Kg	☼	88	71 - 131	23	30
Perfluorooctanesulfonamide (FOSA)	ND		2.65	2.52		ug/Kg	☼	95	77 - 137	13	30
NMeFOSAA	ND		2.65	3.25		ug/Kg	☼	123	72 - 132	0	30
NEtFOSAA	ND		2.65	3.10		ug/Kg	☼	117	72 - 132	0	30
6:2 FTS	ND		2.51	2.65		ug/Kg	☼	106	73 - 139	8	30
8:2 FTS	ND		2.53	2.55		ug/Kg	☼	101	75 - 135	12	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C4 PFBA	*27*		*25 - 150*
13C5 PFPeA	*90*		*25 - 150*
13C2 PFHxA	*89*		*25 - 150*
13C4 PFHpA	*84*		*25 - 150*
13C4 PFOA	*85*		*25 - 150*
13C5 PFNA	*98*		*25 - 150*
13C2 PFDA	*90*		*25 - 150*
13C2 PFUnA	*94*		*25 - 150*
13C2 PFDoA	*98*		*25 - 150*
13C2 PFTeDA	*87*		*25 - 150*
13C3 PFBS	*87*		*25 - 150*
18O2 PFHxS	*88*		*25 - 150*
13C4 PFOS	*91*		*25 - 150*
13C8 FOSA	*108*		*25 - 150*
d3-NMeFOSAA	*77*		*25 - 150*
d5-NEtFOSAA	*82*		*25 - 150*
M2-6:2 FTS	*104*		*25 - 150*
M2-8:2 FTS	*123*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-577962/1-A
Matrix: Solid
Analysis Batch: 578024

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 577962

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		04/05/22 12:30	04/06/22 08:40	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		04/05/22 12:30	04/06/22 08:40	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		04/05/22 12:30	04/06/22 08:40	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		04/05/22 12:30	04/06/22 08:40	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		04/05/22 12:30	04/06/22 08:40	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		04/05/22 12:30	04/06/22 08:40	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		04/05/22 12:30	04/06/22 08:40	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		04/05/22 12:30	04/06/22 08:40	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		04/05/22 12:30	04/06/22 08:40	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		04/05/22 12:30	04/06/22 08:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		04/05/22 12:30	04/06/22 08:40	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		04/05/22 12:30	04/06/22 08:40	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		04/05/22 12:30	04/06/22 08:40	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		04/05/22 12:30	04/06/22 08:40	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		04/05/22 12:30	04/06/22 08:40	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		04/05/22 12:30	04/06/22 08:40	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		04/05/22 12:30	04/06/22 08:40	1
NMeFOSAA	ND		5.0	1.2	ng/L		04/05/22 12:30	04/06/22 08:40	1
NEtFOSAA	ND		5.0	1.3	ng/L		04/05/22 12:30	04/06/22 08:40	1
6:2 FTS	ND		5.0	2.5	ng/L		04/05/22 12:30	04/06/22 08:40	1
8:2 FTS	ND		2.0	0.46	ng/L		04/05/22 12:30	04/06/22 08:40	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*88*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
13C5 PFPeA	*88*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
13C2 PFHxA	*93*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
13C4 PFHpA	*91*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
13C4 PFOA	*97*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
13C5 PFNA	*94*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
13C2 PFDA	*103*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
13C2 PFUnA	*95*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
13C2 PFDoA	*93*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
13C2 PFTeDA	*94*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
13C3 PFBS	*90*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
18O2 PFHxS	*102*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
13C4 PFOS	*94*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
13C8 FOSA	*116*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
d3-NMeFOSAA	*106*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
d5-NEtFOSAA	*107*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
M2-6:2 FTS	*97*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*
M2-8:2 FTS	*99*		*25 - 150*	*04/05/22 12:30*	*04/06/22 08:40*	*1*

Lab Sample ID: LCS 320-577962/2-A
Matrix: Solid
Analysis Batch: 578024

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 577962

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluorobutanoic acid (PFBA)			40.0	45.2		ng/L		113	76 - 136		

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-577962/2-A
Matrix: Solid
Analysis Batch: 578024

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 577962

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanoic acid (PFPeA)	40.0	48.3		ng/L		121	71 - 131
Perfluorohexanoic acid (PFHxA)	40.0	36.8		ng/L		92	73 - 133
Perfluoroheptanoic acid (PFHpA)	40.0	44.4		ng/L		111	72 - 132
Perfluorooctanoic acid (PFOA)	40.0	44.8		ng/L		112	70 - 130
Perfluorononanoic acid (PFNA)	40.0	44.4		ng/L		111	75 - 135
Perfluorodecanoic acid (PFDA)	40.0	34.7		ng/L		87	76 - 136
Perfluoroundecanoic acid (PFUnA)	40.0	44.1		ng/L		110	68 - 128
Perfluorododecanoic acid (PFDoA)	40.0	48.7		ng/L		122	71 - 131
Perfluorotridecanoic acid (PFTrDA)	40.0	44.8		ng/L		112	71 - 131
Perfluorotetradecanoic acid (PFTeA)	40.0	42.8		ng/L		107	70 - 130
Perfluorobutanesulfonic acid (PFBS)	35.4	41.0		ng/L		116	67 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.9		ng/L		96	59 - 119
Perfluoroheptanesulfonic acid (PFHpS)	38.1	42.7		ng/L		112	76 - 136
Perfluorooctanesulfonic acid (PFOS)	37.1	42.8		ng/L		115	70 - 130
Perfluorodecanesulfonic acid (PFDS)	38.6	42.8		ng/L		111	71 - 131
Perfluorooctanesulfonamide (FOSA)	40.0	39.9		ng/L		100	73 - 133
NMeFOSAA	40.0	43.7		ng/L		109	76 - 136
NEtFOSAA	40.0	40.2		ng/L		101	76 - 136
6:2 FTS	37.9	39.3		ng/L		104	59 - 175
8:2 FTS	38.3	49.8		ng/L		130	75 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*92*		*25 - 150*
13C5 PFPeA	*86*		*25 - 150*
13C2 PFHxA	*103*		*25 - 150*
13C4 PFHpA	*99*		*25 - 150*
13C4 PFOA	*101*		*25 - 150*
13C5 PFNA	*95*		*25 - 150*
13C2 PFDA	*106*		*25 - 150*
13C2 PFUnA	*95*		*25 - 150*
13C2 PFDoA	*96*		*25 - 150*
13C2 PFTeDA	*92*		*25 - 150*
13C3 PFBS	*95*		*25 - 150*
18O2 PFHxS	*108*		*25 - 150*
13C4 PFOS	*101*		*25 - 150*
13C8 FOSA	*111*		*25 - 150*
d3-NMeFOSAA	*106*		*25 - 150*
d5-NEtFOSAA	*110*		*25 - 150*
M2-6:2 FTS	*99*		*25 - 150*
M2-8:2 FTS	*91*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-577962/3-A
Matrix: Solid
Analysis Batch: 578024

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 577962

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	45.5		ng/L		114	76 - 136	1	30
Perfluoropentanoic acid (PFPeA)			40.0	43.8		ng/L		110	71 - 131	10	30
Perfluorohexanoic acid (PFHxA)			40.0	41.5		ng/L		104	73 - 133	12	30
Perfluoroheptanoic acid (PFHpA)			40.0	41.9		ng/L		105	72 - 132	6	30
Perfluorooctanoic acid (PFOA)			40.0	43.5		ng/L		109	70 - 130	3	30
Perfluorononanoic acid (PFNA)			40.0	45.8		ng/L		115	75 - 135	3	30
Perfluorodecanoic acid (PFDA)			40.0	31.6		ng/L		79	76 - 136	9	30
Perfluoroundecanoic acid (PFUnA)			40.0	44.6		ng/L		111	68 - 128	1	30
Perfluorododecanoic acid (PFDoA)			40.0	44.1		ng/L		110	71 - 131	10	30
Perfluorotridecanoic acid (PFTrDA)			40.0	41.1		ng/L		103	71 - 131	9	30
Perfluorotetradecanoic acid (PFTeA)			40.0	42.3		ng/L		106	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)			35.4	41.3		ng/L		117	67 - 127	1	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	37.5		ng/L		103	59 - 119	7	30
Perfluoroheptanesulfonic acid (PFHpS)			38.1	41.0		ng/L		108	76 - 136	4	30
Perfluorooctanesulfonic acid (PFOS)			37.1	44.2		ng/L		119	70 - 130	3	30
Perfluorodecanesulfonic acid (PFDS)			38.6	39.8		ng/L		103	71 - 131	7	30
Perfluorooctanesulfonamide (FOSA)			40.0	38.1		ng/L		95	73 - 133	5	30
NMeFOSAA			40.0	41.5		ng/L		104	76 - 136	5	30
NEtFOSAA			40.0	42.1		ng/L		105	76 - 136	5	30
6:2 FTS			37.9	34.9		ng/L		92	59 - 175	12	30
8:2 FTS			38.3	45.0		ng/L		117	75 - 135	10	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*85*		*25 - 150*
13C5 PFPeA	*88*		*25 - 150*
13C2 PFHxA	*93*		*25 - 150*
13C4 PFHpA	*93*		*25 - 150*
13C4 PFOA	*92*		*25 - 150*
13C5 PFNA	*91*		*25 - 150*
13C2 PFDA	*103*		*25 - 150*
13C2 PFUnA	*91*		*25 - 150*
13C2 PFDoA	*93*		*25 - 150*
13C2 PFTeDA	*86*		*25 - 150*
13C3 PFBS	*90*		*25 - 150*
18O2 PFHxS	*99*		*25 - 150*
13C4 PFOS	*95*		*25 - 150*
13C8 FOSA	*108*		*25 - 150*
d3-NMeFOSAA	*103*		*25 - 150*
d5-NEtFOSAA	*93*		*25 - 150*
M2-6:2 FTS	*102*		*25 - 150*
M2-8:2 FTS	*95*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: LB 320-575863/1-B
Matrix: Solid
Analysis Batch: 578024

Client Sample ID: Method Blank
Prep Type: SPLP East
Prep Batch: 577962

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		04/05/22 12:30	04/06/22 09:11	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	0.45	ng/L		04/05/22 12:30	04/06/22 09:11	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.53	ng/L		04/05/22 12:30	04/06/22 09:11	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.23	ng/L		04/05/22 12:30	04/06/22 09:11	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.78	ng/L		04/05/22 12:30	04/06/22 09:11	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		04/05/22 12:30	04/06/22 09:11	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		04/05/22 12:30	04/06/22 09:11	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		04/05/22 12:30	04/06/22 09:11	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		04/05/22 12:30	04/06/22 09:11	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		04/05/22 12:30	04/06/22 09:11	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		04/05/22 12:30	04/06/22 09:11	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		04/05/22 12:30	04/06/22 09:11	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		04/05/22 12:30	04/06/22 09:11	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		04/05/22 12:30	04/06/22 09:11	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.50	ng/L		04/05/22 12:30	04/06/22 09:11	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		04/05/22 12:30	04/06/22 09:11	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.90	ng/L		04/05/22 12:30	04/06/22 09:11	1
NMeFOSAA	ND		4.6	1.1	ng/L		04/05/22 12:30	04/06/22 09:11	1
NEtFOSAA	ND		4.6	1.2	ng/L		04/05/22 12:30	04/06/22 09:11	1
6:2 FTS	ND		4.6	2.3	ng/L		04/05/22 12:30	04/06/22 09:11	1
8:2 FTS	ND		1.8	0.42	ng/L		04/05/22 12:30	04/06/22 09:11	1

Isotope Dilution	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*90*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
13C5 PFPeA	*87*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
13C2 PFHxA	*94*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
13C4 PFHpA	*95*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
13C4 PFOA	*93*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
13C5 PFNA	*89*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
13C2 PFDA	*97*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
13C2 PFUnA	*88*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
13C2 PFDoA	*88*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
13C2 PFTeDA	*86*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
13C3 PFBS	*91*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
18O2 PFHxS	*102*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
13C4 PFOS	*94*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
13C8 FOSA	*107*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
d3-NMeFOSAA	*93*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
d5-NEtFOSAA	*96*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
M2-6:2 FTS	*103*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*
M2-8:2 FTS	*97*		*25 - 150*	*04/05/22 12:30*	*04/06/22 09:11*	*1*

Method: EPA 6010D - Metals (ICP)

Lab Sample ID: MB 180-392927/1-A
Matrix: Solid
Analysis Batch: 393677

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 392927

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.10	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Aluminum	ND		20	5.0	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Barium	ND		20	3.6	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Beryllium	ND		0.40	0.11	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Calcium	ND		500	65	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Cadmium	ND		0.50	0.073	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Cobalt	ND		5.0	0.70	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Chromium	ND		0.50	0.46	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Copper	ND		2.5	1.5	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Iron	8.95	J	10	5.1	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Potassium	ND		500	85	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Magnesium	ND		500	55	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Manganese	ND		1.5	0.28	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Sodium	ND		500	51	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Nickel	ND		4.0	0.50	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Lead	ND		1.0	0.87	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Antimony	ND		1.0	0.30	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Thallium	ND		2.0	0.28	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Vanadium	ND		5.0	0.79	mg/Kg		03/25/22 10:30	03/30/22 15:56	1
Zinc	ND		2.0	1.2	mg/Kg		03/25/22 10:30	03/30/22 15:56	1

Lab Sample ID: MB 180-392927/1-A
Matrix: Solid
Analysis Batch: 393827

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 392927

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0	0.63	mg/Kg		03/25/22 10:30	03/31/22 09:03	1
Selenium	ND		1.0	0.46	mg/Kg		03/25/22 10:30	03/31/22 09:03	1

Lab Sample ID: LCS 180-392927/2-A
Matrix: Solid
Analysis Batch: 393677

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 392927

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	25.0	23.5		mg/Kg		94	80 - 120
Aluminum	500	490		mg/Kg		98	80 - 120
Barium	100	95.1		mg/Kg		95	80 - 120
Beryllium	50.0	51.0		mg/Kg		102	80 - 120
Calcium	2500	2460		mg/Kg		99	80 - 120
Cadmium	50.0	49.1		mg/Kg		98	80 - 120
Cobalt	50.0	49.5		mg/Kg		99	80 - 120
Chromium	50.0	48.1		mg/Kg		96	80 - 120
Copper	50.0	47.6		mg/Kg		95	80 - 120
Iron	500	557		mg/Kg		111	80 - 120
Potassium	2500	2460		mg/Kg		99	80 - 120
Magnesium	2500	2430		mg/Kg		97	80 - 120
Manganese	50.0	47.4		mg/Kg		95	80 - 120
Sodium	2500	2500		mg/Kg		100	80 - 120
Nickel	50.0	48.6		mg/Kg		97	80 - 120

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 180-392927/2-A
Matrix: Solid
Analysis Batch: 393677

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 392927

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lead	50.0	49.5		mg/Kg		99	80 - 120
Antimony	25.0	23.6		mg/Kg		94	80 - 120
Thallium	100	99.0		mg/Kg		99	80 - 120
Vanadium	50.0	49.3		mg/Kg		99	80 - 120
Zinc	25.0	25.0		mg/Kg		100	80 - 120

Lab Sample ID: LCS 180-392927/2-A
Matrix: Solid
Analysis Batch: 393827

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 392927

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	100	101		mg/Kg		101	80 - 120
Selenium	100	97.0		mg/Kg		97	80 - 120

Lab Sample ID: MB 180-393596/1-A
Matrix: Solid
Analysis Batch: 393827

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 393596

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.91	ug/L		03/30/22 11:46	03/31/22 14:26	1
Aluminum	ND		200	41	ug/L		03/30/22 11:46	03/31/22 14:26	1
Arsenic	ND		10	8.3	ug/L		03/30/22 11:46	03/31/22 14:26	1
Barium	ND		200	6.3	ug/L		03/30/22 11:46	03/31/22 14:26	1
Beryllium	ND		4.0	1.5	ug/L		03/30/22 11:46	03/31/22 14:26	1
Calcium	ND		5000	320	ug/L		03/30/22 11:46	03/31/22 14:26	1
Cadmium	ND		5.0	0.30	ug/L		03/30/22 11:46	03/31/22 14:26	1
Cobalt	ND		50	1.9	ug/L		03/30/22 11:46	03/31/22 14:26	1
Chromium	ND		5.0	1.6	ug/L		03/30/22 11:46	03/31/22 14:26	1
Copper	ND		25	2.2	ug/L		03/30/22 11:46	03/31/22 14:26	1
Iron	ND		100	72	ug/L		03/30/22 11:46	03/31/22 14:26	1
Potassium	ND		5000	800	ug/L		03/30/22 11:46	03/31/22 14:26	1
Magnesium	ND		5000	260	ug/L		03/30/22 11:46	03/31/22 14:26	1
Manganese	ND		15	2.4	ug/L		03/30/22 11:46	03/31/22 14:26	1
Sodium	ND		5000	300	ug/L		03/30/22 11:46	03/31/22 14:26	1
Nickel	ND		40	1.9	ug/L		03/30/22 11:46	03/31/22 14:26	1
Lead	ND		10	4.4	ug/L		03/30/22 11:46	03/31/22 14:26	1
Antimony	ND		10	6.2	ug/L		03/30/22 11:46	03/31/22 14:26	1
Selenium	ND		10	3.7	ug/L		03/30/22 11:46	03/31/22 14:26	1
Thallium	ND		20	3.0	ug/L		03/30/22 11:46	03/31/22 14:26	1
Vanadium	ND		50	5.3	ug/L		03/30/22 11:46	03/31/22 14:26	1
Zinc	ND		20	2.6	ug/L		03/30/22 11:46	03/31/22 14:26	1

Lab Sample ID: LCS 180-393596/2-A
Matrix: Solid
Analysis Batch: 393827

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 393596

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	250	252		ug/L		101	80 - 120
Aluminum	5000	4990		ug/L		100	80 - 120

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 180-393596/2-A
Matrix: Solid
Analysis Batch: 393827

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 393596

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1000	1040		ug/L		104	80 - 120
Barium	1000	976		ug/L		98	80 - 120
Beryllium	500	510		ug/L		102	80 - 120
Calcium	25000	25000		ug/L		100	80 - 120
Cadmium	500	501		ug/L		100	80 - 120
Cobalt	500	501		ug/L		100	80 - 120
Chromium	500	492		ug/L		98	80 - 120
Copper	500	493		ug/L		99	80 - 120
Iron	5000	5050		ug/L		101	80 - 120
Potassium	25000	24700		ug/L		99	80 - 120
Magnesium	25000	24500		ug/L		98	80 - 120
Manganese	500	486		ug/L		97	80 - 120
Sodium	25000	24900		ug/L		100	80 - 120
Nickel	500	507		ug/L		101	80 - 120
Lead	500	504		ug/L		101	80 - 120
Antimony	250	241		ug/L		96	80 - 120
Selenium	1000	1040		ug/L		104	80 - 120
Thallium	1000	1010		ug/L		101	80 - 120
Vanadium	500	492		ug/L		98	80 - 120
Zinc	250	248		ug/L		99	80 - 120

Lab Sample ID: LB 180-393202/1-E
Matrix: Solid
Analysis Batch: 393827

Client Sample ID: Method Blank
Prep Type: SPLP East
Prep Batch: 393596

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		5.0	0.91	ug/L		03/30/22 11:46	03/31/22 14:35	1
Aluminum	ND		200	41	ug/L		03/30/22 11:46	03/31/22 14:35	1
Arsenic	ND		10	8.3	ug/L		03/30/22 11:46	03/31/22 14:35	1
Barium	ND		200	6.3	ug/L		03/30/22 11:46	03/31/22 14:35	1
Beryllium	ND		4.0	1.5	ug/L		03/30/22 11:46	03/31/22 14:35	1
Calcium	ND		5000	320	ug/L		03/30/22 11:46	03/31/22 14:35	1
Cadmium	ND		5.0	0.30	ug/L		03/30/22 11:46	03/31/22 14:35	1
Cobalt	ND		50	1.9	ug/L		03/30/22 11:46	03/31/22 14:35	1
Chromium	ND		5.0	1.6	ug/L		03/30/22 11:46	03/31/22 14:35	1
Copper	ND		25	2.2	ug/L		03/30/22 11:46	03/31/22 14:35	1
Iron	ND		100	72	ug/L		03/30/22 11:46	03/31/22 14:35	1
Potassium	ND		5000	800	ug/L		03/30/22 11:46	03/31/22 14:35	1
Magnesium	ND		5000	260	ug/L		03/30/22 11:46	03/31/22 14:35	1
Manganese	ND		15	2.4	ug/L		03/30/22 11:46	03/31/22 14:35	1
Sodium	309	J	5000	300	ug/L		03/30/22 11:46	03/31/22 14:35	1
Nickel	ND		40	1.9	ug/L		03/30/22 11:46	03/31/22 14:35	1
Lead	ND		10	4.4	ug/L		03/30/22 11:46	03/31/22 14:35	1
Antimony	ND		10	6.2	ug/L		03/30/22 11:46	03/31/22 14:35	1
Selenium	ND		10	3.7	ug/L		03/30/22 11:46	03/31/22 14:35	1
Thallium	3.84	J	20	3.0	ug/L		03/30/22 11:46	03/31/22 14:35	1
Vanadium	ND		50	5.3	ug/L		03/30/22 11:46	03/31/22 14:35	1
Zinc	ND		20	2.6	ug/L		03/30/22 11:46	03/31/22 14:35	1

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: 180-135332-5 MS
Matrix: Solid
Analysis Batch: 393827

Client Sample ID: TRW BASE
Prep Type: SPLP East
Prep Batch: 393596

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	ND		250	260		ug/L		104	75 - 125
Aluminum	ND		5000	5250		ug/L		105	75 - 125
Arsenic	ND		1000	1070		ug/L		107	75 - 125
Barium	160	J	1000	1140		ug/L		98	75 - 125
Beryllium	ND		500	516		ug/L		103	75 - 125
Calcium	73000		25000	95800		ug/L		91	75 - 125
Cadmium	ND		500	508		ug/L		102	75 - 125
Cobalt	ND		500	508		ug/L		102	75 - 125
Chromium	ND		500	496		ug/L		99	75 - 125
Copper	ND		500	506		ug/L		101	75 - 125
Iron	ND		5000	5240		ug/L		105	75 - 125
Potassium	1500	J	25000	27500		ug/L		104	75 - 125
Magnesium	8300		25000	33400		ug/L		101	75 - 125
Manganese	180		500	660		ug/L		96	75 - 125
Sodium	4600	J B	25000	30700		ug/L		104	75 - 125
Nickel	ND		500	515		ug/L		103	75 - 125
Lead	ND		500	508		ug/L		102	75 - 125
Antimony	610		250	844		ug/L		95	75 - 125
Selenium	ND		1000	1050		ug/L		105	75 - 125
Thallium	ND		1000	1010		ug/L		101	75 - 125
Vanadium	ND		500	500		ug/L		100	75 - 125
Zinc	19	J	250	271		ug/L		101	75 - 125

Lab Sample ID: 180-135332-5 MSD
Matrix: Solid
Analysis Batch: 393827

Client Sample ID: TRW BASE
Prep Type: SPLP East
Prep Batch: 393596

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silver	ND		250	252		ug/L		101	75 - 125	3	20
Aluminum	ND		5000	5150		ug/L		103	75 - 125	2	20
Arsenic	ND		1000	1070		ug/L		107	75 - 125	0	20
Barium	160	J	1000	1280		ug/L		112	75 - 125	11	20
Beryllium	ND		500	522		ug/L		104	75 - 125	1	20
Calcium	73000		25000	95200		ug/L		89	75 - 125	1	20
Cadmium	ND		500	515		ug/L		103	75 - 125	1	20
Cobalt	ND		500	505		ug/L		101	75 - 125	1	20
Chromium	ND		500	500		ug/L		100	75 - 125	1	20
Copper	ND		500	499		ug/L		100	75 - 125	1	20
Iron	ND		5000	5250		ug/L		105	75 - 125	0	20
Potassium	1500	J	25000	27700		ug/L		105	75 - 125	1	20
Magnesium	8300		25000	33500		ug/L		101	75 - 125	0	20
Manganese	180		500	660		ug/L		96	75 - 125	0	20
Sodium	4600	J B	25000	31000		ug/L		106	75 - 125	1	20
Nickel	ND		500	511		ug/L		102	75 - 125	1	20
Lead	ND		500	508		ug/L		102	75 - 125	0	20
Antimony	610		250	834		ug/L		91	75 - 125	1	20
Selenium	ND		1000	1050		ug/L		105	75 - 125	0	20
Thallium	ND		1000	1010		ug/L		101	75 - 125	0	20
Vanadium	ND		500	502		ug/L		100	75 - 125	1	20

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: 180-135332-5 MSD
Matrix: Solid
Analysis Batch: 393827

Client Sample ID: TRW BASE
Prep Type: SPLP East
Prep Batch: 393596

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Zinc	19	J	250	266		ug/L		99	75 - 125	2	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-393384/1-A
Matrix: Solid
Analysis Batch: 393481

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 393384

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		03/29/22 05:52	03/29/22 14:27	1

Lab Sample ID: LCS 180-393384/2-A
Matrix: Solid
Analysis Batch: 393481

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 393384

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	2.50	2.36		ug/L		95	80 - 120

Lab Sample ID: LB 180-393202/1-B
Matrix: Solid
Analysis Batch: 393481

Client Sample ID: Method Blank
Prep Type: SPLP East
Prep Batch: 393384

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		03/29/22 05:52	03/29/22 14:56	1

Lab Sample ID: LB 180-393208/1-C
Matrix: Solid
Analysis Batch: 393481

Client Sample ID: Method Blank
Prep Type: SPLP East
Prep Batch: 393384

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		03/29/22 05:52	03/29/22 14:29	1

Method: EPA 7471B - Mercury (CVAA)

Lab Sample ID: MB 180-393889/1-A
Matrix: Solid
Analysis Batch: 394303

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 393889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.033	0.021	mg/Kg		04/05/22 06:40	04/05/22 14:15	1

Lab Sample ID: LCS 180-393889/2-A
Matrix: Solid
Analysis Batch: 394303

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 393889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.417	0.420		mg/Kg		101	80 - 120

Method: EPA 7471B - Mercury (CVAA) (Continued)

Lab Sample ID: 180-135332-5 MS
Matrix: Solid
Analysis Batch: 394303

Client Sample ID: TRW BASE
Prep Type: Total/NA
Prep Batch: 393889

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	1.0		0.156	0.272	4	mg/Kg	☼	-494	80 - 120		

Lab Sample ID: 180-135332-5 MSD
Matrix: Solid
Analysis Batch: 394303

Client Sample ID: TRW BASE
Prep Type: Total/NA
Prep Batch: 393889

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	1.0		0.150	0.262	4	mg/Kg	☼	-522	80 - 120	4	20

Method: EPA 9045D - pH

Lab Sample ID: LCS 180-393447/27
Matrix: Solid
Analysis Batch: 393447

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
pH			7.00	7.0		SU		100	99 - 101		

GC/MS VOA

Analysis Batch: 392127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-1	TRW BASE 1	Total/NA	Solid	EPA 8260D	392148
180-135332-2	TRW BASE 2	Total/NA	Solid	EPA 8260D	392148
180-135332-3	TRW BASE 3	Total/NA	Solid	EPA 8260D	392148
MB 180-392127/6	Method Blank	Total/NA	Solid	EPA 8260D	
LCS 180-392127/3	Lab Control Sample	Total/NA	Solid	EPA 8260D	

Prep Batch: 392148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-1	TRW BASE 1	Total/NA	Solid	5030C	
180-135332-2	TRW BASE 2	Total/NA	Solid	5030C	
180-135332-3	TRW BASE 3	Total/NA	Solid	5030C	

Leach Batch: 393515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5 - DL	TRW BASE	SPLP	Solid	EPA 1312	
180-135332-5	TRW BASE	SPLP	Solid	EPA 1312	
LB 180-393515/1-A	Method Blank	SPLP	Solid	EPA 1312	

Analysis Batch: 394680

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	SPLP	Solid	EPA 8260D	393515
180-135332-5 - DL	TRW BASE	SPLP	Solid	EPA 8260D	393515
LB 180-393515/1-A	Method Blank	SPLP	Solid	EPA 8260D	393515
MB 180-394680/9	Method Blank	Total/NA	Solid	EPA 8260D	
LCS 180-394680/6	Lab Control Sample	Total/NA	Solid	EPA 8260D	
LCSD 180-394680/7	Lab Control Sample Dup	Total/NA	Solid	EPA 8260D	

GC/MS Semi VOA

Prep Batch: 392827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	Total/NA	Solid	3541	
MB 180-392827/1-A	Method Blank	Total/NA	Solid	3541	
LCS 180-392827/2-A	Lab Control Sample	Total/NA	Solid	3541	
180-135332-5 MS	TRW BASE	Total/NA	Solid	3541	
180-135332-5 MSD	TRW BASE	Total/NA	Solid	3541	

Analysis Batch: 393021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	Total/NA	Solid	EPA 8270E LL	392827
MB 180-392827/1-A	Method Blank	Total/NA	Solid	EPA 8270E LL	392827
LCS 180-392827/2-A	Lab Control Sample	Total/NA	Solid	EPA 8270E LL	392827
180-135332-5 MS	TRW BASE	Total/NA	Solid	EPA 8270E LL	392827
180-135332-5 MSD	TRW BASE	Total/NA	Solid	EPA 8270E LL	392827

Leach Batch: 393202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	SPLP East	Solid	EPA 1312	
LB 180-393202/1-G	Method Blank	SPLP East	Solid	1312	

GC/MS Semi VOA

Prep Batch: 394161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	SPLP East	Solid	3520C	393202
LB 180-393202/1-G	Method Blank	SPLP East	Solid	3520C	393202
MB 180-394161/1-A	Method Blank	Total/NA	Solid	3520C	
LCS 180-394161/2-A	Lab Control Sample	Total/NA	Solid	3520C	
LCSD 180-394161/3-A	Lab Control Sample Dup	Total/NA	Solid	3520C	

Analysis Batch: 394669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	SPLP East	Solid	EPA 8270E LL	394161
MB 180-394161/1-A	Method Blank	Total/NA	Solid	EPA 8270E LL	394161
LCS 180-394161/2-A	Lab Control Sample	Total/NA	Solid	EPA 8270E LL	394161
LCSD 180-394161/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8270E LL	394161

Analysis Batch: 394911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 180-393202/1-G	Method Blank	SPLP East	Solid	EPA 8270E LL	394161

Prep Batch: 649136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-4	TRW BASE	Total/NA	Solid	3541	
180-135332-4 - DL	TRW BASE	Total/NA	Solid	3541	
MB 500-649136/1-A	Method Blank	Total/NA	Solid	3541	
LCS 500-649136/2-A	Lab Control Sample	Total/NA	Solid	3541	

Leach Batch: 649137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-4	TRW BASE	SPLP East	Solid	1312	
180-135332-4 - DL	TRW BASE	SPLP East	Solid	1312	
LB 500-649137/1-C	Method Blank	SPLP East	Solid	1312	

Analysis Batch: 650033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-4	TRW BASE	SPLP East	Solid	8270D SIM	650092
180-135332-4 - DL	TRW BASE	SPLP East	Solid	8270D SIM	650092
180-135332-4	TRW BASE	Total/NA	Solid	8270D SIM	649136
180-135332-4 - DL	TRW BASE	Total/NA	Solid	8270D SIM	649136
LB 500-649137/1-C	Method Blank	SPLP East	Solid	8270D SIM	650092
MB 500-649136/1-A	Method Blank	Total/NA	Solid	8270D SIM	649136
MB 500-650092/1-A	Method Blank	Total/NA	Solid	8270D SIM	650092
LCS 500-649136/2-A	Lab Control Sample	Total/NA	Solid	8270D SIM	649136
LCS 500-650092/2-A	Lab Control Sample	Total/NA	Solid	8270D SIM	650092
LCSD 500-650092/3-A	Lab Control Sample Dup	Total/NA	Solid	8270D SIM	650092

Prep Batch: 650092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-4 - DL	TRW BASE	SPLP East	Solid	3510C	649137
180-135332-4	TRW BASE	SPLP East	Solid	3510C	649137
LB 500-649137/1-C	Method Blank	SPLP East	Solid	3510C	649137
MB 500-650092/1-A	Method Blank	Total/NA	Solid	3510C	
LCS 500-650092/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 500-650092/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	

GC Semi VOA

Prep Batch: 392824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	Total/NA	Solid	3541	
MB 180-392824/1-A	Method Blank	Total/NA	Solid	3541	
LCS 180-392824/2-A	Lab Control Sample	Total/NA	Solid	3541	
180-135332-5 MS	TRW BASE	Total/NA	Solid	3541	
180-135332-5 MSD	TRW BASE	Total/NA	Solid	3541	

Leach Batch: 393202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	SPLP East	Solid	EPA 1312	
LB 180-393202/1-F	Method Blank	SPLP East	Solid	1312	

Prep Batch: 393632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	SPLP East	Solid	3510C	393202
LB 180-393202/1-F	Method Blank	SPLP East	Solid	3510C	393202
MB 180-393632/1-A	Method Blank	Total/NA	Solid	3510C	
LCS 180-393632/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 180-393632/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	

Analysis Batch: 394077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	SPLP East	Solid	EPA 8081B LL	393632
180-135332-5	TRW BASE	Total/NA	Solid	EPA 8081B LL	392824
LB 180-393202/1-F	Method Blank	SPLP East	Solid	EPA 8081B LL	393632
MB 180-392824/1-A	Method Blank	Total/NA	Solid	EPA 8081B LL	392824
LCS 180-392824/2-A	Lab Control Sample	Total/NA	Solid	EPA 8081B LL	392824
180-135332-5 MS	TRW BASE	Total/NA	Solid	EPA 8081B LL	392824
180-135332-5 MSD	TRW BASE	Total/NA	Solid	EPA 8081B LL	392824

Analysis Batch: 394241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-393632/1-A	Method Blank	Total/NA	Solid	EPA 8081B LL	393632
LCS 180-393632/2-A	Lab Control Sample	Total/NA	Solid	EPA 8081B LL	393632
LCSD 180-393632/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8081B LL	393632

HPLC/IC

Analysis Batch: 394099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	Soluble	Solid	EPA 9056A	394126
MB 180-394126/2-A	Method Blank	Soluble	Solid	EPA 9056A	394126
LCS 180-394126/1-A	Lab Control Sample	Soluble	Solid	EPA 9056A	394126

Leach Batch: 394126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	Soluble	Solid	DI Leach	
MB 180-394126/2-A	Method Blank	Soluble	Solid	DI Leach	
LCS 180-394126/1-A	Lab Control Sample	Soluble	Solid	DI Leach	

QC Association Summary

Client: ERM-Northeast
Job ID: 180-135332-1
Project/Site: Former TRW Union Springs Property - Unio

LCMS

Prep Batch: 575497

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-6	TRW BASE	Total/NA	Solid	SHAKE	
MB 320-575497/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-575497/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
180-135332-6 MS	TRW BASE	Total/NA	Solid	SHAKE	
180-135332-6 MSD	TRW BASE	Total/NA	Solid	SHAKE	

Analysis Batch: 575734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-6	TRW BASE	Total/NA	Solid	537 (modified)	575497
MB 320-575497/1-A	Method Blank	Total/NA	Solid	537 (modified)	575497
LCS 320-575497/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	575497
180-135332-6 MS	TRW BASE	Total/NA	Solid	537 (modified)	575497
180-135332-6 MSD	TRW BASE	Total/NA	Solid	537 (modified)	575497

Leach Batch: 575863

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-6	TRW BASE	SPLP East	Solid	1312	
LB 320-575863/1-B	Method Blank	SPLP East	Solid	1312	

Prep Batch: 577962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-6	TRW BASE	SPLP East	Solid	3535	575863
LB 320-575863/1-B	Method Blank	SPLP East	Solid	3535	575863
MB 320-577962/1-A	Method Blank	Total/NA	Solid	3535	
LCS 320-577962/2-A	Lab Control Sample	Total/NA	Solid	3535	
LCSD 320-577962/3-A	Lab Control Sample Dup	Total/NA	Solid	3535	

Analysis Batch: 578024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-6	TRW BASE	SPLP East	Solid	537 (modified)	577962
LB 320-575863/1-B	Method Blank	SPLP East	Solid	537 (modified)	577962
MB 320-577962/1-A	Method Blank	Total/NA	Solid	537 (modified)	577962
LCS 320-577962/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	577962
LCSD 320-577962/3-A	Lab Control Sample Dup	Total/NA	Solid	537 (modified)	577962

Metals

Prep Batch: 392927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	Total/NA	Solid	3050B	
MB 180-392927/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 180-392927/2-A	Lab Control Sample	Total/NA	Solid	3050B	

Leach Batch: 393202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	SPLP East	Solid	EPA 1312	
LB 180-393202/1-B	Method Blank	SPLP East	Solid	1312	
LB 180-393202/1-E	Method Blank	SPLP East	Solid	1312	
180-135332-5 MS	TRW BASE	SPLP East	Solid	EPA 1312	
180-135332-5 MSD	TRW BASE	SPLP East	Solid	EPA 1312	

Metals

Leach Batch: 393208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 180-393208/1-C	Method Blank	SPLP East	Solid	EPA 1311	

Prep Batch: 393384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	SPLP East	Solid	7470A	393202
LB 180-393202/1-B	Method Blank	SPLP East	Solid	7470A	393202
LB 180-393208/1-C	Method Blank	SPLP East	Solid	7470A	393208
MB 180-393384/1-A	Method Blank	Total/NA	Solid	7470A	
LCS 180-393384/2-A	Lab Control Sample	Total/NA	Solid	7470A	

Analysis Batch: 393481

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	SPLP East	Solid	EPA 7470A	393384
LB 180-393202/1-B	Method Blank	SPLP East	Solid	EPA 7470A	393384
LB 180-393208/1-C	Method Blank	SPLP East	Solid	EPA 7470A	393384
MB 180-393384/1-A	Method Blank	Total/NA	Solid	EPA 7470A	393384
LCS 180-393384/2-A	Lab Control Sample	Total/NA	Solid	EPA 7470A	393384

Prep Batch: 393596

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	SPLP East	Solid	3010A	393202
LB 180-393202/1-E	Method Blank	SPLP East	Solid	3010A	393202
MB 180-393596/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 180-393596/2-A	Lab Control Sample	Total/NA	Solid	3010A	
180-135332-5 MS	TRW BASE	SPLP East	Solid	3010A	393202
180-135332-5 MSD	TRW BASE	SPLP East	Solid	3010A	393202

Analysis Batch: 393677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	Total/NA	Solid	EPA 6010D	392927
MB 180-392927/1-A	Method Blank	Total/NA	Solid	EPA 6010D	392927
LCS 180-392927/2-A	Lab Control Sample	Total/NA	Solid	EPA 6010D	392927

Analysis Batch: 393827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	SPLP East	Solid	EPA 6010D	393596
180-135332-5	TRW BASE	Total/NA	Solid	EPA 6010D	392927
180-135332-5	TRW BASE	Total/NA	Solid	EPA 6010D	392927
180-135332-5	TRW BASE	Total/NA	Solid	EPA 6010D	392927
LB 180-393202/1-E	Method Blank	SPLP East	Solid	EPA 6010D	393596
MB 180-392927/1-A	Method Blank	Total/NA	Solid	EPA 6010D	392927
MB 180-393596/1-A	Method Blank	Total/NA	Solid	EPA 6010D	393596
LCS 180-392927/2-A	Lab Control Sample	Total/NA	Solid	EPA 6010D	392927
LCS 180-393596/2-A	Lab Control Sample	Total/NA	Solid	EPA 6010D	393596
180-135332-5 MS	TRW BASE	SPLP East	Solid	EPA 6010D	393596
180-135332-5 MSD	TRW BASE	SPLP East	Solid	EPA 6010D	393596

Prep Batch: 393889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	Total/NA	Solid	7471B	
MB 180-393889/1-A	Method Blank	Total/NA	Solid	7471B	

Metals (Continued)

Prep Batch: 393889 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-393889/2-A	Lab Control Sample	Total/NA	Solid	7471B	
180-135332-5 MS	TRW BASE	Total/NA	Solid	7471B	
180-135332-5 MSD	TRW BASE	Total/NA	Solid	7471B	

Analysis Batch: 394303

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	Total/NA	Solid	EPA 7471B	393889
MB 180-393889/1-A	Method Blank	Total/NA	Solid	EPA 7471B	393889
LCS 180-393889/2-A	Lab Control Sample	Total/NA	Solid	EPA 7471B	393889
180-135332-5 MS	TRW BASE	Total/NA	Solid	EPA 7471B	393889
180-135332-5 MSD	TRW BASE	Total/NA	Solid	EPA 7471B	393889

General Chemistry

Analysis Batch: 392585

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	Total/NA	Solid	2540G	

Analysis Batch: 392967

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-1	TRW BASE 1	Total/NA	Solid	2540G	
180-135332-2	TRW BASE 2	Total/NA	Solid	2540G	
180-135332-3	TRW BASE 3	Total/NA	Solid	2540G	

Analysis Batch: 393447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-5	TRW BASE	Total/NA	Solid	EPA 9045D	
LCS 180-393447/27	Lab Control Sample	Total/NA	Solid	EPA 9045D	

Analysis Batch: 575366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-6	TRW BASE	Total/NA	Solid	D 2216	

Analysis Batch: 649827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-135332-4	TRW BASE	Total/NA	Solid	Moisture	

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins | Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Rob Sents	Site Contact: Laurel Crawford	Date: 3/16/22	COC No:
ERM Consulting & Engineering, Inc.	Email: rob.sents@erm.com	Lab Contact: Carrie Gamber	Carrier: Fedex	___1__ of ___1__ COCs
5784 Widewater Pkwy	Tel/Fax:			TALS Project #:
Syracuse, NY 13214	Analysis Turnaround Time			Sampler: Laurel Crawford
(315) 445-2554	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(315) 445-2534 FAX	TAT if different from Below __standard__			Walk-in Client:
Project Name: Former TRW Union Springs	☐ 2 weeks			Lab Sampling:
Site: Union Springs, NY	☐ 1 week			Job / SDG No.:
Project # : 46031778	☐ 2 days			
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)			SPLP 8270D SIM PCNs	8270D SIM PCNs	SPLP 8081E Pesticides	8081E Pesticides	SPLP 8270D TCL SVOCs + 20 TICs	8270D TCL SVOCs + 20 TICs *	SPLP 6010D, 7470E TAL Metals	6010D, 7470E TAL Metals	9045 pH	SPLP 8260D volatiles	8260D volatiles	1312 SPLP PFAS	537.1 PFAS	9056 Sulfate? **	Sample Specific Notes:
TRW Base 1	3/15/22	17:00	C	S	4															x				
TRW Base 2	3/15/22	17:10	C	S	4															x				
TRW Base 3	3/15/22	17:20	C	S	4															x				
TRW Base	3/15/22	17:30	C	S	1 (4oz glass)					x	x													Chicago lab
TRW Base	3/15/22	17:30	C	S	1 (32 oz)							x	x	x	x	x	x	x	x				x	
TRW Base	3/15/22	17:30	C	S	2																x	x		
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ___DI, MeOH____								1	1	1	1	1	1	1	1	1	1	1	1,6	1	1	1		

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer th

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ M

180-135332 Chain of Custody

Special Instructions/QC Requirements & Comments:
*** SVOC analysis on soil - please include 2-chloronaphthalene on SVOC list (if not already on standard list): PCNs - Chicago lab**
**** confirm with Rob Sents**

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____ Corr'd: _____		Therm ID No.: _____
Relinquished by:	Company: XDD d/b/a Loureiro	Date/Time: 3/16/22 13:30	Received by: D Watson	Company: FEDEX	Date/Time: 3-17-22 10:00
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.35, dated 10/6/2020

ORIGIN ID:IGGA (603) 778-1100
LAUREL CRAWFORD
LOUREIRO ENGINEERING ASSOC INC
22 MARIN WAY UNIT #3

STRATHAM, NH 03885
UNITED STATES US

SHIP DATE: 16MAR22
ACTWGT: 25.00 LB
CAD: 3323374/INET4344
DIMS: 25x15x15 IN

BILL SENDER

TO **CARRIE GAMBER**
EUROFINS - PITTSBURGH
301 ALPHA DRIVE

PITTSBURGH PA 15238
(412) 963-2428 REF: 027ER2.01 TASK 001 LC
INV:
PO: DEPT:

56DJ5EB02/FE4A

FedEx Express

J221928160lUV

THU - 17 MAR 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7763 1284 3158

15238

XN AGCA

PA-US PIT

Uncorrected temp 4.8 C
Thermometer ID #16
CF 6 Initials 8
PT-WI-SR-001 effective 11/8/18

After printing this label:
CONSIGNEE COPY - PLEASE PLACE IN FRONT OF POUGH
1. Fold the printed page along the horizontal line.
2. Place label in shipping pouch and affix it to your shipment.

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180-135332 Waybill

Eurofins Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Gamber, Carrie L	Carrier Tracking No(s):	COC No: 180-457526.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Carrie.Gamber@Eurofinset.com	State of Origin: California	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): NELAP - New York		Job #: 180-135332-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 4/5/2022			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Former TRW Union Springs Property - Unio	Project #: 18025140			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/Shake_Bath_14D (MOD) PFOA/PFOS Only	Moisture/ Percent Moisture Sacramento	PFC_IDA/1312_E PFOA/PFOS Only	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
TRW BASE (180-135332-6)	3/15/22	17:30 Pacific		Solid			X	X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Pittsburgh places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Pittsburgh.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	MO	5-22-22 1700	[illegible]	[signature]	5/23/22 9:35	[illegible]
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: Seal	Cooler Temperature(s) °C and Other Remarks: 4.8

Ver: 06/08/2021

Eurofins Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh PA 15238
Phone 412-963-7058 Fax 412-963-2468

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Gamber Carrie L	Carrier Tracking No(s):	COC No: 180-457525 1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Carrie Gamber@Eurofinset.com	State of Origin: California	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): NELAP - New York		Job #: 180-135332-1
Address: 2417 Bond Street,	Due Date Requested: 4/5/2022			
City: University Park	TAT Requested (days):			
State Zip: IL 60484				
Phone: 708-534-5200(Tel) 708-534-5211(Fax)	PO #:			
Email:	WO #:			
Project Name: Former TRW Union Springs Property - Unio	Project #: 18025140			
Site:	SSOW#:			

Analysis Requested

180-135332 COC

Preservation Codes

A HCL M Hexane
B NaOH N None
C Zn Acetate O AsNaO2
D Nitric Acid P Na2O4S
E NaHSO4 Q Na2SO3
F MeOH R Na2S2O3
G Amchlor S H2SO4
H Ascorbic Acid T TSP Dodecahydrate
I Ice U Acetone
J DI Water V MCAA
K EDTA W pH 4-5
L EDA Z other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D_SIM/3541 Project PCNs	8270D_SIM/1312_E	Moisture/ Percent Moisture Chicago	Total Number of containers	Special Instructions/Note
			Preservation Code								
TRW BASE (180-135332-4)	3/15/22	17 30 Pacific		Solid			X	X	X	1	

Note Since laboratory accreditations are subject to change Eurofins Pittsburgh places the ownership of method analyte & accreditation compliance upon out subcontract laboratories This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately If all requested accreditations are current to date return the signed Chain of Custody attesting to said complicance to Eurofins Pittsburgh

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested I II III IV Other (specify) Primary Deliverable Rank 2	Special Instructions/QC Requirements

Empty Kit Relinquished by	Date	Time	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
MC	3-22-22 1700	Eastpit	Stephanie Hernandez	3/23/22 0955	FEDEX
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company

Custody Seals Intact	Custody Seal No	Cooler Temperature(s) °C and Other Remarks
Δ Yes Δ No		3 8→2 8

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Sacramento
Sample Receiving Notes

180-135332 Field Sheet

Job: _____

Tracking # : 517304450395

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Therm. ID: 402 Corr. Factor: (+ / -) — °C

Ice 1 Wet 1 Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: _____

Temp Observed: 4.8 °C Corrected: 4.8 °C

From: Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials: [illegible] Date: 3/23/22

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☐	☑
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: [illegible] Date: 3/23/22

Notes: _____

Trizma Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
Samples received within hold time?	☑	☐	☐
NCM Filed?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials: [illegible] Date: 3/23/22

Login Sample Receipt Checklist

Client: ERM-Northeast

Job Number: 180-135332-1

Login Number: 135332
List Number: 1
Creator: Gamber, Carrie L

List Source: Eurofins Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ERM-Northeast

Job Number: 180-135332-1

Login Number: 135332
List Number: 2
Creator: Hernandez, Stephanie

List Source: Eurofins Chicago
List Creation: 03/23/22 11:34 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ERM-Northeast

Job Number: 180-135332-1

Login Number: 135332
List Number: 3
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 03/23/22 12:40 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.8c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

Eurofins Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-136058-1
Client Project/Site: Former TRW Union Springs Property - Unio

For:
ERM-Northeast
5784 Widewaters Pkwy
Dewitt, New York 13214

Attn: Mr. Robert Sents

Authorized for release by:
6/9/2022 4:58:25 PM

Carrie Gamber, Senior Project Manager
(412)963-2428
Carrie.Gamber@et.eurofinsus.com

LINKS

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Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Definitions/Glossary 5
Certification Summary 6
Sample Summary 7
Method Summary 8
Lab Chronicle 9
Client Sample Results 22
QC Sample Results 78
QC Association Summary 109
Chain of Custody 119
Receipt Checklists 123

Job ID: 180-136058-1

Laboratory: Eurofins Pittsburgh

Narrative

CASE NARRATIVE

Client: ERM-Northeast

Project: Former TRW Union Springs Property - Unio

Report Number: 180-136058-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 03/31/2022 and 05/07/2022; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.7º C and 3.4º C.

VOLATILES
The laboratory control sample (LCS) for analytical batch 180-399149 recovered outside control limits for the following analytes: 1,2-Dichlorobenzene, 1,4-Dichlorobenzene and Acetone. A low-level LCS (LLCS), spiked at the reporting limit (RL), was prepared with this batch. The affected target analytes recovered within acceptance limits; therefore, the LLCS demonstrates the analytical system had sufficient sensitivity to detect the compounds had they been present. Since the affected target compounds were not detected in the samples, the data have been reported and qualified.

Methylene Chloride failed the recovery criteria low for the MSD of sample TRW 20% PC, 4% AC T04MSD (180-136058-31) in batch 180-399149. 1,2,4-Trichlorobenzene and Methylene Chloride exceeded the RPD limit.

2-Butanone (MEK) and Acetone failed the recovery criteria low for the MS of sample TRW 20% PC, 2% AC, 2%SP T03MS (180-136058-39) in batch 180-398775. Several analytes failed the recovery criteria high. Several analytes failed the recovery criteria high for the MSD of sample TRW 20% PC, 2% AC, 2%SP T03MSD (180-136058-39) in batch 180-398775. Several analytes exceeded the RPD limit. The MSD was analyzed outside tune time.

The continuing calibration verification (CCV) analyzed in batch 180-399149 was outside the method criteria for the following analyte(s): Acetone, Bromomethane, 1,2-Dibromo-3-Chloropropane, Vinyl chloride, 2-Butanone, Dichloro-difluoromethane, Trichlorofluoromethane, 1,1,2-Trichloroethane, 1,1,2,2-Tetrachloroethane and trans-1,3-Dichloropropene (LOW). A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in batch 180-398503 was outside the method criteria for the following analyte(s): 1,1-Dichloroethene, 1,2,4-Trichlorobenzene, Acetone, Dichloro-difluoromethane and Methylene Chloride (LOW). A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in batch 180-398775 was outside the method criteria for the following analyte(s): Acetone, 2-Butanone, 2-Hexanone, 1,2-Dibromo-3-Chloropropane, Dichloro-difluoromethane and 1,4-Dichlorobenzene (LOW). A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Job ID: 180-136058-1 (Continued)

Laboratory: Eurofins Pittsburgh (Continued)

The continuing calibration verification (CCV) analyzed in 180-398775 was outside the method criteria for the following analyte(s): Dibromofluoromethane Surrogate (HIGH). All samples recovered this surrogate within QC criteria.

SEMIVOLATILES

An incorrect volume of surrogate spiking solution was inadvertently added the following samples: TRW 20% PC T03 (180-136058-12), TRW 20% PC, 2% AC T03 (180-136058-21), TRW 20% PC, 4% AC T03 (180-136058-30) and TRW 20% PC, 2% AC, 2%SP T03 (180-136058-39). Percent recoveries are based on the amount spiked

The continuing calibration verification (CCV) associated with batch 180-400147 recovered above the upper control limit for 2,2'-oxybis[1-chloropropane]. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCVIS 180-400147/3).

The continuing calibration verification (CCV) analyzed in 180-400147 was outside the method criteria for the following analyte: 4,6-Dinitro-2-methylphenol. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

PESTICIDES

The Tetrachloro-m-xylene surrogate recovery for the following samples was outside acceptance limits (high biased) on the confirmation column due to matrix interference: TRW 20% PC T02 (180-136058-11). The recovery is within acceptance limits on the other column, indicating that the extraction process was in control.

ICV for batch 180-399034 failed slightly high for 4,4'-DDT, Endosulfan II, Endrin and Methoxychlor on one or both columns. This ICV was analyzed again at end of run and passed all criteria. There was no detection of these compounds in samples.

IC

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

METALS

The following samples were diluted to bring the concentration of Calcium within the calibration range of the instrument: TRW 20% PC T04 (180-136058-13), TRW 20% PC, 2% AC T04 (180-136058-22) and TRW 20% PC, 4% AC T04 (180-136058-31). Elevated reporting limits (RLs) are provided.

GENERAL CHEMSITRY

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
S1+	Surrogate recovery exceeds control limits, high biased.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Laboratory: Eurofins Pittsburgh

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	11182	04-01-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
EPA 9040C		Solid	pH
SM 2580B		Solid	Oxidation Reduction Potential

Sample Summary

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-136058-1	TRW CONTROL T01	Solid	03/22/22 17:00	03/31/22 15:11
180-136058-2	TRW CONTROL T02	Solid	03/22/22 17:00	03/31/22 15:11
180-136058-3	TRW CONTROL T03	Solid	03/22/22 17:00	03/31/22 15:11
180-136058-4	TRW CONTROL T04	Solid	03/22/22 17:00	03/31/22 15:11
180-136058-10	TRW 20% PC T01	Solid	04/26/22 17:10	05/07/22 09:00
180-136058-11	TRW 20% PC T02	Solid	04/26/22 17:10	05/07/22 09:00
180-136058-12	TRW 20% PC T03	Solid	04/26/22 17:10	05/07/22 09:00
180-136058-13	TRW 20% PC T04	Solid	04/26/22 17:10	05/07/22 09:00
180-136058-19	TRW 20% PC, 2% AC T01	Solid	04/26/22 17:20	05/07/22 09:00
180-136058-20	TRW 20% PC, 2% AC T02	Solid	04/26/22 17:20	05/07/22 09:00
180-136058-21	TRW 20% PC, 2% AC T03	Solid	04/26/22 17:20	05/07/22 09:00
180-136058-22	TRW 20% PC, 2% AC T04	Solid	04/26/22 17:20	05/07/22 09:00
180-136058-28	TRW 20% PC, 4% AC T01	Solid	04/26/22 17:30	05/07/22 09:00
180-136058-29	TRW 20% PC, 4% AC T02	Solid	04/26/22 17:30	05/07/22 09:00
180-136058-30	TRW 20% PC, 4% AC T03	Solid	04/26/22 17:30	05/07/22 09:00
180-136058-31	TRW 20% PC, 4% AC T04	Solid	04/26/22 17:30	05/07/22 09:00
180-136058-37	TRW 20% PC, 2% AC, 2%SP T01	Solid	04/26/22 18:00	05/07/22 09:00
180-136058-38	TRW 20% PC, 2% AC, 2%SP T02	Solid	04/26/22 18:00	05/07/22 09:00
180-136058-39	TRW 20% PC, 2% AC, 2%SP T03	Solid	04/26/22 18:00	05/07/22 09:00
180-136058-40	TRW 20% PC, 2% AC, 2%SP T04	Solid	04/26/22 18:00	05/07/22 09:00
180-136058-46	MB T01	Solid	04/01/22 00:00	05/07/22 09:00
180-136058-47	MB T02	Solid	04/01/22 00:00	05/07/22 09:00
180-136058-48	MB T03	Solid	04/01/22 00:00	05/07/22 09:00
180-136058-49	MB T04	Solid	04/01/22 00:00	05/07/22 09:00

Method Summary

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Method	Method Description	Protocol	Laboratory
EPA 8260D	Volatile Organic Compounds by GC/MS	SW846	TAL PIT
EPA 8270E LL	Semivolatile Organic Compounds (GC/MS)	SW846	TAL PIT
EPA 8081B LL	Organochlorine Pesticides (GC)	SW846	TAL PIT
EPA 9056A	Anions, Ion Chromatography	SW846	TAL PIT
EPA 6010D	Metals (ICP)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
EPA 9040C	pH	SW846	TAL PIT
SM 2510B	Conductivity, Specific Conductance	SM	TAL PIT
SM 2580B	Reduction-Oxidation (REDOX) Potential	SM	TAL PIT
1315	Semi-Dynamic Tank Leaching Procedure	SW846	TAL PIT
3010A	Preparation, Total Metals	SW846	TAL PIT
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL PIT
3520C	Liquid-Liquid Extraction (Continuous)	SW846	TAL PIT
5030C	Purge and Trap	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW CONTROL T01
Lab Sample ID: 180-136058-1
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			356 g	1798 mL	398249	05/11/22 07:30	LWM	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	398503	05/12/22 14:09	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			356 g	1798 mL	398249	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	3520C			330 mL	250 uL	399252	05/18/22 15:46	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	399668	05/23/22 20:58	VVP	TAL PIT
	Instrument ID: CH722									
Leach	Leach	1315			347.8 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	3010A			50 mL	50 mL	399060	05/17/22 10:47	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399305	05/18/22 16:09	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			347.8 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	399241	05/18/22 14:54	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			399397	05/19/22 12:50	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			347.8 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Analysis	EPA 9040C		1			398881	05/11/22 09:36	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW CONTROL T02
Lab Sample ID: 180-136058-2
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			362.8 g	1798 mL	398263	05/11/22 09:30	LWM	TAL PIT
Leach	Prep	3510C			760 mL	1.0 mL	398549	05/12/22 09:45	CBY	TAL PIT
Leach	Analysis	EPA 8081B LL		1			399034	05/18/22 01:20	DFE	TAL PIT
	Instrument ID: CHGC15									
Leach	Leach	1315			357.2 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	EPA 9056A		1			398746	05/13/22 21:11	LWM	TAL PIT
	Instrument ID: CHICS2100B									
Leach	Leach	1315			357.2 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	EPA 9040C		1			398891	05/12/22 07:43	MTW	TAL PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			357.2 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	SM 2510B		1			398893	05/12/22 07:46	MTW	TAL PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			357.2 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	SM 2580B		1			398892	05/12/22 07:43	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW CONTROL T03
Lab Sample ID: 180-136058-3
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			362.5 g	1798 mL	398438	05/12/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	398775	05/14/22 20:29	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			362.5 g	1798 mL	398438	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	3520C			330 mL	250 uL	399513	05/20/22 13:08	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	400147	05/27/22 17:14	VVP	TAL PIT
	Instrument ID: CH733									
Leach	Leach	1315			356.3 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	3010A			25 mL	25 mL	399185	05/18/22 10:06	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399442	05/19/22 17:09	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			356.3 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	399241	05/18/22 14:54	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			399397	05/19/22 13:01	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			356.3 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 9040C		1			398904	05/13/22 07:33	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW CONTROL T04
Lab Sample ID: 180-136058-4
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			363.7 g	1798 mL	398447	05/13/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	399149	05/18/22 18:20	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			363.7 g	1798 mL	398447	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	3520C			320 mL	250 uL	399879	05/25/22 07:32	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	400474	06/01/22 12:48	VVP	TAL PIT
	Instrument ID: CHMSD7									
Leach	Leach	1315			356.2 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	3010A			25 mL	25 mL	399185	05/18/22 10:06	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399442	05/19/22 16:19	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			356.2 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	400433	06/01/22 05:00	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			400599	06/01/22 16:53	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			356.2 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 9040C		1			400423	05/18/22 07:33	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC T01
Lab Sample ID: 180-136058-10
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			325 g	1798 mL	398249	05/11/22 07:30	LWM	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	398503	05/12/22 13:43	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			325 g	1798 mL	398249	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	3520C			320 mL	250 uL	399252	05/18/22 15:46	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	399668	05/23/22 21:21	VVP	TAL PIT
	Instrument ID: CH722									
Leach	Leach	1315			301.6 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	3010A			50 mL	50 mL	399060	05/17/22 10:47	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399305	05/18/22 16:13	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			301.6 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	399241	05/18/22 14:54	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			399397	05/19/22 12:51	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			301.6 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Analysis	EPA 9040C		1			398881	05/11/22 09:42	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC T02
Lab Sample ID: 180-136058-11
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			328.1 g	1798 mL	398263	05/11/22 09:30	LWM	TAL PIT
Leach	Prep	3510C			780 mL	1.0 mL	398549	05/12/22 09:45	CBY	TAL PIT
Leach	Analysis	EPA 8081B LL		1			399034	05/18/22 01:39	DFE	TAL PIT
	Instrument ID: CHGC15									
Leach	Leach	1315			305.7 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	EPA 9056A		1			398746	05/13/22 21:56	LWM	TAL PIT
	Instrument ID: CHICS2100B									
Leach	Leach	1315			305.7 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	EPA 9040C		1			398891	05/12/22 07:49	MTW	TAL PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			305.7 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	SM 2510B		1			398893	05/12/22 07:52	MTW	TAL PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			305.7 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	SM 2580B		1			398892	05/12/22 07:49	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC T03
Lab Sample ID: 180-136058-12
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			328.0 g	1798 mL	398438	05/12/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	398775	05/14/22 20:03	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			328.0 g	1798 mL	398438	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	3520C			320 mL	250 uL	399513	05/20/22 13:08	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	400147	05/27/22 17:35	VVP	TAL PIT
	Instrument ID: CH733									
Leach	Leach	1315			305.1 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	3010A			25 mL	25 mL	399185	05/18/22 10:06	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399442	05/19/22 17:14	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			305.1 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	399241	05/18/22 14:54	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			399397	05/19/22 13:02	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			305.1 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 9040C		1			398904	05/13/22 07:39	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC T04
Lab Sample ID: 180-136058-13
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			327.6 g	1798 mL	398447	05/13/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	399149	05/18/22 17:54	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			327.6 g	1798 mL	398447	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	3520C			330 mL	250 uL	399879	05/25/22 07:34	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	400474	06/01/22 13:09	VVP	TAL PIT
	Instrument ID: CHMSD7									
Leach	Leach	1315			304.7 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	3010A			25 mL	25 mL	399185	05/18/22 10:06	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399442	05/19/22 16:46	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			304.7 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	3010A			25 mL	25 mL	399185	05/18/22 10:06	NAF	TAL PIT
Leach	Analysis	EPA 6010D		2			399626	05/20/22 09:29	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			304.7 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	400433	06/01/22 05:00	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			400599	06/01/22 16:57	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			304.7 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 9040C		1			400423	05/18/22 07:39	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC T01
Lab Sample ID: 180-136058-19
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			323.3 g	1798 mL	398249	05/11/22 07:30	LWM	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	398503	05/12/22 13:17	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			323.3 g	1798 mL	398249	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	3520C			330 mL	250 uL	399252	05/18/22 15:46	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	399668	05/23/22 21:43	VVP	TAL PIT
	Instrument ID: CH722									
Leach	Leach	1315			329 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	3010A			50 mL	50 mL	399060	05/17/22 10:47	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399305	05/18/22 16:18	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			329 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	399241	05/18/22 14:54	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			399397	05/19/22 12:57	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			329 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Analysis	EPA 9040C		1			398881	05/11/22 09:45	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 2% AC T02
Lab Sample ID: 180-136058-20
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			326.7 g	1798 mL	398263	05/11/22 09:30	LWM	TAL PIT
Leach	Prep	3510C			760 mL	1.0 mL	398549	05/12/22 09:45	CBY	TAL PIT
Leach	Analysis	EPA 8081B LL		1			399034	05/18/22 01:57	DFE	TAL PIT
	Instrument ID: CHGC15									
Leach	Leach	1315			332.0 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	EPA 9056A		1			398746	05/13/22 22:26	LWM	TAL PIT
	Instrument ID: CHICS2100B									
Leach	Leach	1315			332.0 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	EPA 9040C		1			398891	05/12/22 07:51	MTW	TAL PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			332.0 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	SM 2510B		1			398893	05/12/22 07:55	MTW	TAL PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			332.0 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	SM 2580B		1			398892	05/12/22 07:51	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC T03
Lab Sample ID: 180-136058-21
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			326.1 g	1798 mL	398438	05/12/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	398775	05/14/22 19:37	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			326.1 g	1798 mL	398438	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	3520C			320 mL	250 uL	399513	05/20/22 13:08	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	400147	05/27/22 17:57	VVP	TAL PIT
	Instrument ID: CH733									
Leach	Leach	1315			331.8 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	3010A			25 mL	25 mL	399185	05/18/22 10:06	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399442	05/19/22 17:28	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			331.8 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	399241	05/18/22 14:54	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			399397	05/19/22 13:03	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			331.8 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 9040C		1			398904	05/13/22 07:42	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 2% AC T04
Lab Sample ID: 180-136058-22
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			325.8 g	1798 mL	398447	05/13/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	399149	05/18/22 13:28	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			325.8 g	1798 mL	398447	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	3520C			330 mL	250 uL	399879	05/25/22 07:34	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	400474	06/01/22 13:31	VVP	TAL PIT
	Instrument ID: CHMSD7									
Leach	Leach	1315			331.6 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	3010A			25 mL	25 mL	399185	05/18/22 10:06	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399442	05/19/22 16:51	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			331.6 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	3010A			25 mL	25 mL	399185	05/18/22 10:06	NAF	TAL PIT
Leach	Analysis	EPA 6010D		2			399626	05/20/22 09:34	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			331.6 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	400433	06/01/22 05:00	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			400599	06/01/22 16:59	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			331.6 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 9040C		1			400423	05/18/22 07:42	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 4% AC T01
Lab Sample ID: 180-136058-28
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			323.9 g	1798 mL	398249	05/11/22 07:30	LWM	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	398503	05/12/22 12:51	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			323.9 g	1798 mL	398249	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	3520C			320 mL	250 uL	399252	05/18/22 15:46	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	399668	05/23/22 22:06	VVP	TAL PIT
	Instrument ID: CH722									
Leach	Leach	1315			323.2 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	3010A			50 mL	50 mL	399060	05/17/22 10:47	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399305	05/18/22 16:23	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			323.2 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	399241	05/18/22 14:54	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			399397	05/19/22 12:58	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			323.2 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Analysis	EPA 9040C		1			398881	05/11/22 09:48	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 4% AC T02
Lab Sample ID: 180-136058-29
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			328.1 g	1798 mL	398263	05/11/22 09:30	LWM	TAL PIT
Leach	Prep	3510C			750 mL	1.0 mL	398549	05/12/22 09:45	CBY	TAL PIT
Leach	Analysis	EPA 8081B LL		1			399034	05/18/22 02:16	DFE	TAL PIT
	Instrument ID: CHGC15									
Leach	Leach	1315			326.5 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	EPA 9056A		1			398746	05/13/22 23:25	LWM	TAL PIT
	Instrument ID: CHICS2100B									
Leach	Leach	1315			326.5 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	EPA 9040C		1			398891	05/12/22 07:54	MTW	TAL PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			326.5 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	SM 2510B		1			398893	05/12/22 07:59	MTW	TAL PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			326.5 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	SM 2580B		1			398892	05/12/22 07:54	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 4% AC T03
Lab Sample ID: 180-136058-30
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			327.9 g	1798 mL	398438	05/12/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	398775	05/14/22 19:11	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			327.9 g	1798 mL	398438	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	3520C			320 mL	250 uL	399513	05/20/22 13:09	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	400147	05/27/22 18:19	VVP	TAL PIT
	Instrument ID: CH733									
Leach	Leach	1315			326.1 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	3010A			25 mL	25 mL	399185	05/18/22 10:06	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399442	05/19/22 17:32	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			326.1 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	399241	05/18/22 14:54	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			399397	05/19/22 13:04	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			326.1 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 9040C		1			398904	05/13/22 07:45	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 4% AC T04
Lab Sample ID: 180-136058-31
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			327.6 g	1798 mL	398447	05/13/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	399149	05/18/22 13:02	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			327.6 g	1798 mL	398447	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	3520C			320 mL	250 uL	399879	05/25/22 07:34	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	400474	06/01/22 13:53	VVP	TAL PIT
	Instrument ID: CHMSD7									
Leach	Leach	1315			326.2 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	3010A			25 mL	25 mL	399185	05/18/22 10:06	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399442	05/19/22 16:55	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			326.2 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	3010A			25 mL	25 mL	399185	05/18/22 10:06	NAF	TAL PIT
Leach	Analysis	EPA 6010D		2			399626	05/20/22 09:39	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			326.2 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	400433	06/01/22 05:00	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			400599	06/01/22 17:00	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			326.2 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 9040C		1			400423	05/18/22 07:45	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T01
Lab Sample ID: 180-136058-37
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			321.1 g	1798 mL	398249	05/11/22 07:30	LWM	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	398503	05/12/22 12:25	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			321.1 g	1798 mL	398249	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	3520C			320 mL	250 uL	399252	05/18/22 15:46	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	399668	05/23/22 22:28	VVP	TAL PIT
	Instrument ID: CH722									
Leach	Leach	1315			327.4 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	3010A			50 mL	50 mL	399060	05/17/22 10:47	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399305	05/18/22 16:36	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			327.4 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	399241	05/18/22 14:54	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			399397	05/19/22 12:59	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			327.4 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Analysis	EPA 9040C		1			398881	05/11/22 09:51	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T02
Lab Sample ID: 180-136058-38
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			329.2 g	1798 mL	398263	05/11/22 09:30	LWM	TAL PIT
Leach	Prep	3510C			720 mL	1.0 mL	398549	05/12/22 09:45	CBY	TAL PIT
Leach	Analysis	EPA 8081B LL		1			399034	05/18/22 02:34	DFE	TAL PIT
	Instrument ID: CHGC15									
Leach	Leach	1315			335.0 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	EPA 9056A		1			398746	05/13/22 23:55	LWM	TAL PIT
	Instrument ID: CHICS2100B									
Leach	Leach	1315			335.0 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	EPA 9040C		1			398891	05/12/22 07:57	MTW	TAL PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			335.0 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	SM 2510B		1			398893	05/12/22 08:02	MTW	TAL PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			335.0 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	SM 2580B		1			398892	05/12/22 07:57	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T03
Lab Sample ID: 180-136058-39

Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			328.5 g	1798 mL	398438	05/12/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	398775	05/14/22 18:45	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			328.5 g	1798 mL	398438	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	3520C			320 mL	250 uL	399513	05/20/22 13:09	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	400147	05/27/22 18:41	VVP	TAL PIT
	Instrument ID: CH733									
Leach	Leach	1315			334.4 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	3010A			25 mL	25 mL	399185	05/18/22 10:06	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399442	05/19/22 17:37	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			334.4 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	399241	05/18/22 14:54	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			399397	05/19/22 13:09	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			334.4 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 9040C		1			398904	05/13/22 07:48	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T04
Lab Sample ID: 180-136058-40

Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			327.8 g	1798 mL	398447	05/13/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	399149	05/18/22 17:28	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			327.8 g	1798 mL	398447	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	3520C			320 mL	250 uL	399879	05/25/22 07:34	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	400474	06/01/22 14:15	VVP	TAL PIT
	Instrument ID: CHMSD7									
Leach	Leach	1315			334.4 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	3010A			25 mL	25 mL	399185	05/18/22 10:06	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399442	05/19/22 17:00	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			334.4 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	400433	06/01/22 05:00	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			400599	06/01/22 17:01	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			334.4 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 9040C		1			400423	05/18/22 07:48	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: MB T01
Date Collected: 04/01/22 00:00
Date Received: 05/07/22 09:00

Lab Sample ID: 180-136058-46
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			1.0 g	1798 mL	398249	05/11/22 07:30	LWM	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	398503	05/12/22 11:59	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			1.0 g	1798 mL	398249	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	3520C			320 mL	250 uL	399252	05/18/22 15:46	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	399668	05/23/22 22:51	VVP	TAL PIT
	Instrument ID: CH722									
Leach	Leach	1315			1.0 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	3010A			50 mL	50 mL	399060	05/17/22 10:47	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399305	05/18/22 16:59	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			1.0 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	399241	05/18/22 14:54	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			399397	05/19/22 13:00	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			1.0 g	1798 mL	398247	05/11/22 07:30	LWM	TAL PIT
Leach	Analysis	EPA 9040C		1			398881	05/11/22 09:54	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: MB T02
Date Collected: 04/01/22 00:00
Date Received: 05/07/22 09:00

Lab Sample ID: 180-136058-47
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			1.0 g	1798 mL	398263	05/11/22 09:30	LWM	TAL PIT
Leach	Prep	3510C			1000 mL	1.0 mL	398549	05/12/22 09:45	CBY	TAL PIT
Leach	Analysis	EPA 8081B LL		1			399034	05/18/22 02:53	DFE	TAL PIT
	Instrument ID: CHGC15									
Leach	Leach	1315			1.0 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	EPA 9056A		1			398746	05/14/22 00:25	LWM	TAL PIT
	Instrument ID: CHICS2100B									
Leach	Leach	1315			1.0 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	EPA 9040C		1			398891	05/12/22 08:00	MTW	TAL PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			1.0 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	SM 2510B		1			398893	05/12/22 08:05	MTW	TAL PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			1.0 g	1798 mL	398257	05/11/22 09:30	LWM	TAL PIT
Leach	Analysis	SM 2580B		1			398892	05/12/22 08:00	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: MB T03
Date Collected: 04/01/22 00:00
Date Received: 05/07/22 09:00

Lab Sample ID: 180-136058-48
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			1.0 g	1798 mL	398438	05/12/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	398775	05/14/22 13:58	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			1.0 g	1798 mL	398438	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	3520C			320 mL	250 uL	399513	05/20/22 13:09	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	400147	05/27/22 19:02	VVP	TAL PIT
	Instrument ID: CH733									
Leach	Leach	1315			1.0 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	3010A			25 mL	25 mL	399185	05/18/22 10:06	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399442	05/19/22 17:42	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			1.0 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	399241	05/18/22 14:54	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			399397	05/19/22 13:10	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			1.0 g	1798 mL	398432	05/12/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 9040C		1			398904	05/13/22 07:51	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: MB T04
Date Collected: 04/01/22 00:00
Date Received: 05/07/22 09:00

Lab Sample ID: 180-136058-49
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			1.0 g	1798 mL	398447	05/13/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	399149	05/18/22 12:09	C1K	TAL PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			1.0 g	1798 mL	398447	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	3520C			330 mL	250 uL	399879	05/25/22 07:34	BJT	TAL PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	400474	06/01/22 14:37	VVP	TAL PIT
	Instrument ID: CHMSD7									
Leach	Leach	1315			1.0 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	3010A			25 mL	25 mL	399185	05/18/22 10:06	NAF	TAL PIT
Leach	Analysis	EPA 6010D		1			399442	05/19/22 17:05	RJG	TAL PIT
	Instrument ID: C									
Leach	Leach	1315			1.0 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Prep	7470A			50 mL	50 mL	400433	06/01/22 05:00	RJR	TAL PIT
Leach	Analysis	EPA 7470A		1			400599	06/01/22 17:02	RJR	TAL PIT
	Instrument ID: HGY									
Leach	Leach	1315			1.0 g	1798 mL	398446	05/13/22 07:30	MTW	TAL PIT
Leach	Analysis	EPA 9040C		1			400423	05/18/22 07:51	MTW	TAL PIT
	Instrument ID: NOEQUIP									

Laboratory References:
TAL PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Analyst References:

Lab: TAL PIT

- Batch Type: Leach
  - LWM = Larry Matko
  - MTW = Michael Wesoloski
- Batch Type: Prep
  - BJT = Bill Trout
  - CBY = Charles Yushinski
  - NAF = Nicholas Frankos
  - RJR = Ron Rosenbaum
- Batch Type: Analysis
  - C1K = Chamaiporn Krisorn
  - DFE = David Eppinger
  - LWM = Larry Matko
  - MTW = Michael Wesoloski
  - RJG = Rob Good
  - RJR = Ron Rosenbaum
  - VVP = Vincent Piccolino

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW CONTROL T01
Lab Sample ID: 180-136058-1
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/12/22 14:09	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/12/22 14:09	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/12/22 14:09	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/12/22 14:09	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/12/22 14:09	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/12/22 14:09	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/12/22 14:09	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/12/22 14:09	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			05/12/22 14:09	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/12/22 14:09	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/12/22 14:09	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/12/22 14:09	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			05/12/22 14:09	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/12/22 14:09	1
2-Hexanone	ND		5.0	4.2	ug/L			05/12/22 14:09	1
Acetone	ND		20	5.5	ug/L			05/12/22 14:09	1
Benzene	ND		5.0	2.0	ug/L			05/12/22 14:09	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/12/22 14:09	1
Bromoform	ND		5.0	2.6	ug/L			05/12/22 14:09	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/12/22 14:09	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/12/22 14:09	1
Chlorobenzene	ND		5.0	1.6	ug/L			05/12/22 14:09	1
Chloroethane	ND		5.0	2.6	ug/L			05/12/22 14:09	1
Chloroform	ND		5.0	2.1	ug/L			05/12/22 14:09	1
cis-1,2-Dichloroethene	**2.3**	**J**	5.0	1.6	ug/L			05/12/22 14:09	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/12/22 14:09	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/12/22 14:09	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/12/22 14:09	1
Freon-11	ND		5.0	1.5	ug/L			05/12/22 14:09	1
Freon-113	ND		5.0	1.9	ug/L			05/12/22 14:09	1
Freon-12	ND		5.0	2.9	ug/L			05/12/22 14:09	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/12/22 14:09	1
Methyl bromide	ND		5.0	4.5	ug/L			05/12/22 14:09	1
Methyl chloride	ND		5.0	3.9	ug/L			05/12/22 14:09	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/12/22 14:09	1
Methylene Chloride	**5.3**		5.0	3.9	ug/L			05/12/22 14:09	1
Styrene	ND		5.0	1.3	ug/L			05/12/22 14:09	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/12/22 14:09	1
Toluene	ND		5.0	1.7	ug/L			05/12/22 14:09	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/12/22 14:09	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/12/22 14:09	1
Trichloroethene	ND		5.0	1.5	ug/L			05/12/22 14:09	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/12/22 14:09	1
Xylenes, Total	ND		10	4.3	ug/L			05/12/22 14:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*75*		*52 - 151*		*05/12/22 14:09*	*1*
4-Bromofluorobenzene (Surr)	*84*		*49 - 118*		*05/12/22 14:09*	*1*
Dibromofluoromethane (Surr)	*103*		*60 - 132*		*05/12/22 14:09*	*1*
Toluene-d8 (Surr)	*70*		*53 - 124*		*05/12/22 14:09*	*1*

Client Sample ID: TRW CONTROL T01
Lab Sample ID: 180-136058-1

Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.76	0.11	ug/L		05/18/22 15:46	05/23/22 20:58	1
1,4-Dichlorobenzene	ND		0.76	0.046	ug/L		05/18/22 15:46	05/23/22 20:58	1
2,2'-oxybis[1-chloropropane]	ND		0.14	0.044	ug/L		05/18/22 15:46	05/23/22 20:58	1
2,4-Dichlorophenol	ND		0.14	0.039	ug/L		05/18/22 15:46	05/23/22 20:58	1
2,4-Dimethylphenol	ND		0.76	0.13	ug/L		05/18/22 15:46	05/23/22 20:58	1
2,4-Dinitrophenol	ND		7.6	1.2	ug/L		05/18/22 15:46	05/23/22 20:58	1
2,4-Dinitrotoluene	ND		0.76	0.27	ug/L		05/18/22 15:46	05/23/22 20:58	1
2,6-Dinitrotoluene	ND		0.76	0.13	ug/L		05/18/22 15:46	05/23/22 20:58	1
2-Chloronaphthalene	ND		0.14	0.045	ug/L		05/18/22 15:46	05/23/22 20:58	1
2-Nitroaniline	ND		3.8	0.42	ug/L		05/18/22 15:46	05/23/22 20:58	1
3,3'-Dichlorobenzidine	ND		0.76	0.44	ug/L		05/18/22 15:46	05/23/22 20:58	1
3-Nitroaniline	ND		3.8	0.33	ug/L		05/18/22 15:46	05/23/22 20:58	1
p-Chloroaniline	ND		0.76	0.28	ug/L		05/18/22 15:46	05/23/22 20:58	1
p-Nitroaniline	ND		3.8	0.28	ug/L		05/18/22 15:46	05/23/22 20:58	1
Acenaphthene	ND		0.14	0.049	ug/L		05/18/22 15:46	05/23/22 20:58	1
Anthracene	ND		0.14	0.037	ug/L		05/18/22 15:46	05/23/22 20:58	1
Atrazine	ND		0.76	0.48	ug/L		05/18/22 15:46	05/23/22 20:58	1
Benzo[a]anthracene	ND		0.14	0.057	ug/L		05/18/22 15:46	05/23/22 20:58	1
Benzo[a]pyrene	ND		0.14	0.040	ug/L		05/18/22 15:46	05/23/22 20:58	1
Benzo[b]fluoranthene	ND		0.14	0.073	ug/L		05/18/22 15:46	05/23/22 20:58	1
Benzo[k]fluoranthene	ND		0.14	0.067	ug/L		05/18/22 15:46	05/23/22 20:58	1
Bis(2-chloroethoxy)methane	ND		0.76	0.12	ug/L		05/18/22 15:46	05/23/22 20:58	1
Dichloroethyl ether	ND		0.14	0.030	ug/L		05/18/22 15:46	05/23/22 20:58	1
Bis(2-ethylhexyl) phthalate	ND		7.6	4.7	ug/L		05/18/22 15:46	05/23/22 20:58	1
Benzyl butyl phthalate	ND		0.76	0.35	ug/L		05/18/22 15:46	05/23/22 20:58	1
Chrysene	ND		0.14	0.061	ug/L		05/18/22 15:46	05/23/22 20:58	1
Diethyl phthalate	ND		0.76	0.43	ug/L		05/18/22 15:46	05/23/22 20:58	1
Dimethyl phthalate	ND		0.76	0.15	ug/L		05/18/22 15:46	05/23/22 20:58	1
Dibutylphthalate	**2.3**		0.76	0.56	ug/L		05/18/22 15:46	05/23/22 20:58	1
Di-n-octyl phthalate	ND		0.76	0.52	ug/L		05/18/22 15:46	05/23/22 20:58	1
Fluoranthene	ND		0.14	0.045	ug/L		05/18/22 15:46	05/23/22 20:58	1
Fluorene	ND		0.14	0.052	ug/L		05/18/22 15:46	05/23/22 20:58	1
Hexachlorobutadiene	ND		0.14	0.052	ug/L		05/18/22 15:46	05/23/22 20:58	1
Hexachlorocyclopentadiene	ND		0.76	0.38	ug/L		05/18/22 15:46	05/23/22 20:58	1
Hexachloroethane	ND		0.76	0.10	ug/L		05/18/22 15:46	05/23/22 20:58	1
Indeno[1,2,3-cd]pyrene	ND		0.14	0.064	ug/L		05/18/22 15:46	05/23/22 20:58	1
Isophorone	ND		0.76	0.14	ug/L		05/18/22 15:46	05/23/22 20:58	1
Nitrobenzene	ND		1.5	0.38	ug/L		05/18/22 15:46	05/23/22 20:58	1
N-Nitrosodiphenylamine	ND		0.76	0.090	ug/L		05/18/22 15:46	05/23/22 20:58	1
Pentachlorophenol	ND		3.8	0.64	ug/L		05/18/22 15:46	05/23/22 20:58	1
Phenanthrene	**0.070**	**J**	0.14	0.042	ug/L		05/18/22 15:46	05/23/22 20:58	1
Phenol	ND		0.76	0.37	ug/L		05/18/22 15:46	05/23/22 20:58	1
Pyrene	ND		0.14	0.041	ug/L		05/18/22 15:46	05/23/22 20:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*64*		*23 - 128*	*05/18/22 15:46*	*05/23/22 20:58*	*1*
2-Fluorobiphenyl	*42*		*20 - 105*	*05/18/22 15:46*	*05/23/22 20:58*	*1*
2-Fluorophenol (Surr)	*36*		*20 - 105*	*05/18/22 15:46*	*05/23/22 20:58*	*1*
Nitrobenzene-d5 (Surr)	*43*		*20 - 107*	*05/18/22 15:46*	*05/23/22 20:58*	*1*
Phenol-d5 (Surr)	*35*		*20 - 106*	*05/18/22 15:46*	*05/23/22 20:58*	*1*

Client Sample ID: TRW CONTROL T01
Lab Sample ID: 180-136058-1
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*82*		*22 - 120*	*05/18/22 15:46*	*05/23/22 20:58*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.041	mg/L		05/17/22 10:47	05/18/22 16:09	1
Antimony	**0.013**		0.010	0.0062	mg/L		05/17/22 10:47	05/18/22 16:09	1
Arsenic	ND		0.010	0.0083	mg/L		05/17/22 10:47	05/18/22 16:09	1
Barium	**0.0070**	**J**	0.20	0.0063	mg/L		05/17/22 10:47	05/18/22 16:09	1
Beryllium	ND		0.0040	0.0015	mg/L		05/17/22 10:47	05/18/22 16:09	1
Cadmium	ND		0.0050	0.00030	mg/L		05/17/22 10:47	05/18/22 16:09	1
Calcium	**14**		5.0	0.32	mg/L		05/17/22 10:47	05/18/22 16:09	1
Chromium	ND		0.0050	0.0016	mg/L		05/17/22 10:47	05/18/22 16:09	1
Cobalt	ND		0.050	0.0019	mg/L		05/17/22 10:47	05/18/22 16:09	1
Copper	ND		0.025	0.0022	mg/L		05/17/22 10:47	05/18/22 16:09	1
Iron	**0.074**	**J**	0.10	0.072	mg/L		05/17/22 10:47	05/18/22 16:09	1
Lead	ND		0.010	0.0044	mg/L		05/17/22 10:47	05/18/22 16:09	1
Magnesium	**2.3**	**J**	5.0	0.26	mg/L		05/17/22 10:47	05/18/22 16:09	1
Manganese	**0.029**		0.015	0.0024	mg/L		05/17/22 10:47	05/18/22 16:09	1
Nickel	ND		0.040	0.0019	mg/L		05/17/22 10:47	05/18/22 16:09	1
Potassium	ND		5.0	0.80	mg/L		05/17/22 10:47	05/18/22 16:09	1
Selenium	ND		0.010	0.0037	mg/L		05/17/22 10:47	05/18/22 16:09	1
Silver	ND		0.0050	0.00091	mg/L		05/17/22 10:47	05/18/22 16:09	1
Sodium	**1.7**	**J**	5.0	0.30	mg/L		05/17/22 10:47	05/18/22 16:09	1
Thallium	**0.0038**	**J**	0.020	0.0030	mg/L		05/17/22 10:47	05/18/22 16:09	1
Vanadium	ND		0.050	0.0053	mg/L		05/17/22 10:47	05/18/22 16:09	1
Zinc	**0.0032**	**J**	0.020	0.0026	mg/L		05/17/22 10:47	05/18/22 16:09	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/18/22 14:54	05/19/22 12:50	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.2**		0.1	0.1	SU			05/11/22 09:36	1

Client Sample ID: TRW CONTROL T02
Lab Sample ID: 180-136058-2
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.0017	0.00070	ug/L		05/12/22 09:45	05/18/22 01:20	1
4,4'-DDE	ND		0.0017	0.00039	ug/L		05/12/22 09:45	05/18/22 01:20	1
4,4'-DDT	ND		0.0017	0.00091	ug/L		05/12/22 09:45	05/18/22 01:20	1
alpha-BHC	ND		0.0017	0.00031	ug/L		05/12/22 09:45	05/18/22 01:20	1
alpha-Chlordane	ND		0.0017	0.00048	ug/L		05/12/22 09:45	05/18/22 01:20	1
beta-BHC	ND		0.0017	0.00048	ug/L		05/12/22 09:45	05/18/22 01:20	1
delta-BHC	ND		0.0017	0.00084	ug/L		05/12/22 09:45	05/18/22 01:20	1
Dieldrin	ND		0.0017	0.00036	ug/L		05/12/22 09:45	05/18/22 01:20	1
Endrin aldehyde	ND		0.0017	0.00068	ug/L		05/12/22 09:45	05/18/22 01:20	1

Client Sample ID: TRW CONTROL T02
Lab Sample ID: 180-136058-2
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endrin ketone	ND		0.0017	0.00052	ug/L		05/12/22 09:45	05/18/22 01:20	1
gamma-BHC (Lindane)	ND		0.0017	0.00039	ug/L		05/12/22 09:45	05/18/22 01:20	1
gamma-Chlordane	ND		0.0017	0.00054	ug/L		05/12/22 09:45	05/18/22 01:20	1
Heptachlor	ND		0.0017	0.00059	ug/L		05/12/22 09:45	05/18/22 01:20	1
Heptachlor epoxide	ND		0.0017	0.00045	ug/L		05/12/22 09:45	05/18/22 01:20	1
Hexachlorobenzene	ND		0.0017	0.0012	ug/L		05/12/22 09:45	05/18/22 01:20	1
Toxaphene	ND		0.13	0.065	ug/L		05/12/22 09:45	05/18/22 01:20	1
Endosulfan II	ND		0.0017	0.00042	ug/L		05/12/22 09:45	05/18/22 01:20	1
Methoxychlor	ND		0.0017	0.0010	ug/L		05/12/22 09:45	05/18/22 01:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*79*		*46 - 114*	*05/12/22 09:45*	*05/18/22 01:20*	*1*
DCB Decachlorobiphenyl (Surr)	*89*		*46 - 114*	*05/12/22 09:45*	*05/18/22 01:20*	*1*
Tetrachloro-m-xylene	*99*		*39 - 119*	*05/12/22 09:45*	*05/18/22 01:20*	*1*
Tetrachloro-m-xylene	*83*		*39 - 119*	*05/12/22 09:45*	*05/18/22 01:20*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**37**		1.0	0.76	mg/L			05/13/22 21:11	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.3**		0.1	0.1	SU			05/12/22 07:43	1
Specific Conductance	**110**		1.0	1.0	umhos/cm			05/12/22 07:46	1
Oxidation Reduction Potential	**370**		10	10	millivolts			05/12/22 07:43	1

Client Sample ID: TRW CONTROL T03
Lab Sample ID: 180-136058-3
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/14/22 20:29	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/14/22 20:29	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/14/22 20:29	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/14/22 20:29	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/14/22 20:29	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/14/22 20:29	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/14/22 20:29	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/14/22 20:29	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			05/14/22 20:29	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/14/22 20:29	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/14/22 20:29	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/14/22 20:29	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			05/14/22 20:29	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/14/22 20:29	1
2-Hexanone	ND		5.0	4.2	ug/L			05/14/22 20:29	1
Acetone	ND		20	5.5	ug/L			05/14/22 20:29	1
Benzene	ND		5.0	2.0	ug/L			05/14/22 20:29	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/14/22 20:29	1
Bromoform	ND		5.0	2.6	ug/L			05/14/22 20:29	1

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW CONTROL T03
Lab Sample ID: 180-136058-3
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0	3.0	ug/L			05/14/22 20:29	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/14/22 20:29	1
Chlorobenzene	**1.9**	**J**	5.0	1.6	ug/L			05/14/22 20:29	1
Chloroethane	ND		5.0	2.6	ug/L			05/14/22 20:29	1
Chloroform	ND		5.0	2.1	ug/L			05/14/22 20:29	1
cis-1,2-Dichloroethene	**4.2**	**J**	5.0	1.6	ug/L			05/14/22 20:29	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/14/22 20:29	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/14/22 20:29	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/14/22 20:29	1
Freon-11	ND		5.0	1.5	ug/L			05/14/22 20:29	1
Freon-113	ND		5.0	1.9	ug/L			05/14/22 20:29	1
Freon-12	ND		5.0	2.9	ug/L			05/14/22 20:29	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/14/22 20:29	1
Methyl bromide	ND		5.0	4.5	ug/L			05/14/22 20:29	1
Methyl chloride	ND		5.0	3.9	ug/L			05/14/22 20:29	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/14/22 20:29	1
Methylene Chloride	**11**		5.0	3.9	ug/L			05/14/22 20:29	1
Styrene	ND		5.0	1.3	ug/L			05/14/22 20:29	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/14/22 20:29	1
Toluene	ND		5.0	1.7	ug/L			05/14/22 20:29	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/14/22 20:29	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/14/22 20:29	1
Trichloroethene	ND		5.0	1.5	ug/L			05/14/22 20:29	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/14/22 20:29	1
Xylenes, Total	ND		10	4.3	ug/L			05/14/22 20:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*74*		*52 - 151*		*05/14/22 20:29*	*1*
4-Bromofluorobenzene (Surr)	*65*		*49 - 118*		*05/14/22 20:29*	*1*
Dibromofluoromethane (Surr)	*97*		*60 - 132*		*05/14/22 20:29*	*1*
Toluene-d8 (Surr)	*77*		*53 - 124*		*05/14/22 20:29*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.76	0.11	ug/L		05/20/22 13:08	05/27/22 17:14	1
1,4-Dichlorobenzene	**0.069**	**J**	0.76	0.046	ug/L		05/20/22 13:08	05/27/22 17:14	1
2,2'-oxybis[1-chloropropane]	ND		0.14	0.044	ug/L		05/20/22 13:08	05/27/22 17:14	1
2,4-Dichlorophenol	ND		0.14	0.039	ug/L		05/20/22 13:08	05/27/22 17:14	1
2,4-Dimethylphenol	ND		0.76	0.13	ug/L		05/20/22 13:08	05/27/22 17:14	1
2,4-Dinitrophenol	ND		7.6	1.2	ug/L		05/20/22 13:08	05/27/22 17:14	1
2,4-Dinitrotoluene	ND		0.76	0.27	ug/L		05/20/22 13:08	05/27/22 17:14	1
2,6-Dinitrotoluene	ND		0.76	0.13	ug/L		05/20/22 13:08	05/27/22 17:14	1
2-Chloronaphthalene	ND		0.14	0.045	ug/L		05/20/22 13:08	05/27/22 17:14	1
2-Nitroaniline	ND		3.8	0.42	ug/L		05/20/22 13:08	05/27/22 17:14	1
3,3'-Dichlorobenzidine	ND		0.76	0.44	ug/L		05/20/22 13:08	05/27/22 17:14	1
3-Nitroaniline	ND		3.8	0.33	ug/L		05/20/22 13:08	05/27/22 17:14	1
p-Chloroaniline	ND		0.76	0.28	ug/L		05/20/22 13:08	05/27/22 17:14	1
p-Nitroaniline	ND		3.8	0.28	ug/L		05/20/22 13:08	05/27/22 17:14	1
Acenaphthene	**0.050**	**J**	0.14	0.049	ug/L		05/20/22 13:08	05/27/22 17:14	1
Anthracene	**0.054**	**J**	0.14	0.037	ug/L		05/20/22 13:08	05/27/22 17:14	1

Client Sample ID: TRW CONTROL T03
Lab Sample ID: 180-136058-3

Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Atrazine	ND		0.76	0.48	ug/L		05/20/22 13:08	05/27/22 17:14	1
Benzo[a]anthracene	ND		0.14	0.057	ug/L		05/20/22 13:08	05/27/22 17:14	1
Benzo[a]pyrene	ND		0.14	0.040	ug/L		05/20/22 13:08	05/27/22 17:14	1
Benzo[b]fluoranthene	ND		0.14	0.073	ug/L		05/20/22 13:08	05/27/22 17:14	1
Benzo[k]fluoranthene	ND		0.14	0.067	ug/L		05/20/22 13:08	05/27/22 17:14	1
Bis(2-chloroethoxy)methane	ND		0.76	0.12	ug/L		05/20/22 13:08	05/27/22 17:14	1
Dichloroethyl ether	ND		0.14	0.030	ug/L		05/20/22 13:08	05/27/22 17:14	1
Bis(2-ethylhexyl) phthalate	ND		7.6	4.7	ug/L		05/20/22 13:08	05/27/22 17:14	1
Benzyl butyl phthalate	ND		0.76	0.35	ug/L		05/20/22 13:08	05/27/22 17:14	1
Chrysene	ND		0.14	0.061	ug/L		05/20/22 13:08	05/27/22 17:14	1
Diethyl phthalate	**0.68**	**J**	0.76	0.43	ug/L		05/20/22 13:08	05/27/22 17:14	1
Dimethyl phthalate	**0.17**	**J**	0.76	0.15	ug/L		05/20/22 13:08	05/27/22 17:14	1
Dibutylphthalate	**0.63**	**J**	0.76	0.56	ug/L		05/20/22 13:08	05/27/22 17:14	1
Di-n-octyl phthalate	ND		0.76	0.52	ug/L		05/20/22 13:08	05/27/22 17:14	1
Fluoranthene	**0.050**	**J**	0.14	0.045	ug/L		05/20/22 13:08	05/27/22 17:14	1
Fluorene	ND		0.14	0.052	ug/L		05/20/22 13:08	05/27/22 17:14	1
Hexachlorobutadiene	ND		0.14	0.052	ug/L		05/20/22 13:08	05/27/22 17:14	1
Hexachlorocyclopentadiene	ND		0.76	0.38	ug/L		05/20/22 13:08	05/27/22 17:14	1
Hexachloroethane	ND		0.76	0.10	ug/L		05/20/22 13:08	05/27/22 17:14	1
Indeno[1,2,3-cd]pyrene	ND		0.14	0.064	ug/L		05/20/22 13:08	05/27/22 17:14	1
Isophorone	ND		0.76	0.14	ug/L		05/20/22 13:08	05/27/22 17:14	1
Nitrobenzene	ND		1.5	0.38	ug/L		05/20/22 13:08	05/27/22 17:14	1
N-Nitrosodiphenylamine	ND		0.76	0.090	ug/L		05/20/22 13:08	05/27/22 17:14	1
Pentachlorophenol	ND		3.8	0.64	ug/L		05/20/22 13:08	05/27/22 17:14	1
Phenanthrene	ND		0.14	0.042	ug/L		05/20/22 13:08	05/27/22 17:14	1
Phenol	ND		0.76	0.37	ug/L		05/20/22 13:08	05/27/22 17:14	1
Pyrene	ND		0.14	0.041	ug/L		05/20/22 13:08	05/27/22 17:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*80*		*23 - 128*	*05/20/22 13:08*	*05/27/22 17:14*	*1*
2-Fluorobiphenyl	*62*		*20 - 105*	*05/20/22 13:08*	*05/27/22 17:14*	*1*
2-Fluorophenol (Surr)	*63*		*20 - 105*	*05/20/22 13:08*	*05/27/22 17:14*	*1*
Nitrobenzene-d5 (Surr)	*70*		*20 - 107*	*05/20/22 13:08*	*05/27/22 17:14*	*1*
Phenol-d5 (Surr)	*64*		*20 - 106*	*05/20/22 13:08*	*05/27/22 17:14*	*1*
Terphenyl-d14 (Surr)	*78*		*22 - 120*	*05/20/22 13:08*	*05/27/22 17:14*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.041	mg/L		05/18/22 10:06	05/19/22 17:09	1
Antimony	**0.033**		0.010	0.0062	mg/L		05/18/22 10:06	05/19/22 17:09	1
Arsenic	ND		0.010	0.0083	mg/L		05/18/22 10:06	05/19/22 17:09	1
Barium	**0.023**	**J**	0.20	0.0063	mg/L		05/18/22 10:06	05/19/22 17:09	1
Beryllium	ND		0.0040	0.0015	mg/L		05/18/22 10:06	05/19/22 17:09	1
Cadmium	ND		0.0050	0.00030	mg/L		05/18/22 10:06	05/19/22 17:09	1
Calcium	**19**		5.0	0.32	mg/L		05/18/22 10:06	05/19/22 17:09	1
Chromium	ND		0.0050	0.0016	mg/L		05/18/22 10:06	05/19/22 17:09	1
Cobalt	ND		0.050	0.0019	mg/L		05/18/22 10:06	05/19/22 17:09	1
Copper	ND		0.025	0.0022	mg/L		05/18/22 10:06	05/19/22 17:09	1
Iron	ND		0.10	0.072	mg/L		05/18/22 10:06	05/19/22 17:09	1
Lead	ND		0.010	0.0044	mg/L		05/18/22 10:06	05/19/22 17:09	1

Client Sample ID: TRW CONTROL T03
Lab Sample ID: 180-136058-3
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 6010D - Metals (ICP) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	**2.8**	**J**	5.0	0.26	mg/L		05/18/22 10:06	05/19/22 17:09	1
Manganese	**0.048**		0.015	0.0024	mg/L		05/18/22 10:06	05/19/22 17:09	1
Nickel	ND		0.040	0.0019	mg/L		05/18/22 10:06	05/19/22 17:09	1
Potassium	ND		5.0	0.80	mg/L		05/18/22 10:06	05/19/22 17:09	1
Selenium	ND		0.010	0.0037	mg/L		05/18/22 10:06	05/19/22 17:09	1
Silver	ND		0.0050	0.00091	mg/L		05/18/22 10:06	05/19/22 17:09	1
Sodium	**1.5**	**J**	5.0	0.30	mg/L		05/18/22 10:06	05/19/22 17:09	1
Thallium	ND		0.020	0.0030	mg/L		05/18/22 10:06	05/19/22 17:09	1
Vanadium	ND		0.050	0.0053	mg/L		05/18/22 10:06	05/19/22 17:09	1
Zinc	ND		0.020	0.0026	mg/L		05/18/22 10:06	05/19/22 17:09	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/18/22 14:54	05/19/22 13:01	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.7**		0.1	0.1	SU			05/13/22 07:33	1

Client Sample ID: TRW CONTROL T04
Lab Sample ID: 180-136058-4
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/18/22 18:20	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/18/22 18:20	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/18/22 18:20	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/18/22 18:20	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/18/22 18:20	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/18/22 18:20	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/18/22 18:20	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/18/22 18:20	1
1,2-Dichlorobenzene	ND	*-	5.0	2.0	ug/L			05/18/22 18:20	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/18/22 18:20	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/18/22 18:20	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/18/22 18:20	1
1,4-Dichlorobenzene	ND	*-	5.0	1.0	ug/L			05/18/22 18:20	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/18/22 18:20	1
2-Hexanone	ND		5.0	4.2	ug/L			05/18/22 18:20	1
Acetone	ND	*-	20	5.5	ug/L			05/18/22 18:20	1
Benzene	ND		5.0	2.0	ug/L			05/18/22 18:20	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/18/22 18:20	1
Bromoform	ND		5.0	2.6	ug/L			05/18/22 18:20	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/18/22 18:20	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/18/22 18:20	1
Chlorobenzene	ND		5.0	1.6	ug/L			05/18/22 18:20	1
Chloroethane	ND		5.0	2.6	ug/L			05/18/22 18:20	1
Chloroform	ND		5.0	2.1	ug/L			05/18/22 18:20	1
cis-1,2-Dichloroethene	**21**		5.0	1.6	ug/L			05/18/22 18:20	1

Client Sample ID: TRW CONTROL T04
Lab Sample ID: 180-136058-4
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/18/22 18:20	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/18/22 18:20	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/18/22 18:20	1
Freon-11	ND		5.0	1.5	ug/L			05/18/22 18:20	1
Freon-113	ND		5.0	1.9	ug/L			05/18/22 18:20	1
Freon-12	ND		5.0	2.9	ug/L			05/18/22 18:20	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/18/22 18:20	1
Methyl bromide	ND		5.0	4.5	ug/L			05/18/22 18:20	1
Methyl chloride	ND		5.0	3.9	ug/L			05/18/22 18:20	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/18/22 18:20	1
Methylene Chloride	**12**		5.0	3.9	ug/L			05/18/22 18:20	1
Styrene	ND		5.0	1.3	ug/L			05/18/22 18:20	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/18/22 18:20	1
Toluene	ND		5.0	1.7	ug/L			05/18/22 18:20	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/18/22 18:20	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/18/22 18:20	1
Trichloroethene	ND		5.0	1.5	ug/L			05/18/22 18:20	1
Vinyl chloride	**6.1**		5.0	3.7	ug/L			05/18/22 18:20	1
Xylenes, Total	ND		10	4.3	ug/L			05/18/22 18:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*70*		*52 - 151*		*05/18/22 18:20*	*1*
4-Bromofluorobenzene (Surr)	*79*		*49 - 118*		*05/18/22 18:20*	*1*
Dibromofluoromethane (Surr)	*89*		*60 - 132*		*05/18/22 18:20*	*1*
Toluene-d8 (Surr)	*70*		*53 - 124*		*05/18/22 18:20*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.78	0.11	ug/L		05/25/22 07:32	06/01/22 12:48	1
1,4-Dichlorobenzene	**0.21**	**J**	0.78	0.048	ug/L		05/25/22 07:32	06/01/22 12:48	1
2,2'-oxybis[1-chloropropane]	ND		0.15	0.045	ug/L		05/25/22 07:32	06/01/22 12:48	1
2,4-Dichlorophenol	ND		0.15	0.040	ug/L		05/25/22 07:32	06/01/22 12:48	1
2,4-Dimethylphenol	ND		0.78	0.13	ug/L		05/25/22 07:32	06/01/22 12:48	1
2,4-Dinitrophenol	ND		7.8	1.2	ug/L		05/25/22 07:32	06/01/22 12:48	1
2,4-Dinitrotoluene	ND		0.78	0.28	ug/L		05/25/22 07:32	06/01/22 12:48	1
2,6-Dinitrotoluene	ND		0.78	0.14	ug/L		05/25/22 07:32	06/01/22 12:48	1
2-Chloronaphthalene	ND		0.15	0.046	ug/L		05/25/22 07:32	06/01/22 12:48	1
2-Nitroaniline	ND		3.9	0.43	ug/L		05/25/22 07:32	06/01/22 12:48	1
3,3'-Dichlorobenzidine	ND		0.78	0.46	ug/L		05/25/22 07:32	06/01/22 12:48	1
3-Nitroaniline	ND		3.9	0.34	ug/L		05/25/22 07:32	06/01/22 12:48	1
p-Chloroaniline	ND		0.78	0.29	ug/L		05/25/22 07:32	06/01/22 12:48	1
p-Nitroaniline	ND		3.9	0.28	ug/L		05/25/22 07:32	06/01/22 12:48	1
Acenaphthene	**0.067**	**J**	0.15	0.051	ug/L		05/25/22 07:32	06/01/22 12:48	1
Anthracene	**0.092**	**J**	0.15	0.038	ug/L		05/25/22 07:32	06/01/22 12:48	1
Atrazine	ND		0.78	0.49	ug/L		05/25/22 07:32	06/01/22 12:48	1
Benzo[a]anthracene	ND		0.15	0.059	ug/L		05/25/22 07:32	06/01/22 12:48	1
Benzo[a]pyrene	ND		0.15	0.041	ug/L		05/25/22 07:32	06/01/22 12:48	1
Benzo[b]fluoranthene	ND		0.15	0.076	ug/L		05/25/22 07:32	06/01/22 12:48	1
Benzo[k]fluoranthene	ND		0.15	0.069	ug/L		05/25/22 07:32	06/01/22 12:48	1
Bis(2-chloroethoxy)methane	ND		0.78	0.12	ug/L		05/25/22 07:32	06/01/22 12:48	1

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW CONTROL T04
Lab Sample ID: 180-136058-4
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloroethyl ether	ND		0.15	0.031	ug/L		05/25/22 07:32	06/01/22 12:48	1
Bis(2-ethylhexyl) phthalate	ND		7.8	4.9	ug/L		05/25/22 07:32	06/01/22 12:48	1
Benzyl butyl phthalate	**0.84**		0.78	0.36	ug/L		05/25/22 07:32	06/01/22 12:48	1
Chrysene	ND		0.15	0.063	ug/L		05/25/22 07:32	06/01/22 12:48	1
Diethyl phthalate	**1.1**		0.78	0.44	ug/L		05/25/22 07:32	06/01/22 12:48	1
Dimethyl phthalate	ND		0.78	0.16	ug/L		05/25/22 07:32	06/01/22 12:48	1
Dibutylphthalate	**1.4**		0.78	0.58	ug/L		05/25/22 07:32	06/01/22 12:48	1
Di-n-octyl phthalate	ND		0.78	0.54	ug/L		05/25/22 07:32	06/01/22 12:48	1
Fluoranthene	**0.070**	**J**	0.15	0.047	ug/L		05/25/22 07:32	06/01/22 12:48	1
Fluorene	**0.11**	**J**	0.15	0.054	ug/L		05/25/22 07:32	06/01/22 12:48	1
Hexachlorobutadiene	ND		0.15	0.054	ug/L		05/25/22 07:32	06/01/22 12:48	1
Hexachlorocyclopentadiene	ND		0.78	0.39	ug/L		05/25/22 07:32	06/01/22 12:48	1
Hexachloroethane	ND		0.78	0.10	ug/L		05/25/22 07:32	06/01/22 12:48	1
Indeno[1,2,3-cd]pyrene	ND		0.15	0.066	ug/L		05/25/22 07:32	06/01/22 12:48	1
Isophorone	ND		0.78	0.15	ug/L		05/25/22 07:32	06/01/22 12:48	1
Nitrobenzene	ND		1.6	0.39	ug/L		05/25/22 07:32	06/01/22 12:48	1
N-Nitrosodiphenylamine	ND		0.78	0.093	ug/L		05/25/22 07:32	06/01/22 12:48	1
Pentachlorophenol	ND		3.9	0.66	ug/L		05/25/22 07:32	06/01/22 12:48	1
Phenanthrene	**0.15**		0.15	0.043	ug/L		05/25/22 07:32	06/01/22 12:48	1
Phenol	ND		0.78	0.38	ug/L		05/25/22 07:32	06/01/22 12:48	1
Pyrene	**0.044**	**J**	0.15	0.042	ug/L		05/25/22 07:32	06/01/22 12:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*64*		*23 - 128*	*05/25/22 07:32*	*06/01/22 12:48*	*1*
2-Fluorobiphenyl	*60*		*20 - 105*	*05/25/22 07:32*	*06/01/22 12:48*	*1*
2-Fluorophenol (Surr)	*63*		*20 - 105*	*05/25/22 07:32*	*06/01/22 12:48*	*1*
Nitrobenzene-d5 (Surr)	*64*		*20 - 107*	*05/25/22 07:32*	*06/01/22 12:48*	*1*
Phenol-d5 (Surr)	*62*		*20 - 106*	*05/25/22 07:32*	*06/01/22 12:48*	*1*
Terphenyl-d14 (Surr)	*76*		*22 - 120*	*05/25/22 07:32*	*06/01/22 12:48*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.041	mg/L		05/18/22 10:06	05/19/22 16:19	1
Antimony	**0.039**		0.010	0.0062	mg/L		05/18/22 10:06	05/19/22 16:19	1
Arsenic	ND		0.010	0.0083	mg/L		05/18/22 10:06	05/19/22 16:19	1
Barium	**0.054**	**J**	0.20	0.0063	mg/L		05/18/22 10:06	05/19/22 16:19	1
Beryllium	ND		0.0040	0.0015	mg/L		05/18/22 10:06	05/19/22 16:19	1
Cadmium	ND		0.0050	0.00030	mg/L		05/18/22 10:06	05/19/22 16:19	1
Calcium	**46**		5.0	0.32	mg/L		05/18/22 10:06	05/19/22 16:19	1
Chromium	ND		0.0050	0.0016	mg/L		05/18/22 10:06	05/19/22 16:19	1
Cobalt	ND		0.050	0.0019	mg/L		05/18/22 10:06	05/19/22 16:19	1
Copper	ND		0.025	0.0022	mg/L		05/18/22 10:06	05/19/22 16:19	1
Iron	ND		0.10	0.072	mg/L		05/18/22 10:06	05/19/22 16:19	1
Lead	ND		0.010	0.0044	mg/L		05/18/22 10:06	05/19/22 16:19	1
Magnesium	**7.1**		5.0	0.26	mg/L		05/18/22 10:06	05/19/22 16:19	1
Manganese	**0.18**		0.015	0.0024	mg/L		05/18/22 10:06	05/19/22 16:19	1
Nickel	ND		0.040	0.0019	mg/L		05/18/22 10:06	05/19/22 16:19	1
Potassium	**1.0**	**J**	5.0	0.80	mg/L		05/18/22 10:06	05/19/22 16:19	1
Selenium	ND		0.010	0.0037	mg/L		05/18/22 10:06	05/19/22 16:19	1
Silver	ND		0.0050	0.00091	mg/L		05/18/22 10:06	05/19/22 16:19	1

Client Sample ID: TRW CONTROL T04
Lab Sample ID: 180-136058-4
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 6010D - Metals (ICP) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**3.1**	**J**	5.0	0.30	mg/L		05/18/22 10:06	05/19/22 16:19	1
Thallium	ND		0.020	0.0030	mg/L		05/18/22 10:06	05/19/22 16:19	1
Vanadium	ND		0.050	0.0053	mg/L		05/18/22 10:06	05/19/22 16:19	1
Zinc	**0.0048**	**J**	0.020	0.0026	mg/L		05/18/22 10:06	05/19/22 16:19	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/01/22 05:00	06/01/22 16:53	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.7**		0.1	0.1	SU			05/18/22 07:33	1

Client Sample ID: TRW 20% PC T01
Lab Sample ID: 180-136058-10
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/12/22 13:43	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/12/22 13:43	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/12/22 13:43	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/12/22 13:43	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/12/22 13:43	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/12/22 13:43	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/12/22 13:43	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/12/22 13:43	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			05/12/22 13:43	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/12/22 13:43	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/12/22 13:43	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/12/22 13:43	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			05/12/22 13:43	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/12/22 13:43	1
2-Hexanone	ND		5.0	4.2	ug/L			05/12/22 13:43	1
Acetone	ND		20	5.5	ug/L			05/12/22 13:43	1
Benzene	ND		5.0	2.0	ug/L			05/12/22 13:43	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/12/22 13:43	1
Bromoform	ND		5.0	2.6	ug/L			05/12/22 13:43	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/12/22 13:43	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/12/22 13:43	1
Chlorobenzene	ND		5.0	1.6	ug/L			05/12/22 13:43	1
Chloroethane	ND		5.0	2.6	ug/L			05/12/22 13:43	1
Chloroform	ND		5.0	2.1	ug/L			05/12/22 13:43	1
cis-1,2-Dichloroethene	**3.6**	**J**	5.0	1.6	ug/L			05/12/22 13:43	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/12/22 13:43	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/12/22 13:43	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/12/22 13:43	1
Freon-11	ND		5.0	1.5	ug/L			05/12/22 13:43	1
Freon-113	ND		5.0	1.9	ug/L			05/12/22 13:43	1
Freon-12	ND		5.0	2.9	ug/L			05/12/22 13:43	1

Client Sample ID: TRW 20% PC T01
Lab Sample ID: 180-136058-10
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/12/22 13:43	1
Methyl bromide	ND		5.0	4.5	ug/L			05/12/22 13:43	1
Methyl chloride	ND		5.0	3.9	ug/L			05/12/22 13:43	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/12/22 13:43	1
Methylene Chloride	**5.3**		5.0	3.9	ug/L			05/12/22 13:43	1
Styrene	ND		5.0	1.3	ug/L			05/12/22 13:43	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/12/22 13:43	1
Toluene	ND		5.0	1.7	ug/L			05/12/22 13:43	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/12/22 13:43	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/12/22 13:43	1
Trichloroethene	ND		5.0	1.5	ug/L			05/12/22 13:43	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/12/22 13:43	1
Xylenes, Total	ND		10	4.3	ug/L			05/12/22 13:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*74*		*52 - 151*		*05/12/22 13:43*	*1*
4-Bromofluorobenzene (Surr)	*76*		*49 - 118*		*05/12/22 13:43*	*1*
Dibromofluoromethane (Surr)	*93*		*60 - 132*		*05/12/22 13:43*	*1*
Toluene-d8 (Surr)	*77*		*53 - 124*		*05/12/22 13:43*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.78	0.11	ug/L		05/18/22 15:46	05/23/22 21:21	1
1,4-Dichlorobenzene	ND		0.78	0.048	ug/L		05/18/22 15:46	05/23/22 21:21	1
2,2'-oxybis[1-chloropropane]	ND		0.15	0.045	ug/L		05/18/22 15:46	05/23/22 21:21	1
2,4-Dichlorophenol	ND		0.15	0.040	ug/L		05/18/22 15:46	05/23/22 21:21	1
2,4-Dimethylphenol	**0.31**	**J**	0.78	0.13	ug/L		05/18/22 15:46	05/23/22 21:21	1
2,4-Dinitrophenol	ND		7.8	1.2	ug/L		05/18/22 15:46	05/23/22 21:21	1
2,4-Dinitrotoluene	ND		0.78	0.28	ug/L		05/18/22 15:46	05/23/22 21:21	1
2,6-Dinitrotoluene	ND		0.78	0.14	ug/L		05/18/22 15:46	05/23/22 21:21	1
2-Chloronaphthalene	**0.36**		0.15	0.046	ug/L		05/18/22 15:46	05/23/22 21:21	1
2-Nitroaniline	ND		3.9	0.43	ug/L		05/18/22 15:46	05/23/22 21:21	1
3,3'-Dichlorobenzidine	ND		0.78	0.46	ug/L		05/18/22 15:46	05/23/22 21:21	1
3-Nitroaniline	ND		3.9	0.34	ug/L		05/18/22 15:46	05/23/22 21:21	1
p-Chloroaniline	ND		0.78	0.29	ug/L		05/18/22 15:46	05/23/22 21:21	1
p-Nitroaniline	ND		3.9	0.28	ug/L		05/18/22 15:46	05/23/22 21:21	1
Acenaphthene	ND		0.15	0.051	ug/L		05/18/22 15:46	05/23/22 21:21	1
Anthracene	ND		0.15	0.038	ug/L		05/18/22 15:46	05/23/22 21:21	1
Atrazine	ND		0.78	0.49	ug/L		05/18/22 15:46	05/23/22 21:21	1
Benzo[a]anthracene	ND		0.15	0.059	ug/L		05/18/22 15:46	05/23/22 21:21	1
Benzo[a]pyrene	ND		0.15	0.041	ug/L		05/18/22 15:46	05/23/22 21:21	1
Benzo[b]fluoranthene	ND		0.15	0.076	ug/L		05/18/22 15:46	05/23/22 21:21	1
Benzo[k]fluoranthene	ND		0.15	0.069	ug/L		05/18/22 15:46	05/23/22 21:21	1
Bis(2-chloroethoxy)methane	ND		0.78	0.12	ug/L		05/18/22 15:46	05/23/22 21:21	1
Dichloroethyl ether	ND		0.15	0.031	ug/L		05/18/22 15:46	05/23/22 21:21	1
Bis(2-ethylhexyl) phthalate	ND		7.8	4.9	ug/L		05/18/22 15:46	05/23/22 21:21	1
Benzyl butyl phthalate	ND		0.78	0.36	ug/L		05/18/22 15:46	05/23/22 21:21	1
Chrysene	ND		0.15	0.063	ug/L		05/18/22 15:46	05/23/22 21:21	1
Diethyl phthalate	ND		0.78	0.44	ug/L		05/18/22 15:46	05/23/22 21:21	1
Dimethyl phthalate	ND		0.78	0.16	ug/L		05/18/22 15:46	05/23/22 21:21	1

Client Sample ID: TRW 20% PC T01
Lab Sample ID: 180-136058-10

Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibutylphthalate	**5.0**		0.78	0.58	ug/L		05/18/22 15:46	05/23/22 21:21	1
Di-n-octyl phthalate	ND		0.78	0.54	ug/L		05/18/22 15:46	05/23/22 21:21	1
Fluoranthene	ND		0.15	0.047	ug/L		05/18/22 15:46	05/23/22 21:21	1
Fluorene	ND		0.15	0.054	ug/L		05/18/22 15:46	05/23/22 21:21	1
Hexachlorobutadiene	ND		0.15	0.054	ug/L		05/18/22 15:46	05/23/22 21:21	1
Hexachlorocyclopentadiene	ND		0.78	0.39	ug/L		05/18/22 15:46	05/23/22 21:21	1
Hexachloroethane	ND		0.78	0.10	ug/L		05/18/22 15:46	05/23/22 21:21	1
Indeno[1,2,3-cd]pyrene	ND		0.15	0.066	ug/L		05/18/22 15:46	05/23/22 21:21	1
Isophorone	ND		0.78	0.15	ug/L		05/18/22 15:46	05/23/22 21:21	1
Nitrobenzene	ND		1.6	0.39	ug/L		05/18/22 15:46	05/23/22 21:21	1
N-Nitrosodiphenylamine	ND		0.78	0.093	ug/L		05/18/22 15:46	05/23/22 21:21	1
Pentachlorophenol	ND		3.9	0.66	ug/L		05/18/22 15:46	05/23/22 21:21	1
Phenanthrene	**0.087**	**J**	0.15	0.043	ug/L		05/18/22 15:46	05/23/22 21:21	1
Phenol	**0.62**	**J**	0.78	0.38	ug/L		05/18/22 15:46	05/23/22 21:21	1
Pyrene	ND		0.15	0.042	ug/L		05/18/22 15:46	05/23/22 21:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*68*		*23 - 128*	*05/18/22 15:46*	*05/23/22 21:21*	*1*
2-Fluorobiphenyl	*48*		*20 - 105*	*05/18/22 15:46*	*05/23/22 21:21*	*1*
2-Fluorophenol (Surr)	*45*		*20 - 105*	*05/18/22 15:46*	*05/23/22 21:21*	*1*
Nitrobenzene-d5 (Surr)	*52*		*20 - 107*	*05/18/22 15:46*	*05/23/22 21:21*	*1*
Phenol-d5 (Surr)	*42*		*20 - 106*	*05/18/22 15:46*	*05/23/22 21:21*	*1*
Terphenyl-d14 (Surr)	*66*		*22 - 120*	*05/18/22 15:46*	*05/23/22 21:21*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.12**	**J**	0.20	0.041	mg/L		05/17/22 10:47	05/18/22 16:13	1
Antimony	**0.010**		0.010	0.0062	mg/L		05/17/22 10:47	05/18/22 16:13	1
Arsenic	ND		0.010	0.0083	mg/L		05/17/22 10:47	05/18/22 16:13	1
Barium	**0.088**	**J**	0.20	0.0063	mg/L		05/17/22 10:47	05/18/22 16:13	1
Beryllium	ND		0.0040	0.0015	mg/L		05/17/22 10:47	05/18/22 16:13	1
Cadmium	ND		0.0050	0.00030	mg/L		05/17/22 10:47	05/18/22 16:13	1
Calcium	**29**		5.0	0.32	mg/L		05/17/22 10:47	05/18/22 16:13	1
Chromium	ND		0.0050	0.0016	mg/L		05/17/22 10:47	05/18/22 16:13	1
Cobalt	ND		0.050	0.0019	mg/L		05/17/22 10:47	05/18/22 16:13	1
Copper	**0.013**	**J**	0.025	0.0022	mg/L		05/17/22 10:47	05/18/22 16:13	1
Iron	**0.073**	**J**	0.10	0.072	mg/L		05/17/22 10:47	05/18/22 16:13	1
Lead	ND		0.010	0.0044	mg/L		05/17/22 10:47	05/18/22 16:13	1
Magnesium	ND		5.0	0.26	mg/L		05/17/22 10:47	05/18/22 16:13	1
Manganese	**0.0036**	**J**	0.015	0.0024	mg/L		05/17/22 10:47	05/18/22 16:13	1
Nickel	**0.0053**	**J**	0.040	0.0019	mg/L		05/17/22 10:47	05/18/22 16:13	1
Potassium	**1.0**	**J**	5.0	0.80	mg/L		05/17/22 10:47	05/18/22 16:13	1
Selenium	ND		0.010	0.0037	mg/L		05/17/22 10:47	05/18/22 16:13	1
Silver	ND		0.0050	0.00091	mg/L		05/17/22 10:47	05/18/22 16:13	1
Sodium	**2.0**	**J**	5.0	0.30	mg/L		05/17/22 10:47	05/18/22 16:13	1
Thallium	ND		0.020	0.0030	mg/L		05/17/22 10:47	05/18/22 16:13	1
Vanadium	ND		0.050	0.0053	mg/L		05/17/22 10:47	05/18/22 16:13	1
Zinc	**0.054**		0.020	0.0026	mg/L		05/17/22 10:47	05/18/22 16:13	1

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC T01
Lab Sample ID: 180-136058-10
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/18/22 14:54	05/19/22 12:51	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**10.9**		0.1	0.1	SU			05/11/22 09:42	1

Client Sample ID: TRW 20% PC T02
Lab Sample ID: 180-136058-11
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	**0.0094**		0.0017	0.00068	ug/L		05/12/22 09:45	05/18/22 01:39	1
4,4'-DDE	ND		0.0017	0.00038	ug/L		05/12/22 09:45	05/18/22 01:39	1
4,4'-DDT	ND		0.0017	0.00088	ug/L		05/12/22 09:45	05/18/22 01:39	1
alpha-BHC	ND		0.0017	0.00031	ug/L		05/12/22 09:45	05/18/22 01:39	1
alpha-Chlordane	ND		0.0017	0.00047	ug/L		05/12/22 09:45	05/18/22 01:39	1
beta-BHC	ND		0.0017	0.00047	ug/L		05/12/22 09:45	05/18/22 01:39	1
delta-BHC	ND		0.0017	0.00082	ug/L		05/12/22 09:45	05/18/22 01:39	1
Dieldrin	ND		0.0017	0.00035	ug/L		05/12/22 09:45	05/18/22 01:39	1
Endrin aldehyde	ND		0.0017	0.00067	ug/L		05/12/22 09:45	05/18/22 01:39	1
Endrin ketone	ND		0.0017	0.00051	ug/L		05/12/22 09:45	05/18/22 01:39	1
gamma-BHC (Lindane)	ND		0.0017	0.00038	ug/L		05/12/22 09:45	05/18/22 01:39	1
gamma-Chlordane	ND		0.0017	0.00052	ug/L		05/12/22 09:45	05/18/22 01:39	1
Heptachlor	ND		0.0017	0.00058	ug/L		05/12/22 09:45	05/18/22 01:39	1
Heptachlor epoxide	ND		0.0017	0.00044	ug/L		05/12/22 09:45	05/18/22 01:39	1
Hexachlorobenzene	ND		0.0017	0.0012	ug/L		05/12/22 09:45	05/18/22 01:39	1
Toxaphene	ND		0.13	0.063	ug/L		05/12/22 09:45	05/18/22 01:39	1
Endosulfan II	ND		0.0017	0.00041	ug/L		05/12/22 09:45	05/18/22 01:39	1
Methoxychlor	ND		0.0017	0.00099	ug/L		05/12/22 09:45	05/18/22 01:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*92*		*46 - 114*	*05/12/22 09:45*	*05/18/22 01:39*	*1*
DCB Decachlorobiphenyl (Surr)	*96*		*46 - 114*	*05/12/22 09:45*	*05/18/22 01:39*	*1*
Tetrachloro-m-xylene	*65*	*p*	*39 - 119*	*05/12/22 09:45*	*05/18/22 01:39*	*1*
Tetrachloro-m-xylene	*125*	*S1+*	*39 - 119*	*05/12/22 09:45*	*05/18/22 01:39*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1.8**		1.0	0.76	mg/L			05/13/22 21:56	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.5**		0.1	0.1	SU			05/12/22 07:49	1
Specific Conductance	**670**		1.0	1.0	umhos/cm			05/12/22 07:52	1
Oxidation Reduction Potential	**86**		10	10	millivolts			05/12/22 07:49	1

Client Sample ID: TRW 20% PC T03
Lab Sample ID: 180-136058-12
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/14/22 20:03	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/14/22 20:03	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/14/22 20:03	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/14/22 20:03	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/14/22 20:03	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/14/22 20:03	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/14/22 20:03	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/14/22 20:03	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			05/14/22 20:03	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/14/22 20:03	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/14/22 20:03	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/14/22 20:03	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			05/14/22 20:03	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/14/22 20:03	1
2-Hexanone	ND		5.0	4.2	ug/L			05/14/22 20:03	1
Acetone	ND		20	5.5	ug/L			05/14/22 20:03	1
Benzene	ND		5.0	2.0	ug/L			05/14/22 20:03	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/14/22 20:03	1
Bromoform	ND		5.0	2.6	ug/L			05/14/22 20:03	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/14/22 20:03	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/14/22 20:03	1
Chlorobenzene	**2.1**	**J**	5.0	1.6	ug/L			05/14/22 20:03	1
Chloroethane	ND		5.0	2.6	ug/L			05/14/22 20:03	1
Chloroform	ND		5.0	2.1	ug/L			05/14/22 20:03	1
cis-1,2-Dichloroethene	**4.1**	**J**	5.0	1.6	ug/L			05/14/22 20:03	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/14/22 20:03	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/14/22 20:03	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/14/22 20:03	1
Freon-11	ND		5.0	1.5	ug/L			05/14/22 20:03	1
Freon-113	ND		5.0	1.9	ug/L			05/14/22 20:03	1
Freon-12	ND		5.0	2.9	ug/L			05/14/22 20:03	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/14/22 20:03	1
Methyl bromide	ND		5.0	4.5	ug/L			05/14/22 20:03	1
Methyl chloride	ND		5.0	3.9	ug/L			05/14/22 20:03	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/14/22 20:03	1
Methylene Chloride	**11**		5.0	3.9	ug/L			05/14/22 20:03	1
Styrene	ND		5.0	1.3	ug/L			05/14/22 20:03	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/14/22 20:03	1
Toluene	ND		5.0	1.7	ug/L			05/14/22 20:03	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/14/22 20:03	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/14/22 20:03	1
Trichloroethene	ND		5.0	1.5	ug/L			05/14/22 20:03	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/14/22 20:03	1
Xylenes, Total	ND		10	4.3	ug/L			05/14/22 20:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*67*		*52 - 151*		*05/14/22 20:03*	*1*
4-Bromofluorobenzene (Surr)	*71*		*49 - 118*		*05/14/22 20:03*	*1*
Dibromofluoromethane (Surr)	*95*		*60 - 132*		*05/14/22 20:03*	*1*
Toluene-d8 (Surr)	*68*		*53 - 124*		*05/14/22 20:03*	*1*

Client Sample ID: TRW 20% PC T03
Lab Sample ID: 180-136058-12

Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.78	0.11	ug/L		05/20/22 13:08	05/27/22 17:35	1
1,4-Dichlorobenzene	ND		0.78	0.048	ug/L		05/20/22 13:08	05/27/22 17:35	1
2,2'-oxybis[1-chloropropane]	ND		0.15	0.045	ug/L		05/20/22 13:08	05/27/22 17:35	1
2,4-Dichlorophenol	ND		0.15	0.040	ug/L		05/20/22 13:08	05/27/22 17:35	1
2,4-Dimethylphenol	**0.71**	**J**	0.78	0.13	ug/L		05/20/22 13:08	05/27/22 17:35	1
2,4-Dinitrophenol	ND		7.8	1.2	ug/L		05/20/22 13:08	05/27/22 17:35	1
2,4-Dinitrotoluene	ND		0.78	0.28	ug/L		05/20/22 13:08	05/27/22 17:35	1
2,6-Dinitrotoluene	ND		0.78	0.14	ug/L		05/20/22 13:08	05/27/22 17:35	1
2-Chloronaphthalene	**0.82**		0.15	0.046	ug/L		05/20/22 13:08	05/27/22 17:35	1
2-Nitroaniline	ND		3.9	0.43	ug/L		05/20/22 13:08	05/27/22 17:35	1
3,3'-Dichlorobenzidine	ND		0.78	0.46	ug/L		05/20/22 13:08	05/27/22 17:35	1
3-Nitroaniline	ND		3.9	0.34	ug/L		05/20/22 13:08	05/27/22 17:35	1
p-Chloroaniline	ND		0.78	0.29	ug/L		05/20/22 13:08	05/27/22 17:35	1
p-Nitroaniline	ND		3.9	0.28	ug/L		05/20/22 13:08	05/27/22 17:35	1
Acenaphthene	ND		0.15	0.051	ug/L		05/20/22 13:08	05/27/22 17:35	1
Anthracene	ND		0.15	0.038	ug/L		05/20/22 13:08	05/27/22 17:35	1
Atrazine	ND		0.78	0.49	ug/L		05/20/22 13:08	05/27/22 17:35	1
Benzo[a]anthracene	ND		0.15	0.059	ug/L		05/20/22 13:08	05/27/22 17:35	1
Benzo[a]pyrene	ND		0.15	0.041	ug/L		05/20/22 13:08	05/27/22 17:35	1
Benzo[b]fluoranthene	ND		0.15	0.076	ug/L		05/20/22 13:08	05/27/22 17:35	1
Benzo[k]fluoranthene	ND		0.15	0.069	ug/L		05/20/22 13:08	05/27/22 17:35	1
Bis(2-chloroethoxy)methane	ND		0.78	0.12	ug/L		05/20/22 13:08	05/27/22 17:35	1
Dichloroethyl ether	ND		0.15	0.031	ug/L		05/20/22 13:08	05/27/22 17:35	1
Bis(2-ethylhexyl) phthalate	ND		7.8	4.9	ug/L		05/20/22 13:08	05/27/22 17:35	1
Benzyl butyl phthalate	ND		0.78	0.36	ug/L		05/20/22 13:08	05/27/22 17:35	1
Chrysene	ND		0.15	0.063	ug/L		05/20/22 13:08	05/27/22 17:35	1
Diethyl phthalate	ND		0.78	0.44	ug/L		05/20/22 13:08	05/27/22 17:35	1
Dimethyl phthalate	ND		0.78	0.16	ug/L		05/20/22 13:08	05/27/22 17:35	1
Dibutylphthalate	ND		0.78	0.58	ug/L		05/20/22 13:08	05/27/22 17:35	1
Di-n-octyl phthalate	ND		0.78	0.54	ug/L		05/20/22 13:08	05/27/22 17:35	1
Fluoranthene	ND		0.15	0.047	ug/L		05/20/22 13:08	05/27/22 17:35	1
Fluorene	ND		0.15	0.054	ug/L		05/20/22 13:08	05/27/22 17:35	1
Hexachlorobutadiene	ND		0.15	0.054	ug/L		05/20/22 13:08	05/27/22 17:35	1
Hexachlorocyclopentadiene	ND		0.78	0.39	ug/L		05/20/22 13:08	05/27/22 17:35	1
Hexachloroethane	ND		0.78	0.10	ug/L		05/20/22 13:08	05/27/22 17:35	1
Indeno[1,2,3-cd]pyrene	ND		0.15	0.066	ug/L		05/20/22 13:08	05/27/22 17:35	1
Isophorone	ND		0.78	0.15	ug/L		05/20/22 13:08	05/27/22 17:35	1
Nitrobenzene	ND		1.6	0.39	ug/L		05/20/22 13:08	05/27/22 17:35	1
N-Nitrosodiphenylamine	ND		0.78	0.093	ug/L		05/20/22 13:08	05/27/22 17:35	1
Pentachlorophenol	ND		3.9	0.66	ug/L		05/20/22 13:08	05/27/22 17:35	1
Phenanthrene	ND		0.15	0.043	ug/L		05/20/22 13:08	05/27/22 17:35	1
Phenol	**0.93**		0.78	0.38	ug/L		05/20/22 13:08	05/27/22 17:35	1
Pyrene	ND		0.15	0.042	ug/L		05/20/22 13:08	05/27/22 17:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*53*		*23 - 128*	*05/20/22 13:08*	*05/27/22 17:35*	*1*
2-Fluorobiphenyl	*41*		*20 - 105*	*05/20/22 13:08*	*05/27/22 17:35*	*1*
2-Fluorophenol (Surr)	*46*		*20 - 105*	*05/20/22 13:08*	*05/27/22 17:35*	*1*
Nitrobenzene-d5 (Surr)	*49*		*20 - 107*	*05/20/22 13:08*	*05/27/22 17:35*	*1*
Phenol-d5 (Surr)	*46*		*20 - 106*	*05/20/22 13:08*	*05/27/22 17:35*	*1*

Client Sample ID: TRW 20% PC T03
Lab Sample ID: 180-136058-12
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*50*		*22 - 120*	*05/20/22 13:08*	*05/27/22 17:35*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.2**		0.20	0.041	mg/L		05/18/22 10:06	05/19/22 17:14	1
Antimony	**0.039**		0.010	0.0062	mg/L		05/18/22 10:06	05/19/22 17:14	1
Arsenic	ND		0.010	0.0083	mg/L		05/18/22 10:06	05/19/22 17:14	1
Barium	**0.15**	**J**	0.20	0.0063	mg/L		05/18/22 10:06	05/19/22 17:14	1
Beryllium	ND		0.0040	0.0015	mg/L		05/18/22 10:06	05/19/22 17:14	1
Cadmium	ND		0.0050	0.00030	mg/L		05/18/22 10:06	05/19/22 17:14	1
Calcium	**72**		5.0	0.32	mg/L		05/18/22 10:06	05/19/22 17:14	1
Chromium	ND		0.0050	0.0016	mg/L		05/18/22 10:06	05/19/22 17:14	1
Cobalt	ND		0.050	0.0019	mg/L		05/18/22 10:06	05/19/22 17:14	1
Copper	**0.027**		0.025	0.0022	mg/L		05/18/22 10:06	05/19/22 17:14	1
Iron	**0.16**		0.10	0.072	mg/L		05/18/22 10:06	05/19/22 17:14	1
Lead	ND		0.010	0.0044	mg/L		05/18/22 10:06	05/19/22 17:14	1
Magnesium	ND		5.0	0.26	mg/L		05/18/22 10:06	05/19/22 17:14	1
Manganese	ND		0.015	0.0024	mg/L		05/18/22 10:06	05/19/22 17:14	1
Nickel	**0.0096**	**J**	0.040	0.0019	mg/L		05/18/22 10:06	05/19/22 17:14	1
Potassium	**1.3**	**J**	5.0	0.80	mg/L		05/18/22 10:06	05/19/22 17:14	1
Selenium	ND		0.010	0.0037	mg/L		05/18/22 10:06	05/19/22 17:14	1
Silver	ND		0.0050	0.00091	mg/L		05/18/22 10:06	05/19/22 17:14	1
Sodium	**2.3**	**J**	5.0	0.30	mg/L		05/18/22 10:06	05/19/22 17:14	1
Thallium	ND		0.020	0.0030	mg/L		05/18/22 10:06	05/19/22 17:14	1
Vanadium	ND		0.050	0.0053	mg/L		05/18/22 10:06	05/19/22 17:14	1
Zinc	ND		0.020	0.0026	mg/L		05/18/22 10:06	05/19/22 17:14	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/18/22 14:54	05/19/22 13:02	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.6**		0.1	0.1	SU			05/13/22 07:39	1

Client Sample ID: TRW 20% PC T04
Lab Sample ID: 180-136058-13
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/18/22 17:54	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/18/22 17:54	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/18/22 17:54	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/18/22 17:54	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/18/22 17:54	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/18/22 17:54	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/18/22 17:54	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/18/22 17:54	1
1,2-Dichlorobenzene	ND	*-	5.0	2.0	ug/L			05/18/22 17:54	1

Client Sample ID: TRW 20% PC T04
Lab Sample ID: 180-136058-13
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/18/22 17:54	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/18/22 17:54	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/18/22 17:54	1
1,4-Dichlorobenzene	ND	*-	5.0	1.0	ug/L			05/18/22 17:54	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/18/22 17:54	1
2-Hexanone	ND		5.0	4.2	ug/L			05/18/22 17:54	1
Acetone	ND	*-	20	5.5	ug/L			05/18/22 17:54	1
Benzene	ND		5.0	2.0	ug/L			05/18/22 17:54	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/18/22 17:54	1
Bromoform	ND		5.0	2.6	ug/L			05/18/22 17:54	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/18/22 17:54	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/18/22 17:54	1
Chlorobenzene	ND		5.0	1.6	ug/L			05/18/22 17:54	1
Chloroethane	ND		5.0	2.6	ug/L			05/18/22 17:54	1
Chloroform	ND		5.0	2.1	ug/L			05/18/22 17:54	1
cis-1,2-Dichloroethene	**32**		5.0	1.6	ug/L			05/18/22 17:54	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/18/22 17:54	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/18/22 17:54	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/18/22 17:54	1
Freon-11	ND		5.0	1.5	ug/L			05/18/22 17:54	1
Freon-113	ND		5.0	1.9	ug/L			05/18/22 17:54	1
Freon-12	ND		5.0	2.9	ug/L			05/18/22 17:54	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/18/22 17:54	1
Methyl bromide	ND		5.0	4.5	ug/L			05/18/22 17:54	1
Methyl chloride	ND		5.0	3.9	ug/L			05/18/22 17:54	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/18/22 17:54	1
Methylene Chloride	**14**		5.0	3.9	ug/L			05/18/22 17:54	1
Styrene	ND		5.0	1.3	ug/L			05/18/22 17:54	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/18/22 17:54	1
Toluene	ND		5.0	1.7	ug/L			05/18/22 17:54	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/18/22 17:54	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/18/22 17:54	1
Trichloroethene	ND		5.0	1.5	ug/L			05/18/22 17:54	1
Vinyl chloride	**7.0**		5.0	3.7	ug/L			05/18/22 17:54	1
Xylenes, Total	ND		10	4.3	ug/L			05/18/22 17:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*75*		*52 - 151*		*05/18/22 17:54*	*1*
4-Bromofluorobenzene (Surr)	*78*		*49 - 118*		*05/18/22 17:54*	*1*
Dibromofluoromethane (Surr)	*102*		*60 - 132*		*05/18/22 17:54*	*1*
Toluene-d8 (Surr)	*70*		*53 - 124*		*05/18/22 17:54*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.76	0.11	ug/L		05/25/22 07:34	06/01/22 13:09	1
1,4-Dichlorobenzene	ND		0.76	0.046	ug/L		05/25/22 07:34	06/01/22 13:09	1
2,2'-oxybis[1-chloropropane]	ND		0.14	0.044	ug/L		05/25/22 07:34	06/01/22 13:09	1
2,4-Dichlorophenol	ND		0.14	0.039	ug/L		05/25/22 07:34	06/01/22 13:09	1
2,4-Dimethylphenol	**1.9**		0.76	0.13	ug/L		05/25/22 07:34	06/01/22 13:09	1
2,4-Dinitrophenol	ND		7.6	1.2	ug/L		05/25/22 07:34	06/01/22 13:09	1

Client Sample ID: TRW 20% PC T04
Lab Sample ID: 180-136058-13

Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	ND		0.76	0.27	ug/L		05/25/22 07:34	06/01/22 13:09	1
2,6-Dinitrotoluene	ND		0.76	0.13	ug/L		05/25/22 07:34	06/01/22 13:09	1
2-Chloronaphthalene	**1.8**		0.14	0.045	ug/L		05/25/22 07:34	06/01/22 13:09	1
2-Nitroaniline	ND		3.8	0.42	ug/L		05/25/22 07:34	06/01/22 13:09	1
3,3'-Dichlorobenzidine	ND		0.76	0.44	ug/L		05/25/22 07:34	06/01/22 13:09	1
3-Nitroaniline	ND		3.8	0.33	ug/L		05/25/22 07:34	06/01/22 13:09	1
p-Chloroaniline	ND		0.76	0.28	ug/L		05/25/22 07:34	06/01/22 13:09	1
p-Nitroaniline	ND		3.8	0.28	ug/L		05/25/22 07:34	06/01/22 13:09	1
Acenaphthene	ND		0.14	0.049	ug/L		05/25/22 07:34	06/01/22 13:09	1
Anthracene	**0.046**	**J**	0.14	0.037	ug/L		05/25/22 07:34	06/01/22 13:09	1
Atrazine	ND		0.76	0.48	ug/L		05/25/22 07:34	06/01/22 13:09	1
Benzo[a]anthracene	ND		0.14	0.057	ug/L		05/25/22 07:34	06/01/22 13:09	1
Benzo[a]pyrene	ND		0.14	0.040	ug/L		05/25/22 07:34	06/01/22 13:09	1
Benzo[b]fluoranthene	ND		0.14	0.073	ug/L		05/25/22 07:34	06/01/22 13:09	1
Benzo[k]fluoranthene	ND		0.14	0.067	ug/L		05/25/22 07:34	06/01/22 13:09	1
Bis(2-chloroethoxy)methane	ND		0.76	0.12	ug/L		05/25/22 07:34	06/01/22 13:09	1
Dichloroethyl ether	ND		0.14	0.030	ug/L		05/25/22 07:34	06/01/22 13:09	1
Bis(2-ethylhexyl) phthalate	ND		7.6	4.7	ug/L		05/25/22 07:34	06/01/22 13:09	1
Benzyl butyl phthalate	**0.46**	**J**	0.76	0.35	ug/L		05/25/22 07:34	06/01/22 13:09	1
Chrysene	ND		0.14	0.061	ug/L		05/25/22 07:34	06/01/22 13:09	1
Diethyl phthalate	ND		0.76	0.43	ug/L		05/25/22 07:34	06/01/22 13:09	1
Dimethyl phthalate	ND		0.76	0.15	ug/L		05/25/22 07:34	06/01/22 13:09	1
Dibutylphthalate	ND		0.76	0.56	ug/L		05/25/22 07:34	06/01/22 13:09	1
Di-n-octyl phthalate	ND		0.76	0.52	ug/L		05/25/22 07:34	06/01/22 13:09	1
Fluoranthene	ND		0.14	0.045	ug/L		05/25/22 07:34	06/01/22 13:09	1
Fluorene	ND		0.14	0.052	ug/L		05/25/22 07:34	06/01/22 13:09	1
Hexachlorobutadiene	ND		0.14	0.052	ug/L		05/25/22 07:34	06/01/22 13:09	1
Hexachlorocyclopentadiene	ND		0.76	0.38	ug/L		05/25/22 07:34	06/01/22 13:09	1
Hexachloroethane	ND		0.76	0.10	ug/L		05/25/22 07:34	06/01/22 13:09	1
Indeno[1,2,3-cd]pyrene	ND		0.14	0.064	ug/L		05/25/22 07:34	06/01/22 13:09	1
Isophorone	ND		0.76	0.14	ug/L		05/25/22 07:34	06/01/22 13:09	1
Nitrobenzene	ND		1.5	0.38	ug/L		05/25/22 07:34	06/01/22 13:09	1
N-Nitrosodiphenylamine	ND		0.76	0.090	ug/L		05/25/22 07:34	06/01/22 13:09	1
Pentachlorophenol	ND		3.8	0.64	ug/L		05/25/22 07:34	06/01/22 13:09	1
Phenanthrene	**0.10**	**J**	0.14	0.042	ug/L		05/25/22 07:34	06/01/22 13:09	1
Phenol	**2.1**		0.76	0.37	ug/L		05/25/22 07:34	06/01/22 13:09	1
Pyrene	ND		0.14	0.041	ug/L		05/25/22 07:34	06/01/22 13:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*70*		*23 - 128*	*05/25/22 07:34*	*06/01/22 13:09*	*1*
2-Fluorobiphenyl	*76*		*20 - 105*	*05/25/22 07:34*	*06/01/22 13:09*	*1*
2-Fluorophenol (Surr)	*83*		*20 - 105*	*05/25/22 07:34*	*06/01/22 13:09*	*1*
Nitrobenzene-d5 (Surr)	*79*		*20 - 107*	*05/25/22 07:34*	*06/01/22 13:09*	*1*
Phenol-d5 (Surr)	*78*		*20 - 106*	*05/25/22 07:34*	*06/01/22 13:09*	*1*
Terphenyl-d14 (Surr)	*75*		*22 - 120*	*05/25/22 07:34*	*06/01/22 13:09*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2.3**		0.20	0.041	mg/L		05/18/22 10:06	05/19/22 16:46	1
Antimony	**0.051**		0.010	0.0062	mg/L		05/18/22 10:06	05/19/22 16:46	1

Client Sample ID: TRW 20% PC T04
Lab Sample ID: 180-136058-13
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 6010D - Metals (ICP) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.010	0.0083	mg/L		05/18/22 10:06	05/19/22 16:46	1
Barium	**0.26**		0.20	0.0063	mg/L		05/18/22 10:06	05/19/22 16:46	1
Beryllium	ND		0.0040	0.0015	mg/L		05/18/22 10:06	05/19/22 16:46	1
Cadmium	ND		0.0050	0.00030	mg/L		05/18/22 10:06	05/19/22 16:46	1
Calcium	**140**		10	0.64	mg/L		05/18/22 10:06	05/20/22 09:29	2
Chromium	ND		0.0050	0.0016	mg/L		05/18/22 10:06	05/19/22 16:46	1
Cobalt	ND		0.050	0.0019	mg/L		05/18/22 10:06	05/19/22 16:46	1
Copper	**0.079**		0.025	0.0022	mg/L		05/18/22 10:06	05/19/22 16:46	1
Iron	**0.23**		0.10	0.072	mg/L		05/18/22 10:06	05/19/22 16:46	1
Lead	ND		0.010	0.0044	mg/L		05/18/22 10:06	05/19/22 16:46	1
Magnesium	ND		5.0	0.26	mg/L		05/18/22 10:06	05/19/22 16:46	1
Manganese	ND		0.015	0.0024	mg/L		05/18/22 10:06	05/19/22 16:46	1
Nickel	**0.030**	**J**	0.040	0.0019	mg/L		05/18/22 10:06	05/19/22 16:46	1
Potassium	**2.8**	**J**	5.0	0.80	mg/L		05/18/22 10:06	05/19/22 16:46	1
Selenium	ND		0.010	0.0037	mg/L		05/18/22 10:06	05/19/22 16:46	1
Silver	ND		0.0050	0.00091	mg/L		05/18/22 10:06	05/19/22 16:46	1
Sodium	**5.7**		5.0	0.30	mg/L		05/18/22 10:06	05/19/22 16:46	1
Thallium	**0.0030**	**J**	0.020	0.0030	mg/L		05/18/22 10:06	05/19/22 16:46	1
Vanadium	ND		0.050	0.0053	mg/L		05/18/22 10:06	05/19/22 16:46	1
Zinc	ND		0.020	0.0026	mg/L		05/18/22 10:06	05/19/22 16:46	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/01/22 05:00	06/01/22 16:57	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**12.0**		0.1	0.1	SU			05/18/22 07:39	1

Client Sample ID: TRW 20% PC, 2% AC T01
Lab Sample ID: 180-136058-19
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/12/22 13:17	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/12/22 13:17	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/12/22 13:17	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/12/22 13:17	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/12/22 13:17	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/12/22 13:17	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/12/22 13:17	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/12/22 13:17	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			05/12/22 13:17	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/12/22 13:17	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/12/22 13:17	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/12/22 13:17	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			05/12/22 13:17	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/12/22 13:17	1
2-Hexanone	ND		5.0	4.2	ug/L			05/12/22 13:17	1

Client Sample ID: TRW 20% PC, 2% AC T01
Lab Sample ID: 180-136058-19

Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		20	5.5	ug/L			05/12/22 13:17	1
Benzene	ND		5.0	2.0	ug/L			05/12/22 13:17	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/12/22 13:17	1
Bromoform	ND		5.0	2.6	ug/L			05/12/22 13:17	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/12/22 13:17	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/12/22 13:17	1
Chlorobenzene	ND		5.0	1.6	ug/L			05/12/22 13:17	1
Chloroethane	ND		5.0	2.6	ug/L			05/12/22 13:17	1
Chloroform	ND		5.0	2.1	ug/L			05/12/22 13:17	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			05/12/22 13:17	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/12/22 13:17	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/12/22 13:17	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/12/22 13:17	1
Freon-11	ND		5.0	1.5	ug/L			05/12/22 13:17	1
Freon-113	ND		5.0	1.9	ug/L			05/12/22 13:17	1
Freon-12	ND		5.0	2.9	ug/L			05/12/22 13:17	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/12/22 13:17	1
Methyl bromide	ND		5.0	4.5	ug/L			05/12/22 13:17	1
Methyl chloride	ND		5.0	3.9	ug/L			05/12/22 13:17	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/12/22 13:17	1
Methylene Chloride	**5.9**		5.0	3.9	ug/L			05/12/22 13:17	1
Styrene	ND		5.0	1.3	ug/L			05/12/22 13:17	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/12/22 13:17	1
Toluene	ND		5.0	1.7	ug/L			05/12/22 13:17	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/12/22 13:17	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/12/22 13:17	1
Trichloroethene	ND		5.0	1.5	ug/L			05/12/22 13:17	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/12/22 13:17	1
Xylenes, Total	ND		10	4.3	ug/L			05/12/22 13:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*77*		*52 - 151*		*05/12/22 13:17*	*1*
4-Bromofluorobenzene (Surr)	*76*		*49 - 118*		*05/12/22 13:17*	*1*
Dibromofluoromethane (Surr)	*108*		*60 - 132*		*05/12/22 13:17*	*1*
Toluene-d8 (Surr)	*80*		*53 - 124*		*05/12/22 13:17*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.76	0.11	ug/L		05/18/22 15:46	05/23/22 21:43	1
1,4-Dichlorobenzene	ND		0.76	0.046	ug/L		05/18/22 15:46	05/23/22 21:43	1
2,2'-oxybis[1-chloropropane]	ND		0.14	0.044	ug/L		05/18/22 15:46	05/23/22 21:43	1
2,4-Dichlorophenol	ND		0.14	0.039	ug/L		05/18/22 15:46	05/23/22 21:43	1
2,4-Dimethylphenol	ND		0.76	0.13	ug/L		05/18/22 15:46	05/23/22 21:43	1
2,4-Dinitrophenol	ND		7.6	1.2	ug/L		05/18/22 15:46	05/23/22 21:43	1
2,4-Dinitrotoluene	ND		0.76	0.27	ug/L		05/18/22 15:46	05/23/22 21:43	1
2,6-Dinitrotoluene	ND		0.76	0.13	ug/L		05/18/22 15:46	05/23/22 21:43	1
2-Chloronaphthalene	ND		0.14	0.045	ug/L		05/18/22 15:46	05/23/22 21:43	1
2-Nitroaniline	ND		3.8	0.42	ug/L		05/18/22 15:46	05/23/22 21:43	1
3,3'-Dichlorobenzidine	ND		0.76	0.44	ug/L		05/18/22 15:46	05/23/22 21:43	1
3-Nitroaniline	ND		3.8	0.33	ug/L		05/18/22 15:46	05/23/22 21:43	1

Client Sample ID: TRW 20% PC, 2% AC T01
Lab Sample ID: 180-136058-19

Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
p-Chloroaniline	ND		0.76	0.28	ug/L		05/18/22 15:46	05/23/22 21:43	1
p-Nitroaniline	ND		3.8	0.28	ug/L		05/18/22 15:46	05/23/22 21:43	1
Acenaphthene	ND		0.14	0.049	ug/L		05/18/22 15:46	05/23/22 21:43	1
Anthracene	ND		0.14	0.037	ug/L		05/18/22 15:46	05/23/22 21:43	1
Atrazine	ND		0.76	0.48	ug/L		05/18/22 15:46	05/23/22 21:43	1
Benzo[a]anthracene	ND		0.14	0.057	ug/L		05/18/22 15:46	05/23/22 21:43	1
Benzo[a]pyrene	ND		0.14	0.040	ug/L		05/18/22 15:46	05/23/22 21:43	1
Benzo[b]fluoranthene	ND		0.14	0.073	ug/L		05/18/22 15:46	05/23/22 21:43	1
Benzo[k]fluoranthene	ND		0.14	0.067	ug/L		05/18/22 15:46	05/23/22 21:43	1
Bis(2-chloroethoxy)methane	ND		0.76	0.12	ug/L		05/18/22 15:46	05/23/22 21:43	1
Dichloroethyl ether	ND		0.14	0.030	ug/L		05/18/22 15:46	05/23/22 21:43	1
Bis(2-ethylhexyl) phthalate	ND		7.6	4.7	ug/L		05/18/22 15:46	05/23/22 21:43	1
Benzyl butyl phthalate	ND		0.76	0.35	ug/L		05/18/22 15:46	05/23/22 21:43	1
Chrysene	ND		0.14	0.061	ug/L		05/18/22 15:46	05/23/22 21:43	1
Diethyl phthalate	ND		0.76	0.43	ug/L		05/18/22 15:46	05/23/22 21:43	1
Dimethyl phthalate	ND		0.76	0.15	ug/L		05/18/22 15:46	05/23/22 21:43	1
Dibutylphthalate	**2.7**		0.76	0.56	ug/L		05/18/22 15:46	05/23/22 21:43	1
Di-n-octyl phthalate	ND		0.76	0.52	ug/L		05/18/22 15:46	05/23/22 21:43	1
Fluoranthene	ND		0.14	0.045	ug/L		05/18/22 15:46	05/23/22 21:43	1
Fluorene	ND		0.14	0.052	ug/L		05/18/22 15:46	05/23/22 21:43	1
Hexachlorobutadiene	ND		0.14	0.052	ug/L		05/18/22 15:46	05/23/22 21:43	1
Hexachlorocyclopentadiene	ND		0.76	0.38	ug/L		05/18/22 15:46	05/23/22 21:43	1
Hexachloroethane	ND		0.76	0.10	ug/L		05/18/22 15:46	05/23/22 21:43	1
Indeno[1,2,3-cd]pyrene	ND		0.14	0.064	ug/L		05/18/22 15:46	05/23/22 21:43	1
Isophorone	ND		0.76	0.14	ug/L		05/18/22 15:46	05/23/22 21:43	1
Nitrobenzene	ND		1.5	0.38	ug/L		05/18/22 15:46	05/23/22 21:43	1
N-Nitrosodiphenylamine	ND		0.76	0.090	ug/L		05/18/22 15:46	05/23/22 21:43	1
Pentachlorophenol	ND		3.8	0.64	ug/L		05/18/22 15:46	05/23/22 21:43	1
Phenanthrene	**0.10**	**J**	0.14	0.042	ug/L		05/18/22 15:46	05/23/22 21:43	1
Phenol	**0.37**	**J**	0.76	0.37	ug/L		05/18/22 15:46	05/23/22 21:43	1
Pyrene	ND		0.14	0.041	ug/L		05/18/22 15:46	05/23/22 21:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*78*		*23 - 128*	*05/18/22 15:46*	*05/23/22 21:43*	*1*
2-Fluorobiphenyl	*57*		*20 - 105*	*05/18/22 15:46*	*05/23/22 21:43*	*1*
2-Fluorophenol (Surr)	*53*		*20 - 105*	*05/18/22 15:46*	*05/23/22 21:43*	*1*
Nitrobenzene-d5 (Surr)	*59*		*20 - 107*	*05/18/22 15:46*	*05/23/22 21:43*	*1*
Phenol-d5 (Surr)	*51*		*20 - 106*	*05/18/22 15:46*	*05/23/22 21:43*	*1*
Terphenyl-d14 (Surr)	*80*		*22 - 120*	*05/18/22 15:46*	*05/23/22 21:43*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.11**	**J**	0.20	0.041	mg/L		05/17/22 10:47	05/18/22 16:18	1
Antimony	**0.012**		0.010	0.0062	mg/L		05/17/22 10:47	05/18/22 16:18	1
Arsenic	ND		0.010	0.0083	mg/L		05/17/22 10:47	05/18/22 16:18	1
Barium	**0.090**	**J**	0.20	0.0063	mg/L		05/17/22 10:47	05/18/22 16:18	1
Beryllium	ND		0.0040	0.0015	mg/L		05/17/22 10:47	05/18/22 16:18	1
Cadmium	ND		0.0050	0.00030	mg/L		05/17/22 10:47	05/18/22 16:18	1
Calcium	**31**		5.0	0.32	mg/L		05/17/22 10:47	05/18/22 16:18	1
Chromium	ND		0.0050	0.0016	mg/L		05/17/22 10:47	05/18/22 16:18	1

Client Sample ID: TRW 20% PC, 2% AC T01
Lab Sample ID: 180-136058-19
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 6010D - Metals (ICP) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.050	0.0019	mg/L		05/17/22 10:47	05/18/22 16:18	1
Copper	**0.011**	**J**	0.025	0.0022	mg/L		05/17/22 10:47	05/18/22 16:18	1
Iron	ND		0.10	0.072	mg/L		05/17/22 10:47	05/18/22 16:18	1
Lead	ND		0.010	0.0044	mg/L		05/17/22 10:47	05/18/22 16:18	1
Magnesium	ND		5.0	0.26	mg/L		05/17/22 10:47	05/18/22 16:18	1
Manganese	ND		0.015	0.0024	mg/L		05/17/22 10:47	05/18/22 16:18	1
Nickel	**0.0038**	**J**	0.040	0.0019	mg/L		05/17/22 10:47	05/18/22 16:18	1
Potassium	**0.96**	**J**	5.0	0.80	mg/L		05/17/22 10:47	05/18/22 16:18	1
Selenium	ND		0.010	0.0037	mg/L		05/17/22 10:47	05/18/22 16:18	1
Silver	ND		0.0050	0.00091	mg/L		05/17/22 10:47	05/18/22 16:18	1
Sodium	**1.8**	**J**	5.0	0.30	mg/L		05/17/22 10:47	05/18/22 16:18	1
Thallium	ND		0.020	0.0030	mg/L		05/17/22 10:47	05/18/22 16:18	1
Vanadium	ND		0.050	0.0053	mg/L		05/17/22 10:47	05/18/22 16:18	1
Zinc	ND		0.020	0.0026	mg/L		05/17/22 10:47	05/18/22 16:18	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/18/22 14:54	05/19/22 12:57	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.2**		0.1	0.1	SU			05/11/22 09:45	1

Client Sample ID: TRW 20% PC, 2% AC T02
Lab Sample ID: 180-136058-20
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	**0.0056**		0.0017	0.00070	ug/L		05/12/22 09:45	05/18/22 01:57	1
4,4'-DDE	ND		0.0017	0.00039	ug/L		05/12/22 09:45	05/18/22 01:57	1
4,4'-DDT	ND		0.0017	0.00091	ug/L		05/12/22 09:45	05/18/22 01:57	1
alpha-BHC	ND		0.0017	0.00031	ug/L		05/12/22 09:45	05/18/22 01:57	1
alpha-Chlordane	ND		0.0017	0.00048	ug/L		05/12/22 09:45	05/18/22 01:57	1
beta-BHC	ND		0.0017	0.00048	ug/L		05/12/22 09:45	05/18/22 01:57	1
delta-BHC	ND		0.0017	0.00084	ug/L		05/12/22 09:45	05/18/22 01:57	1
Dieldrin	ND		0.0017	0.00036	ug/L		05/12/22 09:45	05/18/22 01:57	1
Endrin aldehyde	ND		0.0017	0.00068	ug/L		05/12/22 09:45	05/18/22 01:57	1
Endrin ketone	ND		0.0017	0.00052	ug/L		05/12/22 09:45	05/18/22 01:57	1
gamma-BHC (Lindane)	ND		0.0017	0.00039	ug/L		05/12/22 09:45	05/18/22 01:57	1
gamma-Chlordane	ND		0.0017	0.00054	ug/L		05/12/22 09:45	05/18/22 01:57	1
Heptachlor	ND		0.0017	0.00059	ug/L		05/12/22 09:45	05/18/22 01:57	1
Heptachlor epoxide	**0.024**	**p**	0.0017	0.00045	ug/L		05/12/22 09:45	05/18/22 01:57	1
Hexachlorobenzene	ND		0.0017	0.0012	ug/L		05/12/22 09:45	05/18/22 01:57	1
Toxaphene	ND		0.13	0.065	ug/L		05/12/22 09:45	05/18/22 01:57	1
Endosulfan II	ND		0.0017	0.00042	ug/L		05/12/22 09:45	05/18/22 01:57	1
Methoxychlor	ND		0.0017	0.0010	ug/L		05/12/22 09:45	05/18/22 01:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*91*		*46 - 114*	*05/12/22 09:45*	*05/18/22 01:57*	*1*
DCB Decachlorobiphenyl (Surr)	*95*		*46 - 114*	*05/12/22 09:45*	*05/18/22 01:57*	*1*

Client Sample ID: TRW 20% PC, 2% AC T02
Lab Sample ID: 180-136058-20
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*70*		*39 - 119*	*05/12/22 09:45*	*05/18/22 01:57*	*1*
Tetrachloro-m-xylene	*88*		*39 - 119*	*05/12/22 09:45*	*05/18/22 01:57*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**1.7**		1.0	0.76	mg/L			05/13/22 22:26	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.6**		0.1	0.1	SU			05/12/22 07:51	1
Specific Conductance	**800**		1.0	1.0	umhos/cm			05/12/22 07:55	1
Oxidation Reduction Potential	**71**		10	10	millivolts			05/12/22 07:51	1

Client Sample ID: TRW 20% PC, 2% AC T03
Lab Sample ID: 180-136058-21
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/14/22 19:37	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/14/22 19:37	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/14/22 19:37	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/14/22 19:37	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/14/22 19:37	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/14/22 19:37	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/14/22 19:37	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/14/22 19:37	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			05/14/22 19:37	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/14/22 19:37	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/14/22 19:37	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/14/22 19:37	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			05/14/22 19:37	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/14/22 19:37	1
2-Hexanone	ND		5.0	4.2	ug/L			05/14/22 19:37	1
Acetone	ND		20	5.5	ug/L			05/14/22 19:37	1
Benzene	ND		5.0	2.0	ug/L			05/14/22 19:37	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/14/22 19:37	1
Bromoform	ND		5.0	2.6	ug/L			05/14/22 19:37	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/14/22 19:37	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/14/22 19:37	1
Chlorobenzene	**2.8**	**J**	5.0	1.6	ug/L			05/14/22 19:37	1
Chloroethane	ND		5.0	2.6	ug/L			05/14/22 19:37	1
Chloroform	ND		5.0	2.1	ug/L			05/14/22 19:37	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			05/14/22 19:37	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/14/22 19:37	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/14/22 19:37	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/14/22 19:37	1
Freon-11	ND		5.0	1.5	ug/L			05/14/22 19:37	1
Freon-113	ND		5.0	1.9	ug/L			05/14/22 19:37	1
Freon-12	ND		5.0	2.9	ug/L			05/14/22 19:37	1

Client Sample ID: TRW 20% PC, 2% AC T03
Lab Sample ID: 180-136058-21
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/14/22 19:37	1
Methyl bromide	ND		5.0	4.5	ug/L			05/14/22 19:37	1
Methyl chloride	ND		5.0	3.9	ug/L			05/14/22 19:37	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/14/22 19:37	1
Methylene Chloride	**11**		5.0	3.9	ug/L			05/14/22 19:37	1
Styrene	ND		5.0	1.3	ug/L			05/14/22 19:37	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/14/22 19:37	1
Toluene	ND		5.0	1.7	ug/L			05/14/22 19:37	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/14/22 19:37	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/14/22 19:37	1
Trichloroethene	ND		5.0	1.5	ug/L			05/14/22 19:37	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/14/22 19:37	1
Xylenes, Total	ND		10	4.3	ug/L			05/14/22 19:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*77*		*52 - 151*		*05/14/22 19:37*	*1*
4-Bromofluorobenzene (Surr)	*87*		*49 - 118*		*05/14/22 19:37*	*1*
Dibromofluoromethane (Surr)	*99*		*60 - 132*		*05/14/22 19:37*	*1*
Toluene-d8 (Surr)	*74*		*53 - 124*		*05/14/22 19:37*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.78	0.11	ug/L		05/20/22 13:08	05/27/22 17:57	1
1,4-Dichlorobenzene	ND		0.78	0.048	ug/L		05/20/22 13:08	05/27/22 17:57	1
2,2'-oxybis[1-chloropropane]	ND		0.15	0.045	ug/L		05/20/22 13:08	05/27/22 17:57	1
2,4-Dichlorophenol	ND		0.15	0.040	ug/L		05/20/22 13:08	05/27/22 17:57	1
2,4-Dimethylphenol	ND		0.78	0.13	ug/L		05/20/22 13:08	05/27/22 17:57	1
2,4-Dinitrophenol	ND		7.8	1.2	ug/L		05/20/22 13:08	05/27/22 17:57	1
2,4-Dinitrotoluene	ND		0.78	0.28	ug/L		05/20/22 13:08	05/27/22 17:57	1
2,6-Dinitrotoluene	ND		0.78	0.14	ug/L		05/20/22 13:08	05/27/22 17:57	1
2-Chloronaphthalene	ND		0.15	0.046	ug/L		05/20/22 13:08	05/27/22 17:57	1
2-Nitroaniline	ND		3.9	0.43	ug/L		05/20/22 13:08	05/27/22 17:57	1
3,3'-Dichlorobenzidine	ND		0.78	0.46	ug/L		05/20/22 13:08	05/27/22 17:57	1
3-Nitroaniline	ND		3.9	0.34	ug/L		05/20/22 13:08	05/27/22 17:57	1
p-Chloroaniline	ND		0.78	0.29	ug/L		05/20/22 13:08	05/27/22 17:57	1
p-Nitroaniline	ND		3.9	0.28	ug/L		05/20/22 13:08	05/27/22 17:57	1
Acenaphthene	ND		0.15	0.051	ug/L		05/20/22 13:08	05/27/22 17:57	1
Anthracene	ND		0.15	0.038	ug/L		05/20/22 13:08	05/27/22 17:57	1
Atrazine	ND		0.78	0.49	ug/L		05/20/22 13:08	05/27/22 17:57	1
Benzo[a]anthracene	ND		0.15	0.059	ug/L		05/20/22 13:08	05/27/22 17:57	1
Benzo[a]pyrene	ND		0.15	0.041	ug/L		05/20/22 13:08	05/27/22 17:57	1
Benzo[b]fluoranthene	ND		0.15	0.076	ug/L		05/20/22 13:08	05/27/22 17:57	1
Benzo[k]fluoranthene	ND		0.15	0.069	ug/L		05/20/22 13:08	05/27/22 17:57	1
Bis(2-chloroethoxy)methane	ND		0.78	0.12	ug/L		05/20/22 13:08	05/27/22 17:57	1
Dichloroethyl ether	ND		0.15	0.031	ug/L		05/20/22 13:08	05/27/22 17:57	1
Bis(2-ethylhexyl) phthalate	ND		7.8	4.9	ug/L		05/20/22 13:08	05/27/22 17:57	1
Benzyl butyl phthalate	ND		0.78	0.36	ug/L		05/20/22 13:08	05/27/22 17:57	1
Chrysene	ND		0.15	0.063	ug/L		05/20/22 13:08	05/27/22 17:57	1
Diethyl phthalate	ND		0.78	0.44	ug/L		05/20/22 13:08	05/27/22 17:57	1
Dimethyl phthalate	ND		0.78	0.16	ug/L		05/20/22 13:08	05/27/22 17:57	1

Client Sample ID: TRW 20% PC, 2% AC T03
Lab Sample ID: 180-136058-21
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibutylphthalate	ND		0.78	0.58	ug/L		05/20/22 13:08	05/27/22 17:57	1
Di-n-octyl phthalate	ND		0.78	0.54	ug/L		05/20/22 13:08	05/27/22 17:57	1
Fluoranthene	ND		0.15	0.047	ug/L		05/20/22 13:08	05/27/22 17:57	1
Fluorene	ND		0.15	0.054	ug/L		05/20/22 13:08	05/27/22 17:57	1
Hexachlorobutadiene	ND		0.15	0.054	ug/L		05/20/22 13:08	05/27/22 17:57	1
Hexachlorocyclopentadiene	ND		0.78	0.39	ug/L		05/20/22 13:08	05/27/22 17:57	1
Hexachloroethane	ND		0.78	0.10	ug/L		05/20/22 13:08	05/27/22 17:57	1
Indeno[1,2,3-cd]pyrene	ND		0.15	0.066	ug/L		05/20/22 13:08	05/27/22 17:57	1
Isophorone	ND		0.78	0.15	ug/L		05/20/22 13:08	05/27/22 17:57	1
Nitrobenzene	ND		1.6	0.39	ug/L		05/20/22 13:08	05/27/22 17:57	1
N-Nitrosodiphenylamine	ND		0.78	0.093	ug/L		05/20/22 13:08	05/27/22 17:57	1
Pentachlorophenol	ND		3.9	0.66	ug/L		05/20/22 13:08	05/27/22 17:57	1
Phenanthrene	ND		0.15	0.043	ug/L		05/20/22 13:08	05/27/22 17:57	1
Phenol	ND		0.78	0.38	ug/L		05/20/22 13:08	05/27/22 17:57	1
Pyrene	ND		0.15	0.042	ug/L		05/20/22 13:08	05/27/22 17:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*51*		*23 - 128*	*05/20/22 13:08*	*05/27/22 17:57*	*1*
2-Fluorobiphenyl	*33*		*20 - 105*	*05/20/22 13:08*	*05/27/22 17:57*	*1*
2-Fluorophenol (Surr)	*36*		*20 - 105*	*05/20/22 13:08*	*05/27/22 17:57*	*1*
Nitrobenzene-d5 (Surr)	*38*		*20 - 107*	*05/20/22 13:08*	*05/27/22 17:57*	*1*
Phenol-d5 (Surr)	*38*		*20 - 106*	*05/20/22 13:08*	*05/27/22 17:57*	*1*
Terphenyl-d14 (Surr)	*55*		*22 - 120*	*05/20/22 13:08*	*05/27/22 17:57*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.1**		0.20	0.041	mg/L		05/18/22 10:06	05/19/22 17:28	1
Antimony	**0.037**		0.010	0.0062	mg/L		05/18/22 10:06	05/19/22 17:28	1
Arsenic	ND		0.010	0.0083	mg/L		05/18/22 10:06	05/19/22 17:28	1
Barium	**0.15**	**J**	0.20	0.0063	mg/L		05/18/22 10:06	05/19/22 17:28	1
Beryllium	ND		0.0040	0.0015	mg/L		05/18/22 10:06	05/19/22 17:28	1
Cadmium	ND		0.0050	0.00030	mg/L		05/18/22 10:06	05/19/22 17:28	1
Calcium	**73**		5.0	0.32	mg/L		05/18/22 10:06	05/19/22 17:28	1
Chromium	ND		0.0050	0.0016	mg/L		05/18/22 10:06	05/19/22 17:28	1
Cobalt	ND		0.050	0.0019	mg/L		05/18/22 10:06	05/19/22 17:28	1
Copper	**0.020**	**J**	0.025	0.0022	mg/L		05/18/22 10:06	05/19/22 17:28	1
Iron	**0.082**	**J**	0.10	0.072	mg/L		05/18/22 10:06	05/19/22 17:28	1
Lead	ND		0.010	0.0044	mg/L		05/18/22 10:06	05/19/22 17:28	1
Magnesium	ND		5.0	0.26	mg/L		05/18/22 10:06	05/19/22 17:28	1
Manganese	ND		0.015	0.0024	mg/L		05/18/22 10:06	05/19/22 17:28	1
Nickel	**0.0069**	**J**	0.040	0.0019	mg/L		05/18/22 10:06	05/19/22 17:28	1
Potassium	**1.3**	**J**	5.0	0.80	mg/L		05/18/22 10:06	05/19/22 17:28	1
Selenium	ND		0.010	0.0037	mg/L		05/18/22 10:06	05/19/22 17:28	1
Silver	ND		0.0050	0.00091	mg/L		05/18/22 10:06	05/19/22 17:28	1
Sodium	**2.2**	**J**	5.0	0.30	mg/L		05/18/22 10:06	05/19/22 17:28	1
Thallium	ND		0.020	0.0030	mg/L		05/18/22 10:06	05/19/22 17:28	1
Vanadium	ND		0.050	0.0053	mg/L		05/18/22 10:06	05/19/22 17:28	1
Zinc	ND		0.020	0.0026	mg/L		05/18/22 10:06	05/19/22 17:28	1

Client Sample ID: TRW 20% PC, 2% AC T03
Lab Sample ID: 180-136058-21
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/18/22 14:54	05/19/22 13:03	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.6**		0.1	0.1	SU			05/13/22 07:42	1

Client Sample ID: TRW 20% PC, 2% AC T04
Lab Sample ID: 180-136058-22
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/18/22 13:28	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/18/22 13:28	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/18/22 13:28	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/18/22 13:28	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/18/22 13:28	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/18/22 13:28	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/18/22 13:28	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/18/22 13:28	1
1,2-Dichlorobenzene	ND	*-	5.0	2.0	ug/L			05/18/22 13:28	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/18/22 13:28	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/18/22 13:28	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/18/22 13:28	1
1,4-Dichlorobenzene	ND	*-	5.0	1.0	ug/L			05/18/22 13:28	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/18/22 13:28	1
2-Hexanone	ND		5.0	4.2	ug/L			05/18/22 13:28	1
Acetone	ND	*-	20	5.5	ug/L			05/18/22 13:28	1
Benzene	ND		5.0	2.0	ug/L			05/18/22 13:28	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/18/22 13:28	1
Bromoform	ND		5.0	2.6	ug/L			05/18/22 13:28	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/18/22 13:28	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/18/22 13:28	1
Chlorobenzene	ND		5.0	1.6	ug/L			05/18/22 13:28	1
Chloroethane	ND		5.0	2.6	ug/L			05/18/22 13:28	1
Chloroform	ND		5.0	2.1	ug/L			05/18/22 13:28	1
cis-1,2-Dichloroethene	**1.8**	**J**	5.0	1.6	ug/L			05/18/22 13:28	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/18/22 13:28	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/18/22 13:28	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/18/22 13:28	1
Freon-11	ND		5.0	1.5	ug/L			05/18/22 13:28	1
Freon-113	ND		5.0	1.9	ug/L			05/18/22 13:28	1
Freon-12	ND		5.0	2.9	ug/L			05/18/22 13:28	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/18/22 13:28	1
Methyl bromide	ND		5.0	4.5	ug/L			05/18/22 13:28	1
Methyl chloride	ND		5.0	3.9	ug/L			05/18/22 13:28	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/18/22 13:28	1
Methylene Chloride	**17**		5.0	3.9	ug/L			05/18/22 13:28	1
Styrene	ND		5.0	1.3	ug/L			05/18/22 13:28	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/18/22 13:28	1

Client Sample ID: TRW 20% PC, 2% AC T04
Lab Sample ID: 180-136058-22

Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		5.0	1.7	ug/L			05/18/22 13:28	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/18/22 13:28	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/18/22 13:28	1
Trichloroethene	ND		5.0	1.5	ug/L			05/18/22 13:28	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/18/22 13:28	1
Xylenes, Total	ND		10	4.3	ug/L			05/18/22 13:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*70*		*52 - 151*		*05/18/22 13:28*	*1*
4-Bromofluorobenzene (Surr)	*78*		*49 - 118*		*05/18/22 13:28*	*1*
Dibromofluoromethane (Surr)	*98*		*60 - 132*		*05/18/22 13:28*	*1*
Toluene-d8 (Surr)	*64*		*53 - 124*		*05/18/22 13:28*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.76	0.11	ug/L		05/25/22 07:34	06/01/22 13:31	1
1,4-Dichlorobenzene	ND		0.76	0.046	ug/L		05/25/22 07:34	06/01/22 13:31	1
2,2'-oxybis[1-chloropropane]	ND		0.14	0.044	ug/L		05/25/22 07:34	06/01/22 13:31	1
2,4-Dichlorophenol	ND		0.14	0.039	ug/L		05/25/22 07:34	06/01/22 13:31	1
2,4-Dimethylphenol	ND		0.76	0.13	ug/L		05/25/22 07:34	06/01/22 13:31	1
2,4-Dinitrophenol	ND		7.6	1.2	ug/L		05/25/22 07:34	06/01/22 13:31	1
2,4-Dinitrotoluene	ND		0.76	0.27	ug/L		05/25/22 07:34	06/01/22 13:31	1
2,6-Dinitrotoluene	ND		0.76	0.13	ug/L		05/25/22 07:34	06/01/22 13:31	1
2-Chloronaphthalene	ND		0.14	0.045	ug/L		05/25/22 07:34	06/01/22 13:31	1
2-Nitroaniline	ND		3.8	0.42	ug/L		05/25/22 07:34	06/01/22 13:31	1
3,3'-Dichlorobenzidine	ND		0.76	0.44	ug/L		05/25/22 07:34	06/01/22 13:31	1
3-Nitroaniline	ND		3.8	0.33	ug/L		05/25/22 07:34	06/01/22 13:31	1
p-Chloroaniline	ND		0.76	0.28	ug/L		05/25/22 07:34	06/01/22 13:31	1
p-Nitroaniline	ND		3.8	0.28	ug/L		05/25/22 07:34	06/01/22 13:31	1
Acenaphthene	ND		0.14	0.049	ug/L		05/25/22 07:34	06/01/22 13:31	1
Anthracene	ND		0.14	0.037	ug/L		05/25/22 07:34	06/01/22 13:31	1
Atrazine	ND		0.76	0.48	ug/L		05/25/22 07:34	06/01/22 13:31	1
Benzo[a]anthracene	ND		0.14	0.057	ug/L		05/25/22 07:34	06/01/22 13:31	1
Benzo[a]pyrene	ND		0.14	0.040	ug/L		05/25/22 07:34	06/01/22 13:31	1
Benzo[b]fluoranthene	ND		0.14	0.073	ug/L		05/25/22 07:34	06/01/22 13:31	1
Benzo[k]fluoranthene	ND		0.14	0.067	ug/L		05/25/22 07:34	06/01/22 13:31	1
Bis(2-chloroethoxy)methane	ND		0.76	0.12	ug/L		05/25/22 07:34	06/01/22 13:31	1
Dichloroethyl ether	ND		0.14	0.030	ug/L		05/25/22 07:34	06/01/22 13:31	1
Bis(2-ethylhexyl) phthalate	ND		7.6	4.7	ug/L		05/25/22 07:34	06/01/22 13:31	1
Benzyl butyl phthalate	**0.53**	**J**	0.76	0.35	ug/L		05/25/22 07:34	06/01/22 13:31	1
Chrysene	ND		0.14	0.061	ug/L		05/25/22 07:34	06/01/22 13:31	1
Diethyl phthalate	ND		0.76	0.43	ug/L		05/25/22 07:34	06/01/22 13:31	1
Dimethyl phthalate	ND		0.76	0.15	ug/L		05/25/22 07:34	06/01/22 13:31	1
Dibutylphthalate	ND		0.76	0.56	ug/L		05/25/22 07:34	06/01/22 13:31	1
Di-n-octyl phthalate	ND		0.76	0.52	ug/L		05/25/22 07:34	06/01/22 13:31	1
Fluoranthene	ND		0.14	0.045	ug/L		05/25/22 07:34	06/01/22 13:31	1
Fluorene	ND		0.14	0.052	ug/L		05/25/22 07:34	06/01/22 13:31	1
Hexachlorobutadiene	ND		0.14	0.052	ug/L		05/25/22 07:34	06/01/22 13:31	1
Hexachlorocyclopentadiene	ND		0.76	0.38	ug/L		05/25/22 07:34	06/01/22 13:31	1
Hexachloroethane	ND		0.76	0.10	ug/L		05/25/22 07:34	06/01/22 13:31	1

Client Sample ID: TRW 20% PC, 2% AC T04
Lab Sample ID: 180-136058-22
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Indeno[1,2,3-cd]pyrene	ND		0.14	0.064	ug/L		05/25/22 07:34	06/01/22 13:31	1
Isophorone	ND		0.76	0.14	ug/L		05/25/22 07:34	06/01/22 13:31	1
Nitrobenzene	ND		1.5	0.38	ug/L		05/25/22 07:34	06/01/22 13:31	1
N-Nitrosodiphenylamine	ND		0.76	0.090	ug/L		05/25/22 07:34	06/01/22 13:31	1
Pentachlorophenol	ND		3.8	0.64	ug/L		05/25/22 07:34	06/01/22 13:31	1
Phenanthrene	**0.077**	**J**	0.14	0.042	ug/L		05/25/22 07:34	06/01/22 13:31	1
Phenol	**0.73**	**J**	0.76	0.37	ug/L		05/25/22 07:34	06/01/22 13:31	1
Pyrene	ND		0.14	0.041	ug/L		05/25/22 07:34	06/01/22 13:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*75*		*23 - 128*	*05/25/22 07:34*	*06/01/22 13:31*	*1*
2-Fluorobiphenyl	*83*		*20 - 105*	*05/25/22 07:34*	*06/01/22 13:31*	*1*
2-Fluorophenol (Surr)	*86*		*20 - 105*	*05/25/22 07:34*	*06/01/22 13:31*	*1*
Nitrobenzene-d5 (Surr)	*84*		*20 - 107*	*05/25/22 07:34*	*06/01/22 13:31*	*1*
Phenol-d5 (Surr)	*84*		*20 - 106*	*05/25/22 07:34*	*06/01/22 13:31*	*1*
Terphenyl-d14 (Surr)	*84*		*22 - 120*	*05/25/22 07:34*	*06/01/22 13:31*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2.2**		0.20	0.041	mg/L		05/18/22 10:06	05/19/22 16:51	1
Antimony	**0.057**		0.010	0.0062	mg/L		05/18/22 10:06	05/19/22 16:51	1
Arsenic	ND		0.010	0.0083	mg/L		05/18/22 10:06	05/19/22 16:51	1
Barium	**0.26**		0.20	0.0063	mg/L		05/18/22 10:06	05/19/22 16:51	1
Beryllium	ND		0.0040	0.0015	mg/L		05/18/22 10:06	05/19/22 16:51	1
Cadmium	ND		0.0050	0.00030	mg/L		05/18/22 10:06	05/19/22 16:51	1
Calcium	**140**		10	0.64	mg/L		05/18/22 10:06	05/20/22 09:34	2
Chromium	ND		0.0050	0.0016	mg/L		05/18/22 10:06	05/19/22 16:51	1
Cobalt	ND		0.050	0.0019	mg/L		05/18/22 10:06	05/19/22 16:51	1
Copper	**0.052**		0.025	0.0022	mg/L		05/18/22 10:06	05/19/22 16:51	1
Iron	**0.22**		0.10	0.072	mg/L		05/18/22 10:06	05/19/22 16:51	1
Lead	ND		0.010	0.0044	mg/L		05/18/22 10:06	05/19/22 16:51	1
Magnesium	ND		5.0	0.26	mg/L		05/18/22 10:06	05/19/22 16:51	1
Manganese	ND		0.015	0.0024	mg/L		05/18/22 10:06	05/19/22 16:51	1
Nickel	**0.022**	**J**	0.040	0.0019	mg/L		05/18/22 10:06	05/19/22 16:51	1
Potassium	**2.7**	**J**	5.0	0.80	mg/L		05/18/22 10:06	05/19/22 16:51	1
Selenium	ND		0.010	0.0037	mg/L		05/18/22 10:06	05/19/22 16:51	1
Silver	ND		0.0050	0.00091	mg/L		05/18/22 10:06	05/19/22 16:51	1
Sodium	**5.3**		5.0	0.30	mg/L		05/18/22 10:06	05/19/22 16:51	1
Thallium	ND		0.020	0.0030	mg/L		05/18/22 10:06	05/19/22 16:51	1
Vanadium	ND		0.050	0.0053	mg/L		05/18/22 10:06	05/19/22 16:51	1
Zinc	ND		0.020	0.0026	mg/L		05/18/22 10:06	05/19/22 16:51	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/01/22 05:00	06/01/22 16:59	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**12.0**		0.1	0.1	SU			05/18/22 07:42	1

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 4% AC T01
Lab Sample ID: 180-136058-28
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/12/22 12:51	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/12/22 12:51	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/12/22 12:51	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/12/22 12:51	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/12/22 12:51	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/12/22 12:51	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/12/22 12:51	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/12/22 12:51	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			05/12/22 12:51	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/12/22 12:51	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/12/22 12:51	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/12/22 12:51	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			05/12/22 12:51	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/12/22 12:51	1
2-Hexanone	ND		5.0	4.2	ug/L			05/12/22 12:51	1
Acetone	ND		20	5.5	ug/L			05/12/22 12:51	1
Benzene	ND		5.0	2.0	ug/L			05/12/22 12:51	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/12/22 12:51	1
Bromoform	ND		5.0	2.6	ug/L			05/12/22 12:51	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/12/22 12:51	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/12/22 12:51	1
Chlorobenzene	ND		5.0	1.6	ug/L			05/12/22 12:51	1
Chloroethane	ND		5.0	2.6	ug/L			05/12/22 12:51	1
Chloroform	ND		5.0	2.1	ug/L			05/12/22 12:51	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			05/12/22 12:51	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/12/22 12:51	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/12/22 12:51	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/12/22 12:51	1
Freon-11	ND		5.0	1.5	ug/L			05/12/22 12:51	1
Freon-113	ND		5.0	1.9	ug/L			05/12/22 12:51	1
Freon-12	ND		5.0	2.9	ug/L			05/12/22 12:51	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/12/22 12:51	1
Methyl bromide	ND		5.0	4.5	ug/L			05/12/22 12:51	1
Methyl chloride	ND		5.0	3.9	ug/L			05/12/22 12:51	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/12/22 12:51	1
Methylene Chloride	**7.2**		5.0	3.9	ug/L			05/12/22 12:51	1
Styrene	ND		5.0	1.3	ug/L			05/12/22 12:51	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/12/22 12:51	1
Toluene	ND		5.0	1.7	ug/L			05/12/22 12:51	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/12/22 12:51	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/12/22 12:51	1
Trichloroethene	ND		5.0	1.5	ug/L			05/12/22 12:51	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/12/22 12:51	1
Xylenes, Total	ND		10	4.3	ug/L			05/12/22 12:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*77*		*52 - 151*		*05/12/22 12:51*	*1*
4-Bromofluorobenzene (Surr)	*83*		*49 - 118*		*05/12/22 12:51*	*1*
Dibromofluoromethane (Surr)	*104*		*60 - 132*		*05/12/22 12:51*	*1*
Toluene-d8 (Surr)	*67*		*53 - 124*		*05/12/22 12:51*	*1*

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 4% AC T01
Lab Sample ID: 180-136058-28
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.78	0.11	ug/L		05/18/22 15:46	05/23/22 22:06	1
1,4-Dichlorobenzene	ND		0.78	0.048	ug/L		05/18/22 15:46	05/23/22 22:06	1
2,2'-oxybis[1-chloropropane]	ND		0.15	0.045	ug/L		05/18/22 15:46	05/23/22 22:06	1
2,4-Dichlorophenol	ND		0.15	0.040	ug/L		05/18/22 15:46	05/23/22 22:06	1
2,4-Dimethylphenol	ND		0.78	0.13	ug/L		05/18/22 15:46	05/23/22 22:06	1
2,4-Dinitrophenol	ND		7.8	1.2	ug/L		05/18/22 15:46	05/23/22 22:06	1
2,4-Dinitrotoluene	ND		0.78	0.28	ug/L		05/18/22 15:46	05/23/22 22:06	1
2,6-Dinitrotoluene	ND		0.78	0.14	ug/L		05/18/22 15:46	05/23/22 22:06	1
2-Chloronaphthalene	ND		0.15	0.046	ug/L		05/18/22 15:46	05/23/22 22:06	1
2-Nitroaniline	ND		3.9	0.43	ug/L		05/18/22 15:46	05/23/22 22:06	1
3,3'-Dichlorobenzidine	ND		0.78	0.46	ug/L		05/18/22 15:46	05/23/22 22:06	1
3-Nitroaniline	ND		3.9	0.34	ug/L		05/18/22 15:46	05/23/22 22:06	1
p-Chloroaniline	ND		0.78	0.29	ug/L		05/18/22 15:46	05/23/22 22:06	1
p-Nitroaniline	ND		3.9	0.28	ug/L		05/18/22 15:46	05/23/22 22:06	1
Acenaphthene	ND		0.15	0.051	ug/L		05/18/22 15:46	05/23/22 22:06	1
Anthracene	ND		0.15	0.038	ug/L		05/18/22 15:46	05/23/22 22:06	1
Atrazine	ND		0.78	0.49	ug/L		05/18/22 15:46	05/23/22 22:06	1
Benzo[a]anthracene	ND		0.15	0.059	ug/L		05/18/22 15:46	05/23/22 22:06	1
Benzo[a]pyrene	ND		0.15	0.041	ug/L		05/18/22 15:46	05/23/22 22:06	1
Benzo[b]fluoranthene	ND		0.15	0.076	ug/L		05/18/22 15:46	05/23/22 22:06	1
Benzo[k]fluoranthene	ND		0.15	0.069	ug/L		05/18/22 15:46	05/23/22 22:06	1
Bis(2-chloroethoxy)methane	ND		0.78	0.12	ug/L		05/18/22 15:46	05/23/22 22:06	1
Dichloroethyl ether	ND		0.15	0.031	ug/L		05/18/22 15:46	05/23/22 22:06	1
Bis(2-ethylhexyl) phthalate	ND		7.8	4.9	ug/L		05/18/22 15:46	05/23/22 22:06	1
Benzyl butyl phthalate	ND		0.78	0.36	ug/L		05/18/22 15:46	05/23/22 22:06	1
Chrysene	ND		0.15	0.063	ug/L		05/18/22 15:46	05/23/22 22:06	1
Diethyl phthalate	ND		0.78	0.44	ug/L		05/18/22 15:46	05/23/22 22:06	1
Dimethyl phthalate	ND		0.78	0.16	ug/L		05/18/22 15:46	05/23/22 22:06	1
Dibutylphthalate	**3.1**		0.78	0.58	ug/L		05/18/22 15:46	05/23/22 22:06	1
Di-n-octyl phthalate	ND		0.78	0.54	ug/L		05/18/22 15:46	05/23/22 22:06	1
Fluoranthene	ND		0.15	0.047	ug/L		05/18/22 15:46	05/23/22 22:06	1
Fluorene	ND		0.15	0.054	ug/L		05/18/22 15:46	05/23/22 22:06	1
Hexachlorobutadiene	ND		0.15	0.054	ug/L		05/18/22 15:46	05/23/22 22:06	1
Hexachlorocyclopentadiene	ND		0.78	0.39	ug/L		05/18/22 15:46	05/23/22 22:06	1
Hexachloroethane	ND		0.78	0.10	ug/L		05/18/22 15:46	05/23/22 22:06	1
Indeno[1,2,3-cd]pyrene	ND		0.15	0.066	ug/L		05/18/22 15:46	05/23/22 22:06	1
Isophorone	ND		0.78	0.15	ug/L		05/18/22 15:46	05/23/22 22:06	1
Nitrobenzene	ND		1.6	0.39	ug/L		05/18/22 15:46	05/23/22 22:06	1
N-Nitrosodiphenylamine	ND		0.78	0.093	ug/L		05/18/22 15:46	05/23/22 22:06	1
Pentachlorophenol	ND		3.9	0.66	ug/L		05/18/22 15:46	05/23/22 22:06	1
Phenanthrene	**0.087**	**J**	0.15	0.043	ug/L		05/18/22 15:46	05/23/22 22:06	1
Phenol	ND		0.78	0.38	ug/L		05/18/22 15:46	05/23/22 22:06	1
Pyrene	ND		0.15	0.042	ug/L		05/18/22 15:46	05/23/22 22:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*79*		*23 - 128*	*05/18/22 15:46*	*05/23/22 22:06*	*1*
2-Fluorobiphenyl	*60*		*20 - 105*	*05/18/22 15:46*	*05/23/22 22:06*	*1*
2-Fluorophenol (Surr)	*52*		*20 - 105*	*05/18/22 15:46*	*05/23/22 22:06*	*1*
Nitrobenzene-d5 (Surr)	*60*		*20 - 107*	*05/18/22 15:46*	*05/23/22 22:06*	*1*
Phenol-d5 (Surr)	*49*		*20 - 106*	*05/18/22 15:46*	*05/23/22 22:06*	*1*

Client Sample ID: TRW 20% PC, 4% AC T01
Lab Sample ID: 180-136058-28
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*88*		*22 - 120*	*05/18/22 15:46*	*05/23/22 22:06*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.12**	**J**	0.20	0.041	mg/L		05/17/22 10:47	05/18/22 16:23	1
Antimony	**0.010**		0.010	0.0062	mg/L		05/17/22 10:47	05/18/22 16:23	1
Arsenic	ND		0.010	0.0083	mg/L		05/17/22 10:47	05/18/22 16:23	1
Barium	**0.099**	**J**	0.20	0.0063	mg/L		05/17/22 10:47	05/18/22 16:23	1
Beryllium	ND		0.0040	0.0015	mg/L		05/17/22 10:47	05/18/22 16:23	1
Cadmium	ND		0.0050	0.00030	mg/L		05/17/22 10:47	05/18/22 16:23	1
Calcium	**31**		5.0	0.32	mg/L		05/17/22 10:47	05/18/22 16:23	1
Chromium	ND		0.0050	0.0016	mg/L		05/17/22 10:47	05/18/22 16:23	1
Cobalt	ND		0.050	0.0019	mg/L		05/17/22 10:47	05/18/22 16:23	1
Copper	**0.0045**	**J**	0.025	0.0022	mg/L		05/17/22 10:47	05/18/22 16:23	1
Iron	ND		0.10	0.072	mg/L		05/17/22 10:47	05/18/22 16:23	1
Lead	ND		0.010	0.0044	mg/L		05/17/22 10:47	05/18/22 16:23	1
Magnesium	ND		5.0	0.26	mg/L		05/17/22 10:47	05/18/22 16:23	1
Manganese	ND		0.015	0.0024	mg/L		05/17/22 10:47	05/18/22 16:23	1
Nickel	ND		0.040	0.0019	mg/L		05/17/22 10:47	05/18/22 16:23	1
Potassium	**1.0**	**J**	5.0	0.80	mg/L		05/17/22 10:47	05/18/22 16:23	1
Selenium	ND		0.010	0.0037	mg/L		05/17/22 10:47	05/18/22 16:23	1
Silver	ND		0.0050	0.00091	mg/L		05/17/22 10:47	05/18/22 16:23	1
Sodium	**2.1**	**J**	5.0	0.30	mg/L		05/17/22 10:47	05/18/22 16:23	1
Thallium	ND		0.020	0.0030	mg/L		05/17/22 10:47	05/18/22 16:23	1
Vanadium	ND		0.050	0.0053	mg/L		05/17/22 10:47	05/18/22 16:23	1
Zinc	ND		0.020	0.0026	mg/L		05/17/22 10:47	05/18/22 16:23	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/18/22 14:54	05/19/22 12:58	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.1**		0.1	0.1	SU			05/11/22 09:48	1

Client Sample ID: TRW 20% PC, 4% AC T02
Lab Sample ID: 180-136058-29
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	**0.0021**	**p**	0.0017	0.00071	ug/L		05/12/22 09:45	05/18/22 02:16	1
4,4'-DDE	ND		0.0017	0.00039	ug/L		05/12/22 09:45	05/18/22 02:16	1
4,4'-DDT	ND		0.0017	0.00092	ug/L		05/12/22 09:45	05/18/22 02:16	1
alpha-BHC	ND		0.0017	0.00032	ug/L		05/12/22 09:45	05/18/22 02:16	1
alpha-Chlordane	ND		0.0017	0.00049	ug/L		05/12/22 09:45	05/18/22 02:16	1
beta-BHC	ND		0.0017	0.00049	ug/L		05/12/22 09:45	05/18/22 02:16	1
delta-BHC	ND		0.0017	0.00086	ug/L		05/12/22 09:45	05/18/22 02:16	1
Dieldrin	ND		0.0017	0.00037	ug/L		05/12/22 09:45	05/18/22 02:16	1
Endrin aldehyde	ND		0.0017	0.00069	ug/L		05/12/22 09:45	05/18/22 02:16	1

Client Sample ID: TRW 20% PC, 4% AC T02
Lab Sample ID: 180-136058-29
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endrin ketone	ND		0.0017	0.00053	ug/L		05/12/22 09:45	05/18/22 02:16	1
gamma-BHC (Lindane)	ND		0.0017	0.00039	ug/L		05/12/22 09:45	05/18/22 02:16	1
gamma-Chlordane	ND		0.0017	0.00055	ug/L		05/12/22 09:45	05/18/22 02:16	1
Heptachlor	ND		0.0017	0.00060	ug/L		05/12/22 09:45	05/18/22 02:16	1
Heptachlor epoxide	ND		0.0017	0.00045	ug/L		05/12/22 09:45	05/18/22 02:16	1
Hexachlorobenzene	ND		0.0017	0.0012	ug/L		05/12/22 09:45	05/18/22 02:16	1
Toxaphene	ND		0.13	0.065	ug/L		05/12/22 09:45	05/18/22 02:16	1
Endosulfan II	ND		0.0017	0.00042	ug/L		05/12/22 09:45	05/18/22 02:16	1
Methoxychlor	ND		0.0017	0.0010	ug/L		05/12/22 09:45	05/18/22 02:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*86*		*46 - 114*	*05/12/22 09:45*	*05/18/22 02:16*	*1*
DCB Decachlorobiphenyl (Surr)	*96*		*46 - 114*	*05/12/22 09:45*	*05/18/22 02:16*	*1*
Tetrachloro-m-xylene	*74*		*39 - 119*	*05/12/22 09:45*	*05/18/22 02:16*	*1*
Tetrachloro-m-xylene	*79*		*39 - 119*	*05/12/22 09:45*	*05/18/22 02:16*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**2.2**		1.0	0.76	mg/L			05/13/22 23:25	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.5**		0.1	0.1	SU			05/12/22 07:54	1
Specific Conductance	**590**		1.0	1.0	umhos/cm			05/12/22 07:59	1
Oxidation Reduction Potential	**97**		10	10	millivolts			05/12/22 07:54	1

Client Sample ID: TRW 20% PC, 4% AC T03
Lab Sample ID: 180-136058-30
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/14/22 19:11	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/14/22 19:11	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/14/22 19:11	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/14/22 19:11	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/14/22 19:11	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/14/22 19:11	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/14/22 19:11	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/14/22 19:11	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			05/14/22 19:11	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/14/22 19:11	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/14/22 19:11	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/14/22 19:11	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			05/14/22 19:11	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/14/22 19:11	1
2-Hexanone	ND		5.0	4.2	ug/L			05/14/22 19:11	1
Acetone	ND		20	5.5	ug/L			05/14/22 19:11	1
Benzene	ND		5.0	2.0	ug/L			05/14/22 19:11	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/14/22 19:11	1
Bromoform	ND		5.0	2.6	ug/L			05/14/22 19:11	1

Client Sample ID: TRW 20% PC, 4% AC T03
Lab Sample ID: 180-136058-30
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		5.0	3.0	ug/L			05/14/22 19:11	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/14/22 19:11	1
Chlorobenzene	**2.2**	**J**	5.0	1.6	ug/L			05/14/22 19:11	1
Chloroethane	ND		5.0	2.6	ug/L			05/14/22 19:11	1
Chloroform	ND		5.0	2.1	ug/L			05/14/22 19:11	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			05/14/22 19:11	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/14/22 19:11	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/14/22 19:11	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/14/22 19:11	1
Freon-11	ND		5.0	1.5	ug/L			05/14/22 19:11	1
Freon-113	ND		5.0	1.9	ug/L			05/14/22 19:11	1
Freon-12	ND		5.0	2.9	ug/L			05/14/22 19:11	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/14/22 19:11	1
Methyl bromide	ND		5.0	4.5	ug/L			05/14/22 19:11	1
Methyl chloride	ND		5.0	3.9	ug/L			05/14/22 19:11	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/14/22 19:11	1
Methylene Chloride	**6.7**		5.0	3.9	ug/L			05/14/22 19:11	1
Styrene	ND		5.0	1.3	ug/L			05/14/22 19:11	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/14/22 19:11	1
Toluene	ND		5.0	1.7	ug/L			05/14/22 19:11	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/14/22 19:11	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/14/22 19:11	1
Trichloroethene	ND		5.0	1.5	ug/L			05/14/22 19:11	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/14/22 19:11	1
Xylenes, Total	ND		10	4.3	ug/L			05/14/22 19:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*76*		*52 - 151*		*05/14/22 19:11*	*1*
4-Bromofluorobenzene (Surr)	*69*		*49 - 118*		*05/14/22 19:11*	*1*
Dibromofluoromethane (Surr)	*97*		*60 - 132*		*05/14/22 19:11*	*1*
Toluene-d8 (Surr)	*70*		*53 - 124*		*05/14/22 19:11*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.78	0.11	ug/L		05/20/22 13:09	05/27/22 18:19	1
1,4-Dichlorobenzene	ND		0.78	0.048	ug/L		05/20/22 13:09	05/27/22 18:19	1
2,2'-oxybis[1-chloropropane]	ND		0.15	0.045	ug/L		05/20/22 13:09	05/27/22 18:19	1
2,4-Dichlorophenol	ND		0.15	0.040	ug/L		05/20/22 13:09	05/27/22 18:19	1
2,4-Dimethylphenol	ND		0.78	0.13	ug/L		05/20/22 13:09	05/27/22 18:19	1
2,4-Dinitrophenol	ND		7.8	1.2	ug/L		05/20/22 13:09	05/27/22 18:19	1
2,4-Dinitrotoluene	ND		0.78	0.28	ug/L		05/20/22 13:09	05/27/22 18:19	1
2,6-Dinitrotoluene	ND		0.78	0.14	ug/L		05/20/22 13:09	05/27/22 18:19	1
2-Chloronaphthalene	ND		0.15	0.046	ug/L		05/20/22 13:09	05/27/22 18:19	1
2-Nitroaniline	ND		3.9	0.43	ug/L		05/20/22 13:09	05/27/22 18:19	1
3,3'-Dichlorobenzidine	ND		0.78	0.46	ug/L		05/20/22 13:09	05/27/22 18:19	1
3-Nitroaniline	ND		3.9	0.34	ug/L		05/20/22 13:09	05/27/22 18:19	1
p-Chloroaniline	ND		0.78	0.29	ug/L		05/20/22 13:09	05/27/22 18:19	1
p-Nitroaniline	ND		3.9	0.28	ug/L		05/20/22 13:09	05/27/22 18:19	1
Acenaphthene	ND		0.15	0.051	ug/L		05/20/22 13:09	05/27/22 18:19	1
Anthracene	ND		0.15	0.038	ug/L		05/20/22 13:09	05/27/22 18:19	1

Client Sample ID: TRW 20% PC, 4% AC T03
Lab Sample ID: 180-136058-30
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Atrazine	ND		0.78	0.49	ug/L		05/20/22 13:09	05/27/22 18:19	1
Benzo[a]anthracene	ND		0.15	0.059	ug/L		05/20/22 13:09	05/27/22 18:19	1
Benzo[a]pyrene	ND		0.15	0.041	ug/L		05/20/22 13:09	05/27/22 18:19	1
Benzo[b]fluoranthene	ND		0.15	0.076	ug/L		05/20/22 13:09	05/27/22 18:19	1
Benzo[k]fluoranthene	ND		0.15	0.069	ug/L		05/20/22 13:09	05/27/22 18:19	1
Bis(2-chloroethoxy)methane	ND		0.78	0.12	ug/L		05/20/22 13:09	05/27/22 18:19	1
Dichloroethyl ether	ND		0.15	0.031	ug/L		05/20/22 13:09	05/27/22 18:19	1
Bis(2-ethylhexyl) phthalate	ND		7.8	4.9	ug/L		05/20/22 13:09	05/27/22 18:19	1
Benzyl butyl phthalate	ND		0.78	0.36	ug/L		05/20/22 13:09	05/27/22 18:19	1
Chrysene	ND		0.15	0.063	ug/L		05/20/22 13:09	05/27/22 18:19	1
Diethyl phthalate	ND		0.78	0.44	ug/L		05/20/22 13:09	05/27/22 18:19	1
Dimethyl phthalate	ND		0.78	0.16	ug/L		05/20/22 13:09	05/27/22 18:19	1
Dibutylphthalate	ND		0.78	0.58	ug/L		05/20/22 13:09	05/27/22 18:19	1
Di-n-octyl phthalate	ND		0.78	0.54	ug/L		05/20/22 13:09	05/27/22 18:19	1
Fluoranthene	ND		0.15	0.047	ug/L		05/20/22 13:09	05/27/22 18:19	1
Fluorene	ND		0.15	0.054	ug/L		05/20/22 13:09	05/27/22 18:19	1
Hexachlorobutadiene	ND		0.15	0.054	ug/L		05/20/22 13:09	05/27/22 18:19	1
Hexachlorocyclopentadiene	ND		0.78	0.39	ug/L		05/20/22 13:09	05/27/22 18:19	1
Hexachloroethane	ND		0.78	0.10	ug/L		05/20/22 13:09	05/27/22 18:19	1
Indeno[1,2,3-cd]pyrene	ND		0.15	0.066	ug/L		05/20/22 13:09	05/27/22 18:19	1
Isophorone	ND		0.78	0.15	ug/L		05/20/22 13:09	05/27/22 18:19	1
Nitrobenzene	ND		1.6	0.39	ug/L		05/20/22 13:09	05/27/22 18:19	1
N-Nitrosodiphenylamine	ND		0.78	0.093	ug/L		05/20/22 13:09	05/27/22 18:19	1
Pentachlorophenol	ND		3.9	0.66	ug/L		05/20/22 13:09	05/27/22 18:19	1
Phenanthrene	ND		0.15	0.043	ug/L		05/20/22 13:09	05/27/22 18:19	1
Phenol	ND		0.78	0.38	ug/L		05/20/22 13:09	05/27/22 18:19	1
Pyrene	ND		0.15	0.042	ug/L		05/20/22 13:09	05/27/22 18:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*50*		*23 - 128*	*05/20/22 13:09*	*05/27/22 18:19*	*1*
2-Fluorobiphenyl	*42*		*20 - 105*	*05/20/22 13:09*	*05/27/22 18:19*	*1*
2-Fluorophenol (Surr)	*43*		*20 - 105*	*05/20/22 13:09*	*05/27/22 18:19*	*1*
Nitrobenzene-d5 (Surr)	*46*		*20 - 107*	*05/20/22 13:09*	*05/27/22 18:19*	*1*
Phenol-d5 (Surr)	*44*		*20 - 106*	*05/20/22 13:09*	*05/27/22 18:19*	*1*
Terphenyl-d14 (Surr)	*50*		*22 - 120*	*05/20/22 13:09*	*05/27/22 18:19*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.1**		0.20	0.041	mg/L		05/18/22 10:06	05/19/22 17:32	1
Antimony	**0.038**		0.010	0.0062	mg/L		05/18/22 10:06	05/19/22 17:32	1
Arsenic	ND		0.010	0.0083	mg/L		05/18/22 10:06	05/19/22 17:32	1
Barium	**0.17**	**J**	0.20	0.0063	mg/L		05/18/22 10:06	05/19/22 17:32	1
Beryllium	ND		0.0040	0.0015	mg/L		05/18/22 10:06	05/19/22 17:32	1
Cadmium	ND		0.0050	0.00030	mg/L		05/18/22 10:06	05/19/22 17:32	1
Calcium	**75**		5.0	0.32	mg/L		05/18/22 10:06	05/19/22 17:32	1
Chromium	ND		0.0050	0.0016	mg/L		05/18/22 10:06	05/19/22 17:32	1
Cobalt	ND		0.050	0.0019	mg/L		05/18/22 10:06	05/19/22 17:32	1
Copper	**0.013**	**J**	0.025	0.0022	mg/L		05/18/22 10:06	05/19/22 17:32	1
Iron	ND		0.10	0.072	mg/L		05/18/22 10:06	05/19/22 17:32	1
Lead	ND		0.010	0.0044	mg/L		05/18/22 10:06	05/19/22 17:32	1

Client Sample ID: TRW 20% PC, 4% AC T03
Lab Sample ID: 180-136058-30
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 6010D - Metals (ICP) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		5.0	0.26	mg/L		05/18/22 10:06	05/19/22 17:32	1
Manganese	ND		0.015	0.0024	mg/L		05/18/22 10:06	05/19/22 17:32	1
Nickel	ND		0.040	0.0019	mg/L		05/18/22 10:06	05/19/22 17:32	1
Potassium	**1.4**	**J**	5.0	0.80	mg/L		05/18/22 10:06	05/19/22 17:32	1
Selenium	ND		0.010	0.0037	mg/L		05/18/22 10:06	05/19/22 17:32	1
Silver	ND		0.0050	0.00091	mg/L		05/18/22 10:06	05/19/22 17:32	1
Sodium	**2.2**	**J**	5.0	0.30	mg/L		05/18/22 10:06	05/19/22 17:32	1
Thallium	ND		0.020	0.0030	mg/L		05/18/22 10:06	05/19/22 17:32	1
Vanadium	ND		0.050	0.0053	mg/L		05/18/22 10:06	05/19/22 17:32	1
Zinc	ND		0.020	0.0026	mg/L		05/18/22 10:06	05/19/22 17:32	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/18/22 14:54	05/19/22 13:04	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.6**		0.1	0.1	SU			05/13/22 07:45	1

Client Sample ID: TRW 20% PC, 4% AC T04
Lab Sample ID: 180-136058-31
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/18/22 13:02	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/18/22 13:02	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/18/22 13:02	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/18/22 13:02	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/18/22 13:02	1
1,2,4-Trichlorobenzene	ND	F2	5.0	3.7	ug/L			05/18/22 13:02	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/18/22 13:02	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/18/22 13:02	1
1,2-Dichlorobenzene	ND	*-	5.0	2.0	ug/L			05/18/22 13:02	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/18/22 13:02	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/18/22 13:02	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/18/22 13:02	1
1,4-Dichlorobenzene	ND	*-	5.0	1.0	ug/L			05/18/22 13:02	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/18/22 13:02	1
2-Hexanone	ND		5.0	4.2	ug/L			05/18/22 13:02	1
Acetone	ND	*-	20	5.5	ug/L			05/18/22 13:02	1
Benzene	ND		5.0	2.0	ug/L			05/18/22 13:02	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/18/22 13:02	1
Bromoform	ND		5.0	2.6	ug/L			05/18/22 13:02	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/18/22 13:02	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/18/22 13:02	1
Chlorobenzene	ND		5.0	1.6	ug/L			05/18/22 13:02	1
Chloroethane	ND		5.0	2.6	ug/L			05/18/22 13:02	1
Chloroform	ND		5.0	2.1	ug/L			05/18/22 13:02	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			05/18/22 13:02	1

Client Sample ID: TRW 20% PC, 4% AC T04
Lab Sample ID: 180-136058-31

Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/18/22 13:02	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/18/22 13:02	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/18/22 13:02	1
Freon-11	ND		5.0	1.5	ug/L			05/18/22 13:02	1
Freon-113	ND		5.0	1.9	ug/L			05/18/22 13:02	1
Freon-12	ND		5.0	2.9	ug/L			05/18/22 13:02	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/18/22 13:02	1
Methyl bromide	ND		5.0	4.5	ug/L			05/18/22 13:02	1
Methyl chloride	ND		5.0	3.9	ug/L			05/18/22 13:02	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/18/22 13:02	1
Methylene Chloride	**17**	**F2 F1**	5.0	3.9	ug/L			05/18/22 13:02	1
Styrene	ND		5.0	1.3	ug/L			05/18/22 13:02	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/18/22 13:02	1
Toluene	ND		5.0	1.7	ug/L			05/18/22 13:02	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/18/22 13:02	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/18/22 13:02	1
Trichloroethene	ND		5.0	1.5	ug/L			05/18/22 13:02	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/18/22 13:02	1
Xylenes, Total	ND		10	4.3	ug/L			05/18/22 13:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*63*		*52 - 151*		*05/18/22 13:02*	*1*
4-Bromofluorobenzene (Surr)	*94*		*49 - 118*		*05/18/22 13:02*	*1*
Dibromofluoromethane (Surr)	*89*		*60 - 132*		*05/18/22 13:02*	*1*
Toluene-d8 (Surr)	*69*		*53 - 124*		*05/18/22 13:02*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.78	0.11	ug/L		05/25/22 07:34	06/01/22 13:53	1
1,4-Dichlorobenzene	ND		0.78	0.048	ug/L		05/25/22 07:34	06/01/22 13:53	1
2,2'-oxybis[1-chloropropane]	ND		0.15	0.045	ug/L		05/25/22 07:34	06/01/22 13:53	1
2,4-Dichlorophenol	ND		0.15	0.040	ug/L		05/25/22 07:34	06/01/22 13:53	1
2,4-Dimethylphenol	ND		0.78	0.13	ug/L		05/25/22 07:34	06/01/22 13:53	1
2,4-Dinitrophenol	ND		7.8	1.2	ug/L		05/25/22 07:34	06/01/22 13:53	1
2,4-Dinitrotoluene	ND		0.78	0.28	ug/L		05/25/22 07:34	06/01/22 13:53	1
2,6-Dinitrotoluene	ND		0.78	0.14	ug/L		05/25/22 07:34	06/01/22 13:53	1
2-Chloronaphthalene	ND		0.15	0.046	ug/L		05/25/22 07:34	06/01/22 13:53	1
2-Nitroaniline	ND		3.9	0.43	ug/L		05/25/22 07:34	06/01/22 13:53	1
3,3'-Dichlorobenzidine	ND		0.78	0.46	ug/L		05/25/22 07:34	06/01/22 13:53	1
3-Nitroaniline	ND		3.9	0.34	ug/L		05/25/22 07:34	06/01/22 13:53	1
p-Chloroaniline	ND		0.78	0.29	ug/L		05/25/22 07:34	06/01/22 13:53	1
p-Nitroaniline	ND		3.9	0.28	ug/L		05/25/22 07:34	06/01/22 13:53	1
Acenaphthene	ND		0.15	0.051	ug/L		05/25/22 07:34	06/01/22 13:53	1
Anthracene	ND		0.15	0.038	ug/L		05/25/22 07:34	06/01/22 13:53	1
Atrazine	ND		0.78	0.49	ug/L		05/25/22 07:34	06/01/22 13:53	1
Benzo[a]anthracene	ND		0.15	0.059	ug/L		05/25/22 07:34	06/01/22 13:53	1
Benzo[a]pyrene	ND		0.15	0.041	ug/L		05/25/22 07:34	06/01/22 13:53	1
Benzo[b]fluoranthene	ND		0.15	0.076	ug/L		05/25/22 07:34	06/01/22 13:53	1
Benzo[k]fluoranthene	ND		0.15	0.069	ug/L		05/25/22 07:34	06/01/22 13:53	1
Bis(2-chloroethoxy)methane	ND		0.78	0.12	ug/L		05/25/22 07:34	06/01/22 13:53	1

Client Sample ID: TRW 20% PC, 4% AC T04
Lab Sample ID: 180-136058-31
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloroethyl ether	ND		0.15	0.031	ug/L		05/25/22 07:34	06/01/22 13:53	1
Bis(2-ethylhexyl) phthalate	ND		7.8	4.9	ug/L		05/25/22 07:34	06/01/22 13:53	1
Benzyl butyl phthalate	**0.53**	**J**	0.78	0.36	ug/L		05/25/22 07:34	06/01/22 13:53	1
Chrysene	ND		0.15	0.063	ug/L		05/25/22 07:34	06/01/22 13:53	1
Diethyl phthalate	ND		0.78	0.44	ug/L		05/25/22 07:34	06/01/22 13:53	1
Dimethyl phthalate	ND		0.78	0.16	ug/L		05/25/22 07:34	06/01/22 13:53	1
Dibutylphthalate	ND		0.78	0.58	ug/L		05/25/22 07:34	06/01/22 13:53	1
Di-n-octyl phthalate	ND		0.78	0.54	ug/L		05/25/22 07:34	06/01/22 13:53	1
Fluoranthene	ND		0.15	0.047	ug/L		05/25/22 07:34	06/01/22 13:53	1
Fluorene	ND		0.15	0.054	ug/L		05/25/22 07:34	06/01/22 13:53	1
Hexachlorobutadiene	ND		0.15	0.054	ug/L		05/25/22 07:34	06/01/22 13:53	1
Hexachlorocyclopentadiene	ND		0.78	0.39	ug/L		05/25/22 07:34	06/01/22 13:53	1
Hexachloroethane	ND		0.78	0.10	ug/L		05/25/22 07:34	06/01/22 13:53	1
Indeno[1,2,3-cd]pyrene	ND		0.15	0.066	ug/L		05/25/22 07:34	06/01/22 13:53	1
Isophorone	ND		0.78	0.15	ug/L		05/25/22 07:34	06/01/22 13:53	1
Nitrobenzene	ND		1.6	0.39	ug/L		05/25/22 07:34	06/01/22 13:53	1
N-Nitrosodiphenylamine	ND		0.78	0.093	ug/L		05/25/22 07:34	06/01/22 13:53	1
Pentachlorophenol	ND		3.9	0.66	ug/L		05/25/22 07:34	06/01/22 13:53	1
Phenanthrene	**0.088**	**J**	0.15	0.043	ug/L		05/25/22 07:34	06/01/22 13:53	1
Phenol	ND		0.78	0.38	ug/L		05/25/22 07:34	06/01/22 13:53	1
Pyrene	ND		0.15	0.042	ug/L		05/25/22 07:34	06/01/22 13:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*74*		*23 - 128*	*05/25/22 07:34*	*06/01/22 13:53*	*1*
2-Fluorobiphenyl	*84*		*20 - 105*	*05/25/22 07:34*	*06/01/22 13:53*	*1*
2-Fluorophenol (Surr)	*83*		*20 - 105*	*05/25/22 07:34*	*06/01/22 13:53*	*1*
Nitrobenzene-d5 (Surr)	*80*		*20 - 107*	*05/25/22 07:34*	*06/01/22 13:53*	*1*
Phenol-d5 (Surr)	*80*		*20 - 106*	*05/25/22 07:34*	*06/01/22 13:53*	*1*
Terphenyl-d14 (Surr)	*82*		*22 - 120*	*05/25/22 07:34*	*06/01/22 13:53*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2.2**		0.20	0.041	mg/L		05/18/22 10:06	05/19/22 16:55	1
Antimony	**0.055**		0.010	0.0062	mg/L		05/18/22 10:06	05/19/22 16:55	1
Arsenic	ND		0.010	0.0083	mg/L		05/18/22 10:06	05/19/22 16:55	1
Barium	**0.28**		0.20	0.0063	mg/L		05/18/22 10:06	05/19/22 16:55	1
Beryllium	ND		0.0040	0.0015	mg/L		05/18/22 10:06	05/19/22 16:55	1
Cadmium	ND		0.0050	0.00030	mg/L		05/18/22 10:06	05/19/22 16:55	1
Calcium	**140**		10	0.64	mg/L		05/18/22 10:06	05/20/22 09:39	2
Chromium	ND		0.0050	0.0016	mg/L		05/18/22 10:06	05/19/22 16:55	1
Cobalt	ND		0.050	0.0019	mg/L		05/18/22 10:06	05/19/22 16:55	1
Copper	**0.032**		0.025	0.0022	mg/L		05/18/22 10:06	05/19/22 16:55	1
Iron	**0.099**	**J**	0.10	0.072	mg/L		05/18/22 10:06	05/19/22 16:55	1
Lead	ND		0.010	0.0044	mg/L		05/18/22 10:06	05/19/22 16:55	1
Magnesium	ND		5.0	0.26	mg/L		05/18/22 10:06	05/19/22 16:55	1
Manganese	ND		0.015	0.0024	mg/L		05/18/22 10:06	05/19/22 16:55	1
Nickel	**0.0070**	**J**	0.040	0.0019	mg/L		05/18/22 10:06	05/19/22 16:55	1
Potassium	**2.7**	**J**	5.0	0.80	mg/L		05/18/22 10:06	05/19/22 16:55	1
Selenium	ND		0.010	0.0037	mg/L		05/18/22 10:06	05/19/22 16:55	1
Silver	ND		0.0050	0.00091	mg/L		05/18/22 10:06	05/19/22 16:55	1

Client Sample ID: TRW 20% PC, 4% AC T04
Lab Sample ID: 180-136058-31
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 6010D - Metals (ICP) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	**4.9**	**J**	5.0	0.30	mg/L		05/18/22 10:06	05/19/22 16:55	1
Thallium	ND		0.020	0.0030	mg/L		05/18/22 10:06	05/19/22 16:55	1
Vanadium	ND		0.050	0.0053	mg/L		05/18/22 10:06	05/19/22 16:55	1
Zinc	**0.0026**	**J**	0.020	0.0026	mg/L		05/18/22 10:06	05/19/22 16:55	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/01/22 05:00	06/01/22 17:00	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**12.0**		0.1	0.1	SU			05/18/22 07:45	1

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T01
Lab Sample ID: 180-136058-37
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/12/22 12:25	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/12/22 12:25	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/12/22 12:25	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/12/22 12:25	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/12/22 12:25	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/12/22 12:25	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/12/22 12:25	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/12/22 12:25	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			05/12/22 12:25	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/12/22 12:25	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/12/22 12:25	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/12/22 12:25	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			05/12/22 12:25	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/12/22 12:25	1
2-Hexanone	ND		5.0	4.2	ug/L			05/12/22 12:25	1
Acetone	ND		20	5.5	ug/L			05/12/22 12:25	1
Benzene	ND		5.0	2.0	ug/L			05/12/22 12:25	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/12/22 12:25	1
Bromoform	ND		5.0	2.6	ug/L			05/12/22 12:25	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/12/22 12:25	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/12/22 12:25	1
Chlorobenzene	ND		5.0	1.6	ug/L			05/12/22 12:25	1
Chloroethane	ND		5.0	2.6	ug/L			05/12/22 12:25	1
Chloroform	ND		5.0	2.1	ug/L			05/12/22 12:25	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			05/12/22 12:25	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/12/22 12:25	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/12/22 12:25	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/12/22 12:25	1
Freon-11	ND		5.0	1.5	ug/L			05/12/22 12:25	1
Freon-113	ND		5.0	1.9	ug/L			05/12/22 12:25	1
Freon-12	ND		5.0	2.9	ug/L			05/12/22 12:25	1

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T01
Lab Sample ID: 180-136058-37
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/12/22 12:25	1
Methyl bromide	ND		5.0	4.5	ug/L			05/12/22 12:25	1
Methyl chloride	ND		5.0	3.9	ug/L			05/12/22 12:25	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/12/22 12:25	1
Methylene Chloride	**8.3**		5.0	3.9	ug/L			05/12/22 12:25	1
Styrene	ND		5.0	1.3	ug/L			05/12/22 12:25	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/12/22 12:25	1
Toluene	ND		5.0	1.7	ug/L			05/12/22 12:25	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/12/22 12:25	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/12/22 12:25	1
Trichloroethene	ND		5.0	1.5	ug/L			05/12/22 12:25	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/12/22 12:25	1
Xylenes, Total	ND		10	4.3	ug/L			05/12/22 12:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*79*		*52 - 151*		*05/12/22 12:25*	*1*
4-Bromofluorobenzene (Surr)	*70*		*49 - 118*		*05/12/22 12:25*	*1*
Dibromofluoromethane (Surr)	*112*		*60 - 132*		*05/12/22 12:25*	*1*
Toluene-d8 (Surr)	*78*		*53 - 124*		*05/12/22 12:25*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.78	0.11	ug/L		05/18/22 15:46	05/23/22 22:28	1
1,4-Dichlorobenzene	ND		0.78	0.048	ug/L		05/18/22 15:46	05/23/22 22:28	1
2,2'-oxybis[1-chloropropane]	ND		0.15	0.045	ug/L		05/18/22 15:46	05/23/22 22:28	1
2,4-Dichlorophenol	ND		0.15	0.040	ug/L		05/18/22 15:46	05/23/22 22:28	1
2,4-Dimethylphenol	ND		0.78	0.13	ug/L		05/18/22 15:46	05/23/22 22:28	1
2,4-Dinitrophenol	ND		7.8	1.2	ug/L		05/18/22 15:46	05/23/22 22:28	1
2,4-Dinitrotoluene	ND		0.78	0.28	ug/L		05/18/22 15:46	05/23/22 22:28	1
2,6-Dinitrotoluene	ND		0.78	0.14	ug/L		05/18/22 15:46	05/23/22 22:28	1
2-Chloronaphthalene	ND		0.15	0.046	ug/L		05/18/22 15:46	05/23/22 22:28	1
2-Nitroaniline	ND		3.9	0.43	ug/L		05/18/22 15:46	05/23/22 22:28	1
3,3'-Dichlorobenzidine	ND		0.78	0.46	ug/L		05/18/22 15:46	05/23/22 22:28	1
3-Nitroaniline	ND		3.9	0.34	ug/L		05/18/22 15:46	05/23/22 22:28	1
p-Chloroaniline	ND		0.78	0.29	ug/L		05/18/22 15:46	05/23/22 22:28	1
p-Nitroaniline	ND		3.9	0.28	ug/L		05/18/22 15:46	05/23/22 22:28	1
Acenaphthene	ND		0.15	0.051	ug/L		05/18/22 15:46	05/23/22 22:28	1
Anthracene	ND		0.15	0.038	ug/L		05/18/22 15:46	05/23/22 22:28	1
Atrazine	ND		0.78	0.49	ug/L		05/18/22 15:46	05/23/22 22:28	1
Benzo[a]anthracene	ND		0.15	0.059	ug/L		05/18/22 15:46	05/23/22 22:28	1
Benzo[a]pyrene	ND		0.15	0.041	ug/L		05/18/22 15:46	05/23/22 22:28	1
Benzo[b]fluoranthene	ND		0.15	0.076	ug/L		05/18/22 15:46	05/23/22 22:28	1
Benzo[k]fluoranthene	ND		0.15	0.069	ug/L		05/18/22 15:46	05/23/22 22:28	1
Bis(2-chloroethoxy)methane	ND		0.78	0.12	ug/L		05/18/22 15:46	05/23/22 22:28	1
Dichloroethyl ether	ND		0.15	0.031	ug/L		05/18/22 15:46	05/23/22 22:28	1
Bis(2-ethylhexyl) phthalate	ND		7.8	4.9	ug/L		05/18/22 15:46	05/23/22 22:28	1
Benzyl butyl phthalate	ND		0.78	0.36	ug/L		05/18/22 15:46	05/23/22 22:28	1
Chrysene	ND		0.15	0.063	ug/L		05/18/22 15:46	05/23/22 22:28	1
Diethyl phthalate	ND		0.78	0.44	ug/L		05/18/22 15:46	05/23/22 22:28	1
Dimethyl phthalate	**0.20**	**J**	0.78	0.16	ug/L		05/18/22 15:46	05/23/22 22:28	1

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T01
Lab Sample ID: 180-136058-37
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibutylphthalate	**3.2**		0.78	0.58	ug/L		05/18/22 15:46	05/23/22 22:28	1
Di-n-octyl phthalate	ND		0.78	0.54	ug/L		05/18/22 15:46	05/23/22 22:28	1
Fluoranthene	ND		0.15	0.047	ug/L		05/18/22 15:46	05/23/22 22:28	1
Fluorene	ND		0.15	0.054	ug/L		05/18/22 15:46	05/23/22 22:28	1
Hexachlorobutadiene	ND		0.15	0.054	ug/L		05/18/22 15:46	05/23/22 22:28	1
Hexachlorocyclopentadiene	ND		0.78	0.39	ug/L		05/18/22 15:46	05/23/22 22:28	1
Hexachloroethane	ND		0.78	0.10	ug/L		05/18/22 15:46	05/23/22 22:28	1
Indeno[1,2,3-cd]pyrene	ND		0.15	0.066	ug/L		05/18/22 15:46	05/23/22 22:28	1
Isophorone	ND		0.78	0.15	ug/L		05/18/22 15:46	05/23/22 22:28	1
Nitrobenzene	ND		1.6	0.39	ug/L		05/18/22 15:46	05/23/22 22:28	1
N-Nitrosodiphenylamine	ND		0.78	0.093	ug/L		05/18/22 15:46	05/23/22 22:28	1
Pentachlorophenol	ND		3.9	0.66	ug/L		05/18/22 15:46	05/23/22 22:28	1
Phenanthrene	**0.13**	**J**	0.15	0.043	ug/L		05/18/22 15:46	05/23/22 22:28	1
Phenol	**0.78**		0.78	0.38	ug/L		05/18/22 15:46	05/23/22 22:28	1
Pyrene	ND		0.15	0.042	ug/L		05/18/22 15:46	05/23/22 22:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*85*		*23 - 128*	*05/18/22 15:46*	*05/23/22 22:28*	*1*
2-Fluorobiphenyl	*61*		*20 - 105*	*05/18/22 15:46*	*05/23/22 22:28*	*1*
2-Fluorophenol (Surr)	*58*		*20 - 105*	*05/18/22 15:46*	*05/23/22 22:28*	*1*
Nitrobenzene-d5 (Surr)	*66*		*20 - 107*	*05/18/22 15:46*	*05/23/22 22:28*	*1*
Phenol-d5 (Surr)	*51*		*20 - 106*	*05/18/22 15:46*	*05/23/22 22:28*	*1*
Terphenyl-d14 (Surr)	*74*		*22 - 120*	*05/18/22 15:46*	*05/23/22 22:28*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.58**		0.20	0.041	mg/L		05/17/22 10:47	05/18/22 16:36	1
Antimony	**0.018**		0.010	0.0062	mg/L		05/17/22 10:47	05/18/22 16:36	1
Arsenic	ND		0.010	0.0083	mg/L		05/17/22 10:47	05/18/22 16:36	1
Barium	**0.015**	**J**	0.20	0.0063	mg/L		05/17/22 10:47	05/18/22 16:36	1
Beryllium	ND		0.0040	0.0015	mg/L		05/17/22 10:47	05/18/22 16:36	1
Cadmium	ND		0.0050	0.00030	mg/L		05/17/22 10:47	05/18/22 16:36	1
Calcium	**10**		5.0	0.32	mg/L		05/17/22 10:47	05/18/22 16:36	1
Chromium	ND		0.0050	0.0016	mg/L		05/17/22 10:47	05/18/22 16:36	1
Cobalt	ND		0.050	0.0019	mg/L		05/17/22 10:47	05/18/22 16:36	1
Copper	**0.025**		0.025	0.0022	mg/L		05/17/22 10:47	05/18/22 16:36	1
Iron	ND		0.10	0.072	mg/L		05/17/22 10:47	05/18/22 16:36	1
Lead	ND		0.010	0.0044	mg/L		05/17/22 10:47	05/18/22 16:36	1
Magnesium	ND		5.0	0.26	mg/L		05/17/22 10:47	05/18/22 16:36	1
Manganese	ND		0.015	0.0024	mg/L		05/17/22 10:47	05/18/22 16:36	1
Nickel	**0.0067**	**J**	0.040	0.0019	mg/L		05/17/22 10:47	05/18/22 16:36	1
Potassium	**1.1**	**J**	5.0	0.80	mg/L		05/17/22 10:47	05/18/22 16:36	1
Selenium	ND		0.010	0.0037	mg/L		05/17/22 10:47	05/18/22 16:36	1
Silver	ND		0.0050	0.00091	mg/L		05/17/22 10:47	05/18/22 16:36	1
Sodium	**34**		5.0	0.30	mg/L		05/17/22 10:47	05/18/22 16:36	1
Thallium	ND		0.020	0.0030	mg/L		05/17/22 10:47	05/18/22 16:36	1
Vanadium	ND		0.050	0.0053	mg/L		05/17/22 10:47	05/18/22 16:36	1
Zinc	ND		0.020	0.0026	mg/L		05/17/22 10:47	05/18/22 16:36	1

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T01
Lab Sample ID: 180-136058-37
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/18/22 14:54	05/19/22 12:59	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.1**		0.1	0.1	SU			05/11/22 09:51	1

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T02
Lab Sample ID: 180-136058-38
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	**0.0070**	**p**	0.0018	0.00074	ug/L		05/12/22 09:45	05/18/22 02:34	1
4,4'-DDE	**0.0033**		0.0018	0.00041	ug/L		05/12/22 09:45	05/18/22 02:34	1
4,4'-DDT	ND		0.0018	0.00096	ug/L		05/12/22 09:45	05/18/22 02:34	1
alpha-BHC	ND		0.0018	0.00033	ug/L		05/12/22 09:45	05/18/22 02:34	1
alpha-Chlordane	ND		0.0018	0.00051	ug/L		05/12/22 09:45	05/18/22 02:34	1
beta-BHC	ND		0.0018	0.00051	ug/L		05/12/22 09:45	05/18/22 02:34	1
delta-BHC	ND		0.0018	0.00089	ug/L		05/12/22 09:45	05/18/22 02:34	1
Dieldrin	ND		0.0018	0.00038	ug/L		05/12/22 09:45	05/18/22 02:34	1
Endrin aldehyde	ND		0.0018	0.00072	ug/L		05/12/22 09:45	05/18/22 02:34	1
Endrin ketone	ND		0.0018	0.00055	ug/L		05/12/22 09:45	05/18/22 02:34	1
gamma-BHC (Lindane)	ND		0.0018	0.00041	ug/L		05/12/22 09:45	05/18/22 02:34	1
gamma-Chlordane	ND		0.0018	0.00057	ug/L		05/12/22 09:45	05/18/22 02:34	1
Heptachlor	ND		0.0018	0.00063	ug/L		05/12/22 09:45	05/18/22 02:34	1
Heptachlor epoxide	ND		0.0018	0.00047	ug/L		05/12/22 09:45	05/18/22 02:34	1
Hexachlorobenzene	ND		0.0018	0.0013	ug/L		05/12/22 09:45	05/18/22 02:34	1
Toxaphene	ND		0.14	0.068	ug/L		05/12/22 09:45	05/18/22 02:34	1
Endosulfan II	ND		0.0018	0.00044	ug/L		05/12/22 09:45	05/18/22 02:34	1
Methoxychlor	ND		0.0018	0.0011	ug/L		05/12/22 09:45	05/18/22 02:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*97*		*46 - 114*	*05/12/22 09:45*	*05/18/22 02:34*	*1*
DCB Decachlorobiphenyl (Surr)	*99*		*46 - 114*	*05/12/22 09:45*	*05/18/22 02:34*	*1*
Tetrachloro-m-xylene	*71*		*39 - 119*	*05/12/22 09:45*	*05/18/22 02:34*	*1*
Tetrachloro-m-xylene	*86*		*39 - 119*	*05/12/22 09:45*	*05/18/22 02:34*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**5.3**		1.0	0.76	mg/L			05/13/22 23:55	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.3**		0.1	0.1	SU			05/12/22 07:57	1
Specific Conductance	**450**		1.0	1.0	umhos/cm			05/12/22 08:02	1
Oxidation Reduction Potential	**91**		10	10	millivolts			05/12/22 07:57	1

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T03
Lab Sample ID: 180-136058-39
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	F1	5.0	2.5	ug/L			05/14/22 18:45	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/14/22 18:45	1
1,1,2-Trichloroethane	ND	F2 F1	5.0	2.4	ug/L			05/14/22 18:45	1
1,1-Dichloroethane	ND	F1	5.0	1.8	ug/L			05/14/22 18:45	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/14/22 18:45	1
1,2,4-Trichlorobenzene	ND	F2	5.0	3.7	ug/L			05/14/22 18:45	1
1,2-Dibromo-3-Chloropropane	ND	F2	5.0	3.1	ug/L			05/14/22 18:45	1
1,2-Dibromoethane	ND	F2 F1	5.0	2.7	ug/L			05/14/22 18:45	1
1,2-Dichlorobenzene	ND	F2 F1	5.0	2.0	ug/L			05/14/22 18:45	1
1,2-Dichloroethane	ND	F2 F1	5.0	1.5	ug/L			05/14/22 18:45	1
1,2-Dichloropropane	ND	F2 F1	5.0	2.5	ug/L			05/14/22 18:45	1
1,3-Dichlorobenzene	ND	F2 F1	5.0	1.6	ug/L			05/14/22 18:45	1
1,4-Dichlorobenzene	ND	F2 F1	5.0	1.0	ug/L			05/14/22 18:45	1
2-Butanone (MEK)	ND	F2 F1	5.0	2.9	ug/L			05/14/22 18:45	1
2-Hexanone	ND	F2	5.0	4.2	ug/L			05/14/22 18:45	1
Acetone	ND	F2 F1	20	5.5	ug/L			05/14/22 18:45	1
Benzene	ND	F1	5.0	2.0	ug/L			05/14/22 18:45	1
Bromodichloromethane	ND	F2 F1	5.0	2.4	ug/L			05/14/22 18:45	1
Bromoform	ND		5.0	2.6	ug/L			05/14/22 18:45	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/14/22 18:45	1
Carbon tetrachloride	ND	F1	5.0	3.3	ug/L			05/14/22 18:45	1
Chlorobenzene	**2.9**	**J F1**	5.0	1.6	ug/L			05/14/22 18:45	1
Chloroethane	ND		5.0	2.6	ug/L			05/14/22 18:45	1
Chloroform	ND	F1	5.0	2.1	ug/L			05/14/22 18:45	1
cis-1,2-Dichloroethene	ND	F1	5.0	1.6	ug/L			05/14/22 18:45	1
cis-1,3-Dichloropropene	ND	F2 F1	5.0	1.6	ug/L			05/14/22 18:45	1
Dibromochloromethane	ND	F2 F1	5.0	2.4	ug/L			05/14/22 18:45	1
Ethylbenzene	ND	F1	5.0	2.2	ug/L			05/14/22 18:45	1
Freon-11	ND		5.0	1.5	ug/L			05/14/22 18:45	1
Freon-113	ND		5.0	1.9	ug/L			05/14/22 18:45	1
Freon-12	ND		5.0	2.9	ug/L			05/14/22 18:45	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/14/22 18:45	1
Methyl bromide	ND		5.0	4.5	ug/L			05/14/22 18:45	1
Methyl chloride	ND		5.0	3.9	ug/L			05/14/22 18:45	1
Methyl tert-butyl ether	ND	F1	5.0	3.7	ug/L			05/14/22 18:45	1
Methylene Chloride	**10**		5.0	3.9	ug/L			05/14/22 18:45	1
Styrene	ND	F1	5.0	1.3	ug/L			05/14/22 18:45	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/14/22 18:45	1
Toluene	ND	F1	5.0	1.7	ug/L			05/14/22 18:45	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/14/22 18:45	1
trans-1,3-Dichloropropene	ND	F2	5.0	1.7	ug/L			05/14/22 18:45	1
Trichloroethene	ND	F1	5.0	1.5	ug/L			05/14/22 18:45	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/14/22 18:45	1
Xylenes, Total	ND	F1	10	4.3	ug/L			05/14/22 18:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*82*		*52 - 151*		*05/14/22 18:45*	*1*
4-Bromofluorobenzene (Surr)	*83*		*49 - 118*		*05/14/22 18:45*	*1*
Dibromofluoromethane (Surr)	*97*		*60 - 132*		*05/14/22 18:45*	*1*
Toluene-d8 (Surr)	*73*		*53 - 124*		*05/14/22 18:45*	*1*

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T03
Lab Sample ID: 180-136058-39
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.78	0.11	ug/L		05/20/22 13:09	05/27/22 18:41	1
1,4-Dichlorobenzene	ND		0.78	0.048	ug/L		05/20/22 13:09	05/27/22 18:41	1
2,2'-oxybis[1-chloropropane]	ND		0.15	0.045	ug/L		05/20/22 13:09	05/27/22 18:41	1
2,4-Dichlorophenol	ND		0.15	0.040	ug/L		05/20/22 13:09	05/27/22 18:41	1
2,4-Dimethylphenol	ND		0.78	0.13	ug/L		05/20/22 13:09	05/27/22 18:41	1
2,4-Dinitrophenol	ND		7.8	1.2	ug/L		05/20/22 13:09	05/27/22 18:41	1
2,4-Dinitrotoluene	ND		0.78	0.28	ug/L		05/20/22 13:09	05/27/22 18:41	1
2,6-Dinitrotoluene	ND		0.78	0.14	ug/L		05/20/22 13:09	05/27/22 18:41	1
2-Chloronaphthalene	**0.058**	**J**	0.15	0.046	ug/L		05/20/22 13:09	05/27/22 18:41	1
2-Nitroaniline	ND		3.9	0.43	ug/L		05/20/22 13:09	05/27/22 18:41	1
3,3'-Dichlorobenzidine	ND		0.78	0.46	ug/L		05/20/22 13:09	05/27/22 18:41	1
3-Nitroaniline	ND		3.9	0.34	ug/L		05/20/22 13:09	05/27/22 18:41	1
p-Chloroaniline	ND		0.78	0.29	ug/L		05/20/22 13:09	05/27/22 18:41	1
p-Nitroaniline	ND		3.9	0.28	ug/L		05/20/22 13:09	05/27/22 18:41	1
Acenaphthene	ND		0.15	0.051	ug/L		05/20/22 13:09	05/27/22 18:41	1
Anthracene	ND		0.15	0.038	ug/L		05/20/22 13:09	05/27/22 18:41	1
Atrazine	ND		0.78	0.49	ug/L		05/20/22 13:09	05/27/22 18:41	1
Benzo[a]anthracene	ND		0.15	0.059	ug/L		05/20/22 13:09	05/27/22 18:41	1
Benzo[a]pyrene	ND		0.15	0.041	ug/L		05/20/22 13:09	05/27/22 18:41	1
Benzo[b]fluoranthene	ND		0.15	0.076	ug/L		05/20/22 13:09	05/27/22 18:41	1
Benzo[k]fluoranthene	ND		0.15	0.069	ug/L		05/20/22 13:09	05/27/22 18:41	1
Bis(2-chloroethoxy)methane	ND		0.78	0.12	ug/L		05/20/22 13:09	05/27/22 18:41	1
Dichloroethyl ether	ND		0.15	0.031	ug/L		05/20/22 13:09	05/27/22 18:41	1
Bis(2-ethylhexyl) phthalate	ND		7.8	4.9	ug/L		05/20/22 13:09	05/27/22 18:41	1
Benzyl butyl phthalate	ND		0.78	0.36	ug/L		05/20/22 13:09	05/27/22 18:41	1
Chrysene	ND		0.15	0.063	ug/L		05/20/22 13:09	05/27/22 18:41	1
Diethyl phthalate	ND		0.78	0.44	ug/L		05/20/22 13:09	05/27/22 18:41	1
Dimethyl phthalate	ND		0.78	0.16	ug/L		05/20/22 13:09	05/27/22 18:41	1
Dibutylphthalate	ND		0.78	0.58	ug/L		05/20/22 13:09	05/27/22 18:41	1
Di-n-octyl phthalate	ND		0.78	0.54	ug/L		05/20/22 13:09	05/27/22 18:41	1
Fluoranthene	ND		0.15	0.047	ug/L		05/20/22 13:09	05/27/22 18:41	1
Fluorene	ND		0.15	0.054	ug/L		05/20/22 13:09	05/27/22 18:41	1
Hexachlorobutadiene	ND		0.15	0.054	ug/L		05/20/22 13:09	05/27/22 18:41	1
Hexachlorocyclopentadiene	ND		0.78	0.39	ug/L		05/20/22 13:09	05/27/22 18:41	1
Hexachloroethane	ND		0.78	0.10	ug/L		05/20/22 13:09	05/27/22 18:41	1
Indeno[1,2,3-cd]pyrene	ND		0.15	0.066	ug/L		05/20/22 13:09	05/27/22 18:41	1
Isophorone	ND		0.78	0.15	ug/L		05/20/22 13:09	05/27/22 18:41	1
Nitrobenzene	ND		1.6	0.39	ug/L		05/20/22 13:09	05/27/22 18:41	1
N-Nitrosodiphenylamine	ND		0.78	0.093	ug/L		05/20/22 13:09	05/27/22 18:41	1
Pentachlorophenol	ND		3.9	0.66	ug/L		05/20/22 13:09	05/27/22 18:41	1
Phenanthrene	ND		0.15	0.043	ug/L		05/20/22 13:09	05/27/22 18:41	1
Phenol	**0.45**	**J**	0.78	0.38	ug/L		05/20/22 13:09	05/27/22 18:41	1
Pyrene	ND		0.15	0.042	ug/L		05/20/22 13:09	05/27/22 18:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*54*		*23 - 128*	*05/20/22 13:09*	*05/27/22 18:41*	*1*
2-Fluorobiphenyl	*40*		*20 - 105*	*05/20/22 13:09*	*05/27/22 18:41*	*1*
2-Fluorophenol (Surr)	*45*		*20 - 105*	*05/20/22 13:09*	*05/27/22 18:41*	*1*
Nitrobenzene-d5 (Surr)	*50*		*20 - 107*	*05/20/22 13:09*	*05/27/22 18:41*	*1*
Phenol-d5 (Surr)	*46*		*20 - 106*	*05/20/22 13:09*	*05/27/22 18:41*	*1*

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T03
Lab Sample ID: 180-136058-39
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*52*		*22 - 120*	*05/20/22 13:09*	*05/27/22 18:41*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.5**		0.20	0.041	mg/L		05/18/22 10:06	05/19/22 17:37	1
Antimony	**0.048**		0.010	0.0062	mg/L		05/18/22 10:06	05/19/22 17:37	1
Arsenic	ND		0.010	0.0083	mg/L		05/18/22 10:06	05/19/22 17:37	1
Barium	**0.057**	**J**	0.20	0.0063	mg/L		05/18/22 10:06	05/19/22 17:37	1
Beryllium	ND		0.0040	0.0015	mg/L		05/18/22 10:06	05/19/22 17:37	1
Cadmium	ND		0.0050	0.00030	mg/L		05/18/22 10:06	05/19/22 17:37	1
Calcium	**43**		5.0	0.32	mg/L		05/18/22 10:06	05/19/22 17:37	1
Chromium	**0.0017**	**J**	0.0050	0.0016	mg/L		05/18/22 10:06	05/19/22 17:37	1
Cobalt	ND		0.050	0.0019	mg/L		05/18/22 10:06	05/19/22 17:37	1
Copper	**0.028**		0.025	0.0022	mg/L		05/18/22 10:06	05/19/22 17:37	1
Iron	ND		0.10	0.072	mg/L		05/18/22 10:06	05/19/22 17:37	1
Lead	ND		0.010	0.0044	mg/L		05/18/22 10:06	05/19/22 17:37	1
Magnesium	ND		5.0	0.26	mg/L		05/18/22 10:06	05/19/22 17:37	1
Manganese	ND		0.015	0.0024	mg/L		05/18/22 10:06	05/19/22 17:37	1
Nickel	**0.0088**	**J**	0.040	0.0019	mg/L		05/18/22 10:06	05/19/22 17:37	1
Potassium	**1.5**	**J**	5.0	0.80	mg/L		05/18/22 10:06	05/19/22 17:37	1
Selenium	ND		0.010	0.0037	mg/L		05/18/22 10:06	05/19/22 17:37	1
Silver	ND		0.0050	0.00091	mg/L		05/18/22 10:06	05/19/22 17:37	1
Sodium	**34**		5.0	0.30	mg/L		05/18/22 10:06	05/19/22 17:37	1
Thallium	ND		0.020	0.0030	mg/L		05/18/22 10:06	05/19/22 17:37	1
Vanadium	ND		0.050	0.0053	mg/L		05/18/22 10:06	05/19/22 17:37	1
Zinc	ND		0.020	0.0026	mg/L		05/18/22 10:06	05/19/22 17:37	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/18/22 14:54	05/19/22 13:09	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.6**		0.1	0.1	SU			05/13/22 07:48	1

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T04
Lab Sample ID: 180-136058-40
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/18/22 17:28	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/18/22 17:28	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/18/22 17:28	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/18/22 17:28	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/18/22 17:28	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/18/22 17:28	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/18/22 17:28	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/18/22 17:28	1
1,2-Dichlorobenzene	ND	*-	5.0	2.0	ug/L			05/18/22 17:28	1

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T04
Lab Sample ID: 180-136058-40

Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/18/22 17:28	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/18/22 17:28	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/18/22 17:28	1
1,4-Dichlorobenzene	ND	*-	5.0	1.0	ug/L			05/18/22 17:28	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/18/22 17:28	1
2-Hexanone	ND		5.0	4.2	ug/L			05/18/22 17:28	1
Acetone	ND	*-	20	5.5	ug/L			05/18/22 17:28	1
Benzene	ND		5.0	2.0	ug/L			05/18/22 17:28	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/18/22 17:28	1
Bromoform	ND		5.0	2.6	ug/L			05/18/22 17:28	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/18/22 17:28	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/18/22 17:28	1
Chlorobenzene	ND		5.0	1.6	ug/L			05/18/22 17:28	1
Chloroethane	ND		5.0	2.6	ug/L			05/18/22 17:28	1
Chloroform	ND		5.0	2.1	ug/L			05/18/22 17:28	1
cis-1,2-Dichloroethene	**2.1**	**J**	5.0	1.6	ug/L			05/18/22 17:28	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/18/22 17:28	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/18/22 17:28	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/18/22 17:28	1
Freon-11	ND		5.0	1.5	ug/L			05/18/22 17:28	1
Freon-113	ND		5.0	1.9	ug/L			05/18/22 17:28	1
Freon-12	ND		5.0	2.9	ug/L			05/18/22 17:28	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/18/22 17:28	1
Methyl bromide	ND		5.0	4.5	ug/L			05/18/22 17:28	1
Methyl chloride	ND		5.0	3.9	ug/L			05/18/22 17:28	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/18/22 17:28	1
Methylene Chloride	**17**		5.0	3.9	ug/L			05/18/22 17:28	1
Styrene	ND		5.0	1.3	ug/L			05/18/22 17:28	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/18/22 17:28	1
Toluene	ND		5.0	1.7	ug/L			05/18/22 17:28	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/18/22 17:28	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/18/22 17:28	1
Trichloroethene	ND		5.0	1.5	ug/L			05/18/22 17:28	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/18/22 17:28	1
Xylenes, Total	ND		10	4.3	ug/L			05/18/22 17:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*74*		*52 - 151*		*05/18/22 17:28*	*1*
4-Bromofluorobenzene (Surr)	*72*		*49 - 118*		*05/18/22 17:28*	*1*
Dibromofluoromethane (Surr)	*101*		*60 - 132*		*05/18/22 17:28*	*1*
Toluene-d8 (Surr)	*77*		*53 - 124*		*05/18/22 17:28*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.78	0.11	ug/L		05/25/22 07:34	06/01/22 14:15	1
1,4-Dichlorobenzene	ND		0.78	0.048	ug/L		05/25/22 07:34	06/01/22 14:15	1
2,2'-oxybis[1-chloropropane]	ND		0.15	0.045	ug/L		05/25/22 07:34	06/01/22 14:15	1
2,4-Dichlorophenol	ND		0.15	0.040	ug/L		05/25/22 07:34	06/01/22 14:15	1
2,4-Dimethylphenol	ND		0.78	0.13	ug/L		05/25/22 07:34	06/01/22 14:15	1
2,4-Dinitrophenol	ND		7.8	1.2	ug/L		05/25/22 07:34	06/01/22 14:15	1

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T04
Lab Sample ID: 180-136058-40

Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	ND		0.78	0.28	ug/L		05/25/22 07:34	06/01/22 14:15	1
2,6-Dinitrotoluene	ND		0.78	0.14	ug/L		05/25/22 07:34	06/01/22 14:15	1
2-Chloronaphthalene	ND		0.15	0.046	ug/L		05/25/22 07:34	06/01/22 14:15	1
2-Nitroaniline	ND		3.9	0.43	ug/L		05/25/22 07:34	06/01/22 14:15	1
3,3'-Dichlorobenzidine	ND		0.78	0.46	ug/L		05/25/22 07:34	06/01/22 14:15	1
3-Nitroaniline	ND		3.9	0.34	ug/L		05/25/22 07:34	06/01/22 14:15	1
p-Chloroaniline	ND		0.78	0.29	ug/L		05/25/22 07:34	06/01/22 14:15	1
p-Nitroaniline	ND		3.9	0.28	ug/L		05/25/22 07:34	06/01/22 14:15	1
Acenaphthene	ND		0.15	0.051	ug/L		05/25/22 07:34	06/01/22 14:15	1
Anthracene	ND		0.15	0.038	ug/L		05/25/22 07:34	06/01/22 14:15	1
Atrazine	ND		0.78	0.49	ug/L		05/25/22 07:34	06/01/22 14:15	1
Benzo[a]anthracene	ND		0.15	0.059	ug/L		05/25/22 07:34	06/01/22 14:15	1
Benzo[a]pyrene	ND		0.15	0.041	ug/L		05/25/22 07:34	06/01/22 14:15	1
Benzo[b]fluoranthene	ND		0.15	0.076	ug/L		05/25/22 07:34	06/01/22 14:15	1
Benzo[k]fluoranthene	ND		0.15	0.069	ug/L		05/25/22 07:34	06/01/22 14:15	1
Bis(2-chloroethoxy)methane	ND		0.78	0.12	ug/L		05/25/22 07:34	06/01/22 14:15	1
Dichloroethyl ether	ND		0.15	0.031	ug/L		05/25/22 07:34	06/01/22 14:15	1
Bis(2-ethylhexyl) phthalate	ND		7.8	4.9	ug/L		05/25/22 07:34	06/01/22 14:15	1
Benzyl butyl phthalate	**0.53**	**J**	0.78	0.36	ug/L		05/25/22 07:34	06/01/22 14:15	1
Chrysene	ND		0.15	0.063	ug/L		05/25/22 07:34	06/01/22 14:15	1
Diethyl phthalate	ND		0.78	0.44	ug/L		05/25/22 07:34	06/01/22 14:15	1
Dimethyl phthalate	ND		0.78	0.16	ug/L		05/25/22 07:34	06/01/22 14:15	1
Dibutylphthalate	ND		0.78	0.58	ug/L		05/25/22 07:34	06/01/22 14:15	1
Di-n-octyl phthalate	ND		0.78	0.54	ug/L		05/25/22 07:34	06/01/22 14:15	1
Fluoranthene	ND		0.15	0.047	ug/L		05/25/22 07:34	06/01/22 14:15	1
Fluorene	ND		0.15	0.054	ug/L		05/25/22 07:34	06/01/22 14:15	1
Hexachlorobutadiene	ND		0.15	0.054	ug/L		05/25/22 07:34	06/01/22 14:15	1
Hexachlorocyclopentadiene	ND		0.78	0.39	ug/L		05/25/22 07:34	06/01/22 14:15	1
Hexachloroethane	ND		0.78	0.10	ug/L		05/25/22 07:34	06/01/22 14:15	1
Indeno[1,2,3-cd]pyrene	ND		0.15	0.066	ug/L		05/25/22 07:34	06/01/22 14:15	1
Isophorone	ND		0.78	0.15	ug/L		05/25/22 07:34	06/01/22 14:15	1
Nitrobenzene	ND		1.6	0.39	ug/L		05/25/22 07:34	06/01/22 14:15	1
N-Nitrosodiphenylamine	ND		0.78	0.093	ug/L		05/25/22 07:34	06/01/22 14:15	1
Pentachlorophenol	ND		3.9	0.66	ug/L		05/25/22 07:34	06/01/22 14:15	1
Phenanthrene	**0.11**	**J**	0.15	0.043	ug/L		05/25/22 07:34	06/01/22 14:15	1
Phenol	**0.94**		0.78	0.38	ug/L		05/25/22 07:34	06/01/22 14:15	1
Pyrene	ND		0.15	0.042	ug/L		05/25/22 07:34	06/01/22 14:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*68*		*23 - 128*	*05/25/22 07:34*	*06/01/22 14:15*	*1*
2-Fluorobiphenyl	*77*		*20 - 105*	*05/25/22 07:34*	*06/01/22 14:15*	*1*
2-Fluorophenol (Surr)	*75*		*20 - 105*	*05/25/22 07:34*	*06/01/22 14:15*	*1*
Nitrobenzene-d5 (Surr)	*76*		*20 - 107*	*05/25/22 07:34*	*06/01/22 14:15*	*1*
Phenol-d5 (Surr)	*71*		*20 - 106*	*05/25/22 07:34*	*06/01/22 14:15*	*1*
Terphenyl-d14 (Surr)	*74*		*22 - 120*	*05/25/22 07:34*	*06/01/22 14:15*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2.8**		0.20	0.041	mg/L		05/18/22 10:06	05/19/22 17:00	1
Antimony	**0.070**		0.010	0.0062	mg/L		05/18/22 10:06	05/19/22 17:00	1

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T04
Lab Sample ID: 180-136058-40
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 6010D - Metals (ICP) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.010	0.0083	mg/L		05/18/22 10:06	05/19/22 17:00	1
Barium	**0.10**	**J**	0.20	0.0063	mg/L		05/18/22 10:06	05/19/22 17:00	1
Beryllium	ND		0.0040	0.0015	mg/L		05/18/22 10:06	05/19/22 17:00	1
Cadmium	ND		0.0050	0.00030	mg/L		05/18/22 10:06	05/19/22 17:00	1
Calcium	**75**		5.0	0.32	mg/L		05/18/22 10:06	05/19/22 17:00	1
Chromium	ND		0.0050	0.0016	mg/L		05/18/22 10:06	05/19/22 17:00	1
Cobalt	ND		0.050	0.0019	mg/L		05/18/22 10:06	05/19/22 17:00	1
Copper	**0.073**		0.025	0.0022	mg/L		05/18/22 10:06	05/19/22 17:00	1
Iron	**0.089**	**J**	0.10	0.072	mg/L		05/18/22 10:06	05/19/22 17:00	1
Lead	ND		0.010	0.0044	mg/L		05/18/22 10:06	05/19/22 17:00	1
Magnesium	ND		5.0	0.26	mg/L		05/18/22 10:06	05/19/22 17:00	1
Manganese	ND		0.015	0.0024	mg/L		05/18/22 10:06	05/19/22 17:00	1
Nickel	**0.025**	**J**	0.040	0.0019	mg/L		05/18/22 10:06	05/19/22 17:00	1
Potassium	**3.0**	**J**	5.0	0.80	mg/L		05/18/22 10:06	05/19/22 17:00	1
Selenium	ND		0.010	0.0037	mg/L		05/18/22 10:06	05/19/22 17:00	1
Silver	ND		0.0050	0.00091	mg/L		05/18/22 10:06	05/19/22 17:00	1
Sodium	**68**		5.0	0.30	mg/L		05/18/22 10:06	05/19/22 17:00	1
Thallium	ND		0.020	0.0030	mg/L		05/18/22 10:06	05/19/22 17:00	1
Vanadium	**0.010**	**J**	0.050	0.0053	mg/L		05/18/22 10:06	05/19/22 17:00	1
Zinc	ND		0.020	0.0026	mg/L		05/18/22 10:06	05/19/22 17:00	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/01/22 05:00	06/01/22 17:01	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.9**		0.1	0.1	SU			05/18/22 07:48	1

Client Sample ID: MB T01
Lab Sample ID: 180-136058-46
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/12/22 11:59	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/12/22 11:59	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/12/22 11:59	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/12/22 11:59	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/12/22 11:59	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/12/22 11:59	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/12/22 11:59	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/12/22 11:59	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			05/12/22 11:59	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/12/22 11:59	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/12/22 11:59	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/12/22 11:59	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			05/12/22 11:59	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/12/22 11:59	1
2-Hexanone	ND		5.0	4.2	ug/L			05/12/22 11:59	1

Client Sample ID: MB T01
Date Collected: 04/01/22 00:00
Date Received: 05/07/22 09:00

Lab Sample ID: 180-136058-46
Matrix: Solid

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		20	5.5	ug/L			05/12/22 11:59	1
Benzene	ND		5.0	2.0	ug/L			05/12/22 11:59	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/12/22 11:59	1
Bromoform	ND		5.0	2.6	ug/L			05/12/22 11:59	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/12/22 11:59	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/12/22 11:59	1
Chlorobenzene	ND		5.0	1.6	ug/L			05/12/22 11:59	1
Chloroethane	ND		5.0	2.6	ug/L			05/12/22 11:59	1
Chloroform	ND		5.0	2.1	ug/L			05/12/22 11:59	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			05/12/22 11:59	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/12/22 11:59	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/12/22 11:59	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/12/22 11:59	1
Freon-11	ND		5.0	1.5	ug/L			05/12/22 11:59	1
Freon-113	ND		5.0	1.9	ug/L			05/12/22 11:59	1
Freon-12	ND		5.0	2.9	ug/L			05/12/22 11:59	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/12/22 11:59	1
Methyl bromide	ND		5.0	4.5	ug/L			05/12/22 11:59	1
Methyl chloride	ND		5.0	3.9	ug/L			05/12/22 11:59	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/12/22 11:59	1
Methylene Chloride	ND		5.0	3.9	ug/L			05/12/22 11:59	1
Styrene	ND		5.0	1.3	ug/L			05/12/22 11:59	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/12/22 11:59	1
Toluene	ND		5.0	1.7	ug/L			05/12/22 11:59	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/12/22 11:59	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/12/22 11:59	1
Trichloroethene	ND		5.0	1.5	ug/L			05/12/22 11:59	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/12/22 11:59	1
Xylenes, Total	ND		10	4.3	ug/L			05/12/22 11:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*73*		*52 - 151*		*05/12/22 11:59*	*1*
4-Bromofluorobenzene (Surr)	*74*		*49 - 118*		*05/12/22 11:59*	*1*
Dibromofluoromethane (Surr)	*92*		*60 - 132*		*05/12/22 11:59*	*1*
Toluene-d8 (Surr)	*83*		*53 - 124*		*05/12/22 11:59*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.78	0.11	ug/L		05/18/22 15:46	05/23/22 22:51	1
1,4-Dichlorobenzene	ND		0.78	0.048	ug/L		05/18/22 15:46	05/23/22 22:51	1
2,2'-oxybis[1-chloropropane]	ND		0.15	0.045	ug/L		05/18/22 15:46	05/23/22 22:51	1
2,4-Dichlorophenol	ND		0.15	0.040	ug/L		05/18/22 15:46	05/23/22 22:51	1
2,4-Dimethylphenol	ND		0.78	0.13	ug/L		05/18/22 15:46	05/23/22 22:51	1
2,4-Dinitrophenol	ND		7.8	1.2	ug/L		05/18/22 15:46	05/23/22 22:51	1
2,4-Dinitrotoluene	ND		0.78	0.28	ug/L		05/18/22 15:46	05/23/22 22:51	1
2,6-Dinitrotoluene	ND		0.78	0.14	ug/L		05/18/22 15:46	05/23/22 22:51	1
2-Chloronaphthalene	ND		0.15	0.046	ug/L		05/18/22 15:46	05/23/22 22:51	1
2-Nitroaniline	ND		3.9	0.43	ug/L		05/18/22 15:46	05/23/22 22:51	1
3,3'-Dichlorobenzidine	ND		0.78	0.46	ug/L		05/18/22 15:46	05/23/22 22:51	1
3-Nitroaniline	ND		3.9	0.34	ug/L		05/18/22 15:46	05/23/22 22:51	1

Client Sample ID: MB T01
Lab Sample ID: 180-136058-46

Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
p-Chloroaniline	ND		0.78	0.29	ug/L		05/18/22 15:46	05/23/22 22:51	1
p-Nitroaniline	ND		3.9	0.28	ug/L		05/18/22 15:46	05/23/22 22:51	1
Acenaphthene	ND		0.15	0.051	ug/L		05/18/22 15:46	05/23/22 22:51	1
Anthracene	ND		0.15	0.038	ug/L		05/18/22 15:46	05/23/22 22:51	1
Atrazine	ND		0.78	0.49	ug/L		05/18/22 15:46	05/23/22 22:51	1
Benzo[a]anthracene	ND		0.15	0.059	ug/L		05/18/22 15:46	05/23/22 22:51	1
Benzo[a]pyrene	ND		0.15	0.041	ug/L		05/18/22 15:46	05/23/22 22:51	1
Benzo[b]fluoranthene	ND		0.15	0.076	ug/L		05/18/22 15:46	05/23/22 22:51	1
Benzo[k]fluoranthene	ND		0.15	0.069	ug/L		05/18/22 15:46	05/23/22 22:51	1
Bis(2-chloroethoxy)methane	ND		0.78	0.12	ug/L		05/18/22 15:46	05/23/22 22:51	1
Dichloroethyl ether	ND		0.15	0.031	ug/L		05/18/22 15:46	05/23/22 22:51	1
Bis(2-ethylhexyl) phthalate	ND		7.8	4.9	ug/L		05/18/22 15:46	05/23/22 22:51	1
Benzyl butyl phthalate	ND		0.78	0.36	ug/L		05/18/22 15:46	05/23/22 22:51	1
Chrysene	ND		0.15	0.063	ug/L		05/18/22 15:46	05/23/22 22:51	1
Diethyl phthalate	ND		0.78	0.44	ug/L		05/18/22 15:46	05/23/22 22:51	1
Dimethyl phthalate	ND		0.78	0.16	ug/L		05/18/22 15:46	05/23/22 22:51	1
Dibutylphthalate	**3.0**		0.78	0.58	ug/L		05/18/22 15:46	05/23/22 22:51	1
Di-n-octyl phthalate	ND		0.78	0.54	ug/L		05/18/22 15:46	05/23/22 22:51	1
Fluoranthene	ND		0.15	0.047	ug/L		05/18/22 15:46	05/23/22 22:51	1
Fluorene	ND		0.15	0.054	ug/L		05/18/22 15:46	05/23/22 22:51	1
Hexachlorobutadiene	ND		0.15	0.054	ug/L		05/18/22 15:46	05/23/22 22:51	1
Hexachlorocyclopentadiene	ND		0.78	0.39	ug/L		05/18/22 15:46	05/23/22 22:51	1
Hexachloroethane	ND		0.78	0.10	ug/L		05/18/22 15:46	05/23/22 22:51	1
Indeno[1,2,3-cd]pyrene	ND		0.15	0.066	ug/L		05/18/22 15:46	05/23/22 22:51	1
Isophorone	ND		0.78	0.15	ug/L		05/18/22 15:46	05/23/22 22:51	1
Nitrobenzene	ND		1.6	0.39	ug/L		05/18/22 15:46	05/23/22 22:51	1
N-Nitrosodiphenylamine	ND		0.78	0.093	ug/L		05/18/22 15:46	05/23/22 22:51	1
Pentachlorophenol	ND		3.9	0.66	ug/L		05/18/22 15:46	05/23/22 22:51	1
Phenanthrene	**0.074**	**J**	0.15	0.043	ug/L		05/18/22 15:46	05/23/22 22:51	1
Phenol	ND		0.78	0.38	ug/L		05/18/22 15:46	05/23/22 22:51	1
Pyrene	ND		0.15	0.042	ug/L		05/18/22 15:46	05/23/22 22:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*80*		*23 - 128*	*05/18/22 15:46*	*05/23/22 22:51*	*1*
2-Fluorobiphenyl	*59*		*20 - 105*	*05/18/22 15:46*	*05/23/22 22:51*	*1*
2-Fluorophenol (Surr)	*56*		*20 - 105*	*05/18/22 15:46*	*05/23/22 22:51*	*1*
Nitrobenzene-d5 (Surr)	*65*		*20 - 107*	*05/18/22 15:46*	*05/23/22 22:51*	*1*
Phenol-d5 (Surr)	*53*		*20 - 106*	*05/18/22 15:46*	*05/23/22 22:51*	*1*
Terphenyl-d14 (Surr)	*74*		*22 - 120*	*05/18/22 15:46*	*05/23/22 22:51*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.041	mg/L		05/17/22 10:47	05/18/22 16:59	1
Antimony	ND		0.010	0.0062	mg/L		05/17/22 10:47	05/18/22 16:59	1
Arsenic	ND		0.010	0.0083	mg/L		05/17/22 10:47	05/18/22 16:59	1
Barium	ND		0.20	0.0063	mg/L		05/17/22 10:47	05/18/22 16:59	1
Beryllium	ND		0.0040	0.0015	mg/L		05/17/22 10:47	05/18/22 16:59	1
Cadmium	ND		0.0050	0.00030	mg/L		05/17/22 10:47	05/18/22 16:59	1
Calcium	ND		5.0	0.32	mg/L		05/17/22 10:47	05/18/22 16:59	1
Chromium	ND		0.0050	0.0016	mg/L		05/17/22 10:47	05/18/22 16:59	1

Client Sample ID: MB T01
Date Collected: 04/01/22 00:00
Date Received: 05/07/22 09:00

Lab Sample ID: 180-136058-46
Matrix: Solid

Method: EPA 6010D - Metals (ICP) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.050	0.0019	mg/L		05/17/22 10:47	05/18/22 16:59	1
Copper	ND		0.025	0.0022	mg/L		05/17/22 10:47	05/18/22 16:59	1
Iron	ND		0.10	0.072	mg/L		05/17/22 10:47	05/18/22 16:59	1
Lead	ND		0.010	0.0044	mg/L		05/17/22 10:47	05/18/22 16:59	1
Magnesium	ND		5.0	0.26	mg/L		05/17/22 10:47	05/18/22 16:59	1
Manganese	ND		0.015	0.0024	mg/L		05/17/22 10:47	05/18/22 16:59	1
Nickel	ND		0.040	0.0019	mg/L		05/17/22 10:47	05/18/22 16:59	1
Potassium	ND		5.0	0.80	mg/L		05/17/22 10:47	05/18/22 16:59	1
Selenium	ND		0.010	0.0037	mg/L		05/17/22 10:47	05/18/22 16:59	1
Silver	ND		0.0050	0.00091	mg/L		05/17/22 10:47	05/18/22 16:59	1
Sodium	ND		5.0	0.30	mg/L		05/17/22 10:47	05/18/22 16:59	1
Thallium	**0.0033**	**J**	0.020	0.0030	mg/L		05/17/22 10:47	05/18/22 16:59	1
Vanadium	ND		0.050	0.0053	mg/L		05/17/22 10:47	05/18/22 16:59	1
Zinc	ND		0.020	0.0026	mg/L		05/17/22 10:47	05/18/22 16:59	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/18/22 14:54	05/19/22 13:00	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.9**		0.1	0.1	SU			05/11/22 09:54	1

Client Sample ID: MB T02
Date Collected: 04/01/22 00:00
Date Received: 05/07/22 09:00

Lab Sample ID: 180-136058-47
Matrix: Solid

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.0013	0.00053	ug/L		05/12/22 09:45	05/18/22 02:53	1
4,4'-DDE	ND		0.0013	0.00030	ug/L		05/12/22 09:45	05/18/22 02:53	1
4,4'-DDT	ND		0.0013	0.00069	ug/L		05/12/22 09:45	05/18/22 02:53	1
alpha-BHC	ND		0.0013	0.00024	ug/L		05/12/22 09:45	05/18/22 02:53	1
alpha-Chlordane	ND		0.0013	0.00037	ug/L		05/12/22 09:45	05/18/22 02:53	1
beta-BHC	ND		0.0013	0.00037	ug/L		05/12/22 09:45	05/18/22 02:53	1
delta-BHC	ND		0.0013	0.00064	ug/L		05/12/22 09:45	05/18/22 02:53	1
Dieldrin	ND		0.0013	0.00027	ug/L		05/12/22 09:45	05/18/22 02:53	1
Endrin aldehyde	ND		0.0013	0.00052	ug/L		05/12/22 09:45	05/18/22 02:53	1
Endrin ketone	ND		0.0013	0.00040	ug/L		05/12/22 09:45	05/18/22 02:53	1
gamma-BHC (Lindane)	ND		0.0013	0.00029	ug/L		05/12/22 09:45	05/18/22 02:53	1
gamma-Chlordane	ND		0.0013	0.00041	ug/L		05/12/22 09:45	05/18/22 02:53	1
Heptachlor	ND		0.0013	0.00045	ug/L		05/12/22 09:45	05/18/22 02:53	1
Heptachlor epoxide	ND		0.0013	0.00034	ug/L		05/12/22 09:45	05/18/22 02:53	1
Hexachlorobenzene	ND		0.0013	0.00091	ug/L		05/12/22 09:45	05/18/22 02:53	1
Toxaphene	ND		0.10	0.049	ug/L		05/12/22 09:45	05/18/22 02:53	1
Endosulfan II	ND		0.0013	0.00032	ug/L		05/12/22 09:45	05/18/22 02:53	1
Methoxychlor	ND		0.0013	0.00078	ug/L		05/12/22 09:45	05/18/22 02:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*93*		*46 - 114*	*05/12/22 09:45*	*05/18/22 02:53*	*1*
DCB Decachlorobiphenyl (Surr)	*93*		*46 - 114*	*05/12/22 09:45*	*05/18/22 02:53*	*1*

Client Sample ID: MB T02
Lab Sample ID: 180-136058-47
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*81*		*39 - 119*	*05/12/22 09:45*	*05/18/22 02:53*	*1*
Tetrachloro-m-xylene	*85*		*39 - 119*	*05/12/22 09:45*	*05/18/22 02:53*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.0	0.76	mg/L			05/14/22 00:25	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.9**		0.1	0.1	SU			05/12/22 08:00	1
Specific Conductance	ND		1.0	1.0	umhos/cm			05/12/22 08:05	1
Oxidation Reduction Potential	**460**		10	10	millivolts			05/12/22 08:00	1

Client Sample ID: MB T03
Lab Sample ID: 180-136058-48
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/14/22 13:58	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/14/22 13:58	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/14/22 13:58	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/14/22 13:58	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/14/22 13:58	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/14/22 13:58	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/14/22 13:58	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/14/22 13:58	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			05/14/22 13:58	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/14/22 13:58	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/14/22 13:58	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/14/22 13:58	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			05/14/22 13:58	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/14/22 13:58	1
2-Hexanone	ND		5.0	4.2	ug/L			05/14/22 13:58	1
Acetone	ND		20	5.5	ug/L			05/14/22 13:58	1
Benzene	ND		5.0	2.0	ug/L			05/14/22 13:58	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/14/22 13:58	1
Bromoform	ND		5.0	2.6	ug/L			05/14/22 13:58	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/14/22 13:58	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/14/22 13:58	1
Chlorobenzene	ND		5.0	1.6	ug/L			05/14/22 13:58	1
Chloroethane	ND		5.0	2.6	ug/L			05/14/22 13:58	1
Chloroform	ND		5.0	2.1	ug/L			05/14/22 13:58	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			05/14/22 13:58	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/14/22 13:58	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/14/22 13:58	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/14/22 13:58	1
Freon-11	ND		5.0	1.5	ug/L			05/14/22 13:58	1
Freon-113	ND		5.0	1.9	ug/L			05/14/22 13:58	1
Freon-12	ND		5.0	2.9	ug/L			05/14/22 13:58	1

Client Sample ID: MB T03
Lab Sample ID: 180-136058-48
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/14/22 13:58	1
Methyl bromide	ND		5.0	4.5	ug/L			05/14/22 13:58	1
Methyl chloride	ND		5.0	3.9	ug/L			05/14/22 13:58	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/14/22 13:58	1
Methylene Chloride	ND		5.0	3.9	ug/L			05/14/22 13:58	1
Styrene	ND		5.0	1.3	ug/L			05/14/22 13:58	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/14/22 13:58	1
Toluene	ND		5.0	1.7	ug/L			05/14/22 13:58	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/14/22 13:58	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/14/22 13:58	1
Trichloroethene	ND		5.0	1.5	ug/L			05/14/22 13:58	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/14/22 13:58	1
Xylenes, Total	ND		10	4.3	ug/L			05/14/22 13:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*75*		*52 - 151*		*05/14/22 13:58*	*1*
4-Bromofluorobenzene (Surr)	*70*		*49 - 118*		*05/14/22 13:58*	*1*
Dibromofluoromethane (Surr)	*100*		*60 - 132*		*05/14/22 13:58*	*1*
Toluene-d8 (Surr)	*72*		*53 - 124*		*05/14/22 13:58*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.78	0.11	ug/L		05/20/22 13:09	05/27/22 19:02	1
1,4-Dichlorobenzene	ND		0.78	0.048	ug/L		05/20/22 13:09	05/27/22 19:02	1
2,2'-oxybis[1-chloropropane]	ND		0.15	0.045	ug/L		05/20/22 13:09	05/27/22 19:02	1
2,4-Dichlorophenol	ND		0.15	0.040	ug/L		05/20/22 13:09	05/27/22 19:02	1
2,4-Dimethylphenol	ND		0.78	0.13	ug/L		05/20/22 13:09	05/27/22 19:02	1
2,4-Dinitrophenol	ND		7.8	1.2	ug/L		05/20/22 13:09	05/27/22 19:02	1
2,4-Dinitrotoluene	ND		0.78	0.28	ug/L		05/20/22 13:09	05/27/22 19:02	1
2,6-Dinitrotoluene	ND		0.78	0.14	ug/L		05/20/22 13:09	05/27/22 19:02	1
2-Chloronaphthalene	ND		0.15	0.046	ug/L		05/20/22 13:09	05/27/22 19:02	1
2-Nitroaniline	ND		3.9	0.43	ug/L		05/20/22 13:09	05/27/22 19:02	1
3,3'-Dichlorobenzidine	ND		0.78	0.46	ug/L		05/20/22 13:09	05/27/22 19:02	1
3-Nitroaniline	ND		3.9	0.34	ug/L		05/20/22 13:09	05/27/22 19:02	1
p-Chloroaniline	ND		0.78	0.29	ug/L		05/20/22 13:09	05/27/22 19:02	1
p-Nitroaniline	ND		3.9	0.28	ug/L		05/20/22 13:09	05/27/22 19:02	1
Acenaphthene	ND		0.15	0.051	ug/L		05/20/22 13:09	05/27/22 19:02	1
Anthracene	ND		0.15	0.038	ug/L		05/20/22 13:09	05/27/22 19:02	1
Atrazine	ND		0.78	0.49	ug/L		05/20/22 13:09	05/27/22 19:02	1
Benzo[a]anthracene	ND		0.15	0.059	ug/L		05/20/22 13:09	05/27/22 19:02	1
Benzo[a]pyrene	ND		0.15	0.041	ug/L		05/20/22 13:09	05/27/22 19:02	1
Benzo[b]fluoranthene	ND		0.15	0.076	ug/L		05/20/22 13:09	05/27/22 19:02	1
Benzo[k]fluoranthene	ND		0.15	0.069	ug/L		05/20/22 13:09	05/27/22 19:02	1
Bis(2-chloroethoxy)methane	ND		0.78	0.12	ug/L		05/20/22 13:09	05/27/22 19:02	1
Dichloroethyl ether	ND		0.15	0.031	ug/L		05/20/22 13:09	05/27/22 19:02	1
Bis(2-ethylhexyl) phthalate	ND		7.8	4.9	ug/L		05/20/22 13:09	05/27/22 19:02	1
Benzyl butyl phthalate	ND		0.78	0.36	ug/L		05/20/22 13:09	05/27/22 19:02	1
Chrysene	ND		0.15	0.063	ug/L		05/20/22 13:09	05/27/22 19:02	1
Diethyl phthalate	ND		0.78	0.44	ug/L		05/20/22 13:09	05/27/22 19:02	1
Dimethyl phthalate	ND		0.78	0.16	ug/L		05/20/22 13:09	05/27/22 19:02	1

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: MB T03
Lab Sample ID: 180-136058-48
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibutylphthalate	ND		0.78	0.58	ug/L		05/20/22 13:09	05/27/22 19:02	1
Di-n-octyl phthalate	ND		0.78	0.54	ug/L		05/20/22 13:09	05/27/22 19:02	1
Fluoranthene	ND		0.15	0.047	ug/L		05/20/22 13:09	05/27/22 19:02	1
Fluorene	ND		0.15	0.054	ug/L		05/20/22 13:09	05/27/22 19:02	1
Hexachlorobutadiene	ND		0.15	0.054	ug/L		05/20/22 13:09	05/27/22 19:02	1
Hexachlorocyclopentadiene	ND		0.78	0.39	ug/L		05/20/22 13:09	05/27/22 19:02	1
Hexachloroethane	ND		0.78	0.10	ug/L		05/20/22 13:09	05/27/22 19:02	1
Indeno[1,2,3-cd]pyrene	ND		0.15	0.066	ug/L		05/20/22 13:09	05/27/22 19:02	1
Isophorone	ND		0.78	0.15	ug/L		05/20/22 13:09	05/27/22 19:02	1
Nitrobenzene	ND		1.6	0.39	ug/L		05/20/22 13:09	05/27/22 19:02	1
N-Nitrosodiphenylamine	ND		0.78	0.093	ug/L		05/20/22 13:09	05/27/22 19:02	1
Pentachlorophenol	ND		3.9	0.66	ug/L		05/20/22 13:09	05/27/22 19:02	1
Phenanthrene	ND		0.15	0.043	ug/L		05/20/22 13:09	05/27/22 19:02	1
Phenol	ND		0.78	0.38	ug/L		05/20/22 13:09	05/27/22 19:02	1
Pyrene	ND		0.15	0.042	ug/L		05/20/22 13:09	05/27/22 19:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*71*		*23 - 128*	*05/20/22 13:09*	*05/27/22 19:02*	*1*
2-Fluorobiphenyl	*51*		*20 - 105*	*05/20/22 13:09*	*05/27/22 19:02*	*1*
2-Fluorophenol (Surr)	*59*		*20 - 105*	*05/20/22 13:09*	*05/27/22 19:02*	*1*
Nitrobenzene-d5 (Surr)	*65*		*20 - 107*	*05/20/22 13:09*	*05/27/22 19:02*	*1*
Phenol-d5 (Surr)	*60*		*20 - 106*	*05/20/22 13:09*	*05/27/22 19:02*	*1*
Terphenyl-d14 (Surr)	*77*		*22 - 120*	*05/20/22 13:09*	*05/27/22 19:02*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.041	mg/L		05/18/22 10:06	05/19/22 17:42	1
Antimony	ND		0.010	0.0062	mg/L		05/18/22 10:06	05/19/22 17:42	1
Arsenic	ND		0.010	0.0083	mg/L		05/18/22 10:06	05/19/22 17:42	1
Barium	ND		0.20	0.0063	mg/L		05/18/22 10:06	05/19/22 17:42	1
Beryllium	ND		0.0040	0.0015	mg/L		05/18/22 10:06	05/19/22 17:42	1
Cadmium	ND		0.0050	0.00030	mg/L		05/18/22 10:06	05/19/22 17:42	1
Calcium	ND		5.0	0.32	mg/L		05/18/22 10:06	05/19/22 17:42	1
Chromium	ND		0.0050	0.0016	mg/L		05/18/22 10:06	05/19/22 17:42	1
Cobalt	ND		0.050	0.0019	mg/L		05/18/22 10:06	05/19/22 17:42	1
Copper	ND		0.025	0.0022	mg/L		05/18/22 10:06	05/19/22 17:42	1
Iron	ND		0.10	0.072	mg/L		05/18/22 10:06	05/19/22 17:42	1
Lead	ND		0.010	0.0044	mg/L		05/18/22 10:06	05/19/22 17:42	1
Magnesium	ND		5.0	0.26	mg/L		05/18/22 10:06	05/19/22 17:42	1
Manganese	ND		0.015	0.0024	mg/L		05/18/22 10:06	05/19/22 17:42	1
Nickel	ND		0.040	0.0019	mg/L		05/18/22 10:06	05/19/22 17:42	1
Potassium	ND		5.0	0.80	mg/L		05/18/22 10:06	05/19/22 17:42	1
Selenium	ND		0.010	0.0037	mg/L		05/18/22 10:06	05/19/22 17:42	1
Silver	ND		0.0050	0.00091	mg/L		05/18/22 10:06	05/19/22 17:42	1
Sodium	ND		5.0	0.30	mg/L		05/18/22 10:06	05/19/22 17:42	1
Thallium	ND		0.020	0.0030	mg/L		05/18/22 10:06	05/19/22 17:42	1
Vanadium	ND		0.050	0.0053	mg/L		05/18/22 10:06	05/19/22 17:42	1
Zinc	ND		0.020	0.0026	mg/L		05/18/22 10:06	05/19/22 17:42	1

Client: ERM-Northeast
Job ID: 180-136058-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: MB T03
Lab Sample ID: 180-136058-48
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/18/22 14:54	05/19/22 13:10	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.8		0.1	0.1	SU			05/13/22 07:51	1

Client Sample ID: MB T04
Lab Sample ID: 180-136058-49
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/18/22 12:09	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/18/22 12:09	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/18/22 12:09	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/18/22 12:09	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/18/22 12:09	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/18/22 12:09	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/18/22 12:09	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/18/22 12:09	1
1,2-Dichlorobenzene	ND	*-	5.0	2.0	ug/L			05/18/22 12:09	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/18/22 12:09	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/18/22 12:09	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/18/22 12:09	1
1,4-Dichlorobenzene	ND	*-	5.0	1.0	ug/L			05/18/22 12:09	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/18/22 12:09	1
2-Hexanone	ND		5.0	4.2	ug/L			05/18/22 12:09	1
Acetone	ND	*-	20	5.5	ug/L			05/18/22 12:09	1
Benzene	ND		5.0	2.0	ug/L			05/18/22 12:09	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/18/22 12:09	1
Bromoform	ND		5.0	2.6	ug/L			05/18/22 12:09	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/18/22 12:09	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/18/22 12:09	1
Chlorobenzene	ND		5.0	1.6	ug/L			05/18/22 12:09	1
Chloroethane	ND		5.0	2.6	ug/L			05/18/22 12:09	1
Chloroform	ND		5.0	2.1	ug/L			05/18/22 12:09	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			05/18/22 12:09	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/18/22 12:09	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/18/22 12:09	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/18/22 12:09	1
Freon-11	ND		5.0	1.5	ug/L			05/18/22 12:09	1
Freon-113	ND		5.0	1.9	ug/L			05/18/22 12:09	1
Freon-12	ND		5.0	2.9	ug/L			05/18/22 12:09	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/18/22 12:09	1
Methyl bromide	ND		5.0	4.5	ug/L			05/18/22 12:09	1
Methyl chloride	ND		5.0	3.9	ug/L			05/18/22 12:09	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/18/22 12:09	1
Methylene Chloride	ND		5.0	3.9	ug/L			05/18/22 12:09	1
Styrene	ND		5.0	1.3	ug/L			05/18/22 12:09	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/18/22 12:09	1

Client Sample ID: MB T04
Lab Sample ID: 180-136058-49
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		5.0	1.7	ug/L			05/18/22 12:09	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/18/22 12:09	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/18/22 12:09	1
Trichloroethene	ND		5.0	1.5	ug/L			05/18/22 12:09	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/18/22 12:09	1
Xylenes, Total	ND		10	4.3	ug/L			05/18/22 12:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*74*		*52 - 151*		*05/18/22 12:09*	*1*
4-Bromofluorobenzene (Surr)	*74*		*49 - 118*		*05/18/22 12:09*	*1*
Dibromofluoromethane (Surr)	*98*		*60 - 132*		*05/18/22 12:09*	*1*
Toluene-d8 (Surr)	*70*		*53 - 124*		*05/18/22 12:09*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.76	0.11	ug/L		05/25/22 07:34	06/01/22 14:37	1
1,4-Dichlorobenzene	ND		0.76	0.046	ug/L		05/25/22 07:34	06/01/22 14:37	1
2,2'-oxybis[1-chloropropane]	ND		0.14	0.044	ug/L		05/25/22 07:34	06/01/22 14:37	1
2,4-Dichlorophenol	ND		0.14	0.039	ug/L		05/25/22 07:34	06/01/22 14:37	1
2,4-Dimethylphenol	ND		0.76	0.13	ug/L		05/25/22 07:34	06/01/22 14:37	1
2,4-Dinitrophenol	ND		7.6	1.2	ug/L		05/25/22 07:34	06/01/22 14:37	1
2,4-Dinitrotoluene	ND		0.76	0.27	ug/L		05/25/22 07:34	06/01/22 14:37	1
2,6-Dinitrotoluene	ND		0.76	0.13	ug/L		05/25/22 07:34	06/01/22 14:37	1
2-Chloronaphthalene	ND		0.14	0.045	ug/L		05/25/22 07:34	06/01/22 14:37	1
2-Nitroaniline	ND		3.8	0.42	ug/L		05/25/22 07:34	06/01/22 14:37	1
3,3'-Dichlorobenzidine	ND		0.76	0.44	ug/L		05/25/22 07:34	06/01/22 14:37	1
3-Nitroaniline	ND		3.8	0.33	ug/L		05/25/22 07:34	06/01/22 14:37	1
p-Chloroaniline	ND		0.76	0.28	ug/L		05/25/22 07:34	06/01/22 14:37	1
p-Nitroaniline	ND		3.8	0.28	ug/L		05/25/22 07:34	06/01/22 14:37	1
Acenaphthene	ND		0.14	0.049	ug/L		05/25/22 07:34	06/01/22 14:37	1
Anthracene	ND		0.14	0.037	ug/L		05/25/22 07:34	06/01/22 14:37	1
Atrazine	ND		0.76	0.48	ug/L		05/25/22 07:34	06/01/22 14:37	1
Benzo[a]anthracene	ND		0.14	0.057	ug/L		05/25/22 07:34	06/01/22 14:37	1
Benzo[a]pyrene	ND		0.14	0.040	ug/L		05/25/22 07:34	06/01/22 14:37	1
Benzo[b]fluoranthene	ND		0.14	0.073	ug/L		05/25/22 07:34	06/01/22 14:37	1
Benzo[k]fluoranthene	ND		0.14	0.067	ug/L		05/25/22 07:34	06/01/22 14:37	1
Bis(2-chloroethoxy)methane	ND		0.76	0.12	ug/L		05/25/22 07:34	06/01/22 14:37	1
Dichloroethyl ether	ND		0.14	0.030	ug/L		05/25/22 07:34	06/01/22 14:37	1
Bis(2-ethylhexyl) phthalate	ND		7.6	4.7	ug/L		05/25/22 07:34	06/01/22 14:37	1
Benzyl butyl phthalate	**0.52**	**J**	0.76	0.35	ug/L		05/25/22 07:34	06/01/22 14:37	1
Chrysene	ND		0.14	0.061	ug/L		05/25/22 07:34	06/01/22 14:37	1
Diethyl phthalate	**0.43**	**J**	0.76	0.43	ug/L		05/25/22 07:34	06/01/22 14:37	1
Dimethyl phthalate	ND		0.76	0.15	ug/L		05/25/22 07:34	06/01/22 14:37	1
Dibutylphthalate	ND		0.76	0.56	ug/L		05/25/22 07:34	06/01/22 14:37	1
Di-n-octyl phthalate	ND		0.76	0.52	ug/L		05/25/22 07:34	06/01/22 14:37	1
Fluoranthene	ND		0.14	0.045	ug/L		05/25/22 07:34	06/01/22 14:37	1
Fluorene	ND		0.14	0.052	ug/L		05/25/22 07:34	06/01/22 14:37	1
Hexachlorobutadiene	ND		0.14	0.052	ug/L		05/25/22 07:34	06/01/22 14:37	1
Hexachlorocyclopentadiene	ND		0.76	0.38	ug/L		05/25/22 07:34	06/01/22 14:37	1
Hexachloroethane	ND		0.76	0.10	ug/L		05/25/22 07:34	06/01/22 14:37	1

Client Sample ID: MB T04
Lab Sample ID: 180-136058-49
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Indeno[1,2,3-cd]pyrene	ND		0.14	0.064	ug/L		05/25/22 07:34	06/01/22 14:37	1
Isophorone	ND		0.76	0.14	ug/L		05/25/22 07:34	06/01/22 14:37	1
Nitrobenzene	ND		1.5	0.38	ug/L		05/25/22 07:34	06/01/22 14:37	1
N-Nitrosodiphenylamine	ND		0.76	0.090	ug/L		05/25/22 07:34	06/01/22 14:37	1
Pentachlorophenol	ND		3.8	0.64	ug/L		05/25/22 07:34	06/01/22 14:37	1
Phenanthrene	**0.049**	**J**	0.14	0.042	ug/L		05/25/22 07:34	06/01/22 14:37	1
Phenol	ND		0.76	0.37	ug/L		05/25/22 07:34	06/01/22 14:37	1
Pyrene	ND		0.14	0.041	ug/L		05/25/22 07:34	06/01/22 14:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*70*		*23 - 128*	*05/25/22 07:34*	*06/01/22 14:37*	*1*
2-Fluorobiphenyl	*82*		*20 - 105*	*05/25/22 07:34*	*06/01/22 14:37*	*1*
2-Fluorophenol (Surr)	*83*		*20 - 105*	*05/25/22 07:34*	*06/01/22 14:37*	*1*
Nitrobenzene-d5 (Surr)	*76*		*20 - 107*	*05/25/22 07:34*	*06/01/22 14:37*	*1*
Phenol-d5 (Surr)	*82*		*20 - 106*	*05/25/22 07:34*	*06/01/22 14:37*	*1*
Terphenyl-d14 (Surr)	*79*		*22 - 120*	*05/25/22 07:34*	*06/01/22 14:37*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.041	mg/L		05/18/22 10:06	05/19/22 17:05	1
Antimony	ND		0.010	0.0062	mg/L		05/18/22 10:06	05/19/22 17:05	1
Arsenic	ND		0.010	0.0083	mg/L		05/18/22 10:06	05/19/22 17:05	1
Barium	ND		0.20	0.0063	mg/L		05/18/22 10:06	05/19/22 17:05	1
Beryllium	ND		0.0040	0.0015	mg/L		05/18/22 10:06	05/19/22 17:05	1
Cadmium	ND		0.0050	0.00030	mg/L		05/18/22 10:06	05/19/22 17:05	1
Calcium	ND		5.0	0.32	mg/L		05/18/22 10:06	05/19/22 17:05	1
Chromium	ND		0.0050	0.0016	mg/L		05/18/22 10:06	05/19/22 17:05	1
Cobalt	ND		0.050	0.0019	mg/L		05/18/22 10:06	05/19/22 17:05	1
Copper	ND		0.025	0.0022	mg/L		05/18/22 10:06	05/19/22 17:05	1
Iron	ND		0.10	0.072	mg/L		05/18/22 10:06	05/19/22 17:05	1
Lead	ND		0.010	0.0044	mg/L		05/18/22 10:06	05/19/22 17:05	1
Magnesium	ND		5.0	0.26	mg/L		05/18/22 10:06	05/19/22 17:05	1
Manganese	ND		0.015	0.0024	mg/L		05/18/22 10:06	05/19/22 17:05	1
Nickel	ND		0.040	0.0019	mg/L		05/18/22 10:06	05/19/22 17:05	1
Potassium	ND		5.0	0.80	mg/L		05/18/22 10:06	05/19/22 17:05	1
Selenium	ND		0.010	0.0037	mg/L		05/18/22 10:06	05/19/22 17:05	1
Silver	ND		0.0050	0.00091	mg/L		05/18/22 10:06	05/19/22 17:05	1
Sodium	ND		5.0	0.30	mg/L		05/18/22 10:06	05/19/22 17:05	1
Thallium	ND		0.020	0.0030	mg/L		05/18/22 10:06	05/19/22 17:05	1
Vanadium	ND		0.050	0.0053	mg/L		05/18/22 10:06	05/19/22 17:05	1
Zinc	ND		0.020	0.0026	mg/L		05/18/22 10:06	05/19/22 17:05	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/01/22 05:00	06/01/22 17:02	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.9**		0.1	0.1	SU			05/18/22 07:51	1

Method: EPA 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 180-398503/10
Matrix: Solid
Analysis Batch: 398503

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/12/22 11:08	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/12/22 11:08	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/12/22 11:08	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/12/22 11:08	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/12/22 11:08	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/12/22 11:08	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/12/22 11:08	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/12/22 11:08	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			05/12/22 11:08	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/12/22 11:08	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/12/22 11:08	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/12/22 11:08	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			05/12/22 11:08	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/12/22 11:08	1
2-Hexanone	ND		5.0	4.2	ug/L			05/12/22 11:08	1
Acetone	ND		20	5.5	ug/L			05/12/22 11:08	1
Benzene	ND		5.0	2.0	ug/L			05/12/22 11:08	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/12/22 11:08	1
Bromoform	ND		5.0	2.6	ug/L			05/12/22 11:08	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/12/22 11:08	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/12/22 11:08	1
Chlorobenzene	ND		5.0	1.6	ug/L			05/12/22 11:08	1
Chloroethane	ND		5.0	2.6	ug/L			05/12/22 11:08	1
Chloroform	ND		5.0	2.1	ug/L			05/12/22 11:08	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			05/12/22 11:08	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/12/22 11:08	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/12/22 11:08	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/12/22 11:08	1
Freon-11	ND		5.0	1.5	ug/L			05/12/22 11:08	1
Freon-113	ND		5.0	1.9	ug/L			05/12/22 11:08	1
Freon-12	ND		5.0	2.9	ug/L			05/12/22 11:08	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/12/22 11:08	1
Methyl bromide	ND		5.0	4.5	ug/L			05/12/22 11:08	1
Methyl chloride	ND		5.0	3.9	ug/L			05/12/22 11:08	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/12/22 11:08	1
Methylene Chloride	ND		5.0	3.9	ug/L			05/12/22 11:08	1
Styrene	ND		5.0	1.3	ug/L			05/12/22 11:08	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/12/22 11:08	1
Toluene	ND		5.0	1.7	ug/L			05/12/22 11:08	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/12/22 11:08	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/12/22 11:08	1
Trichloroethene	ND		5.0	1.5	ug/L			05/12/22 11:08	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/12/22 11:08	1
Xylenes, Total	ND		10	4.3	ug/L			05/12/22 11:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*72*		*52 - 151*		*05/12/22 11:08*	*1*
4-Bromofluorobenzene (Surr)	*74*		*49 - 118*		*05/12/22 11:08*	*1*

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 180-398503/10
Matrix: Solid
Analysis Batch: 398503

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*99*		*60 - 132*		*05/12/22 11:08*	*1*
Toluene-d8 (Surr)	*72*		*53 - 124*		*05/12/22 11:08*	*1*

Lab Sample ID: LCS 180-398503/4
Matrix: Solid
Analysis Batch: 398503

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	40.0	40.6		ug/L		101	64 - 133
1,1,2,2-Tetrachloroethane	40.0	33.1		ug/L		83	47 - 147
1,1,2-Trichloroethane	40.0	38.1		ug/L		95	59 - 137
1,1-Dichloroethane	40.0	36.1		ug/L		90	59 - 125
1,1-Dichloroethene	40.0	33.0		ug/L		82	49 - 132
1,2,4-Trichlorobenzene	40.0	35.4		ug/L		89	15 - 169
1,2-Dibromo-3-Chloropropane	40.0	32.6		ug/L		81	10 - 170
1,2-Dibromoethane	40.0	41.1		ug/L		103	55 - 146
1,2-Dichlorobenzene	40.0	37.8		ug/L		94	68 - 116
1,2-Dichloroethane	40.0	40.9		ug/L		102	57 - 149
1,2-Dichloropropane	40.0	35.6		ug/L		89	65 - 129
1,3-Dichlorobenzene	40.0	36.5		ug/L		91	70 - 119
1,4-Dichlorobenzene	40.0	37.4		ug/L		94	74 - 117
2-Butanone (MEK)	40.0	39.9		ug/L		100	35 - 158
2-Hexanone	40.0	35.8		ug/L		90	38 - 157
Acetone	40.0	26.4		ug/L		66	29 - 163
Benzene	40.0	38.8		ug/L		97	68 - 122
Bromodichloromethane	40.0	41.3		ug/L		103	63 - 132
Bromoform	40.0	39.3		ug/L		98	31 - 164
Carbon disulfide	40.0	34.7		ug/L		87	32 - 139
Carbon tetrachloride	40.0	45.2		ug/L		113	60 - 135
Chlorobenzene	40.0	38.5		ug/L		96	72 - 123
Chloroethane	40.0	42.8	E	ug/L		107	10 - 170
Chloroform	40.0	37.1		ug/L		93	62 - 121
cis-1,2-Dichloroethene	40.0	40.0		ug/L		100	64 - 122
cis-1,3-Dichloropropene	40.0	40.8		ug/L		102	53 - 140
Dibromochloromethane	40.0	42.4		ug/L		106	51 - 144
Ethylbenzene	40.0	40.9		ug/L		102	66 - 122
Freon-11	40.0	43.4	E	ug/L		109	32 - 157
Freon-113	40.0	34.1		ug/L		85	48 - 134
Freon-12	40.0	36.0		ug/L		90	21 - 165
Isopropylbenzene (cumene)	40.0	36.6		ug/L		92	54 - 130
Methyl bromide	40.0	43.0	E	ug/L		107	20 - 170
Methyl chloride	40.0	37.8		ug/L		95	37 - 170
Methyl tert-butyl ether	40.0	41.0		ug/L		103	36 - 141
Methylene Chloride	40.0	30.8		ug/L		77	51 - 137
m-Xylene & p-Xylene	40.0	41.9		ug/L		105	61 - 128
o-Xylene	40.0	38.8		ug/L		97	64 - 120
Styrene	40.0	37.6		ug/L		94	68 - 127
Tetrachloroethene	40.0	43.9		ug/L		110	60 - 129

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-398503/4
Matrix: Solid
Analysis Batch: 398503

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Toluene			40.0	41.9		ug/L		105	67 - 128		
trans-1,2-Dichloroethene			40.0	36.3		ug/L		91	62 - 126		
trans-1,3-Dichloropropene			40.0	35.4		ug/L		89	57 - 137		
Trichloroethene			40.0	41.8		ug/L		105	67 - 121		
Vinyl chloride			40.0	38.5		ug/L		96	47 - 147		
Xylenes, Total			80.0	80.7		ug/L		101	64 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*90*		*52 - 151*
4-Bromofluorobenzene (Surr)	*101*		*49 - 118*
Dibromofluoromethane (Surr)	*113*		*60 - 132*
Toluene-d8 (Surr)	*110*		*53 - 124*

Lab Sample ID: LCSD 180-398503/6
Matrix: Solid
Analysis Batch: 398503

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane			40.0	38.8		ug/L		97	64 - 133	5	22
1,1,2,2-Tetrachloroethane			40.0	35.4		ug/L		88	47 - 147	7	35
1,1,2-Trichloroethane			40.0	34.2		ug/L		85	59 - 137	11	29
1,1-Dichloroethane			40.0	34.9		ug/L		87	59 - 125	3	20
1,1-Dichloroethene			40.0	35.6		ug/L		89	49 - 132	8	23
1,2,4-Trichlorobenzene			40.0	44.0	E	ug/L		110	15 - 169	22	35
1,2-Dibromo-3-Chloropropane			40.0	39.9		ug/L		100	10 - 170	20	35
1,2-Dibromoethane			40.0	37.4		ug/L		93	55 - 146	10	30
1,2-Dichlorobenzene			40.0	35.1		ug/L		88	68 - 116	7	20
1,2-Dichloroethane			40.0	40.6		ug/L		102	57 - 149	1	27
1,2-Dichloropropane			40.0	35.8		ug/L		89	65 - 129	0	23
1,3-Dichlorobenzene			40.0	33.5		ug/L		84	70 - 119	9	18
1,4-Dichlorobenzene			40.0	33.9		ug/L		85	74 - 117	10	17
2-Butanone (MEK)			40.0	33.1		ug/L		83	35 - 158	19	35
2-Hexanone			40.0	35.1		ug/L		88	38 - 157	2	35
Acetone			40.0	31.9		ug/L		80	29 - 163	19	35
Benzene			40.0	35.3		ug/L		88	68 - 122	10	21
Bromodichloromethane			40.0	40.0		ug/L		100	63 - 132	3	24
Bromoform			40.0	40.2		ug/L		100	31 - 164	2	35
Carbon disulfide			40.0	37.7		ug/L		94	32 - 139	8	25
Carbon tetrachloride			40.0	43.6		ug/L		109	60 - 135	4	25
Chlorobenzene			40.0	35.6		ug/L		89	72 - 123	8	19
Chloroethane			40.0	42.7	E	ug/L		107	10 - 170	0	29
Chloroform			40.0	35.3		ug/L		88	62 - 121	5	22
cis-1,2-Dichloroethene			40.0	37.6		ug/L		94	64 - 122	6	22
cis-1,3-Dichloropropene			40.0	38.4		ug/L		96	53 - 140	6	26
Dibromochloromethane			40.0	39.6		ug/L		99	51 - 144	7	25
Ethylbenzene			40.0	37.3		ug/L		93	66 - 122	9	22
Freon-11			40.0	42.8	E	ug/L		107	32 - 157	1	35
Freon-113			40.0	36.4		ug/L		91	48 - 134	6	28

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 180-398503/6
Matrix: Solid
Analysis Batch: 398503

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Freon-12			40.0	37.1		ug/L		93	21 - 165	3	26
Isopropylbenzene (cumene)			40.0	35.1		ug/L		88	54 - 130	4	22
Methyl bromide			40.0	41.4	E	ug/L		103	20 - 170	4	30
Methyl chloride			40.0	38.3		ug/L		96	37 - 170	1	28
Methyl tert-butyl ether			40.0	40.1		ug/L		100	36 - 141	2	35
Methylene Chloride			40.0	30.7		ug/L		77	51 - 137	0	35
m-Xylene & p-Xylene			40.0	37.7		ug/L		94	61 - 128	11	21
o-Xylene			40.0	36.7		ug/L		92	64 - 120	6	23
Styrene			40.0	37.0		ug/L		93	68 - 127	1	22
Tetrachloroethene			40.0	37.3		ug/L		93	60 - 129	16	22
Toluene			40.0	36.4		ug/L		91	67 - 128	14	22
trans-1,2-Dichloroethene			40.0	33.8		ug/L		85	62 - 126	7	23
trans-1,3-Dichloropropene			40.0	33.3		ug/L		83	57 - 137	6	25
Trichloroethene			40.0	40.2		ug/L		100	67 - 121	4	23
Vinyl chloride			40.0	38.2		ug/L		96	47 - 147	1	25
Xylenes, Total			80.0	74.4		ug/L		93	64 - 123	8	21

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*91*		*52 - 151*
4-Bromofluorobenzene (Surr)	*104*		*49 - 118*
Dibromofluoromethane (Surr)	*115*		*60 - 132*
Toluene-d8 (Surr)	*92*		*53 - 124*

Lab Sample ID: MB 180-398775/10
Matrix: Solid
Analysis Batch: 398775

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/14/22 13:05	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/14/22 13:05	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/14/22 13:05	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/14/22 13:05	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/14/22 13:05	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/14/22 13:05	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/14/22 13:05	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/14/22 13:05	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			05/14/22 13:05	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/14/22 13:05	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/14/22 13:05	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/14/22 13:05	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			05/14/22 13:05	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/14/22 13:05	1
2-Hexanone	ND		5.0	4.2	ug/L			05/14/22 13:05	1
Acetone	ND		20	5.5	ug/L			05/14/22 13:05	1
Benzene	ND		5.0	2.0	ug/L			05/14/22 13:05	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/14/22 13:05	1
Bromoform	ND		5.0	2.6	ug/L			05/14/22 13:05	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/14/22 13:05	1

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 180-398775/10
Matrix: Solid
Analysis Batch: 398775

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/14/22 13:05	1
Chlorobenzene	ND		5.0	1.6	ug/L			05/14/22 13:05	1
Chloroethane	ND		5.0	2.6	ug/L			05/14/22 13:05	1
Chloroform	ND		5.0	2.1	ug/L			05/14/22 13:05	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			05/14/22 13:05	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/14/22 13:05	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/14/22 13:05	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/14/22 13:05	1
Freon-11	ND		5.0	1.5	ug/L			05/14/22 13:05	1
Freon-113	ND		5.0	1.9	ug/L			05/14/22 13:05	1
Freon-12	ND		5.0	2.9	ug/L			05/14/22 13:05	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/14/22 13:05	1
Methyl bromide	ND		5.0	4.5	ug/L			05/14/22 13:05	1
Methyl chloride	ND		5.0	3.9	ug/L			05/14/22 13:05	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/14/22 13:05	1
Methylene Chloride	ND		5.0	3.9	ug/L			05/14/22 13:05	1
Styrene	ND		5.0	1.3	ug/L			05/14/22 13:05	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/14/22 13:05	1
Toluene	ND		5.0	1.7	ug/L			05/14/22 13:05	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/14/22 13:05	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/14/22 13:05	1
Trichloroethene	ND		5.0	1.5	ug/L			05/14/22 13:05	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/14/22 13:05	1
Xylenes, Total	ND		10	4.3	ug/L			05/14/22 13:05	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*72*		*52 - 151*		*05/14/22 13:05*	*1*
4-Bromofluorobenzene (Surr)	*82*		*49 - 118*		*05/14/22 13:05*	*1*
Dibromofluoromethane (Surr)	*97*		*60 - 132*		*05/14/22 13:05*	*1*
Toluene-d8 (Surr)	*67*		*53 - 124*		*05/14/22 13:05*	*1*

Lab Sample ID: LCS 180-398775/6
Matrix: Solid
Analysis Batch: 398775

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	40.0	39.6		ug/L		99	64 - 133
1,1,2,2-Tetrachloroethane	40.0	35.9		ug/L		90	47 - 147
1,1,2-Trichloroethane	40.0	34.9		ug/L		87	59 - 137
1,1-Dichloroethane	40.0	34.3		ug/L		86	59 - 125
1,1-Dichloroethene	40.0	36.3		ug/L		91	49 - 132
1,2,4-Trichlorobenzene	40.0	42.8	E	ug/L		107	15 - 169
1,2-Dibromo-3-Chloropropane	40.0	35.2		ug/L		88	10 - 170
1,2-Dibromoethane	40.0	37.4		ug/L		94	55 - 146
1,2-Dichlorobenzene	40.0	36.0		ug/L		90	68 - 116
1,2-Dichloroethane	40.0	38.3		ug/L		96	57 - 149
1,2-Dichloropropane	40.0	32.4		ug/L		81	65 - 129
1,3-Dichlorobenzene	40.0	35.3		ug/L		88	70 - 119

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-398775/6
Matrix: Solid
Analysis Batch: 398775

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dichlorobenzene	40.0	34.9		ug/L		87	74 - 117
2-Butanone (MEK)	40.0	23.5		ug/L		59	35 - 158
2-Hexanone	40.0	27.0		ug/L		67	38 - 157
Acetone	40.0	23.4		ug/L		58	29 - 163
Benzene	40.0	35.4		ug/L		89	68 - 122
Bromodichloromethane	40.0	39.4		ug/L		98	63 - 132
Bromoform	40.0	40.7		ug/L		102	31 - 164
Carbon disulfide	40.0	38.3		ug/L		96	32 - 139
Carbon tetrachloride	40.0	43.7		ug/L		109	60 - 135
Chlorobenzene	40.0	36.8		ug/L		92	72 - 123
Chloroethane	40.0	36.9		ug/L		92	10 - 170
Chloroform	40.0	34.9		ug/L		87	62 - 121
cis-1,2-Dichloroethene	40.0	37.5		ug/L		94	64 - 122
cis-1,3-Dichloropropene	40.0	35.6		ug/L		89	53 - 140
Dibromochloromethane	40.0	41.1		ug/L		103	51 - 144
Ethylbenzene	40.0	38.3		ug/L		96	66 - 122
Freon-11	40.0	37.8		ug/L		94	32 - 157
Freon-113	40.0	37.2		ug/L		93	48 - 134
Freon-12	40.0	32.8		ug/L		82	21 - 165
Isopropylbenzene (cumene)	40.0	37.4		ug/L		93	54 - 130
Methyl bromide	40.0	36.3		ug/L		91	20 - 170
Methyl chloride	40.0	32.9		ug/L		82	37 - 170
Methyl tert-butyl ether	40.0	38.1		ug/L		95	36 - 141
Methylene Chloride	40.0	29.8		ug/L		74	51 - 137
m-Xylene & p-Xylene	40.0	39.4		ug/L		98	61 - 128
o-Xylene	40.0	39.1		ug/L		98	64 - 120
Styrene	40.0	38.4		ug/L		96	68 - 127
Tetrachloroethene	40.0	39.5		ug/L		99	60 - 129
Toluene	40.0	37.7		ug/L		94	67 - 128
trans-1,2-Dichloroethene	40.0	34.8		ug/L		87	62 - 126
trans-1,3-Dichloropropene	40.0	33.1		ug/L		83	57 - 137
Trichloroethene	40.0	38.5		ug/L		96	67 - 121
Vinyl chloride	40.0	33.4		ug/L		84	47 - 147
Xylenes, Total	80.0	78.5		ug/L		98	64 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*86*		*52 - 151*
4-Bromofluorobenzene (Surr)	*99*		*49 - 118*
Dibromofluoromethane (Surr)	*114*		*60 - 132*
Toluene-d8 (Surr)	*100*		*53 - 124*

Lab Sample ID: LCS 180-398806/2-A
Matrix: Solid
Analysis Batch: 398775

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 398806

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	6250	3440		ug/L		55	49 - 132
Benzene	6250	5660		ug/L		90	68 - 122

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-398806/2-A
Matrix: Solid
Analysis Batch: 398775

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 398806

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chlorobenzene			6250	6430	E	ug/L		103	72 - 123		
Toluene			6250	7000		ug/L		112	67 - 128		
Trichloroethene			6250	6200		ug/L		99	67 - 121		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*87*		*52 - 151*
4-Bromofluorobenzene (Surr)	*82*		*49 - 118*
Dibromofluoromethane (Surr)	*122*		*60 - 132*
Toluene-d8 (Surr)	*109*		*53 - 124*

Lab Sample ID: LCSD 180-398806/3-A
Matrix: Solid
Analysis Batch: 398775

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 398806

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene			6250	4110		ug/L		66	49 - 132	18	23
Benzene			6250	5560		ug/L		89	68 - 122	2	21
Chlorobenzene			6250	6330	E	ug/L		101	72 - 123	2	19
Toluene			6250	5820		ug/L		93	67 - 128	18	22
Trichloroethene			6250	6060		ug/L		97	67 - 121	2	23

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*92*		*52 - 151*
4-Bromofluorobenzene (Surr)	*97*		*49 - 118*
Dibromofluoromethane (Surr)	*123*		*60 - 132*
Toluene-d8 (Surr)	*96*		*53 - 124*

Lab Sample ID: MB 180-399149/10
Matrix: Solid
Analysis Batch: 399149

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			05/18/22 11:43	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			05/18/22 11:43	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			05/18/22 11:43	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			05/18/22 11:43	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			05/18/22 11:43	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			05/18/22 11:43	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			05/18/22 11:43	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			05/18/22 11:43	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			05/18/22 11:43	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			05/18/22 11:43	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			05/18/22 11:43	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			05/18/22 11:43	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			05/18/22 11:43	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			05/18/22 11:43	1
2-Hexanone	ND		5.0	4.2	ug/L			05/18/22 11:43	1
Acetone	ND		20	5.5	ug/L			05/18/22 11:43	1

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 180-399149/10
Matrix: Solid
Analysis Batch: 399149

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		5.0	2.0	ug/L			05/18/22 11:43	1
Bromodichloromethane	ND		5.0	2.4	ug/L			05/18/22 11:43	1
Bromoform	ND		5.0	2.6	ug/L			05/18/22 11:43	1
Carbon disulfide	ND		5.0	3.0	ug/L			05/18/22 11:43	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			05/18/22 11:43	1
Chlorobenzene	ND		5.0	1.6	ug/L			05/18/22 11:43	1
Chloroethane	ND		5.0	2.6	ug/L			05/18/22 11:43	1
Chloroform	ND		5.0	2.1	ug/L			05/18/22 11:43	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			05/18/22 11:43	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			05/18/22 11:43	1
Dibromochloromethane	ND		5.0	2.4	ug/L			05/18/22 11:43	1
Ethylbenzene	ND		5.0	2.2	ug/L			05/18/22 11:43	1
Freon-11	ND		5.0	1.5	ug/L			05/18/22 11:43	1
Freon-113	ND		5.0	1.9	ug/L			05/18/22 11:43	1
Freon-12	ND		5.0	2.9	ug/L			05/18/22 11:43	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			05/18/22 11:43	1
Methyl bromide	ND		5.0	4.5	ug/L			05/18/22 11:43	1
Methyl chloride	ND		5.0	3.9	ug/L			05/18/22 11:43	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			05/18/22 11:43	1
Methylene Chloride	ND		5.0	3.9	ug/L			05/18/22 11:43	1
Styrene	ND		5.0	1.3	ug/L			05/18/22 11:43	1
Tetrachloroethene	ND		5.0	2.0	ug/L			05/18/22 11:43	1
Toluene	ND		5.0	1.7	ug/L			05/18/22 11:43	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			05/18/22 11:43	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			05/18/22 11:43	1
Trichloroethene	ND		5.0	1.5	ug/L			05/18/22 11:43	1
Vinyl chloride	ND		5.0	3.7	ug/L			05/18/22 11:43	1
Xylenes, Total	ND		10	4.3	ug/L			05/18/22 11:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*68*		*52 - 151*		*05/18/22 11:43*	*1*
4-Bromofluorobenzene (Surr)	*76*		*49 - 118*		*05/18/22 11:43*	*1*
Dibromofluoromethane (Surr)	*95*		*60 - 132*		*05/18/22 11:43*	*1*
Toluene-d8 (Surr)	*75*		*53 - 124*		*05/18/22 11:43*	*1*

Lab Sample ID: LCS 180-399149/15
Matrix: Solid
Analysis Batch: 399149

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	40.0	39.8		ug/L		99	64 - 133
1,1,2,2-Tetrachloroethane	40.0	30.0		ug/L		75	47 - 147
1,1,2-Trichloroethane	40.0	29.8		ug/L		75	59 - 137
1,1-Dichloroethane	40.0	29.5		ug/L		74	59 - 125
1,1-Dichloroethene	40.0	35.8		ug/L		90	49 - 132
1,2,4-Trichlorobenzene	40.0	9.25		ug/L		23	15 - 169
1,2-Dibromo-3-Chloropropane	40.0	12.4		ug/L		31	10 - 170
1,2-Dibromoethane	40.0	32.8		ug/L		82	55 - 146

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-399149/15
Matrix: Solid
Analysis Batch: 399149

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2-Dichlorobenzene	40.0	26.3	*-	ug/L		66	68 - 116
1,2-Dichloroethane	40.0	36.4		ug/L		91	57 - 149
1,2-Dichloropropane	40.0	35.3		ug/L		88	65 - 129
1,3-Dichlorobenzene	40.0	28.5		ug/L		71	70 - 119
1,4-Dichlorobenzene	40.0	28.2	*-	ug/L		71	74 - 117
2-Butanone (MEK)	40.0	16.1		ug/L		40	35 - 158
2-Hexanone	40.0	20.4		ug/L		51	38 - 157
Acetone	40.0	9.79	J *-	ug/L		24	29 - 163
Benzene	40.0	35.1		ug/L		88	68 - 122
Bromodichloromethane	40.0	37.6		ug/L		94	63 - 132
Bromoform	40.0	34.0		ug/L		85	31 - 164
Carbon disulfide	40.0	41.2		ug/L		103	32 - 139
Carbon tetrachloride	40.0	47.0		ug/L		117	60 - 135
Chlorobenzene	40.0	35.0		ug/L		87	72 - 123
Chloroethane	40.0	37.0		ug/L		92	10 - 170
Chloroform	40.0	31.1		ug/L		78	62 - 121
cis-1,2-Dichloroethene	40.0	28.6		ug/L		72	64 - 122
cis-1,3-Dichloropropene	40.0	38.4		ug/L		96	53 - 140
Dibromochloromethane	40.0	35.5		ug/L		89	51 - 144
Ethylbenzene	40.0	37.9		ug/L		95	66 - 122
Freon-11	40.0	32.6		ug/L		82	32 - 157
Freon-113	40.0	39.3		ug/L		98	48 - 134
Freon-12	40.0	33.9		ug/L		85	21 - 165
Isopropylbenzene (cumene)	40.0	36.4		ug/L		91	54 - 130
Methyl bromide	40.0	34.8		ug/L		87	20 - 170
Methyl chloride	40.0	37.5		ug/L		94	37 - 170
Methyl tert-butyl ether	40.0	32.4		ug/L		81	36 - 141
Methylene Chloride	40.0	34.0		ug/L		85	51 - 137
m-Xylene & p-Xylene	40.0	37.6		ug/L		94	61 - 128
o-Xylene	40.0	37.8		ug/L		95	64 - 120
Styrene	40.0	36.9		ug/L		92	68 - 127
Tetrachloroethene	40.0	38.4		ug/L		96	60 - 129
Toluene	40.0	34.2		ug/L		86	67 - 128
trans-1,2-Dichloroethene	40.0	28.8		ug/L		72	62 - 126
trans-1,3-Dichloropropene	40.0	29.8		ug/L		75	57 - 137
Trichloroethene	40.0	38.7		ug/L		97	67 - 121
Vinyl chloride	40.0	32.2		ug/L		81	47 - 147
Xylenes, Total	80.0	75.4		ug/L		94	64 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*94*		*52 - 151*
4-Bromofluorobenzene (Surr)	*117*		*49 - 118*
Dibromofluoromethane (Surr)	*114*		*60 - 132*
Toluene-d8 (Surr)	*101*		*53 - 124*

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 180-136058-39 MS
Matrix: Solid
Analysis Batch: 398775

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T03
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	ND	F1	40.0	52.3		ug/L		131	64 - 133
1,1,2,2-Tetrachloroethane	ND		40.0	35.5		ug/L		89	47 - 147
1,1,2-Trichloroethane	ND	F2 F1	40.0	40.0		ug/L		100	59 - 137
1,1-Dichloroethane	ND	F1	40.0	44.0		ug/L		110	59 - 125
1,1-Dichloroethene	ND		40.0	49.4	E	ug/L		123	49 - 132
1,2,4-Trichlorobenzene	ND	F2	40.0	13.7		ug/L		34	15 - 169
1,2-Dibromo-3-Chloropropane	ND	F2	40.0	15.6		ug/L		39	10 - 170
1,2-Dibromoethane	ND	F2 F1	40.0	41.7		ug/L		104	55 - 146
1,2-Dichlorobenzene	ND	F2 F1	40.0	35.1		ug/L		88	68 - 116
1,2-Dichloroethane	ND	F2 F1	40.0	50.7		ug/L		127	57 - 149
1,2-Dichloropropane	ND	F2 F1	40.0	46.8		ug/L		117	65 - 129
1,3-Dichlorobenzene	ND	F2 F1	40.0	38.0		ug/L		95	70 - 119
1,4-Dichlorobenzene	ND	F2 F1	40.0	36.8		ug/L		92	74 - 117
2-Butanone (MEK)	ND	F2 F1	40.0	9.08	F1	ug/L		23	35 - 158
2-Hexanone	ND	F2	40.0	16.6		ug/L		42	38 - 157
Acetone	ND	F2 F1	40.0	7.44	J F1	ug/L		19	29 - 163
Benzene	ND	F1	40.0	49.3	F1	ug/L		123	68 - 122
Bromodichloromethane	ND	F2 F1	40.0	53.7	F1	ug/L		134	63 - 132
Bromoform	ND		40.0	45.2		ug/L		113	31 - 164
Carbon disulfide	ND		40.0	50.6		ug/L		127	32 - 139
Carbon tetrachloride	ND	F1	40.0	61.2	F1	ug/L		153	60 - 135
Chlorobenzene	2.9	J F1	40.0	46.8	E	ug/L		110	72 - 123
Chloroethane	ND		40.0	56.8	E	ug/L		142	10 - 170
Chloroform	ND	F1	40.0	46.5	E	ug/L		116	62 - 121
cis-1,2-Dichloroethene	ND	F1	40.0	50.5	F1	ug/L		126	64 - 122
cis-1,3-Dichloropropene	ND	F2 F1	40.0	54.4		ug/L		136	53 - 140
Dibromochloromethane	ND	F2 F1	40.0	48.6		ug/L		121	51 - 144
Ethylbenzene	ND	F1	40.0	49.3	F1	ug/L		123	66 - 122
Freon-11	ND		40.0	57.3	E	ug/L		143	32 - 157
Freon-113	ND		40.0	48.3	E	ug/L		121	48 - 134
Freon-12	ND		40.0	42.9	E	ug/L		107	21 - 165
Isopropylbenzene (cumene)	ND		40.0	46.2		ug/L		116	54 - 130
Methyl bromide	ND		40.0	51.4	E	ug/L		129	20 - 170
Methyl chloride	ND		40.0	46.7		ug/L		117	37 - 170
Methyl tert-butyl ether	ND	F1	40.0	50.3		ug/L		126	36 - 141
Methylene Chloride	10		40.0	47.6	E	ug/L		93	51 - 137
m-Xylene & p-Xylene	ND	F1	40.0	52.0	F1	ug/L		130	61 - 128
o-Xylene	ND	F1	40.0	48.0		ug/L		120	64 - 120
Styrene	ND	F1	40.0	49.1		ug/L		123	68 - 127
Tetrachloroethene	ND		40.0	46.9		ug/L		117	60 - 129
Toluene	ND	F1	40.0	44.8		ug/L		112	67 - 128
trans-1,2-Dichloroethene	ND		40.0	47.7	E	ug/L		119	62 - 126
trans-1,3-Dichloropropene	ND	F2	40.0	39.0		ug/L		98	57 - 137
Trichloroethene	ND	F1	40.0	55.1	F1	ug/L		138	67 - 121
Vinyl chloride	ND		40.0	44.4	E	ug/L		111	47 - 147
Xylenes, Total	ND	F1	80.0	100	F1	ug/L		125	64 - 123

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 180-136058-39 MS
Matrix: Solid
Analysis Batch: 398775

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T03
Prep Type: Leach

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*71*		*52 - 151*
4-Bromofluorobenzene (Surr)	*90*		*49 - 118*
Dibromofluoromethane (Surr)	*86*		*60 - 132*
Toluene-d8 (Surr)	*71*		*53 - 124*

Lab Sample ID: 180-136058-39 MSD
Matrix: Solid
Analysis Batch: 398775

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T03
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND	F1	40.0	58.1	F1	ug/L		145	64 - 133	11	22
1,1,2,2-Tetrachloroethane	ND		40.0	49.1		ug/L		123	47 - 147	32	35
1,1,2-Trichloroethane	ND	F2 F1	40.0	57.1	E F1 F2	ug/L		143	59 - 137	35	29
1,1-Dichloroethane	ND	F1	40.0	53.2	F1	ug/L		133	59 - 125	19	20
1,1-Dichloroethene	ND		40.0	41.4	E	ug/L		104	49 - 132	18	23
1,2,4-Trichlorobenzene	ND	F2	40.0	30.7	F2	ug/L		77	15 - 169	76	35
1,2-Dibromo-3-Chloropropane	ND	F2	40.0	39.6	F2	ug/L		99	10 - 170	87	35
1,2-Dibromoethane	ND	F2 F1	40.0	65.3	F1 F2	ug/L		163	55 - 146	44	30
1,2-Dichlorobenzene	ND	F2 F1	40.0	49.8	F1 F2	ug/L		124	68 - 116	35	20
1,2-Dichloroethane	ND	F2 F1	40.0	70.9	F1 F2	ug/L		177	57 - 149	33	27
1,2-Dichloropropane	ND	F2 F1	40.0	59.4	F1 F2	ug/L		148	65 - 129	24	23
1,3-Dichlorobenzene	ND	F2 F1	40.0	53.7	F1 F2	ug/L		134	70 - 119	34	18
1,4-Dichlorobenzene	ND	F2 F1	40.0	52.5	F1 F2	ug/L		131	74 - 117	35	17
2-Butanone (MEK)	ND	F2 F1	40.0	24.7	F2	ug/L		62	35 - 158	92	35
2-Hexanone	ND	F2	40.0	34.8	F2	ug/L		87	38 - 157	70	35
Acetone	ND	F2 F1	40.0	24.3	F2	ug/L		61	29 - 163	106	35
Benzene	ND	F1	40.0	56.0	F1	ug/L		140	68 - 122	13	21
Bromodichloromethane	ND	F2 F1	40.0	70.1	F1 F2	ug/L		175	63 - 132	26	24
Bromoform	ND		40.0	64.1		ug/L		160	31 - 164	35	35
Carbon disulfide	ND		40.0	42.3		ug/L		106	32 - 139	18	25
Carbon tetrachloride	ND	F1	40.0	60.9	F1	ug/L		152	60 - 135	0	25
Chlorobenzene	2.9	J F1	40.0	55.1	E F1	ug/L		130	72 - 123	16	19
Chloroethane	ND		40.0	46.5	E	ug/L		116	10 - 170	20	29
Chloroform	ND	F1	40.0	55.6	E F1	ug/L		139	62 - 121	18	22
cis-1,2-Dichloroethene	ND	F1	40.0	62.8	F1	ug/L		157	64 - 122	22	22
cis-1,3-Dichloropropene	ND	F2 F1	40.0	74.2	F1 F2	ug/L		185	53 - 140	31	26
Dibromochloromethane	ND	F2 F1	40.0	69.9	F1 F2	ug/L		175	51 - 144	36	25
Ethylbenzene	ND	F1	40.0	52.4	F1	ug/L		131	66 - 122	6	22
Freon-11	ND		40.0	48.2	E	ug/L		121	32 - 157	17	35
Freon-113	ND		40.0	40.5	E	ug/L		101	48 - 134	18	28
Freon-12	ND		40.0	35.2		ug/L		88	21 - 165	20	26
Isopropylbenzene (cumene)	ND		40.0	44.2		ug/L		111	54 - 130	4	22
Methyl bromide	ND		40.0	42.7	E	ug/L		107	20 - 170	19	30
Methyl chloride	ND		40.0	39.5		ug/L		99	37 - 170	17	28
Methyl tert-butyl ether	ND	F1	40.0	71.1	F1	ug/L		178	36 - 141	34	35
Methylene Chloride	10		40.0	44.1	E	ug/L		84	51 - 137	8	35
m-Xylene & p-Xylene	ND	F1	40.0	56.2	F1	ug/L		140	61 - 128	8	21
o-Xylene	ND	F1	40.0	53.1	F1	ug/L		133	64 - 120	10	23

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 180-136058-39 MSD
Matrix: Solid
Analysis Batch: 398775

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T03
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Styrene	ND	F1	40.0	56.4	F1	ug/L		141	68 - 127	14	22
Tetrachloroethene	ND		40.0	50.4		ug/L		126	60 - 129	7	22
Toluene	ND	F1	40.0	52.4	F1	ug/L		131	67 - 128	16	22
trans-1,2-Dichloroethene	ND		40.0	42.5	E	ug/L		106	62 - 126	12	23
trans-1,3-Dichloropropene	ND	F2	40.0	51.6	E F2	ug/L		129	57 - 137	28	25
Trichloroethene	ND	F1	40.0	63.2	F1	ug/L		158	67 - 121	14	23
Vinyl chloride	ND		40.0	36.7		ug/L		92	47 - 147	19	25
Xylenes, Total	ND	F1	80.0	109	F1	ug/L		137	64 - 123	9	21

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*89*		*52 - 151*
4-Bromofluorobenzene (Surr)	*80*		*49 - 118*
Dibromofluoromethane (Surr)	*100*		*60 - 132*
Toluene-d8 (Surr)	*72*		*53 - 124*

Lab Sample ID: 180-136058-31 MS
Matrix: Solid
Analysis Batch: 399149

Client Sample ID: TRW 20% PC, 4% AC T04
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	ND		40.0	40.4		ug/L		101	64 - 133
1,1,2,2-Tetrachloroethane	ND		40.0	31.2		ug/L		78	47 - 147
1,1,2-Trichloroethane	ND		40.0	36.6		ug/L		92	59 - 137
1,1-Dichloroethane	ND		40.0	36.6		ug/L		92	59 - 125
1,1-Dichloroethene	ND		40.0	30.3		ug/L		76	49 - 132
1,2,4-Trichlorobenzene	ND	F2	40.0	18.4		ug/L		46	15 - 169
1,2-Dibromo-3-Chloropropane	ND		40.0	26.2		ug/L		66	10 - 170
1,2-Dibromoethane	ND		40.0	37.2		ug/L		93	55 - 146
1,2-Dichlorobenzene	ND	*-	40.0	38.0		ug/L		95	68 - 116
1,2-Dichloroethane	ND		40.0	40.9		ug/L		102	57 - 149
1,2-Dichloropropane	ND		40.0	36.4		ug/L		91	65 - 129
1,3-Dichlorobenzene	ND		40.0	38.2		ug/L		96	70 - 119
1,4-Dichlorobenzene	ND	*-	40.0	37.9		ug/L		95	74 - 117
2-Butanone (MEK)	ND		40.0	26.9		ug/L		67	35 - 158
2-Hexanone	ND		40.0	40.0		ug/L		100	38 - 157
Acetone	ND	*-	40.0	18.6	J	ug/L		47	29 - 163
Benzene	ND		40.0	38.3		ug/L		96	68 - 122
Bromodichloromethane	ND		40.0	41.8		ug/L		104	63 - 132
Bromoform	ND		40.0	36.6		ug/L		92	31 - 164
Carbon disulfide	ND		40.0	31.7		ug/L		79	32 - 139
Carbon tetrachloride	ND		40.0	42.2		ug/L		106	60 - 135
Chlorobenzene	ND		40.0	37.9		ug/L		95	72 - 123
Chloroethane	ND		40.0	26.0		ug/L		65	10 - 170
Chloroform	ND		40.0	36.8		ug/L		92	62 - 121
cis-1,2-Dichloroethene	ND		40.0	41.9		ug/L		105	64 - 122
cis-1,3-Dichloropropene	ND		40.0	41.6		ug/L		104	53 - 140
Dibromochloromethane	ND		40.0	42.3		ug/L		106	51 - 144
Ethylbenzene	ND		40.0	40.2		ug/L		100	66 - 122

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 180-136058-31 MS
Matrix: Solid
Analysis Batch: 399149

Client Sample ID: TRW 20% PC, 4% AC T04
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Freon-11	ND		40.0	28.4		ug/L		71	32 - 157
Freon-113	ND		40.0	30.7		ug/L		77	48 - 134
Freon-12	ND		40.0	26.1		ug/L		65	21 - 165
Isopropylbenzene (cumene)	ND		40.0	37.5		ug/L		94	54 - 130
Methyl bromide	ND		40.0	24.8		ug/L		62	20 - 170
Methyl chloride	ND		40.0	29.1		ug/L		73	37 - 170
Methyl tert-butyl ether	ND		40.0	41.4		ug/L		104	36 - 141
Methylene Chloride	17	F2 F1	40.0	48.8	E	ug/L		79	51 - 137
m-Xylene & p-Xylene	ND		40.0	41.6		ug/L		104	61 - 128
o-Xylene	ND		40.0	38.5		ug/L		96	64 - 120
Styrene	ND		40.0	38.4		ug/L		96	68 - 127
Tetrachloroethene	ND		40.0	42.9		ug/L		107	60 - 129
Toluene	ND		40.0	40.9		ug/L		102	67 - 128
trans-1,2-Dichloroethene	ND		40.0	36.9		ug/L		92	62 - 126
trans-1,3-Dichloropropene	ND		40.0	37.2		ug/L		93	57 - 137
Trichloroethene	ND		40.0	43.0		ug/L		108	67 - 121
Vinyl chloride	ND		40.0	24.6		ug/L		62	47 - 147
Xylenes, Total	ND		80.0	80.1		ug/L		100	64 - 123

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*92*		*52 - 151*
4-Bromofluorobenzene (Surr)	*100*		*49 - 118*
Dibromofluoromethane (Surr)	*127*		*60 - 132*
Toluene-d8 (Surr)	*108*		*53 - 124*

Lab Sample ID: 180-136058-31 MSD
Matrix: Solid
Analysis Batch: 399149

Client Sample ID: TRW 20% PC, 4% AC T04
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		40.0	36.1		ug/L		90	64 - 133	11	22
1,1,2,2-Tetrachloroethane	ND		40.0	32.6		ug/L		81	47 - 147	4	35
1,1,2-Trichloroethane	ND		40.0	35.0		ug/L		87	59 - 137	5	29
1,1-Dichloroethane	ND		40.0	32.3		ug/L		81	59 - 125	12	20
1,1-Dichloroethene	ND		40.0	27.0		ug/L		68	49 - 132	11	23
1,2,4-Trichlorobenzene	ND	F2	40.0	31.7	F2	ug/L		79	15 - 169	53	35
1,2-Dibromo-3-Chloropropane	ND		40.0	36.0		ug/L		90	10 - 170	31	35
1,2-Dibromoethane	ND		40.0	39.2		ug/L		98	55 - 146	5	30
1,2-Dichlorobenzene	ND	*-	40.0	39.8		ug/L		99	68 - 116	4	20
1,2-Dichloroethane	ND		40.0	37.1		ug/L		93	57 - 149	10	27
1,2-Dichloropropane	ND		40.0	33.9		ug/L		85	65 - 129	7	23
1,3-Dichlorobenzene	ND		40.0	41.0		ug/L		103	70 - 119	7	18
1,4-Dichlorobenzene	ND	*-	40.0	40.6		ug/L		102	74 - 117	7	17
2-Butanone (MEK)	ND		40.0	36.9		ug/L		92	35 - 158	31	35
2-Hexanone	ND		40.0	42.5		ug/L		106	38 - 157	6	35
Acetone	ND	*-	40.0	21.7		ug/L		54	29 - 163	15	35
Benzene	ND		40.0	34.1		ug/L		85	68 - 122	11	21
Bromodichloromethane	ND		40.0	36.3		ug/L		91	63 - 132	14	24

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 180-136058-31 MSD
Matrix: Solid
Analysis Batch: 399149

Client Sample ID: TRW 20% PC, 4% AC T04
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Bromoform	ND		40.0	38.8		ug/L		97	31 - 164	6	35
Carbon disulfide	ND		40.0	27.7		ug/L		69	32 - 139	14	25
Carbon tetrachloride	ND		40.0	37.7		ug/L		94	60 - 135	11	25
Chlorobenzene	ND		40.0	37.0		ug/L		93	72 - 123	2	19
Chloroethane	ND		40.0	23.9		ug/L		60	10 - 170	8	29
Chloroform	ND		40.0	32.6		ug/L		82	62 - 121	12	22
cis-1,2-Dichloroethene	ND		40.0	36.7		ug/L		92	64 - 122	13	22
cis-1,3-Dichloropropene	ND		40.0	40.3		ug/L		101	53 - 140	3	26
Dibromochloromethane	ND		40.0	41.2		ug/L		103	51 - 144	3	25
Ethylbenzene	ND		40.0	38.0		ug/L		95	66 - 122	6	22
Freon-11	ND		40.0	23.9		ug/L		60	32 - 157	17	35
Freon-113	ND		40.0	26.8		ug/L		67	48 - 134	14	28
Freon-12	ND		40.0	22.1		ug/L		55	21 - 165	16	26
Isopropylbenzene (cumene)	ND		40.0	35.7		ug/L		89	54 - 130	5	22
Methyl bromide	ND		40.0	20.5		ug/L		51	20 - 170	19	30
Methyl chloride	ND		40.0	25.5		ug/L		64	37 - 170	13	28
Methyl tert-butyl ether	ND		40.0	39.3		ug/L		98	36 - 141	5	35
Methylene Chloride	17	F2 F1	40.0	31.1	F2 F1	ug/L		35	51 - 137	44	35
m-Xylene & p-Xylene	ND		40.0	38.9		ug/L		97	61 - 128	7	21
o-Xylene	ND		40.0	36.8		ug/L		92	64 - 120	4	23
Styrene	ND		40.0	37.9		ug/L		95	68 - 127	1	22
Tetrachloroethene	ND		40.0	37.6		ug/L		94	60 - 129	13	22
Toluene	ND		40.0	37.8		ug/L		95	67 - 128	8	22
trans-1,2-Dichloroethene	ND		40.0	32.7		ug/L		82	62 - 126	12	23
trans-1,3-Dichloropropene	ND		40.0	34.4		ug/L		86	57 - 137	8	25
Trichloroethene	ND		40.0	39.9		ug/L		100	67 - 121	8	23
Vinyl chloride	ND		40.0	21.2		ug/L		53	47 - 147	15	25
Xylenes, Total	ND		80.0	75.7		ug/L		95	64 - 123	6	21

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*90*		*52 - 151*
4-Bromofluorobenzene (Surr)	*101*		*49 - 118*
Dibromofluoromethane (Surr)	*117*		*60 - 132*
Toluene-d8 (Surr)	*107*		*53 - 124*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-399252/1-A
Matrix: Solid
Analysis Batch: 399668

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399252

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		1.0	0.14	ug/L		05/18/22 15:44	05/23/22 14:12	1
1,4-Dichlorobenzene	ND		1.0	0.061	ug/L		05/18/22 15:44	05/23/22 14:12	1
2,2'-oxybis[1-chloropropane]	ND		0.19	0.058	ug/L		05/18/22 15:44	05/23/22 14:12	1
2,4-Dichlorophenol	ND		0.19	0.051	ug/L		05/18/22 15:44	05/23/22 14:12	1
2,4-Dimethylphenol	ND		1.0	0.17	ug/L		05/18/22 15:44	05/23/22 14:12	1
2,4-Dinitrophenol	ND		10	1.5	ug/L		05/18/22 15:44	05/23/22 14:12	1
2,4-Dinitrotoluene	ND		1.0	0.35	ug/L		05/18/22 15:44	05/23/22 14:12	1

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-399252/1-A
Matrix: Solid
Analysis Batch: 399668

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399252

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,6-Dinitrotoluene	ND		1.0	0.17	ug/L		05/18/22 15:44	05/23/22 14:12	1
2-Chloronaphthalene	ND		0.19	0.059	ug/L		05/18/22 15:44	05/23/22 14:12	1
2-Nitroaniline	ND		5.0	0.55	ug/L		05/18/22 15:44	05/23/22 14:12	1
3,3'-Dichlorobenzidine	ND		1.0	0.58	ug/L		05/18/22 15:44	05/23/22 14:12	1
3-Nitroaniline	ND		5.0	0.44	ug/L		05/18/22 15:44	05/23/22 14:12	1
p-Chloroaniline	ND		1.0	0.38	ug/L		05/18/22 15:44	05/23/22 14:12	1
p-Nitroaniline	ND		5.0	0.36	ug/L		05/18/22 15:44	05/23/22 14:12	1
Acenaphthene	ND		0.19	0.065	ug/L		05/18/22 15:44	05/23/22 14:12	1
Anthracene	ND		0.19	0.049	ug/L		05/18/22 15:44	05/23/22 14:12	1
Atrazine	ND		1.0	0.63	ug/L		05/18/22 15:44	05/23/22 14:12	1
Benzo[a]anthracene	ND		0.19	0.075	ug/L		05/18/22 15:44	05/23/22 14:12	1
Benzo[a]pyrene	ND		0.19	0.053	ug/L		05/18/22 15:44	05/23/22 14:12	1
Benzo[b]fluoranthene	ND		0.19	0.097	ug/L		05/18/22 15:44	05/23/22 14:12	1
Benzo[k]fluoranthene	ND		0.19	0.088	ug/L		05/18/22 15:44	05/23/22 14:12	1
Bis(2-chloroethoxy)methane	ND		1.0	0.15	ug/L		05/18/22 15:44	05/23/22 14:12	1
Dichloroethyl ether	ND		0.19	0.040	ug/L		05/18/22 15:44	05/23/22 14:12	1
Bis(2-ethylhexyl) phthalate	ND		10	6.2	ug/L		05/18/22 15:44	05/23/22 14:12	1
Benzyl butyl phthalate	ND		1.0	0.46	ug/L		05/18/22 15:44	05/23/22 14:12	1
Chrysene	ND		0.19	0.081	ug/L		05/18/22 15:44	05/23/22 14:12	1
Diethyl phthalate	ND		1.0	0.57	ug/L		05/18/22 15:44	05/23/22 14:12	1
Dimethyl phthalate	ND		1.0	0.20	ug/L		05/18/22 15:44	05/23/22 14:12	1
Dibutylphthalate	ND		1.0	0.74	ug/L		05/18/22 15:44	05/23/22 14:12	1
Di-n-octyl phthalate	ND		1.0	0.69	ug/L		05/18/22 15:44	05/23/22 14:12	1
Fluoranthene	ND		0.19	0.060	ug/L		05/18/22 15:44	05/23/22 14:12	1
Fluorene	ND		0.19	0.069	ug/L		05/18/22 15:44	05/23/22 14:12	1
Hexachlorobutadiene	ND		0.19	0.069	ug/L		05/18/22 15:44	05/23/22 14:12	1
Hexachlorocyclopentadiene	ND		1.0	0.50	ug/L		05/18/22 15:44	05/23/22 14:12	1
Hexachloroethane	ND		1.0	0.13	ug/L		05/18/22 15:44	05/23/22 14:12	1
Indeno[1,2,3-cd]pyrene	ND		0.19	0.085	ug/L		05/18/22 15:44	05/23/22 14:12	1
Isophorone	ND		1.0	0.19	ug/L		05/18/22 15:44	05/23/22 14:12	1
Nitrobenzene	ND		2.0	0.50	ug/L		05/18/22 15:44	05/23/22 14:12	1
N-Nitrosodiphenylamine	ND		1.0	0.12	ug/L		05/18/22 15:44	05/23/22 14:12	1
Pentachlorophenol	ND		5.0	0.85	ug/L		05/18/22 15:44	05/23/22 14:12	1
Phenanthrene	ND		0.19	0.055	ug/L		05/18/22 15:44	05/23/22 14:12	1
Phenol	ND		1.0	0.49	ug/L		05/18/22 15:44	05/23/22 14:12	1
Pyrene	ND		0.19	0.054	ug/L		05/18/22 15:44	05/23/22 14:12	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*83*		*23 - 128*	*05/18/22 15:44*	*05/23/22 14:12*	*1*
2-Fluorobiphenyl	*70*		*20 - 105*	*05/18/22 15:44*	*05/23/22 14:12*	*1*
2-Fluorophenol (Surr)	*77*		*20 - 105*	*05/18/22 15:44*	*05/23/22 14:12*	*1*
Nitrobenzene-d5 (Surr)	*81*		*20 - 107*	*05/18/22 15:44*	*05/23/22 14:12*	*1*
Phenol-d5 (Surr)	*70*		*20 - 106*	*05/18/22 15:44*	*05/23/22 14:12*	*1*
Terphenyl-d14 (Surr)	*67*		*22 - 120*	*05/18/22 15:44*	*05/23/22 14:12*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-399252/2-A
Matrix: Solid
Analysis Batch: 399668

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399252

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Biphenyl			20.0	13.8		ug/L		69	51 - 100		
1,4-Dichlorobenzene			20.0	12.3		ug/L		62	52 - 100		
2,2'-oxybis[1-chloropropane]			20.0	9.64		ug/L		48	29 - 102		
2,4-Dichlorophenol			20.0	15.9		ug/L		79	55 - 100		
2,4-Dimethylphenol			20.0	16.3		ug/L		81	51 - 100		
2,4-Dinitrophenol			40.0	26.5		ug/L		66	32 - 100		
2,4-Dinitrotoluene			20.0	15.7		ug/L		78	56 - 100		
2,6-Dinitrotoluene			20.0	14.6		ug/L		73	56 - 101		
2-Chloronaphthalene			20.0	13.7		ug/L		69	52 - 100		
2-Nitroaniline			20.0	16.3		ug/L		82	47 - 104		
3,3'-Dichlorobenzidine			20.0	12.9		ug/L		65	42 - 100		
3-Nitroaniline			20.0	15.1		ug/L		76	54 - 100		
p-Chloroaniline			20.0	13.7		ug/L		69	48 - 100		
p-Nitroaniline			20.0	15.4		ug/L		77	54 - 100		
Acenaphthene			20.0	15.5		ug/L		78	51 - 100		
Anthracene			20.0	13.1		ug/L		66	54 - 100		
Atrazine			20.0	14.5		ug/L		72	50 - 100		
Benzo[a]anthracene			20.0	13.1		ug/L		66	52 - 100		
Benzo[a]pyrene			20.0	13.1		ug/L		65	52 - 100		
Benzo[b]fluoranthene			20.0	14.1		ug/L		70	50 - 100		
Benzo[k]fluoranthene			20.0	12.6		ug/L		63	49 - 100		
Bis(2-chloroethoxy)methane			20.0	14.3		ug/L		72	49 - 100		
Dichloroethyl ether			20.0	13.1		ug/L		65	46 - 100		
Bis(2-ethylhexyl) phthalate			20.0	11.8		ug/L		59	52 - 101		
Benzyl butyl phthalate			20.0	11.2		ug/L		56	52 - 100		
Chrysene			20.0	12.1		ug/L		60	51 - 100		
Diethyl phthalate			20.0	14.1		ug/L		71	52 - 100		
Dimethyl phthalate			20.0	14.4		ug/L		72	55 - 100		
Dibutylphthalate			20.0	12.2		ug/L		61	57 - 100		
Di-n-octyl phthalate			20.0	13.1		ug/L		66	41 - 100		
Fluoranthene			20.0	12.8		ug/L		64	56 - 100		
Fluorene			20.0	14.8		ug/L		74	53 - 100		
Hexachlorobutadiene			20.0	15.1		ug/L		76	42 - 101		
Hexachlorocyclopentadiene			20.0	15.0		ug/L		75	38 - 102		
Hexachloroethane			20.0	12.9		ug/L		64	46 - 100		
Indeno[1,2,3-cd]pyrene			20.0	13.6		ug/L		68	54 - 100		
Isophorone			20.0	14.4		ug/L		72	50 - 100		
Nitrobenzene			20.0	15.6		ug/L		78	47 - 100		
N-Nitrosodiphenylamine			20.0	12.5		ug/L		62	53 - 100		
Pentachlorophenol			40.0	30.0		ug/L		75	35 - 102		
Phenanthrene			20.0	12.9		ug/L		65	53 - 100		
Phenol			20.0	13.8		ug/L		69	49 - 100		
Pyrene			20.0	11.2		ug/L		56	53 - 100		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*76*		*23 - 128*
2-Fluorobiphenyl	*74*		*20 - 105*
2-Fluorophenol (Surr)	*80*		*20 - 105*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-399252/2-A
Matrix: Solid
Analysis Batch: 399668

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399252

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*84*		*20 - 107*
Phenol-d5 (Surr)	*73*		*20 - 106*
Terphenyl-d14 (Surr)	*69*		*22 - 120*

Lab Sample ID: MB 180-399513/1-A
Matrix: Solid
Analysis Batch: 400147

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399513

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		1.0	0.14	ug/L		05/20/22 13:07	05/27/22 10:45	1
1,4-Dichlorobenzene	ND		1.0	0.061	ug/L		05/20/22 13:07	05/27/22 10:45	1
2,2'-oxybis[1-chloropropane]	ND		0.19	0.058	ug/L		05/20/22 13:07	05/27/22 10:45	1
2,4-Dichlorophenol	ND		0.19	0.051	ug/L		05/20/22 13:07	05/27/22 10:45	1
2,4-Dimethylphenol	ND		1.0	0.17	ug/L		05/20/22 13:07	05/27/22 10:45	1
2,4-Dinitrophenol	ND		10	1.5	ug/L		05/20/22 13:07	05/27/22 10:45	1
2,4-Dinitrotoluene	ND		1.0	0.35	ug/L		05/20/22 13:07	05/27/22 10:45	1
2,6-Dinitrotoluene	ND		1.0	0.17	ug/L		05/20/22 13:07	05/27/22 10:45	1
2-Chloronaphthalene	ND		0.19	0.059	ug/L		05/20/22 13:07	05/27/22 10:45	1
2-Nitroaniline	ND		5.0	0.55	ug/L		05/20/22 13:07	05/27/22 10:45	1
3,3'-Dichlorobenzidine	ND		1.0	0.58	ug/L		05/20/22 13:07	05/27/22 10:45	1
3-Nitroaniline	ND		5.0	0.44	ug/L		05/20/22 13:07	05/27/22 10:45	1
p-Chloroaniline	ND		1.0	0.38	ug/L		05/20/22 13:07	05/27/22 10:45	1
p-Nitroaniline	ND		5.0	0.36	ug/L		05/20/22 13:07	05/27/22 10:45	1
Acenaphthene	ND		0.19	0.065	ug/L		05/20/22 13:07	05/27/22 10:45	1
Anthracene	ND		0.19	0.049	ug/L		05/20/22 13:07	05/27/22 10:45	1
Atrazine	ND		1.0	0.63	ug/L		05/20/22 13:07	05/27/22 10:45	1
Benzo[a]anthracene	ND		0.19	0.075	ug/L		05/20/22 13:07	05/27/22 10:45	1
Benzo[a]pyrene	ND		0.19	0.053	ug/L		05/20/22 13:07	05/27/22 10:45	1
Benzo[b]fluoranthene	ND		0.19	0.097	ug/L		05/20/22 13:07	05/27/22 10:45	1
Benzo[k]fluoranthene	ND		0.19	0.088	ug/L		05/20/22 13:07	05/27/22 10:45	1
Bis(2-chloroethoxy)methane	ND		1.0	0.15	ug/L		05/20/22 13:07	05/27/22 10:45	1
Dichloroethyl ether	ND		0.19	0.040	ug/L		05/20/22 13:07	05/27/22 10:45	1
Bis(2-ethylhexyl) phthalate	ND		10	6.2	ug/L		05/20/22 13:07	05/27/22 10:45	1
Benzyl butyl phthalate	ND		1.0	0.46	ug/L		05/20/22 13:07	05/27/22 10:45	1
Chrysene	ND		0.19	0.081	ug/L		05/20/22 13:07	05/27/22 10:45	1
Diethyl phthalate	ND		1.0	0.57	ug/L		05/20/22 13:07	05/27/22 10:45	1
Dimethyl phthalate	ND		1.0	0.20	ug/L		05/20/22 13:07	05/27/22 10:45	1
Dibutylphthalate	ND		1.0	0.74	ug/L		05/20/22 13:07	05/27/22 10:45	1
Di-n-octyl phthalate	ND		1.0	0.69	ug/L		05/20/22 13:07	05/27/22 10:45	1
Fluoranthene	ND		0.19	0.060	ug/L		05/20/22 13:07	05/27/22 10:45	1
Fluorene	ND		0.19	0.069	ug/L		05/20/22 13:07	05/27/22 10:45	1
Hexachlorobutadiene	ND		0.19	0.069	ug/L		05/20/22 13:07	05/27/22 10:45	1
Hexachlorocyclopentadiene	ND		1.0	0.50	ug/L		05/20/22 13:07	05/27/22 10:45	1
Hexachloroethane	ND		1.0	0.13	ug/L		05/20/22 13:07	05/27/22 10:45	1
Indeno[1,2,3-cd]pyrene	ND		0.19	0.085	ug/L		05/20/22 13:07	05/27/22 10:45	1
Isophorone	ND		1.0	0.19	ug/L		05/20/22 13:07	05/27/22 10:45	1
Nitrobenzene	ND		2.0	0.50	ug/L		05/20/22 13:07	05/27/22 10:45	1
N-Nitrosodiphenylamine	ND		1.0	0.12	ug/L		05/20/22 13:07	05/27/22 10:45	1

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-399513/1-A
Matrix: Solid
Analysis Batch: 400147

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399513

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		5.0	0.85	ug/L		05/20/22 13:07	05/27/22 10:45	1
Phenanthrene	ND		0.19	0.055	ug/L		05/20/22 13:07	05/27/22 10:45	1
Phenol	ND		1.0	0.49	ug/L		05/20/22 13:07	05/27/22 10:45	1
Pyrene	ND		0.19	0.054	ug/L		05/20/22 13:07	05/27/22 10:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*70*		*23 - 128*	*05/20/22 13:07*	*05/27/22 10:45*	*1*
2-Fluorobiphenyl	*72*		*20 - 105*	*05/20/22 13:07*	*05/27/22 10:45*	*1*
2-Fluorophenol (Surr)	*79*		*20 - 105*	*05/20/22 13:07*	*05/27/22 10:45*	*1*
Nitrobenzene-d5 (Surr)	*78*		*20 - 107*	*05/20/22 13:07*	*05/27/22 10:45*	*1*
Phenol-d5 (Surr)	*77*		*20 - 106*	*05/20/22 13:07*	*05/27/22 10:45*	*1*
Terphenyl-d14 (Surr)	*73*		*22 - 120*	*05/20/22 13:07*	*05/27/22 10:45*	*1*

Lab Sample ID: LCS 180-399513/2-A
Matrix: Solid
Analysis Batch: 400147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399513

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biphenyl	20.0	13.8		ug/L		69	51 - 100
1,4-Dichlorobenzene	20.0	14.2		ug/L		71	52 - 100
2,2'-oxybis[1-chloropropane]	20.0	15.6		ug/L		78	29 - 102
2,4-Dichlorophenol	20.0	14.3		ug/L		71	55 - 100
2,4-Dimethylphenol	20.0	15.3		ug/L		76	51 - 100
2,4-Dinitrophenol	40.0	25.2		ug/L		63	32 - 100
2,4-Dinitrotoluene	20.0	14.8		ug/L		74	56 - 100
2,6-Dinitrotoluene	20.0	14.2		ug/L		71	56 - 101
2-Chloronaphthalene	20.0	13.7		ug/L		68	52 - 100
2-Nitroaniline	20.0	16.1		ug/L		80	47 - 104
3,3'-Dichlorobenzidine	20.0	14.5		ug/L		72	42 - 100
3-Nitroaniline	20.0	14.4		ug/L		72	54 - 100
p-Chloroaniline	20.0	13.9		ug/L		70	48 - 100
p-Nitroaniline	20.0	14.6		ug/L		73	54 - 100
Acenaphthene	20.0	14.3		ug/L		71	51 - 100
Anthracene	20.0	14.3		ug/L		72	54 - 100
Atrazine	20.0	13.7		ug/L		68	50 - 100
Benzo[a]anthracene	20.0	14.3		ug/L		72	52 - 100
Benzo[a]pyrene	20.0	13.5		ug/L		68	52 - 100
Benzo[b]fluoranthene	20.0	13.5		ug/L		67	50 - 100
Benzo[k]fluoranthene	20.0	12.4		ug/L		62	49 - 100
Bis(2-chloroethoxy)methane	20.0	13.1		ug/L		65	49 - 100
Dichloroethyl ether	20.0	14.5		ug/L		73	46 - 100
Bis(2-ethylhexyl) phthalate	20.0	17.3		ug/L		86	52 - 101
Benzyl butyl phthalate	20.0	17.2		ug/L		86	52 - 100
Chrysene	20.0	13.2		ug/L		66	51 - 100
Diethyl phthalate	20.0	13.9		ug/L		70	52 - 100
Dimethyl phthalate	20.0	13.2		ug/L		66	55 - 100
Dibutylphthalate	20.0	15.7		ug/L		79	57 - 100
Di-n-octyl phthalate	20.0	15.5		ug/L		78	41 - 100

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-399513/2-A
Matrix: Solid
Analysis Batch: 400147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399513

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoranthene	20.0	14.4		ug/L		72	56 - 100
Fluorene	20.0	13.3		ug/L		66	53 - 100
Hexachlorobutadiene	20.0	13.3		ug/L		66	42 - 101
Hexachlorocyclopentadiene	20.0	13.7		ug/L		69	38 - 102
Hexachloroethane	20.0	15.9		ug/L		80	46 - 100
Indeno[1,2,3-cd]pyrene	20.0	16.0		ug/L		80	54 - 100
Isophorone	20.0	14.3		ug/L		72	50 - 100
Nitrobenzene	20.0	14.6		ug/L		73	47 - 100
N-Nitrosodiphenylamine	20.0	14.0		ug/L		70	53 - 100
Pentachlorophenol	40.0	26.0		ug/L		65	35 - 102
Phenanthrene	20.0	13.9		ug/L		70	53 - 100
Phenol	20.0	14.4		ug/L		72	49 - 100
Pyrene	20.0	14.1		ug/L		70	53 - 100

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*73*		*23 - 128*
2-Fluorobiphenyl	*67*		*20 - 105*
2-Fluorophenol (Surr)	*77*		*20 - 105*
Nitrobenzene-d5 (Surr)	*79*		*20 - 107*
Phenol-d5 (Surr)	*75*		*20 - 106*
Terphenyl-d14 (Surr)	*71*		*22 - 120*

Lab Sample ID: MB 180-399879/1-A
Matrix: Solid
Analysis Batch: 400474

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399879

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		1.0	0.14	ug/L		05/25/22 07:32	06/01/22 08:47	1
1,4-Dichlorobenzene	ND		1.0	0.061	ug/L		05/25/22 07:32	06/01/22 08:47	1
2,2'-oxybis[1-chloropropane]	ND		0.19	0.058	ug/L		05/25/22 07:32	06/01/22 08:47	1
2,4-Dichlorophenol	ND		0.19	0.051	ug/L		05/25/22 07:32	06/01/22 08:47	1
2,4-Dimethylphenol	ND		1.0	0.17	ug/L		05/25/22 07:32	06/01/22 08:47	1
2,4-Dinitrophenol	ND		10	1.5	ug/L		05/25/22 07:32	06/01/22 08:47	1
2,4-Dinitrotoluene	ND		1.0	0.35	ug/L		05/25/22 07:32	06/01/22 08:47	1
2,6-Dinitrotoluene	ND		1.0	0.17	ug/L		05/25/22 07:32	06/01/22 08:47	1
2-Chloronaphthalene	ND		0.19	0.059	ug/L		05/25/22 07:32	06/01/22 08:47	1
2-Nitroaniline	ND		5.0	0.55	ug/L		05/25/22 07:32	06/01/22 08:47	1
3,3'-Dichlorobenzidine	ND		1.0	0.58	ug/L		05/25/22 07:32	06/01/22 08:47	1
3-Nitroaniline	ND		5.0	0.44	ug/L		05/25/22 07:32	06/01/22 08:47	1
p-Chloroaniline	ND		1.0	0.38	ug/L		05/25/22 07:32	06/01/22 08:47	1
p-Nitroaniline	ND		5.0	0.36	ug/L		05/25/22 07:32	06/01/22 08:47	1
Acenaphthene	ND		0.19	0.065	ug/L		05/25/22 07:32	06/01/22 08:47	1
Anthracene	ND		0.19	0.049	ug/L		05/25/22 07:32	06/01/22 08:47	1
Atrazine	ND		1.0	0.63	ug/L		05/25/22 07:32	06/01/22 08:47	1
Benzo[a]anthracene	ND		0.19	0.075	ug/L		05/25/22 07:32	06/01/22 08:47	1
Benzo[a]pyrene	ND		0.19	0.053	ug/L		05/25/22 07:32	06/01/22 08:47	1
Benzo[b]fluoranthene	ND		0.19	0.097	ug/L		05/25/22 07:32	06/01/22 08:47	1
Benzo[k]fluoranthene	ND		0.19	0.088	ug/L		05/25/22 07:32	06/01/22 08:47	1

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-399879/1-A
Matrix: Solid
Analysis Batch: 400474

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399879

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		1.0	0.15	ug/L		05/25/22 07:32	06/01/22 08:47	1
Dichloroethyl ether	ND		0.19	0.040	ug/L		05/25/22 07:32	06/01/22 08:47	1
Bis(2-ethylhexyl) phthalate	ND		10	6.2	ug/L		05/25/22 07:32	06/01/22 08:47	1
Benzyl butyl phthalate	ND		1.0	0.46	ug/L		05/25/22 07:32	06/01/22 08:47	1
Chrysene	ND		0.19	0.081	ug/L		05/25/22 07:32	06/01/22 08:47	1
Diethyl phthalate	ND		1.0	0.57	ug/L		05/25/22 07:32	06/01/22 08:47	1
Dimethyl phthalate	ND		1.0	0.20	ug/L		05/25/22 07:32	06/01/22 08:47	1
Dibutylphthalate	ND		1.0	0.74	ug/L		05/25/22 07:32	06/01/22 08:47	1
Di-n-octyl phthalate	ND		1.0	0.69	ug/L		05/25/22 07:32	06/01/22 08:47	1
Fluoranthene	ND		0.19	0.060	ug/L		05/25/22 07:32	06/01/22 08:47	1
Fluorene	ND		0.19	0.069	ug/L		05/25/22 07:32	06/01/22 08:47	1
Hexachlorobutadiene	ND		0.19	0.069	ug/L		05/25/22 07:32	06/01/22 08:47	1
Hexachlorocyclopentadiene	ND		1.0	0.50	ug/L		05/25/22 07:32	06/01/22 08:47	1
Hexachloroethane	ND		1.0	0.13	ug/L		05/25/22 07:32	06/01/22 08:47	1
Indeno[1,2,3-cd]pyrene	ND		0.19	0.085	ug/L		05/25/22 07:32	06/01/22 08:47	1
Isophorone	ND		1.0	0.19	ug/L		05/25/22 07:32	06/01/22 08:47	1
Nitrobenzene	ND		2.0	0.50	ug/L		05/25/22 07:32	06/01/22 08:47	1
N-Nitrosodiphenylamine	ND		1.0	0.12	ug/L		05/25/22 07:32	06/01/22 08:47	1
Pentachlorophenol	ND		5.0	0.85	ug/L		05/25/22 07:32	06/01/22 08:47	1
Phenanthrene	ND		0.19	0.055	ug/L		05/25/22 07:32	06/01/22 08:47	1
Phenol	ND		1.0	0.49	ug/L		05/25/22 07:32	06/01/22 08:47	1
Pyrene	ND		0.19	0.054	ug/L		05/25/22 07:32	06/01/22 08:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*72*		*23 - 128*	*05/25/22 07:32*	*06/01/22 08:47*	*1*
2-Fluorobiphenyl	*96*		*20 - 105*	*05/25/22 07:32*	*06/01/22 08:47*	*1*
2-Fluorophenol (Surr)	*96*		*20 - 105*	*05/25/22 07:32*	*06/01/22 08:47*	*1*
Nitrobenzene-d5 (Surr)	*93*		*20 - 107*	*05/25/22 07:32*	*06/01/22 08:47*	*1*
Phenol-d5 (Surr)	*91*		*20 - 106*	*05/25/22 07:32*	*06/01/22 08:47*	*1*
Terphenyl-d14 (Surr)	*89*		*22 - 120*	*05/25/22 07:32*	*06/01/22 08:47*	*1*

Lab Sample ID: LCS 180-399879/2-A
Matrix: Solid
Analysis Batch: 400474

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399879

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biphenyl	20.0	14.8		ug/L		74	51 - 100
1,4-Dichlorobenzene	20.0	14.1		ug/L		70	52 - 100
2,2'-oxybis[1-chloropropane]	20.0	12.2		ug/L		61	29 - 102
2,4-Dichlorophenol	20.0	13.7		ug/L		68	55 - 100
2,4-Dimethylphenol	20.0	13.4		ug/L		67	51 - 100
2,4-Dinitrophenol	40.0	31.7		ug/L		79	32 - 100
2,4-Dinitrotoluene	20.0	14.2		ug/L		71	56 - 100
2,6-Dinitrotoluene	20.0	15.3		ug/L		77	56 - 101
2-Chloronaphthalene	20.0	15.0		ug/L		75	52 - 100
2-Nitroaniline	20.0	14.7		ug/L		74	47 - 104
3,3'-Dichlorobenzidine	20.0	14.0		ug/L		70	42 - 100
3-Nitroaniline	20.0	15.1		ug/L		76	54 - 100

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-399879/2-A
Matrix: Solid
Analysis Batch: 400474

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399879

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
p-Chloroaniline	20.0	13.5		ug/L		67	48 - 100
p-Nitroaniline	20.0	15.4		ug/L		77	54 - 100
Acenaphthene	20.0	14.5		ug/L		72	51 - 100
Anthracene	20.0	14.6		ug/L		73	54 - 100
Atrazine	20.0	14.3		ug/L		72	50 - 100
Benzo[a]anthracene	20.0	14.0		ug/L		70	52 - 100
Benzo[a]pyrene	20.0	13.6		ug/L		68	52 - 100
Benzo[b]fluoranthene	20.0	15.2		ug/L		76	50 - 100
Benzo[k]fluoranthene	20.0	12.5		ug/L		62	49 - 100
Bis(2-chloroethoxy)methane	20.0	12.6		ug/L		63	49 - 100
Dichloroethyl ether	20.0	12.5		ug/L		63	46 - 100
Bis(2-ethylhexyl) phthalate	20.0	16.7		ug/L		83	52 - 101
Benzyl butyl phthalate	20.0	14.1		ug/L		71	52 - 100
Chrysene	20.0	13.5		ug/L		67	51 - 100
Diethyl phthalate	20.0	13.5		ug/L		67	52 - 100
Dimethyl phthalate	20.0	14.4		ug/L		72	55 - 100
Dibutylphthalate	20.0	14.7		ug/L		74	57 - 100
Di-n-octyl phthalate	20.0	15.6		ug/L		78	41 - 100
Fluoranthene	20.0	14.0		ug/L		70	56 - 100
Fluorene	20.0	13.7		ug/L		69	53 - 100
Hexachlorobutadiene	20.0	10.3		ug/L		52	42 - 101
Hexachlorocyclopentadiene	20.0	12.9		ug/L		65	38 - 102
Hexachloroethane	20.0	13.6		ug/L		68	46 - 100
Indeno[1,2,3-cd]pyrene	20.0	15.2		ug/L		76	54 - 100
Isophorone	20.0	12.8		ug/L		64	50 - 100
Nitrobenzene	20.0	13.5		ug/L		67	47 - 100
N-Nitrosodiphenylamine	20.0	15.4		ug/L		77	53 - 100
Pentachlorophenol	40.0	27.6		ug/L		69	35 - 102
Phenanthrene	20.0	13.8		ug/L		69	53 - 100
Phenol	20.0	13.5		ug/L		68	49 - 100
Pyrene	20.0	14.5		ug/L		73	53 - 100

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*60*		*23 - 128*
2-Fluorobiphenyl	*75*		*20 - 105*
2-Fluorophenol (Surr)	*81*		*20 - 105*
Nitrobenzene-d5 (Surr)	*67*		*20 - 107*
Phenol-d5 (Surr)	*73*		*20 - 106*
Terphenyl-d14 (Surr)	*78*		*22 - 120*

Method: EPA 8081B LL - Organochlorine Pesticides (GC)

Lab Sample ID: MB 180-398549/1-A
Matrix: Solid
Analysis Batch: 399034

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 398549

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.0013	0.00053	ug/L		05/12/22 07:35	05/18/22 01:02	1
4,4'-DDE	ND		0.0013	0.00030	ug/L		05/12/22 07:35	05/18/22 01:02	1

Method: EPA 8081B LL - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 180-398549/1-A
Matrix: Solid
Analysis Batch: 399034

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 398549

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDT	ND		0.0013	0.00069	ug/L		05/12/22 07:35	05/18/22 01:02	1
alpha-BHC	ND		0.0013	0.00024	ug/L		05/12/22 07:35	05/18/22 01:02	1
alpha-Chlordane	ND		0.0013	0.00037	ug/L		05/12/22 07:35	05/18/22 01:02	1
beta-BHC	ND		0.0013	0.00037	ug/L		05/12/22 07:35	05/18/22 01:02	1
delta-BHC	ND		0.0013	0.00064	ug/L		05/12/22 07:35	05/18/22 01:02	1
Dieldrin	ND		0.0013	0.00027	ug/L		05/12/22 07:35	05/18/22 01:02	1
Endrin aldehyde	ND		0.0013	0.00052	ug/L		05/12/22 07:35	05/18/22 01:02	1
Endrin ketone	ND		0.0013	0.00040	ug/L		05/12/22 07:35	05/18/22 01:02	1
gamma-BHC (Lindane)	ND		0.0013	0.00029	ug/L		05/12/22 07:35	05/18/22 01:02	1
gamma-Chlordane	ND		0.0013	0.00041	ug/L		05/12/22 07:35	05/18/22 01:02	1
Heptachlor	ND		0.0013	0.00045	ug/L		05/12/22 07:35	05/18/22 01:02	1
Heptachlor epoxide	ND		0.0013	0.00034	ug/L		05/12/22 07:35	05/18/22 01:02	1
Hexachlorobenzene	ND		0.0013	0.00091	ug/L		05/12/22 07:35	05/18/22 01:02	1
Toxaphene	ND		0.10	0.049	ug/L		05/12/22 07:35	05/18/22 01:02	1
Endosulfan II	ND		0.0013	0.00032	ug/L		05/12/22 07:35	05/18/22 01:02	1
Methoxychlor	ND		0.0013	0.00078	ug/L		05/12/22 07:35	05/18/22 01:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*95*		*46 - 114*	*05/12/22 07:35*	*05/18/22 01:02*	*1*
DCB Decachlorobiphenyl (Surr)	*99*		*46 - 114*	*05/12/22 07:35*	*05/18/22 01:02*	*1*
Tetrachloro-m-xylene	*79*		*39 - 119*	*05/12/22 07:35*	*05/18/22 01:02*	*1*
Tetrachloro-m-xylene	*84*		*39 - 119*	*05/12/22 07:35*	*05/18/22 01:02*	*1*

Lab Sample ID: LCS 180-398549/2-A
Matrix: Solid
Analysis Batch: 399034

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 398549

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4,4'-DDD	0.0250	0.0230		ug/L		92	57 - 116
4,4'-DDE	0.0250	0.0229		ug/L		91	55 - 111
4,4'-DDT	0.0250	0.0233		ug/L		93	45 - 107
alpha-BHC	0.0250	0.0214		ug/L		86	58 - 116
alpha-Chlordane	0.0250	0.0201		ug/L		80	50 - 117
beta-BHC	0.0250	0.0201		ug/L		81	54 - 111
delta-BHC	0.0250	0.0224		ug/L		89	47 - 118
Dieldrin	0.0250	0.0216		ug/L		86	57 - 111
Endrin aldehyde	0.0250	0.0222		ug/L		89	43 - 117
Endrin ketone	0.0250	0.0217		ug/L		87	60 - 114
gamma-BHC (Lindane)	0.0250	0.0212		ug/L		85	57 - 116
gamma-Chlordane	0.0250	0.0187		ug/L		75	43 - 115
Heptachlor	0.0250	0.0200		ug/L		80	56 - 120
Heptachlor epoxide	0.0250	0.0204		ug/L		82	53 - 118
Endosulfan II	0.0250	0.0214		ug/L		86	54 - 116
Methoxychlor	0.0250	0.0236		ug/L		94	46 - 114

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*100*		*46 - 114*
DCB Decachlorobiphenyl (Surr)	*104*		*46 - 114*

Method: EPA 8081B LL - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 180-398549/2-A
Matrix: Solid
Analysis Batch: 399034

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 398549

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*86*		*39 - 119*
Tetrachloro-m-xylene	*91*		*39 - 119*

Lab Sample ID: LCSD 180-398549/3-A
Matrix: Solid
Analysis Batch: 399034

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 398549

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4,4'-DDD			0.0250	0.0207		ug/L		83	57 - 116	11	18
4,4'-DDE			0.0250	0.0205		ug/L		82	55 - 111	11	20
4,4'-DDT			0.0250	0.0214		ug/L		86	45 - 107	9	20
alpha-BHC			0.0250	0.0197		ug/L		79	58 - 116	8	17
alpha-Chlordane			0.0250	0.0183		ug/L		73	50 - 117	9	18
beta-BHC			0.0250	0.0190		ug/L		76	54 - 111	6	18
delta-BHC			0.0250	0.0209		ug/L		84	47 - 118	7	18
Dieldrin			0.0250	0.0202		ug/L		81	57 - 111	7	21
Endrin aldehyde			0.0250	0.0189		ug/L		75	43 - 117	16	23
Endrin ketone			0.0250	0.0199		ug/L		80	60 - 114	9	17
gamma-BHC (Lindane)			0.0250	0.0195		ug/L		78	57 - 116	8	19
gamma-Chlordane			0.0250	0.0178		ug/L		71	43 - 115	5	17
Heptachlor			0.0250	0.0188		ug/L		75	56 - 120	6	18
Heptachlor epoxide			0.0250	0.0191		ug/L		76	53 - 118	7	20
Endosulfan II			0.0250	0.0194		ug/L		78	54 - 116	10	17
Methoxychlor			0.0250	0.0219		ug/L		88	46 - 114	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*91*		*46 - 114*
DCB Decachlorobiphenyl (Surr)	*97*		*46 - 114*
Tetrachloro-m-xylene	*81*		*39 - 119*
Tetrachloro-m-xylene	*85*		*39 - 119*

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-398746/7
Matrix: Solid
Analysis Batch: 398746

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.0	0.76	mg/L			05/13/22 20:42	1

Lab Sample ID: LCS 180-398746/6
Matrix: Solid
Analysis Batch: 398746

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			50.0	47.6		mg/L		95	80 - 120		

Method: EPA 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 180-136058-2 MS
Matrix: Solid
Analysis Batch: 398746

Client Sample ID: TRW CONTROL T02
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	37		50.0	78.4		mg/L		84	80 - 120

Lab Sample ID: 180-136058-2 MSD
Matrix: Solid
Analysis Batch: 398746

Client Sample ID: TRW CONTROL T02
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	37		50.0	80.4		mg/L		87	80 - 120	2	15

Method: EPA 6010D - Metals (ICP)

Lab Sample ID: MB 180-399060/1-A
Matrix: Solid
Analysis Batch: 399305

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399060

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.041	mg/L		05/17/22 10:47	05/18/22 16:00	1
Antimony	ND		0.010	0.0062	mg/L		05/17/22 10:47	05/18/22 16:00	1
Arsenic	ND		0.010	0.0083	mg/L		05/17/22 10:47	05/18/22 16:00	1
Barium	ND		0.20	0.0063	mg/L		05/17/22 10:47	05/18/22 16:00	1
Beryllium	ND		0.0040	0.0015	mg/L		05/17/22 10:47	05/18/22 16:00	1
Cadmium	ND		0.0050	0.00030	mg/L		05/17/22 10:47	05/18/22 16:00	1
Calcium	ND		5.0	0.32	mg/L		05/17/22 10:47	05/18/22 16:00	1
Chromium	ND		0.0050	0.0016	mg/L		05/17/22 10:47	05/18/22 16:00	1
Cobalt	ND		0.050	0.0019	mg/L		05/17/22 10:47	05/18/22 16:00	1
Copper	ND		0.025	0.0022	mg/L		05/17/22 10:47	05/18/22 16:00	1
Iron	ND		0.10	0.072	mg/L		05/17/22 10:47	05/18/22 16:00	1
Lead	ND		0.010	0.0044	mg/L		05/17/22 10:47	05/18/22 16:00	1
Magnesium	ND		5.0	0.26	mg/L		05/17/22 10:47	05/18/22 16:00	1
Manganese	ND		0.015	0.0024	mg/L		05/17/22 10:47	05/18/22 16:00	1
Nickel	ND		0.040	0.0019	mg/L		05/17/22 10:47	05/18/22 16:00	1
Potassium	ND		5.0	0.80	mg/L		05/17/22 10:47	05/18/22 16:00	1
Selenium	ND		0.010	0.0037	mg/L		05/17/22 10:47	05/18/22 16:00	1
Silver	ND		0.0050	0.00091	mg/L		05/17/22 10:47	05/18/22 16:00	1
Sodium	ND		5.0	0.30	mg/L		05/17/22 10:47	05/18/22 16:00	1
Thallium	ND		0.020	0.0030	mg/L		05/17/22 10:47	05/18/22 16:00	1
Vanadium	ND		0.050	0.0053	mg/L		05/17/22 10:47	05/18/22 16:00	1
Zinc	ND		0.020	0.0026	mg/L		05/17/22 10:47	05/18/22 16:00	1

Lab Sample ID: LCS 180-399060/2-A
Matrix: Solid
Analysis Batch: 399305

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399060

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	5.00	4.76		mg/L		95	80 - 120
Antimony	0.250	0.253		mg/L		101	80 - 120
Arsenic	1.00	1.02		mg/L		102	80 - 120
Barium	1.00	0.920		mg/L		92	80 - 120
Beryllium	0.500	0.476		mg/L		95	80 - 120

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 180-399060/2-A
Matrix: Solid
Analysis Batch: 399305

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399060

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	0.500	0.492		mg/L		98	80 - 120
Calcium	25.0	23.4		mg/L		93	80 - 120
Chromium	0.500	0.467		mg/L		93	80 - 120
Cobalt	0.500	0.478		mg/L		96	80 - 120
Copper	0.500	0.459		mg/L		92	80 - 120
Iron	5.00	4.99		mg/L		100	80 - 120
Lead	0.500	0.460		mg/L		92	80 - 120
Magnesium	25.0	23.1		mg/L		92	80 - 120
Manganese	0.500	0.459		mg/L		92	80 - 120
Nickel	0.500	0.475		mg/L		95	80 - 120
Potassium	25.0	23.9		mg/L		96	80 - 120
Selenium	1.00	0.983		mg/L		98	80 - 120
Silver	0.250	0.242		mg/L		97	80 - 120
Sodium	25.0	24.7		mg/L		99	80 - 120
Thallium	1.00	0.914		mg/L		91	80 - 120
Vanadium	0.500	0.466		mg/L		93	80 - 120
Zinc	0.250	0.241		mg/L		96	80 - 120

Lab Sample ID: MB 180-399185/1-A
Matrix: Solid
Analysis Batch: 399442

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399185

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.041	mg/L		05/18/22 10:06	05/19/22 16:10	1
Antimony	ND		0.010	0.0062	mg/L		05/18/22 10:06	05/19/22 16:10	1
Arsenic	ND		0.010	0.0083	mg/L		05/18/22 10:06	05/19/22 16:10	1
Barium	ND		0.20	0.0063	mg/L		05/18/22 10:06	05/19/22 16:10	1
Beryllium	ND		0.0040	0.0015	mg/L		05/18/22 10:06	05/19/22 16:10	1
Cadmium	ND		0.0050	0.00030	mg/L		05/18/22 10:06	05/19/22 16:10	1
Calcium	ND		5.0	0.32	mg/L		05/18/22 10:06	05/19/22 16:10	1
Chromium	ND		0.0050	0.0016	mg/L		05/18/22 10:06	05/19/22 16:10	1
Cobalt	ND		0.050	0.0019	mg/L		05/18/22 10:06	05/19/22 16:10	1
Copper	ND		0.025	0.0022	mg/L		05/18/22 10:06	05/19/22 16:10	1
Iron	ND		0.10	0.072	mg/L		05/18/22 10:06	05/19/22 16:10	1
Lead	ND		0.010	0.0044	mg/L		05/18/22 10:06	05/19/22 16:10	1
Magnesium	ND		5.0	0.26	mg/L		05/18/22 10:06	05/19/22 16:10	1
Manganese	ND		0.015	0.0024	mg/L		05/18/22 10:06	05/19/22 16:10	1
Nickel	ND		0.040	0.0019	mg/L		05/18/22 10:06	05/19/22 16:10	1
Potassium	ND		5.0	0.80	mg/L		05/18/22 10:06	05/19/22 16:10	1
Selenium	ND		0.010	0.0037	mg/L		05/18/22 10:06	05/19/22 16:10	1
Silver	ND		0.0050	0.00091	mg/L		05/18/22 10:06	05/19/22 16:10	1
Sodium	ND		5.0	0.30	mg/L		05/18/22 10:06	05/19/22 16:10	1
Thallium	ND		0.020	0.0030	mg/L		05/18/22 10:06	05/19/22 16:10	1
Vanadium	ND		0.050	0.0053	mg/L		05/18/22 10:06	05/19/22 16:10	1
Zinc	ND		0.020	0.0026	mg/L		05/18/22 10:06	05/19/22 16:10	1

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 180-399185/2-A
Client Sample ID: Lab Control Sample
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 399442
Prep Batch: 399185

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	5.00	5.15		mg/L		103	80 - 120
Antimony	0.250	0.260		mg/L		104	80 - 120
Arsenic	1.00	1.06		mg/L		106	80 - 120
Barium	1.00	0.985		mg/L		99	80 - 120
Beryllium	0.500	0.519		mg/L		104	80 - 120
Cadmium	0.500	0.520		mg/L		104	80 - 120
Calcium	25.0	25.4		mg/L		102	80 - 120
Chromium	0.500	0.495		mg/L		99	80 - 120
Cobalt	0.500	0.506		mg/L		101	80 - 120
Copper	0.500	0.491		mg/L		98	80 - 120
Iron	5.00	5.17		mg/L		103	80 - 120
Lead	0.500	0.511		mg/L		102	80 - 120
Magnesium	25.0	25.5		mg/L		102	80 - 120
Manganese	0.500	0.494		mg/L		99	80 - 120
Nickel	0.500	0.513		mg/L		103	80 - 120
Potassium	25.0	25.2		mg/L		101	80 - 120
Selenium	1.00	1.04		mg/L		104	80 - 120
Silver	0.250	0.212		mg/L		85	80 - 120
Sodium	25.0	25.4		mg/L		102	80 - 120
Thallium	1.00	1.02		mg/L		102	80 - 120
Vanadium	0.500	0.495		mg/L		99	80 - 120
Zinc	0.250	0.259		mg/L		103	80 - 120

Lab Sample ID: 180-136058-37 MS
Client Sample ID: TRW 20% PC, 2% AC, 2%SP T01
Matrix: Solid
Prep Type: Leach
Analysis Batch: 399305
Prep Batch: 399060

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.58		5.00	5.49		mg/L		98	75 - 125
Antimony	0.018		0.250	0.273		mg/L		102	75 - 125
Arsenic	ND		1.00	1.05		mg/L		105	75 - 125
Barium	0.015	J	1.00	0.951		mg/L		94	75 - 125
Beryllium	ND		0.500	0.485		mg/L		97	75 - 125
Cadmium	ND		0.500	0.504		mg/L		101	75 - 125
Calcium	10		25.0	34.4		mg/L		97	75 - 125
Chromium	ND		0.500	0.482		mg/L		96	75 - 125
Cobalt	ND		0.500	0.492		mg/L		98	75 - 125
Copper	0.025		0.500	0.500		mg/L		95	75 - 125
Iron	ND		5.00	5.05		mg/L		101	75 - 125
Lead	ND		0.500	0.468		mg/L		94	75 - 125
Magnesium	ND		25.0	23.4		mg/L		94	75 - 125
Manganese	ND		0.500	0.467		mg/L		93	75 - 125
Nickel	0.0067	J	0.500	0.493		mg/L		97	75 - 125
Potassium	1.1	J	25.0	25.8		mg/L		98	75 - 125
Selenium	ND		1.00	0.995		mg/L		99	75 - 125
Silver	ND		0.250	0.245		mg/L		98	75 - 125
Sodium	34		25.0	59.4		mg/L		103	75 - 125
Thallium	ND		1.00	0.918		mg/L		92	75 - 125
Vanadium	ND		0.500	0.483		mg/L		97	75 - 125

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: 180-136058-37 MS
Matrix: Solid
Analysis Batch: 399305

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T01
Prep Type: Leach
Prep Batch: 399060

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	ND		0.250	0.244		mg/L		97	75 - 125

Lab Sample ID: 180-136058-37 MSD
Matrix: Solid
Analysis Batch: 399305

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T01
Prep Type: Leach
Prep Batch: 399060

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum	0.58		5.00	5.41		mg/L		96	75 - 125	2	20
Antimony	0.018		0.250	0.276		mg/L		104	75 - 125	1	20
Arsenic	ND		1.00	1.05		mg/L		105	75 - 125	0	20
Barium	0.015	J	1.00	0.949		mg/L		93	75 - 125	0	20
Beryllium	ND		0.500	0.479		mg/L		96	75 - 125	1	20
Cadmium	ND		0.500	0.501		mg/L		100	75 - 125	0	20
Calcium	10		25.0	33.7		mg/L		94	75 - 125	2	20
Chromium	ND		0.500	0.477		mg/L		95	75 - 125	1	20
Cobalt	ND		0.500	0.491		mg/L		98	75 - 125	0	20
Copper	0.025		0.500	0.496		mg/L		94	75 - 125	1	20
Iron	ND		5.00	5.16		mg/L		103	75 - 125	2	20
Lead	ND		0.500	0.463		mg/L		93	75 - 125	1	20
Magnesium	ND		25.0	23.2		mg/L		93	75 - 125	1	20
Manganese	ND		0.500	0.465		mg/L		93	75 - 125	0	20
Nickel	0.0067	J	0.500	0.490		mg/L		97	75 - 125	1	20
Potassium	1.1	J	25.0	25.5		mg/L		97	75 - 125	1	20
Selenium	ND		1.00	0.992		mg/L		99	75 - 125	0	20
Silver	ND		0.250	0.245		mg/L		98	75 - 125	0	20
Sodium	34		25.0	58.3		mg/L		99	75 - 125	2	20
Thallium	ND		1.00	0.912		mg/L		91	75 - 125	1	20
Vanadium	ND		0.500	0.483		mg/L		97	75 - 125	0	20
Zinc	ND		0.250	0.242		mg/L		97	75 - 125	1	20

Lab Sample ID: 180-136058-4 MS
Matrix: Solid
Analysis Batch: 399442

Client Sample ID: TRW CONTROL T04
Prep Type: Leach
Prep Batch: 399185

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	ND		5.00	4.99		mg/L		100	75 - 125
Antimony	0.039		0.250	0.301		mg/L		105	75 - 125
Arsenic	ND		1.00	1.06		mg/L		106	75 - 125
Barium	0.054	J	1.00	1.03		mg/L		98	75 - 125
Beryllium	ND		0.500	0.507		mg/L		101	75 - 125
Cadmium	ND		0.500	0.515		mg/L		103	75 - 125
Calcium	46		25.0	71.3		mg/L		100	75 - 125
Chromium	ND		0.500	0.489		mg/L		98	75 - 125
Cobalt	ND		0.500	0.497		mg/L		99	75 - 125
Copper	ND		0.500	0.489		mg/L		98	75 - 125
Iron	ND		5.00	5.19		mg/L		104	75 - 125
Lead	ND		0.500	0.507		mg/L		101	75 - 125
Magnesium	7.1		25.0	32.0		mg/L		99	75 - 125
Manganese	0.18		0.500	0.674		mg/L		99	75 - 125

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: 180-136058-4 MS
Matrix: Solid
Analysis Batch: 399442

Client Sample ID: TRW CONTROL T04
Prep Type: Leach
Prep Batch: 399185

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nickel	ND		0.500	0.506		mg/L		101	75 - 125
Potassium	1.0	J	25.0	25.6		mg/L		99	75 - 125
Selenium	ND		1.00	1.05		mg/L		105	75 - 125
Silver	ND		0.250	0.215		mg/L		86	75 - 125
Sodium	3.1	J	25.0	27.8		mg/L		99	75 - 125
Thallium	ND		1.00	0.999		mg/L		100	75 - 125
Vanadium	ND		0.500	0.490		mg/L		98	75 - 125
Zinc	0.0048	J	0.250	0.261		mg/L		103	75 - 125

Lab Sample ID: 180-136058-4 MSD
Matrix: Solid
Analysis Batch: 399442

Client Sample ID: TRW CONTROL T04
Prep Type: Leach
Prep Batch: 399185

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum	ND		5.00	4.97		mg/L		99	75 - 125	0	20
Antimony	0.039		0.250	0.296		mg/L		103	75 - 125	2	20
Arsenic	ND		1.00	1.06		mg/L		106	75 - 125	1	20
Barium	0.054	J	1.00	1.03		mg/L		97	75 - 125	0	20
Beryllium	ND		0.500	0.508		mg/L		102	75 - 125	0	20
Cadmium	ND		0.500	0.513		mg/L		103	75 - 125	0	20
Calcium	46		25.0	69.5		mg/L		92	75 - 125	3	20
Chromium	ND		0.500	0.485		mg/L		97	75 - 125	1	20
Cobalt	ND		0.500	0.496		mg/L		99	75 - 125	0	20
Copper	ND		0.500	0.489		mg/L		98	75 - 125	0	20
Iron	ND		5.00	4.90		mg/L		98	75 - 125	6	20
Lead	ND		0.500	0.505		mg/L		101	75 - 125	0	20
Magnesium	7.1		25.0	31.2		mg/L		96	75 - 125	2	20
Manganese	0.18		0.500	0.660		mg/L		96	75 - 125	2	20
Nickel	ND		0.500	0.504		mg/L		101	75 - 125	0	20
Potassium	1.0	J	25.0	25.3		mg/L		97	75 - 125	1	20
Selenium	ND		1.00	1.04		mg/L		104	75 - 125	0	20
Silver	ND		0.250	0.213		mg/L		85	75 - 125	1	20
Sodium	3.1	J	25.0	27.4		mg/L		97	75 - 125	1	20
Thallium	ND		1.00	0.996		mg/L		100	75 - 125	0	20
Vanadium	ND		0.500	0.481		mg/L		96	75 - 125	2	20
Zinc	0.0048	J	0.250	0.258		mg/L		101	75 - 125	1	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-399241/1-A
Matrix: Solid
Analysis Batch: 399397

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399241

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		05/18/22 14:54	05/19/22 12:48	1

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 180-399241/2-A
Matrix: Solid
Analysis Batch: 399397

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399241

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			2.50	2.54		ug/L		101	80 - 120		

Lab Sample ID: MB 180-400433/1-A
Matrix: Solid
Analysis Batch: 400599

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 400433

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/01/22 05:00	06/01/22 16:31	1

Lab Sample ID: LCS 180-400433/2-A
Matrix: Solid
Analysis Batch: 400599

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 400433

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			2.50	2.56		ug/L		102	80 - 120		

Lab Sample ID: 180-136058-10 MS
Matrix: Solid
Analysis Batch: 399397

Client Sample ID: TRW 20% PC T01
Prep Type: Leach
Prep Batch: 399241

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	ND		1.00	1.00		ug/L		100	75 - 125		

Lab Sample ID: 180-136058-10 MSD
Matrix: Solid
Analysis Batch: 399397

Client Sample ID: TRW 20% PC T01
Prep Type: Leach
Prep Batch: 399241

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		1.00	0.991		ug/L		99	75 - 125	1	20

Method: EPA 9040C - pH

Lab Sample ID: LCS 180-398881/1
Matrix: Solid
Analysis Batch: 398881

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
pH			7.00	7.0		SU		100	99 - 101		

Lab Sample ID: LCS 180-398891/1
Matrix: Solid
Analysis Batch: 398891

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
pH			7.00	7.0		SU		100	99 - 101		

Method: EPA 9040C - pH (Continued)

Lab Sample ID: LCS 180-398904/1
Matrix: Solid
Analysis Batch: 398904

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
pH			7.00	7.0		SU		100	99 - 101		

Lab Sample ID: LCS 180-400423/1
Matrix: Solid
Analysis Batch: 400423

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
pH			7.00	7.0		SU		100	99 - 101		

Lab Sample ID: 180-136058-1 DU
Matrix: Solid
Analysis Batch: 398881

Client Sample ID: TRW CONTROL T01
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.2			7.2		SU				0	2

Lab Sample ID: 180-136058-2 DU
Matrix: Solid
Analysis Batch: 398891

Client Sample ID: TRW CONTROL T02
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.3			7.3		SU				0.1	2

Lab Sample ID: 180-136058-3 DU
Matrix: Solid
Analysis Batch: 398904

Client Sample ID: TRW CONTROL T03
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.7			7.7		SU				0	2

Lab Sample ID: 180-136058-4 DU
Matrix: Solid
Analysis Batch: 400423

Client Sample ID: TRW CONTROL T04
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.7			7.7		SU				0	2

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 180-398893/2
Matrix: Solid
Analysis Batch: 398893

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			05/12/22 07:43	1

Method: SM 2510B - Conductivity, Specific Conductance (Continued)

Lab Sample ID: LCS 180-398893/1
Matrix: Solid
Analysis Batch: 398893

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Specific Conductance			84.0	87.8		umhos/cm		105	90 - 110		

Lab Sample ID: 180-136058-2 DU
Matrix: Solid
Analysis Batch: 398893

Client Sample ID: TRW CONTROL T02
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Specific Conductance	110			106		umhos/cm				0.09	20

Method: SM 2580B - Reduction-Oxidation (REDOX) Potential

Lab Sample ID: 180-136058-2 DU
Matrix: Solid
Analysis Batch: 398892

Client Sample ID: TRW CONTROL T02
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Oxidation Reduction Potential	370			365		millivolts				0.8	20

GC/MS VOA

Leach Batch: 398249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-1	TRW CONTROL T01	Leach	Solid	1315	
180-136058-10	TRW 20% PC T01	Leach	Solid	1315	
180-136058-19	TRW 20% PC, 2% AC T01	Leach	Solid	1315	
180-136058-28	TRW 20% PC, 4% AC T01	Leach	Solid	1315	
180-136058-37	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	1315	
180-136058-46	MB T01	Leach	Solid	1315	

Leach Batch: 398438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-3	TRW CONTROL T03	Leach	Solid	1315	
180-136058-12	TRW 20% PC T03	Leach	Solid	1315	
180-136058-21	TRW 20% PC, 2% AC T03	Leach	Solid	1315	
180-136058-30	TRW 20% PC, 4% AC T03	Leach	Solid	1315	
180-136058-39	TRW 20% PC, 2% AC, 2%SP T03	Leach	Solid	1315	
180-136058-48	MB T03	Leach	Solid	1315	
180-136058-39 MS	TRW 20% PC, 2% AC, 2%SP T03	Leach	Solid	1315	
180-136058-39 MSD	TRW 20% PC, 2% AC, 2%SP T03	Leach	Solid	1315	

Leach Batch: 398447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-4	TRW CONTROL T04	Leach	Solid	1315	
180-136058-13	TRW 20% PC T04	Leach	Solid	1315	
180-136058-22	TRW 20% PC, 2% AC T04	Leach	Solid	1315	
180-136058-31	TRW 20% PC, 4% AC T04	Leach	Solid	1315	
180-136058-40	TRW 20% PC, 2% AC, 2%SP T04	Leach	Solid	1315	
180-136058-49	MB T04	Leach	Solid	1315	
180-136058-31 MS	TRW 20% PC, 4% AC T04	Leach	Solid	1315	
180-136058-31 MSD	TRW 20% PC, 4% AC T04	Leach	Solid	1315	

Analysis Batch: 398503

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-1	TRW CONTROL T01	Leach	Solid	EPA 8260D	398249
180-136058-10	TRW 20% PC T01	Leach	Solid	EPA 8260D	398249
180-136058-19	TRW 20% PC, 2% AC T01	Leach	Solid	EPA 8260D	398249
180-136058-28	TRW 20% PC, 4% AC T01	Leach	Solid	EPA 8260D	398249
180-136058-37	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	EPA 8260D	398249
180-136058-46	MB T01	Leach	Solid	EPA 8260D	398249
MB 180-398503/10	Method Blank	Total/NA	Solid	EPA 8260D	
LCS 180-398503/4	Lab Control Sample	Total/NA	Solid	EPA 8260D	
LCSD 180-398503/6	Lab Control Sample Dup	Total/NA	Solid	EPA 8260D	

Analysis Batch: 398775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-3	TRW CONTROL T03	Leach	Solid	EPA 8260D	398438
180-136058-12	TRW 20% PC T03	Leach	Solid	EPA 8260D	398438
180-136058-21	TRW 20% PC, 2% AC T03	Leach	Solid	EPA 8260D	398438
180-136058-30	TRW 20% PC, 4% AC T03	Leach	Solid	EPA 8260D	398438
180-136058-39	TRW 20% PC, 2% AC, 2%SP T03	Leach	Solid	EPA 8260D	398438
180-136058-48	MB T03	Leach	Solid	EPA 8260D	398438
MB 180-398775/10	Method Blank	Total/NA	Solid	EPA 8260D	
LCS 180-398775/6	Lab Control Sample	Total/NA	Solid	EPA 8260D	

GC/MS VOA (Continued)

Analysis Batch: 398775 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-398806/2-A	Lab Control Sample	Total/NA	Solid	EPA 8260D	398806
LCSD 180-398806/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8260D	398806
180-136058-39 MS	TRW 20% PC, 2% AC, 2%SP T03	Leach	Solid	EPA 8260D	398438
180-136058-39 MSD	TRW 20% PC, 2% AC, 2%SP T03	Leach	Solid	EPA 8260D	398438

Prep Batch: 398806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-398806/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCSD 180-398806/3-A	Lab Control Sample Dup	Total/NA	Solid	5030C	

Analysis Batch: 399149

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-4	TRW CONTROL T04	Leach	Solid	EPA 8260D	398447
180-136058-13	TRW 20% PC T04	Leach	Solid	EPA 8260D	398447
180-136058-22	TRW 20% PC, 2% AC T04	Leach	Solid	EPA 8260D	398447
180-136058-31	TRW 20% PC, 4% AC T04	Leach	Solid	EPA 8260D	398447
180-136058-40	TRW 20% PC, 2% AC, 2%SP T04	Leach	Solid	EPA 8260D	398447
180-136058-49	MB T04	Leach	Solid	EPA 8260D	398447
MB 180-399149/10	Method Blank	Total/NA	Solid	EPA 8260D	
LCS 180-399149/15	Lab Control Sample	Total/NA	Solid	EPA 8260D	
180-136058-31 MS	TRW 20% PC, 4% AC T04	Leach	Solid	EPA 8260D	398447
180-136058-31 MSD	TRW 20% PC, 4% AC T04	Leach	Solid	EPA 8260D	398447

GC/MS Semi VOA

Leach Batch: 398249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-1	TRW CONTROL T01	Leach	Solid	1315	
180-136058-10	TRW 20% PC T01	Leach	Solid	1315	
180-136058-19	TRW 20% PC, 2% AC T01	Leach	Solid	1315	
180-136058-28	TRW 20% PC, 4% AC T01	Leach	Solid	1315	
180-136058-37	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	1315	
180-136058-46	MB T01	Leach	Solid	1315	

Leach Batch: 398438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-3	TRW CONTROL T03	Leach	Solid	1315	
180-136058-12	TRW 20% PC T03	Leach	Solid	1315	
180-136058-21	TRW 20% PC, 2% AC T03	Leach	Solid	1315	
180-136058-30	TRW 20% PC, 4% AC T03	Leach	Solid	1315	
180-136058-39	TRW 20% PC, 2% AC, 2%SP T03	Leach	Solid	1315	
180-136058-48	MB T03	Leach	Solid	1315	

Leach Batch: 398447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-4	TRW CONTROL T04	Leach	Solid	1315	
180-136058-13	TRW 20% PC T04	Leach	Solid	1315	
180-136058-22	TRW 20% PC, 2% AC T04	Leach	Solid	1315	
180-136058-31	TRW 20% PC, 4% AC T04	Leach	Solid	1315	
180-136058-40	TRW 20% PC, 2% AC, 2%SP T04	Leach	Solid	1315	
180-136058-49	MB T04	Leach	Solid	1315	

GC/MS Semi VOA

Prep Batch: 399252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-1	TRW CONTROL T01	Leach	Solid	3520C	398249
180-136058-10	TRW 20% PC T01	Leach	Solid	3520C	398249
180-136058-19	TRW 20% PC, 2% AC T01	Leach	Solid	3520C	398249
180-136058-28	TRW 20% PC, 4% AC T01	Leach	Solid	3520C	398249
180-136058-37	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	3520C	398249
180-136058-46	MB T01	Leach	Solid	3520C	398249
MB 180-399252/1-A	Method Blank	Total/NA	Solid	3520C	
LCS 180-399252/2-A	Lab Control Sample	Total/NA	Solid	3520C	

Prep Batch: 399513

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-3	TRW CONTROL T03	Leach	Solid	3520C	398438
180-136058-12	TRW 20% PC T03	Leach	Solid	3520C	398438
180-136058-21	TRW 20% PC, 2% AC T03	Leach	Solid	3520C	398438
180-136058-30	TRW 20% PC, 4% AC T03	Leach	Solid	3520C	398438
180-136058-39	TRW 20% PC, 2% AC, 2%SP T03	Leach	Solid	3520C	398438
180-136058-48	MB T03	Leach	Solid	3520C	398438
MB 180-399513/1-A	Method Blank	Total/NA	Solid	3520C	
LCS 180-399513/2-A	Lab Control Sample	Total/NA	Solid	3520C	

Analysis Batch: 399668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-1	TRW CONTROL T01	Leach	Solid	EPA 8270E LL	399252
180-136058-10	TRW 20% PC T01	Leach	Solid	EPA 8270E LL	399252
180-136058-19	TRW 20% PC, 2% AC T01	Leach	Solid	EPA 8270E LL	399252
180-136058-28	TRW 20% PC, 4% AC T01	Leach	Solid	EPA 8270E LL	399252
180-136058-37	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	EPA 8270E LL	399252
180-136058-46	MB T01	Leach	Solid	EPA 8270E LL	399252
MB 180-399252/1-A	Method Blank	Total/NA	Solid	EPA 8270E LL	399252
LCS 180-399252/2-A	Lab Control Sample	Total/NA	Solid	EPA 8270E LL	399252

Prep Batch: 399879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-4	TRW CONTROL T04	Leach	Solid	3520C	398447
180-136058-13	TRW 20% PC T04	Leach	Solid	3520C	398447
180-136058-22	TRW 20% PC, 2% AC T04	Leach	Solid	3520C	398447
180-136058-31	TRW 20% PC, 4% AC T04	Leach	Solid	3520C	398447
180-136058-40	TRW 20% PC, 2% AC, 2%SP T04	Leach	Solid	3520C	398447
180-136058-49	MB T04	Leach	Solid	3520C	398447
MB 180-399879/1-A	Method Blank	Total/NA	Solid	3520C	
LCS 180-399879/2-A	Lab Control Sample	Total/NA	Solid	3520C	

Analysis Batch: 400147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-3	TRW CONTROL T03	Leach	Solid	EPA 8270E LL	399513
180-136058-12	TRW 20% PC T03	Leach	Solid	EPA 8270E LL	399513
180-136058-21	TRW 20% PC, 2% AC T03	Leach	Solid	EPA 8270E LL	399513
180-136058-30	TRW 20% PC, 4% AC T03	Leach	Solid	EPA 8270E LL	399513
180-136058-39	TRW 20% PC, 2% AC, 2%SP T03	Leach	Solid	EPA 8270E LL	399513
180-136058-48	MB T03	Leach	Solid	EPA 8270E LL	399513
MB 180-399513/1-A	Method Blank	Total/NA	Solid	EPA 8270E LL	399513

GC/MS Semi VOA (Continued)

Analysis Batch: 400147 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-399513/2-A	Lab Control Sample	Total/NA	Solid	EPA 8270E LL	399513

Analysis Batch: 400474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-4	TRW CONTROL T04	Leach	Solid	EPA 8270E LL	399879
180-136058-13	TRW 20% PC T04	Leach	Solid	EPA 8270E LL	399879
180-136058-22	TRW 20% PC, 2% AC T04	Leach	Solid	EPA 8270E LL	399879
180-136058-31	TRW 20% PC, 4% AC T04	Leach	Solid	EPA 8270E LL	399879
180-136058-40	TRW 20% PC, 2% AC, 2%SP T04	Leach	Solid	EPA 8270E LL	399879
180-136058-49	MB T04	Leach	Solid	EPA 8270E LL	399879
MB 180-399879/1-A	Method Blank	Total/NA	Solid	EPA 8270E LL	399879
LCS 180-399879/2-A	Lab Control Sample	Total/NA	Solid	EPA 8270E LL	399879

GC Semi VOA

Leach Batch: 398263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-2	TRW CONTROL T02	Leach	Solid	1315	
180-136058-11	TRW 20% PC T02	Leach	Solid	1315	
180-136058-20	TRW 20% PC, 2% AC T02	Leach	Solid	1315	
180-136058-29	TRW 20% PC, 4% AC T02	Leach	Solid	1315	
180-136058-38	TRW 20% PC, 2% AC, 2%SP T02	Leach	Solid	1315	
180-136058-47	MB T02	Leach	Solid	1315	

Prep Batch: 398549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-2	TRW CONTROL T02	Leach	Solid	3510C	398263
180-136058-11	TRW 20% PC T02	Leach	Solid	3510C	398263
180-136058-20	TRW 20% PC, 2% AC T02	Leach	Solid	3510C	398263
180-136058-29	TRW 20% PC, 4% AC T02	Leach	Solid	3510C	398263
180-136058-38	TRW 20% PC, 2% AC, 2%SP T02	Leach	Solid	3510C	398263
180-136058-47	MB T02	Leach	Solid	3510C	398263
MB 180-398549/1-A	Method Blank	Total/NA	Solid	3510C	
LCS 180-398549/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 180-398549/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	

Analysis Batch: 399034

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-2	TRW CONTROL T02	Leach	Solid	EPA 8081B LL	398549
180-136058-11	TRW 20% PC T02	Leach	Solid	EPA 8081B LL	398549
180-136058-20	TRW 20% PC, 2% AC T02	Leach	Solid	EPA 8081B LL	398549
180-136058-29	TRW 20% PC, 4% AC T02	Leach	Solid	EPA 8081B LL	398549
180-136058-38	TRW 20% PC, 2% AC, 2%SP T02	Leach	Solid	EPA 8081B LL	398549
180-136058-47	MB T02	Leach	Solid	EPA 8081B LL	398549
MB 180-398549/1-A	Method Blank	Total/NA	Solid	EPA 8081B LL	398549
LCS 180-398549/2-A	Lab Control Sample	Total/NA	Solid	EPA 8081B LL	398549
LCSD 180-398549/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8081B LL	398549

HPLC/IC

Leach Batch: 398257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-2	TRW CONTROL T02	Leach	Solid	1315	
180-136058-11	TRW 20% PC T02	Leach	Solid	1315	
180-136058-20	TRW 20% PC, 2% AC T02	Leach	Solid	1315	
180-136058-29	TRW 20% PC, 4% AC T02	Leach	Solid	1315	
180-136058-38	TRW 20% PC, 2% AC, 2%SP T02	Leach	Solid	1315	
180-136058-47	MB T02	Leach	Solid	1315	
180-136058-2 MS	TRW CONTROL T02	Leach	Solid	1315	
180-136058-2 MSD	TRW CONTROL T02	Leach	Solid	1315	

Analysis Batch: 398746

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-2	TRW CONTROL T02	Leach	Solid	EPA 9056A	398257
180-136058-11	TRW 20% PC T02	Leach	Solid	EPA 9056A	398257
180-136058-20	TRW 20% PC, 2% AC T02	Leach	Solid	EPA 9056A	398257
180-136058-29	TRW 20% PC, 4% AC T02	Leach	Solid	EPA 9056A	398257
180-136058-38	TRW 20% PC, 2% AC, 2%SP T02	Leach	Solid	EPA 9056A	398257
180-136058-47	MB T02	Leach	Solid	EPA 9056A	398257
MB 180-398746/7	Method Blank	Total/NA	Solid	EPA 9056A	
LCS 180-398746/6	Lab Control Sample	Total/NA	Solid	EPA 9056A	
180-136058-2 MS	TRW CONTROL T02	Leach	Solid	EPA 9056A	398257
180-136058-2 MSD	TRW CONTROL T02	Leach	Solid	EPA 9056A	398257

Metals

Leach Batch: 398247

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-1	TRW CONTROL T01	Leach	Solid	1315	
180-136058-10	TRW 20% PC T01	Leach	Solid	1315	
180-136058-19	TRW 20% PC, 2% AC T01	Leach	Solid	1315	
180-136058-28	TRW 20% PC, 4% AC T01	Leach	Solid	1315	
180-136058-37	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	1315	
180-136058-46	MB T01	Leach	Solid	1315	
180-136058-10 MS	TRW 20% PC T01	Leach	Solid	1315	
180-136058-10 MSD	TRW 20% PC T01	Leach	Solid	1315	
180-136058-37 MS	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	1315	
180-136058-37 MSD	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	1315	

Leach Batch: 398432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-3	TRW CONTROL T03	Leach	Solid	1315	
180-136058-12	TRW 20% PC T03	Leach	Solid	1315	
180-136058-21	TRW 20% PC, 2% AC T03	Leach	Solid	1315	
180-136058-30	TRW 20% PC, 4% AC T03	Leach	Solid	1315	
180-136058-39	TRW 20% PC, 2% AC, 2%SP T03	Leach	Solid	1315	
180-136058-48	MB T03	Leach	Solid	1315	

Leach Batch: 398446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-4	TRW CONTROL T04	Leach	Solid	1315	
180-136058-13	TRW 20% PC T04	Leach	Solid	1315	
180-136058-22	TRW 20% PC, 2% AC T04	Leach	Solid	1315	

Metals (Continued)

Leach Batch: 398446 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-31	TRW 20% PC, 4% AC T04	Leach	Solid	1315	
180-136058-40	TRW 20% PC, 2% AC, 2%SP T04	Leach	Solid	1315	
180-136058-49	MB T04	Leach	Solid	1315	
180-136058-4 MS	TRW CONTROL T04	Leach	Solid	1315	
180-136058-4 MSD	TRW CONTROL T04	Leach	Solid	1315	

Prep Batch: 399060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-1	TRW CONTROL T01	Leach	Solid	3010A	398247
180-136058-10	TRW 20% PC T01	Leach	Solid	3010A	398247
180-136058-19	TRW 20% PC, 2% AC T01	Leach	Solid	3010A	398247
180-136058-28	TRW 20% PC, 4% AC T01	Leach	Solid	3010A	398247
180-136058-37	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	3010A	398247
180-136058-46	MB T01	Leach	Solid	3010A	398247
MB 180-399060/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 180-399060/2-A	Lab Control Sample	Total/NA	Solid	3010A	
180-136058-37 MS	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	3010A	398247
180-136058-37 MSD	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	3010A	398247

Prep Batch: 399185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-3	TRW CONTROL T03	Leach	Solid	3010A	398432
180-136058-4	TRW CONTROL T04	Leach	Solid	3010A	398446
180-136058-12	TRW 20% PC T03	Leach	Solid	3010A	398432
180-136058-13	TRW 20% PC T04	Leach	Solid	3010A	398446
180-136058-21	TRW 20% PC, 2% AC T03	Leach	Solid	3010A	398432
180-136058-22	TRW 20% PC, 2% AC T04	Leach	Solid	3010A	398446
180-136058-30	TRW 20% PC, 4% AC T03	Leach	Solid	3010A	398432
180-136058-31	TRW 20% PC, 4% AC T04	Leach	Solid	3010A	398446
180-136058-39	TRW 20% PC, 2% AC, 2%SP T03	Leach	Solid	3010A	398432
180-136058-40	TRW 20% PC, 2% AC, 2%SP T04	Leach	Solid	3010A	398446
180-136058-48	MB T03	Leach	Solid	3010A	398432
180-136058-49	MB T04	Leach	Solid	3010A	398446
MB 180-399185/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 180-399185/2-A	Lab Control Sample	Total/NA	Solid	3010A	
180-136058-4 MS	TRW CONTROL T04	Leach	Solid	3010A	398446
180-136058-4 MSD	TRW CONTROL T04	Leach	Solid	3010A	398446

Prep Batch: 399241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-1	TRW CONTROL T01	Leach	Solid	7470A	398247
180-136058-3	TRW CONTROL T03	Leach	Solid	7470A	398432
180-136058-10	TRW 20% PC T01	Leach	Solid	7470A	398247
180-136058-12	TRW 20% PC T03	Leach	Solid	7470A	398432
180-136058-19	TRW 20% PC, 2% AC T01	Leach	Solid	7470A	398247
180-136058-21	TRW 20% PC, 2% AC T03	Leach	Solid	7470A	398432
180-136058-28	TRW 20% PC, 4% AC T01	Leach	Solid	7470A	398247
180-136058-30	TRW 20% PC, 4% AC T03	Leach	Solid	7470A	398432
180-136058-37	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	7470A	398247
180-136058-39	TRW 20% PC, 2% AC, 2%SP T03	Leach	Solid	7470A	398432
180-136058-46	MB T01	Leach	Solid	7470A	398247

Metals (Continued)

Prep Batch: 399241 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-48	MB T03	Leach	Solid	7470A	398432
MB 180-399241/1-A	Method Blank	Total/NA	Solid	7470A	
LCS 180-399241/2-A	Lab Control Sample	Total/NA	Solid	7470A	
180-136058-10 MS	TRW 20% PC T01	Leach	Solid	7470A	398247
180-136058-10 MSD	TRW 20% PC T01	Leach	Solid	7470A	398247

Analysis Batch: 399305

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-1	TRW CONTROL T01	Leach	Solid	EPA 6010D	399060
180-136058-10	TRW 20% PC T01	Leach	Solid	EPA 6010D	399060
180-136058-19	TRW 20% PC, 2% AC T01	Leach	Solid	EPA 6010D	399060
180-136058-28	TRW 20% PC, 4% AC T01	Leach	Solid	EPA 6010D	399060
180-136058-37	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	EPA 6010D	399060
180-136058-46	MB T01	Leach	Solid	EPA 6010D	399060
MB 180-399060/1-A	Method Blank	Total/NA	Solid	EPA 6010D	399060
LCS 180-399060/2-A	Lab Control Sample	Total/NA	Solid	EPA 6010D	399060
180-136058-37 MS	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	EPA 6010D	399060
180-136058-37 MSD	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	EPA 6010D	399060

Analysis Batch: 399397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-1	TRW CONTROL T01	Leach	Solid	EPA 7470A	399241
180-136058-3	TRW CONTROL T03	Leach	Solid	EPA 7470A	399241
180-136058-10	TRW 20% PC T01	Leach	Solid	EPA 7470A	399241
180-136058-12	TRW 20% PC T03	Leach	Solid	EPA 7470A	399241
180-136058-19	TRW 20% PC, 2% AC T01	Leach	Solid	EPA 7470A	399241
180-136058-21	TRW 20% PC, 2% AC T03	Leach	Solid	EPA 7470A	399241
180-136058-28	TRW 20% PC, 4% AC T01	Leach	Solid	EPA 7470A	399241
180-136058-30	TRW 20% PC, 4% AC T03	Leach	Solid	EPA 7470A	399241
180-136058-37	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	EPA 7470A	399241
180-136058-39	TRW 20% PC, 2% AC, 2%SP T03	Leach	Solid	EPA 7470A	399241
180-136058-46	MB T01	Leach	Solid	EPA 7470A	399241
180-136058-48	MB T03	Leach	Solid	EPA 7470A	399241
MB 180-399241/1-A	Method Blank	Total/NA	Solid	EPA 7470A	399241
LCS 180-399241/2-A	Lab Control Sample	Total/NA	Solid	EPA 7470A	399241
180-136058-10 MS	TRW 20% PC T01	Leach	Solid	EPA 7470A	399241
180-136058-10 MSD	TRW 20% PC T01	Leach	Solid	EPA 7470A	399241

Analysis Batch: 399442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-3	TRW CONTROL T03	Leach	Solid	EPA 6010D	399185
180-136058-4	TRW CONTROL T04	Leach	Solid	EPA 6010D	399185
180-136058-12	TRW 20% PC T03	Leach	Solid	EPA 6010D	399185
180-136058-13	TRW 20% PC T04	Leach	Solid	EPA 6010D	399185
180-136058-21	TRW 20% PC, 2% AC T03	Leach	Solid	EPA 6010D	399185
180-136058-22	TRW 20% PC, 2% AC T04	Leach	Solid	EPA 6010D	399185
180-136058-30	TRW 20% PC, 4% AC T03	Leach	Solid	EPA 6010D	399185
180-136058-31	TRW 20% PC, 4% AC T04	Leach	Solid	EPA 6010D	399185
180-136058-39	TRW 20% PC, 2% AC, 2%SP T03	Leach	Solid	EPA 6010D	399185
180-136058-40	TRW 20% PC, 2% AC, 2%SP T04	Leach	Solid	EPA 6010D	399185
180-136058-48	MB T03	Leach	Solid	EPA 6010D	399185

Metals (Continued)

Analysis Batch: 399442 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-49	MB T04	Leach	Solid	EPA 6010D	399185
MB 180-399185/1-A	Method Blank	Total/NA	Solid	EPA 6010D	399185
LCS 180-399185/2-A	Lab Control Sample	Total/NA	Solid	EPA 6010D	399185
180-136058-4 MS	TRW CONTROL T04	Leach	Solid	EPA 6010D	399185
180-136058-4 MSD	TRW CONTROL T04	Leach	Solid	EPA 6010D	399185

Analysis Batch: 399626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-13	TRW 20% PC T04	Leach	Solid	EPA 6010D	399185
180-136058-22	TRW 20% PC, 2% AC T04	Leach	Solid	EPA 6010D	399185
180-136058-31	TRW 20% PC, 4% AC T04	Leach	Solid	EPA 6010D	399185

Prep Batch: 400433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-4	TRW CONTROL T04	Leach	Solid	7470A	398446
180-136058-13	TRW 20% PC T04	Leach	Solid	7470A	398446
180-136058-22	TRW 20% PC, 2% AC T04	Leach	Solid	7470A	398446
180-136058-31	TRW 20% PC, 4% AC T04	Leach	Solid	7470A	398446
180-136058-40	TRW 20% PC, 2% AC, 2%SP T04	Leach	Solid	7470A	398446
180-136058-49	MB T04	Leach	Solid	7470A	398446
MB 180-400433/1-A	Method Blank	Total/NA	Solid	7470A	
LCS 180-400433/2-A	Lab Control Sample	Total/NA	Solid	7470A	

Analysis Batch: 400599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-4	TRW CONTROL T04	Leach	Solid	EPA 7470A	400433
180-136058-13	TRW 20% PC T04	Leach	Solid	EPA 7470A	400433
180-136058-22	TRW 20% PC, 2% AC T04	Leach	Solid	EPA 7470A	400433
180-136058-31	TRW 20% PC, 4% AC T04	Leach	Solid	EPA 7470A	400433
180-136058-40	TRW 20% PC, 2% AC, 2%SP T04	Leach	Solid	EPA 7470A	400433
180-136058-49	MB T04	Leach	Solid	EPA 7470A	400433
MB 180-400433/1-A	Method Blank	Total/NA	Solid	EPA 7470A	400433
LCS 180-400433/2-A	Lab Control Sample	Total/NA	Solid	EPA 7470A	400433

General Chemistry

Leach Batch: 398247

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-1	TRW CONTROL T01	Leach	Solid	1315	
180-136058-10	TRW 20% PC T01	Leach	Solid	1315	
180-136058-19	TRW 20% PC, 2% AC T01	Leach	Solid	1315	
180-136058-28	TRW 20% PC, 4% AC T01	Leach	Solid	1315	
180-136058-37	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	1315	
180-136058-46	MB T01	Leach	Solid	1315	
180-136058-1 DU	TRW CONTROL T01	Leach	Solid	1315	

Leach Batch: 398257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-2	TRW CONTROL T02	Leach	Solid	1315	
180-136058-11	TRW 20% PC T02	Leach	Solid	1315	
180-136058-20	TRW 20% PC, 2% AC T02	Leach	Solid	1315	

General Chemistry (Continued)

Leach Batch: 398257 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-29	TRW 20% PC, 4% AC T02	Leach	Solid	1315	
180-136058-38	TRW 20% PC, 2% AC, 2%SP T02	Leach	Solid	1315	
180-136058-47	MB T02	Leach	Solid	1315	
180-136058-2 DU	TRW CONTROL T02	Leach	Solid	1315	

Leach Batch: 398432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-3	TRW CONTROL T03	Leach	Solid	1315	
180-136058-12	TRW 20% PC T03	Leach	Solid	1315	
180-136058-21	TRW 20% PC, 2% AC T03	Leach	Solid	1315	
180-136058-30	TRW 20% PC, 4% AC T03	Leach	Solid	1315	
180-136058-39	TRW 20% PC, 2% AC, 2%SP T03	Leach	Solid	1315	
180-136058-48	MB T03	Leach	Solid	1315	
180-136058-3 DU	TRW CONTROL T03	Leach	Solid	1315	

Leach Batch: 398446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-4	TRW CONTROL T04	Leach	Solid	1315	
180-136058-13	TRW 20% PC T04	Leach	Solid	1315	
180-136058-22	TRW 20% PC, 2% AC T04	Leach	Solid	1315	
180-136058-31	TRW 20% PC, 4% AC T04	Leach	Solid	1315	
180-136058-40	TRW 20% PC, 2% AC, 2%SP T04	Leach	Solid	1315	
180-136058-49	MB T04	Leach	Solid	1315	
180-136058-4 DU	TRW CONTROL T04	Leach	Solid	1315	

Analysis Batch: 398881

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-1	TRW CONTROL T01	Leach	Solid	EPA 9040C	398247
180-136058-10	TRW 20% PC T01	Leach	Solid	EPA 9040C	398247
180-136058-19	TRW 20% PC, 2% AC T01	Leach	Solid	EPA 9040C	398247
180-136058-28	TRW 20% PC, 4% AC T01	Leach	Solid	EPA 9040C	398247
180-136058-37	TRW 20% PC, 2% AC, 2%SP T01	Leach	Solid	EPA 9040C	398247
180-136058-46	MB T01	Leach	Solid	EPA 9040C	398247
LCS 180-398881/1	Lab Control Sample	Total/NA	Solid	EPA 9040C	
180-136058-1 DU	TRW CONTROL T01	Leach	Solid	EPA 9040C	398247

Analysis Batch: 398891

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-2	TRW CONTROL T02	Leach	Solid	EPA 9040C	398257
180-136058-11	TRW 20% PC T02	Leach	Solid	EPA 9040C	398257
180-136058-20	TRW 20% PC, 2% AC T02	Leach	Solid	EPA 9040C	398257
180-136058-29	TRW 20% PC, 4% AC T02	Leach	Solid	EPA 9040C	398257
180-136058-38	TRW 20% PC, 2% AC, 2%SP T02	Leach	Solid	EPA 9040C	398257
180-136058-47	MB T02	Leach	Solid	EPA 9040C	398257
LCS 180-398891/1	Lab Control Sample	Total/NA	Solid	EPA 9040C	
180-136058-2 DU	TRW CONTROL T02	Leach	Solid	EPA 9040C	398257

Analysis Batch: 398892

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-2	TRW CONTROL T02	Leach	Solid	SM 2580B	398257
180-136058-11	TRW 20% PC T02	Leach	Solid	SM 2580B	398257

General Chemistry (Continued)

Analysis Batch: 398892 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-20	TRW 20% PC, 2% AC T02	Leach	Solid	SM 2580B	398257
180-136058-29	TRW 20% PC, 4% AC T02	Leach	Solid	SM 2580B	398257
180-136058-38	TRW 20% PC, 2% AC, 2%SP T02	Leach	Solid	SM 2580B	398257
180-136058-47	MB T02	Leach	Solid	SM 2580B	398257
LCS 180-398892/1	Lab Control Sample	Total/NA	Solid	SM 2580B	
180-136058-2 DU	TRW CONTROL T02	Leach	Solid	SM 2580B	398257

Analysis Batch: 398893

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-2	TRW CONTROL T02	Leach	Solid	SM 2510B	398257
180-136058-11	TRW 20% PC T02	Leach	Solid	SM 2510B	398257
180-136058-20	TRW 20% PC, 2% AC T02	Leach	Solid	SM 2510B	398257
180-136058-29	TRW 20% PC, 4% AC T02	Leach	Solid	SM 2510B	398257
180-136058-38	TRW 20% PC, 2% AC, 2%SP T02	Leach	Solid	SM 2510B	398257
180-136058-47	MB T02	Leach	Solid	SM 2510B	398257
MB 180-398893/2	Method Blank	Total/NA	Solid	SM 2510B	
LCS 180-398893/1	Lab Control Sample	Total/NA	Solid	SM 2510B	
180-136058-2 DU	TRW CONTROL T02	Leach	Solid	SM 2510B	398257

Analysis Batch: 398904

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-3	TRW CONTROL T03	Leach	Solid	EPA 9040C	398432
180-136058-12	TRW 20% PC T03	Leach	Solid	EPA 9040C	398432
180-136058-21	TRW 20% PC, 2% AC T03	Leach	Solid	EPA 9040C	398432
180-136058-30	TRW 20% PC, 4% AC T03	Leach	Solid	EPA 9040C	398432
180-136058-39	TRW 20% PC, 2% AC, 2%SP T03	Leach	Solid	EPA 9040C	398432
180-136058-48	MB T03	Leach	Solid	EPA 9040C	398432
LCS 180-398904/1	Lab Control Sample	Total/NA	Solid	EPA 9040C	
180-136058-3 DU	TRW CONTROL T03	Leach	Solid	EPA 9040C	398432

Analysis Batch: 400423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-4	TRW CONTROL T04	Leach	Solid	EPA 9040C	398446
180-136058-13	TRW 20% PC T04	Leach	Solid	EPA 9040C	398446
180-136058-22	TRW 20% PC, 2% AC T04	Leach	Solid	EPA 9040C	398446
180-136058-31	TRW 20% PC, 4% AC T04	Leach	Solid	EPA 9040C	398446
180-136058-40	TRW 20% PC, 2% AC, 2%SP T04	Leach	Solid	EPA 9040C	398446
180-136058-49	MB T04	Leach	Solid	EPA 9040C	398446
LCS 180-400423/1	Lab Control Sample	Total/NA	Solid	EPA 9040C	
180-136058-4 DU	TRW CONTROL T04	Leach	Solid	EPA 9040C	398446

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Chain of Custody Record

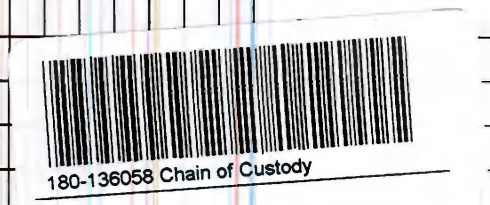
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Client Contact	**Project Manager: Rob Sents**		COC No:
ERM Consulting & Engineering, Inc.	**Email: rob.sents@erm.com**	**Site Contact: Laurel Crawford**	**Date: 3/30/22**	___1__ of ___1__ COCs
5784 Widewater Pkwy	**Tel/Fax:**	**Lab Contact: Carrie Gamber**	**Carrier: Fedex**	TALS Project #:
Syracuse, NY 13214	**Analysis Turnaround Time**			Sampler: Laurel Crawford
(315) 445-2554	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(315) 445-2534 FAX	TAT if different from Below __standard__			Walk-in Client:
Project Name: Former TRW Union Springs	☐ 2 weeks			Lab Sampling:
Site: Union Springs, NY	☐ 1 week			
Project # : 46031778	☐ 2 days			Job / SDG No.:
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)		LEAF Method 1315 (see Table 1 for specific analyses and time points for each sample)	TCLP * (to be determined) *														Sample Specific Notes:
TRW Control	3/22/22	17:00	C	S	1 glass 2 HDPE				x	x														HDPE for PFAS vessel, glass for vessel for all other analytes
TRW 7% PC	3/22/22	17:20	C	S	3**				x	x														
TRW 7% PC, 2% AC	3/22/22	17:50	C	S	3**				x	x														** 1 monolith for PFAS vessel, 1 monolith for vessel for all other analytes, plus 1 extra monolith if needed
TRW 7% PC, 4% AC	3/22/22	18:30	C	S	3**				x	x														
TRW 7% PC, 2% AC, 2% SP	3/22/22	19:00	C	S	3**				x	x														



Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ___DI, MeOH____

							1	1	1	1	1	1	1	1	1	1	1,6	1	1	1				

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

** hold until ERM decides if any TCLP analyses are needed*

☐ Return to Client ☑ Disposal by Lab ☑ Archive for * Months

Special Instructions/QC Requirements & Comments:

Please refer to the attached Table 1 for specific analyses at select time points depending on the sample.
Please include Laurel Crawford on data deliverables: Lcrawford@loureiro.com

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:
Relinquished by:	Company: XDD d/b/a Loureiro	Date/Time: 3/30/22 ~~3/16/22~~ 13:30	Received by:	Company: ETA PITT	Date/Time: 3/31/22 1511
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.35, dated 10/6/2020

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins | Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Rob Sents	Site Contact: Laurel Crawford	Date: 5/6/22	COC No:
ERM Consulting & Engineering, Inc.	Email: rob.sents@erm.com	Lab Contact: Carrie Gamber	Carrier: Fedex	___1__ of ___1__ COCs
5784 Widewater Pkwy	Tel/Fax:			TALS Project #:
Syracuse, NY 13214	Analysis Turnaround Time			Sampler: Laurel Crawford
(315) 445-2554	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(315) 445-2534 FAX	TAT if different from Below __standard__			Client:
Project Name: Former TRW Union Springs	☐ 2 weeks			Shipping:
Site: Union Springs, NY	☐ 1 week			
Project # : 46031778	☐ 2 days			No.:
	☐ 1 day			

180-136058 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	LEAF Method 1315 (see Table 1 for specific analyses and time points for each sample)	TCLP * (to be determined) *	Sample Specific Notes:
TRW Control	3/22/22	17:00	C	S	1 glass 1 HDPE			x	x	HDPE for PFAS vessel, glass for vessel for all other analytes
TRW 20% PC	4/26/22	17:10	C	S	2**			x	x	** 1 monolith for PFAS vessel, 1 monolith for vessel for all other analytes, hold onto monoliths after testing is complete in case client wants TCLP on 1 of the 2 monoliths.
TRW 20% PC, 2% AC	4/26/22	17:20	C	S	2**			x	x	
TRW 20% PC, 4% AC	4/26/22	17:30	C	S	2**			x	x	
TRW 20% PC, 2% AC, 2% SP	4/28/22	18:00	C	S	2**			x	x	

You already have these controls sent

If TCLP is not selected, please send both monoliths for these test conditions to JLT labs at the address below. If TCLP is selcted, please send 1 of the 2 monoliths to JLT labs. This applies to only these last 3 test conditions (TRW 20% PC, 2% AC; TRW 20% PC, 4% AC; TRW 20% PC, 2% AC, 2% SP).

JLT Laboratories, Inc.
938 South Central Ave.
Canonsburg, PA 15317
(724) 746-4441

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ___DI, MeOH___

								1	1	1	1	1	1	1	1	1	1,6	1	1	1

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
** hold until ERM decides if any TCLP analyses are needed and send monoliths to JLT labs per above instructions*

☐ Return to Client ☑ Disposal by Lab ☑ Archive for ___*___ Months

Special Instructions/QC Requirements & Comments:

Please refer to the attached Table 1 for specific analyses at select time points depending on the sample.
Please include Laurel Crawford on data deliverables: Lcrawford@loureiro.com

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by:	Company: XDD d/b/a Loureiro	Date/Time: 5/6/22 10:30	Received by:	Company: NEETA/LIT	Date/Time: 5/7/22 0900
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

ORIGIN ID:IGGA (603) 778-1100
LAUREL CRAWFORD
LOUREIRO ENGINEERING ASSOC INC
22 MARIN WAY UNIT #3
STRATHAM, NH 03885
UNITED STATES US

SHIP DATE: 30MAR22
ACTWGT: 25.00 LB
CAD: 112565704/INET4460
DIMS: 25x15x15 IN

BILL SENDER

TO **CARRIE GAMBER**
EUROFINS ENVIROTEST AMERICA
301 ALPHA DRIVE
PITTSBURGH PA 15238
(412) 963-2428
INV:
PO:
REF: 027ER2.01 TASK 001 LC
DEPT:

56DJ1/1E3B/FE4A

J221022010501uv

FedEx Express

TRK# 0201 **7764 4004 9775**

THU - 31 MAR 4:30P
STANDARD OVERNIGHT

UI AGCA

15238
PIT
PA-US

Uncorrected temp 3.8 °C
Thermometer ID 16
CF -0.1
Initials

PT-WI-SR-001 effective 11/8/18

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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180-136058 Waybill

ORIGIN ID:IGGA (603) 778-1100
LAUREL CRAWFORD
LOURIERO ENGINEERING ASSOC INC
22 MARIN WAY UNIT #3
STRATHAM, NH 03885
UNITED STATES US

BILL SENDER

SHIP DATE: 06MAY22
ACTWGT: 20.00 LB
CAD: 11256570 4/INET4490
DIMS: 25x15x15 IN

TO CARRIE GAMBER
EUROFINS ENVIROTEST AMERICA-PA
301 ALPHA DRIVE

577J5/1BD6/FE4A

PITTSBURGH PA 15238

(412) 963-2428 REF: 027ER1 02 TASK 001 LC

INV:
PO: DEPT

FedEx Express

J2320220401uw

SATURDAY 12:00P
PRIORITY OVERNIGHT

TRK# 0201 7767 8966 1381

15238
T

XO AGCA

Uncorrected temp
Thermometer ID

Initials

CF -0.4

PT-WI-SR-001 effective 11/8/18

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Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

180-136058 VayblII

Login Sample Receipt Checklist

Client: ERM-Northeast

Job Number: 180-136058-1

Login Number: 136058
List Number: 1
Creator: Matko, Larry

List Source: Eurofins Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-136058-2
Client Project/Site: Former TRW Union Springs Property - Unio

For:
ERM-Northeast
5784 Widewaters Pkwy
Dewitt, New York 13214

Attn: Mr. Robert Sents

Authorized for release by:
8/16/2022 12:32:03 PM

Carrie Gamber, Senior Project Manager
(412)963-2428
Carrie.Gamber@et.eurofinsus.com

LINKS

Review your project results through my EOL

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Definitions/Glossary 7
Certification Summary 9
Sample Summary 10
Method Summary 11
Lab Chronicle 12
Client Sample Results 29
QC Sample Results 84
QC Association Summary 127
Chain of Custody 140
Receipt Checklists 144

Job ID: 180-136058-2

Laboratory: Eurofins Pittsburgh

Narrative

CASE NARRATIVE

Client: ERM-Northeast

Project: Former TRW Union Springs Property - Unio

Report Number: 180-136058-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 03/31/2022 and 05/07/2022; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.7º C and 3.4º C.

VOLATILES
The following samples were diluted to bring the concentration of target analytes within the calibration range: TRW CONTROL T06 (180-136058-6), TRW CONTROL T07 (180-136058-7), TRW CONTROL T09 (180-136058-9), TRW 20% PC T06 (180-136058-15), TRW 20% PC T07 (180-136058-16) and TRW 20% PC T09 (180-136058-18). Elevated reporting limits (RLs) are provided.

Dibromofluoromethane (Surr) failed the surrogate recovery criteria high for TRW 20% PC, 2% AC, 2%SP T09MS (180-136058-45MS). The parent sample's surrogate recovery was within limits. The MS sample has been qualified and reported.

Acetone failed the recovery criteria low for the MS of sample TRW 20% PC, 4% AC T07MS (180-136058-34) in batch 180-402985. Several analytes failed the recovery criteria high. For the MSD of sample TRW 20% PC, 4% AC T07MSD (180-136058-34) in batch 180-402985, 2-Butanone (MEK) and Acetone failed the recovery criteria low. Several analytes failed the recovery criteria high. 1,2,4-Trichlorobenzene and 2-Butanone (MEK) exceeded the RPD limit.

1,2-Dichloropropane, 2-Butanone (MEK), 2-Hexanone and Acetone failed the recovery criteria low for the MS of sample TRW 20% PC, 2% AC, 2%SP T09MS (180-136058-45) in batch 180-404856. cis-1,2-Dichloroethene and Trichloroethene failed the recovery criteria high. 2-Butanone (MEK) and 2-Hexanone failed the recovery criteria low for the MSD of sample TRW 20% PC, 2% AC, 2%SP T09MSD (180-136058-45) in batch 180-404856. Trichloroethene failed the recovery criteria high.

The method blank for preparation batch MB 180-402985 and MB 180-403153 contained 1,2,4-Trichlorobenzene above the reporting limit (RL). None of the samples associated with this method blank contained the target compound; therefore, re-extraction and/or re-analysis of samples were not performed.

The laboratory control sample (LCS) for analytical batch 180-401735 recovered outside control limits for the following analytes: Methyl tert-butyl ether. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

The laboratory control sample (LCS) for analytical batch 180-401682 recovered outside control limits for the following analytes: 1,2,4-Trichlorobenzene. A low-level LCS (LLCS), spiked at the reporting limit (RL), was prepared with this batch. The affected target analytes recovered within acceptance limits; therefore, the LLCS demonstrates the analytical system had sufficient sensitivity to detect the compounds had they been present. Since the affected target compounds were not detected in the samples, the data have been reported

Job ID: 180-136058-2 (Continued)

Laboratory: Eurofins Pittsburgh (Continued)

and qualified.

The laboratory control sample duplicate (LCSD) for analytical batch 180-401682 recovered outside control limits for the following analytes: 1,1,1-Trichloroethane. These analytes were biased high in the LCSD and were not detected in the associated samples; therefore, the data have been reported.

The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 180-401682 recovered outside control limits for the following analytes: 1,2,4-Trichlorobenzene and 1,2-Dibromo-3-Chloropropane.

The laboratory control sample (LCS) for analytical batch 180-402985 recovered outside control limits for the following analytes: Trichloroethene. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

The laboratory control sample (LCS) for analytical batch 180-404856 recovered outside control limits for the following analytes: 1,2,4-Trichlorobenzene, Acetone, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, 2-Hexanone, 1,3-Dichlorobenzene and 1,2-Dichloropropane. A low-level LCS (LLCS), spiked at the reporting limit (RL), was prepared with this batch. The affected target analytes recovered within acceptance limits; therefore, the LLCS demonstrates the analytical system had sufficient sensitivity to detect the compounds had they been present. Since the affected target compounds were not detected in the samples, the data have been reported and qualified.

The laboratory control sample (LCS) for analytical batch 180-403153 recovered outside control limits for the following analytes: 1,1,2,2-Tetrachloroethane, 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2-Hexanone, Chlorobenzene and Styrene. A low-level LCS (LLCS), spiked at the reporting limit (RL), was prepared with this batch. The affected target analytes recovered within acceptance limits; therefore, the LLCS demonstrates the analytical system had sufficient sensitivity to detect the compounds had they been present. Since the affected target compounds were not detected in the samples, the data have been reported and qualified.

The continuing calibration verification (CCV) analyzed in batch 180-403153 was outside the method criteria for the following analyte(s): Tetrachloroethene, 1,2,4-Trichlorobenzene and Trichloroethene. (HIGH). As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in batch 180-403153 was outside the method criteria for the following analyte(s): 1,1,2,2-Tetrachloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,2-Dichloropropane, 2-Butanone, 2-Hexanone, Acetone, Chloroethane and Vinyl chloride. (LOW). A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in batch 180-403153 was outside the method criteria for the following surrogate:1,2-Dichloroethane-d4 (LOW). All samples recovered this surrogate within QC criteria.

The continuing calibration verification (CCV) analyzed in batch 180-404856 was outside the method criteria for the following surrogate: 1,2-Dichloroethane-d4 (LOW). All samples recovered this surrogate within QC criteria.

The continuing calibration verification (CCV) analyzed in batch 180-404856 was outside the method criteria for the following analyte(s): 2-Hexanone, Acetone, 2-Butanone, Cyclohexane and Methyl acetate .(LOW). A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in 180-404856 was outside the method criteria for the following analyte(s): 1,2,4-Trichlorobenzene, Chloroethane, Trichlorofluoromethane, Bromomethane, 1,2-Dichlorobenzene, cis-1,3-Dichloropropene, m-Xylene & p-Xylene, Xylenes, Total, 4-Methyl-2-pentanone, 1,2-Dichloroethene, Total, Tetrachloroethene, 1,1,1-Trichloroethane, Bromoform, 1,2-Dibromo-3-Chloropropane, Trichloroethene, Methyl tert-butyl ether, 1,4-Dichlorobenzene and Ethylbenzene.(HIGH). As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in batch 180-401682 was outside the method criteria for the following surrogate: 1,2-Dichloroethane-d4 (LOW). All samples recovered this surrogate within QC criteria.

Job ID: 180-136058-2 (Continued)

Laboratory: Eurofins Pittsburgh (Continued)

The continuing calibration verification (CCV) analyzed in batch 180-402985 was outside the method criteria for the following analyte(s): Acetone, Chloromethane, Dichloro-difluoromethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1-Dichloroethene, Vinyl chloride, 1,1,2,2-Tetrachloroethane and 1,1-Dichloroethene (LOW) . A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in batch 180-402985 was outside the method criteria for the following analyte(s): 1,2-Dichloroethane-d4. All samples recovered this surrogate within QC criteria.

The continuing calibration verification (CCV) analyzed in 180-402985 was outside the method criteria for the following analyte(s): cis-1,3-Dichloropropene, Methyl tert-butyl ether and Trichloroethene (HIGH). As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in batch 180-401735 was outside the method criteria for the following analyte(s): 1,2,4-Trichlorobenzene and Acetone (LOW). A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in 180-401735 was outside the method criteria for the following analyte(s): Methyl tert-butyl ether, Trichlorofluoromethane, 1,1,1-Trichloroethane, 1,2-Dibromoethane and cis-1,3-Dichloropropene (HIGH). As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in 180-401735 was outside the method criteria for the following analyte(s): Dibromofluoromethane (Surrogate). All samples recovered this surrogate within QC criteria.

The continuing calibration verification (CCV) analyzed in batch 180-401682 was outside the method criteria for the following analyte(s): Freon-113, 1,2,4-Trichlorobenzene, Acetone, Methylene Chloride and 1,2-Dibromo-3-Chloropropane. (LOW). A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in 180-401682 was outside the method criteria for the following analyte(s): cis-1,3-Dichloropropene, 1,1,1-Trichloroethane and Methyl tert-butyl ether.(HIGH). As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

SEMIVOLATILES

An incorrect volume of surrogate spiking solution was inadvertently added the following samples: TRW 20% PC, 4% AC T06 (180-136058-33). Percent recoveries are based on the amount spiked.

The continuing calibration verification (CCV) associated with batch 180-402139 recovered above the upper control limit for Di-n-octyl phthalate. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCVIS 180-402139/3).

The continuing calibration verification (CCV) associated with batch 180-403176 recovered above the upper control limit for Di-n-octyl phthalate. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCVIS 180-403176/3).

PESTICIDES

Internal eluted outside the retention time window on the MR-1 and MR-2 column for the following sample: TRW CONTROL T05 (180-136058-5). This retention time shift was taken into account when reviewing the sample(s) for target compounds.

Surrogate recovery for the following sample was outside control limits: TRW CONTROL T08 (180-136058-8) and TRW 20% PC T08 (180-136058-17). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed for sample TRW CONTROL T08 (180-136058-8). Sample TRW 20% PC T08 (180-136058-17) was re-analyzed.

Job ID: 180-136058-2 (Continued)

Laboratory: Eurofins Pittsburgh (Continued)

The Tetrachloro-m-xylene surrogate recovery for the following samples was outside acceptance limits (low biased) on both columns: TRW 20% PC T08 (180-136058-17). The recovery of the other surrogate was within acceptance limits on the other column, indicating that the extraction process was in control.

The DCB Decachlorobiphenyl (Surr) surrogate recovery for the following samples was outside acceptance limits (high biased) on the primary column: MB T05 (180-136058-50). The recovery is within acceptance limits on the other column, indicating that the extraction process was in control.

The DCB Decachlorobiphenyl (Surr) surrogate recovery for the following samples was outside acceptance limits (high biased) on the confirmation column due to matrix interference: TRW 20% PC, 2% AC T08 (180-136058-26). The recovery is within acceptance limits on the other column, indicating that the extraction process was in control.

The DCB Decachlorobiphenyl surrogate recovery for the following samples was outside acceptance limits (high biased) on the primary column: (MB 180-400012/1-A) and (LCS 180-400012/2-A). The recovery is within acceptance limits on the other column, indicating that the extraction process was in control.

The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 180-403696 and analytical batch 180-403840 recovered outside control limits for the following analytes: Heptachlor

The continuing calibration verification (CCV) associated with batch 180-400624 recovered outside acceptance criteria, low biased, for 4,4'-DDT and Methoxychlor. A reporting limit (RL) standard was analyzed, and the target analytes are detected. Since the associated samples were non-detect for the analyte(s), the data are reported.

The continuing calibration verification (CCV) associated with batch 180-403840 recovered outside acceptance criteria, low biased, for 4,4'-DDE and 4,4'-DDD. A reporting limit (RL) standard was analyzed, and the target analytes are detected. Since the associated samples were non-detect for the analyte(s), the data are reported.

The continuing calibration verification (CCV) associated with batch 180-400492 recovered above the upper control limit for Hexachlorobenzene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 180-400492/4).

IC

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

METALS

Several samples were diluted to bring the concentration of Calcium within the calibration range of the instrument. Elevated reporting limits (RLs) are provided.

Thallium was detected in method blank MB 180-402892/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Zinc was detected in method blank MB 180-405878/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

GENERAL CHEMISTRY

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
*3	ISTD response or retention time outside acceptable limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Laboratory: Eurofins Pittsburgh

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	11182	04-01-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
EPA 9040C		Solid	pH
SM 2580B		Solid	Oxidation Reduction Potential

Sample Summary

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-136058-5	TRW CONTROL T05	Solid	03/22/22 17:00	03/31/22 15:11
180-136058-6	TRW CONTROL T06	Solid	03/22/22 17:00	03/31/22 15:11
180-136058-7	TRW CONTROL T07	Solid	03/22/22 17:00	03/31/22 15:11
180-136058-8	TRW CONTROL T08	Solid	03/22/22 17:00	03/31/22 15:11
180-136058-9	TRW CONTROL T09	Solid	03/22/22 17:00	03/31/22 15:11
180-136058-14	TRW 20% PC T05	Solid	04/26/22 17:10	05/07/22 09:00
180-136058-15	TRW 20% PC T06	Solid	04/26/22 17:10	05/07/22 09:00
180-136058-16	TRW 20% PC T07	Solid	04/26/22 17:10	05/07/22 09:00
180-136058-17	TRW 20% PC T08	Solid	04/26/22 17:10	05/07/22 09:00
180-136058-18	TRW 20% PC T09	Solid	04/26/22 17:10	05/07/22 09:00
180-136058-23	TRW 20% PC, 2% AC T05	Solid	04/26/22 17:20	05/07/22 09:00
180-136058-24	TRW 20% PC, 2% AC T06	Solid	04/26/22 17:20	05/07/22 09:00
180-136058-25	TRW 20% PC, 2% AC T07	Solid	04/26/22 17:20	05/07/22 09:00
180-136058-26	TRW 20% PC, 2% AC T08	Solid	04/26/22 17:20	05/07/22 09:00
180-136058-27	TRW 20% PC, 2% AC T09	Solid	04/26/22 17:20	05/07/22 09:00
180-136058-32	TRW 20% PC, 4% AC T05	Solid	04/26/22 17:30	05/07/22 09:00
180-136058-33	TRW 20% PC, 4% AC T06	Solid	04/26/22 17:30	05/07/22 09:00
180-136058-34	TRW 20% PC, 4% AC T07	Solid	04/26/22 17:30	05/07/22 09:00
180-136058-35	TRW 20% PC, 4% AC T08	Solid	04/26/22 17:30	05/07/22 09:00
180-136058-36	TRW 20% PC, 4% AC T09	Solid	04/26/22 17:30	05/07/22 09:00
180-136058-41	TRW 20% PC, 2% AC, 2%SP T05	Solid	04/26/22 18:00	05/07/22 09:00
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Solid	04/26/22 18:00	05/07/22 09:00
180-136058-43	TRW 20% PC, 2% AC, 2%SP T07	Solid	04/26/22 18:00	05/07/22 09:00
180-136058-44	TRW 20% PC, 2% AC, 2%SP T08	Solid	04/26/22 18:00	05/07/22 09:00
180-136058-45	TRW 20% PC, 2% AC, 2%SP T09	Solid	04/26/22 18:00	05/07/22 09:00
180-136058-50	MB T05	Solid	04/01/22 00:00	05/07/22 09:00
180-136058-51	MB T06	Solid	04/01/22 00:00	05/07/22 09:00
180-136058-52	MB T07	Solid	04/01/22 00:00	05/07/22 09:00
180-136058-53	MB T08	Solid	04/01/22 00:00	05/07/22 09:00
180-136058-54	MB T09	Solid	04/01/22 00:00	05/07/22 09:00

Method Summary

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Method	Method Description	Protocol	Laboratory
EPA 8260D	Volatile Organic Compounds by GC/MS	SW846	EET PIT
EPA 8270E LL	Semivolatile Organic Compounds (GC/MS)	SW846	EET PIT
EPA 8081B LL	Organochlorine Pesticides (GC)	SW846	EET PIT
EPA 9056A	Anions, Ion Chromatography	SW846	EET PIT
EPA 6010D	Metals (ICP)	SW846	EET PIT
EPA 7470A	Mercury (CVAA)	SW846	EET PIT
EPA 9040C	pH	SW846	EET PIT
SM 2510B	Conductivity, Specific Conductance	SM	EET PIT
SM 2580B	Reduction-Oxidation (REDOX) Potential	SM	EET PIT
1315	Semi-Dynamic Tank Leaching Procedure	SW846	EET PIT
3010A	Preparation, Total Metals	SW846	EET PIT
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET PIT
3520C	Liquid-Liquid Extraction (Continuous)	SW846	EET PIT
5030C	Purge and Trap	SW846	EET PIT
7470A	Preparation, Mercury	SW846	EET PIT

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW CONTROL T05
Lab Sample ID: 180-136058-5
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			364.5 g	1798 mL	399099	05/18/22 07:30	MTW	EET PIT
Leach	Prep	3510C			730 mL	1.0 mL	400012	05/26/22 05:30	CBY	EET PIT
Leach	Analysis	EPA 8081B LL		1			400492	06/01/22 15:38	APD	EET PIT
	Instrument ID: CHGC17									
Leach	Leach	1315			357.6 g	1798 mL	399097	05/18/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			400633	05/25/22 08:57	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW CONTROL T06
Lab Sample ID: 180-136058-6
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			365.6 g	1798 mL	399101	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	401682	06/11/22 19:01	PJJ	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315	DL		365.6 g	1798 mL	399101	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D	DL	10	5 mL	5 mL	401735	06/13/22 15:11	C1K	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			365.6 g	1798 mL	399101	05/25/22 07:30	MTW	EET PIT
Leach	Prep	3520C			330 mL	0.25 mL	401767	06/13/22 10:10	VJC	EET PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	402177	06/16/22 12:36	VVP	EET PIT
	Instrument ID: CH71									
Leach	Leach	1315			357.4 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9056A		1			403147	06/25/22 01:26	LWM	EET PIT
	Instrument ID: CHICS2100B									
Leach	Leach	1315			357.4 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402592	06/20/22 13:21	NAF	EET PIT
Leach	Analysis	EPA 6010D		1			403304	06/24/22 15:41	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			357.4 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Prep	7470A			50 mL	50 mL	401755	06/13/22 09:32	RJR	EET PIT
Leach	Analysis	EPA 7470A		1			401834	06/13/22 17:54	RJR	EET PIT
	Instrument ID: HGY									
Leach	Leach	1315			357.4 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			401306	06/08/22 08:00	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			357.4 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2510B		1			401311	06/08/22 08:02	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			357.4 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2580B		1			401308	06/08/22 08:00	MAM	EET PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW CONTROL T07
Lab Sample ID: 180-136058-7
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			365.7 g	1798 mL	399103	06/08/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		10	5 mL	5 mL	403153	06/24/22 20:33	PJJ	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			365.7 g	1798 mL	399103	06/08/22 07:30	MTW	EET PIT
Leach	Prep	3520C			270 mL	250 uL	402862	06/22/22 11:07	BJT	EET PIT
Leach	Analysis	EPA 8270E LL		1			403176	06/24/22 13:51	VVP	EET PIT
	Instrument ID: CH733									
Leach	Leach	1315			358.9 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402892	06/22/22 13:43	NAF	EET PIT
Leach	Analysis	EPA 6010D		1			403445	06/27/22 17:33	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			358.9 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Prep	7470A			25 mL	25 mL	402918	06/22/22 15:29	RJR	EET PIT
Leach	Analysis	EPA 7470A		1			403039	06/23/22 10:04	RJR	EET PIT
	Instrument ID: HGZ									
Leach	Leach	1315			358.9 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			402844	06/22/22 08:03	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW CONTROL T08
Lab Sample ID: 180-136058-8
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			365.7 g	1798 mL	399107	06/22/22 07:30	MTW	EET PIT
Leach	Prep	3510C			760 mL	1.0 mL	403696	06/30/22 05:00	CBY	EET PIT
Leach	Analysis	EPA 8081B LL		1			403840	07/01/22 11:49	APD	EET PIT
	Instrument ID: CHGC15									
Leach	Leach	1315			359.5 g	1798 mL	399105	06/22/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			403611	06/29/22 07:44	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW CONTROL T09
Lab Sample ID: 180-136058-9
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			366.5 g	1798 mL	399115	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		10	5 mL	5 mL	404856	07/13/22 14:43	SW1	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			359.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9056A		1			404902	07/13/22 13:37	M1D	EET PIT
	Instrument ID: INTEGRION									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW CONTROL T09
Lab Sample ID: 180-136058-9
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			359.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	405878	07/21/22 12:31	EMR	EET PIT
Leach	Analysis	EPA 6010D		1			406111	07/22/22 08:26	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			359.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Prep	7470A			25 mL	25 mL	405058	07/14/22 09:24	EMR	EET PIT
Leach	Analysis	EPA 7470A		1			405239	07/15/22 11:56	SNR	EET PIT
	Instrument ID: HGZ									
Leach	Leach	1315			359.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			404927	07/13/22 08:03	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			359.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2510B		1			404932	07/13/22 08:05	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			359.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2580B		1			404931	07/13/22 08:03	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC T05
Lab Sample ID: 180-136058-14
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			327.8 g	1798 mL	399099	05/18/22 07:30	MTW	EET PIT
Leach	Prep	3510C			780 mL	1.0 mL	400012	05/26/22 05:30	CBY	EET PIT
Leach	Analysis	EPA 8081B LL		1			400492	06/01/22 15:53	APD	EET PIT
	Instrument ID: CHGC17									
Leach	Leach	1315			304.6 g	1798 mL	399097	05/18/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			400633	05/25/22 09:03	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC T06
Lab Sample ID: 180-136058-15
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			328.0 g	1798 mL	399101	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	401682	06/11/22 18:35	PJJ	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315	DL		328.0 g	1798 mL	399101	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D	DL	10	5 mL	5 mL	401735	06/13/22 15:37	C1K	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			328.0 g	1798 mL	399101	05/25/22 07:30	MTW	EET PIT
Leach	Prep	3520C			330 mL	0.25 mL	401767	06/13/22 10:10	VJC	EET PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	402177	06/16/22 13:21	VVP	EET PIT
	Instrument ID: CH71									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC T06
Lab Sample ID: 180-136058-15
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			304.8 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9056A		1			403147	06/25/22 01:41	LWM	EET PIT
	Instrument ID: CHICS2100B									
Leach	Leach	1315			304.8 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402592	06/20/22 13:21	NAF	EET PIT
Leach	Analysis	EPA 6010D		1			403304	06/24/22 15:59	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			304.8 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402592	06/20/22 13:21	NAF	EET PIT
Leach	Analysis	EPA 6010D		2			403445	06/27/22 10:51	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			304.8 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Prep	7470A			50 mL	50 mL	401755	06/13/22 09:36	RJR	EET PIT
Leach	Analysis	EPA 7470A		1			401834	06/13/22 17:55	RJR	EET PIT
	Instrument ID: HGY									
Leach	Leach	1315			304.8 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			401306	06/08/22 08:08	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			304.8 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2510B		1			401311	06/08/22 08:09	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			304.8 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2580B		1			401308	06/08/22 08:08	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC T07
Lab Sample ID: 180-136058-16
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			328.1 g	1798 mL	399103	06/08/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		10	5 mL	5 mL	403153	06/24/22 20:07	PJJ	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			328.1 g	1798 mL	399103	06/08/22 07:30	MTW	EET PIT
Leach	Prep	3520C			260 mL	250 uL	402862	06/22/22 11:07	BJT	EET PIT
Leach	Analysis	EPA 8270E LL		1			403176	06/24/22 14:13	VVP	EET PIT
	Instrument ID: CH733									
Leach	Leach	1315			305.4 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402892	06/22/22 13:43	NAF	EET PIT
Leach	Analysis	EPA 6010D		1			403445	06/27/22 17:51	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			305.4 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402892	06/22/22 13:43	NAF	EET PIT
Leach	Analysis	EPA 6010D		2			403569	06/28/22 11:12	RJG	EET PIT
	Instrument ID: C									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC T07
Lab Sample ID: 180-136058-16
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			305.4 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Prep	7470A			25 mL	25 mL	402918	06/22/22 15:29	RJR	EET PIT
Leach	Analysis	EPA 7470A		1			403039	06/23/22 10:05	RJR	EET PIT
	Instrument ID: HGZ									
Leach	Leach	1315			305.4 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			402844	06/22/22 08:10	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC T08
Lab Sample ID: 180-136058-17
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			328.1 g	1798 mL	399107	06/22/22 07:30	MTW	EET PIT
Leach	Prep	3510C			760 mL	1.0 mL	403696	06/30/22 05:00	CBY	EET PIT
Leach	Analysis	EPA 8081B LL		1			403840	07/01/22 12:05	APD	EET PIT
	Instrument ID: CHGC15									
Leach	Leach	1315			328.1 g	1798 mL	399107	06/22/22 07:30	MTW	EET PIT
Leach	Prep	3510C			760 mL	1.0 mL	403696	06/30/22 05:00	CBY	EET PIT
Leach	Analysis	EPA 8081B LL		1			404043	07/05/22 15:58	APD	EET PIT
	Instrument ID: CHGC15									
Leach	Leach	1315			305.9 g	1798 mL	399105	06/22/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			403611	06/29/22 07:49	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC T09
Lab Sample ID: 180-136058-18
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			328.9 g	1798 mL	399115	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		10	5 mL	5 mL	404856	07/13/22 14:18	SW1	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			305.9 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9056A		1			404902	07/13/22 14:17	M1D	EET PIT
	Instrument ID: INTEGRION									
Leach	Leach	1315			305.9 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	405878	07/21/22 12:31	EMR	EET PIT
Leach	Analysis	EPA 6010D		1			406111	07/22/22 08:31	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			305.9 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	405878	07/21/22 12:31	EMR	EET PIT
Leach	Analysis	EPA 6010D		2			406111	07/22/22 11:05	RJG	EET PIT
	Instrument ID: C									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC T09
Lab Sample ID: 180-136058-18
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			305.9 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Prep	7470A			25 mL	25 mL	405058	07/14/22 09:24	EMR	EET PIT
Leach	Analysis	EPA 7470A		1			405239	07/15/22 11:57	SNR	EET PIT
	Instrument ID: HGZ									
Leach	Leach	1315			305.9 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			404927	07/13/22 08:10	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			305.9 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2510B		1			404932	07/13/22 08:10	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			305.9 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2580B		1			404931	07/13/22 08:10	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 2% AC T05
Lab Sample ID: 180-136058-23
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			325.7 g	1798 mL	399099	05/18/22 07:30	MTW	EET PIT
Leach	Prep	3510C			740 mL	1.0 mL	400012	05/26/22 05:30	CBY	EET PIT
Leach	Analysis	EPA 8081B LL		1			400492	06/01/22 16:09	APD	EET PIT
	Instrument ID: CHGC17									
Leach	Leach	1315			331.9 g	1798 mL	399097	05/18/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			400633	05/25/22 09:06	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 2% AC T06
Lab Sample ID: 180-136058-24
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			325.4 g	1798 mL	399101	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	401682	06/11/22 18:09	PJJ	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			325.4 g	1798 mL	399101	05/25/22 07:30	MTW	EET PIT
Leach	Prep	3520C			320 mL	0.25 mL	401767	06/13/22 10:10	VJC	EET PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	402177	06/16/22 13:44	VVP	EET PIT
	Instrument ID: CH71									
Leach	Leach	1315			332.0 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9056A		1			403147	06/25/22 01:56	LWM	EET PIT
	Instrument ID: CHICS2100B									
Leach	Leach	1315			332.0 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402592	06/20/22 13:21	NAF	EET PIT
Leach	Analysis	EPA 6010D		1			403304	06/24/22 16:04	RJG	EET PIT
	Instrument ID: C									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC T06
Lab Sample ID: 180-136058-24

Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			332.0 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402592	06/20/22 13:21	NAF	EET PIT
Leach	Analysis	EPA 6010D		2			403445	06/27/22 10:56	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			332.0 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Prep	7470A			50 mL	50 mL	401755	06/13/22 09:36	RJR	EET PIT
Leach	Analysis	EPA 7470A		1			401834	06/13/22 18:00	RJR	EET PIT
	Instrument ID: HGY									
Leach	Leach	1315			332.0 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			401306	06/08/22 08:12	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			332.0 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2510B		1			401311	06/08/22 08:12	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			332.0 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2580B		1			401308	06/08/22 08:12	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 2% AC T07
Lab Sample ID: 180-136058-25

Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			324.9 g	1798 mL	399103	06/08/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	402985	06/23/22 14:03	C1K	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			324.9 g	1798 mL	399103	06/08/22 07:30	MTW	EET PIT
Leach	Prep	3520C			260 mL	250 uL	402862	06/22/22 11:07	BJT	EET PIT
Leach	Analysis	EPA 8270E LL		1			403176	06/24/22 14:34	VVP	EET PIT
	Instrument ID: CH733									
Leach	Leach	1315			332.0 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402892	06/22/22 13:43	NAF	EET PIT
Leach	Analysis	EPA 6010D		1			403445	06/27/22 17:55	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			332.0 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402892	06/22/22 13:43	NAF	EET PIT
Leach	Analysis	EPA 6010D		2			403569	06/28/22 11:17	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			332.0 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Prep	7470A			25 mL	25 mL	402918	06/22/22 15:29	RJR	EET PIT
Leach	Analysis	EPA 7470A		1			403039	06/23/22 10:06	RJR	EET PIT
	Instrument ID: HGZ									
Leach	Leach	1315			332.0 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			402844	06/22/22 08:13	MAM	EET PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC T08
Lab Sample ID: 180-136058-26
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			325.5 g	1798 mL	399107	06/22/22 07:30	MTW	EET PIT
Leach	Prep	3510C			760 mL	1.0 mL	403696	06/30/22 05:00	CBY	EET PIT
Leach	Analysis	EPA 8081B LL		1			403840	07/01/22 12:20	APD	EET PIT
	Instrument ID: CHGC15									
Leach	Leach	1315			325.5 g	1798 mL	399107	06/22/22 07:30	MTW	EET PIT
Leach	Prep	3510C			760 mL	1.0 mL	403696	06/30/22 05:00	CBY	EET PIT
Leach	Analysis	EPA 8081B LL		1			404043	07/05/22 16:13	APD	EET PIT
	Instrument ID: CHGC15									
Leach	Leach	1315			332.8 g	1798 mL	399105	06/22/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			403611	06/29/22 07:51	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 2% AC T09
Lab Sample ID: 180-136058-27
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			326.2 g	1798 mL	399115	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	404856	07/13/22 13:52	SW1	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			332.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9056A		1			404902	07/13/22 14:31	M1D	EET PIT
	Instrument ID: INTEGRION									
Leach	Leach	1315			332.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	405878	07/21/22 12:31	EMR	EET PIT
Leach	Analysis	EPA 6010D		1			406111	07/22/22 08:37	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			332.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	405878	07/21/22 12:31	EMR	EET PIT
Leach	Analysis	EPA 6010D		2			406111	07/22/22 11:10	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			332.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Prep	7470A			25 mL	25 mL	405058	07/14/22 09:24	EMR	EET PIT
Leach	Analysis	EPA 7470A		1			405239	07/15/22 11:58	SNR	EET PIT
	Instrument ID: HGZ									
Leach	Leach	1315			332.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			404927	07/13/22 08:13	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			332.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2510B		1			404932	07/13/22 08:13	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			332.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2580B		1			404931	07/13/22 08:13	MAM	EET PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 4% AC T05
Lab Sample ID: 180-136058-32
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			327.7 g	1798 mL	399099	05/18/22 07:30	MTW	EET PIT
Leach	Prep	3510C			810 mL	1.0 mL	400012	05/26/22 05:30	CBY	EET PIT
Leach	Analysis	EPA 8081B LL		1			400492	06/01/22 16:25	APD	EET PIT
	Instrument ID: CHGC17									
Leach	Leach	1315			326.6 g	1798 mL	399097	05/18/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			400633	05/25/22 09:09	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 4% AC T06
Lab Sample ID: 180-136058-33
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			327.6 g	1798 mL	399101	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	401682	06/11/22 17:42	PJJ	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			327.6 g	1798 mL	399101	05/25/22 07:30	MTW	EET PIT
Leach	Prep	3520C			320 mL	0.25 mL	401767	06/13/22 10:10	VJC	EET PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	402177	06/16/22 14:06	VVP	EET PIT
	Instrument ID: CH71									
Leach	Leach	1315			327.5 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9056A		1			403358	06/28/22 00:14	SNL	EET PIT
	Instrument ID: CHICS2100B									
Leach	Leach	1315			327.5 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402592	06/20/22 13:21	NAF	EET PIT
Leach	Analysis	EPA 6010D		1			403304	06/24/22 16:09	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			327.5 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402592	06/20/22 13:21	NAF	EET PIT
Leach	Analysis	EPA 6010D		2			403445	06/27/22 11:01	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			327.5 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Prep	7470A			50 mL	50 mL	401755	06/13/22 09:36	RJR	EET PIT
Leach	Analysis	EPA 7470A		1			401834	06/13/22 18:01	RJR	EET PIT
	Instrument ID: HGY									
Leach	Leach	1315			327.5 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			401306	06/08/22 08:16	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			327.5 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2510B		1			401311	06/08/22 08:16	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			327.5 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2580B		1			401308	06/08/22 08:16	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 4% AC T07
Lab Sample ID: 180-136058-34
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			327.4 g	1798 mL	399103	06/08/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	402985	06/23/22 13:37	C1K	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			327.4 g	1798 mL	399103	06/08/22 07:30	MTW	EET PIT
Leach	Prep	3520C			260 mL	250 uL	402862	06/22/22 11:07	BJT	EET PIT
Leach	Analysis	EPA 8270E LL		1			403176	06/24/22 14:56	VVP	EET PIT
	Instrument ID: CH733									
Leach	Leach	1315			326.9 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402892	06/22/22 13:43	NAF	EET PIT
Leach	Analysis	EPA 6010D		1			403445	06/27/22 18:00	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			326.9 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402892	06/22/22 13:43	NAF	EET PIT
Leach	Analysis	EPA 6010D		2			403569	06/28/22 11:22	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			326.9 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Prep	7470A			25 mL	25 mL	402918	06/22/22 15:29	RJR	EET PIT
Leach	Analysis	EPA 7470A		1			403039	06/23/22 10:07	RJR	EET PIT
	Instrument ID: HGZ									
Leach	Leach	1315			326.9 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			402844	06/22/22 08:16	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 4% AC T08
Lab Sample ID: 180-136058-35
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			329.0 g	1798 mL	399107	06/22/22 07:30	MTW	EET PIT
Leach	Prep	3510C			760 mL	1.0 mL	403696	06/30/22 05:00	CBY	EET PIT
Leach	Analysis	EPA 8081B LL		1			403840	07/01/22 12:36	APD	EET PIT
	Instrument ID: CHGC15									
Leach	Leach	1315			328.3 g	1798 mL	399105	06/22/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			403611	06/29/22 07:53	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 4% AC T09
Lab Sample ID: 180-136058-36
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			329.5 g	1798 mL	399115	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	404856	07/13/22 13:27	SW1	EET PIT
	Instrument ID: CHHP10									

Client Sample ID: TRW 20% PC, 4% AC T09
Lab Sample ID: 180-136058-36
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			328.3 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9056A		1			404902	07/13/22 14:44	M1D	EET PIT
	Instrument ID: INTEGRION									
Leach	Leach	1315			328.3 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	405878	07/21/22 12:31	EMR	EET PIT
Leach	Analysis	EPA 6010D		1			406111	07/22/22 08:42	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			328.3 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	405878	07/21/22 12:31	EMR	EET PIT
Leach	Analysis	EPA 6010D		2			406111	07/22/22 11:15	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			328.3 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Prep	7470A			25 mL	25 mL	405058	07/14/22 09:24	EMR	EET PIT
Leach	Analysis	EPA 7470A		1			405239	07/15/22 11:59	SNR	EET PIT
	Instrument ID: HGZ									
Leach	Leach	1315			328.3 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			404927	07/13/22 08:16	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			328.3 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2510B		1			404932	07/13/22 08:16	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			328.3 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2580B		1			404931	07/13/22 08:16	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T05
Lab Sample ID: 180-136058-41
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			327.8 g	1798 mL	399099	05/18/22 07:30	MTW	EET PIT
Leach	Prep	3510C			730 mL	1.0 mL	400012	05/26/22 05:30	CBY	EET PIT
Leach	Analysis	EPA 8081B LL		1			400492	06/01/22 16:41	APD	EET PIT
	Instrument ID: CHGC17									
Leach	Leach	1315			335.8 g	1798 mL	399097	05/18/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			400633	05/25/22 09:12	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T06
Lab Sample ID: 180-136058-42
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			328.7 g	1798 mL	399101	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	401682	06/11/22 17:17	PJJ	EET PIT
	Instrument ID: CHHP10									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T06
Lab Sample ID: 180-136058-42
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			328.7 g	1798 mL	399101	05/25/22 07:30	MTW	EET PIT
Leach	Prep	3520C			320 mL	0.25 mL	401767	06/13/22 10:10	VJC	EET PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	402177	06/16/22 14:29	VVP	EET PIT
	Instrument ID: CH71									
Leach	Leach	1315			337.4 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9056A		1			403358	06/28/22 00:59	SNL	EET PIT
	Instrument ID: CHICS2100B									
Leach	Leach	1315			337.4 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402592	06/20/22 13:21	NAF	EET PIT
Leach	Analysis	EPA 6010D		1			403304	06/24/22 16:13	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			337.4 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402592	06/20/22 13:21	NAF	EET PIT
Leach	Analysis	EPA 6010D		2			403445	06/27/22 11:05	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			337.4 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Prep	7470A			50 mL	50 mL	401755	06/13/22 09:36	RJR	EET PIT
Leach	Analysis	EPA 7470A		1			401834	06/13/22 18:02	RJR	EET PIT
	Instrument ID: HGY									
Leach	Leach	1315			337.4 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			401306	06/08/22 08:20	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			337.4 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2510B		1			401311	06/08/22 08:19	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			337.4 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2580B		1			401308	06/08/22 08:20	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T07
Lab Sample ID: 180-136058-43
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			328.0 g	1798 mL	399103	06/08/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	402985	06/23/22 13:10	C1K	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			328.0 g	1798 mL	399103	06/08/22 07:30	MTW	EET PIT
Leach	Prep	3520C			260 mL	250 uL	402862	06/22/22 11:07	BJT	EET PIT
Leach	Analysis	EPA 8270E LL		1			403176	06/24/22 15:17	VVP	EET PIT
	Instrument ID: CH733									
Leach	Leach	1315			338.2 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402892	06/22/22 13:43	NAF	EET PIT
Leach	Analysis	EPA 6010D		1			403445	06/27/22 18:05	RJG	EET PIT
	Instrument ID: C									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T07
Lab Sample ID: 180-136058-43
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			338.2 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Prep	7470A			25 mL	25 mL	402918	06/22/22 15:29	RJR	EET PIT
Leach	Analysis	EPA 7470A		1			403039	06/23/22 10:08	RJR	EET PIT
	Instrument ID: HGZ									
Leach	Leach	1315			338.2 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			402844	06/22/22 08:20	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T08
Lab Sample ID: 180-136058-44
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			331.4 g	1798 mL	399107	06/22/22 07:30	MTW	EET PIT
Leach	Prep	3510C			760 mL	1.0 mL	403696	06/30/22 05:00	CBY	EET PIT
Leach	Analysis	EPA 8081B LL		1			403840	07/01/22 12:51	APD	EET PIT
	Instrument ID: CHGC15									
Leach	Leach	1315			331.4 g	1798 mL	399107	06/22/22 07:30	MTW	EET PIT
Leach	Prep	3510C			760 mL	1.0 mL	403696	06/30/22 05:00	CBY	EET PIT
Leach	Analysis	EPA 8081B LL		1			404043	07/05/22 16:29	APD	EET PIT
	Instrument ID: CHGC15									
Leach	Leach	1315			341.0 g	1798 mL	399105	06/22/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			403611	06/29/22 07:56	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T09
Lab Sample ID: 180-136058-45
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			330.0 g	1798 mL	399115	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	404856	07/13/22 13:01	SW1	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			340.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9056A		1			404902	07/13/22 14:58	M1D	EET PIT
	Instrument ID: INTEGRION									
Leach	Leach	1315			340.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	405878	07/21/22 12:31	EMR	EET PIT
Leach	Analysis	EPA 6010D		1			406111	07/22/22 08:58	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			340.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Prep	7470A			25 mL	25 mL	405058	07/14/22 09:24	EMR	EET PIT
Leach	Analysis	EPA 7470A		1			405239	07/15/22 12:00	SNR	EET PIT
	Instrument ID: HGZ									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T09
Lab Sample ID: 180-136058-45
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			340.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			404927	07/13/22 08:20	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			340.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2510B		1			404932	07/13/22 08:19	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			340.7 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2580B		1			404931	07/13/22 08:20	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: MB T05
Lab Sample ID: 180-136058-50
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			1.0 g	1798 mL	399099	05/18/22 07:30	MTW	EET PIT
Leach	Prep	3510C			1000 mL	1.0 mL	400012	05/26/22 05:30	CBY	EET PIT
Leach	Analysis	EPA 8081B LL		1			400624	06/02/22 10:39	APD	EET PIT
	Instrument ID: CHGC15									
Leach	Leach	1315			1.0 g	1798 mL	399097	05/18/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			400633	05/25/22 09:14	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: MB T06
Lab Sample ID: 180-136058-51
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			1.0 g	1798 mL	399101	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	401682	06/11/22 16:50	PJJ	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			1.0 g	1798 mL	399101	05/25/22 07:30	MTW	EET PIT
Leach	Prep	3520C			330 mL	0.25 mL	401768	06/13/22 10:15	VJC	EET PIT
Leach	Analysis	EPA 8270E LL		1	1 mL	1 mL	402139	06/16/22 18:10	VVP	EET PIT
	Instrument ID: CHMSD7									
Leach	Leach	1315			1.0 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9056A		1			403358	06/28/22 01:14	SNL	EET PIT
	Instrument ID: CHICS2100B									
Leach	Leach	1315			1.0 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402592	06/20/22 13:21	NAF	EET PIT
Leach	Analysis	EPA 6010D		1			403304	06/24/22 16:18	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			1.0 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Prep	7470A			50 mL	50 mL	401755	06/13/22 09:36	RJR	EET PIT
Leach	Analysis	EPA 7470A		1			401834	06/13/22 18:03	RJR	EET PIT
	Instrument ID: HGY									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: MB T06
Lab Sample ID: 180-136058-51
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			1.0 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			401306	06/08/22 08:24	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			1.0 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2510B		1			401311	06/08/22 08:22	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			1.0 g	1798 mL	399100	05/25/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2580B		1			401308	06/08/22 08:24	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: MB T07
Lab Sample ID: 180-136058-52
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			1.0 g	1798 mL	399103	06/08/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	402985	06/23/22 12:37	C1K	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			1.0 g	1798 mL	399103	06/08/22 07:30	MTW	EET PIT
Leach	Prep	3520C			260 mL	250 uL	402862	06/22/22 11:08	BJT	EET PIT
Leach	Analysis	EPA 8270E LL		1			403176	06/24/22 15:39	VVP	EET PIT
	Instrument ID: CH733									
Leach	Leach	1315			1.0 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	402892	06/22/22 13:43	NAF	EET PIT
Leach	Analysis	EPA 6010D		1			403445	06/27/22 18:09	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			1.0 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Prep	7470A			25 mL	25 mL	402918	06/22/22 15:29	RJR	EET PIT
Leach	Analysis	EPA 7470A		1			403039	06/23/22 10:09	RJR	EET PIT
	Instrument ID: HGZ									
Leach	Leach	1315			1.0 g	1798 mL	399102	06/08/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			402844	06/22/22 08:23	MAM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: MB T08
Lab Sample ID: 180-136058-53
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			1.0 g	1798 mL	399107	06/22/22 07:30	MTW	EET PIT
Leach	Prep	3510C			1000 mL	1.0 mL	403696	06/30/22 05:00	CBY	EET PIT
Leach	Analysis	EPA 8081B LL		1			403840	07/01/22 13:07	APD	EET PIT
	Instrument ID: CHGC15									
Leach	Leach	1315			1.0 g	1798 mL	399105	06/22/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			403611	06/29/22 07:58	MAM	EET PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: MB T09
Date Collected: 04/01/22 00:00
Date Received: 05/07/22 09:00

Lab Sample ID: 180-136058-54
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Leach	Leach	1315			1.0 g	1798 mL	399115	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 8260D		1	5 mL	5 mL	404856	07/13/22 12:29	SW1	EET PIT
	Instrument ID: CHHP10									
Leach	Leach	1315			1.0 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9056A		1			404902	07/13/22 15:11	M1D	EET PIT
	Instrument ID: INTEGRION									
Leach	Leach	1315			1.0 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Prep	3010A			25 mL	25 mL	405878	07/21/22 12:31	EMR	EET PIT
Leach	Analysis	EPA 6010D		1			406111	07/22/22 08:05	RJG	EET PIT
	Instrument ID: C									
Leach	Leach	1315			1.0 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Prep	7470A			25 mL	25 mL	405058	07/14/22 09:24	EMR	EET PIT
Leach	Analysis	EPA 7470A		1			405239	07/15/22 12:04	SNR	EET PIT
	Instrument ID: HGZ									
Leach	Leach	1315			1.0 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	EPA 9040C		1			404927	07/13/22 08:23	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			1.0 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2510B		1			404932	07/13/22 08:21	MAM	EET PIT
	Instrument ID: NOEQUIP									
Leach	Leach	1315			1.0 g	1798 mL	399110	06/29/22 07:30	MTW	EET PIT
Leach	Analysis	SM 2580B		1			404931	07/13/22 08:23	MAM	EET PIT
	Instrument ID: NOEQUIP									

[1] Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Laboratory References:

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Analyst References:

Lab: EET PIT

- Batch Type: Leach
  - MTW = Michael Wesoloski
- Batch Type: Prep
  - BJT = Bill Trout
  - CBY = Charles Yushinski
  - EMR = Elizabeth Rarick
  - NAF = Nicholas Frankos
  - RJR = Ron Rosenbaum
  - VJC = Vincent Cervone
- Batch Type: Analysis
  - APD = Aaron DeLeo
  - C1K = Chamaiporn Krisorn
  - LWM = Larry Matko
  - M1D = Maureen Donlin
  - MAM = Matthew Martin
  - PJJ = Patrick Journet
  - RJG = Rob Good
  - RJR = Ron Rosenbaum
  - SNL = Sean Lordo
  - SNR = Sabra Richart
  - SW1 = Sunan Wang-un
  - VVP = Vincent Piccolino

Client Sample ID: TRW CONTROL T05
Lab Sample ID: 180-136058-5
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.0018	0.00073	ug/L		05/26/22 05:30	06/01/22 15:38	1
4,4'-DDE	ND		0.0018	0.00040	ug/L		05/26/22 05:30	06/01/22 15:38	1
4,4'-DDT	ND		0.0018	0.00094	ug/L		05/26/22 05:30	06/01/22 15:38	1
alpha-BHC	ND	*3	0.0018	0.00033	ug/L		05/26/22 05:30	06/01/22 15:38	1
alpha-Chlordane	**0.0057**	***3 p**	0.0018	0.00050	ug/L		05/26/22 05:30	06/01/22 15:38	1
beta-BHC	ND	*3	0.0018	0.00050	ug/L		05/26/22 05:30	06/01/22 15:38	1
delta-BHC	ND	*3	0.0018	0.00088	ug/L		05/26/22 05:30	06/01/22 15:38	1
Dieldrin	ND		0.0018	0.00038	ug/L		05/26/22 05:30	06/01/22 15:38	1
Endrin aldehyde	ND		0.0018	0.00071	ug/L		05/26/22 05:30	06/01/22 15:38	1
Endrin ketone	ND		0.0018	0.00054	ug/L		05/26/22 05:30	06/01/22 15:38	1
gamma-BHC (Lindane)	ND	*3	0.0018	0.00040	ug/L		05/26/22 05:30	06/01/22 15:38	1
gamma-Chlordane	ND	*3	0.0018	0.00056	ug/L		05/26/22 05:30	06/01/22 15:38	1
Heptachlor	ND	*3	0.0018	0.00062	ug/L		05/26/22 05:30	06/01/22 15:38	1
Heptachlor epoxide	ND	*3	0.0018	0.00047	ug/L		05/26/22 05:30	06/01/22 15:38	1
Hexachlorobenzene	ND	*3	0.0018	0.0012	ug/L		05/26/22 05:30	06/01/22 15:38	1
Toxaphene	ND	*3	0.14	0.067	ug/L		05/26/22 05:30	06/01/22 15:38	1
Endosulfan II	**0.0034**	**p**	0.0018	0.00043	ug/L		05/26/22 05:30	06/01/22 15:38	1
Methoxychlor	ND		0.0018	0.0011	ug/L		05/26/22 05:30	06/01/22 15:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*100*		*46 - 114*	*05/26/22 05:30*	*06/01/22 15:38*	*1*
DCB Decachlorobiphenyl (Surr)	*94*		*46 - 114*	*05/26/22 05:30*	*06/01/22 15:38*	*1*
Tetrachloro-m-xylene	*97*	**3*	*39 - 119*	*05/26/22 05:30*	*06/01/22 15:38*	*1*
Tetrachloro-m-xylene	*93*		*39 - 119*	*05/26/22 05:30*	*06/01/22 15:38*	*1*

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.7**		0.1	0.1	SU			05/25/22 08:57	1

Client Sample ID: TRW CONTROL T06
Lab Sample ID: 180-136058-6
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	*+	5.0	2.5	ug/L			06/11/22 19:01	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			06/11/22 19:01	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			06/11/22 19:01	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			06/11/22 19:01	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			06/11/22 19:01	1
1,2,4-Trichlorobenzene	ND	*- *1	5.0	3.7	ug/L			06/11/22 19:01	1
1,2-Dibromo-3-Chloropropane	ND	*1	5.0	3.1	ug/L			06/11/22 19:01	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			06/11/22 19:01	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			06/11/22 19:01	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			06/11/22 19:01	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			06/11/22 19:01	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			06/11/22 19:01	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			06/11/22 19:01	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			06/11/22 19:01	1
2-Hexanone	ND		5.0	4.2	ug/L			06/11/22 19:01	1

Client Sample ID: TRW CONTROL T06
Lab Sample ID: 180-136058-6
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**13**	**J**	20	5.5	ug/L			06/11/22 19:01	1
Benzene	ND		5.0	2.0	ug/L			06/11/22 19:01	1
Bromodichloromethane	ND		5.0	2.4	ug/L			06/11/22 19:01	1
Bromoform	ND		5.0	2.6	ug/L			06/11/22 19:01	1
Carbon disulfide	ND		5.0	3.0	ug/L			06/11/22 19:01	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			06/11/22 19:01	1
Chlorobenzene	ND		5.0	1.6	ug/L			06/11/22 19:01	1
Chloroethane	ND		5.0	2.6	ug/L			06/11/22 19:01	1
Chloroform	ND		5.0	2.1	ug/L			06/11/22 19:01	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			06/11/22 19:01	1
Dibromochloromethane	ND		5.0	2.4	ug/L			06/11/22 19:01	1
Ethylbenzene	ND		5.0	2.2	ug/L			06/11/22 19:01	1
Freon-11	ND		5.0	1.5	ug/L			06/11/22 19:01	1
Freon-113	ND		5.0	1.9	ug/L			06/11/22 19:01	1
Freon-12	ND		5.0	2.9	ug/L			06/11/22 19:01	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			06/11/22 19:01	1
Methyl bromide	ND		5.0	4.5	ug/L			06/11/22 19:01	1
Methyl chloride	ND		5.0	3.9	ug/L			06/11/22 19:01	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			06/11/22 19:01	1
Methylene Chloride	**6.5**		5.0	3.9	ug/L			06/11/22 19:01	1
Styrene	ND		5.0	1.3	ug/L			06/11/22 19:01	1
Tetrachloroethene	ND		5.0	2.0	ug/L			06/11/22 19:01	1
Toluene	ND		5.0	1.7	ug/L			06/11/22 19:01	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			06/11/22 19:01	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			06/11/22 19:01	1
Trichloroethene	ND		5.0	1.5	ug/L			06/11/22 19:01	1
Vinyl chloride	**11**		5.0	3.7	ug/L			06/11/22 19:01	1
Xylenes, Total	ND		10	4.3	ug/L			06/11/22 19:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*79*		*52 - 151*		*06/11/22 19:01*	*1*
4-Bromofluorobenzene (Surr)	*79*		*49 - 118*		*06/11/22 19:01*	*1*
Dibromofluoromethane (Surr)	*89*		*60 - 132*		*06/11/22 19:01*	*1*
Toluene-d8 (Surr)	*76*		*53 - 124*		*06/11/22 19:01*	*1*

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	**160**		50	16	ug/L			06/13/22 15:11	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*52 - 151*		*06/13/22 15:11*	*10*
4-Bromofluorobenzene (Surr)	*92*		*49 - 118*		*06/13/22 15:11*	*10*
Dibromofluoromethane (Surr)	*111*		*60 - 132*		*06/13/22 15:11*	*10*
Toluene-d8 (Surr)	*75*		*53 - 124*		*06/13/22 15:11*	*10*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.76	0.11	ug/L		06/13/22 10:10	06/16/22 12:36	1
1,4-Dichlorobenzene	**0.28**	**J**	0.76	0.046	ug/L		06/13/22 10:10	06/16/22 12:36	1
2,2'-oxybis[1-chloropropane]	ND		0.14	0.044	ug/L		06/13/22 10:10	06/16/22 12:36	1

Client Sample ID: TRW CONTROL T06
Lab Sample ID: 180-136058-6
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenol	ND		0.14	0.039	ug/L		06/13/22 10:10	06/16/22 12:36	1
2,4-Dimethylphenol	ND		0.76	0.13	ug/L		06/13/22 10:10	06/16/22 12:36	1
2,4-Dinitrophenol	ND		7.6	1.2	ug/L		06/13/22 10:10	06/16/22 12:36	1
2,4-Dinitrotoluene	ND		0.76	0.27	ug/L		06/13/22 10:10	06/16/22 12:36	1
2,6-Dinitrotoluene	ND		0.76	0.13	ug/L		06/13/22 10:10	06/16/22 12:36	1
2-Chloronaphthalene	ND		0.14	0.045	ug/L		06/13/22 10:10	06/16/22 12:36	1
2-Nitroaniline	ND		3.8	0.42	ug/L		06/13/22 10:10	06/16/22 12:36	1
3,3'-Dichlorobenzidine	ND		0.76	0.44	ug/L		06/13/22 10:10	06/16/22 12:36	1
3-Nitroaniline	ND		3.8	0.33	ug/L		06/13/22 10:10	06/16/22 12:36	1
p-Chloroaniline	ND		0.76	0.28	ug/L		06/13/22 10:10	06/16/22 12:36	1
p-Nitroaniline	ND		3.8	0.28	ug/L		06/13/22 10:10	06/16/22 12:36	1
Acenaphthene	**0.075**	**J**	0.14	0.049	ug/L		06/13/22 10:10	06/16/22 12:36	1
Anthracene	ND		0.14	0.037	ug/L		06/13/22 10:10	06/16/22 12:36	1
Atrazine	ND		0.76	0.48	ug/L		06/13/22 10:10	06/16/22 12:36	1
Benzo[a]anthracene	ND		0.14	0.057	ug/L		06/13/22 10:10	06/16/22 12:36	1
Benzo[a]pyrene	ND		0.14	0.040	ug/L		06/13/22 10:10	06/16/22 12:36	1
Benzo[b]fluoranthene	ND		0.14	0.073	ug/L		06/13/22 10:10	06/16/22 12:36	1
Benzo[k]fluoranthene	ND		0.14	0.067	ug/L		06/13/22 10:10	06/16/22 12:36	1
Bis(2-chloroethoxy)methane	ND		0.76	0.12	ug/L		06/13/22 10:10	06/16/22 12:36	1
Dichloroethyl ether	ND		0.14	0.030	ug/L		06/13/22 10:10	06/16/22 12:36	1
Bis(2-ethylhexyl) phthalate	ND		7.6	4.7	ug/L		06/13/22 10:10	06/16/22 12:36	1
Benzyl butyl phthalate	**0.71**	**J**	0.76	0.35	ug/L		06/13/22 10:10	06/16/22 12:36	1
Chrysene	ND		0.14	0.061	ug/L		06/13/22 10:10	06/16/22 12:36	1
Diethyl phthalate	ND		0.76	0.43	ug/L		06/13/22 10:10	06/16/22 12:36	1
Dimethyl phthalate	ND		0.76	0.15	ug/L		06/13/22 10:10	06/16/22 12:36	1
Dibutylphthalate	**1.2**		0.76	0.56	ug/L		06/13/22 10:10	06/16/22 12:36	1
Di-n-octyl phthalate	ND		0.76	0.52	ug/L		06/13/22 10:10	06/16/22 12:36	1
Fluoranthene	ND		0.14	0.045	ug/L		06/13/22 10:10	06/16/22 12:36	1
Fluorene	**0.057**	**J**	0.14	0.052	ug/L		06/13/22 10:10	06/16/22 12:36	1
Hexachlorobutadiene	ND		0.14	0.052	ug/L		06/13/22 10:10	06/16/22 12:36	1
Hexachlorocyclopentadiene	ND		0.76	0.38	ug/L		06/13/22 10:10	06/16/22 12:36	1
Hexachloroethane	ND		0.76	0.10	ug/L		06/13/22 10:10	06/16/22 12:36	1
Indeno[1,2,3-cd]pyrene	ND		0.14	0.064	ug/L		06/13/22 10:10	06/16/22 12:36	1
Isophorone	ND		0.76	0.14	ug/L		06/13/22 10:10	06/16/22 12:36	1
Nitrobenzene	ND		1.5	0.38	ug/L		06/13/22 10:10	06/16/22 12:36	1
N-Nitrosodiphenylamine	ND		0.76	0.090	ug/L		06/13/22 10:10	06/16/22 12:36	1
Pentachlorophenol	ND		3.8	0.64	ug/L		06/13/22 10:10	06/16/22 12:36	1
Phenanthrene	**0.11**	**J**	0.14	0.042	ug/L		06/13/22 10:10	06/16/22 12:36	1
Phenol	ND		0.76	0.37	ug/L		06/13/22 10:10	06/16/22 12:36	1
Pyrene	ND		0.14	0.041	ug/L		06/13/22 10:10	06/16/22 12:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*84*		*23 - 128*	*06/13/22 10:10*	*06/16/22 12:36*	*1*
2-Fluorobiphenyl	*70*		*20 - 105*	*06/13/22 10:10*	*06/16/22 12:36*	*1*
2-Fluorophenol (Surr)	*71*		*20 - 105*	*06/13/22 10:10*	*06/16/22 12:36*	*1*
Nitrobenzene-d5 (Surr)	*77*		*20 - 107*	*06/13/22 10:10*	*06/16/22 12:36*	*1*
Phenol-d5 (Surr)	*71*		*20 - 106*	*06/13/22 10:10*	*06/16/22 12:36*	*1*
Terphenyl-d14 (Surr)	*55*		*22 - 120*	*06/13/22 10:10*	*06/16/22 12:36*	*1*

Client Sample ID: TRW CONTROL T06
Lab Sample ID: 180-136058-6
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**62**		1.0	0.76	mg/L			06/25/22 01:26	1

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.041	mg/L		06/20/22 13:21	06/24/22 15:41	1
Antimony	**0.038**		0.010	0.0062	mg/L		06/20/22 13:21	06/24/22 15:41	1
Arsenic	ND		0.010	0.0083	mg/L		06/20/22 13:21	06/24/22 15:41	1
Barium	**0.097**	**J**	0.20	0.0063	mg/L		06/20/22 13:21	06/24/22 15:41	1
Beryllium	ND		0.0040	0.0015	mg/L		06/20/22 13:21	06/24/22 15:41	1
Cadmium	**0.00078**	**J**	0.0050	0.00030	mg/L		06/20/22 13:21	06/24/22 15:41	1
Calcium	**48**		5.0	0.32	mg/L		06/20/22 13:21	06/24/22 15:41	1
Chromium	ND		0.0050	0.0016	mg/L		06/20/22 13:21	06/24/22 15:41	1
Cobalt	ND		0.050	0.0019	mg/L		06/20/22 13:21	06/24/22 15:41	1
Copper	ND		0.025	0.0022	mg/L		06/20/22 13:21	06/24/22 15:41	1
Iron	ND		0.10	0.072	mg/L		06/20/22 13:21	06/24/22 15:41	1
Lead	ND		0.010	0.0044	mg/L		06/20/22 13:21	06/24/22 15:41	1
Magnesium	**5.7**		5.0	0.26	mg/L		06/20/22 13:21	06/24/22 15:41	1
Manganese	**0.15**		0.015	0.0024	mg/L		06/20/22 13:21	06/24/22 15:41	1
Nickel	ND		0.040	0.0019	mg/L		06/20/22 13:21	06/24/22 15:41	1
Potassium	**0.91**	**J**	5.0	0.80	mg/L		06/20/22 13:21	06/24/22 15:41	1
Selenium	ND		0.010	0.0037	mg/L		06/20/22 13:21	06/24/22 15:41	1
Silver	ND		0.0050	0.00091	mg/L		06/20/22 13:21	06/24/22 15:41	1
Sodium	**1.1**	**J**	5.0	0.30	mg/L		06/20/22 13:21	06/24/22 15:41	1
Thallium	ND		0.020	0.0030	mg/L		06/20/22 13:21	06/24/22 15:41	1
Vanadium	ND		0.050	0.0053	mg/L		06/20/22 13:21	06/24/22 15:41	1
Zinc	**0.0050**	**J**	0.020	0.0026	mg/L		06/20/22 13:21	06/24/22 15:41	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/13/22 09:32	06/13/22 17:54	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.7**		0.1	0.1	SU			06/08/22 08:00	1
Specific Conductance	**300**		1.0	1.0	umhos/cm			06/08/22 08:02	1
Oxidation Reduction Potential	**170**		10	10	millivolts			06/08/22 08:00	1

Client Sample ID: TRW CONTROL T07
Lab Sample ID: 180-136058-7
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		50	25	ug/L			06/24/22 20:33	10
1,1,2,2-Tetrachloroethane	ND	*-	50	30	ug/L			06/24/22 20:33	10
1,1,2-Trichloroethane	ND		50	24	ug/L			06/24/22 20:33	10
1,1-Dichloroethane	ND		50	18	ug/L			06/24/22 20:33	10
1,1-Dichloroethene	ND		50	29	ug/L			06/24/22 20:33	10
1,2,4-Trichlorobenzene	ND	*-	50	37	ug/L			06/24/22 20:33	10
1,2-Dibromo-3-Chloropropane	ND		50	31	ug/L			06/24/22 20:33	10
1,2-Dibromoethane	ND		50	27	ug/L			06/24/22 20:33	10

Client Sample ID: TRW CONTROL T07
Lab Sample ID: 180-136058-7
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND	*-	50	20	ug/L			06/24/22 20:33	10
1,2-Dichloroethane	ND		50	15	ug/L			06/24/22 20:33	10
1,2-Dichloropropane	ND		50	25	ug/L			06/24/22 20:33	10
1,3-Dichlorobenzene	ND	*-	50	16	ug/L			06/24/22 20:33	10
1,4-Dichlorobenzene	ND	*-	50	10	ug/L			06/24/22 20:33	10
2-Butanone (MEK)	ND		50	29	ug/L			06/24/22 20:33	10
2-Hexanone	ND	*-	50	42	ug/L			06/24/22 20:33	10
Acetone	ND		200	55	ug/L			06/24/22 20:33	10
Benzene	ND		50	20	ug/L			06/24/22 20:33	10
Bromodichloromethane	ND		50	24	ug/L			06/24/22 20:33	10
Bromoform	ND		50	26	ug/L			06/24/22 20:33	10
Carbon disulfide	ND		50	30	ug/L			06/24/22 20:33	10
Carbon tetrachloride	ND		50	33	ug/L			06/24/22 20:33	10
Chlorobenzene	ND	*-	50	16	ug/L			06/24/22 20:33	10
Chloroethane	ND		50	26	ug/L			06/24/22 20:33	10
Chloroform	ND		50	21	ug/L			06/24/22 20:33	10
cis-1,2-Dichloroethene	**90**		50	16	ug/L			06/24/22 20:33	10
cis-1,3-Dichloropropene	ND		50	16	ug/L			06/24/22 20:33	10
Dibromochloromethane	ND		50	24	ug/L			06/24/22 20:33	10
Ethylbenzene	ND		50	22	ug/L			06/24/22 20:33	10
Freon-11	ND		50	15	ug/L			06/24/22 20:33	10
Freon-113	ND		50	19	ug/L			06/24/22 20:33	10
Freon-12	ND		50	29	ug/L			06/24/22 20:33	10
Isopropylbenzene (cumene)	ND		50	23	ug/L			06/24/22 20:33	10
Methyl bromide	ND		50	45	ug/L			06/24/22 20:33	10
Methyl chloride	ND		50	39	ug/L			06/24/22 20:33	10
Methyl tert-butyl ether	ND		50	37	ug/L			06/24/22 20:33	10
Methylene Chloride	ND		50	39	ug/L			06/24/22 20:33	10
Styrene	ND	*-	50	13	ug/L			06/24/22 20:33	10
Tetrachloroethene	ND		50	20	ug/L			06/24/22 20:33	10
Toluene	ND		50	17	ug/L			06/24/22 20:33	10
trans-1,2-Dichloroethene	ND		50	25	ug/L			06/24/22 20:33	10
trans-1,3-Dichloropropene	ND		50	17	ug/L			06/24/22 20:33	10
Trichloroethene	ND		50	15	ug/L			06/24/22 20:33	10
Vinyl chloride	ND		50	37	ug/L			06/24/22 20:33	10
Xylenes, Total	ND		100	43	ug/L			06/24/22 20:33	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*55*		*52 - 151*		*06/24/22 20:33*	*10*
4-Bromofluorobenzene (Surr)	*69*		*49 - 118*		*06/24/22 20:33*	*10*
Dibromofluoromethane (Surr)	*98*		*60 - 132*		*06/24/22 20:33*	*10*
Toluene-d8 (Surr)	*67*		*53 - 124*		*06/24/22 20:33*	*10*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.93	0.13	ug/L		06/22/22 11:07	06/24/22 13:51	1
1,4-Dichlorobenzene	**0.15**	**J**	0.93	0.056	ug/L		06/22/22 11:07	06/24/22 13:51	1
2,2'-oxybis[1-chloropropane]	ND		0.18	0.054	ug/L		06/22/22 11:07	06/24/22 13:51	1
2,4-Dichlorophenol	ND		0.18	0.047	ug/L		06/22/22 11:07	06/24/22 13:51	1
2,4-Dimethylphenol	ND		0.93	0.15	ug/L		06/22/22 11:07	06/24/22 13:51	1

Client Sample ID: TRW CONTROL T07
Lab Sample ID: 180-136058-7
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrophenol	ND		9.3	1.4	ug/L		06/22/22 11:07	06/24/22 13:51	1
2,4-Dinitrotoluene	ND		0.93	0.33	ug/L		06/22/22 11:07	06/24/22 13:51	1
2,6-Dinitrotoluene	ND		0.93	0.16	ug/L		06/22/22 11:07	06/24/22 13:51	1
2-Chloronaphthalene	ND		0.18	0.055	ug/L		06/22/22 11:07	06/24/22 13:51	1
2-Nitroaniline	ND		4.6	0.51	ug/L		06/22/22 11:07	06/24/22 13:51	1
3,3'-Dichlorobenzidine	ND		0.93	0.54	ug/L		06/22/22 11:07	06/24/22 13:51	1
3-Nitroaniline	ND		4.6	0.40	ug/L		06/22/22 11:07	06/24/22 13:51	1
p-Chloroaniline	ND		0.93	0.35	ug/L		06/22/22 11:07	06/24/22 13:51	1
p-Nitroaniline	ND		4.6	0.34	ug/L		06/22/22 11:07	06/24/22 13:51	1
Acenaphthene	ND		0.18	0.060	ug/L		06/22/22 11:07	06/24/22 13:51	1
Anthracene	ND		0.18	0.045	ug/L		06/22/22 11:07	06/24/22 13:51	1
Atrazine	ND		0.93	0.59	ug/L		06/22/22 11:07	06/24/22 13:51	1
Benzo[a]anthracene	ND		0.18	0.069	ug/L		06/22/22 11:07	06/24/22 13:51	1
Benzo[a]pyrene	ND		0.18	0.049	ug/L		06/22/22 11:07	06/24/22 13:51	1
Benzo[b]fluoranthene	ND		0.18	0.090	ug/L		06/22/22 11:07	06/24/22 13:51	1
Benzo[k]fluoranthene	ND		0.18	0.081	ug/L		06/22/22 11:07	06/24/22 13:51	1
Bis(2-chloroethoxy)methane	ND		0.93	0.14	ug/L		06/22/22 11:07	06/24/22 13:51	1
Dichloroethyl ether	ND		0.18	0.037	ug/L		06/22/22 11:07	06/24/22 13:51	1
Bis(2-ethylhexyl) phthalate	ND		9.3	5.8	ug/L		06/22/22 11:07	06/24/22 13:51	1
Benzyl butyl phthalate	ND		0.93	0.43	ug/L		06/22/22 11:07	06/24/22 13:51	1
Chrysene	ND		0.18	0.075	ug/L		06/22/22 11:07	06/24/22 13:51	1
Diethyl phthalate	ND		0.93	0.53	ug/L		06/22/22 11:07	06/24/22 13:51	1
Dimethyl phthalate	ND		0.93	0.19	ug/L		06/22/22 11:07	06/24/22 13:51	1
Dibutylphthalate	ND		0.93	0.69	ug/L		06/22/22 11:07	06/24/22 13:51	1
Di-n-octyl phthalate	ND		0.93	0.63	ug/L		06/22/22 11:07	06/24/22 13:51	1
Fluoranthene	ND		0.18	0.056	ug/L		06/22/22 11:07	06/24/22 13:51	1
Fluorene	ND		0.18	0.064	ug/L		06/22/22 11:07	06/24/22 13:51	1
Hexachlorobutadiene	ND		0.18	0.064	ug/L		06/22/22 11:07	06/24/22 13:51	1
Hexachlorocyclopentadiene	ND		0.93	0.46	ug/L		06/22/22 11:07	06/24/22 13:51	1
Hexachloroethane	ND		0.93	0.12	ug/L		06/22/22 11:07	06/24/22 13:51	1
Indeno[1,2,3-cd]pyrene	ND		0.18	0.079	ug/L		06/22/22 11:07	06/24/22 13:51	1
Isophorone	ND		0.93	0.17	ug/L		06/22/22 11:07	06/24/22 13:51	1
Nitrobenzene	ND		1.9	0.46	ug/L		06/22/22 11:07	06/24/22 13:51	1
N-Nitrosodiphenylamine	ND		0.93	0.11	ug/L		06/22/22 11:07	06/24/22 13:51	1
Pentachlorophenol	ND		4.6	0.78	ug/L		06/22/22 11:07	06/24/22 13:51	1
Phenanthrene	**0.13**	**J**	0.18	0.051	ug/L		06/22/22 11:07	06/24/22 13:51	1
Phenol	ND		0.93	0.45	ug/L		06/22/22 11:07	06/24/22 13:51	1
Pyrene	ND		0.18	0.050	ug/L		06/22/22 11:07	06/24/22 13:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*84*		*23 - 128*	*06/22/22 11:07*	*06/24/22 13:51*	*1*
2-Fluorobiphenyl	*72*		*20 - 105*	*06/22/22 11:07*	*06/24/22 13:51*	*1*
2-Fluorophenol (Surr)	*73*		*20 - 105*	*06/22/22 11:07*	*06/24/22 13:51*	*1*
Nitrobenzene-d5 (Surr)	*84*		*20 - 107*	*06/22/22 11:07*	*06/24/22 13:51*	*1*
Phenol-d5 (Surr)	*78*		*20 - 106*	*06/22/22 11:07*	*06/24/22 13:51*	*1*
Terphenyl-d14 (Surr)	*82*		*22 - 120*	*06/22/22 11:07*	*06/24/22 13:51*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.051**	**J**	0.20	0.041	mg/L		06/22/22 13:43	06/27/22 17:33	1

Client Sample ID: TRW CONTROL T07
Lab Sample ID: 180-136058-7
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 6010D - Metals (ICP) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.042**		0.010	0.0062	mg/L		06/22/22 13:43	06/27/22 17:33	1
Arsenic	ND		0.010	0.0083	mg/L		06/22/22 13:43	06/27/22 17:33	1
Barium	**0.10**	**J**	0.20	0.0063	mg/L		06/22/22 13:43	06/27/22 17:33	1
Beryllium	ND		0.0040	0.0015	mg/L		06/22/22 13:43	06/27/22 17:33	1
Cadmium	**0.00045**	**J**	0.0050	0.00030	mg/L		06/22/22 13:43	06/27/22 17:33	1
Calcium	**35**		5.0	0.32	mg/L		06/22/22 13:43	06/27/22 17:33	1
Chromium	ND		0.0050	0.0016	mg/L		06/22/22 13:43	06/27/22 17:33	1
Cobalt	ND		0.050	0.0019	mg/L		06/22/22 13:43	06/27/22 17:33	1
Copper	**0.0032**	**J**	0.025	0.0022	mg/L		06/22/22 13:43	06/27/22 17:33	1
Iron	ND		0.10	0.072	mg/L		06/22/22 13:43	06/27/22 17:33	1
Lead	ND		0.010	0.0044	mg/L		06/22/22 13:43	06/27/22 17:33	1
Magnesium	**3.4**	**J**	5.0	0.26	mg/L		06/22/22 13:43	06/27/22 17:33	1
Manganese	**0.068**		0.015	0.0024	mg/L		06/22/22 13:43	06/27/22 17:33	1
Nickel	ND		0.040	0.0019	mg/L		06/22/22 13:43	06/27/22 17:33	1
Potassium	ND		5.0	0.80	mg/L		06/22/22 13:43	06/27/22 17:33	1
Selenium	ND		0.010	0.0037	mg/L		06/22/22 13:43	06/27/22 17:33	1
Silver	ND		0.0050	0.00091	mg/L		06/22/22 13:43	06/27/22 17:33	1
Sodium	**0.53**	**J**	5.0	0.30	mg/L		06/22/22 13:43	06/27/22 17:33	1
Thallium	ND		0.020	0.0030	mg/L		06/22/22 13:43	06/27/22 17:33	1
Vanadium	ND		0.050	0.0053	mg/L		06/22/22 13:43	06/27/22 17:33	1
Zinc	**0.0033**	**J**	0.020	0.0026	mg/L		06/22/22 13:43	06/27/22 17:33	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/22/22 15:29	06/23/22 10:04	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.8**		0.1	0.1	SU			06/22/22 08:03	1

Client Sample ID: TRW CONTROL T08
Lab Sample ID: 180-136058-8
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.0017	0.00070	ug/L		06/30/22 05:00	07/01/22 11:49	1
4,4'-DDE	ND		0.0017	0.00039	ug/L		06/30/22 05:00	07/01/22 11:49	1
4,4'-DDT	ND		0.0017	0.00091	ug/L		06/30/22 05:00	07/01/22 11:49	1
alpha-BHC	ND		0.0017	0.00031	ug/L		06/30/22 05:00	07/01/22 11:49	1
alpha-Chlordane	ND		0.0017	0.00048	ug/L		06/30/22 05:00	07/01/22 11:49	1
beta-BHC	ND		0.0017	0.00048	ug/L		06/30/22 05:00	07/01/22 11:49	1
delta-BHC	ND		0.0017	0.00084	ug/L		06/30/22 05:00	07/01/22 11:49	1
Dieldrin	ND		0.0017	0.00036	ug/L		06/30/22 05:00	07/01/22 11:49	1
Endrin aldehyde	ND		0.0017	0.00068	ug/L		06/30/22 05:00	07/01/22 11:49	1
Endrin ketone	ND		0.0017	0.00052	ug/L		06/30/22 05:00	07/01/22 11:49	1
gamma-BHC (Lindane)	ND		0.0017	0.00039	ug/L		06/30/22 05:00	07/01/22 11:49	1
gamma-Chlordane	ND		0.0017	0.00054	ug/L		06/30/22 05:00	07/01/22 11:49	1
Heptachlor	ND	*1	0.0017	0.00059	ug/L		06/30/22 05:00	07/01/22 11:49	1
Heptachlor epoxide	ND		0.0017	0.00045	ug/L		06/30/22 05:00	07/01/22 11:49	1

Client Sample ID: TRW CONTROL T08
Lab Sample ID: 180-136058-8
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorobenzene	**0.0044**		0.0017	0.0012	ug/L		06/30/22 05:00	07/01/22 11:49	1
Toxaphene	ND		0.13	0.065	ug/L		06/30/22 05:00	07/01/22 11:49	1
Endosulfan II	**0.00061**	**J p**	0.0017	0.00042	ug/L		06/30/22 05:00	07/01/22 11:49	1
Methoxychlor	ND		0.0017	0.0010	ug/L		06/30/22 05:00	07/01/22 11:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*79*		*46 - 114*	*06/30/22 05:00*	*07/01/22 11:49*	*1*
DCB Decachlorobiphenyl (Surr)	*89*		*46 - 114*	*06/30/22 05:00*	*07/01/22 11:49*	*1*
Tetrachloro-m-xylene	*746*	*S1+*	*39 - 119*	*06/30/22 05:00*	*07/01/22 11:49*	*1*
Tetrachloro-m-xylene	*678*	*S1+*	*39 - 119*	*06/30/22 05:00*	*07/01/22 11:49*	*1*

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.9**		0.1	0.1	SU			06/29/22 07:44	1

Client Sample ID: TRW CONTROL T09
Lab Sample ID: 180-136058-9
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		50	25	ug/L			07/13/22 14:43	10
1,1,2,2-Tetrachloroethane	ND		50	30	ug/L			07/13/22 14:43	10
1,1,2-Trichloroethane	ND		50	24	ug/L			07/13/22 14:43	10
1,1-Dichloroethane	ND		50	18	ug/L			07/13/22 14:43	10
1,1-Dichloroethene	ND		50	29	ug/L			07/13/22 14:43	10
1,2,4-Trichlorobenzene	ND	*-	50	37	ug/L			07/13/22 14:43	10
1,2-Dibromo-3-Chloropropane	ND		50	31	ug/L			07/13/22 14:43	10
1,2-Dibromoethane	ND		50	27	ug/L			07/13/22 14:43	10
1,2-Dichlorobenzene	ND	*-	50	20	ug/L			07/13/22 14:43	10
1,2-Dichloroethane	ND		50	15	ug/L			07/13/22 14:43	10
1,2-Dichloropropane	ND	*-	50	25	ug/L			07/13/22 14:43	10
1,3-Dichlorobenzene	ND	*-	50	16	ug/L			07/13/22 14:43	10
1,4-Dichlorobenzene	ND	*-	50	10	ug/L			07/13/22 14:43	10
2-Butanone (MEK)	ND		50	29	ug/L			07/13/22 14:43	10
2-Hexanone	ND	*-	50	42	ug/L			07/13/22 14:43	10
Acetone	ND	*-	200	55	ug/L			07/13/22 14:43	10
Benzene	ND		50	20	ug/L			07/13/22 14:43	10
Bromodichloromethane	ND		50	24	ug/L			07/13/22 14:43	10
Bromoform	ND		50	26	ug/L			07/13/22 14:43	10
Carbon disulfide	ND		50	30	ug/L			07/13/22 14:43	10
Carbon tetrachloride	ND		50	33	ug/L			07/13/22 14:43	10
Chlorobenzene	ND		50	16	ug/L			07/13/22 14:43	10
Chloroethane	ND		50	26	ug/L			07/13/22 14:43	10
Chloroform	**94**		50	21	ug/L			07/13/22 14:43	10
cis-1,2-Dichloroethene	**55**		50	16	ug/L			07/13/22 14:43	10
cis-1,3-Dichloropropene	ND		50	16	ug/L			07/13/22 14:43	10
Dibromochloromethane	ND		50	24	ug/L			07/13/22 14:43	10
Ethylbenzene	ND		50	22	ug/L			07/13/22 14:43	10
Freon-11	ND		50	15	ug/L			07/13/22 14:43	10

Client Sample ID: TRW CONTROL T09
Lab Sample ID: 180-136058-9
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Freon-113	ND		50	19	ug/L			07/13/22 14:43	10
Freon-12	ND		50	29	ug/L			07/13/22 14:43	10
Isopropylbenzene (cumene)	ND		50	23	ug/L			07/13/22 14:43	10
Methyl bromide	ND		50	45	ug/L			07/13/22 14:43	10
Methyl chloride	ND		50	39	ug/L			07/13/22 14:43	10
Methyl tert-butyl ether	ND		50	37	ug/L			07/13/22 14:43	10
Methylene Chloride	ND		50	39	ug/L			07/13/22 14:43	10
Styrene	ND		50	13	ug/L			07/13/22 14:43	10
Tetrachloroethene	ND		50	20	ug/L			07/13/22 14:43	10
Toluene	ND		50	17	ug/L			07/13/22 14:43	10
trans-1,2-Dichloroethene	ND		50	25	ug/L			07/13/22 14:43	10
trans-1,3-Dichloropropene	ND		50	17	ug/L			07/13/22 14:43	10
Trichloroethene	ND		50	15	ug/L			07/13/22 14:43	10
Vinyl chloride	ND		50	37	ug/L			07/13/22 14:43	10
Xylenes, Total	ND		100	43	ug/L			07/13/22 14:43	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*55*		*52 - 151*		*07/13/22 14:43*	*10*
4-Bromofluorobenzene (Surr)	*61*		*49 - 118*		*07/13/22 14:43*	*10*
Dibromofluoromethane (Surr)	*101*		*60 - 132*		*07/13/22 14:43*	*10*
Toluene-d8 (Surr)	*77*		*53 - 124*		*07/13/22 14:43*	*10*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**15**		1.0	0.76	mg/L			07/13/22 13:37	1

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.041	mg/L		07/21/22 12:31	07/22/22 08:26	1
Antimony	**0.053**		0.010	0.0062	mg/L		07/21/22 12:31	07/22/22 08:26	1
Arsenic	ND		0.010	0.0083	mg/L		07/21/22 12:31	07/22/22 08:26	1
Barium	**0.13**	**J**	0.20	0.0063	mg/L		07/21/22 12:31	07/22/22 08:26	1
Beryllium	ND		0.0040	0.0015	mg/L		07/21/22 12:31	07/22/22 08:26	1
Cadmium	**0.00063**	**J**	0.0050	0.00030	mg/L		07/21/22 12:31	07/22/22 08:26	1
Calcium	**29**		5.0	0.32	mg/L		07/21/22 12:31	07/22/22 08:26	1
Chromium	ND		0.0050	0.0016	mg/L		07/21/22 12:31	07/22/22 08:26	1
Cobalt	ND		0.050	0.0019	mg/L		07/21/22 12:31	07/22/22 08:26	1
Copper	ND		0.025	0.0022	mg/L		07/21/22 12:31	07/22/22 08:26	1
Iron	ND		0.10	0.072	mg/L		07/21/22 12:31	07/22/22 08:26	1
Lead	ND		0.010	0.0044	mg/L		07/21/22 12:31	07/22/22 08:26	1
Magnesium	**2.3**	**J**	5.0	0.26	mg/L		07/21/22 12:31	07/22/22 08:26	1
Manganese	**0.029**		0.015	0.0024	mg/L		07/21/22 12:31	07/22/22 08:26	1
Nickel	ND		0.040	0.0019	mg/L		07/21/22 12:31	07/22/22 08:26	1
Potassium	ND		5.0	0.80	mg/L		07/21/22 12:31	07/22/22 08:26	1
Selenium	ND		0.010	0.0037	mg/L		07/21/22 12:31	07/22/22 08:26	1
Silver	ND		0.0050	0.00091	mg/L		07/21/22 12:31	07/22/22 08:26	1
Sodium	**0.34**	**J**	5.0	0.30	mg/L		07/21/22 12:31	07/22/22 08:26	1
Thallium	ND		0.020	0.0030	mg/L		07/21/22 12:31	07/22/22 08:26	1
Vanadium	ND		0.050	0.0053	mg/L		07/21/22 12:31	07/22/22 08:26	1
Zinc	**0.0028**	**J B**	0.020	0.0026	mg/L		07/21/22 12:31	07/22/22 08:26	1

Client Sample ID: TRW CONTROL T09
Lab Sample ID: 180-136058-9
Date Collected: 03/22/22 17:00
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		07/14/22 09:24	07/15/22 11:56	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**7.9**		0.1	0.1	SU			07/13/22 08:03	1
Specific Conductance	**170**		1.0	1.0	umhos/cm			07/13/22 08:05	1
Oxidation Reduction Potential	**240**		10	10	millivolts			07/13/22 08:03	1

Client Sample ID: TRW 20% PC T05
Lab Sample ID: 180-136058-14
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.0017	0.00068	ug/L		05/26/22 05:30	06/01/22 15:53	1
4,4'-DDE	ND		0.0017	0.00038	ug/L		05/26/22 05:30	06/01/22 15:53	1
4,4'-DDT	ND	*-	0.0017	0.00088	ug/L		05/26/22 05:30	06/01/22 15:53	1
alpha-BHC	ND		0.0017	0.00031	ug/L		05/26/22 05:30	06/01/22 15:53	1
alpha-Chlordane	ND		0.0017	0.00047	ug/L		05/26/22 05:30	06/01/22 15:53	1
beta-BHC	ND		0.0017	0.00047	ug/L		05/26/22 05:30	06/01/22 15:53	1
delta-BHC	ND		0.0017	0.00082	ug/L		05/26/22 05:30	06/01/22 15:53	1
Dieldrin	ND		0.0017	0.00035	ug/L		05/26/22 05:30	06/01/22 15:53	1
Endrin aldehyde	ND		0.0017	0.00067	ug/L		05/26/22 05:30	06/01/22 15:53	1
Endrin ketone	ND		0.0017	0.00051	ug/L		05/26/22 05:30	06/01/22 15:53	1
gamma-BHC (Lindane)	ND		0.0017	0.00038	ug/L		05/26/22 05:30	06/01/22 15:53	1
gamma-Chlordane	ND		0.0017	0.00052	ug/L		05/26/22 05:30	06/01/22 15:53	1
Heptachlor	ND		0.0017	0.00058	ug/L		05/26/22 05:30	06/01/22 15:53	1
Heptachlor epoxide	ND		0.0017	0.00044	ug/L		05/26/22 05:30	06/01/22 15:53	1
Hexachlorobenzene	ND		0.0017	0.0012	ug/L		05/26/22 05:30	06/01/22 15:53	1
Toxaphene	ND		0.13	0.063	ug/L		05/26/22 05:30	06/01/22 15:53	1
Endosulfan II	ND		0.0017	0.00041	ug/L		05/26/22 05:30	06/01/22 15:53	1
Methoxychlor	ND		0.0017	0.00099	ug/L		05/26/22 05:30	06/01/22 15:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*101*		*46 - 114*	*05/26/22 05:30*	*06/01/22 15:53*	*1*
DCB Decachlorobiphenyl (Surr)	*94*		*46 - 114*	*05/26/22 05:30*	*06/01/22 15:53*	*1*
Tetrachloro-m-xylene	*75*	*p*	*39 - 119*	*05/26/22 05:30*	*06/01/22 15:53*	*1*
Tetrachloro-m-xylene	*116*		*39 - 119*	*05/26/22 05:30*	*06/01/22 15:53*	*1*

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.6**		0.1	0.1	SU			05/25/22 09:03	1

Client Sample ID: TRW 20% PC T06
Lab Sample ID: 180-136058-15
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	*+	5.0	2.5	ug/L			06/11/22 18:35	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			06/11/22 18:35	1

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC T06
Lab Sample ID: 180-136058-15
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			06/11/22 18:35	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			06/11/22 18:35	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			06/11/22 18:35	1
1,2,4-Trichlorobenzene	ND	*- *1	5.0	3.7	ug/L			06/11/22 18:35	1
1,2-Dibromo-3-Chloropropane	ND	*1	5.0	3.1	ug/L			06/11/22 18:35	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			06/11/22 18:35	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			06/11/22 18:35	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			06/11/22 18:35	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			06/11/22 18:35	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			06/11/22 18:35	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			06/11/22 18:35	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			06/11/22 18:35	1
2-Hexanone	ND		5.0	4.2	ug/L			06/11/22 18:35	1
Acetone	**16**	**J**	20	5.5	ug/L			06/11/22 18:35	1
Benzene	ND		5.0	2.0	ug/L			06/11/22 18:35	1
Bromodichloromethane	ND		5.0	2.4	ug/L			06/11/22 18:35	1
Bromoform	ND		5.0	2.6	ug/L			06/11/22 18:35	1
Carbon disulfide	ND		5.0	3.0	ug/L			06/11/22 18:35	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			06/11/22 18:35	1
Chlorobenzene	ND		5.0	1.6	ug/L			06/11/22 18:35	1
Chloroethane	ND		5.0	2.6	ug/L			06/11/22 18:35	1
Chloroform	ND		5.0	2.1	ug/L			06/11/22 18:35	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			06/11/22 18:35	1
Dibromochloromethane	ND		5.0	2.4	ug/L			06/11/22 18:35	1
Ethylbenzene	ND		5.0	2.2	ug/L			06/11/22 18:35	1
Freon-11	ND		5.0	1.5	ug/L			06/11/22 18:35	1
Freon-113	ND		5.0	1.9	ug/L			06/11/22 18:35	1
Freon-12	ND		5.0	2.9	ug/L			06/11/22 18:35	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			06/11/22 18:35	1
Methyl bromide	ND		5.0	4.5	ug/L			06/11/22 18:35	1
Methyl chloride	ND		5.0	3.9	ug/L			06/11/22 18:35	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			06/11/22 18:35	1
Methylene Chloride	**8.4**		5.0	3.9	ug/L			06/11/22 18:35	1
Styrene	ND		5.0	1.3	ug/L			06/11/22 18:35	1
Tetrachloroethene	ND		5.0	2.0	ug/L			06/11/22 18:35	1
Toluene	ND		5.0	1.7	ug/L			06/11/22 18:35	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			06/11/22 18:35	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			06/11/22 18:35	1
Trichloroethene	ND		5.0	1.5	ug/L			06/11/22 18:35	1
Vinyl chloride	**20**		5.0	3.7	ug/L			06/11/22 18:35	1
Xylenes, Total	ND		10	4.3	ug/L			06/11/22 18:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*90*		*52 - 151*		*06/11/22 18:35*	*1*
4-Bromofluorobenzene (Surr)	*79*		*49 - 118*		*06/11/22 18:35*	*1*
Dibromofluoromethane (Surr)	*97*		*60 - 132*		*06/11/22 18:35*	*1*
Toluene-d8 (Surr)	*81*		*53 - 124*		*06/11/22 18:35*	*1*

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC T06
Lab Sample ID: 180-136058-15
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	**150**		50	16	ug/L			06/13/22 15:37	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*52 - 151*		*06/13/22 15:37*	*10*
4-Bromofluorobenzene (Surr)	*73*		*49 - 118*		*06/13/22 15:37*	*10*
Dibromofluoromethane (Surr)	*98*		*60 - 132*		*06/13/22 15:37*	*10*
Toluene-d8 (Surr)	*83*		*53 - 124*		*06/13/22 15:37*	*10*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.76	0.11	ug/L		06/13/22 10:10	06/16/22 13:21	1
1,4-Dichlorobenzene	ND		0.76	0.046	ug/L		06/13/22 10:10	06/16/22 13:21	1
2,2'-oxybis[1-chloropropane]	ND		0.14	0.044	ug/L		06/13/22 10:10	06/16/22 13:21	1
2,4-Dichlorophenol	ND		0.14	0.039	ug/L		06/13/22 10:10	06/16/22 13:21	1
2,4-Dimethylphenol	**0.92**		0.76	0.13	ug/L		06/13/22 10:10	06/16/22 13:21	1
2,4-Dinitrophenol	ND		7.6	1.2	ug/L		06/13/22 10:10	06/16/22 13:21	1
2,4-Dinitrotoluene	ND		0.76	0.27	ug/L		06/13/22 10:10	06/16/22 13:21	1
2,6-Dinitrotoluene	ND		0.76	0.13	ug/L		06/13/22 10:10	06/16/22 13:21	1
2-Chloronaphthalene	**1.4**		0.14	0.045	ug/L		06/13/22 10:10	06/16/22 13:21	1
2-Nitroaniline	ND		3.8	0.42	ug/L		06/13/22 10:10	06/16/22 13:21	1
3,3'-Dichlorobenzidine	ND		0.76	0.44	ug/L		06/13/22 10:10	06/16/22 13:21	1
3-Nitroaniline	ND		3.8	0.33	ug/L		06/13/22 10:10	06/16/22 13:21	1
p-Chloroaniline	ND		0.76	0.28	ug/L		06/13/22 10:10	06/16/22 13:21	1
p-Nitroaniline	ND		3.8	0.28	ug/L		06/13/22 10:10	06/16/22 13:21	1
Acenaphthene	ND		0.14	0.049	ug/L		06/13/22 10:10	06/16/22 13:21	1
Anthracene	ND		0.14	0.037	ug/L		06/13/22 10:10	06/16/22 13:21	1
Atrazine	ND		0.76	0.48	ug/L		06/13/22 10:10	06/16/22 13:21	1
Benzo[a]anthracene	ND		0.14	0.057	ug/L		06/13/22 10:10	06/16/22 13:21	1
Benzo[a]pyrene	ND		0.14	0.040	ug/L		06/13/22 10:10	06/16/22 13:21	1
Benzo[b]fluoranthene	ND		0.14	0.073	ug/L		06/13/22 10:10	06/16/22 13:21	1
Benzo[k]fluoranthene	ND		0.14	0.067	ug/L		06/13/22 10:10	06/16/22 13:21	1
Bis(2-chloroethoxy)methane	ND		0.76	0.12	ug/L		06/13/22 10:10	06/16/22 13:21	1
Dichloroethyl ether	ND		0.14	0.030	ug/L		06/13/22 10:10	06/16/22 13:21	1
Bis(2-ethylhexyl) phthalate	ND		7.6	4.7	ug/L		06/13/22 10:10	06/16/22 13:21	1
Benzyl butyl phthalate	ND		0.76	0.35	ug/L		06/13/22 10:10	06/16/22 13:21	1
Chrysene	ND		0.14	0.061	ug/L		06/13/22 10:10	06/16/22 13:21	1
Diethyl phthalate	ND		0.76	0.43	ug/L		06/13/22 10:10	06/16/22 13:21	1
Dimethyl phthalate	ND		0.76	0.15	ug/L		06/13/22 10:10	06/16/22 13:21	1
Dibutylphthalate	ND		0.76	0.56	ug/L		06/13/22 10:10	06/16/22 13:21	1
Di-n-octyl phthalate	ND		0.76	0.52	ug/L		06/13/22 10:10	06/16/22 13:21	1
Fluoranthene	ND		0.14	0.045	ug/L		06/13/22 10:10	06/16/22 13:21	1
Fluorene	ND		0.14	0.052	ug/L		06/13/22 10:10	06/16/22 13:21	1
Hexachlorobutadiene	ND		0.14	0.052	ug/L		06/13/22 10:10	06/16/22 13:21	1
Hexachlorocyclopentadiene	ND		0.76	0.38	ug/L		06/13/22 10:10	06/16/22 13:21	1
Hexachloroethane	ND		0.76	0.10	ug/L		06/13/22 10:10	06/16/22 13:21	1
Indeno[1,2,3-cd]pyrene	ND		0.14	0.064	ug/L		06/13/22 10:10	06/16/22 13:21	1
Isophorone	ND		0.76	0.14	ug/L		06/13/22 10:10	06/16/22 13:21	1
Nitrobenzene	ND		1.5	0.38	ug/L		06/13/22 10:10	06/16/22 13:21	1
N-Nitrosodiphenylamine	**0.14**	**J**	0.76	0.090	ug/L		06/13/22 10:10	06/16/22 13:21	1
Pentachlorophenol	ND		3.8	0.64	ug/L		06/13/22 10:10	06/16/22 13:21	1

Client Sample ID: TRW 20% PC T06
Lab Sample ID: 180-136058-15

Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenanthrene	**0.074**	**J**	0.14	0.042	ug/L		06/13/22 10:10	06/16/22 13:21	1
Phenol	**1.2**		0.76	0.37	ug/L		06/13/22 10:10	06/16/22 13:21	1
Pyrene	ND		0.14	0.041	ug/L		06/13/22 10:10	06/16/22 13:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*71*		*23 - 128*	*06/13/22 10:10*	*06/16/22 13:21*	*1*
2-Fluorobiphenyl	*62*		*20 - 105*	*06/13/22 10:10*	*06/16/22 13:21*	*1*
2-Fluorophenol (Surr)	*67*		*20 - 105*	*06/13/22 10:10*	*06/16/22 13:21*	*1*
Nitrobenzene-d5 (Surr)	*65*		*20 - 107*	*06/13/22 10:10*	*06/16/22 13:21*	*1*
Phenol-d5 (Surr)	*66*		*20 - 106*	*06/13/22 10:10*	*06/16/22 13:21*	*1*
Terphenyl-d14 (Surr)	*67*		*22 - 120*	*06/13/22 10:10*	*06/16/22 13:21*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**12**		1.0	0.76	mg/L			06/25/22 01:41	1

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3.9**		0.20	0.041	mg/L		06/20/22 13:21	06/24/22 15:59	1
Antimony	**0.073**		0.010	0.0062	mg/L		06/20/22 13:21	06/24/22 15:59	1
Arsenic	ND		0.010	0.0083	mg/L		06/20/22 13:21	06/24/22 15:59	1
Barium	**0.26**		0.20	0.0063	mg/L		06/20/22 13:21	06/24/22 15:59	1
Beryllium	ND		0.0040	0.0015	mg/L		06/20/22 13:21	06/24/22 15:59	1
Cadmium	ND		0.0050	0.00030	mg/L		06/20/22 13:21	06/24/22 15:59	1
Calcium	**140**		10	0.64	mg/L		06/20/22 13:21	06/27/22 10:51	2
Chromium	ND		0.0050	0.0016	mg/L		06/20/22 13:21	06/24/22 15:59	1
Cobalt	ND		0.050	0.0019	mg/L		06/20/22 13:21	06/24/22 15:59	1
Copper	**0.15**		0.025	0.0022	mg/L		06/20/22 13:21	06/24/22 15:59	1
Iron	**0.84**		0.10	0.072	mg/L		06/20/22 13:21	06/24/22 15:59	1
Lead	ND		0.010	0.0044	mg/L		06/20/22 13:21	06/24/22 15:59	1
Magnesium	ND		5.0	0.26	mg/L		06/20/22 13:21	06/24/22 15:59	1
Manganese	ND		0.015	0.0024	mg/L		06/20/22 13:21	06/24/22 15:59	1
Nickel	**0.044**		0.040	0.0019	mg/L		06/20/22 13:21	06/24/22 15:59	1
Potassium	**3.4**	**J**	5.0	0.80	mg/L		06/20/22 13:21	06/24/22 15:59	1
Selenium	ND		0.010	0.0037	mg/L		06/20/22 13:21	06/24/22 15:59	1
Silver	ND		0.0050	0.00091	mg/L		06/20/22 13:21	06/24/22 15:59	1
Sodium	**5.1**		5.0	0.30	mg/L		06/20/22 13:21	06/24/22 15:59	1
Thallium	ND		0.020	0.0030	mg/L		06/20/22 13:21	06/24/22 15:59	1
Vanadium	**0.0079**	**J**	0.050	0.0053	mg/L		06/20/22 13:21	06/24/22 15:59	1
Zinc	ND		0.020	0.0026	mg/L		06/20/22 13:21	06/24/22 15:59	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/13/22 09:36	06/13/22 17:55	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.8**		0.1	0.1	SU			06/08/22 08:08	1
Specific Conductance	**1500**		1.0	1.0	umhos/cm			06/08/22 08:09	1
Oxidation Reduction Potential	**- 42**		10	10	millivolts			06/08/22 08:08	1

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC T07
Lab Sample ID: 180-136058-16
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		50	25	ug/L			06/24/22 20:07	10
1,1,2,2-Tetrachloroethane	ND	*-	50	30	ug/L			06/24/22 20:07	10
1,1,2-Trichloroethane	ND		50	24	ug/L			06/24/22 20:07	10
1,1-Dichloroethane	ND		50	18	ug/L			06/24/22 20:07	10
1,1-Dichloroethene	ND		50	29	ug/L			06/24/22 20:07	10
1,2,4-Trichlorobenzene	ND	*-	50	37	ug/L			06/24/22 20:07	10
1,2-Dibromo-3-Chloropropane	ND		50	31	ug/L			06/24/22 20:07	10
1,2-Dibromoethane	ND		50	27	ug/L			06/24/22 20:07	10
1,2-Dichlorobenzene	ND	*-	50	20	ug/L			06/24/22 20:07	10
1,2-Dichloroethane	ND		50	15	ug/L			06/24/22 20:07	10
1,2-Dichloropropane	ND		50	25	ug/L			06/24/22 20:07	10
1,3-Dichlorobenzene	ND	*-	50	16	ug/L			06/24/22 20:07	10
1,4-Dichlorobenzene	ND	*-	50	10	ug/L			06/24/22 20:07	10
2-Butanone (MEK)	ND		50	29	ug/L			06/24/22 20:07	10
2-Hexanone	ND	*-	50	42	ug/L			06/24/22 20:07	10
Acetone	ND		200	55	ug/L			06/24/22 20:07	10
Benzene	ND		50	20	ug/L			06/24/22 20:07	10
Bromodichloromethane	ND		50	24	ug/L			06/24/22 20:07	10
Bromoform	ND		50	26	ug/L			06/24/22 20:07	10
Carbon disulfide	ND		50	30	ug/L			06/24/22 20:07	10
Carbon tetrachloride	ND		50	33	ug/L			06/24/22 20:07	10
Chlorobenzene	ND	*-	50	16	ug/L			06/24/22 20:07	10
Chloroethane	ND		50	26	ug/L			06/24/22 20:07	10
Chloroform	ND		50	21	ug/L			06/24/22 20:07	10
cis-1,2-Dichloroethene	**94**		50	16	ug/L			06/24/22 20:07	10
cis-1,3-Dichloropropene	ND		50	16	ug/L			06/24/22 20:07	10
Dibromochloromethane	ND		50	24	ug/L			06/24/22 20:07	10
Ethylbenzene	ND		50	22	ug/L			06/24/22 20:07	10
Freon-11	ND		50	15	ug/L			06/24/22 20:07	10
Freon-113	ND		50	19	ug/L			06/24/22 20:07	10
Freon-12	ND		50	29	ug/L			06/24/22 20:07	10
Isopropylbenzene (cumene)	ND		50	23	ug/L			06/24/22 20:07	10
Methyl bromide	ND		50	45	ug/L			06/24/22 20:07	10
Methyl chloride	ND		50	39	ug/L			06/24/22 20:07	10
Methyl tert-butyl ether	ND		50	37	ug/L			06/24/22 20:07	10
Methylene Chloride	ND		50	39	ug/L			06/24/22 20:07	10
Styrene	ND	*-	50	13	ug/L			06/24/22 20:07	10
Tetrachloroethene	ND		50	20	ug/L			06/24/22 20:07	10
Toluene	ND		50	17	ug/L			06/24/22 20:07	10
trans-1,2-Dichloroethene	ND		50	25	ug/L			06/24/22 20:07	10
trans-1,3-Dichloropropene	ND		50	17	ug/L			06/24/22 20:07	10
Trichloroethene	ND		50	15	ug/L			06/24/22 20:07	10
Vinyl chloride	ND		50	37	ug/L			06/24/22 20:07	10
Xylenes, Total	ND		100	43	ug/L			06/24/22 20:07	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*56*		*52 - 151*		*06/24/22 20:07*	*10*
4-Bromofluorobenzene (Surr)	*66*		*49 - 118*		*06/24/22 20:07*	*10*
Dibromofluoromethane (Surr)	*100*		*60 - 132*		*06/24/22 20:07*	*10*
Toluene-d8 (Surr)	*69*		*53 - 124*		*06/24/22 20:07*	*10*

Client Sample ID: TRW 20% PC T07
Lab Sample ID: 180-136058-16

Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	**0.14**	**J**	0.96	0.14	ug/L		06/22/22 11:07	06/24/22 14:13	1
1,4-Dichlorobenzene	**0.068**	**J**	0.96	0.059	ug/L		06/22/22 11:07	06/24/22 14:13	1
2,2'-oxybis[1-chloropropane]	ND		0.18	0.056	ug/L		06/22/22 11:07	06/24/22 14:13	1
2,4-Dichlorophenol	ND		0.18	0.049	ug/L		06/22/22 11:07	06/24/22 14:13	1
2,4-Dimethylphenol	**0.99**		0.96	0.16	ug/L		06/22/22 11:07	06/24/22 14:13	1
2,4-Dinitrophenol	ND		9.6	1.5	ug/L		06/22/22 11:07	06/24/22 14:13	1
2,4-Dinitrotoluene	ND		0.96	0.34	ug/L		06/22/22 11:07	06/24/22 14:13	1
2,6-Dinitrotoluene	ND		0.96	0.17	ug/L		06/22/22 11:07	06/24/22 14:13	1
2-Chloronaphthalene	**3.1**		0.18	0.057	ug/L		06/22/22 11:07	06/24/22 14:13	1
2-Nitroaniline	ND		4.8	0.53	ug/L		06/22/22 11:07	06/24/22 14:13	1
3,3'-Dichlorobenzidine	ND		0.96	0.56	ug/L		06/22/22 11:07	06/24/22 14:13	1
3-Nitroaniline	ND		4.8	0.42	ug/L		06/22/22 11:07	06/24/22 14:13	1
p-Chloroaniline	ND		0.96	0.36	ug/L		06/22/22 11:07	06/24/22 14:13	1
p-Nitroaniline	ND		4.8	0.35	ug/L		06/22/22 11:07	06/24/22 14:13	1
Acenaphthene	ND		0.18	0.063	ug/L		06/22/22 11:07	06/24/22 14:13	1
Anthracene	**0.075**	**J**	0.18	0.047	ug/L		06/22/22 11:07	06/24/22 14:13	1
Atrazine	ND		0.96	0.61	ug/L		06/22/22 11:07	06/24/22 14:13	1
Benzo[a]anthracene	ND		0.18	0.072	ug/L		06/22/22 11:07	06/24/22 14:13	1
Benzo[a]pyrene	ND		0.18	0.051	ug/L		06/22/22 11:07	06/24/22 14:13	1
Benzo[b]fluoranthene	ND		0.18	0.093	ug/L		06/22/22 11:07	06/24/22 14:13	1
Benzo[k]fluoranthene	ND		0.18	0.085	ug/L		06/22/22 11:07	06/24/22 14:13	1
Bis(2-chloroethoxy)methane	ND		0.96	0.15	ug/L		06/22/22 11:07	06/24/22 14:13	1
Dichloroethyl ether	ND		0.18	0.038	ug/L		06/22/22 11:07	06/24/22 14:13	1
Bis(2-ethylhexyl) phthalate	ND		9.6	6.0	ug/L		06/22/22 11:07	06/24/22 14:13	1
Benzyl butyl phthalate	ND		0.96	0.44	ug/L		06/22/22 11:07	06/24/22 14:13	1
Chrysene	ND		0.18	0.078	ug/L		06/22/22 11:07	06/24/22 14:13	1
Diethyl phthalate	ND		0.96	0.55	ug/L		06/22/22 11:07	06/24/22 14:13	1
Dimethyl phthalate	ND		0.96	0.19	ug/L		06/22/22 11:07	06/24/22 14:13	1
Dibutylphthalate	ND		0.96	0.71	ug/L		06/22/22 11:07	06/24/22 14:13	1
Di-n-octyl phthalate	ND		0.96	0.66	ug/L		06/22/22 11:07	06/24/22 14:13	1
Fluoranthene	ND		0.18	0.058	ug/L		06/22/22 11:07	06/24/22 14:13	1
Fluorene	**0.082**	**J**	0.18	0.066	ug/L		06/22/22 11:07	06/24/22 14:13	1
Hexachlorobutadiene	ND		0.18	0.066	ug/L		06/22/22 11:07	06/24/22 14:13	1
Hexachlorocyclopentadiene	ND		0.96	0.48	ug/L		06/22/22 11:07	06/24/22 14:13	1
Hexachloroethane	ND		0.96	0.13	ug/L		06/22/22 11:07	06/24/22 14:13	1
Indeno[1,2,3-cd]pyrene	ND		0.18	0.082	ug/L		06/22/22 11:07	06/24/22 14:13	1
Isophorone	ND		0.96	0.18	ug/L		06/22/22 11:07	06/24/22 14:13	1
Nitrobenzene	ND		1.9	0.48	ug/L		06/22/22 11:07	06/24/22 14:13	1
N-Nitrosodiphenylamine	**0.32**	**J**	0.96	0.11	ug/L		06/22/22 11:07	06/24/22 14:13	1
Pentachlorophenol	ND		4.8	0.81	ug/L		06/22/22 11:07	06/24/22 14:13	1
Phenanthrene	**0.19**		0.18	0.053	ug/L		06/22/22 11:07	06/24/22 14:13	1
Phenol	**1.4**		0.96	0.47	ug/L		06/22/22 11:07	06/24/22 14:13	1
Pyrene	ND		0.18	0.052	ug/L		06/22/22 11:07	06/24/22 14:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*74*		*23 - 128*	*06/22/22 11:07*	*06/24/22 14:13*	*1*
2-Fluorobiphenyl	*60*		*20 - 105*	*06/22/22 11:07*	*06/24/22 14:13*	*1*
2-Fluorophenol (Surr)	*65*		*20 - 105*	*06/22/22 11:07*	*06/24/22 14:13*	*1*
Nitrobenzene-d5 (Surr)	*69*		*20 - 107*	*06/22/22 11:07*	*06/24/22 14:13*	*1*
Phenol-d5 (Surr)	*68*		*20 - 106*	*06/22/22 11:07*	*06/24/22 14:13*	*1*

Client Sample ID: TRW 20% PC T07
Lab Sample ID: 180-136058-16
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*68*		*22 - 120*	*06/22/22 11:07*	*06/24/22 14:13*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3.7**		0.20	0.041	mg/L		06/22/22 13:43	06/27/22 17:51	1
Antimony	**0.071**		0.010	0.0062	mg/L		06/22/22 13:43	06/27/22 17:51	1
Arsenic	ND		0.010	0.0083	mg/L		06/22/22 13:43	06/27/22 17:51	1
Barium	**0.19**	**J**	0.20	0.0063	mg/L		06/22/22 13:43	06/27/22 17:51	1
Beryllium	ND		0.0040	0.0015	mg/L		06/22/22 13:43	06/27/22 17:51	1
Cadmium	ND		0.0050	0.00030	mg/L		06/22/22 13:43	06/27/22 17:51	1
Calcium	**120**		10	0.64	mg/L		06/22/22 13:43	06/28/22 11:12	2
Chromium	ND		0.0050	0.0016	mg/L		06/22/22 13:43	06/27/22 17:51	1
Cobalt	ND		0.050	0.0019	mg/L		06/22/22 13:43	06/27/22 17:51	1
Copper	**0.12**		0.025	0.0022	mg/L		06/22/22 13:43	06/27/22 17:51	1
Iron	**0.15**		0.10	0.072	mg/L		06/22/22 13:43	06/27/22 17:51	1
Lead	ND		0.010	0.0044	mg/L		06/22/22 13:43	06/27/22 17:51	1
Magnesium	ND		5.0	0.26	mg/L		06/22/22 13:43	06/27/22 17:51	1
Manganese	ND		0.015	0.0024	mg/L		06/22/22 13:43	06/27/22 17:51	1
Nickel	**0.031**	**J**	0.040	0.0019	mg/L		06/22/22 13:43	06/27/22 17:51	1
Potassium	**2.2**	**J**	5.0	0.80	mg/L		06/22/22 13:43	06/27/22 17:51	1
Selenium	ND		0.010	0.0037	mg/L		06/22/22 13:43	06/27/22 17:51	1
Silver	ND		0.0050	0.00091	mg/L		06/22/22 13:43	06/27/22 17:51	1
Sodium	**2.6**	**J**	5.0	0.30	mg/L		06/22/22 13:43	06/27/22 17:51	1
Thallium	**0.0065**	**J B**	0.020	0.0030	mg/L		06/22/22 13:43	06/27/22 17:51	1
Vanadium	ND		0.050	0.0053	mg/L		06/22/22 13:43	06/27/22 17:51	1
Zinc	ND		0.020	0.0026	mg/L		06/22/22 13:43	06/27/22 17:51	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/22/22 15:29	06/23/22 10:05	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.7**		0.1	0.1	SU			06/22/22 08:10	1

Client Sample ID: TRW 20% PC T08
Lab Sample ID: 180-136058-17
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	**0.0067**		0.0017	0.00070	ug/L		06/30/22 05:00	07/05/22 15:58	1
4,4'-DDE	ND		0.0017	0.00039	ug/L		06/30/22 05:00	07/01/22 12:05	1
4,4'-DDT	ND		0.0017	0.00091	ug/L		06/30/22 05:00	07/01/22 12:05	1
alpha-BHC	ND		0.0017	0.00031	ug/L		06/30/22 05:00	07/01/22 12:05	1
alpha-Chlordane	ND		0.0017	0.00048	ug/L		06/30/22 05:00	07/01/22 12:05	1
beta-BHC	ND		0.0017	0.00048	ug/L		06/30/22 05:00	07/01/22 12:05	1
delta-BHC	ND		0.0017	0.00084	ug/L		06/30/22 05:00	07/01/22 12:05	1
Dieldrin	ND		0.0017	0.00036	ug/L		06/30/22 05:00	07/01/22 12:05	1
Endrin aldehyde	ND		0.0017	0.00068	ug/L		06/30/22 05:00	07/01/22 12:05	1

Client Sample ID: TRW 20% PC T08
Lab Sample ID: 180-136058-17
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endrin ketone	ND		0.0017	0.00052	ug/L		06/30/22 05:00	07/01/22 12:05	1
gamma-BHC (Lindane)	ND		0.0017	0.00039	ug/L		06/30/22 05:00	07/01/22 12:05	1
gamma-Chlordane	ND		0.0017	0.00054	ug/L		06/30/22 05:00	07/01/22 12:05	1
Heptachlor	ND	*1	0.0017	0.00059	ug/L		06/30/22 05:00	07/01/22 12:05	1
Heptachlor epoxide	ND		0.0017	0.00045	ug/L		06/30/22 05:00	07/01/22 12:05	1
Hexachlorobenzene	**0.0067**		0.0017	0.0012	ug/L		06/30/22 05:00	07/05/22 15:58	1
Toxaphene	ND		0.13	0.065	ug/L		06/30/22 05:00	07/01/22 12:05	1
Endosulfan II	ND		0.0017	0.00042	ug/L		06/30/22 05:00	07/01/22 12:05	1
Methoxychlor	ND		0.0017	0.0010	ug/L		06/30/22 05:00	07/01/22 12:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*79*		*46 - 114*	*06/30/22 05:00*	*07/01/22 12:05*	*1*
DCB Decachlorobiphenyl (Surr)	*92*		*46 - 114*	*06/30/22 05:00*	*07/01/22 12:05*	*1*
DCB Decachlorobiphenyl (Surr)	*96*		*46 - 114*	*06/30/22 05:00*	*07/05/22 15:58*	*1*
DCB Decachlorobiphenyl (Surr)	*102*		*46 - 114*	*06/30/22 05:00*	*07/05/22 15:58*	*1*
Tetrachloro-m-xylene	*0*	*S1-*	*39 - 119*	*06/30/22 05:00*	*07/01/22 12:05*	*1*
Tetrachloro-m-xylene	*0*	*S1-*	*39 - 119*	*06/30/22 05:00*	*07/01/22 12:05*	*1*
Tetrachloro-m-xylene	*0*	*S1-*	*39 - 119*	*06/30/22 05:00*	*07/05/22 15:58*	*1*
Tetrachloro-m-xylene	*0*	*S1-*	*39 - 119*	*06/30/22 05:00*	*07/05/22 15:58*	*1*

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.6**		0.1	0.1	SU			06/29/22 07:49	1

Client Sample ID: TRW 20% PC T09
Lab Sample ID: 180-136058-18
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		50	25	ug/L			07/13/22 14:18	10
1,1,2,2-Tetrachloroethane	ND		50	30	ug/L			07/13/22 14:18	10
1,1,2-Trichloroethane	ND		50	24	ug/L			07/13/22 14:18	10
1,1-Dichloroethane	ND		50	18	ug/L			07/13/22 14:18	10
1,1-Dichloroethene	ND		50	29	ug/L			07/13/22 14:18	10
1,2,4-Trichlorobenzene	ND	*-	50	37	ug/L			07/13/22 14:18	10
1,2-Dibromo-3-Chloropropane	ND		50	31	ug/L			07/13/22 14:18	10
1,2-Dibromoethane	ND		50	27	ug/L			07/13/22 14:18	10
1,2-Dichlorobenzene	ND	*-	50	20	ug/L			07/13/22 14:18	10
1,2-Dichloroethane	ND		50	15	ug/L			07/13/22 14:18	10
1,2-Dichloropropane	ND	*-	50	25	ug/L			07/13/22 14:18	10
1,3-Dichlorobenzene	ND	*-	50	16	ug/L			07/13/22 14:18	10
1,4-Dichlorobenzene	ND	*-	50	10	ug/L			07/13/22 14:18	10
2-Butanone (MEK)	ND		50	29	ug/L			07/13/22 14:18	10
2-Hexanone	ND	*-	50	42	ug/L			07/13/22 14:18	10
Acetone	ND	*-	200	55	ug/L			07/13/22 14:18	10
Benzene	ND		50	20	ug/L			07/13/22 14:18	10
Bromodichloromethane	ND		50	24	ug/L			07/13/22 14:18	10
Bromoform	ND		50	26	ug/L			07/13/22 14:18	10
Carbon disulfide	ND		50	30	ug/L			07/13/22 14:18	10

Client Sample ID: TRW 20% PC T09
Lab Sample ID: 180-136058-18

Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	ND		50	33	ug/L			07/13/22 14:18	10
Chlorobenzene	ND		50	16	ug/L			07/13/22 14:18	10
Chloroethane	ND		50	26	ug/L			07/13/22 14:18	10
Chloroform	**89**		50	21	ug/L			07/13/22 14:18	10
cis-1,2-Dichloroethene	**83**		50	16	ug/L			07/13/22 14:18	10
cis-1,3-Dichloropropene	ND		50	16	ug/L			07/13/22 14:18	10
Dibromochloromethane	ND		50	24	ug/L			07/13/22 14:18	10
Ethylbenzene	ND		50	22	ug/L			07/13/22 14:18	10
Freon-11	ND		50	15	ug/L			07/13/22 14:18	10
Freon-113	ND		50	19	ug/L			07/13/22 14:18	10
Freon-12	ND		50	29	ug/L			07/13/22 14:18	10
Isopropylbenzene (cumene)	ND		50	23	ug/L			07/13/22 14:18	10
Methyl bromide	ND		50	45	ug/L			07/13/22 14:18	10
Methyl chloride	ND		50	39	ug/L			07/13/22 14:18	10
Methyl tert-butyl ether	ND		50	37	ug/L			07/13/22 14:18	10
Methylene Chloride	ND		50	39	ug/L			07/13/22 14:18	10
Styrene	ND		50	13	ug/L			07/13/22 14:18	10
Tetrachloroethene	ND		50	20	ug/L			07/13/22 14:18	10
Toluene	ND		50	17	ug/L			07/13/22 14:18	10
trans-1,2-Dichloroethene	ND		50	25	ug/L			07/13/22 14:18	10
trans-1,3-Dichloropropene	ND		50	17	ug/L			07/13/22 14:18	10
Trichloroethene	ND		50	15	ug/L			07/13/22 14:18	10
Vinyl chloride	ND		50	37	ug/L			07/13/22 14:18	10
Xylenes, Total	ND		100	43	ug/L			07/13/22 14:18	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*60*		*52 - 151*		*07/13/22 14:18*	*10*
4-Bromofluorobenzene (Surr)	*63*		*49 - 118*		*07/13/22 14:18*	*10*
Dibromofluoromethane (Surr)	*112*		*60 - 132*		*07/13/22 14:18*	*10*
Toluene-d8 (Surr)	*74*		*53 - 124*		*07/13/22 14:18*	*10*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**15**		1.0	0.76	mg/L			07/13/22 14:17	1

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**4.5**		0.20	0.041	mg/L		07/21/22 12:31	07/22/22 08:31	1
Antimony	**0.092**		0.010	0.0062	mg/L		07/21/22 12:31	07/22/22 08:31	1
Arsenic	ND		0.010	0.0083	mg/L		07/21/22 12:31	07/22/22 08:31	1
Barium	**0.16**	**J**	0.20	0.0063	mg/L		07/21/22 12:31	07/22/22 08:31	1
Beryllium	ND		0.0040	0.0015	mg/L		07/21/22 12:31	07/22/22 08:31	1
Cadmium	**0.00045**	**J**	0.0050	0.00030	mg/L		07/21/22 12:31	07/22/22 08:31	1
Calcium	**100**		10	0.64	mg/L		07/21/22 12:31	07/22/22 11:05	2
Chromium	ND		0.0050	0.0016	mg/L		07/21/22 12:31	07/22/22 08:31	1
Cobalt	ND		0.050	0.0019	mg/L		07/21/22 12:31	07/22/22 08:31	1
Copper	**0.12**		0.025	0.0022	mg/L		07/21/22 12:31	07/22/22 08:31	1
Iron	**0.098**	**J**	0.10	0.072	mg/L		07/21/22 12:31	07/22/22 08:31	1
Lead	ND		0.010	0.0044	mg/L		07/21/22 12:31	07/22/22 08:31	1
Magnesium	ND		5.0	0.26	mg/L		07/21/22 12:31	07/22/22 08:31	1

Client Sample ID: TRW 20% PC T09
Lab Sample ID: 180-136058-18
Date Collected: 04/26/22 17:10
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 6010D - Metals (ICP) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.015	0.0024	mg/L		07/21/22 12:31	07/22/22 08:31	1
Nickel	**0.025**	**J**	0.040	0.0019	mg/L		07/21/22 12:31	07/22/22 08:31	1
Potassium	**1.7**	**J**	5.0	0.80	mg/L		07/21/22 12:31	07/22/22 08:31	1
Selenium	**0.0043**	**J**	0.010	0.0037	mg/L		07/21/22 12:31	07/22/22 08:31	1
Silver	ND		0.0050	0.00091	mg/L		07/21/22 12:31	07/22/22 08:31	1
Sodium	**1.7**	**J**	5.0	0.30	mg/L		07/21/22 12:31	07/22/22 08:31	1
Thallium	ND		0.020	0.0030	mg/L		07/21/22 12:31	07/22/22 08:31	1
Vanadium	**0.0094**	**J**	0.050	0.0053	mg/L		07/21/22 12:31	07/22/22 08:31	1
Zinc	ND		0.020	0.0026	mg/L		07/21/22 12:31	07/22/22 08:31	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		07/14/22 09:24	07/15/22 11:57	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.6**		0.1	0.1	SU			07/13/22 08:10	1
Specific Conductance	**980**		1.0	1.0	umhos/cm			07/13/22 08:10	1
Oxidation Reduction Potential	**58**		10	10	millivolts			07/13/22 08:10	1

Client Sample ID: TRW 20% PC, 2% AC T05
Lab Sample ID: 180-136058-23
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	**0.0037**		0.0018	0.00072	ug/L		05/26/22 05:30	06/01/22 16:09	1
4,4'-DDE	ND		0.0018	0.00040	ug/L		05/26/22 05:30	06/01/22 16:09	1
4,4'-DDT	ND	*-	0.0018	0.00093	ug/L		05/26/22 05:30	06/01/22 16:09	1
alpha-BHC	ND		0.0018	0.00032	ug/L		05/26/22 05:30	06/01/22 16:09	1
alpha-Chlordane	ND		0.0018	0.00050	ug/L		05/26/22 05:30	06/01/22 16:09	1
beta-BHC	ND		0.0018	0.00049	ug/L		05/26/22 05:30	06/01/22 16:09	1
delta-BHC	ND		0.0018	0.00087	ug/L		05/26/22 05:30	06/01/22 16:09	1
Dieldrin	ND		0.0018	0.00037	ug/L		05/26/22 05:30	06/01/22 16:09	1
Endrin aldehyde	ND		0.0018	0.00070	ug/L		05/26/22 05:30	06/01/22 16:09	1
Endrin ketone	ND		0.0018	0.00053	ug/L		05/26/22 05:30	06/01/22 16:09	1
gamma-BHC (Lindane)	ND		0.0018	0.00040	ug/L		05/26/22 05:30	06/01/22 16:09	1
gamma-Chlordane	ND		0.0018	0.00055	ug/L		05/26/22 05:30	06/01/22 16:09	1
Heptachlor	ND		0.0018	0.00061	ug/L		05/26/22 05:30	06/01/22 16:09	1
Heptachlor epoxide	ND		0.0018	0.00046	ug/L		05/26/22 05:30	06/01/22 16:09	1
Hexachlorobenzene	ND		0.0018	0.0012	ug/L		05/26/22 05:30	06/01/22 16:09	1
Toxaphene	ND		0.14	0.066	ug/L		05/26/22 05:30	06/01/22 16:09	1
Endosulfan II	ND		0.0018	0.00043	ug/L		05/26/22 05:30	06/01/22 16:09	1
Methoxychlor	ND		0.0018	0.0010	ug/L		05/26/22 05:30	06/01/22 16:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*99*		*46 - 114*	*05/26/22 05:30*	*06/01/22 16:09*	*1*
DCB Decachlorobiphenyl (Surr)	*94*		*46 - 114*	*05/26/22 05:30*	*06/01/22 16:09*	*1*
Tetrachloro-m-xylene	*80*		*39 - 119*	*05/26/22 05:30*	*06/01/22 16:09*	*1*
Tetrachloro-m-xylene	*86*		*39 - 119*	*05/26/22 05:30*	*06/01/22 16:09*	*1*

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC T05
Lab Sample ID: 180-136058-23
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	11.8		0.1	0.1	SU			05/25/22 09:06	1

Client Sample ID: TRW 20% PC, 2% AC T06
Lab Sample ID: 180-136058-24
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	*+	5.0	2.5	ug/L			06/11/22 18:09	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			06/11/22 18:09	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			06/11/22 18:09	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			06/11/22 18:09	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			06/11/22 18:09	1
1,2,4-Trichlorobenzene	ND	*- *1	5.0	3.7	ug/L			06/11/22 18:09	1
1,2-Dibromo-3-Chloropropane	ND	*1	5.0	3.1	ug/L			06/11/22 18:09	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			06/11/22 18:09	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			06/11/22 18:09	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			06/11/22 18:09	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			06/11/22 18:09	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			06/11/22 18:09	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			06/11/22 18:09	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			06/11/22 18:09	1
2-Hexanone	ND		5.0	4.2	ug/L			06/11/22 18:09	1
Acetone	28		20	5.5	ug/L			06/11/22 18:09	1
Benzene	ND		5.0	2.0	ug/L			06/11/22 18:09	1
Bromodichloromethane	ND		5.0	2.4	ug/L			06/11/22 18:09	1
Bromoform	ND		5.0	2.6	ug/L			06/11/22 18:09	1
Carbon disulfide	ND		5.0	3.0	ug/L			06/11/22 18:09	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			06/11/22 18:09	1
Chlorobenzene	ND		5.0	1.6	ug/L			06/11/22 18:09	1
Chloroethane	ND		5.0	2.6	ug/L			06/11/22 18:09	1
Chloroform	ND		5.0	2.1	ug/L			06/11/22 18:09	1
cis-1,2-Dichloroethene	13		5.0	1.6	ug/L			06/11/22 18:09	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			06/11/22 18:09	1
Dibromochloromethane	ND		5.0	2.4	ug/L			06/11/22 18:09	1
Ethylbenzene	ND		5.0	2.2	ug/L			06/11/22 18:09	1
Freon-11	ND		5.0	1.5	ug/L			06/11/22 18:09	1
Freon-113	ND		5.0	1.9	ug/L			06/11/22 18:09	1
Freon-12	ND		5.0	2.9	ug/L			06/11/22 18:09	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			06/11/22 18:09	1
Methyl bromide	ND		5.0	4.5	ug/L			06/11/22 18:09	1
Methyl chloride	ND		5.0	3.9	ug/L			06/11/22 18:09	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			06/11/22 18:09	1
Methylene Chloride	5.7		5.0	3.9	ug/L			06/11/22 18:09	1
Styrene	ND		5.0	1.3	ug/L			06/11/22 18:09	1
Tetrachloroethene	ND		5.0	2.0	ug/L			06/11/22 18:09	1
Toluene	ND		5.0	1.7	ug/L			06/11/22 18:09	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			06/11/22 18:09	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			06/11/22 18:09	1
Trichloroethene	ND		5.0	1.5	ug/L			06/11/22 18:09	1

Client Sample ID: TRW 20% PC, 2% AC T06
Lab Sample ID: 180-136058-24
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	7.5		5.0	3.7	ug/L			06/11/22 18:09	1
Xylenes, Total	ND		10	4.3	ug/L			06/11/22 18:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*89*		*52 - 151*		*06/11/22 18:09*	*1*
4-Bromofluorobenzene (Surr)	*69*		*49 - 118*		*06/11/22 18:09*	*1*
Dibromofluoromethane (Surr)	*101*		*60 - 132*		*06/11/22 18:09*	*1*
Toluene-d8 (Surr)	*82*		*53 - 124*		*06/11/22 18:09*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.78	0.11	ug/L		06/13/22 10:10	06/16/22 13:44	1
1,4-Dichlorobenzene	ND		0.78	0.048	ug/L		06/13/22 10:10	06/16/22 13:44	1
2,2'-oxybis[1-chloropropane]	ND		0.15	0.045	ug/L		06/13/22 10:10	06/16/22 13:44	1
2,4-Dichlorophenol	ND		0.15	0.040	ug/L		06/13/22 10:10	06/16/22 13:44	1
2,4-Dimethylphenol	ND		0.78	0.13	ug/L		06/13/22 10:10	06/16/22 13:44	1
2,4-Dinitrophenol	ND		7.8	1.2	ug/L		06/13/22 10:10	06/16/22 13:44	1
2,4-Dinitrotoluene	ND		0.78	0.28	ug/L		06/13/22 10:10	06/16/22 13:44	1
2,6-Dinitrotoluene	ND		0.78	0.14	ug/L		06/13/22 10:10	06/16/22 13:44	1
2-Chloronaphthalene	ND		0.15	0.046	ug/L		06/13/22 10:10	06/16/22 13:44	1
2-Nitroaniline	ND		3.9	0.43	ug/L		06/13/22 10:10	06/16/22 13:44	1
3,3'-Dichlorobenzidine	ND		0.78	0.46	ug/L		06/13/22 10:10	06/16/22 13:44	1
3-Nitroaniline	ND		3.9	0.34	ug/L		06/13/22 10:10	06/16/22 13:44	1
p-Chloroaniline	ND		0.78	0.29	ug/L		06/13/22 10:10	06/16/22 13:44	1
p-Nitroaniline	ND		3.9	0.28	ug/L		06/13/22 10:10	06/16/22 13:44	1
Acenaphthene	ND		0.15	0.051	ug/L		06/13/22 10:10	06/16/22 13:44	1
Anthracene	ND		0.15	0.038	ug/L		06/13/22 10:10	06/16/22 13:44	1
Atrazine	ND		0.78	0.49	ug/L		06/13/22 10:10	06/16/22 13:44	1
Benzo[a]anthracene	ND		0.15	0.059	ug/L		06/13/22 10:10	06/16/22 13:44	1
Benzo[a]pyrene	ND		0.15	0.041	ug/L		06/13/22 10:10	06/16/22 13:44	1
Benzo[b]fluoranthene	ND		0.15	0.076	ug/L		06/13/22 10:10	06/16/22 13:44	1
Benzo[k]fluoranthene	ND		0.15	0.069	ug/L		06/13/22 10:10	06/16/22 13:44	1
Bis(2-chloroethoxy)methane	ND		0.78	0.12	ug/L		06/13/22 10:10	06/16/22 13:44	1
Dichloroethyl ether	ND		0.15	0.031	ug/L		06/13/22 10:10	06/16/22 13:44	1
Bis(2-ethylhexyl) phthalate	ND		7.8	4.9	ug/L		06/13/22 10:10	06/16/22 13:44	1
Benzyl butyl phthalate	ND		0.78	0.36	ug/L		06/13/22 10:10	06/16/22 13:44	1
Chrysene	ND		0.15	0.063	ug/L		06/13/22 10:10	06/16/22 13:44	1
Diethyl phthalate	ND		0.78	0.44	ug/L		06/13/22 10:10	06/16/22 13:44	1
Dimethyl phthalate	ND		0.78	0.16	ug/L		06/13/22 10:10	06/16/22 13:44	1
Dibutylphthalate	ND		0.78	0.58	ug/L		06/13/22 10:10	06/16/22 13:44	1
Di-n-octyl phthalate	ND		0.78	0.54	ug/L		06/13/22 10:10	06/16/22 13:44	1
Fluoranthene	ND		0.15	0.047	ug/L		06/13/22 10:10	06/16/22 13:44	1
Fluorene	ND		0.15	0.054	ug/L		06/13/22 10:10	06/16/22 13:44	1
Hexachlorobutadiene	ND		0.15	0.054	ug/L		06/13/22 10:10	06/16/22 13:44	1
Hexachlorocyclopentadiene	ND		0.78	0.39	ug/L		06/13/22 10:10	06/16/22 13:44	1
Hexachloroethane	ND		0.78	0.10	ug/L		06/13/22 10:10	06/16/22 13:44	1
Indeno[1,2,3-cd]pyrene	ND		0.15	0.066	ug/L		06/13/22 10:10	06/16/22 13:44	1
Isophorone	ND		0.78	0.15	ug/L		06/13/22 10:10	06/16/22 13:44	1
Nitrobenzene	ND		1.6	0.39	ug/L		06/13/22 10:10	06/16/22 13:44	1
N-Nitrosodiphenylamine	ND		0.78	0.093	ug/L		06/13/22 10:10	06/16/22 13:44	1

Client Sample ID: TRW 20% PC, 2% AC T06
Lab Sample ID: 180-136058-24

Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		3.9	0.66	ug/L		06/13/22 10:10	06/16/22 13:44	1
Phenanthrene	ND		0.15	0.043	ug/L		06/13/22 10:10	06/16/22 13:44	1
Phenol	**0.68**	**J**	0.78	0.38	ug/L		06/13/22 10:10	06/16/22 13:44	1
Pyrene	ND		0.15	0.042	ug/L		06/13/22 10:10	06/16/22 13:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*74*		*23 - 128*	*06/13/22 10:10*	*06/16/22 13:44*	*1*
2-Fluorobiphenyl	*64*		*20 - 105*	*06/13/22 10:10*	*06/16/22 13:44*	*1*
2-Fluorophenol (Surr)	*68*		*20 - 105*	*06/13/22 10:10*	*06/16/22 13:44*	*1*
Nitrobenzene-d5 (Surr)	*67*		*20 - 107*	*06/13/22 10:10*	*06/16/22 13:44*	*1*
Phenol-d5 (Surr)	*68*		*20 - 106*	*06/13/22 10:10*	*06/16/22 13:44*	*1*
Terphenyl-d14 (Surr)	*72*		*22 - 120*	*06/13/22 10:10*	*06/16/22 13:44*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**11**		1.0	0.76	mg/L			06/25/22 01:56	1

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3.6**		0.20	0.041	mg/L		06/20/22 13:21	06/24/22 16:04	1
Antimony	**0.082**		0.010	0.0062	mg/L		06/20/22 13:21	06/24/22 16:04	1
Arsenic	ND		0.010	0.0083	mg/L		06/20/22 13:21	06/24/22 16:04	1
Barium	**0.25**		0.20	0.0063	mg/L		06/20/22 13:21	06/24/22 16:04	1
Beryllium	ND		0.0040	0.0015	mg/L		06/20/22 13:21	06/24/22 16:04	1
Cadmium	ND		0.0050	0.00030	mg/L		06/20/22 13:21	06/24/22 16:04	1
Calcium	**130**		10	0.64	mg/L		06/20/22 13:21	06/27/22 10:56	2
Chromium	ND		0.0050	0.0016	mg/L		06/20/22 13:21	06/24/22 16:04	1
Cobalt	ND		0.050	0.0019	mg/L		06/20/22 13:21	06/24/22 16:04	1
Copper	**0.12**		0.025	0.0022	mg/L		06/20/22 13:21	06/24/22 16:04	1
Iron	ND		0.10	0.072	mg/L		06/20/22 13:21	06/24/22 16:04	1
Lead	ND		0.010	0.0044	mg/L		06/20/22 13:21	06/24/22 16:04	1
Magnesium	ND		5.0	0.26	mg/L		06/20/22 13:21	06/24/22 16:04	1
Manganese	ND		0.015	0.0024	mg/L		06/20/22 13:21	06/24/22 16:04	1
Nickel	**0.035**	**J**	0.040	0.0019	mg/L		06/20/22 13:21	06/24/22 16:04	1
Potassium	**3.0**	**J**	5.0	0.80	mg/L		06/20/22 13:21	06/24/22 16:04	1
Selenium	**0.0038**	**J**	0.010	0.0037	mg/L		06/20/22 13:21	06/24/22 16:04	1
Silver	ND		0.0050	0.00091	mg/L		06/20/22 13:21	06/24/22 16:04	1
Sodium	**4.9**	**J**	5.0	0.30	mg/L		06/20/22 13:21	06/24/22 16:04	1
Thallium	ND		0.020	0.0030	mg/L		06/20/22 13:21	06/24/22 16:04	1
Vanadium	ND		0.050	0.0053	mg/L		06/20/22 13:21	06/24/22 16:04	1
Zinc	ND		0.020	0.0026	mg/L		06/20/22 13:21	06/24/22 16:04	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/13/22 09:36	06/13/22 18:00	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.9**		0.1	0.1	SU			06/08/22 08:12	1
Specific Conductance	**1500**		1.0	1.0	umhos/cm			06/08/22 08:12	1
Oxidation Reduction Potential	**- 49**		10	10	millivolts			06/08/22 08:12	1

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC T07
Lab Sample ID: 180-136058-25
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			06/23/22 14:03	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			06/23/22 14:03	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			06/23/22 14:03	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			06/23/22 14:03	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			06/23/22 14:03	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			06/23/22 14:03	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			06/23/22 14:03	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			06/23/22 14:03	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			06/23/22 14:03	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			06/23/22 14:03	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			06/23/22 14:03	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			06/23/22 14:03	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			06/23/22 14:03	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			06/23/22 14:03	1
2-Hexanone	ND		5.0	4.2	ug/L			06/23/22 14:03	1
Acetone	ND		20	5.5	ug/L			06/23/22 14:03	1
Benzene	ND		5.0	2.0	ug/L			06/23/22 14:03	1
Bromodichloromethane	ND		5.0	2.4	ug/L			06/23/22 14:03	1
Bromoform	ND		5.0	2.6	ug/L			06/23/22 14:03	1
Carbon disulfide	ND		5.0	3.0	ug/L			06/23/22 14:03	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			06/23/22 14:03	1
Chlorobenzene	ND		5.0	1.6	ug/L			06/23/22 14:03	1
Chloroethane	ND		5.0	2.6	ug/L			06/23/22 14:03	1
Chloroform	ND		5.0	2.1	ug/L			06/23/22 14:03	1
cis-1,2-Dichloroethene	**9.9**		5.0	1.6	ug/L			06/23/22 14:03	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			06/23/22 14:03	1
Dibromochloromethane	ND		5.0	2.4	ug/L			06/23/22 14:03	1
Ethylbenzene	ND		5.0	2.2	ug/L			06/23/22 14:03	1
Freon-11	ND		5.0	1.5	ug/L			06/23/22 14:03	1
Freon-113	ND		5.0	1.9	ug/L			06/23/22 14:03	1
Freon-12	ND		5.0	2.9	ug/L			06/23/22 14:03	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			06/23/22 14:03	1
Methyl bromide	ND		5.0	4.5	ug/L			06/23/22 14:03	1
Methyl chloride	ND		5.0	3.9	ug/L			06/23/22 14:03	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			06/23/22 14:03	1
Methylene Chloride	**8.9**		5.0	3.9	ug/L			06/23/22 14:03	1
Styrene	ND		5.0	1.3	ug/L			06/23/22 14:03	1
Tetrachloroethene	ND		5.0	2.0	ug/L			06/23/22 14:03	1
Toluene	ND		5.0	1.7	ug/L			06/23/22 14:03	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			06/23/22 14:03	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			06/23/22 14:03	1
Trichloroethene	ND	*+	5.0	1.5	ug/L			06/23/22 14:03	1
Vinyl chloride	**6.1**		5.0	3.7	ug/L			06/23/22 14:03	1
Xylenes, Total	ND		10	4.3	ug/L			06/23/22 14:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*58*		*52 - 151*		*06/23/22 14:03*	*1*
4-Bromofluorobenzene (Surr)	*55*		*49 - 118*		*06/23/22 14:03*	*1*
Dibromofluoromethane (Surr)	*89*		*60 - 132*		*06/23/22 14:03*	*1*
Toluene-d8 (Surr)	*76*		*53 - 124*		*06/23/22 14:03*	*1*

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC T07
Lab Sample ID: 180-136058-25
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.96	0.14	ug/L		06/22/22 11:07	06/24/22 14:34	1
1,4-Dichlorobenzene	ND		0.96	0.059	ug/L		06/22/22 11:07	06/24/22 14:34	1
2,2'-oxybis[1-chloropropane]	ND		0.18	0.056	ug/L		06/22/22 11:07	06/24/22 14:34	1
2,4-Dichlorophenol	ND		0.18	0.049	ug/L		06/22/22 11:07	06/24/22 14:34	1
2,4-Dimethylphenol	ND		0.96	0.16	ug/L		06/22/22 11:07	06/24/22 14:34	1
2,4-Dinitrophenol	ND		9.6	1.5	ug/L		06/22/22 11:07	06/24/22 14:34	1
2,4-Dinitrotoluene	ND		0.96	0.34	ug/L		06/22/22 11:07	06/24/22 14:34	1
2,6-Dinitrotoluene	ND		0.96	0.17	ug/L		06/22/22 11:07	06/24/22 14:34	1
2-Chloronaphthalene	ND		0.18	0.057	ug/L		06/22/22 11:07	06/24/22 14:34	1
2-Nitroaniline	ND		4.8	0.53	ug/L		06/22/22 11:07	06/24/22 14:34	1
3,3'-Dichlorobenzidine	ND		0.96	0.56	ug/L		06/22/22 11:07	06/24/22 14:34	1
3-Nitroaniline	ND		4.8	0.42	ug/L		06/22/22 11:07	06/24/22 14:34	1
p-Chloroaniline	ND		0.96	0.36	ug/L		06/22/22 11:07	06/24/22 14:34	1
p-Nitroaniline	ND		4.8	0.35	ug/L		06/22/22 11:07	06/24/22 14:34	1
Acenaphthene	ND		0.18	0.063	ug/L		06/22/22 11:07	06/24/22 14:34	1
Anthracene	ND		0.18	0.047	ug/L		06/22/22 11:07	06/24/22 14:34	1
Atrazine	ND		0.96	0.61	ug/L		06/22/22 11:07	06/24/22 14:34	1
Benzo[a]anthracene	ND		0.18	0.072	ug/L		06/22/22 11:07	06/24/22 14:34	1
Benzo[a]pyrene	ND		0.18	0.051	ug/L		06/22/22 11:07	06/24/22 14:34	1
Benzo[b]fluoranthene	ND		0.18	0.093	ug/L		06/22/22 11:07	06/24/22 14:34	1
Benzo[k]fluoranthene	ND		0.18	0.085	ug/L		06/22/22 11:07	06/24/22 14:34	1
Bis(2-chloroethoxy)methane	ND		0.96	0.15	ug/L		06/22/22 11:07	06/24/22 14:34	1
Dichloroethyl ether	ND		0.18	0.038	ug/L		06/22/22 11:07	06/24/22 14:34	1
Bis(2-ethylhexyl) phthalate	**8.9**	**J**	9.6	6.0	ug/L		06/22/22 11:07	06/24/22 14:34	1
Benzyl butyl phthalate	**0.47**	**J**	0.96	0.44	ug/L		06/22/22 11:07	06/24/22 14:34	1
Chrysene	ND		0.18	0.078	ug/L		06/22/22 11:07	06/24/22 14:34	1
Diethyl phthalate	ND		0.96	0.55	ug/L		06/22/22 11:07	06/24/22 14:34	1
Dimethyl phthalate	ND		0.96	0.19	ug/L		06/22/22 11:07	06/24/22 14:34	1
Dibutylphthalate	ND		0.96	0.71	ug/L		06/22/22 11:07	06/24/22 14:34	1
Di-n-octyl phthalate	ND		0.96	0.66	ug/L		06/22/22 11:07	06/24/22 14:34	1
Fluoranthene	ND		0.18	0.058	ug/L		06/22/22 11:07	06/24/22 14:34	1
Fluorene	ND		0.18	0.066	ug/L		06/22/22 11:07	06/24/22 14:34	1
Hexachlorobutadiene	ND		0.18	0.066	ug/L		06/22/22 11:07	06/24/22 14:34	1
Hexachlorocyclopentadiene	ND		0.96	0.48	ug/L		06/22/22 11:07	06/24/22 14:34	1
Hexachloroethane	ND		0.96	0.13	ug/L		06/22/22 11:07	06/24/22 14:34	1
Indeno[1,2,3-cd]pyrene	ND		0.18	0.082	ug/L		06/22/22 11:07	06/24/22 14:34	1
Isophorone	ND		0.96	0.18	ug/L		06/22/22 11:07	06/24/22 14:34	1
Nitrobenzene	ND		1.9	0.48	ug/L		06/22/22 11:07	06/24/22 14:34	1
N-Nitrosodiphenylamine	ND		0.96	0.11	ug/L		06/22/22 11:07	06/24/22 14:34	1
Pentachlorophenol	ND		4.8	0.81	ug/L		06/22/22 11:07	06/24/22 14:34	1
Phenanthrene	**0.17**	**J**	0.18	0.053	ug/L		06/22/22 11:07	06/24/22 14:34	1
Phenol	**1.3**		0.96	0.47	ug/L		06/22/22 11:07	06/24/22 14:34	1
Pyrene	ND		0.18	0.052	ug/L		06/22/22 11:07	06/24/22 14:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*83*		*23 - 128*	*06/22/22 11:07*	*06/24/22 14:34*	*1*
2-Fluorobiphenyl	*69*		*20 - 105*	*06/22/22 11:07*	*06/24/22 14:34*	*1*
2-Fluorophenol (Surr)	*70*		*20 - 105*	*06/22/22 11:07*	*06/24/22 14:34*	*1*
Nitrobenzene-d5 (Surr)	*79*		*20 - 107*	*06/22/22 11:07*	*06/24/22 14:34*	*1*
Phenol-d5 (Surr)	*75*		*20 - 106*	*06/22/22 11:07*	*06/24/22 14:34*	*1*

Client Sample ID: TRW 20% PC, 2% AC T07
Lab Sample ID: 180-136058-25
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*92*		*22 - 120*	*06/22/22 11:07*	*06/24/22 14:34*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3.6**		0.20	0.041	mg/L		06/22/22 13:43	06/27/22 17:55	1
Antimony	**0.079**		0.010	0.0062	mg/L		06/22/22 13:43	06/27/22 17:55	1
Arsenic	ND		0.010	0.0083	mg/L		06/22/22 13:43	06/27/22 17:55	1
Barium	**0.19**	**J**	0.20	0.0063	mg/L		06/22/22 13:43	06/27/22 17:55	1
Beryllium	ND		0.0040	0.0015	mg/L		06/22/22 13:43	06/27/22 17:55	1
Cadmium	ND		0.0050	0.00030	mg/L		06/22/22 13:43	06/27/22 17:55	1
Calcium	**120**		10	0.64	mg/L		06/22/22 13:43	06/28/22 11:17	2
Chromium	ND		0.0050	0.0016	mg/L		06/22/22 13:43	06/27/22 17:55	1
Cobalt	ND		0.050	0.0019	mg/L		06/22/22 13:43	06/27/22 17:55	1
Copper	**0.11**		0.025	0.0022	mg/L		06/22/22 13:43	06/27/22 17:55	1
Iron	ND		0.10	0.072	mg/L		06/22/22 13:43	06/27/22 17:55	1
Lead	ND		0.010	0.0044	mg/L		06/22/22 13:43	06/27/22 17:55	1
Magnesium	ND		5.0	0.26	mg/L		06/22/22 13:43	06/27/22 17:55	1
Manganese	ND		0.015	0.0024	mg/L		06/22/22 13:43	06/27/22 17:55	1
Nickel	**0.028**	**J**	0.040	0.0019	mg/L		06/22/22 13:43	06/27/22 17:55	1
Potassium	**2.3**	**J**	5.0	0.80	mg/L		06/22/22 13:43	06/27/22 17:55	1
Selenium	ND		0.010	0.0037	mg/L		06/22/22 13:43	06/27/22 17:55	1
Silver	ND		0.0050	0.00091	mg/L		06/22/22 13:43	06/27/22 17:55	1
Sodium	**3.0**	**J**	5.0	0.30	mg/L		06/22/22 13:43	06/27/22 17:55	1
Thallium	ND		0.020	0.0030	mg/L		06/22/22 13:43	06/27/22 17:55	1
Vanadium	**0.0065**	**J**	0.050	0.0053	mg/L		06/22/22 13:43	06/27/22 17:55	1
Zinc	ND		0.020	0.0026	mg/L		06/22/22 13:43	06/27/22 17:55	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/22/22 15:29	06/23/22 10:06	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.7**		0.1	0.1	SU			06/22/22 08:13	1

Client Sample ID: TRW 20% PC, 2% AC T08
Lab Sample ID: 180-136058-26
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	**0.0035**		0.0017	0.00070	ug/L		06/30/22 05:00	07/05/22 16:13	1
4,4'-DDE	ND		0.0017	0.00039	ug/L		06/30/22 05:00	07/01/22 12:20	1
4,4'-DDT	ND		0.0017	0.00091	ug/L		06/30/22 05:00	07/01/22 12:20	1
alpha-BHC	ND		0.0017	0.00031	ug/L		06/30/22 05:00	07/01/22 12:20	1
alpha-Chlordane	ND		0.0017	0.00048	ug/L		06/30/22 05:00	07/01/22 12:20	1
beta-BHC	ND		0.0017	0.00048	ug/L		06/30/22 05:00	07/01/22 12:20	1
delta-BHC	ND		0.0017	0.00084	ug/L		06/30/22 05:00	07/01/22 12:20	1
Dieldrin	**0.0010**	**J**	0.0017	0.00036	ug/L		06/30/22 05:00	07/01/22 12:20	1
Endrin aldehyde	ND		0.0017	0.00068	ug/L		06/30/22 05:00	07/01/22 12:20	1

Client Sample ID: TRW 20% PC, 2% AC T08
Lab Sample ID: 180-136058-26
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endrin ketone	ND		0.0017	0.00052	ug/L		06/30/22 05:00	07/01/22 12:20	1
gamma-BHC (Lindane)	ND		0.0017	0.00039	ug/L		06/30/22 05:00	07/01/22 12:20	1
gamma-Chlordane	ND		0.0017	0.00054	ug/L		06/30/22 05:00	07/01/22 12:20	1
Heptachlor	ND	*1	0.0017	0.00059	ug/L		06/30/22 05:00	07/01/22 12:20	1
Heptachlor epoxide	ND		0.0017	0.00045	ug/L		06/30/22 05:00	07/01/22 12:20	1
Hexachlorobenzene	**0.0050**		0.0017	0.0012	ug/L		06/30/22 05:00	07/05/22 16:13	1
Toxaphene	ND		0.13	0.065	ug/L		06/30/22 05:00	07/01/22 12:20	1
Endosulfan II	ND		0.0017	0.00042	ug/L		06/30/22 05:00	07/01/22 12:20	1
Methoxychlor	ND		0.0017	0.0010	ug/L		06/30/22 05:00	07/01/22 12:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*78*		*46 - 114*	*06/30/22 05:00*	*07/01/22 12:20*	*1*
DCB Decachlorobiphenyl (Surr)	*89*		*46 - 114*	*06/30/22 05:00*	*07/01/22 12:20*	*1*
DCB Decachlorobiphenyl (Surr)	*109*		*46 - 114*	*06/30/22 05:00*	*07/05/22 16:13*	*1*
DCB Decachlorobiphenyl (Surr)	*122*	*S1+*	*46 - 114*	*06/30/22 05:00*	*07/05/22 16:13*	*1*
Tetrachloro-m-xylene	*60*	*p*	*39 - 119*	*06/30/22 05:00*	*07/01/22 12:20*	*1*
Tetrachloro-m-xylene	*94*		*39 - 119*	*06/30/22 05:00*	*07/01/22 12:20*	*1*
Tetrachloro-m-xylene	*86*		*39 - 119*	*06/30/22 05:00*	*07/05/22 16:13*	*1*
Tetrachloro-m-xylene	*119*		*39 - 119*	*06/30/22 05:00*	*07/05/22 16:13*	*1*

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.6**		0.1	0.1	SU			06/29/22 07:51	1

Client Sample ID: TRW 20% PC, 2% AC T09
Lab Sample ID: 180-136058-27
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			07/13/22 13:52	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			07/13/22 13:52	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			07/13/22 13:52	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			07/13/22 13:52	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			07/13/22 13:52	1
1,2,4-Trichlorobenzene	ND	*-	5.0	3.7	ug/L			07/13/22 13:52	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			07/13/22 13:52	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			07/13/22 13:52	1
1,2-Dichlorobenzene	ND	*-	5.0	2.0	ug/L			07/13/22 13:52	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			07/13/22 13:52	1
1,2-Dichloropropane	ND	*-	5.0	2.5	ug/L			07/13/22 13:52	1
1,3-Dichlorobenzene	ND	*-	5.0	1.6	ug/L			07/13/22 13:52	1
1,4-Dichlorobenzene	ND	*-	5.0	1.0	ug/L			07/13/22 13:52	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			07/13/22 13:52	1
2-Hexanone	ND	*-	5.0	4.2	ug/L			07/13/22 13:52	1
Acetone	ND	*-	20	5.5	ug/L			07/13/22 13:52	1
Benzene	ND		5.0	2.0	ug/L			07/13/22 13:52	1
Bromodichloromethane	ND		5.0	2.4	ug/L			07/13/22 13:52	1
Bromoform	ND		5.0	2.6	ug/L			07/13/22 13:52	1
Carbon disulfide	ND		5.0	3.0	ug/L			07/13/22 13:52	1

Client Sample ID: TRW 20% PC, 2% AC T09
Lab Sample ID: 180-136058-27

Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	ND		5.0	3.3	ug/L			07/13/22 13:52	1
Chlorobenzene	ND		5.0	1.6	ug/L			07/13/22 13:52	1
Chloroethane	ND		5.0	2.6	ug/L			07/13/22 13:52	1
Chloroform	**8.8**		5.0	2.1	ug/L			07/13/22 13:52	1
cis-1,2-Dichloroethene	**12**		5.0	1.6	ug/L			07/13/22 13:52	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			07/13/22 13:52	1
Dibromochloromethane	ND		5.0	2.4	ug/L			07/13/22 13:52	1
Ethylbenzene	ND		5.0	2.2	ug/L			07/13/22 13:52	1
Freon-11	ND		5.0	1.5	ug/L			07/13/22 13:52	1
Freon-113	ND		5.0	1.9	ug/L			07/13/22 13:52	1
Freon-12	ND		5.0	2.9	ug/L			07/13/22 13:52	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			07/13/22 13:52	1
Methyl bromide	ND		5.0	4.5	ug/L			07/13/22 13:52	1
Methyl chloride	ND		5.0	3.9	ug/L			07/13/22 13:52	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			07/13/22 13:52	1
Methylene Chloride	**6.8**		5.0	3.9	ug/L			07/13/22 13:52	1
Styrene	ND		5.0	1.3	ug/L			07/13/22 13:52	1
Tetrachloroethene	ND		5.0	2.0	ug/L			07/13/22 13:52	1
Toluene	ND		5.0	1.7	ug/L			07/13/22 13:52	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			07/13/22 13:52	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			07/13/22 13:52	1
Trichloroethene	ND		5.0	1.5	ug/L			07/13/22 13:52	1
Vinyl chloride	**6.0**		5.0	3.7	ug/L			07/13/22 13:52	1
Xylenes, Total	ND		10	4.3	ug/L			07/13/22 13:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*61*		*52 - 151*		*07/13/22 13:52*	*1*
4-Bromofluorobenzene (Surr)	*67*		*49 - 118*		*07/13/22 13:52*	*1*
Dibromofluoromethane (Surr)	*111*		*60 - 132*		*07/13/22 13:52*	*1*
Toluene-d8 (Surr)	*69*		*53 - 124*		*07/13/22 13:52*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**15**		1.0	0.76	mg/L			07/13/22 14:31	1

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**4.1**		0.20	0.041	mg/L		07/21/22 12:31	07/22/22 08:37	1
Antimony	**0.10**		0.010	0.0062	mg/L		07/21/22 12:31	07/22/22 08:37	1
Arsenic	ND		0.010	0.0083	mg/L		07/21/22 12:31	07/22/22 08:37	1
Barium	**0.16**	**J**	0.20	0.0063	mg/L		07/21/22 12:31	07/22/22 08:37	1
Beryllium	ND		0.0040	0.0015	mg/L		07/21/22 12:31	07/22/22 08:37	1
Cadmium	**0.00044**	**J**	0.0050	0.00030	mg/L		07/21/22 12:31	07/22/22 08:37	1
Calcium	**110**		10	0.64	mg/L		07/21/22 12:31	07/22/22 11:10	2
Chromium	ND		0.0050	0.0016	mg/L		07/21/22 12:31	07/22/22 08:37	1
Cobalt	ND		0.050	0.0019	mg/L		07/21/22 12:31	07/22/22 08:37	1
Copper	**0.11**		0.025	0.0022	mg/L		07/21/22 12:31	07/22/22 08:37	1
Iron	ND		0.10	0.072	mg/L		07/21/22 12:31	07/22/22 08:37	1
Lead	ND		0.010	0.0044	mg/L		07/21/22 12:31	07/22/22 08:37	1
Magnesium	ND		5.0	0.26	mg/L		07/21/22 12:31	07/22/22 08:37	1

Client Sample ID: TRW 20% PC, 2% AC T09
Lab Sample ID: 180-136058-27
Date Collected: 04/26/22 17:20
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 6010D - Metals (ICP) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.015	0.0024	mg/L		07/21/22 12:31	07/22/22 08:37	1
Nickel	**0.023**	**J**	0.040	0.0019	mg/L		07/21/22 12:31	07/22/22 08:37	1
Potassium	**1.7**	**J**	5.0	0.80	mg/L		07/21/22 12:31	07/22/22 08:37	1
Selenium	**0.0041**	**J**	0.010	0.0037	mg/L		07/21/22 12:31	07/22/22 08:37	1
Silver	ND		0.0050	0.00091	mg/L		07/21/22 12:31	07/22/22 08:37	1
Sodium	**1.9**	**J**	5.0	0.30	mg/L		07/21/22 12:31	07/22/22 08:37	1
Thallium	ND		0.020	0.0030	mg/L		07/21/22 12:31	07/22/22 08:37	1
Vanadium	**0.0095**	**J**	0.050	0.0053	mg/L		07/21/22 12:31	07/22/22 08:37	1
Zinc	ND		0.020	0.0026	mg/L		07/21/22 12:31	07/22/22 08:37	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		07/14/22 09:24	07/15/22 11:58	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.6**		0.1	0.1	SU			07/13/22 08:13	1
Specific Conductance	**1000**		1.0	1.0	umhos/cm			07/13/22 08:13	1
Oxidation Reduction Potential	**50**		10	10	millivolts			07/13/22 08:13	1

Client Sample ID: TRW 20% PC, 4% AC T05
Lab Sample ID: 180-136058-32
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	**0.0015**	**J**	0.0016	0.00066	ug/L		05/26/22 05:30	06/01/22 16:25	1
4,4'-DDE	ND		0.0016	0.00036	ug/L		05/26/22 05:30	06/01/22 16:25	1
4,4'-DDT	ND	*-	0.0016	0.00085	ug/L		05/26/22 05:30	06/01/22 16:25	1
alpha-BHC	ND		0.0016	0.00029	ug/L		05/26/22 05:30	06/01/22 16:25	1
alpha-Chlordane	ND		0.0016	0.00045	ug/L		05/26/22 05:30	06/01/22 16:25	1
beta-BHC	ND		0.0016	0.00045	ug/L		05/26/22 05:30	06/01/22 16:25	1
delta-BHC	ND		0.0016	0.00079	ug/L		05/26/22 05:30	06/01/22 16:25	1
Dieldrin	ND		0.0016	0.00034	ug/L		05/26/22 05:30	06/01/22 16:25	1
Endrin aldehyde	ND		0.0016	0.00064	ug/L		05/26/22 05:30	06/01/22 16:25	1
Endrin ketone	ND		0.0016	0.00049	ug/L		05/26/22 05:30	06/01/22 16:25	1
gamma-BHC (Lindane)	ND		0.0016	0.00036	ug/L		05/26/22 05:30	06/01/22 16:25	1
gamma-Chlordane	ND		0.0016	0.00050	ug/L		05/26/22 05:30	06/01/22 16:25	1
Heptachlor	ND		0.0016	0.00056	ug/L		05/26/22 05:30	06/01/22 16:25	1
Heptachlor epoxide	ND		0.0016	0.00042	ug/L		05/26/22 05:30	06/01/22 16:25	1
Hexachlorobenzene	ND		0.0016	0.0011	ug/L		05/26/22 05:30	06/01/22 16:25	1
Toxaphene	ND		0.12	0.061	ug/L		05/26/22 05:30	06/01/22 16:25	1
Endosulfan II	ND		0.0016	0.00039	ug/L		05/26/22 05:30	06/01/22 16:25	1
Methoxychlor	ND		0.0016	0.00096	ug/L		05/26/22 05:30	06/01/22 16:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*98*		*46 - 114*	*05/26/22 05:30*	*06/01/22 16:25*	*1*
DCB Decachlorobiphenyl (Surr)	*93*		*46 - 114*	*05/26/22 05:30*	*06/01/22 16:25*	*1*
Tetrachloro-m-xylene	*88*		*39 - 119*	*05/26/22 05:30*	*06/01/22 16:25*	*1*
Tetrachloro-m-xylene	*88*		*39 - 119*	*05/26/22 05:30*	*06/01/22 16:25*	*1*

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 4% AC T05
Lab Sample ID: 180-136058-32
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.9**		0.1	0.1	SU			05/25/22 09:09	1

Client Sample ID: TRW 20% PC, 4% AC T06
Lab Sample ID: 180-136058-33
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	*+	5.0	2.5	ug/L			06/11/22 17:42	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			06/11/22 17:42	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			06/11/22 17:42	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			06/11/22 17:42	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			06/11/22 17:42	1
1,2,4-Trichlorobenzene	ND	*- *1	5.0	3.7	ug/L			06/11/22 17:42	1
1,2-Dibromo-3-Chloropropane	ND	*1	5.0	3.1	ug/L			06/11/22 17:42	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			06/11/22 17:42	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			06/11/22 17:42	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			06/11/22 17:42	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			06/11/22 17:42	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			06/11/22 17:42	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			06/11/22 17:42	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			06/11/22 17:42	1
2-Hexanone	ND		5.0	4.2	ug/L			06/11/22 17:42	1
Acetone	ND		20	5.5	ug/L			06/11/22 17:42	1
Benzene	ND		5.0	2.0	ug/L			06/11/22 17:42	1
Bromodichloromethane	ND		5.0	2.4	ug/L			06/11/22 17:42	1
Bromoform	ND		5.0	2.6	ug/L			06/11/22 17:42	1
Carbon disulfide	ND		5.0	3.0	ug/L			06/11/22 17:42	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			06/11/22 17:42	1
Chlorobenzene	ND		5.0	1.6	ug/L			06/11/22 17:42	1
Chloroethane	ND		5.0	2.6	ug/L			06/11/22 17:42	1
Chloroform	ND		5.0	2.1	ug/L			06/11/22 17:42	1
cis-1,2-Dichloroethene	**2.0**	**J**	5.0	1.6	ug/L			06/11/22 17:42	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			06/11/22 17:42	1
Dibromochloromethane	ND		5.0	2.4	ug/L			06/11/22 17:42	1
Ethylbenzene	ND		5.0	2.2	ug/L			06/11/22 17:42	1
Freon-11	ND		5.0	1.5	ug/L			06/11/22 17:42	1
Freon-113	ND		5.0	1.9	ug/L			06/11/22 17:42	1
Freon-12	ND		5.0	2.9	ug/L			06/11/22 17:42	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			06/11/22 17:42	1
Methyl bromide	ND		5.0	4.5	ug/L			06/11/22 17:42	1
Methyl chloride	ND		5.0	3.9	ug/L			06/11/22 17:42	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			06/11/22 17:42	1
Methylene Chloride	ND		5.0	3.9	ug/L			06/11/22 17:42	1
Styrene	ND		5.0	1.3	ug/L			06/11/22 17:42	1
Tetrachloroethene	ND		5.0	2.0	ug/L			06/11/22 17:42	1
Toluene	ND		5.0	1.7	ug/L			06/11/22 17:42	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			06/11/22 17:42	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			06/11/22 17:42	1
Trichloroethene	ND		5.0	1.5	ug/L			06/11/22 17:42	1

Client Sample ID: TRW 20% PC, 4% AC T06
Lab Sample ID: 180-136058-33
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0	3.7	ug/L			06/11/22 17:42	1
Xylenes, Total	ND		10	4.3	ug/L			06/11/22 17:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*52 - 151*		*06/11/22 17:42*	*1*
4-Bromofluorobenzene (Surr)	*77*		*49 - 118*		*06/11/22 17:42*	*1*
Dibromofluoromethane (Surr)	*103*		*60 - 132*		*06/11/22 17:42*	*1*
Toluene-d8 (Surr)	*77*		*53 - 124*		*06/11/22 17:42*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.78	0.11	ug/L		06/13/22 10:10	06/16/22 14:06	1
1,4-Dichlorobenzene	ND		0.78	0.048	ug/L		06/13/22 10:10	06/16/22 14:06	1
2,2'-oxybis[1-chloropropane]	ND		0.15	0.045	ug/L		06/13/22 10:10	06/16/22 14:06	1
2,4-Dichlorophenol	ND		0.15	0.040	ug/L		06/13/22 10:10	06/16/22 14:06	1
2,4-Dimethylphenol	ND		0.78	0.13	ug/L		06/13/22 10:10	06/16/22 14:06	1
2,4-Dinitrophenol	ND		7.8	1.2	ug/L		06/13/22 10:10	06/16/22 14:06	1
2,4-Dinitrotoluene	ND		0.78	0.28	ug/L		06/13/22 10:10	06/16/22 14:06	1
2,6-Dinitrotoluene	ND		0.78	0.14	ug/L		06/13/22 10:10	06/16/22 14:06	1
2-Chloronaphthalene	**0.083**	**J**	0.15	0.046	ug/L		06/13/22 10:10	06/16/22 14:06	1
2-Nitroaniline	ND		3.9	0.43	ug/L		06/13/22 10:10	06/16/22 14:06	1
3,3'-Dichlorobenzidine	ND		0.78	0.46	ug/L		06/13/22 10:10	06/16/22 14:06	1
3-Nitroaniline	ND		3.9	0.34	ug/L		06/13/22 10:10	06/16/22 14:06	1
p-Chloroaniline	ND		0.78	0.29	ug/L		06/13/22 10:10	06/16/22 14:06	1
p-Nitroaniline	ND		3.9	0.28	ug/L		06/13/22 10:10	06/16/22 14:06	1
Acenaphthene	**0.066**	**J**	0.15	0.051	ug/L		06/13/22 10:10	06/16/22 14:06	1
Anthracene	ND		0.15	0.038	ug/L		06/13/22 10:10	06/16/22 14:06	1
Atrazine	ND		0.78	0.49	ug/L		06/13/22 10:10	06/16/22 14:06	1
Benzo[a]anthracene	ND		0.15	0.059	ug/L		06/13/22 10:10	06/16/22 14:06	1
Benzo[a]pyrene	ND		0.15	0.041	ug/L		06/13/22 10:10	06/16/22 14:06	1
Benzo[b]fluoranthene	ND		0.15	0.076	ug/L		06/13/22 10:10	06/16/22 14:06	1
Benzo[k]fluoranthene	ND		0.15	0.069	ug/L		06/13/22 10:10	06/16/22 14:06	1
Bis(2-chloroethoxy)methane	ND		0.78	0.12	ug/L		06/13/22 10:10	06/16/22 14:06	1
Dichloroethyl ether	ND		0.15	0.031	ug/L		06/13/22 10:10	06/16/22 14:06	1
Bis(2-ethylhexyl) phthalate	ND		7.8	4.9	ug/L		06/13/22 10:10	06/16/22 14:06	1
Benzyl butyl phthalate	ND		0.78	0.36	ug/L		06/13/22 10:10	06/16/22 14:06	1
Chrysene	ND		0.15	0.063	ug/L		06/13/22 10:10	06/16/22 14:06	1
Diethyl phthalate	ND		0.78	0.44	ug/L		06/13/22 10:10	06/16/22 14:06	1
Dimethyl phthalate	ND		0.78	0.16	ug/L		06/13/22 10:10	06/16/22 14:06	1
Dibutylphthalate	ND		0.78	0.58	ug/L		06/13/22 10:10	06/16/22 14:06	1
Di-n-octyl phthalate	ND		0.78	0.54	ug/L		06/13/22 10:10	06/16/22 14:06	1
Fluoranthene	ND		0.15	0.047	ug/L		06/13/22 10:10	06/16/22 14:06	1
Fluorene	ND		0.15	0.054	ug/L		06/13/22 10:10	06/16/22 14:06	1
Hexachlorobutadiene	ND		0.15	0.054	ug/L		06/13/22 10:10	06/16/22 14:06	1
Hexachlorocyclopentadiene	ND		0.78	0.39	ug/L		06/13/22 10:10	06/16/22 14:06	1
Hexachloroethane	ND		0.78	0.10	ug/L		06/13/22 10:10	06/16/22 14:06	1
Indeno[1,2,3-cd]pyrene	ND		0.15	0.066	ug/L		06/13/22 10:10	06/16/22 14:06	1
Isophorone	ND		0.78	0.15	ug/L		06/13/22 10:10	06/16/22 14:06	1
Nitrobenzene	ND		1.6	0.39	ug/L		06/13/22 10:10	06/16/22 14:06	1
N-Nitrosodiphenylamine	ND		0.78	0.093	ug/L		06/13/22 10:10	06/16/22 14:06	1

Client Sample ID: TRW 20% PC, 4% AC T06
Lab Sample ID: 180-136058-33

Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		3.9	0.66	ug/L		06/13/22 10:10	06/16/22 14:06	1
Phenanthrene	**0.081**	**J**	0.15	0.043	ug/L		06/13/22 10:10	06/16/22 14:06	1
Phenol	ND		0.78	0.38	ug/L		06/13/22 10:10	06/16/22 14:06	1
Pyrene	ND		0.15	0.042	ug/L		06/13/22 10:10	06/16/22 14:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*64*		*23 - 128*	*06/13/22 10:10*	*06/16/22 14:06*	*1*
2-Fluorobiphenyl	*71*		*20 - 105*	*06/13/22 10:10*	*06/16/22 14:06*	*1*
2-Fluorophenol (Surr)	*67*		*20 - 105*	*06/13/22 10:10*	*06/16/22 14:06*	*1*
Nitrobenzene-d5 (Surr)	*68*		*20 - 107*	*06/13/22 10:10*	*06/16/22 14:06*	*1*
Phenol-d5 (Surr)	*66*		*20 - 106*	*06/13/22 10:10*	*06/16/22 14:06*	*1*
Terphenyl-d14 (Surr)	*67*		*22 - 120*	*06/13/22 10:10*	*06/16/22 14:06*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**10**		1.0	0.76	mg/L			06/28/22 00:14	1

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3.7**		0.20	0.041	mg/L		06/20/22 13:21	06/24/22 16:09	1
Antimony	**0.078**		0.010	0.0062	mg/L		06/20/22 13:21	06/24/22 16:09	1
Arsenic	ND		0.010	0.0083	mg/L		06/20/22 13:21	06/24/22 16:09	1
Barium	**0.28**		0.20	0.0063	mg/L		06/20/22 13:21	06/24/22 16:09	1
Beryllium	ND		0.0040	0.0015	mg/L		06/20/22 13:21	06/24/22 16:09	1
Cadmium	ND		0.0050	0.00030	mg/L		06/20/22 13:21	06/24/22 16:09	1
Calcium	**150**		10	0.64	mg/L		06/20/22 13:21	06/27/22 11:01	2
Chromium	ND		0.0050	0.0016	mg/L		06/20/22 13:21	06/24/22 16:09	1
Cobalt	ND		0.050	0.0019	mg/L		06/20/22 13:21	06/24/22 16:09	1
Copper	**0.082**		0.025	0.0022	mg/L		06/20/22 13:21	06/24/22 16:09	1
Iron	**0.090**	**J**	0.10	0.072	mg/L		06/20/22 13:21	06/24/22 16:09	1
Lead	ND		0.010	0.0044	mg/L		06/20/22 13:21	06/24/22 16:09	1
Magnesium	ND		5.0	0.26	mg/L		06/20/22 13:21	06/24/22 16:09	1
Manganese	ND		0.015	0.0024	mg/L		06/20/22 13:21	06/24/22 16:09	1
Nickel	**0.016**	**J**	0.040	0.0019	mg/L		06/20/22 13:21	06/24/22 16:09	1
Potassium	**3.0**	**J**	5.0	0.80	mg/L		06/20/22 13:21	06/24/22 16:09	1
Selenium	ND		0.010	0.0037	mg/L		06/20/22 13:21	06/24/22 16:09	1
Silver	ND		0.0050	0.00091	mg/L		06/20/22 13:21	06/24/22 16:09	1
Sodium	**4.6**	**J**	5.0	0.30	mg/L		06/20/22 13:21	06/24/22 16:09	1
Thallium	ND		0.020	0.0030	mg/L		06/20/22 13:21	06/24/22 16:09	1
Vanadium	**0.0095**	**J**	0.050	0.0053	mg/L		06/20/22 13:21	06/24/22 16:09	1
Zinc	**0.0026**	**J**	0.020	0.0026	mg/L		06/20/22 13:21	06/24/22 16:09	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/13/22 09:36	06/13/22 18:01	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.9**		0.1	0.1	SU			06/08/22 08:16	1
Specific Conductance	**1600**		1.0	1.0	umhos/cm			06/08/22 08:16	1
Oxidation Reduction Potential	**- 38**		10	10	millivolts			06/08/22 08:16	1

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 4% AC T07
Lab Sample ID: 180-136058-34
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	F1	5.0	2.5	ug/L			06/23/22 13:37	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			06/23/22 13:37	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			06/23/22 13:37	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			06/23/22 13:37	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			06/23/22 13:37	1
1,2,4-Trichlorobenzene	ND	F2	5.0	3.7	ug/L			06/23/22 13:37	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			06/23/22 13:37	1
1,2-Dibromoethane	ND	F1	5.0	2.7	ug/L			06/23/22 13:37	1
1,2-Dichlorobenzene	ND	F1	5.0	2.0	ug/L			06/23/22 13:37	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			06/23/22 13:37	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			06/23/22 13:37	1
1,3-Dichlorobenzene	ND	F1	5.0	1.6	ug/L			06/23/22 13:37	1
1,4-Dichlorobenzene	ND	F1	5.0	1.0	ug/L			06/23/22 13:37	1
2-Butanone (MEK)	ND	F1 F2	5.0	2.9	ug/L			06/23/22 13:37	1
2-Hexanone	ND		5.0	4.2	ug/L			06/23/22 13:37	1
Acetone	ND	F1	20	5.5	ug/L			06/23/22 13:37	1
Benzene	ND	F1	5.0	2.0	ug/L			06/23/22 13:37	1
Bromodichloromethane	ND	F1	5.0	2.4	ug/L			06/23/22 13:37	1
Bromoform	ND		5.0	2.6	ug/L			06/23/22 13:37	1
Carbon disulfide	ND		5.0	3.0	ug/L			06/23/22 13:37	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			06/23/22 13:37	1
Chlorobenzene	ND	F1	5.0	1.6	ug/L			06/23/22 13:37	1
Chloroethane	ND		5.0	2.6	ug/L			06/23/22 13:37	1
Chloroform	ND	F1	5.0	2.1	ug/L			06/23/22 13:37	1
cis-1,2-Dichloroethene	**2.2**	**J F1**	5.0	1.6	ug/L			06/23/22 13:37	1
cis-1,3-Dichloropropene	ND	F1	5.0	1.6	ug/L			06/23/22 13:37	1
Dibromochloromethane	ND	F1	5.0	2.4	ug/L			06/23/22 13:37	1
Ethylbenzene	ND	F1	5.0	2.2	ug/L			06/23/22 13:37	1
Freon-11	ND		5.0	1.5	ug/L			06/23/22 13:37	1
Freon-113	ND		5.0	1.9	ug/L			06/23/22 13:37	1
Freon-12	ND		5.0	2.9	ug/L			06/23/22 13:37	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			06/23/22 13:37	1
Methyl bromide	ND		5.0	4.5	ug/L			06/23/22 13:37	1
Methyl chloride	ND		5.0	3.9	ug/L			06/23/22 13:37	1
Methyl tert-butyl ether	ND	F1	5.0	3.7	ug/L			06/23/22 13:37	1
Methylene Chloride	**5.6**		5.0	3.9	ug/L			06/23/22 13:37	1
Styrene	ND	F1	5.0	1.3	ug/L			06/23/22 13:37	1
Tetrachloroethene	ND	F1	5.0	2.0	ug/L			06/23/22 13:37	1
Toluene	ND	F1	5.0	1.7	ug/L			06/23/22 13:37	1
trans-1,2-Dichloroethene	ND	F1	5.0	2.5	ug/L			06/23/22 13:37	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			06/23/22 13:37	1
Trichloroethene	ND	*+ F1	5.0	1.5	ug/L			06/23/22 13:37	1
Vinyl chloride	ND		5.0	3.7	ug/L			06/23/22 13:37	1
Xylenes, Total	ND	F1	10	4.3	ug/L			06/23/22 13:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*54*		*52 - 151*		*06/23/22 13:37*	*1*
4-Bromofluorobenzene (Surr)	*57*		*49 - 118*		*06/23/22 13:37*	*1*
Dibromofluoromethane (Surr)	*96*		*60 - 132*		*06/23/22 13:37*	*1*
Toluene-d8 (Surr)	*77*		*53 - 124*		*06/23/22 13:37*	*1*

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 4% AC T07
Lab Sample ID: 180-136058-34
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.96	0.14	ug/L		06/22/22 11:07	06/24/22 14:56	1
1,4-Dichlorobenzene	ND		0.96	0.059	ug/L		06/22/22 11:07	06/24/22 14:56	1
2,2'-oxybis[1-chloropropane]	ND		0.18	0.056	ug/L		06/22/22 11:07	06/24/22 14:56	1
2,4-Dichlorophenol	ND		0.18	0.049	ug/L		06/22/22 11:07	06/24/22 14:56	1
2,4-Dimethylphenol	ND		0.96	0.16	ug/L		06/22/22 11:07	06/24/22 14:56	1
2,4-Dinitrophenol	ND		9.6	1.5	ug/L		06/22/22 11:07	06/24/22 14:56	1
2,4-Dinitrotoluene	ND		0.96	0.34	ug/L		06/22/22 11:07	06/24/22 14:56	1
2,6-Dinitrotoluene	ND		0.96	0.17	ug/L		06/22/22 11:07	06/24/22 14:56	1
2-Chloronaphthalene	ND		0.18	0.057	ug/L		06/22/22 11:07	06/24/22 14:56	1
2-Nitroaniline	ND		4.8	0.53	ug/L		06/22/22 11:07	06/24/22 14:56	1
3,3'-Dichlorobenzidine	ND		0.96	0.56	ug/L		06/22/22 11:07	06/24/22 14:56	1
3-Nitroaniline	ND		4.8	0.42	ug/L		06/22/22 11:07	06/24/22 14:56	1
p-Chloroaniline	ND		0.96	0.36	ug/L		06/22/22 11:07	06/24/22 14:56	1
p-Nitroaniline	ND		4.8	0.35	ug/L		06/22/22 11:07	06/24/22 14:56	1
Acenaphthene	ND		0.18	0.063	ug/L		06/22/22 11:07	06/24/22 14:56	1
Anthracene	ND		0.18	0.047	ug/L		06/22/22 11:07	06/24/22 14:56	1
Atrazine	ND		0.96	0.61	ug/L		06/22/22 11:07	06/24/22 14:56	1
Benzo[a]anthracene	ND		0.18	0.072	ug/L		06/22/22 11:07	06/24/22 14:56	1
Benzo[a]pyrene	ND		0.18	0.051	ug/L		06/22/22 11:07	06/24/22 14:56	1
Benzo[b]fluoranthene	ND		0.18	0.093	ug/L		06/22/22 11:07	06/24/22 14:56	1
Benzo[k]fluoranthene	ND		0.18	0.085	ug/L		06/22/22 11:07	06/24/22 14:56	1
Bis(2-chloroethoxy)methane	ND		0.96	0.15	ug/L		06/22/22 11:07	06/24/22 14:56	1
Dichloroethyl ether	ND		0.18	0.038	ug/L		06/22/22 11:07	06/24/22 14:56	1
Bis(2-ethylhexyl) phthalate	**6.1**	**J**	9.6	6.0	ug/L		06/22/22 11:07	06/24/22 14:56	1
Benzyl butyl phthalate	ND		0.96	0.44	ug/L		06/22/22 11:07	06/24/22 14:56	1
Chrysene	ND		0.18	0.078	ug/L		06/22/22 11:07	06/24/22 14:56	1
Diethyl phthalate	ND		0.96	0.55	ug/L		06/22/22 11:07	06/24/22 14:56	1
Dimethyl phthalate	ND		0.96	0.19	ug/L		06/22/22 11:07	06/24/22 14:56	1
Dibutylphthalate	ND		0.96	0.71	ug/L		06/22/22 11:07	06/24/22 14:56	1
Di-n-octyl phthalate	ND		0.96	0.66	ug/L		06/22/22 11:07	06/24/22 14:56	1
Fluoranthene	ND		0.18	0.058	ug/L		06/22/22 11:07	06/24/22 14:56	1
Fluorene	ND		0.18	0.066	ug/L		06/22/22 11:07	06/24/22 14:56	1
Hexachlorobutadiene	ND		0.18	0.066	ug/L		06/22/22 11:07	06/24/22 14:56	1
Hexachlorocyclopentadiene	ND		0.96	0.48	ug/L		06/22/22 11:07	06/24/22 14:56	1
Hexachloroethane	ND		0.96	0.13	ug/L		06/22/22 11:07	06/24/22 14:56	1
Indeno[1,2,3-cd]pyrene	ND		0.18	0.082	ug/L		06/22/22 11:07	06/24/22 14:56	1
Isophorone	ND		0.96	0.18	ug/L		06/22/22 11:07	06/24/22 14:56	1
Nitrobenzene	ND		1.9	0.48	ug/L		06/22/22 11:07	06/24/22 14:56	1
N-Nitrosodiphenylamine	ND		0.96	0.11	ug/L		06/22/22 11:07	06/24/22 14:56	1
Pentachlorophenol	ND		4.8	0.81	ug/L		06/22/22 11:07	06/24/22 14:56	1
Phenanthrene	**0.13**	**J**	0.18	0.053	ug/L		06/22/22 11:07	06/24/22 14:56	1
Phenol	ND		0.96	0.47	ug/L		06/22/22 11:07	06/24/22 14:56	1
Pyrene	ND		0.18	0.052	ug/L		06/22/22 11:07	06/24/22 14:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*71*		*23 - 128*	*06/22/22 11:07*	*06/24/22 14:56*	*1*
2-Fluorobiphenyl	*62*		*20 - 105*	*06/22/22 11:07*	*06/24/22 14:56*	*1*
2-Fluorophenol (Surr)	*62*		*20 - 105*	*06/22/22 11:07*	*06/24/22 14:56*	*1*
Nitrobenzene-d5 (Surr)	*71*		*20 - 107*	*06/22/22 11:07*	*06/24/22 14:56*	*1*
Phenol-d5 (Surr)	*63*		*20 - 106*	*06/22/22 11:07*	*06/24/22 14:56*	*1*

Client Sample ID: TRW 20% PC, 4% AC T07
Lab Sample ID: 180-136058-34
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	*70*		*22 - 120*	*06/22/22 11:07*	*06/24/22 14:56*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3.7**		0.20	0.041	mg/L		06/22/22 13:43	06/27/22 18:00	1
Antimony	**0.077**		0.010	0.0062	mg/L		06/22/22 13:43	06/27/22 18:00	1
Arsenic	ND		0.010	0.0083	mg/L		06/22/22 13:43	06/27/22 18:00	1
Barium	**0.21**		0.20	0.0063	mg/L		06/22/22 13:43	06/27/22 18:00	1
Beryllium	ND		0.0040	0.0015	mg/L		06/22/22 13:43	06/27/22 18:00	1
Cadmium	ND		0.0050	0.00030	mg/L		06/22/22 13:43	06/27/22 18:00	1
Calcium	**130**		10	0.64	mg/L		06/22/22 13:43	06/28/22 11:22	2
Chromium	ND		0.0050	0.0016	mg/L		06/22/22 13:43	06/27/22 18:00	1
Cobalt	ND		0.050	0.0019	mg/L		06/22/22 13:43	06/27/22 18:00	1
Copper	**0.080**		0.025	0.0022	mg/L		06/22/22 13:43	06/27/22 18:00	1
Iron	ND		0.10	0.072	mg/L		06/22/22 13:43	06/27/22 18:00	1
Lead	ND		0.010	0.0044	mg/L		06/22/22 13:43	06/27/22 18:00	1
Magnesium	ND		5.0	0.26	mg/L		06/22/22 13:43	06/27/22 18:00	1
Manganese	ND		0.015	0.0024	mg/L		06/22/22 13:43	06/27/22 18:00	1
Nickel	**0.014**	**J**	0.040	0.0019	mg/L		06/22/22 13:43	06/27/22 18:00	1
Potassium	**2.3**	**J**	5.0	0.80	mg/L		06/22/22 13:43	06/27/22 18:00	1
Selenium	ND		0.010	0.0037	mg/L		06/22/22 13:43	06/27/22 18:00	1
Silver	ND		0.0050	0.00091	mg/L		06/22/22 13:43	06/27/22 18:00	1
Sodium	**3.0**	**J**	5.0	0.30	mg/L		06/22/22 13:43	06/27/22 18:00	1
Thallium	ND		0.020	0.0030	mg/L		06/22/22 13:43	06/27/22 18:00	1
Vanadium	ND		0.050	0.0053	mg/L		06/22/22 13:43	06/27/22 18:00	1
Zinc	ND		0.020	0.0026	mg/L		06/22/22 13:43	06/27/22 18:00	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/22/22 15:29	06/23/22 10:07	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.7**		0.1	0.1	SU			06/22/22 08:16	1

Client Sample ID: TRW 20% PC, 4% AC T08
Lab Sample ID: 180-136058-35
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.0017	0.00070	ug/L		06/30/22 05:00	07/01/22 12:36	1
4,4'-DDE	ND		0.0017	0.00039	ug/L		06/30/22 05:00	07/01/22 12:36	1
4,4'-DDT	ND		0.0017	0.00091	ug/L		06/30/22 05:00	07/01/22 12:36	1
alpha-BHC	ND		0.0017	0.00031	ug/L		06/30/22 05:00	07/01/22 12:36	1
alpha-Chlordane	ND		0.0017	0.00048	ug/L		06/30/22 05:00	07/01/22 12:36	1
beta-BHC	ND		0.0017	0.00048	ug/L		06/30/22 05:00	07/01/22 12:36	1
delta-BHC	ND		0.0017	0.00084	ug/L		06/30/22 05:00	07/01/22 12:36	1
Dieldrin	ND		0.0017	0.00036	ug/L		06/30/22 05:00	07/01/22 12:36	1
Endrin aldehyde	ND		0.0017	0.00068	ug/L		06/30/22 05:00	07/01/22 12:36	1

Client Sample ID: TRW 20% PC, 4% AC T08
Lab Sample ID: 180-136058-35
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endrin ketone	ND		0.0017	0.00052	ug/L		06/30/22 05:00	07/01/22 12:36	1
gamma-BHC (Lindane)	ND		0.0017	0.00039	ug/L		06/30/22 05:00	07/01/22 12:36	1
gamma-Chlordane	ND		0.0017	0.00054	ug/L		06/30/22 05:00	07/01/22 12:36	1
Heptachlor	ND	*1	0.0017	0.00059	ug/L		06/30/22 05:00	07/01/22 12:36	1
Heptachlor epoxide	ND		0.0017	0.00045	ug/L		06/30/22 05:00	07/01/22 12:36	1
Hexachlorobenzene	ND		0.0017	0.0012	ug/L		06/30/22 05:00	07/01/22 12:36	1
Toxaphene	ND		0.13	0.065	ug/L		06/30/22 05:00	07/01/22 12:36	1
Endosulfan II	ND		0.0017	0.00042	ug/L		06/30/22 05:00	07/01/22 12:36	1
Methoxychlor	ND		0.0017	0.0010	ug/L		06/30/22 05:00	07/01/22 12:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*83*		*46 - 114*	*06/30/22 05:00*	*07/01/22 12:36*	*1*
DCB Decachlorobiphenyl (Surr)	*93*		*46 - 114*	*06/30/22 05:00*	*07/01/22 12:36*	*1*
Tetrachloro-m-xylene	*61*		*39 - 119*	*06/30/22 05:00*	*07/01/22 12:36*	*1*
Tetrachloro-m-xylene	*80*		*39 - 119*	*06/30/22 05:00*	*07/01/22 12:36*	*1*

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.6**		0.1	0.1	SU			06/29/22 07:53	1

Client Sample ID: TRW 20% PC, 4% AC T09
Lab Sample ID: 180-136058-36
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			07/13/22 13:27	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			07/13/22 13:27	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			07/13/22 13:27	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			07/13/22 13:27	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			07/13/22 13:27	1
1,2,4-Trichlorobenzene	ND	*-	5.0	3.7	ug/L			07/13/22 13:27	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			07/13/22 13:27	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			07/13/22 13:27	1
1,2-Dichlorobenzene	ND	*-	5.0	2.0	ug/L			07/13/22 13:27	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			07/13/22 13:27	1
1,2-Dichloropropane	ND	*-	5.0	2.5	ug/L			07/13/22 13:27	1
1,3-Dichlorobenzene	ND	*-	5.0	1.6	ug/L			07/13/22 13:27	1
1,4-Dichlorobenzene	ND	*-	5.0	1.0	ug/L			07/13/22 13:27	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			07/13/22 13:27	1
2-Hexanone	ND	*-	5.0	4.2	ug/L			07/13/22 13:27	1
Acetone	ND	*-	20	5.5	ug/L			07/13/22 13:27	1
Benzene	ND		5.0	2.0	ug/L			07/13/22 13:27	1
Bromodichloromethane	ND		5.0	2.4	ug/L			07/13/22 13:27	1
Bromoform	ND		5.0	2.6	ug/L			07/13/22 13:27	1
Carbon disulfide	ND		5.0	3.0	ug/L			07/13/22 13:27	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			07/13/22 13:27	1
Chlorobenzene	ND		5.0	1.6	ug/L			07/13/22 13:27	1
Chloroethane	ND		5.0	2.6	ug/L			07/13/22 13:27	1
Chloroform	**8.5**		5.0	2.1	ug/L			07/13/22 13:27	1

Client Sample ID: TRW 20% PC, 4% AC T09
Lab Sample ID: 180-136058-36
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	**3.5**	**J**	5.0	1.6	ug/L			07/13/22 13:27	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			07/13/22 13:27	1
Dibromochloromethane	ND		5.0	2.4	ug/L			07/13/22 13:27	1
Ethylbenzene	ND		5.0	2.2	ug/L			07/13/22 13:27	1
Freon-11	ND		5.0	1.5	ug/L			07/13/22 13:27	1
Freon-113	ND		5.0	1.9	ug/L			07/13/22 13:27	1
Freon-12	ND		5.0	2.9	ug/L			07/13/22 13:27	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			07/13/22 13:27	1
Methyl bromide	ND		5.0	4.5	ug/L			07/13/22 13:27	1
Methyl chloride	ND		5.0	3.9	ug/L			07/13/22 13:27	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			07/13/22 13:27	1
Methylene Chloride	ND		5.0	3.9	ug/L			07/13/22 13:27	1
Styrene	ND		5.0	1.3	ug/L			07/13/22 13:27	1
Tetrachloroethene	ND		5.0	2.0	ug/L			07/13/22 13:27	1
Toluene	ND		5.0	1.7	ug/L			07/13/22 13:27	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			07/13/22 13:27	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			07/13/22 13:27	1
Trichloroethene	ND		5.0	1.5	ug/L			07/13/22 13:27	1
Vinyl chloride	ND		5.0	3.7	ug/L			07/13/22 13:27	1
Xylenes, Total	ND		10	4.3	ug/L			07/13/22 13:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*62*		*52 - 151*		*07/13/22 13:27*	*1*
4-Bromofluorobenzene (Surr)	*74*		*49 - 118*		*07/13/22 13:27*	*1*
Dibromofluoromethane (Surr)	*113*		*60 - 132*		*07/13/22 13:27*	*1*
Toluene-d8 (Surr)	*68*		*53 - 124*		*07/13/22 13:27*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**14**		1.0	0.76	mg/L			07/13/22 14:44	1

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**4.1**		0.20	0.041	mg/L		07/21/22 12:31	07/22/22 08:42	1
Antimony	**0.095**		0.010	0.0062	mg/L		07/21/22 12:31	07/22/22 08:42	1
Arsenic	ND		0.010	0.0083	mg/L		07/21/22 12:31	07/22/22 08:42	1
Barium	**0.16**	**J**	0.20	0.0063	mg/L		07/21/22 12:31	07/22/22 08:42	1
Beryllium	ND		0.0040	0.0015	mg/L		07/21/22 12:31	07/22/22 08:42	1
Cadmium	ND		0.0050	0.00030	mg/L		07/21/22 12:31	07/22/22 08:42	1
Calcium	**110**		10	0.64	mg/L		07/21/22 12:31	07/22/22 11:15	2
Chromium	ND		0.0050	0.0016	mg/L		07/21/22 12:31	07/22/22 08:42	1
Cobalt	ND		0.050	0.0019	mg/L		07/21/22 12:31	07/22/22 08:42	1
Copper	**0.082**		0.025	0.0022	mg/L		07/21/22 12:31	07/22/22 08:42	1
Iron	**0.39**		0.10	0.072	mg/L		07/21/22 12:31	07/22/22 08:42	1
Lead	ND		0.010	0.0044	mg/L		07/21/22 12:31	07/22/22 08:42	1
Magnesium	ND		5.0	0.26	mg/L		07/21/22 12:31	07/22/22 08:42	1
Manganese	ND		0.015	0.0024	mg/L		07/21/22 12:31	07/22/22 08:42	1
Nickel	**0.012**	**J**	0.040	0.0019	mg/L		07/21/22 12:31	07/22/22 08:42	1
Potassium	**1.8**	**J**	5.0	0.80	mg/L		07/21/22 12:31	07/22/22 08:42	1
Selenium	**0.0041**	**J**	0.010	0.0037	mg/L		07/21/22 12:31	07/22/22 08:42	1

Client Sample ID: TRW 20% PC, 4% AC T09
Lab Sample ID: 180-136058-36
Date Collected: 04/26/22 17:30
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 6010D - Metals (ICP) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.0050	0.00091	mg/L		07/21/22 12:31	07/22/22 08:42	1
Sodium	**2.0**	**J**	5.0	0.30	mg/L		07/21/22 12:31	07/22/22 08:42	1
Thallium	ND		0.020	0.0030	mg/L		07/21/22 12:31	07/22/22 08:42	1
Vanadium	**0.0079**	**J**	0.050	0.0053	mg/L		07/21/22 12:31	07/22/22 08:42	1
Zinc	ND		0.020	0.0026	mg/L		07/21/22 12:31	07/22/22 08:42	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		07/14/22 09:24	07/15/22 11:59	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.7**		0.1	0.1	SU			07/13/22 08:16	1
Specific Conductance	**1100**		1.0	1.0	umhos/cm			07/13/22 08:16	1
Oxidation Reduction Potential	**41**		10	10	millivolts			07/13/22 08:16	1

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T05
Lab Sample ID: 180-136058-41
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	**0.0056**		0.0018	0.00073	ug/L		05/26/22 05:30	06/01/22 16:41	1
4,4'-DDE	ND		0.0018	0.00040	ug/L		05/26/22 05:30	06/01/22 16:41	1
4,4'-DDT	ND	*-	0.0018	0.00094	ug/L		05/26/22 05:30	06/01/22 16:41	1
alpha-BHC	ND		0.0018	0.00033	ug/L		05/26/22 05:30	06/01/22 16:41	1
alpha-Chlordane	ND		0.0018	0.00050	ug/L		05/26/22 05:30	06/01/22 16:41	1
beta-BHC	ND		0.0018	0.00050	ug/L		05/26/22 05:30	06/01/22 16:41	1
delta-BHC	ND		0.0018	0.00088	ug/L		05/26/22 05:30	06/01/22 16:41	1
Dieldrin	ND		0.0018	0.00038	ug/L		05/26/22 05:30	06/01/22 16:41	1
Endrin aldehyde	ND		0.0018	0.00071	ug/L		05/26/22 05:30	06/01/22 16:41	1
Endrin ketone	ND		0.0018	0.00054	ug/L		05/26/22 05:30	06/01/22 16:41	1
gamma-BHC (Lindane)	ND		0.0018	0.00040	ug/L		05/26/22 05:30	06/01/22 16:41	1
gamma-Chlordane	**0.00075**	**J p**	0.0018	0.00056	ug/L		05/26/22 05:30	06/01/22 16:41	1
Heptachlor	ND		0.0018	0.00062	ug/L		05/26/22 05:30	06/01/22 16:41	1
Heptachlor epoxide	ND		0.0018	0.00047	ug/L		05/26/22 05:30	06/01/22 16:41	1
Hexachlorobenzene	ND		0.0018	0.0012	ug/L		05/26/22 05:30	06/01/22 16:41	1
Toxaphene	ND		0.14	0.067	ug/L		05/26/22 05:30	06/01/22 16:41	1
Endosulfan II	ND		0.0018	0.00043	ug/L		05/26/22 05:30	06/01/22 16:41	1
Methoxychlor	ND		0.0018	0.0011	ug/L		05/26/22 05:30	06/01/22 16:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*96*		*46 - 114*	*05/26/22 05:30*	*06/01/22 16:41*	*1*
DCB Decachlorobiphenyl (Surr)	*92*		*46 - 114*	*05/26/22 05:30*	*06/01/22 16:41*	*1*
Tetrachloro-m-xylene	*84*		*39 - 119*	*05/26/22 05:30*	*06/01/22 16:41*	*1*
Tetrachloro-m-xylene	*105*		*39 - 119*	*05/26/22 05:30*	*06/01/22 16:41*	*1*

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.8**		0.1	0.1	SU			05/25/22 09:12	1

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T06
Lab Sample ID: 180-136058-42
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	*+	5.0	2.5	ug/L			06/11/22 17:17	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			06/11/22 17:17	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			06/11/22 17:17	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			06/11/22 17:17	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			06/11/22 17:17	1
1,2,4-Trichlorobenzene	ND	*- *1	5.0	3.7	ug/L			06/11/22 17:17	1
1,2-Dibromo-3-Chloropropane	ND	*1	5.0	3.1	ug/L			06/11/22 17:17	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			06/11/22 17:17	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			06/11/22 17:17	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			06/11/22 17:17	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			06/11/22 17:17	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			06/11/22 17:17	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			06/11/22 17:17	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			06/11/22 17:17	1
2-Hexanone	ND		5.0	4.2	ug/L			06/11/22 17:17	1
Acetone	**19**	**J**	20	5.5	ug/L			06/11/22 17:17	1
Benzene	ND		5.0	2.0	ug/L			06/11/22 17:17	1
Bromodichloromethane	ND		5.0	2.4	ug/L			06/11/22 17:17	1
Bromoform	ND		5.0	2.6	ug/L			06/11/22 17:17	1
Carbon disulfide	ND		5.0	3.0	ug/L			06/11/22 17:17	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			06/11/22 17:17	1
Chlorobenzene	ND		5.0	1.6	ug/L			06/11/22 17:17	1
Chloroethane	ND		5.0	2.6	ug/L			06/11/22 17:17	1
Chloroform	ND		5.0	2.1	ug/L			06/11/22 17:17	1
cis-1,2-Dichloroethene	**15**		5.0	1.6	ug/L			06/11/22 17:17	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			06/11/22 17:17	1
Dibromochloromethane	ND		5.0	2.4	ug/L			06/11/22 17:17	1
Ethylbenzene	ND		5.0	2.2	ug/L			06/11/22 17:17	1
Freon-11	ND		5.0	1.5	ug/L			06/11/22 17:17	1
Freon-113	ND		5.0	1.9	ug/L			06/11/22 17:17	1
Freon-12	ND		5.0	2.9	ug/L			06/11/22 17:17	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			06/11/22 17:17	1
Methyl bromide	ND		5.0	4.5	ug/L			06/11/22 17:17	1
Methyl chloride	ND		5.0	3.9	ug/L			06/11/22 17:17	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			06/11/22 17:17	1
Methylene Chloride	**5.0**		5.0	3.9	ug/L			06/11/22 17:17	1
Styrene	ND		5.0	1.3	ug/L			06/11/22 17:17	1
Tetrachloroethene	ND		5.0	2.0	ug/L			06/11/22 17:17	1
Toluene	ND		5.0	1.7	ug/L			06/11/22 17:17	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			06/11/22 17:17	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			06/11/22 17:17	1
Trichloroethene	ND		5.0	1.5	ug/L			06/11/22 17:17	1
Vinyl chloride	**6.5**		5.0	3.7	ug/L			06/11/22 17:17	1
Xylenes, Total	ND		10	4.3	ug/L			06/11/22 17:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*80*		*52 - 151*		*06/11/22 17:17*	*1*
4-Bromofluorobenzene (Surr)	*75*		*49 - 118*		*06/11/22 17:17*	*1*
Dibromofluoromethane (Surr)	*87*		*60 - 132*		*06/11/22 17:17*	*1*
Toluene-d8 (Surr)	*82*		*53 - 124*		*06/11/22 17:17*	*1*

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T06
Lab Sample ID: 180-136058-42
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.78	0.11	ug/L		06/13/22 10:10	06/16/22 14:29	1
1,4-Dichlorobenzene	ND		0.78	0.048	ug/L		06/13/22 10:10	06/16/22 14:29	1
2,2'-oxybis[1-chloropropane]	ND		0.15	0.045	ug/L		06/13/22 10:10	06/16/22 14:29	1
2,4-Dichlorophenol	ND		0.15	0.040	ug/L		06/13/22 10:10	06/16/22 14:29	1
2,4-Dimethylphenol	ND		0.78	0.13	ug/L		06/13/22 10:10	06/16/22 14:29	1
2,4-Dinitrophenol	ND		7.8	1.2	ug/L		06/13/22 10:10	06/16/22 14:29	1
2,4-Dinitrotoluene	ND		0.78	0.28	ug/L		06/13/22 10:10	06/16/22 14:29	1
2,6-Dinitrotoluene	ND		0.78	0.14	ug/L		06/13/22 10:10	06/16/22 14:29	1
2-Chloronaphthalene	ND		0.15	0.046	ug/L		06/13/22 10:10	06/16/22 14:29	1
2-Nitroaniline	ND		3.9	0.43	ug/L		06/13/22 10:10	06/16/22 14:29	1
3,3'-Dichlorobenzidine	ND		0.78	0.46	ug/L		06/13/22 10:10	06/16/22 14:29	1
3-Nitroaniline	ND		3.9	0.34	ug/L		06/13/22 10:10	06/16/22 14:29	1
p-Chloroaniline	ND		0.78	0.29	ug/L		06/13/22 10:10	06/16/22 14:29	1
p-Nitroaniline	ND		3.9	0.28	ug/L		06/13/22 10:10	06/16/22 14:29	1
Acenaphthene	ND		0.15	0.051	ug/L		06/13/22 10:10	06/16/22 14:29	1
Anthracene	ND		0.15	0.038	ug/L		06/13/22 10:10	06/16/22 14:29	1
Atrazine	ND		0.78	0.49	ug/L		06/13/22 10:10	06/16/22 14:29	1
Benzo[a]anthracene	ND		0.15	0.059	ug/L		06/13/22 10:10	06/16/22 14:29	1
Benzo[a]pyrene	ND		0.15	0.041	ug/L		06/13/22 10:10	06/16/22 14:29	1
Benzo[b]fluoranthene	ND		0.15	0.076	ug/L		06/13/22 10:10	06/16/22 14:29	1
Benzo[k]fluoranthene	ND		0.15	0.069	ug/L		06/13/22 10:10	06/16/22 14:29	1
Bis(2-chloroethoxy)methane	ND		0.78	0.12	ug/L		06/13/22 10:10	06/16/22 14:29	1
Dichloroethyl ether	ND		0.15	0.031	ug/L		06/13/22 10:10	06/16/22 14:29	1
Bis(2-ethylhexyl) phthalate	ND		7.8	4.9	ug/L		06/13/22 10:10	06/16/22 14:29	1
Benzyl butyl phthalate	ND		0.78	0.36	ug/L		06/13/22 10:10	06/16/22 14:29	1
Chrysene	ND		0.15	0.063	ug/L		06/13/22 10:10	06/16/22 14:29	1
Diethyl phthalate	ND		0.78	0.44	ug/L		06/13/22 10:10	06/16/22 14:29	1
Dimethyl phthalate	ND		0.78	0.16	ug/L		06/13/22 10:10	06/16/22 14:29	1
Dibutylphthalate	ND		0.78	0.58	ug/L		06/13/22 10:10	06/16/22 14:29	1
Di-n-octyl phthalate	ND		0.78	0.54	ug/L		06/13/22 10:10	06/16/22 14:29	1
Fluoranthene	ND		0.15	0.047	ug/L		06/13/22 10:10	06/16/22 14:29	1
Fluorene	ND		0.15	0.054	ug/L		06/13/22 10:10	06/16/22 14:29	1
Hexachlorobutadiene	ND		0.15	0.054	ug/L		06/13/22 10:10	06/16/22 14:29	1
Hexachlorocyclopentadiene	ND		0.78	0.39	ug/L		06/13/22 10:10	06/16/22 14:29	1
Hexachloroethane	ND		0.78	0.10	ug/L		06/13/22 10:10	06/16/22 14:29	1
Indeno[1,2,3-cd]pyrene	ND		0.15	0.066	ug/L		06/13/22 10:10	06/16/22 14:29	1
Isophorone	ND		0.78	0.15	ug/L		06/13/22 10:10	06/16/22 14:29	1
Nitrobenzene	ND		1.6	0.39	ug/L		06/13/22 10:10	06/16/22 14:29	1
N-Nitrosodiphenylamine	ND		0.78	0.093	ug/L		06/13/22 10:10	06/16/22 14:29	1
Pentachlorophenol	ND		3.9	0.66	ug/L		06/13/22 10:10	06/16/22 14:29	1
Phenanthrene	**0.067**	**J**	0.15	0.043	ug/L		06/13/22 10:10	06/16/22 14:29	1
Phenol	**1.4**		0.78	0.38	ug/L		06/13/22 10:10	06/16/22 14:29	1
Pyrene	ND		0.15	0.042	ug/L		06/13/22 10:10	06/16/22 14:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*66*		*23 - 128*	*06/13/22 10:10*	*06/16/22 14:29*	*1*
2-Fluorobiphenyl	*58*		*20 - 105*	*06/13/22 10:10*	*06/16/22 14:29*	*1*
2-Fluorophenol (Surr)	*68*		*20 - 105*	*06/13/22 10:10*	*06/16/22 14:29*	*1*
Nitrobenzene-d5 (Surr)	*65*		*20 - 107*	*06/13/22 10:10*	*06/16/22 14:29*	*1*
Phenol-d5 (Surr)	*68*		*20 - 106*	*06/13/22 10:10*	*06/16/22 14:29*	*1*

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T06
Lab Sample ID: 180-136058-42
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*66*		*22 - 120*	*06/13/22 10:10*	*06/16/22 14:29*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**19**		1.0	0.76	mg/L			06/28/22 00:59	1

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**3.4**		0.20	0.041	mg/L		06/20/22 13:21	06/24/22 16:13	1
Antimony	**0.086**		0.010	0.0062	mg/L		06/20/22 13:21	06/24/22 16:13	1
Arsenic	ND		0.010	0.0083	mg/L		06/20/22 13:21	06/24/22 16:13	1
Barium	**0.13**	**J**	0.20	0.0063	mg/L		06/20/22 13:21	06/24/22 16:13	1
Beryllium	ND		0.0040	0.0015	mg/L		06/20/22 13:21	06/24/22 16:13	1
Cadmium	ND		0.0050	0.00030	mg/L		06/20/22 13:21	06/24/22 16:13	1
Calcium	**100**		10	0.64	mg/L		06/20/22 13:21	06/27/22 11:05	2
Chromium	ND		0.0050	0.0016	mg/L		06/20/22 13:21	06/24/22 16:13	1
Cobalt	ND		0.050	0.0019	mg/L		06/20/22 13:21	06/24/22 16:13	1
Copper	**0.16**		0.025	0.0022	mg/L		06/20/22 13:21	06/24/22 16:13	1
Iron	**0.081**	**J**	0.10	0.072	mg/L		06/20/22 13:21	06/24/22 16:13	1
Lead	ND		0.010	0.0044	mg/L		06/20/22 13:21	06/24/22 16:13	1
Magnesium	ND		5.0	0.26	mg/L		06/20/22 13:21	06/24/22 16:13	1
Manganese	ND		0.015	0.0024	mg/L		06/20/22 13:21	06/24/22 16:13	1
Nickel	**0.031**	**J**	0.040	0.0019	mg/L		06/20/22 13:21	06/24/22 16:13	1
Potassium	**2.8**	**J**	5.0	0.80	mg/L		06/20/22 13:21	06/24/22 16:13	1
Selenium	ND		0.010	0.0037	mg/L		06/20/22 13:21	06/24/22 16:13	1
Silver	ND		0.0050	0.00091	mg/L		06/20/22 13:21	06/24/22 16:13	1
Sodium	**35**		5.0	0.30	mg/L		06/20/22 13:21	06/24/22 16:13	1
Thallium	ND		0.020	0.0030	mg/L		06/20/22 13:21	06/24/22 16:13	1
Vanadium	**0.016**	**J**	0.050	0.0053	mg/L		06/20/22 13:21	06/24/22 16:13	1
Zinc	ND		0.020	0.0026	mg/L		06/20/22 13:21	06/24/22 16:13	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/13/22 09:36	06/13/22 18:02	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.8**		0.1	0.1	SU			06/08/22 08:20	1
Specific Conductance	**1400**		1.0	1.0	umhos/cm			06/08/22 08:19	1
Oxidation Reduction Potential	**- 36**		10	10	millivolts			06/08/22 08:20	1

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T07
Lab Sample ID: 180-136058-43
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			06/23/22 13:10	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			06/23/22 13:10	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			06/23/22 13:10	1

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T07
Lab Sample ID: 180-136058-43
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	ND		5.0	1.8	ug/L			06/23/22 13:10	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			06/23/22 13:10	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			06/23/22 13:10	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			06/23/22 13:10	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			06/23/22 13:10	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			06/23/22 13:10	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			06/23/22 13:10	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			06/23/22 13:10	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			06/23/22 13:10	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			06/23/22 13:10	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			06/23/22 13:10	1
2-Hexanone	ND		5.0	4.2	ug/L			06/23/22 13:10	1
Acetone	**9.3**	**J**	20	5.5	ug/L			06/23/22 13:10	1
Benzene	ND		5.0	2.0	ug/L			06/23/22 13:10	1
Bromodichloromethane	ND		5.0	2.4	ug/L			06/23/22 13:10	1
Bromoform	ND		5.0	2.6	ug/L			06/23/22 13:10	1
Carbon disulfide	ND		5.0	3.0	ug/L			06/23/22 13:10	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			06/23/22 13:10	1
Chlorobenzene	ND		5.0	1.6	ug/L			06/23/22 13:10	1
Chloroethane	ND		5.0	2.6	ug/L			06/23/22 13:10	1
Chloroform	ND		5.0	2.1	ug/L			06/23/22 13:10	1
cis-1,2-Dichloroethene	**25**		5.0	1.6	ug/L			06/23/22 13:10	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			06/23/22 13:10	1
Dibromochloromethane	ND		5.0	2.4	ug/L			06/23/22 13:10	1
Ethylbenzene	ND		5.0	2.2	ug/L			06/23/22 13:10	1
Freon-11	ND		5.0	1.5	ug/L			06/23/22 13:10	1
Freon-113	ND		5.0	1.9	ug/L			06/23/22 13:10	1
Freon-12	ND		5.0	2.9	ug/L			06/23/22 13:10	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			06/23/22 13:10	1
Methyl bromide	ND		5.0	4.5	ug/L			06/23/22 13:10	1
Methyl chloride	ND		5.0	3.9	ug/L			06/23/22 13:10	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			06/23/22 13:10	1
Methylene Chloride	**7.8**		5.0	3.9	ug/L			06/23/22 13:10	1
Styrene	ND		5.0	1.3	ug/L			06/23/22 13:10	1
Tetrachloroethene	ND		5.0	2.0	ug/L			06/23/22 13:10	1
Toluene	ND		5.0	1.7	ug/L			06/23/22 13:10	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			06/23/22 13:10	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			06/23/22 13:10	1
Trichloroethene	ND	*+	5.0	1.5	ug/L			06/23/22 13:10	1
Vinyl chloride	**6.8**		5.0	3.7	ug/L			06/23/22 13:10	1
Xylenes, Total	ND		10	4.3	ug/L			06/23/22 13:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*55*		*52 - 151*		*06/23/22 13:10*	*1*
4-Bromofluorobenzene (Surr)	*70*		*49 - 118*		*06/23/22 13:10*	*1*
Dibromofluoromethane (Surr)	*95*		*60 - 132*		*06/23/22 13:10*	*1*
Toluene-d8 (Surr)	*76*		*53 - 124*		*06/23/22 13:10*	*1*

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T07
Lab Sample ID: 180-136058-43
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.96	0.14	ug/L		06/22/22 11:07	06/24/22 15:17	1
1,4-Dichlorobenzene	ND		0.96	0.059	ug/L		06/22/22 11:07	06/24/22 15:17	1
2,2'-oxybis[1-chloropropane]	ND		0.18	0.056	ug/L		06/22/22 11:07	06/24/22 15:17	1
2,4-Dichlorophenol	ND		0.18	0.049	ug/L		06/22/22 11:07	06/24/22 15:17	1
2,4-Dimethylphenol	ND		0.96	0.16	ug/L		06/22/22 11:07	06/24/22 15:17	1
2,4-Dinitrophenol	ND		9.6	1.5	ug/L		06/22/22 11:07	06/24/22 15:17	1
2,4-Dinitrotoluene	ND		0.96	0.34	ug/L		06/22/22 11:07	06/24/22 15:17	1
2,6-Dinitrotoluene	ND		0.96	0.17	ug/L		06/22/22 11:07	06/24/22 15:17	1
2-Chloronaphthalene	ND		0.18	0.057	ug/L		06/22/22 11:07	06/24/22 15:17	1
2-Nitroaniline	ND		4.8	0.53	ug/L		06/22/22 11:07	06/24/22 15:17	1
3,3'-Dichlorobenzidine	ND		0.96	0.56	ug/L		06/22/22 11:07	06/24/22 15:17	1
3-Nitroaniline	ND		4.8	0.42	ug/L		06/22/22 11:07	06/24/22 15:17	1
p-Chloroaniline	ND		0.96	0.36	ug/L		06/22/22 11:07	06/24/22 15:17	1
p-Nitroaniline	ND		4.8	0.35	ug/L		06/22/22 11:07	06/24/22 15:17	1
Acenaphthene	ND		0.18	0.063	ug/L		06/22/22 11:07	06/24/22 15:17	1
Anthracene	**0.052**	**J**	0.18	0.047	ug/L		06/22/22 11:07	06/24/22 15:17	1
Atrazine	ND		0.96	0.61	ug/L		06/22/22 11:07	06/24/22 15:17	1
Benzo[a]anthracene	**0.17**	**J**	0.18	0.072	ug/L		06/22/22 11:07	06/24/22 15:17	1
Benzo[a]pyrene	**0.084**	**J**	0.18	0.051	ug/L		06/22/22 11:07	06/24/22 15:17	1
Benzo[b]fluoranthene	**0.16**	**J**	0.18	0.093	ug/L		06/22/22 11:07	06/24/22 15:17	1
Benzo[k]fluoranthene	**0.14**	**J**	0.18	0.085	ug/L		06/22/22 11:07	06/24/22 15:17	1
Bis(2-chloroethoxy)methane	ND		0.96	0.15	ug/L		06/22/22 11:07	06/24/22 15:17	1
Dichloroethyl ether	ND		0.18	0.038	ug/L		06/22/22 11:07	06/24/22 15:17	1
Bis(2-ethylhexyl) phthalate	ND		9.6	6.0	ug/L		06/22/22 11:07	06/24/22 15:17	1
Benzyl butyl phthalate	**0.53**	**J**	0.96	0.44	ug/L		06/22/22 11:07	06/24/22 15:17	1
Chrysene	**0.17**	**J**	0.18	0.078	ug/L		06/22/22 11:07	06/24/22 15:17	1
Diethyl phthalate	ND		0.96	0.55	ug/L		06/22/22 11:07	06/24/22 15:17	1
Dimethyl phthalate	ND		0.96	0.19	ug/L		06/22/22 11:07	06/24/22 15:17	1
Dibutylphthalate	ND		0.96	0.71	ug/L		06/22/22 11:07	06/24/22 15:17	1
Di-n-octyl phthalate	ND		0.96	0.66	ug/L		06/22/22 11:07	06/24/22 15:17	1
Fluoranthene	**0.088**	**J**	0.18	0.058	ug/L		06/22/22 11:07	06/24/22 15:17	1
Fluorene	ND		0.18	0.066	ug/L		06/22/22 11:07	06/24/22 15:17	1
Hexachlorobutadiene	ND		0.18	0.066	ug/L		06/22/22 11:07	06/24/22 15:17	1
Hexachlorocyclopentadiene	ND		0.96	0.48	ug/L		06/22/22 11:07	06/24/22 15:17	1
Hexachloroethane	ND		0.96	0.13	ug/L		06/22/22 11:07	06/24/22 15:17	1
Indeno[1,2,3-cd]pyrene	**0.15**	**J**	0.18	0.082	ug/L		06/22/22 11:07	06/24/22 15:17	1
Isophorone	ND		0.96	0.18	ug/L		06/22/22 11:07	06/24/22 15:17	1
Nitrobenzene	ND		1.9	0.48	ug/L		06/22/22 11:07	06/24/22 15:17	1
N-Nitrosodiphenylamine	ND		0.96	0.11	ug/L		06/22/22 11:07	06/24/22 15:17	1
Pentachlorophenol	ND		4.8	0.81	ug/L		06/22/22 11:07	06/24/22 15:17	1
Phenanthrene	**0.12**	**J**	0.18	0.053	ug/L		06/22/22 11:07	06/24/22 15:17	1
Phenol	ND		0.96	0.47	ug/L		06/22/22 11:07	06/24/22 15:17	1
Pyrene	**0.082**	**J**	0.18	0.052	ug/L		06/22/22 11:07	06/24/22 15:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*46*		*23 - 128*	*06/22/22 11:07*	*06/24/22 15:17*	*1*
2-Fluorobiphenyl	*46*		*20 - 105*	*06/22/22 11:07*	*06/24/22 15:17*	*1*
2-Fluorophenol (Surr)	*45*		*20 - 105*	*06/22/22 11:07*	*06/24/22 15:17*	*1*
Nitrobenzene-d5 (Surr)	*48*		*20 - 107*	*06/22/22 11:07*	*06/24/22 15:17*	*1*
Phenol-d5 (Surr)	*44*		*20 - 106*	*06/22/22 11:07*	*06/24/22 15:17*	*1*

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T07
Lab Sample ID: 180-136058-43
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*54*		*22 - 120*	*06/22/22 11:07*	*06/24/22 15:17*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2.9**		0.20	0.041	mg/L		06/22/22 13:43	06/27/22 18:05	1
Antimony	**0.082**		0.010	0.0062	mg/L		06/22/22 13:43	06/27/22 18:05	1
Arsenic	ND		0.010	0.0083	mg/L		06/22/22 13:43	06/27/22 18:05	1
Barium	**0.11**	**J**	0.20	0.0063	mg/L		06/22/22 13:43	06/27/22 18:05	1
Beryllium	ND		0.0040	0.0015	mg/L		06/22/22 13:43	06/27/22 18:05	1
Cadmium	ND		0.0050	0.00030	mg/L		06/22/22 13:43	06/27/22 18:05	1
Calcium	**96**		5.0	0.32	mg/L		06/22/22 13:43	06/27/22 18:05	1
Chromium	ND		0.0050	0.0016	mg/L		06/22/22 13:43	06/27/22 18:05	1
Cobalt	ND		0.050	0.0019	mg/L		06/22/22 13:43	06/27/22 18:05	1
Copper	**0.14**		0.025	0.0022	mg/L		06/22/22 13:43	06/27/22 18:05	1
Iron	ND		0.10	0.072	mg/L		06/22/22 13:43	06/27/22 18:05	1
Lead	ND		0.010	0.0044	mg/L		06/22/22 13:43	06/27/22 18:05	1
Magnesium	ND		5.0	0.26	mg/L		06/22/22 13:43	06/27/22 18:05	1
Manganese	ND		0.015	0.0024	mg/L		06/22/22 13:43	06/27/22 18:05	1
Nickel	**0.020**	**J**	0.040	0.0019	mg/L		06/22/22 13:43	06/27/22 18:05	1
Potassium	**2.0**	**J**	5.0	0.80	mg/L		06/22/22 13:43	06/27/22 18:05	1
Selenium	ND		0.010	0.0037	mg/L		06/22/22 13:43	06/27/22 18:05	1
Silver	ND		0.0050	0.00091	mg/L		06/22/22 13:43	06/27/22 18:05	1
Sodium	**14**		5.0	0.30	mg/L		06/22/22 13:43	06/27/22 18:05	1
Thallium	ND		0.020	0.0030	mg/L		06/22/22 13:43	06/27/22 18:05	1
Vanadium	**0.011**	**J**	0.050	0.0053	mg/L		06/22/22 13:43	06/27/22 18:05	1
Zinc	**0.0029**	**J**	0.020	0.0026	mg/L		06/22/22 13:43	06/27/22 18:05	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/22/22 15:29	06/23/22 10:08	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.6**		0.1	0.1	SU			06/22/22 08:20	1

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T08
Lab Sample ID: 180-136058-44
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	**0.0033**		0.0017	0.00070	ug/L		06/30/22 05:00	07/05/22 16:29	1
4,4'-DDE	ND		0.0017	0.00039	ug/L		06/30/22 05:00	07/01/22 12:51	1
4,4'-DDT	ND		0.0017	0.00091	ug/L		06/30/22 05:00	07/01/22 12:51	1
alpha-BHC	ND		0.0017	0.00031	ug/L		06/30/22 05:00	07/01/22 12:51	1
alpha-Chlordane	ND		0.0017	0.00048	ug/L		06/30/22 05:00	07/01/22 12:51	1
beta-BHC	ND		0.0017	0.00048	ug/L		06/30/22 05:00	07/01/22 12:51	1
delta-BHC	ND		0.0017	0.00084	ug/L		06/30/22 05:00	07/01/22 12:51	1
Dieldrin	**0.0011**	**J**	0.0017	0.00036	ug/L		06/30/22 05:00	07/01/22 12:51	1
Endrin aldehyde	ND		0.0017	0.00068	ug/L		06/30/22 05:00	07/01/22 12:51	1

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T08
Lab Sample ID: 180-136058-44
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endrin ketone	ND		0.0017	0.00052	ug/L		06/30/22 05:00	07/01/22 12:51	1
gamma-BHC (Lindane)	ND		0.0017	0.00039	ug/L		06/30/22 05:00	07/01/22 12:51	1
gamma-Chlordane	ND		0.0017	0.00054	ug/L		06/30/22 05:00	07/01/22 12:51	1
Heptachlor	ND	*1	0.0017	0.00059	ug/L		06/30/22 05:00	07/01/22 12:51	1
Heptachlor epoxide	ND		0.0017	0.00045	ug/L		06/30/22 05:00	07/01/22 12:51	1
Hexachlorobenzene	**0.0026**		0.0017	0.0012	ug/L		06/30/22 05:00	07/05/22 16:29	1
Toxaphene	ND		0.13	0.065	ug/L		06/30/22 05:00	07/01/22 12:51	1
Endosulfan II	ND		0.0017	0.00042	ug/L		06/30/22 05:00	07/01/22 12:51	1
Methoxychlor	ND		0.0017	0.0010	ug/L		06/30/22 05:00	07/01/22 12:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*100*		*46 - 114*	*06/30/22 05:00*	*07/01/22 12:51*	*1*
DCB Decachlorobiphenyl (Surr)	*107*		*46 - 114*	*06/30/22 05:00*	*07/01/22 12:51*	*1*
DCB Decachlorobiphenyl (Surr)	*96*		*46 - 114*	*06/30/22 05:00*	*07/05/22 16:29*	*1*
DCB Decachlorobiphenyl (Surr)	*99*		*46 - 114*	*06/30/22 05:00*	*07/05/22 16:29*	*1*
Tetrachloro-m-xylene	*77*		*39 - 119*	*06/30/22 05:00*	*07/01/22 12:51*	*1*
Tetrachloro-m-xylene	*111*		*39 - 119*	*06/30/22 05:00*	*07/01/22 12:51*	*1*
Tetrachloro-m-xylene	*72*		*39 - 119*	*06/30/22 05:00*	*07/05/22 16:29*	*1*
Tetrachloro-m-xylene	*95*		*39 - 119*	*06/30/22 05:00*	*07/05/22 16:29*	*1*

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.5**		0.1	0.1	SU			06/29/22 07:56	1

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T09
Lab Sample ID: 180-136058-45
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			07/13/22 13:01	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			07/13/22 13:01	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			07/13/22 13:01	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			07/13/22 13:01	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			07/13/22 13:01	1
1,2,4-Trichlorobenzene	ND	*-	5.0	3.7	ug/L			07/13/22 13:01	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			07/13/22 13:01	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			07/13/22 13:01	1
1,2-Dichlorobenzene	ND	*-	5.0	2.0	ug/L			07/13/22 13:01	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			07/13/22 13:01	1
1,2-Dichloropropane	ND	F1 *-	5.0	2.5	ug/L			07/13/22 13:01	1
1,3-Dichlorobenzene	ND	*-	5.0	1.6	ug/L			07/13/22 13:01	1
1,4-Dichlorobenzene	ND	*-	5.0	1.0	ug/L			07/13/22 13:01	1
2-Butanone (MEK)	ND	F1	5.0	2.9	ug/L			07/13/22 13:01	1
2-Hexanone	ND	F1 *-	5.0	4.2	ug/L			07/13/22 13:01	1
Acetone	ND	F1 *-	20	5.5	ug/L			07/13/22 13:01	1
Benzene	ND		5.0	2.0	ug/L			07/13/22 13:01	1
Bromodichloromethane	ND		5.0	2.4	ug/L			07/13/22 13:01	1
Bromoform	ND		5.0	2.6	ug/L			07/13/22 13:01	1
Carbon disulfide	ND		5.0	3.0	ug/L			07/13/22 13:01	1

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T09
Lab Sample ID: 180-136058-45
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	ND		5.0	3.3	ug/L			07/13/22 13:01	1
Chlorobenzene	ND		5.0	1.6	ug/L			07/13/22 13:01	1
Chloroethane	ND		5.0	2.6	ug/L			07/13/22 13:01	1
Chloroform	**6.6**		5.0	2.1	ug/L			07/13/22 13:01	1
cis-1,2-Dichloroethene	**18**	**F1**	5.0	1.6	ug/L			07/13/22 13:01	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			07/13/22 13:01	1
Dibromochloromethane	ND		5.0	2.4	ug/L			07/13/22 13:01	1
Ethylbenzene	ND		5.0	2.2	ug/L			07/13/22 13:01	1
Freon-11	ND		5.0	1.5	ug/L			07/13/22 13:01	1
Freon-113	ND		5.0	1.9	ug/L			07/13/22 13:01	1
Freon-12	ND		5.0	2.9	ug/L			07/13/22 13:01	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			07/13/22 13:01	1
Methyl bromide	ND		5.0	4.5	ug/L			07/13/22 13:01	1
Methyl chloride	ND		5.0	3.9	ug/L			07/13/22 13:01	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			07/13/22 13:01	1
Methylene Chloride	**4.8**	**J**	5.0	3.9	ug/L			07/13/22 13:01	1
Styrene	ND		5.0	1.3	ug/L			07/13/22 13:01	1
Tetrachloroethene	ND		5.0	2.0	ug/L			07/13/22 13:01	1
Toluene	ND		5.0	1.7	ug/L			07/13/22 13:01	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			07/13/22 13:01	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			07/13/22 13:01	1
Trichloroethene	ND	F1	5.0	1.5	ug/L			07/13/22 13:01	1
Vinyl chloride	**5.2**		5.0	3.7	ug/L			07/13/22 13:01	1
Xylenes, Total	ND		10	4.3	ug/L			07/13/22 13:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*63*		*52 - 151*		*07/13/22 13:01*	*1*
4-Bromofluorobenzene (Surr)	*83*		*49 - 118*		*07/13/22 13:01*	*1*
Dibromofluoromethane (Surr)	*111*		*60 - 132*		*07/13/22 13:01*	*1*
Toluene-d8 (Surr)	*60*		*53 - 124*		*07/13/22 13:01*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**22**		1.0	0.76	mg/L			07/13/22 14:58	1

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2.8**		0.20	0.041	mg/L		07/21/22 12:31	07/22/22 08:58	1
Antimony	**0.098**		0.010	0.0062	mg/L		07/21/22 12:31	07/22/22 08:58	1
Arsenic	ND		0.010	0.0083	mg/L		07/21/22 12:31	07/22/22 08:58	1
Barium	**0.088**	**J**	0.20	0.0063	mg/L		07/21/22 12:31	07/22/22 08:58	1
Beryllium	ND		0.0040	0.0015	mg/L		07/21/22 12:31	07/22/22 08:58	1
Cadmium	**0.00041**	**J**	0.0050	0.00030	mg/L		07/21/22 12:31	07/22/22 08:58	1
Calcium	**80**		5.0	0.32	mg/L		07/21/22 12:31	07/22/22 08:58	1
Chromium	ND		0.0050	0.0016	mg/L		07/21/22 12:31	07/22/22 08:58	1
Cobalt	ND		0.050	0.0019	mg/L		07/21/22 12:31	07/22/22 08:58	1
Copper	**0.11**		0.025	0.0022	mg/L		07/21/22 12:31	07/22/22 08:58	1
Iron	ND		0.10	0.072	mg/L		07/21/22 12:31	07/22/22 08:58	1
Lead	ND		0.010	0.0044	mg/L		07/21/22 12:31	07/22/22 08:58	1
Magnesium	ND		5.0	0.26	mg/L		07/21/22 12:31	07/22/22 08:58	1

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T09
Lab Sample ID: 180-136058-45
Date Collected: 04/26/22 18:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 6010D - Metals (ICP) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.015	0.0024	mg/L		07/21/22 12:31	07/22/22 08:58	1
Nickel	**0.013**	**J**	0.040	0.0019	mg/L		07/21/22 12:31	07/22/22 08:58	1
Potassium	**1.3**	**J**	5.0	0.80	mg/L		07/21/22 12:31	07/22/22 08:58	1
Selenium	**0.0048**	**J**	0.010	0.0037	mg/L		07/21/22 12:31	07/22/22 08:58	1
Silver	ND		0.0050	0.00091	mg/L		07/21/22 12:31	07/22/22 08:58	1
Sodium	**5.6**		5.0	0.30	mg/L		07/21/22 12:31	07/22/22 08:58	1
Thallium	ND		0.020	0.0030	mg/L		07/21/22 12:31	07/22/22 08:58	1
Vanadium	**0.012**	**J**	0.050	0.0053	mg/L		07/21/22 12:31	07/22/22 08:58	1
Zinc	ND		0.020	0.0026	mg/L		07/21/22 12:31	07/22/22 08:58	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		07/14/22 09:24	07/15/22 12:00	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**11.5**		0.1	0.1	SU			07/13/22 08:20	1
Specific Conductance	**800**		1.0	1.0	umhos/cm			07/13/22 08:19	1
Oxidation Reduction Potential	**60**		10	10	millivolts			07/13/22 08:20	1

Client Sample ID: MB T05
Lab Sample ID: 180-136058-50
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.0013	0.00053	ug/L		05/26/22 05:30	06/02/22 10:39	1
4,4'-DDE	ND		0.0013	0.00030	ug/L		05/26/22 05:30	06/02/22 10:39	1
4,4'-DDT	ND		0.0013	0.00069	ug/L		05/26/22 05:30	06/02/22 10:39	1
alpha-BHC	ND		0.0013	0.00024	ug/L		05/26/22 05:30	06/02/22 10:39	1
alpha-Chlordane	ND		0.0013	0.00037	ug/L		05/26/22 05:30	06/02/22 10:39	1
beta-BHC	ND		0.0013	0.00037	ug/L		05/26/22 05:30	06/02/22 10:39	1
delta-BHC	ND		0.0013	0.00064	ug/L		05/26/22 05:30	06/02/22 10:39	1
Dieldrin	ND		0.0013	0.00027	ug/L		05/26/22 05:30	06/02/22 10:39	1
Endrin aldehyde	ND		0.0013	0.00052	ug/L		05/26/22 05:30	06/02/22 10:39	1
Endrin ketone	ND		0.0013	0.00040	ug/L		05/26/22 05:30	06/02/22 10:39	1
gamma-BHC (Lindane)	ND		0.0013	0.00029	ug/L		05/26/22 05:30	06/02/22 10:39	1
gamma-Chlordane	ND		0.0013	0.00041	ug/L		05/26/22 05:30	06/02/22 10:39	1
Heptachlor	ND		0.0013	0.00045	ug/L		05/26/22 05:30	06/02/22 10:39	1
Heptachlor epoxide	ND		0.0013	0.00034	ug/L		05/26/22 05:30	06/02/22 10:39	1
Hexachlorobenzene	ND		0.0013	0.00091	ug/L		05/26/22 05:30	06/02/22 10:39	1
Toxaphene	ND		0.10	0.049	ug/L		05/26/22 05:30	06/02/22 10:39	1
Endosulfan II	ND		0.0013	0.00032	ug/L		05/26/22 05:30	06/02/22 10:39	1
Methoxychlor	ND		0.0013	0.00078	ug/L		05/26/22 05:30	06/02/22 10:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*104*		*46 - 114*	*05/26/22 05:30*	*06/02/22 10:39*	*1*
DCB Decachlorobiphenyl (Surr)	*121*	*S1+*	*46 - 114*	*05/26/22 05:30*	*06/02/22 10:39*	*1*
Tetrachloro-m-xylene	*76*		*39 - 119*	*05/26/22 05:30*	*06/02/22 10:39*	*1*
Tetrachloro-m-xylene	*96*		*39 - 119*	*05/26/22 05:30*	*06/02/22 10:39*	*1*

Client Sample ID: MB T05
Lab Sample ID: 180-136058-50
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.1		0.1	0.1	SU			05/25/22 09:14	1

Client Sample ID: MB T06
Lab Sample ID: 180-136058-51
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	*+	5.0	2.5	ug/L			06/11/22 16:50	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			06/11/22 16:50	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			06/11/22 16:50	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			06/11/22 16:50	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			06/11/22 16:50	1
1,2,4-Trichlorobenzene	ND	*- *1	5.0	3.7	ug/L			06/11/22 16:50	1
1,2-Dibromo-3-Chloropropane	ND	*1	5.0	3.1	ug/L			06/11/22 16:50	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			06/11/22 16:50	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			06/11/22 16:50	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			06/11/22 16:50	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			06/11/22 16:50	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			06/11/22 16:50	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			06/11/22 16:50	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			06/11/22 16:50	1
2-Hexanone	ND		5.0	4.2	ug/L			06/11/22 16:50	1
Acetone	ND		20	5.5	ug/L			06/11/22 16:50	1
Benzene	ND		5.0	2.0	ug/L			06/11/22 16:50	1
Bromodichloromethane	ND		5.0	2.4	ug/L			06/11/22 16:50	1
Bromoform	ND		5.0	2.6	ug/L			06/11/22 16:50	1
Carbon disulfide	ND		5.0	3.0	ug/L			06/11/22 16:50	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			06/11/22 16:50	1
Chlorobenzene	ND		5.0	1.6	ug/L			06/11/22 16:50	1
Chloroethane	ND		5.0	2.6	ug/L			06/11/22 16:50	1
Chloroform	ND		5.0	2.1	ug/L			06/11/22 16:50	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			06/11/22 16:50	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			06/11/22 16:50	1
Dibromochloromethane	ND		5.0	2.4	ug/L			06/11/22 16:50	1
Ethylbenzene	ND		5.0	2.2	ug/L			06/11/22 16:50	1
Freon-11	ND		5.0	1.5	ug/L			06/11/22 16:50	1
Freon-113	ND		5.0	1.9	ug/L			06/11/22 16:50	1
Freon-12	ND		5.0	2.9	ug/L			06/11/22 16:50	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			06/11/22 16:50	1
Methyl bromide	ND		5.0	4.5	ug/L			06/11/22 16:50	1
Methyl chloride	ND		5.0	3.9	ug/L			06/11/22 16:50	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			06/11/22 16:50	1
Methylene Chloride	ND		5.0	3.9	ug/L			06/11/22 16:50	1
Styrene	ND		5.0	1.3	ug/L			06/11/22 16:50	1
Tetrachloroethene	ND		5.0	2.0	ug/L			06/11/22 16:50	1
Toluene	ND		5.0	1.7	ug/L			06/11/22 16:50	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			06/11/22 16:50	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			06/11/22 16:50	1
Trichloroethene	ND		5.0	1.5	ug/L			06/11/22 16:50	1

Client Sample ID: MB T06
Lab Sample ID: 180-136058-51
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0	3.7	ug/L			06/11/22 16:50	1
Xylenes, Total	ND		10	4.3	ug/L			06/11/22 16:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*86*		*52 - 151*		*06/11/22 16:50*	*1*
4-Bromofluorobenzene (Surr)	*68*		*49 - 118*		*06/11/22 16:50*	*1*
Dibromofluoromethane (Surr)	*99*		*60 - 132*		*06/11/22 16:50*	*1*
Toluene-d8 (Surr)	*79*		*53 - 124*		*06/11/22 16:50*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.76	0.11	ug/L		06/13/22 10:15	06/16/22 18:10	1
1,4-Dichlorobenzene	ND		0.76	0.046	ug/L		06/13/22 10:15	06/16/22 18:10	1
2,2'-oxybis[1-chloropropane]	ND		0.14	0.044	ug/L		06/13/22 10:15	06/16/22 18:10	1
2,4-Dichlorophenol	ND		0.14	0.039	ug/L		06/13/22 10:15	06/16/22 18:10	1
2,4-Dimethylphenol	ND		0.76	0.13	ug/L		06/13/22 10:15	06/16/22 18:10	1
2,4-Dinitrophenol	ND		7.6	1.2	ug/L		06/13/22 10:15	06/16/22 18:10	1
2,4-Dinitrotoluene	ND		0.76	0.27	ug/L		06/13/22 10:15	06/16/22 18:10	1
2,6-Dinitrotoluene	ND		0.76	0.13	ug/L		06/13/22 10:15	06/16/22 18:10	1
2-Chloronaphthalene	ND		0.14	0.045	ug/L		06/13/22 10:15	06/16/22 18:10	1
2-Nitroaniline	ND		3.8	0.42	ug/L		06/13/22 10:15	06/16/22 18:10	1
3,3'-Dichlorobenzidine	ND		0.76	0.44	ug/L		06/13/22 10:15	06/16/22 18:10	1
3-Nitroaniline	ND		3.8	0.33	ug/L		06/13/22 10:15	06/16/22 18:10	1
p-Chloroaniline	ND		0.76	0.28	ug/L		06/13/22 10:15	06/16/22 18:10	1
p-Nitroaniline	ND		3.8	0.28	ug/L		06/13/22 10:15	06/16/22 18:10	1
Acenaphthene	**0.051**	**J**	0.14	0.049	ug/L		06/13/22 10:15	06/16/22 18:10	1
Anthracene	ND		0.14	0.037	ug/L		06/13/22 10:15	06/16/22 18:10	1
Atrazine	ND		0.76	0.48	ug/L		06/13/22 10:15	06/16/22 18:10	1
Benzo[a]anthracene	ND		0.14	0.057	ug/L		06/13/22 10:15	06/16/22 18:10	1
Benzo[a]pyrene	ND		0.14	0.040	ug/L		06/13/22 10:15	06/16/22 18:10	1
Benzo[b]fluoranthene	ND		0.14	0.073	ug/L		06/13/22 10:15	06/16/22 18:10	1
Benzo[k]fluoranthene	ND		0.14	0.067	ug/L		06/13/22 10:15	06/16/22 18:10	1
Bis(2-chloroethoxy)methane	ND		0.76	0.12	ug/L		06/13/22 10:15	06/16/22 18:10	1
Dichloroethyl ether	ND		0.14	0.030	ug/L		06/13/22 10:15	06/16/22 18:10	1
Bis(2-ethylhexyl) phthalate	**18**		7.6	4.7	ug/L		06/13/22 10:15	06/16/22 18:10	1
Benzyl butyl phthalate	**0.50**	**J**	0.76	0.35	ug/L		06/13/22 10:15	06/16/22 18:10	1
Chrysene	ND		0.14	0.061	ug/L		06/13/22 10:15	06/16/22 18:10	1
Diethyl phthalate	ND		0.76	0.43	ug/L		06/13/22 10:15	06/16/22 18:10	1
Dimethyl phthalate	ND		0.76	0.15	ug/L		06/13/22 10:15	06/16/22 18:10	1
Dibutylphthalate	**0.85**		0.76	0.56	ug/L		06/13/22 10:15	06/16/22 18:10	1
Di-n-octyl phthalate	ND		0.76	0.52	ug/L		06/13/22 10:15	06/16/22 18:10	1
Fluoranthene	ND		0.14	0.045	ug/L		06/13/22 10:15	06/16/22 18:10	1
Fluorene	ND		0.14	0.052	ug/L		06/13/22 10:15	06/16/22 18:10	1
Hexachlorobutadiene	ND		0.14	0.052	ug/L		06/13/22 10:15	06/16/22 18:10	1
Hexachlorocyclopentadiene	ND		0.76	0.38	ug/L		06/13/22 10:15	06/16/22 18:10	1
Hexachloroethane	ND		0.76	0.10	ug/L		06/13/22 10:15	06/16/22 18:10	1
Indeno[1,2,3-cd]pyrene	ND		0.14	0.064	ug/L		06/13/22 10:15	06/16/22 18:10	1
Isophorone	ND		0.76	0.14	ug/L		06/13/22 10:15	06/16/22 18:10	1
Nitrobenzene	ND		1.5	0.38	ug/L		06/13/22 10:15	06/16/22 18:10	1
N-Nitrosodiphenylamine	ND		0.76	0.090	ug/L		06/13/22 10:15	06/16/22 18:10	1

Client Sample ID: MB T06
Date Collected: 04/01/22 00:00
Date Received: 05/07/22 09:00

Lab Sample ID: 180-136058-51
Matrix: Solid

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		3.8	0.64	ug/L		06/13/22 10:15	06/16/22 18:10	1
Phenanthrene	**0.13**	**J**	0.14	0.042	ug/L		06/13/22 10:15	06/16/22 18:10	1
Phenol	ND		0.76	0.37	ug/L		06/13/22 10:15	06/16/22 18:10	1
Pyrene	ND		0.14	0.041	ug/L		06/13/22 10:15	06/16/22 18:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*66*		*23 - 128*	*06/13/22 10:15*	*06/16/22 18:10*	*1*
2-Fluorobiphenyl	*69*		*20 - 105*	*06/13/22 10:15*	*06/16/22 18:10*	*1*
2-Fluorophenol (Surr)	*72*		*20 - 105*	*06/13/22 10:15*	*06/16/22 18:10*	*1*
Nitrobenzene-d5 (Surr)	*70*		*20 - 107*	*06/13/22 10:15*	*06/16/22 18:10*	*1*
Phenol-d5 (Surr)	*74*		*20 - 106*	*06/13/22 10:15*	*06/16/22 18:10*	*1*
Terphenyl-d14 (Surr)	*86*		*22 - 120*	*06/13/22 10:15*	*06/16/22 18:10*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.0	0.76	mg/L			06/28/22 01:14	1

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.041	mg/L		06/20/22 13:21	06/24/22 16:18	1
Antimony	ND		0.010	0.0062	mg/L		06/20/22 13:21	06/24/22 16:18	1
Arsenic	ND		0.010	0.0083	mg/L		06/20/22 13:21	06/24/22 16:18	1
Barium	ND		0.20	0.0063	mg/L		06/20/22 13:21	06/24/22 16:18	1
Beryllium	ND		0.0040	0.0015	mg/L		06/20/22 13:21	06/24/22 16:18	1
Cadmium	ND		0.0050	0.00030	mg/L		06/20/22 13:21	06/24/22 16:18	1
Calcium	ND		5.0	0.32	mg/L		06/20/22 13:21	06/24/22 16:18	1
Chromium	ND		0.0050	0.0016	mg/L		06/20/22 13:21	06/24/22 16:18	1
Cobalt	ND		0.050	0.0019	mg/L		06/20/22 13:21	06/24/22 16:18	1
Copper	ND		0.025	0.0022	mg/L		06/20/22 13:21	06/24/22 16:18	1
Iron	ND		0.10	0.072	mg/L		06/20/22 13:21	06/24/22 16:18	1
Lead	ND		0.010	0.0044	mg/L		06/20/22 13:21	06/24/22 16:18	1
Magnesium	ND		5.0	0.26	mg/L		06/20/22 13:21	06/24/22 16:18	1
Manganese	ND		0.015	0.0024	mg/L		06/20/22 13:21	06/24/22 16:18	1
Nickel	ND		0.040	0.0019	mg/L		06/20/22 13:21	06/24/22 16:18	1
Potassium	ND		5.0	0.80	mg/L		06/20/22 13:21	06/24/22 16:18	1
Selenium	ND		0.010	0.0037	mg/L		06/20/22 13:21	06/24/22 16:18	1
Silver	ND		0.0050	0.00091	mg/L		06/20/22 13:21	06/24/22 16:18	1
Sodium	ND		5.0	0.30	mg/L		06/20/22 13:21	06/24/22 16:18	1
Thallium	ND		0.020	0.0030	mg/L		06/20/22 13:21	06/24/22 16:18	1
Vanadium	ND		0.050	0.0053	mg/L		06/20/22 13:21	06/24/22 16:18	1
Zinc	ND		0.020	0.0026	mg/L		06/20/22 13:21	06/24/22 16:18	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/13/22 09:36	06/13/22 18:03	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.9**		0.1	0.1	SU			06/08/22 08:24	1
Specific Conductance	**1.5**		1.0	1.0	umhos/cm			06/08/22 08:22	1
Oxidation Reduction Potential	**540**		10	10	millivolts			06/08/22 08:24	1

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: MB T07
Lab Sample ID: 180-136058-52
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			06/23/22 12:37	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			06/23/22 12:37	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			06/23/22 12:37	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			06/23/22 12:37	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			06/23/22 12:37	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			06/23/22 12:37	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			06/23/22 12:37	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			06/23/22 12:37	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			06/23/22 12:37	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			06/23/22 12:37	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			06/23/22 12:37	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			06/23/22 12:37	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			06/23/22 12:37	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			06/23/22 12:37	1
2-Hexanone	ND		5.0	4.2	ug/L			06/23/22 12:37	1
Acetone	ND		20	5.5	ug/L			06/23/22 12:37	1
Benzene	ND		5.0	2.0	ug/L			06/23/22 12:37	1
Bromodichloromethane	ND		5.0	2.4	ug/L			06/23/22 12:37	1
Bromoform	ND		5.0	2.6	ug/L			06/23/22 12:37	1
Carbon disulfide	ND		5.0	3.0	ug/L			06/23/22 12:37	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			06/23/22 12:37	1
Chlorobenzene	ND		5.0	1.6	ug/L			06/23/22 12:37	1
Chloroethane	ND		5.0	2.6	ug/L			06/23/22 12:37	1
Chloroform	ND		5.0	2.1	ug/L			06/23/22 12:37	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			06/23/22 12:37	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			06/23/22 12:37	1
Dibromochloromethane	ND		5.0	2.4	ug/L			06/23/22 12:37	1
Ethylbenzene	ND		5.0	2.2	ug/L			06/23/22 12:37	1
Freon-11	ND		5.0	1.5	ug/L			06/23/22 12:37	1
Freon-113	ND		5.0	1.9	ug/L			06/23/22 12:37	1
Freon-12	ND		5.0	2.9	ug/L			06/23/22 12:37	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			06/23/22 12:37	1
Methyl bromide	ND		5.0	4.5	ug/L			06/23/22 12:37	1
Methyl chloride	ND		5.0	3.9	ug/L			06/23/22 12:37	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			06/23/22 12:37	1
Methylene Chloride	ND		5.0	3.9	ug/L			06/23/22 12:37	1
Styrene	ND		5.0	1.3	ug/L			06/23/22 12:37	1
Tetrachloroethene	ND		5.0	2.0	ug/L			06/23/22 12:37	1
Toluene	ND		5.0	1.7	ug/L			06/23/22 12:37	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			06/23/22 12:37	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			06/23/22 12:37	1
Trichloroethene	ND	*+	5.0	1.5	ug/L			06/23/22 12:37	1
Vinyl chloride	ND		5.0	3.7	ug/L			06/23/22 12:37	1
Xylenes, Total	ND		10	4.3	ug/L			06/23/22 12:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*58*		*52 - 151*		*06/23/22 12:37*	*1*
4-Bromofluorobenzene (Surr)	*65*		*49 - 118*		*06/23/22 12:37*	*1*
Dibromofluoromethane (Surr)	*99*		*60 - 132*		*06/23/22 12:37*	*1*
Toluene-d8 (Surr)	*75*		*53 - 124*		*06/23/22 12:37*	*1*

Client Sample ID: MB T07
Lab Sample ID: 180-136058-52
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.96	0.14	ug/L		06/22/22 11:08	06/24/22 15:39	1
1,4-Dichlorobenzene	ND		0.96	0.059	ug/L		06/22/22 11:08	06/24/22 15:39	1
2,2'-oxybis[1-chloropropane]	ND		0.18	0.056	ug/L		06/22/22 11:08	06/24/22 15:39	1
2,4-Dichlorophenol	ND		0.18	0.049	ug/L		06/22/22 11:08	06/24/22 15:39	1
2,4-Dimethylphenol	ND		0.96	0.16	ug/L		06/22/22 11:08	06/24/22 15:39	1
2,4-Dinitrophenol	ND		9.6	1.5	ug/L		06/22/22 11:08	06/24/22 15:39	1
2,4-Dinitrotoluene	ND		0.96	0.34	ug/L		06/22/22 11:08	06/24/22 15:39	1
2,6-Dinitrotoluene	ND		0.96	0.17	ug/L		06/22/22 11:08	06/24/22 15:39	1
2-Chloronaphthalene	ND		0.18	0.057	ug/L		06/22/22 11:08	06/24/22 15:39	1
2-Nitroaniline	ND		4.8	0.53	ug/L		06/22/22 11:08	06/24/22 15:39	1
3,3'-Dichlorobenzidine	ND		0.96	0.56	ug/L		06/22/22 11:08	06/24/22 15:39	1
3-Nitroaniline	ND		4.8	0.42	ug/L		06/22/22 11:08	06/24/22 15:39	1
p-Chloroaniline	ND		0.96	0.36	ug/L		06/22/22 11:08	06/24/22 15:39	1
p-Nitroaniline	ND		4.8	0.35	ug/L		06/22/22 11:08	06/24/22 15:39	1
Acenaphthene	ND		0.18	0.063	ug/L		06/22/22 11:08	06/24/22 15:39	1
Anthracene	ND		0.18	0.047	ug/L		06/22/22 11:08	06/24/22 15:39	1
Atrazine	ND		0.96	0.61	ug/L		06/22/22 11:08	06/24/22 15:39	1
Benzo[a]anthracene	ND		0.18	0.072	ug/L		06/22/22 11:08	06/24/22 15:39	1
Benzo[a]pyrene	ND		0.18	0.051	ug/L		06/22/22 11:08	06/24/22 15:39	1
Benzo[b]fluoranthene	ND		0.18	0.093	ug/L		06/22/22 11:08	06/24/22 15:39	1
Benzo[k]fluoranthene	ND		0.18	0.085	ug/L		06/22/22 11:08	06/24/22 15:39	1
Bis(2-chloroethoxy)methane	ND		0.96	0.15	ug/L		06/22/22 11:08	06/24/22 15:39	1
Dichloroethyl ether	ND		0.18	0.038	ug/L		06/22/22 11:08	06/24/22 15:39	1
Bis(2-ethylhexyl) phthalate	ND		9.6	6.0	ug/L		06/22/22 11:08	06/24/22 15:39	1
Benzyl butyl phthalate	ND		0.96	0.44	ug/L		06/22/22 11:08	06/24/22 15:39	1
Chrysene	ND		0.18	0.078	ug/L		06/22/22 11:08	06/24/22 15:39	1
Diethyl phthalate	ND		0.96	0.55	ug/L		06/22/22 11:08	06/24/22 15:39	1
Dimethyl phthalate	ND		0.96	0.19	ug/L		06/22/22 11:08	06/24/22 15:39	1
Dibutylphthalate	ND		0.96	0.71	ug/L		06/22/22 11:08	06/24/22 15:39	1
Di-n-octyl phthalate	ND		0.96	0.66	ug/L		06/22/22 11:08	06/24/22 15:39	1
Fluoranthene	ND		0.18	0.058	ug/L		06/22/22 11:08	06/24/22 15:39	1
Fluorene	ND		0.18	0.066	ug/L		06/22/22 11:08	06/24/22 15:39	1
Hexachlorobutadiene	ND		0.18	0.066	ug/L		06/22/22 11:08	06/24/22 15:39	1
Hexachlorocyclopentadiene	ND		0.96	0.48	ug/L		06/22/22 11:08	06/24/22 15:39	1
Hexachloroethane	ND		0.96	0.13	ug/L		06/22/22 11:08	06/24/22 15:39	1
Indeno[1,2,3-cd]pyrene	ND		0.18	0.082	ug/L		06/22/22 11:08	06/24/22 15:39	1
Isophorone	ND		0.96	0.18	ug/L		06/22/22 11:08	06/24/22 15:39	1
Nitrobenzene	ND		1.9	0.48	ug/L		06/22/22 11:08	06/24/22 15:39	1
N-Nitrosodiphenylamine	ND		0.96	0.11	ug/L		06/22/22 11:08	06/24/22 15:39	1
Pentachlorophenol	ND		4.8	0.81	ug/L		06/22/22 11:08	06/24/22 15:39	1
Phenanthrene	**0.12**	**J**	0.18	0.053	ug/L		06/22/22 11:08	06/24/22 15:39	1
Phenol	ND		0.96	0.47	ug/L		06/22/22 11:08	06/24/22 15:39	1
Pyrene	ND		0.18	0.052	ug/L		06/22/22 11:08	06/24/22 15:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*77*		*23 - 128*	*06/22/22 11:08*	*06/24/22 15:39*	*1*
2-Fluorobiphenyl	*69*		*20 - 105*	*06/22/22 11:08*	*06/24/22 15:39*	*1*
2-Fluorophenol (Surr)	*68*		*20 - 105*	*06/22/22 11:08*	*06/24/22 15:39*	*1*
Nitrobenzene-d5 (Surr)	*78*		*20 - 107*	*06/22/22 11:08*	*06/24/22 15:39*	*1*
Phenol-d5 (Surr)	*72*		*20 - 106*	*06/22/22 11:08*	*06/24/22 15:39*	*1*

Client Sample ID: MB T07
Lab Sample ID: 180-136058-52
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - Leach (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14 (Surr)	*85*		*22 - 120*	*06/22/22 11:08*	*06/24/22 15:39*	*1*

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.041	mg/L		06/22/22 13:43	06/27/22 18:09	1
Antimony	ND		0.010	0.0062	mg/L		06/22/22 13:43	06/27/22 18:09	1
Arsenic	ND		0.010	0.0083	mg/L		06/22/22 13:43	06/27/22 18:09	1
Barium	ND		0.20	0.0063	mg/L		06/22/22 13:43	06/27/22 18:09	1
Beryllium	ND		0.0040	0.0015	mg/L		06/22/22 13:43	06/27/22 18:09	1
Cadmium	ND		0.0050	0.00030	mg/L		06/22/22 13:43	06/27/22 18:09	1
Calcium	ND		5.0	0.32	mg/L		06/22/22 13:43	06/27/22 18:09	1
Chromium	ND		0.0050	0.0016	mg/L		06/22/22 13:43	06/27/22 18:09	1
Cobalt	ND		0.050	0.0019	mg/L		06/22/22 13:43	06/27/22 18:09	1
Copper	ND		0.025	0.0022	mg/L		06/22/22 13:43	06/27/22 18:09	1
Iron	ND		0.10	0.072	mg/L		06/22/22 13:43	06/27/22 18:09	1
Lead	ND		0.010	0.0044	mg/L		06/22/22 13:43	06/27/22 18:09	1
Magnesium	ND		5.0	0.26	mg/L		06/22/22 13:43	06/27/22 18:09	1
Manganese	ND		0.015	0.0024	mg/L		06/22/22 13:43	06/27/22 18:09	1
Nickel	ND		0.040	0.0019	mg/L		06/22/22 13:43	06/27/22 18:09	1
Potassium	ND		5.0	0.80	mg/L		06/22/22 13:43	06/27/22 18:09	1
Selenium	ND		0.010	0.0037	mg/L		06/22/22 13:43	06/27/22 18:09	1
Silver	ND		0.0050	0.00091	mg/L		06/22/22 13:43	06/27/22 18:09	1
Sodium	ND		5.0	0.30	mg/L		06/22/22 13:43	06/27/22 18:09	1
Thallium	ND		0.020	0.0030	mg/L		06/22/22 13:43	06/27/22 18:09	1
Vanadium	ND		0.050	0.0053	mg/L		06/22/22 13:43	06/27/22 18:09	1
Zinc	ND		0.020	0.0026	mg/L		06/22/22 13:43	06/27/22 18:09	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/22/22 15:29	06/23/22 10:09	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.0		0.1	0.1	SU			06/22/22 08:23	1

Client Sample ID: MB T08
Lab Sample ID: 180-136058-53
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.0013	0.00053	ug/L		06/30/22 05:00	07/01/22 13:07	1
4,4'-DDE	ND		0.0013	0.00030	ug/L		06/30/22 05:00	07/01/22 13:07	1
4,4'-DDT	ND		0.0013	0.00069	ug/L		06/30/22 05:00	07/01/22 13:07	1
alpha-BHC	ND		0.0013	0.00024	ug/L		06/30/22 05:00	07/01/22 13:07	1
alpha-Chlordane	ND		0.0013	0.00037	ug/L		06/30/22 05:00	07/01/22 13:07	1
beta-BHC	ND		0.0013	0.00037	ug/L		06/30/22 05:00	07/01/22 13:07	1
delta-BHC	ND		0.0013	0.00064	ug/L		06/30/22 05:00	07/01/22 13:07	1
Dieldrin	ND		0.0013	0.00027	ug/L		06/30/22 05:00	07/01/22 13:07	1
Endrin aldehyde	ND		0.0013	0.00052	ug/L		06/30/22 05:00	07/01/22 13:07	1

Client Sample ID: MB T08
Lab Sample ID: 180-136058-53
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8081B LL - Organochlorine Pesticides (GC) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Endrin ketone	ND		0.0013	0.00040	ug/L		06/30/22 05:00	07/01/22 13:07	1
gamma-BHC (Lindane)	ND		0.0013	0.00029	ug/L		06/30/22 05:00	07/01/22 13:07	1
gamma-Chlordane	ND		0.0013	0.00041	ug/L		06/30/22 05:00	07/01/22 13:07	1
Heptachlor	ND	*1	0.0013	0.00045	ug/L		06/30/22 05:00	07/01/22 13:07	1
Heptachlor epoxide	ND		0.0013	0.00034	ug/L		06/30/22 05:00	07/01/22 13:07	1
Hexachlorobenzene	ND		0.0013	0.00091	ug/L		06/30/22 05:00	07/01/22 13:07	1
Toxaphene	ND		0.10	0.049	ug/L		06/30/22 05:00	07/01/22 13:07	1
Endosulfan II	ND		0.0013	0.00032	ug/L		06/30/22 05:00	07/01/22 13:07	1
Methoxychlor	ND		0.0013	0.00078	ug/L		06/30/22 05:00	07/01/22 13:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*89*		*46 - 114*	*06/30/22 05:00*	*07/01/22 13:07*	*1*
DCB Decachlorobiphenyl (Surr)	*103*		*46 - 114*	*06/30/22 05:00*	*07/01/22 13:07*	*1*
Tetrachloro-m-xylene	*68*		*39 - 119*	*06/30/22 05:00*	*07/01/22 13:07*	*1*
Tetrachloro-m-xylene	*81*		*39 - 119*	*06/30/22 05:00*	*07/01/22 13:07*	*1*

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.9**		0.1	0.1	SU			06/29/22 07:58	1

Client Sample ID: MB T09
Lab Sample ID: 180-136058-54
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			07/13/22 12:29	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			07/13/22 12:29	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			07/13/22 12:29	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			07/13/22 12:29	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			07/13/22 12:29	1
1,2,4-Trichlorobenzene	ND	*-	5.0	3.7	ug/L			07/13/22 12:29	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			07/13/22 12:29	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			07/13/22 12:29	1
1,2-Dichlorobenzene	ND	*-	5.0	2.0	ug/L			07/13/22 12:29	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			07/13/22 12:29	1
1,2-Dichloropropane	ND	*-	5.0	2.5	ug/L			07/13/22 12:29	1
1,3-Dichlorobenzene	ND	*-	5.0	1.6	ug/L			07/13/22 12:29	1
1,4-Dichlorobenzene	ND	*-	5.0	1.0	ug/L			07/13/22 12:29	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			07/13/22 12:29	1
2-Hexanone	ND	*-	5.0	4.2	ug/L			07/13/22 12:29	1
Acetone	ND	*-	20	5.5	ug/L			07/13/22 12:29	1
Benzene	ND		5.0	2.0	ug/L			07/13/22 12:29	1
Bromodichloromethane	ND		5.0	2.4	ug/L			07/13/22 12:29	1
Bromoform	ND		5.0	2.6	ug/L			07/13/22 12:29	1
Carbon disulfide	ND		5.0	3.0	ug/L			07/13/22 12:29	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			07/13/22 12:29	1
Chlorobenzene	ND		5.0	1.6	ug/L			07/13/22 12:29	1
Chloroethane	ND		5.0	2.6	ug/L			07/13/22 12:29	1
Chloroform	ND		5.0	2.1	ug/L			07/13/22 12:29	1

Client Sample ID: MB T09
Lab Sample ID: 180-136058-54
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			07/13/22 12:29	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			07/13/22 12:29	1
Dibromochloromethane	ND		5.0	2.4	ug/L			07/13/22 12:29	1
Ethylbenzene	ND		5.0	2.2	ug/L			07/13/22 12:29	1
Freon-11	ND		5.0	1.5	ug/L			07/13/22 12:29	1
Freon-113	ND		5.0	1.9	ug/L			07/13/22 12:29	1
Freon-12	ND		5.0	2.9	ug/L			07/13/22 12:29	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			07/13/22 12:29	1
Methyl bromide	ND		5.0	4.5	ug/L			07/13/22 12:29	1
Methyl chloride	ND		5.0	3.9	ug/L			07/13/22 12:29	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			07/13/22 12:29	1
Methylene Chloride	ND		5.0	3.9	ug/L			07/13/22 12:29	1
Styrene	ND		5.0	1.3	ug/L			07/13/22 12:29	1
Tetrachloroethene	ND		5.0	2.0	ug/L			07/13/22 12:29	1
Toluene	ND		5.0	1.7	ug/L			07/13/22 12:29	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			07/13/22 12:29	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			07/13/22 12:29	1
Trichloroethene	ND		5.0	1.5	ug/L			07/13/22 12:29	1
Vinyl chloride	ND		5.0	3.7	ug/L			07/13/22 12:29	1
Xylenes, Total	ND		10	4.3	ug/L			07/13/22 12:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*54*		*52 - 151*		*07/13/22 12:29*	*1*
4-Bromofluorobenzene (Surr)	*64*		*49 - 118*		*07/13/22 12:29*	*1*
Dibromofluoromethane (Surr)	*99*		*60 - 132*		*07/13/22 12:29*	*1*
Toluene-d8 (Surr)	*66*		*53 - 124*		*07/13/22 12:29*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.0	0.76	mg/L			07/13/22 15:11	1

Method: EPA 6010D - Metals (ICP) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.041	mg/L		07/21/22 12:31	07/22/22 08:05	1
Antimony	ND		0.010	0.0062	mg/L		07/21/22 12:31	07/22/22 08:05	1
Arsenic	ND		0.010	0.0083	mg/L		07/21/22 12:31	07/22/22 08:05	1
Barium	ND		0.20	0.0063	mg/L		07/21/22 12:31	07/22/22 08:05	1
Beryllium	ND		0.0040	0.0015	mg/L		07/21/22 12:31	07/22/22 08:05	1
Cadmium	ND		0.0050	0.00030	mg/L		07/21/22 12:31	07/22/22 08:05	1
Calcium	ND		5.0	0.32	mg/L		07/21/22 12:31	07/22/22 08:05	1
Chromium	ND		0.0050	0.0016	mg/L		07/21/22 12:31	07/22/22 08:05	1
Cobalt	ND		0.050	0.0019	mg/L		07/21/22 12:31	07/22/22 08:05	1
Copper	ND		0.025	0.0022	mg/L		07/21/22 12:31	07/22/22 08:05	1
Iron	ND		0.10	0.072	mg/L		07/21/22 12:31	07/22/22 08:05	1
Lead	ND		0.010	0.0044	mg/L		07/21/22 12:31	07/22/22 08:05	1
Magnesium	ND		5.0	0.26	mg/L		07/21/22 12:31	07/22/22 08:05	1
Manganese	ND		0.015	0.0024	mg/L		07/21/22 12:31	07/22/22 08:05	1
Nickel	ND		0.040	0.0019	mg/L		07/21/22 12:31	07/22/22 08:05	1
Potassium	ND		5.0	0.80	mg/L		07/21/22 12:31	07/22/22 08:05	1
Selenium	ND		0.010	0.0037	mg/L		07/21/22 12:31	07/22/22 08:05	1

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: MB T09
Lab Sample ID: 180-136058-54
Date Collected: 04/01/22 00:00
Matrix: Solid
Date Received: 05/07/22 09:00

Method: EPA 6010D - Metals (ICP) - Leach (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.0050	0.00091	mg/L		07/21/22 12:31	07/22/22 08:05	1
Sodium	ND		5.0	0.30	mg/L		07/21/22 12:31	07/22/22 08:05	1
Thallium	ND		0.020	0.0030	mg/L		07/21/22 12:31	07/22/22 08:05	1
Vanadium	ND		0.050	0.0053	mg/L		07/21/22 12:31	07/22/22 08:05	1
Zinc	ND		0.020	0.0026	mg/L		07/21/22 12:31	07/22/22 08:05	1

Method: EPA 7470A - Mercury (CVAA) - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		07/14/22 09:24	07/15/22 12:04	1

General Chemistry - Leach

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.1		0.1	0.1	SU			07/13/22 08:23	1
Specific Conductance	1.7		1.0	1.0	umhos/cm			07/13/22 08:21	1
Oxidation Reduction Potential	380		10	10	millivolts			07/13/22 08:23	1

Method: EPA 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 180-401682/12
Matrix: Solid
Analysis Batch: 401682

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			06/11/22 15:58	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			06/11/22 15:58	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			06/11/22 15:58	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			06/11/22 15:58	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			06/11/22 15:58	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			06/11/22 15:58	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			06/11/22 15:58	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			06/11/22 15:58	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			06/11/22 15:58	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			06/11/22 15:58	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			06/11/22 15:58	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			06/11/22 15:58	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			06/11/22 15:58	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			06/11/22 15:58	1
2-Hexanone	ND		5.0	4.2	ug/L			06/11/22 15:58	1
Acetone	ND		20	5.5	ug/L			06/11/22 15:58	1
Benzene	ND		5.0	2.0	ug/L			06/11/22 15:58	1
Bromodichloromethane	ND		5.0	2.4	ug/L			06/11/22 15:58	1
Bromoform	ND		5.0	2.6	ug/L			06/11/22 15:58	1
Carbon disulfide	ND		5.0	3.0	ug/L			06/11/22 15:58	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			06/11/22 15:58	1
Chlorobenzene	ND		5.0	1.6	ug/L			06/11/22 15:58	1
Chloroethane	ND		5.0	2.6	ug/L			06/11/22 15:58	1
Chloroform	ND		5.0	2.1	ug/L			06/11/22 15:58	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			06/11/22 15:58	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			06/11/22 15:58	1
Dibromochloromethane	ND		5.0	2.4	ug/L			06/11/22 15:58	1
Ethylbenzene	ND		5.0	2.2	ug/L			06/11/22 15:58	1
Freon-11	ND		5.0	1.5	ug/L			06/11/22 15:58	1
Freon-113	ND		5.0	1.9	ug/L			06/11/22 15:58	1
Freon-12	ND		5.0	2.9	ug/L			06/11/22 15:58	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			06/11/22 15:58	1
Methyl bromide	ND		5.0	4.5	ug/L			06/11/22 15:58	1
Methyl chloride	ND		5.0	3.9	ug/L			06/11/22 15:58	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			06/11/22 15:58	1
Methylene Chloride	ND		5.0	3.9	ug/L			06/11/22 15:58	1
Styrene	ND		5.0	1.3	ug/L			06/11/22 15:58	1
Tetrachloroethene	ND		5.0	2.0	ug/L			06/11/22 15:58	1
Toluene	ND		5.0	1.7	ug/L			06/11/22 15:58	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			06/11/22 15:58	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			06/11/22 15:58	1
Trichloroethene	ND		5.0	1.5	ug/L			06/11/22 15:58	1
Vinyl chloride	ND		5.0	3.7	ug/L			06/11/22 15:58	1
Xylenes, Total	ND		10	4.3	ug/L			06/11/22 15:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*83*		*52 - 151*		*06/11/22 15:58*	*1*
4-Bromofluorobenzene (Surr)	*74*		*49 - 118*		*06/11/22 15:58*	*1*

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 180-401682/12
Matrix: Solid
Analysis Batch: 401682

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	*93*		*60 - 132*		*06/11/22 15:58*	*1*
Toluene-d8 (Surr)	*80*		*53 - 124*		*06/11/22 15:58*	*1*

Lab Sample ID: LCS 180-401682/4
Matrix: Solid
Analysis Batch: 401682

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	40.0	49.5		ug/L		124	64 - 133
1,1,2,2-Tetrachloroethane	40.0	28.1		ug/L		70	47 - 147
1,1,2-Trichloroethane	40.0	36.3		ug/L		91	59 - 137
1,1-Dichloroethane	40.0	39.7		ug/L		99	59 - 125
1,1-Dichloroethene	40.0	25.9		ug/L		65	49 - 132
1,2,4-Trichlorobenzene	40.0	3.77	J *-	ug/L		9	15 - 169
1,2-Dibromo-3-Chloropropane	40.0	16.4		ug/L		41	10 - 170
1,2-Dibromoethane	40.0	40.1		ug/L		100	55 - 146
1,2-Dichlorobenzene	40.0	36.1		ug/L		90	68 - 116
1,2-Dichloroethane	40.0	44.1		ug/L		110	57 - 149
1,2-Dichloropropane	40.0	41.4		ug/L		103	65 - 129
1,3-Dichlorobenzene	40.0	41.2		ug/L		103	70 - 119
1,4-Dichlorobenzene	40.0	38.0		ug/L		95	74 - 117
2-Butanone (MEK)	40.0	24.0		ug/L		60	35 - 158
2-Hexanone	40.0	34.3		ug/L		86	38 - 157
Acetone	40.0	21.5		ug/L		54	29 - 163
Benzene	40.0	37.9		ug/L		95	68 - 122
Bromodichloromethane	40.0	41.6		ug/L		104	63 - 132
Bromoform	40.0	33.4		ug/L		83	31 - 164
Carbon disulfide	40.0	34.6		ug/L		87	32 - 139
Carbon tetrachloride	40.0	39.8		ug/L		100	60 - 135
Chlorobenzene	40.0	36.1		ug/L		90	72 - 123
Chloroethane	40.0	39.5		ug/L		99	10 - 170
Chloroform	40.0	37.3		ug/L		93	62 - 121
cis-1,2-Dichloroethene	40.0	39.3		ug/L		98	64 - 122
cis-1,3-Dichloropropene	40.0	48.5		ug/L		121	53 - 140
Dibromochloromethane	40.0	40.1		ug/L		100	51 - 144
Ethylbenzene	40.0	40.0		ug/L		100	66 - 122
Freon-11	40.0	41.3	E	ug/L		103	32 - 157
Freon-113	40.0	29.3		ug/L		73	48 - 134
Freon-12	40.0	33.9		ug/L		85	21 - 165
Isopropylbenzene (cumene)	40.0	37.7		ug/L		94	54 - 130
Methyl bromide	40.0	32.3		ug/L		81	20 - 170
Methyl chloride	40.0	38.7		ug/L		97	37 - 170
Methyl tert-butyl ether	40.0	56.2		ug/L		140	36 - 141
Methylene Chloride	40.0	29.9		ug/L		75	51 - 137
m-Xylene & p-Xylene	40.0	41.1		ug/L		103	61 - 128
o-Xylene	40.0	38.3		ug/L		96	64 - 120
Styrene	40.0	39.4		ug/L		98	68 - 127
Tetrachloroethene	40.0	39.3		ug/L		98	60 - 129

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-401682/4
Matrix: Solid
Analysis Batch: 401682

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Toluene			40.0	41.7		ug/L		104	67 - 128		
trans-1,2-Dichloroethene			40.0	36.3		ug/L		91	62 - 126		
trans-1,3-Dichloropropene			40.0	43.2	E	ug/L		108	57 - 137		
Trichloroethene			40.0	40.8		ug/L		102	67 - 121		
Vinyl chloride			40.0	34.3		ug/L		86	47 - 147		
Xylenes, Total			80.0	79.4		ug/L		99	64 - 123		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*52 - 151*
4-Bromofluorobenzene (Surr)	*110*		*49 - 118*
Dibromofluoromethane (Surr)	*108*		*60 - 132*
Toluene-d8 (Surr)	*106*		*53 - 124*

Lab Sample ID: LCSD 180-401682/6
Matrix: Solid
Analysis Batch: 401682

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane			40.0	55.4	*+	ug/L		138	64 - 133	11	22
1,1,2,2-Tetrachloroethane			40.0	38.0		ug/L		95	47 - 147	30	35
1,1,2-Trichloroethane			40.0	35.3		ug/L		88	59 - 137	3	29
1,1-Dichloroethane			40.0	41.1		ug/L		103	59 - 125	3	20
1,1-Dichloroethene			40.0	27.2		ug/L		68	49 - 132	5	23
1,2,4-Trichlorobenzene			40.0	18.5	*1	ug/L		46	15 - 169	132	35
1,2-Dibromo-3-Chloropropane			40.0	32.2	*1	ug/L		80	10 - 170	65	35
1,2-Dibromoethane			40.0	40.9		ug/L		102	55 - 146	2	30
1,2-Dichlorobenzene			40.0	41.5		ug/L		104	68 - 116	14	20
1,2-Dichloroethane			40.0	43.9		ug/L		110	57 - 149	0	27
1,2-Dichloropropane			40.0	44.1		ug/L		110	65 - 129	6	23
1,3-Dichlorobenzene			40.0	43.4		ug/L		109	70 - 119	5	18
1,4-Dichlorobenzene			40.0	40.4		ug/L		101	74 - 117	6	17
2-Butanone (MEK)			40.0	17.2		ug/L		43	35 - 158	33	35
2-Hexanone			40.0	31.1		ug/L		78	38 - 157	10	35
Acetone			40.0	23.2		ug/L		58	29 - 163	8	35
Benzene			40.0	39.9		ug/L		100	68 - 122	5	21
Bromodichloromethane			40.0	44.4		ug/L		111	63 - 132	6	24
Bromoform			40.0	39.7		ug/L		99	31 - 164	17	35
Carbon disulfide			40.0	41.6		ug/L		104	32 - 139	18	25
Carbon tetrachloride			40.0	42.1		ug/L		105	60 - 135	6	25
Chlorobenzene			40.0	36.4		ug/L		91	72 - 123	1	19
Chloroethane			40.0	44.6	E	ug/L		111	10 - 170	12	29
Chloroform			40.0	37.2		ug/L		93	62 - 121	0	22
cis-1,2-Dichloroethene			40.0	38.5		ug/L		96	64 - 122	2	22
cis-1,3-Dichloropropene			40.0	52.9		ug/L		132	53 - 140	9	26
Dibromochloromethane			40.0	38.1		ug/L		95	51 - 144	5	25
Ethylbenzene			40.0	39.1		ug/L		98	66 - 122	2	22
Freon-11			40.0	45.8	E	ug/L		114	32 - 157	10	35
Freon-113			40.0	30.8		ug/L		77	48 - 134	5	28

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 180-401682/6
Matrix: Solid
Analysis Batch: 401682

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Freon-12			40.0	37.9		ug/L		95	21 - 165	11	26
Isopropylbenzene (cumene)			40.0	40.3		ug/L		101	54 - 130	7	22
Methyl bromide			40.0	38.7		ug/L		97	20 - 170	18	30
Methyl chloride			40.0	46.3		ug/L		116	37 - 170	18	28
Methyl tert-butyl ether			40.0	54.0		ug/L		135	36 - 141	4	35
Methylene Chloride			40.0	36.3		ug/L		91	51 - 137	19	35
m-Xylene & p-Xylene			40.0	42.8		ug/L		107	61 - 128	4	21
o-Xylene			40.0	40.0		ug/L		100	64 - 120	4	23
Styrene			40.0	39.8		ug/L		99	68 - 127	1	22
Tetrachloroethene			40.0	37.2		ug/L		93	60 - 129	5	22
Toluene			40.0	38.8		ug/L		97	67 - 128	7	22
trans-1,2-Dichloroethene			40.0	36.3		ug/L		91	62 - 126	0	23
trans-1,3-Dichloropropene			40.0	41.8	E	ug/L		104	57 - 137	3	25
Trichloroethene			40.0	42.4		ug/L		106	67 - 121	4	23
Vinyl chloride			40.0	39.6		ug/L		99	47 - 147	14	25
Xylenes, Total			80.0	82.8		ug/L		104	64 - 123	4	21

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*52 - 151*
4-Bromofluorobenzene (Surr)	*117*		*49 - 118*
Dibromofluoromethane (Surr)	*112*		*60 - 132*
Toluene-d8 (Surr)	*98*		*53 - 124*

Lab Sample ID: MB 180-401735/12
Matrix: Solid
Analysis Batch: 401735

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			06/13/22 13:01	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			06/13/22 13:01	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			06/13/22 13:01	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			06/13/22 13:01	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			06/13/22 13:01	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			06/13/22 13:01	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			06/13/22 13:01	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			06/13/22 13:01	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			06/13/22 13:01	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			06/13/22 13:01	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			06/13/22 13:01	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			06/13/22 13:01	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			06/13/22 13:01	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			06/13/22 13:01	1
2-Hexanone	ND		5.0	4.2	ug/L			06/13/22 13:01	1
Acetone	ND		20	5.5	ug/L			06/13/22 13:01	1
Benzene	ND		5.0	2.0	ug/L			06/13/22 13:01	1
Bromodichloromethane	ND		5.0	2.4	ug/L			06/13/22 13:01	1
Bromoform	ND		5.0	2.6	ug/L			06/13/22 13:01	1
Carbon disulfide	ND		5.0	3.0	ug/L			06/13/22 13:01	1

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 180-401735/12
Matrix: Solid
Analysis Batch: 401735

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	ND		5.0	3.3	ug/L			06/13/22 13:01	1
Chlorobenzene	ND		5.0	1.6	ug/L			06/13/22 13:01	1
Chloroethane	ND		5.0	2.6	ug/L			06/13/22 13:01	1
Chloroform	ND		5.0	2.1	ug/L			06/13/22 13:01	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			06/13/22 13:01	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			06/13/22 13:01	1
Dibromochloromethane	ND		5.0	2.4	ug/L			06/13/22 13:01	1
Ethylbenzene	ND		5.0	2.2	ug/L			06/13/22 13:01	1
Freon-11	ND		5.0	1.5	ug/L			06/13/22 13:01	1
Freon-113	ND		5.0	1.9	ug/L			06/13/22 13:01	1
Freon-12	ND		5.0	2.9	ug/L			06/13/22 13:01	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			06/13/22 13:01	1
Methyl bromide	ND		5.0	4.5	ug/L			06/13/22 13:01	1
Methyl chloride	ND		5.0	3.9	ug/L			06/13/22 13:01	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			06/13/22 13:01	1
Methylene Chloride	ND		5.0	3.9	ug/L			06/13/22 13:01	1
Styrene	ND		5.0	1.3	ug/L			06/13/22 13:01	1
Tetrachloroethene	ND		5.0	2.0	ug/L			06/13/22 13:01	1
Toluene	ND		5.0	1.7	ug/L			06/13/22 13:01	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			06/13/22 13:01	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			06/13/22 13:01	1
Trichloroethene	ND		5.0	1.5	ug/L			06/13/22 13:01	1
Vinyl chloride	ND		5.0	3.7	ug/L			06/13/22 13:01	1
Xylenes, Total	ND		10	4.3	ug/L			06/13/22 13:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*83*		*52 - 151*		*06/13/22 13:01*	*1*
4-Bromofluorobenzene (Surr)	*78*		*49 - 118*		*06/13/22 13:01*	*1*
Dibromofluoromethane (Surr)	*96*		*60 - 132*		*06/13/22 13:01*	*1*
Toluene-d8 (Surr)	*81*		*53 - 124*		*06/13/22 13:01*	*1*

Lab Sample ID: LCS 180-401735/8
Matrix: Solid
Analysis Batch: 401735

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	40.0	49.7		ug/L		124	64 - 133
1,1,2,2-Tetrachloroethane	40.0	31.5		ug/L		79	47 - 147
1,1,2-Trichloroethane	40.0	35.2		ug/L		88	59 - 137
1,1-Dichloroethane	40.0	40.7		ug/L		102	59 - 125
1,1-Dichloroethene	40.0	28.7		ug/L		72	49 - 132
1,2,4-Trichlorobenzene	40.0	36.5		ug/L		91	15 - 169
1,2-Dibromo-3-Chloropropane	40.0	44.6		ug/L		112	10 - 170
1,2-Dibromoethane	40.0	40.3		ug/L		101	55 - 146
1,2-Dichlorobenzene	40.0	31.2		ug/L		78	68 - 116
1,2-Dichloroethane	40.0	48.8		ug/L		122	57 - 149
1,2-Dichloropropane	40.0	39.9		ug/L		100	65 - 129
1,3-Dichlorobenzene	40.0	31.9		ug/L		80	70 - 119

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-401735/8
Matrix: Solid
Analysis Batch: 401735

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dichlorobenzene	40.0	31.4		ug/L		79	74 - 117
2-Butanone (MEK)	40.0	31.2		ug/L		78	35 - 158
2-Hexanone	40.0	37.6		ug/L		94	38 - 157
Acetone	40.0	32.5		ug/L		81	29 - 163
Benzene	40.0	36.8		ug/L		92	68 - 122
Bromodichloromethane	40.0	43.0		ug/L		107	63 - 132
Bromoform	40.0	35.8		ug/L		90	31 - 164
Carbon disulfide	40.0	34.9		ug/L		87	32 - 139
Carbon tetrachloride	40.0	40.7		ug/L		102	60 - 135
Chlorobenzene	40.0	31.8		ug/L		80	72 - 123
Chloroethane	40.0	30.4		ug/L		76	10 - 170
Chloroform	40.0	39.6		ug/L		99	62 - 121
cis-1,2-Dichloroethene	40.0	39.7		ug/L		99	64 - 122
cis-1,3-Dichloropropene	40.0	47.3		ug/L		118	53 - 140
Dibromochloromethane	40.0	39.7		ug/L		99	51 - 144
Ethylbenzene	40.0	34.3		ug/L		86	66 - 122
Freon-11	40.0	41.4	E	ug/L		104	32 - 157
Freon-113	40.0	29.7		ug/L		74	48 - 134
Freon-12	40.0	32.3		ug/L		81	21 - 165
Isopropylbenzene (cumene)	40.0	30.7		ug/L		77	54 - 130
Methyl bromide	40.0	30.2		ug/L		76	20 - 170
Methyl chloride	40.0	37.2		ug/L		93	37 - 170
Methyl tert-butyl ether	40.0	59.5	*+	ug/L		149	36 - 141
Methylene Chloride	40.0	30.5		ug/L		76	51 - 137
m-Xylene & p-Xylene	40.0	36.2		ug/L		90	61 - 128
o-Xylene	40.0	33.4		ug/L		83	64 - 120
Styrene	40.0	33.3		ug/L		83	68 - 127
Tetrachloroethene	40.0	36.3		ug/L		91	60 - 129
Toluene	40.0	37.3		ug/L		93	67 - 128
trans-1,2-Dichloroethene	40.0	35.4		ug/L		88	62 - 126
trans-1,3-Dichloropropene	40.0	42.5	E	ug/L		106	57 - 137
Trichloroethene	40.0	39.5		ug/L		99	67 - 121
Vinyl chloride	40.0	27.8		ug/L		70	47 - 147
Xylenes, Total	80.0	69.6		ug/L		87	64 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*52 - 151*
4-Bromofluorobenzene (Surr)	*94*		*49 - 118*
Dibromofluoromethane (Surr)	*115*		*60 - 132*
Toluene-d8 (Surr)	*98*		*53 - 124*

Lab Sample ID: MB 180-402985/8
Matrix: Solid
Analysis Batch: 402985

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			06/23/22 11:19	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			06/23/22 11:19	1

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 180-402985/8
Matrix: Solid
Analysis Batch: 402985

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			06/23/22 11:19	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			06/23/22 11:19	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			06/23/22 11:19	1
1,2,4-Trichlorobenzene	7.31		5.0	3.7	ug/L			06/23/22 11:19	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			06/23/22 11:19	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			06/23/22 11:19	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			06/23/22 11:19	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			06/23/22 11:19	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			06/23/22 11:19	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			06/23/22 11:19	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			06/23/22 11:19	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			06/23/22 11:19	1
2-Hexanone	ND		5.0	4.2	ug/L			06/23/22 11:19	1
Acetone	ND		20	5.5	ug/L			06/23/22 11:19	1
Benzene	ND		5.0	2.0	ug/L			06/23/22 11:19	1
Bromodichloromethane	ND		5.0	2.4	ug/L			06/23/22 11:19	1
Bromoform	ND		5.0	2.6	ug/L			06/23/22 11:19	1
Carbon disulfide	ND		5.0	3.0	ug/L			06/23/22 11:19	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			06/23/22 11:19	1
Chlorobenzene	ND		5.0	1.6	ug/L			06/23/22 11:19	1
Chloroethane	ND		5.0	2.6	ug/L			06/23/22 11:19	1
Chloroform	ND		5.0	2.1	ug/L			06/23/22 11:19	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			06/23/22 11:19	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			06/23/22 11:19	1
Dibromochloromethane	ND		5.0	2.4	ug/L			06/23/22 11:19	1
Ethylbenzene	ND		5.0	2.2	ug/L			06/23/22 11:19	1
Freon-11	ND		5.0	1.5	ug/L			06/23/22 11:19	1
Freon-113	ND		5.0	1.9	ug/L			06/23/22 11:19	1
Freon-12	ND		5.0	2.9	ug/L			06/23/22 11:19	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			06/23/22 11:19	1
Methyl bromide	ND		5.0	4.5	ug/L			06/23/22 11:19	1
Methyl chloride	ND		5.0	3.9	ug/L			06/23/22 11:19	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			06/23/22 11:19	1
Methylene Chloride	ND		5.0	3.9	ug/L			06/23/22 11:19	1
Styrene	ND		5.0	1.3	ug/L			06/23/22 11:19	1
Tetrachloroethene	ND		5.0	2.0	ug/L			06/23/22 11:19	1
Toluene	ND		5.0	1.7	ug/L			06/23/22 11:19	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			06/23/22 11:19	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			06/23/22 11:19	1
Trichloroethene	ND		5.0	1.5	ug/L			06/23/22 11:19	1
Vinyl chloride	ND		5.0	3.7	ug/L			06/23/22 11:19	1
Xylenes, Total	ND		10	4.3	ug/L			06/23/22 11:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*54*		*52 - 151*		*06/23/22 11:19*	*1*
4-Bromofluorobenzene (Surr)	*61*		*49 - 118*		*06/23/22 11:19*	*1*
Dibromofluoromethane (Surr)	*93*		*60 - 132*		*06/23/22 11:19*	*1*
Toluene-d8 (Surr)	*78*		*53 - 124*		*06/23/22 11:19*	*1*

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-402985/6
Matrix: Solid
Analysis Batch: 402985

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	40.0	46.4		ug/L		116	64 - 133
1,1,2,2-Tetrachloroethane	40.0	27.9		ug/L		70	47 - 147
1,1,2-Trichloroethane	40.0	35.0		ug/L		88	59 - 137
1,1-Dichloroethane	40.0	29.6		ug/L		74	59 - 125
1,1-Dichloroethene	40.0	35.0		ug/L		87	49 - 132
1,2,4-Trichlorobenzene	40.0	44.1	E	ug/L		110	15 - 169
1,2-Dibromo-3-Chloropropane	40.0	34.9		ug/L		87	10 - 170
1,2-Dibromoethane	40.0	37.9		ug/L		95	55 - 146
1,2-Dichlorobenzene	40.0	36.9		ug/L		92	68 - 116
1,2-Dichloroethane	40.0	27.0		ug/L		68	57 - 149
1,2-Dichloropropane	40.0	31.8		ug/L		80	65 - 129
1,3-Dichlorobenzene	40.0	36.5		ug/L		91	70 - 119
1,4-Dichlorobenzene	40.0	35.7		ug/L		89	74 - 117
2-Butanone (MEK)	40.0	29.0		ug/L		72	35 - 158
2-Hexanone	40.0	24.1		ug/L		60	38 - 157
Acetone	40.0	15.6	J	ug/L		39	29 - 163
Benzene	40.0	38.6		ug/L		96	68 - 122
Bromodichloromethane	40.0	36.0		ug/L		90	63 - 132
Bromoform	40.0	35.3		ug/L		88	31 - 164
Carbon disulfide	40.0	41.6		ug/L		104	32 - 139
Carbon tetrachloride	40.0	38.3		ug/L		96	60 - 135
Chlorobenzene	40.0	38.8		ug/L		97	72 - 123
Chloroethane	40.0	40.8	E	ug/L		102	10 - 170
Chloroform	40.0	31.9		ug/L		80	62 - 121
cis-1,2-Dichloroethene	40.0	38.2		ug/L		96	64 - 122
cis-1,3-Dichloropropene	40.0	44.0		ug/L		110	53 - 140
Dibromochloromethane	40.0	38.7		ug/L		97	51 - 144
Ethylbenzene	40.0	44.1		ug/L		110	66 - 122
Freon-11	40.0	45.5	E	ug/L		114	32 - 157
Freon-113	40.0	34.7		ug/L		87	48 - 134
Freon-12	40.0	32.5		ug/L		81	21 - 165
Isopropylbenzene (cumene)	40.0	43.7		ug/L		109	54 - 130
Methyl bromide	40.0	47.8	E	ug/L		119	20 - 170
Methyl chloride	40.0	30.9		ug/L		77	37 - 170
Methyl tert-butyl ether	40.0	40.8		ug/L		102	36 - 141
Methylene Chloride	40.0	35.3		ug/L		88	51 - 137
m-Xylene & p-Xylene	40.0	47.0		ug/L		118	61 - 128
o-Xylene	40.0	42.4		ug/L		106	64 - 120
Styrene	40.0	39.2		ug/L		98	68 - 127
Tetrachloroethene	40.0	51.0		ug/L		128	60 - 129
Toluene	40.0	42.0		ug/L		105	67 - 128
trans-1,2-Dichloroethene	40.0	42.7	E	ug/L		107	62 - 126
trans-1,3-Dichloropropene	40.0	35.9		ug/L		90	57 - 137
Trichloroethene	40.0	51.5	*+	ug/L		129	67 - 121
Vinyl chloride	40.0	33.4		ug/L		84	47 - 147
Xylenes, Total	80.0	89.4		ug/L		112	64 - 123

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-402985/6
Matrix: Solid
Analysis Batch: 402985

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*56*		*52 - 151*
4-Bromofluorobenzene (Surr)	*87*		*49 - 118*
Dibromofluoromethane (Surr)	*88*		*60 - 132*
Toluene-d8 (Surr)	*98*		*53 - 124*

Lab Sample ID: MB 180-403153/13
Matrix: Solid
Analysis Batch: 403153

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			06/24/22 13:21	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			06/24/22 13:21	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			06/24/22 13:21	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			06/24/22 13:21	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			06/24/22 13:21	1
1,2,4-Trichlorobenzene	5.74		5.0	3.7	ug/L			06/24/22 13:21	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			06/24/22 13:21	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			06/24/22 13:21	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			06/24/22 13:21	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			06/24/22 13:21	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			06/24/22 13:21	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			06/24/22 13:21	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			06/24/22 13:21	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			06/24/22 13:21	1
2-Hexanone	ND		5.0	4.2	ug/L			06/24/22 13:21	1
Acetone	ND		20	5.5	ug/L			06/24/22 13:21	1
Benzene	ND		5.0	2.0	ug/L			06/24/22 13:21	1
Bromodichloromethane	ND		5.0	2.4	ug/L			06/24/22 13:21	1
Bromoform	ND		5.0	2.6	ug/L			06/24/22 13:21	1
Carbon disulfide	ND		5.0	3.0	ug/L			06/24/22 13:21	1
Carbon tetrachloride	ND		5.0	3.3	ug/L			06/24/22 13:21	1
Chlorobenzene	ND		5.0	1.6	ug/L			06/24/22 13:21	1
Chloroethane	ND		5.0	2.6	ug/L			06/24/22 13:21	1
Chloroform	ND		5.0	2.1	ug/L			06/24/22 13:21	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			06/24/22 13:21	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			06/24/22 13:21	1
Dibromochloromethane	ND		5.0	2.4	ug/L			06/24/22 13:21	1
Ethylbenzene	ND		5.0	2.2	ug/L			06/24/22 13:21	1
Freon-11	ND		5.0	1.5	ug/L			06/24/22 13:21	1
Freon-113	ND		5.0	1.9	ug/L			06/24/22 13:21	1
Freon-12	ND		5.0	2.9	ug/L			06/24/22 13:21	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			06/24/22 13:21	1
Methyl bromide	ND		5.0	4.5	ug/L			06/24/22 13:21	1
Methyl chloride	ND		5.0	3.9	ug/L			06/24/22 13:21	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			06/24/22 13:21	1
Methylene Chloride	ND		5.0	3.9	ug/L			06/24/22 13:21	1
Styrene	ND		5.0	1.3	ug/L			06/24/22 13:21	1
Tetrachloroethene	ND		5.0	2.0	ug/L			06/24/22 13:21	1

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 180-403153/13
Matrix: Solid
Analysis Batch: 403153

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		5.0	1.7	ug/L			06/24/22 13:21	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			06/24/22 13:21	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			06/24/22 13:21	1
Trichloroethene	ND		5.0	1.5	ug/L			06/24/22 13:21	1
Vinyl chloride	ND		5.0	3.7	ug/L			06/24/22 13:21	1
Xylenes, Total	ND		10	4.3	ug/L			06/24/22 13:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*59*		*52 - 151*		*06/24/22 13:21*	*1*
4-Bromofluorobenzene (Surr)	*64*		*49 - 118*		*06/24/22 13:21*	*1*
Dibromofluoromethane (Surr)	*99*		*60 - 132*		*06/24/22 13:21*	*1*
Toluene-d8 (Surr)	*72*		*53 - 124*		*06/24/22 13:21*	*1*

Lab Sample ID: LCS 180-403153/21
Matrix: Solid
Analysis Batch: 403153

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	40.0	40.4		ug/L		101	64 - 133
1,1,2,2-Tetrachloroethane	40.0	18.0	*-	ug/L		45	47 - 147
1,1,2-Trichloroethane	40.0	27.1		ug/L		68	59 - 137
1,1-Dichloroethane	40.0	26.1		ug/L		65	59 - 125
1,1-Dichloroethene	40.0	27.4		ug/L		68	49 - 132
1,2,4-Trichlorobenzene	40.0	5.18	*-	ug/L		13	15 - 169
1,2-Dibromo-3-Chloropropane	40.0	7.43		ug/L		19	10 - 170
1,2-Dibromoethane	40.0	30.7		ug/L		77	55 - 146
1,2-Dichlorobenzene	40.0	11.3	*-	ug/L		28	68 - 116
1,2-Dichloroethane	40.0	27.2		ug/L		68	57 - 149
1,2-Dichloropropane	40.0	28.3		ug/L		71	65 - 129
1,3-Dichlorobenzene	40.0	12.1	*-	ug/L		30	70 - 119
1,4-Dichlorobenzene	40.0	12.7	*-	ug/L		32	74 - 117
2-Butanone (MEK)	40.0	19.7		ug/L		49	35 - 158
2-Hexanone	40.0	13.7	*-	ug/L		34	38 - 157
Acetone	40.0	11.8	J	ug/L		30	29 - 163
Benzene	40.0	33.5		ug/L		84	68 - 122
Bromodichloromethane	40.0	34.5		ug/L		86	63 - 132
Bromoform	40.0	27.0		ug/L		68	31 - 164
Carbon disulfide	40.0	31.3		ug/L		78	32 - 139
Carbon tetrachloride	40.0	33.9		ug/L		85	60 - 135
Chlorobenzene	40.0	28.2	*-	ug/L		71	72 - 123
Chloroethane	40.0	25.4		ug/L		63	10 - 170
Chloroform	40.0	30.5		ug/L		76	62 - 121
cis-1,2-Dichloroethene	40.0	37.1		ug/L		93	64 - 122
cis-1,3-Dichloropropene	40.0	37.2		ug/L		93	53 - 140
Dibromochloromethane	40.0	31.9		ug/L		80	51 - 144
Ethylbenzene	40.0	29.1		ug/L		73	66 - 122
Freon-11	40.0	31.5		ug/L		79	32 - 157
Freon-113	40.0	29.0		ug/L		73	48 - 134

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-403153/21
Matrix: Solid
Analysis Batch: 403153

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Freon-12	40.0	22.8		ug/L		57	21 - 165
Isopropylbenzene (cumene)	40.0	23.0		ug/L		57	54 - 130
Methyl bromide	40.0	31.4		ug/L		79	20 - 170
Methyl chloride	40.0	18.2		ug/L		45	37 - 170
Methyl tert-butyl ether	40.0	43.7		ug/L		109	36 - 141
Methylene Chloride	40.0	28.7		ug/L		72	51 - 137
m-Xylene & p-Xylene	40.0	29.2		ug/L		73	61 - 128
o-Xylene	40.0	26.3		ug/L		66	64 - 120
Styrene	40.0	25.7	*-	ug/L		64	68 - 127
Tetrachloroethene	40.0	35.7		ug/L		89	60 - 129
Toluene	40.0	30.1		ug/L		75	67 - 128
trans-1,2-Dichloroethene	40.0	35.7		ug/L		89	62 - 126
trans-1,3-Dichloropropene	40.0	29.7		ug/L		74	57 - 137
Trichloroethene	40.0	46.0		ug/L		115	67 - 121
Vinyl chloride	40.0	19.5		ug/L		49	47 - 147
Xylenes, Total	80.0	55.5		ug/L		69	64 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*71*		*52 - 151*
4-Bromofluorobenzene (Surr)	*100*		*49 - 118*
Dibromofluoromethane (Surr)	*113*		*60 - 132*
Toluene-d8 (Surr)	*88*		*53 - 124*

Lab Sample ID: MB 180-404856/9
Matrix: Solid
Analysis Batch: 404856

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	2.5	ug/L			07/13/22 11:37	1
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			07/13/22 11:37	1
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			07/13/22 11:37	1
1,1-Dichloroethane	ND		5.0	1.8	ug/L			07/13/22 11:37	1
1,1-Dichloroethene	ND		5.0	2.9	ug/L			07/13/22 11:37	1
1,2,4-Trichlorobenzene	ND		5.0	3.7	ug/L			07/13/22 11:37	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.1	ug/L			07/13/22 11:37	1
1,2-Dibromoethane	ND		5.0	2.7	ug/L			07/13/22 11:37	1
1,2-Dichlorobenzene	ND		5.0	2.0	ug/L			07/13/22 11:37	1
1,2-Dichloroethane	ND		5.0	1.5	ug/L			07/13/22 11:37	1
1,2-Dichloropropane	ND		5.0	2.5	ug/L			07/13/22 11:37	1
1,3-Dichlorobenzene	ND		5.0	1.6	ug/L			07/13/22 11:37	1
1,4-Dichlorobenzene	ND		5.0	1.0	ug/L			07/13/22 11:37	1
2-Butanone (MEK)	ND		5.0	2.9	ug/L			07/13/22 11:37	1
2-Hexanone	ND		5.0	4.2	ug/L			07/13/22 11:37	1
Acetone	ND		20	5.5	ug/L			07/13/22 11:37	1
Benzene	ND		5.0	2.0	ug/L			07/13/22 11:37	1
Bromodichloromethane	ND		5.0	2.4	ug/L			07/13/22 11:37	1
Bromoform	ND		5.0	2.6	ug/L			07/13/22 11:37	1
Carbon disulfide	ND		5.0	3.0	ug/L			07/13/22 11:37	1

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 180-404856/9
Matrix: Solid
Analysis Batch: 404856

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	ND		5.0	3.3	ug/L			07/13/22 11:37	1
Chlorobenzene	ND		5.0	1.6	ug/L			07/13/22 11:37	1
Chloroethane	ND		5.0	2.6	ug/L			07/13/22 11:37	1
Chloroform	ND		5.0	2.1	ug/L			07/13/22 11:37	1
cis-1,2-Dichloroethene	ND		5.0	1.6	ug/L			07/13/22 11:37	1
cis-1,3-Dichloropropene	ND		5.0	1.6	ug/L			07/13/22 11:37	1
Dibromochloromethane	ND		5.0	2.4	ug/L			07/13/22 11:37	1
Ethylbenzene	ND		5.0	2.2	ug/L			07/13/22 11:37	1
Freon-11	ND		5.0	1.5	ug/L			07/13/22 11:37	1
Freon-113	ND		5.0	1.9	ug/L			07/13/22 11:37	1
Freon-12	ND		5.0	2.9	ug/L			07/13/22 11:37	1
Isopropylbenzene (cumene)	ND		5.0	2.3	ug/L			07/13/22 11:37	1
Methyl bromide	ND		5.0	4.5	ug/L			07/13/22 11:37	1
Methyl chloride	ND		5.0	3.9	ug/L			07/13/22 11:37	1
Methyl tert-butyl ether	ND		5.0	3.7	ug/L			07/13/22 11:37	1
Methylene Chloride	ND		5.0	3.9	ug/L			07/13/22 11:37	1
Styrene	ND		5.0	1.3	ug/L			07/13/22 11:37	1
Tetrachloroethene	ND		5.0	2.0	ug/L			07/13/22 11:37	1
Toluene	ND		5.0	1.7	ug/L			07/13/22 11:37	1
trans-1,2-Dichloroethene	ND		5.0	2.5	ug/L			07/13/22 11:37	1
trans-1,3-Dichloropropene	ND		5.0	1.7	ug/L			07/13/22 11:37	1
Trichloroethene	ND		5.0	1.5	ug/L			07/13/22 11:37	1
Vinyl chloride	ND		5.0	3.7	ug/L			07/13/22 11:37	1
Xylenes, Total	ND		10	4.3	ug/L			07/13/22 11:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*55*		*52 - 151*		*07/13/22 11:37*	*1*
4-Bromofluorobenzene (Surr)	*66*		*49 - 118*		*07/13/22 11:37*	*1*
Dibromofluoromethane (Surr)	*99*		*60 - 132*		*07/13/22 11:37*	*1*
Toluene-d8 (Surr)	*67*		*53 - 124*		*07/13/22 11:37*	*1*

Lab Sample ID: LCS 180-404856/17
Matrix: Solid
Analysis Batch: 404856

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	40.0	41.0		ug/L		103	64 - 133
1,1,2,2-Tetrachloroethane	40.0	19.6		ug/L		49	47 - 147
1,1,2-Trichloroethane	40.0	27.8		ug/L		69	59 - 137
1,1-Dichloroethane	40.0	24.4		ug/L		61	59 - 125
1,1-Dichloroethene	40.0	28.4		ug/L		71	49 - 132
1,2,4-Trichlorobenzene	40.0	4.89	J *-	ug/L		12	15 - 169
1,2-Dibromo-3-Chloropropane	40.0	7.55		ug/L		19	10 - 170
1,2-Dibromoethane	40.0	29.8		ug/L		75	55 - 146
1,2-Dichlorobenzene	40.0	21.4	*-	ug/L		53	68 - 116
1,2-Dichloroethane	40.0	23.5		ug/L		59	57 - 149
1,2-Dichloropropane	40.0	24.9	*-	ug/L		62	65 - 129
1,3-Dichlorobenzene	40.0	21.6	*-	ug/L		54	70 - 119

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-404856/17
Matrix: Solid
Analysis Batch: 404856

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dichlorobenzene	40.0	22.5	*-	ug/L		56	74 - 117
2-Butanone (MEK)	40.0	18.5		ug/L		46	35 - 158
2-Hexanone	40.0	14.3	*-	ug/L		36	38 - 157
Acetone	40.0	10.7	J *-	ug/L		27	29 - 163
Benzene	40.0	31.6		ug/L		79	68 - 122
Bromodichloromethane	40.0	31.2		ug/L		78	63 - 132
Bromoform	40.0	28.8		ug/L		72	31 - 164
Carbon disulfide	40.0	31.8		ug/L		79	32 - 139
Carbon tetrachloride	40.0	36.5		ug/L		91	60 - 135
Chlorobenzene	40.0	30.3		ug/L		76	72 - 123
Chloroethane	40.0	34.9		ug/L		87	10 - 170
Chloroform	40.0	29.6		ug/L		74	62 - 121
cis-1,2-Dichloroethene	40.0	34.9		ug/L		87	64 - 122
cis-1,3-Dichloropropene	40.0	30.9		ug/L		77	53 - 140
Dibromochloromethane	40.0	32.3		ug/L		81	51 - 144
Ethylbenzene	40.0	32.5		ug/L		81	66 - 122
Freon-11	40.0	51.2	E	ug/L		128	32 - 157
Freon-113	40.0	32.6		ug/L		82	48 - 134
Freon-12	40.0	29.7		ug/L		74	21 - 165
Isopropylbenzene (cumene)	40.0	29.2		ug/L		73	54 - 130
Methyl bromide	40.0	44.5	E	ug/L		111	20 - 170
Methyl chloride	40.0	22.3		ug/L		56	37 - 170
Methyl tert-butyl ether	40.0	29.8		ug/L		75	36 - 141
Methylene Chloride	40.0	29.6		ug/L		74	51 - 137
m-Xylene & p-Xylene	40.0	33.0		ug/L		82	61 - 128
o-Xylene	40.0	30.0		ug/L		75	64 - 120
Styrene	40.0	28.0		ug/L		70	68 - 127
Tetrachloroethene	40.0	40.5		ug/L		101	60 - 129
Toluene	40.0	31.4		ug/L		78	67 - 128
trans-1,2-Dichloroethene	40.0	35.9		ug/L		90	62 - 126
trans-1,3-Dichloropropene	40.0	28.4		ug/L		71	57 - 137
Trichloroethene	40.0	46.4		ug/L		116	67 - 121
Vinyl chloride	40.0	25.3		ug/L		63	47 - 147
Xylenes, Total	80.0	63.0		ug/L		79	64 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*66*		*52 - 151*
4-Bromofluorobenzene (Surr)	*87*		*49 - 118*
Dibromofluoromethane (Surr)	*129*		*60 - 132*
Toluene-d8 (Surr)	*93*		*53 - 124*

Lab Sample ID: 180-136058-34 MS
Matrix: Solid
Analysis Batch: 402985

Client Sample ID: TRW 20% PC, 4% AC T07
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	ND	F1	40.0	61.6	F1	ug/L		154	64 - 133
1,1,2,2-Tetrachloroethane	ND		40.0	40.3		ug/L		101	47 - 147

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 180-136058-34 MS
Matrix: Solid
Analysis Batch: 402985

Client Sample ID: TRW 20% PC, 4% AC T07
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2-Trichloroethane	ND		40.0	53.3	E	ug/L		133	59 - 137
1,1-Dichloroethane	ND		40.0	42.9		ug/L		107	59 - 125
1,1-Dichloroethene	ND		40.0	39.4		ug/L		98	49 - 132
1,2,4-Trichlorobenzene	ND	F2	40.0	63.9	E	ug/L		160	15 - 169
1,2-Dibromo-3-Chloropropane	ND		40.0	55.8		ug/L		140	10 - 170
1,2-Dibromoethane	ND	F1	40.0	59.6	F1	ug/L		149	55 - 146
1,2-Dichlorobenzene	ND	F1	40.0	60.9	F1	ug/L		152	68 - 116
1,2-Dichloroethane	ND		40.0	43.6		ug/L		109	57 - 149
1,2-Dichloropropane	ND		40.0	45.8		ug/L		115	65 - 129
1,3-Dichlorobenzene	ND	F1	40.0	59.9	F1	ug/L		150	70 - 119
1,4-Dichlorobenzene	ND	F1	40.0	58.1	F1	ug/L		145	74 - 117
2-Butanone (MEK)	ND	F1 F2	40.0	18.7		ug/L		47	35 - 158
2-Hexanone	ND		40.0	20.7		ug/L		52	38 - 157
Acetone	ND	F1	40.0	ND	F1	ug/L		0	29 - 163
Benzene	ND	F1	40.0	53.3	F1	ug/L		133	68 - 122
Bromodichloromethane	ND	F1	40.0	57.1	F1	ug/L		143	63 - 132
Bromoform	ND		40.0	57.2		ug/L		143	31 - 164
Carbon disulfide	ND		40.0	44.2		ug/L		111	32 - 139
Carbon tetrachloride	ND		40.0	52.9		ug/L		132	60 - 135
Chlorobenzene	ND	F1	40.0	55.3	E F1	ug/L		138	72 - 123
Chloroethane	ND		40.0	39.8		ug/L		100	10 - 170
Chloroform	ND	F1	40.0	48.7	E F1	ug/L		122	62 - 121
cis-1,2-Dichloroethene	2.2	J F1	40.0	62.8	F1	ug/L		152	64 - 122
cis-1,3-Dichloropropene	ND	F1	40.0	66.1	F1	ug/L		165	53 - 140
Dibromochloromethane	ND	F1	40.0	62.0	F1	ug/L		155	51 - 144
Ethylbenzene	ND	F1	40.0	57.2	F1	ug/L		143	66 - 122
Freon-11	ND		40.0	47.3	E	ug/L		118	32 - 157
Freon-113	ND		40.0	41.1	E	ug/L		103	48 - 134
Freon-12	ND		40.0	36.1		ug/L		90	21 - 165
Isopropylbenzene (cumene)	ND		40.0	48.4		ug/L		121	54 - 130
Methyl bromide	ND		40.0	47.4	E	ug/L		119	20 - 170
Methyl chloride	ND		40.0	30.2		ug/L		76	37 - 170
Methyl tert-butyl ether	ND	F1	40.0	69.5	F1	ug/L		174	36 - 141
Methylene Chloride	5.6		40.0	43.4	E	ug/L		95	51 - 137
m-Xylene & p-Xylene	ND	F1	40.0	59.5	F1	ug/L		149	61 - 128
o-Xylene	ND	F1	40.0	54.2	F1	ug/L		136	64 - 120
Styrene	ND	F1	40.0	54.2	F1	ug/L		135	68 - 127
Tetrachloroethene	ND	F1	40.0	63.9	F1	ug/L		160	60 - 129
Toluene	ND	F1	40.0	57.9	F1	ug/L		145	67 - 128
trans-1,2-Dichloroethene	ND	F1	40.0	51.9	E F1	ug/L		130	62 - 126
trans-1,3-Dichloropropene	ND		40.0	48.2	E	ug/L		121	57 - 137
Trichloroethene	ND	*+ F1	40.0	71.1	F1	ug/L		178	67 - 121
Vinyl chloride	ND		40.0	31.4		ug/L		78	47 - 147
Xylenes, Total	ND	F1	80.0	114	F1	ug/L		142	64 - 123

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*57*		*52 - 151*
4-Bromofluorobenzene (Surr)	*66*		*49 - 118*

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 180-136058-34 MS
Matrix: Solid
Analysis Batch: 402985

Client Sample ID: TRW 20% PC, 4% AC T07
Prep Type: Leach

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*84*		*60 - 132*
Toluene-d8 (Surr)	*78*		*53 - 124*

Lab Sample ID: 180-136058-34 MSD
Matrix: Solid
Analysis Batch: 402985

Client Sample ID: TRW 20% PC, 4% AC T07
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND	F1	40.0	54.0	F1	ug/L		135	64 - 133	13	22
1,1,2,2-Tetrachloroethane	ND		40.0	37.1		ug/L		93	47 - 147	8	35
1,1,2-Trichloroethane	ND		40.0	47.1	E	ug/L		118	59 - 137	12	29
1,1-Dichloroethane	ND		40.0	36.2		ug/L		91	59 - 125	17	20
1,1-Dichloroethene	ND		40.0	34.2		ug/L		85	49 - 132	14	23
1,2,4-Trichlorobenzene	ND	F2	40.0	42.4	E F2	ug/L		106	15 - 169	40	35
1,2-Dibromo-3-Chloropropane	ND		40.0	49.8		ug/L		125	10 - 170	11	35
1,2-Dibromoethane	ND	F1	40.0	53.7		ug/L		134	55 - 146	10	30
1,2-Dichlorobenzene	ND	F1	40.0	50.5	F1	ug/L		126	68 - 116	19	20
1,2-Dichloroethane	ND		40.0	39.0		ug/L		98	57 - 149	11	27
1,2-Dichloropropane	ND		40.0	40.3		ug/L		101	65 - 129	13	23
1,3-Dichlorobenzene	ND	F1	40.0	51.4	F1	ug/L		129	70 - 119	15	18
1,4-Dichlorobenzene	ND	F1	40.0	50.5	F1	ug/L		126	74 - 117	14	17
2-Butanone (MEK)	ND	F1 F2	40.0	12.3	F1 F2	ug/L		31	35 - 158	41	35
2-Hexanone	ND		40.0	19.2		ug/L		48	38 - 157	7	35
Acetone	ND	F1	40.0	5.71	J F1	ug/L		14	29 - 163	NC	35
Benzene	ND	F1	40.0	46.3		ug/L		116	68 - 122	14	21
Bromodichloromethane	ND	F1	40.0	50.4		ug/L		126	63 - 132	13	24
Bromoform	ND		40.0	52.4		ug/L		131	31 - 164	9	35
Carbon disulfide	ND		40.0	37.7		ug/L		94	32 - 139	16	25
Carbon tetrachloride	ND		40.0	44.3		ug/L		111	60 - 135	18	25
Chlorobenzene	ND	F1	40.0	48.7	E	ug/L		122	72 - 123	13	19
Chloroethane	ND		40.0	33.6		ug/L		84	10 - 170	17	29
Chloroform	ND	F1	40.0	42.7	E	ug/L		107	62 - 121	13	22
cis-1,2-Dichloroethene	2.2	J F1	40.0	53.3	F1	ug/L		128	64 - 122	16	22
cis-1,3-Dichloropropene	ND	F1	40.0	57.9	F1	ug/L		145	53 - 140	13	26
Dibromochloromethane	ND	F1	40.0	56.0		ug/L		140	51 - 144	10	25
Ethylbenzene	ND	F1	40.0	50.3	F1	ug/L		126	66 - 122	13	22
Freon-11	ND		40.0	40.7	E	ug/L		102	32 - 157	15	35
Freon-113	ND		40.0	35.0		ug/L		87	48 - 134	16	28
Freon-12	ND		40.0	30.6		ug/L		76	21 - 165	16	26
Isopropylbenzene (cumene)	ND		40.0	42.0		ug/L		105	54 - 130	14	22
Methyl bromide	ND		40.0	40.9	E	ug/L		102	20 - 170	15	30
Methyl chloride	ND		40.0	25.8		ug/L		65	37 - 170	16	28
Methyl tert-butyl ether	ND	F1	40.0	65.1	F1	ug/L		163	36 - 141	7	35
Methylene Chloride	5.6		40.0	36.8		ug/L		78	51 - 137	16	35
m-Xylene & p-Xylene	ND	F1	40.0	51.4	F1	ug/L		129	61 - 128	15	21
o-Xylene	ND	F1	40.0	48.2		ug/L		120	64 - 120	12	23
Styrene	ND	F1	40.0	48.1		ug/L		120	68 - 127	12	22
Tetrachloroethene	ND	F1	40.0	55.8	F1	ug/L		140	60 - 129	14	22

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 180-136058-34 MSD
Matrix: Solid
Analysis Batch: 402985

Client Sample ID: TRW 20% PC, 4% AC T07
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	ND	F1	40.0	50.6		ug/L		126	67 - 128	13	22
trans-1,2-Dichloroethene	ND	F1	40.0	45.8	E	ug/L		115	62 - 126	12	23
trans-1,3-Dichloropropene	ND		40.0	44.8	E	ug/L		112	57 - 137	7	25
Trichloroethene	ND	*+ F1	40.0	61.9	F1	ug/L		155	67 - 121	14	23
Vinyl chloride	ND		40.0	26.6		ug/L		67	47 - 147	16	25
Xylenes, Total	ND	F1	80.0	99.6	F1	ug/L		125	64 - 123	13	21

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*59*		*52 - 151*
4-Bromofluorobenzene (Surr)	*66*		*49 - 118*
Dibromofluoromethane (Surr)	*87*		*60 - 132*
Toluene-d8 (Surr)	*78*		*53 - 124*

Lab Sample ID: 180-136058-45 MS
Matrix: Solid
Analysis Batch: 404856

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T09
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	ND		40.0	47.9		ug/L		120	64 - 133
1,1,2,2-Tetrachloroethane	ND		40.0	25.9		ug/L		65	47 - 147
1,1,2-Trichloroethane	ND		40.0	37.5		ug/L		94	59 - 137
1,1-Dichloroethane	ND		40.0	31.1		ug/L		78	59 - 125
1,1-Dichloroethene	ND		40.0	33.3		ug/L		83	49 - 132
1,2,4-Trichlorobenzene	ND	*-	40.0	27.2		ug/L		68	15 - 169
1,2-Dibromo-3-Chloropropane	ND		40.0	20.2		ug/L		51	10 - 170
1,2-Dibromoethane	ND		40.0	40.2		ug/L		101	55 - 146
1,2-Dichlorobenzene	ND	*-	40.0	40.3		ug/L		101	68 - 116
1,2-Dichloroethane	ND		40.0	31.0		ug/L		77	57 - 149
1,2-Dichloropropane	ND	F1 *-	40.0	ND	F1	ug/L		0	65 - 129
1,3-Dichlorobenzene	ND	*-	40.0	38.7		ug/L		97	70 - 119
1,4-Dichlorobenzene	ND	*-	40.0	39.5		ug/L		99	74 - 117
2-Butanone (MEK)	ND	F1	40.0	8.46	F1	ug/L		21	35 - 158
2-Hexanone	ND	F1 *-	40.0	12.3	F1	ug/L		31	38 - 157
Acetone	ND	F1 *-	40.0	10.6	J F1	ug/L		27	29 - 163
Benzene	ND		40.0	38.7		ug/L		97	68 - 122
Bromodichloromethane	ND		40.0	40.8		ug/L		102	63 - 132
Bromoform	ND		40.0	40.0		ug/L		100	31 - 164
Carbon disulfide	ND		40.0	37.0		ug/L		92	32 - 139
Carbon tetrachloride	ND		40.0	42.0		ug/L		105	60 - 135
Chlorobenzene	ND		40.0	40.8	E	ug/L		102	72 - 123
Chloroethane	ND		40.0	41.3	E	ug/L		103	10 - 170
Chloroform	6.6		40.0	35.6		ug/L		72	62 - 121
cis-1,2-Dichloroethene	18	F1	40.0	71.4	F1	ug/L		133	64 - 122
cis-1,3-Dichloropropene	ND		40.0	43.7		ug/L		109	53 - 140
Dibromochloromethane	ND		40.0	45.6		ug/L		114	51 - 144
Ethylbenzene	ND		40.0	42.9		ug/L		107	66 - 122
Freon-11	ND		40.0	56.7	E	ug/L		142	32 - 157
Freon-113	ND		40.0	35.0		ug/L		88	48 - 134

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 180-136058-45 MS
Matrix: Solid
Analysis Batch: 404856

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T09
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Freon-12	ND		40.0	34.1		ug/L		85	21 - 165
Isopropylbenzene (cumene)	ND		40.0	38.9		ug/L		97	54 - 130
Methyl bromide	ND		40.0	53.4	E	ug/L		134	20 - 170
Methyl chloride	ND		40.0	27.9		ug/L		70	37 - 170
Methyl tert-butyl ether	ND		40.0	43.2		ug/L		108	36 - 141
Methylene Chloride	4.8	J	40.0	40.3	E	ug/L		89	51 - 137
m-Xylene & p-Xylene	ND		40.0	43.7		ug/L		109	61 - 128
o-Xylene	ND		40.0	40.5		ug/L		101	64 - 120
Styrene	ND		40.0	39.1		ug/L		98	68 - 127
Tetrachloroethene	ND		40.0	50.8		ug/L		127	60 - 129
Toluene	ND		40.0	41.4		ug/L		103	67 - 128
trans-1,2-Dichloroethene	ND		40.0	40.2	E	ug/L		100	62 - 126
trans-1,3-Dichloropropene	ND		40.0	36.5		ug/L		91	57 - 137
Trichloroethene	ND	F1	40.0	54.4	F1	ug/L		136	67 - 121
Vinyl chloride	5.2		40.0	35.5		ug/L		76	47 - 147
Xylenes, Total	ND		80.0	84.2		ug/L		105	64 - 123

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*72*		*52 - 151*
4-Bromofluorobenzene (Surr)	*87*		*49 - 118*
Dibromofluoromethane (Surr)	*137*	*S1+*	*60 - 132*
Toluene-d8 (Surr)	*108*		*53 - 124*

Lab Sample ID: 180-136058-45 MSD
Matrix: Solid
Analysis Batch: 404856

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T09
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		40.0	43.8		ug/L		110	64 - 133	9	22
1,1,2,2-Tetrachloroethane	ND		40.0	26.0		ug/L		65	47 - 147	0	35
1,1,2-Trichloroethane	ND		40.0	34.7		ug/L		87	59 - 137	8	29
1,1-Dichloroethane	ND		40.0	27.7		ug/L		69	59 - 125	12	20
1,1-Dichloroethene	ND		40.0	31.2		ug/L		78	49 - 132	7	23
1,2,4-Trichlorobenzene	ND	*-	40.0	29.0		ug/L		73	15 - 169	7	35
1,2-Dibromo-3-Chloropropane	ND		40.0	26.6		ug/L		67	10 - 170	27	35
1,2-Dibromoethane	ND		40.0	37.6		ug/L		94	55 - 146	7	30
1,2-Dichlorobenzene	ND	*-	40.0	41.1		ug/L		103	68 - 116	2	20
1,2-Dichloroethane	ND		40.0	32.6		ug/L		82	57 - 149	5	27
1,2-Dichloropropane	ND	F1 *-	40.0	29.9		ug/L		75	65 - 129	NC	23
1,3-Dichlorobenzene	ND	*-	40.0	41.9		ug/L		105	70 - 119	8	18
1,4-Dichlorobenzene	ND	*-	40.0	42.0		ug/L		105	74 - 117	6	17
2-Butanone (MEK)	ND	F1	40.0	8.04	F1	ug/L		20	35 - 158	5	35
2-Hexanone	ND	F1 *-	40.0	11.7	F1	ug/L		29	38 - 157	5	35
Acetone	ND	F1 *-	40.0	12.5	J	ug/L		31	29 - 163	16	35
Benzene	ND		40.0	36.4		ug/L		91	68 - 122	6	21
Bromodichloromethane	ND		40.0	39.3		ug/L		98	63 - 132	4	24
Bromoform	ND		40.0	39.3		ug/L		98	31 - 164	2	35
Carbon disulfide	ND		40.0	34.5		ug/L		86	32 - 139	7	25

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 180-136058-45 MSD
Matrix: Solid
Analysis Batch: 404856

Client Sample ID: TRW 20% PC, 2% AC, 2%SP T09
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Carbon tetrachloride	ND		40.0	38.8		ug/L		97	60 - 135	8	25
Chlorobenzene	ND		40.0	38.8		ug/L		97	72 - 123	5	19
Chloroethane	ND		40.0	39.4		ug/L		98	10 - 170	5	29
Chloroform	6.6		40.0	32.8		ug/L		66	62 - 121	8	22
cis-1,2-Dichloroethene	18	F1	40.0	65.5		ug/L		118	64 - 122	9	22
cis-1,3-Dichloropropene	ND		40.0	44.1		ug/L		110	53 - 140	1	26
Dibromochloromethane	ND		40.0	42.3		ug/L		106	51 - 144	7	25
Ethylbenzene	ND		40.0	40.4		ug/L		101	66 - 122	6	22
Freon-11	ND		40.0	52.0	E	ug/L		130	32 - 157	9	35
Freon-113	ND		40.0	32.7		ug/L		82	48 - 134	7	28
Freon-12	ND		40.0	31.3		ug/L		78	21 - 165	9	26
Isopropylbenzene (cumene)	ND		40.0	37.0		ug/L		92	54 - 130	5	22
Methyl bromide	ND		40.0	50.5	E	ug/L		126	20 - 170	6	30
Methyl chloride	ND		40.0	26.0		ug/L		65	37 - 170	7	28
Methyl tert-butyl ether	ND		40.0	44.8		ug/L		112	36 - 141	4	35
Methylene Chloride	4.8	J	40.0	36.0		ug/L		78	51 - 137	11	35
m-Xylene & p-Xylene	ND		40.0	42.7		ug/L		107	61 - 128	2	21
o-Xylene	ND		40.0	39.5		ug/L		99	64 - 120	3	23
Styrene	ND		40.0	38.8		ug/L		97	68 - 127	1	22
Tetrachloroethene	ND		40.0	46.9		ug/L		117	60 - 129	8	22
Toluene	ND		40.0	37.7		ug/L		94	67 - 128	9	22
trans-1,2-Dichloroethene	ND		40.0	39.5		ug/L		99	62 - 126	2	23
trans-1,3-Dichloropropene	ND		40.0	34.5		ug/L		86	57 - 137	5	25
Trichloroethene	ND	F1	40.0	53.2	F1	ug/L		133	67 - 121	2	23
Vinyl chloride	5.2		40.0	32.3		ug/L		68	47 - 147	9	25
Xylenes, Total	ND		80.0	82.2		ug/L		103	64 - 123	2	21

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*69*		*52 - 151*
4-Bromofluorobenzene (Surr)	*86*		*49 - 118*
Dibromofluoromethane (Surr)	*118*		*60 - 132*
Toluene-d8 (Surr)	*98*		*53 - 124*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-401767/1-A
Matrix: Solid
Analysis Batch: 402177

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 401767

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		1.0	0.14	ug/L		06/13/22 10:10	06/16/22 10:45	1
1,4-Dichlorobenzene	ND		1.0	0.061	ug/L		06/13/22 10:10	06/16/22 10:45	1
2,2'-oxybis[1-chloropropane]	ND		0.19	0.058	ug/L		06/13/22 10:10	06/16/22 10:45	1
2,4-Dichlorophenol	ND		0.19	0.051	ug/L		06/13/22 10:10	06/16/22 10:45	1
2,4-Dimethylphenol	ND		1.0	0.17	ug/L		06/13/22 10:10	06/16/22 10:45	1
2,4-Dinitrophenol	ND		10	1.5	ug/L		06/13/22 10:10	06/16/22 10:45	1
2,4-Dinitrotoluene	ND		1.0	0.35	ug/L		06/13/22 10:10	06/16/22 10:45	1
2,6-Dinitrotoluene	ND		1.0	0.17	ug/L		06/13/22 10:10	06/16/22 10:45	1
2-Chloronaphthalene	ND		0.19	0.059	ug/L		06/13/22 10:10	06/16/22 10:45	1

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-401767/1-A
Matrix: Solid
Analysis Batch: 402177

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 401767

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Nitroaniline	ND		5.0	0.55	ug/L		06/13/22 10:10	06/16/22 10:45	1
3,3'-Dichlorobenzidine	ND		1.0	0.58	ug/L		06/13/22 10:10	06/16/22 10:45	1
3-Nitroaniline	ND		5.0	0.44	ug/L		06/13/22 10:10	06/16/22 10:45	1
p-Chloroaniline	ND		1.0	0.38	ug/L		06/13/22 10:10	06/16/22 10:45	1
p-Nitroaniline	ND		5.0	0.36	ug/L		06/13/22 10:10	06/16/22 10:45	1
Acenaphthene	ND		0.19	0.065	ug/L		06/13/22 10:10	06/16/22 10:45	1
Anthracene	ND		0.19	0.049	ug/L		06/13/22 10:10	06/16/22 10:45	1
Atrazine	ND		1.0	0.63	ug/L		06/13/22 10:10	06/16/22 10:45	1
Benzo[a]anthracene	ND		0.19	0.075	ug/L		06/13/22 10:10	06/16/22 10:45	1
Benzo[a]pyrene	ND		0.19	0.053	ug/L		06/13/22 10:10	06/16/22 10:45	1
Benzo[b]fluoranthene	ND		0.19	0.097	ug/L		06/13/22 10:10	06/16/22 10:45	1
Benzo[k]fluoranthene	ND		0.19	0.088	ug/L		06/13/22 10:10	06/16/22 10:45	1
Bis(2-chloroethoxy)methane	ND		1.0	0.15	ug/L		06/13/22 10:10	06/16/22 10:45	1
Dichloroethyl ether	ND		0.19	0.040	ug/L		06/13/22 10:10	06/16/22 10:45	1
Bis(2-ethylhexyl) phthalate	ND		10	6.2	ug/L		06/13/22 10:10	06/16/22 10:45	1
Benzyl butyl phthalate	ND		1.0	0.46	ug/L		06/13/22 10:10	06/16/22 10:45	1
Chrysene	ND		0.19	0.081	ug/L		06/13/22 10:10	06/16/22 10:45	1
Diethyl phthalate	ND		1.0	0.57	ug/L		06/13/22 10:10	06/16/22 10:45	1
Dimethyl phthalate	ND		1.0	0.20	ug/L		06/13/22 10:10	06/16/22 10:45	1
Dibutylphthalate	ND		1.0	0.74	ug/L		06/13/22 10:10	06/16/22 10:45	1
Di-n-octyl phthalate	ND		1.0	0.69	ug/L		06/13/22 10:10	06/16/22 10:45	1
Fluoranthene	ND		0.19	0.060	ug/L		06/13/22 10:10	06/16/22 10:45	1
Fluorene	ND		0.19	0.069	ug/L		06/13/22 10:10	06/16/22 10:45	1
Hexachlorobutadiene	ND		0.19	0.069	ug/L		06/13/22 10:10	06/16/22 10:45	1
Hexachlorocyclopentadiene	ND		1.0	0.50	ug/L		06/13/22 10:10	06/16/22 10:45	1
Hexachloroethane	ND		1.0	0.13	ug/L		06/13/22 10:10	06/16/22 10:45	1
Indeno[1,2,3-cd]pyrene	ND		0.19	0.085	ug/L		06/13/22 10:10	06/16/22 10:45	1
Isophorone	ND		1.0	0.19	ug/L		06/13/22 10:10	06/16/22 10:45	1
Nitrobenzene	ND		2.0	0.50	ug/L		06/13/22 10:10	06/16/22 10:45	1
N-Nitrosodiphenylamine	ND		1.0	0.12	ug/L		06/13/22 10:10	06/16/22 10:45	1
Pentachlorophenol	ND		5.0	0.85	ug/L		06/13/22 10:10	06/16/22 10:45	1
Phenanthrene	ND		0.19	0.055	ug/L		06/13/22 10:10	06/16/22 10:45	1
Phenol	ND		1.0	0.49	ug/L		06/13/22 10:10	06/16/22 10:45	1
Pyrene	ND		0.19	0.054	ug/L		06/13/22 10:10	06/16/22 10:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*64*		*23 - 128*	*06/13/22 10:10*	*06/16/22 10:45*	*1*
2-Fluorobiphenyl	*66*		*20 - 105*	*06/13/22 10:10*	*06/16/22 10:45*	*1*
2-Fluorophenol (Surr)	*72*		*20 - 105*	*06/13/22 10:10*	*06/16/22 10:45*	*1*
Nitrobenzene-d5 (Surr)	*68*		*20 - 107*	*06/13/22 10:10*	*06/16/22 10:45*	*1*
Phenol-d5 (Surr)	*72*		*20 - 106*	*06/13/22 10:10*	*06/16/22 10:45*	*1*
Terphenyl-d14 (Surr)	*75*		*22 - 120*	*06/13/22 10:10*	*06/16/22 10:45*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-401767/2-A
Matrix: Solid
Analysis Batch: 402177

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 401767

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biphenyl	20.0	14.0		ug/L		70	51 - 100
1,4-Dichlorobenzene	20.0	13.4		ug/L		67	52 - 100
2,2'-oxybis[1-chloropropane]	20.0	13.8		ug/L		69	29 - 102
2,4-Dichlorophenol	20.0	13.7		ug/L		68	55 - 100
2,4-Dimethylphenol	20.0	14.0		ug/L		70	51 - 100
2,4-Dinitrophenol	40.0	20.2		ug/L		50	32 - 100
2,4-Dinitrotoluene	20.0	13.9		ug/L		70	56 - 100
2,6-Dinitrotoluene	20.0	13.9		ug/L		69	56 - 101
2-Chloronaphthalene	20.0	13.7		ug/L		69	52 - 100
2-Nitroaniline	20.0	15.1		ug/L		76	47 - 104
3,3'-Dichlorobenzidine	20.0	12.3		ug/L		62	42 - 100
3-Nitroaniline	20.0	13.5		ug/L		68	54 - 100
p-Chloroaniline	20.0	12.8		ug/L		64	48 - 100
p-Nitroaniline	20.0	13.5		ug/L		68	54 - 100
Acenaphthene	20.0	14.0		ug/L		70	51 - 100
Anthracene	20.0	14.4		ug/L		72	54 - 100
Atrazine	20.0	12.5		ug/L		63	50 - 100
Benzo[a]anthracene	20.0	13.8		ug/L		69	52 - 100
Benzo[a]pyrene	20.0	13.0		ug/L		65	52 - 100
Benzo[b]fluoranthene	20.0	12.4		ug/L		62	50 - 100
Benzo[k]fluoranthene	20.0	13.9		ug/L		70	49 - 100
Bis(2-chloroethoxy)methane	20.0	12.8		ug/L		64	49 - 100
Dichloroethyl ether	20.0	13.8		ug/L		69	46 - 100
Bis(2-ethylhexyl) phthalate	20.0	15.2		ug/L		76	52 - 101
Benzyl butyl phthalate	20.0	15.7		ug/L		78	52 - 100
Chrysene	20.0	13.7		ug/L		68	51 - 100
Diethyl phthalate	20.0	13.4		ug/L		67	52 - 100
Dimethyl phthalate	20.0	13.5		ug/L		67	55 - 100
Dibutylphthalate	20.0	14.5		ug/L		72	57 - 100
Di-n-octyl phthalate	20.0	14.3		ug/L		72	41 - 100
Fluoranthene	20.0	13.9		ug/L		70	56 - 100
Fluorene	20.0	14.7		ug/L		74	53 - 100
Hexachlorobutadiene	20.0	13.7		ug/L		69	42 - 101
Hexachlorocyclopentadiene	20.0	13.8		ug/L		69	38 - 102
Hexachloroethane	20.0	13.5		ug/L		68	46 - 100
Indeno[1,2,3-cd]pyrene	20.0	13.3		ug/L		66	54 - 100
Isophorone	20.0	14.1		ug/L		71	50 - 100
Nitrobenzene	20.0	14.2		ug/L		71	47 - 100
N-Nitrosodiphenylamine	20.0	14.4		ug/L		72	53 - 100
Pentachlorophenol	40.0	27.6		ug/L		69	35 - 102
Phenanthrene	20.0	14.5		ug/L		72	53 - 100
Phenol	20.0	13.8		ug/L		69	49 - 100
Pyrene	20.0	14.9		ug/L		74	53 - 100

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	69		*23 - 128*
2-Fluorobiphenyl	67		*20 - 105*
2-Fluorophenol (Surr)	66		*20 - 105*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-401767/2-A
Matrix: Solid
Analysis Batch: 402177

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 401767

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*67*		*20 - 107*
Phenol-d5 (Surr)	*65*		*20 - 106*
Terphenyl-d14 (Surr)	*70*		*22 - 120*

Lab Sample ID: LCSD 180-401767/3-A
Matrix: Solid
Analysis Batch: 402177

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 401767

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Biphenyl			20.0	13.6		ug/L		68	51 - 100	3	16
1,4-Dichlorobenzene			20.0	13.7		ug/L		68	52 - 100	2	15
2,2'-oxybis[1-chloropropane]			20.0	14.3		ug/L		71	29 - 102	4	16
2,4-Dichlorophenol			20.0	12.7		ug/L		64	55 - 100	7	15
2,4-Dimethylphenol			20.0	13.2		ug/L		66	51 - 100	6	16
2,4-Dinitrophenol			40.0	18.1		ug/L		45	32 - 100	11	19
2,4-Dinitrotoluene			20.0	12.8		ug/L		64	56 - 100	9	16
2,6-Dinitrotoluene			20.0	13.2		ug/L		66	56 - 101	5	16
2-Chloronaphthalene			20.0	13.3		ug/L		67	52 - 100	3	15
2-Nitroaniline			20.0	14.5		ug/L		73	47 - 104	4	18
3,3'-Dichlorobenzidine			20.0	11.9		ug/L		59	42 - 100	4	15
3-Nitroaniline			20.0	12.7		ug/L		63	54 - 100	7	15
p-Chloroaniline			20.0	12.0		ug/L		60	48 - 100	7	15
p-Nitroaniline			20.0	12.4		ug/L		62	54 - 100	9	16
Acenaphthene			20.0	13.5		ug/L		68	51 - 100	4	15
Anthracene			20.0	13.8		ug/L		69	54 - 100	4	15
Atrazine			20.0	12.1		ug/L		61	50 - 100	3	15
Benzo[a]anthracene			20.0	13.3		ug/L		66	52 - 100	4	15
Benzo[a]pyrene			20.0	12.5		ug/L		63	52 - 100	4	16
Benzo[b]fluoranthene			20.0	12.3		ug/L		62	50 - 100	0	15
Benzo[k]fluoranthene			20.0	13.0		ug/L		65	49 - 100	7	20
Bis(2-chloroethoxy)methane			20.0	12.3		ug/L		61	49 - 100	5	15
Dichloroethyl ether			20.0	14.4		ug/L		72	46 - 100	4	17
Bis(2-ethylhexyl) phthalate			20.0	14.8		ug/L		74	52 - 101	3	15
Benzyl butyl phthalate			20.0	15.1		ug/L		76	52 - 100	4	15
Chrysene			20.0	12.9		ug/L		65	51 - 100	6	15
Diethyl phthalate			20.0	12.5		ug/L		62	52 - 100	7	15
Dimethyl phthalate			20.0	12.5		ug/L		63	55 - 100	7	15
Dibutylphthalate			20.0	13.7		ug/L		68	57 - 100	6	15
Di-n-octyl phthalate			20.0	13.8		ug/L		69	41 - 100	4	17
Fluoranthene			20.0	12.8		ug/L		64	56 - 100	8	15
Fluorene			20.0	13.8		ug/L		69	53 - 100	6	17
Hexachlorobutadiene			20.0	13.2		ug/L		66	42 - 101	4	15
Hexachlorocyclopentadiene			20.0	13.6		ug/L		68	38 - 102	1	16
Hexachloroethane			20.0	13.7		ug/L		68	46 - 100	1	16
Indeno[1,2,3-cd]pyrene			20.0	13.0		ug/L		65	54 - 100	2	16
Isophorone			20.0	13.3		ug/L		67	50 - 100	6	15
Nitrobenzene			20.0	13.3		ug/L		66	47 - 100	7	16
N-Nitrosodiphenylamine			20.0	13.9		ug/L		70	53 - 100	4	16

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 180-401767/3-A
Matrix: Solid
Analysis Batch: 402177

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 401767

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Pentachlorophenol			40.0	24.8		ug/L		62	35 - 102	11	17
Phenanthrene			20.0	13.6		ug/L		68	53 - 100	7	15
Phenol			20.0	14.1		ug/L		71	49 - 100	2	17
Pyrene			20.0	14.4		ug/L		72	53 - 100	3	15

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*69*		*23 - 128*
2-Fluorobiphenyl	*67*		*20 - 105*
2-Fluorophenol (Surr)	*70*		*20 - 105*
Nitrobenzene-d5 (Surr)	*67*		*20 - 107*
Phenol-d5 (Surr)	*68*		*20 - 106*
Terphenyl-d14 (Surr)	*70*		*22 - 120*

Lab Sample ID: MB 180-401768/1-A
Matrix: Solid
Analysis Batch: 402139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 401768

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		1.0	0.14	ug/L		06/13/22 10:15	06/16/22 14:53	1
1,4-Dichlorobenzene	ND		1.0	0.061	ug/L		06/13/22 10:15	06/16/22 14:53	1
2,2'-oxybis[1-chloropropane]	ND		0.19	0.058	ug/L		06/13/22 10:15	06/16/22 14:53	1
2,4-Dichlorophenol	ND		0.19	0.051	ug/L		06/13/22 10:15	06/16/22 14:53	1
2,4-Dimethylphenol	ND		1.0	0.17	ug/L		06/13/22 10:15	06/16/22 14:53	1
2,4-Dinitrophenol	ND		10	1.5	ug/L		06/13/22 10:15	06/16/22 14:53	1
2,4-Dinitrotoluene	ND		1.0	0.35	ug/L		06/13/22 10:15	06/16/22 14:53	1
2,6-Dinitrotoluene	ND		1.0	0.17	ug/L		06/13/22 10:15	06/16/22 14:53	1
2-Chloronaphthalene	ND		0.19	0.059	ug/L		06/13/22 10:15	06/16/22 14:53	1
2-Nitroaniline	ND		5.0	0.55	ug/L		06/13/22 10:15	06/16/22 14:53	1
3,3'-Dichlorobenzidine	ND		1.0	0.58	ug/L		06/13/22 10:15	06/16/22 14:53	1
3-Nitroaniline	ND		5.0	0.44	ug/L		06/13/22 10:15	06/16/22 14:53	1
p-Chloroaniline	ND		1.0	0.38	ug/L		06/13/22 10:15	06/16/22 14:53	1
p-Nitroaniline	ND		5.0	0.36	ug/L		06/13/22 10:15	06/16/22 14:53	1
Acenaphthene	ND		0.19	0.065	ug/L		06/13/22 10:15	06/16/22 14:53	1
Anthracene	ND		0.19	0.049	ug/L		06/13/22 10:15	06/16/22 14:53	1
Atrazine	ND		1.0	0.63	ug/L		06/13/22 10:15	06/16/22 14:53	1
Benzo[a]anthracene	ND		0.19	0.075	ug/L		06/13/22 10:15	06/16/22 14:53	1
Benzo[a]pyrene	ND		0.19	0.053	ug/L		06/13/22 10:15	06/16/22 14:53	1
Benzo[b]fluoranthene	ND		0.19	0.097	ug/L		06/13/22 10:15	06/16/22 14:53	1
Benzo[k]fluoranthene	ND		0.19	0.088	ug/L		06/13/22 10:15	06/16/22 14:53	1
Bis(2-chloroethoxy)methane	ND		1.0	0.15	ug/L		06/13/22 10:15	06/16/22 14:53	1
Dichloroethyl ether	ND		0.19	0.040	ug/L		06/13/22 10:15	06/16/22 14:53	1
Bis(2-ethylhexyl) phthalate	ND		10	6.2	ug/L		06/13/22 10:15	06/16/22 14:53	1
Benzyl butyl phthalate	ND		1.0	0.46	ug/L		06/13/22 10:15	06/16/22 14:53	1
Chrysene	ND		0.19	0.081	ug/L		06/13/22 10:15	06/16/22 14:53	1
Diethyl phthalate	ND		1.0	0.57	ug/L		06/13/22 10:15	06/16/22 14:53	1
Dimethyl phthalate	ND		1.0	0.20	ug/L		06/13/22 10:15	06/16/22 14:53	1
Dibutylphthalate	ND		1.0	0.74	ug/L		06/13/22 10:15	06/16/22 14:53	1
Di-n-octyl phthalate	ND		1.0	0.69	ug/L		06/13/22 10:15	06/16/22 14:53	1

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-401768/1-A
Matrix: Solid
Analysis Batch: 402139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 401768

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		0.19	0.060	ug/L		06/13/22 10:15	06/16/22 14:53	1
Fluorene	ND		0.19	0.069	ug/L		06/13/22 10:15	06/16/22 14:53	1
Hexachlorobutadiene	ND		0.19	0.069	ug/L		06/13/22 10:15	06/16/22 14:53	1
Hexachlorocyclopentadiene	ND		1.0	0.50	ug/L		06/13/22 10:15	06/16/22 14:53	1
Hexachloroethane	ND		1.0	0.13	ug/L		06/13/22 10:15	06/16/22 14:53	1
Indeno[1,2,3-cd]pyrene	ND		0.19	0.085	ug/L		06/13/22 10:15	06/16/22 14:53	1
Isophorone	ND		1.0	0.19	ug/L		06/13/22 10:15	06/16/22 14:53	1
Nitrobenzene	ND		2.0	0.50	ug/L		06/13/22 10:15	06/16/22 14:53	1
N-Nitrosodiphenylamine	ND		1.0	0.12	ug/L		06/13/22 10:15	06/16/22 14:53	1
Pentachlorophenol	ND		5.0	0.85	ug/L		06/13/22 10:15	06/16/22 14:53	1
Phenanthrene	ND		0.19	0.055	ug/L		06/13/22 10:15	06/16/22 14:53	1
Phenol	ND		1.0	0.49	ug/L		06/13/22 10:15	06/16/22 14:53	1
Pyrene	ND		0.19	0.054	ug/L		06/13/22 10:15	06/16/22 14:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*56*		*23 - 128*	*06/13/22 10:15*	*06/16/22 14:53*	*1*
2-Fluorobiphenyl	*77*		*20 - 105*	*06/13/22 10:15*	*06/16/22 14:53*	*1*
2-Fluorophenol (Surr)	*74*		*20 - 105*	*06/13/22 10:15*	*06/16/22 14:53*	*1*
Nitrobenzene-d5 (Surr)	*69*		*20 - 107*	*06/13/22 10:15*	*06/16/22 14:53*	*1*
Phenol-d5 (Surr)	*71*		*20 - 106*	*06/13/22 10:15*	*06/16/22 14:53*	*1*
Terphenyl-d14 (Surr)	*74*		*22 - 120*	*06/13/22 10:15*	*06/16/22 14:53*	*1*

Lab Sample ID: LCS 180-401768/2-A
Matrix: Solid
Analysis Batch: 402139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 401768

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biphenyl	20.0	15.5		ug/L		78	51 - 100
1,4-Dichlorobenzene	20.0	14.9		ug/L		74	52 - 100
2,2'-oxybis[1-chloropropane]	20.0	12.5		ug/L		63	29 - 102
2,4-Dichlorophenol	20.0	14.6		ug/L		73	55 - 100
2,4-Dimethylphenol	20.0	15.1		ug/L		75	51 - 100
2,4-Dinitrophenol	40.0	29.5		ug/L		74	32 - 100
2,4-Dinitrotoluene	20.0	15.6		ug/L		78	56 - 100
2,6-Dinitrotoluene	20.0	15.3		ug/L		76	56 - 101
2-Chloronaphthalene	20.0	14.5		ug/L		72	52 - 100
2-Nitroaniline	20.0	15.9		ug/L		79	47 - 104
3,3'-Dichlorobenzidine	20.0	11.4		ug/L		57	42 - 100
3-Nitroaniline	20.0	15.1		ug/L		76	54 - 100
p-Chloroaniline	20.0	14.5		ug/L		73	48 - 100
p-Nitroaniline	20.0	15.4		ug/L		77	54 - 100
Acenaphthene	20.0	14.7		ug/L		74	51 - 100
Anthracene	20.0	14.4		ug/L		72	54 - 100
Atrazine	20.0	13.8		ug/L		69	50 - 100
Benzo[a]anthracene	20.0	13.8		ug/L		69	52 - 100
Benzo[a]pyrene	20.0	14.7		ug/L		73	52 - 100
Benzo[b]fluoranthene	20.0	16.0		ug/L		80	50 - 100
Benzo[k]fluoranthene	20.0	14.7		ug/L		74	49 - 100

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-401768/2-A
Matrix: Solid
Analysis Batch: 402139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 401768

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bis(2-chloroethoxy)methane	20.0	13.8		ug/L		69	49 - 100
Dichloroethyl ether	20.0	13.6		ug/L		68	46 - 100
Bis(2-ethylhexyl) phthalate	20.0	16.4		ug/L		82	52 - 101
Benzyl butyl phthalate	20.0	15.1		ug/L		75	52 - 100
Chrysene	20.0	13.3		ug/L		66	51 - 100
Diethyl phthalate	20.0	14.9		ug/L		75	52 - 100
Dimethyl phthalate	20.0	15.5		ug/L		77	55 - 100
Dibutylphthalate	20.0	14.9		ug/L		75	57 - 100
Di-n-octyl phthalate	20.0	17.7		ug/L		89	41 - 100
Fluoranthene	20.0	13.6		ug/L		68	56 - 100
Fluorene	20.0	13.6		ug/L		68	53 - 100
Hexachlorobutadiene	20.0	11.2		ug/L		56	42 - 101
Hexachlorocyclopentadiene	20.0	13.1		ug/L		65	38 - 102
Hexachloroethane	20.0	14.5		ug/L		72	46 - 100
Indeno[1,2,3-cd]pyrene	20.0	16.5		ug/L		82	54 - 100
Isophorone	20.0	14.0		ug/L		70	50 - 100
Nitrobenzene	20.0	14.3		ug/L		72	47 - 100
N-Nitrosodiphenylamine	20.0	15.1		ug/L		76	53 - 100
Pentachlorophenol	40.0	28.8		ug/L		72	35 - 102
Phenanthrene	20.0	13.9		ug/L		69	53 - 100
Phenol	20.0	14.1		ug/L		70	49 - 100
Pyrene	20.0	14.5		ug/L		72	53 - 100

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*57*		*23 - 128*
2-Fluorobiphenyl	*73*		*20 - 105*
2-Fluorophenol (Surr)	*88*		*20 - 105*
Nitrobenzene-d5 (Surr)	*69*		*20 - 107*
Phenol-d5 (Surr)	*77*		*20 - 106*
Terphenyl-d14 (Surr)	*73*		*22 - 120*

Lab Sample ID: LCSD 180-401768/3-A
Matrix: Solid
Analysis Batch: 402139

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 401768

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Biphenyl	20.0	15.1		ug/L		75	51 - 100	3	16
1,4-Dichlorobenzene	20.0	14.2		ug/L		71	52 - 100	4	15
2,2'-oxybis[1-chloropropane]	20.0	11.9		ug/L		60	29 - 102	5	16
2,4-Dichlorophenol	20.0	14.4		ug/L		72	55 - 100	2	15
2,4-Dimethylphenol	20.0	14.2		ug/L		71	51 - 100	6	16
2,4-Dinitrophenol	40.0	28.5		ug/L		71	32 - 100	3	19
2,4-Dinitrotoluene	20.0	15.2		ug/L		76	56 - 100	3	16
2,6-Dinitrotoluene	20.0	14.8		ug/L		74	56 - 101	3	16
2-Chloronaphthalene	20.0	14.4		ug/L		72	52 - 100	0	15
2-Nitroaniline	20.0	14.9		ug/L		75	47 - 104	6	18
3,3'-Dichlorobenzidine	20.0	11.3		ug/L		56	42 - 100	1	15
3-Nitroaniline	20.0	14.7		ug/L		74	54 - 100	2	15

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 180-401768/3-A
Matrix: Solid
Analysis Batch: 402139

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 401768

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
p-Chloroaniline			20.0	13.9		ug/L		70	48 - 100	4	15
p-Nitroaniline			20.0	15.0		ug/L		75	54 - 100	2	16
Acenaphthene			20.0	14.3		ug/L		71	51 - 100	3	15
Anthracene			20.0	13.0		ug/L		65	54 - 100	10	15
Atrazine			20.0	13.3		ug/L		67	50 - 100	3	15
Benzo[a]anthracene			20.0	13.4		ug/L		67	52 - 100	3	15
Benzo[a]pyrene			20.0	14.1		ug/L		70	52 - 100	4	16
Benzo[b]fluoranthene			20.0	15.9		ug/L		79	50 - 100	1	15
Benzo[k]fluoranthene			20.0	13.4		ug/L		67	49 - 100	9	20
Bis(2-chloroethoxy)methane			20.0	13.6		ug/L		68	49 - 100	1	15
Dichloroethyl ether			20.0	13.2		ug/L		66	46 - 100	3	17
Bis(2-ethylhexyl) phthalate			20.0	15.6		ug/L		78	52 - 101	5	15
Benzyl butyl phthalate			20.0	14.3		ug/L		72	52 - 100	5	15
Chrysene			20.0	12.7		ug/L		63	51 - 100	5	15
Diethyl phthalate			20.0	14.1		ug/L		70	52 - 100	6	15
Dimethyl phthalate			20.0	15.2		ug/L		76	55 - 100	1	15
Dibutylphthalate			20.0	14.1		ug/L		71	57 - 100	6	15
Di-n-octyl phthalate			20.0	17.2		ug/L		86	41 - 100	3	17
Fluoranthene			20.0	13.2		ug/L		66	56 - 100	3	15
Fluorene			20.0	13.4		ug/L		67	53 - 100	2	17
Hexachlorobutadiene			20.0	10.6		ug/L		53	42 - 101	5	15
Hexachlorocyclopentadiene			20.0	12.5		ug/L		63	38 - 102	4	16
Hexachloroethane			20.0	13.7		ug/L		69	46 - 100	5	16
Indeno[1,2,3-cd]pyrene			20.0	15.9		ug/L		79	54 - 100	4	16
Isophorone			20.0	13.8		ug/L		69	50 - 100	2	15
Nitrobenzene			20.0	13.8		ug/L		69	47 - 100	4	16
N-Nitrosodiphenylamine			20.0	14.5		ug/L		72	53 - 100	5	16
Pentachlorophenol			40.0	26.9		ug/L		67	35 - 102	7	17
Phenanthrene			20.0	13.0		ug/L		65	53 - 100	6	15
Phenol			20.0	13.4		ug/L		67	49 - 100	5	17
Pyrene			20.0	13.7		ug/L		68	53 - 100	5	15

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*53*		*23 - 128*
2-Fluorobiphenyl	*72*		*20 - 105*
2-Fluorophenol (Surr)	*85*		*20 - 105*
Nitrobenzene-d5 (Surr)	*66*		*20 - 107*
Phenol-d5 (Surr)	*74*		*20 - 106*
Terphenyl-d14 (Surr)	*71*		*22 - 120*

Lab Sample ID: MB 180-402862/1-A
Matrix: Solid
Analysis Batch: 403176

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 402862

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		1.0	0.14	ug/L		06/22/22 11:07	06/24/22 11:00	1
1,4-Dichlorobenzene	ND		1.0	0.061	ug/L		06/22/22 11:07	06/24/22 11:00	1
2,2'-oxybis[1-chloropropane]	ND		0.19	0.058	ug/L		06/22/22 11:07	06/24/22 11:00	1

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-402862/1-A
Matrix: Solid
Analysis Batch: 403176

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 402862

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenol	ND		0.19	0.051	ug/L		06/22/22 11:07	06/24/22 11:00	1
2,4-Dimethylphenol	ND		1.0	0.17	ug/L		06/22/22 11:07	06/24/22 11:00	1
2,4-Dinitrophenol	ND		10	1.5	ug/L		06/22/22 11:07	06/24/22 11:00	1
2,4-Dinitrotoluene	ND		1.0	0.35	ug/L		06/22/22 11:07	06/24/22 11:00	1
2,6-Dinitrotoluene	ND		1.0	0.17	ug/L		06/22/22 11:07	06/24/22 11:00	1
2-Chloronaphthalene	ND		0.19	0.059	ug/L		06/22/22 11:07	06/24/22 11:00	1
2-Nitroaniline	ND		5.0	0.55	ug/L		06/22/22 11:07	06/24/22 11:00	1
3,3'-Dichlorobenzidine	ND		1.0	0.58	ug/L		06/22/22 11:07	06/24/22 11:00	1
3-Nitroaniline	ND		5.0	0.44	ug/L		06/22/22 11:07	06/24/22 11:00	1
p-Chloroaniline	ND		1.0	0.38	ug/L		06/22/22 11:07	06/24/22 11:00	1
p-Nitroaniline	ND		5.0	0.36	ug/L		06/22/22 11:07	06/24/22 11:00	1
Acenaphthene	ND		0.19	0.065	ug/L		06/22/22 11:07	06/24/22 11:00	1
Anthracene	ND		0.19	0.049	ug/L		06/22/22 11:07	06/24/22 11:00	1
Atrazine	ND		1.0	0.63	ug/L		06/22/22 11:07	06/24/22 11:00	1
Benzo[a]anthracene	ND		0.19	0.075	ug/L		06/22/22 11:07	06/24/22 11:00	1
Benzo[a]pyrene	ND		0.19	0.053	ug/L		06/22/22 11:07	06/24/22 11:00	1
Benzo[b]fluoranthene	ND		0.19	0.097	ug/L		06/22/22 11:07	06/24/22 11:00	1
Benzo[k]fluoranthene	ND		0.19	0.088	ug/L		06/22/22 11:07	06/24/22 11:00	1
Bis(2-chloroethoxy)methane	ND		1.0	0.15	ug/L		06/22/22 11:07	06/24/22 11:00	1
Dichloroethyl ether	ND		0.19	0.040	ug/L		06/22/22 11:07	06/24/22 11:00	1
Bis(2-ethylhexyl) phthalate	ND		10	6.2	ug/L		06/22/22 11:07	06/24/22 11:00	1
Benzyl butyl phthalate	ND		1.0	0.46	ug/L		06/22/22 11:07	06/24/22 11:00	1
Chrysene	ND		0.19	0.081	ug/L		06/22/22 11:07	06/24/22 11:00	1
Diethyl phthalate	ND		1.0	0.57	ug/L		06/22/22 11:07	06/24/22 11:00	1
Dimethyl phthalate	ND		1.0	0.20	ug/L		06/22/22 11:07	06/24/22 11:00	1
Dibutylphthalate	ND		1.0	0.74	ug/L		06/22/22 11:07	06/24/22 11:00	1
Di-n-octyl phthalate	ND		1.0	0.69	ug/L		06/22/22 11:07	06/24/22 11:00	1
Fluoranthene	ND		0.19	0.060	ug/L		06/22/22 11:07	06/24/22 11:00	1
Fluorene	ND		0.19	0.069	ug/L		06/22/22 11:07	06/24/22 11:00	1
Hexachlorobutadiene	ND		0.19	0.069	ug/L		06/22/22 11:07	06/24/22 11:00	1
Hexachlorocyclopentadiene	ND		1.0	0.50	ug/L		06/22/22 11:07	06/24/22 11:00	1
Hexachloroethane	ND		1.0	0.13	ug/L		06/22/22 11:07	06/24/22 11:00	1
Indeno[1,2,3-cd]pyrene	ND		0.19	0.085	ug/L		06/22/22 11:07	06/24/22 11:00	1
Isophorone	ND		1.0	0.19	ug/L		06/22/22 11:07	06/24/22 11:00	1
Nitrobenzene	ND		2.0	0.50	ug/L		06/22/22 11:07	06/24/22 11:00	1
N-Nitrosodiphenylamine	ND		1.0	0.12	ug/L		06/22/22 11:07	06/24/22 11:00	1
Pentachlorophenol	ND		5.0	0.85	ug/L		06/22/22 11:07	06/24/22 11:00	1
Phenanthrene	ND		0.19	0.055	ug/L		06/22/22 11:07	06/24/22 11:00	1
Phenol	ND		1.0	0.49	ug/L		06/22/22 11:07	06/24/22 11:00	1
Pyrene	ND		0.19	0.054	ug/L		06/22/22 11:07	06/24/22 11:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*77*		*23 - 128*	*06/22/22 11:07*	*06/24/22 11:00*	*1*
2-Fluorobiphenyl	*71*		*20 - 105*	*06/22/22 11:07*	*06/24/22 11:00*	*1*
2-Fluorophenol (Surr)	*76*		*20 - 105*	*06/22/22 11:07*	*06/24/22 11:00*	*1*
Nitrobenzene-d5 (Surr)	*80*		*20 - 107*	*06/22/22 11:07*	*06/24/22 11:00*	*1*
Phenol-d5 (Surr)	*79*		*20 - 106*	*06/22/22 11:07*	*06/24/22 11:00*	*1*
Terphenyl-d14 (Surr)	*73*		*22 - 120*	*06/22/22 11:07*	*06/24/22 11:00*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-402862/2-A
Matrix: Solid
Analysis Batch: 403176

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 402862

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Biphenyl	20.0	15.0		ug/L		75	51 - 100
1,4-Dichlorobenzene	20.0	15.2		ug/L		76	52 - 100
2,2'-oxybis[1-chloropropane]	20.0	14.9		ug/L		75	29 - 102
2,4-Dichlorophenol	20.0	15.5		ug/L		77	55 - 100
2,4-Dimethylphenol	20.0	15.4		ug/L		77	51 - 100
2,4-Dinitrophenol	40.0	26.8		ug/L		67	32 - 100
2,4-Dinitrotoluene	20.0	17.5		ug/L		87	56 - 100
2,6-Dinitrotoluene	20.0	16.8		ug/L		84	56 - 101
2-Chloronaphthalene	20.0	14.9		ug/L		75	52 - 100
2-Nitroaniline	20.0	16.6		ug/L		83	47 - 104
3,3'-Dichlorobenzidine	20.0	14.6		ug/L		73	42 - 100
3-Nitroaniline	20.0	17.9		ug/L		90	54 - 100
p-Chloroaniline	20.0	15.7		ug/L		78	48 - 100
p-Nitroaniline	20.0	17.7		ug/L		89	54 - 100
Acenaphthene	20.0	15.0		ug/L		75	51 - 100
Anthracene	20.0	15.6		ug/L		78	54 - 100
Atrazine	20.0	16.3		ug/L		82	50 - 100
Benzo[a]anthracene	20.0	15.8		ug/L		79	52 - 100
Benzo[a]pyrene	20.0	14.3		ug/L		72	52 - 100
Benzo[b]fluoranthene	20.0	15.5		ug/L		78	50 - 100
Benzo[k]fluoranthene	20.0	13.2		ug/L		66	49 - 100
Bis(2-chloroethoxy)methane	20.0	14.0		ug/L		70	49 - 100
Dichloroethyl ether	20.0	15.0		ug/L		75	46 - 100
Bis(2-ethylhexyl) phthalate	20.0	18.0		ug/L		90	52 - 101
Benzyl butyl phthalate	20.0	17.6		ug/L		88	52 - 100
Chrysene	20.0	14.2		ug/L		71	51 - 100
Diethyl phthalate	20.0	15.9		ug/L		79	52 - 100
Dimethyl phthalate	20.0	15.4		ug/L		77	55 - 100
Dibutylphthalate	20.0	16.9		ug/L		84	57 - 100
Di-n-octyl phthalate	20.0	17.6		ug/L		88	41 - 100
Fluoranthene	20.0	16.1		ug/L		80	56 - 100
Fluorene	20.0	15.5		ug/L		78	53 - 100
Hexachlorobutadiene	20.0	14.6		ug/L		73	42 - 101
Hexachlorocyclopentadiene	20.0	16.3		ug/L		81	38 - 102
Hexachloroethane	20.0	15.2		ug/L		76	46 - 100
Indeno[1,2,3-cd]pyrene	20.0	15.7		ug/L		78	54 - 100
Isophorone	20.0	15.5		ug/L		77	50 - 100
Nitrobenzene	20.0	15.9		ug/L		80	47 - 100
N-Nitrosodiphenylamine	20.0	15.6		ug/L		78	53 - 100
Pentachlorophenol	40.0	31.2		ug/L		78	35 - 102
Phenanthrene	20.0	15.0		ug/L		75	53 - 100
Phenol	20.0	15.4		ug/L		77	49 - 100
Pyrene	20.0	15.1		ug/L		75	53 - 100

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*80*		*23 - 128*
2-Fluorobiphenyl	*72*		*20 - 105*
2-Fluorophenol (Surr)	*75*		*20 - 105*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-402862/2-A
Matrix: Solid
Analysis Batch: 403176

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 402862

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*81*		*20 - 107*
Phenol-d5 (Surr)	*77*		*20 - 106*
Terphenyl-d14 (Surr)	*72*		*22 - 120*

Method: EPA 8081B LL - Organochlorine Pesticides (GC)

Lab Sample ID: MB 180-400012/1-A
Matrix: Solid
Analysis Batch: 400492

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 400012

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.0013	0.00053	ug/L		05/26/22 05:30	06/01/22 14:50	1
4,4'-DDE	ND		0.0013	0.00030	ug/L		05/26/22 05:30	06/01/22 14:50	1
4,4'-DDT	ND		0.0013	0.00069	ug/L		05/26/22 05:30	06/01/22 14:50	1
alpha-BHC	ND		0.0013	0.00024	ug/L		05/26/22 05:30	06/01/22 14:50	1
alpha-Chlordane	ND		0.0013	0.00037	ug/L		05/26/22 05:30	06/01/22 14:50	1
beta-BHC	ND		0.0013	0.00037	ug/L		05/26/22 05:30	06/01/22 14:50	1
delta-BHC	ND		0.0013	0.00064	ug/L		05/26/22 05:30	06/01/22 14:50	1
Dieldrin	ND		0.0013	0.00027	ug/L		05/26/22 05:30	06/01/22 14:50	1
Endrin aldehyde	ND		0.0013	0.00052	ug/L		05/26/22 05:30	06/01/22 14:50	1
Endrin ketone	ND		0.0013	0.00040	ug/L		05/26/22 05:30	06/01/22 14:50	1
gamma-BHC (Lindane)	ND		0.0013	0.00029	ug/L		05/26/22 05:30	06/01/22 14:50	1
gamma-Chlordane	ND		0.0013	0.00041	ug/L		05/26/22 05:30	06/01/22 14:50	1
Heptachlor	ND		0.0013	0.00045	ug/L		05/26/22 05:30	06/01/22 14:50	1
Heptachlor epoxide	ND		0.0013	0.00034	ug/L		05/26/22 05:30	06/01/22 14:50	1
Hexachlorobenzene	ND		0.0013	0.00091	ug/L		05/26/22 05:30	06/01/22 14:50	1
Toxaphene	ND		0.10	0.049	ug/L		05/26/22 05:30	06/01/22 14:50	1
Endosulfan II	ND		0.0013	0.00032	ug/L		05/26/22 05:30	06/01/22 14:50	1
Methoxychlor	ND		0.0013	0.00078	ug/L		05/26/22 05:30	06/01/22 14:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*115*	*S1+*	*46 - 114*	*05/26/22 05:30*	*06/01/22 14:50*	*1*
DCB Decachlorobiphenyl (Surr)	*111*		*46 - 114*	*05/26/22 05:30*	*06/01/22 14:50*	*1*
Tetrachloro-m-xylene	*117*		*39 - 119*	*05/26/22 05:30*	*06/01/22 14:50*	*1*
Tetrachloro-m-xylene	*98*		*39 - 119*	*05/26/22 05:30*	*06/01/22 14:50*	*1*

Lab Sample ID: LCS 180-400012/2-A
Matrix: Solid
Analysis Batch: 400492

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 400012

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4,4'-DDD	0.0250	0.0225		ug/L		90	57 - 116
4,4'-DDE	0.0250	0.0219		ug/L		88	55 - 111
4,4'-DDT	0.0250	0.0216		ug/L		86	45 - 107
alpha-BHC	0.0250	0.0266		ug/L		106	58 - 116
alpha-Chlordane	0.0250	0.0258		ug/L		103	50 - 117
beta-BHC	0.0250	0.0261		ug/L		105	54 - 111
delta-BHC	0.0250	0.0267		ug/L		107	47 - 118

Method: EPA 8081B LL - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 180-400012/2-A
Matrix: Solid
Analysis Batch: 400492

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 400012

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Dieldrin			0.0250	0.0228		ug/L		91	57 - 111		
Endrin aldehyde			0.0250	0.0211		ug/L		85	43 - 117		
Endrin ketone			0.0250	0.0232		ug/L		93	60 - 114		
gamma-BHC (Lindane)			0.0250	0.0268		ug/L		107	57 - 116		
gamma-Chlordane			0.0250	0.0267		ug/L		107	43 - 115		
Heptachlor			0.0250	0.0262		ug/L		105	56 - 120		
Heptachlor epoxide			0.0250	0.0283		ug/L		113	53 - 118		
Endosulfan II			0.0250	0.0226		ug/L		90	54 - 116		
Methoxychlor			0.0250	0.0217		ug/L		87	46 - 114		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*115*	*S1+*	*46 - 114*
DCB Decachlorobiphenyl (Surr)	*104*		*46 - 114*
Tetrachloro-m-xylene	*111*		*39 - 119*
Tetrachloro-m-xylene	*95*		*39 - 119*

Lab Sample ID: LCSD 180-400012/3-A
Matrix: Solid
Analysis Batch: 400492

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 400012

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4,4'-DDD			0.0250	0.0223		ug/L		89	57 - 116	1	18
4,4'-DDE			0.0250	0.0213		ug/L		85	55 - 111	3	20
4,4'-DDT			0.0250	0.0216		ug/L		86	45 - 107	0	20
alpha-BHC			0.0250	0.0271		ug/L		108	58 - 116	2	17
alpha-Chlordane			0.0250	0.0254		ug/L		102	50 - 117	1	18
beta-BHC			0.0250	0.0259		ug/L		104	54 - 111	1	18
delta-BHC			0.0250	0.0266		ug/L		106	47 - 118	0	18
Dieldrin			0.0250	0.0219		ug/L		87	57 - 111	4	21
Endrin aldehyde			0.0250	0.0205		ug/L		82	43 - 117	3	23
Endrin ketone			0.0250	0.0218		ug/L		87	60 - 114	6	17
gamma-BHC (Lindane)			0.0250	0.0268		ug/L		107	57 - 116	0	19
gamma-Chlordane			0.0250	0.0272		ug/L		109	43 - 115	2	17
Heptachlor			0.0250	0.0262		ug/L		105	56 - 120	0	18
Heptachlor epoxide			0.0250	0.0281		ug/L		112	53 - 118	1	20
Endosulfan II			0.0250	0.0221		ug/L		88	54 - 116	2	17
Methoxychlor			0.0250	0.0213		ug/L		85	46 - 114	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*106*		*46 - 114*
DCB Decachlorobiphenyl (Surr)	*104*		*46 - 114*
Tetrachloro-m-xylene	*113*		*39 - 119*
Tetrachloro-m-xylene	*93*		*39 - 119*

Method: EPA 8081B LL - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 180-403696/1-A
Matrix: Solid
Analysis Batch: 403840

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 403696

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.0013	0.00053	ug/L		06/30/22 05:00	07/01/22 11:02	1
4,4'-DDE	ND		0.0013	0.00030	ug/L		06/30/22 05:00	07/01/22 11:02	1
4,4'-DDT	ND		0.0013	0.00069	ug/L		06/30/22 05:00	07/01/22 11:02	1
alpha-BHC	ND		0.0013	0.00024	ug/L		06/30/22 05:00	07/01/22 11:02	1
alpha-Chlordane	ND		0.0013	0.00037	ug/L		06/30/22 05:00	07/01/22 11:02	1
beta-BHC	ND		0.0013	0.00037	ug/L		06/30/22 05:00	07/01/22 11:02	1
delta-BHC	ND		0.0013	0.00064	ug/L		06/30/22 05:00	07/01/22 11:02	1
Dieldrin	ND		0.0013	0.00027	ug/L		06/30/22 05:00	07/01/22 11:02	1
Endrin aldehyde	ND		0.0013	0.00052	ug/L		06/30/22 05:00	07/01/22 11:02	1
Endrin ketone	ND		0.0013	0.00040	ug/L		06/30/22 05:00	07/01/22 11:02	1
gamma-BHC (Lindane)	ND		0.0013	0.00029	ug/L		06/30/22 05:00	07/01/22 11:02	1
gamma-Chlordane	ND		0.0013	0.00041	ug/L		06/30/22 05:00	07/01/22 11:02	1
Heptachlor	ND		0.0013	0.00045	ug/L		06/30/22 05:00	07/01/22 11:02	1
Heptachlor epoxide	ND		0.0013	0.00034	ug/L		06/30/22 05:00	07/01/22 11:02	1
Hexachlorobenzene	ND		0.0013	0.00091	ug/L		06/30/22 05:00	07/01/22 11:02	1
Toxaphene	ND		0.10	0.049	ug/L		06/30/22 05:00	07/01/22 11:02	1
Endosulfan II	ND		0.0013	0.00032	ug/L		06/30/22 05:00	07/01/22 11:02	1
Methoxychlor	ND		0.0013	0.00078	ug/L		06/30/22 05:00	07/01/22 11:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*83*		*46 - 114*	*06/30/22 05:00*	*07/01/22 11:02*	*1*
DCB Decachlorobiphenyl (Surr)	*93*		*46 - 114*	*06/30/22 05:00*	*07/01/22 11:02*	*1*
Tetrachloro-m-xylene	*58*		*39 - 119*	*06/30/22 05:00*	*07/01/22 11:02*	*1*
Tetrachloro-m-xylene	*68*		*39 - 119*	*06/30/22 05:00*	*07/01/22 11:02*	*1*

Lab Sample ID: LCS 180-403696/2-A
Matrix: Solid
Analysis Batch: 403840

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 403696

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4,4'-DDD	0.0250	0.0153		ug/L		61	57 - 116
4,4'-DDE	0.0250	0.0144		ug/L		58	55 - 111
4,4'-DDT	0.0250	0.0195		ug/L		78	45 - 107
alpha-BHC	0.0250	0.0205		ug/L		82	58 - 116
alpha-Chlordane	0.0250	0.0241		ug/L		96	50 - 117
beta-BHC	0.0250	0.0175		ug/L		70	54 - 111
delta-BHC	0.0250	0.0172		ug/L		69	47 - 118
Dieldrin	0.0250	0.0204		ug/L		82	57 - 111
Endrin aldehyde	0.0250	0.0187		ug/L		75	43 - 117
Endrin ketone	0.0250	0.0191		ug/L		76	60 - 114
gamma-BHC (Lindane)	0.0250	0.0208		ug/L		83	57 - 116
gamma-Chlordane	0.0250	0.0235		ug/L		94	43 - 115
Heptachlor	0.0250	0.0211		ug/L		84	56 - 120
Heptachlor epoxide	0.0250	0.0249		ug/L		100	53 - 118
Endosulfan II	0.0250	0.0198		ug/L		79	54 - 116
Methoxychlor	0.0250	0.0177		ug/L		71	46 - 114

Method: EPA 8081B LL - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 180-403696/2-A
Matrix: Solid
Analysis Batch: 403840

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 403696

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	87		46 - 114
DCB Decachlorobiphenyl (Surr)	98		46 - 114
Tetrachloro-m-xylene	63		39 - 119
Tetrachloro-m-xylene	74		39 - 119

Lab Sample ID: LCSD 180-403696/3-A
Matrix: Solid
Analysis Batch: 403840

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 403696

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4,4'-DDD			0.0250	0.0152		ug/L		61	57 - 116	1	18
4,4'-DDE			0.0250	0.0145		ug/L		58	55 - 111	1	20
4,4'-DDT			0.0250	0.0201		ug/L		81	45 - 107	3	20
alpha-BHC			0.0250	0.0212		ug/L		85	58 - 116	3	17
alpha-Chlordane			0.0250	0.0247		ug/L		99	50 - 117	3	18
beta-BHC			0.0250	0.0181		ug/L		72	54 - 111	3	18
delta-BHC			0.0250	0.0174		ug/L		69	47 - 118	1	18
Dieldrin			0.0250	0.0215		ug/L		86	57 - 111	5	21
Endrin aldehyde			0.0250	0.0186		ug/L		74	43 - 117	1	23
Endrin ketone			0.0250	0.0202		ug/L		81	60 - 114	6	17
gamma-BHC (Lindane)			0.0250	0.0217		ug/L		87	57 - 116	4	19
gamma-Chlordane			0.0250	0.0243		ug/L		97	43 - 115	3	17
Heptachlor			0.0250	0.0211	p *1	ug/L		84	56 - 120	37	18
Heptachlor epoxide			0.0250	0.0260		ug/L		104	53 - 118	4	20
Endosulfan II			0.0250	0.0204		ug/L		82	54 - 116	3	17
Methoxychlor			0.0250	0.0181		ug/L		73	46 - 114	3	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	91		46 - 114
DCB Decachlorobiphenyl (Surr)	102		46 - 114
Tetrachloro-m-xylene	63		39 - 119
Tetrachloro-m-xylene	76		39 - 119

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-403147/76
Matrix: Solid
Analysis Batch: 403147

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.0	0.76	mg/L			06/25/22 01:11	1

Lab Sample ID: LCS 180-403147/75
Matrix: Solid
Analysis Batch: 403147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			50.0	52.7		mg/L		105	80 - 120		

Method: EPA 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 180-403358/47
Matrix: Solid
Analysis Batch: 403358
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.0	0.76	mg/L			06/28/22 01:43	1

Lab Sample ID: MB 180-403358/7
Matrix: Solid
Analysis Batch: 403358
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.0	0.76	mg/L			06/27/22 15:49	1

Lab Sample ID: LCS 180-403358/46
Matrix: Solid
Analysis Batch: 403358
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	50.0	51.4		mg/L		103	80 - 120

Lab Sample ID: LCS 180-403358/6
Matrix: Solid
Analysis Batch: 403358
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	50.0	47.1		mg/L		94	80 - 120

Lab Sample ID: MB 180-404902/6
Matrix: Solid
Analysis Batch: 404902
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.0	0.76	mg/L			07/13/22 12:52	1

Lab Sample ID: LCS 180-404902/7
Matrix: Solid
Analysis Batch: 404902
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	50.0	49.1		mg/L		98	80 - 120

Lab Sample ID: 180-136058-9 MS
Matrix: Solid
Analysis Batch: 404902
Client Sample ID: TRW CONTROL T09
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	15		50.0	65.6		mg/L		101	80 - 120

Lab Sample ID: 180-136058-9 MSD
Matrix: Solid
Analysis Batch: 404902
Client Sample ID: TRW CONTROL T09
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	15		50.0	64.5		mg/L		99	80 - 120	2	15

Method: EPA 6010D - Metals (ICP)

Lab Sample ID: MB 180-402592/1-A
Matrix: Solid
Analysis Batch: 403304

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 402592

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.041	mg/L		06/20/22 13:21	06/24/22 15:23	1
Antimony	ND		0.010	0.0062	mg/L		06/20/22 13:21	06/24/22 15:23	1
Arsenic	ND		0.010	0.0083	mg/L		06/20/22 13:21	06/24/22 15:23	1
Barium	ND		0.20	0.0063	mg/L		06/20/22 13:21	06/24/22 15:23	1
Beryllium	ND		0.0040	0.0015	mg/L		06/20/22 13:21	06/24/22 15:23	1
Cadmium	ND		0.0050	0.00030	mg/L		06/20/22 13:21	06/24/22 15:23	1
Calcium	ND		5.0	0.32	mg/L		06/20/22 13:21	06/24/22 15:23	1
Chromium	ND		0.0050	0.0016	mg/L		06/20/22 13:21	06/24/22 15:23	1
Cobalt	ND		0.050	0.0019	mg/L		06/20/22 13:21	06/24/22 15:23	1
Copper	ND		0.025	0.0022	mg/L		06/20/22 13:21	06/24/22 15:23	1
Iron	ND		0.10	0.072	mg/L		06/20/22 13:21	06/24/22 15:23	1
Lead	ND		0.010	0.0044	mg/L		06/20/22 13:21	06/24/22 15:23	1
Magnesium	ND		5.0	0.26	mg/L		06/20/22 13:21	06/24/22 15:23	1
Manganese	ND		0.015	0.0024	mg/L		06/20/22 13:21	06/24/22 15:23	1
Nickel	ND		0.040	0.0019	mg/L		06/20/22 13:21	06/24/22 15:23	1
Potassium	ND		5.0	0.80	mg/L		06/20/22 13:21	06/24/22 15:23	1
Selenium	ND		0.010	0.0037	mg/L		06/20/22 13:21	06/24/22 15:23	1
Silver	ND		0.0050	0.00091	mg/L		06/20/22 13:21	06/24/22 15:23	1
Sodium	ND		5.0	0.30	mg/L		06/20/22 13:21	06/24/22 15:23	1
Thallium	ND		0.020	0.0030	mg/L		06/20/22 13:21	06/24/22 15:23	1
Vanadium	ND		0.050	0.0053	mg/L		06/20/22 13:21	06/24/22 15:23	1
Zinc	ND		0.020	0.0026	mg/L		06/20/22 13:21	06/24/22 15:23	1

Lab Sample ID: LCS 180-402592/2-A
Matrix: Solid
Analysis Batch: 403304

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 402592

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	5.00	5.14		mg/L		103	80 - 120
Antimony	0.250	0.267		mg/L		107	80 - 120
Arsenic	1.00	1.11		mg/L		111	80 - 120
Barium	1.00	1.04		mg/L		104	80 - 120
Beryllium	0.500	0.535		mg/L		107	80 - 120
Cadmium	0.500	0.536		mg/L		107	80 - 120
Calcium	25.0	25.9		mg/L		104	80 - 120
Chromium	0.500	0.517		mg/L		103	80 - 120
Cobalt	0.500	0.525		mg/L		105	80 - 120
Copper	0.500	0.518		mg/L		104	80 - 120
Iron	5.00	5.19		mg/L		104	80 - 120
Lead	0.500	0.527		mg/L		105	80 - 120
Magnesium	25.0	25.1		mg/L		101	80 - 120
Manganese	0.500	0.508		mg/L		102	80 - 120
Nickel	0.500	0.531		mg/L		106	80 - 120
Potassium	25.0	25.8		mg/L		103	80 - 120
Selenium	1.00	1.07		mg/L		107	80 - 120
Silver	0.250	0.262		mg/L		105	80 - 120
Sodium	25.0	26.1		mg/L		104	80 - 120
Thallium	1.00	1.06		mg/L		106	80 - 120
Vanadium	0.500	0.517		mg/L		103	80 - 120

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 180-402592/2-A
Matrix: Solid
Analysis Batch: 403304

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 402592

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	0.250	0.260		mg/L		104	80 - 120

Lab Sample ID: MB 180-402892/1-A
Matrix: Solid
Analysis Batch: 403445

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 402892

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.041	mg/L		06/22/22 13:43	06/27/22 17:14	1
Antimony	ND		0.010	0.0062	mg/L		06/22/22 13:43	06/27/22 17:14	1
Arsenic	ND		0.010	0.0083	mg/L		06/22/22 13:43	06/27/22 17:14	1
Barium	ND		0.20	0.0063	mg/L		06/22/22 13:43	06/27/22 17:14	1
Beryllium	ND		0.0040	0.0015	mg/L		06/22/22 13:43	06/27/22 17:14	1
Cadmium	ND		0.0050	0.00030	mg/L		06/22/22 13:43	06/27/22 17:14	1
Calcium	ND		5.0	0.32	mg/L		06/22/22 13:43	06/27/22 17:14	1
Chromium	ND		0.0050	0.0016	mg/L		06/22/22 13:43	06/27/22 17:14	1
Cobalt	ND		0.050	0.0019	mg/L		06/22/22 13:43	06/27/22 17:14	1
Copper	ND		0.025	0.0022	mg/L		06/22/22 13:43	06/27/22 17:14	1
Iron	ND		0.10	0.072	mg/L		06/22/22 13:43	06/27/22 17:14	1
Lead	ND		0.010	0.0044	mg/L		06/22/22 13:43	06/27/22 17:14	1
Magnesium	ND		5.0	0.26	mg/L		06/22/22 13:43	06/27/22 17:14	1
Manganese	ND		0.015	0.0024	mg/L		06/22/22 13:43	06/27/22 17:14	1
Nickel	ND		0.040	0.0019	mg/L		06/22/22 13:43	06/27/22 17:14	1
Potassium	ND		5.0	0.80	mg/L		06/22/22 13:43	06/27/22 17:14	1
Selenium	ND		0.010	0.0037	mg/L		06/22/22 13:43	06/27/22 17:14	1
Silver	ND		0.0050	0.00091	mg/L		06/22/22 13:43	06/27/22 17:14	1
Sodium	ND		5.0	0.30	mg/L		06/22/22 13:43	06/27/22 17:14	1
Thallium	0.00583	J	0.020	0.0030	mg/L		06/22/22 13:43	06/27/22 17:14	1
Vanadium	ND		0.050	0.0053	mg/L		06/22/22 13:43	06/27/22 17:14	1
Zinc	ND		0.020	0.0026	mg/L		06/22/22 13:43	06/27/22 17:14	1

Lab Sample ID: LCS 180-402892/2-A
Matrix: Solid
Analysis Batch: 403445

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 402892

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	5.00	5.02		mg/L		100	80 - 120
Antimony	0.250	0.238		mg/L		95	80 - 120
Arsenic	1.00	1.02		mg/L		102	80 - 120
Barium	1.00	0.950		mg/L		95	80 - 120
Beryllium	0.500	0.493		mg/L		99	80 - 120
Cadmium	0.500	0.488		mg/L		98	80 - 120
Calcium	25.0	25.7		mg/L		103	80 - 120
Chromium	0.500	0.498		mg/L		100	80 - 120
Cobalt	0.500	0.491		mg/L		98	80 - 120
Copper	0.500	0.476		mg/L		95	80 - 120
Iron	5.00	5.20		mg/L		104	80 - 120
Lead	0.500	0.494		mg/L		99	80 - 120
Magnesium	25.0	24.8		mg/L		99	80 - 120
Manganese	0.500	0.483		mg/L		97	80 - 120

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 180-402892/2-A
Matrix: Solid
Analysis Batch: 403445

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 402892

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nickel	0.500	0.496		mg/L		99	80 - 120
Potassium	25.0	24.8		mg/L		99	80 - 120
Selenium	1.00	0.975		mg/L		98	80 - 120
Silver	0.250	0.242		mg/L		97	80 - 120
Sodium	25.0	25.0		mg/L		100	80 - 120
Thallium	1.00	0.987		mg/L		99	80 - 120
Vanadium	0.500	0.493		mg/L		99	80 - 120
Zinc	0.250	0.250		mg/L		100	80 - 120

Lab Sample ID: MB 180-405878/1-A
Matrix: Solid
Analysis Batch: 406111

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 405878

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20	0.041	mg/L		07/21/22 12:31	07/22/22 07:55	1
Antimony	ND		0.010	0.0062	mg/L		07/21/22 12:31	07/22/22 07:55	1
Arsenic	ND		0.010	0.0083	mg/L		07/21/22 12:31	07/22/22 07:55	1
Barium	ND		0.20	0.0063	mg/L		07/21/22 12:31	07/22/22 07:55	1
Beryllium	ND		0.0040	0.0015	mg/L		07/21/22 12:31	07/22/22 07:55	1
Cadmium	ND		0.0050	0.00030	mg/L		07/21/22 12:31	07/22/22 07:55	1
Calcium	ND		5.0	0.32	mg/L		07/21/22 12:31	07/22/22 07:55	1
Chromium	ND		0.0050	0.0016	mg/L		07/21/22 12:31	07/22/22 07:55	1
Cobalt	ND		0.050	0.0019	mg/L		07/21/22 12:31	07/22/22 07:55	1
Copper	ND		0.025	0.0022	mg/L		07/21/22 12:31	07/22/22 07:55	1
Iron	ND		0.10	0.072	mg/L		07/21/22 12:31	07/22/22 07:55	1
Lead	ND		0.010	0.0044	mg/L		07/21/22 12:31	07/22/22 07:55	1
Magnesium	ND		5.0	0.26	mg/L		07/21/22 12:31	07/22/22 07:55	1
Manganese	ND		0.015	0.0024	mg/L		07/21/22 12:31	07/22/22 07:55	1
Nickel	ND		0.040	0.0019	mg/L		07/21/22 12:31	07/22/22 07:55	1
Potassium	ND		5.0	0.80	mg/L		07/21/22 12:31	07/22/22 07:55	1
Selenium	ND		0.010	0.0037	mg/L		07/21/22 12:31	07/22/22 07:55	1
Silver	ND		0.0050	0.00091	mg/L		07/21/22 12:31	07/22/22 07:55	1
Sodium	ND		5.0	0.30	mg/L		07/21/22 12:31	07/22/22 07:55	1
Thallium	ND		0.020	0.0030	mg/L		07/21/22 12:31	07/22/22 07:55	1
Vanadium	ND		0.050	0.0053	mg/L		07/21/22 12:31	07/22/22 07:55	1
Zinc	0.00871	J	0.020	0.0026	mg/L		07/21/22 12:31	07/22/22 07:55	1

Lab Sample ID: LCS 180-405878/2-A
Matrix: Solid
Analysis Batch: 406111

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 405878

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	5.00	5.00		mg/L		100	80 - 120
Antimony	0.250	0.253		mg/L		101	80 - 120
Arsenic	1.00	1.03		mg/L		103	80 - 120
Barium	1.00	1.00		mg/L		100	80 - 120
Beryllium	0.500	0.518		mg/L		104	80 - 120
Cadmium	0.500	0.505		mg/L		101	80 - 120
Calcium	25.0	25.7		mg/L		103	80 - 120

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 180-405878/2-A
Matrix: Solid
Analysis Batch: 406111

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 405878

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chromium	0.500	0.517		mg/L		103	80 - 120
Cobalt	0.500	0.505		mg/L		101	80 - 120
Copper	0.500	0.505		mg/L		101	80 - 120
Iron	5.00	5.13		mg/L		103	80 - 120
Lead	0.500	0.486		mg/L		97	80 - 120
Magnesium	25.0	24.7		mg/L		99	80 - 120
Manganese	0.500	0.495		mg/L		99	80 - 120
Nickel	0.500	0.505		mg/L		101	80 - 120
Potassium	25.0	25.0		mg/L		100	80 - 120
Selenium	1.00	0.979		mg/L		98	80 - 120
Silver	0.250	0.241		mg/L		96	80 - 120
Sodium	25.0	25.5		mg/L		102	80 - 120
Thallium	1.00	0.960		mg/L		96	80 - 120
Vanadium	0.500	0.517		mg/L		103	80 - 120
Zinc	0.250	0.252		mg/L		101	80 - 120

Lab Sample ID: 180-136058-6 MS
Matrix: Solid
Analysis Batch: 403304

Client Sample ID: TRW CONTROL T06
Prep Type: Leach
Prep Batch: 402592

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	ND		5.00	5.02		mg/L		100	75 - 125
Antimony	0.038		0.250	0.300		mg/L		105	75 - 125
Arsenic	ND		1.00	1.09		mg/L		109	75 - 125
Barium	0.097	J	1.00	1.11		mg/L		101	75 - 125
Beryllium	ND		0.500	0.520		mg/L		104	75 - 125
Cadmium	0.00078	J	0.500	0.525		mg/L		105	75 - 125
Calcium	48		25.0	71.9		mg/L		96	75 - 125
Chromium	ND		0.500	0.507		mg/L		101	75 - 125
Cobalt	ND		0.500	0.511		mg/L		102	75 - 125
Copper	ND		0.500	0.512		mg/L		102	75 - 125
Iron	ND		5.00	5.03		mg/L		101	75 - 125
Lead	ND		0.500	0.515		mg/L		103	75 - 125
Magnesium	5.7		25.0	30.1		mg/L		98	75 - 125
Manganese	0.15		0.500	0.646		mg/L		99	75 - 125
Nickel	ND		0.500	0.517		mg/L		103	75 - 125
Potassium	0.91	J	25.0	26.1		mg/L		101	75 - 125
Selenium	ND		1.00	1.04		mg/L		104	75 - 125
Silver	ND		0.250	0.260		mg/L		104	75 - 125
Sodium	1.1	J	25.0	26.7		mg/L		102	75 - 125
Thallium	ND		1.00	1.03		mg/L		103	75 - 125
Vanadium	ND		0.500	0.501		mg/L		100	75 - 125
Zinc	0.0050	J	0.250	0.252		mg/L		99	75 - 125

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: 180-136058-6 MSD
Matrix: Solid
Analysis Batch: 403304

Client Sample ID: TRW CONTROL T06
Prep Type: Leach
Prep Batch: 402592

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum	ND		5.00	5.10		mg/L		102	75 - 125	1	20
Antimony	0.038		0.250	0.302		mg/L		106	75 - 125	1	20
Arsenic	ND		1.00	1.08		mg/L		108	75 - 125	0	20
Barium	0.097	J	1.00	1.11		mg/L		101	75 - 125	0	20
Beryllium	ND		0.500	0.518		mg/L		104	75 - 125	1	20
Cadmium	0.00078	J	0.500	0.523		mg/L		104	75 - 125	0	20
Calcium	48		25.0	72.4		mg/L		98	75 - 125	1	20
Chromium	ND		0.500	0.504		mg/L		101	75 - 125	1	20
Cobalt	ND		0.500	0.509		mg/L		102	75 - 125	1	20
Copper	ND		0.500	0.508		mg/L		102	75 - 125	1	20
Iron	ND		5.00	5.11		mg/L		102	75 - 125	2	20
Lead	ND		0.500	0.515		mg/L		103	75 - 125	0	20
Magnesium	5.7		25.0	30.4		mg/L		99	75 - 125	1	20
Manganese	0.15		0.500	0.644		mg/L		98	75 - 125	0	20
Nickel	ND		0.500	0.514		mg/L		103	75 - 125	1	20
Potassium	0.91	J	25.0	26.5		mg/L		102	75 - 125	1	20
Selenium	ND		1.00	1.04		mg/L		104	75 - 125	0	20
Silver	ND		0.250	0.260		mg/L		104	75 - 125	0	20
Sodium	1.1	J	25.0	27.0		mg/L		104	75 - 125	1	20
Thallium	ND		1.00	1.03		mg/L		103	75 - 125	1	20
Vanadium	ND		0.500	0.502		mg/L		100	75 - 125	0	20
Zinc	0.0050	J	0.250	0.255		mg/L		100	75 - 125	1	20

Lab Sample ID: 180-136058-7 MS
Matrix: Solid
Analysis Batch: 403445

Client Sample ID: TRW CONTROL T07
Prep Type: Leach
Prep Batch: 402892

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.051	J	5.00	4.67		mg/L		92	75 - 125
Antimony	0.042		0.250	0.284		mg/L		97	75 - 125
Arsenic	ND		1.00	1.01		mg/L		101	75 - 125
Barium	0.10	J	1.00	1.04		mg/L		94	75 - 125
Beryllium	ND		0.500	0.495		mg/L		99	75 - 125
Cadmium	0.00045	J	0.500	0.488		mg/L		98	75 - 125
Calcium	35		25.0	58.8		mg/L		97	75 - 125
Chromium	ND		0.500	0.492		mg/L		98	75 - 125
Cobalt	ND		0.500	0.490		mg/L		98	75 - 125
Copper	0.0032	J	0.500	0.472		mg/L		94	75 - 125
Iron	ND		5.00	4.64		mg/L		93	75 - 125
Lead	ND		0.500	0.495		mg/L		99	75 - 125
Magnesium	3.4	J	25.0	26.7		mg/L		93	75 - 125
Manganese	0.068		0.500	0.549		mg/L		96	75 - 125
Nickel	ND		0.500	0.494		mg/L		99	75 - 125
Potassium	ND		25.0	23.6		mg/L		95	75 - 125
Selenium	ND		1.00	0.967		mg/L		97	75 - 125
Silver	ND		0.250	0.244		mg/L		98	75 - 125
Sodium	0.53	J	25.0	23.7		mg/L		93	75 - 125
Thallium	ND		1.00	0.981		mg/L		98	75 - 125
Vanadium	ND		0.500	0.481		mg/L		96	75 - 125

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: 180-136058-7 MS
Matrix: Solid
Analysis Batch: 403445

Client Sample ID: TRW CONTROL T07
Prep Type: Leach
Prep Batch: 402892

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	0.0033	J	0.250	0.252		mg/L		99	75 - 125

Lab Sample ID: 180-136058-7 MSD
Matrix: Solid
Analysis Batch: 403445

Client Sample ID: TRW CONTROL T07
Prep Type: Leach
Prep Batch: 402892

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum	0.051	J	5.00	4.88		mg/L		97	75 - 125	4	20
Antimony	0.042		0.250	0.272		mg/L		92	75 - 125	4	20
Arsenic	ND		1.00	1.03		mg/L		103	75 - 125	1	20
Barium	0.10	J	1.00	1.05		mg/L		95	75 - 125	0	20
Beryllium	ND		0.500	0.504		mg/L		101	75 - 125	2	20
Cadmium	0.00045	J	0.500	0.492		mg/L		98	75 - 125	1	20
Calcium	35		25.0	57.8		mg/L		93	75 - 125	2	20
Chromium	ND		0.500	0.495		mg/L		99	75 - 125	1	20
Cobalt	ND		0.500	0.497		mg/L		99	75 - 125	1	20
Copper	0.0032	J	0.500	0.477		mg/L		95	75 - 125	1	20
Iron	ND		5.00	4.91		mg/L		98	75 - 125	6	20
Lead	ND		0.500	0.504		mg/L		101	75 - 125	2	20
Magnesium	3.4	J	25.0	27.6		mg/L		97	75 - 125	3	20
Manganese	0.068		0.500	0.551		mg/L		97	75 - 125	0	20
Nickel	ND		0.500	0.501		mg/L		100	75 - 125	2	20
Potassium	ND		25.0	24.8		mg/L		99	75 - 125	5	20
Selenium	ND		1.00	0.986		mg/L		99	75 - 125	2	20
Silver	ND		0.250	0.232		mg/L		93	75 - 125	5	20
Sodium	0.53	J	25.0	24.8		mg/L		97	75 - 125	5	20
Thallium	ND		1.00	1.00		mg/L		100	75 - 125	2	20
Vanadium	ND		0.500	0.484		mg/L		97	75 - 125	1	20
Zinc	0.0033	J	0.250	0.239		mg/L		94	75 - 125	5	20

Lab Sample ID: 180-136058-54 MS
Matrix: Solid
Analysis Batch: 406111

Client Sample ID: MB T09
Prep Type: Leach
Prep Batch: 405878

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	ND		5.00	5.01		mg/L		100	75 - 125
Antimony	ND		0.250	0.257		mg/L		103	75 - 125
Arsenic	ND		1.00	1.03		mg/L		103	75 - 125
Barium	ND		1.00	1.00		mg/L		100	75 - 125
Beryllium	ND		0.500	0.517		mg/L		103	75 - 125
Cadmium	ND		0.500	0.504		mg/L		101	75 - 125
Calcium	ND		25.0	25.8		mg/L		103	75 - 125
Chromium	ND		0.500	0.513		mg/L		103	75 - 125
Cobalt	ND		0.500	0.501		mg/L		100	75 - 125
Copper	ND		0.500	0.505		mg/L		101	75 - 125
Iron	ND		5.00	5.16		mg/L		103	75 - 125
Lead	ND		0.500	0.481		mg/L		96	75 - 125
Magnesium	ND		25.0	24.9		mg/L		100	75 - 125
Manganese	ND		0.500	0.493		mg/L		99	75 - 125

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: 180-136058-54 MS
Matrix: Solid
Analysis Batch: 406111

Client Sample ID: MB T09
Prep Type: Leach
Prep Batch: 405878

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nickel	ND		0.500	0.502		mg/L		100	75 - 125
Potassium	ND		25.0	25.1		mg/L		100	75 - 125
Selenium	ND		1.00	0.977		mg/L		98	75 - 125
Silver	ND		0.250	0.242		mg/L		97	75 - 125
Sodium	ND		25.0	25.7		mg/L		103	75 - 125
Thallium	ND		1.00	0.956		mg/L		96	75 - 125
Vanadium	ND		0.500	0.519		mg/L		104	75 - 125
Zinc	ND		0.250	0.251		mg/L		101	75 - 125

Lab Sample ID: 180-136058-54 MSD
Matrix: Solid
Analysis Batch: 406111

Client Sample ID: MB T09
Prep Type: Leach
Prep Batch: 405878

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aluminum	ND		5.00	5.09		mg/L		102	75 - 125	2	20
Antimony	ND		0.250	0.260		mg/L		104	75 - 125	1	20
Arsenic	ND		1.00	1.04		mg/L		104	75 - 125	1	20
Barium	ND		1.00	1.01		mg/L		101	75 - 125	0	20
Beryllium	ND		0.500	0.524		mg/L		105	75 - 125	1	20
Cadmium	ND		0.500	0.511		mg/L		102	75 - 125	1	20
Calcium	ND		25.0	26.2		mg/L		105	75 - 125	2	20
Chromium	ND		0.500	0.519		mg/L		104	75 - 125	1	20
Cobalt	ND		0.500	0.511		mg/L		102	75 - 125	2	20
Copper	ND		0.500	0.507		mg/L		101	75 - 125	0	20
Iron	ND		5.00	5.23		mg/L		105	75 - 125	1	20
Lead	ND		0.500	0.494		mg/L		99	75 - 125	3	20
Magnesium	ND		25.0	25.4		mg/L		102	75 - 125	2	20
Manganese	ND		0.500	0.499		mg/L		100	75 - 125	1	20
Nickel	ND		0.500	0.512		mg/L		102	75 - 125	2	20
Potassium	ND		25.0	25.4		mg/L		102	75 - 125	1	20
Selenium	ND		1.00	0.992		mg/L		99	75 - 125	1	20
Silver	ND		0.250	0.246		mg/L		98	75 - 125	2	20
Sodium	ND		25.0	26.0		mg/L		104	75 - 125	1	20
Thallium	ND		1.00	0.980		mg/L		98	75 - 125	2	20
Vanadium	ND		0.500	0.512		mg/L		102	75 - 125	1	20
Zinc	ND		0.250	0.257		mg/L		103	75 - 125	2	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-401755/1-A
Matrix: Solid
Analysis Batch: 401834

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 401755

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/13/22 09:32	06/13/22 17:46	1

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 180-401755/2-A
Matrix: Solid
Analysis Batch: 401834

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 401755

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	2.50	2.91		ug/L		117	80 - 120

Lab Sample ID: MB 180-402918/1-A
Matrix: Solid
Analysis Batch: 403039

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 402918

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/22/22 15:29	06/23/22 09:44	1

Lab Sample ID: LCS 180-402918/2-A
Matrix: Solid
Analysis Batch: 403039

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 402918

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	2.50	2.66		ug/L		106	80 - 120

Lab Sample ID: MB 180-405058/1-A
Matrix: Solid
Analysis Batch: 405239

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 405058

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		07/14/22 09:24	07/15/22 11:51	1

Lab Sample ID: LCS 180-405058/2-A
Matrix: Solid
Analysis Batch: 405239

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 405058

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	2.50	2.37		ug/L		95	80 - 120

Lab Sample ID: LB 180-401689/1-C
Matrix: Solid
Analysis Batch: 401834

Client Sample ID: Method Blank
Prep Type: Leach
Prep Batch: 401755

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		06/13/22 09:32	06/13/22 17:48	1

Lab Sample ID: LB 180-404729/1-B
Matrix: Solid
Analysis Batch: 405239

Client Sample ID: Method Blank
Prep Type: Leach
Prep Batch: 405058

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.13	ug/L		07/14/22 09:24	07/15/22 12:12	1

Method: EPA 9040C - pH

Lab Sample ID: LCS 180-400633/1
Matrix: Solid
Analysis Batch: 400633

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 180-401306/1
Matrix: Solid
Analysis Batch: 401306

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 180-402844/1
Matrix: Solid
Analysis Batch: 402844

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 180-403611/1
Matrix: Solid
Analysis Batch: 403611

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		100	99 - 101

Lab Sample ID: LCS 180-404927/1
Matrix: Solid
Analysis Batch: 404927

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		100	99 - 101

Lab Sample ID: 180-136058-5 DU
Matrix: Solid
Analysis Batch: 400633

Client Sample ID: TRW CONTROL T05
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.7		7.7		SU		0	2

Lab Sample ID: 180-136058-6 DU
Matrix: Solid
Analysis Batch: 401306

Client Sample ID: TRW CONTROL T06
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.7		7.7		SU		0.1	2

Lab Sample ID: 180-136058-7 DU
Matrix: Solid
Analysis Batch: 402844

Client Sample ID: TRW CONTROL T07
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.8		7.8		SU		0.3	2

Method: EPA 9040C - pH

Lab Sample ID: 180-136058-8 DU
Matrix: Solid
Analysis Batch: 403611

Client Sample ID: TRW CONTROL T08
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.9			7.9		SU				0	2

Lab Sample ID: 180-136058-9 DU
Matrix: Solid
Analysis Batch: 404927

Client Sample ID: TRW CONTROL T09
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	7.9			7.9		SU				0.4	2

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 180-401311/2
Matrix: Solid
Analysis Batch: 401311

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			06/08/22 07:59	1

Lab Sample ID: LCS 180-401311/1
Matrix: Solid
Analysis Batch: 401311

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Specific Conductance			84.0	87.9		umhos/cm		105	90 - 110		

Lab Sample ID: MB 180-404932/2
Matrix: Solid
Analysis Batch: 404932

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		1.0	1.0	umhos/cm			07/13/22 08:02	1

Lab Sample ID: LCS 180-404932/1
Matrix: Solid
Analysis Batch: 404932

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Specific Conductance			84.0	87.0		umhos/cm		104	90 - 110		

Lab Sample ID: 180-136058-6 DU
Matrix: Solid
Analysis Batch: 401311

Client Sample ID: TRW CONTROL T06
Prep Type: Leach

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Specific Conductance	300			295		umhos/cm				0.07	20

Method: SM 2510B - Conductivity, Specific Conductance (Continued)

Lab Sample ID: 180-136058-9 DU
Client Sample ID: TRW CONTROL T09
Matrix: Solid
Prep Type: Leach
Analysis Batch: 404932

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Specific Conductance	170			167		umhos/cm				0.06	20

Method: SM 2580B - Reduction-Oxidation (REDOX) Potential

Lab Sample ID: 180-136058-6 DU
Client Sample ID: TRW CONTROL T06
Matrix: Solid
Prep Type: Leach
Analysis Batch: 401308

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Oxidation Reduction Potential	170			178		millivolts				2	20

Lab Sample ID: 180-136058-9 DU
Client Sample ID: TRW CONTROL T09
Matrix: Solid
Prep Type: Leach
Analysis Batch: 404931

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Oxidation Reduction Potential	240			232		millivolts				5	20

QC Association Summary

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

GC/MS VOA

Leach Batch: 399101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6 - DL	TRW CONTROL T06	Leach	Solid	1315	
180-136058-6	TRW CONTROL T06	Leach	Solid	1315	
180-136058-15 - DL	TRW 20% PC T06	Leach	Solid	1315	
180-136058-15	TRW 20% PC T06	Leach	Solid	1315	
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	1315	
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	1315	
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	1315	
180-136058-51	MB T06	Leach	Solid	1315	

Leach Batch: 399103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-7	TRW CONTROL T07	Leach	Solid	1315	
180-136058-16	TRW 20% PC T07	Leach	Solid	1315	
180-136058-25	TRW 20% PC, 2% AC T07	Leach	Solid	1315	
180-136058-34	TRW 20% PC, 4% AC T07	Leach	Solid	1315	
180-136058-43	TRW 20% PC, 2% AC, 2%SP T07	Leach	Solid	1315	
180-136058-52	MB T07	Leach	Solid	1315	
180-136058-34 MS	TRW 20% PC, 4% AC T07	Leach	Solid	1315	
180-136058-34 MSD	TRW 20% PC, 4% AC T07	Leach	Solid	1315	

Leach Batch: 399115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-9	TRW CONTROL T09	Leach	Solid	1315	
180-136058-18	TRW 20% PC T09	Leach	Solid	1315	
180-136058-27	TRW 20% PC, 2% AC T09	Leach	Solid	1315	
180-136058-36	TRW 20% PC, 4% AC T09	Leach	Solid	1315	
180-136058-45	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	1315	
180-136058-54	MB T09	Leach	Solid	1315	
180-136058-45 MS	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	1315	
180-136058-45 MSD	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	1315	

Analysis Batch: 401682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6	TRW CONTROL T06	Leach	Solid	EPA 8260D	399101
180-136058-15	TRW 20% PC T06	Leach	Solid	EPA 8260D	399101
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	EPA 8260D	399101
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	EPA 8260D	399101
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	EPA 8260D	399101
180-136058-51	MB T06	Leach	Solid	EPA 8260D	399101
MB 180-401682/12	Method Blank	Total/NA	Solid	EPA 8260D	
LCS 180-401682/4	Lab Control Sample	Total/NA	Solid	EPA 8260D	
LCSD 180-401682/6	Lab Control Sample Dup	Total/NA	Solid	EPA 8260D	

Analysis Batch: 401735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6 - DL	TRW CONTROL T06	Leach	Solid	EPA 8260D	399101
180-136058-15 - DL	TRW 20% PC T06	Leach	Solid	EPA 8260D	399101
MB 180-401735/12	Method Blank	Total/NA	Solid	EPA 8260D	
LCS 180-401735/8	Lab Control Sample	Total/NA	Solid	EPA 8260D	

QC Association Summary

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

GC/MS VOA

Analysis Batch: 402985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-25	TRW 20% PC, 2% AC T07	Leach	Solid	EPA 8260D	399103
180-136058-34	TRW 20% PC, 4% AC T07	Leach	Solid	EPA 8260D	399103
180-136058-43	TRW 20% PC, 2% AC, 2%SP T07	Leach	Solid	EPA 8260D	399103
180-136058-52	MB T07	Leach	Solid	EPA 8260D	399103
MB 180-402985/8	Method Blank	Total/NA	Solid	EPA 8260D	
LCS 180-402985/6	Lab Control Sample	Total/NA	Solid	EPA 8260D	
180-136058-34 MS	TRW 20% PC, 4% AC T07	Leach	Solid	EPA 8260D	399103
180-136058-34 MSD	TRW 20% PC, 4% AC T07	Leach	Solid	EPA 8260D	399103

Analysis Batch: 403153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-7	TRW CONTROL T07	Leach	Solid	EPA 8260D	399103
180-136058-16	TRW 20% PC T07	Leach	Solid	EPA 8260D	399103
MB 180-403153/13	Method Blank	Total/NA	Solid	EPA 8260D	
LCS 180-403153/21	Lab Control Sample	Total/NA	Solid	EPA 8260D	

Analysis Batch: 404856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-9	TRW CONTROL T09	Leach	Solid	EPA 8260D	399115
180-136058-18	TRW 20% PC T09	Leach	Solid	EPA 8260D	399115
180-136058-27	TRW 20% PC, 2% AC T09	Leach	Solid	EPA 8260D	399115
180-136058-36	TRW 20% PC, 4% AC T09	Leach	Solid	EPA 8260D	399115
180-136058-45	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	EPA 8260D	399115
180-136058-54	MB T09	Leach	Solid	EPA 8260D	399115
MB 180-404856/9	Method Blank	Total/NA	Solid	EPA 8260D	
LCS 180-404856/17	Lab Control Sample	Total/NA	Solid	EPA 8260D	
180-136058-45 MS	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	EPA 8260D	399115
180-136058-45 MSD	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	EPA 8260D	399115

GC/MS Semi VOA

Leach Batch: 399101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6	TRW CONTROL T06	Leach	Solid	1315	
180-136058-15	TRW 20% PC T06	Leach	Solid	1315	
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	1315	
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	1315	
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	1315	
180-136058-51	MB T06	Leach	Solid	1315	

Leach Batch: 399103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-7	TRW CONTROL T07	Leach	Solid	1315	
180-136058-16	TRW 20% PC T07	Leach	Solid	1315	
180-136058-25	TRW 20% PC, 2% AC T07	Leach	Solid	1315	
180-136058-34	TRW 20% PC, 4% AC T07	Leach	Solid	1315	
180-136058-43	TRW 20% PC, 2% AC, 2%SP T07	Leach	Solid	1315	
180-136058-52	MB T07	Leach	Solid	1315	

GC/MS Semi VOA

Prep Batch: 401767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6	TRW CONTROL T06	Leach	Solid	3520C	399101
180-136058-15	TRW 20% PC T06	Leach	Solid	3520C	399101
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	3520C	399101
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	3520C	399101
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	3520C	399101
MB 180-401767/1-A	Method Blank	Total/NA	Solid	3520C	
LCS 180-401767/2-A	Lab Control Sample	Total/NA	Solid	3520C	
LCSD 180-401767/3-A	Lab Control Sample Dup	Total/NA	Solid	3520C	

Prep Batch: 401768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-51	MB T06	Leach	Solid	3520C	399101
MB 180-401768/1-A	Method Blank	Total/NA	Solid	3520C	
LCS 180-401768/2-A	Lab Control Sample	Total/NA	Solid	3520C	
LCSD 180-401768/3-A	Lab Control Sample Dup	Total/NA	Solid	3520C	

Analysis Batch: 402139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-51	MB T06	Leach	Solid	EPA 8270E LL	401768
MB 180-401768/1-A	Method Blank	Total/NA	Solid	EPA 8270E LL	401768
LCS 180-401768/2-A	Lab Control Sample	Total/NA	Solid	EPA 8270E LL	401768
LCSD 180-401768/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8270E LL	401768

Analysis Batch: 402177

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6	TRW CONTROL T06	Leach	Solid	EPA 8270E LL	401767
180-136058-15	TRW 20% PC T06	Leach	Solid	EPA 8270E LL	401767
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	EPA 8270E LL	401767
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	EPA 8270E LL	401767
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	EPA 8270E LL	401767
MB 180-401767/1-A	Method Blank	Total/NA	Solid	EPA 8270E LL	401767
LCS 180-401767/2-A	Lab Control Sample	Total/NA	Solid	EPA 8270E LL	401767
LCSD 180-401767/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8270E LL	401767

Prep Batch: 402862

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-7	TRW CONTROL T07	Leach	Solid	3520C	399103
180-136058-16	TRW 20% PC T07	Leach	Solid	3520C	399103
180-136058-25	TRW 20% PC, 2% AC T07	Leach	Solid	3520C	399103
180-136058-34	TRW 20% PC, 4% AC T07	Leach	Solid	3520C	399103
180-136058-43	TRW 20% PC, 2% AC, 2%SP T07	Leach	Solid	3520C	399103
180-136058-52	MB T07	Leach	Solid	3520C	399103
MB 180-402862/1-A	Method Blank	Total/NA	Solid	3520C	
LCS 180-402862/2-A	Lab Control Sample	Total/NA	Solid	3520C	

Analysis Batch: 403176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-7	TRW CONTROL T07	Leach	Solid	EPA 8270E LL	402862
180-136058-16	TRW 20% PC T07	Leach	Solid	EPA 8270E LL	402862
180-136058-25	TRW 20% PC, 2% AC T07	Leach	Solid	EPA 8270E LL	402862
180-136058-34	TRW 20% PC, 4% AC T07	Leach	Solid	EPA 8270E LL	402862

GC/MS Semi VOA (Continued)

Analysis Batch: 403176 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-43	TRW 20% PC, 2% AC, 2%SP T07	Leach	Solid	EPA 8270E LL	402862
180-136058-52	MB T07	Leach	Solid	EPA 8270E LL	402862
MB 180-402862/1-A	Method Blank	Total/NA	Solid	EPA 8270E LL	402862
LCS 180-402862/2-A	Lab Control Sample	Total/NA	Solid	EPA 8270E LL	402862

GC Semi VOA

Leach Batch: 399099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-5	TRW CONTROL T05	Leach	Solid	1315	
180-136058-14	TRW 20% PC T05	Leach	Solid	1315	
180-136058-23	TRW 20% PC, 2% AC T05	Leach	Solid	1315	
180-136058-32	TRW 20% PC, 4% AC T05	Leach	Solid	1315	
180-136058-41	TRW 20% PC, 2% AC, 2%SP T05	Leach	Solid	1315	
180-136058-50	MB T05	Leach	Solid	1315	

Leach Batch: 399107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-8	TRW CONTROL T08	Leach	Solid	1315	
180-136058-17	TRW 20% PC T08	Leach	Solid	1315	
180-136058-26	TRW 20% PC, 2% AC T08	Leach	Solid	1315	
180-136058-35	TRW 20% PC, 4% AC T08	Leach	Solid	1315	
180-136058-44	TRW 20% PC, 2% AC, 2%SP T08	Leach	Solid	1315	
180-136058-53	MB T08	Leach	Solid	1315	

Prep Batch: 400012

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-5	TRW CONTROL T05	Leach	Solid	3510C	399099
180-136058-14	TRW 20% PC T05	Leach	Solid	3510C	399099
180-136058-23	TRW 20% PC, 2% AC T05	Leach	Solid	3510C	399099
180-136058-32	TRW 20% PC, 4% AC T05	Leach	Solid	3510C	399099
180-136058-41	TRW 20% PC, 2% AC, 2%SP T05	Leach	Solid	3510C	399099
180-136058-50	MB T05	Leach	Solid	3510C	399099
MB 180-400012/1-A	Method Blank	Total/NA	Solid	3510C	
LCS 180-400012/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 180-400012/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	

Analysis Batch: 400492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-5	TRW CONTROL T05	Leach	Solid	EPA 8081B LL	400012
180-136058-14	TRW 20% PC T05	Leach	Solid	EPA 8081B LL	400012
180-136058-23	TRW 20% PC, 2% AC T05	Leach	Solid	EPA 8081B LL	400012
180-136058-32	TRW 20% PC, 4% AC T05	Leach	Solid	EPA 8081B LL	400012
180-136058-41	TRW 20% PC, 2% AC, 2%SP T05	Leach	Solid	EPA 8081B LL	400012
MB 180-400012/1-A	Method Blank	Total/NA	Solid	EPA 8081B LL	400012
LCS 180-400012/2-A	Lab Control Sample	Total/NA	Solid	EPA 8081B LL	400012
LCSD 180-400012/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8081B LL	400012

Analysis Batch: 400624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-50	MB T05	Leach	Solid	EPA 8081B LL	400012

QC Association Summary

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

GC Semi VOA

Prep Batch: 403696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-8	TRW CONTROL T08	Leach	Solid	3510C	399107
180-136058-17	TRW 20% PC T08	Leach	Solid	3510C	399107
180-136058-26	TRW 20% PC, 2% AC T08	Leach	Solid	3510C	399107
180-136058-35	TRW 20% PC, 4% AC T08	Leach	Solid	3510C	399107
180-136058-44	TRW 20% PC, 2% AC, 2%SP T08	Leach	Solid	3510C	399107
180-136058-53	MB T08	Leach	Solid	3510C	399107
MB 180-403696/1-A	Method Blank	Total/NA	Solid	3510C	
LCS 180-403696/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 180-403696/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	

Analysis Batch: 403840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-8	TRW CONTROL T08	Leach	Solid	EPA 8081B LL	403696
180-136058-17	TRW 20% PC T08	Leach	Solid	EPA 8081B LL	403696
180-136058-26	TRW 20% PC, 2% AC T08	Leach	Solid	EPA 8081B LL	403696
180-136058-35	TRW 20% PC, 4% AC T08	Leach	Solid	EPA 8081B LL	403696
180-136058-44	TRW 20% PC, 2% AC, 2%SP T08	Leach	Solid	EPA 8081B LL	403696
180-136058-53	MB T08	Leach	Solid	EPA 8081B LL	403696
MB 180-403696/1-A	Method Blank	Total/NA	Solid	EPA 8081B LL	403696
LCS 180-403696/2-A	Lab Control Sample	Total/NA	Solid	EPA 8081B LL	403696
LCSD 180-403696/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8081B LL	403696

Analysis Batch: 404043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-17	TRW 20% PC T08	Leach	Solid	EPA 8081B LL	403696
180-136058-26	TRW 20% PC, 2% AC T08	Leach	Solid	EPA 8081B LL	403696
180-136058-44	TRW 20% PC, 2% AC, 2%SP T08	Leach	Solid	EPA 8081B LL	403696

HPLC/IC

Leach Batch: 399100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6	TRW CONTROL T06	Leach	Solid	1315	
180-136058-15	TRW 20% PC T06	Leach	Solid	1315	
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	1315	
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	1315	
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	1315	
180-136058-51	MB T06	Leach	Solid	1315	

Leach Batch: 399110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-9	TRW CONTROL T09	Leach	Solid	1315	
180-136058-18	TRW 20% PC T09	Leach	Solid	1315	
180-136058-27	TRW 20% PC, 2% AC T09	Leach	Solid	1315	
180-136058-36	TRW 20% PC, 4% AC T09	Leach	Solid	1315	
180-136058-45	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	1315	
180-136058-54	MB T09	Leach	Solid	1315	
180-136058-9 MS	TRW CONTROL T09	Leach	Solid	1315	
180-136058-9 MSD	TRW CONTROL T09	Leach	Solid	1315	

HPLC/IC

Analysis Batch: 403147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6	TRW CONTROL T06	Leach	Solid	EPA 9056A	399100
180-136058-15	TRW 20% PC T06	Leach	Solid	EPA 9056A	399100
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	EPA 9056A	399100
MB 180-403147/76	Method Blank	Total/NA	Solid	EPA 9056A	
LCS 180-403147/75	Lab Control Sample	Total/NA	Solid	EPA 9056A	

Analysis Batch: 403358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	EPA 9056A	399100
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	EPA 9056A	399100
180-136058-51	MB T06	Leach	Solid	EPA 9056A	399100
MB 180-403358/47	Method Blank	Total/NA	Solid	EPA 9056A	
MB 180-403358/7	Method Blank	Total/NA	Solid	EPA 9056A	
LCS 180-403358/46	Lab Control Sample	Total/NA	Solid	EPA 9056A	
LCS 180-403358/6	Lab Control Sample	Total/NA	Solid	EPA 9056A	

Analysis Batch: 404902

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-9	TRW CONTROL T09	Leach	Solid	EPA 9056A	399110
180-136058-18	TRW 20% PC T09	Leach	Solid	EPA 9056A	399110
180-136058-27	TRW 20% PC, 2% AC T09	Leach	Solid	EPA 9056A	399110
180-136058-36	TRW 20% PC, 4% AC T09	Leach	Solid	EPA 9056A	399110
180-136058-45	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	EPA 9056A	399110
180-136058-54	MB T09	Leach	Solid	EPA 9056A	399110
MB 180-404902/6	Method Blank	Total/NA	Solid	EPA 9056A	
LCS 180-404902/7	Lab Control Sample	Total/NA	Solid	EPA 9056A	
180-136058-9 MS	TRW CONTROL T09	Leach	Solid	EPA 9056A	399110
180-136058-9 MSD	TRW CONTROL T09	Leach	Solid	EPA 9056A	399110

Metals

Leach Batch: 399100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6	TRW CONTROL T06	Leach	Solid	1315	
180-136058-15	TRW 20% PC T06	Leach	Solid	1315	
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	1315	
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	1315	
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	1315	
180-136058-51	MB T06	Leach	Solid	1315	
180-136058-6 MS	TRW CONTROL T06	Leach	Solid	1315	
180-136058-6 MSD	TRW CONTROL T06	Leach	Solid	1315	

Leach Batch: 399102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-7	TRW CONTROL T07	Leach	Solid	1315	
180-136058-16	TRW 20% PC T07	Leach	Solid	1315	
180-136058-25	TRW 20% PC, 2% AC T07	Leach	Solid	1315	
180-136058-34	TRW 20% PC, 4% AC T07	Leach	Solid	1315	
180-136058-43	TRW 20% PC, 2% AC, 2%SP T07	Leach	Solid	1315	
180-136058-52	MB T07	Leach	Solid	1315	
180-136058-7 MS	TRW CONTROL T07	Leach	Solid	1315	

Metals (Continued)

Leach Batch: 399102 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-7 MSD	TRW CONTROL T07	Leach	Solid	1315	

Leach Batch: 399110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-9	TRW CONTROL T09	Leach	Solid	1315	
180-136058-18	TRW 20% PC T09	Leach	Solid	1315	
180-136058-27	TRW 20% PC, 2% AC T09	Leach	Solid	1315	
180-136058-36	TRW 20% PC, 4% AC T09	Leach	Solid	1315	
180-136058-45	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	1315	
180-136058-54	MB T09	Leach	Solid	1315	
180-136058-54 MS	MB T09	Leach	Solid	1315	
180-136058-54 MSD	MB T09	Leach	Solid	1315	

Leach Batch: 401689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 180-401689/1-C	Method Blank	Leach	Solid	EPA 1311	

Prep Batch: 401755

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6	TRW CONTROL T06	Leach	Solid	7470A	399100
180-136058-15	TRW 20% PC T06	Leach	Solid	7470A	399100
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	7470A	399100
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	7470A	399100
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	7470A	399100
180-136058-51	MB T06	Leach	Solid	7470A	399100
LB 180-401689/1-C	Method Blank	Leach	Solid	7470A	401689
MB 180-401755/1-A	Method Blank	Total/NA	Solid	7470A	
LCS 180-401755/2-A	Lab Control Sample	Total/NA	Solid	7470A	

Analysis Batch: 401834

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6	TRW CONTROL T06	Leach	Solid	EPA 7470A	401755
180-136058-15	TRW 20% PC T06	Leach	Solid	EPA 7470A	401755
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	EPA 7470A	401755
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	EPA 7470A	401755
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	EPA 7470A	401755
180-136058-51	MB T06	Leach	Solid	EPA 7470A	401755
LB 180-401689/1-C	Method Blank	Leach	Solid	EPA 7470A	401755
MB 180-401755/1-A	Method Blank	Total/NA	Solid	EPA 7470A	401755
LCS 180-401755/2-A	Lab Control Sample	Total/NA	Solid	EPA 7470A	401755

Prep Batch: 402592

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6	TRW CONTROL T06	Leach	Solid	3010A	399100
180-136058-15	TRW 20% PC T06	Leach	Solid	3010A	399100
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	3010A	399100
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	3010A	399100
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	3010A	399100
180-136058-51	MB T06	Leach	Solid	3010A	399100
MB 180-402592/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 180-402592/2-A	Lab Control Sample	Total/NA	Solid	3010A	

Metals (Continued)

Prep Batch: 402592 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6 MS	TRW CONTROL T06	Leach	Solid	3010A	399100
180-136058-6 MSD	TRW CONTROL T06	Leach	Solid	3010A	399100

Prep Batch: 402892

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-7	TRW CONTROL T07	Leach	Solid	3010A	399102
180-136058-16	TRW 20% PC T07	Leach	Solid	3010A	399102
180-136058-25	TRW 20% PC, 2% AC T07	Leach	Solid	3010A	399102
180-136058-34	TRW 20% PC, 4% AC T07	Leach	Solid	3010A	399102
180-136058-43	TRW 20% PC, 2% AC, 2%SP T07	Leach	Solid	3010A	399102
180-136058-52	MB T07	Leach	Solid	3010A	399102
MB 180-402892/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 180-402892/2-A	Lab Control Sample	Total/NA	Solid	3010A	
180-136058-7 MS	TRW CONTROL T07	Leach	Solid	3010A	399102
180-136058-7 MSD	TRW CONTROL T07	Leach	Solid	3010A	399102

Prep Batch: 402918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-7	TRW CONTROL T07	Leach	Solid	7470A	399102
180-136058-16	TRW 20% PC T07	Leach	Solid	7470A	399102
180-136058-25	TRW 20% PC, 2% AC T07	Leach	Solid	7470A	399102
180-136058-34	TRW 20% PC, 4% AC T07	Leach	Solid	7470A	399102
180-136058-43	TRW 20% PC, 2% AC, 2%SP T07	Leach	Solid	7470A	399102
180-136058-52	MB T07	Leach	Solid	7470A	399102
MB 180-402918/1-A	Method Blank	Total/NA	Solid	7470A	
LCS 180-402918/2-A	Lab Control Sample	Total/NA	Solid	7470A	

Analysis Batch: 403039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-7	TRW CONTROL T07	Leach	Solid	EPA 7470A	402918
180-136058-16	TRW 20% PC T07	Leach	Solid	EPA 7470A	402918
180-136058-25	TRW 20% PC, 2% AC T07	Leach	Solid	EPA 7470A	402918
180-136058-34	TRW 20% PC, 4% AC T07	Leach	Solid	EPA 7470A	402918
180-136058-43	TRW 20% PC, 2% AC, 2%SP T07	Leach	Solid	EPA 7470A	402918
180-136058-52	MB T07	Leach	Solid	EPA 7470A	402918
MB 180-402918/1-A	Method Blank	Total/NA	Solid	EPA 7470A	402918
LCS 180-402918/2-A	Lab Control Sample	Total/NA	Solid	EPA 7470A	402918

Analysis Batch: 403304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6	TRW CONTROL T06	Leach	Solid	EPA 6010D	402592
180-136058-15	TRW 20% PC T06	Leach	Solid	EPA 6010D	402592
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	EPA 6010D	402592
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	EPA 6010D	402592
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	EPA 6010D	402592
180-136058-51	MB T06	Leach	Solid	EPA 6010D	402592
MB 180-402592/1-A	Method Blank	Total/NA	Solid	EPA 6010D	402592
LCS 180-402592/2-A	Lab Control Sample	Total/NA	Solid	EPA 6010D	402592
180-136058-6 MS	TRW CONTROL T06	Leach	Solid	EPA 6010D	402592
180-136058-6 MSD	TRW CONTROL T06	Leach	Solid	EPA 6010D	402592

Metals

Analysis Batch: 403445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-7	TRW CONTROL T07	Leach	Solid	EPA 6010D	402892
180-136058-15	TRW 20% PC T06	Leach	Solid	EPA 6010D	402592
180-136058-16	TRW 20% PC T07	Leach	Solid	EPA 6010D	402892
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	EPA 6010D	402592
180-136058-25	TRW 20% PC, 2% AC T07	Leach	Solid	EPA 6010D	402892
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	EPA 6010D	402592
180-136058-34	TRW 20% PC, 4% AC T07	Leach	Solid	EPA 6010D	402892
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	EPA 6010D	402592
180-136058-43	TRW 20% PC, 2% AC, 2%SP T07	Leach	Solid	EPA 6010D	402892
180-136058-52	MB T07	Leach	Solid	EPA 6010D	402892
MB 180-402892/1-A	Method Blank	Total/NA	Solid	EPA 6010D	402892
LCS 180-402892/2-A	Lab Control Sample	Total/NA	Solid	EPA 6010D	402892
180-136058-7 MS	TRW CONTROL T07	Leach	Solid	EPA 6010D	402892
180-136058-7 MSD	TRW CONTROL T07	Leach	Solid	EPA 6010D	402892

Analysis Batch: 403569

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-16	TRW 20% PC T07	Leach	Solid	EPA 6010D	402892
180-136058-25	TRW 20% PC, 2% AC T07	Leach	Solid	EPA 6010D	402892
180-136058-34	TRW 20% PC, 4% AC T07	Leach	Solid	EPA 6010D	402892

Leach Batch: 404729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 180-404729/1-B	Method Blank	Leach	Solid	EPA 1311	

Prep Batch: 405058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-9	TRW CONTROL T09	Leach	Solid	7470A	399110
180-136058-18	TRW 20% PC T09	Leach	Solid	7470A	399110
180-136058-27	TRW 20% PC, 2% AC T09	Leach	Solid	7470A	399110
180-136058-36	TRW 20% PC, 4% AC T09	Leach	Solid	7470A	399110
180-136058-45	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	7470A	399110
180-136058-54	MB T09	Leach	Solid	7470A	399110
LB 180-404729/1-B	Method Blank	Leach	Solid	7470A	404729
MB 180-405058/1-A	Method Blank	Total/NA	Solid	7470A	
LCS 180-405058/2-A	Lab Control Sample	Total/NA	Solid	7470A	

Analysis Batch: 405239

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-9	TRW CONTROL T09	Leach	Solid	EPA 7470A	405058
180-136058-18	TRW 20% PC T09	Leach	Solid	EPA 7470A	405058
180-136058-27	TRW 20% PC, 2% AC T09	Leach	Solid	EPA 7470A	405058
180-136058-36	TRW 20% PC, 4% AC T09	Leach	Solid	EPA 7470A	405058
180-136058-45	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	EPA 7470A	405058
180-136058-54	MB T09	Leach	Solid	EPA 7470A	405058
LB 180-404729/1-B	Method Blank	Leach	Solid	EPA 7470A	405058
MB 180-405058/1-A	Method Blank	Total/NA	Solid	EPA 7470A	405058
LCS 180-405058/2-A	Lab Control Sample	Total/NA	Solid	EPA 7470A	405058

QC Association Summary

Client: ERM-Northeast
Job ID: 180-136058-2
Project/Site: Former TRW Union Springs Property - Unio

Metals

Prep Batch: 405878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-9	TRW CONTROL T09	Leach	Solid	3010A	399110
180-136058-18	TRW 20% PC T09	Leach	Solid	3010A	399110
180-136058-27	TRW 20% PC, 2% AC T09	Leach	Solid	3010A	399110
180-136058-36	TRW 20% PC, 4% AC T09	Leach	Solid	3010A	399110
180-136058-45	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	3010A	399110
180-136058-54	MB T09	Leach	Solid	3010A	399110
MB 180-405878/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 180-405878/2-A	Lab Control Sample	Total/NA	Solid	3010A	
180-136058-54 MS	MB T09	Leach	Solid	3010A	399110
180-136058-54 MSD	MB T09	Leach	Solid	3010A	399110

Analysis Batch: 406111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-9	TRW CONTROL T09	Leach	Solid	EPA 6010D	405878
180-136058-18	TRW 20% PC T09	Leach	Solid	EPA 6010D	405878
180-136058-18	TRW 20% PC T09	Leach	Solid	EPA 6010D	405878
180-136058-27	TRW 20% PC, 2% AC T09	Leach	Solid	EPA 6010D	405878
180-136058-27	TRW 20% PC, 2% AC T09	Leach	Solid	EPA 6010D	405878
180-136058-36	TRW 20% PC, 4% AC T09	Leach	Solid	EPA 6010D	405878
180-136058-36	TRW 20% PC, 4% AC T09	Leach	Solid	EPA 6010D	405878
180-136058-45	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	EPA 6010D	405878
180-136058-54	MB T09	Leach	Solid	EPA 6010D	405878
MB 180-405878/1-A	Method Blank	Total/NA	Solid	EPA 6010D	405878
LCS 180-405878/2-A	Lab Control Sample	Total/NA	Solid	EPA 6010D	405878
180-136058-54 MS	MB T09	Leach	Solid	EPA 6010D	405878
180-136058-54 MSD	MB T09	Leach	Solid	EPA 6010D	405878

General Chemistry

Leach Batch: 399097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-5	TRW CONTROL T05	Leach	Solid	1315	
180-136058-14	TRW 20% PC T05	Leach	Solid	1315	
180-136058-23	TRW 20% PC, 2% AC T05	Leach	Solid	1315	
180-136058-32	TRW 20% PC, 4% AC T05	Leach	Solid	1315	
180-136058-41	TRW 20% PC, 2% AC, 2%SP T05	Leach	Solid	1315	
180-136058-50	MB T05	Leach	Solid	1315	
180-136058-5 DU	TRW CONTROL T05	Leach	Solid	1315	

Leach Batch: 399100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6	TRW CONTROL T06	Leach	Solid	1315	
180-136058-15	TRW 20% PC T06	Leach	Solid	1315	
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	1315	
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	1315	
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	1315	
180-136058-51	MB T06	Leach	Solid	1315	
180-136058-6 DU	TRW CONTROL T06	Leach	Solid	1315	

General Chemistry

Leach Batch: 399102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-7	TRW CONTROL T07	Leach	Solid	1315	
180-136058-16	TRW 20% PC T07	Leach	Solid	1315	
180-136058-25	TRW 20% PC, 2% AC T07	Leach	Solid	1315	
180-136058-34	TRW 20% PC, 4% AC T07	Leach	Solid	1315	
180-136058-43	TRW 20% PC, 2% AC, 2%SP T07	Leach	Solid	1315	
180-136058-52	MB T07	Leach	Solid	1315	
180-136058-7 DU	TRW CONTROL T07	Leach	Solid	1315	

Leach Batch: 399105

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-8	TRW CONTROL T08	Leach	Solid	1315	
180-136058-17	TRW 20% PC T08	Leach	Solid	1315	
180-136058-26	TRW 20% PC, 2% AC T08	Leach	Solid	1315	
180-136058-35	TRW 20% PC, 4% AC T08	Leach	Solid	1315	
180-136058-44	TRW 20% PC, 2% AC, 2%SP T08	Leach	Solid	1315	
180-136058-53	MB T08	Leach	Solid	1315	
180-136058-8 DU	TRW CONTROL T08	Leach	Solid	1315	

Leach Batch: 399110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-9	TRW CONTROL T09	Leach	Solid	1315	
180-136058-18	TRW 20% PC T09	Leach	Solid	1315	
180-136058-27	TRW 20% PC, 2% AC T09	Leach	Solid	1315	
180-136058-36	TRW 20% PC, 4% AC T09	Leach	Solid	1315	
180-136058-45	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	1315	
180-136058-54	MB T09	Leach	Solid	1315	
180-136058-9 DU	TRW CONTROL T09	Leach	Solid	1315	

Analysis Batch: 400633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-5	TRW CONTROL T05	Leach	Solid	EPA 9040C	399097
180-136058-14	TRW 20% PC T05	Leach	Solid	EPA 9040C	399097
180-136058-23	TRW 20% PC, 2% AC T05	Leach	Solid	EPA 9040C	399097
180-136058-32	TRW 20% PC, 4% AC T05	Leach	Solid	EPA 9040C	399097
180-136058-41	TRW 20% PC, 2% AC, 2%SP T05	Leach	Solid	EPA 9040C	399097
180-136058-50	MB T05	Leach	Solid	EPA 9040C	399097
LCS 180-400633/1	Lab Control Sample	Total/NA	Solid	EPA 9040C	
180-136058-5 DU	TRW CONTROL T05	Leach	Solid	EPA 9040C	399097

Analysis Batch: 401306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6	TRW CONTROL T06	Leach	Solid	EPA 9040C	399100
180-136058-15	TRW 20% PC T06	Leach	Solid	EPA 9040C	399100
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	EPA 9040C	399100
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	EPA 9040C	399100
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	EPA 9040C	399100
180-136058-51	MB T06	Leach	Solid	EPA 9040C	399100
LCS 180-401306/1	Lab Control Sample	Total/NA	Solid	EPA 9040C	
180-136058-6 DU	TRW CONTROL T06	Leach	Solid	EPA 9040C	399100

General Chemistry

Analysis Batch: 401308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6	TRW CONTROL T06	Leach	Solid	SM 2580B	399100
180-136058-15	TRW 20% PC T06	Leach	Solid	SM 2580B	399100
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	SM 2580B	399100
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	SM 2580B	399100
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	SM 2580B	399100
180-136058-51	MB T06	Leach	Solid	SM 2580B	399100
LCS 180-401308/1	Lab Control Sample	Total/NA	Solid	SM 2580B	
180-136058-6 DU	TRW CONTROL T06	Leach	Solid	SM 2580B	399100

Analysis Batch: 401311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-6	TRW CONTROL T06	Leach	Solid	SM 2510B	399100
180-136058-15	TRW 20% PC T06	Leach	Solid	SM 2510B	399100
180-136058-24	TRW 20% PC, 2% AC T06	Leach	Solid	SM 2510B	399100
180-136058-33	TRW 20% PC, 4% AC T06	Leach	Solid	SM 2510B	399100
180-136058-42	TRW 20% PC, 2% AC, 2%SP T06	Leach	Solid	SM 2510B	399100
180-136058-51	MB T06	Leach	Solid	SM 2510B	399100
MB 180-401311/2	Method Blank	Total/NA	Solid	SM 2510B	
LCS 180-401311/1	Lab Control Sample	Total/NA	Solid	SM 2510B	
180-136058-6 DU	TRW CONTROL T06	Leach	Solid	SM 2510B	399100

Analysis Batch: 402844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-7	TRW CONTROL T07	Leach	Solid	EPA 9040C	399102
180-136058-16	TRW 20% PC T07	Leach	Solid	EPA 9040C	399102
180-136058-25	TRW 20% PC, 2% AC T07	Leach	Solid	EPA 9040C	399102
180-136058-34	TRW 20% PC, 4% AC T07	Leach	Solid	EPA 9040C	399102
180-136058-43	TRW 20% PC, 2% AC, 2%SP T07	Leach	Solid	EPA 9040C	399102
180-136058-52	MB T07	Leach	Solid	EPA 9040C	399102
LCS 180-402844/1	Lab Control Sample	Total/NA	Solid	EPA 9040C	
180-136058-7 DU	TRW CONTROL T07	Leach	Solid	EPA 9040C	399102

Analysis Batch: 403611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-8	TRW CONTROL T08	Leach	Solid	EPA 9040C	399105
180-136058-17	TRW 20% PC T08	Leach	Solid	EPA 9040C	399105
180-136058-26	TRW 20% PC, 2% AC T08	Leach	Solid	EPA 9040C	399105
180-136058-35	TRW 20% PC, 4% AC T08	Leach	Solid	EPA 9040C	399105
180-136058-44	TRW 20% PC, 2% AC, 2%SP T08	Leach	Solid	EPA 9040C	399105
180-136058-53	MB T08	Leach	Solid	EPA 9040C	399105
LCS 180-403611/1	Lab Control Sample	Total/NA	Solid	EPA 9040C	
180-136058-8 DU	TRW CONTROL T08	Leach	Solid	EPA 9040C	399105

Analysis Batch: 404927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-9	TRW CONTROL T09	Leach	Solid	EPA 9040C	399110
180-136058-18	TRW 20% PC T09	Leach	Solid	EPA 9040C	399110
180-136058-27	TRW 20% PC, 2% AC T09	Leach	Solid	EPA 9040C	399110
180-136058-36	TRW 20% PC, 4% AC T09	Leach	Solid	EPA 9040C	399110
180-136058-45	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	EPA 9040C	399110
180-136058-54	MB T09	Leach	Solid	EPA 9040C	399110

General Chemistry (Continued)

Analysis Batch: 404927 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-404927/1	Lab Control Sample	Total/NA	Solid	EPA 9040C	
180-136058-9 DU	TRW CONTROL T09	Leach	Solid	EPA 9040C	399110

Analysis Batch: 404931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-9	TRW CONTROL T09	Leach	Solid	SM 2580B	399110
180-136058-18	TRW 20% PC T09	Leach	Solid	SM 2580B	399110
180-136058-27	TRW 20% PC, 2% AC T09	Leach	Solid	SM 2580B	399110
180-136058-36	TRW 20% PC, 4% AC T09	Leach	Solid	SM 2580B	399110
180-136058-45	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	SM 2580B	399110
180-136058-54	MB T09	Leach	Solid	SM 2580B	399110
LCS 180-404931/1	Lab Control Sample	Total/NA	Solid	SM 2580B	
180-136058-9 DU	TRW CONTROL T09	Leach	Solid	SM 2580B	399110

Analysis Batch: 404932

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136058-9	TRW CONTROL T09	Leach	Solid	SM 2510B	399110
180-136058-18	TRW 20% PC T09	Leach	Solid	SM 2510B	399110
180-136058-27	TRW 20% PC, 2% AC T09	Leach	Solid	SM 2510B	399110
180-136058-36	TRW 20% PC, 4% AC T09	Leach	Solid	SM 2510B	399110
180-136058-45	TRW 20% PC, 2% AC, 2%SP T09	Leach	Solid	SM 2510B	399110
180-136058-54	MB T09	Leach	Solid	SM 2510B	399110
MB 180-404932/2	Method Blank	Total/NA	Solid	SM 2510B	
LCS 180-404932/1	Lab Control Sample	Total/NA	Solid	SM 2510B	
180-136058-9 DU	TRW CONTROL T09	Leach	Solid	SM 2510B	399110

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

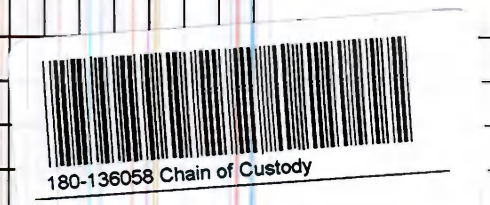
eurofins | Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Rob Sents	Site Contact: Laurel Crawford	Date: 3/30/22	COC No:
ERM Consulting & Engineering, Inc.	Email: rob.sents@erm.com	Lab Contact: Carrie Gamber	Carrier: Fedex	___1__ of ___1__ COCs
5784 Widewater Pkwy	Tel/Fax:			TALS Project #:
Syracuse, NY 13214	Analysis Turnaround Time			Sampler: Laurel Crawford
(315) 445-2554	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(315) 445-2534 FAX	TAT if different from Below __standard__			Walk-in Client:
Project Name: Former TRW Union Springs	☐ 2 weeks			Lab Sampling:
Site: Union Springs, NY	☐ 1 week			
Project # : 46031778	☐ 2 days			Job / SDG No.:
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	LEAF Method 1315 (see Table 1 for specific analyses and time points for each sample)	TCLP * (to be determined) *	Sample Specific Notes:
TRW Control	3/22/22	17:00	C	S	1 glass 2 HDPE			x	x	HDPE for PFAS vessel, glass for vessel for all other analytes
TRW 7% PC	3/22/22	17:20	C	S	3**			x	x	** 1 monolith for PFAS vessel, 1 monolith for vessel for all other analytes, plus 1 extra monolith if needed
TRW 7% PC, 2% AC	3/22/22	17:50	C	S	3**			x	x	
TRW 7% PC, 4% AC	3/22/22	18:30	C	S	3**			x	x	
TRW 7% PC, 2% AC, 2% SP	3/22/22	19:00	C	S	3**			x	x	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ___DI, MeOH____								1 1 1	1 1 1 1 1 1 1 1 1,6 1 1 1	



Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

** hold until ERM decides if any TCLP analyses are needed*

☐ Return to Client ☑ Disposal by Lab ☑ Archive for * Months

Special Instructions/QC Requirements & Comments:

Please refer to the attached Table 1 for specific analyses at select time points depending on the sample.
Please include Laurel Crawford on data deliverables: Lcrawford@loureiro.com

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:
Relinquished by:	Company: XDD d/b/a Loureiro	Date/Time: 3/30/22 13:30	Received by:	Company: ETA PITT	Date/Time: 3/31/22 1511
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.35, dated 10/6/2020

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins | Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Rob Sents	Site Contact: Laurel Crawford	Date: 5/6/22	COC No:
ERM Consulting & Engineering, Inc.	Email: rob.sents@erm.com	Lab Contact: Carrie Gamber	Carrier: Fedex	___1__ of ___1__ COCs
5784 Widewater Pkwy	Tel/Fax:			TALS Project #:
Syracuse, NY 13214	Analysis Turnaround Time			Sampler: Laurel Crawford
(315) 445-2554	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(315) 445-2534 FAX	TAT if different from Below __standard__			Client:
Project Name: Former TRW Union Springs	☐ 2 weeks			Shipping:
Site: Union Springs, NY	☐ 1 week			
Project # : 46031778	☐ 2 days			No.:
	☐ 1 day			

180-136058 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	LEAF Method 1315 (see Table 1 for specific analyses and time points for each sample)	TCLP * (to be determined) *	Sample Specific Notes:
TRW Control	3/22/22	17:00	C	S	1 glass 1 HDPE			x	x	HDPE for PFAS vessel, glass for vessel for all other analytes
TRW 20% PC	4/26/22	17:10	C	S	2**			x	x	** 1 monolith for PFAS vessel, 1 monolith for vessel for all other analytes, hold onto monoliths after testing is complete in case client wants TCLP on 1 of the 2 monoliths.
TRW 20% PC, 2% AC	4/26/22	17:20	C	S	2**			x	x	
TRW 20% PC, 4% AC	4/26/22	17:30	C	S	2**			x	x	
TRW 20% PC, 2% AC, 2% SP	4/28/22	18:00	C	S	2**			x	x	

You already have these controls sent

If TCLP is not selected, please send both monoliths for these test conditions to JLT labs at the address below. If TCLP is selcted, please send 1 of the 2 monoliths to JLT labs. This applies to only these last 3 test conditions (TRW 20% PC, 2% AC; TRW 20% PC, 4% AC; TRW 20% PC, 2% AC, 2% SP).

JLT Laboratories, Inc.
938 South Central Ave.
Canonsburg, PA 15317
(724) 746-4441

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ___DI, MeOH___								1	1	1	1	1	1	1	1	1	1	1,6	1	1	1	

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
** hold until ERM decides if any TCLP analyses are needed and send monoliths to JLT labs per above instructions*

☐ Return to Client ☑ Disposal by Lab ☑ Archive for ___*___ Months

Special Instructions/QC Requirements & Comments:

Please refer to the attached Table 1 for specific analyses at select time points depending on the sample.
Please include Laurel Crawford on data deliverables: Lcrawford@loureiro.com

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by:	Company: XDD d/b/a Loureiro	Date/Time: 5/6/22 10:30	Received by:	Company: NEETA/LIT	Date/Time: 5/7/22 0900
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

ORIGIN ID:IGGA (603) 778-1100
LAUREL CRAWFORD
LOUREIRO ENGINEERING ASSOC INC
22 MARIN WAY UNIT #3
STRATHAM, NH 03885
UNITED STATES US

SHIP DATE: 30MAR22
ACTWGT: 25.00 LB
CAD: 112565704/INET4460
DIMS: 25x15x15 IN

BILL SENDER

TO **CARRIE GAMBER**
EUROFINS ENVIROTEST AMERICA
301 ALPHA DRIVE
PITTSBURGH PA 15238
(412) 963-2428
INV:
PO:
REF: 027ER2.01 TASK 001 LC
DEPT:

56DJ1/1E3B/FE4A

J221022010501uv

FedEx Express

TRK# 0201 **7764 4004 9775**

THU - 31 MAR 4:30P
STANDARD OVERNIGHT

UI AGCA

15238
PIT
PA-US

Uncorrected temp 3.8 °C
Thermometer ID 16
CF -0.1
Initials
PT-WI-SR-001 effective 11/8/18

180-136058 Waybill

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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ORIGIN ID:IGGA (603) 778-1100
LAUREL CRAWFORD
LOURIERO ENGINEERING ASSOC INC
22 MARIN WAY UNIT #3
STRATHAM, NH 03885
UNITED STATES US

BILL SENDER

SHIP DATE: 06MAY22
ACTWGT: 20.00 LB
CAD: 11256570 4/INET4490
DIMS: 25x15x15 IN

TO CARRIE GAMBER
EUROFINS ENVIROTEST AMERICA-PA
301 ALPHA DRIVE

PITTSBURGH PA 15238

(412) 963-2428 REF: 027ER1 02 TASK 001 LC
INV:
PO: DEPT

577J5/1BD6/FE4A

J2320220401uw

FedEx Express

SATURDAY 12:00P
PRIORITY OVERNIGHT

TRK# 0201 7767 8966 1381

15238
°C T

XO AGCA

Uncorrected temp
Thermometer ID
Initials
CF -0.4
PT-WI-SR-001 effective 11/8/18

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180-136058 VayblII

Login Sample Receipt Checklist

Client: ERM-Northeast

Job Number: 180-136058-2

Login Number: 136058
List Number: 1
Creator: Matko, Larry

List Source: Eurofins Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-136066-1
Client Project/Site: Former TRW Union Springs Property - Unio

For:
ZF Active Safety and Electronics LLC
PO BOX 94885
Cleveland, Ohio 44101-4885

Attn: Accounts Payable

Authorized for release by:
6/9/2022 12:46:25 PM

Carrie Gamber, Senior Project Manager
(412)963-2428
Carrie.Gamber@et.eurofinsus.com

LINKS

Review your project results through my EOL

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Definitions/Glossary 4
Certification Summary 5
Sample Summary 6
Method Summary 7
Lab Chronicle 8
Client Sample Results 11
QC Sample Results 20
QC Association Summary 24
Chain of Custody 26
Field Data Sheets 34
Receipt Checklists 36

Job ID: 180-136066-1

Laboratory: Eurofins Pittsburgh

Narrative

CASE NARRATIVE

Client: ZF Active Safety and Electronics LLC

Project: Former TRW Union Springs Property - Unio

Report Number: 180-136066-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 03/31/2022 and 05/07/2022; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 2.7º C and 3.4º C.

SEMIVOLATILES
Sample TRW 20% PC T02 (180-136066-11) required dilution prior to analysis. The reporting limits have been adjusted accordingly.

PFAS
Perfluorooctanesulfonic acid (PFOS) was detected in method blank MB 320-589597/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Definitions/Glossary

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-1
Project/Site: Former TRW Union Springs Property - Unio

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

LCMS

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-1
Project/Site: Former TRW Union Springs Property - Unio

Laboratory: Eurofins Chicago

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2903	04-29-22 *
Georgia	State	N/A	04-29-22 *
Georgia (DW)	State	939	04-30-23
Hawaii	State	NA	04-29-23
Illinois	NELAP	IL00035	04-30-23
Indiana	State	C-IL-02	04-29-22 *
Iowa	State	082	05-01-22 *
Kansas	NELAP	E-10161	10-31-22
Kentucky (UST)	State	AI # 108083	04-29-22 *
Kentucky (WW)	State	KY90023	12-31-22
Louisiana	NELAP	02046	06-30-22
Mississippi	State	NA	04-30-22 *
North Carolina (WW/SW)	State	291	12-31-22
North Dakota	State	R-194	04-29-22 *
Oklahoma	State	8908	08-31-22
South Carolina	State	77001003	04-29-22 *
USDA	US Federal Programs	P330-18-00018	02-11-24
Wisconsin	State	999580010	08-31-22
Wyoming	State	8TMS-Q	04-30-22 *

Laboratory: Eurofins Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	11666	04-02-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
537 (modified)	3535	Water	6:2 FTS
537 (modified)	3535	Water	8:2 FTS
537 (modified)	3535	Water	NEtFOSAA
537 (modified)	3535	Water	NMeFOSAA
537 (modified)	3535	Water	Perfluorobutanesulfonic acid (PFBS)
537 (modified)	3535	Water	Perfluorobutanoic acid (PFBA)
537 (modified)	3535	Water	Perfluorodecanesulfonic acid (PFDS)
537 (modified)	3535	Water	Perfluorodecanoic acid (PFDA)
537 (modified)	3535	Water	Perfluorododecanoic acid (PFDoA)
537 (modified)	3535	Water	Perfluoroheptanesulfonic acid (PFHpS)
537 (modified)	3535	Water	Perfluoroheptanoic acid (PFHpA)
537 (modified)	3535	Water	Perfluorohexanesulfonic acid (PFHxS)
537 (modified)	3535	Water	Perfluorohexanoic acid (PFHxA)
537 (modified)	3535	Water	Perfluorononanoic acid (PFNA)
537 (modified)	3535	Water	Perfluorooctanesulfonamide (FOSA)
537 (modified)	3535	Water	Perfluorooctanesulfonic acid (PFOS)
537 (modified)	3535	Water	Perfluorooctanoic acid (PFOA)
537 (modified)	3535	Water	Perfluoropentanoic acid (PFPeA)
537 (modified)	3535	Water	Perfluorotetradecanoic acid (PFTeA)
537 (modified)	3535	Water	Perfluorotridecanoic acid (PFTrDA)
537 (modified)	3535	Water	Perfluoroundecanoic acid (PFUnA)

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-1
Project/Site: Former TRW Union Springs Property - Unio

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-136066-1	TRW CONTROL T01	Water	05/11/22 09:30	04/01/22 11:22
180-136066-2	TRW CONTROL T02	Water	05/12/22 07:30	04/01/22 11:22
180-136066-10	TRW 20% PC T01	Water	05/11/22 09:30	04/01/22 11:22
180-136066-11	TRW 20% PC T02	Water	05/12/22 07:30	04/01/22 11:22
180-136066-19	TRW 20% PC, 2% AC T01	Water	05/11/22 09:30	04/01/22 11:22
180-136066-20	TRW 20% PC, 2% AC T02	Water	05/12/22 07:30	04/01/22 11:22
180-136066-28	TRW 20% PC, 4% AC T01	Water	05/11/22 09:30	04/01/22 11:22
180-136066-29	TRW 20% PC, 4% AC T02	Water	05/12/22 07:30	04/01/22 11:22
180-136066-37	TRW 20% PC, 2% AC, 2% SP T01	Water	05/11/22 09:30	04/01/22 11:22
180-136066-38	TRW 20% PC, 2% AC, 2% SP T02	Water	05/12/22 07:30	04/01/22 11:22
180-136066-46	MB T01	Water	05/11/22 09:30	04/01/22 11:22
180-136066-47	MB T02	Water	05/12/22 07:30	04/01/22 11:22

Method Summary

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-1
Project/Site: Former TRW Union Springs Property - Unio

Method	Method Description	Protocol	Laboratory
8270D SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL CHI
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL CHI
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TAL SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW CONTROL T01
Lab Sample ID: 180-136066-1
Date Collected: 05/11/22 09:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			270.1 mL	10.0 mL	589597	05/21/22 14:41	EH	TAL SAC
Total/NA	Analysis	537 (modified)		1			590522	05/26/22 01:46	K1S	TAL SAC
	Instrument ID: A15									

Client Sample ID: TRW CONTROL T02
Lab Sample ID: 180-136066-2
Date Collected: 05/12/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	657408	05/19/22 06:18	ALW	TAL CHI
Total/NA	Analysis	8270D SIM		1			660281	06/08/22 17:24	JSB	TAL CHI
	Instrument ID: CMS21									

Client Sample ID: TRW 20% PC T01
Lab Sample ID: 180-136066-10
Date Collected: 05/11/22 09:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			265.8 mL	10.0 mL	589597	05/21/22 14:41	EH	TAL SAC
Total/NA	Analysis	537 (modified)		1			590522	05/26/22 01:56	K1S	TAL SAC
	Instrument ID: A15									

Client Sample ID: TRW 20% PC T02
Lab Sample ID: 180-136066-11
Date Collected: 05/12/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C	DL		250 mL	1.0 mL	657408	05/19/22 06:18	ALW	TAL CHI
Total/NA	Analysis	8270D SIM	DL	10			660281	06/08/22 14:50	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3510C			250 mL	1.0 mL	657408	05/19/22 06:18	ALW	TAL CHI
Total/NA	Analysis	8270D SIM		1			660281	06/08/22 17:48	JSB	TAL CHI
	Instrument ID: CMS21									

Client Sample ID: TRW 20% PC, 2% AC T01
Lab Sample ID: 180-136066-19
Date Collected: 05/11/22 09:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			267.5 mL	10.0 mL	589597	05/21/22 14:41	EH	TAL SAC
Total/NA	Analysis	537 (modified)		1			590522	05/26/22 02:06	K1S	TAL SAC
	Instrument ID: A15									

Lab Chronicle

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC T02
Lab Sample ID: 180-136066-20
Date Collected: 05/12/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	657408	05/19/22 06:18	ALW	TAL CHI
Total/NA	Analysis	8270D SIM		1			660281	06/08/22 18:12	JSB	TAL CHI
	Instrument ID: CMS21									

Client Sample ID: TRW 20% PC, 4% AC T01
Lab Sample ID: 180-136066-28
Date Collected: 05/11/22 09:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			269.5 mL	10.0 mL	589597	05/21/22 14:41	EH	TAL SAC
Total/NA	Analysis	537 (modified)		1			590522	05/26/22 02:16	K1S	TAL SAC
	Instrument ID: A15									

Client Sample ID: TRW 20% PC, 4% AC T02
Lab Sample ID: 180-136066-29
Date Collected: 05/12/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	657408	05/19/22 06:18	ALW	TAL CHI
Total/NA	Analysis	8270D SIM		1			660473	06/09/22 09:42	JSB	TAL CHI
	Instrument ID: CMS21									

Client Sample ID: TRW 20% PC, 2% AC, 2% SP T01
Lab Sample ID: 180-136066-37
Date Collected: 05/11/22 09:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			265.3 mL	10.0 mL	589597	05/21/22 14:41	EH	TAL SAC
Total/NA	Analysis	537 (modified)		1			590522	05/26/22 02:26	K1S	TAL SAC
	Instrument ID: A15									

Client Sample ID: TRW 20% PC, 2% AC, 2% SP T02
Lab Sample ID: 180-136066-38
Date Collected: 05/12/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	657408	05/19/22 06:18	ALW	TAL CHI
Total/NA	Analysis	8270D SIM		1			660473	06/09/22 10:06	JSB	TAL CHI
	Instrument ID: CMS21									

Lab Chronicle

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: MB T01
Lab Sample ID: 180-136066-46
Date Collected: 05/11/22 09:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			265.6 mL	10.0 mL	589597	05/21/22 14:41	EH	TAL SAC
Total/NA	Analysis	537 (modified)		1			590522	05/26/22 02:36	K1S	TAL SAC
	Instrument ID: A15									

Client Sample ID: MB T02
Lab Sample ID: 180-136066-47
Date Collected: 05/12/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	657408	05/19/22 06:18	ALW	TAL CHI
Total/NA	Analysis	8270D SIM		1			660281	06/08/22 17:00	JSB	TAL CHI
	Instrument ID: CMS21									

Laboratory References:

TAL CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TAL SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Analyst References:

Lab: TAL CHI

Batch Type: Prep

ALW = Asia Walker

Batch Type: Analysis

JSB = Joshua Burdelik

Lab: TAL SAC

Batch Type: Prep

EH = Evan Henley

Batch Type: Analysis

K1S = Kotechakon Sorndee

Client Sample ID: TRW CONTROL T01
Lab Sample ID: 180-136066-1

Date Collected: 05/11/22 09:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		05/21/22 14:41	05/26/22 01:46	1
Perfluoropentanoic acid (PFPeA)	**0.72**	**J**	1.9	0.45	ng/L		05/21/22 14:41	05/26/22 01:46	1
Perfluorohexanoic acid (PFHxA)	**1.6**	**J**	1.9	0.54	ng/L		05/21/22 14:41	05/26/22 01:46	1
Perfluoroheptanoic acid (PFHpA)	**0.81**	**J**	1.9	0.23	ng/L		05/21/22 14:41	05/26/22 01:46	1
Perfluorooctanoic acid (PFOA)	**3.3**		1.9	0.79	ng/L		05/21/22 14:41	05/26/22 01:46	1
Perfluorononanoic acid (PFNA)	**0.38**	**J**	1.9	0.25	ng/L		05/21/22 14:41	05/26/22 01:46	1
Perfluorodecanoic acid (PFDA)	**0.72**	**J**	1.9	0.29	ng/L		05/21/22 14:41	05/26/22 01:46	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		05/21/22 14:41	05/26/22 01:46	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		05/21/22 14:41	05/26/22 01:46	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		05/21/22 14:41	05/26/22 01:46	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		05/21/22 14:41	05/26/22 01:46	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		05/21/22 14:41	05/26/22 01:46	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		05/21/22 14:41	05/26/22 01:46	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		05/21/22 14:41	05/26/22 01:46	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.50	ng/L		05/21/22 14:41	05/26/22 01:46	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		05/21/22 14:41	05/26/22 01:46	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.91	ng/L		05/21/22 14:41	05/26/22 01:46	1
NMeFOSAA	ND		4.6	1.1	ng/L		05/21/22 14:41	05/26/22 01:46	1
NEtFOSAA	ND		4.6	1.2	ng/L		05/21/22 14:41	05/26/22 01:46	1
6:2 FTS	ND		4.6	2.3	ng/L		05/21/22 14:41	05/26/22 01:46	1
8:2 FTS	ND		1.9	0.43	ng/L		05/21/22 14:41	05/26/22 01:46	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*84*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
13C5 PFPeA	*123*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
13C2 PFHxA	*94*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
13C4 PFHpA	*91*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
13C4 PFOA	*95*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
13C5 PFNA	*105*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
13C2 PFDA	*111*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
13C2 PFUnA	*98*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
13C2 PFDoA	*92*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
13C2 PFTeDA	*96*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
13C3 PFBS	*106*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
18O2 PFHxS	*100*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
13C4 PFOS	*90*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
13C8 FOSA	*96*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
d3-NMeFOSAA	*107*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
d5-NEtFOSAA	*107*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
M2-6:2 FTS	*134*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*
M2-8:2 FTS	*112*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:46*	*1*

Client Sample ID: TRW CONTROL T02
Lab Sample ID: 180-136066-2

Date Collected: 05/12/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:24	1
Dichloronaphthalene, Total	**5.7**		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:24	1

Client Sample ID: TRW CONTROL T02

Lab Sample ID: 180-136066-2

Date Collected: 05/12/22 07:30

Matrix: Water

Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:24	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:24	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:24	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:24	1
Tetrachloronaphthalene, Total	**1.1**	**J**	2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:24	1
Trichloronaphthalene, Total	**2.1**		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*76*		*30 - 123*	*05/19/22 06:18*	*06/08/22 17:24*	*1*
Nitrobenzene-d5 (Surr)	*79*		*33 - 139*	*05/19/22 06:18*	*06/08/22 17:24*	*1*
Terphenyl-d14 (Surr)	*112*		*42 - 150*	*05/19/22 06:18*	*06/08/22 17:24*	*1*

Client Sample ID: TRW 20% PC T01

Lab Sample ID: 180-136066-10

Date Collected: 05/11/22 09:30

Matrix: Water

Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.7	2.3	ng/L		05/21/22 14:41	05/26/22 01:56	1
Perfluoropentanoic acid (PFPeA)	**0.55**	**J**	1.9	0.46	ng/L		05/21/22 14:41	05/26/22 01:56	1
Perfluorohexanoic acid (PFHxA)	**1.4**	**J**	1.9	0.55	ng/L		05/21/22 14:41	05/26/22 01:56	1
Perfluoroheptanoic acid (PFHpA)	**0.53**	**J**	1.9	0.24	ng/L		05/21/22 14:41	05/26/22 01:56	1
Perfluorooctanoic acid (PFOA)	**3.0**		1.9	0.80	ng/L		05/21/22 14:41	05/26/22 01:56	1
Perfluorononanoic acid (PFNA)	**0.70**	**J**	1.9	0.25	ng/L		05/21/22 14:41	05/26/22 01:56	1
Perfluorodecanoic acid (PFDA)	**0.80**	**J**	1.9	0.29	ng/L		05/21/22 14:41	05/26/22 01:56	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		05/21/22 14:41	05/26/22 01:56	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		05/21/22 14:41	05/26/22 01:56	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		05/21/22 14:41	05/26/22 01:56	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		05/21/22 14:41	05/26/22 01:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		05/21/22 14:41	05/26/22 01:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.54	ng/L		05/21/22 14:41	05/26/22 01:56	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		05/21/22 14:41	05/26/22 01:56	1
Perfluorooctanesulfonic acid (PFOS)	**0.82**	**J B**	1.9	0.51	ng/L		05/21/22 14:41	05/26/22 01:56	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		05/21/22 14:41	05/26/22 01:56	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		05/21/22 14:41	05/26/22 01:56	1
NMeFOSAA	ND		4.7	1.1	ng/L		05/21/22 14:41	05/26/22 01:56	1
NEtFOSAA	ND		4.7	1.2	ng/L		05/21/22 14:41	05/26/22 01:56	1
6:2 FTS	ND		4.7	2.4	ng/L		05/21/22 14:41	05/26/22 01:56	1
8:2 FTS	ND		1.9	0.43	ng/L		05/21/22 14:41	05/26/22 01:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*57*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*
13C5 PFPeA	*119*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*
13C2 PFHxA	*101*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*
13C4 PFHpA	*92*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*
13C4 PFOA	*99*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*
13C5 PFNA	*108*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*
13C2 PFDA	*107*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*
13C2 PFUnA	*98*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*

Client Sample ID: TRW 20% PC T01
Lab Sample ID: 180-136066-10
Date Collected: 05/11/22 09:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDoA	*95*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*
13C2 PFTeDA	*98*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*
13C3 PFBS	*109*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*
18O2 PFHxS	*105*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*
13C4 PFOS	*91*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*
13C8 FOSA	*105*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*
d3-NMeFOSAA	*101*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*
d5-NEtFOSAA	*114*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*
M2-6:2 FTS	*131*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*
M2-8:2 FTS	*121*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:56*	*1*

Client Sample ID: TRW 20% PC T02
Lab Sample ID: 180-136066-11
Date Collected: 05/12/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:48	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:48	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:48	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:48	1
Tetrachloronaphthalene, Total	**3.4**		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:48	1
Trichloronaphthalene, Total	**6.2**		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*75*		*30 - 123*	*05/19/22 06:18*	*06/08/22 17:48*	*1*
Nitrobenzene-d5 (Surr)	*76*		*33 - 139*	*05/19/22 06:18*	*06/08/22 17:48*	*1*
Terphenyl-d14 (Surr)	*110*		*42 - 150*	*05/19/22 06:18*	*06/08/22 17:48*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**20**		20	5.0	ug/L		05/19/22 06:18	06/08/22 14:50	10
Dichloronaphthalene, Total	**22**		20	5.0	ug/L		05/19/22 06:18	06/08/22 14:50	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*68*		*30 - 123*	*05/19/22 06:18*	*06/08/22 14:50*	*10*
Nitrobenzene-d5 (Surr)	*63*		*33 - 139*	*05/19/22 06:18*	*06/08/22 14:50*	*10*
Terphenyl-d14 (Surr)	*98*		*42 - 150*	*05/19/22 06:18*	*06/08/22 14:50*	*10*

Client Sample ID: TRW 20% PC, 2% AC T01
Lab Sample ID: 180-136066-19
Date Collected: 05/11/22 09:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.7	2.2	ng/L		05/21/22 14:41	05/26/22 02:06	1
Perfluoropentanoic acid (PFPeA)	**0.52**	**J**	1.9	0.46	ng/L		05/21/22 14:41	05/26/22 02:06	1
Perfluorohexanoic acid (PFHxA)	**1.2**	**J**	1.9	0.54	ng/L		05/21/22 14:41	05/26/22 02:06	1
Perfluoroheptanoic acid (PFHpA)	**0.56**	**J**	1.9	0.23	ng/L		05/21/22 14:41	05/26/22 02:06	1
Perfluorooctanoic acid (PFOA)	**2.9**		1.9	0.79	ng/L		05/21/22 14:41	05/26/22 02:06	1
Perfluorononanoic acid (PFNA)	**0.45**	**J**	1.9	0.25	ng/L		05/21/22 14:41	05/26/22 02:06	1

Client Sample ID: TRW 20% PC, 2% AC T01

Lab Sample ID: 180-136066-19

Date Collected: 05/11/22 09:30

Matrix: Water

Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	**0.89**	**J**	1.9	0.29	ng/L		05/21/22 14:41	05/26/22 02:06	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		05/21/22 14:41	05/26/22 02:06	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		05/21/22 14:41	05/26/22 02:06	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		05/21/22 14:41	05/26/22 02:06	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		05/21/22 14:41	05/26/22 02:06	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		05/21/22 14:41	05/26/22 02:06	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		05/21/22 14:41	05/26/22 02:06	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		05/21/22 14:41	05/26/22 02:06	1
Perfluorooctanesulfonic acid (PFOS)	**0.56**	**J B**	1.9	0.50	ng/L		05/21/22 14:41	05/26/22 02:06	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		05/21/22 14:41	05/26/22 02:06	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		05/21/22 14:41	05/26/22 02:06	1
NMeFOSAA	ND		4.7	1.1	ng/L		05/21/22 14:41	05/26/22 02:06	1
NEtFOSAA	ND		4.7	1.2	ng/L		05/21/22 14:41	05/26/22 02:06	1
6:2 FTS	ND		4.7	2.3	ng/L		05/21/22 14:41	05/26/22 02:06	1
8:2 FTS	ND		1.9	0.43	ng/L		05/21/22 14:41	05/26/22 02:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*81*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
13C5 PFPeA	*135*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
13C2 PFHxA	*103*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
13C4 PFHpA	*95*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
13C4 PFOA	*103*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
13C5 PFNA	*117*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
13C2 PFDA	*118*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
13C2 PFUnA	*102*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
13C2 PFDoA	*102*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
13C2 PFTeDA	*98*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
13C3 PFBS	*115*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
18O2 PFHxS	*111*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
13C4 PFOS	*98*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
13C8 FOSA	*113*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
d3-NMeFOSAA	*108*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
d5-NEtFOSAA	*116*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
M2-6:2 FTS	*138*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*
M2-8:2 FTS	*113*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:06*	*1*

Client Sample ID: TRW 20% PC, 2% AC T02

Lab Sample ID: 180-136066-20

Date Collected: 05/12/22 07:30

Matrix: Water

Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**1.8**	**J**	2.0	0.50	ug/L		05/19/22 06:18	06/08/22 18:12	1
Dichloronaphthalene, Total	**3.8**		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 18:12	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 18:12	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 18:12	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 18:12	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 18:12	1
Tetrachloronaphthalene, Total	**0.93**	**J**	2.0	0.50	ug/L		05/19/22 06:18	06/08/22 18:12	1

Client Sample ID: TRW 20% PC, 2% AC T02

Lab Sample ID: 180-136066-20

Date Collected: 05/12/22 07:30

Matrix: Water

Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloronaphthalene, Total	**1.6**	**J**	2.0	0.50	ug/L		05/19/22 06:18	06/08/22 18:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*87*		*30 - 123*	*05/19/22 06:18*	*06/08/22 18:12*	*1*
Nitrobenzene-d5 (Surr)	*79*		*33 - 139*	*05/19/22 06:18*	*06/08/22 18:12*	*1*
Terphenyl-d14 (Surr)	*116*		*42 - 150*	*05/19/22 06:18*	*06/08/22 18:12*	*1*

Client Sample ID: TRW 20% PC, 4% AC T01

Lab Sample ID: 180-136066-28

Date Collected: 05/11/22 09:30

Matrix: Water

Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		05/21/22 14:41	05/26/22 02:16	1
Perfluoropentanoic acid (PFPeA)	**0.58**	**J**	1.9	0.45	ng/L		05/21/22 14:41	05/26/22 02:16	1
Perfluorohexanoic acid (PFHxA)	**1.5**	**J**	1.9	0.54	ng/L		05/21/22 14:41	05/26/22 02:16	1
Perfluoroheptanoic acid (PFHpA)	**0.59**	**J**	1.9	0.23	ng/L		05/21/22 14:41	05/26/22 02:16	1
Perfluorooctanoic acid (PFOA)	**2.5**		1.9	0.79	ng/L		05/21/22 14:41	05/26/22 02:16	1
Perfluorononanoic acid (PFNA)	**0.37**	**J**	1.9	0.25	ng/L		05/21/22 14:41	05/26/22 02:16	1
Perfluorodecanoic acid (PFDA)	**0.87**	**J**	1.9	0.29	ng/L		05/21/22 14:41	05/26/22 02:16	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		05/21/22 14:41	05/26/22 02:16	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		05/21/22 14:41	05/26/22 02:16	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		05/21/22 14:41	05/26/22 02:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		05/21/22 14:41	05/26/22 02:16	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		05/21/22 14:41	05/26/22 02:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		05/21/22 14:41	05/26/22 02:16	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		05/21/22 14:41	05/26/22 02:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.50	ng/L		05/21/22 14:41	05/26/22 02:16	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		05/21/22 14:41	05/26/22 02:16	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.91	ng/L		05/21/22 14:41	05/26/22 02:16	1
NMeFOSAA	ND		4.6	1.1	ng/L		05/21/22 14:41	05/26/22 02:16	1
NEtFOSAA	ND		4.6	1.2	ng/L		05/21/22 14:41	05/26/22 02:16	1
6:2 FTS	ND		4.6	2.3	ng/L		05/21/22 14:41	05/26/22 02:16	1
8:2 FTS	ND		1.9	0.43	ng/L		05/21/22 14:41	05/26/22 02:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*91*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:16*	*1*
13C5 PFPeA	*121*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:16*	*1*
13C2 PFHxA	*95*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:16*	*1*
13C4 PFHpA	*89*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:16*	*1*
13C4 PFOA	*98*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:16*	*1*
13C5 PFNA	*103*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:16*	*1*
13C2 PFDA	*106*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:16*	*1*
13C2 PFUnA	*93*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:16*	*1*
13C2 PFDoA	*87*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:16*	*1*
13C2 PFTeDA	*91*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:16*	*1*
13C3 PFBS	*106*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:16*	*1*
18O2 PFHxS	*101*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:16*	*1*
13C4 PFOS	*89*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:16*	*1*
13C8 FOSA	*104*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:16*	*1*

Client Sample ID: TRW 20% PC, 4% AC T01
Lab Sample ID: 180-136066-28

Date Collected: 05/11/22 09:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	104		25 - 150	05/21/22 14:41	05/26/22 02:16	1
d5-NEtFOSAA	107		25 - 150	05/21/22 14:41	05/26/22 02:16	1
M2-6:2 FTS	123		25 - 150	05/21/22 14:41	05/26/22 02:16	1
M2-8:2 FTS	109		25 - 150	05/21/22 14:41	05/26/22 02:16	1

Client Sample ID: TRW 20% PC, 4% AC T02
Lab Sample ID: 180-136066-29

Date Collected: 05/12/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/09/22 09:42	1
Dichloronaphthalene, Total	**0.56**	**J**	2.0	0.50	ug/L		05/19/22 06:18	06/09/22 09:42	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/09/22 09:42	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/09/22 09:42	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/09/22 09:42	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/09/22 09:42	1
Tetrachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/09/22 09:42	1
Trichloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/09/22 09:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	80		30 - 123	05/19/22 06:18	06/09/22 09:42	1
Nitrobenzene-d5 (Surr)	84		33 - 139	05/19/22 06:18	06/09/22 09:42	1
Terphenyl-d14 (Surr)	114		42 - 150	05/19/22 06:18	06/09/22 09:42	1

Client Sample ID: TRW 20% PC, 2% AC, 2% SP T01
Lab Sample ID: 180-136066-37

Date Collected: 05/11/22 09:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.7	2.3	ng/L		05/21/22 14:41	05/26/22 02:26	1
Perfluoropentanoic acid (PFPeA)	**0.93**	**J**	1.9	0.46	ng/L		05/21/22 14:41	05/26/22 02:26	1
Perfluorohexanoic acid (PFHxA)	**1.8**	**J**	1.9	0.55	ng/L		05/21/22 14:41	05/26/22 02:26	1
Perfluoroheptanoic acid (PFHpA)	**0.79**	**J**	1.9	0.24	ng/L		05/21/22 14:41	05/26/22 02:26	1
Perfluorooctanoic acid (PFOA)	**6.0**		1.9	0.80	ng/L		05/21/22 14:41	05/26/22 02:26	1
Perfluorononanoic acid (PFNA)	**3.5**		1.9	0.25	ng/L		05/21/22 14:41	05/26/22 02:26	1
Perfluorodecanoic acid (PFDA)	**1.5**	**J**	1.9	0.29	ng/L		05/21/22 14:41	05/26/22 02:26	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		05/21/22 14:41	05/26/22 02:26	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		05/21/22 14:41	05/26/22 02:26	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		05/21/22 14:41	05/26/22 02:26	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		05/21/22 14:41	05/26/22 02:26	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		05/21/22 14:41	05/26/22 02:26	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.54	ng/L		05/21/22 14:41	05/26/22 02:26	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		05/21/22 14:41	05/26/22 02:26	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		05/21/22 14:41	05/26/22 02:26	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		05/21/22 14:41	05/26/22 02:26	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		05/21/22 14:41	05/26/22 02:26	1
NMeFOSAA	ND		4.7	1.1	ng/L		05/21/22 14:41	05/26/22 02:26	1
NEtFOSAA	ND		4.7	1.2	ng/L		05/21/22 14:41	05/26/22 02:26	1

Client Sample ID: TRW 20% PC, 2% AC, 2% SP T01
Lab Sample ID: 180-136066-37

Date Collected: 05/11/22 09:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	ND		4.7	2.4	ng/L		05/21/22 14:41	05/26/22 02:26	1
8:2 FTS	ND		1.9	0.43	ng/L		05/21/22 14:41	05/26/22 02:26	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*46*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
13C5 PFPeA	*120*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
13C2 PFHxA	*97*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
13C4 PFHpA	*91*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
13C4 PFOA	*96*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
13C5 PFNA	*109*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
13C2 PFDA	*114*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
13C2 PFUnA	*103*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
13C2 PFDoA	*101*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
13C2 PFTeDA	*97*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
13C3 PFBS	*112*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
18O2 PFHxS	*107*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
13C4 PFOS	*107*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
13C8 FOSA	*111*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
d3-NMeFOSAA	*112*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
d5-NEtFOSAA	*112*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
M2-6:2 FTS	*141*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*
M2-8:2 FTS	*125*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:26*	*1*

Client Sample ID: TRW 20% PC, 2% AC, 2% SP T02
Lab Sample ID: 180-136066-38

Date Collected: 05/12/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**2.5**		2.0	0.50	ug/L		05/19/22 06:18	06/09/22 10:06	1
Dichloronaphthalene, Total	**6.3**		2.0	0.50	ug/L		05/19/22 06:18	06/09/22 10:06	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/09/22 10:06	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/09/22 10:06	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/09/22 10:06	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/09/22 10:06	1
Tetrachloronaphthalene, Total	**1.9**	**J**	2.0	0.50	ug/L		05/19/22 06:18	06/09/22 10:06	1
Trichloronaphthalene, Total	**2.5**		2.0	0.50	ug/L		05/19/22 06:18	06/09/22 10:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*81*		*30 - 123*	*05/19/22 06:18*	*06/09/22 10:06*	*1*
Nitrobenzene-d5 (Surr)	*81*		*33 - 139*	*05/19/22 06:18*	*06/09/22 10:06*	*1*
Terphenyl-d14 (Surr)	*113*		*42 - 150*	*05/19/22 06:18*	*06/09/22 10:06*	*1*

Client Sample ID: MB T01
Lab Sample ID: 180-136066-46

Date Collected: 05/11/22 09:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.7	2.3	ng/L		05/21/22 14:41	05/26/22 02:36	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.46	ng/L		05/21/22 14:41	05/26/22 02:36	1

Client Sample ID: MB T01

Lab Sample ID: 180-136066-46

Date Collected: 05/11/22 09:30

Matrix: Water

Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**1.1**	**J**	1.9	0.55	ng/L		05/21/22 14:41	05/26/22 02:36	1
Perfluoroheptanoic acid (PFHpA)	**0.43**	**J**	1.9	0.24	ng/L		05/21/22 14:41	05/26/22 02:36	1
Perfluorooctanoic acid (PFOA)	**3.0**		1.9	0.80	ng/L		05/21/22 14:41	05/26/22 02:36	1
Perfluorononanoic acid (PFNA)	**0.41**	**J**	1.9	0.25	ng/L		05/21/22 14:41	05/26/22 02:36	1
Perfluorodecanoic acid (PFDA)	**1.1**	**J**	1.9	0.29	ng/L		05/21/22 14:41	05/26/22 02:36	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		05/21/22 14:41	05/26/22 02:36	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		05/21/22 14:41	05/26/22 02:36	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		05/21/22 14:41	05/26/22 02:36	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		05/21/22 14:41	05/26/22 02:36	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		05/21/22 14:41	05/26/22 02:36	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.54	ng/L		05/21/22 14:41	05/26/22 02:36	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		05/21/22 14:41	05/26/22 02:36	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		05/21/22 14:41	05/26/22 02:36	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		05/21/22 14:41	05/26/22 02:36	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		05/21/22 14:41	05/26/22 02:36	1
NMeFOSAA	ND		4.7	1.1	ng/L		05/21/22 14:41	05/26/22 02:36	1
NEtFOSAA	ND		4.7	1.2	ng/L		05/21/22 14:41	05/26/22 02:36	1
6:2 FTS	ND		4.7	2.4	ng/L		05/21/22 14:41	05/26/22 02:36	1
8:2 FTS	ND		1.9	0.43	ng/L		05/21/22 14:41	05/26/22 02:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*106*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
13C5 PFPeA	*131*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
13C2 PFHxA	*102*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
13C4 PFHpA	*89*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
13C4 PFOA	*98*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
13C5 PFNA	*107*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
13C2 PFDA	*114*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
13C2 PFUnA	*103*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
13C2 PFDoA	*98*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
13C2 PFTeDA	*95*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
13C3 PFBS	*111*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
18O2 PFHxS	*104*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
13C4 PFOS	*100*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
13C8 FOSA	*89*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
d3-NMeFOSAA	*114*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
d5-NEtFOSAA	*115*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
M2-6:2 FTS	*132*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*
M2-8:2 FTS	*121*		*25 - 150*	*05/21/22 14:41*	*05/26/22 02:36*	*1*

Client Sample ID: MB T02

Lab Sample ID: 180-136066-47

Date Collected: 05/12/22 07:30

Matrix: Water

Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:00	1
Dichloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:00	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:00	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:00	1

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: MB T02
Lab Sample ID: 180-136066-47
Date Collected: 05/12/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:00	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:00	1
Tetrachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:00	1
Trichloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 17:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*89*		*30 - 123*	*05/19/22 06:18*	*06/08/22 17:00*	*1*
Nitrobenzene-d5 (Surr)	*92*		*33 - 139*	*05/19/22 06:18*	*06/08/22 17:00*	*1*
Terphenyl-d14 (Surr)	*124*		*42 - 150*	*05/19/22 06:18*	*06/08/22 17:00*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 500-657408/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 660281
Prep Batch: 657408

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 12:38	1
Dichloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 12:38	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 12:38	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 12:38	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 12:38	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 12:38	1
Tetrachloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 12:38	1
Trichloronaphthalene, Total	ND		2.0	0.50	ug/L		05/19/22 06:18	06/08/22 12:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*78*		*30 - 123*	*05/19/22 06:18*	*06/08/22 12:38*	*1*
Nitrobenzene-d5 (Surr)	*86*		*33 - 139*	*05/19/22 06:18*	*06/08/22 12:38*	*1*
Terphenyl-d14 (Surr)	*115*		*42 - 150*	*05/19/22 06:18*	*06/08/22 12:38*	*1*

Lab Sample ID: LCS 500-657408/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 660281
Prep Batch: 657408

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Monochloronaphthalene, Total			8.00	7.04		ug/L		88	40 - 130		
Dichloronaphthalene, Total			8.00	7.40		ug/L		93	40 - 130		
Tetrachloronaphthalene, Total			8.00	9.09		ug/L		114	40 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*80*		*30 - 123*
Nitrobenzene-d5 (Surr)	*74*		*33 - 139*
Terphenyl-d14 (Surr)	*110*		*42 - 150*

Lab Sample ID: LCSD 500-657408/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 660281
Prep Batch: 657408

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Monochloronaphthalene, Total			8.00	7.50		ug/L		94	40 - 130	6	20
Dichloronaphthalene, Total			8.00	7.64		ug/L		96	40 - 130	3	20
Tetrachloronaphthalene, Total			8.00	9.59		ug/L		120	40 - 130	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*82*		*30 - 123*
Nitrobenzene-d5 (Surr)	*79*		*33 - 139*
Terphenyl-d14 (Surr)	*116*		*42 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-589597/1-A
Matrix: Water
Analysis Batch: 590522

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 589597

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		05/21/22 14:41	05/26/22 01:15	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		05/21/22 14:41	05/26/22 01:15	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		05/21/22 14:41	05/26/22 01:15	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		05/21/22 14:41	05/26/22 01:15	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		05/21/22 14:41	05/26/22 01:15	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		05/21/22 14:41	05/26/22 01:15	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		05/21/22 14:41	05/26/22 01:15	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		05/21/22 14:41	05/26/22 01:15	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		05/21/22 14:41	05/26/22 01:15	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		05/21/22 14:41	05/26/22 01:15	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		05/21/22 14:41	05/26/22 01:15	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		05/21/22 14:41	05/26/22 01:15	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		05/21/22 14:41	05/26/22 01:15	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		05/21/22 14:41	05/26/22 01:15	1
Perfluorooctanesulfonic acid (PFOS)	1.17	J	2.0	0.54	ng/L		05/21/22 14:41	05/26/22 01:15	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		05/21/22 14:41	05/26/22 01:15	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		05/21/22 14:41	05/26/22 01:15	1
NMeFOSAA	ND		5.0	1.2	ng/L		05/21/22 14:41	05/26/22 01:15	1
NEtFOSAA	ND		5.0	1.3	ng/L		05/21/22 14:41	05/26/22 01:15	1
6:2 FTS	ND		5.0	2.5	ng/L		05/21/22 14:41	05/26/22 01:15	1
8:2 FTS	ND		2.0	0.46	ng/L		05/21/22 14:41	05/26/22 01:15	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*100*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
13C5 PFPeA	*127*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
13C2 PFHxA	*97*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
13C4 PFHpA	*90*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
13C4 PFOA	*93*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
13C5 PFNA	*104*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
13C2 PFDA	*110*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
13C2 PFUnA	*102*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
13C2 PFDoA	*94*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
13C2 PFTeDA	*101*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
13C3 PFBS	*107*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
18O2 PFHxS	*98*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
13C4 PFOS	*97*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
13C8 FOSA	*101*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
d3-NMeFOSAA	*108*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
d5-NEtFOSAA	*111*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
M2-6:2 FTS	*128*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*
M2-8:2 FTS	*110*		*25 - 150*	*05/21/22 14:41*	*05/26/22 01:15*	*1*

Lab Sample ID: LCS 320-589597/2-A
Matrix: Water
Analysis Batch: 590522

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589597

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	40.0	43.5		ng/L		109	76 - 136

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-589597/2-A
Matrix: Water
Analysis Batch: 590522

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 589597

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanoic acid (PFPeA)	40.0	39.5		ng/L		99	71 - 131
Perfluorohexanoic acid (PFHxA)	40.0	38.1		ng/L		95	73 - 133
Perfluoroheptanoic acid (PFHpA)	40.0	39.4		ng/L		98	72 - 132
Perfluorooctanoic acid (PFOA)	40.0	38.4		ng/L		96	70 - 130
Perfluorononanoic acid (PFNA)	40.0	39.4		ng/L		99	75 - 135
Perfluorodecanoic acid (PFDA)	40.0	42.9		ng/L		107	76 - 136
Perfluoroundecanoic acid (PFUnA)	40.0	40.3		ng/L		101	68 - 128
Perfluorododecanoic acid (PFDoA)	40.0	40.5		ng/L		101	71 - 131
Perfluorotridecanoic acid (PFTrDA)	40.0	41.5		ng/L		104	71 - 131
Perfluorotetradecanoic acid (PFTeA)	40.0	36.1		ng/L		90	70 - 130
Perfluorobutanesulfonic acid (PFBS)	35.4	37.9		ng/L		107	67 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	38.2		ng/L		105	59 - 119
Perfluoroheptanesulfonic acid (PFHpS)	38.1	42.6		ng/L		112	76 - 136
Perfluorooctanesulfonic acid (PFOS)	37.1	39.8		ng/L		107	70 - 130
Perfluorodecanesulfonic acid (PFDS)	38.6	42.1		ng/L		109	71 - 131
Perfluorooctanesulfonamide (FOSA)	40.0	42.0		ng/L		105	73 - 133
NMeFOSAA	40.0	43.7		ng/L		109	76 - 136
NEtFOSAA	40.0	39.6		ng/L		99	76 - 136
6:2 FTS	37.9	30.1		ng/L		79	59 - 175
8:2 FTS	38.3	43.3		ng/L		113	75 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*112*		*25 - 150*
13C5 PFPeA	*137*		*25 - 150*
13C2 PFHxA	*103*		*25 - 150*
13C4 PFHpA	*98*		*25 - 150*
13C4 PFOA	*103*		*25 - 150*
13C5 PFNA	*118*		*25 - 150*
13C2 PFDA	*122*		*25 - 150*
13C2 PFUnA	*113*		*25 - 150*
13C2 PFDoA	*109*		*25 - 150*
13C2 PFTeDA	*114*		*25 - 150*
13C3 PFBS	*115*		*25 - 150*
18O2 PFHxS	*104*		*25 - 150*
13C4 PFOS	*106*		*25 - 150*
13C8 FOSA	*109*		*25 - 150*
d3-NMeFOSAA	*114*		*25 - 150*
d5-NEtFOSAA	*124*		*25 - 150*
M2-6:2 FTS	*143*		*25 - 150*
M2-8:2 FTS	*120*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-589597/3-A
Matrix: Water
Analysis Batch: 590522

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 589597

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	41.3		ng/L		103	76 - 136	5	30
Perfluoropentanoic acid (PFPeA)			40.0	40.0		ng/L		100	71 - 131	1	30
Perfluorohexanoic acid (PFHxA)			40.0	40.9		ng/L		102	73 - 133	7	30
Perfluoroheptanoic acid (PFHpA)			40.0	41.0		ng/L		102	72 - 132	4	30
Perfluorooctanoic acid (PFOA)			40.0	39.1		ng/L		98	70 - 130	2	30
Perfluorononanoic acid (PFNA)			40.0	40.6		ng/L		101	75 - 135	3	30
Perfluorodecanoic acid (PFDA)			40.0	42.0		ng/L		105	76 - 136	2	30
Perfluoroundecanoic acid (PFUnA)			40.0	40.2		ng/L		100	68 - 128	0	30
Perfluorododecanoic acid (PFDoA)			40.0	38.2		ng/L		95	71 - 131	6	30
Perfluorotridecanoic acid (PFTrDA)			40.0	39.4		ng/L		98	71 - 131	5	30
Perfluorotetradecanoic acid (PFTeA)			40.0	37.1		ng/L		93	70 - 130	3	30
Perfluorobutanesulfonic acid (PFBS)			35.4	36.7		ng/L		104	67 - 127	3	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	35.5		ng/L		98	59 - 119	7	30
Perfluoroheptanesulfonic acid (PFHpS)			38.1	41.1		ng/L		108	76 - 136	4	30
Perfluorooctanesulfonic acid (PFOS)			37.1	39.3		ng/L		106	70 - 130	1	30
Perfluorodecanesulfonic acid (PFDS)			38.6	43.5		ng/L		113	71 - 131	3	30
Perfluorooctanesulfonamide (FOSA)			40.0	39.0		ng/L		98	73 - 133	7	30
NMeFOSAA			40.0	43.1		ng/L		108	76 - 136	1	30
NEtFOSAA			40.0	42.1		ng/L		105	76 - 136	6	30
6:2 FTS			37.9	30.0		ng/L		79	59 - 175	0	30
8:2 FTS			38.3	46.4		ng/L		121	75 - 135	7	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*106*		*25 - 150*
13C5 PFPeA	*127*		*25 - 150*
13C2 PFHxA	*99*		*25 - 150*
13C4 PFHpA	*92*		*25 - 150*
13C4 PFOA	*98*		*25 - 150*
13C5 PFNA	*108*		*25 - 150*
13C2 PFDA	*117*		*25 - 150*
13C2 PFUnA	*109*		*25 - 150*
13C2 PFDoA	*108*		*25 - 150*
13C2 PFTeDA	*107*		*25 - 150*
13C3 PFBS	*110*		*25 - 150*
18O2 PFHxS	*104*		*25 - 150*
13C4 PFOS	*101*		*25 - 150*
13C8 FOSA	*104*		*25 - 150*
d3-NMeFOSAA	*110*		*25 - 150*
d5-NEtFOSAA	*115*		*25 - 150*
M2-6:2 FTS	*133*		*25 - 150*
M2-8:2 FTS	*110*		*25 - 150*

GC/MS Semi VOA

Prep Batch: 657408

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-2	TRW CONTROL T02	Total/NA	Water	3510C	
180-136066-11 - DL	TRW 20% PC T02	Total/NA	Water	3510C	
180-136066-11	TRW 20% PC T02	Total/NA	Water	3510C	
180-136066-20	TRW 20% PC, 2% AC T02	Total/NA	Water	3510C	
180-136066-29	TRW 20% PC, 4% AC T02	Total/NA	Water	3510C	
180-136066-38	TRW 20% PC, 2% AC, 2% SP T02	Total/NA	Water	3510C	
180-136066-47	MB T02	Total/NA	Water	3510C	
MB 500-657408/1-A	Method Blank	Total/NA	Water	3510C	
LCS 500-657408/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 500-657408/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 660281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-2	TRW CONTROL T02	Total/NA	Water	8270D SIM	657408
180-136066-11 - DL	TRW 20% PC T02	Total/NA	Water	8270D SIM	657408
180-136066-11	TRW 20% PC T02	Total/NA	Water	8270D SIM	657408
180-136066-20	TRW 20% PC, 2% AC T02	Total/NA	Water	8270D SIM	657408
180-136066-47	MB T02	Total/NA	Water	8270D SIM	657408
MB 500-657408/1-A	Method Blank	Total/NA	Water	8270D SIM	657408
LCS 500-657408/2-A	Lab Control Sample	Total/NA	Water	8270D SIM	657408
LCSD 500-657408/3-A	Lab Control Sample Dup	Total/NA	Water	8270D SIM	657408

Analysis Batch: 660473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-29	TRW 20% PC, 4% AC T02	Total/NA	Water	8270D SIM	657408
180-136066-38	TRW 20% PC, 2% AC, 2% SP T02	Total/NA	Water	8270D SIM	657408

LCMS

Prep Batch: 589597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-1	TRW CONTROL T01	Total/NA	Water	3535	
180-136066-10	TRW 20% PC T01	Total/NA	Water	3535	
180-136066-19	TRW 20% PC, 2% AC T01	Total/NA	Water	3535	
180-136066-28	TRW 20% PC, 4% AC T01	Total/NA	Water	3535	
180-136066-37	TRW 20% PC, 2% AC, 2% SP T01	Total/NA	Water	3535	
180-136066-46	MB T01	Total/NA	Water	3535	
MB 320-589597/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-589597/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-589597/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 590522

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-1	TRW CONTROL T01	Total/NA	Water	537 (modified)	589597
180-136066-10	TRW 20% PC T01	Total/NA	Water	537 (modified)	589597
180-136066-19	TRW 20% PC, 2% AC T01	Total/NA	Water	537 (modified)	589597
180-136066-28	TRW 20% PC, 4% AC T01	Total/NA	Water	537 (modified)	589597
180-136066-37	TRW 20% PC, 2% AC, 2% SP T01	Total/NA	Water	537 (modified)	589597
180-136066-46	MB T01	Total/NA	Water	537 (modified)	589597
MB 320-589597/1-A	Method Blank	Total/NA	Water	537 (modified)	589597
LCS 320-589597/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	589597

LCMS (Continued)

Analysis Batch: 590522 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 320-589597/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	589597

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

eurofins | Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	**Project Manager: Rob Sents**		COC No:
ERM Consulting & Engineering, Inc.	**Email: rob.sents@erm.com**	**Site Contact: Laurel Crawford**	**Date: 5/6/22**	___1__ of ___1__ COCs
5784 Widewater Pkwy	**Tel/Fax:**	**Lab Contact: Carrie Gamber**	**Carrier: Fedex**	TALS Project #:
Syracuse, NY 13214	**Analysis Turnaround Time**			Sampler: Laurel Crawford
(315) 445-2554	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(315) 445-2534 FAX	TAT if different from Below __standard__			Client:
Project Name: Former TRW Union Springs	☐ 2 weeks			Shipping:
Site: Union Springs, NY	☐ 1 week			
Project # : 46031778	☐ 2 days			No.:
	☐ 1 day			

180-136058 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	LEAF Method 1315 (see Table 1 for specific analyses and time points for each sample)	TCLP * (to be determined) *	Sample Specific Notes:
TRW Control	3/22/22	17:00	C	S	1 glass 1 HDPE			x	x	HDPE for PFAS vessel, glass for vessel for all other analytes
TRW 20% PC	4/26/22	17:10	C	S	2**			x	x	** 1 monolith for PFAS vessel, 1 monolith for vessel for all other analytes, hold onto monoliths after testing is complete in case client wants TCLP on 1 of the 2 monoliths.
TRW 20% PC, 2% AC	4/26/22	17:20	C	S	2**			x	x	
TRW 20% PC, 4% AC	4/26/22	17:30	C	S	2**			x	x	
TRW 20% PC, 2% AC, 2% SP	4/28/22	18:00	C	S	2**			x	x	

You already have these controls sent

If TCLP is not selected, please send both monoliths for these test conditions to JLT labs at the address below. If TCLP is selcted, please send 1 of the 2 monoliths to JLT labs. This applies to only these last 3 test conditions (TRW 20% PC, 2% AC; TRW 20% PC, 4% AC; TRW 20% PC, 2% AC, 2% SP).

JLT Laboratories, Inc.
938 South Central Ave.
Canonsburg, PA 15317
(724) 746-4441

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ___DI, MeOH___								1	1	1	1	1	1	1	1	1	1	1,6	1	1	1	

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
** hold until ERM decides if any TCLP analyses are needed and send monoliths to JLT labs per above instructions*

☐ Return to Client ☑ Disposal by Lab ☑ Archive for ___*___ Months

Special Instructions/QC Requirements & Comments:

Please refer to the attached Table 1 for specific analyses at select time points depending on the sample.
Please include Laurel Crawford on data deliverables: Lcrawford@loureiro.com

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: XDD d/b/a Loureiro	Date/Time: 5/6/22 10:30	Received by:	Company: NEETA/LIT	Date/Time: 5/7/22 0900
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins | Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Rob Sents	Site Contact: Laurel Crawford	Date: 3/30/22	COC No:
ERM Consulting & Engineering, Inc.	Email: rob.sents@erm.com	Lab Contact: Carrie Gamber	Carrier: Fedex	___1__ of ___1__ COCs
5784 Widewater Pkwy	Tel/Fax:			TALS Project #:
Syracuse, NY 13214	Analysis Turnaround Time: ☐ CALENDAR DAYS ☐ WORKING DAYS			Sampler: Laurel Crawford
(315) 445-2554	TAT if different from Below __standard__			For Lab Use Only:
(315) 445-2534 FAX	☐ 2 weeks			Walk-in Client:
Project Name: Former TRW Union Springs	☐ 1 week			Lab Sampling:
Site: Union Springs, NY	☐ 2 days			Job / SDG No.:
Project # : 46031778	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)		LEAF Method 1315 (see Table 1 for specific analyses and time points for each sample)	TCLP * (to be determined) *											Sample Specific Notes:
TRW Control	3/22/22	17:00	C	S	1 glass 2 HDPE				x	x											HDPE for PFAS vessel, glass for vessel for all other analytes
TRW 7% PC	3/22/22	17:20	C	S	3**				x	x											
TRW 7% PC, 2% AC	3/22/22	17:50	C	S	3**				x	x											** 1 monolith for PFAS vessel, 1 monolith for vessel for all other analytes, plus 1 extra monolith if needed
TRW 7% PC, 4% AC	3/22/22	18:30	C	S	3**				x	x											
TRW 7% PC, 2% AC, 2% SP	3/22/22	19:00	C	S	3**				x	x											
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ___DI, MeOH___									1	1	1	1	1	1	1	1	1	1	1,6	1	1	1

180-136066 Chain of Custody

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

** hold until ERM decides if any TCLP analyses are needed*

☐ Return to Client ☑ Disposal by Lab ☑ Archive for * Months

Special Instructions/QC Requirements & Comments:

Please refer to the attached Table 1 for specific analyses at select time points depending on the sample.
Please include Laurel Crawford on data deliverables: Lcrawford@loureiro.com

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:
Relinquished by:	Company: XDD d/b/a Loureiro	Date/Time: 3/30/22 ~~3/16/22~~ 13:30	Received by:	Company: ETA PITT	Date/Time: 3/31/22 1511
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.35, dated 10/6/2020

ORIGIN ID:IGGA (603) 778-1100
LAUREL CRAWFORD
LOURIERO ENGINEERING ASSOC INC
22 MARIN WAY UNIT #3
STRATHAM, NH 03885
UNITED STATES US

SHIP DATE: 06MAY22
ACTWGT: 20.00 LB
CAD: 112565704/INET4490
DIMS: 25x15x15 IN

BILL SENDER

TO CARRIE GAMBER
EUROFINS ENVIROTEST AMERICA-PA
301 ALPHA DRIVE

577J5/1BD6/FE4A

PITTSBURGH PA 15238

(412) 963-2428 REF: 027ER1 02 TASK 001 LC
INV:
PO: DEPT

FedEx Express

J2320220401uw

SATURDAY 12:00P
PRIORITY OVERNIGHT

TRK# 0201 7767 8966 1381

15238
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XO AGCA

Uncorrected temp
Thermometer ID
Initials
CF -0.4
PT-WI-SR-001 effective 11/8/18

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180-136058 VayblII



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Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.



Eurofins Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Gamber, Carrie L	Carrier Tracking No(s):	COC No: 180-461243.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Carrie.Gamber@et.eurofinsus.com	State of Origin: New York	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): NELAP - New York		Job #: 180-136066-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 6/22/2022			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Former TRW Union Springs Property - Unio	Project #: 18025140			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC PFAS, Standard List (21 Analytes) 1315	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
TRW CONTROL T01 (180-136066-1)	5/11/22	09:30 Eastern		Water			X	2	
TRW 20% PC T01 (180-136066-10)	5/11/22	09:30 Eastern		Water			X	2	
TRW 20% PC, 2% AC T01 (180-136066-19)	5/11/22	09:30 Eastern		Water			X	2	
TRW 20% PC, 4% AC T01 (180-136066-28)	5/11/22	09:30 Eastern		Water			X	2	
TRW 20% PC, 2% AC, 2% SP T01 (180-136066-37)	5/11/22	09:30 Eastern		Water			X	2	
MB T01 (180-136066-46)	5/11/22	09:30 Eastern		Water			X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Pittsburgh places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Pittsburgh.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	5-11-22 1700	EEA	[signature]	5.12.22 9:20	EEA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: Seal | Cooler Temperature(s) °C and Other Remarks: 1.7c

Ver: 06/08/2021

Eurofins Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Gamber, Carrie L	Carrier Tracking No(s):	COC No: 180-462252.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Carrie.Gamber@et.eurofinsus.com	State of Origin: New York	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): NELAP - New York		Job #: 180-136066-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 6/15/2022			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Former TRW Union Springs Property - Unio	Project #: 18025140			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC PFAS, Standard List (21 Analytes) 1315	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
TRW CONTROL T05 (180-136066-5)	5/25/22	07:30 Eastern		Water			X	2	
TRW 20% PC T05 (180-136066-14)	5/25/22	07:30 Eastern		Water			X	2	
TRW 20% PC, 2% AC T05 (180-136066-23)	5/25/22	07:30 Eastern		Water			X	2	
TRW 20% PC, 4% AC T05 (180-136066-32)	5/25/22	07:30 Eastern		Water			X	2	
TRW 20% PC, 2% AC, 2% SP T05 (180-136066-41)	5/25/22	07:30 Eastern		Water			X	2	
MB T05 (180-136066-50)	5/25/22	07:30 Eastern		Water			X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Pittsburgh places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Pittsburgh.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		5-25-22 1700			5-27-22 0940	
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.9

Ver: 06/08/2021

Eurofins Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh PA 15238
Phone 412-963-7058 Fax 412-963-2468

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler	Lab PM: Gamber Carrie L	Carrier Tracking No(s)	COC No: 180-461430 1
Client Contact: Shipping/Receiving	Phone	E-Mail: Carrie Gamber@et.eurofinsus com	State of Origin: New York	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): NELAP - New York		Job #: 180-136066-1
Address: 2417 Bond Street,	Due Date Requested: 6/22/2022			
City: University Park	TAT Requested (days):			
State Zip: IL 60484				
Phone: 708-534-5200(Tel) 708-534-5211(Fax)	PO #:			
Email:	WO #: 180-136066 COC			
Project Name: Former TRW Union Springs Property - Unio	Project #: 18025140			
Site:	SSOW#:			

Preservation Codes

A	HCL	M	Hexane
B	NaOH	N	None
C	Zn Acetate	O	AsNaO2
D	Nitric Acid	P	Na2O4S
E	NaHSO4	Q	Na2SO3
F	MeOH	R	Na2S2O3
G	Amchlor	S	H2SO4
H	Ascorbic Acid	T	TSP Dodecahydrate
I	Ice	U	Acetone
J	DI Water	V	MCAA
K	EDTA	W	pH 4-5
L	EDA	Z	other (specify)

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D_SIM/3510C_LVI (MOD) Local Method	Total Number of containers	Special Instructions/Note
			Preservation Code:						
TRW CONTROL T02 (180-136066-2)	5/12/22	07 30 Eastern		Water			X	1	Analysis
TRW 20% PC T02 (180-136066-11)	5/12/22	07 30 Eastern		Water			X	1	to be done
TRW 20% PC 2% AC T02 (180-136066-20)	5/12/22	07 30 Eastern		Water			X	1	in Chicago
TRW 20% PC 4% AC T02 (180-136066-29)	5/12/22	07 30 Eastern		Water			X	1	per Chicago
TRW 20% PC 2% AC 2% SP T02 (180-136066-38)	5/12/22	07 30 Eastern		Water			X	1	L. D.
MB T02 (180-136066-47)	5/12/22	07 30 Eastern		Water			X	1	

Note Since laboratory accreditations are subject to change Eurofins Pittsburgh places the ownership of method analyte & accreditation compliance upon out subcontract laboratories This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately If all requested accreditations are current to date return the signed Chain of Custody attesting to said complicance to Eurofins Pittsburgh

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested I II III IV Other (specify) Primary Deliverable Rank 2	Special Instructions/QC Requirements

Empty Kit Relinquished by	Date	Time	Method of Shipment

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	5/13/22 1700		Paula Buckley	5/14/22 0815	EEM
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact	Custody Seal No	Cooler Temperature(s) °C and Other Remarks
Δ Yes Δ No		3.4 → 2.4

Eurofins Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh PA 15238
Phone 412-963-7058 Fax 412-963-2468

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler	Lab PM: Gamber Carrie L	Carrier Tracking No(s)	COC No: 180-462250 1
Client Contact: Shipping/Receiving	Phone	E-Mail: Carrie Gamber@et.eurofinsus.com	State of Origin: New York	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): NELAP - New York		Job #: 180-136066-1
Address: 2417 Bond Street	Due Date Requested: 6/15/2022			
City: University Park	TAT Requested (days):			
State, Zip: IL 60484				
Phone: 708-534-5200(Tel) 708-534-5211(Fax)	PO #			
Email	WO #			
Project Name: Former TRW Union Springs Property - Unio	Project #: 18025140			
Site	SSOW#:			

Analysis Requested

180-136066 COC

Preservation Codes

A HCL, B NaOH, C Zn Acetate, D Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Y Trizma, Z other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D_SIM/3510C_LVI (MOD) Local Method	Total Number of containers	Special Instructions/Note
			Preservation Code						
TRW CONTROL T05 (180-136066-5)	5/25/22	07 30 Eastern		Water			X	1	
TRW 20% PC T05 (180-136066-14)	5/25/22	07 30 Eastern		Water			X	1	
TRW 20% PC 2% AC T05 (180-136066-23)	5/25/22	07 30 Eastern		Water			X	1	
TRW 20% PC 4% AC T05 (180-136066-32)	5/25/22	07 30 Eastern		Water			X	1	
TRW 20% PC 2% AC 2% SP T05 (180-136066-41)	5/25/22	07 30 Eastern		Water			X	1	
MB T05 (180-136066-50)	5/25/22	07 30 Eastern		Water			X	1	

Note Since laboratory accreditations are subject to change Eurofins Pittsburgh places the ownership of method analyte & accreditation compliance upon out subcontract laboratories This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately If all requested accreditations are current to date return the signed Chain of Custody attesting to said complicance to Eurofins Pittsburgh

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested I, II III IV Other (specify) Primary Deliverable Rank 2	Special Instructions/QC Requirements

Empty Kit Relinquished by	Date	Time	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	MO	5-25-22 1700	Eurofins	Stephanie Hemmerling	5/26/22 0975	EETA
2						
3						

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks: 1.0 → 1.1

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Sacramento
Sample Receiving Notes



Job: 180-136066 Field Sheet

Tracking # : 517304474602

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations.
File in the job folder with the COC.

Therm. ID: IR10 Corr. Factor: (+ / -) — °C

Ice 1 Wet 1 Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: _____

Temp Observed: 1.7 °C Corrected: 1.7 °C

From: Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials: JB Date: 5.12.22

Unpacking/Labeling The Samples	Yes	No	NA
COC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample custody seal?	☐	☐	☑
Sample containers have legible labels?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Is the Field Sampler's name on COC?	☑ 05.12.22	☐	☑
Samples require splitting/compositing?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: JB Date: 5.12.22

Notes: _____

Trizma Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
Samples received within hold time?	☑	☐	☐
NCM Filed?	☐	☐	☑
Log Release checked in TALS?	☑	☐	☐

Initials: JB Date: 5.12.22

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Sacramento
Sample Receiving Notes

180-136066 Field Sheet

Job:__

Tracking # : 5173 0498 0229

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other_____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations.
File in the job folder with the COC.

Therm. ID: C06 Corr. Factor: (+ / -) NA °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: —

Cooler ID: —

Temp Observed: 1.9 °C Corrected: 1.9 °C

From: Temp Blank ☐ Sample ☒

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Frozen samples show signs of thaw?	☐	☐	☒

Initials: SO Date: 5-27-22

Unpacking/Labeling The Samples	Yes	No	NA
COC is complete w/o discrepancies?	☒	☐	☐
Samples compromised/tampered with?	☐	☒	☐
Containers are not broken or leaking?	☒	☐	☐
Sample custody seal?	☐	☐	☒
Sample containers have legible labels?	☒	☐	☐
Sample date/times are provided?	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Sample preservatives verified?	☐	☐	☒
Is the Field Sampler's name on COC?	☐	☐	☒
Samples require splitting/compositing?	☐	☐	☒
Samples w/o discrepancies?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☒
Multiphasic samples are not present?	☒	☐	☐

Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: KS Date: 5.27.22

Notes:_____

Trizma Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☒	☐	☐
Samples received within hold time?	☒	☐	☐
NCM Filed?	☐	☐	☒
Log Release checked in TALS?	☐	☐	☒

Initials: KS Date: 5.27.22

Login Sample Receipt Checklist

Client: ZF Active Safety and Electronics LLC

Job Number: 180-136066-1

Login Number: 136066

List Source: Eurofins Pittsburgh

List Number: 1

Creator: Matko, Larry

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Login Sample Receipt Checklist

Client: ZF Active Safety and Electronics LLC

Job Number: 180-136066-1

Login Number: 136066
List Number: 3
Creator: Buckley, Paula M

List Source: Eurofins Chicago
List Creation: 05/14/22 12:26 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ZF Active Safety and Electronics LLC

Job Number: 180-136066-1

Login Number: 136066
List Number: 4
Creator: Hernandez, Stephanie

List Source: Eurofins Chicago
List Creation: 05/26/22 11:43 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ZF Active Safety and Electronics LLC

Job Number: 180-136066-1

Login Number: 136066
List Number: 2
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 05/12/22 01:40 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ZF Active Safety and Electronics LLC

Job Number: 180-136066-1

Login Number: 136066
List Number: 5
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 05/27/22 02:35 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.9c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

Eurofins Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-136066-2
Client Project/Site: Former TRW Union Springs Property - Unio

For:
ZF Active Safety and Electronics LLC
PO BOX 94885
Cleveland, Ohio 44101-4885

Attn: Accounts Payable

Authorized for release by:
7/28/2022 7:42:36 AM

Carrie Gamber, Senior Project Manager
(412)963-2428
Carrie.Gamber@et.eurofinsus.com

LINKS

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Have a Question? Ask The Expert

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Definitions/Glossary 4
Certification Summary 5
Sample Summary 6
Method Summary 7
Lab Chronicle 8
Client Sample Results 13
QC Sample Results 32
QC Association Summary 44
Chain of Custody 47
Field Data Sheets 52
Receipt Checklists 53

Job ID: 180-136066-2

Laboratory: Eurofins Pittsburgh

Narrative

CASE NARRATIVE

Client: ZF Active Safety and Electronics LLC

Project: Former TRW Union Springs Property - Unio

Report Number: 180-136066-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 04/01/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was C.

SEMIVOLATILES
Several samples required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The laboratory control sample duplicate (LCSD) for preparation batch 500-659343 and analytical batch 500-660745 recovered above the control limits for the following analyte: Tetrachloronaphthalene, Total. This analyte was within the QC limits in the LCS; therefore, the data have been reported.

PFAS
The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. TRW 20% PC T05 (180-136066-14)

Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: TRW 20% PC, 2% AC T05 (180-136066-23). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 320-602450 and analytical batch 320-605068 recovered outside control limits for the following analytes: Perfluorohexanoic acid (PFHxA) and 6:2 FTS.

The laboratory control sample duplicate (LCSD) for preparation batch 320-602450 and analytical batch 320-605068 recovered outside control limits for the following analytes: Perfluorohexanoic acid (PFHxA) and 6:2 FTS. These analytes were biased high in the LCS and were detected in the associated sample: TRW CONTROL T08 (180-136066-8) and (LCSD 320-602450/3-A). As a result, the data may be potentially high biased. There is insufficient sample volume left for another extraction; therefore, the data have been reported.

Internal standard (ISTD) response for the following method blank (MB) in preparation batch 320-602450 was outside acceptance criteria: (MB 320-602450/1-A). The MB was re-analyzed with concurring results. The internal standard is not used to quantitate target analytes; therefore, there is no impact to the data.

Definitions/Glossary

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-2
Project/Site: Former TRW Union Springs Property - Unio

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

LCMS

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-2
Project/Site: Former TRW Union Springs Property - Unio

Laboratory: Eurofins Chicago

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2903	04-29-22 *
Georgia	State	N/A	04-29-22 *
Georgia (DW)	State	939	04-30-23
Hawaii	State	NA	04-29-23
Illinois	NELAP	IL00035	04-30-23
Indiana	State	C-IL-02	04-29-23
Iowa	State	082	05-01-22 *
Kansas	NELAP	E-10161	10-31-22
Kentucky (UST)	State	AI # 108083	04-29-22 *
Kentucky (WW)	State	KY90023	12-31-22
Louisiana	NELAP	02046	06-30-23
Mississippi	State	NA	04-30-22 *
North Carolina (WW/SW)	State	291	12-31-22
North Dakota	State	R-194	04-30-23
Oklahoma	State	8908	08-31-22
South Carolina	State	77001003	04-29-22 *
USDA	US Federal Programs	P330-18-00018	02-11-24
Wisconsin	State	999580010	08-31-22
Wyoming	State	8TMS-Q	04-30-22 *

Laboratory: Eurofins Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	11666	04-01-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
537 (modified)	3535	Water	6:2 FTS
537 (modified)	3535	Water	8:2 FTS
537 (modified)	3535	Water	NEtFOSAA
537 (modified)	3535	Water	NMeFOSAA
537 (modified)	3535	Water	Perfluorobutanesulfonic acid (PFBS)
537 (modified)	3535	Water	Perfluorobutanoic acid (PFBA)
537 (modified)	3535	Water	Perfluorodecanesulfonic acid (PFDS)
537 (modified)	3535	Water	Perfluorodecanoic acid (PFDA)
537 (modified)	3535	Water	Perfluorododecanoic acid (PFDoA)
537 (modified)	3535	Water	Perfluoroheptanesulfonic acid (PFHpS)
537 (modified)	3535	Water	Perfluoroheptanoic acid (PFHpA)
537 (modified)	3535	Water	Perfluorohexanesulfonic acid (PFHxS)
537 (modified)	3535	Water	Perfluorohexanoic acid (PFHxA)
537 (modified)	3535	Water	Perfluorononanoic acid (PFNA)
537 (modified)	3535	Water	Perfluorooctanesulfonamide (FOSA)
537 (modified)	3535	Water	Perfluorooctanesulfonic acid (PFOS)
537 (modified)	3535	Water	Perfluorooctanoic acid (PFOA)
537 (modified)	3535	Water	Perfluoropentanoic acid (PFPeA)
537 (modified)	3535	Water	Perfluorotetradecanoic acid (PFTeA)
537 (modified)	3535	Water	Perfluorotridecanoic acid (PFTrDA)
537 (modified)	3535	Water	Perfluoroundecanoic acid (PFUnA)

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-2
Project/Site: Former TRW Union Springs Property - Unio

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-136066-5	TRW CONTROL T05	Water	05/25/22 07:30	04/01/22 11:22
180-136066-8	TRW CONTROL T08	Water	06/29/22 07:30	04/01/22 11:22
180-136066-9	TRW CONTROL T09	Water	07/13/22 07:30	04/01/22 11:22
180-136066-14	TRW 20% PC T05	Water	05/25/22 07:30	04/01/22 11:22
180-136066-17	TRW 20% PC T08	Water	06/29/22 07:30	04/01/22 11:22
180-136066-18	TRW 20% PC T09	Water	07/13/22 07:30	04/01/22 11:22
180-136066-23	TRW 20% PC, 2% AC T05	Water	05/25/22 07:30	04/01/22 11:22
180-136066-26	TRW 20% PC, 2% AC T08	Water	06/29/22 07:30	04/01/22 11:22
180-136066-27	TRW 20% PC, 2% AC T09	Water	07/13/22 07:30	04/01/22 11:22
180-136066-32	TRW 20% PC, 4% AC T05	Water	05/25/22 07:30	04/01/22 11:22
180-136066-35	TRW 20% PC, 4% AC T08	Water	06/29/22 07:30	04/01/22 11:22
180-136066-36	TRW 20% PC, 4% AC T09	Water	07/13/22 07:30	04/01/22 11:22
180-136066-41	TRW 20% PC, 2% AC, 2% SP T05	Water	05/25/22 07:30	04/01/22 11:22
180-136066-44	TRW 20% PC, 2% AC, 2% SP T08	Water	06/29/22 07:30	04/01/22 11:22
180-136066-45	TRW 20% PC, 2% AC, 2% SP T09	Water	07/13/22 07:30	04/01/22 11:22
180-136066-50	MB T05	Water	05/25/22 07:30	04/01/22 11:22
180-136066-53	MB T08	Water	06/29/22 07:30	04/01/22 11:22
180-136066-54	MB T09	Water	07/13/22 07:30	04/01/22 11:22

Method Summary

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-2
Project/Site: Former TRW Union Springs Property - Unio

Method	Method Description	Protocol	Laboratory
8270D SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL CHI
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL CHI
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TAL SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW CONTROL T05
Lab Sample ID: 180-136066-5
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	659343	06/01/22 08:39	TS	TAL CHI
Total/NA	Analysis	8270D SIM		1			660745	06/10/22 15:10	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3510C			250 mL	1.0 mL	659343	06/01/22 08:39	TS	TAL CHI
Total/NA	Analysis	8270D SIM		2			660745	06/10/22 17:50	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3535			281.4 mL	10.00 mL	593360	06/07/22 07:31	HJA	TAL SAC
Total/NA	Analysis	537 (modified)		1			594170	06/10/22 02:48	D1R	TAL SAC
	Instrument ID: A18									

Client Sample ID: TRW CONTROL T08
Lab Sample ID: 180-136066-8
Date Collected: 06/29/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C	DL		250 mL	1.0 mL	664073	07/05/22 08:18	ALW	TAL CHI
Total/NA	Analysis	8270D SIM	DL	10			664961	07/11/22 16:13	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3510C			250 mL	1.0 mL	664073	07/05/22 08:18	ALW	TAL CHI
Total/NA	Analysis	8270D SIM		1			664961	07/11/22 18:39	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3535			262.2 mL	10.0 mL	602450	07/12/22 13:33	MRP	TAL SAC
Total/NA	Analysis	537 (modified)		1			605068	07/25/22 08:41	JRB	TAL SAC
	Instrument ID: A17									

Client Sample ID: TRW CONTROL T09
Lab Sample ID: 180-136066-9
Date Collected: 07/13/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	666120	07/19/22 13:12	FRG	TAL CHI
Total/NA	Analysis	8270D SIM		1			666202	07/20/22 11:09	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3510C	DL		250 mL	1.0 mL	666120	07/19/22 13:12	FRG	TAL CHI
Total/NA	Analysis	8270D SIM	DL	2			666202	07/20/22 15:59	JSB	TAL CHI
	Instrument ID: CMS21									

Client Sample ID: TRW 20% PC T05
Lab Sample ID: 180-136066-14
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	659343	06/01/22 08:39	TS	TAL CHI
Total/NA	Analysis	8270D SIM		1			660745	06/10/22 15:34	JSB	TAL CHI
	Instrument ID: CMS21									

Lab Chronicle

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC T05
Lab Sample ID: 180-136066-14
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	659343	06/01/22 08:39	TS	TAL CHI
Total/NA	Analysis	8270D SIM		10			660745	06/10/22 18:14	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3535			276.4 mL	10.00 mL	593360	06/07/22 07:31	HJA	TAL SAC
Total/NA	Analysis	537 (modified)		1			594170	06/10/22 02:58	D1R	TAL SAC
	Instrument ID: A18									

Client Sample ID: TRW 20% PC T08
Lab Sample ID: 180-136066-17
Date Collected: 06/29/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	664073	07/05/22 08:18	ALW	TAL CHI
Total/NA	Analysis	8270D SIM		1			665088	07/12/22 10:35	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3510C	DL		250 mL	1.0 mL	664073	07/05/22 08:18	ALW	TAL CHI
Total/NA	Analysis	8270D SIM	DL	5			665088	07/12/22 12:11	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3535			253.7 mL	10.0 mL	600388	07/02/22 05:45	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			600455	07/03/22 22:36	RS1	TAL SAC
	Instrument ID: A15									

Client Sample ID: TRW 20% PC T09
Lab Sample ID: 180-136066-18
Date Collected: 07/13/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	666120	07/19/22 13:12	FRG	TAL CHI
Total/NA	Analysis	8270D SIM		1			666202	07/20/22 11:33	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3510C	DL		250 mL	1.0 mL	666120	07/19/22 13:12	FRG	TAL CHI
Total/NA	Analysis	8270D SIM	DL	5			666202	07/20/22 13:35	JSB	TAL CHI
	Instrument ID: CMS21									

Client Sample ID: TRW 20% PC, 2% AC T05
Lab Sample ID: 180-136066-23
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	659343	06/01/22 08:39	TS	TAL CHI
Total/NA	Analysis	8270D SIM		1			660745	06/10/22 16:05	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3535			267.2 mL	10.00 mL	593360	06/07/22 07:31	HJA	TAL SAC
Total/NA	Analysis	537 (modified)		1			594170	06/10/22 03:08	D1R	TAL SAC
	Instrument ID: A18									

Lab Chronicle

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC T08
Lab Sample ID: 180-136066-26
Date Collected: 06/29/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	664073	07/05/22 08:18	ALW	TAL CHI
Total/NA	Analysis	8270D SIM		1			665088	07/12/22 10:59	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3535			269.8 mL	10.0 mL	600388	07/02/22 05:45	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			600455	07/03/22 22:46	RS1	TAL SAC
	Instrument ID: A15									

Client Sample ID: TRW 20% PC, 2% AC T09
Lab Sample ID: 180-136066-27
Date Collected: 07/13/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	666120	07/19/22 13:12	FRG	TAL CHI
Total/NA	Analysis	8270D SIM		1			666202	07/20/22 11:58	JSB	TAL CHI
	Instrument ID: CMS21									

Client Sample ID: TRW 20% PC, 4% AC T05
Lab Sample ID: 180-136066-32
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	659343	06/01/22 08:39	TS	TAL CHI
Total/NA	Analysis	8270D SIM		1			660745	06/10/22 16:37	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3535			272.5 mL	10.00 mL	593360	06/07/22 07:31	HJA	TAL SAC
Total/NA	Analysis	537 (modified)		1			594170	06/10/22 03:19	D1R	TAL SAC
	Instrument ID: A18									

Client Sample ID: TRW 20% PC, 4% AC T08
Lab Sample ID: 180-136066-35
Date Collected: 06/29/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	664073	07/05/22 08:18	ALW	TAL CHI
Total/NA	Analysis	8270D SIM		1			665088	07/12/22 11:23	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3535			275.2 mL	10.0 mL	600388	07/02/22 05:45	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			600455	07/03/22 22:56	RS1	TAL SAC
	Instrument ID: A15									

Client Sample ID: TRW 20% PC, 4% AC T09
Lab Sample ID: 180-136066-36
Date Collected: 07/13/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	666120	07/19/22 13:12	FRG	TAL CHI
Total/NA	Analysis	8270D SIM		1			666202	07/20/22 12:22	JSB	TAL CHI
	Instrument ID: CMS21									

Client Sample ID: TRW 20% PC, 2% AC, 2% SP T05
Lab Sample ID: 180-136066-41
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	659343	06/01/22 08:39	TS	TAL CHI
Total/NA	Analysis	8270D SIM		1			660745	06/10/22 17:01	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3535			278.5 mL	10.00 mL	593360	06/07/22 07:31	HJA	TAL SAC
Total/NA	Analysis	537 (modified)		1			594170	06/10/22 03:29	D1R	TAL SAC
	Instrument ID: A18									

Client Sample ID: TRW 20% PC, 2% AC, 2% SP T08
Lab Sample ID: 180-136066-44
Date Collected: 06/29/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	664073	07/05/22 08:18	ALW	TAL CHI
Total/NA	Analysis	8270D SIM		1			665088	07/12/22 11:47	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3535			268 mL	10.0 mL	600388	07/02/22 05:45	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			600455	07/03/22 23:06	RS1	TAL SAC
	Instrument ID: A15									

Client Sample ID: TRW 20% PC, 2% AC, 2% SP T09
Lab Sample ID: 180-136066-45
Date Collected: 07/13/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	666120	07/19/22 13:12	FRG	TAL CHI
Total/NA	Analysis	8270D SIM		1			666202	07/20/22 12:46	JSB	TAL CHI
	Instrument ID: CMS21									

Client Sample ID: MB T05
Lab Sample ID: 180-136066-50
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	659343	06/01/22 08:39	TS	TAL CHI
Total/NA	Analysis	8270D SIM		1			660745	06/10/22 17:25	JSB	TAL CHI
	Instrument ID: CMS21									

Lab Chronicle

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: MB T05
Date Collected: 05/25/22 07:30
Date Received: 04/01/22 11:22

Lab Sample ID: 180-136066-50
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			273.5 mL	10.00 mL	593360	06/07/22 07:31	HJA	TAL SAC
Total/NA	Analysis	537 (modified)		1			594170	06/10/22 03:39	D1R	TAL SAC
	Instrument ID: A18									

Client Sample ID: MB T08
Date Collected: 06/29/22 07:30
Date Received: 04/01/22 11:22

Lab Sample ID: 180-136066-53
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	664073	07/05/22 08:18	ALW	TAL CHI
Total/NA	Analysis	8270D SIM		1			664961	07/11/22 18:14	JSB	TAL CHI
	Instrument ID: CMS21									
Total/NA	Prep	3535			274.6 mL	10.0 mL	600388	07/02/22 05:45	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			600455	07/03/22 23:16	RS1	TAL SAC
	Instrument ID: A15									

Client Sample ID: MB T09
Date Collected: 07/13/22 07:30
Date Received: 04/01/22 11:22

Lab Sample ID: 180-136066-54
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	666120	07/19/22 13:12	FRG	TAL CHI
Total/NA	Analysis	8270D SIM		1			666202	07/20/22 13:10	JSB	TAL CHI
	Instrument ID: CMS21									

Laboratory References:

TAL CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TAL SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Analyst References:

Lab: TAL CHI

Batch Type: Prep

ALW = Asia Walker

FRG = Frances Gachalian

TS = Timothy Shelton

Batch Type: Analysis

JSB = Joshua Burdelik

Lab: TAL SAC

Batch Type: Prep

HJA = Horacio Arauz

HK = Harmandeep Kaur

MRP = Michael Perez

Batch Type: Analysis

D1R = Dhatpakorn Ruangyotsakul

JRB = John Barnett

RS1 = Rungtip Sanjumnai

Client Sample ID: TRW CONTROL T05
Lab Sample ID: 180-136066-5

Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 15:10	1
Dichloronaphthalene, Total	**15**		4.0	1.0	ug/L		06/01/22 08:39	06/10/22 17:50	2
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 15:10	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 15:10	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 15:10	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 15:10	1
Tetrachloronaphthalene, Total	**2.6**	*+	2.0	0.50	ug/L		06/01/22 08:39	06/10/22 15:10	1
Trichloronaphthalene, Total	**4.8**		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 15:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*93*		*30 - 123*	*06/01/22 08:39*	*06/10/22 15:10*	*1*
2-Fluorobiphenyl (Surr)	*87*		*30 - 123*	*06/01/22 08:39*	*06/10/22 17:50*	*2*
Nitrobenzene-d5 (Surr)	*87*		*33 - 139*	*06/01/22 08:39*	*06/10/22 15:10*	*1*
Nitrobenzene-d5 (Surr)	*86*		*33 - 139*	*06/01/22 08:39*	*06/10/22 17:50*	*2*
Terphenyl-d14 (Surr)	*140*		*42 - 150*	*06/01/22 08:39*	*06/10/22 15:10*	*1*
Terphenyl-d14 (Surr)	*150*		*42 - 150*	*06/01/22 08:39*	*06/10/22 17:50*	*2*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.4	2.1	ng/L		06/07/22 07:31	06/10/22 02:48	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	0.44	ng/L		06/07/22 07:31	06/10/22 02:48	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.52	ng/L		06/07/22 07:31	06/10/22 02:48	1
Perfluoroheptanoic acid (PFHpA)	**0.28**	**J**	1.8	0.22	ng/L		06/07/22 07:31	06/10/22 02:48	1
Perfluorooctanoic acid (PFOA)	**1.8**		1.8	0.76	ng/L		06/07/22 07:31	06/10/22 02:48	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		06/07/22 07:31	06/10/22 02:48	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		06/07/22 07:31	06/10/22 02:48	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		06/07/22 07:31	06/10/22 02:48	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		06/07/22 07:31	06/10/22 02:48	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		06/07/22 07:31	06/10/22 02:48	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		06/07/22 07:31	06/10/22 02:48	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		06/07/22 07:31	06/10/22 02:48	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		06/07/22 07:31	06/10/22 02:48	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		06/07/22 07:31	06/10/22 02:48	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		06/07/22 07:31	06/10/22 02:48	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.28	ng/L		06/07/22 07:31	06/10/22 02:48	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.87	ng/L		06/07/22 07:31	06/10/22 02:48	1
NMeFOSAA	ND		4.4	1.1	ng/L		06/07/22 07:31	06/10/22 02:48	1
NEtFOSAA	ND		4.4	1.2	ng/L		06/07/22 07:31	06/10/22 02:48	1
6:2 FTS	ND		4.4	2.2	ng/L		06/07/22 07:31	06/10/22 02:48	1
8:2 FTS	ND		1.8	0.41	ng/L		06/07/22 07:31	06/10/22 02:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*101*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*
13C5 PFPeA	*127*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*
13C2 PFHxA	*124*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*
13C4 PFHpA	*115*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*
13C4 PFOA	*105*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*
13C5 PFNA	*103*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*
13C2 PFDA	*102*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*
13C2 PFUnA	*95*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*

Client Sample ID: TRW CONTROL T05
Lab Sample ID: 180-136066-5
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDoA	*96*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*
13C2 PFTeDA	*88*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*
13C3 PFBS	*109*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*
18O2 PFHxS	*106*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*
13C4 PFOS	*98*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*
13C8 FOSA	*101*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*
d3-NMeFOSAA	*88*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*
d5-NEtFOSAA	*93*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*
M2-6:2 FTS	*96*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*
M2-8:2 FTS	*96*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:48*	*1*

Client Sample ID: TRW CONTROL T08
Lab Sample ID: 180-136066-8
Date Collected: 06/29/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 18:39	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 18:39	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 18:39	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 18:39	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 18:39	1
Tetrachloronaphthalene, Total	**2.6**		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 18:39	1
Trichloronaphthalene, Total	**4.8**		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 18:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*82*		*30 - 123*	*07/05/22 08:18*	*07/11/22 18:39*	*1*
Nitrobenzene-d5 (Surr)	*77*		*33 - 139*	*07/05/22 08:18*	*07/11/22 18:39*	*1*
Terphenyl-d14 (Surr)	*118*		*42 - 150*	*07/05/22 08:18*	*07/11/22 18:39*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloronaphthalene, Total	**21**		20	5.0	ug/L		07/05/22 08:18	07/11/22 16:13	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*79*		*30 - 123*	*07/05/22 08:18*	*07/11/22 16:13*	*10*
Nitrobenzene-d5 (Surr)	*42*		*33 - 139*	*07/05/22 08:18*	*07/11/22 16:13*	*10*
Terphenyl-d14 (Surr)	*107*		*42 - 150*	*07/05/22 08:18*	*07/11/22 16:13*	*10*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.8	2.3	ng/L		07/12/22 13:33	07/25/22 08:41	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.47	ng/L		07/12/22 13:33	07/25/22 08:41	1
Perfluorohexanoic acid (PFHxA)	**4.4**	***+ *1**	1.9	0.55	ng/L		07/12/22 13:33	07/25/22 08:41	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		07/12/22 13:33	07/25/22 08:41	1
Perfluorooctanoic acid (PFOA)	**3.2**		1.9	0.81	ng/L		07/12/22 13:33	07/25/22 08:41	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		07/12/22 13:33	07/25/22 08:41	1
Perfluorodecanoic acid (PFDA)	**0.92**	**J**	1.9	0.30	ng/L		07/12/22 13:33	07/25/22 08:41	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		07/12/22 13:33	07/25/22 08:41	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		07/12/22 13:33	07/25/22 08:41	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		07/12/22 13:33	07/25/22 08:41	1

Client Sample ID: TRW CONTROL T08
Lab Sample ID: 180-136066-8

Date Collected: 06/29/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		07/12/22 13:33	07/25/22 08:41	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		07/12/22 13:33	07/25/22 08:41	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.54	ng/L		07/12/22 13:33	07/25/22 08:41	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		07/12/22 13:33	07/25/22 08:41	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		07/12/22 13:33	07/25/22 08:41	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		07/12/22 13:33	07/25/22 08:41	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.93	ng/L		07/12/22 13:33	07/25/22 08:41	1
NMeFOSAA	ND		4.8	1.1	ng/L		07/12/22 13:33	07/25/22 08:41	1
NEtFOSAA	ND		4.8	1.2	ng/L		07/12/22 13:33	07/25/22 08:41	1
6:2 FTS	**16**	***+ *1**	4.8	2.4	ng/L		07/12/22 13:33	07/25/22 08:41	1
8:2 FTS	ND		1.9	0.44	ng/L		07/12/22 13:33	07/25/22 08:41	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*64*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
13C5 PFPeA	*67*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
13C2 PFHxA	*69*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
13C4 PFHpA	*68*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
13C4 PFOA	*67*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
13C5 PFNA	*65*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
13C2 PFDA	*64*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
13C2 PFUnA	*67*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
13C2 PFDoA	*61*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
13C2 PFTeDA	*60*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
13C3 PFBS	*63*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
18O2 PFHxS	*67*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
13C4 PFOS	*57*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
13C8 FOSA	*70*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
d3-NMeFOSAA	*71*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
d5-NEtFOSAA	*74*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
M2-6:2 FTS	*56*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*
M2-8:2 FTS	*57*		*25 - 150*	*07/12/22 13:33*	*07/25/22 08:41*	*1*

Client Sample ID: TRW CONTROL T09
Lab Sample ID: 180-136066-9

Date Collected: 07/13/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:09	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:09	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:09	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:09	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:09	1
Tetrachloronaphthalene, Total	**3.2**		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:09	1
Trichloronaphthalene, Total	**5.0**		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*99*		*30 - 123*	*07/19/22 13:12*	*07/20/22 11:09*	*1*
Nitrobenzene-d5 (Surr)	*86*		*33 - 139*	*07/19/22 13:12*	*07/20/22 11:09*	*1*
Terphenyl-d14 (Surr)	*131*		*42 - 150*	*07/19/22 13:12*	*07/20/22 11:09*	*1*

Client Sample ID: TRW CONTROL T09
Lab Sample ID: 180-136066-9
Date Collected: 07/13/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloronaphthalene, Total	**19**		4.0	1.0	ug/L		07/19/22 13:12	07/20/22 15:59	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*96*		*30 - 123*	*07/19/22 13:12*	*07/20/22 15:59*	*2*
Nitrobenzene-d5 (Surr)	*83*		*33 - 139*	*07/19/22 13:12*	*07/20/22 15:59*	*2*
Terphenyl-d14 (Surr)	*134*		*42 - 150*	*07/19/22 13:12*	*07/20/22 15:59*	*2*

Client Sample ID: TRW 20% PC T05
Lab Sample ID: 180-136066-14
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**44**		20	5.0	ug/L		06/01/22 08:39	06/10/22 18:14	10
Dichloronaphthalene, Total	**45**		20	5.0	ug/L		06/01/22 08:39	06/10/22 18:14	10
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 15:34	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 15:34	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 15:34	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 15:34	1
Tetrachloronaphthalene, Total	**5.2**	***+**	2.0	0.50	ug/L		06/01/22 08:39	06/10/22 15:34	1
Trichloronaphthalene, Total	**11**		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 15:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*87*		*30 - 123*	*06/01/22 08:39*	*06/10/22 15:34*	*1*
2-Fluorobiphenyl (Surr)	*91*		*30 - 123*	*06/01/22 08:39*	*06/10/22 18:14*	*10*
Nitrobenzene-d5 (Surr)	*80*		*33 - 139*	*06/01/22 08:39*	*06/10/22 15:34*	*1*
Nitrobenzene-d5 (Surr)	*72*		*33 - 139*	*06/01/22 08:39*	*06/10/22 18:14*	*10*
Terphenyl-d14 (Surr)	*122*		*42 - 150*	*06/01/22 08:39*	*06/10/22 15:34*	*1*
Terphenyl-d14 (Surr)	*146*		*42 - 150*	*06/01/22 08:39*	*06/10/22 18:14*	*10*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.5	2.2	ng/L		06/07/22 07:31	06/10/22 02:58	1
Perfluoropentanoic acid (PFPeA)	**0.98**	**J**	1.8	0.44	ng/L		06/07/22 07:31	06/10/22 02:58	1
Perfluorohexanoic acid (PFHxA)	**1.0**	**J**	1.8	0.52	ng/L		06/07/22 07:31	06/10/22 02:58	1
Perfluoroheptanoic acid (PFHpA)	**0.50**	**J**	1.8	0.23	ng/L		06/07/22 07:31	06/10/22 02:58	1
Perfluorooctanoic acid (PFOA)	**3.5**		1.8	0.77	ng/L		06/07/22 07:31	06/10/22 02:58	1
Perfluorononanoic acid (PFNA)	**0.64**	**J**	1.8	0.24	ng/L		06/07/22 07:31	06/10/22 02:58	1
Perfluorodecanoic acid (PFDA)	**0.45**	**J**	1.8	0.28	ng/L		06/07/22 07:31	06/10/22 02:58	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		06/07/22 07:31	06/10/22 02:58	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		06/07/22 07:31	06/10/22 02:58	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		06/07/22 07:31	06/10/22 02:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		06/07/22 07:31	06/10/22 02:58	1
Perfluorobutanesulfonic acid (PFBS)	**0.29**	**J I**	1.8	0.18	ng/L		06/07/22 07:31	06/10/22 02:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		06/07/22 07:31	06/10/22 02:58	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		06/07/22 07:31	06/10/22 02:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		06/07/22 07:31	06/10/22 02:58	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		06/07/22 07:31	06/10/22 02:58	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.89	ng/L		06/07/22 07:31	06/10/22 02:58	1

Client Sample ID: TRW 20% PC T05
Lab Sample ID: 180-136066-14
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSAA	ND		4.5	1.1	ng/L		06/07/22 07:31	06/10/22 02:58	1
NEtFOSAA	ND		4.5	1.2	ng/L		06/07/22 07:31	06/10/22 02:58	1
6:2 FTS	ND		4.5	2.3	ng/L		06/07/22 07:31	06/10/22 02:58	1
8:2 FTS	ND		1.8	0.42	ng/L		06/07/22 07:31	06/10/22 02:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*34*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
13C5 PFPeA	*92*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
13C2 PFHxA	*145*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
13C4 PFHpA	*104*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
13C4 PFOA	*104*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
13C5 PFNA	*106*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
13C2 PFDA	*108*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
13C2 PFUnA	*95*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
13C2 PFDoA	*90*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
13C2 PFTeDA	*90*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
13C3 PFBS	*106*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
18O2 PFHxS	*112*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
13C4 PFOS	*99*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
13C8 FOSA	*100*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
d3-NMeFOSAA	*85*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
d5-NEtFOSAA	*86*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
M2-6:2 FTS	*120*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*
M2-8:2 FTS	*103*		*25 - 150*	*06/07/22 07:31*	*06/10/22 02:58*	*1*

Client Sample ID: TRW 20% PC T08
Lab Sample ID: 180-136066-17
Date Collected: 06/29/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 10:35	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 10:35	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 10:35	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 10:35	1
Tetrachloronaphthalene, Total	**5.4**		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 10:35	1
Trichloronaphthalene, Total	**9.1**		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 10:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*70*		*30 - 123*	*07/05/22 08:18*	*07/12/22 10:35*	*1*
Nitrobenzene-d5 (Surr)	*65*		*33 - 139*	*07/05/22 08:18*	*07/12/22 10:35*	*1*
Terphenyl-d14 (Surr)	*93*		*42 - 150*	*07/05/22 08:18*	*07/12/22 10:35*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**41**		10	2.5	ug/L		07/05/22 08:18	07/12/22 12:11	5
Dichloronaphthalene, Total	**45**		10	2.5	ug/L		07/05/22 08:18	07/12/22 12:11	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*68*		*30 - 123*	*07/05/22 08:18*	*07/12/22 12:11*	*5*
Nitrobenzene-d5 (Surr)	*55*		*33 - 139*	*07/05/22 08:18*	*07/12/22 12:11*	*5*

Client Sample ID: TRW 20% PC T08
Lab Sample ID: 180-136066-17

Date Collected: 06/29/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	*94*		*42 - 150*	*07/05/22 08:18*	*07/12/22 12:11*	*5*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.9	2.4	ng/L		07/02/22 05:45	07/03/22 22:36	1
Perfluoropentanoic acid (PFPeA)	**0.89**	**J**	2.0	0.48	ng/L		07/02/22 05:45	07/03/22 22:36	1
Perfluorohexanoic acid (PFHxA)	**1.4**	**J**	2.0	0.57	ng/L		07/02/22 05:45	07/03/22 22:36	1
Perfluoroheptanoic acid (PFHpA)	**0.63**	**J**	2.0	0.25	ng/L		07/02/22 05:45	07/03/22 22:36	1
Perfluorooctanoic acid (PFOA)	**3.2**		2.0	0.84	ng/L		07/02/22 05:45	07/03/22 22:36	1
Perfluorononanoic acid (PFNA)	**0.55**	**J**	2.0	0.27	ng/L		07/02/22 05:45	07/03/22 22:36	1
Perfluorodecanoic acid (PFDA)	**0.66**	**J**	2.0	0.31	ng/L		07/02/22 05:45	07/03/22 22:36	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		07/02/22 05:45	07/03/22 22:36	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.54	ng/L		07/02/22 05:45	07/03/22 22:36	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		07/02/22 05:45	07/03/22 22:36	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.72	ng/L		07/02/22 05:45	07/03/22 22:36	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		07/02/22 05:45	07/03/22 22:36	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.56	ng/L		07/02/22 05:45	07/03/22 22:36	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		07/02/22 05:45	07/03/22 22:36	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.53	ng/L		07/02/22 05:45	07/03/22 22:36	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		07/02/22 05:45	07/03/22 22:36	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.97	ng/L		07/02/22 05:45	07/03/22 22:36	1
NMeFOSAA	ND		4.9	1.2	ng/L		07/02/22 05:45	07/03/22 22:36	1
NEtFOSAA	ND		4.9	1.3	ng/L		07/02/22 05:45	07/03/22 22:36	1
6:2 FTS	ND		4.9	2.5	ng/L		07/02/22 05:45	07/03/22 22:36	1
8:2 FTS	ND		2.0	0.45	ng/L		07/02/22 05:45	07/03/22 22:36	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	*48*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
13C5 PFPeA	*95*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
13C2 PFHxA	*102*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
13C4 PFHpA	*101*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
13C4 PFOA	*101*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
13C5 PFNA	*105*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
13C2 PFDA	*100*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
13C2 PFUnA	*104*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
13C2 PFDoA	*95*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
13C2 PFTeDA	*94*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
13C3 PFBS	*100*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
18O2 PFHxS	*103*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
13C4 PFOS	*90*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
13C8 FOSA	*89*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
d3-NMeFOSAA	*86*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
d5-NEtFOSAA	*82*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
M2-6:2 FTS	*101*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*
M2-8:2 FTS	*102*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:36*	*1*

Client Sample ID: TRW 20% PC T09
Lab Sample ID: 180-136066-18
Date Collected: 07/13/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:33	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:33	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:33	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:33	1
Tetrachloronaphthalene, Total	**6.3**		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:33	1
Trichloronaphthalene, Total	**12**		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*101*		*30 - 123*	*07/19/22 13:12*	*07/20/22 11:33*	*1*
Nitrobenzene-d5 (Surr)	*83*		*33 - 139*	*07/19/22 13:12*	*07/20/22 11:33*	*1*
Terphenyl-d14 (Surr)	*121*		*42 - 150*	*07/19/22 13:12*	*07/20/22 11:33*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**50**		10	2.5	ug/L		07/19/22 13:12	07/20/22 13:35	5
Dichloronaphthalene, Total	**54**		10	2.5	ug/L		07/19/22 13:12	07/20/22 13:35	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*95*		*30 - 123*	*07/19/22 13:12*	*07/20/22 13:35*	*5*
Nitrobenzene-d5 (Surr)	*70*		*33 - 139*	*07/19/22 13:12*	*07/20/22 13:35*	*5*
Terphenyl-d14 (Surr)	*123*		*42 - 150*	*07/19/22 13:12*	*07/20/22 13:35*	*5*

Client Sample ID: TRW 20% PC, 2% AC T05
Lab Sample ID: 180-136066-23
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**4.0**		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 16:05	1
Dichloronaphthalene, Total	**6.5**		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 16:05	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 16:05	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 16:05	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 16:05	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 16:05	1
Tetrachloronaphthalene, Total	**1.4**	**J *+**	2.0	0.50	ug/L		06/01/22 08:39	06/10/22 16:05	1
Trichloronaphthalene, Total	**2.5**		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 16:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*96*		*30 - 123*	*06/01/22 08:39*	*06/10/22 16:05*	*1*
Nitrobenzene-d5 (Surr)	*83*		*33 - 139*	*06/01/22 08:39*	*06/10/22 16:05*	*1*
Terphenyl-d14 (Surr)	*137*		*42 - 150*	*06/01/22 08:39*	*06/10/22 16:05*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.7	2.2	ng/L		06/07/22 07:31	06/10/22 03:08	1
Perfluoropentanoic acid (PFPeA)	**0.89**	**J**	1.9	0.46	ng/L		06/07/22 07:31	06/10/22 03:08	1
Perfluorohexanoic acid (PFHxA)	**1.1**	**J**	1.9	0.54	ng/L		06/07/22 07:31	06/10/22 03:08	1
Perfluoroheptanoic acid (PFHpA)	**0.49**	**J**	1.9	0.23	ng/L		06/07/22 07:31	06/10/22 03:08	1
Perfluorooctanoic acid (PFOA)	**3.4**		1.9	0.80	ng/L		06/07/22 07:31	06/10/22 03:08	1
Perfluorononanoic acid (PFNA)	**0.34**	**J**	1.9	0.25	ng/L		06/07/22 07:31	06/10/22 03:08	1
Perfluorodecanoic acid (PFDA)	**0.62**	**J**	1.9	0.29	ng/L		06/07/22 07:31	06/10/22 03:08	1

Client Sample ID: TRW 20% PC, 2% AC T05
Lab Sample ID: 180-136066-23
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		06/07/22 07:31	06/10/22 03:08	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		06/07/22 07:31	06/10/22 03:08	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		06/07/22 07:31	06/10/22 03:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		06/07/22 07:31	06/10/22 03:08	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		06/07/22 07:31	06/10/22 03:08	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		06/07/22 07:31	06/10/22 03:08	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		06/07/22 07:31	06/10/22 03:08	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		06/07/22 07:31	06/10/22 03:08	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		06/07/22 07:31	06/10/22 03:08	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.92	ng/L		06/07/22 07:31	06/10/22 03:08	1
NMeFOSAA	ND		4.7	1.1	ng/L		06/07/22 07:31	06/10/22 03:08	1
NEtFOSAA	ND		4.7	1.2	ng/L		06/07/22 07:31	06/10/22 03:08	1
6:2 FTS	ND		4.7	2.3	ng/L		06/07/22 07:31	06/10/22 03:08	1
8:2 FTS	ND		1.9	0.43	ng/L		06/07/22 07:31	06/10/22 03:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*39*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
13C5 PFPeA	*93*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
13C2 PFHxA	*151*	*5+	*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
13C4 PFHpA	*109*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
13C4 PFOA	*103*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
13C5 PFNA	*103*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
13C2 PFDA	*105*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
13C2 PFUnA	*95*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
13C2 PFDoA	*101*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
13C2 PFTeDA	*93*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
13C3 PFBS	*113*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
18O2 PFHxS	*117*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
13C4 PFOS	*102*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
13C8 FOSA	*103*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
d3-NMeFOSAA	*85*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
d5-NEtFOSAA	*89*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
M2-6:2 FTS	*121*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*
M2-8:2 FTS	*92*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:08*	*1*

Client Sample ID: TRW 20% PC, 2% AC T08
Lab Sample ID: 180-136066-26
Date Collected: 06/29/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**3.8**		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 10:59	1
Dichloronaphthalene, Total	**6.0**		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 10:59	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 10:59	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 10:59	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 10:59	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 10:59	1
Tetrachloronaphthalene, Total	**1.3**	**J**	2.0	0.50	ug/L		07/05/22 08:18	07/12/22 10:59	1
Trichloronaphthalene, Total	**1.9**	**J**	2.0	0.50	ug/L		07/05/22 08:18	07/12/22 10:59	1

Client Sample ID: TRW 20% PC, 2% AC T08
Date Collected: 06/29/22 07:30
Date Received: 04/01/22 11:22

Lab Sample ID: 180-136066-26
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	73		30 - 123	07/05/22 08:18	07/12/22 10:59	1
Nitrobenzene-d5 (Surr)	69		33 - 139	07/05/22 08:18	07/12/22 10:59	1
Terphenyl-d14 (Surr)	102		42 - 150	07/05/22 08:18	07/12/22 10:59	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		07/02/22 05:45	07/03/22 22:46	1
Perfluoropentanoic acid (PFPeA)	**1.2**	**J**	1.9	0.45	ng/L		07/02/22 05:45	07/03/22 22:46	1
Perfluorohexanoic acid (PFHxA)	**1.3**	**J**	1.9	0.54	ng/L		07/02/22 05:45	07/03/22 22:46	1
Perfluoroheptanoic acid (PFHpA)	**0.49**	**J**	1.9	0.23	ng/L		07/02/22 05:45	07/03/22 22:46	1
Perfluorooctanoic acid (PFOA)	**2.9**		1.9	0.79	ng/L		07/02/22 05:45	07/03/22 22:46	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		07/02/22 05:45	07/03/22 22:46	1
Perfluorodecanoic acid (PFDA)	**0.70**	**J**	1.9	0.29	ng/L		07/02/22 05:45	07/03/22 22:46	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		07/02/22 05:45	07/03/22 22:46	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		07/02/22 05:45	07/03/22 22:46	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		07/02/22 05:45	07/03/22 22:46	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		07/02/22 05:45	07/03/22 22:46	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		07/02/22 05:45	07/03/22 22:46	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		07/02/22 05:45	07/03/22 22:46	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		07/02/22 05:45	07/03/22 22:46	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.50	ng/L		07/02/22 05:45	07/03/22 22:46	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		07/02/22 05:45	07/03/22 22:46	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.91	ng/L		07/02/22 05:45	07/03/22 22:46	1
NMeFOSAA	ND		4.6	1.1	ng/L		07/02/22 05:45	07/03/22 22:46	1
NEtFOSAA	ND		4.6	1.2	ng/L		07/02/22 05:45	07/03/22 22:46	1
6:2 FTS	ND		4.6	2.3	ng/L		07/02/22 05:45	07/03/22 22:46	1
8:2 FTS	ND		1.9	0.43	ng/L		07/02/22 05:45	07/03/22 22:46	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	41		25 - 150	07/02/22 05:45	07/03/22 22:46	1
13C5 PFPeA	99		25 - 150	07/02/22 05:45	07/03/22 22:46	1
13C2 PFHxA	107		25 - 150	07/02/22 05:45	07/03/22 22:46	1
13C4 PFHpA	104		25 - 150	07/02/22 05:45	07/03/22 22:46	1
13C4 PFOA	105		25 - 150	07/02/22 05:45	07/03/22 22:46	1
13C5 PFNA	111		25 - 150	07/02/22 05:45	07/03/22 22:46	1
13C2 PFDA	101		25 - 150	07/02/22 05:45	07/03/22 22:46	1
13C2 PFUnA	108		25 - 150	07/02/22 05:45	07/03/22 22:46	1
13C2 PFDoA	101		25 - 150	07/02/22 05:45	07/03/22 22:46	1
13C2 PFTeDA	99		25 - 150	07/02/22 05:45	07/03/22 22:46	1
13C3 PFBS	106		25 - 150	07/02/22 05:45	07/03/22 22:46	1
18O2 PFHxS	103		25 - 150	07/02/22 05:45	07/03/22 22:46	1
13C4 PFOS	99		25 - 150	07/02/22 05:45	07/03/22 22:46	1
13C8 FOSA	103		25 - 150	07/02/22 05:45	07/03/22 22:46	1
d3-NMeFOSAA	93		25 - 150	07/02/22 05:45	07/03/22 22:46	1
d5-NEtFOSAA	87		25 - 150	07/02/22 05:45	07/03/22 22:46	1
M2-6:2 FTS	97		25 - 150	07/02/22 05:45	07/03/22 22:46	1
M2-8:2 FTS	103		25 - 150	07/02/22 05:45	07/03/22 22:46	1

Client Sample ID: TRW 20% PC, 2% AC T09
Lab Sample ID: 180-136066-27
Date Collected: 07/13/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**4.9**		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:58	1
Dichloronaphthalene, Total	**8.2**		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:58	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:58	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:58	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:58	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:58	1
Tetrachloronaphthalene, Total	**1.7**	**J**	2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:58	1
Trichloronaphthalene, Total	**2.5**		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 11:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*106*		*30 - 123*	*07/19/22 13:12*	*07/20/22 11:58*	*1*
Nitrobenzene-d5 (Surr)	*88*		*33 - 139*	*07/19/22 13:12*	*07/20/22 11:58*	*1*
Terphenyl-d14 (Surr)	*128*		*42 - 150*	*07/19/22 13:12*	*07/20/22 11:58*	*1*

Client Sample ID: TRW 20% PC, 4% AC T05
Lab Sample ID: 180-136066-32
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 16:37	1
Dichloronaphthalene, Total	**0.87**	**J**	2.0	0.50	ug/L		06/01/22 08:39	06/10/22 16:37	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 16:37	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 16:37	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 16:37	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 16:37	1
Tetrachloronaphthalene, Total	ND	*+	2.0	0.50	ug/L		06/01/22 08:39	06/10/22 16:37	1
Trichloronaphthalene, Total	**0.65**	**J**	2.0	0.50	ug/L		06/01/22 08:39	06/10/22 16:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*94*		*30 - 123*	*06/01/22 08:39*	*06/10/22 16:37*	*1*
Nitrobenzene-d5 (Surr)	*83*		*33 - 139*	*06/01/22 08:39*	*06/10/22 16:37*	*1*
Terphenyl-d14 (Surr)	*138*		*42 - 150*	*06/01/22 08:39*	*06/10/22 16:37*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		06/07/22 07:31	06/10/22 03:19	1
Perfluoropentanoic acid (PFPeA)	**0.72**	**J**	1.8	0.45	ng/L		06/07/22 07:31	06/10/22 03:19	1
Perfluorohexanoic acid (PFHxA)	**1.3**	**J**	1.8	0.53	ng/L		06/07/22 07:31	06/10/22 03:19	1
Perfluoroheptanoic acid (PFHpA)	**0.54**	**J**	1.8	0.23	ng/L		06/07/22 07:31	06/10/22 03:19	1
Perfluorooctanoic acid (PFOA)	**3.1**		1.8	0.78	ng/L		06/07/22 07:31	06/10/22 03:19	1
Perfluorononanoic acid (PFNA)	**0.63**	**J**	1.8	0.25	ng/L		06/07/22 07:31	06/10/22 03:19	1
Perfluorodecanoic acid (PFDA)	**0.50**	**J**	1.8	0.28	ng/L		06/07/22 07:31	06/10/22 03:19	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		06/07/22 07:31	06/10/22 03:19	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		06/07/22 07:31	06/10/22 03:19	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		06/07/22 07:31	06/10/22 03:19	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		06/07/22 07:31	06/10/22 03:19	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		06/07/22 07:31	06/10/22 03:19	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		06/07/22 07:31	06/10/22 03:19	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		06/07/22 07:31	06/10/22 03:19	1

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 4% AC T05
Lab Sample ID: 180-136066-32
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.50	ng/L		06/07/22 07:31	06/10/22 03:19	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		06/07/22 07:31	06/10/22 03:19	1
Perfluorooctanesulfonamide (FOSA)	**1.2**	**J**	1.8	0.90	ng/L		06/07/22 07:31	06/10/22 03:19	1
NMeFOSAA	ND		4.6	1.1	ng/L		06/07/22 07:31	06/10/22 03:19	1
NEtFOSAA	ND		4.6	1.2	ng/L		06/07/22 07:31	06/10/22 03:19	1
6:2 FTS	ND		4.6	2.3	ng/L		06/07/22 07:31	06/10/22 03:19	1
8:2 FTS	ND		1.8	0.42	ng/L		06/07/22 07:31	06/10/22 03:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*84*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
13C5 PFPeA	*121*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
13C2 PFHxA	*144*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
13C4 PFHpA	*127*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
13C4 PFOA	*124*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
13C5 PFNA	*121*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
13C2 PFDA	*116*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
13C2 PFUnA	*100*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
13C2 PFDoA	*113*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
13C2 PFTeDA	*106*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
13C3 PFBS	*128*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
18O2 PFHxS	*127*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
13C4 PFOS	*109*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
13C8 FOSA	*118*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
d3-NMeFOSAA	*98*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
d5-NEtFOSAA	*102*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
M2-6:2 FTS	*105*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*
M2-8:2 FTS	*96*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:19*	*1*

Client Sample ID: TRW 20% PC, 4% AC T08
Lab Sample ID: 180-136066-35
Date Collected: 06/29/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 11:23	1
Dichloronaphthalene, Total	**0.62**	**J**	2.0	0.50	ug/L		07/05/22 08:18	07/12/22 11:23	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 11:23	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 11:23	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 11:23	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 11:23	1
Tetrachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 11:23	1
Trichloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 11:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*68*		*30 - 123*	*07/05/22 08:18*	*07/12/22 11:23*	*1*
Nitrobenzene-d5 (Surr)	*64*		*33 - 139*	*07/05/22 08:18*	*07/12/22 11:23*	*1*
Terphenyl-d14 (Surr)	*98*		*42 - 150*	*07/05/22 08:18*	*07/12/22 11:23*	*1*

Client Sample ID: TRW 20% PC, 4% AC T08
Lab Sample ID: 180-136066-35

Date Collected: 06/29/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.5	2.2	ng/L		07/02/22 05:45	07/03/22 22:56	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	0.45	ng/L		07/02/22 05:45	07/03/22 22:56	1
Perfluorohexanoic acid (PFHxA)	**1.2**	**J**	1.8	0.53	ng/L		07/02/22 05:45	07/03/22 22:56	1
Perfluoroheptanoic acid (PFHpA)	**0.48**	**J**	1.8	0.23	ng/L		07/02/22 05:45	07/03/22 22:56	1
Perfluorooctanoic acid (PFOA)	**2.6**		1.8	0.77	ng/L		07/02/22 05:45	07/03/22 22:56	1
Perfluorononanoic acid (PFNA)	**0.53**	**J**	1.8	0.25	ng/L		07/02/22 05:45	07/03/22 22:56	1
Perfluorodecanoic acid (PFDA)	**0.59**	**J**	1.8	0.28	ng/L		07/02/22 05:45	07/03/22 22:56	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		07/02/22 05:45	07/03/22 22:56	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		07/02/22 05:45	07/03/22 22:56	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		07/02/22 05:45	07/03/22 22:56	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		07/02/22 05:45	07/03/22 22:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		07/02/22 05:45	07/03/22 22:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		07/02/22 05:45	07/03/22 22:56	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		07/02/22 05:45	07/03/22 22:56	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		07/02/22 05:45	07/03/22 22:56	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		07/02/22 05:45	07/03/22 22:56	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.89	ng/L		07/02/22 05:45	07/03/22 22:56	1
NMeFOSAA	ND		4.5	1.1	ng/L		07/02/22 05:45	07/03/22 22:56	1
NEtFOSAA	ND		4.5	1.2	ng/L		07/02/22 05:45	07/03/22 22:56	1
6:2 FTS	ND		4.5	2.3	ng/L		07/02/22 05:45	07/03/22 22:56	1
8:2 FTS	ND		1.8	0.42	ng/L		07/02/22 05:45	07/03/22 22:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*72*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
13C5 PFPeA	*95*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
13C2 PFHxA	*100*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
13C4 PFHpA	*106*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
13C4 PFOA	*101*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
13C5 PFNA	*101*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
13C2 PFDA	*101*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
13C2 PFUnA	*102*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
13C2 PFDoA	*94*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
13C2 PFTeDA	*92*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
13C3 PFBS	*94*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
18O2 PFHxS	*98*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
13C4 PFOS	*87*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
13C8 FOSA	*101*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
d3-NMeFOSAA	*91*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
d5-NEtFOSAA	*85*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
M2-6:2 FTS	*95*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*
M2-8:2 FTS	*93*		*25 - 150*	*07/02/22 05:45*	*07/03/22 22:56*	*1*

Client Sample ID: TRW 20% PC, 4% AC T09
Lab Sample ID: 180-136066-36

Date Collected: 07/13/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**0.51**	**J**	2.0	0.50	ug/L		07/19/22 13:12	07/20/22 12:22	1
Dichloronaphthalene, Total	**0.74**	**J**	2.0	0.50	ug/L		07/19/22 13:12	07/20/22 12:22	1

Client Sample ID: TRW 20% PC, 4% AC T09
Lab Sample ID: 180-136066-36
Date Collected: 07/13/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 12:22	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 12:22	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 12:22	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 12:22	1
Tetrachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 12:22	1
Trichloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 12:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*97*		*30 - 123*	*07/19/22 13:12*	*07/20/22 12:22*	*1*
Nitrobenzene-d5 (Surr)	*84*		*33 - 139*	*07/19/22 13:12*	*07/20/22 12:22*	*1*
Terphenyl-d14 (Surr)	*119*		*42 - 150*	*07/19/22 13:12*	*07/20/22 12:22*	*1*

Client Sample ID: TRW 20% PC, 2% AC, 2% SP T05
Lab Sample ID: 180-136066-41
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**4.2**		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 17:01	1
Dichloronaphthalene, Total	**7.8**		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 17:01	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 17:01	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 17:01	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 17:01	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 17:01	1
Tetrachloronaphthalene, Total	**1.7**	**J *+**	2.0	0.50	ug/L		06/01/22 08:39	06/10/22 17:01	1
Trichloronaphthalene, Total	**2.8**		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 17:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*82*		*30 - 123*	*06/01/22 08:39*	*06/10/22 17:01*	*1*
Nitrobenzene-d5 (Surr)	*81*		*33 - 139*	*06/01/22 08:39*	*06/10/22 17:01*	*1*
Terphenyl-d14 (Surr)	*129*		*42 - 150*	*06/01/22 08:39*	*06/10/22 17:01*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.5	2.2	ng/L		06/07/22 07:31	06/10/22 03:29	1
Perfluoropentanoic acid (PFPeA)	**2.1**		1.8	0.44	ng/L		06/07/22 07:31	06/10/22 03:29	1
Perfluorohexanoic acid (PFHxA)	**1.1**	**J**	1.8	0.52	ng/L		06/07/22 07:31	06/10/22 03:29	1
Perfluoroheptanoic acid (PFHpA)	**0.60**	**J**	1.8	0.22	ng/L		06/07/22 07:31	06/10/22 03:29	1
Perfluorooctanoic acid (PFOA)	**3.6**		1.8	0.76	ng/L		06/07/22 07:31	06/10/22 03:29	1
Perfluorononanoic acid (PFNA)	**0.40**	**J**	1.8	0.24	ng/L		06/07/22 07:31	06/10/22 03:29	1
Perfluorodecanoic acid (PFDA)	**0.56**	**J**	1.8	0.28	ng/L		06/07/22 07:31	06/10/22 03:29	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		06/07/22 07:31	06/10/22 03:29	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		06/07/22 07:31	06/10/22 03:29	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		06/07/22 07:31	06/10/22 03:29	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		06/07/22 07:31	06/10/22 03:29	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		06/07/22 07:31	06/10/22 03:29	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		06/07/22 07:31	06/10/22 03:29	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		06/07/22 07:31	06/10/22 03:29	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		06/07/22 07:31	06/10/22 03:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		06/07/22 07:31	06/10/22 03:29	1

Client Sample ID: TRW 20% PC, 2% AC, 2% SP T05
Lab Sample ID: 180-136066-41
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.88	ng/L		06/07/22 07:31	06/10/22 03:29	1
NMeFOSAA	ND		4.5	1.1	ng/L		06/07/22 07:31	06/10/22 03:29	1
NEtFOSAA	ND		4.5	1.2	ng/L		06/07/22 07:31	06/10/22 03:29	1
6:2 FTS	ND		4.5	2.2	ng/L		06/07/22 07:31	06/10/22 03:29	1
8:2 FTS	ND		1.8	0.41	ng/L		06/07/22 07:31	06/10/22 03:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*25*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
13C5 PFPeA	*81*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
13C2 PFHxA	*149*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
13C4 PFHpA	*107*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
13C4 PFOA	*105*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
13C5 PFNA	*106*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
13C2 PFDA	*106*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
13C2 PFUnA	*98*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
13C2 PFDoA	*105*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
13C2 PFTeDA	*95*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
13C3 PFBS	*120*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
18O2 PFHxS	*114*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
13C4 PFOS	*102*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
13C8 FOSA	*110*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
d3-NMeFOSAA	*93*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
d5-NEtFOSAA	*94*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
M2-6:2 FTS	*111*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*
M2-8:2 FTS	*103*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:29*	*1*

Client Sample ID: TRW 20% PC, 2% AC, 2% SP T08
Lab Sample ID: 180-136066-44
Date Collected: 06/29/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**3.6**		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 11:47	1
Dichloronaphthalene, Total	**6.7**		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 11:47	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 11:47	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 11:47	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 11:47	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 11:47	1
Tetrachloronaphthalene, Total	**1.5**	**J**	2.0	0.50	ug/L		07/05/22 08:18	07/12/22 11:47	1
Trichloronaphthalene, Total	**2.1**		2.0	0.50	ug/L		07/05/22 08:18	07/12/22 11:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*70*		*30 - 123*	*07/05/22 08:18*	*07/12/22 11:47*	*1*
Nitrobenzene-d5 (Surr)	*67*		*33 - 139*	*07/05/22 08:18*	*07/12/22 11:47*	*1*
Terphenyl-d14 (Surr)	*98*		*42 - 150*	*07/05/22 08:18*	*07/12/22 11:47*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.7	2.2	ng/L		07/02/22 05:45	07/03/22 23:06	1
Perfluoropentanoic acid (PFPeA)	**0.88**	**J**	1.9	0.46	ng/L		07/02/22 05:45	07/03/22 23:06	1
Perfluorohexanoic acid (PFHxA)	**1.2**	**J**	1.9	0.54	ng/L		07/02/22 05:45	07/03/22 23:06	1

Client Sample ID: TRW 20% PC, 2% AC, 2% SP T08
Lab Sample ID: 180-136066-44
Date Collected: 06/29/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	**0.43**	**J**	1.9	0.23	ng/L		07/02/22 05:45	07/03/22 23:06	1
Perfluorooctanoic acid (PFOA)	**2.6**		1.9	0.79	ng/L		07/02/22 05:45	07/03/22 23:06	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		07/02/22 05:45	07/03/22 23:06	1
Perfluorodecanoic acid (PFDA)	**0.73**	**J**	1.9	0.29	ng/L		07/02/22 05:45	07/03/22 23:06	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		07/02/22 05:45	07/03/22 23:06	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		07/02/22 05:45	07/03/22 23:06	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		07/02/22 05:45	07/03/22 23:06	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		07/02/22 05:45	07/03/22 23:06	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		07/02/22 05:45	07/03/22 23:06	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		07/02/22 05:45	07/03/22 23:06	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		07/02/22 05:45	07/03/22 23:06	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.50	ng/L		07/02/22 05:45	07/03/22 23:06	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		07/02/22 05:45	07/03/22 23:06	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.91	ng/L		07/02/22 05:45	07/03/22 23:06	1
NMeFOSAA	ND		4.7	1.1	ng/L		07/02/22 05:45	07/03/22 23:06	1
NEtFOSAA	ND		4.7	1.2	ng/L		07/02/22 05:45	07/03/22 23:06	1
6:2 FTS	ND		4.7	2.3	ng/L		07/02/22 05:45	07/03/22 23:06	1
8:2 FTS	ND		1.9	0.43	ng/L		07/02/22 05:45	07/03/22 23:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*37*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
13C5 PFPeA	*91*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
13C2 PFHxA	*95*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
13C4 PFHpA	*102*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
13C4 PFOA	*105*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
13C5 PFNA	*104*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
13C2 PFDA	*99*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
13C2 PFUnA	*110*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
13C2 PFDoA	*98*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
13C2 PFTeDA	*96*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
13C3 PFBS	*98*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
18O2 PFHxS	*101*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
13C4 PFOS	*87*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
13C8 FOSA	*98*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
d3-NMeFOSAA	*85*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
d5-NEtFOSAA	*89*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
M2-6:2 FTS	*102*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*
M2-8:2 FTS	*94*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:06*	*1*

Client Sample ID: TRW 20% PC, 2% AC, 2% SP T09
Lab Sample ID: 180-136066-45
Date Collected: 07/13/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**2.9**		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 12:46	1
Dichloronaphthalene, Total	**5.5**		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 12:46	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 12:46	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 12:46	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 12:46	1

Client Sample ID: TRW 20% PC, 2% AC, 2% SP T09
Lab Sample ID: 180-136066-45
Date Collected: 07/13/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 12:46	1
Tetrachloronaphthalene, Total	**1.2**	**J**	2.0	0.50	ug/L		07/19/22 13:12	07/20/22 12:46	1
Trichloronaphthalene, Total	**1.7**	**J**	2.0	0.50	ug/L		07/19/22 13:12	07/20/22 12:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*63*		*30 - 123*	*07/19/22 13:12*	*07/20/22 12:46*	*1*
Nitrobenzene-d5 (Surr)	*57*		*33 - 139*	*07/19/22 13:12*	*07/20/22 12:46*	*1*
Terphenyl-d14 (Surr)	*94*		*42 - 150*	*07/19/22 13:12*	*07/20/22 12:46*	*1*

Client Sample ID: MB T05
Lab Sample ID: 180-136066-50
Date Collected: 05/25/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 17:25	1
Dichloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 17:25	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 17:25	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 17:25	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 17:25	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 17:25	1
Tetrachloronaphthalene, Total	ND	*+	2.0	0.50	ug/L		06/01/22 08:39	06/10/22 17:25	1
Trichloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 17:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*91*		*30 - 123*	*06/01/22 08:39*	*06/10/22 17:25*	*1*
Nitrobenzene-d5 (Surr)	*87*		*33 - 139*	*06/01/22 08:39*	*06/10/22 17:25*	*1*
Terphenyl-d14 (Surr)	*138*		*42 - 150*	*06/01/22 08:39*	*06/10/22 17:25*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		06/07/22 07:31	06/10/22 03:39	1
Perfluoropentanoic acid (PFPeA)	**0.61**	**J**	1.8	0.45	ng/L		06/07/22 07:31	06/10/22 03:39	1
Perfluorohexanoic acid (PFHxA)	**0.96**	**J**	1.8	0.53	ng/L		06/07/22 07:31	06/10/22 03:39	1
Perfluoroheptanoic acid (PFHpA)	**0.56**	**J**	1.8	0.23	ng/L		06/07/22 07:31	06/10/22 03:39	1
Perfluorooctanoic acid (PFOA)	**2.0**		1.8	0.78	ng/L		06/07/22 07:31	06/10/22 03:39	1
Perfluorononanoic acid (PFNA)	**0.39**	**J**	1.8	0.25	ng/L		06/07/22 07:31	06/10/22 03:39	1
Perfluorodecanoic acid (PFDA)	**0.47**	**J**	1.8	0.28	ng/L		06/07/22 07:31	06/10/22 03:39	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		06/07/22 07:31	06/10/22 03:39	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		06/07/22 07:31	06/10/22 03:39	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		06/07/22 07:31	06/10/22 03:39	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		06/07/22 07:31	06/10/22 03:39	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		06/07/22 07:31	06/10/22 03:39	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		06/07/22 07:31	06/10/22 03:39	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		06/07/22 07:31	06/10/22 03:39	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		06/07/22 07:31	06/10/22 03:39	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		06/07/22 07:31	06/10/22 03:39	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.90	ng/L		06/07/22 07:31	06/10/22 03:39	1
NMeFOSAA	ND		4.6	1.1	ng/L		06/07/22 07:31	06/10/22 03:39	1
NEtFOSAA	ND		4.6	1.2	ng/L		06/07/22 07:31	06/10/22 03:39	1

Client Sample ID: MB T05
Date Collected: 05/25/22 07:30
Date Received: 04/01/22 11:22

Lab Sample ID: 180-136066-50
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	ND		4.6	2.3	ng/L		06/07/22 07:31	06/10/22 03:39	1
8:2 FTS	ND		1.8	0.42	ng/L		06/07/22 07:31	06/10/22 03:39	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*112*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
13C5 PFPeA	*109*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
13C2 PFHxA	*115*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
13C4 PFHpA	*113*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
13C4 PFOA	*104*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
13C5 PFNA	*104*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
13C2 PFDA	*105*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
13C2 PFUnA	*91*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
13C2 PFDoA	*97*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
13C2 PFTeDA	*83*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
13C3 PFBS	*104*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
18O2 PFHxS	*106*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
13C4 PFOS	*95*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
13C8 FOSA	*89*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
d3-NMeFOSAA	*88*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
d5-NEtFOSAA	*90*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
M2-6:2 FTS	*84*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*
M2-8:2 FTS	*85*		*25 - 150*	*06/07/22 07:31*	*06/10/22 03:39*	*1*

Client Sample ID: MB T08
Date Collected: 06/29/22 07:30
Date Received: 04/01/22 11:22

Lab Sample ID: 180-136066-53
Matrix: Water

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 18:14	1
Dichloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 18:14	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 18:14	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 18:14	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 18:14	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 18:14	1
Tetrachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 18:14	1
Trichloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 18:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*76*		*30 - 123*	*07/05/22 08:18*	*07/11/22 18:14*	*1*
Nitrobenzene-d5 (Surr)	*70*		*33 - 139*	*07/05/22 08:18*	*07/11/22 18:14*	*1*
Terphenyl-d14 (Surr)	*112*		*42 - 150*	*07/05/22 08:18*	*07/11/22 18:14*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.6	2.2	ng/L		07/02/22 05:45	07/03/22 23:16	1
Perfluoropentanoic acid (PFPeA)	**0.78**	**J**	1.8	0.45	ng/L		07/02/22 05:45	07/03/22 23:16	1
Perfluorohexanoic acid (PFHxA)	**1.2**	**J**	1.8	0.53	ng/L		07/02/22 05:45	07/03/22 23:16	1
Perfluoroheptanoic acid (PFHpA)	**0.43**	**J**	1.8	0.23	ng/L		07/02/22 05:45	07/03/22 23:16	1
Perfluorooctanoic acid (PFOA)	**1.9**		1.8	0.77	ng/L		07/02/22 05:45	07/03/22 23:16	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		07/02/22 05:45	07/03/22 23:16	1

Client Sample ID: MB T08

Lab Sample ID: 180-136066-53

Date Collected: 06/29/22 07:30

Matrix: Water

Date Received: 04/01/22 11:22

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		07/02/22 05:45	07/03/22 23:16	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		07/02/22 05:45	07/03/22 23:16	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		07/02/22 05:45	07/03/22 23:16	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.2	ng/L		07/02/22 05:45	07/03/22 23:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		07/02/22 05:45	07/03/22 23:16	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		07/02/22 05:45	07/03/22 23:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.52	ng/L		07/02/22 05:45	07/03/22 23:16	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		07/02/22 05:45	07/03/22 23:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		07/02/22 05:45	07/03/22 23:16	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.29	ng/L		07/02/22 05:45	07/03/22 23:16	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.89	ng/L		07/02/22 05:45	07/03/22 23:16	1
NMeFOSAA	ND		4.6	1.1	ng/L		07/02/22 05:45	07/03/22 23:16	1
NEtFOSAA	ND		4.6	1.2	ng/L		07/02/22 05:45	07/03/22 23:16	1
6:2 FTS	ND		4.6	2.3	ng/L		07/02/22 05:45	07/03/22 23:16	1
8:2 FTS	ND		1.8	0.42	ng/L		07/02/22 05:45	07/03/22 23:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*102*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
13C5 PFPeA	*96*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
13C2 PFHxA	*101*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
13C4 PFHpA	*105*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
13C4 PFOA	*99*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
13C5 PFNA	*103*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
13C2 PFDA	*96*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
13C2 PFUnA	*106*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
13C2 PFDoA	*91*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
13C2 PFTeDA	*99*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
13C3 PFBS	*97*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
18O2 PFHxS	*100*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
13C4 PFOS	*87*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
13C8 FOSA	*90*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
d3-NMeFOSAA	*89*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
d5-NEtFOSAA	*94*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
M2-6:2 FTS	*105*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*
M2-8:2 FTS	*91*		*25 - 150*	*07/02/22 05:45*	*07/03/22 23:16*	*1*

Client Sample ID: MB T09

Lab Sample ID: 180-136066-54

Date Collected: 07/13/22 07:30

Matrix: Water

Date Received: 04/01/22 11:22

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 13:10	1
Dichloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 13:10	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 13:10	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 13:10	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 13:10	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 13:10	1
Tetrachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 13:10	1
Trichloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 13:10	1

Client: ZF Active Safety and Electronics LLC
Job ID: 180-136066-2
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: MB T09
Lab Sample ID: 180-136066-54
Date Collected: 07/13/22 07:30
Matrix: Water
Date Received: 04/01/22 11:22

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	104		30 - 123	07/19/22 13:12	07/20/22 13:10	1
Nitrobenzene-d5 (Surr)	88		33 - 139	07/19/22 13:12	07/20/22 13:10	1
Terphenyl-d14 (Surr)	136		42 - 150	07/19/22 13:12	07/20/22 13:10	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 500-659343/1-A
Matrix: Water
Analysis Batch: 660745

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 659343

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 13:58	1
Dichloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 13:58	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 13:58	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 13:58	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 13:58	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 13:58	1
Tetrachloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 13:58	1
Trichloronaphthalene, Total	ND		2.0	0.50	ug/L		06/01/22 08:39	06/10/22 13:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*83*		*30 - 123*	*06/01/22 08:39*	*06/10/22 13:58*	*1*
Nitrobenzene-d5 (Surr)	*88*		*33 - 139*	*06/01/22 08:39*	*06/10/22 13:58*	*1*
Terphenyl-d14 (Surr)	*126*		*42 - 150*	*06/01/22 08:39*	*06/10/22 13:58*	*1*

Lab Sample ID: LCS 500-659343/2-A
Matrix: Water
Analysis Batch: 660745

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 659343

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Monochloronaphthalene, Total	8.00	7.07		ug/L		88	40 - 130
Dichloronaphthalene, Total	8.00	7.21		ug/L		90	40 - 130
Tetrachloronaphthalene, Total	8.00	9.29		ug/L		116	40 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*78*		*30 - 123*
Nitrobenzene-d5 (Surr)	*81*		*33 - 139*
Terphenyl-d14 (Surr)	*120*		*42 - 150*

Lab Sample ID: LCSD 500-659343/3-A
Matrix: Water
Analysis Batch: 660745

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 659343

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Monochloronaphthalene, Total	8.00	8.45		ug/L		106	40 - 130	18	20
Dichloronaphthalene, Total	8.00	8.25		ug/L		103	40 - 130	13	20
Tetrachloronaphthalene, Total	8.00	10.5	*+	ug/L		132	40 - 130	13	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*92*		*30 - 123*
Nitrobenzene-d5 (Surr)	*94*		*33 - 139*
Terphenyl-d14 (Surr)	*137*		*42 - 150*

Lab Sample ID: MB 500-664073/1-A
Matrix: Water
Analysis Batch: 664961

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 664073

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 15:00	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 500-664073/1-A
Matrix: Water
Analysis Batch: 664961

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 664073

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 15:00	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 15:00	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 15:00	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 15:00	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 15:00	1
Tetrachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 15:00	1
Trichloronaphthalene, Total	ND		2.0	0.50	ug/L		07/05/22 08:18	07/11/22 15:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*74*		*30 - 123*	*07/05/22 08:18*	*07/11/22 15:00*	*1*
Nitrobenzene-d5 (Surr)	*63*		*33 - 139*	*07/05/22 08:18*	*07/11/22 15:00*	*1*
Terphenyl-d14 (Surr)	*109*		*42 - 150*	*07/05/22 08:18*	*07/11/22 15:00*	*1*

Lab Sample ID: LCS 500-664073/2-A
Matrix: Water
Analysis Batch: 664961

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 664073

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Monochloronaphthalene, Total	8.00	6.74		ug/L		84	40 - 130
Dichloronaphthalene, Total	8.00	6.09		ug/L		76	40 - 130
Tetrachloronaphthalene, Total	8.00	7.82		ug/L		98	40 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*69*		*30 - 123*
Nitrobenzene-d5 (Surr)	*60*		*33 - 139*
Terphenyl-d14 (Surr)	*102*		*42 - 150*

Lab Sample ID: LCSD 500-664073/3-A
Matrix: Water
Analysis Batch: 664961

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 664073

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Monochloronaphthalene, Total	8.00	7.31		ug/L		91	40 - 130	8	20
Dichloronaphthalene, Total	8.00	6.64		ug/L		83	40 - 130	9	20
Tetrachloronaphthalene, Total	8.00	8.46		ug/L		106	40 - 130	8	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*79*		*30 - 123*
Nitrobenzene-d5 (Surr)	*70*		*33 - 139*
Terphenyl-d14 (Surr)	*113*		*42 - 150*

Lab Sample ID: MB 500-666120/1-A
Matrix: Water
Analysis Batch: 666202

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 666120

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 09:57	1
Dichloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 09:57	1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 500-666120/1-A
Matrix: Water
Analysis Batch: 666202

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 666120

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 09:57	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 09:57	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 09:57	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 09:57	1
Tetrachloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 09:57	1
Trichloronaphthalene, Total	ND		2.0	0.50	ug/L		07/19/22 13:12	07/20/22 09:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*102*		*30 - 123*	*07/19/22 13:12*	*07/20/22 09:57*	*1*
Nitrobenzene-d5 (Surr)	*89*		*33 - 139*	*07/19/22 13:12*	*07/20/22 09:57*	*1*
Terphenyl-d14 (Surr)	*133*		*42 - 150*	*07/19/22 13:12*	*07/20/22 09:57*	*1*

Lab Sample ID: LCS 500-666120/2-A
Matrix: Water
Analysis Batch: 666202

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 666120

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Monochloronaphthalene, Total	8.00	8.56		ug/L		107	40 - 130
Dichloronaphthalene, Total	8.00	8.15		ug/L		102	40 - 130
Tetrachloronaphthalene, Total	8.00	9.61		ug/L		120	40 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*101*		*30 - 123*
Nitrobenzene-d5 (Surr)	*85*		*33 - 139*
Terphenyl-d14 (Surr)	*133*		*42 - 150*

Lab Sample ID: LCSD 500-666120/3-A
Matrix: Water
Analysis Batch: 666202

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 666120

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Monochloronaphthalene, Total	8.00	8.82		ug/L		110	40 - 130	3	20
Dichloronaphthalene, Total	8.00	8.56		ug/L		107	40 - 130	5	20
Tetrachloronaphthalene, Total	8.00	10.3		ug/L		129	40 - 130	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*103*		*30 - 123*
Nitrobenzene-d5 (Surr)	*88*		*33 - 139*
Terphenyl-d14 (Surr)	*136*		*42 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-593360/1-A
Matrix: Water
Analysis Batch: 594170

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 593360

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		06/07/22 07:31	06/10/22 00:16	1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-593360/1-A
Matrix: Water
Analysis Batch: 594170

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 593360

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		06/07/22 07:31	06/10/22 00:16	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		06/07/22 07:31	06/10/22 00:16	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		06/07/22 07:31	06/10/22 00:16	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		06/07/22 07:31	06/10/22 00:16	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		06/07/22 07:31	06/10/22 00:16	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		06/07/22 07:31	06/10/22 00:16	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		06/07/22 07:31	06/10/22 00:16	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		06/07/22 07:31	06/10/22 00:16	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		06/07/22 07:31	06/10/22 00:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		06/07/22 07:31	06/10/22 00:16	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		06/07/22 07:31	06/10/22 00:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		06/07/22 07:31	06/10/22 00:16	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		06/07/22 07:31	06/10/22 00:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		06/07/22 07:31	06/10/22 00:16	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		06/07/22 07:31	06/10/22 00:16	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		06/07/22 07:31	06/10/22 00:16	1
NMeFOSAA	ND		5.0	1.2	ng/L		06/07/22 07:31	06/10/22 00:16	1
NEtFOSAA	ND		5.0	1.3	ng/L		06/07/22 07:31	06/10/22 00:16	1
6:2 FTS	ND		5.0	2.5	ng/L		06/07/22 07:31	06/10/22 00:16	1
8:2 FTS	ND		2.0	0.46	ng/L		06/07/22 07:31	06/10/22 00:16	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*103*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
13C5 PFPeA	*102*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
13C2 PFHxA	*102*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
13C4 PFHpA	*103*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
13C4 PFOA	*89*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
13C5 PFNA	*87*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
13C2 PFDA	*87*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
13C2 PFUnA	*84*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
13C2 PFDoA	*91*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
13C2 PFTeDA	*84*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
13C3 PFBS	*92*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
18O2 PFHxS	*91*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
13C4 PFOS	*88*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
13C8 FOSA	*86*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
d3-NMeFOSAA	*82*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
d5-NEtFOSAA	*86*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
M2-6:2 FTS	*84*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*
M2-8:2 FTS	*78*		*25 - 150*	*06/07/22 07:31*	*06/10/22 00:16*	*1*

Lab Sample ID: LCS 320-593360/2-A
Matrix: Water
Analysis Batch: 594808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 593360

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	40.0	41.1		ng/L		103	76 - 136
Perfluoropentanoic acid (PFPeA)	40.0	39.3		ng/L		98	71 - 131

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-593360/2-A
Matrix: Water
Analysis Batch: 594808

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 593360

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanoic acid (PFHxA)	40.0	37.9		ng/L		95	73 - 133
Perfluoroheptanoic acid (PFHpA)	40.0	39.5		ng/L		99	72 - 132
Perfluorooctanoic acid (PFOA)	40.0	38.4		ng/L		96	70 - 130
Perfluorononanoic acid (PFNA)	40.0	40.6		ng/L		101	75 - 135
Perfluorodecanoic acid (PFDA)	40.0	35.4		ng/L		88	76 - 136
Perfluoroundecanoic acid (PFUnA)	40.0	40.3		ng/L		101	68 - 128
Perfluorododecanoic acid (PFDoA)	40.0	36.7		ng/L		92	71 - 131
Perfluorotridecanoic acid (PFTrDA)	40.0	37.2		ng/L		93	71 - 131
Perfluorotetradecanoic acid (PFTeA)	40.0	36.9		ng/L		92	70 - 130
Perfluorobutanesulfonic acid (PFBS)	35.4	36.3		ng/L		103	67 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	32.3		ng/L		89	59 - 119
Perfluoroheptanesulfonic acid (PFHpS)	38.1	37.0		ng/L		97	76 - 136
Perfluorooctanesulfonic acid (PFOS)	37.1	37.2		ng/L		100	70 - 130
Perfluorodecanesulfonic acid (PFDS)	38.6	39.7		ng/L		103	71 - 131
Perfluorooctanesulfonamide (FOSA)	40.0	38.3		ng/L		96	73 - 133
NMeFOSAA	40.0	34.4		ng/L		86	76 - 136
NEtFOSAA	40.0	39.2		ng/L		98	76 - 136
6:2 FTS	37.9	33.7		ng/L		89	59 - 175
8:2 FTS	38.3	39.2		ng/L		102	75 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*107*		*25 - 150*
13C5 PFPeA	*109*		*25 - 150*
13C2 PFHxA	*109*		*25 - 150*
13C4 PFHpA	*106*		*25 - 150*
13C4 PFOA	*106*		*25 - 150*
13C5 PFNA	*100*		*25 - 150*
13C2 PFDA	*117*		*25 - 150*
13C2 PFUnA	*102*		*25 - 150*
13C2 PFDoA	*98*		*25 - 150*
13C2 PFTeDA	*97*		*25 - 150*
13C3 PFBS	*105*		*25 - 150*
18O2 PFHxS	*108*		*25 - 150*
13C4 PFOS	*95*		*25 - 150*
13C8 FOSA	*104*		*25 - 150*
d3-NMeFOSAA	*93*		*25 - 150*
d5-NEtFOSAA	*92*		*25 - 150*
M2-6:2 FTS	*67*		*25 - 150*
M2-8:2 FTS	*66*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-593360/3-A
Matrix: Water
Analysis Batch: 594170

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 593360

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	38.7		ng/L		97	76 - 136	10	30
Perfluoropentanoic acid (PFPeA)			40.0	40.2		ng/L		101	71 - 131	12	30
Perfluorohexanoic acid (PFHxA)			40.0	33.0		ng/L		83	73 - 133	6	30
Perfluoroheptanoic acid (PFHpA)			40.0	38.9		ng/L		97	72 - 132	0	30
Perfluorooctanoic acid (PFOA)			40.0	38.6		ng/L		96	70 - 130	3	30
Perfluorononanoic acid (PFNA)			40.0	41.6		ng/L		104	75 - 135	1	30
Perfluorodecanoic acid (PFDA)			40.0	32.1		ng/L		80	76 - 136	12	30
Perfluoroundecanoic acid (PFUnA)			40.0	39.6		ng/L		99	68 - 128	2	30
Perfluorododecanoic acid (PFDoA)			40.0	39.9		ng/L		100	71 - 131	5	30
Perfluorotridecanoic acid (PFTrDA)			40.0	38.9		ng/L		97	71 - 131	2	30
Perfluorotetradecanoic acid (PFTeA)			40.0	38.9		ng/L		97	70 - 130	6	30
Perfluorobutanesulfonic acid (PFBS)			35.4	32.1		ng/L		91	67 - 127	3	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	30.5		ng/L		84	59 - 119	1	30
Perfluoroheptanesulfonic acid (PFHpS)			38.1	41.7		ng/L		110	76 - 136	7	30
Perfluorooctanesulfonic acid (PFOS)			37.1	38.4		ng/L		104	70 - 130	13	30
Perfluorodecanesulfonic acid (PFDS)			38.6	38.3		ng/L		99	71 - 131	10	30
Perfluorooctanesulfonamide (FOSA)			40.0	41.1		ng/L		103	73 - 133	4	30
NMeFOSAA			40.0	39.6		ng/L		99	76 - 136	5	30
NEtFOSAA			40.0	39.4		ng/L		99	76 - 136	1	30
6:2 FTS			37.9	34.6		ng/L		91	59 - 175	4	30
8:2 FTS			38.3	35.9		ng/L		94	75 - 135	7	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*108*		*25 - 150*
13C5 PFPeA	*102*		*25 - 150*
13C2 PFHxA	*117*		*25 - 150*
13C4 PFHpA	*107*		*25 - 150*
13C4 PFOA	*100*		*25 - 150*
13C5 PFNA	*92*		*25 - 150*
13C2 PFDA	*94*		*25 - 150*
13C2 PFUnA	*92*		*25 - 150*
13C2 PFDoA	*93*		*25 - 150*
13C2 PFTeDA	*87*		*25 - 150*
13C3 PFBS	*98*		*25 - 150*
18O2 PFHxS	*103*		*25 - 150*
13C4 PFOS	*85*		*25 - 150*
13C8 FOSA	*90*		*25 - 150*
d3-NMeFOSAA	*87*		*25 - 150*
d5-NEtFOSAA	*89*		*25 - 150*
M2-6:2 FTS	*89*		*25 - 150*
M2-8:2 FTS	*87*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-600388/1-A
Matrix: Water
Analysis Batch: 600455

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 600388

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		07/02/22 05:45	07/03/22 21:55	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		07/02/22 05:45	07/03/22 21:55	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		07/02/22 05:45	07/03/22 21:55	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		07/02/22 05:45	07/03/22 21:55	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		07/02/22 05:45	07/03/22 21:55	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		07/02/22 05:45	07/03/22 21:55	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		07/02/22 05:45	07/03/22 21:55	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		07/02/22 05:45	07/03/22 21:55	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		07/02/22 05:45	07/03/22 21:55	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		07/02/22 05:45	07/03/22 21:55	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		07/02/22 05:45	07/03/22 21:55	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		07/02/22 05:45	07/03/22 21:55	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		07/02/22 05:45	07/03/22 21:55	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		07/02/22 05:45	07/03/22 21:55	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		07/02/22 05:45	07/03/22 21:55	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		07/02/22 05:45	07/03/22 21:55	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		07/02/22 05:45	07/03/22 21:55	1
NMeFOSAA	ND		5.0	1.2	ng/L		07/02/22 05:45	07/03/22 21:55	1
NEtFOSAA	ND		5.0	1.3	ng/L		07/02/22 05:45	07/03/22 21:55	1
6:2 FTS	ND		5.0	2.5	ng/L		07/02/22 05:45	07/03/22 21:55	1
8:2 FTS	ND		2.0	0.46	ng/L		07/02/22 05:45	07/03/22 21:55	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*93*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
13C5 PFPeA	*99*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
13C2 PFHxA	*99*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
13C4 PFHpA	*106*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
13C4 PFOA	*99*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
13C5 PFNA	*101*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
13C2 PFDA	*100*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
13C2 PFUnA	*106*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
13C2 PFDoA	*95*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
13C2 PFTeDA	*97*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
13C3 PFBS	*96*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
18O2 PFHxS	*91*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
13C4 PFOS	*87*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
13C8 FOSA	*90*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
d3-NMeFOSAA	*87*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
d5-NEtFOSAA	*83*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
M2-6:2 FTS	*97*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*
M2-8:2 FTS	*92*		*25 - 150*	*07/02/22 05:45*	*07/03/22 21:55*	*1*

Lab Sample ID: LCS 320-600388/2-A
Matrix: Water
Analysis Batch: 600455

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 600388

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluorobutanoic acid (PFBA)			40.0	41.9		ng/L		105	76 - 136		

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-600388/2-A
Matrix: Water
Analysis Batch: 600455

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 600388

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanoic acid (PFPeA)	40.0	39.8		ng/L		99	71 - 131
Perfluorohexanoic acid (PFHxA)	40.0	39.5		ng/L		99	73 - 133
Perfluoroheptanoic acid (PFHpA)	40.0	39.7		ng/L		99	72 - 132
Perfluorooctanoic acid (PFOA)	40.0	39.5		ng/L		99	70 - 130
Perfluorononanoic acid (PFNA)	40.0	42.1		ng/L		105	75 - 135
Perfluorodecanoic acid (PFDA)	40.0	41.4		ng/L		104	76 - 136
Perfluoroundecanoic acid (PFUnA)	40.0	39.2		ng/L		98	68 - 128
Perfluorododecanoic acid (PFDoA)	40.0	39.7		ng/L		99	71 - 131
Perfluorotridecanoic acid (PFTrDA)	40.0	40.8		ng/L		102	71 - 131
Perfluorotetradecanoic acid (PFTeA)	40.0	39.0		ng/L		98	70 - 130
Perfluorobutanesulfonic acid (PFBS)	35.4	34.1		ng/L		96	67 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.3		ng/L		94	59 - 119
Perfluoroheptanesulfonic acid (PFHpS)	38.1	39.9		ng/L		105	76 - 136
Perfluorooctanesulfonic acid (PFOS)	37.1	38.0		ng/L		102	70 - 130
Perfluorodecanesulfonic acid (PFDS)	38.6	38.2		ng/L		99	71 - 131
Perfluorooctanesulfonamide (FOSA)	40.0	40.0		ng/L		100	73 - 133
NMeFOSAA	40.0	40.7		ng/L		102	76 - 136
NEtFOSAA	40.0	42.8		ng/L		107	76 - 136
6:2 FTS	37.9	35.9		ng/L		95	59 - 175
8:2 FTS	38.3	36.6		ng/L		96	75 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*96*		*25 - 150*
13C5 PFPeA	*106*		*25 - 150*
13C2 PFHxA	*102*		*25 - 150*
13C4 PFHpA	*105*		*25 - 150*
13C4 PFOA	*106*		*25 - 150*
13C5 PFNA	*102*		*25 - 150*
13C2 PFDA	*100*		*25 - 150*
13C2 PFUnA	*109*		*25 - 150*
13C2 PFDoA	*103*		*25 - 150*
13C2 PFTeDA	*103*		*25 - 150*
13C3 PFBS	*99*		*25 - 150*
18O2 PFHxS	*99*		*25 - 150*
13C4 PFOS	*91*		*25 - 150*
13C8 FOSA	*98*		*25 - 150*
d3-NMeFOSAA	*92*		*25 - 150*
d5-NEtFOSAA	*84*		*25 - 150*
M2-6:2 FTS	*100*		*25 - 150*
M2-8:2 FTS	*94*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-600388/3-A
Matrix: Water
Analysis Batch: 600455

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 600388

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	41.4		ng/L		103	76 - 136	1	30
Perfluoropentanoic acid (PFPeA)			40.0	41.7		ng/L		104	71 - 131	5	30
Perfluorohexanoic acid (PFHxA)			40.0	38.6		ng/L		97	73 - 133	2	30
Perfluoroheptanoic acid (PFHpA)			40.0	40.4		ng/L		101	72 - 132	2	30
Perfluorooctanoic acid (PFOA)			40.0	40.0		ng/L		100	70 - 130	1	30
Perfluorononanoic acid (PFNA)			40.0	42.8		ng/L		107	75 - 135	2	30
Perfluorodecanoic acid (PFDA)			40.0	39.8		ng/L		99	76 - 136	4	30
Perfluoroundecanoic acid (PFUnA)			40.0	37.7		ng/L		94	68 - 128	4	30
Perfluorododecanoic acid (PFDoA)			40.0	40.5		ng/L		101	71 - 131	2	30
Perfluorotridecanoic acid (PFTrDA)			40.0	39.7		ng/L		99	71 - 131	3	30
Perfluorotetradecanoic acid (PFTeA)			40.0	40.2		ng/L		101	70 - 130	3	30
Perfluorobutanesulfonic acid (PFBS)			35.4	37.5		ng/L		106	67 - 127	10	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	35.5		ng/L		97	59 - 119	3	30
Perfluoroheptanesulfonic acid (PFHpS)			38.1	39.2		ng/L		103	76 - 136	2	30
Perfluorooctanesulfonic acid (PFOS)			37.1	39.4		ng/L		106	70 - 130	4	30
Perfluorodecanesulfonic acid (PFDS)			38.6	41.6		ng/L		108	71 - 131	9	30
Perfluorooctanesulfonamide (FOSA)			40.0	40.7		ng/L		102	73 - 133	2	30
NMeFOSAA			40.0	38.1		ng/L		95	76 - 136	7	30
NEtFOSAA			40.0	39.5		ng/L		99	76 - 136	8	30
6:2 FTS			37.9	36.7		ng/L		97	59 - 175	2	30
8:2 FTS			38.3	37.7		ng/L		98	75 - 135	3	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*78*		*25 - 150*
13C5 PFPeA	*82*		*25 - 150*
13C2 PFHxA	*84*		*25 - 150*
13C4 PFHpA	*82*		*25 - 150*
13C4 PFOA	*83*		*25 - 150*
13C5 PFNA	*80*		*25 - 150*
13C2 PFDA	*81*		*25 - 150*
13C2 PFUnA	*86*		*25 - 150*
13C2 PFDoA	*79*		*25 - 150*
13C2 PFTeDA	*77*		*25 - 150*
13C3 PFBS	*77*		*25 - 150*
18O2 PFHxS	*77*		*25 - 150*
13C4 PFOS	*73*		*25 - 150*
13C8 FOSA	*77*		*25 - 150*
d3-NMeFOSAA	*72*		*25 - 150*
d5-NEtFOSAA	*71*		*25 - 150*
M2-6:2 FTS	*80*		*25 - 150*
M2-8:2 FTS	*76*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-602450/1-A
Matrix: Water
Analysis Batch: 605068

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 602450

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		07/12/22 13:33	07/25/22 07:40	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		07/12/22 13:33	07/25/22 07:40	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		07/12/22 13:33	07/25/22 07:40	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		07/12/22 13:33	07/25/22 07:40	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		07/12/22 13:33	07/25/22 07:40	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		07/12/22 13:33	07/25/22 07:40	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		07/12/22 13:33	07/25/22 07:40	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		07/12/22 13:33	07/25/22 07:40	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		07/12/22 13:33	07/25/22 07:40	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		07/12/22 13:33	07/25/22 07:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		07/12/22 13:33	07/25/22 07:40	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		07/12/22 13:33	07/25/22 07:40	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		07/12/22 13:33	07/25/22 07:40	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		07/12/22 13:33	07/25/22 07:40	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		07/12/22 13:33	07/25/22 07:40	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		07/12/22 13:33	07/25/22 07:40	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		07/12/22 13:33	07/25/22 07:40	1
NMeFOSAA	ND		5.0	1.2	ng/L		07/12/22 13:33	07/25/22 07:40	1
NEtFOSAA	ND		5.0	1.3	ng/L		07/12/22 13:33	07/25/22 07:40	1
6:2 FTS	ND		5.0	2.5	ng/L		07/12/22 13:33	07/25/22 07:40	1
8:2 FTS	ND		2.0	0.46	ng/L		07/12/22 13:33	07/25/22 07:40	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*44*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
13C5 PFPeA	*44*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
13C2 PFHxA	*45*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
13C4 PFHpA	*47*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
13C4 PFOA	*48*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
13C5 PFNA	*47*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
13C2 PFDA	*47*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
13C2 PFUnA	*52*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
13C2 PFDoA	*49*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
13C2 PFTeDA	*44*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
13C3 PFBS	*48*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
18O2 PFHxS	*49*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
13C4 PFOS	*47*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
13C8 FOSA	*51*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
d3-NMeFOSAA	*57*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
d5-NEtFOSAA	*57*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
M2-6:2 FTS	*40*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*
M2-8:2 FTS	*43*		*25 - 150*	*07/12/22 13:33*	*07/25/22 07:40*	*1*

Lab Sample ID: LCS 320-602450/2-A
Matrix: Water
Analysis Batch: 605068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602450

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluorobutanoic acid (PFBA)			40.0	42.1		ng/L		105	76 - 136		

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-602450/2-A
Matrix: Water
Analysis Batch: 605068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 602450

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanoic acid (PFPeA)	40.0	42.5		ng/L		106	71 - 131
Perfluorohexanoic acid (PFHxA)	40.0	39.7		ng/L		99	73 - 133
Perfluoroheptanoic acid (PFHpA)	40.0	39.8		ng/L		100	72 - 132
Perfluorooctanoic acid (PFOA)	40.0	40.8		ng/L		102	70 - 130
Perfluorononanoic acid (PFNA)	40.0	41.9		ng/L		105	75 - 135
Perfluorodecanoic acid (PFDA)	40.0	39.3		ng/L		98	76 - 136
Perfluoroundecanoic acid (PFUnA)	40.0	38.7		ng/L		97	68 - 128
Perfluorododecanoic acid (PFDoA)	40.0	41.8		ng/L		104	71 - 131
Perfluorotridecanoic acid (PFTrDA)	40.0	38.6		ng/L		97	71 - 131
Perfluorotetradecanoic acid (PFTeA)	40.0	41.3		ng/L		103	70 - 130
Perfluorobutanesulfonic acid (PFBS)	35.5	33.5		ng/L		94	67 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.5	34.5		ng/L		95	59 - 119
Perfluoroheptanesulfonic acid (PFHpS)	38.2	43.2		ng/L		113	76 - 136
Perfluorooctanesulfonic acid (PFOS)	37.2	38.5		ng/L		103	70 - 130
Perfluorodecanesulfonic acid (PFDS)	38.6	40.9		ng/L		106	71 - 131
Perfluorooctanesulfonamide (FOSA)	40.0	39.7		ng/L		99	73 - 133
NMeFOSAA	40.0	39.4		ng/L		98	76 - 136
NEtFOSAA	40.0	41.4		ng/L		103	76 - 136
6:2 FTS	38.1	38.6		ng/L		101	59 - 175
8:2 FTS	38.4	35.9		ng/L		93	75 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*93*		*25 - 150*
13C5 PFPeA	*89*		*25 - 150*
13C2 PFHxA	*96*		*25 - 150*
13C4 PFHpA	*97*		*25 - 150*
13C4 PFOA	*96*		*25 - 150*
13C5 PFNA	*94*		*25 - 150*
13C2 PFDA	*90*		*25 - 150*
13C2 PFUnA	*103*		*25 - 150*
13C2 PFDoA	*89*		*25 - 150*
13C2 PFTeDA	*81*		*25 - 150*
13C3 PFBS	*102*		*25 - 150*
18O2 PFHxS	*100*		*25 - 150*
13C4 PFOS	*91*		*25 - 150*
13C8 FOSA	*95*		*25 - 150*
d3-NMeFOSAA	*104*		*25 - 150*
d5-NEtFOSAA	*112*		*25 - 150*
M2-6:2 FTS	*83*		*25 - 150*
M2-8:2 FTS	*86*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-602450/3-A
Matrix: Water
Analysis Batch: 605068

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 602450

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	44.0		ng/L		110	76 - 136	4	30
Perfluoropentanoic acid (PFPeA)			40.0	44.3		ng/L		111	71 - 131	4	30
Perfluorohexanoic acid (PFHxA)			40.0	73.2	*+ *1	ng/L		183	73 - 133	59	30
Perfluoroheptanoic acid (PFHpA)			40.0	42.5		ng/L		106	72 - 132	7	30
Perfluorooctanoic acid (PFOA)			40.0	43.3		ng/L		108	70 - 130	6	30
Perfluorononanoic acid (PFNA)			40.0	41.0		ng/L		102	75 - 135	2	30
Perfluorodecanoic acid (PFDA)			40.0	38.9		ng/L		97	76 - 136	1	30
Perfluoroundecanoic acid (PFUnA)			40.0	38.1		ng/L		95	68 - 128	1	30
Perfluorododecanoic acid (PFDoA)			40.0	42.5		ng/L		106	71 - 131	2	30
Perfluorotridecanoic acid (PFTrDA)			40.0	38.7		ng/L		97	71 - 131	0	30
Perfluorotetradecanoic acid (PFTeA)			40.0	38.3		ng/L		96	70 - 130	8	30
Perfluorobutanesulfonic acid (PFBS)			35.5	35.5		ng/L		100	67 - 127	6	30
Perfluorohexanesulfonic acid (PFHxS)			36.5	36.7		ng/L		101	59 - 119	6	30
Perfluoroheptanesulfonic acid (PFHpS)			38.2	40.7		ng/L		107	76 - 136	6	30
Perfluorooctanesulfonic acid (PFOS)			37.2	38.1		ng/L		102	70 - 130	1	30
Perfluorodecanesulfonic acid (PFDS)			38.6	39.8		ng/L		103	71 - 131	3	30
Perfluorooctanesulfonamide (FOSA)			40.0	38.3		ng/L		96	73 - 133	4	30
NMeFOSAA			40.0	38.4		ng/L		96	76 - 136	3	30
NEtFOSAA			40.0	40.7		ng/L		102	76 - 136	2	30
6:2 FTS			38.1	270	*+ *1	ng/L		710	59 - 175	150	30
8:2 FTS			38.4	39.3		ng/L		102	75 - 135	9	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*63*		*25 - 150*
13C5 PFPeA	*67*		*25 - 150*
13C2 PFHxA	*66*		*25 - 150*
13C4 PFHpA	*71*		*25 - 150*
13C4 PFOA	*63*		*25 - 150*
13C5 PFNA	*68*		*25 - 150*
13C2 PFDA	*70*		*25 - 150*
13C2 PFUnA	*74*		*25 - 150*
13C2 PFDoA	*69*		*25 - 150*
13C2 PFTeDA	*67*		*25 - 150*
13C3 PFBS	*69*		*25 - 150*
18O2 PFHxS	*71*		*25 - 150*
13C4 PFOS	*67*		*25 - 150*
13C8 FOSA	*73*		*25 - 150*
d3-NMeFOSAA	*82*		*25 - 150*
d5-NEtFOSAA	*81*		*25 - 150*
M2-6:2 FTS	*61*		*25 - 150*
M2-8:2 FTS	*61*		*25 - 150*

GC/MS Semi VOA

Prep Batch: 659343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-5	TRW CONTROL T05	Total/NA	Water	3510C	
180-136066-14	TRW 20% PC T05	Total/NA	Water	3510C	
180-136066-23	TRW 20% PC, 2% AC T05	Total/NA	Water	3510C	
180-136066-32	TRW 20% PC, 4% AC T05	Total/NA	Water	3510C	
180-136066-41	TRW 20% PC, 2% AC, 2% SP T05	Total/NA	Water	3510C	
180-136066-50	MB T05	Total/NA	Water	3510C	
MB 500-659343/1-A	Method Blank	Total/NA	Water	3510C	
LCS 500-659343/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 500-659343/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 660745

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-5	TRW CONTROL T05	Total/NA	Water	8270D SIM	659343
180-136066-5	TRW CONTROL T05	Total/NA	Water	8270D SIM	659343
180-136066-14	TRW 20% PC T05	Total/NA	Water	8270D SIM	659343
180-136066-14	TRW 20% PC T05	Total/NA	Water	8270D SIM	659343
180-136066-23	TRW 20% PC, 2% AC T05	Total/NA	Water	8270D SIM	659343
180-136066-32	TRW 20% PC, 4% AC T05	Total/NA	Water	8270D SIM	659343
180-136066-41	TRW 20% PC, 2% AC, 2% SP T05	Total/NA	Water	8270D SIM	659343
180-136066-50	MB T05	Total/NA	Water	8270D SIM	659343
MB 500-659343/1-A	Method Blank	Total/NA	Water	8270D SIM	659343
LCS 500-659343/2-A	Lab Control Sample	Total/NA	Water	8270D SIM	659343
LCSD 500-659343/3-A	Lab Control Sample Dup	Total/NA	Water	8270D SIM	659343

Prep Batch: 664073

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-8	TRW CONTROL T08	Total/NA	Water	3510C	
180-136066-8 - DL	TRW CONTROL T08	Total/NA	Water	3510C	
180-136066-17 - DL	TRW 20% PC T08	Total/NA	Water	3510C	
180-136066-17	TRW 20% PC T08	Total/NA	Water	3510C	
180-136066-26	TRW 20% PC, 2% AC T08	Total/NA	Water	3510C	
180-136066-35	TRW 20% PC, 4% AC T08	Total/NA	Water	3510C	
180-136066-44	TRW 20% PC, 2% AC, 2% SP T08	Total/NA	Water	3510C	
180-136066-53	MB T08	Total/NA	Water	3510C	
MB 500-664073/1-A	Method Blank	Total/NA	Water	3510C	
LCS 500-664073/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 500-664073/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 664961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-8 - DL	TRW CONTROL T08	Total/NA	Water	8270D SIM	664073
180-136066-8	TRW CONTROL T08	Total/NA	Water	8270D SIM	664073
180-136066-53	MB T08	Total/NA	Water	8270D SIM	664073
MB 500-664073/1-A	Method Blank	Total/NA	Water	8270D SIM	664073
LCS 500-664073/2-A	Lab Control Sample	Total/NA	Water	8270D SIM	664073
LCSD 500-664073/3-A	Lab Control Sample Dup	Total/NA	Water	8270D SIM	664073

Analysis Batch: 665088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-17	TRW 20% PC T08	Total/NA	Water	8270D SIM	664073
180-136066-17 - DL	TRW 20% PC T08	Total/NA	Water	8270D SIM	664073

GC/MS Semi VOA (Continued)

Analysis Batch: 665088 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-26	TRW 20% PC, 2% AC T08	Total/NA	Water	8270D SIM	664073
180-136066-35	TRW 20% PC, 4% AC T08	Total/NA	Water	8270D SIM	664073
180-136066-44	TRW 20% PC, 2% AC, 2% SP T08	Total/NA	Water	8270D SIM	664073

Prep Batch: 666120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-9 - DL	TRW CONTROL T09	Total/NA	Water	3510C	
180-136066-9	TRW CONTROL T09	Total/NA	Water	3510C	
180-136066-18 - DL	TRW 20% PC T09	Total/NA	Water	3510C	
180-136066-18	TRW 20% PC T09	Total/NA	Water	3510C	
180-136066-27	TRW 20% PC, 2% AC T09	Total/NA	Water	3510C	
180-136066-36	TRW 20% PC, 4% AC T09	Total/NA	Water	3510C	
180-136066-45	TRW 20% PC, 2% AC, 2% SP T09	Total/NA	Water	3510C	
180-136066-54	MB T09	Total/NA	Water	3510C	
MB 500-666120/1-A	Method Blank	Total/NA	Water	3510C	
LCS 500-666120/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 500-666120/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 666202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-9	TRW CONTROL T09	Total/NA	Water	8270D SIM	666120
180-136066-9 - DL	TRW CONTROL T09	Total/NA	Water	8270D SIM	666120
180-136066-18	TRW 20% PC T09	Total/NA	Water	8270D SIM	666120
180-136066-18 - DL	TRW 20% PC T09	Total/NA	Water	8270D SIM	666120
180-136066-27	TRW 20% PC, 2% AC T09	Total/NA	Water	8270D SIM	666120
180-136066-36	TRW 20% PC, 4% AC T09	Total/NA	Water	8270D SIM	666120
180-136066-45	TRW 20% PC, 2% AC, 2% SP T09	Total/NA	Water	8270D SIM	666120
180-136066-54	MB T09	Total/NA	Water	8270D SIM	666120
MB 500-666120/1-A	Method Blank	Total/NA	Water	8270D SIM	666120
LCS 500-666120/2-A	Lab Control Sample	Total/NA	Water	8270D SIM	666120
LCSD 500-666120/3-A	Lab Control Sample Dup	Total/NA	Water	8270D SIM	666120

LCMS

Prep Batch: 593360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-5	TRW CONTROL T05	Total/NA	Water	3535	
180-136066-14	TRW 20% PC T05	Total/NA	Water	3535	
180-136066-23	TRW 20% PC, 2% AC T05	Total/NA	Water	3535	
180-136066-32	TRW 20% PC, 4% AC T05	Total/NA	Water	3535	
180-136066-41	TRW 20% PC, 2% AC, 2% SP T05	Total/NA	Water	3535	
180-136066-50	MB T05	Total/NA	Water	3535	
MB 320-593360/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-593360/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-593360/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 594170

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-5	TRW CONTROL T05	Total/NA	Water	537 (modified)	593360
180-136066-14	TRW 20% PC T05	Total/NA	Water	537 (modified)	593360
180-136066-23	TRW 20% PC, 2% AC T05	Total/NA	Water	537 (modified)	593360

LCMS (Continued)

Analysis Batch: 594170 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-32	TRW 20% PC, 4% AC T05	Total/NA	Water	537 (modified)	593360
180-136066-41	TRW 20% PC, 2% AC, 2% SP T05	Total/NA	Water	537 (modified)	593360
180-136066-50	MB T05	Total/NA	Water	537 (modified)	593360
MB 320-593360/1-A	Method Blank	Total/NA	Water	537 (modified)	593360
LCSD 320-593360/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	593360

Analysis Batch: 594808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-593360/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	593360

Prep Batch: 600388

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-17	TRW 20% PC T08	Total/NA	Water	3535	
180-136066-26	TRW 20% PC, 2% AC T08	Total/NA	Water	3535	
180-136066-35	TRW 20% PC, 4% AC T08	Total/NA	Water	3535	
180-136066-44	TRW 20% PC, 2% AC, 2% SP T08	Total/NA	Water	3535	
180-136066-53	MB T08	Total/NA	Water	3535	
MB 320-600388/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-600388/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-600388/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 600455

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-17	TRW 20% PC T08	Total/NA	Water	537 (modified)	600388
180-136066-26	TRW 20% PC, 2% AC T08	Total/NA	Water	537 (modified)	600388
180-136066-35	TRW 20% PC, 4% AC T08	Total/NA	Water	537 (modified)	600388
180-136066-44	TRW 20% PC, 2% AC, 2% SP T08	Total/NA	Water	537 (modified)	600388
180-136066-53	MB T08	Total/NA	Water	537 (modified)	600388
MB 320-600388/1-A	Method Blank	Total/NA	Water	537 (modified)	600388
LCS 320-600388/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	600388
LCSD 320-600388/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	600388

Prep Batch: 602450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-8	TRW CONTROL T08	Total/NA	Water	3535	
MB 320-602450/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-602450/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-602450/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 605068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136066-8	TRW CONTROL T08	Total/NA	Water	537 (modified)	602450
MB 320-602450/1-A	Method Blank	Total/NA	Water	537 (modified)	602450
LCS 320-602450/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	602450
LCSD 320-602450/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	602450

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

Chain of Custody Record

eurofins | Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Rob Sents	Site Contact: Laurel Crawford	Date: 3/30/22	COC No:
ERM Consulting & Engineering, Inc.	Email: rob.sents@erm.com	Lab Contact: Carrie Gamber	Carrier: Fedex	___1__ of ___1__ COCs
5784 Widewater Pkwy	Tel/Fax:			TALS Project #:
Syracuse, NY 13214	Analysis Turnaround Time			Sampler: Laurel Crawford
(315) 445-2554	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(315) 445-2534 FAX	TAT if different from Below __standard__			Walk-in Client:
Project Name: Former TRW Union Springs	☐ 2 weeks			Lab Sampling:
Site: Union Springs, NY	☐ 1 week			Job / SDG No.:
Project # : 46031778	☐ 2 days			
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)		LEAF Method 1315 (see Table 1 for specific analyses and time points for each sample)	TCLP * (to be determined) *												Sample Specific Notes:
TRW Control	3/22/22	17:00	C	S	1 glass 2 HDPE				x	x												HDPE for PFAS vessel, glass for vessel for all other analytes
TRW 7% PC	3/22/22	17:20	C	S	3**				x	x												
TRW 7% PC, 2% AC	3/22/22	17:50	C	S	3**				x	x												** 1 monolith for PFAS vessel, 1 monolith for vessel for all other analytes, plus 1 extra monolith if needed
TRW 7% PC, 4% AC	3/22/22	18:30	C	S	3**				x	x												
TRW 7% PC, 2% AC, 2% SP	3/22/22	19:00	C	S	3**				x	x												

180-136066 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ___DI, MeOH___

		1	1	1	1	1	1	1	1	1	1	1	1	1,6	1	1	1				

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

** hold until ERM decides if any TCLP analyses are needed*

☐ Return to Client ☑ Disposal by Lab ☑ Archive for ___*___ Months

Special Instructions/QC Requirements & Comments:

Please refer to the attached Table 1 for specific analyses at select time points depending on the sample.
Please include Laurel Crawford on data deliverables: Lcrawford@loureiro.com

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd:_____ Corr'd:_____		Therm ID No.:_____
Relinquished by:	Company: XDD d/b/a Loureiro	Date/Time: 3/30/22 ~~3/16/22~~ 13:30	Received by:	Company: ETA PITT	Date/Time: 3/31/22 1511
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.35, dated 10/6/2020

ORIGIN ID:IGGA (603) 778-1100
LAUREL CRAWFORD
LOUREIRO ENGINEERING ASSOC INC
22 MARIN WAY UNIT #3
STRATHAM, NH 03885
UNITED STATES US

SHIP DATE: 30MAR22
ACTWGT: 25.00 LB
CAD: 112565704/INET4460
DIMS: 25x15x15 IN

BILL SENDER

TO **CARRIE GAMBER**
EUROFINS ENVIROTEST AMERICA
301 ALPHA DRIVE
PITTSBURGH PA 15238
(412) 963-2428
INV:
PO:
REF: 027ER201 TASK 001 LC
DEPT:

56DJ1/1E3B/FE4A

J221022010501uv

FedEx Express

THU - 31 MAR 4:30P
STANDARD OVERNIGHT

TRK# 0201 **7764 4004 9775**

UI AGCA

15238
PIT
PA-US

Uncorrected temp 3.8 °C
Thermometer ID 16
CF -0.1
Initials
PT-WI-SR-001 effective 11/8/18

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

180-136066 Waybill

Eurofins Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Gamber, Carrie L	Carrier Tracking No(s):	COC No: 180-464581.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Carrie.Gamber@et.eurofinsus.com	State of Origin: New York	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): NELAP - New York		Job #: 180-136066-2
Address: 880 Riverside Parkway, ,	Due Date Requested: 7/13/2022			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Former TRW Union Springs Property - Unio	Project #: 18025140			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC PFAS, Standard List (21 Analytes) 1315	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
TRW CONTROL T08 (180-136066-8)	6/29/22	07:30 Eastern		Water			X	2	
TRW 20% PC T08 (180-136066-17)	6/29/22	07:30 Eastern		Water			X	2	
TRW 20% PC, 2% AC T08 (180-136066-26)	6/29/22	07:30 Eastern		Water			X	2	
TRW 20% PC, 4% AC T08 (180-136066-35)	6/29/22	07:30 Eastern		Water			X	2	
TRW 20% PC, 2% AC, 2% SP T08 (180-136066-44)	6/29/22	07:30 Eastern		Water			X	2	
MB T08 (180-136066-53)	6/29/22	07:30 Eastern		Water			X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Pittsburgh places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Pittsburgh.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		6-28-22 1700			6/30/22 1005	
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.: Seal	Cooler Temperature(s) °C and Other Remarks: 1.2c

Ver: 06/08/2021

Eurofins Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh PA 15238
Phone 412-963-7058 Fax 412-963-2468

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler	Lab PM: Gamber Carrie L	Carrier Tracking No(s)	COC No: 180-464580 1
Client Contact: Shipping/Receiving	Phone	E-Mail: Carrie Gamber@et eurofinsus com	State of Origin: New York	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): NELAP - New York		Job #: 180-136066-2
Address: 2417 Bond Street,	Due Date Requested: 7/13/2022			
City: University Park	TAT Requested (days):			
State, Zip: IL 60484				
Phone: 708-534-5200(Tel) 708-534-5211(Fax)	PO #:			
Email	WO #:			
Project Name: Former TRW Union Springs Property - Unio	Project #: 18025140			
Site	SSOW#:			

180-136066 COC

Analysis Requested

Preservation Codes

A HCL, B NaOH, C Zn Acetate, D Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Y Trizma, Z other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D_SIM/3510C_LVI (MOD) Local Method	Total Number of containers	Special Instructions/Note
			Preservation Code						
TRW CONTROL T08 (180-136066-8)	6/29/22	07 30 Eastern		Water			X	1	
TRW 20% PC T08 (180-136066-17)	6/29/22	07 30 Eastern		Water			X	1	
TRW 20% PC 2% AC T08 (180-136066-26)	6/29/22	07 30 Eastern		Water			X	1	
TRW 20% PC 4% AC T08 (180-136066-35)	6/29/22	07 30 Eastern		Water			X	1	
TRW 20% PC 2% AC 2% SP T08 (180-136066-44)	6/29/22	07 30 Eastern		Water			X	1	
MB T08 (180-136066-53)	6/29/22	07 30 Eastern		Water			X	1	

Note Since laboratory accreditations are subject to change Eurofins Pittsburgh places the ownership of method analyte & accreditation compliance upon out subcontract laboratories This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately If all requested accreditations are current to date return the signed Chain of Custody attesting to said complicance to Eurofins Pittsburgh

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested I II III IV Other (specify) Primary Deliverable Rank 2	Special Instructions/QC Requirements

Empty Kit Relinquished by	Date	Time	Method of Shipment:

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by:	6/29/22 700		Received by:	6/30/22 1010	
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks: 1.4-1.5

Eurofins Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh PA 15238
Phone 412-963-7058 Fax 412-963-2468

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler	Lab PM: Gamber Carrie L	Carrier Tracking No(s)	COC No: 180-465406 1
Client Contact: Shipping/Receiving	Phone	E-Mail: Carrie Gamber@et eurofinsus com	State of Origin: New York	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): NELAP - New York		Job #: 180-136066-2
Address: 2417 Bond Street	Due Date Requested: 7/26/2022			
City: University Park	TAT Requested (days):			
State Zip: IL, 60484				
Phone: 708-534-5200(Tel) 708-534-5211(Fax)	PO #:			
Email	WO #:			
Project Name: Former TRW Union Springs Property - Unio	Project #: 18025140			
Site	SSOW#:			

180-136066 COC

Analysis Requested

Preservation Codes

A HCL, B NaOH, C Zn Acetate, D Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Y Trizma, Z other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D_SIM/3510C_LVI (MOD) Local Method	Total Number of containers	Special Instructions/Note
			Preservation Code:						
TRW CONTROL T09 (180-136066-9)	7/13/22	07 30 Eastern		Water			X	1	
TRW 20% PC T09 (180-136066-18)	7/13/22	07 30 Eastern		Water			X	1	
TRW 20% PC 2% AC T09 (180-136066-27)	7/13/22	07 30 Eastern		Water			X	1	
TRW 20% PC 4% AC T09 (180-136066-36)	7/13/22	07 30 Eastern		Water			X	1	
TRW 20% PC 2% AC 2% SP T09 (180-136066-45)	7/13/22	07 30 Eastern		Water			X	1	
MB T09 (180-136066-54)	7/13/22	07 30 Eastern		Water			X	1	

Note Since laboratory accreditations are subject to change Eurofins Pittsburgh places the ownership of method analyte & accreditation compliance upon out subcontract laboratories This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately If all requested accreditations are current to date return the signed Chain of Custody attesting to said complicance to Eurofins Pittsburgh

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested I II III IV Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements

Empty Kit Relinquished by	Date	Time	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	MO	7-13-22 1700	Eurofins	Paula Buckley	7/14/22 1005	EEOT
2						
3						

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks: 0.4+0.5

eurofins | Environment Testing TestAmerica

Sacramento Sample Receiving Notes

180-136066 Field Sheet

Job: _____

Tracking # : 5173 0449 3560

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Therm. ID: 1.03 Corr. Factor: (+ / -) — °C

Ice 1 Wet 1 Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: _____

Temp Observed: 1.2 °C Corrected: 1.2 °C

From: Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials: KB Date: 6.30.22

Unpacking/Labeling The Samples	Yes	No	NA
COC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample custody seal?	☐	☐	☑
Sample containers have legible labels?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Is the Field Sampler's name on COC?	☐	☐	☑
Samples require splitting/compositing?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: KB Date: 6.30.22

Notes: _____

Trizma Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
Samples received within hold time?	☑	☐	☐
NCM Filed?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials: KB Date: 6.30.22

Login Sample Receipt Checklist

Client: ZF Active Safety and Electronics LLC

Job Number: 180-136066-2

Login Number: 136066
List Number: 1
Creator: Matko, Larry

List Source: Eurofins Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Login Sample Receipt Checklist

Client: ZF Active Safety and Electronics LLC

Job Number: 180-136066-2

Login Number: 136066
List Number: 3
Creator: Buckley, Paula M

List Source: Eurofins Chicago
List Creation: 05/14/22 12:26 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ZF Active Safety and Electronics LLC

Job Number: 180-136066-2

Login Number: 136066
List Number: 4
Creator: Hernandez, Stephanie

List Source: Eurofins Chicago
List Creation: 05/26/22 11:43 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ZF Active Safety and Electronics LLC

Job Number: 180-136066-2

Login Number: 136066
List Number: 7
Creator: Scott, Sherri L

List Source: Eurofins Chicago
List Creation: 07/01/22 07:42 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Login Sample Receipt Checklist

Client: ZF Active Safety and Electronics LLC

Job Number: 180-136066-2

Login Number: 136066
List Number: 8
Creator: Buckley, Paula M

List Source: Eurofins Chicago
List Creation: 07/14/22 12:56 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ZF Active Safety and Electronics LLC

Job Number: 180-136066-2

Login Number: 136066
List Number: 2
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 05/12/22 01:40 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ZF Active Safety and Electronics LLC

Job Number: 180-136066-2

Login Number: 136066
List Number: 5
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 05/27/22 02:35 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.9c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ZF Active Safety and Electronics LLC

Job Number: 180-136066-2

Login Number: 136066
List Number: 6
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 06/30/22 03:32 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.2c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

Eurofins Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-136073-1
Client Project/Site: Former TRW Union Springs Property - Unio

For:
ERM-Northeast
5784 Widewaters Pkwy
Dewitt, New York 13214

Attn: Mr. Robert Sents

Authorized for release by:
9/29/2022 7:33:28 AM

Carrie Gamber, Senior Project Manager
(412)963-2428
Carrie.Gamber@et.eurofinsus.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Definitions/Glossary 6
Certification Summary 8
Sample Summary 10
Method Summary 11
Lab Chronicle 12
Client Sample Results 16
QC Sample Results 29
QC Association Summary 58
Chain of Custody 62
Field Data Sheets 66
Receipt Checklists 67

Job ID: 180-136073-1

Laboratory: Eurofins Pittsburgh

Narrative

CASE NARRATIVE

Client: ERM-Northeast

Project: Former TRW Union Springs Property - Unio

Report Number: 180-136073-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 03/31/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.4 C.

NOTE: The request for analysis was after holding times had expired for all analyses except 6010D metals. The data was flagged and reported.

VOLATILES
The following samples were diluted due to the nature of the sample matrix: TRW 20% PC, 2% AC (180-136073-3) and TRW 20% PC, 4% AC (180-136073-4). Elevated reporting limits (RLs) are provided.

Internal standard responses were outside of acceptance limits for the following sample: (180-136073-F-4-A MS). The parent sample's internal recovery was within limits. The MS sample has been qualified and reported.

Surrogate recovery for the following samples were outside control limits: TRW 20% PC, 2% AC (180-136073-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. The pH of the sample was 12. High pH often results in low recovery of dibromofluoromethane surrogate.

Methylene Chloride failed the recovery criteria high for LCS 180-410452/3.

The laboratory control sample (LCS) for analytical batch 180-409779 recovered outside control limits for the following analyte: 1,1-Dichloroethene. A low-level LCS (LLCS), spiked at the reporting limit (RL), was prepared with this batch. The affected target analytes recovered within acceptance limits; therefore, the LLCS demonstrates the analytical system had sufficient sensitivity to detect the compound had it been present. Since the affected target compound was not detected in the samples, the data have been reported and qualified.

The laboratory control sample (LCS) for analytical batch 180-409895 recovered outside control limits for the following analytes: Chloroethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

1,4-Dichlorobenzene failed the recovery criteria low for the MS of sample TRW 20% PC, 4% ACMS (180-136073-4) in batch 180-409779. 2-Butanone (MEK) and 2-Hexanone failed the recovery criteria high. 2-Butanone (MEK), 2-Hexanone and Acetone failed the recovery criteria high for the MSD of sample TRW 20% PC, 4% ACMSD (180-136073-4) in batch 180-409779. 1,2,4-Trichlorobenzene, 1,2-Dibromo-3-Chloropropane and 1,2-Dichlorobenzene exceeded the RPD limit.

Job ID: 180-136073-1 (Continued)

Laboratory: Eurofins Pittsburgh (Continued)

The continuing calibration verification (CCV) analyzed in batch 180-410599 was outside the method criteria for the following analyte(s): Carbon disulfide, Bromoform, Acetone, 2-Hexanone, 1,2-Dibromo-3-Chloropropane and Toluene-d8(Surrogate). A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in 180-410599 was outside the method criteria for the following analyte(s): 1,2-Dichloroethane and Methylene Chloride. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in batch 180-409779 was outside the method criteria for the following analyte(s): Freon-113, Bromomethane, Carbon disulfide, Methylene Chloride and Trichloroethene. (LOW). A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in batch 180-409779 was outside the method criteria for the following analyte(s):1,1,2,2-Tetrachloroethane, Chloromethane, 1,2-Dibromo-3-Chloropropane, 1,2-Dichloroethane, 2-Butanone, 2-Hexanone and Methyl tert-butyl ether . (HIGH). As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) analyzed in batch 180-409895 was outside the method criteria for the following analyte(s): Bromoform. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

The continuing calibration verification (CCV) associated with batch 180-409895 recovered above the upper control limit for Bromomethane, Chloroethane, Trichlorofluoromethane, 1,1,2-Trichloro-1,2,2-Trifluoroethane, Toluene, and Trans-1,3-Dichloropropene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCVIS 180-409895/2).

The continuing calibration verification (CCV) analyzed in 180-409766 was outside the method criteria for the following analyte(s): 1,1,2-Trichloro-1,2,2-Trifluoroethane, Bromomethane, Chloroethane, Methylene Chloride, and Trichlorofluoromethane. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

SEMIVOLATILES
Sample TRW 20% PC, 2% AC (180-136073-6) required dilution prior to analysis. The reporting limits have been adjusted accordingly.

PESTICIDES
The laboratory control sample duplicate (LCSD) for preparation batch 180-410292 and analytical batch 180-410464 recovered outside control limits for the following analytes: Dieldrin and Endosulfan II. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 180-410292 and analytical batch 180-410464 recovered outside control limits for the following analytes: alpha-Chlordane and Heptachlor epoxide

The continuing calibration verification (CCV) associated with batch 180-410464 recovered outside acceptance criteria, low biased, for delta-BHC. A reporting limit (RL) standard was analyzed, and the target analytes are detected. Since the associated samples were non-detect for the analyte(s), the data are reported.

9056 IC
Sulfate was detected in method blank LB 180-409977/1-A at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. The associated method blank was non-detect for Sulfate. The sample result was greater than 10 times the amount found in the leach blank.

PFAS

Job ID: 180-136073-1 (Continued)

Laboratory: Eurofins Pittsburgh (Continued)

The following samples in preparation batch 320-614662 were pink in color following extraction. TRW 20% PC, 2% AC (180-136073-6) and TRW 20% PC, 4% AC (180-136073-7)

The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: TRW 20% PC, 2% AC (180-136073-6). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

METALS

Sodium and Thallium were detected in method blank LB 180-409977/1-E at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

The concentration of Sodium in the TCLP leachate blank (LB) was greater than the reporting limit. TCLP Solution #1 was used in leaching these samples, this solution contains Sodium at the concentration found in the leachate blank as purchased from the vendor. Data for sodium will be reported as is with this narrative.

Thallium was detected in method blank MB 180-410519/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

PERCENT SOLIDS

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: ERM-Northeast
Job ID: 180-136073-1
Project/Site: Former TRW Union Springs Property - Unio

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*3	ISTD response or retention time outside acceptable limits.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

GC/MS Semi VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
H	Sample was prepped or analyzed beyond the specified holding time

HPLC/IC

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
H	Sample was prepped or analyzed beyond the specified holding time

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: ERM-Northeast
Job ID: 180-136073-1
Project/Site: Former TRW Union Springs Property - Unio

Laboratory: Eurofins Pittsburgh

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	11182	09-11-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
2540G		Solid	Percent Moisture
2540G		Solid	Percent Solids
EPA 8081B	3510C	Solid	Hexachlorobenzene

Laboratory: Eurofins Chicago

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2903	04-29-22 *
Georgia	State	N/A	04-29-22 *
Georgia (DW)	State	939	04-30-23
Hawaii	State	NA	04-29-23
Illinois	NELAP	IL00035	04-30-23
Indiana	State	C-IL-02	04-29-23
Iowa	State	082	05-01-24
Kansas	NELAP	E-10161	10-31-22
Kentucky (UST)	State	AI # 108083	04-29-23
Kentucky (WW)	State	KY90023	12-31-22
Louisiana	NELAP	02046	06-30-23
Mississippi	State	NA	04-30-22 *
North Carolina (WW/SW)	State	291	12-31-22
North Dakota	State	R-194	04-30-23
Oklahoma	State	8908	08-31-23
South Carolina	State	77001003	04-29-22 *
USDA	US Federal Programs	P330-18-00018	02-11-24
Wisconsin	State	999580010	08-31-23
Wyoming	State	8TMS-Q	04-30-22 *

Laboratory: Eurofins Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	11666	04-01-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
537 (modified)	3535	Water	6:2 FTS
537 (modified)	3535	Water	8:2 FTS
537 (modified)	3535	Water	NEtFOSAA
537 (modified)	3535	Water	NMeFOSAA
537 (modified)	3535	Water	Perfluorobutanesulfonic acid (PFBS)
537 (modified)	3535	Water	Perfluorobutanoic acid (PFBA)
537 (modified)	3535	Water	Perfluorodecanesulfonic acid (PFDS)
537 (modified)	3535	Water	Perfluorodecanoic acid (PFDA)
537 (modified)	3535	Water	Perfluorododecanoic acid (PFDoA)
537 (modified)	3535	Water	Perfluoroheptanesulfonic acid (PFHpS)

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Client: ERM-Northeast
Job ID: 180-136073-1
Project/Site: Former TRW Union Springs Property - Unio

Laboratory: Eurofins Sacramento (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
537 (modified)	3535	Water	Perfluoroheptanoic acid (PFHpA)
537 (modified)	3535	Water	Perfluorohexanesulfonic acid (PFHxS)
537 (modified)	3535	Water	Perfluorohexanoic acid (PFHxA)
537 (modified)	3535	Water	Perfluorononanoic acid (PFNA)
537 (modified)	3535	Water	Perfluorooctanesulfonamide (FOSA)
537 (modified)	3535	Water	Perfluorooctanesulfonic acid (PFOS)
537 (modified)	3535	Water	Perfluorooctanoic acid (PFOA)
537 (modified)	3535	Water	Perfluoropentanoic acid (PFPeA)
537 (modified)	3535	Water	Perfluorotetradecanoic acid (PFTeA)
537 (modified)	3535	Water	Perfluorotridecanoic acid (PFTrDA)
537 (modified)	3535	Water	Perfluoroundecanoic acid (PFUnA)

Sample Summary

Client: ERM-Northeast
Job ID: 180-136073-1
Project/Site: Former TRW Union Springs Property - Unio

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-136073-3	TRW 20% PC, 2% AC	Solid	07/13/22 07:30	03/31/22 15:11
180-136073-4	TRW 20% PC, 4% AC	Solid	07/13/22 07:30	03/31/22 15:11
180-136073-6	TRW 20% PC, 2% AC	Water	08/26/22 06:00	03/31/22 15:11
180-136073-7	TRW 20% PC, 4% AC	Water	08/26/22 06:00	03/31/22 15:11
180-136073-8	TCLP LB	Water	08/26/22 06:00	03/31/22 15:11

Method Summary

Client: ERM-Northeast
Job ID: 180-136073-1
Project/Site: Former TRW Union Springs Property - Unio

Method	Method Description	Protocol	Laboratory
EPA 8260D	Volatile Organic Compounds by GC/MS	SW846	EET PIT
8270D SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	EET CHI
EPA 8270E LL	Semivolatile Organic Compounds (GC/MS)	SW846	EET PIT
EPA 8081B	Organochlorine Pesticides (GC)	SW846	EET PIT
EPA 9056A	Anions, Ion Chromatography	SW846	EET PIT
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
EPA 6010D	Metals (ICP)	SW846	EET PIT
EPA 7470A	Mercury (CVAA)	SW846	EET PIT
2540G	SM 2540G	SM22	EET PIT
Subcontract	General Subcontract Method	None	EET PIT
3010A	Preparation, Total Metals	SW846	EET PIT
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CHI
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET PIT
3520C	Liquid-Liquid Extraction (Continuous)	SW846	EET PIT
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC
5030C	Purge and Trap	SW846	EET PIT
7470A	Preparation, Mercury	SW846	EET PIT
EPA 1311	TCLP Extraction	SW846	EET PIT

Protocol References:

EPA = US Environmental Protection Agency
None = None
SM22 = Standard Methods For The Examination Of Water And Wastewater, 22nd Edition
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200
EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136073-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC
Lab Sample ID: 180-136073-3
Date Collected: 07/13/22 07:30
Matrix: Solid
Date Received: 03/31/22 15:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			26.01 g	500 mL	409644	08/23/22 07:40	CRL	EET PIT
TCLP	Analysis	EPA 8260D		1	0.25 mL	5 mL	410599	08/31/22 13:02	J1T	EET PIT
	Instrument ID: CHHP5									
TCLP	Leach	EPA 1311			250 g	5000 mL	409977	08/25/22 12:00	LWM	EET PIT
TCLP	Prep	3520C			1050 mL	1.0 mL	410339	08/29/22 11:53	BJT	EET PIT
TCLP	Analysis	EPA 8270E LL		1	1 mL	1 mL	410745	09/01/22 17:46	VVP	EET PIT
	Instrument ID: CH731									
TCLP	Leach	EPA 1311			250 g	5000 mL	409977	08/25/22 12:00	LWM	EET PIT
TCLP	Prep	3510C			100 mL	40.0 mL	410292	08/29/22 03:35	CBY	EET PIT
TCLP	Analysis	EPA 8081B		1	1 mL	1 mL	410464	08/30/22 13:29	APD	EET PIT
	Instrument ID: CHGC17									
TCLP	Leach	EPA 1311			250 g	5000 mL	409977	08/25/22 12:00	LWM	EET PIT
TCLP	Analysis	EPA 9056A		1	0 mL	0 mL	410174	08/27/22 05:54	SNL	EET PIT
	Instrument ID: CHIC2100A									
TCLP	Leach	EPA 1311			250 g	5000 mL	409977	08/25/22 12:00	LWM	EET PIT
TCLP	Prep	3010A			2.5 mL	25 mL	410519	08/30/22 13:20	RSR	EET PIT
TCLP	Analysis	EPA 6010D		1			410735	08/31/22 13:56	RJG	EET PIT
	Instrument ID: C									
TCLP	Leach	EPA 1311			250 g	5000 mL	409977	08/25/22 12:00	LWM	EET PIT
TCLP	Prep	7470A			25 mL	25 mL	410334	08/29/22 11:20	RJR	EET PIT
TCLP	Analysis	EPA 7470A		1			410530	08/30/22 14:55	RJR	EET PIT
	Instrument ID: HGY									
Total/NA	Analysis	2540G		1			411447	09/08/22 15:06	LWM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 2% AC
Lab Sample ID: 180-136073-3
Date Collected: 07/13/22 07:30
Matrix: Solid
Date Received: 03/31/22 15:11
Percent Solids: 65.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030C			1.0128 g	5 mL	409769	08/24/22 05:30	KLG	EET PIT
Total/NA	Analysis	EPA 8260D		1	5 mL	5 mL	409766	08/24/22 13:25	KLG	EET PIT
	Instrument ID: CHHP3									

Client Sample ID: TRW 20% PC, 4% AC
Lab Sample ID: 180-136073-4
Date Collected: 07/13/22 07:30
Matrix: Solid
Date Received: 03/31/22 15:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			25.00 g	500 mL	409644	08/23/22 07:40	CRL	EET PIT
TCLP	Analysis	EPA 8260D		1	0.25 mL	5 mL	409779	08/24/22 15:43	PJJ	EET PIT
	Instrument ID: CHHP10									
TCLP	Leach	EPA 1311			250 g	5000 mL	409977	08/25/22 11:47	LWM	EET PIT
TCLP	Prep	3520C			1030 mL	1.0 mL	410339	08/29/22 11:53	BJT	EET PIT
TCLP	Analysis	EPA 8270E LL		1	1 mL	1 mL	410745	09/01/22 18:08	VVP	EET PIT
	Instrument ID: CH731									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136073-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 4% AC
Lab Sample ID: 180-136073-4
Date Collected: 07/13/22 07:30
Matrix: Solid
Date Received: 03/31/22 15:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	EPA 1311			250 g	5000 mL	409977	08/25/22 11:47	LWM	EET PIT
TCLP	Prep	3510C			100 mL	40.0 mL	410292	08/29/22 03:35	CBY	EET PIT
TCLP	Analysis	EPA 8081B		1	1 mL	1 mL	410464	08/30/22 13:13	APD	EET PIT
	Instrument ID: CHGC17									
TCLP	Leach	EPA 1311			250 g	5000 mL	409977	08/25/22 11:47	LWM	EET PIT
TCLP	Analysis	EPA 9056A		1	0 mL	0 mL	410174	08/27/22 05:24	SNL	EET PIT
	Instrument ID: CHIC2100A									
TCLP	Leach	EPA 1311			250 g	5000 mL	409977	08/25/22 11:47	LWM	EET PIT
TCLP	Prep	3010A			2.5 mL	25 mL	410519	08/30/22 13:20	RSR	EET PIT
TCLP	Analysis	EPA 6010D		1			410735	08/31/22 14:01	RJG	EET PIT
	Instrument ID: C									
TCLP	Leach	EPA 1311			250 g	5000 mL	409977	08/25/22 11:47	LWM	EET PIT
TCLP	Prep	7470A			25 mL	25 mL	410334	08/29/22 11:20	RJR	EET PIT
TCLP	Analysis	EPA 7470A		1			410530	08/30/22 14:56	RJR	EET PIT
	Instrument ID: HGY									
Total/NA	Analysis	2540G		1			411447	09/08/22 15:06	LWM	EET PIT
	Instrument ID: NOEQUIP									

Client Sample ID: TRW 20% PC, 4% AC
Lab Sample ID: 180-136073-4
Date Collected: 07/13/22 07:30
Matrix: Solid
Date Received: 03/31/22 15:11
Percent Solids: 67.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030C			1.0003 g	5 mL	409902	08/25/22 05:30	KLG	EET PIT
Total/NA	Analysis	EPA 8260D		1	5 mL	5 mL	409895	08/25/22 08:51	KLG	EET PIT
	Instrument ID: CHHP3									

Client Sample ID: TRW 20% PC, 2% AC
Lab Sample ID: 180-136073-6
Date Collected: 08/26/22 06:00
Matrix: Water
Date Received: 03/31/22 15:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C	DL2		250 mL	1.0 mL	672926	09/02/22 08:14	TS	EET CHI
Total/NA	Analysis	8270D SIM	DL2	10	1 mL	1 mL	674188	09/12/22 19:07	JSB	EET CHI
	Instrument ID: CMS21									
Total/NA	Prep	3510C			250 mL	1.0 mL	672926	09/02/22 08:14	TS	EET CHI
Total/NA	Analysis	8270D SIM		1	1 mL	1 mL	674293	09/13/22 09:37	JSB	EET CHI
	Instrument ID: CMS21									
Total/NA	Prep	3510C	DL		250 mL	1.0 mL	672926	09/02/22 08:14	TS	EET CHI
Total/NA	Analysis	8270D SIM	DL	2	1 mL	1 mL	674293	09/13/22 11:04	JSB	EET CHI
	Instrument ID: CMS21									
Total/NA	Prep	3535			264.3 mL	10.0 mL	614662	09/06/22 12:05	MEK	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	615593	09/10/22 08:26	K1S	EET SAC
	Instrument ID: A15									

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136073-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 4% AC
Lab Sample ID: 180-136073-7
Date Collected: 08/26/22 06:00
Matrix: Water
Date Received: 03/31/22 15:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	672926	09/02/22 08:14	TS	EET CHI
Total/NA	Analysis	8270D SIM		1	1 mL	1 mL	674293	09/13/22 10:02	JSB	EET CHI
	Instrument ID: CMS21									
Total/NA	Prep	3535			260.9 mL	10.0 mL	614662	09/06/22 12:05	MEK	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	615593	09/10/22 08:36	K1S	EET SAC
	Instrument ID: A15									

Client Sample ID: TCLP LB
Lab Sample ID: 180-136073-8
Date Collected: 08/26/22 06:00
Matrix: Water
Date Received: 03/31/22 15:11

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			250 mL	1.0 mL	672926	09/02/22 08:14	TS	EET CHI
Total/NA	Analysis	8270D SIM		1	1 mL	1 mL	674188	09/12/22 18:42	JSB	EET CHI
	Instrument ID: CMS21									
Total/NA	Prep	3535			285.3 mL	10.0 mL	614662	09/06/22 12:05	MEK	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	615593	09/10/22 08:46	K1S	EET SAC
	Instrument ID: A15									

[1] Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Laboratory References:

EET CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Chronicle

Client: ERM-Northeast
Job ID: 180-136073-1
Project/Site: Former TRW Union Springs Property - Unio

Analyst References:

Lab: EET CHI
- Batch Type: Prep
  - TS = Timothy Shelton
- Batch Type: Analysis
  - JSB = Joshua Burdelik

Lab: EET PIT
- Batch Type: Leach
  - CRL = Craig Tronzo
  - LWM = Larry Matko
- Batch Type: Prep
  - BJT = Bill Trout
  - CBY = Charles Yushinski
  - KLG = Kathy Gordon
  - RJR = Ron Rosenbaum
  - RSR = Roseann Ruyechan
- Batch Type: Analysis
  - APD = Aaron DeLeo
  - J1T = Jianwu Tang
  - KLG = Kathy Gordon
  - LWM = Leslie McIntire
  - PJJ = Patrick Journet
  - RJG = Rob Good
  - RJR = Ron Rosenbaum
  - SNL = Sean Lordo
  - VVP = Vincent Piccolino

Lab: EET SAC
- Batch Type: Prep
  - MEK = Michelle Kunihiro
- Batch Type: Analysis
  - K1S = Kotechakon Sorndee

Client: ERM-Northeast
Job ID: 180-136073-1
Project/Site: Former TRW Union Springs Property - Unio

Client Sample ID: TRW 20% PC, 2% AC
Lab Sample ID: 180-136073-3
Date Collected: 07/13/22 07:30
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	H	0.20	0.050	mg/L			08/31/22 13:02	1
1,1,2,2-Tetrachloroethane	ND	H	0.20	0.060	mg/L			08/31/22 13:02	1
Freon-113	ND	H	0.20	0.038	mg/L			08/31/22 13:02	1
1,1,2-Trichloroethane	ND	H	0.20	0.048	mg/L			08/31/22 13:02	1
1,1-Dichloroethane	ND	H	0.20	0.036	mg/L			08/31/22 13:02	1
1,1-Dichloroethene	ND	H	0.20	0.057	mg/L			08/31/22 13:02	1
1,2,4-Trichlorobenzene	ND	H	0.20	0.074	mg/L			08/31/22 13:02	1
1,2-Dibromo-3-Chloropropane	ND	H	0.20	0.061	mg/L			08/31/22 13:02	1
1,2-Dichlorobenzene	ND	H	0.20	0.040	mg/L			08/31/22 13:02	1
1,2-Dichloroethane	ND	H	0.20	0.029	mg/L			08/31/22 13:02	1
1,2-Dichloropropane	ND	H	0.20	0.049	mg/L			08/31/22 13:02	1
1,3-Dichlorobenzene	ND	H	0.20	0.032	mg/L			08/31/22 13:02	1
1,4-Dichlorobenzene	ND	H	0.20	0.020	mg/L			08/31/22 13:02	1
2-Butanone (MEK)	ND	H	0.20	0.058	mg/L			08/31/22 13:02	1
2-Hexanone	ND	H	0.20	0.084	mg/L			08/31/22 13:02	1
Acetone	**0.33**	**J H**	0.80	0.11	mg/L			08/31/22 13:02	1
Benzene	ND	H	0.20	0.039	mg/L			08/31/22 13:02	1
Bromoform	ND	H	0.20	0.052	mg/L			08/31/22 13:02	1
Methyl bromide	ND	H	0.20	0.090	mg/L			08/31/22 13:02	1
Carbon disulfide	ND	H	0.20	0.060	mg/L			08/31/22 13:02	1
Carbon tetrachloride	ND	H	0.20	0.066	mg/L			08/31/22 13:02	1
Chlorobenzene	ND	H	0.20	0.031	mg/L			08/31/22 13:02	1
Dibromochloromethane	ND	H	0.20	0.048	mg/L			08/31/22 13:02	1
Chloroethane	ND	H	0.20	0.052	mg/L			08/31/22 13:02	1
Chloroform	ND	H	0.20	0.042	mg/L			08/31/22 13:02	1
Methyl chloride	ND	H	0.20	0.077	mg/L			08/31/22 13:02	1
cis-1,2-Dichloroethene	ND	H	0.20	0.031	mg/L			08/31/22 13:02	1
cis-1,3-Dichloropropene	ND	H	0.20	0.032	mg/L			08/31/22 13:02	1
Bromodichloromethane	ND	H	0.20	0.047	mg/L			08/31/22 13:02	1
Freon-12	ND	H	0.20	0.058	mg/L			08/31/22 13:02	1
Ethylbenzene	ND	H	0.20	0.043	mg/L			08/31/22 13:02	1
1,2-Dibromoethane	ND	H	0.20	0.055	mg/L			08/31/22 13:02	1
Isopropylbenzene (cumene)	ND	H	0.20	0.046	mg/L			08/31/22 13:02	1
Methyl tert-butyl ether	ND	H	0.20	0.074	mg/L			08/31/22 13:02	1
Methylene Chloride	ND	H	0.20	0.077	mg/L			08/31/22 13:02	1
Styrene	ND	H	0.20	0.027	mg/L			08/31/22 13:02	1
Tetrachloroethene	**0.090**	**J H**	0.20	0.040	mg/L			08/31/22 13:02	1
Toluene	ND	H	0.20	0.034	mg/L			08/31/22 13:02	1
trans-1,2-Dichloroethene	ND	H	0.20	0.051	mg/L			08/31/22 13:02	1
trans-1,3-Dichloropropene	ND	H	0.20	0.035	mg/L			08/31/22 13:02	1
Trichloroethene	ND	H	0.20	0.030	mg/L			08/31/22 13:02	1
Freon-11	ND	H	0.20	0.029	mg/L			08/31/22 13:02	1
Vinyl chloride	ND	H	0.20	0.073	mg/L			08/31/22 13:02	1
Xylenes, Total	ND	H	0.40	0.086	mg/L			08/31/22 13:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*52 - 151*		*08/31/22 13:02*	*1*
4-Bromofluorobenzene (Surr)	*91*		*49 - 118*		*08/31/22 13:02*	*1*
Dibromofluoromethane (Surr)	*104*		*60 - 132*		*08/31/22 13:02*	*1*
Toluene-d8 (Surr)	*92*		*53 - 124*		*08/31/22 13:02*	*1*

Client Sample ID: TRW 20% PC, 2% AC
Lab Sample ID: 180-136073-3

Date Collected: 07/13/22 07:30
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND	H	0.00019	0.000063	mg/L		08/29/22 11:53	09/01/22 17:46	1
Anthracene	ND	H	0.00019	0.000048	mg/L		08/29/22 11:53	09/01/22 17:46	1
Atrazine	ND	H	0.00095	0.00060	mg/L		08/29/22 11:53	09/01/22 17:46	1
Benzo[a]anthracene	ND	H	0.00019	0.000072	mg/L		08/29/22 11:53	09/01/22 17:46	1
Benzo[a]pyrene	ND	H	0.00019	0.000051	mg/L		08/29/22 11:53	09/01/22 17:46	1
Benzo[b]fluoranthene	ND	H	0.00019	0.000093	mg/L		08/29/22 11:53	09/01/22 17:46	1
Benzo[k]fluoranthene	ND	H	0.00019	0.000084	mg/L		08/29/22 11:53	09/01/22 17:46	1
Benzyl butyl phthalate	ND	H	0.00095	0.00044	mg/L		08/29/22 11:53	09/01/22 17:46	1
Biphenyl	ND	H	0.00095	0.000057	mg/L		08/29/22 11:53	09/01/22 17:46	1
Bis(2-chloroethoxy)methane	ND	H	0.00095	0.000065	mg/L		08/29/22 11:53	09/01/22 17:46	1
Bis(2-ethylhexyl) phthalate	ND	H	0.095	0.0059	mg/L		08/29/22 11:53	09/01/22 17:46	1
2-Chloronaphthalene	ND	H	0.00019	0.000057	mg/L		08/29/22 11:53	09/01/22 17:46	1
Chrysene	ND	H	0.00019	0.000078	mg/L		08/29/22 11:53	09/01/22 17:46	1
Dibutylphthalate	**0.0017**	**H**	0.00095	0.00071	mg/L		08/29/22 11:53	09/01/22 17:46	1
1,4-Dichlorobenzene	ND	H	0.00095	0.000059	mg/L		08/29/22 11:53	09/01/22 17:46	1
3,3'-Dichlorobenzidine	ND	H	0.00095	0.00056	mg/L		08/29/22 11:53	09/01/22 17:46	1
Dichloroethyl ether	ND	H	0.00019	0.000038	mg/L		08/29/22 11:53	09/01/22 17:46	1
2,4-Dichlorophenol	ND	H	0.00019	0.000050	mg/L		08/29/22 11:53	09/01/22 17:46	1
Diethyl phthalate	ND	H	0.00095	0.00054	mg/L		08/29/22 11:53	09/01/22 17:46	1
2,4-Dimethylphenol	ND	H	0.00095	0.000040	mg/L		08/29/22 11:53	09/01/22 17:46	1
Dimethyl phthalate	ND	H	0.00095	0.000053	mg/L		08/29/22 11:53	09/01/22 17:46	1
2,4-Dinitrophenol	ND	H	0.0048	0.0015	mg/L		08/29/22 11:53	09/01/22 17:46	1
2,4-Dinitrotoluene	ND	H	0.00095	0.000050	mg/L		08/29/22 11:53	09/01/22 17:46	1
2,6-Dinitrotoluene	ND	H	0.00095	0.000057	mg/L		08/29/22 11:53	09/01/22 17:46	1
Di-n-octyl phthalate	ND	H	0.00095	0.00065	mg/L		08/29/22 11:53	09/01/22 17:46	1
Fluoranthene	ND	H	0.00019	0.000057	mg/L		08/29/22 11:53	09/01/22 17:46	1
Fluorene	ND	H	0.00019	0.000067	mg/L		08/29/22 11:53	09/01/22 17:46	1
Hexachlorobutadiene	ND	H	0.00019	0.000067	mg/L		08/29/22 11:53	09/01/22 17:46	1
Hexachlorocyclopentadiene	ND	H	0.00095	0.00047	mg/L		08/29/22 11:53	09/01/22 17:46	1
Hexachloroethane	ND	H	0.00095	0.000059	mg/L		08/29/22 11:53	09/01/22 17:46	1
Indeno[1,2,3-cd]pyrene	ND	H	0.00019	0.000082	mg/L		08/29/22 11:53	09/01/22 17:46	1
Isophorone	ND	H	0.00095	0.000051	mg/L		08/29/22 11:53	09/01/22 17:46	1
2-Nitroaniline	ND	H	0.0048	0.00052	mg/L		08/29/22 11:53	09/01/22 17:46	1
3-Nitroaniline	ND	H	0.0048	0.000065	mg/L		08/29/22 11:53	09/01/22 17:46	1
Nitrobenzene	ND	H	0.0019	0.00048	mg/L		08/29/22 11:53	09/01/22 17:46	1
N-Nitrosodiphenylamine	ND	H	0.00095	0.00011	mg/L		08/29/22 11:53	09/01/22 17:46	1
2,2'-oxybis[1-chloropropane]	ND	H	0.00019	0.000055	mg/L		08/29/22 11:53	09/01/22 17:46	1
p-Chloroaniline	ND	H	0.00095	0.000042	mg/L		08/29/22 11:53	09/01/22 17:46	1
Pentachlorophenol	ND	H	0.00095	0.00081	mg/L		08/29/22 11:53	09/01/22 17:46	1
Phenanthrene	ND	H	0.00019	0.000053	mg/L		08/29/22 11:53	09/01/22 17:46	1
Phenol	**0.0013**	**H**	0.00095	0.00046	mg/L		08/29/22 11:53	09/01/22 17:46	1
p-Nitroaniline	ND	H	0.0048	0.000055	mg/L		08/29/22 11:53	09/01/22 17:46	1
Pyrene	ND	H	0.00019	0.000051	mg/L		08/29/22 11:53	09/01/22 17:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*80*		*38 - 105*	*08/29/22 11:53*	*09/01/22 17:46*	*1*
2-Fluorophenol (Surr)	*78*		*24 - 105*	*08/29/22 11:53*	*09/01/22 17:46*	*1*
Nitrobenzene-d5 (Surr)	*87*		*38 - 105*	*08/29/22 11:53*	*09/01/22 17:46*	*1*
Phenol-d5 (Surr)	*76*		*28 - 105*	*08/29/22 11:53*	*09/01/22 17:46*	*1*
Terphenyl-d14 (Surr)	*95*		*28 - 112*	*08/29/22 11:53*	*09/01/22 17:46*	*1*

Client Sample ID: TRW 20% PC, 2% AC
Lab Sample ID: 180-136073-3

Date Collected: 07/13/22 07:30
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*98*		*32 - 124*	*08/29/22 11:53*	*09/01/22 17:46*	*1*

Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND	H	0.00050	0.000095	mg/L		08/29/22 03:35	08/30/22 13:29	1
beta-BHC	ND	H	0.00050	0.00015	mg/L		08/29/22 03:35	08/30/22 13:29	1
delta-BHC	ND	H	0.00050	0.00026	mg/L		08/29/22 03:35	08/30/22 13:29	1
gamma-BHC (Lindane)	ND	H	0.00050	0.00012	mg/L		08/29/22 03:35	08/30/22 13:29	1
alpha-Chlordane	ND	H *1	0.00050	0.00015	mg/L		08/29/22 03:35	08/30/22 13:29	1
gamma-Chlordane	ND	H	0.00050	0.00016	mg/L		08/29/22 03:35	08/30/22 13:29	1
Endosulfan II	ND	H *+	0.00050	0.00013	mg/L		08/29/22 03:35	08/30/22 13:29	1
4,4'-DDD	ND	H	0.00050	0.00021	mg/L		08/29/22 03:35	08/30/22 13:29	1
4,4'-DDE	ND	H	0.00050	0.00012	mg/L		08/29/22 03:35	08/30/22 13:29	1
4,4'-DDT	ND	H	0.00050	0.00028	mg/L		08/29/22 03:35	08/30/22 13:29	1
Dieldrin	ND	H *+	0.00050	0.00011	mg/L		08/29/22 03:35	08/30/22 13:29	1
Endrin aldehyde	ND	H	0.00050	0.00021	mg/L		08/29/22 03:35	08/30/22 13:29	1
Endrin ketone	ND	H	0.00050	0.00016	mg/L		08/29/22 03:35	08/30/22 13:29	1
Heptachlor	ND	H	0.00050	0.00018	mg/L		08/29/22 03:35	08/30/22 13:29	1
Heptachlor epoxide	ND	H *1	0.00050	0.00014	mg/L		08/29/22 03:35	08/30/22 13:29	1
Hexachlorobenzene	ND	H	0.00050	0.00036	mg/L		08/29/22 03:35	08/30/22 13:29	1
Methoxychlor	ND	H	0.00050	0.00031	mg/L		08/29/22 03:35	08/30/22 13:29	1
Toxaphene	ND	H	0.040	0.020	mg/L		08/29/22 03:35	08/30/22 13:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*93*		*56 - 137*	*08/29/22 03:35*	*08/30/22 13:29*	*1*
Tetrachloro-m-xylene	*85*		*56 - 137*	*08/29/22 03:35*	*08/30/22 13:29*	*1*
DCB Decachlorobiphenyl (Surr)	*107*		*48 - 137*	*08/29/22 03:35*	*08/30/22 13:29*	*1*
DCB Decachlorobiphenyl (Surr)	*116*		*48 - 137*	*08/29/22 03:35*	*08/30/22 13:29*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**270**	**H B**	1.0	0.76	mg/L			08/27/22 05:54	1

Method: EPA 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.0091	mg/L		08/30/22 13:20	08/31/22 13:56	1
Aluminum	**1.4**	**J**	2.0	0.41	mg/L		08/30/22 13:20	08/31/22 13:56	1
Arsenic	ND		0.50	0.083	mg/L		08/30/22 13:20	08/31/22 13:56	1
Barium	**0.41**	**J**	2.0	0.063	mg/L		08/30/22 13:20	08/31/22 13:56	1
Beryllium	ND		0.040	0.015	mg/L		08/30/22 13:20	08/31/22 13:56	1
Calcium	**740**		50	3.2	mg/L		08/30/22 13:20	08/31/22 13:56	1
Cadmium	ND		0.50	0.0030	mg/L		08/30/22 13:20	08/31/22 13:56	1
Cobalt	ND		0.50	0.019	mg/L		08/30/22 13:20	08/31/22 13:56	1
Chromium	ND		0.50	0.016	mg/L		08/30/22 13:20	08/31/22 13:56	1
Copper	**0.32**		0.25	0.022	mg/L		08/30/22 13:20	08/31/22 13:56	1
Iron	ND		1.0	0.72	mg/L		08/30/22 13:20	08/31/22 13:56	1
Potassium	ND		50	8.0	mg/L		08/30/22 13:20	08/31/22 13:56	1
Magnesium	ND		50	2.6	mg/L		08/30/22 13:20	08/31/22 13:56	1
Manganese	ND		0.15	0.024	mg/L		08/30/22 13:20	08/31/22 13:56	1
Sodium	**1400**	**B**	50	3.0	mg/L		08/30/22 13:20	08/31/22 13:56	1

Client Sample ID: TRW 20% PC, 2% AC
Lab Sample ID: 180-136073-3
Date Collected: 07/13/22 07:30
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	**0.047**	**J**	0.40	0.019	mg/L		08/30/22 13:20	08/31/22 13:56	1
Lead	ND		0.50	0.044	mg/L		08/30/22 13:20	08/31/22 13:56	1
Antimony	**1.1**		0.10	0.062	mg/L		08/30/22 13:20	08/31/22 13:56	1
Selenium	ND		0.50	0.037	mg/L		08/30/22 13:20	08/31/22 13:56	1
Thallium	**0.038**	**J B**	0.20	0.030	mg/L		08/30/22 13:20	08/31/22 13:56	1
Vanadium	ND		0.50	0.053	mg/L		08/30/22 13:20	08/31/22 13:56	1
Zinc	ND		0.20	0.026	mg/L		08/30/22 13:20	08/31/22 13:56	1

Method: EPA 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00013	mg/L		08/29/22 11:20	08/30/22 14:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**34.4**		0.1	0.1	%			09/08/22 15:06	1
Percent Solids	**65.6**		0.1	0.1	%			09/08/22 15:06	1

Client Sample ID: TRW 20% PC, 2% AC
Lab Sample ID: 180-136073-3
Date Collected: 07/13/22 07:30
Matrix: Solid
Date Received: 03/31/22 15:11
Percent Solids: 65.6

Method: EPA 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	H	38	13	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
1,1,2,2-Tetrachloroethane	ND	H	38	11	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Freon-113	ND	H	38	15	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
1,1,2-Trichloroethane	ND	H	38	7.4	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
1,1-Dichloroethane	ND	H	38	12	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
1,1-Dichloroethene	ND	H	38	17	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
1,2,4-Trichlorobenzene	ND	H	38	19	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
1,2-Dibromo-3-Chloropropane	ND	H	38	24	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
1,2-Dichlorobenzene	ND	H	38	13	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
1,2-Dichloroethane	ND	H	38	11	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
1,2-Dichloropropane	ND	H	38	10	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
1,3-Dichlorobenzene	ND	H	38	23	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
1,4-Dichlorobenzene	ND	H	38	11	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
2-Butanone (MEK)	ND	H	38	19	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
2-Hexanone	ND	H	38	12	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Acetone	**150**	**H**	150	29	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Benzene	ND	H	38	11	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Bromoform	ND	H	38	19	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Methyl bromide	ND	H	38	17	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Carbon disulfide	ND	H	38	30	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Carbon tetrachloride	ND	H	38	15	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Chlorobenzene	ND	H	38	9.8	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Dibromochloromethane	ND	H	38	19	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Chloroethane	ND	H	38	22	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Chloroform	ND	H	38	12	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Methyl chloride	ND	H	38	15	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
cis-1,2-Dichloroethene	**190**	**H**	38	11	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1

Client Sample ID: TRW 20% PC, 2% AC
Lab Sample ID: 180-136073-3
Date Collected: 07/13/22 07:30
Matrix: Solid
Date Received: 03/31/22 15:11
Percent Solids: 65.6

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	ND	H	38	17	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Bromodichloromethane	ND	H	38	18	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Freon-12	ND	H	38	19	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Ethylbenzene	ND	H	38	14	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
1,2-Dibromoethane	ND	H	38	10	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Isopropylbenzene (cumene)	ND	H	38	20	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Methyl tert-butyl ether	ND	H	38	11	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Methylene Chloride	**50**	**H**	38	34	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Styrene	ND	H	38	11	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Tetrachloroethene	ND	H	38	15	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Toluene	ND	H	38	11	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
trans-1,2-Dichloroethene	ND	H	38	13	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
trans-1,3-Dichloropropene	ND	H	38	17	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Trichloroethene	ND	H	38	12	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Freon-11	ND	H	38	31	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Vinyl chloride	ND	H	38	27	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1
Xylenes, Total	ND	H	75	54	ug/Kg	☼	08/24/22 05:30	08/24/22 13:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*116*		*73 - 135*	*08/24/22 05:30*	*08/24/22 13:25*	*1*
4-Bromofluorobenzene (Surr)	*94*		*60 - 124*	*08/24/22 05:30*	*08/24/22 13:25*	*1*
Dibromofluoromethane (Surr)	*55*	*S1-*	*69 - 126*	*08/24/22 05:30*	*08/24/22 13:25*	*1*
Toluene-d8 (Surr)	*116*		*67 - 134*	*08/24/22 05:30*	*08/24/22 13:25*	*1*

Client Sample ID: TRW 20% PC, 4% AC
Lab Sample ID: 180-136073-4
Date Collected: 07/13/22 07:30
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	H	0.20	0.050	mg/L			08/24/22 15:43	1
1,1,2,2-Tetrachloroethane	ND	H	0.20	0.060	mg/L			08/24/22 15:43	1
Freon-113	ND	H	0.20	0.038	mg/L			08/24/22 15:43	1
1,1,2-Trichloroethane	ND	H	0.20	0.048	mg/L			08/24/22 15:43	1
1,1-Dichloroethane	ND	H	0.20	0.036	mg/L			08/24/22 15:43	1
1,1-Dichloroethene	ND	H *-	0.20	0.057	mg/L			08/24/22 15:43	1
1,2,4-Trichlorobenzene	ND	H F2	0.20	0.074	mg/L			08/24/22 15:43	1
1,2-Dibromo-3-Chloropropane	ND	H F2	0.20	0.061	mg/L			08/24/22 15:43	1
1,2-Dichlorobenzene	ND	H F2	0.20	0.040	mg/L			08/24/22 15:43	1
1,2-Dichloroethane	ND	H	0.20	0.029	mg/L			08/24/22 15:43	1
1,2-Dichloropropane	ND	H	0.20	0.049	mg/L			08/24/22 15:43	1
1,3-Dichlorobenzene	ND	H	0.20	0.032	mg/L			08/24/22 15:43	1
1,4-Dichlorobenzene	ND	H F1	0.20	0.020	mg/L			08/24/22 15:43	1
2-Butanone (MEK)	ND	H F1	0.20	0.058	mg/L			08/24/22 15:43	1
2-Hexanone	ND	H F1	0.20	0.084	mg/L			08/24/22 15:43	1
Acetone	ND	H F1	0.80	0.11	mg/L			08/24/22 15:43	1
Benzene	ND	H	0.20	0.039	mg/L			08/24/22 15:43	1
Bromoform	ND	H	0.20	0.052	mg/L			08/24/22 15:43	1
Methyl bromide	ND	H	0.20	0.090	mg/L			08/24/22 15:43	1
Carbon disulfide	ND	H	0.20	0.060	mg/L			08/24/22 15:43	1

Client Sample ID: TRW 20% PC, 4% AC
Lab Sample ID: 180-136073-4
Date Collected: 07/13/22 07:30
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8260D - Volatile Organic Compounds by GC/MS - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	ND	H	0.20	0.066	mg/L			08/24/22 15:43	1
Chlorobenzene	ND	H	0.20	0.031	mg/L			08/24/22 15:43	1
Dibromochloromethane	ND	H	0.20	0.048	mg/L			08/24/22 15:43	1
Chloroethane	ND	H	0.20	0.052	mg/L			08/24/22 15:43	1
Chloroform	ND	H	0.20	0.042	mg/L			08/24/22 15:43	1
Methyl chloride	ND	H	0.20	0.077	mg/L			08/24/22 15:43	1
cis-1,2-Dichloroethene	ND	H	0.20	0.031	mg/L			08/24/22 15:43	1
cis-1,3-Dichloropropene	ND	H	0.20	0.032	mg/L			08/24/22 15:43	1
Bromodichloromethane	ND	H	0.20	0.047	mg/L			08/24/22 15:43	1
Freon-12	ND	H	0.20	0.058	mg/L			08/24/22 15:43	1
Ethylbenzene	ND	H	0.20	0.043	mg/L			08/24/22 15:43	1
1,2-Dibromoethane	ND	H	0.20	0.055	mg/L			08/24/22 15:43	1
Isopropylbenzene (cumene)	ND	H	0.20	0.046	mg/L			08/24/22 15:43	1
Methyl tert-butyl ether	ND	H	0.20	0.074	mg/L			08/24/22 15:43	1
Methylene Chloride	ND	H	0.20	0.077	mg/L			08/24/22 15:43	1
Styrene	ND	H	0.20	0.027	mg/L			08/24/22 15:43	1
Tetrachloroethene	ND	H	0.20	0.040	mg/L			08/24/22 15:43	1
Toluene	ND	H	0.20	0.034	mg/L			08/24/22 15:43	1
trans-1,2-Dichloroethene	ND	H	0.20	0.051	mg/L			08/24/22 15:43	1
trans-1,3-Dichloropropene	ND	H	0.20	0.035	mg/L			08/24/22 15:43	1
Trichloroethene	ND	H	0.20	0.030	mg/L			08/24/22 15:43	1
Freon-11	ND	H	0.20	0.029	mg/L			08/24/22 15:43	1
Vinyl chloride	ND	H	0.20	0.073	mg/L			08/24/22 15:43	1
Xylenes, Total	ND	H	0.40	0.086	mg/L			08/24/22 15:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*133*		*52 - 151*		*08/24/22 15:43*	*1*
4-Bromofluorobenzene (Surr)	*100*		*49 - 118*		*08/24/22 15:43*	*1*
Dibromofluoromethane (Surr)	*114*		*60 - 132*		*08/24/22 15:43*	*1*
Toluene-d8 (Surr)	*113*		*53 - 124*		*08/24/22 15:43*	*1*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND	H	0.00019	0.000064	mg/L		08/29/22 11:53	09/01/22 18:08	1
Anthracene	ND	H	0.00019	0.000049	mg/L		08/29/22 11:53	09/01/22 18:08	1
Atrazine	ND	H	0.00097	0.00062	mg/L		08/29/22 11:53	09/01/22 18:08	1
Benzo[a]anthracene	ND	H	0.00019	0.000074	mg/L		08/29/22 11:53	09/01/22 18:08	1
Benzo[a]pyrene	ND	H	0.00019	0.000052	mg/L		08/29/22 11:53	09/01/22 18:08	1
Benzo[b]fluoranthene	ND	H	0.00019	0.000095	mg/L		08/29/22 11:53	09/01/22 18:08	1
Benzo[k]fluoranthene	ND	H	0.00019	0.000085	mg/L		08/29/22 11:53	09/01/22 18:08	1
Benzyl butyl phthalate	ND	H	0.00097	0.00045	mg/L		08/29/22 11:53	09/01/22 18:08	1
Biphenyl	ND	H	0.00097	0.000058	mg/L		08/29/22 11:53	09/01/22 18:08	1
Bis(2-chloroethoxy)methane	ND	H	0.00097	0.000066	mg/L		08/29/22 11:53	09/01/22 18:08	1
Bis(2-ethylhexyl) phthalate	ND	H	0.097	0.0061	mg/L		08/29/22 11:53	09/01/22 18:08	1
2-Chloronaphthalene	ND	H	0.00019	0.000058	mg/L		08/29/22 11:53	09/01/22 18:08	1
Chrysene	ND	H	0.00019	0.000080	mg/L		08/29/22 11:53	09/01/22 18:08	1
Dibutylphthalate	**0.0017**	**H**	0.00097	0.00072	mg/L		08/29/22 11:53	09/01/22 18:08	1
1,4-Dichlorobenzene	ND	H	0.00097	0.000060	mg/L		08/29/22 11:53	09/01/22 18:08	1
3,3'-Dichlorobenzidine	ND	H	0.00097	0.00057	mg/L		08/29/22 11:53	09/01/22 18:08	1
Dichloroethyl ether	ND	H	0.00019	0.000039	mg/L		08/29/22 11:53	09/01/22 18:08	1

Client Sample ID: TRW 20% PC, 4% AC
Lab Sample ID: 180-136073-4

Date Collected: 07/13/22 07:30
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenol	ND	H	0.00019	0.000050	mg/L		08/29/22 11:53	09/01/22 18:08	1
Diethyl phthalate	ND	H	0.00097	0.00055	mg/L		08/29/22 11:53	09/01/22 18:08	1
2,4-Dimethylphenol	ND	H	0.00097	0.000041	mg/L		08/29/22 11:53	09/01/22 18:08	1
Dimethyl phthalate	ND	H	0.00097	0.000054	mg/L		08/29/22 11:53	09/01/22 18:08	1
2,4-Dinitrophenol	ND	H	0.0049	0.0015	mg/L		08/29/22 11:53	09/01/22 18:08	1
2,4-Dinitrotoluene	ND	H	0.00097	0.000050	mg/L		08/29/22 11:53	09/01/22 18:08	1
2,6-Dinitrotoluene	ND	H	0.00097	0.000058	mg/L		08/29/22 11:53	09/01/22 18:08	1
Di-n-octyl phthalate	ND	H	0.00097	0.00067	mg/L		08/29/22 11:53	09/01/22 18:08	1
Fluoranthene	ND	H	0.00019	0.000058	mg/L		08/29/22 11:53	09/01/22 18:08	1
Fluorene	ND	H	0.00019	0.000068	mg/L		08/29/22 11:53	09/01/22 18:08	1
Hexachlorobutadiene	ND	H	0.00019	0.000068	mg/L		08/29/22 11:53	09/01/22 18:08	1
Hexachlorocyclopentadiene	ND	H	0.00097	0.00048	mg/L		08/29/22 11:53	09/01/22 18:08	1
Hexachloroethane	ND	H	0.00097	0.000060	mg/L		08/29/22 11:53	09/01/22 18:08	1
Indeno[1,2,3-cd]pyrene	ND	H	0.00019	0.000083	mg/L		08/29/22 11:53	09/01/22 18:08	1
Isophorone	ND	H	0.00097	0.000052	mg/L		08/29/22 11:53	09/01/22 18:08	1
2-Nitroaniline	ND	H	0.0049	0.00053	mg/L		08/29/22 11:53	09/01/22 18:08	1
3-Nitroaniline	ND	H	0.0049	0.000066	mg/L		08/29/22 11:53	09/01/22 18:08	1
Nitrobenzene	ND	H	0.0019	0.00049	mg/L		08/29/22 11:53	09/01/22 18:08	1
N-Nitrosodiphenylamine	ND	H	0.00097	0.00012	mg/L		08/29/22 11:53	09/01/22 18:08	1
2,2'-oxybis[1-chloropropane]	ND	H	0.00019	0.000056	mg/L		08/29/22 11:53	09/01/22 18:08	1
p-Chloroaniline	ND	H	0.00097	0.000043	mg/L		08/29/22 11:53	09/01/22 18:08	1
Pentachlorophenol	ND	H	0.00097	0.00082	mg/L		08/29/22 11:53	09/01/22 18:08	1
Phenanthrene	**0.000077**	**J H**	0.00019	0.000054	mg/L		08/29/22 11:53	09/01/22 18:08	1
Phenol	ND	H	0.00097	0.00047	mg/L		08/29/22 11:53	09/01/22 18:08	1
p-Nitroaniline	ND	H	0.0049	0.000056	mg/L		08/29/22 11:53	09/01/22 18:08	1
Pyrene	ND	H	0.00019	0.000052	mg/L		08/29/22 11:53	09/01/22 18:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*85*		*38 - 105*	*08/29/22 11:53*	*09/01/22 18:08*	*1*
2-Fluorophenol (Surr)	*81*		*24 - 105*	*08/29/22 11:53*	*09/01/22 18:08*	*1*
Nitrobenzene-d5 (Surr)	*92*		*38 - 105*	*08/29/22 11:53*	*09/01/22 18:08*	*1*
Phenol-d5 (Surr)	*72*		*28 - 105*	*08/29/22 11:53*	*09/01/22 18:08*	*1*
Terphenyl-d14 (Surr)	*97*		*28 - 112*	*08/29/22 11:53*	*09/01/22 18:08*	*1*
2,4,6-Tribromophenol (Surr)	*102*		*32 - 124*	*08/29/22 11:53*	*09/01/22 18:08*	*1*

Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND	H	0.00050	0.000095	mg/L		08/29/22 03:35	08/30/22 13:13	1
beta-BHC	ND	H	0.00050	0.00015	mg/L		08/29/22 03:35	08/30/22 13:13	1
delta-BHC	ND	H	0.00050	0.00026	mg/L		08/29/22 03:35	08/30/22 13:13	1
gamma-BHC (Lindane)	ND	H	0.00050	0.00012	mg/L		08/29/22 03:35	08/30/22 13:13	1
alpha-Chlordane	ND	H *1	0.00050	0.00015	mg/L		08/29/22 03:35	08/30/22 13:13	1
gamma-Chlordane	ND	H	0.00050	0.00016	mg/L		08/29/22 03:35	08/30/22 13:13	1
Endosulfan II	ND	H *+	0.00050	0.00013	mg/L		08/29/22 03:35	08/30/22 13:13	1
4,4'-DDD	ND	H	0.00050	0.00021	mg/L		08/29/22 03:35	08/30/22 13:13	1
4,4'-DDE	ND	H	0.00050	0.00012	mg/L		08/29/22 03:35	08/30/22 13:13	1
4,4'-DDT	ND	H	0.00050	0.00028	mg/L		08/29/22 03:35	08/30/22 13:13	1
Dieldrin	ND	H *+	0.00050	0.00011	mg/L		08/29/22 03:35	08/30/22 13:13	1
Endrin aldehyde	ND	H	0.00050	0.00021	mg/L		08/29/22 03:35	08/30/22 13:13	1
Endrin ketone	ND	H	0.00050	0.00016	mg/L		08/29/22 03:35	08/30/22 13:13	1

Client Sample ID: TRW 20% PC, 4% AC
Lab Sample ID: 180-136073-4

Date Collected: 07/13/22 07:30
Matrix: Solid
Date Received: 03/31/22 15:11

Method: EPA 8081B - Organochlorine Pesticides (GC) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlor	ND	H	0.00050	0.00018	mg/L		08/29/22 03:35	08/30/22 13:13	1
Heptachlor epoxide	ND	H *1	0.00050	0.00014	mg/L		08/29/22 03:35	08/30/22 13:13	1
Hexachlorobenzene	ND	H	0.00050	0.00036	mg/L		08/29/22 03:35	08/30/22 13:13	1
Methoxychlor	ND	H	0.00050	0.00031	mg/L		08/29/22 03:35	08/30/22 13:13	1
Toxaphene	ND	H	0.040	0.020	mg/L		08/29/22 03:35	08/30/22 13:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*85*		*56 - 137*	*08/29/22 03:35*	*08/30/22 13:13*	*1*
Tetrachloro-m-xylene	*78*		*56 - 137*	*08/29/22 03:35*	*08/30/22 13:13*	*1*
DCB Decachlorobiphenyl (Surr)	*103*		*48 - 137*	*08/29/22 03:35*	*08/30/22 13:13*	*1*
DCB Decachlorobiphenyl (Surr)	*113*		*48 - 137*	*08/29/22 03:35*	*08/30/22 13:13*	*1*

Method: EPA 9056A - Anions, Ion Chromatography - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**260**	**H B**	1.0	0.76	mg/L			08/27/22 05:24	1

Method: EPA 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.0091	mg/L		08/30/22 13:20	08/31/22 14:01	1
Aluminum	**1.6**	**J**	2.0	0.41	mg/L		08/30/22 13:20	08/31/22 14:01	1
Arsenic	ND		0.50	0.083	mg/L		08/30/22 13:20	08/31/22 14:01	1
Barium	**0.43**	**J**	2.0	0.063	mg/L		08/30/22 13:20	08/31/22 14:01	1
Beryllium	ND		0.040	0.015	mg/L		08/30/22 13:20	08/31/22 14:01	1
Calcium	**760**		50	3.2	mg/L		08/30/22 13:20	08/31/22 14:01	1
Cadmium	ND		0.50	0.0030	mg/L		08/30/22 13:20	08/31/22 14:01	1
Cobalt	ND		0.50	0.019	mg/L		08/30/22 13:20	08/31/22 14:01	1
Chromium	ND		0.50	0.016	mg/L		08/30/22 13:20	08/31/22 14:01	1
Copper	**0.27**		0.25	0.022	mg/L		08/30/22 13:20	08/31/22 14:01	1
Iron	ND		1.0	0.72	mg/L		08/30/22 13:20	08/31/22 14:01	1
Potassium	ND		50	8.0	mg/L		08/30/22 13:20	08/31/22 14:01	1
Magnesium	ND		50	2.6	mg/L		08/30/22 13:20	08/31/22 14:01	1
Manganese	ND		0.15	0.024	mg/L		08/30/22 13:20	08/31/22 14:01	1
Sodium	**1400**	**B**	50	3.0	mg/L		08/30/22 13:20	08/31/22 14:01	1
Nickel	**0.040**	**J**	0.40	0.019	mg/L		08/30/22 13:20	08/31/22 14:01	1
Lead	ND		0.50	0.044	mg/L		08/30/22 13:20	08/31/22 14:01	1
Antimony	**0.94**		0.10	0.062	mg/L		08/30/22 13:20	08/31/22 14:01	1
Selenium	ND		0.50	0.037	mg/L		08/30/22 13:20	08/31/22 14:01	1
Thallium	ND		0.20	0.030	mg/L		08/30/22 13:20	08/31/22 14:01	1
Vanadium	**0.057**	**J**	0.50	0.053	mg/L		08/30/22 13:20	08/31/22 14:01	1
Zinc	ND		0.20	0.026	mg/L		08/30/22 13:20	08/31/22 14:01	1

Method: EPA 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND	H	0.00020	0.00013	mg/L		08/29/22 11:20	08/30/22 14:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**32.5**		0.1	0.1	%			09/08/22 15:06	1
Percent Solids	**67.5**		0.1	0.1	%			09/08/22 15:06	1

Client Sample ID: TRW 20% PC, 4% AC
Lab Sample ID: 180-136073-4

Date Collected: 07/13/22 07:30
Matrix: Solid

Date Received: 03/31/22 15:11
Percent Solids: 67.5

Method: EPA 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	H	37	12	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
1,1,2,2-Tetrachloroethane	ND	H	37	11	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Freon-113	ND	H	37	15	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
1,1,2-Trichloroethane	ND	H	37	7.3	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
1,1-Dichloroethane	ND	H	37	12	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
1,1-Dichloroethene	ND	H	37	17	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
1,2,4-Trichlorobenzene	ND	H	37	19	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
1,2-Dibromo-3-Chloropropane	ND	H	37	24	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
1,2-Dichlorobenzene	ND	H	37	12	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
1,2-Dichloroethane	ND	H	37	11	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
1,2-Dichloropropane	ND	H	37	9.9	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
1,3-Dichlorobenzene	ND	H	37	23	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
1,4-Dichlorobenzene	ND	H	37	11	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
2-Butanone (MEK)	ND	H	37	19	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
2-Hexanone	ND	H	37	12	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Acetone	ND	H	150	29	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Benzene	ND	H	37	10	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Bromoform	ND	H	37	19	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Methyl bromide	ND	H	37	17	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Carbon disulfide	ND	H	37	30	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Carbon tetrachloride	ND	H	37	15	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Chlorobenzene	ND	H	37	9.6	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Dibromochloromethane	ND	H	37	18	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Chloroethane	ND	H *+	37	22	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Chloroform	ND	H	37	12	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Methyl chloride	ND	H	37	15	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
cis-1,2-Dichloroethene	**44**	**H**	37	11	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
cis-1,3-Dichloropropene	ND	H	37	16	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Bromodichloromethane	ND	H	37	17	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Freon-12	ND	H	37	18	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Ethylbenzene	ND	H	37	14	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
1,2-Dibromoethane	ND	H	37	10	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Isopropylbenzene (cumene)	ND	H	37	19	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Methyl tert-butyl ether	ND	H	37	11	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Methylene Chloride	ND	H	37	33	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Styrene	ND	H	37	11	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Tetrachloroethene	ND	H	37	15	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Toluene	ND	H	37	11	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
trans-1,2-Dichloroethene	ND	H	37	13	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
trans-1,3-Dichloropropene	ND	H	37	17	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Trichloroethene	ND	H	37	12	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Freon-11	ND	H	37	31	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Vinyl chloride	**72**	**H**	37	27	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1
Xylenes, Total	ND	H	74	53	ug/Kg	☼	08/25/22 05:30	08/25/22 08:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*73 - 135*	*08/25/22 05:30*	*08/25/22 08:51*	*1*
4-Bromofluorobenzene (Surr)	*93*		*60 - 124*	*08/25/22 05:30*	*08/25/22 08:51*	*1*
Dibromofluoromethane (Surr)	*77*		*69 - 126*	*08/25/22 05:30*	*08/25/22 08:51*	*1*
Toluene-d8 (Surr)	*109*		*67 - 134*	*08/25/22 05:30*	*08/25/22 08:51*	*1*

Client Sample ID: TRW 20% PC, 2% AC
Lab Sample ID: 180-136073-6
Date Collected: 08/26/22 06:00
Matrix: Water
Date Received: 03/31/22 15:11

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**9.7**		2.0	0.50	ug/L		09/02/22 08:14	09/13/22 09:37	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/13/22 09:37	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/13/22 09:37	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/13/22 09:37	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/13/22 09:37	1
Tetrachloronaphthalene, Total	**5.3**		2.0	0.50	ug/L		09/02/22 08:14	09/13/22 09:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*61*		*30 - 123*	*09/02/22 08:14*	*09/13/22 09:37*	*1*
Nitrobenzene-d5 (Surr)	*95*		*33 - 139*	*09/02/22 08:14*	*09/13/22 09:37*	*1*
Terphenyl-d14 (Surr)	*94*		*42 - 150*	*09/02/22 08:14*	*09/13/22 09:37*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichloronaphthalene, Total	**19**		4.0	1.0	ug/L		09/02/22 08:14	09/13/22 11:04	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*66*		*30 - 123*	*09/02/22 08:14*	*09/13/22 11:04*	*2*
Nitrobenzene-d5 (Surr)	*104*		*33 - 139*	*09/02/22 08:14*	*09/13/22 11:04*	*2*
Terphenyl-d14 (Surr)	*103*		*42 - 150*	*09/02/22 08:14*	*09/13/22 11:04*	*2*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) - DL2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloronaphthalene, Total	**32**		20	5.0	ug/L		09/02/22 08:14	09/12/22 19:07	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*62*		*30 - 123*	*09/02/22 08:14*	*09/12/22 19:07*	*10*
Nitrobenzene-d5 (Surr)	*89*		*33 - 139*	*09/02/22 08:14*	*09/12/22 19:07*	*10*
Terphenyl-d14 (Surr)	*98*		*42 - 150*	*09/02/22 08:14*	*09/12/22 19:07*	*10*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.7	2.3	ng/L		09/06/22 12:05	09/10/22 08:26	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.46	ng/L		09/06/22 12:05	09/10/22 08:26	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.55	ng/L		09/06/22 12:05	09/10/22 08:26	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		09/06/22 12:05	09/10/22 08:26	1
Perfluorooctanoic acid (PFOA)	**0.86**	**J**	1.9	0.80	ng/L		09/06/22 12:05	09/10/22 08:26	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		09/06/22 12:05	09/10/22 08:26	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		09/06/22 12:05	09/10/22 08:26	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		09/06/22 12:05	09/10/22 08:26	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		09/06/22 12:05	09/10/22 08:26	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		09/06/22 12:05	09/10/22 08:26	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		09/06/22 12:05	09/10/22 08:26	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		09/06/22 12:05	09/10/22 08:26	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.54	ng/L		09/06/22 12:05	09/10/22 08:26	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		09/06/22 12:05	09/10/22 08:26	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		09/06/22 12:05	09/10/22 08:26	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.30	ng/L		09/06/22 12:05	09/10/22 08:26	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.93	ng/L		09/06/22 12:05	09/10/22 08:26	1
NMeFOSAA	ND		4.7	1.1	ng/L		09/06/22 12:05	09/10/22 08:26	1

Client Sample ID: TRW 20% PC, 2% AC
Lab Sample ID: 180-136073-6

Date Collected: 08/26/22 06:00
Matrix: Water
Date Received: 03/31/22 15:11

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	ND		4.7	1.2	ng/L		09/06/22 12:05	09/10/22 08:26	1
6:2 FTS	ND		4.7	2.4	ng/L		09/06/22 12:05	09/10/22 08:26	1
8:2 FTS	ND		1.9	0.44	ng/L		09/06/22 12:05	09/10/22 08:26	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*15*	*5-	*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
13C5 PFPeA	*60*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
13C2 PFHxA	*111*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
13C4 PFHpA	*94*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
13C4 PFOA	*104*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
13C5 PFNA	*117*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
13C2 PFDA	*115*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
13C2 PFUnA	*111*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
13C2 PFDoA	*103*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
13C2 PFTeDA	*82*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
13C3 PFBS	*94*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
18O2 PFHxS	*109*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
13C4 PFOS	*115*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
13C8 FOSA	*91*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
d3-NMeFOSAA	*83*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
d5-NEtFOSAA	*78*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
M2-6:2 FTS	*123*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*
M2-8:2 FTS	*144*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:26*	*1*

Client Sample ID: TRW 20% PC, 4% AC
Lab Sample ID: 180-136073-7

Date Collected: 08/26/22 06:00
Matrix: Water
Date Received: 03/31/22 15:11

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	**0.78**	**J**	2.0	0.50	ug/L		09/02/22 08:14	09/13/22 10:02	1
Dichloronaphthalene, Total	**2.4**		2.0	0.50	ug/L		09/02/22 08:14	09/13/22 10:02	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/13/22 10:02	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/13/22 10:02	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/13/22 10:02	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/13/22 10:02	1
Tetrachloronaphthalene, Total	**1.7**	**J**	2.0	0.50	ug/L		09/02/22 08:14	09/13/22 10:02	1
Trichloronaphthalene, Total	**7.5**		2.0	0.50	ug/L		09/02/22 08:14	09/13/22 10:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*57*		*30 - 123*	*09/02/22 08:14*	*09/13/22 10:02*	*1*
Nitrobenzene-d5 (Surr)	*88*		*33 - 139*	*09/02/22 08:14*	*09/13/22 10:02*	*1*
Terphenyl-d14 (Surr)	*92*		*42 - 150*	*09/02/22 08:14*	*09/13/22 10:02*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.8	2.3	ng/L		09/06/22 12:05	09/10/22 08:36	1
Perfluoropentanoic acid (PFPeA)	**0.54**	**J**	1.9	0.47	ng/L		09/06/22 12:05	09/10/22 08:36	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.56	ng/L		09/06/22 12:05	09/10/22 08:36	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		09/06/22 12:05	09/10/22 08:36	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.81	ng/L		09/06/22 12:05	09/10/22 08:36	1

Client Sample ID: TRW 20% PC, 4% AC
Lab Sample ID: 180-136073-7

Date Collected: 08/26/22 06:00
Matrix: Water
Date Received: 03/31/22 15:11

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		09/06/22 12:05	09/10/22 08:36	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		09/06/22 12:05	09/10/22 08:36	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		09/06/22 12:05	09/10/22 08:36	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		09/06/22 12:05	09/10/22 08:36	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.9	1.2	ng/L		09/06/22 12:05	09/10/22 08:36	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		09/06/22 12:05	09/10/22 08:36	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		09/06/22 12:05	09/10/22 08:36	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.55	ng/L		09/06/22 12:05	09/10/22 08:36	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.9	0.18	ng/L		09/06/22 12:05	09/10/22 08:36	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.52	ng/L		09/06/22 12:05	09/10/22 08:36	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		09/06/22 12:05	09/10/22 08:36	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9	0.94	ng/L		09/06/22 12:05	09/10/22 08:36	1
NMeFOSAA	ND		4.8	1.1	ng/L		09/06/22 12:05	09/10/22 08:36	1
NEtFOSAA	ND		4.8	1.2	ng/L		09/06/22 12:05	09/10/22 08:36	1
6:2 FTS	ND		4.8	2.4	ng/L		09/06/22 12:05	09/10/22 08:36	1
8:2 FTS	ND		1.9	0.44	ng/L		09/06/22 12:05	09/10/22 08:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*30*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
13C5 PFPeA	*91*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
13C2 PFHxA	*144*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
13C4 PFHpA	*114*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
13C4 PFOA	*119*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
13C5 PFNA	*130*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
13C2 PFDA	*128*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
13C2 PFUnA	*118*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
13C2 PFDoA	*105*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
13C2 PFTeDA	*88*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
13C3 PFBS	*111*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
18O2 PFHxS	*120*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
13C4 PFOS	*123*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
13C8 FOSA	*105*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
d3-NMeFOSAA	*83*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
d5-NEtFOSAA	*85*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
M2-6:2 FTS	*108*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*
M2-8:2 FTS	*125*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:36*	*1*

Client Sample ID: TCLP LB
Lab Sample ID: 180-136073-8

Date Collected: 08/26/22 06:00
Matrix: Water
Date Received: 03/31/22 15:11

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/12/22 18:42	1
Dichloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/12/22 18:42	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/12/22 18:42	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/12/22 18:42	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/12/22 18:42	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/12/22 18:42	1
Tetrachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/12/22 18:42	1

Client Sample ID: TCLP LB
Lab Sample ID: 180-136073-8
Date Collected: 08/26/22 06:00
Matrix: Water
Date Received: 03/31/22 15:11

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/12/22 18:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*78*		*30 - 123*	*09/02/22 08:14*	*09/12/22 18:42*	*1*
Nitrobenzene-d5 (Surr)	*126*		*33 - 139*	*09/02/22 08:14*	*09/12/22 18:42*	*1*
Terphenyl-d14 (Surr)	*111*		*42 - 150*	*09/02/22 08:14*	*09/12/22 18:42*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.4	2.1	ng/L		09/06/22 12:05	09/10/22 08:46	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	0.43	ng/L		09/06/22 12:05	09/10/22 08:46	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.51	ng/L		09/06/22 12:05	09/10/22 08:46	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		09/06/22 12:05	09/10/22 08:46	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.74	ng/L		09/06/22 12:05	09/10/22 08:46	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		09/06/22 12:05	09/10/22 08:46	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.27	ng/L		09/06/22 12:05	09/10/22 08:46	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.96	ng/L		09/06/22 12:05	09/10/22 08:46	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.48	ng/L		09/06/22 12:05	09/10/22 08:46	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.8	1.1	ng/L		09/06/22 12:05	09/10/22 08:46	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.64	ng/L		09/06/22 12:05	09/10/22 08:46	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		09/06/22 12:05	09/10/22 08:46	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.50	ng/L		09/06/22 12:05	09/10/22 08:46	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8	0.17	ng/L		09/06/22 12:05	09/10/22 08:46	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.47	ng/L		09/06/22 12:05	09/10/22 08:46	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.28	ng/L		09/06/22 12:05	09/10/22 08:46	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8	0.86	ng/L		09/06/22 12:05	09/10/22 08:46	1
NMeFOSAA	ND		4.4	1.1	ng/L		09/06/22 12:05	09/10/22 08:46	1
NEtFOSAA	ND		4.4	1.1	ng/L		09/06/22 12:05	09/10/22 08:46	1
6:2 FTS	ND		4.4	2.2	ng/L		09/06/22 12:05	09/10/22 08:46	1
8:2 FTS	ND		1.8	0.40	ng/L		09/06/22 12:05	09/10/22 08:46	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*92*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
13C5 PFPeA	*95*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
13C2 PFHxA	*113*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
13C4 PFHpA	*94*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
13C4 PFOA	*102*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
13C5 PFNA	*101*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
13C2 PFDA	*104*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
13C2 PFUnA	*93*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
13C2 PFDoA	*86*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
13C2 PFTeDA	*93*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
13C3 PFBS	*98*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
18O2 PFHxS	*101*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
13C4 PFOS	*93*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
13C8 FOSA	*80*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
d3-NMeFOSAA	*75*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
d5-NEtFOSAA	*82*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
M2-6:2 FTS	*92*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*
M2-8:2 FTS	*106*		*25 - 150*	*09/06/22 12:05*	*09/10/22 08:46*	*1*

Method: EPA 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 180-409766/5
Matrix: Solid
Analysis Batch: 409766

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	1.7	ug/Kg			08/24/22 08:30	1
1,1,2,2-Tetrachloroethane	ND		5.0	1.5	ug/Kg			08/24/22 08:30	1
Freon-113	ND		5.0	2.0	ug/Kg			08/24/22 08:30	1
1,1,2-Trichloroethane	ND		5.0	0.99	ug/Kg			08/24/22 08:30	1
1,1-Dichloroethane	ND		5.0	1.6	ug/Kg			08/24/22 08:30	1
1,1-Dichloroethene	ND		5.0	2.3	ug/Kg			08/24/22 08:30	1
1,2,4-Trichlorobenzene	ND		5.0	2.5	ug/Kg			08/24/22 08:30	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.2	ug/Kg			08/24/22 08:30	1
1,2-Dichlorobenzene	ND		5.0	1.7	ug/Kg			08/24/22 08:30	1
1,2-Dichloroethane	ND		5.0	1.4	ug/Kg			08/24/22 08:30	1
1,2-Dichloropropane	ND		5.0	1.3	ug/Kg			08/24/22 08:30	1
1,3-Dichlorobenzene	ND		5.0	3.1	ug/Kg			08/24/22 08:30	1
1,4-Dichlorobenzene	ND		5.0	1.5	ug/Kg			08/24/22 08:30	1
2-Butanone (MEK)	ND		5.0	2.5	ug/Kg			08/24/22 08:30	1
2-Hexanone	ND		5.0	1.6	ug/Kg			08/24/22 08:30	1
Acetone	ND		20	3.9	ug/Kg			08/24/22 08:30	1
Benzene	ND		5.0	1.4	ug/Kg			08/24/22 08:30	1
Bromoform	ND		5.0	2.5	ug/Kg			08/24/22 08:30	1
Methyl bromide	ND		5.0	2.3	ug/Kg			08/24/22 08:30	1
Carbon disulfide	ND		5.0	4.0	ug/Kg			08/24/22 08:30	1
Carbon tetrachloride	ND		5.0	2.0	ug/Kg			08/24/22 08:30	1
Chlorobenzene	ND		5.0	1.3	ug/Kg			08/24/22 08:30	1
Dibromochloromethane	ND		5.0	2.5	ug/Kg			08/24/22 08:30	1
Chloroethane	ND		5.0	2.9	ug/Kg			08/24/22 08:30	1
Chloroform	ND		5.0	1.6	ug/Kg			08/24/22 08:30	1
Methyl chloride	ND		5.0	2.0	ug/Kg			08/24/22 08:30	1
cis-1,2-Dichloroethene	ND		5.0	1.5	ug/Kg			08/24/22 08:30	1
cis-1,3-Dichloropropene	ND		5.0	2.2	ug/Kg			08/24/22 08:30	1
Bromodichloromethane	ND		5.0	2.3	ug/Kg			08/24/22 08:30	1
Freon-12	ND		5.0	2.5	ug/Kg			08/24/22 08:30	1
Ethylbenzene	ND		5.0	1.9	ug/Kg			08/24/22 08:30	1
1,2-Dibromoethane	ND		5.0	1.4	ug/Kg			08/24/22 08:30	1
Isopropylbenzene (cumene)	ND		5.0	2.6	ug/Kg			08/24/22 08:30	1
Methyl tert-butyl ether	ND		5.0	1.5	ug/Kg			08/24/22 08:30	1
Methylene Chloride	ND		5.0	4.5	ug/Kg			08/24/22 08:30	1
Styrene	ND		5.0	1.5	ug/Kg			08/24/22 08:30	1
Tetrachloroethene	ND		5.0	2.0	ug/Kg			08/24/22 08:30	1
Toluene	ND		5.0	1.4	ug/Kg			08/24/22 08:30	1
trans-1,2-Dichloroethene	ND		5.0	1.8	ug/Kg			08/24/22 08:30	1
trans-1,3-Dichloropropene	ND		5.0	2.3	ug/Kg			08/24/22 08:30	1
Trichloroethene	ND		5.0	1.6	ug/Kg			08/24/22 08:30	1
Freon-11	ND		5.0	4.2	ug/Kg			08/24/22 08:30	1
Vinyl chloride	ND		5.0	3.6	ug/Kg			08/24/22 08:30	1
Xylenes, Total	ND		10	7.2	ug/Kg			08/24/22 08:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*118*		*73 - 135*		*08/24/22 08:30*	*1*
4-Bromofluorobenzene (Surr)	*97*		*60 - 124*		*08/24/22 08:30*	*1*

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 180-409766/5
Matrix: Solid
Analysis Batch: 409766

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	94		69 - 126		08/24/22 08:30	1
Toluene-d8 (Surr)	105		67 - 134		08/24/22 08:30	1

Lab Sample ID: LCS 180-409766/3
Matrix: Solid
Analysis Batch: 409766

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	40.0	38.6		ug/Kg		96	72 - 134
1,1,2,2-Tetrachloroethane	40.0	39.5		ug/Kg		99	36 - 170
Freon-113	40.0	47.6		ug/Kg		119	59 - 135
1,1,2-Trichloroethane	40.0	39.5		ug/Kg		99	66 - 128
1,1-Dichloroethane	40.0	40.4		ug/Kg		101	73 - 124
1,1-Dichloroethene	40.0	42.1		ug/Kg		105	55 - 136
1,2,4-Trichlorobenzene	40.0	30.9		ug/Kg		77	22 - 170
1,2-Dibromo-3-Chloropropane	40.0	42.1		ug/Kg		105	30 - 163
1,2-Dichlorobenzene	40.0	38.2		ug/Kg		95	76 - 120
1,2-Dichloroethane	40.0	39.8		ug/Kg		100	64 - 140
1,2-Dichloropropane	40.0	37.3		ug/Kg		93	77 - 119
1,3-Dichlorobenzene	40.0	38.3		ug/Kg		96	77 - 121
1,4-Dichlorobenzene	40.0	38.3		ug/Kg		96	79 - 120
2-Butanone (MEK)	40.0	30.3		ug/Kg		76	39 - 157
2-Hexanone	40.0	32.5		ug/Kg		81	42 - 152
Acetone	40.0	28.5		ug/Kg		71	23 - 170
Benzene	40.0	40.1		ug/Kg		100	77 - 120
Bromoform	40.0	31.6		ug/Kg		79	37 - 147
Methyl bromide	40.0	46.2		ug/Kg		116	47 - 149
Carbon disulfide	40.0	43.0		ug/Kg		107	40 - 156
Carbon tetrachloride	40.0	40.4		ug/Kg		101	73 - 130
Chlorobenzene	40.0	40.4		ug/Kg		101	79 - 122
Dibromochloromethane	40.0	37.9		ug/Kg		95	60 - 134
Chloroethane	40.0	56.4		ug/Kg		141	37 - 159
Chloroform	40.0	38.1		ug/Kg		95	73 - 126
Methyl chloride	40.0	34.4		ug/Kg		86	46 - 151
cis-1,2-Dichloroethene	40.0	38.2		ug/Kg		96	77 - 118
cis-1,3-Dichloropropene	40.0	40.5		ug/Kg		101	73 - 127
Bromodichloromethane	40.0	39.0		ug/Kg		97	75 - 123
Freon-12	40.0	40.1		ug/Kg		100	26 - 149
Ethylbenzene	40.0	40.2		ug/Kg		101	79 - 119
1,2-Dibromoethane	40.0	37.9		ug/Kg		95	59 - 137
Isopropylbenzene (cumene)	40.0	40.7		ug/Kg		102	70 - 125
Methyl tert-butyl ether	40.0	42.7		ug/Kg		107	58 - 132
Methylene Chloride	40.0	45.6		ug/Kg		114	67 - 131
m-Xylene & p-Xylene	40.0	40.4		ug/Kg		101	77 - 120
o-Xylene	40.0	40.4		ug/Kg		101	78 - 118
Styrene	40.0	38.4		ug/Kg		96	80 - 120
Tetrachloroethene	40.0	33.0		ug/Kg		82	71 - 121
Toluene	40.0	42.5		ug/Kg		106	76 - 120

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-409766/3
Matrix: Solid
Analysis Batch: 409766

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
trans-1,2-Dichloroethene	40.0	38.9		ug/Kg		97	75 - 122
trans-1,3-Dichloropropene	40.0	45.1		ug/Kg		113	68 - 133
Trichloroethene	40.0	34.1		ug/Kg		85	69 - 118
Freon-11	40.0	46.3		ug/Kg		116	32 - 149
Vinyl chloride	40.0	36.5		ug/Kg		91	64 - 134
Xylenes, Total	80.0	80.8		ug/Kg		101	78 - 118

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*104*		*73 - 135*
4-Bromofluorobenzene (Surr)	*102*		*60 - 124*
Dibromofluoromethane (Surr)	*94*		*69 - 126*
Toluene-d8 (Surr)	*106*		*67 - 134*

Lab Sample ID: LCS 180-409779/4
Matrix: Solid
Analysis Batch: 409779

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	0.0400	0.0304		mg/L		76	64 - 133
1,1,2,2-Tetrachloroethane	0.0400	0.0478		mg/L		119	47 - 147
Freon-113	0.0400	0.0236		mg/L		59	48 - 134
1,1,2-Trichloroethane	0.0400	0.0405		mg/L		101	59 - 137
1,1-Dichloroethane	0.0400	0.0429		mg/L		107	59 - 125
1,1-Dichloroethene	0.0400	0.0182	*-	mg/L		46	49 - 132
1,2,4-Trichlorobenzene	0.0400	0.0196		mg/L		49	15 - 169
1,2-Dibromo-3-Chloropropane	0.0400	0.0441		mg/L		110	10 - 170
1,2-Dichlorobenzene	0.0400	0.0347		mg/L		87	68 - 116
1,2-Dichloroethane	0.0400	0.0483		mg/L		121	57 - 149
1,2-Dichloropropane	0.0400	0.0430		mg/L		107	65 - 129
1,3-Dichlorobenzene	0.0400	0.0359		mg/L		90	70 - 119
1,4-Dichlorobenzene	0.0400	0.0317		mg/L		79	74 - 117
2-Butanone (MEK)	0.0400	0.0541		mg/L		135	35 - 158
2-Hexanone	0.0400	0.0617		mg/L		154	38 - 157
Acetone	0.0400	0.0319	J	mg/L		80	29 - 163
Benzene	0.0400	0.0361		mg/L		90	68 - 122
Bromoform	0.0400	0.0446		mg/L		112	31 - 164
Methyl bromide	0.0400	0.0203		mg/L		51	20 - 170
Carbon disulfide	0.0400	0.0299		mg/L		75	32 - 139
Carbon tetrachloride	0.0400	0.0343		mg/L		86	60 - 135
Chlorobenzene	0.0400	0.0359		mg/L		90	72 - 123
Dibromochloromethane	0.0400	0.0395		mg/L		99	51 - 144
Chloroethane	0.0400	0.0310		mg/L		78	10 - 170
Chloroform	0.0400	0.0376		mg/L		94	62 - 121
Methyl chloride	0.0400	0.0550		mg/L		137	37 - 170
cis-1,2-Dichloroethene	0.0400	0.0364		mg/L		91	64 - 122
cis-1,3-Dichloropropene	0.0400	0.0409		mg/L		102	53 - 140
Bromodichloromethane	0.0400	0.0381		mg/L		95	63 - 132
Freon-12	0.0400	0.0420		mg/L		105	21 - 165

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-409779/4
Matrix: Solid
Analysis Batch: 409779

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	0.0400	0.0385		mg/L		96	66 - 122
1,2-Dibromoethane	0.0400	0.0400		mg/L		100	55 - 146
Isopropylbenzene (cumene)	0.0400	0.0436		mg/L		109	54 - 130
Methyl tert-butyl ether	0.0400	0.0470		mg/L		117	36 - 141
Methylene Chloride	0.0400	0.0277		mg/L		69	51 - 137
m-Xylene & p-Xylene	0.0400	0.0376		mg/L		94	61 - 128
o-Xylene	0.0400	0.0395		mg/L		99	64 - 120
Styrene	0.0400	0.0390		mg/L		97	68 - 127
Tetrachloroethene	0.0400	0.0346		mg/L		86	60 - 129
Toluene	0.0400	0.0403		mg/L		101	67 - 128
trans-1,2-Dichloroethene	0.0400	0.0323		mg/L		81	62 - 126
trans-1,3-Dichloropropene	0.0400	0.0455		mg/L		114	57 - 137
Trichloroethene	0.0400	0.0302		mg/L		76	67 - 121
Freon-11	0.0400	0.0452		mg/L		113	32 - 157
Vinyl chloride	0.0400	0.0413		mg/L		103	47 - 147
Xylenes, Total	0.0800	0.0771		mg/L		96	64 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*52 - 151*
4-Bromofluorobenzene (Surr)	*97*		*49 - 118*
Dibromofluoromethane (Surr)	*82*		*60 - 132*
Toluene-d8 (Surr)	*83*		*53 - 124*

Lab Sample ID: MB 180-409895/6
Matrix: Solid
Analysis Batch: 409895

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.0	1.7	ug/Kg			08/25/22 08:28	1
1,1,2,2-Tetrachloroethane	ND		5.0	1.5	ug/Kg			08/25/22 08:28	1
Freon-113	ND		5.0	2.0	ug/Kg			08/25/22 08:28	1
1,1,2-Trichloroethane	ND		5.0	0.99	ug/Kg			08/25/22 08:28	1
1,1-Dichloroethane	ND		5.0	1.6	ug/Kg			08/25/22 08:28	1
1,1-Dichloroethene	ND		5.0	2.3	ug/Kg			08/25/22 08:28	1
1,2,4-Trichlorobenzene	ND		5.0	2.5	ug/Kg			08/25/22 08:28	1
1,2-Dibromo-3-Chloropropane	ND		5.0	3.2	ug/Kg			08/25/22 08:28	1
1,2-Dichlorobenzene	ND		5.0	1.7	ug/Kg			08/25/22 08:28	1
1,2-Dichloroethane	ND		5.0	1.4	ug/Kg			08/25/22 08:28	1
1,2-Dichloropropane	ND		5.0	1.3	ug/Kg			08/25/22 08:28	1
1,3-Dichlorobenzene	ND		5.0	3.1	ug/Kg			08/25/22 08:28	1
1,4-Dichlorobenzene	ND		5.0	1.5	ug/Kg			08/25/22 08:28	1
2-Butanone (MEK)	ND		5.0	2.5	ug/Kg			08/25/22 08:28	1
2-Hexanone	ND		5.0	1.6	ug/Kg			08/25/22 08:28	1
Acetone	ND		20	3.9	ug/Kg			08/25/22 08:28	1
Benzene	ND		5.0	1.4	ug/Kg			08/25/22 08:28	1
Bromoform	ND		5.0	2.5	ug/Kg			08/25/22 08:28	1
Methyl bromide	ND		5.0	2.3	ug/Kg			08/25/22 08:28	1
Carbon disulfide	ND		5.0	4.0	ug/Kg			08/25/22 08:28	1

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 180-409895/6
Matrix: Solid
Analysis Batch: 409895

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	ND		5.0	2.0	ug/Kg			08/25/22 08:28	1
Chlorobenzene	ND		5.0	1.3	ug/Kg			08/25/22 08:28	1
Dibromochloromethane	ND		5.0	2.5	ug/Kg			08/25/22 08:28	1
Chloroethane	ND		5.0	2.9	ug/Kg			08/25/22 08:28	1
Chloroform	ND		5.0	1.6	ug/Kg			08/25/22 08:28	1
Methyl chloride	ND		5.0	2.0	ug/Kg			08/25/22 08:28	1
cis-1,2-Dichloroethene	ND		5.0	1.5	ug/Kg			08/25/22 08:28	1
cis-1,3-Dichloropropene	ND		5.0	2.2	ug/Kg			08/25/22 08:28	1
Bromodichloromethane	ND		5.0	2.3	ug/Kg			08/25/22 08:28	1
Freon-12	ND		5.0	2.5	ug/Kg			08/25/22 08:28	1
Ethylbenzene	ND		5.0	1.9	ug/Kg			08/25/22 08:28	1
1,2-Dibromoethane	ND		5.0	1.4	ug/Kg			08/25/22 08:28	1
Isopropylbenzene (cumene)	ND		5.0	2.6	ug/Kg			08/25/22 08:28	1
Methyl tert-butyl ether	ND		5.0	1.5	ug/Kg			08/25/22 08:28	1
Methylene Chloride	ND		5.0	4.5	ug/Kg			08/25/22 08:28	1
Styrene	ND		5.0	1.5	ug/Kg			08/25/22 08:28	1
Tetrachloroethene	ND		5.0	2.0	ug/Kg			08/25/22 08:28	1
Toluene	ND		5.0	1.4	ug/Kg			08/25/22 08:28	1
trans-1,2-Dichloroethene	ND		5.0	1.8	ug/Kg			08/25/22 08:28	1
trans-1,3-Dichloropropene	ND		5.0	2.3	ug/Kg			08/25/22 08:28	1
Trichloroethene	ND		5.0	1.6	ug/Kg			08/25/22 08:28	1
Freon-11	ND		5.0	4.2	ug/Kg			08/25/22 08:28	1
Vinyl chloride	ND		5.0	3.6	ug/Kg			08/25/22 08:28	1
Xylenes, Total	ND		10	7.2	ug/Kg			08/25/22 08:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*73 - 135*		*08/25/22 08:28*	*1*
4-Bromofluorobenzene (Surr)	*96*		*60 - 124*		*08/25/22 08:28*	*1*
Dibromofluoromethane (Surr)	*90*		*69 - 126*		*08/25/22 08:28*	*1*
Toluene-d8 (Surr)	*109*		*67 - 134*		*08/25/22 08:28*	*1*

Lab Sample ID: LCS 180-409895/3
Matrix: Solid
Analysis Batch: 409895

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	40.0	39.7		ug/Kg		99	72 - 134
1,1,2,2-Tetrachloroethane	40.0	40.7		ug/Kg		102	36 - 170
Freon-113	40.0	47.0		ug/Kg		117	59 - 135
1,1,2-Trichloroethane	40.0	39.1		ug/Kg		98	66 - 128
1,1-Dichloroethane	40.0	41.2		ug/Kg		103	73 - 124
1,1-Dichloroethene	40.0	42.3		ug/Kg		106	55 - 136
1,2,4-Trichlorobenzene	40.0	30.2		ug/Kg		76	22 - 170
1,2-Dibromo-3-Chloropropane	40.0	40.8		ug/Kg		102	30 - 163
1,2-Dichlorobenzene	40.0	40.5		ug/Kg		101	76 - 120
1,2-Dichloroethane	40.0	40.5		ug/Kg		101	64 - 140
1,2-Dichloropropane	40.0	38.8		ug/Kg		97	77 - 119
1,3-Dichlorobenzene	40.0	39.4		ug/Kg		99	77 - 121

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-409895/3
Matrix: Solid
Analysis Batch: 409895

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dichlorobenzene	40.0	39.9		ug/Kg		100	79 - 120
2-Butanone (MEK)	40.0	29.6		ug/Kg		74	39 - 157
2-Hexanone	40.0	32.0		ug/Kg		80	42 - 152
Acetone	40.0	36.4		ug/Kg		91	23 - 170
Benzene	40.0	41.5		ug/Kg		104	77 - 120
Bromoform	40.0	29.3		ug/Kg		73	37 - 147
Methyl bromide	40.0	52.0		ug/Kg		130	47 - 149
Carbon disulfide	40.0	44.9		ug/Kg		112	40 - 156
Carbon tetrachloride	40.0	38.5		ug/Kg		96	73 - 130
Chlorobenzene	40.0	41.3		ug/Kg		103	79 - 122
Dibromochloromethane	40.0	36.7		ug/Kg		92	60 - 134
Chloroethane	40.0	66.9	*+	ug/Kg		167	37 - 159
Chloroform	40.0	38.0		ug/Kg		95	73 - 126
Methyl chloride	40.0	37.5		ug/Kg		94	46 - 151
cis-1,2-Dichloroethene	40.0	37.9		ug/Kg		95	77 - 118
cis-1,3-Dichloropropene	40.0	39.3		ug/Kg		98	73 - 127
Bromodichloromethane	40.0	38.7		ug/Kg		97	75 - 123
Freon-12	40.0	38.0		ug/Kg		95	26 - 149
Ethylbenzene	40.0	40.4		ug/Kg		101	79 - 119
1,2-Dibromoethane	40.0	36.9		ug/Kg		92	59 - 137
Isopropylbenzene (cumene)	40.0	41.5		ug/Kg		104	70 - 125
Methyl tert-butyl ether	40.0	42.6		ug/Kg		107	58 - 132
Methylene Chloride	40.0	46.2		ug/Kg		116	67 - 131
m-Xylene & p-Xylene	40.0	40.5		ug/Kg		101	77 - 120
o-Xylene	40.0	41.1		ug/Kg		103	78 - 118
Styrene	40.0	39.8		ug/Kg		99	80 - 120
Tetrachloroethene	40.0	32.9		ug/Kg		82	71 - 121
Toluene	40.0	44.3		ug/Kg		111	76 - 120
trans-1,2-Dichloroethene	40.0	40.8		ug/Kg		102	75 - 122
trans-1,3-Dichloropropene	40.0	44.3		ug/Kg		111	68 - 133
Trichloroethene	40.0	33.0		ug/Kg		82	69 - 118
Freon-11	40.0	56.6		ug/Kg		141	32 - 149
Vinyl chloride	40.0	38.4		ug/Kg		96	64 - 134
Xylenes, Total	80.0	81.6		ug/Kg		102	78 - 118

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*73 - 135*
4-Bromofluorobenzene (Surr)	*99*		*60 - 124*
Dibromofluoromethane (Surr)	*88*		*69 - 126*
Toluene-d8 (Surr)	*104*		*67 - 134*

Lab Sample ID: LCSD 180-409895/4
Matrix: Solid
Analysis Batch: 409895

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	40.0	38.7		ug/Kg		97	72 - 134	3	20
1,1,2,2-Tetrachloroethane	40.0	40.8		ug/Kg		102	36 - 170	0	23

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 180-409895/4
Matrix: Solid
Analysis Batch: 409895

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Freon-113			40.0	45.1		ug/Kg		113	59 - 135	4	28
1,1,2-Trichloroethane			40.0	39.0		ug/Kg		97	66 - 128	0	21
1,1-Dichloroethane			40.0	39.7		ug/Kg		99	73 - 124	4	20
1,1-Dichloroethene			40.0	40.7		ug/Kg		102	55 - 136	4	21
1,2,4-Trichlorobenzene			40.0	29.8		ug/Kg		75	22 - 170	1	29
1,2-Dibromo-3-Chloropropane			40.0	40.5		ug/Kg		101	30 - 163	1	34
1,2-Dichlorobenzene			40.0	38.0		ug/Kg		95	76 - 120	6	20
1,2-Dichloroethane			40.0	39.2		ug/Kg		98	64 - 140	3	20
1,2-Dichloropropane			40.0	37.3		ug/Kg		93	77 - 119	4	20
1,3-Dichlorobenzene			40.0	38.1		ug/Kg		95	77 - 121	3	20
1,4-Dichlorobenzene			40.0	37.9		ug/Kg		95	79 - 120	5	20
2-Butanone (MEK)			40.0	31.7		ug/Kg		79	39 - 157	7	33
2-Hexanone			40.0	33.2		ug/Kg		83	42 - 152	4	30
Acetone			40.0	36.6		ug/Kg		92	23 - 170	1	35
Benzene			40.0	40.3		ug/Kg		101	77 - 120	3	20
Bromoform			40.0	30.3		ug/Kg		76	37 - 147	3	23
Methyl bromide			40.0	49.4		ug/Kg		124	47 - 149	5	25
Carbon disulfide			40.0	44.1		ug/Kg		110	40 - 156	2	25
Carbon tetrachloride			40.0	38.9		ug/Kg		97	73 - 130	1	21
Chlorobenzene			40.0	40.8		ug/Kg		102	79 - 122	1	20
Dibromochloromethane			40.0	35.5		ug/Kg		89	60 - 134	3	40
Chloroethane			40.0	57.7		ug/Kg		144	37 - 159	15	25
Chloroform			40.0	37.0		ug/Kg		92	73 - 126	3	20
Methyl chloride			40.0	35.1		ug/Kg		88	46 - 151	7	33
cis-1,2-Dichloroethene			40.0	37.9		ug/Kg		95	77 - 118	0	20
cis-1,3-Dichloropropene			40.0	38.0		ug/Kg		95	73 - 127	3	20
Bromodichloromethane			40.0	37.3		ug/Kg		93	75 - 123	4	20
Freon-12			40.0	39.8		ug/Kg		99	26 - 149	5	24
Ethylbenzene			40.0	40.0		ug/Kg		100	79 - 119	1	20
1,2-Dibromoethane			40.0	37.4		ug/Kg		94	59 - 137	1	20
Isopropylbenzene (cumene)			40.0	40.1		ug/Kg		100	70 - 125	4	21
Methyl tert-butyl ether			40.0	41.7		ug/Kg		104	58 - 132	2	24
Methylene Chloride			40.0	45.7		ug/Kg		114	67 - 131	1	32
m-Xylene & p-Xylene			40.0	39.2		ug/Kg		98	77 - 120	3	20
o-Xylene			40.0	39.4		ug/Kg		99	78 - 118	4	20
Styrene			40.0	37.8		ug/Kg		95	80 - 120	5	20
Tetrachloroethene			40.0	31.8		ug/Kg		80	71 - 121	3	21
Toluene			40.0	42.9		ug/Kg		107	76 - 120	3	20
trans-1,2-Dichloroethene			40.0	39.5		ug/Kg		99	75 - 122	3	20
trans-1,3-Dichloropropene			40.0	44.3		ug/Kg		111	68 - 133	0	20
Trichloroethene			40.0	32.3		ug/Kg		81	69 - 118	2	20
Freon-11			40.0	49.2		ug/Kg		123	32 - 149	14	39
Vinyl chloride			40.0	37.6		ug/Kg		94	64 - 134	2	23
Xylenes, Total			80.0	78.6		ug/Kg		98	78 - 118	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*73 - 135*
4-Bromofluorobenzene (Surr)	*103*		*60 - 124*

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 180-409895/4
Matrix: Solid
Analysis Batch: 409895

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Dibromofluoromethane (Surr)	*93*		*69 - 126*
Toluene-d8 (Surr)	*106*		*67 - 134*

Lab Sample ID: MB 180-410452/8
Matrix: Solid
Analysis Batch: 410452

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.010	0.0025	mg/L			08/30/22 11:30	1
1,1,2,2-Tetrachloroethane	ND		0.010	0.0030	mg/L			08/30/22 11:30	1
Freon-113	ND		0.010	0.0019	mg/L			08/30/22 11:30	1
1,1,2-Trichloroethane	ND		0.010	0.0024	mg/L			08/30/22 11:30	1
1,1-Dichloroethane	ND		0.010	0.0018	mg/L			08/30/22 11:30	1
1,1-Dichloroethene	ND		0.010	0.0029	mg/L			08/30/22 11:30	1
1,2,4-Trichlorobenzene	ND		0.010	0.0037	mg/L			08/30/22 11:30	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0031	mg/L			08/30/22 11:30	1
1,2-Dichlorobenzene	ND		0.010	0.0020	mg/L			08/30/22 11:30	1
1,2-Dichloroethane	ND		0.010	0.0015	mg/L			08/30/22 11:30	1
1,2-Dichloropropane	ND		0.010	0.0025	mg/L			08/30/22 11:30	1
1,3-Dichlorobenzene	ND		0.010	0.0016	mg/L			08/30/22 11:30	1
1,4-Dichlorobenzene	ND		0.010	0.0010	mg/L			08/30/22 11:30	1
2-Butanone (MEK)	ND		0.010	0.0029	mg/L			08/30/22 11:30	1
2-Hexanone	ND		0.010	0.0042	mg/L			08/30/22 11:30	1
Acetone	ND		0.040	0.0055	mg/L			08/30/22 11:30	1
Benzene	ND		0.010	0.0020	mg/L			08/30/22 11:30	1
Bromoform	ND		0.010	0.0026	mg/L			08/30/22 11:30	1
Methyl bromide	ND		0.010	0.0045	mg/L			08/30/22 11:30	1
Carbon disulfide	ND		0.010	0.0030	mg/L			08/30/22 11:30	1
Carbon tetrachloride	ND		0.010	0.0033	mg/L			08/30/22 11:30	1
Chlorobenzene	ND		0.010	0.0016	mg/L			08/30/22 11:30	1
Dibromochloromethane	ND		0.010	0.0024	mg/L			08/30/22 11:30	1
Chloroethane	ND		0.010	0.0026	mg/L			08/30/22 11:30	1
Chloroform	ND		0.010	0.0021	mg/L			08/30/22 11:30	1
Methyl chloride	ND		0.010	0.0039	mg/L			08/30/22 11:30	1
cis-1,2-Dichloroethene	ND		0.010	0.0016	mg/L			08/30/22 11:30	1
cis-1,3-Dichloropropene	ND		0.010	0.0016	mg/L			08/30/22 11:30	1
Bromodichloromethane	ND		0.010	0.0024	mg/L			08/30/22 11:30	1
Freon-12	ND		0.010	0.0029	mg/L			08/30/22 11:30	1
Ethylbenzene	ND		0.010	0.0022	mg/L			08/30/22 11:30	1
1,2-Dibromoethane	ND		0.010	0.0027	mg/L			08/30/22 11:30	1
Isopropylbenzene (cumene)	ND		0.010	0.0023	mg/L			08/30/22 11:30	1
Methyl tert-butyl ether	ND		0.010	0.0037	mg/L			08/30/22 11:30	1
Methylene Chloride	ND		0.010	0.0039	mg/L			08/30/22 11:30	1
Styrene	ND		0.010	0.0013	mg/L			08/30/22 11:30	1
Tetrachloroethene	ND		0.010	0.0020	mg/L			08/30/22 11:30	1
Toluene	ND		0.010	0.0017	mg/L			08/30/22 11:30	1
trans-1,2-Dichloroethene	ND		0.010	0.0025	mg/L			08/30/22 11:30	1
trans-1,3-Dichloropropene	ND		0.010	0.0017	mg/L			08/30/22 11:30	1

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 180-410452/8
Matrix: Solid
Analysis Batch: 410452

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	ND		0.010	0.0015	mg/L			08/30/22 11:30	1
Freon-11	ND		0.010	0.0015	mg/L			08/30/22 11:30	1
Vinyl chloride	ND		0.010	0.0037	mg/L			08/30/22 11:30	1
Xylenes, Total	ND		0.020	0.0043	mg/L			08/30/22 11:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*71*		*52 - 151*		*08/30/22 11:30*	*1*
4-Bromofluorobenzene (Surr)	*55*		*49 - 118*		*08/30/22 11:30*	*1*
Dibromofluoromethane (Surr)	*63*		*60 - 132*		*08/30/22 11:30*	*1*
Toluene-d8 (Surr)	*66*		*53 - 124*		*08/30/22 11:30*	*1*

Lab Sample ID: LCS 180-410452/3
Matrix: Solid
Analysis Batch: 410452

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	0.0100	0.0104		mg/L		104	64 - 133
1,1,2,2-Tetrachloroethane	0.0100	0.0116		mg/L		116	47 - 147
Freon-113	0.0100	0.0113		mg/L		113	48 - 134
1,1,2-Trichloroethane	0.0100	0.0107		mg/L		107	59 - 137
1,1-Dichloroethane	0.0100	0.0109		mg/L		109	59 - 125
1,1-Dichloroethene	0.0100	0.00998	J	mg/L		100	49 - 132
1,2,4-Trichlorobenzene	0.0100	0.00907	J	mg/L		91	15 - 169
1,2-Dibromo-3-Chloropropane	0.0100	0.00747	J	mg/L		75	10 - 170
1,2-Dichlorobenzene	0.0100	0.0105		mg/L		105	68 - 116
1,2-Dichloroethane	0.0100	0.0129		mg/L		129	57 - 149
1,2-Dichloropropane	0.0100	0.0112		mg/L		112	65 - 129
1,3-Dichlorobenzene	0.0100	0.0100		mg/L		100	70 - 119
1,4-Dichlorobenzene	0.0100	0.0102		mg/L		102	74 - 117
2-Butanone (MEK)	0.0100	0.0113		mg/L		113	35 - 158
2-Hexanone	0.0100	0.00862	J	mg/L		86	38 - 157
Acetone	0.0100	0.00976	J	mg/L		98	29 - 163
Benzene	0.0100	0.0107		mg/L		107	68 - 122
Bromoform	0.0100	0.00900	J	mg/L		90	31 - 164
Methyl bromide	0.0100	0.0141		mg/L		141	20 - 170
Carbon disulfide	0.0100	0.00906	J	mg/L		91	32 - 139
Carbon tetrachloride	0.0100	0.0107		mg/L		107	60 - 135
Chlorobenzene	0.0100	0.0109		mg/L		109	72 - 123
Dibromochloromethane	0.0100	0.00960	J	mg/L		96	51 - 144
Chloroethane	0.0100	0.0132		mg/L		132	10 - 170
Chloroform	0.0100	0.0110		mg/L		110	62 - 121
Methyl chloride	0.0100	0.0113		mg/L		113	37 - 170
cis-1,2-Dichloroethene	0.0100	0.0108		mg/L		108	64 - 122
cis-1,3-Dichloropropene	0.0100	0.00945	J	mg/L		95	53 - 140
Bromodichloromethane	0.0100	0.0106		mg/L		106	63 - 132
Freon-12	0.0100	0.00932	J	mg/L		93	21 - 165
Ethylbenzene	0.0100	0.0100		mg/L		100	66 - 122
1,2-Dibromoethane	0.0100	0.0103		mg/L		103	55 - 146

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-410452/3
Matrix: Solid
Analysis Batch: 410452

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Isopropylbenzene (cumene)	0.0100	0.00950	J	mg/L		95	54 - 130
Methyl tert-butyl ether	0.0100	0.00899	J	mg/L		90	36 - 141
Methylene Chloride	0.0100	0.0161	*+	mg/L		161	51 - 137
m-Xylene & p-Xylene	0.0100	0.00991	J	mg/L		99	61 - 128
o-Xylene	0.0100	0.0102		mg/L		102	64 - 120
Styrene	0.0100	0.0101		mg/L		101	68 - 127
Tetrachloroethene	0.0100	0.0108		mg/L		108	60 - 129
Toluene	0.0100	0.0101		mg/L		101	67 - 128
trans-1,2-Dichloroethene	0.0100	0.0108		mg/L		108	62 - 126
trans-1,3-Dichloropropene	0.0100	0.00905	J	mg/L		91	57 - 137
Trichloroethene	0.0100	0.0106		mg/L		106	67 - 121
Freon-11	0.0100	0.0157		mg/L		157	32 - 157
Vinyl chloride	0.0100	0.0111		mg/L		111	47 - 147
Xylenes, Total	0.0200	0.0201		mg/L		101	64 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*119*		*52 - 151*
4-Bromofluorobenzene (Surr)	*89*		*49 - 118*
Dibromofluoromethane (Surr)	*103*		*60 - 132*
Toluene-d8 (Surr)	*85*		*53 - 124*

Lab Sample ID: LCS 180-410599/6
Matrix: Solid
Analysis Batch: 410599

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	0.0100	0.00840	J	mg/L		84	64 - 133
1,1,2,2-Tetrachloroethane	0.0100	0.00980	J	mg/L		98	47 - 147
Freon-113	0.0100	0.00996	J	mg/L		100	48 - 134
1,1,2-Trichloroethane	0.0100	0.00960	J	mg/L		96	59 - 137
1,1-Dichloroethane	0.0100	0.00926	J	mg/L		93	59 - 125
1,1-Dichloroethene	0.0100	0.00885	J	mg/L		88	49 - 132
1,2,4-Trichlorobenzene	0.0100	0.00944	J	mg/L		94	15 - 169
1,2-Dibromo-3-Chloropropane	0.0100	0.00508	J	mg/L		51	10 - 170
1,2-Dichlorobenzene	0.0100	0.00985	J	mg/L		99	68 - 116
1,2-Dichloroethane	0.0100	0.0106		mg/L		106	57 - 149
1,2-Dichloropropane	0.0100	0.00945	J	mg/L		95	65 - 129
1,3-Dichlorobenzene	0.0100	0.00935	J	mg/L		93	70 - 119
1,4-Dichlorobenzene	0.0100	0.00980	J	mg/L		98	74 - 117
2-Butanone (MEK)	0.0100	0.00903	J	mg/L		90	35 - 158
2-Hexanone	0.0100	0.00561	J	mg/L		56	38 - 157
Acetone	0.0100	0.00688	J	mg/L		69	29 - 163
Benzene	0.0100	0.00929	J	mg/L		93	68 - 122
Bromoform	0.0100	0.00574	J	mg/L		57	31 - 164
Methyl bromide	0.0100	0.00776	J	mg/L		78	20 - 170
Carbon disulfide	0.0100	0.00522	J	mg/L		52	32 - 139
Carbon tetrachloride	0.0100	0.00831	J	mg/L		83	60 - 135
Chlorobenzene	0.0100	0.00984	J	mg/L		98	72 - 123

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 180-410599/6
Matrix: Solid
Analysis Batch: 410599

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Dibromochloromethane	0.0100	0.00713	J	mg/L		71	51 - 144
Chloroethane	0.0100	0.00915	J	mg/L		92	10 - 170
Chloroform	0.0100	0.00893	J	mg/L		89	62 - 121
Methyl chloride	0.0100	0.00731	J	mg/L		73	37 - 170
cis-1,2-Dichloroethene	0.0100	0.00925	J	mg/L		92	64 - 122
cis-1,3-Dichloropropene	0.0100	0.00758	J	mg/L		76	53 - 140
Bromodichloromethane	0.0100	0.00756	J	mg/L		76	63 - 132
Freon-12	0.0100	0.00728	J	mg/L		73	21 - 165
Ethylbenzene	0.0100	0.00921	J	mg/L		92	66 - 122
1,2-Dibromoethane	0.0100	0.00890	J	mg/L		89	55 - 146
Isopropylbenzene (cumene)	0.0100	0.00874	J	mg/L		87	54 - 130
Methyl tert-butyl ether	0.0100	0.00762	J	mg/L		76	36 - 141
Methylene Chloride	0.0100	0.0114		mg/L		114	51 - 137
m-Xylene & p-Xylene	0.0100	0.00911	J	mg/L		91	61 - 128
o-Xylene	0.0100	0.00918	J	mg/L		92	64 - 120
Styrene	0.0100	0.00897	J	mg/L		90	68 - 127
Tetrachloroethene	0.0100	0.00986	J	mg/L		99	60 - 129
Toluene	0.0100	0.00906	J	mg/L		91	67 - 128
trans-1,2-Dichloroethene	0.0100	0.00903	J	mg/L		90	62 - 126
trans-1,3-Dichloropropene	0.0100	0.00710	J	mg/L		71	57 - 137
Trichloroethene	0.0100	0.00923	J	mg/L		92	67 - 121
Freon-11	0.0100	0.0126		mg/L		126	32 - 157
Vinyl chloride	0.0100	0.00798	J	mg/L		80	47 - 147
Xylenes, Total	0.0200	0.0183	J	mg/L		91	64 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*52 - 151*
4-Bromofluorobenzene (Surr)	*72*		*49 - 118*
Dibromofluoromethane (Surr)	*78*		*60 - 132*
Toluene-d8 (Surr)	*65*		*53 - 124*

Lab Sample ID: LB 180-409644/1-A
Matrix: Solid
Analysis Batch: 409779

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20	0.050	mg/L			08/24/22 13:37	1
1,1,2,2-Tetrachloroethane	ND		0.20	0.060	mg/L			08/24/22 13:37	1
Freon-113	ND		0.20	0.038	mg/L			08/24/22 13:37	1
1,1,2-Trichloroethane	ND		0.20	0.048	mg/L			08/24/22 13:37	1
1,1-Dichloroethane	ND		0.20	0.036	mg/L			08/24/22 13:37	1
1,1-Dichloroethene	ND		0.20	0.057	mg/L			08/24/22 13:37	1
1,2,4-Trichlorobenzene	ND		0.20	0.074	mg/L			08/24/22 13:37	1
1,2-Dibromo-3-Chloropropane	ND		0.20	0.061	mg/L			08/24/22 13:37	1
1,2-Dichlorobenzene	ND		0.20	0.040	mg/L			08/24/22 13:37	1
1,2-Dichloroethane	ND		0.20	0.029	mg/L			08/24/22 13:37	1
1,2-Dichloropropane	ND		0.20	0.049	mg/L			08/24/22 13:37	1
1,3-Dichlorobenzene	ND		0.20	0.032	mg/L			08/24/22 13:37	1

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LB 180-409644/1-A
Matrix: Solid
Analysis Batch: 409779

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.20	0.020	mg/L			08/24/22 13:37	1
2-Butanone (MEK)	ND		0.20	0.058	mg/L			08/24/22 13:37	1
2-Hexanone	ND		0.20	0.084	mg/L			08/24/22 13:37	1
Acetone	ND		0.80	0.11	mg/L			08/24/22 13:37	1
Benzene	ND		0.20	0.039	mg/L			08/24/22 13:37	1
Bromoform	ND		0.20	0.052	mg/L			08/24/22 13:37	1
Methyl bromide	ND		0.20	0.090	mg/L			08/24/22 13:37	1
Carbon disulfide	ND		0.20	0.060	mg/L			08/24/22 13:37	1
Carbon tetrachloride	ND		0.20	0.066	mg/L			08/24/22 13:37	1
Chlorobenzene	ND		0.20	0.031	mg/L			08/24/22 13:37	1
Dibromochloromethane	ND		0.20	0.048	mg/L			08/24/22 13:37	1
Chloroethane	ND		0.20	0.052	mg/L			08/24/22 13:37	1
Chloroform	ND		0.20	0.042	mg/L			08/24/22 13:37	1
Methyl chloride	ND		0.20	0.077	mg/L			08/24/22 13:37	1
cis-1,2-Dichloroethene	ND		0.20	0.031	mg/L			08/24/22 13:37	1
cis-1,3-Dichloropropene	ND		0.20	0.032	mg/L			08/24/22 13:37	1
Bromodichloromethane	ND		0.20	0.047	mg/L			08/24/22 13:37	1
Freon-12	ND		0.20	0.058	mg/L			08/24/22 13:37	1
Ethylbenzene	ND		0.20	0.043	mg/L			08/24/22 13:37	1
1,2-Dibromoethane	ND		0.20	0.055	mg/L			08/24/22 13:37	1
Isopropylbenzene (cumene)	ND		0.20	0.046	mg/L			08/24/22 13:37	1
Methyl tert-butyl ether	ND		0.20	0.074	mg/L			08/24/22 13:37	1
Methylene Chloride	ND		0.20	0.077	mg/L			08/24/22 13:37	1
Styrene	ND		0.20	0.027	mg/L			08/24/22 13:37	1
Tetrachloroethene	ND		0.20	0.040	mg/L			08/24/22 13:37	1
Toluene	ND		0.20	0.034	mg/L			08/24/22 13:37	1
trans-1,2-Dichloroethene	ND		0.20	0.051	mg/L			08/24/22 13:37	1
trans-1,3-Dichloropropene	ND		0.20	0.035	mg/L			08/24/22 13:37	1
Trichloroethene	ND		0.20	0.030	mg/L			08/24/22 13:37	1
Freon-11	ND		0.20	0.029	mg/L			08/24/22 13:37	1
Vinyl chloride	ND		0.20	0.073	mg/L			08/24/22 13:37	1
Xylenes, Total	ND		0.40	0.086	mg/L			08/24/22 13:37	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*52 - 151*		*08/24/22 13:37*	*1*
4-Bromofluorobenzene (Surr)	*87*		*49 - 118*		*08/24/22 13:37*	*1*
Dibromofluoromethane (Surr)	*84*		*60 - 132*		*08/24/22 13:37*	*1*
Toluene-d8 (Surr)	*88*		*53 - 124*		*08/24/22 13:37*	*1*

Lab Sample ID: 180-136073-4 MS
Matrix: Solid
Analysis Batch: 409779

Client Sample ID: TRW 20% PC, 4% AC
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	ND	H	0.800	0.597		mg/L		75	64 - 133
1,1,2,2-Tetrachloroethane	ND	H	0.800	0.742	*3	mg/L		93	47 - 147
Freon-113	ND	H	0.800	0.602		mg/L		75	48 - 134
1,1,2-Trichloroethane	ND	H	0.800	0.717	*3	mg/L		90	59 - 137

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 180-136073-4 MS
Matrix: Solid
Analysis Batch: 409779

Client Sample ID: TRW 20% PC, 4% AC
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethane	ND	H	0.800	0.863		mg/L		108	59 - 125
1,1-Dichloroethene	ND	H *-	0.800	0.661		mg/L		83	49 - 132
1,2,4-Trichlorobenzene	ND	H F2	0.800	0.357	*3	mg/L		45	15 - 169
1,2-Dibromo-3-Chloropropane	ND	H F2	0.800	0.607	*3	mg/L		76	10 - 170
1,2-Dichlorobenzene	ND	H F2	0.800	0.559	*3	mg/L		70	68 - 116
1,2-Dichloroethane	ND	H	0.800	0.967		mg/L		121	57 - 149
1,2-Dichloropropane	ND	H	0.800	0.865		mg/L		108	65 - 129
1,3-Dichlorobenzene	ND	H	0.800	0.613	*3	mg/L		77	70 - 119
1,4-Dichlorobenzene	ND	H F1	0.800	0.521	F1 *3	mg/L		65	74 - 117
2-Butanone (MEK)	ND	H F1	0.800	1.52	F1	mg/L		190	35 - 158
2-Hexanone	ND	H F1	0.800	1.40	*3 F1	mg/L		175	38 - 157
Acetone	ND	H F1	0.800	1.22		mg/L		153	29 - 163
Benzene	ND	H	0.800	0.708		mg/L		88	68 - 122
Bromoform	ND	H	0.800	0.766	*3	mg/L		96	31 - 164
Methyl bromide	ND	H	0.800	0.393		mg/L		49	20 - 170
Carbon disulfide	ND	H	0.800	0.609		mg/L		76	32 - 139
Carbon tetrachloride	ND	H	0.800	0.658		mg/L		82	60 - 135
Chlorobenzene	ND	H	0.800	0.590	*3	mg/L		74	72 - 123
Dibromochloromethane	ND	H	0.800	0.722	*3	mg/L		90	51 - 144
Chloroethane	ND	H	0.800	0.621		mg/L		78	10 - 170
Chloroform	ND	H	0.800	0.763		mg/L		95	62 - 121
Methyl chloride	ND	H	0.800	0.984		mg/L		123	37 - 170
cis-1,2-Dichloroethene	ND	H	0.800	0.733		mg/L		92	64 - 122
cis-1,3-Dichloropropene	ND	H	0.800	0.834		mg/L		104	53 - 140
Bromodichloromethane	ND	H	0.800	0.768		mg/L		96	63 - 132
Freon-12	ND	H	0.800	0.673		mg/L		84	21 - 165
Ethylbenzene	ND	H	0.800	0.634	*3	mg/L		79	66 - 122
1,2-Dibromoethane	ND	H	0.800	0.719	*3	mg/L		90	55 - 146
Isopropylbenzene (cumene)	ND	H	0.800	0.668	*3	mg/L		83	54 - 130
Methyl tert-butyl ether	ND	H	0.800	0.964		mg/L		120	36 - 141
Methylene Chloride	ND	H	0.800	0.489		mg/L		61	51 - 137
m-Xylene & p-Xylene	ND	H	0.800	0.643	*3	mg/L		80	61 - 128
o-Xylene	ND	H	0.800	0.659	*3	mg/L		82	64 - 120
Styrene	ND	H	0.800	0.648	*3	mg/L		81	68 - 127
Tetrachloroethene	ND	H	0.800	0.576	*3	mg/L		72	60 - 129
Toluene	ND	H	0.800	0.714	*3	mg/L		89	67 - 128
trans-1,2-Dichloroethene	ND	H	0.800	0.596		mg/L		75	62 - 126
trans-1,3-Dichloropropene	ND	H	0.800	0.838	*3	mg/L		105	57 - 137
Trichloroethene	ND	H	0.800	0.573		mg/L		72	67 - 121
Freon-11	ND	H	0.800	0.837		mg/L		105	32 - 157
Vinyl chloride	ND	H	0.800	0.722		mg/L		90	47 - 147
Xylenes, Total	ND	H	1.60	1.30	*3	mg/L		81	64 - 123

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*117*		*52 - 151*
4-Bromofluorobenzene (Surr)	*112*	*3	*49 - 118*
Dibromofluoromethane (Surr)	*92*		*60 - 132*
Toluene-d8 (Surr)	*94*	*3	*53 - 124*

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 180-136073-4 MSD
Matrix: Solid
Analysis Batch: 409779

Client Sample ID: TRW 20% PC, 4% AC
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND	H	0.800	0.638		mg/L		80	64 - 133	7	22
1,1,2,2-Tetrachloroethane	ND	H	0.800	0.941		mg/L		118	47 - 147	24	35
Freon-113	ND	H	0.800	0.629		mg/L		79	48 - 134	4	28
1,1,2-Trichloroethane	ND	H	0.800	0.836		mg/L		105	59 - 137	15	29
1,1-Dichloroethane	ND	H	0.800	0.919		mg/L		115	59 - 125	6	20
1,1-Dichloroethene	ND	H *-	0.800	0.691		mg/L		86	49 - 132	4	23
1,2,4-Trichlorobenzene	ND	H F2	0.800	0.822	F2	mg/L		103	15 - 169	79	35
1,2-Dibromo-3-Chloropropane	ND	H F2	0.800	1.11	F2	mg/L		138	10 - 170	58	35
1,2-Dichlorobenzene	ND	H F2	0.800	0.688	F2	mg/L		86	68 - 116	21	20
1,2-Dichloroethane	ND	H	0.800	1.04		mg/L		130	57 - 149	7	27
1,2-Dichloropropane	ND	H	0.800	0.910		mg/L		114	65 - 129	5	23
1,3-Dichlorobenzene	ND	H	0.800	0.696		mg/L		87	70 - 119	13	18
1,4-Dichlorobenzene	ND	H F1	0.800	0.612		mg/L		77	74 - 117	16	17
2-Butanone (MEK)	ND	H F1	0.800	1.71	F1	mg/L		214	35 - 158	11	35
2-Hexanone	ND	H F1	0.800	1.65	E F1	mg/L		206	38 - 157	17	35
Acetone	ND	H F1	0.800	1.53	F1	mg/L		192	29 - 163	23	35
Benzene	ND	H	0.800	0.747		mg/L		93	68 - 122	5	21
Bromoform	ND	H	0.800	0.948		mg/L		119	31 - 164	21	35
Methyl bromide	ND	H	0.800	0.422		mg/L		53	20 - 170	7	30
Carbon disulfide	ND	H	0.800	0.655		mg/L		82	32 - 139	7	25
Carbon tetrachloride	ND	H	0.800	0.694		mg/L		87	60 - 135	5	25
Chlorobenzene	ND	H	0.800	0.700		mg/L		87	72 - 123	17	19
Dibromochloromethane	ND	H	0.800	0.877		mg/L		110	51 - 144	19	25
Chloroethane	ND	H	0.800	0.648		mg/L		81	10 - 170	4	29
Chloroform	ND	H	0.800	0.801		mg/L		100	62 - 121	5	22
Methyl chloride	ND	H	0.800	1.04		mg/L		129	37 - 170	5	28
cis-1,2-Dichloroethene	ND	H	0.800	0.776		mg/L		97	64 - 122	6	22
cis-1,3-Dichloropropene	ND	H	0.800	0.923		mg/L		115	53 - 140	10	26
Bromodichloromethane	ND	H	0.800	0.826		mg/L		103	63 - 132	7	24
Freon-12	ND	H	0.800	0.688		mg/L		86	21 - 165	2	26
Ethylbenzene	ND	H	0.800	0.725		mg/L		91	66 - 122	13	22
1,2-Dibromoethane	ND	H	0.800	0.874		mg/L		109	55 - 146	19	30
Isopropylbenzene (cumene)	ND	H	0.800	0.758		mg/L		95	54 - 130	13	22
Methyl tert-butyl ether	ND	H	0.800	1.08		mg/L		134	36 - 141	11	35
Methylene Chloride	ND	H	0.800	0.543		mg/L		68	51 - 137	10	35
m-Xylene & p-Xylene	ND	H	0.800	0.715		mg/L		89	61 - 128	11	21
o-Xylene	ND	H	0.800	0.762		mg/L		95	64 - 120	14	23
Styrene	ND	H	0.800	0.739		mg/L		92	68 - 127	13	22
Tetrachloroethene	ND	H	0.800	0.660		mg/L		82	60 - 129	14	22
Toluene	ND	H	0.800	0.832		mg/L		104	67 - 128	15	22
trans-1,2-Dichloroethene	ND	H	0.800	0.667		mg/L		83	62 - 126	11	23
trans-1,3-Dichloropropene	ND	H	0.800	1.01		mg/L		126	57 - 137	18	25
Trichloroethene	ND	H	0.800	0.611		mg/L		76	67 - 121	6	23
Freon-11	ND	H	0.800	0.869		mg/L		109	32 - 157	4	35
Vinyl chloride	ND	H	0.800	0.748		mg/L		94	47 - 147	4	25
Xylenes, Total	ND	H	1.60	1.48		mg/L		92	64 - 123	13	21

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 180-136073-4 MSD
Matrix: Solid
Analysis Batch: 409779

Client Sample ID: TRW 20% PC, 4% AC
Prep Type: TCLP

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*124*		*52 - 151*
4-Bromofluorobenzene (Surr)	*110*		*49 - 118*
Dibromofluoromethane (Surr)	*98*		*60 - 132*
Toluene-d8 (Surr)	*101*		*53 - 124*

Lab Sample ID: LB 180-409644/1-A
Matrix: Solid
Analysis Batch: 410452

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.20	0.050	mg/L			08/30/22 17:28	1
1,1,2,2-Tetrachloroethane	ND		0.20	0.060	mg/L			08/30/22 17:28	1
Freon-113	ND		0.20	0.038	mg/L			08/30/22 17:28	1
1,1,2-Trichloroethane	ND		0.20	0.048	mg/L			08/30/22 17:28	1
1,1-Dichloroethane	ND		0.20	0.036	mg/L			08/30/22 17:28	1
1,1-Dichloroethene	ND		0.20	0.057	mg/L			08/30/22 17:28	1
1,2,4-Trichlorobenzene	ND		0.20	0.074	mg/L			08/30/22 17:28	1
1,2-Dibromo-3-Chloropropane	ND		0.20	0.061	mg/L			08/30/22 17:28	1
1,2-Dichlorobenzene	ND		0.20	0.040	mg/L			08/30/22 17:28	1
1,2-Dichloroethane	ND		0.20	0.029	mg/L			08/30/22 17:28	1
1,2-Dichloropropane	ND		0.20	0.049	mg/L			08/30/22 17:28	1
1,3-Dichlorobenzene	ND		0.20	0.032	mg/L			08/30/22 17:28	1
1,4-Dichlorobenzene	ND		0.20	0.020	mg/L			08/30/22 17:28	1
2-Butanone (MEK)	ND		0.20	0.058	mg/L			08/30/22 17:28	1
2-Hexanone	ND		0.20	0.084	mg/L			08/30/22 17:28	1
Acetone	ND		0.80	0.11	mg/L			08/30/22 17:28	1
Benzene	ND		0.20	0.039	mg/L			08/30/22 17:28	1
Bromoform	ND		0.20	0.052	mg/L			08/30/22 17:28	1
Methyl bromide	ND		0.20	0.090	mg/L			08/30/22 17:28	1
Carbon disulfide	ND		0.20	0.060	mg/L			08/30/22 17:28	1
Carbon tetrachloride	ND		0.20	0.066	mg/L			08/30/22 17:28	1
Chlorobenzene	ND		0.20	0.031	mg/L			08/30/22 17:28	1
Dibromochloromethane	ND		0.20	0.048	mg/L			08/30/22 17:28	1
Chloroethane	ND		0.20	0.052	mg/L			08/30/22 17:28	1
Chloroform	ND		0.20	0.042	mg/L			08/30/22 17:28	1
Methyl chloride	ND		0.20	0.077	mg/L			08/30/22 17:28	1
cis-1,2-Dichloroethene	ND		0.20	0.031	mg/L			08/30/22 17:28	1
cis-1,3-Dichloropropene	ND		0.20	0.032	mg/L			08/30/22 17:28	1
Bromodichloromethane	ND		0.20	0.047	mg/L			08/30/22 17:28	1
Freon-12	ND		0.20	0.058	mg/L			08/30/22 17:28	1
Ethylbenzene	ND		0.20	0.043	mg/L			08/30/22 17:28	1
1,2-Dibromoethane	ND		0.20	0.055	mg/L			08/30/22 17:28	1
Isopropylbenzene (cumene)	ND		0.20	0.046	mg/L			08/30/22 17:28	1
Methyl tert-butyl ether	ND		0.20	0.074	mg/L			08/30/22 17:28	1
Methylene Chloride	ND		0.20	0.077	mg/L			08/30/22 17:28	1
Styrene	ND		0.20	0.027	mg/L			08/30/22 17:28	1
Tetrachloroethene	ND		0.20	0.040	mg/L			08/30/22 17:28	1
Toluene	ND		0.20	0.034	mg/L			08/30/22 17:28	1

Method: EPA 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LB 180-409644/1-A
Matrix: Solid
Analysis Batch: 410452

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	ND		0.20	0.051	mg/L			08/30/22 17:28	1
trans-1,3-Dichloropropene	ND		0.20	0.035	mg/L			08/30/22 17:28	1
Trichloroethene	ND		0.20	0.030	mg/L			08/30/22 17:28	1
Freon-11	ND		0.20	0.029	mg/L			08/30/22 17:28	1
Vinyl chloride	ND		0.20	0.073	mg/L			08/30/22 17:28	1
Xylenes, Total	ND		0.40	0.086	mg/L			08/30/22 17:28	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*118*		*52 - 151*		*08/30/22 17:28*	*1*
4-Bromofluorobenzene (Surr)	*76*		*49 - 118*		*08/30/22 17:28*	*1*
Dibromofluoromethane (Surr)	*107*		*60 - 132*		*08/30/22 17:28*	*1*
Toluene-d8 (Surr)	*92*		*53 - 124*		*08/30/22 17:28*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 500-672926/1-A
Matrix: Water
Analysis Batch: 674188

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 672926

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Monochloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/12/22 17:26	1
Dichloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/12/22 17:26	1
Hexachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/12/22 17:26	1
Heptachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/12/22 17:26	1
Octachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/12/22 17:26	1
Pentachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/12/22 17:26	1
Tetrachloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/12/22 17:26	1
Trichloronaphthalene, Total	ND		2.0	0.50	ug/L		09/02/22 08:14	09/12/22 17:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*74*		*30 - 123*	*09/02/22 08:14*	*09/12/22 17:26*	*1*
Nitrobenzene-d5 (Surr)	*103*		*33 - 139*	*09/02/22 08:14*	*09/12/22 17:26*	*1*
Terphenyl-d14 (Surr)	*107*		*42 - 150*	*09/02/22 08:14*	*09/12/22 17:26*	*1*

Lab Sample ID: LCS 500-672926/2-A
Matrix: Water
Analysis Batch: 674188

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 672926

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Monochloronaphthalene, Total	8.00	6.48		ug/L		81	40 - 130
Dichloronaphthalene, Total	8.00	6.33		ug/L		79	40 - 130
Tetrachloronaphthalene, Total	8.00	7.84		ug/L		98	40 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*77*		*30 - 123*
Nitrobenzene-d5 (Surr)	*116*		*33 - 139*
Terphenyl-d14 (Surr)	*113*		*42 - 150*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 500-672926/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 674188
Prep Batch: 672926

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Monochloronaphthalene, Total			8.00	6.27		ug/L		78	40 - 130	3	20
Dichloronaphthalene, Total			8.00	6.09		ug/L		76	40 - 130	4	20
Tetrachloronaphthalene, Total			8.00	7.96		ug/L		100	40 - 130	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*77*		*30 - 123*
Nitrobenzene-d5 (Surr)	*104*		*33 - 139*
Terphenyl-d14 (Surr)	*113*		*42 - 150*

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-410339/1-A
Client Sample ID: Method Blank
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 410745
Prep Batch: 410339

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.00020	0.000066	mg/L		08/29/22 11:53	09/01/22 08:19	1
Anthracene	ND		0.00020	0.000050	mg/L		08/29/22 11:53	09/01/22 08:19	1
Atrazine	ND		0.0010	0.00063	mg/L		08/29/22 11:53	09/01/22 08:19	1
Benzo[a]anthracene	ND		0.00020	0.000076	mg/L		08/29/22 11:53	09/01/22 08:19	1
Benzo[a]pyrene	ND		0.00020	0.000054	mg/L		08/29/22 11:53	09/01/22 08:19	1
Benzo[b]fluoranthene	ND		0.00020	0.000098	mg/L		08/29/22 11:53	09/01/22 08:19	1
Benzo[k]fluoranthene	ND		0.00020	0.000088	mg/L		08/29/22 11:53	09/01/22 08:19	1
Benzyl butyl phthalate	ND		0.0010	0.00046	mg/L		08/29/22 11:53	09/01/22 08:19	1
Biphenyl	ND		0.0010	0.000060	mg/L		08/29/22 11:53	09/01/22 08:19	1
Bis(2-chloroethoxy)methane	ND		0.0010	0.000068	mg/L		08/29/22 11:53	09/01/22 08:19	1
Bis(2-ethylhexyl) phthalate	ND		0.10	0.0062	mg/L		08/29/22 11:53	09/01/22 08:19	1
2-Chloronaphthalene	ND		0.00020	0.000060	mg/L		08/29/22 11:53	09/01/22 08:19	1
Chrysene	ND		0.00020	0.000082	mg/L		08/29/22 11:53	09/01/22 08:19	1
Dibutylphthalate	ND		0.0010	0.00074	mg/L		08/29/22 11:53	09/01/22 08:19	1
1,4-Dichlorobenzene	ND		0.0010	0.000062	mg/L		08/29/22 11:53	09/01/22 08:19	1
3,3'-Dichlorobenzidine	ND		0.0010	0.00058	mg/L		08/29/22 11:53	09/01/22 08:19	1
Dichloroethyl ether	ND		0.00020	0.000040	mg/L		08/29/22 11:53	09/01/22 08:19	1
2,4-Dichlorophenol	ND		0.00020	0.000052	mg/L		08/29/22 11:53	09/01/22 08:19	1
Diethyl phthalate	ND		0.0010	0.00057	mg/L		08/29/22 11:53	09/01/22 08:19	1
2,4-Dimethylphenol	ND		0.0010	0.000042	mg/L		08/29/22 11:53	09/01/22 08:19	1
Dimethyl phthalate	ND		0.0010	0.000056	mg/L		08/29/22 11:53	09/01/22 08:19	1
2,4-Dinitrophenol	ND		0.0050	0.0015	mg/L		08/29/22 11:53	09/01/22 08:19	1
2,4-Dinitrotoluene	ND		0.0010	0.000052	mg/L		08/29/22 11:53	09/01/22 08:19	1
2,6-Dinitrotoluene	ND		0.0010	0.000060	mg/L		08/29/22 11:53	09/01/22 08:19	1
Di-n-octyl phthalate	ND		0.0010	0.00069	mg/L		08/29/22 11:53	09/01/22 08:19	1
Fluoranthene	ND		0.00020	0.000060	mg/L		08/29/22 11:53	09/01/22 08:19	1
Fluorene	ND		0.00020	0.000070	mg/L		08/29/22 11:53	09/01/22 08:19	1
Hexachlorobutadiene	ND		0.00020	0.000070	mg/L		08/29/22 11:53	09/01/22 08:19	1
Hexachlorocyclopentadiene	ND		0.0010	0.00050	mg/L		08/29/22 11:53	09/01/22 08:19	1
Hexachloroethane	ND		0.0010	0.000062	mg/L		08/29/22 11:53	09/01/22 08:19	1
Indeno[1,2,3-cd]pyrene	ND		0.00020	0.000086	mg/L		08/29/22 11:53	09/01/22 08:19	1
Isophorone	ND		0.0010	0.000054	mg/L		08/29/22 11:53	09/01/22 08:19	1

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-410339/1-A
Matrix: Solid
Analysis Batch: 410745

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 410339

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Nitroaniline	ND		0.0050	0.00055	mg/L		08/29/22 11:53	09/01/22 08:19	1
3-Nitroaniline	ND		0.0050	0.000068	mg/L		08/29/22 11:53	09/01/22 08:19	1
Nitrobenzene	ND		0.0020	0.00050	mg/L		08/29/22 11:53	09/01/22 08:19	1
N-Nitrosodiphenylamine	ND		0.0010	0.00012	mg/L		08/29/22 11:53	09/01/22 08:19	1
2,2'-oxybis[1-chloropropane]	ND		0.00020	0.000058	mg/L		08/29/22 11:53	09/01/22 08:19	1
p-Chloroaniline	ND		0.0010	0.000044	mg/L		08/29/22 11:53	09/01/22 08:19	1
Pentachlorophenol	ND		0.0010	0.00085	mg/L		08/29/22 11:53	09/01/22 08:19	1
Phenanthrene	ND		0.00020	0.000056	mg/L		08/29/22 11:53	09/01/22 08:19	1
Phenol	ND		0.0010	0.00049	mg/L		08/29/22 11:53	09/01/22 08:19	1
p-Nitroaniline	ND		0.0050	0.000058	mg/L		08/29/22 11:53	09/01/22 08:19	1
Pyrene	ND		0.00020	0.000054	mg/L		08/29/22 11:53	09/01/22 08:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*84*		*38 - 105*	*08/29/22 11:53*	*09/01/22 08:19*	*1*
2-Fluorophenol (Surr)	*85*		*24 - 105*	*08/29/22 11:53*	*09/01/22 08:19*	*1*
Nitrobenzene-d5 (Surr)	*87*		*38 - 105*	*08/29/22 11:53*	*09/01/22 08:19*	*1*
Phenol-d5 (Surr)	*86*		*28 - 105*	*08/29/22 11:53*	*09/01/22 08:19*	*1*
Terphenyl-d14 (Surr)	*101*		*28 - 112*	*08/29/22 11:53*	*09/01/22 08:19*	*1*
2,4,6-Tribromophenol (Surr)	*91*		*32 - 124*	*08/29/22 11:53*	*09/01/22 08:19*	*1*

Lab Sample ID: LCS 180-410339/2-A
Matrix: Solid
Analysis Batch: 410745

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 410339

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	0.0200	0.0146		mg/L		73	48 - 100
Anthracene	0.0200	0.0165		mg/L		82	49 - 100
Atrazine	0.0200	0.0152		mg/L		76	48 - 100
Benzo[a]anthracene	0.0200	0.0161		mg/L		80	48 - 100
Benzo[a]pyrene	0.0200	0.0144		mg/L		72	49 - 100
Benzo[b]fluoranthene	0.0200	0.0139		mg/L		69	46 - 100
Benzo[k]fluoranthene	0.0200	0.0151		mg/L		75	46 - 100
Benzyl butyl phthalate	0.0200	0.0180		mg/L		90	47 - 101
Biphenyl	0.0200	0.0150		mg/L		75	47 - 100
Bis(2-chloroethoxy)methane	0.0200	0.0132		mg/L		66	48 - 100
Bis(2-ethylhexyl) phthalate	0.0200	0.0152	J	mg/L		76	48 - 101
2-Chloronaphthalene	0.0200	0.0148		mg/L		74	47 - 100
Chrysene	0.0200	0.0149		mg/L		75	48 - 100
Dibutylphthalate	0.0200	0.0172		mg/L		86	54 - 100
1,4-Dichlorobenzene	0.0200	0.0145		mg/L		73	47 - 100
3,3'-Dichlorobenzidine	0.0200	0.0148		mg/L		74	38 - 100
Dichloroethyl ether	0.0200	0.0142		mg/L		71	47 - 100
2,4-Dichlorophenol	0.0200	0.0156		mg/L		78	50 - 100
Diethyl phthalate	0.0200	0.0154		mg/L		77	51 - 100
2,4-Dimethylphenol	0.0200	0.0138		mg/L		69	48 - 100
Dimethyl phthalate	0.0200	0.0151		mg/L		75	51 - 100
2,4-Dinitrophenol	0.0400	0.0249		mg/L		62	34 - 100
2,4-Dinitrotoluene	0.0200	0.0166		mg/L		83	53 - 100

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-410339/2-A
Matrix: Solid
Analysis Batch: 410745

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 410339

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2,6-Dinitrotoluene			0.0200	0.0152		mg/L		76	53 - 100		
Di-n-octyl phthalate			0.0200	0.0140		mg/L		70	37 - 100		
Fluoranthene			0.0200	0.0171		mg/L		85	52 - 100		
Fluorene			0.0200	0.0148		mg/L		74	49 - 100		
Hexachlorobutadiene			0.0200	0.0156		mg/L		78	40 - 100		
Hexachlorocyclopentadiene			0.0200	0.0152		mg/L		76	32 - 103		
Hexachloroethane			0.0200	0.0146		mg/L		73	48 - 100		
Indeno[1,2,3-cd]pyrene			0.0200	0.0161		mg/L		81	51 - 100		
Isophorone			0.0200	0.0150		mg/L		75	48 - 100		
2-Nitroaniline			0.0200	0.0167		mg/L		84	45 - 102		
3-Nitroaniline			0.0200	0.0165		mg/L		83	48 - 100		
Nitrobenzene			0.0200	0.0151		mg/L		76	47 - 100		
N-Nitrosodiphenylamine			0.0200	0.0157		mg/L		78	47 - 100		
2,2'-oxybis[1-chloropropane]			0.0200	0.0139		mg/L		69	26 - 105		
p-Chloroaniline			0.0200	0.0148		mg/L		74	43 - 100		
Pentachlorophenol			0.0400	0.0276		mg/L		69	35 - 100		
Phenanthrene			0.0200	0.0154		mg/L		77	47 - 100		
Phenol			0.0200	0.0134		mg/L		67	47 - 100		
p-Nitroaniline			0.0200	0.0164		mg/L		82	52 - 100		
Pyrene			0.0200	0.0159		mg/L		79	47 - 100		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*72*		*38 - 105*
2-Fluorophenol (Surr)	*72*		*24 - 105*
Nitrobenzene-d5 (Surr)	*75*		*38 - 105*
Phenol-d5 (Surr)	*69*		*28 - 105*
Terphenyl-d14 (Surr)	*75*		*28 - 112*
2,4,6-Tribromophenol (Surr)	*76*		*32 - 124*

Lab Sample ID: LCSD 180-410339/3-A
Matrix: Solid
Analysis Batch: 410745

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 410339

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acenaphthene			0.0200	0.0144		mg/L		72	48 - 100	1	15
Anthracene			0.0200	0.0157		mg/L		78	49 - 100	5	15
Atrazine			0.0200	0.0148		mg/L		74	48 - 100	2	15
Benzo[a]anthracene			0.0200	0.0155		mg/L		77	48 - 100	4	15
Benzo[a]pyrene			0.0200	0.0142		mg/L		71	49 - 100	1	15
Benzo[b]fluoranthene			0.0200	0.0139		mg/L		69	46 - 100	0	15
Benzo[k]fluoranthene			0.0200	0.0143		mg/L		71	46 - 100	5	15
Benzyl butyl phthalate			0.0200	0.0173		mg/L		87	47 - 101	4	15
Biphenyl			0.0200	0.0144		mg/L		72	47 - 100	4	15
Bis(2-chloroethoxy)methane			0.0200	0.0129		mg/L		65	48 - 100	2	15
Bis(2-ethylhexyl) phthalate			0.0200	0.0147	J	mg/L		73	48 - 101	3	15
2-Chloronaphthalene			0.0200	0.0143		mg/L		71	47 - 100	4	15
Chrysene			0.0200	0.0145		mg/L		72	48 - 100	3	15
Dibutylphthalate			0.0200	0.0166		mg/L		83	54 - 100	3	15

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 180-410339/3-A
Matrix: Solid
Analysis Batch: 410745

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 410339

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dichlorobenzene			0.0200	0.0141		mg/L		70	47 - 100	3	15
3,3'-Dichlorobenzidine			0.0200	0.0145		mg/L		72	38 - 100	2	15
Dichloroethyl ether			0.0200	0.0141		mg/L		71	47 - 100	1	15
2,4-Dichlorophenol			0.0200	0.0149		mg/L		74	50 - 100	5	15
Diethyl phthalate			0.0200	0.0152		mg/L		76	51 - 100	1	15
2,4-Dimethylphenol			0.0200	0.0129		mg/L		65	48 - 100	7	15
Dimethyl phthalate			0.0200	0.0149		mg/L		75	51 - 100	1	15
2,4-Dinitrophenol			0.0400	0.0243		mg/L		61	34 - 100	3	21
2,4-Dinitrotoluene			0.0200	0.0164		mg/L		82	53 - 100	1	15
2,6-Dinitrotoluene			0.0200	0.0150		mg/L		75	53 - 100	1	15
Di-n-octyl phthalate			0.0200	0.0138		mg/L		69	37 - 100	1	15
Fluoranthene			0.0200	0.0164		mg/L		82	52 - 100	4	15
Fluorene			0.0200	0.0146		mg/L		73	49 - 100	2	15
Hexachlorobutadiene			0.0200	0.0154		mg/L		77	40 - 100	1	15
Hexachlorocyclopentadiene			0.0200	0.0145		mg/L		72	32 - 103	5	15
Hexachloroethane			0.0200	0.0143		mg/L		71	48 - 100	2	15
Indeno[1,2,3-cd]pyrene			0.0200	0.0160		mg/L		80	51 - 100	1	15
Isophorone			0.0200	0.0153		mg/L		77	48 - 100	2	20
2-Nitroaniline			0.0200	0.0164		mg/L		82	45 - 102	2	15
3-Nitroaniline			0.0200	0.0157		mg/L		79	48 - 100	5	15
Nitrobenzene			0.0200	0.0148		mg/L		74	47 - 100	2	15
N-Nitrosodiphenylamine			0.0200	0.0148		mg/L		74	47 - 100	6	15
2,2'-oxybis[1-chloropropane]			0.0200	0.0131		mg/L		65	26 - 105	6	15
p-Chloroaniline			0.0200	0.0149		mg/L		74	43 - 100	0	15
Pentachlorophenol			0.0400	0.0264		mg/L		66	35 - 100	4	15
Phenanthrene			0.0200	0.0149		mg/L		74	47 - 100	4	15
Phenol			0.0200	0.0126		mg/L		63	47 - 100	6	15
p-Nitroaniline			0.0200	0.0161		mg/L		81	52 - 100	2	15
Pyrene			0.0200	0.0154		mg/L		77	47 - 100	3	15

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*69*		*38 - 105*
2-Fluorophenol (Surr)	*70*		*24 - 105*
Nitrobenzene-d5 (Surr)	*74*		*38 - 105*
Phenol-d5 (Surr)	*66*		*28 - 105*
Terphenyl-d14 (Surr)	*73*		*28 - 112*
2,4,6-Tribromophenol (Surr)	*72*		*32 - 124*

Lab Sample ID: LB 180-409977/1-D
Matrix: Solid
Analysis Batch: 410745

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 410339

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.00019	0.000064	mg/L		08/29/22 11:53	09/01/22 11:55	1
Anthracene	ND		0.00019	0.000049	mg/L		08/29/22 11:53	09/01/22 11:55	1
Atrazine	ND		0.00097	0.00062	mg/L		08/29/22 11:53	09/01/22 11:55	1
Benzo[a]anthracene	ND		0.00019	0.000074	mg/L		08/29/22 11:53	09/01/22 11:55	1
Benzo[a]pyrene	ND		0.00019	0.000052	mg/L		08/29/22 11:53	09/01/22 11:55	1

Method: EPA 8270E LL - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LB 180-409977/1-D
Matrix: Solid
Analysis Batch: 410745

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 410339

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND		0.00019	0.000095	mg/L		08/29/22 11:53	09/01/22 11:55	1
Benzo[k]fluoranthene	ND		0.00019	0.000085	mg/L		08/29/22 11:53	09/01/22 11:55	1
Benzyl butyl phthalate	ND		0.00097	0.00045	mg/L		08/29/22 11:53	09/01/22 11:55	1
Biphenyl	ND		0.00097	0.000058	mg/L		08/29/22 11:53	09/01/22 11:55	1
Bis(2-chloroethoxy)methane	ND		0.00097	0.000066	mg/L		08/29/22 11:53	09/01/22 11:55	1
Bis(2-ethylhexyl) phthalate	ND		0.097	0.0061	mg/L		08/29/22 11:53	09/01/22 11:55	1
2-Chloronaphthalene	ND		0.00019	0.000058	mg/L		08/29/22 11:53	09/01/22 11:55	1
Chrysene	ND		0.00019	0.000080	mg/L		08/29/22 11:53	09/01/22 11:55	1
Dibutylphthalate	ND		0.00097	0.00072	mg/L		08/29/22 11:53	09/01/22 11:55	1
1,4-Dichlorobenzene	ND		0.00097	0.000060	mg/L		08/29/22 11:53	09/01/22 11:55	1
3,3'-Dichlorobenzidine	ND		0.00097	0.00057	mg/L		08/29/22 11:53	09/01/22 11:55	1
Dichloroethyl ether	ND		0.00019	0.000039	mg/L		08/29/22 11:53	09/01/22 11:55	1
2,4-Dichlorophenol	ND		0.00019	0.000050	mg/L		08/29/22 11:53	09/01/22 11:55	1
Diethyl phthalate	ND		0.00097	0.00055	mg/L		08/29/22 11:53	09/01/22 11:55	1
2,4-Dimethylphenol	ND		0.00097	0.000041	mg/L		08/29/22 11:53	09/01/22 11:55	1
Dimethyl phthalate	ND		0.00097	0.000054	mg/L		08/29/22 11:53	09/01/22 11:55	1
2,4-Dinitrophenol	ND		0.0049	0.0015	mg/L		08/29/22 11:53	09/01/22 11:55	1
2,4-Dinitrotoluene	ND		0.00097	0.000050	mg/L		08/29/22 11:53	09/01/22 11:55	1
2,6-Dinitrotoluene	ND		0.00097	0.000058	mg/L		08/29/22 11:53	09/01/22 11:55	1
Di-n-octyl phthalate	ND		0.00097	0.00067	mg/L		08/29/22 11:53	09/01/22 11:55	1
Fluoranthene	ND		0.00019	0.000058	mg/L		08/29/22 11:53	09/01/22 11:55	1
Fluorene	ND		0.00019	0.000068	mg/L		08/29/22 11:53	09/01/22 11:55	1
Hexachlorobutadiene	ND		0.00019	0.000068	mg/L		08/29/22 11:53	09/01/22 11:55	1
Hexachlorocyclopentadiene	ND		0.00097	0.00048	mg/L		08/29/22 11:53	09/01/22 11:55	1
Hexachloroethane	ND		0.00097	0.000060	mg/L		08/29/22 11:53	09/01/22 11:55	1
Indeno[1,2,3-cd]pyrene	ND		0.00019	0.000083	mg/L		08/29/22 11:53	09/01/22 11:55	1
Isophorone	ND		0.00097	0.000052	mg/L		08/29/22 11:53	09/01/22 11:55	1
2-Nitroaniline	ND		0.0049	0.00053	mg/L		08/29/22 11:53	09/01/22 11:55	1
3-Nitroaniline	ND		0.0049	0.000066	mg/L		08/29/22 11:53	09/01/22 11:55	1
Nitrobenzene	ND		0.0019	0.00049	mg/L		08/29/22 11:53	09/01/22 11:55	1
N-Nitrosodiphenylamine	ND		0.00097	0.00012	mg/L		08/29/22 11:53	09/01/22 11:55	1
2,2'-oxybis[1-chloropropane]	ND		0.00019	0.000056	mg/L		08/29/22 11:53	09/01/22 11:55	1
p-Chloroaniline	ND		0.00097	0.000043	mg/L		08/29/22 11:53	09/01/22 11:55	1
Pentachlorophenol	ND		0.00097	0.00082	mg/L		08/29/22 11:53	09/01/22 11:55	1
Phenanthrene	ND		0.00019	0.000054	mg/L		08/29/22 11:53	09/01/22 11:55	1
Phenol	ND		0.00097	0.00047	mg/L		08/29/22 11:53	09/01/22 11:55	1
p-Nitroaniline	ND		0.0049	0.000056	mg/L		08/29/22 11:53	09/01/22 11:55	1
Pyrene	ND		0.00019	0.000052	mg/L		08/29/22 11:53	09/01/22 11:55	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*71*		*38 - 105*	*08/29/22 11:53*	*09/01/22 11:55*	*1*
2-Fluorophenol (Surr)	*67*		*24 - 105*	*08/29/22 11:53*	*09/01/22 11:55*	*1*
Nitrobenzene-d5 (Surr)	*78*		*38 - 105*	*08/29/22 11:53*	*09/01/22 11:55*	*1*
Phenol-d5 (Surr)	*67*		*28 - 105*	*08/29/22 11:53*	*09/01/22 11:55*	*1*
Terphenyl-d14 (Surr)	*86*		*28 - 112*	*08/29/22 11:53*	*09/01/22 11:55*	*1*
2,4,6-Tribromophenol (Surr)	*69*		*32 - 124*	*08/29/22 11:53*	*09/01/22 11:55*	*1*

Method: EPA 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: LCS 180-410292/2-A
Matrix: Solid
Analysis Batch: 410464

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 410292

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
alpha-BHC			0.0100	0.00890		mg/L		89	69 - 126		
beta-BHC			0.0100	0.00785		mg/L		78	64 - 118		
delta-BHC			0.0100	0.00529		mg/L		53	50 - 132		
gamma-BHC (Lindane)			0.0100	0.00899		mg/L		90	67 - 120		
alpha-Chlordane			0.0100	0.00889		mg/L		89	47 - 134		
gamma-Chlordane			0.0100	0.00917		mg/L		92	61 - 121		
Endosulfan II			0.0100	0.0112		mg/L		112	70 - 118		
4,4'-DDD			0.0100	0.0101		mg/L		101	74 - 119		
4,4'-DDE			0.0100	0.00995		mg/L		99	67 - 123		
4,4'-DDT			0.0100	0.00810		mg/L		81	53 - 113		
Dieldrin			0.0100	0.0107		mg/L		107	69 - 115		
Endrin aldehyde			0.0100	0.00992		mg/L		99	67 - 124		
Endrin ketone			0.0100	0.0104		mg/L		104	67 - 118		
Heptachlor			0.0100	0.00983		mg/L		98	71 - 125		
Heptachlor epoxide			0.0100	0.00946		mg/L		95	67 - 123		
Methoxychlor			0.0100	0.00901		mg/L		90	59 - 109		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*95*		*56 - 137*
Tetrachloro-m-xylene	*82*		*56 - 137*
DCB Decachlorobiphenyl (Surr)	*113*		*48 - 137*
DCB Decachlorobiphenyl (Surr)	*119*		*48 - 137*

Lab Sample ID: LCSD 180-410292/3-A
Matrix: Solid
Analysis Batch: 410464

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 410292

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC			0.0100	0.0101		mg/L		101	69 - 126	13	16
beta-BHC			0.0100	0.00872		mg/L		87	64 - 118	11	15
delta-BHC			0.0100	0.00574		mg/L		57	50 - 132	8	16
gamma-BHC (Lindane)			0.0100	0.00973		mg/L		97	67 - 120	8	18
alpha-Chlordane			0.0100	0.0104	*1	mg/L		104	47 - 134	16	15
gamma-Chlordane			0.0100	0.0108		mg/L		108	61 - 121	16	16
Endosulfan II			0.0100	0.0126	*+	mg/L		126	70 - 118	12	16
4,4'-DDD			0.0100	0.0114		mg/L		114	74 - 119	11	17
4,4'-DDE			0.0100	0.0111		mg/L		111	67 - 123	11	19
4,4'-DDT			0.0100	0.00931		mg/L		93	53 - 113	14	17
Dieldrin			0.0100	0.0124	*+	mg/L		124	69 - 115	15	17
Endrin aldehyde			0.0100	0.0114		mg/L		114	67 - 124	14	15
Endrin ketone			0.0100	0.0118		mg/L		118	67 - 118	13	19
Heptachlor			0.0100	0.0109		mg/L		109	71 - 125	10	16
Heptachlor epoxide			0.0100	0.0111	*1	mg/L		111	67 - 123	16	15
Methoxychlor			0.0100	0.00997		mg/L		100	59 - 109	10	15

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*107*		*56 - 137*
Tetrachloro-m-xylene	*93*		*56 - 137*

Method: EPA 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCSD 180-410292/3-A
Matrix: Solid
Analysis Batch: 410464

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 410292

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*130*		*48 - 137*
DCB Decachlorobiphenyl (Surr)	*136*		*48 - 137*

Lab Sample ID: LB 180-409977/1-B
Matrix: Solid
Analysis Batch: 410464

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 410292

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
alpha-BHC	ND		0.00050	0.000095	mg/L		08/29/22 03:35	08/30/22 12:57	1
beta-BHC	ND		0.00050	0.00015	mg/L		08/29/22 03:35	08/30/22 12:57	1
delta-BHC	ND		0.00050	0.00026	mg/L		08/29/22 03:35	08/30/22 12:57	1
gamma-BHC (Lindane)	ND		0.00050	0.00012	mg/L		08/29/22 03:35	08/30/22 12:57	1
alpha-Chlordane	ND		0.00050	0.00015	mg/L		08/29/22 03:35	08/30/22 12:57	1
gamma-Chlordane	ND		0.00050	0.00016	mg/L		08/29/22 03:35	08/30/22 12:57	1
Endosulfan II	ND		0.00050	0.00013	mg/L		08/29/22 03:35	08/30/22 12:57	1
4,4'-DDD	ND		0.00050	0.00021	mg/L		08/29/22 03:35	08/30/22 12:57	1
4,4'-DDE	ND		0.00050	0.00012	mg/L		08/29/22 03:35	08/30/22 12:57	1
4,4'-DDT	ND		0.00050	0.00028	mg/L		08/29/22 03:35	08/30/22 12:57	1
Dieldrin	ND		0.00050	0.00011	mg/L		08/29/22 03:35	08/30/22 12:57	1
Endrin aldehyde	ND		0.00050	0.00021	mg/L		08/29/22 03:35	08/30/22 12:57	1
Endrin ketone	ND		0.00050	0.00016	mg/L		08/29/22 03:35	08/30/22 12:57	1
Heptachlor	ND		0.00050	0.00018	mg/L		08/29/22 03:35	08/30/22 12:57	1
Heptachlor epoxide	ND		0.00050	0.00014	mg/L		08/29/22 03:35	08/30/22 12:57	1
Hexachlorobenzene	ND		0.00050	0.00036	mg/L		08/29/22 03:35	08/30/22 12:57	1
Methoxychlor	ND		0.00050	0.00031	mg/L		08/29/22 03:35	08/30/22 12:57	1
Toxaphene	ND		0.040	0.020	mg/L		08/29/22 03:35	08/30/22 12:57	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*95*		*56 - 137*	*08/29/22 03:35*	*08/30/22 12:57*	*1*
Tetrachloro-m-xylene	*84*		*56 - 137*	*08/29/22 03:35*	*08/30/22 12:57*	*1*
DCB Decachlorobiphenyl (Surr)	*118*		*48 - 137*	*08/29/22 03:35*	*08/30/22 12:57*	*1*
DCB Decachlorobiphenyl (Surr)	*123*		*48 - 137*	*08/29/22 03:35*	*08/30/22 12:57*	*1*

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-410174/41
Matrix: Solid
Analysis Batch: 410174

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.0	0.76	mg/L			08/27/22 02:40	1

Lab Sample ID: LCS 180-410174/42
Matrix: Solid
Analysis Batch: 410174

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfate			50.0	49.3		mg/L		99	80 - 120		

Method: EPA 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LB 180-409977/1-A
Matrix: Solid
Analysis Batch: 410174

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4.12		1.0	0.76	mg/L			08/27/22 04:24	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-614662/1-A
Matrix: Water
Analysis Batch: 615593

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 614662

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	2.4	ng/L		09/06/22 12:05	09/10/22 07:56	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		09/06/22 12:05	09/10/22 07:56	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		09/06/22 12:05	09/10/22 07:56	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		09/06/22 12:05	09/10/22 07:56	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		09/06/22 12:05	09/10/22 07:56	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		09/06/22 12:05	09/10/22 07:56	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		09/06/22 12:05	09/10/22 07:56	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		09/06/22 12:05	09/10/22 07:56	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		09/06/22 12:05	09/10/22 07:56	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	1.3	ng/L		09/06/22 12:05	09/10/22 07:56	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		09/06/22 12:05	09/10/22 07:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		09/06/22 12:05	09/10/22 07:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		09/06/22 12:05	09/10/22 07:56	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19	ng/L		09/06/22 12:05	09/10/22 07:56	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		09/06/22 12:05	09/10/22 07:56	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		09/06/22 12:05	09/10/22 07:56	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98	ng/L		09/06/22 12:05	09/10/22 07:56	1
NMeFOSAA	ND		5.0	1.2	ng/L		09/06/22 12:05	09/10/22 07:56	1
NEtFOSAA	ND		5.0	1.3	ng/L		09/06/22 12:05	09/10/22 07:56	1
6:2 FTS	ND		5.0	2.5	ng/L		09/06/22 12:05	09/10/22 07:56	1
8:2 FTS	ND		2.0	0.46	ng/L		09/06/22 12:05	09/10/22 07:56	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*81*		*25 - 150*	*09/06/22 12:05*	*09/10/22 07:56*	*1*
13C5 PFPeA	*86*		*25 - 150*	*09/06/22 12:05*	*09/10/22 07:56*	*1*
13C2 PFHxA	*106*		*25 - 150*	*09/06/22 12:05*	*09/10/22 07:56*	*1*
13C4 PFHpA	*89*		*25 - 150*	*09/06/22 12:05*	*09/10/22 07:56*	*1*
13C4 PFOA	*101*		*25 - 150*	*09/06/22 12:05*	*09/10/22 07:56*	*1*
13C5 PFNA	*107*		*25 - 150*	*09/06/22 12:05*	*09/10/22 07:56*	*1*
13C2 PFDA	*109*		*25 - 150*	*09/06/22 12:05*	*09/10/22 07:56*	*1*
13C2 PFUnA	*104*		*25 - 150*	*09/06/22 12:05*	*09/10/22 07:56*	*1*
13C2 PFDoA	*102*		*25 - 150*	*09/06/22 12:05*	*09/10/22 07:56*	*1*
13C2 PFTeDA	*98*		*25 - 150*	*09/06/22 12:05*	*09/10/22 07:56*	*1*
13C3 PFBS	*88*		*25 - 150*	*09/06/22 12:05*	*09/10/22 07:56*	*1*
18O2 PFHxS	*95*		*25 - 150*	*09/06/22 12:05*	*09/10/22 07:56*	*1*
13C4 PFOS	*94*		*25 - 150*	*09/06/22 12:05*	*09/10/22 07:56*	*1*
13C8 FOSA	*85*		*25 - 150*	*09/06/22 12:05*	*09/10/22 07:56*	*1*
d3-NMeFOSAA	*105*		*25 - 150*	*09/06/22 12:05*	*09/10/22 07:56*	*1*
d5-NEtFOSAA	*104*		*25 - 150*	*09/06/22 12:05*	*09/10/22 07:56*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-614662/1-A
Matrix: Water
Analysis Batch: 615593

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 614662

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	123		25 - 150	09/06/22 12:05	09/10/22 07:56	1
M2-8:2 FTS	126		25 - 150	09/06/22 12:05	09/10/22 07:56	1

Lab Sample ID: LCS 320-614662/2-A
Matrix: Water
Analysis Batch: 615593

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 614662

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	40.0	47.9		ng/L		120	76 - 136
Perfluoropentanoic acid (PFPeA)	40.0	47.0		ng/L		117	71 - 131
Perfluorohexanoic acid (PFHxA)	40.0	38.5		ng/L		96	73 - 133
Perfluoroheptanoic acid (PFHpA)	40.0	44.7		ng/L		112	72 - 132
Perfluorooctanoic acid (PFOA)	40.0	43.3		ng/L		108	70 - 130
Perfluorononanoic acid (PFNA)	40.0	44.9		ng/L		112	75 - 135
Perfluorodecanoic acid (PFDA)	40.0	42.7		ng/L		107	76 - 136
Perfluoroundecanoic acid (PFUnA)	40.0	44.4		ng/L		111	68 - 128
Perfluorododecanoic acid (PFDoA)	40.0	44.1		ng/L		110	71 - 131
Perfluorotridecanoic acid (PFTrDA)	40.0	43.6		ng/L		109	71 - 131
Perfluorotetradecanoic acid (PFTeA)	40.0	42.0		ng/L		105	70 - 130
Perfluorobutanesulfonic acid (PFBS)	35.5	39.5		ng/L		111	67 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.5	38.5		ng/L		106	59 - 119
Perfluoroheptanesulfonic acid (PFHpS)	38.2	44.5		ng/L		117	76 - 136
Perfluorooctanesulfonic acid (PFOS)	37.2	42.9		ng/L		115	70 - 130
Perfluorodecanesulfonic acid (PFDS)	38.6	42.0		ng/L		109	71 - 131
Perfluorooctanesulfonamide (FOSA)	40.0	46.5		ng/L		116	73 - 133
NMeFOSAA	40.0	42.2		ng/L		105	76 - 136
NEtFOSAA	40.0	42.6		ng/L		106	76 - 136
6:2 FTS	38.1	44.2		ng/L		116	59 - 175
8:2 FTS	38.4	42.0		ng/L		109	75 - 135

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	77		25 - 150
13C5 PFPeA	82		25 - 150
13C2 PFHxA	99		25 - 150
13C4 PFHpA	89		25 - 150
13C4 PFOA	99		25 - 150
13C5 PFNA	98		25 - 150
13C2 PFDA	101		25 - 150
13C2 PFUnA	99		25 - 150
13C2 PFDoA	97		25 - 150
13C2 PFTeDA	94		25 - 150

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-614662/2-A
Matrix: Water
Analysis Batch: 615593

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 614662

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C3 PFBS	84		25 - 150
18O2 PFHxS	89		25 - 150
13C4 PFOS	86		25 - 150
13C8 FOSA	74		25 - 150
d3-NMeFOSAA	97		25 - 150
d5-NEtFOSAA	99		25 - 150
M2-6:2 FTS	116		25 - 150
M2-8:2 FTS	124		25 - 150

Lab Sample ID: LCSD 320-614662/3-A
Matrix: Water
Analysis Batch: 615593

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 614662

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	47.7		ng/L		119	76 - 136	0	30
Perfluoropentanoic acid (PFPeA)			40.0	44.4		ng/L		111	71 - 131	6	30
Perfluorohexanoic acid (PFHxA)			40.0	38.6		ng/L		96	73 - 133	0	30
Perfluoroheptanoic acid (PFHpA)			40.0	45.3		ng/L		113	72 - 132	1	30
Perfluorooctanoic acid (PFOA)			40.0	43.3		ng/L		108	70 - 130	0	30
Perfluorononanoic acid (PFNA)			40.0	46.5		ng/L		116	75 - 135	4	30
Perfluorodecanoic acid (PFDA)			40.0	41.4		ng/L		104	76 - 136	3	30
Perfluoroundecanoic acid (PFUnA)			40.0	42.5		ng/L		106	68 - 128	5	30
Perfluorododecanoic acid (PFDoA)			40.0	44.9		ng/L		112	71 - 131	2	30
Perfluorotridecanoic acid (PFTrDA)			40.0	43.5		ng/L		109	71 - 131	0	30
Perfluorotetradecanoic acid (PFTeA)			40.0	41.4		ng/L		103	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)			35.5	39.1		ng/L		110	67 - 127	1	30
Perfluorohexanesulfonic acid (PFHxS)			36.5	36.9		ng/L		101	59 - 119	4	30
Perfluoroheptanesulfonic acid (PFHpS)			38.2	42.2		ng/L		110	76 - 136	5	30
Perfluorooctanesulfonic acid (PFOS)			37.2	40.8		ng/L		110	70 - 130	5	30
Perfluorodecanesulfonic acid (PFDS)			38.6	41.2		ng/L		107	71 - 131	2	30
Perfluorooctanesulfonamide (FOSA)			40.0	44.7		ng/L		112	73 - 133	4	30
NMeFOSAA			40.0	42.0		ng/L		105	76 - 136	0	30
NEtFOSAA			40.0	43.2		ng/L		108	76 - 136	1	30
6:2 FTS			38.1	46.9		ng/L		123	59 - 175	6	30
8:2 FTS			38.4	42.5		ng/L		111	75 - 135	1	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C4 PFBA	78		25 - 150
13C5 PFPeA	85		25 - 150
13C2 PFHxA	104		25 - 150
13C4 PFHpA	92		25 - 150

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-614662/3-A
Matrix: Water
Analysis Batch: 615593

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 614662

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C4 PFOA	101		25 - 150
13C5 PFNA	104		25 - 150
13C2 PFDA	110		25 - 150
13C2 PFUnA	109		25 - 150
13C2 PFDoA	103		25 - 150
13C2 PFTeDA	97		25 - 150
13C3 PFBS	87		25 - 150
18O2 PFHxS	93		25 - 150
13C4 PFOS	92		25 - 150
13C8 FOSA	83		25 - 150
d3-NMeFOSAA	103		25 - 150
d5-NEtFOSAA	103		25 - 150
M2-6:2 FTS	119		25 - 150
M2-8:2 FTS	130		25 - 150

Method: EPA 6010D - Metals (ICP)

Lab Sample ID: MB 180-410519/1-A
Matrix: Solid
Analysis Batch: 410735

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 410519

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.050	0.00091	mg/L		08/30/22 13:19	08/31/22 11:49	1
Aluminum	ND		0.20	0.041	mg/L		08/30/22 13:19	08/31/22 11:49	1
Arsenic	ND		0.050	0.0083	mg/L		08/30/22 13:19	08/31/22 11:49	1
Barium	ND		0.20	0.0063	mg/L		08/30/22 13:19	08/31/22 11:49	1
Beryllium	ND		0.0040	0.0015	mg/L		08/30/22 13:19	08/31/22 11:49	1
Calcium	ND		5.0	0.32	mg/L		08/30/22 13:19	08/31/22 11:49	1
Cadmium	ND		0.050	0.00030	mg/L		08/30/22 13:19	08/31/22 11:49	1
Cobalt	ND		0.050	0.0019	mg/L		08/30/22 13:19	08/31/22 11:49	1
Chromium	ND		0.050	0.0016	mg/L		08/30/22 13:19	08/31/22 11:49	1
Copper	ND		0.025	0.0022	mg/L		08/30/22 13:19	08/31/22 11:49	1
Iron	ND		0.10	0.072	mg/L		08/30/22 13:19	08/31/22 11:49	1
Potassium	ND		5.0	0.80	mg/L		08/30/22 13:19	08/31/22 11:49	1
Magnesium	ND		5.0	0.26	mg/L		08/30/22 13:19	08/31/22 11:49	1
Manganese	ND		0.015	0.0024	mg/L		08/30/22 13:19	08/31/22 11:49	1
Sodium	ND		5.0	0.30	mg/L		08/30/22 13:19	08/31/22 11:49	1
Nickel	ND		0.040	0.0019	mg/L		08/30/22 13:19	08/31/22 11:49	1
Lead	ND		0.050	0.0044	mg/L		08/30/22 13:19	08/31/22 11:49	1
Antimony	ND		0.010	0.0062	mg/L		08/30/22 13:19	08/31/22 11:49	1
Selenium	ND		0.050	0.0037	mg/L		08/30/22 13:19	08/31/22 11:49	1
Thallium	0.00369	J	0.020	0.0030	mg/L		08/30/22 13:19	08/31/22 11:49	1
Vanadium	ND		0.050	0.0053	mg/L		08/30/22 13:19	08/31/22 11:49	1
Zinc	ND		0.020	0.0026	mg/L		08/30/22 13:19	08/31/22 11:49	1

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 180-410519/2-A
Matrix: Solid
Analysis Batch: 410735

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 410519

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	0.250	0.268		mg/L		107	80 - 120
Aluminum	5.00	5.06		mg/L		101	80 - 120
Arsenic	1.00	1.05		mg/L		105	80 - 120
Barium	1.00	0.964		mg/L		96	80 - 120
Beryllium	0.500	0.495		mg/L		99	80 - 120
Calcium	25.0	25.5		mg/L		102	80 - 120
Cadmium	0.500	0.514		mg/L		103	80 - 120
Cobalt	0.500	0.495		mg/L		99	80 - 120
Chromium	0.500	0.493		mg/L		99	80 - 120
Copper	0.500	0.475		mg/L		95	80 - 120
Iron	5.00	5.08		mg/L		102	80 - 120
Potassium	25.0	25.2		mg/L		101	80 - 120
Magnesium	25.0	25.0		mg/L		100	80 - 120
Manganese	0.500	0.481		mg/L		96	80 - 120
Sodium	25.0	25.5		mg/L		102	80 - 120
Nickel	0.500	0.497		mg/L		99	80 - 120
Lead	0.500	0.501		mg/L		100	80 - 120
Antimony	0.250	0.261		mg/L		104	80 - 120
Selenium	1.00	1.07		mg/L		107	80 - 120
Thallium	1.00	0.993		mg/L		99	80 - 120
Vanadium	0.500	0.481		mg/L		96	80 - 120
Zinc	0.250	0.268		mg/L		107	80 - 120

Lab Sample ID: LB 180-409977/1-E
Matrix: Solid
Analysis Batch: 410735

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 410519

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.50	0.0091	mg/L		08/30/22 13:20	08/31/22 13:50	1
Aluminum	ND		2.0	0.41	mg/L		08/30/22 13:20	08/31/22 13:50	1
Arsenic	ND		0.50	0.083	mg/L		08/30/22 13:20	08/31/22 13:50	1
Barium	ND		2.0	0.063	mg/L		08/30/22 13:20	08/31/22 13:50	1
Beryllium	ND		0.040	0.015	mg/L		08/30/22 13:20	08/31/22 13:50	1
Calcium	ND		50	3.2	mg/L		08/30/22 13:20	08/31/22 13:50	1
Cadmium	ND		0.50	0.0030	mg/L		08/30/22 13:20	08/31/22 13:50	1
Cobalt	ND		0.50	0.019	mg/L		08/30/22 13:20	08/31/22 13:50	1
Chromium	ND		0.50	0.016	mg/L		08/30/22 13:20	08/31/22 13:50	1
Copper	ND		0.25	0.022	mg/L		08/30/22 13:20	08/31/22 13:50	1
Iron	ND		1.0	0.72	mg/L		08/30/22 13:20	08/31/22 13:50	1
Potassium	ND		50	8.0	mg/L		08/30/22 13:20	08/31/22 13:50	1
Magnesium	ND		50	2.6	mg/L		08/30/22 13:20	08/31/22 13:50	1
Manganese	ND		0.15	0.024	mg/L		08/30/22 13:20	08/31/22 13:50	1
Sodium	1430		50	3.0	mg/L		08/30/22 13:20	08/31/22 13:50	1
Nickel	ND		0.40	0.019	mg/L		08/30/22 13:20	08/31/22 13:50	1
Lead	ND		0.50	0.044	mg/L		08/30/22 13:20	08/31/22 13:50	1
Antimony	ND		0.10	0.062	mg/L		08/30/22 13:20	08/31/22 13:50	1
Selenium	ND		0.50	0.037	mg/L		08/30/22 13:20	08/31/22 13:50	1
Thallium	0.0363	J	0.20	0.030	mg/L		08/30/22 13:20	08/31/22 13:50	1
Vanadium	ND		0.50	0.053	mg/L		08/30/22 13:20	08/31/22 13:50	1

Method: EPA 6010D - Metals (ICP) (Continued)

Lab Sample ID: LB 180-409977/1-E
Matrix: Solid
Analysis Batch: 410735

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 410519

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		0.20	0.026	mg/L		08/30/22 13:20	08/31/22 13:50	1

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-410334/1-A
Matrix: Solid
Analysis Batch: 410530

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 410334

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		08/29/22 11:20	08/30/22 14:27	1

Lab Sample ID: LCS 180-410334/2-A
Matrix: Solid
Analysis Batch: 410530

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 410334

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00250	0.00254		mg/L		101	80 - 120

Lab Sample ID: LB 180-409977/1-C
Matrix: Solid
Analysis Batch: 410530

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 410334

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		08/29/22 11:20	08/30/22 14:53	1

GC/MS VOA

Leach Batch: 409644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	TCLP	Solid	EPA 1311	
180-136073-4	TRW 20% PC, 4% AC	TCLP	Solid	EPA 1311	
LB 180-409644/1-A	Method Blank	TCLP	Solid	EPA 1311	
180-136073-4 MS	TRW 20% PC, 4% AC	TCLP	Solid	EPA 1311	
180-136073-4 MSD	TRW 20% PC, 4% AC	TCLP	Solid	EPA 1311	

Analysis Batch: 409766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	Total/NA	Solid	EPA 8260D	409769
MB 180-409766/5	Method Blank	Total/NA	Solid	EPA 8260D	
LCS 180-409766/3	Lab Control Sample	Total/NA	Solid	EPA 8260D	

Prep Batch: 409769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	Total/NA	Solid	5030C	

Analysis Batch: 409779

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-4	TRW 20% PC, 4% AC	TCLP	Solid	EPA 8260D	409644
LB 180-409644/1-A	Method Blank	TCLP	Solid	EPA 8260D	409644
LCS 180-409779/4	Lab Control Sample	Total/NA	Solid	EPA 8260D	
180-136073-4 MS	TRW 20% PC, 4% AC	TCLP	Solid	EPA 8260D	409644
180-136073-4 MSD	TRW 20% PC, 4% AC	TCLP	Solid	EPA 8260D	409644

Analysis Batch: 409895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-4	TRW 20% PC, 4% AC	Total/NA	Solid	EPA 8260D	409902
MB 180-409895/6	Method Blank	Total/NA	Solid	EPA 8260D	
LCS 180-409895/3	Lab Control Sample	Total/NA	Solid	EPA 8260D	
LCSD 180-409895/4	Lab Control Sample Dup	Total/NA	Solid	EPA 8260D	

Prep Batch: 409902

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-4	TRW 20% PC, 4% AC	Total/NA	Solid	5030C	

Analysis Batch: 410452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 180-409644/1-A	Method Blank	TCLP	Solid	EPA 8260D	409644
MB 180-410452/8	Method Blank	Total/NA	Solid	EPA 8260D	
LCS 180-410452/3	Lab Control Sample	Total/NA	Solid	EPA 8260D	

Analysis Batch: 410599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	TCLP	Solid	EPA 8260D	409644
LCS 180-410599/6	Lab Control Sample	Total/NA	Solid	EPA 8260D	

GC/MS Semi VOA

Leach Batch: 409977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	TCLP	Solid	EPA 1311	

GC/MS Semi VOA (Continued)

Leach Batch: 409977 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-4	TRW 20% PC, 4% AC	TCLP	Solid	EPA 1311	
LB 180-409977/1-D	Method Blank	TCLP	Solid	EPA 1311	

Prep Batch: 410339

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	TCLP	Solid	3520C	409977
180-136073-4	TRW 20% PC, 4% AC	TCLP	Solid	3520C	409977
LB 180-409977/1-D	Method Blank	TCLP	Solid	3520C	409977
MB 180-410339/1-A	Method Blank	Total/NA	Solid	3520C	
LCS 180-410339/2-A	Lab Control Sample	Total/NA	Solid	3520C	
LCSD 180-410339/3-A	Lab Control Sample Dup	Total/NA	Solid	3520C	

Analysis Batch: 410745

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	TCLP	Solid	EPA 8270E LL	410339
180-136073-4	TRW 20% PC, 4% AC	TCLP	Solid	EPA 8270E LL	410339
LB 180-409977/1-D	Method Blank	TCLP	Solid	EPA 8270E LL	410339
MB 180-410339/1-A	Method Blank	Total/NA	Solid	EPA 8270E LL	410339
LCS 180-410339/2-A	Lab Control Sample	Total/NA	Solid	EPA 8270E LL	410339
LCSD 180-410339/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8270E LL	410339

Prep Batch: 672926

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-6 - DL2	TRW 20% PC, 2% AC	Total/NA	Water	3510C	
180-136073-6 - DL	TRW 20% PC, 2% AC	Total/NA	Water	3510C	
180-136073-6	TRW 20% PC, 2% AC	Total/NA	Water	3510C	
180-136073-7	TRW 20% PC, 4% AC	Total/NA	Water	3510C	
180-136073-8	TCLP LB	Total/NA	Water	3510C	
MB 500-672926/1-A	Method Blank	Total/NA	Water	3510C	
LCS 500-672926/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 500-672926/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 674188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-6 - DL2	TRW 20% PC, 2% AC	Total/NA	Water	8270D SIM	672926
180-136073-8	TCLP LB	Total/NA	Water	8270D SIM	672926
MB 500-672926/1-A	Method Blank	Total/NA	Water	8270D SIM	672926
LCS 500-672926/2-A	Lab Control Sample	Total/NA	Water	8270D SIM	672926
LCSD 500-672926/3-A	Lab Control Sample Dup	Total/NA	Water	8270D SIM	672926

Analysis Batch: 674293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-6	TRW 20% PC, 2% AC	Total/NA	Water	8270D SIM	672926
180-136073-6 - DL	TRW 20% PC, 2% AC	Total/NA	Water	8270D SIM	672926
180-136073-7	TRW 20% PC, 4% AC	Total/NA	Water	8270D SIM	672926

GC Semi VOA

Leach Batch: 409977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	TCLP	Solid	EPA 1311	

GC Semi VOA (Continued)

Leach Batch: 409977 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-4	TRW 20% PC, 4% AC	TCLP	Solid	EPA 1311	
LB 180-409977/1-B	Method Blank	TCLP	Solid	EPA 1311	

Prep Batch: 410292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	TCLP	Solid	3510C	409977
180-136073-4	TRW 20% PC, 4% AC	TCLP	Solid	3510C	409977
LB 180-409977/1-B	Method Blank	TCLP	Solid	3510C	409977
LCS 180-410292/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 180-410292/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	

Analysis Batch: 410464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	TCLP	Solid	EPA 8081B	410292
180-136073-4	TRW 20% PC, 4% AC	TCLP	Solid	EPA 8081B	410292
LB 180-409977/1-B	Method Blank	TCLP	Solid	EPA 8081B	410292
LCS 180-410292/2-A	Lab Control Sample	Total/NA	Solid	EPA 8081B	410292
LCSD 180-410292/3-A	Lab Control Sample Dup	Total/NA	Solid	EPA 8081B	410292

HPLC/IC

Leach Batch: 409977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	TCLP	Solid	EPA 1311	
180-136073-4	TRW 20% PC, 4% AC	TCLP	Solid	EPA 1311	
LB 180-409977/1-A	Method Blank	TCLP	Solid	EPA 1311	

Analysis Batch: 410174

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	TCLP	Solid	EPA 9056A	409977
180-136073-4	TRW 20% PC, 4% AC	TCLP	Solid	EPA 9056A	409977
LB 180-409977/1-A	Method Blank	TCLP	Solid	EPA 9056A	409977
MB 180-410174/41	Method Blank	Total/NA	Solid	EPA 9056A	
LCS 180-410174/42	Lab Control Sample	Total/NA	Solid	EPA 9056A	

LCMS

Prep Batch: 614662

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-6	TRW 20% PC, 2% AC	Total/NA	Water	3535	
180-136073-7	TRW 20% PC, 4% AC	Total/NA	Water	3535	
180-136073-8	TCLP LB	Total/NA	Water	3535	
MB 320-614662/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-614662/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-614662/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 615593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-6	TRW 20% PC, 2% AC	Total/NA	Water	537 (modified)	614662
180-136073-7	TRW 20% PC, 4% AC	Total/NA	Water	537 (modified)	614662
180-136073-8	TCLP LB	Total/NA	Water	537 (modified)	614662
MB 320-614662/1-A	Method Blank	Total/NA	Water	537 (modified)	614662

LCMS (Continued)

Analysis Batch: 615593 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-614662/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	614662
LCSD 320-614662/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	614662

Metals

Leach Batch: 409977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	TCLP	Solid	EPA 1311	
180-136073-4	TRW 20% PC, 4% AC	TCLP	Solid	EPA 1311	
LB 180-409977/1-C	Method Blank	TCLP	Solid	EPA 1311	
LB 180-409977/1-E	Method Blank	TCLP	Solid	EPA 1311	

Prep Batch: 410334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	TCLP	Solid	7470A	409977
180-136073-4	TRW 20% PC, 4% AC	TCLP	Solid	7470A	409977
LB 180-409977/1-C	Method Blank	TCLP	Solid	7470A	409977
MB 180-410334/1-A	Method Blank	Total/NA	Solid	7470A	
LCS 180-410334/2-A	Lab Control Sample	Total/NA	Solid	7470A	

Prep Batch: 410519

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	TCLP	Solid	3010A	409977
180-136073-4	TRW 20% PC, 4% AC	TCLP	Solid	3010A	409977
LB 180-409977/1-E	Method Blank	TCLP	Solid	3010A	409977
MB 180-410519/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 180-410519/2-A	Lab Control Sample	Total/NA	Solid	3010A	

Analysis Batch: 410530

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	TCLP	Solid	EPA 7470A	410334
180-136073-4	TRW 20% PC, 4% AC	TCLP	Solid	EPA 7470A	410334
LB 180-409977/1-C	Method Blank	TCLP	Solid	EPA 7470A	410334
MB 180-410334/1-A	Method Blank	Total/NA	Solid	EPA 7470A	410334
LCS 180-410334/2-A	Lab Control Sample	Total/NA	Solid	EPA 7470A	410334

Analysis Batch: 410735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	TCLP	Solid	EPA 6010D	410519
180-136073-4	TRW 20% PC, 4% AC	TCLP	Solid	EPA 6010D	410519
LB 180-409977/1-E	Method Blank	TCLP	Solid	EPA 6010D	410519
MB 180-410519/1-A	Method Blank	Total/NA	Solid	EPA 6010D	410519
LCS 180-410519/2-A	Lab Control Sample	Total/NA	Solid	EPA 6010D	410519

General Chemistry

Analysis Batch: 411447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-136073-3	TRW 20% PC, 2% AC	Total/NA	Solid	2540G	
180-136073-4	TRW 20% PC, 4% AC	Total/NA	Solid	2540G	

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238-2907
phone 412.963.7058 fax 412.963.2468

eurofins | Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Rob Sents	Site Contact: Laurel Crawford	Date: 3/30/22	COC No:
ERM Consulting & Engineering, Inc.	Email: rob.sents@erm.com	Lab Contact: Carrie Gamber	Carrier: Fedex	___1__ of ___1__ COCs
5784 Widewater Pkwy	Tel/Fax:			TALS Project #:
Syracuse, NY 13214	Analysis Turnaround Time: ☐ CALENDAR DAYS ☐ WORKING DAYS; TAT if different from Below __standard__; ☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day			Sampler: Laurel Crawford
(315) 445-2554				For Lab Use Only:
(315) 445-2534 FAX				Walk-in Client:
Project Name: Former TRW Union Springs				Lab Sampling:
Site: Union Springs, NY				Job / SDG No.:
Project # : 46031778				

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	LEAF Method 1315 (see Table 1 for specific analyses and time points for each sample)	TCLP * (to be determined) *	Sample Specific Notes:
TRW Control	3/22/22	17:00	C	S	1 glass 2 HDPE			x	x	HDPE for PFAS vessel, glass for vessel for all other analytes
TRW 7% PC	3/22/22	17:20	C	S	3**			x	x	** 1 monolith for PFAS vessel, 1 monolith for vessel for all other analytes, plus 1 extra monolith if needed
TRW 7% PC, 2% AC	3/22/22	17:50	C	S	3**			x	x	
TRW 7% PC, 4% AC	3/22/22	18:30	C	S	3**			x	x	
TRW 7% PC, 2% AC, 2% SP	3/22/22	19:00	C	S	3**			x	x	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ___DI, MeOH___								1 1 1	1 1 1 1 1 1 1 1 1 1 1,6 1 1 1	

180-136073 Chain of Custody

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

** hold until ERM decides if any TCLP analyses are needed*

☐ Return to Client ☑ Disposal by Lab ☑ Archive for ___*___ Months

Special Instructions/QC Requirements & Comments:

Please refer to the attached Table 1 for specific analyses at select time points depending on the sample.
Please include Laurel Crawford on data deliverables: Lcrawford@loureiro.com

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd:_____ Corr'd:_____	Therm ID No.:_____
Relinquished by:	Company: XDD d/b/a Loureiro	Date/Time: 3/30/22 13:30	Received by:	Company: ETA PITT	Date/Time: 3/31/22 1511
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

ORIGIN ID:IGGA (603) 778-1100
LAUREL CRAWFORD
LOURIERO ENGINEERING ASSOC INC
22 MARIN WAY UNIT #3
STRATHAM, NH 03885
UNITED STATES US

SHIP DATE: 30MAR22
ACTWGT: 25.00 LB
CAD: 112565704/INET4460
DIMS: 25x15x15 IN

BILL SENDER

TO CARRIE GAMBER
EUROFINS ENVIROTEST AMERICA
301 ALPHA DRIVE
PITTSBURGH PA 15238

56DJ1/1E3B/FE4A

(412) 963-2428 REF: 027ER2.01 TASK 001 LC
INV:
PO: DEPT:

FedEx Express

JZ210220100Uau

THU - 31 MAR 4:30P
STANDARD OVERNIGHT

TRK# 0201 7764 4004 9775

15238
PIT
PA-US

UI AGCA

PA-US

Uncorrected temp 3.8 °C
Thermometer ID 16
CF -0.4 Initials
PT-WI-SR-001 effective 11/8/18

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

180-136073 Waybill

Eurofins Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Gamber, Carrie L	Carrier Tracking No(s):	COC No: 180-468622.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Carrie.Gamber@et.eurofinsus.com	State of Origin: New York	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): NELAP - New York		Job #: 180-136073-1
Address: 880 Riverside Parkway,	Due Date Requested: 9/12/2022			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Former TRW Union Springs Property - Unio	Project #: 18025140			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC PFAS, Standard List (21 Analytes) 1315	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
TRW 20% PC, 2% AC (180-136073-6)	8/26/22	06:00 Eastern		Water			X	2	
TRW 20% PC, 4% AC (180-136073-7)	8/26/22	06:00 Eastern		Water			X	2	
TCLP LB (180-136073-8)	8/26/22	06:00 Eastern		Water			X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Pittsburgh places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Pittsburgh.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	MO	8-26-22 1700	ABPA		8.27.22 1000	EETSac
2	Relinquished by:	Date/Time:	Company	Received by	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.: Seal	Cooler Temperature(s) °C and Other Remarks: 3.6

Ver: 06/08/2021

Eurofins Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh PA 15238
Phone 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler	Lab PM	Carrier Tracking No(s)	COC No
Client Contact: Shipping/Receiving	Phone	E-Mail: Carrie Gamber@et eurofinsus com	State of Origin: New York	Page: Page 1 of 1
Company: Eurofins Environment Testing North Centr		Accreditations Required (See note): NELAP - New York		Job #: 180-136073-1
Address: 2417 Bond Street	Due Date Requested: 9/12/2022			
City: University Park	TAT Requested (days):			
State Zip: IL 60484				
Phone: 708-534-5200(Tel) 708-534-5211(Fax)	PO #			
Email	WO #			
Project Name: Former TRW Union Springs Property - L	Project #: 18025140			
Site	SSOW#			

180-136073 COC

Analysis Requested

Preservation Codes

A HCL, B NaOH, C Zn Acetate, D Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Y Trizma, Z other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D_SIM/3510C_LVI (MOD) Local Method	Total Number of containers	Special Instructions/Note
TRW 20% PC 2% AC (180-136073-6)	8/26/22	06 00 Eastern		Water				X	1	
TRW 20% PC 4% AC (180-136073-7)	8/26/22	06 00 Eastern		Water				X	1	
TCLP LB (180-136073-8)	8/26/22	06 00 Eastern		Water				X	1	

Note Since laboratory accreditations are subject to change Eurofins Pittsburgh places the ownership of method analyte & accreditation compliance upon out subcontract laboratories This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Pittsburgh laboratory or other instructions will be provided Any changes to accreditation status should be brought to Eurofins Pittsburgh attention immediately If all requested accreditations are current to date return the signed Chain of Custody attesting to said complicance to Eurofins Pittsburgh

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested I II III IV Other (specify) Primary Deliverable Rank 2	Special Instructions/QC Requirements

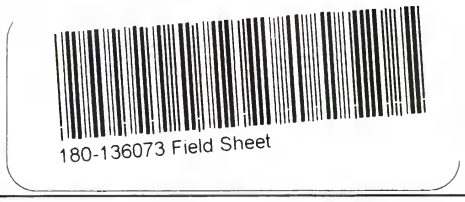
Empty Kit Relinquished by	Date	Time	Method of Shipment

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	MO	8-29-22 1700	ET Pitt	Shawn Smith	8/30/22 1015	EETA
2						
3						

Custody Seals Intact	Custody Seal No	Cooler Temperature(s) °C and Other Remarks
Δ Yes Δ No		3.9 - 1.9

eurofins | Environment Testing America

Sacramento
Sample Receiving Notes



Job:_____

Tracking # : 5859 4698 2644

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other_____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations.
File in the job folder with the COC.

Therm. ID: WB Corr. Factor: (+ / -) N/A °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: Seal

Cooler ID: _____

Temp Observed: 3.6 °C Corrected: 3.6 °C

From: Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials: SO Date: 8-27-22

Unpacking/Labeling The Samples	Yes	No	NA
COC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
Sample custody seal?	☐	☐	☑
Sample containers have legible labels?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Is the Field Sampler's name on COC?	☐	☑	☐
Samples require splitting/compositing?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: SO Date: 8-27-22

Notes:_____

Trizma Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
Samples received within hold time?	☑	☐	☐
NCM Filed?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials: SO Date: 8-27-22

Login Sample Receipt Checklist

Client: ERM-Northeast

Job Number: 180-136073-1

Login Number: 136073
List Number: 1
Creator: Matko, Larry

List Source: Eurofins Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Login Sample Receipt Checklist

Client: ERM-Northeast

Job Number: 180-136073-1

Login Number: 136073
List Number: 3
Creator: Scott, Sherri L

List Source: Eurofins Chicago
List Creation: 08/30/22 03:08 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Login Sample Receipt Checklist

Client: ERM-Northeast

Job Number: 180-136073-1

Login Number: 136073
List Number: 2
Creator: Oropeza, Salvador

List Source: Eurofins Sacramento
List Creation: 08/27/22 02:09 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.6C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix B
Geotechnical Laboratory Reports

JLT Laboratories, Inc.
Geotechnical, Geosynthetic and Materials Testing and Research

938 South Central Avenue
Canonsburg, Pennsylvania, 15317
Tel: 724 -746 -4441 Fax 724 -745 -4261
e-mail: jboschuk@jltlabs.com
www.jltlabs.com

April 11, 2022
22LS3988

Loureiro Engineering Associates, Inc.
22 Marin Way, Unit #3
Stratham, NH 03885

Attn: Laurel Crawford

RE: MIXES & UNCONFINED STRENGTH TEST RESULTS
UNION SPRINGS 027ER2.01 (PO# 170)

Submitted herein are the results of 7-Day UCS testing performed on two (2) samples identified as Mixes 1-12 & 1-15 for the above referenced project. Also attached are the results of six (6) mixes. Where applicable, testing was performed per ASTM Standards while subject to JLT's internal QA / QC and data validation procedures.

We appreciate the opportunity to provide our services and look forward to working with you again. Should you have any questions, comments or require additional information, please do not hesitate to call. Thank you.

Sincerely,

JLT LABORATORIES, INC.



John Boschuk, Jr., P.E., C.F.E.
President

cc: Accounts Payable

Enclosures
JB\mlb
MSWord\letter\2253
Inv# 8016

JLT Laboratories, Inc.
Geotechnical, Geosynthetic and Materials Testing and Research

938 South Central Avenue
Canonsburg, Pennsylvania, 15317
Tel: 724 -746 -4441 Fax: 724 -745 -4261
e-mail: jboschuk@jltlabs.com
www.jltlabs.com

Loureiro
027ER2.01 (PO# 170)
22LS3988
Mixed 03/18/2022

Moisture Content of Received Soil = 39.57%

Mix 1

2,500 gr WET Soil Added (1,510.75 if Dried)
105.75 gr/7% Portland Cement (Based on Dry Wt)
25.5 ml/1.8% Rusmar AC-645 Foam (Based on Dry Wt)
Tap Water Added = 400 gr
Density = 1.53 gr/cc

Mix 2

2,500 gr WET Soil Added (1,510.75 if Dried)
105.75 gr/7% Portland Cement (Based on Dry Wt)
30.22 gr/2% Activated Carbon (Based on Dry Wt)
25.5 ml/1.8% Rusmar AC-645 Foam (Based on Dry Wt)
Tap Water Added = 365 gr
Density = 1.65 gr/cc

Mix 3

2,500 gr WET Soil Added (1,510.75 if Dried)
105.75 gr/7% Portland Cement (Based on Dry Wt)
60.43 gr/4% Activated Carbon (Based on Dry Wt)
25.5 ml/1.8% Rusmar AC-645 Foam (Based on Dry Wt)
Tap Water Added = 450 gr
Density = 1.63 gr/cc

Mix 4

2,500 gr WET Soil Added (1,510.75 if Dried)
105.75 gr/7% Portland Cement (Based on Dry Wt)
30.22 gr/2% Activated Carbon (Based on Dry Wt)
30.22 gr/2% Sodium Persulfate (Based on Dry Wt)
25.5 ml/1.8% Rusmar AC-645 Foam (Based on Dry Wt)
Tap Water Added = 410 gr
Density = 1.64 gr/cc

All Samples: Slump = 6”
THREE 2”x4” Cylinders/Mix

Where Applicable – The Activated Carbon & Portland Cement was Pre-Mixed Prior to Adding
Where Applicable – The Sodium Persulfate was Completely Dissolved in the Mix Water Prior to Adding

Enclosures
JB\mlb
MSWord\misc\2216

JLT Laboratories, Inc.
Geotechnical, Geosynthetic and Materials Testing and Research

938 South Central Avenue
Canonsburg, Pennsylvania, 15317
Tel: 724 -746 -4441 Fax: 724 -745 -4261
e-mail: jboschuk@jltlabs.com
www.jltlabs.com

Loureiro
027ER2.01 (PO# 170)
Union Springs
22LS3988
Mixed 04/04/2022

Moisture Content of Received Soil = 39.57%

Mix 1-12

2,500 gr WET Soil Added (1,510.75 if Dried)
181.29 gr/12% Portland Cement (Based on Dry Wt)
25.5 ml/1.8% Rusmar AC-645 Foam (Based on Dry Wt)
Tap Water Added = 450 gr
Density = 1.63 gr/cc

Mix 1-15

2,500 gr WET Soil Added (1,510.75 if Dried)
226.61 gr/15% Portland Cement (Based on Dry Wt)
25.5 ml/1.8% Rusmar AC-645 Foam (Based on Dry Wt)
Tap Water Added = 475 gr
Density = 1.64 gr/cc

All Samples: Slump = 6”
FOUR 2”x4” Cylinders/Mix

Spec: 50 psi in 28 Days
Perform UCS at 7 & 28 Days & Permeability at 28 Days

Enclosures
JB\mlb
MSWord\misc\2220

UNCONFINED STRENGTH TEST RESULTS

ASTM D-1633

Client : Loureiro

Project : 027ER2.01 (PO# 170)

Union Springs

Job Number: 22LS3988

Print Date : 04/11/2022

Pef'd By : AE/MLB

Chk'd By : JBJr

Mix ID	Fabrication Date	Test Date	Age Days	Weight gr	Height inches	Diameter inches	Area sq in	Bulk Density pcf	Load lbs	Peak Stress psi
Mix 1-12	04/04/2022	04/11/2022	7	318.4	4.01	2.00	3.142	96.2	117	37.2
	04/04/2022	05/02/2022	28			2.00	3.142	#DIV/0!		0.0

Mix ID	Fabrication Date	Test Date	Age Days	Weight gr	Height inches	Diameter inches	Area sq in	Bulk Density pcf	Load lbs	Peak Stress psi
Mix 1-15	04/04/2022	04/11/2022	7	326.5	4.00	2.00	3.142	98.9	146	46.5
	04/04/2022	05/02/2022	28			2.00	3.142	#DIV/0!		0.0

UCS at 7 & 28 Days

* Perform Permeability at 28 Days - AFTER perm run UCS.

Spec Requirement: 50 psi

JLT Laboratories, Inc.

JLT Laboratories, Inc.
Geotechnical, Geosynthetic and Materials Testing and Research

938 South Central Avenue
Canonsburg, Pennsylvania, 15317
Tel: 724 -746 -4441 Fax 724 -745 -4261
e-mail: jboschuk@jltlabs.com
www.jltlabs.com

April 20, 2022
22LS3988

Loureiro Engineering Associates, Inc.
22 Marin Way, Unit #3
Stratham, NH 03885

Attn: Laurel Crawford

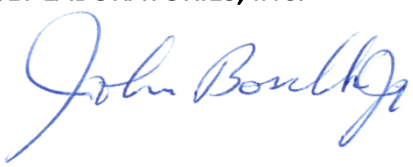
RE: MIX 1-20 & UNCONFINED STRENGTH TEST RESULTS
UNION SPRINGS 027ER2.01 (PO# 170)

Submitted herein are the results of 7 & 14 Day UCS testing performed on two (2) samples identified as Mixes 1-15 & 1-20 for the above referenced project. Where applicable, testing was performed per ASTM Standards while subject to JLT's internal QA / QC and data validation procedures.

We appreciate the opportunity to provide our services and look forward to working with you again. Should you have any questions, comments or require additional information, please do not hesitate to call. Thank you.

Sincerely,

JLT LABORATORIES, INC.



John Boschuk, Jr., P.E., C.F.E.
President

cc: Accounts Payable

Enclosures
JB\mlb
MSWord\letter\2262
Inv# 8025

JLT Laboratories, Inc.
Geotechnical, Geosynthetic and Materials Testing and Research

938 South Central Avenue
Canonsburg, Pennsylvania, 15317
Tel: 724 -746 -4441 Fax: 724 -745 -4261
e-mail: jboschuk@jltlabs.com
www.jltlabs.com

Loureiro
027ER2.01 (PO# 170)
Union Springs
22LS3988
Mixed 04/13/2022

Moisture Content of Received Soil = 39.57%

Mix 1-20

2,500 g WET Soil Added (1,510.75 if Dried)
302.15 g/20% Portland Cement (Based on Dry Wt)
25.5 ml/1.8% Rusmar AC-645 Foam (Based on Dry Wt)
Tap Water Added = 500 g
Density = 1.66 g/cc

All Samples: Slump = 6”
FOUR 2”x4” Cylinders/Mix

Spec: 50 psi in 28 Days
Perform UCS at 7, 14 & 28 Days & Permeability at 28 Days

Enclosures
JB\mlb
MSWord\misc\2225

UNCONFINED STRENGTH TEST RESULTS

ASTM D-1633

Client : Loureiro

Project : 027ER2.01 (PO# 170)

Union Springs

Job Number: 22LS3988

Print Date : 04/19/2022

Pef'd By : AE/MLB

Chk'd By : JBJr

Mix ID	Fabrication Date	Test Date	Age Days	Weight grams	Height inches	Diameter inches	Area sq in	Bulk Density pcf	Load lbs	Peak Stress psi
Mix 1-12	04/04/2022	04/11/2022	7	318.4	4.01	2.00	3.142	96.2	117	37.2
	04/04/2022	04/18/2022	14			2.00	3.142	#DIV/0!		0.0
	04/04/2022	05/02/2022	28			2.00	3.142	#DIV/0!		0.0

Mix ID	Fabrication Date	Test Date	Age Days	Weight grams	Height inches	Diameter inches	Area sq in	Bulk Density pcf	Load lbs	Peak Stress psi
Mix 1-15	04/04/2022	04/11/2022	7	326.5	4.00	2.00	3.142	98.9	146	46.5
	04/04/2022	04/18/2022	14	324.3	4.00	2.00	3.142	98.2	238	75.8
	04/04/2022	05/02/2022	28			2.00	3.142	#DIV/0!		0.0

UCS at 7, 14 & 28 Days

***HOLD Mix 1-12 & Permeability on Mix 1-15 Until Client Responds**

Spec Requirement: 50 psi

JLT Laboratories, Inc.

UNCONFINED STRENGTH TEST RESULTS

ASTM D-1633

Client : Loureiro

Project : 027ER2.01 (PO# 170)

Union Springs

Job Number: 22LS3988

Print Date : 04/27/2022

Pef'd By : AE/MLB

Chk'd By : JBJr

Mix ID	Fabrication Date	Test Date	Age Days	Weight grams	Height inches	Diameter inches	Area sq in	Bulk Density pcf	Load lbs	Peak Stress psi
Mix 1-20	04/13/2022	04/20/2022	7	324.3	3.98	2.00	3.142	98.7	248	78.9
	04/13/2022	04/27/2022	14	331.3	3.96	2.00	3.142	101.4	301	95.8
	04/13/2022	05/11/2022	28			2.00	3.142	#DIV/0!		0.0

UCS at 7, 14 & 28 Days

***HOLD Permeability Until Client Responds**

Spec Requirement: 50 psi

JLT Laboratories, Inc.

JLT Laboratories, Inc.
Geotechnical, Geosynthetic and Materials Testing and Research

938 South Central Avenue
Canonsburg, Pennsylvania, 15317
Tel: 724 -746 -4441 Fax 724 -745 -4261
e-mail: jboschuk@jltlabs.com
www.jltlabs.com

April 27, 2022
22LS3988

Loureiro Engineering Associates, Inc.
22 Marin Way, Unit #3
Stratham, NH 03885

Attn: Laurel Crawford

RE: UNCONFINED STRENGTH TEST RESULTS
UNION SPRINGS 027ER2.01 (PO# 170)

Submitted herein are the results of 14 Day UCS testing performed on one (1) sample identified as 1-20 for the above referenced project. Where applicable, testing was performed per ASTM Standards while subject to JLT's internal QA / QC and data validation procedures.

We appreciate the opportunity to provide our services and look forward to working with you again. Should you have any questions, comments or require additional information, please do not hesitate to call. Thank you.

Sincerely,

JLT LABORATORIES, INC.



John Boschuk, Jr., P.E., C.F.E.
President

cc: Accounts Payable

Enclosures
JB\mlb
MSWord\letter\2272
Inv# 8035

UNCONFINED STRENGTH TEST RESULTS

ASTM D-1633

Client : Loureiro

Project : 027ER2.01 (PO# 170)

Union Springs

Job Number: 22LS3988

Print Date : 05/06/2022

Pef'd By : AE/MLB

Chk'd By : JBJr

Mix ID	Fabrication Date	Test Date	Age Days	Weight grams	Height inches	Diameter inches	Area sq in	Bulk Density pcf	Load lbs	Peak Stress psi
Mix 1-12	04/04/2022	04/11/2022	7	318.4	4.01	2.00	3.142	96.2	117	37.2
	04/04/2022	04/18/2022	14			2.00	3.142	#DIV/0!		0.0
	04/04/2022	05/02/2022	28			2.00	3.142	#DIV/0!		0.0

Mix ID	Fabrication Date	Test Date	Age Days	Weight grams	Height inches	Diameter inches	Area sq in	Bulk Density pcf	Load lbs	Peak Stress psi
Mix 1-15	04/04/2022	04/11/2022	7	326.5	4.00	2.00	3.142	98.9	146	46.5
	04/04/2022	04/18/2022	14	324.3	4.00	2.00	3.142	98.2	238	75.8
	04/04/2022	05/02/2022	28	326.1	4.00	2.00	3.142	98.8	244	77.7

UCS at 7, 14 & 28 Days

***HOLD Mix 1-12 & Permeability on Mix 1-15 Until Client Responds**

Spec Requirement: 50 psi

JLT Laboratories, Inc.

JLT Laboratories, Inc.
Geotechnical, Geosynthetic and Materials Testing and Research

938 South Central Avenue
Canonsburg, Pennsylvania, 15317
Tel: 724-746-4441 Fax: 724 -745-4261
e-mail: jboschuk@jltlabs.com
www.jltlabs.com

August 31, 2022
22LS3998

Loureiro Engineering Associates, Inc.
22 Marin Way, Unit #3
Stratham, NH 03885

Attn: Laurel Crawford

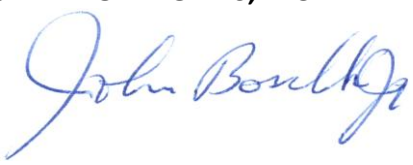
RE: PERMEABILITY & UNCONFINED STRENGTH TEST RESULTS
027ER2.01 (PO# 170)

Submitted herein are the results of Permeability followed by Unconfined Strength testing performed on two (2) samples for the above referenced project according to the attached COC. Where applicable, testing was performed per ASTM Standards while subject to JLT's internal QA / QC and data validation procedures.

We appreciate the opportunity to provide our services and look forward to working with you again. Should you have any questions, comments or require additional information, please do not hesitate to call. Thank you.

Sincerely,

JLT LABORATORIES, INC.



John Boschuk, Jr., P.E., C.F.E.
President

cc: Accounts Payable

Enclosures
JB\mlb
MSWord\letter\22196
Inv# 8160

CHAIN OF CUSTODY

Test Request for Stabilized Test Cylinders

CLIENT: Loureiro

JLT JOB No.: 22L53988

DATE RECEIVED: 8-23-22

PROJECT ID: 027ER2.01

DATE ASSIGNED: 8-23-22

DATE COMPLETED: 8-31-22

SAMPLE I.D.	DEPTH (feet)	Other ID	Fabrication Date	Cylinder Size	Permeability D-5084-A			Unconfined Strength D-1633					Other Tests			
					Age (Days)	Effective Stress	Gradient	Age (Days)	Age (Days)	Age (Days)	Age (Days)	Age (Days)				
TRW 20% PC, 2% AC			4/26/22	2 x 4" (Qty 1)*	~119*			~119*								
TRW 20% PC, 4% AC			4/26/22	2 x 4" (Qty 1)*	~119*			~119*								

COMPLETE THIS SECTION AND INCLUDE WITH SHIPMENT. ALSO FAX COPY AS PRE-NOTIFICATION

SHIPPER:[1] XDD, doing business as Louriero Engineering Associates, Inc.

ADDRESS: 112 Corporate Drive
Unit #2
Portsmouth, NH 03801

CONTACT: Laurel Crawford

TEL: 603-418-3105 EMAIL: lcrawford@loureiro.com

SHIP TO: JLT Laboratories Inc.
938 South Central Avenue
Canonsburg, PA 15317
Tel: (724) 746-4441
Fax: (724) 745-4261
e-mail: jboschuk@jltlabs.com or
e-mail: mboschuk@jltlabs.com

NOTES / INSTRUCTIONS

[1] Samples will be arriving from Eurofins Test America, Pittsburg

* perform UCS testing on same monolith after the permeability testing is complete

Relinquished By: [signature] Date: 8/22/22 1315

Received By: [signature] Date: 8-23-22

Client PO No: 170

JLT GEOTECHNICAL LABORATORY
soilcocstabil.wpd

UNCONFINED STRENGTH TEST RESULTS

ASTM D-1633

Client : Loureiro

Project : 027ER2.01 (PO# 170)

Union Springs

Job Number: 22LS3988

Print Date : 08/31/2022

Pef'd By : AE/MLB

Chk'd By : JBJr

Mix ID	Fabrication Date	Test Date	Age Days	Weight grams	Height inches	Diameter inches	Area sq in	Bulk Density pcf	Load lbs	Peak Stress psi
TRW 20% PC, 2% AC	04/26/2022	08/30/2022	126	332.9	4.01	2.00	3.142	100.6	354	112.7
TRW 20% PC, 4% AC	04/26/2022	08/30/2022	126	325.3	4.00	2.00	3.142	98.5	256	81.5

* Perform Permeability at 28 Days - AFTER perm run UCS.

JLT Laboratories, Inc.

SUMMARY OF FLEX WALL PERMEABILITY
TEST RESULTS
ASTM D-5084 (Method A)

Client	:	Loureiro	Print Date	:	08/31/2022
Project Location	:	027EER2.01	Job No.	:	22LS3981
Sample Number	:	TRW 20%PC. 2%AC	Tested By	:	MLB/ AE
Fab Date	:	04/26/2022	Checked By	:	JBJr
Age	:		Page 1 of 2		Page 2 Optional
PO:	:	#170	Spec. Gravity	:	2.69 Assumed
	:				

Physical Property Data

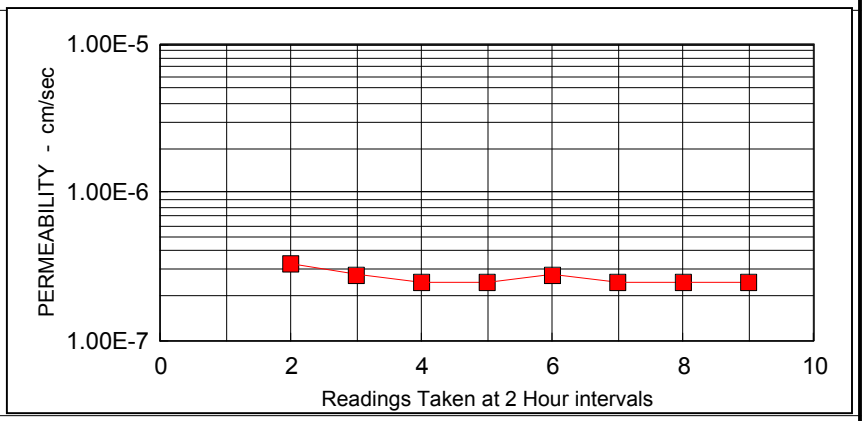
	Initial Gradient = 25		Stabilized Gradient : 24.78
Initial Height (in)	: 4.01	Final Height (in)	: 4.01
Initial Diameter (in)	: 2.00	Final Diameter (in)	: 2.00
Initial Wet Weight (g)	: 321.1	Final Wet Weight (g)	: 339.03
Wet Density (pcf)	: 97.01	Wet Density (pcf)	: 102.43
Moisture Content %	: 52.25	Moisture Content %	: 60.75
Dry Density (pcf)	: 63.72	Dry Density (pcf)	: 63.72
Initial Void Ratio	: 1.6343	Final Void Ratio	: 1.6343
Saturation ,%	: 86.0	Saturation ,%	: 100.0

Test Parameters

Fluid	: De-Aired Water	**Effective**		
Cell Pressure (psi)	: 65.0	**Confining Pressure (psi)**	:	**10**
Head Water (psi)	: 56.8	Gradient	:	24.78
Tail Water (psi)	: 53.2			

Permeability Input Data
For Last Data Point

Flow, Q	(cc)	:	0.9
Length, L	(in)	:	4.01
Area, A	(sqin)	:	3.14
Head, h	**(psi)**	:	**3.60**
Time, t	(min)	:	120
Temp, T	(Deg C)	:	19.9



Computed Permeability

PERMEABILITY, K = 2.49E-007 **(cm/sec) at 20 Degrees C**
Average of Last 3 Readings 2.49E-007 **cm/sec**

SUMMARY OF FLEX WALL PERMEABILITY
TEST RESULTS
ASTM D-5084 (Method A)

Client	:	Loureiro	Print Date	:	08/31/2022
Project Location	:	027EER2.01	Job No.	:	22LS3981
Sample Number	:	TRW 20%PC. 4%AC	Tested By	:	MLB/ AE
Fab Date	:	04/26/2022	Checked By	:	JBJr
Age	:		Page 1 of 2		Page 2 Optional
PO:	:	#170	Spec. Gravity	:	2.69 Assumed
	:				

Physical Property Data

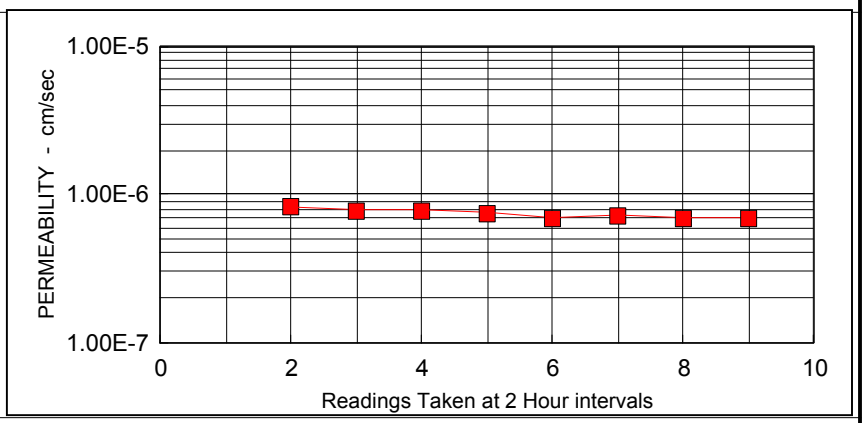
	Initial Gradient = 25		Stabilized Gradient	:	24.84
Initial Height (in)	: 4.00		Final Height (in)	:	4.00
Initial Diameter (in)	: 2.00		Final Diameter (in)	:	2.00
Initial Wet Weight (g)	: 317.4		Final Wet Weight (g)	:	338.01
Wet Density (pcf)	: 96.14		Wet Density (pcf)	:	102.38
Moisture Content %	: 51.07		Moisture Content %	:	60.88
Dry Density (pcf)	: 63.64		Dry Density (pcf)	:	63.64
Initial Void Ratio	: 1.6377		Final Void Ratio	:	1.6377
Saturation ,%	: 83.9		Saturation ,%	:	100.0

Test Parameters

Fluid	:	De-Aired Water	**Effective**		
Cell Pressure (psi)	:	65.0	**Confining Pressure (psi)**	:	**10**
Head Water (psi)	:	56.8	Gradient	:	24.84
Tail Water (psi)	:	53.2			

Permeability Input Data
For Last Data Point

Flow, Q	(cc)	:	2.5
Length, L	(in)	:	4.00
Area, A	(sqin)	:	3.14
Head, h	**(psi)**	:	**3.60**
Time, t	(min)	:	120
Temp, T	(Deg C)	:	19.9



Computed Permeability

PERMEABILITY, K = 6.90E-007 **(cm/sec) at 20 Degrees C**
Average of Last 3 Readings 7.00E-007 **cm/sec**

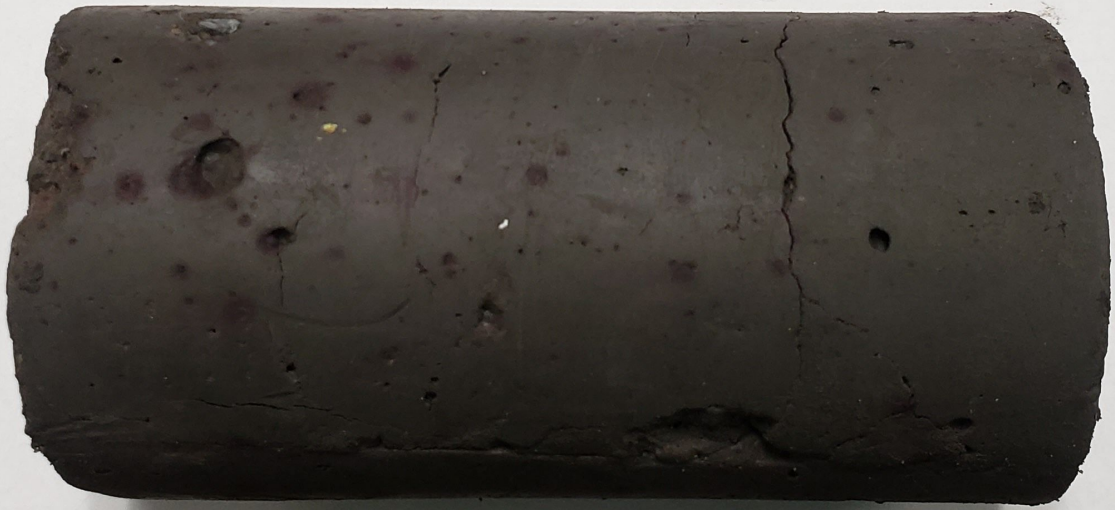
TRW 20% PC, .2% AC

354 lbs UC



TRW 20% PC, 4% AC

256 lbs UC



APPENDIX D BORING LOGS

ERM
105 Maxess Road
Melville, NY 11747
Telephone: (631) 756-8900

GT-500

Client: TRW Automotive
Project Name: Former TRW Union Springs Property
Project Number: 0496229
Project Location: Union Springs, NY

DATE STARTED: 10/29/2019
DATE COMPLETED: 10/30/2019
DRILLING CONTRACTOR: Parratt Wolff, Inc.
DRILLING EQUIPMENT: HSA/Split Spoon
TOTAL DEPTH: 31.9 feet bgs
DIAMETER: 6 inches
NORTHING:
EASTING:
GROUND ELEVATION: feet amsl
GROUNDWATER LEVEL: feet bgs
LOGGED BY: Sents & Warner
CHECKED BY: E. Marcus
NOTES:

ACRONYM LEGEND
amsl = above mean sea level
PC = pre-cleared
ST = shelby tube
NM = not measured

GRAPHIC LOG LEGEND
SM Silty Sand
SP Poorly-graded Sand
ML Silt
MLS Sandy Silt
CL-ML Silty Clay
CL Low Plasticity Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		ST	GT-500(0-4)(10292019)	18.0	75	SM		Brown, SILTY SAND, some subrounded gravel, (0.25" diameter), plastic pieces, abundant organics, poorly sorted, moist.	0.0
								1.5	0.0
						SP		Brown, FINE SAND, trace silt, some organics, well sorted, moist.	
								2.0	
2.5		GB							0.0
		ST		16.0	67	SP		Brown, FINE SAND, trace silt, some organics, 1-inch subrounded gravel at 4 feet, well sorted, moist.	0.0
								4.0	
						ML		Brown, SILT, compact, moist.	0.2
5.0		ST		18.0	75			5.0	
						SP		Medium Brown, SAND, little blue orange and gray sand, black staining, plastic fragments, poorly sorted, moist.	0.6
								6.0	
		ST		20.0	83			No recovery.	NM
7.5									NM
								8.0	
		ST		20.0	83	ML		Brown, SILT, trace clay, little orange mottling, compact, moist.	7.4
10.0								10.0	69.4
						ML		Brown, SANDY SILT, some clay, wet from 10 to 10.4 feet, little orange mottling, poorly sorted, dense, dry to slightly moist.	80.8
		ST		20.0	83			11.0	
		GB	GT-500(11-13)(10302019)			CL-ML		Light Brown, SILT, with clay and sand, clayey silt from 11 to 11.6 feet, sandy silt from 11.6 to12 feet, poorly sorted, dense, dry to slightly moist.	100.4
								12.0	
12.5		ST		24.0	100	ML		Medium Brown, SILT, trace sand, dark brown, grey and black mottling, dense, moist.	100.4
								13.5	
						CL-ML		Light Brown, CLAYEY SILT, trace subrounded gravel, (0.5" diameter), gray-light brown mottling, poorly sorted, dense, moist.	31.8
								14.0	
15.0		ST		24.0	100	ML		Brown, SILT, trace subrounded clay and fine to coarse gravel, (0.5-1" diameter), gray, yellow/brown and red mottling, sandy silt from 14 to 14.4 feet, poorly sorted, plastic, wet.	25.4
								15.4	
						CL-ML		Brown, CLAYEY SILT, some orange mottling, low plasticity, wet.	7.2
								16.0	
								Brown, SILTY CLAY, trace fine sand, plastic, wet.	

ERM
105 Maxess Road
Melville, NY 11747
Telephone: (631) 756-8900

Client: TRW Automotive **Project Name:** Former TRW Union Springs Property

Project Number: 0496229 **Project Location:** Union Springs, NY

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		ST	GT-500(19-20)(10302019)	24.0	100	CL-ML		Brown, SILTY CLAY, trace fine sand, plastic, wet. *(continued)*	4.9
17.5								17.0	
						CL-ML		Brown, CLAYEY SILT, few subangular gravel, (0.5" diameter), trace fine sand, poorly sorted, high plasticity, wet.	0.4
		ST		24.0	100			18.5	1.4
		GB				CL		Brown, CLAY, some medium sand, some 0.25" diameter gravel, poorly sorted, high plasticity, wet.	0.6
20.0								20.0	
		ST		20	83	CL		Gray Brown, SANDY CLAY, some subrounded gravel, (0.25-0.5" diameter), poorly sorted, medium plasticity, wet.	8.0
								21.0	
						CL		Gray Brown, CLAY, trace fine sand, medium plasticity, wet.	1.6
22.5		ST		24	100			22.0	NM
								No recovery.	
								24.0	NM
		ST		24	100	CL		Gray Brown, CLAY, high plasticity, wet.	3.5
25.0								25.3	
						CL		Gray Brown, SANDY CLAY, plastic, wet.	1.1
								26.0	
		ST		24	100	CL		Gray Brown, SANDY CLAY, few subangular gravel, (0.25" diameter), clay only from 26 to 26.5 feet, poorly sorted, plastic, wet.	1.2
27.5								27.0	
						SP		Gray Brown, FINE SAND, trace clay, well sorted, wet.	1.2
								28.0	
		ST		18	75	SP		Gray Brown, FINE SAND, failed shelby, well sorted, wet.	0.6
								29.0	
						SP		Gray Brown, FINE TO MEDIUM SAND, possibly lithic, well sorted, wet.	0.6
30.0								30.0	
		ST		22.8	100	SP		Gray Brown, FINE TO COARSE SAND, possibly lithic, wet.	0.6
								31.0	
								Brown, DIAMICT, poorly sorted, wet.	
								31.9	
32.5								*Bottom of Boring @ 31.90 feet bgs*	

ERM
105 Maxess Road
Melville, NY 11747
Telephone: (631) 756-8900

GT-501

Client: TRW Automotive
Project Name: Former TRW Union Springs Property
Project Number: 0496229
Project Location: Union Springs, NY

DATE STARTED: 10/28/2019
DATE COMPLETED: 10/28/2019
DRILLING CONTRACTOR: Parratt Wolff, Inc.
DRILLING EQUIPMENT: HSA/Split Spoon
TOTAL DEPTH: 31.8 feet bgs
DIAMETER: 6 inches
NORTHING:
EASTING:
GROUND ELEVATION: feet amsl
GROUNDWATER LEVEL: feet bgs
LOGGED BY: Sents & Warner
CHECKED BY: E. Marcus
NOTES:

ACRONYM LEGEND
amsl = above mean sea level
PC = pre-cleared
ST = shelby tube
NM = not measured

GRAPHIC LOG LEGEND
MLS Sandy Silt
SP Poorly-graded Sand
ML Silt
SM Silty Sand
CL Low Plasticity Clay
CLS Low Plasticity Sandy Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		ST		11.0	46	ML		Dark Brown, FINE SANDY SILT, some subrounded gravel, (0.125" diameter), trace clay, organics, some orange mottling, poorly sorted, moist.	0.7
									0.8
								1.8	
2.5		ST		18.0	75	SP		Yelllowish Brown, FINE SAND, well sorted, soft, moist.	1.4
									2.0
								4.0	
5.0		GB ST	GT-501(4-6)(10282019)	12.0	50	ML		SILT, some clay, some orange mottling, compact, moist.	4.8
								5.0	
						SM		SILTY SAND, some slag, little black mottling, moist.	4.8
								6.0	
		ST		18.0	75	CL		Dark Brown, CLAY, some silt, wet.	2.0
								7.0	
7.5						SM		Black, SILTY FINE SAND, trace subrounded gravel, (0.5-1" diameter), black, gray, green, blue and orange mottling, poorly sorted, loose, moist.	54.9
								8.0	
		ST				ML		Dark Brown, SANDY SILT, with clay, wet.	1.6
									NM
10.0								10.0	
		ST		6.0	25	ML		10.5 Dark Gray, SILT, some black mottling, moist.	5.3
						ML		Dark Brown, SILT, little subangular gravel, (0.5-1" diameter), orange-brown to black mottling, poorly sorted, compact, moist.	9.1
								12.0	
12.5		GB ST	GT-501(12-14)(10282019)	24.0	100	CL		12.2 Gray Brown, SANDY CLAY, wet.	9.6
						ML		Brown, SILT, abundant mottling - grey orange & red, compact, moist.	14.4
								14.0	
15.0		ST		16.0	67			Shelby.	14.4
									NM
								16.0	
								Gray Brown, SILTY CLAY, orange mottling, plastic, wet.	

ERM
105 Maxess Road
Melville, NY 11747
Telephone: (631) 756-8900

Client: TRW Automotive **Project Name:** Former TRW Union Springs Property

Project Number: 0496229 **Project Location:** Union Springs, NY

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		ST	GT-501(21-22)(10282019)	24.0	100	CL-ML		Gray Brown, SILTY CLAY, orange mottling, plastic, wet. *(continued)*	47.5
17.5								17.6	14.9
						CL		18.0 Gray Brown, CLAY, fine sand, yellow-brown wet at 17.9 feet, high plasticity, wet.	
		ST		24.0	100	CL		Gray Brown, CLAY, high plasticity, saturated.	1.6
20.0								19.8	4.5
						CL		20.0 Gray Brown, SANDY CLAY, low plasticity, wet.	
		ST		24.0	100	CL		Gray, CLAY, some sandy clay, sandy clay lenses, high plasticity, wet to saturated.	1.0
		GB							1.2
22.5								22.0	
		ST		24.0	100	CL		Gray Brown, CLAY, high plasticity, saturated.	1.0
									0.6
		ST		24.0	100				0.4
25.0								25.5	0.5
						CL		26.0 Gray Brown, CLAY, with fine sand and silt, low to medium plasticity, saturated.	
		ST		24.0	100	CL		26.5 Gray Brown, CLAY, plastic, saturated.	0.8
27.5						ML		Gray Brown, SILT, with clay, well sorted, plastic, wet.	0.8
								28.0	
		ST		24.0	100	SP		Brown, FINE SAND, well sorted, saturated.	0.8
								29.5	0.9
30.0						SP		30.0 Brown, FINE SAND, few subrounded gravel, large white cobble at 29.8 feet, possible gypsum, well sorted, wet.	
		ST		21.6	100	SP		Brown, FINE SAND, loose, saturated.	0.9
								31.0	
								Brown, DIAMICT, refusal at 31.8 feet, poorly sorted, moist.	0.7
								31.8	
32.5								*Bottom of Boring @ 31.80 feet bgs*	

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GT-502

Client: TRW Automotive **Project Name:** Former TRW Union Springs Property

Project Number: 0496229 **Project Location:** Union Springs, NY

DATE STARTED: 11/1/2019 **DATE COMPLETED:** 11/1/2019

DRILLING CONTRACTOR: Parratt Wolff, Inc. **DRILLING EQUIPMENT:** HSA/Split Spoon

TOTAL DEPTH: 20 feet bgs **DIAMETER:** 6 inches

NORTHING: **EASTING:**

GROUND ELEVATION: feet amsl **GROUNDWATER LEVEL:** feet bgs

LOGGED BY: Sents & Warner **CHECKED BY:** E. Marcus

NOTES:

ACRONYM LEGEND
amsl = above mean sea level
PC = pre-cleared
ST = shelby tube
NM = not measured

GRAPHIC LOG LEGEND
MLS Sandy Silt
SWG Well-Graded Gravelly Sand
SP Poorly-graded Sand
CLS Low Plasticity Sandy Clay
CL Low Plasticity Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		GB	GT-502(0-4)(11012019)	17	71	ML		Brown, SANDY SILT, with subangular gravel, (0.5" diameter), poorly sorted, moist.	0.0
		ST							0.0
								1.9	
						SW		2.0 GRAVELLY MEDIUM TO COARSE SAND, subangular (0.5" diameter), poorly sorted, loose, dry.	
2.5		ST		13.0	54	SW		GRAVELLY MEDIUM TO COARSE SAND, subangular (0.5" diameter), poorly sorted, loose, dry.	0.0
									0.1
								4.0	
5.0		ST		0.0	0			No recovery.	NM
									NM
								6.0	
		ST		6.0	25	SW		Brown, GRAVELLY MEDIUM TO COARSE SAND, subrounded (0.25" diameter), poorly sorted, loose, moist.	0.0
7.5									NM
								8.0	
		ST		15.0	63			Shelby.	NM
									NM
10.0								10.0	
		ST		13.0	54	SP		Gray Brown, MEDIUM TO COARSE SAND, with subrounded gravel, (0.5-1" diameter), metal chunk present, wet.	0.3
								11.0	
						ML		Gray, SANDY SILT, black staining, some mottling, low plasticity, wet.	0.2
								12.0	

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Client: TRW Automotive **Project Name:** Former TRW Union Springs Property

Project Number: 0496229 **Project Location:** Union Springs, NY

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
12.5		ST		11.0	46			Shelby. *(continued)*	NM
									NM
								14.0	
		ST		0.0	0			No recovery.	NM
15.0									NM
								16.0	
		GB	GT-502(16-17)(11012019)	24.0	100	CL		Brown, SANDY CLAY, soft, wet.	0.4
		GB/ST	GT-502(16-17)(11012019)						
17.5		GB	GT-502(17-18)(11012019)						1.0
								17.8	
						CL		18.0 CLAY, trace sand, soft, medium plasticity, wet.	
						CL		Brown, SANDY CLAY, with shell fragments, wet.	0.2
								18.6	
		ST		24.0	100	CL		Brown, CLAY, high plasticity, wet.	
20.0		GB	GT-502(19-20)(11012019)						0.1
								20.0	
22.5								*Bottom of Boring @ 20.00 feet bgs*	
25.0									

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GT-503

Client: TRW Automotive
Project Name: Former TRW Union Springs Property
Project Number: 0496229
Project Location: Union Springs, NY

DATE STARTED: 10/21/2019
DATE COMPLETED: 10/31/2019
DRILLING CONTRACTOR: Parratt Wolff, Inc.
DRILLING EQUIPMENT: HSA/Split Spoon
TOTAL DEPTH: 18 feet bgs
DIAMETER: 6 inches
NORTHING:
EASTING:
GROUND ELEVATION: feet amsl
GROUNDWATER LEVEL: feet bgs
LOGGED BY: Sents & Warner
CHECKED BY: E. Marcus
NOTES: 0 to 5 feet physically cleared with Air Knife

ACRONYM LEGEND
amsl = above mean sea level
PC = pre-cleared
ST = shelby tube
NM = not measured

GRAPHIC LOG LEGEND
MLS Sandy Silt
CL-ML Silty Clay
GPS Poorly-graded Sandy Gravel
CLS Low Plasticity Sandy Clay
CL Low Plasticity Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		GB	GT-503(0-5)(10312019)						1.1
									NM
2.5		GB PC	GT-503(0-5)(10312019)	0.0 60	0 100	ML		Dark Brown, SANDY SILT, few cobbles, (0.5-1" diameter), poorly sorted, loose, moist.	NM
									NM
								4.0	
5.0						ML		Brown, SANDY SILT, with subrounded gravel, (0.25" diameter), few organics, some orange mottling, poorly sorted, moist.	0.8
		ST		12	100				NM
								6.0	
		ST		4.0	17			No recovery.	NM
7.5								7.7	18.2
						CL-ML		8.0 SANDY CLAY, with gravel, wood intermixed, poorly sorted, wet.	
		ST		24.0	100			Shelby.	NM
									NM
10.0								10.0	

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Telephone: (631) 756-8900

Client: TRW Automotive **Project Name:** Former TRW Union Springs Property

Project Number: 0496229 **Project Location:** Union Springs, NY

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		GB	GT-503(10-11)(10312019)			GP		Gray, SANDY GRAVEL, subrounded (0.25" diameter), loose, wet. *(continued)*	0.9
		ST		24	100			11.0	
						CL		Gray Brown, SANDY CLAY, with subrounded gravel, (0.5" diameter), poorly sorted, high plasticity, wet.	1.3
								12.0	
12.5		ST		24.0	100	CL		Gray Brown, SANDY CLAY, with subrounded gravel, (0.5" diameter), poorly sorted, high plasticity, wet.	0.4
									0.8
								14.0	
15.0		ST		24.0	100	CL		Gray Brown, CLAY, trace fine sand, high plasticity, wet.	0.8
									NM
								16.0	
			GT-503(16-18)(10312019)						0.5
		ST	GT-503(16-18)(10312019)	18.0	75	CL		Gray Brown, CLAY, trace fine sand, high plasticity, wet.	
17.5									NM
								18.0	
								Bottom of Boring @ 18.00 feet bgs	
20.0									

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GT-504

Client: TRW Automotive
Project Name: Former TRW Union Springs Property
Project Number: 0496229
Project Location: Union Springs, NY

DATE STARTED: 10/21/2019
DATE COMPLETED: 10/31/2019
DRILLING CONTRACTOR: Parratt Wolff, Inc.
DRILLING EQUIPMENT: HSA/Split Spoon
TOTAL DEPTH: 20 feet bgs
DIAMETER: 6 inches
NORTHING:
EASTING:
GROUND ELEVATION: feet amsl
GROUNDWATER LEVEL: feet bgs
LOGGED BY: Sents & Warner
CHECKED BY: E. Marcus
NOTES: 0 to 5 feet physically cleared with Air Knife

ACRONYM LEGEND
amsl = above mean sea level
PC = pre-cleared
ST = shelby tube
NM = not measured

GRAPHIC LOG LEGEND
MLS Sandy Silt
SPG Poorly-graded Gravelly Sand
GPS Poorly-graded Sandy Gravel
SP-SM Poorly-graded Sand with Silt
CL Low Plasticity Clay
SP Poorly-graded Sand

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
									NM
									NM
2.5		PC		0	0	ML		Dark Brown, SANDY SILT, few cobbles, (0.5-1" diameter), poorly sorted, loose, moist.	NM
									NM
									4.5
5.0								5.0	
		ST		12	100	SP		Dark Gray, FINE TO MEDIUM SAND, and subrounded gravel, (1" diameter), black staining.	NM
		GB	GT-504(4-8)(10312019)	7.0	15			6.0	6.3
		ST		18.0	75	GP		Dark Gray, SANDY GRAVEL, subangular (0.5-2" diameter), black staining, wet.	9.5
7.5								8.0	
						ML		Dark Gray, SANDY SILT, black staining, wet.	3.1
		ST		23.0	96			8.6	
						SP-SM		SILTY FINE SAND, few subangular gravel, (1" diameter), black staining, silty clay at 9.9 feet, poorly sorted, low plasticity, wet.	2.5
10.0		GB	GT-504(8-12)(10312019)					10.0	
						SP		COARSE SAND, with gravel, saturated.	1.6
		GB ST	GT-504(10-12)(10312019)	24.0	100			11.6	NM
						SP-SM		MEDIUM TO COARSE SILTY SAND, with subrounded gravel, (0.25" diameter), poorly sorted, low plasticity, saturated.	
								12.0	

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Client: TRW Automotive **Project Name:** Former TRW Union Springs Property

Project Number: 0496229 **Project Location:** Union Springs, NY

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
12.5		ST		24.0	100			Shelby. *(continued)*	NM
									NM
								14.0	
		ST		24.0	100	CL		Brown, CLAY, trace fine sand, black staining, plastic, wet.	0.9
15.0								14.6	
						CL		CLAY, high plasticity, wet.	0.9
								16.0	
		ST		24.0	100	CL		CLAY, high plasticity, wet.	0.8
17.5									0.1
								18.0	
		ST		24.0	100	CL		CLAY, high plasticity, wet.	1.2
									1.9
20.0								19.6	
						SP		Brown, FINE SAND, well sorted, wet.	
								20.0	
22.5								*Bottom of Boring @ 20.00 feet bgs*	
25.0									

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GT-505

Client: TRW Automotive
Project Name: Former TRW Union Springs Property
Project Number: 0496229
Project Location: Union Springs, NY

DATE STARTED: 11/1/2019
DATE COMPLETED: 11/1/2019
DRILLING CONTRACTOR: Parratt Wolff, Inc.
DRILLING EQUIPMENT: HSA/Split Spoon
TOTAL DEPTH: 18 feet bgs
DIAMETER: 6 inches
NORTHING:
EASTING:
GROUND ELEVATION: feet amsl
GROUNDWATER LEVEL: feet bgs
LOGGED BY: Sents & Warner
CHECKED BY: E. Marcus
NOTES: 0 to 5 feet physically cleared with Air Knife

ACRONYM LEGEND
amsl = above mean sea level
PC = pre-cleared
ST = shelby tube
NM = not measured

GRAPHIC LOG LEGEND
MLS Sandy Silt
SPG Poorly-graded Gravelly Sand
CL-ML Silty Clay
CL Low Plasticity Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
									NM
									NM
2.5		PC		60.0	100	ML		Dark Brown, SANDY SILT, few cobbles, (0.5-1" diameter), poorly sorted, loose, moist.	NM
									NM
						ML		4.0 Brown, SANDY SILT, with subangular gravel, (0.25" diameter), some organics, poorly sorted, wet.	0.1
5.0		ST		12.0	100	SP		5.0 Dark Brown, GRAVELLY SAND, subangular (0.25-1" diameter), black staining, slight sheen at 6 feet, loose, wet.	0.2
						SP		6.0 Dark Brown, GRAVELLY SAND, subangular (0.25-1" diameter), loose, wet.	0.1
7.5		ST		12.0	50	ML		6.6 Dark Brown, SANDY SILT, with subangular gravel, (0.5-1" diameter), poorly sorted, low plasticity, wet.	0.2
		ST		24.0	100	CL-ML		8.0 Brown, SILTY CLAY, little subrounded gravel, (1" diameter), medium plasticity, wet.	0.1
10.0								10.0	0.0

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Client: TRW Automotive **Project Name:** Former TRW Union Springs Property

Project Number: 0496229 **Project Location:** Union Springs, NY

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						CL-ML		SANDY CLAY, trace subangular gravel, (0.25" diameter), poorly sorted, plastic, wet. *(continued)*	
		ST		24.0	100			10.6	0.0
						CL		Brown, CLAY, plastic, wet.	0.0
								12.0	
12.5		ST		24.0	100			Shelby.	NM
									NM
								14.0	
		GB ST	GT-505(14-16)(11012019)	24.0	100	CL		Brown, CLAY, plastic, wet.	0.0
15.0									NM
								16.0	
		ST		24.0	100	CL		Brown, CLAY, plastic, wet.	0.0
17.5									0.0
								17.8	
						CL		18.0 Brown, CLAY, some fine to medium sand, plastic, wet.	
20.0								*Bottom of Boring @ 18.00 feet bgs*	

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GT-506

Client: TRW Automotive
Project Name: Former TRW Union Springs Property
Project Number: 0496229
Project Location: Union Springs, NY

DATE STARTED: 10/29/2019
DATE COMPLETED: 10/29/2019
DRILLING CONTRACTOR: Parratt Wolff, Inc.
DRILLING EQUIPMENT: HSA/Split Spoon
TOTAL DEPTH: 36.4 feet bgs
DIAMETER: 6 inches
NORTHING:
EASTING:
GROUND ELEVATION: feet amsl
GROUNDWATER LEVEL: feet bgs
LOGGED BY: Sents & Warner
CHECKED BY: E. Marcus
NOTES:

ACRONYM LEGEND
amsl = above mean sea level
PC = pre-cleared
ST = shelby tube
NM = not measured

GRAPHIC LOG LEGEND
MLS Sandy Silt
ML Silt
GC Clayey Gravel
SP-SM Poorly-graded Sand with Silt
SP Poorly-graded Sand
GPS Poorly-graded Sandy Gravel

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		ST		11.0	46	ML		Dark Brown, SANDY SILT, with subrounded gravel, (0.25" diameter), abundant organics, small coal fragments, poorly sorted.	0.4
									0.4
								2.0	
						ML		Dark Brown, SANDY SILT, with subrounded gravel, (0.5" diameter), abundant organics, small coal fragments, poorly sorted.	
2.5								2.4	0.8
		ST		11.0	46	SP		Yellow Brown, FINE SAND, interbedded subangular sandy silt, (1" diameter), poorly sorted, moist.	
		GB	GT-506(3-4)10292019)						0.7
								4.0	
		ST		7.0	29	ML		Brown, SILT, little subangular clay and gravel, (0.25" diameter), possible asphalt from 4.5 to 5.0 feet, poorly sorted, moist.	0.8
5.0								5.0	
						ML		Brown, SILT, little subangular clay and gravel, (0.5" diameter), trace fine sand, poorly sorted, moist.	NM
								6.5	
						SP		Black, MEDIUM TO COARSE SAND, well sorted, moist.	0.7
		ST		10.0	42			6.8	
						ML		Brown, SILT, little subrounded clay and gravel, (0.25" diameter), poorly sorted, moist.	NM
7.5								8.0	
		ST		7.0	29	GC		Dark Brown, GRAVEL AND CLAY, some fine sand, poorly sorted, low plasticity, wet.	0.9
									NM
10.0									

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Client: TRW Automotive **Project Name:** Former TRW Union Springs Property

Project Number: 0496229 **Project Location:** Union Springs, NY

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		ST	GT-506(20-22)(10292019)	12.0	50	GC		Dark Brown, GRAVEL AND CLAY, some fine sand, poorly sorted, low plasticity, wet. *(continued)*	
								10.5	0.9
						GP		GRAVEL AND SAND, some subangular silt, (1" diameter), poorly sorted, wet.	
								11.0	
						ML		Brown, SILT, some fine sand and clay, Black wood at 11.5 feet, poorly sorted, wet.	0.6
								12.0	
12.5						CL		Brown, CLAY, little fine sand, plastic, wet.	
								12.5	177.5
		GB ST		12.0	50				112.2
								Black, ORGANICS, wood.	
									281.6
15.0		ST		8.0	33				
									NM
								16.0	
									NM
		ST		0.0	0			No recovery.	
17.5									NM
								18.0	
									NM
		ST		0.0	0			No recovery.	
									NM
20.0								20.0	
						CL		Brown, SANDY CLAY, plastic, wet.	52.3
		ST		7.0	29				

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Client: TRW Automotive **Project Name:** Former TRW Union Springs Property

Project Number: 0496229 **Project Location:** Union Springs, NY

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						CL		Brown, SANDY CLAY, plastic, wet. *(continued)*	NM
								22.0	
22.5		ST		0.0	0			Shelby.	NM
									NM
								24.0	
		GB	GT-506(24-25)(10292019)						3.2
25.0		ST		24.0	100				0.0
						CL		Brown, CLAY, well sorted, high plasticity, saturated.	
		ST		24.0	100				1.8
27.5									0.0
								28.0	
		ST		24.0	100	CL		Brown, CLAY, trace sand, firmer toward bottom at apprx. 27.5 feet, high plasticity, saturated.	0.4
								29.0	
						SP		Brown, FINE SAND, trace clay, well sorted.	NM
30.0								30.0	
		ST		24.0	100	SP		Brown, FINE SAND, well sorted, wet.	0.2
		GB	GT-506(31-32)(10292019)						0.0
32.5									1.0

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Client: TRW Automotive **Project Name:** Former TRW Union Springs Property

Project Number: 0496229 **Project Location:** Union Springs, NY

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		ST		24.0	100	SP		Brown, FINE SAND, well sorted, wet. *(continued)*	0.1
								34.5	0.0
35.0		ST		24.0	100	SP		Brown, FINE SAND, with subrounded gravel, (0.5" diameter), dense, wet.	0.0
								36.0	
		ST		4.8	100	SP		Brown, FINE SAND, with subrounded gravel, (0.5" diameter), refusal at 36.4 feet, dense, wet.	NM
								36.4	
37.5								*Bottom of Boring @ 36.40 feet bgs*	
40.0									
42.5									

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Telephone: (631) 756-8900

GT-507

Client: TRW Automotive
Project Name: Former TRW Union Springs Property
Project Number: 0496229
Project Location: Union Springs, NY

DATE STARTED: 10/29/2019
DATE COMPLETED: 10/29/2019
DRILLING CONTRACTOR: Parratt Wolff, Inc.
DRILLING EQUIPMENT: HSA/Split Spoon
TOTAL DEPTH: 22 feet bgs
DIAMETER: 6 inches
NORTHING:
EASTING:
GROUND ELEVATION: feet amsl
GROUNDWATER LEVEL: feet bgs
LOGGED BY: Sents & Warner
CHECKED BY: E. Marcus
NOTES:

ACRONYM LEGEND
amsl = above mean sea level
PC = pre-cleared
ST = shelby tube
NM = not measured

GRAPHIC LOG LEGEND
SM Silty Sand
ML Silt
SP Poorly-graded Sand
MLS Sandy Silt
CL-ML Silty Clay
CL Low Plasticity Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		ST	GT-507(1-4)(10302019)	24.0	100	SM		Brown To Light Brown, FINE SILTY SAND, few subrounded gravel, (0.25" diameter), few organics, fine sand lenses, poorly sorted, moist.	0.0
									0.0
2.5		GB							0.0
		ST		18.0	75				0.1
						ML		3.5 Gray Brown, SILT, trace sand, little orange mottling, dense, moist. 4.0	
						SP		Brown, FINE SAND, trace silt, moist brown silt with black mottling from 5.0 to 5.5 feet, moist.	0.2
5.0		ST		11.0	46			5.5	NM
						SP		Dark Gray, FINE TO MEDIUM SAND, some gravel, (0.5" diameter), metal fragments, coal fragments, poorly sorted, moist.	0.1
								6.6	
		ST		12.0	50	ML		7.0 Brown, SILT, and subangular gravel, (1" diameter), moist.	
7.5						ML		Dark Gray To Black, SANDY SILT, with subangular gravel, (1" diameter), blue mottling, poorly sorted, low plasticity, moist. 8.0	0.6
		ST		7.0	29	ML		Dark Gray To Black, SANDY SILT, orange brown mottling, low plasticity, moist.	0.2
									NM
10.0								10.0	
		ST		18.0	75	CL-ML		Dark Gray To Black, CLAYEY SILT, trace fine sand, orange brown black mottling, poorly sorted, wet. 11.0	0.2
						SP		Gray, FINE TO MEDIUM SAND, with shell fragments, brown to black wood, some peat-like material from 11.5 to 12.0 feet, loose, moist. 12.0	1.1

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Melville, NY 11747
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Client: TRW Automotive **Project Name:** Former TRW Union Springs Property

Project Number: 0496229 **Project Location:** Union Springs, NY

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
12.5		ST	GT-507(12-15)(10302019)	24.0	100			ORGANICS, fibrous, strong sulfur odor. *(continued)*	1.3
		GB				CL-ML		13.5 Gray, SILTY SANDY CLAY, sandier toward bottom, plastic, wet. 14.0	NM
15.0		ST		24.0	100			No recovery. 16.0	1.2 / 1.0
		ST		24.0	100	CL-ML		Brown To Gray, SANDY CLAY, some subrounded gravel, (0.5" diameter), poorly sorted, low plasticity, wet. 16.5	1.6
17.5						CL		Gray Brown, CLAY, well sorted, high plasticity, wet. 17.8	0.7
						CL		18.0 Greenish Brown, CLAY, and coarse sand, plastic, wet.	
20.0		GB ST	GT-507(18-20)(10302019)	24.0	100	CL		Gray, CLAY, trace fine sand, high plasticity, wet.	0.6 / NM
		GB	GT-507(20-21)(10302019)						0.5
		ST		24.0	100	CL		21.1 Gray, SANDY CLAY, little subrounded gravel, (0.25" diameter), poorly sorted, plastic, wet. 21.5	
						CL		Gray, CLAY, trace fine sand, wet. 22.0	
22.5								*Bottom of Boring @ 22.00 feet bgs*	
25.0									

APPENDIX E CONSTRUCTION QUALITY ASSURANCE PLAN

Construction Quality Assurance Plan

Former TRW Union Springs Facility

PREPARED FOR
ZF Active Safety and Electronics US LLC

DATE
October 2025

REFERENCE
0737336



1. INTRODUCTION

ERM Consulting & Engineering, Inc. (ERM) has prepared a Canal Interim Remedial Measure (IRM) (95 Percent) Design Work Plan (DWP) on behalf of ZF Active Safety and Electronics US LLC (ZF; formerly TRW Automotive U.S. LLC [TRW]) for the Former Union Springs Facility at 107 Salem Street, Union Springs, New York (hereafter called the "Site"). TRW intends to manage portions for the Site using IRMs to expedite Site remediation in some areas of concern (AOCs).

The purpose of the IRM in the Former Canal and Northwest Corner AOCs (IRM Areas 7, 8, and 9) is to minimize the potential for ecological and human exposure to contaminants present in the surficial soils, groundwater, and sediments. IRMs to achieve the purpose include in situ sorption and solidification, a geomembrane, and a cover system that includes a permeable reactive barrier zone in Area 7; impacted sediment removal, active cap system installation, and wetlands restoration in Area 8; and soil cover in Area 9.

2. PURPOSE AND OBJECTIVES

This Construction Quality Assurance Plan (CQAP) identifies the necessary procedures for an orderly, accurate, and efficient data collection and analysis program for the project that will achieve the following objectives:

- Identify staff with the appropriate qualifications to complete data quality monitoring.
- Enable proper management of samples in the field and the laboratory.
- Establish realistic data quality goals.
- Facilitate collection of accurate, complete, and verifiable data.

2.1 INTERIM REMEDIAL OBJECTIVES

The purpose of the IRM in Areas 7, 8, and 9 is to minimize the potential for ecological and human exposure to contaminants present in the surficial soils, groundwater, and sediments. The objectives of the IRM are to mix soil within Area 7 (the buried portion of the canal) with a combination of 20 percent by weight Portland cement and 4 percent by weight powdered activated carbon. The excavated area will be restored using imported and amended clean fill materials. The fill materials will consist of clean imported sand and soil. A 10-foot PRB will be constructed where IRM Area 7 abuts IRM Area 8, consisting of a custom blend of commercially available sand (tested to balance residence time and flow through) and an amendment of 50 percent by volume zero valent iron (ZVI) to reduce concentration of volatile organic compounds (VOC) in groundwater prior to discharge to the surface water in the open canal. Soil excavated from Area 7 will be tested, and, if deemed suitable for beneficial re-use on Site, used as cover material in Area 9 (the northwest corner of the Site) over locations with shallow soil exceedances of applicable standards, or managed off-site at a permitted receiving facility.

3. QUALITY ASSURANCE OBJECTIVES

Quality objectives facilitate collection of data that are sufficient to meet the intended project goals. Quality objectives are pre-established goals that are used to monitor and assess the progress and quality of the work performed. It is essential to define quality objectives prior to

initiation of any project work to facilitate collection of data that are sufficient to meet project objectives.

Quality objectives are divided into two categories: data quality objectives (DQOs) and quality assurance objectives. The DQOs are associated with the overall project objective as it relates to data collection. The quality assurance objectives define acceptance limits for project-generated data as they relate to data quality.

3.1 DATA QUALITY OBJECTIVES

DQOs are qualitative and quantitative criteria required to support the decision-making process. DQOs define the uncertainty in a data set and are expressed in terms of precision, accuracy, representativeness, completeness, and comparability. The DQOs apply to both characterization and confirmation samples at the Site. These parameters are defined as follows:

- Precision: a measure of mutual agreement among measurements of the same property usually under prescribed similar conditions. Precision is best expressed in terms of the standard deviation. Various measures of precision exist depending upon the “prescribed similar conditions.”
- Accuracy: the degree of agreement of a measurement (or an average of measurements) with an accepted reference of “true value.” Accuracy is one estimate of the bias in a system.
- Representativeness: expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition
- Completeness: a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under correct normal conditions.
- Comparability: expresses the confidence with which one data set can be compared with another. Comparability is a qualitative measurement. Comparability is assessed by reviewing results or procedures for data that do not agree with expected results.

It is the responsibility of the field team to collect representative and complete samples. It is the responsibility of the field-screening chemist at the laboratory to analyze these samples using accepted protocols resulting in data that meet precision, accuracy, representativeness, completeness, and comparability standards.

3.2 FIELD SAMPLING QUALITY OBJECTIVES

The overall quality of sample results depends on proper sample management. Management of samples begins at the time of collection and continues throughout the analytical process. To facilitate proper sample collection and management, properly and consistently, field procedures for sample collection procedures have been established for the project. The laboratory also has procedures that facilitate proper and consistent analytical processes.

Field procedures include descriptions of equipment and processes required to perform a specific task. The purpose is to increase reproducibility and to document each of the steps required to perform the task. Approved and correctly implemented field procedures should produce data of acceptable quality that meet project DQOs.

3.3 LABORATORY DATA QUALITY OBJECTIVES

The laboratory will demonstrate analytical precision and accuracy by the analysis of laboratory duplicates and by adherence to accepted manufacture and procedural methodologies.

The performance of the laboratory will be evaluated by the Project Manager and Project Quality Assurance Officer during data reduction. The evaluation will include a review of all deliverables for completeness and accuracy when applicable.

4. QUALITY CONTROL PROCEDURES

This section presents a general overview of the quality assurance and quality control procedures that will be implemented during the investigation in the field and in the laboratory (for selected analyses).

4.1 FIELD QUALITY CONTROL ACTIVITIES

Several types of field QC samples will be collected and submitted for analysis during the project. Each type of QC sample monitors a different aspect of the field effort. Analytical results for QC samples provide information regarding the adequacy of the sample collection and transportation of samples.

The frequency of field QC samples collected will depend on the total number of samples being collected. Specifics of the sampling activities, including collection frequency and sampling procedures, are described in the field procedures.

4.1.1 FIELD QUALITY CONTROL FOR LABORATORY SUBMISSIONS

The six types of field QC samples that will be generated during the project for samples being submitted to the project laboratory for confirmation and compliance purposes and are defined below. The QC sampling outlined below will not be applied to waste characterization or analysis of imported materials for regulatory approval.

- Trip blanks: Trip blank samples monitor for contamination due to handling, transport, cross contamination from other samples during storage, or laboratory contamination (volatile organic compounds analysis only).
- Temperature blank: temperature blanks are used to monitor temperature within a sample cooler. Temperature blank results that are outside of acceptable limits (2° to 6° C) indicate possible sample preservation issues and may require qualification of data or the recollection of samples.
- Rinsate (Field/Equipment) blanks: Rinsate or field/equipment blank samples are used to monitor reusable equipment decontamination procedures. If dedicated or disposable equipment is used, then rinsate blanks will not be analyzed.
- Field (Blind) duplicates: Field or blind duplicates are used to monitor field and laboratory precision, as well as matrix heterogeneity.
- Matrix Spikes: Matrix Spikes are used to monitor precision and accuracy of the analytical method on various matrices.

4.1.2 FIELD QUALITY CONTROL AND FIELD VERIFICATION

A PRB will be installed hydraulically downgradient of the ISS monolith. A custom blend of sand, which has been verified in the laboratory to meet permeability and groundwater residence time specifications, will be imported to the Site. The ZVI and sand procured for installation will be approved by the engineer of record that it meets the technical specifications. These materials will also be approved by the NYSDEC for import to the Site. The sand will be mixed on Site to a 40:60 ratio of sand and ZVI. The quality control field testing method to verify and document the ratio of sand and ZVI is outlined below:

1. Samples will be dried on a hot plate.
2. A magnet rated for 500-pound lifting capacity will be placed over the now dry sample to remove any remaining magnetically susceptible materials from the soil sample.
3. Visually inspect the magnetically susceptible materials to verify they consist of mostly ZVI.
4. Weigh each sample material and calculate a dry weight ratio of magnetically susceptible materials to that of the entire soil sample.
5. If a sample does not meet the 60 percent ZVI target, additional ZVI or sand will be added and mixing will be conducted, and the mix will be retested. This step will be repeated until the magnetic separation has determined the ZVI meets the minimum required percent by weight. Once the required mix ratio has been achieved, 20-ton batches will be prepared at a time for quality control testing.

4.2 LABORATORY QUALITY CONTROL ACTIVITIES

Laboratory QC samples will include the use of method blanks, matrix spikes, laboratory control samples, laboratory duplicates, and surrogate spikes. The five types of laboratory QC samples are defined below.

- Method blanks: Method blanks are used to monitor and ensure that the analytical system is free of contamination due either to carryover from previous samples or from laboratory procedures.
- Matrix Spike samples: Matrix Spike samples monitor and assess the effects of the sample matrix on the sample analysis and verify the accuracy and precision of the analysis.
- Laboratory Control samples: Laboratory control samples are used to monitor the accuracy of the analytical procedure without the potential interferences of a matrix.
- Laboratory Duplicate samples: Laboratory duplicate samples are used to monitor and assess laboratory precision, as well as potential matrix heterogeneity.

5. CALIBRATION PROCEDURES

Calibration is an integral part of generating properly quantitated results. Instruments that are not calibrated either to manufacturers and/or method specifications are likely to produce unreliable results. Proper procedures must be followed and sufficient documentation maintained to demonstrate that calibrations are performed correctly and that sample quantitations accurately reflect sample concentrations.

During the course of this investigation, instruments that may be used in the field in conjunction with sampling activities include a photoionization detector (PID) and particulate (i.e., dust) meters. A maintenance, calibration, and operation program will be implemented for field instruments used at the Site. The program will be monitored by the Field Team Leader. Trained team members will perform scheduled calibration, field calibrations, checks, and instrument maintenance prior to use each day. Additionally, calibration will be checked as necessary to ascertain that proper measurements are being taken.

Team members who are familiar with the field calibration, operation, and maintenance of the equipment will perform the prescribed field operating procedures outlined in the operation and field manuals accompanying the respective instruments. Field personnel will keep records of field instrument calibrations and field checks in the field logbooks. Calibration information recorded in field logbooks will include date, time, instrument model and serial number, a description of calibration or field check procedure, and instrument deviations.

If on-site monitoring equipment should fail, the Field Team Leader will be contacted immediately. Replacement equipment will be provided or the malfunction will be repaired in a timely fashion.

6. ANALYTICAL PROCEDURES AND DATA EVALUATION

Investigation media will be collected for a subset or all of the following analytes: VOCs, semi volatile organic compounds (SVOCs, with 2-chloronaphthalene as the proxy for polychlorinated naphthalenes [PCNs]), United States Environmental Protection Agency (USEPA) priority pollutant metals (PP-13), dissolved gases (ethene, ethane and methane) total organic carbon (TOC), total dissolved organic carbon (DOC), hardness, simultaneously extracted metals/acid-volatile sulfide (SEM/AVS), and pesticides. In general, laboratory analytical procedures will adhere to USEPA SW-846 methodology, although other methods will be utilized as appropriate. Quality Assurance/Quality Control (QA/QC) samples will be analyzed at frequency of 1 set per 20 samples. Samples will be analyzed by a New York State Department of Health (NYSDOH)-approved environmental laboratory familiar with Contract Laboratory Protocols (CLP).

Upon receipt of analytical reports from the laboratory, ERM will evaluate data packages and confirm that samples were analyzed within required holding time and at proper detection limits. The laboratory will provide NYSDEC Analytical Services Protocol (ASP) Category B deliverables.

The project QA/QC officer will review the data packages and prepare a Data Usability Summary Report (DUSR) in accordance with NYSDEC guidance in DER-10 (NYSDEC, 2010). At a minimum, the following information will be evaluated:

- Chain-of-custody forms
- Date sampled/date analyzed
- Sample temperature at check-in
- Raw data
- Initial and continuing instrument calibrations
- Matrix spikes
- Laboratory duplicate analyses

- Laboratory control samples (inorganics)

Data reduction will consist of presenting analytical results on summary tables. Data resulting from investigation analyses will then be used to evaluate potential remedial options.

7. PROJECT PERSONNEL

ERM will staff this project with persons having expertise in the tasks to be performed and experience working on NYSDEC-regulated sites. Key project personnel that will be involved with this project are summarized below.

Ernie Rossano. will be the Partner-in-Charge for this project. Mr. Rossano has over 38 years' experience and is a senior partner in charge of ERM's Charlotte, NC Office. He is responsible for the execution of numerous environmental projects. Projects include Brownfield redevelopment, real estate transactions, remediation of contaminated industrial sites, permitting, compliance auditing and various elements of sustainability. He has overall responsibility for monitoring the quality of the technical and managerial aspects of the project.

Robert Sents will be the project manager and lead geologist for this project. Mr. Sents has over 20 years of diversified environmental consulting experience including project management and supervision of large, complex, and multidisciplinary site investigation and remediation projects and regulatory negotiations. Mr. Sents is experienced with NYSDEC remediation programs and will be responsible for coordination and detailed technical aspects of the project and management of all field activities. Mr. Sents will be the Qualified Environmental Professional on this project.

Jim Vincent will serve as the construction manager. be the field team lead and Field Safety Officer (FSO) for this project. Mr. Vincent has over 39 years of professional experience. He has been the FSO and Construction Manager on many large remediation projects and his responsibilities included inspection and verification of construction activities to ensure the work was completed in conformance with project specifications.

Alexis Harford will be the field team lead and Field Safety Officer (FSO) for this project. Ms. Harford has over four years of professional experience. She has performed many field investigation projects, including projects at designated Brownfield Cleanup Program (BCP) and EPA Superfund sites. Ms. Harford will be responsible for implementing the HASP, SSC protocols, and field activities.

Kevin Warner will be the QA/QC Officer for this project. Dr. Warner has 6 years of environmental consulting experience and holds a PhD in Biology & Marine Science. His environmental consulting experience, including analytical data validation, sampling and analysis programs, quality assurance programs, technical support, project data management and visualization, and QA oversight. Dr. Warner has knowledge of numerous analytical methodologies and experience in data validation of analytical data package deliverables for adherence to USEPA CLP and non-CLP and NYSDEC ASP protocols. Dr. Warner will be responsible for establishing and maintaining an accurate and representative database for data collected during the investigation, monitoring data quality, conducting data review, and coordination of the preparation of DUSR using third-party in accordance with NYSEDC guidelines.

APPENDIX F SAMPLING AND ANALYSIS PLAN

Sampling and Analysis Plan

Former TRW Union Springs Facility

PREPARED FOR
ZF Active Safety and Electronics US LLC

DATE
04 November 2025

REFERENCE
0737336



1. INTRODUCTION

ERM Consulting & Engineering, Inc. (ERM) has prepared a Canal Interim Remedial Measure (IRM) (95 Percent) Design Work Plan (DWP) on behalf of ZF Active Safety and Electronics US LLC (ZF; formerly TRW Automotive U.S. LLC [TRW]) for the Former Union Springs Facility at 107 Salem Street, Union Springs, New York (hereafter called the "Site"). TRW intends to manage portions for the Site using IRMs to expedite Site remediation in some areas of concern (AOCs).

The purpose of the IRM in the Former Canal and Northwest Corner AOCs (IRM Areas 7, 8, and 9) is to minimize the potential for ecological and human exposure to contaminants present in the surficial soils, groundwater, and sediments. IRMs to achieve the purpose include in situ sorption and solidification, a geomembrane, and a cover system that includes a permeable reactive barrier zone in Area 7; impacted sediment removal, active cap system installation, and wetlands restoration in Area 8; and soil cover in Area 9.

This Sampling and Analysis Plan (SAP) addresses sampling activities to be conducted as part of the IRMs. This SAP addresses sampling of groundwater, surface water, imported fill materials, and excavated soil and sediment (for re-use/disposal characterization). The SAP includes information on sampling equipment and procedures, and sample handling and analysis.

1.1 INTERIM REMEDIAL OBJECTIVES

The purpose of the IRM in Areas 7, 8, and 9 is to minimize the potential for ecological and human exposure to contaminants present in the surficial soils, groundwater, and sediments. The objectives of the IRM are to mix soil within Area 7 (the buried portion of the canal) with a combination of 20 percent by weight Portland cement and 4 percent by weight powdered activated carbon. The excavated area will be restored using imported and amended clean fill materials. The fill materials will consist of clean imported sand and soil. A 10-foot PRB will be constructed where IRM Area 7 abuts IRM Area 8, consisting of a custom blend of commercially available sand (tested to balance residence time and flow through) and an amendment of 50 percent by volume zero valent iron (ZVI) to reduce concentration of volatile organic compounds (VOC) in groundwater prior to discharge to the surface water in the open canal. Soil excavated from Area 7 will be tested, and, if deemed suitable for beneficial re-use on Site, used as cover material in Area 9 (the northwest corner of the Site) over locations with shallow soil exceedances of applicable standards, or managed off-site at a permitted receiving facility.

2. SAMPLING OVERVIEW AND PROCEDURES

Contamination in Areas 7, 8, and 9 in excess of applicable standards consists of VOCs, SVOCs, metals, PCNs, and pesticides. For the purposes of this SAP, a summary of the characteristics and constituents of concern proximal to the proposed IRM area is presented in Table 1 in Section 2.4.

2.1 FIELD EQUIPMENT CALIBRATION AND MAINTENANCE

Field equipment requiring calibration will be calibrated according to the manufacturers' recommendations, where applicable. ERM personnel and/or their subcontractors will be responsible for performing and documenting equipment calibration. Frequency of instrument calibration will be dictated by the type of measurement device. The calibration frequency,

calibration acceptance criteria, and the corrective actions required for out-of-calibration instruments will be obtained from the manuals for the equipment. Records of calibrations (both frequency and results) will be kept in the project-specific field logbook. The information in the field logbook will include (as appropriate): the make, model, and serial number of the instrument being calibrated; the type and/or concentration ("true value") of calibration standard used; the instrument span settings; the time, date, prevailing weather conditions, and name of the person performing the calibration; and any corrective action required for the instrument based on calibration results.

Field equipment will be maintained in accordance with manufacturers' recommendations. Equipment failing to calibrate or otherwise malfunctioning will be returned to the rental equipment supplier, and replaced with properly functioning (i.e., capable of proper use and calibration) equipment; repaired on Site (which will be noted in the field logbook); or discarded.

Field equipment will be stored (when not in use) in a clean, controlled environment (e.g., in the onsite Mill Building, temporary job trailer) to prevent damage due to heat, cold, moisture, and dust. Reusable equipment will be decontaminated as soon as reasonably possible after use and stored. Decontamination procedures for field equipment are described in Section 2.4 of this SAP.

2.2 SOIL AND SEDIMENT SAMPLING PROCEDURES

The following sampling procedures will be used for the soil and sediment samples.

2.2.1 IMPORT CHARACTERIZATION

Representative samples of imported material from off-Site sources will be collected for geotechnical and environmental parameter characterization. The purpose of this sampling is to confirm the soils meet 6 New York Codes, Rules and Regulations Part 360 requirements for appropriate constituents of concern. Analytical results will be submitted to the New York State Department of Environmental Conservation (NYSDEC) for pre-approval prior to import. Analytical methods and sample frequency will be consistent with those presented in DER-10 Table 5.4(e)10, and detection limits will be sufficient to determine compliance with applicable NYSDEC Soil Cleanup Objectives. The import material will be sampled before transporting the material to the Site to ensure that the materials meet requirements. ERM will maintain documentation demonstrating that each load of imported fill came from an approved source and will provide copies of these documents in the construction completion report.

Samples for environmental parameter analysis will be collected using decontaminated stainless steel or disposable sampling utensils/devices, such as spoons or trowels. The sample aliquot may be placed directly into the appropriate, clean laboratory-supplied sample jar; alternatively, the sample aliquot may be first placed into a stainless-steel bowl and then transferred into the appropriate, clean laboratory-supplied sampling jars. Samples for VOC analysis will be collected with an En Core®, Terra Core® Sampler or equivalent sampling devices. Immediately following collection and containerization, samples will be labeled and transferred to a cooler maintained at 4 degrees Celsius (°C) and will be maintained under chain of custody protocol to document the handling and transfer process.

Rocks, twigs, leaves, and other debris will be removed from the sample if they are not considered part of the sample. The sampling equipment used to collect environmental parameter samples will

be decontaminated, as described in Section 2.5, before each use. Environmental Laboratory Approval Program accredited laboratories will perform the sample analysis.

2.2.2 EXCAVATED SOIL AND SEDIMENT

Representative composite samples of the excavated soil and sediment will be collected by oversight personnel in accordance with NYSDEC guidelines. Soil from the top 5 feet of Area 7 will be sampled for the purpose of a beneficial re-use authorization from NYSDEC. Sediment will be sampled before transport from the Site to ensure that it meets disposal facility requirements.

The samples will be 5-point composite samples, with the composite aliquots collected from locations distributed nominally equivalently across the stockpile of excavated sediment to be characterized. The aliquots will be collected from approximately 0 to 1 foot within the stockpiled material. The samples will be collected at a frequency as required by the disposal facility or, if not specified by disposal facility, at a minimum frequency of 1 per 1,000 cubic yards. If the physical characteristics of the excavated materials appear to vary significantly, additional samples will be collected to verify the chemical characteristics of the soil or sediment.

Samples will be collected using decontaminated stainless steel or disposable sampling utensils/devices, such as spoons or trowels. During collection, the composite sample aliquots will be placed into a stainless-steel bowl, thoroughly homogenized, and then transferred into clean laboratory-supplied sampling jars. Samples for VOC analysis will not be homogenized prior to containerization. Immediately following collection and containerization, samples will be labeled and transferred to a cooler maintained at 4°C. The sampling equipment will be decontaminated before each use.

Rocks, twigs, leaves, and other debris will be removed from the sample if they are not considered part of the sample. The sampling equipment used to collect environmental parameter samples will be decontaminated, as described in Section 2.5, before each use. Eurofins Test America will perform the sample analyses.

2.3 WASTE NOTIFICATION AND COMMUNICATION

For all monitoring events, groundwater samples will be collected along with the collection of field measurements including pH, oxidation reduction potential, conductivity, and dissolved oxygen. Sampling logs will be completed for each monitoring well for each sampling event to document the field parameters. Groundwater samples will be analyzed for CVOCs by United States Environmental Protection Agency (USEPA) Method 8260B. Each event will include the following quality assurance and quality control samples: duplicate, matrix spike and matrix spike duplicate, trip blank, and equipment rinsate blank. Quality assurance and quality control samples will be submitted for VOC analysis by USEPA Method 8260B.

2.4 FIELD SAMPLE COLLECTION, HANDLING, AND SHIPMENT

Samples will be collected and handled according to the appropriate analytical protocols for each matrix and analytical test. The types of containers, weights/volumes needed, and preservation techniques for the proposed testing parameters are presented below.

TABLE 1

Analyte/Method	Weight/ Volume	Container/Preservation	Holding Times (extraction)
Fill Soil/Topsoil			
Metals—SW-846 6010B and 7470A (Hg)	4 oz. (100 g)	Plastic or glass, cool to 4°C	6 months (28 days for mercury)
VOCs—SW-846 8260	En Core® (3@ 5 g each)	En Core®, cool to 4°C	48 hours
SVOCs—SW-846 8270	4 oz.	Glass, cool to 4°C	14 days
TPH—NJDEP OQA-QAM-025 Rev. 6	4 oz. (100 g)	Glass, cool to 4°C	14 days
Geotechnical Tests—methods vary (refer to Table 1 of CQAP)	1 gallon	Ziploc (or equivalent) plastic bag, no preservation needed	NA
Horticultural Tests (organic carbon, pH)— [topsoil only]	8 oz.	Ziploc (or equivalent) plastic bag, no preservation needed	NA
Excavated Sediment			
TCLP Metals—SW-846 1311 (TCLP non-volatile extraction), 6010B and 7470A (Hg)	4 oz.	Plastic or glass, cool to 4°C	14 days
PCBs—SW-846 8082	4 oz.	Glass, cool to 4°C	14 days
TCLP VOCs—SW-846 1311 and 8260	4 oz.	Glass, cool to 4°C	48 hours
TCLP SVOCs—SW-846 1311 and 8270	4 oz.	Glass, cool to 4°C	14 days
Paint Filter Test—SW-846 9095A	500 g	Glass, none	NA
pH—SW-846 9045C	50 g	Glass, cool to 4°C	Immediately upon receipt
Moisture—SM20 2540 G or USEPA 160.3 modified	50 g	Glass, none	NA
TPH—NJDEP OQA-QAM-025 Rev. 6	4 oz. (100 g)	Glass, cool to 4°C	14 days
Aqueous Samples			
PCBs—SW-846 8082	1 liter	Amber glass, cool to 4°C	7 Days
Metals – SW-846 6010B and 7470A (Hg)	500 ml	Plastic, nitric acid to pH < 2	6 months (28 days for mercury)
VOCs—SW-846 8260B	3 @ 40 ml	Glass, cool to 4°C, HCl to pH < 2	14 days
pH—SW-846 9045C	50 ml	Plastic or glass, cool to 4°C	Immediately upon receipt

Analyte/Method	Weight/ Volume	Container/Preservation	Holding Times (extraction)
TOC—SM5310C	125 ml	Glass, cool to 4°C, H_2SO_4 to pH < 2	28 days
TSS—SM2540D	500 ml	Plastic, cool to 4°C	7 days

g = gram; ml = milliliter; NA = not applicable; NJDEP = New Jersey Department of Environmental Protection; oz. = ounce; PCB = polychlorinated biphenyl; TCLP = toxicity characteristic leaching procedure; TOC = total organic carbon; TPH = total petroleum hydrocarbon; TSS = total suspended solids

Samples will be collected and handled according to the appropriate analytical protocols for each matrix and analytical test. The types of containers, weights/volumes needed, and preservation techniques for the proposed testing parameters are presented below.

During sample collection, sample containers will be labeled with the following information:

- Site identifier (TRW)
- Sample type (grab or composite) and media (soil, sediment or water) and identification code
- Analysis identifier
- Date and time of collection
- Type of preservative added (if applicable)
- Sample collector's initials

For waste characterization samples, the waste container identification number(s), the letters “WC,” and the date of sampling will be incorporated into the unique sample identification, where possible.

All fill, soil, dewatered sediment, and aqueous effluent sample shipments to laboratories are expected to be exempt from the Resource Conservation Recovery Act and United States Department of Transportation shipping regulations.

To ensure data of acceptable quality and samples that are representative, procedures to minimize sample degradation or contamination will be implemented. These procedures include preservation of the samples (as needed), as well as proper sample packaging and shipping. Sample bottles (preserved, if necessary), labels, and shipping containers, will be provided by the laboratory. Trip blanks and field / equipment blanks will not be collected normally, unless prior analytical data indicate a concern of potential cross-contamination during sample collection and/or transport. Samples will be shipped within 24 hours of collection. Packing and shipping procedures for samples requiring chemical analysis are presented in Section 5.

2.5 DECONTAMINATION PROCEDURES

Decontamination procedures for sampling equipment are given below. The purpose of these procedures is to ensure that cross-contamination of samples does not occur.

Sampling equipment will be decontaminated into a container that will then be brought to the decontamination area for consolidation and disposal with other decontamination water. Alternatively, the sampling equipment will be decontaminated directly in the decontamination area. This decontamination area is sufficiently large for both vehicle and equipment decontamination.

2.6 MANAGEMENT OF INVESTIGATION-DERIVED WASTE

Both solid and liquid investigation-derived wastes will be generated during excavation and cover activities. Solid wastes will generally include non-hazardous (based on generator knowledge and prior site-specific characterization) personal protective equipment, and disposable sampling equipment and supplies. Liquid wastes will consist of decontamination fluids such as wash water, groundwater, and contact water.

Waste handling and disposal activities will be performed consistently with procedures specified in Soil Management Plan.

2.6.1 SOLID WASTE

Personal protective equipment, disposable sampling equipment and supplies, and excess sample materials generated during sampling activities will be placed in designated containers (e.g., 55-gallon steel drums or a rolloff dumpster) being used for similar waste generated from the IRM construction work.

2.6.2 LIQUID WASTES

During the IRM, groundwater and contact water generated—including excavation dewatering, sediment dewatering, surface water bypass, and decontamination water will be managed in accordance with applicable NYSDEC regulations and under the site-specific BCP requirements. The management strategy is designed to prevent uncontrolled discharge, minimize environmental impacts, and ensure compliance with all applicable water quality standards. Water generated during the IRM will be collected on-site in temporary containment (e.g., fractionation tanks or equivalent) and conveyed to a temporary treatment system provided by the remedial subcontractor. Treatment will be designed to achieve compliance with either a NYSDEC SPDES General Permit for Discharges of Treated Groundwater (GP-0-20-001) or other applicable discharge permits.

Contact water will be actively controlled throughout the IRM, ISS, and backfill process. Sumps and collection points will be used to manage water accumulation to maintain safe working conditions and support proper handling of soils and sediments. The approach will not involve large-scale dewatering using well-point systems; rather, water will be removed incrementally as necessary to:

- Depress the active earthwork / excavation / ISS area as needed for execution
- Reduce moisture of excavated materials prior to off-site disposal or potential on-site beneficial reuse, subject to NYSDEC review and approval; and
- Allow placement of the reactive core mat, geomembranes, structural fill and restoration.

Once collected, water will be staged in tanks. Treatment will presumptively include bag filtration, activated carbon treatment, and/or equivalent methods to remove suspended solids and anticipated contaminants of concern Samples will be collected to ensure treatment has been achieved to meet permit limits prior to being discharged under the appropriate NYSDEC permit or transported off-site to a fully permitted treatment and disposal facility. This approach ensures that all water management practices are protective of surface and groundwater resources while maintaining operational flexibility during the IRM.

3. SAMPLE CUSTODY REQUIREMENTS

The possession and proper transfer of samples and sample-related information must be traceable from the time the samples are collected until the data have been received. The following subsections summarize the general aspects of custody and how they will be applied and managed during the course of the project. A sample or sample-related information (sample or evidence file) is under an individual's custody if it:

- Is in the individual's possession;
- Is in the individual's view, after being in the individual's possession;
- Is in the individual's possession and the individual places the samples and/or sample information in a secure location; or
- Is in a secure, designated place.

3.1 CHAIN OF CUSTODY PROCEDURES

The sample packaging and shipment procedures summarized below and in Section 5.0 will ensure that all samples arrive at the laboratory with the chain-of-custody intact.

When transferring the possession of samples, the individuals relinquishing and receiving the samples will, respectively, sign, date, and note the time on the chain of custody form. Additional sample handling and custody procedures to ensure sample integrity are presented in Sections 3.2 and 3.3 below.

Whenever samples are split with another source (e.g., a government agency), a separate sample receipt will be prepared for those samples and marked to indicate with whom the samples are being split. The person relinquishing the samples to the facility or agency should request the representative's signature acknowledging sample receipt. If the representative is unavailable or refuses, this should be noted in the "Received By" space.

3.2 FIELD CUSTODY PROCEDURES

Field procedures to ensure sample integrity are implemented between sample collection and courier pickup/delivery to the express service, as follows:

- The field sampler is responsible for the care and custody of the samples until they are transferred or properly dispatched. As few people as possible should handle the samples.
- All bottles will be labeled with the appropriate sample numbers and locations.
- Sample labels are to be completed for each sample using waterproof ink unless infeasible because of weather conditions.

3.3 LABORATORY CHAIN OF CUSTODY PROCEDURES

Laboratory custody procedures for sample receiving and log-in, sample storage, tracking during sample preparation and analysis, and storage of data will be described in the laboratory's Quality Assurance (QA) Plan. All laboratory handling and custody procedures must conform to USEPA requirements. A brief summary of the required laboratory custody and sample handling procedures is presented below.

The laboratory's QA officer or designee will ensure that the chain-of-custody records are signed by the laboratory's representative upon receipt of the samples, including any necessary observations concerning sample integrity or temperature. The laboratory's QA officer will also ensure that sample-tracking records are maintained. These records will follow each sample through all stages of laboratory processing. The sample tracking records must show the date of sample extraction or preparation and the date of instrument analysis. These records will be used, in part, to determine compliance with holding time requirements.

4. FIELD LOGBOOK/DOCUMENTATION

Field logbooks will be used to document data collection activities performed in the field. Entries will contain sufficient detail, including sketches when necessary, to reconstruct a particular situation without reliance on memory. A summary of field documentation requirements is presented below.

Field logbooks will be bound field survey books or notebooks. Logbooks will be assigned to field personnel but will be stored in a designated document control area in the Mill Building when not in use. Each logbook will be identified by the project-specific document number. The title page of each logbook will contain the following:

- Project name
- Project number
- Project start date

At the beginning of each entry, the date, start time, weather, names of all sampling team members present, and purpose of visit will be entered into the field logbook. The names of visitors to the Site and the purpose of their visit will also be recorded in the field logbook.

Measurements made and samples collected will be recorded. All entries will be made in ink (if possible), and no erasures will be made. If an incorrect entry is made, the information will be crossed out with a single strike mark and initialed and dated by the person making the correction. Whenever a sample is collected, or a measurement is made, a detailed description of the location of the station will be recorded. The number of photographs taken of the sample location, if any, will also be noted. All equipment used to make measurements will be identified, along with information relative to calibration of the instrument as described in Section 2.1 above.

The equipment used to collect samples will be noted, along with the time of sampling, sample description, sample volume, and number of containers. Sample identification numbers will be assigned prior to sample collection.

Appropriate documentation of field equipment/instrument maintenance will be kept by the field personnel responsible for it and will include what was done, date, time (if appropriate), next scheduled maintenance, equipment status, anomalies, and person performing maintenance. This documentation will be entered into field logbooks, or into specific maintenance log forms for maintenance activities conducted at locations other than at the Site.

5. SAMPLE DROPOFF PROCEDURE

The following procedures will be used for sample dropoff:

1. Ensure that all sample containers are correctly labelled.
2. Enclose sample containers in closed plastic bags to prevent spillage in the event of container breakage in transit.
3. Fill spaces between the sample containers with ice (if required to preserve samples).
4. Ensure all containers are firmly packed in ice.
5. Check that the chain-of-custody form was signed and completed properly (sample number, location, analytes to be tested, and number of sample containers, plus remarks on concentrations, if known). Indicate the time and date it was relinquished to lab personnel. Retain copies of all forms.

APPENDIX G SOIL MANAGEMENT PLAN

Soil Management Plan

Former TRW Union Springs Facility

PREPARED FOR
ZF Active Safety and Electronics US LLC

DATE
31 October 2025

REFERENCE
0737336



1. INTRODUCTION

ERM Consulting & Engineering, Inc. (ERM) has prepared a Canal Interim Remedial Measure (IRM) (95 Percent) Design Work Plan (DWP) on behalf of ZF Active Safety and Electronics US LLC (ZF; formerly TRW Automotive U.S. LLC [TRW]) for the Former Union Springs Facility at 107 Salem Street, Union Springs, New York (hereafter called the "Site"). TRW intends to manage portions for the Site using IRMs to expedite Site remediation in some areas of concern (AOCs).

The purpose of the IRM in the Former Canal and Northwest Corner AOCs (i.e., IRM Areas 7, 8, and 9) is to minimize the potential for ecological and human exposure to contaminants present in the surficial soils, groundwater, and sediments. IRMs to achieve the purpose include in situ sorption and solidification, a geomembrane, and a cover system that includes a permeable reactive barrier zone in Area 7; impacted sediment removal, and active cap system installation, and wetlands restoration in Area 8; and soil cover in Area 9.

2. INTERIM REMEDIAL OBJECTIVES

The purpose of the IRM in Areas 7, 8, and 9 is to minimize the potential for ecological and human exposure to contaminants present in the surficial soils, groundwater, and sediments. The objectives of the IRM are to mix soil within Area 7 (the buried portion of the canal) with a combination of 20% by weight Portland cement and 4% by weight powdered activated carbon. The excavated area will be restored using imported and amended clean fill materials. The fill materials will consist of clean imported sand and soil. A 5- to 10-feet PRB will be constructed where IRM Area 7 abuts IRM Area 8, consisting of a custom blend of commercially available sand (tested to balance residence time and flow through) and an amendment of 50% by volume zero valent iron (ZVI) to reduce concentration of VOC in groundwater prior to discharge to the surface water in the open canal). Soil excavated from Area 7, will be tested, and if deemed suitable for beneficial re-use on Site will be used as cover material in Area 9 (the northwest corner of the Site) over locations with shallow soil exceedances of applicable standards or managed off-site at a permitted receiving facility.

3. CONSTITUENTS OF CONCERN

The primary contaminants identified in soil to a depth of 20 feet and groundwater in the IRM area are chlorinated volatile organic compounds (CVOCs), polychlorinated naphthalenes (PCNs), pesticides, metals, and polycyclic aromatic hydrocarbons (PAHS).

3.1 SOIL

Materials that may become IDW and require proper management include:

- Excavated soil;
- Decontamination fluids, such as wash water;
- PPE; and
- Disposable sampling equipment.

As manufacturing expanded at the Site in the 1950s, several additions were made to the mill building. To accommodate these expansions, a portion of the canal and the area north of the mill building were filled to extend Howland Street and to construct the shipping and receiving parking lot. In the buried portion of the canal, several inches to several feet of decayed organic material is present above the glaciolacustrine clay (GLC) and is overlain by fill material, including industrial and construction debris, reworked native and imported soil.

3.2 GROUNDWATER

COCs present within the materials used to backfill the canal are one of two sources that impact shallow groundwater (i.e., defined as less than 20 feet below ground surface) quality in this AOC. The second source is dissolved phase CVOCs that migrate into the Canal AOC with groundwater flow from the South and North Field AOCs. Groundwater within the buried portion of the former canal (Area 7) flows to the west and discharges to the open portion of the canal (Area 8). Upward vertical hydraulic gradients in the underlying hydrogeologic unit limit the potential for contaminated shallow groundwater to migrate downward. PAHs and PCNs were detected in shallow groundwater at concentrations above applicable regulatory criteria. These COCs do not typically generate large-scale groundwater plumes because they exhibit low solubility, and PAHs have a strong tendency to sorb to organic particulates present in soil.

4. SOIL MANAGEMENT

Soil management for this IRM will include the excavated material from Area 7 as well as the imported fill material to be placed in Area 7. As such, soil management will consist of soil import and staging, soil waste characterization with the ambition of beneficial re-use on Site, and soil waste disposal.

4.1 IMPORTED MATERIAL

Three types of material will be imported to the Site during the execution of the IRMs: Sand(s), zero valent iron (ZVI), and clean cover topsoil as necessary. Clean cover topsoil will only be imported in the case that excavated soils from Area 7 are not deemed suitable for beneficial re-use on the Site. ZVI is an amendment material and does not require pre-import characterization.

Representative samples imported material from off-Site sources will be collected for characterization prior to import. Analytical results will be submitted to the NYSDEC for pre-approval. Analytical methods will be consistent with those presented in the QAPP (ERM 2015) and detection limits will be sufficient to determine compliance with SCOs. Category B deliverables will be provided to NYSDEC. The import material will be sampled before transport of the material to the Site to ensure that the materials meet requirements. ERM will maintain documentation demonstrating that each load of imported fill came from an approved source and will provide copies of these documents to NYSDEC.

4.2 WASTE CHARACTERIZATION

Soil from the top 5 feet of Area 7 will be removed from the area and stockpiled for characterization. Representative samples of the excavated soil and sediment will be collected by ERM personnel in accordance with NYSDEC guidelines. Sediment will be sampled before transport from the Site to ensure that it meets disposal facility requirements. Once the excavated areas have been completed and all soil transported to the stockpile areas, soil samples will be collected from each stockpile for waste classification analyses in accordance with Table 5.4(e)10 from NYSDEC DER-10 Section 5.4 (10) (see below).

Table 5.4(e)10 Recommended Number of Soil Samples for Soil Imported To or Exported From a Site			
Contaminant	**VOCs**	**SVOCs, Inorganics & PCBs/Pesticides**	
Soil Quantity (cubic yards)	**Discrete Samples**	**Composite**	**Discrete Samples/Composite**
0-50	1	1	3-5 discrete samples from different locations in the fill being provided will comprise a composite sample for analysis
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1000	7	2	
➢ 1000	Add an additional 2 VOC and 1 composite for each additional 1000 Cubic yards or consult with DER		

Sampling locations will be determined by stockpile geometry but shall be randomly placed to be representative of the stockpile contents. Samples will be collected from at least one foot into the soil stockpile using a shovel, hand auger, or small backhoe. Samples will be collected using a pre-cleaned stainless-steel spoon if a hand auger is not utilized and placed directly into laboratory glassware.

4.2.1 BENEFICIAL RE-USE

In addition to waste characterization, soil from the top 5 feet of Area 7 will be sampled for the purpose of a beneficial re-use authorization from NYSDEC.

Table 5.4(e)4 Reuse of Soil [for Paragraph 5.4(e)4]		
Soil on the Site Meets:	**Reuse on the Site:**	**Off-site Export & Reuse:**
Unrestricted Soil SCGs	Without restrictions	Without restrictions
Meets the Applicable Use-based and Groundwater Protection SCG and where Appropriate Protection of Ecological Resources Soil SCGs for a Site w/ an IC & SMP.	In the soil cover/cap or as backfill within the area of the site subject to the IC.	Not Allowed, unless going to a site with IC subject to a 6 NYCRR Part 360 Beneficial Use Determination (BUD).
Meets Site-Specific Background Soil Levels.	Without restrictions. (Does not apply to sites in the BCP.)	Not Allowed, unless going to a site with IC subject to a 6 NYCRR Part 360 BUD.
Site-specific cleanup goals for subsurface soil	Placement below the soil cover/cap within the area of the site subject to the IC.	Not Allowed, unless going to a site with IC subject to a 6 NYCRR Part 360 BUD.

4.3 WASTE DISPOSAL

Any excavated soil that does not qualify for beneficial re-use will be further characterized for waste disposal.

In the event that a soil stockpile fails the NYSDEC TCE threshold of 58 mg/kg or is a characteristic RCRA hazardous waste based on the TCLP results, the entire soil stockpile will be managed as a hazardous waste to comply with the RCRA 90-day clock and to complete the disposal before the onset of freezing weather. Conversely, if no soil samples collected from a stockpile exceed these thresholds, then the soil will be managed as a non-hazardous waste. As noted above, transportation and disposal of excavated soil will be completed during the IRM, which is tentatively scheduled for early November 2019.

Moisture conditioning is anticipated to prepare saturated soils for transportation (i.e., to pass the paint filter test). The specific moisture conditioning agent is being determined. It is anticipated that addition of a moisture conditioning agent will increase the total mass of soil.

4.4 SOIL MANAGEMENT CONSIDERATIONS

4.4.1 HEALTH & SAFETY

In order to maintain control of the work area and exclude curious Site workers or trespassers, the contractor will install 4-foot-high orange safety fence around the perimeter of the work area,

including a 50-foot buffer to allow potential chemical odors to dissipate. This perimeter will be monitored for aerosols and VOCs during all intrusive work as outlined in the Site Community Air Monitoring Program using calibrated PID and DuskTrak II® meters.

During all phases of construction, access to the work areas, including the soil stockpiles, shall be strictly controlled to minimize potential exposure/contact issues related to impacted soils or groundwater. The soil stockpiles will be covered at the end of each day and during inclement weather to further minimize potential exposure issues.

4.4.2 EROSION AND SEDIMENT CONTROL

During construction activities, erosion and sediment controls will be used to minimize the potential for stockpiled soil to impact surface water or sediments.

4.4.3 FIELD SCREENING DURING INSTALLATION

During the excavation of the areas of concern, soil will be moved to the stockpile areas using a skid-steer loader. Each bucket full of soil will be screened using a calibrated PID and visually inspected to identify any grossly contaminated soil, so that it can be segregated.

4.4.4 SOIL STOCKPILES

Soil stockpiles will be constructed in agreed upon locations at the discretion of the contractor, ERM, and the property owner. Soil stockpile areas will be constructed of a double-layer, high-density polyethylene (HDPE) liner with a geotextile between each layer of HDPE. A berm will be constructed using 12”x12” wooden timbers, straw bales, or similar material around the perimeter of each stockpile area and will be covered by the HDPE liner. A raised vehicle entrance ramp will be constructed for ease of access for construction equipment and off-Site disposal trucks. Soil stockpiles will be slope toward a liquid collection sump, such that expressed water and stormwater can be collected and removed from the stockpile areas.

Stockpiles will be covered with polyethylene (PE) sheeting at the end of each day, during heavy rains, or if Site activities are curtailed during working hours. The PE sheeting will be weighted down using rope and suitable weights (e.g., sandbags). PE sheeting will extend beyond the perimeter berm to limit precipitation falling on the cover from entering the soil stockpile areas to the extent practicable.

4.4.5 SOIL LOAD OUT & DISPOSAL

Once the waste classification sampling and analysis has been completed, a final determination of waste disposal facility can be made.

Upon final facility acceptance, non-hazardous soils will be loaded out followed by hazardous soils, based on facility schedules. Barring a project delay, soil will be transported off Site within four weeks of waste classification sampling and two weeks of facility acceptance.

Properly placarded, registered and inspected over-the-road dump trucks will be staged adjacent to each stockpile on 6-mil PE sheeting and cleanly loaded with an excavator or front-end loader. Prior to leaving the Site, each vehicle will be inspected and paperwork (e.g., hazardous waste manifest, Bill of Lading or similar documentation appropriate for each load) checked by ERM. ERM's construction manager will keep and maintain a daily log of all transportation-related activities, referencing truck information, disposal paperwork references, estimated weight, etc.

PPE sheeting and other materials that come into contact with the soil and/or expressed water will be disposed of within the soil that is being loaded out.

4.4.6 SITE CLEANUP AND DEMOBILIZATION

At the conclusion of the construction and restoration activities, demobilization will occur. Temporary improvements installed at the Site as part of construction activities, including but not limited to soil stockpile areas, and construction barricades will be removed. All general construction trash and associated containers will be removed and disposed of properly. All construction equipment and materials scheduled for demobilization will be decontaminated. The decontamination materials will be collected and disposed of appropriately.

APPENDIX H WASTE MANAGEMENT PLAN

Waste Management Plan

Former TRW Union Springs Facility

PREPARED FOR
ZF Active Safety and Electronics US LLC

DATE
31 October 2025

REFERENCE
0737336



1. INTRODUCTION

ERM Consulting & Engineering, Inc. (ERM) has prepared a Canal Interim Remedial Measure (IRM) (95 Percent) Design Work Plan (DWP) on behalf of ZF Active Safety and Electronics US LLC (ZF; formerly TRW Automotive U.S. LLC [TRW]) for the Former Union Springs Facility at 107 Salem Street, Union Springs, New York (hereafter called the "Site"). TRW intends to manage portions for the Site using IRMs to expedite Site remediation in some areas of concern (AOCs).

The purpose of the IRM in the Former Canal and Northwest Corner AOCs (IRM Areas 7, 8, and 9) is to minimize the potential for ecological and human exposure to contaminants present in the surficial soils, groundwater, and sediments. IRMs to achieve the purpose include: in situ sorption and solidification, a geomembrane, and a cover system that includes a permeable reactive barrier zone in Area 7; impacted sediment removal, active cap system installation, and wetlands restoration in Area 8; and soil cover in Area 9.

This Waste Management Plan (WMP) has been prepared for the Interim Remedial Measures (IRM) activities associated with remediation of the Former TRW Automotive Union Springs Facility Superfund Site located in Union Springs, New York (Site).

The purpose of this Waste Management Plan is to describe the types of wastes anticipated to be generated and their respective dispositions, and to describe the general procedures and requirements for staging, handling and transporting waste on-site and offsite for disposal.

2. INTERIM REMEDIAL OBJECTIVES

The purpose of the IRM in Areas 7, 8, and 9 is to minimize the potential for ecological and human exposure to contaminants present in the surficial soils, groundwater, and sediments. The objectives of the IRM are to mix soil within Area 7 (the buried portion of the canal) with a combination of 20 percent by weight Portland cement and 4 percent by weight powdered activated carbon. The excavated area will be restored using imported and amended clean fill materials. The fill materials will consist of clean imported sand and soil. A 10-foot PRB will be constructed where IRM Area 7 abuts IRM Area 8, consisting of a custom blend of commercially available sand (tested to balance residence time and flow through) and an amendment of 50 percent by volume zero valent iron (ZVI) to reduce concentration of volatile organic compounds (VOC) in groundwater prior to discharge to the surface water in the open canal. Soil excavated from Area 7 will be tested, and, if deemed suitable for beneficial re-use on Site, used as cover material in Area 9 (the northwest corner of the Site) over locations with shallow soil exceedances of applicable standards, or managed off-site at a permitted receiving facility.

3. WASTE MANAGEMENT HANDLING

3.1 ANTICIPATED SOIL / WASTE STREAMS

During the remediation activities, the following materials are anticipated to be generated and managed:

- Soils and Sediment – Soils and sediment excavated during the remediation will be managed under the Soil Management Plan provided in Appendix G.

- Wastewater from the excavation area, sediment management pad and decontamination pads (pre-treated by the Contractor's water treatment system and either discharged to the Union Springs Publicly Owned Treatment Works [POTW] or discharged to surface water in accordance with SPDES requirements);
- Petroleum or non-aqueous phase liquid (NAPL) separated from the wastewater (containerized and disposed offsite);
- Food and Office Wastes – Food and office type wastes / refuse will be contained and shipped off Site as municipal waste to a permitted municipal waste facility.
- Personal Protective Equipment – PPE and disposable sampling materials generated from the TRW remediation activities will be collected, consolidated, classified, and shipped off-Site for disposal at an appropriately permitted waste facility.
- Decontamination Residues –
    - Decontamination solids will be controlled, collected, classified, and shipped off Site to an appropriately permitted waste facility. Decontamination water will be collected, classified, and shipped off Site to an appropriately permitted waste facility.
- Miscellaneous Construction Debris –
    - Inert construction debris (e.g., scraps of liner, silt fence fabric, etc.) will be collected, consolidated, and shipped off Site as municipal waste for disposal at a permitted municipal waste facility.
- Non-inert construction debris (e.g., equipment maintenance wastes, such as grease tubes or oil containers) will be collected, consolidated, classified, and shipped off Site for disposal at an appropriately permitted waste facility.
- Spent filters and carbon from the temporary water treatment system

INVENTORY, TRACKING AND STAGING

Waste will be staged in stockpiles (pending waste classification for disposal), or containerized. 55-gallon or smaller containers, cubic yard boxes, and roll-off boxes. Staging areas will likely include a combination of areas local to the excavation area/work area and central area(s). Central areas will be used for materials that will be staged for longer periods of time or while awaiting off-site disposal. Local areas will be used for materials that will be "live loaded" into vehicles for on-site transportation and consolidation (e.g., excavated soils and sediment) or for direct shipment for off-site disposal.

The Contractor shall maintain an inventory of waste stockpiles and containers generated during the remediation. The inventory will include the following information on a waste inventory log:

- Unique container or stockpile number with container-specific identification number and location (i.e., ERM-XXX; where "XXX" is a sequential number assigned in the order of generation date)
- Container/stockpile contents (e.g. soil, sediment, decontamination water, PPE, etc.), quantity, location of origin;
- Container/stockpile description (e.g., 55-gallon drum, cubic yard box, etc.);
- Characterization/classification;

- Reference supporting analytical data (if applicable);
- Disposal/disposition method; and
- Planned disposal date or actual date of disposal.

A log will be maintained in the jobsite trailer that documents the above information for all waste containers. Used PPE will be collected in heavy-duty plastic bags at the personnel decontamination stations for subsequent consolidation (on daily basis) for off-site disposal, otherwise the PPE will be containerized in 55-gallon drums which will labeled using the convention provided above. A spill kit consisting of absorbent pads, booms, and granules will be maintained in stockpile / container management areas. Storage areas will be maintained in an orderly condition with sufficient aisle space between drums to allow for inspection.

3.2 WASTE NOTIFICATION AND COMMUNICATION

All proposed waste material disposal facilities (in-state and out-of-state) will be identified in advance of disposal and accepted by the Owner's Representative. At least 14 days prior to shipping any waste from the Site, the Contractor will provide the Owner's Representative the following information:

- Name and location of the disposal facility to which the waste is to be shipped;
- Type and volume of the waste to be shipped;
- Copy of the signed waste profile submitted to the disposal facility to gain approval for the waste;
- Expected schedule for the shipment of the waste; and
- Method of transportation.

In addition, the Contractor will provide 24 hours advance notice (via email) to the Owner's Representative of each off-site shipment of waste. Copies of all waste shipping papers (bills of lading, manifests) will be maintained on the Site. Copies will also be available for review.

3.3 TRANSPORTATION AND DISPOSAL

The RA Contractor will ensure that all vehicles provided for transporting or storing bulked materials are in a good state of repair and are operated in a safe manner to prevent spills during the handling of all bulked solids and liquids. Soils and sediments will be transported on-site using off-road dump trucks or similar. Vehicles used for bulked solids will be inspected to ensure that their tailgates are secured and the loads are tarped to avoid spillage or tracking of material. Vehicles used for bulked liquids will be inspected to ensure that all hoses, pumps, valves, locks, and connections are properly functioning and free of leaks.

Weigh all shipments prior to leaving the site with the Contractors scale and at disposal facility weight scales and verify weight complies with applicable DOT requirements. Include copies of weight scale tickets on approved forms. Contractor shall be solely responsible for adjusting the load (e.g., removing material) to ensure it complies with applicable DOT requirements. Any load adjustment must be performed in the Work exclusion zone.

The handling and transport of waste will be, at all times, conducted in a controlled and safe manner which will minimize the potential for spillage of waste and damage to containers (tanks,

dumps, drums, etc.). If during transport or handling, leakage or spillage of waste occurs, response procedures will be implemented to address the leaks. In addition, the containers (tanks, dumps, drums, etc.) will be repaired, or the waste will be transferred to another container, or the container will be overpacked. All loads must be fully and properly secured and covered prior to leaving the Work area. Each load of material is to be placed in a lined container, secured, covered, and properly manifested prior to leaving the Site. Waste materials shall not be removed from the Site by the Contractor without prior notification to, and approval of, the Owners Representative. Each load is to be inspected by Owners Representative prior to leaving the Site. Any load or transporter will be rejected if not in compliance with regulations and Site requirements. Waste materials will be transported by a licensed transporter permitted to transport hazardous and/or non-hazardous waste, as appropriate.

The contractor will obtain a letter from each intended disposal facility to receive waste (as generated) from the Site. The letter will note that the facility is in substantial compliance with its permit requirements.

Proper documentation will be completed for transportation of non-hazardous waste and hazardous waste to the approved off-site facilities. Proper documentation will consist of completed Hazardous Waste Manifests and/or other shipping papers in accordance with procedures established by the DOT and EPA.

The RA Contractor will maintain a detailed log of off-site shipments of hazardous and non-hazardous materials. At a minimum, the log will include the following:

- Date of shipment;
- Type of container and quantity of waste material shipped;
- Unique container or stockpile identification number (match up with inventory log sheet)
- Reference waste profile to support waste characterization;
- Destination;
- Transporter company name and driver;
- Manifest number or Bill of Lading number.

Containers /vehicles will be checked prior to off-site shipment to ensure that they are appropriate for and compatible with the contents, in good physical condition, and properly labeled and the shipment meets applicable State, Federal and local requirements. Owner's Representative's acceptance will be required prior to transporting material off-site.

3.4 SPILL MANAGEMENT

During all active work involving the transport and handling of potentially impacted media, the RA Contractor will implement appropriate spill prevention, control and response procedures. The procedures shall meet the requirements established herein and as detailed in the project specifications.

3.4.1 SPILL PREVENTION

The RA Contractor will be required to conduct waste handling procedures in a manner that will minimize the potential and consequence of spills. Spill prevention procedures will include, but will not be limited to:

- Allowing extra capacity in loader buckets during the transfer of soil and debris so that spillage is avoided;
- Allowing additional capacity in transfer vehicles to avoid overflow of materials during transfer;
- Placement of a berm or similar around soil management / waste classification area(s) to contain material;
- Traveling within defined work areas and access ways/corridors; and
- Performing decontamination work in designated decontamination areas.

The Contractor shall inspect waste staging areas daily.

3.4.2 SPILL RESPONSE

Should any spill or incidental release of contaminated or potentially contaminated material be observed by the Contractor or other on-site personnel, he/she will:

- Notify the appropriate on-site parties (Contractor, Owner's Representative, Owner's Representative shall notify NYSDEC). Take immediate measures, under the direction of the TRW's Representative, to contain the spill within as minimal an area possible. These measures may include:
  - The creation of a temporary berm to retain materials on a slope;
  - The use of sand or absorbent materials (e.g., Safe-n-Dri) or booms on contain the fluids;
  - Sweeping or shoveling spilled material into a pile;
  - Pumping of free liquids into a drum or other suitable container; and
  - Scraping up the pile and immediately loading into a transfer vehicle.

First aid and decontamination procedures will be implemented as described in the Health and Safety Plan (HASP). The Contractor will have on-site the following equipment to be used for any unexpected spills:

- Fire extinguisher and first aid kit
- Sand, clean fill, or other non-combustible absorbent
- Several empty overpack drums (85-gallon capacities)
- Plastic sheeting or tarps
- Shovels
- Drum sling and handling tools
- PPE
- High volume water pump
- Water transfer hoses
- Washwater for decontaminating tools and equipment
- Sorbent pads, pillows, booms, and clay absorbent

Waste materials, residues, and used cleanup materials (e.g., adsorbents, pads) generated from a spill, release, or other emergency response action will be controlled, collected, and containerized in appropriate containers (e.g., drums). Waste materials will then be characterized and disposed of consistent with the requirements in this plan. Hand tools which are used shall be discarded with the waste material or decontaminated.

APPENDIX I WATER MANAGEMENT PLAN

Water Management Plan

Former TRW Union Springs Facility

PREPARED FOR
ZF Active Safety and Electronics US LLC

DATE
31 October 2025

REFERENCE
0737336



1. INTRODUCTION

ERM Consulting & Engineering, Inc. (ERM) has prepared a Canal Interim Remedial Measure (IRM) (95 Percent) Design Work Plan (DWP) on behalf of ZF Active Safety and Electronics US LLC (ZF; formerly TRW Automotive U.S. LLC [TRW]) for the Former Union Springs Facility at 107 Salem Street, Union Springs, New York (hereafter called the "Site"). TRW intends to manage portions for the Site using IRMs to expedite Site remediation in some areas of concern (AOCs).

The purpose of the IRM in the Former Canal and Northwest Corner AOCs (i.e., IRM Areas 7, 8, and 9) is to minimize the potential for ecological and human exposure to contaminants present in the surficial soils, groundwater, and sediments. IRMs to achieve the purpose include in situ sorption and solidification, a geomembrane, and a cover system that includes a permeable reactive barrier zone in Area 7; impacted sediment removal, and active cap system installation, and wetlands restoration in Area 8; and soil cover in Area 9.

The work discussed in this section shall consist of all activities necessary to perform water management during project implementation including water generated during soil, sediment, and waste excavation and consolidation in accordance with the Design Drawings and subbase grading plan. All contact water (defined below) generated during these activities shall be treated on-Site by the contractor's contact Water Treatment System (WTS).

The contractor shall perform maintenance dewatering in excavation areas to establish lowered static water conditions to allow safe and efficient waste excavation to occur and to facilitate backfill placement. The contractor may perform material management including gross material dewatering and aeration within the excavation area prior to consolidation provided cofferdams and turbidity curtains are installed and turbidity control requirements are met.

The contractor shall properly contain, store, test, label, and, as required, treat water prior to discharge to receiving point designated by ERM. Discharging water of any kind, including potentially impacted by remediation activities to conveyance features (e.g., ditches/channels), water bodies, or the ground is prohibited without written approval by ERM.

1.1 INTERIM REMEDIAL OBJECTIVES

The purpose of the IRM in Areas 7, 8, and 9 is to minimize the potential for ecological and human exposure to contaminants present in the surficial soils, groundwater, and sediments. The objectives of the IRM are to mix soil within Area 7 (the buried portion of the canal) with a combination of 20% by weight Portland cement and 4% by weight powdered activated carbon. The excavated area will be restored using imported and amended clean fill materials. The fill

materials will consist of clean imported sand and soil. A 5- to 10-feet PRB will be constructed where IRM Area 7 abuts IRM Area 8, consisting of a custom blend of commercially available sand (tested to balance residence time and flow through) and an amendment of 50% by volume zero valent iron (ZVI) to reduce concentration of VOC in groundwater prior to discharge to the surface water in the open canal). Soil excavated from Area 7, will be tested, and if deemed suitable for beneficial re-use on Site will be used as cover material in Area 9 (the northwest corner of the Site) over locations with shallow soil exceedances of applicable standards or managed off-site at a permitted receiving facility.

1.2 REFERENCES

The following publications of the issues listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.

- EPA, 2015. Part 136 – Guidelines Establishing Test Procedures for the Analysis of Pollutants

1.3 SUBMITTALS

In accordance with the provisions of these Contract Documents, the Contractor shall submit a Project Work Plan with a detailed section on water management for the ERM's approval. The plan shall detail all equipment, methods, and sequencing to be utilized during water management activities.

1.4 DEFINITIONS

Contact water -- Groundwater, storm water, or other construction-related water that contacts waste or impacted materials. The contractor shall manage all contact water that accumulates within the limits of disturbance (LOD) at the site, such as accumulation within an excavation, low-lying area, impounded behind a localized area of higher elevation, or other manner of accumulation.

1.5 EFFLUENT LIMITS AND PERMIT REQUIREMENTS

The contractor shall manage accumulated contact water in accordance with the requirements of the State Pollutant Discharge Elimination System (SPDES) Permit Program. Prior to any treated contact water discharge, the contractor shall prove the effectiveness of the WTS by operating the WTS with a "test batch" (consisting of 10,000 gallons minimum) of contact water and storing the water within a holding tank. The contractor will submit laboratory analytical data for a representative sample of the "test batch" to ERM for approval prior to discharging the "test batch".

The analytical methods and data shall be in conformance with the permit and effluent requirements set forth in NPDES RGP and Table 2 of the NPDES RGP, which is shown below as Table 02140-1.

1.6 CHEMICAL EFFLUENT LIMITATIONS MONITORING REQUIREMENTS

Parameter	Effluent Limitation
A. Inorganics	
Ammonia	Report mg/L
Chloride	Report µg/L
Total Residual Chlorine	0.2 mg/L
Total Suspended Solids	30 mg/L
Antimony	206 µg/L
Arsenic	10 µg/L
Cadmium	0.25 µg/L
Chromium III	74 µg/L
Chromium VI	11 µg/L
Copper	9 µg/L
Iron	1,000 µg/L
Lead	2.5 µg/L
Mercury	0.739 µg/L
Nickel	52 µg/L
Selenium	5.0 µg/L10
Silver	3.2 µg/L
Zinc	120 µg/L
Cyanide	5.2 µg/L
B. Non-Halogenated Volatile Organic	
Total BTEX	100 µg/L
Benzene	5.0 µg/L
1,4 Dioxane	200 µg/L
Acetone	7.97 mg/L
Phenol	300 µg/L
C. Halogenated Volatile Organic	
Carbon Tetrachloride	1.6 µg/L
1,2 Dichlorobenzene	600 µg/L

1,3 Dichlorobenzene	320 µg/L
1,4 Dichlorobenzene	5.0 µg/L
Total dichlorobenzene	763 µg/L
1,1 Dichloroethane	70 µg/L
1,2 Dichloroethane	5.0 µg/L
1,1 Dichloroethylene	3.2 µg/L
Ethylene Dibromide	No Monitoring Required
Methylene Chloride	4.6 µg/L
1,1,1 Trichloroethane	200 µg/L
1,1,2 Trichloroethane	5.0 µg/L
Trichloroethylene	5.0 µg/L
Tetrachloroethylene	3.3 µg/L
cis-1,2 Dichloroethylene	70 µg/L
Vinyl Chloride	2.0 µg/L
D. Non-Halogenated Semi-Volatile	
Total Phthalates	3.0 µg/L
Diethylhexyl phthalate	2.2 µg/L
Total Group I Polycyclic Aromatic	1.0 µg/L
Benzo(a)anthracene	0.0038 µg/L
Benzo(a)pyrene	0.0038 µg/L
Benzo(b)fluoranthene	0.0038 µg/L
Benzo(k)fluoranthene	0.0038 µg/L
Chrysene	0.0038 µg/L
Dibenzo(a,h)anthracene	0.0038 µg/L
Indeno(1,2,3-cd)pyrene	0.0038 µg/L
Total Group II Polycyclic Aromatic	100 µg/L
Naphthalene	20 µg/L
E. Halogenated Semi-Volatile Organic	
Total Polychlorinated Biphenyls	No Monitoring Required
Pentachlorophenol	No Monitoring Required
F. Fuels Parameters	
Total Petroleum Hydrocarbons	No Monitoring Required
Ethanol	No Monitoring Required
Methyl-tert-Butyl Ether	No Monitoring Required
tert-Butyl Alcohol	No Monitoring Required
tert-Amyl Methyl Ether	No Monitoring Required

*Monitoring criteria based on requirements for Activity Category II: Non-Petroleum Related Site Remediation

Discharge from contact water management activities shall be adequately treated such that it does not adversely affect the water quality of receiving waters. If indicators of declining water quality are observed in the receiving waters, such as significant changes in color or odor, buildup of foam, film, debris, or visible sheen, additional treatment measures will be implemented to improve discharge quality. Effluent shall comply with the freshwater discharge pH limitation range of 6.5 to 8.3 standard units.

1.7 MATERIALS

The contractor shall furnish all necessary labor, materials, sumps, cofferdams, sandbags, conveyance piping, pumps, piping, hoses, equipment, ancillaries and material fittings, tankage, drums, filters, and other equipment/materials as needed for proper water management activities as specified herein. Any damage encountered during project execution (due to extreme weather conditions, etc.) to the contractor's facilities shall be repaired by the contractor, at no additional cost to ERM.

1.8 GENERAL EXECUTION

A complete discussion of any planned dewatering shall be included in the required Project Work Plan (PWP). The work generally includes, but is not limited to: site preparation (including installation of erosion control measures); temporary controls (including decontamination, construction water management, and noise, dust and odor control); excavating and stockpiling material and offsite disposal; and placement of amended media, structural fill, and topsoil. Site restoration includes seeding, wetlands and uplands plantings and pavement restoration. Work also includes associated tasks, as defined in the Contract Documents, and the drawings.

1.9 STORMWATER RUN-ON

The contractor shall be responsible for the diversion of stormwater run-on from the active Work areas. The contractor will be responsible for additional costs resulting from management of additional water. The contractor shall ensure stormwater run-on is diverted from the Site and Work area, in a non-erosive and non-deleterious manner, as approved by ERM. The contractor shall submit stormwater run-on diversions approaches and materials to ERM.

1.10 WATER MANAGEMENT

The contractor shall install all necessary sumps, pumps and conveyance piping for excavation dewatering. Treatment technologies to be used on-Site may include, but are not limited to any combination of the following:

- Adsorption/Absorption
- Advanced Oxidation Processes
- Granulated Activated Carbon (GAC)/Liquid Phase Carbon Adsorption
- Air Stripping
- Ion Exchange
- Precipitation/Coagulation/Flocculation
- Separation/Filtration

Daily wastewater discharge is limited to less than 1.0 million gallons per day (MGD). Discharge rates shall not exceed the intended design flow rate of the treatment system. If necessary, flow control measures will be used to dissipate energy and control scouring at the point of discharge.

All equipment must be leak tight. The contractor must routinely inspect (at least daily and at least hourly during water transfer or treatment system operations) and regularly maintain to ensure proper operation and no leaks. Any leaks or spills from contractor-supplied equipment requiring cleanup are the contractor's responsibility. If inspections deem equipment/tankage, etc. not suitable for use, the contractor is responsible for all costs associated with removing tank(s) from Site and remobilizing suitable equipment/tankage, etc. for use.

The contractor is responsible for all costs associated with removal, transportation and disposal in accordance with applicable federal, state, and local regulations of any accumulated sediment in tanks. Frac tanks are subject to inspections by ERM prior to receipt and use on-Site.

Treated discharge shall be discharged to the town Public Works Department prior to discharging to any water body.

1.11 TREATMENT SYSTEM MONITORING

The contractor shall establish and maintain a discharge quality monitoring program in accordance with the SPDES. The following is in addition to the "test batch" requirements stipulated herein.

The contractor shall take two rounds of samples during the first week of discharge, each composed of one influent sample and one effluent sample. One sampling round shall be taken on the first day of discharge, and one subsequent round shall be taken on a non-consecutive day during the first week of discharge. These samples shall be analyzed in accordance with 40 CFR 136 with a maximum five-day turnaround, and analytical results will be reviewed within 48 hours of their receipt.

Following the first week of operation, the contractor shall take influent and effluent samples once per week for three additional weeks. This sampling program shall begin no earlier than 24 hours following the second round of initial samples. Samples taken during this period and subsequently may be analyzed with a turnaround time of up to 10 days, and results must be reviewed no more than 72 hours after their receipt.

After the fourth week of discharge, the contractor shall take influent and effluent samples once per month for the remaining term of system operation. This monitoring frequency may be further reduced if such a reduction is approved by the EPA in writing.

1.12 RECORD KEEPING AND REPORTING

The contractor shall submit to ERM all analytical data, laboratory reports, sample collection information, Best Management Practices Plan documentation as described within the RGP, field monitoring records, O&M records, inspection records, and training records pertaining to the operation of the onsite water treatment system. These records will be retained by ERM for a minimum of three years following project completion and will be provided to the USEPA upon request.

The following records will be retained onsite by ERM for the project duration, and will be made available on request to the USEPA or the NYSDEC:

- Copies of any information submitted to USEPA and NYSDEC related to onsite discharge;
- Copies of any correspondence received from USEPA and NYSDEC regarding permit coverage; and
- A copy of the Best Management Practices Plan

ERM shall submit to USEPA and NYSDEC a copy of the laboratory analytical reports associated with each sampling event. ERM will notify EPA immediately if there is any reason to believe that a toxic pollutant has been or will be discharged in exceedance of the relevant notification level.

ERM shall notify USEPA and NYSDEC of any planned alterations to the onsite treatment system, periods of anticipated noncompliance, or transfers of permit ownership. Any noncompliance which may endanger health or the environment must be reported within 24 hours from the time that ERM becomes aware of the circumstances.

1.13 WASTE

All waste generated by the contractor from the water management activities, including but not limited to: bag filters, spent media, hoses, resins, etc., shall be properly contained, managed, and disposed of by the contractor at an approved off-site disposal facility.

APPENDIX J COMMUNITY AIR MONITORING PLAN

Community Air Monitoring Plan

Former TRW Union Springs Facility

PREPARED FOR
ZF Active Safety and Electronics US LLC

DATE
27 May 2026

REFERENCE
0737336



DOCUMENT DETAILS

The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.	
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DOCUMENT SUBTITLE	Former TRW Union Springs Facility
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DATE	27 May 2026
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AUTHOR	Robert Sents
CLIENT NAME	ZF Active Safety and Electronics US LLC

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1. INTRODUCTION

ERM Consulting & Engineering, Inc. (ERM) has prepared a Canal Interim Remedial Measure (IRM) (95 Percent) Design Work Plan (DWP) on behalf of ZF Active Safety and Electronics US LLC (ZF; formerly TRW Automotive U.S. LLC [TRW]) for the Former Union Springs Facility at 107 Salem Street, Union Springs, New York (hereafter called the "Site"). TRW intends to manage portions for the Site using IRMs to expedite Site remediation in some areas of concern (AOCs).

The purpose of the IRM in the Former Canal and Northwest Corner AOCs (i.e., IRM Areas 7, 8, and 9) is to minimize the potential for ecological and human exposure to contaminants present in the surficial soils, groundwater, and sediments. IRMs to achieve the purpose include in situ sorption and solidification, a geomembrane, and a cover system that includes a permeable reactive barrier zone in Area 7; impacted sediment removal, and active cap system installation, and wetlands restoration in Area 8; and soil cover in Area 9.

2. INTERIM REMEDIAL OBJECTIVES

The purpose of the IRM in Areas 7, 8, and 9 is to minimize the potential for ecological and human exposure to contaminants present in the surficial soils, groundwater, and sediments. The objectives of the IRM are to mix soil within Area 7 (the buried portion of the canal) with a combination of 20% by weight Portland cement and 4% by weight powdered activated carbon. The excavated area will be restored using imported and amended clean fill materials. The fill materials will consist of clean imported sand and soil. A 5- to 10-feet PRB will be constructed where IRM Area 7 abuts IRM Area 8, consisting of a custom blend of commercially available sand (tested to balance residence time and flow through) and an amendment of 60% by volume zero valent iron (ZVI) to reduce concentration of VOC in groundwater prior to discharge to the surface water in the open canal). Soil excavated from Area 7, will be tested, and if deemed suitable for beneficial re-use on Site will be used as cover material in Area 9 (the northwest corner of the Site) over locations with shallow soil exceedances of applicable standards or managed off-site at a permitted receiving facility.

3. COMMUNITY AIR MONITORING PLAN

A Community Air Monitoring Plan (CAMP) involves real-time monitoring for volatile organic compounds (VOCs) and particulate matter (i.e., dust) at the downwind perimeter of each designated work area when intrusive activities are in progress. Intrusive activities include soil or waste excavation, staging, or handling; test pitting or trenching; and/or the installation of soil borings or monitoring wells. The CAMP provides a measure of protection for on-Site workers and the downwind community (i.e., off-Site receptors including residences, parks, businesses, etc.) not directly involved with the subject work activities. Routine monitoring is required to evaluate concentrations and corrective action and/or work stoppage may be required to abate emissions detected at concentrations above specified action levels. Routine data collected during implementation of the CAMP may also help document that work activities did not spread compounds of potential concern off-Site through the air. Reliance on the procedures and action

levels described in this CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around work areas.

Constituents of potential concern include VOCs, polychlorinated naphthalenes, copper, lead, and particulate matter (i.e., dust). Given that VOCs are considered a compound of concern at the Site, this CAMP will include VOC monitoring as a precaution. VOC concentrations in air will be measured using a calibrated photoionization detector (PID). Particulate matter concentrations will be measured using a calibrated electronic aerosol monitor.

Relevant weather conditions including wind direction, speed, humidity, temperature, and precipitation will be measured and recorded prior to the initiation of subsurface intrusive activities. Background readings of VOCs and particulate matter will be collected in the work area prior to the initiation of RI field work on each day that subsurface intrusive work will be performed. Additional background measurements may be collected if weather conditions change significantly.

Continuous monitoring for VOCs and particulate matter will be conducted during all ground-intrusive activities of contaminated or suspected contaminated soils.

If requested by a NYSDEC and/or NYSDOH on-Site representative periodic monitoring may be implemented and will consist of collecting one reading downwind of the work area at the following intervals:

- upon arrival at a sample location or other work activity location;
- during performance of the relevant work activity;
- during the opening of a well cap (if applicable);
- during well bailing or purging procedures (if applicable); and prior to leaving a sample location or other work activity location.

Community air monitoring will not be required when grading or working exclusively with NYDEC approved imported materials (e.g. soil, aggregate, etc.) or approved beneficial reuse classified materials.

3.1 VOC RESPONSE LEVELS AND CORRECTIVE ACTIONS

VOCs will be monitored in the work area on a continuous basis during intrusive activities. Upwind concentrations will be measured at the start of each workday, during the work activity, and at the end of each workday to establish background conditions. Monitoring equipment that does not require factory calibration will be calibrated at least once a day. Calibration may be performed more frequently if Site conditions or instrument operating conditions are highly variable. The monitoring equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total VOCs in the work area exceeds five parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total VOC concentration readily decreases (per

instantaneous readings) below five ppm over background, work activities can resume with continued monitoring.

- If total VOC concentrations in the work area persist at more than five ppm over background, but less than 25 ppm above background, work activities will be halted, the source of the VOCs identified, corrective action will be taken to abate emissions (if the source is related to IRM activities), and monitoring will be continued. After these steps, work activities will resume provided that the total VOC concentration in the work area is below five ppm above background for the 15-minute average.
- If the total VOC concentration is greater than 25 ppm above background at the perimeter of the work area, activities must be shut down, and the source of the VOCs will be identified. Work will resume when additional continuous monitoring demonstrates that VOC concentrations have dropped below 25 ppm for a minimum of one-half hour, and the total VOC concentration of the work area, is below five ppm above background for the 15-minute average.

All 15-minute readings will be recorded and will be available for review by NYSDEC and/or NYSDOH personnel. Instantaneous VOC readings (if any) used for decision purposes will also be recorded.

3.2 PARTICULATE MATTER RESPONSE LEVELS AND CORRECTIVE ACTIONS

Fugitive dust migration from the work area will be visually assessed during intrusive activities. Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone during intrusive activities. Additional monitoring locations may be established as necessary based on site conditions or if visible dust emissions are observed.

Particulate monitoring will be performed using real-time electronic aerosol monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes for comparison to the airborne particulate action levels referenced below. The monitoring equipment will be equipped with an audible alarm to indicate an exceedance of a specified action level.

- If the downwind PM-10 concentration is 100 micrograms per cubic meter (μg/m3) greater than background for a 15-minute period, or if airborne dust is observed leaving the work area, dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind PM-10 concentration does not exceed 150 μg/m3 above background and provided that significant visible dust is not migrating from the work area.
- If downwind PM-10 concentrations are greater than 150 μg/m3 above background, intrusive activities will be stopped, and a re-evaluation of the intrusive activities will be initiated. Work can resume provided that dust suppression measures and/or other engineering controls are successful in reducing the downwind PM-10 concentration to within 150 μg/m3 of background and in preventing significant visible dust migration.

All 15-minute readings will be recorded and will be available for review by NYSDEC and/or NYSDOH personnel.

4. REPORTING AND COMMUNICATION

During remedial action activities, daily CAMP reports will be submitted to NYSDEC and NYSDOH by noon of the following day. Daily reports will include, at a minimum, a figure showing wind direction, weather conditions, CAMP monitoring locations and data, active work areas (e.g., excavation or ISS mixing areas), and a summary of any exceedances, corrective actions, or other notable observations for that day.

APPENDIX K VIBRATION AND SETTLEMENT MONITORING PLAN

Vibration and Settlement Monitoring Plan for the Interim Remedial Measures

Former TRW Union Springs Facility

PREPARED FOR
ZF Active Safety and Electronics US LLC

DATE
30 Oct 2025

REFERENCE
0737336



1. INTRODUCTION

ERM Consulting & Engineering, Inc. (ERM) has prepared a Canal Interim Remedial Measure (IRM) (95 Percent) Design Work Plan (DWP) on behalf of ZF Active Safety and Electronics US LLC (ZF; formerly TRW Automotive U.S. LLC [TRW]) for the Former Union Springs Facility at 107 Salem Street, Union Springs, New York (hereafter called the "Site"). TRW intends to manage portions for the Site using IRMs to expedite Site remediation in some areas of concern (AOCs).

The purpose of the IRM in the Former Canal and Northwest Corner AOCs (i.e., IRM Areas 7, 8, and 9) is to minimize the potential for ecological and human exposure to contaminants present in the surficial soils, groundwater, and sediments. IRMs to achieve the purpose include in situ sorption and solidification, a geomembrane, and a cover system that includes a permeable reactive barrier zone in Area 7; impacted sediment removal, and active cap system installation, and wetlands restoration in Area 8; and soil cover in Area 9.

The purpose of the IRM VSMP is to describe the procedures and monitoring to be implemented to protect the work, property, utilities, and on-Site facilities from damage. This document details the overall requirements for the VSMP, to be prepared and executed by the Contractor, and approved by the Owner's Representative.

2. INTERIM REMEDIAL OBJECTIVES

The purpose of the IRM in Areas 7, 8, and 9 is to minimize the potential for ecological and human exposure to contaminants present in the surficial soils, groundwater, and sediments. The objectives of the IRM are to mix soil within Area 7 (the buried portion of the canal) with a combination of 20% by weight Portland cement and 4% by weight powdered activated carbon. The excavated area will be restored using imported and amended clean fill materials. The fill materials will consist clean imported sand and soil. A 5- to 10-feet PRB will be constructed where IRM Area 7 abuts IRM Area 8, consisting of a custom blend of commercially available sand (tested to balance residence time and flow through) and an amendment of 50% by volume zero valent iron (ZVI) to reduce concentration of VOC in groundwater prior to discharge to the surface water in the open canal). Soil excavated from Area 7, will be tested, and if deemed suitable for beneficial re-use on Site will be used as cover material in Area 9 (the northwest corner of the Site) over locations with shallow soil exceedances of applicable standards or managed off-site at a permitted receiving facility.

3. VSMP OVERVIEW

A Vibration and Settlement Monitoring Plan shall be prepared by the Contractor and signed and sealed by The Contractor's Registered New York Professional Engineer. The plan shall provide procedures and protocols for monitoring of subsurface utilities, and structures located adjacent to the project and overall project earthworks areas. Monitoring will also include requirements for settlement and deflection to provide real time differential settlement or deflection monitoring and minimize the risk of construction activities that may cause damage. The plan shall:

- provide information regarding the number and location of proposed monitoring points at surrounding structures and utilities;
- provide vibration and settlement monitoring equipment;
- establish allowable vibration and settlement criteria as determined by the Contractor to protect all surrounding structures and utilities.
- provide means and methods, equipment to be utilized to protect any utilities, structures, etc.
- The Contractor shall demonstrate to the Owner's Representative how structures (e.g., Mill Building, Mill Pond Dam, other on-site buildings, etc.) and subsurface utilities (e.g., Village of Union Springs sanitary sewer main, gas main, etc.) will be protected during all activities. The Contractor shall be responsible for coordinating with all utility and property owners and ensure that the vibration and settlement monitoring is performed for these utilities and structures where proximal to and potentially impacted by project earthworks activities.

3.1 VSMP REQUIREMENTS

The Contractor shall prepare and execute the VSMP in compliance with all applicable municipal, county, state and federal laws, rules and regulations for the execution of the work and the Federal Transit Administration's *Transit Noise and Vibration Impact Assessment Manual* (September 2018). The Contractor shall conduct a pre-construction inspection survey, including photographic and video documentation of existing structures and surrounding properties. The Contractor shall determine which properties should be surveyed as outlined in their Vibration and Settlement Monitoring Plan for approval by the Owner's Representative. *Prior to intrusive activities, the Contractor shall contact the New York One Call System (1-800-272-1000) for an official mark out of utilities on the Site in accordance with the most recent statutes for mark-outs for underground utilities protection.*

3.2 VSMP EXECUTION

The Work shall include furnishing all labor, equipment, and materials to perform vibration and settlement monitoring of nearby structures and utilities during all earthworks activities including:

- means and methods, equipment to be utilized to protect any utilities, structures, etc.
- installation of necessary structures for excavation (H-Pile & lagging /sheeting/shoring etc.);
- excavation activities;
- backfill material installation;
- other necessary earth disturbance activities.

The contractor shall be responsible for establishing criteria for monitoring to ensure protection of on-Site structures, utilities and properties. *The Contractor shall repair any damage to structures during construction operations.*

3.2.1 MONITORING SETUP

Continuous vibration and settlement monitoring must be performed throughout the Work, and the Contractor's Vibration and Settlement Monitoring Plan. Vibration and settlement monitoring devices shall have the capacity to provide continuous data recording during construction.

At a minimum, the Contractor shall monitor vibrations at the following locations:

- upstream and downstream manholes nearest the excavation
- existing Mill Building line nearest to the excavation
- toe of the Mill Pond dam nearest the excavation
- utilities near or adjacent to project earthworks activities

Additional monitoring point installation locations shall be selected based on the recommendations of the Contractor's earth support system design engineer and Contractor's Professional Engineer and approved by the Owner's Representative

3.2.1.1 MONITORING LIMITS

The Contractor shall monitor vibrations during construction consistent with the Federal Transit Administration's *Transit Noise and Vibration Impact Assessment Manual* (September 2018). Peak particle velocity (PPV) shall not exceed the following vibration thresholds to prevent damage from occurring to structures or utilities, unless otherwise determined by the Contractor's Engineer and accepted by the Owner's Representative:

- Construction shall not generate PPVs in excess of 0.5 in/sec near the Village of Union Springs sanitary sewer trunk line (Category I in Table 7-5), as measured at the upstream and downstream manholes nearest the excavation.
- Construction shall not generate PPVs in excess of 0.12 in/sec near the or at the existing Mill Building (Category IV in Table 7-5), as measured at the building line nearest the excavation.
- Construction shall not generate PPVs in excess of 0.12 in/sec near the or at the exposed face of the Mill Pond dam (Category IV in Table 7-5), as measured at the toe of the dam nearest the excavation.

In the event a vibration threshold is exceeded, all construction work shall immediately cease, and the Contractor shall immediately notify the Owner's Representative. After determining the cause of the exceedance, the Contractor shall inspect the affected structure or utility for damage and take any and all appropriate steps to prevent a reoccurrence of the exceedance.

3.3 SUBMITTALS

On a daily basis (next day) during installation of necessary structures for excavation (H-Pile & lagging /sheeting/shoring etc.) and during excavation activities the Contractor shall provide a written report of all vibration and settlement monitoring results, including a summary of exceedances and steps taken to prevent a reoccurrence of such exceedances.

On a weekly basis, and following the excavation monitoring requirements above, the Contractor shall provide a written report of all vibration and settlement monitoring results, including a summary of exceedances and steps taken to prevent a reoccurrence of such exceedances. This report shall be reviewed during the weekly construction meeting.

At project close-out, the Contractor shall conduct a post-construction inspection survey, including photographic and video documentation and construction survey of existing structures and surrounding properties inspected during the pre-construction inspection event.

APPENDIX L JOINT APPLICATION PERMIT

Former TRW Union Springs NYSDEC Wetland Permit Application and Pre-Construction Notification (PCN)

A Narrative for the Joint Application for Permit, NYSECL Article 24 Freshwater Wetland Permit

PREPARED FOR

ZF Active Safety and Electronics US LLC

DATE

21 May 2026

NYSDEC BCP SITE NUMBER

C706019



SIGNATURE PAGE

Former TRW Union Springs NYSDEC Wetland Permit Application and Pre-Construction Notification (PCN)

A Narrative for the Joint Application for Permit, NYSECL Article 24 Freshwater Wetland Permit

C706019



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CONTENTS

1. INTRODUCTION 1

2. CONTACT INFORMATION OF APPLICANT 2

3. LOCATION OF PROPOSED ACTIVITY 3

3.1 ENVIRONMENTAL SETTING/ SITE CONDITIONS 3
3.1.1 TOPOGRAPHY 3
3.1.2 ECOLOGIAL COVERTYPES 3
3.1.3 WETLAND, WATERWAYS, AND FLOODPLAINS 3
3.1.4 THREATENED AND ENDANGERED SPECIES 5
3.1.5 CULTURAL RESOURCES 6
3.1.6 STATE ENVIRONMENTAL QUALITY REVIEW (SEQR) 6

4. DESCRIPTION OF PROPOSED ACTIVITY 7

4.1 PURPOSE AND NEED 7
4.2 PROJECT DESCRIPTION AND NARRATIVE 7
4.2.1 SITE PREPARATION 8
4.2.2 VEGETATION CLEARING 8
4.2.3 GRADING 8
4.2.4 CONSTRUCTION 8
4.2.5 SITE STABILIZATION/ RESTORATION 9
4.2.6 MONITORING AND MAINTENANCE 10
4.2.7 SITE PROTECTION 11
4.3 ALTERNATIVE ANALYSIS 11
4.3.1 NO ACTION 11
4.3.2 PREFERRED ALTERNATIVE 11

5. REGULATED ACTVITIIES/ SPECIFIC NATIONWIDE PERMIT (NWP) FOR ACTIVITY (#38)/ARTICLE 24/SECTION 10 12

6. ENVIRONMENTAL IMPACTS 13

6.1 VEGETATION CLEARING 13
6.2 SOIL DISTURBANCE, EROSION, AND SEDIMENTATION 13
6.3 WETLAND IMPACTS 13
6.4 WETLAND 100-FOOT BUFFER ZONE 14
6.5 THREATENED & ENDANGERED SPECIES 14
6.6 WILDLIFE DISTURBANCE 14
6.7 CULTURAL RESOURCES IMPACTS 15

7. MITIGATION STATEMENT 15

8. CONCLUSION 16

APPENDIX A	FORMER TRW UNION SPRINGS – WETLAND DELINEATION MEMORANDUM
APPENDIX B	UNITED STATES FISH AND WILDLIFE SERVICE INFORMATION FOR PLANNING AND CONSULTATION DATA OUTPUT
APPENDIX C	UNITED STATES FISH AND WILDLIFE SERVICE CONCURRENCE
APPENDIX D	NEW YORK NATURAL HERITAGE PROGRAM CONCURRENCE
APPENDIX E	NEW YORK STATE OFFICE PARKS, RECREATION, AND HISTORIC PRESERVATION CONCURRENCE
APPENDIX F	STATE HISTORIC PRESERVATION OFFICE CONCURRENCE AND NO EFFECT LETTER
APPENDIX G	UNITED STATES ARMY CORPS OF ENGINEERS AND STATE HISTORIC PRESERVATION OFFICE PROGRAMMATIC AGREEMENTS 2024
APPENDIX H	UNITED STATES ARMY CORPS OF ENGINEERS AND STATE HISTORIC PRESERVATION OFFICE TRANSPORATION REGIONAL GENERAL PERMIT 2024
APPENDIX I	STATE ENVIRONMENT QUALITY REVIEW ACT FULL ENVIRONMENTAL ASSESSMENT FORM
APPENDIX J	WETLAND MITIGATION PLAN NARRATIVE
APPENDIX K	DESIGN OF AREA 7, 8, AND 9 INTERM REMEDIAL MEASURE WORKPLAN DRAWINGS
APPENDIX L	JOINT APPLICATION FORM
APPENDIX M	APPLICATION FOR PERMIT- SECTION 401 STATE WATER QUALITY CERTIFICATION

LIST OF FIGURES

FIGURE 1	SITE LOCATION	1
FIGURE 2	WETLAND MAP	4
FIGURE 3	RESTORATION WITHIN BUFFER	10

ACRONYMS AND ABBREVIATIONS

Acronym	Description
AA	100-foot Regulated Adjacent Area
CRIS	Cultural Resource Information System
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
HUC	Hydrologic Unit Code

Acronym	Description
IPaC	Information for Planning and Consultation System
MSL	Mean Sea Level
NWI	National Wetlands Inventory
NWP	Nationwide Permit
NYNHP	New York National Heritage Program
NYSDEC	New York State Department of Environmental Conservation
NYSECL	New York State Environmental Conservation Law
NYSOPRHP	New York State Office of Parks, Recreation, and Historic Preservation
OHWM	Ordinary High Water Mark
PA	Programmatic Agreement
PCN	Preconstruction Notification
S&E	Sedimentation & Erosion
SEQRA	State Environmental Quality Review Act
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
ZF	ZF Active Safety and Electronics U.S., LLC

1. INTRODUCTION

ZF Active Safety and Electronics U.S., LLC (ZF), voluntarily entered into a Brownfield Cleanup Program (BCP) Agreement with the New York State Department of Environmental Conservation (NYSDEC) on 7 January 2016. ZF proactively proposed to remediate sediment and soil contamination at the Former TRW Union Springs Facility (Facility), located at 107 Salem Street, Union Springs, New York, including portions of three parcels that formerly made up this facility (Figure 1). ZF will be removing sediment from the site, including the open canal. The open canal is connected to Cayuga Lake and is the current boundary of NYSDEC Freshwater Wetland US-1. The portion of the properties currently regulated under the Brownfield Cleanup Agreement is hereafter referred to as the Site. Proposed remediation activities will unavoidably require clearing and excavation within federal and state regulated wetlands, and within the state-regulated 100-foot adjacent area (AA) to wetlands. This narrative and Preconstruction Notification (PCN) outline the proposed regulated activities, as well as conservation measures proposed to avoid and minimize discharges and impacts to wetlands and AA. It also outlines mitigation measures intended to restore impacted wetlands and AA to functioning, naturalistic ecosystems.

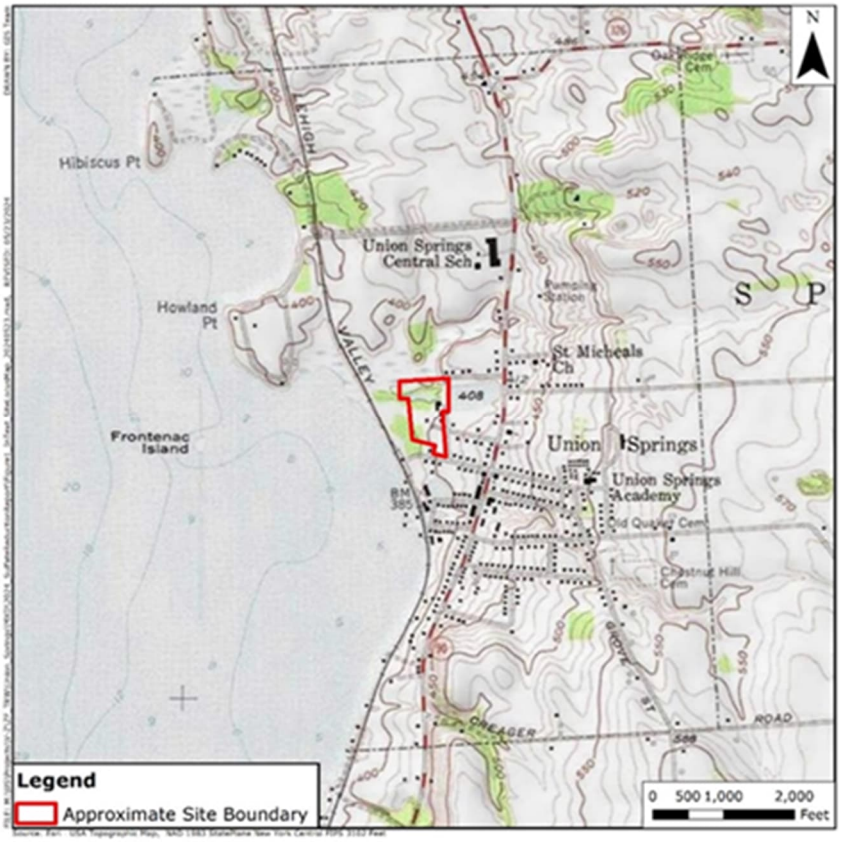


FIGURE 1 SITE LOCATION

2. CONTACT INFORMATION OF APPLICANT

Consultant: Anthony M. Cimpi, PWS

Applicant Name: ZF Active Safety and Electronics US, LLC

Site Address: 107 Salem Street, Union Springs, NY 13160

Applicant Contact: Robert Bleazard

Applicant Address: 15811 Centennial Dr., Northville, Michigan 48168

Applicant Phone: 1-480-600-8036

3. LOCATION OF PROPOSED ACTIVITY

The Facility is located on the east side of Cayuga Lake, in the Village of Union Springs, Cayuga County, New York (42.845481ºN, -76.694832ºW). The Site consists of two tax parcels (141.09-1-21 and 141.09-1-21.1) approximately 12 acres in area, and is mostly developed with multiple buildings, associated parking lots and paved roads, with some maintained lawn and forests to the north of the side. The site is an irregular polygon shape adjacent to a residential area of Union Springs. The Site is depicted on the Union Springs, NY US Geological Survey (USGS) 7.5-minute topographic quadrangle map.

The Facility is in the Southeastern Ontario Lake Basin and situated on the Seneca River Watershed (HUC Unit 04140201), which has a drainage area of 3,430 square miles.

3.1 ENVIRONMENTAL SETTING/ SITE CONDITIONS

3.1.1 TOPOGRAPHY

The project site slopes down east to west, from elevation 410 feet above mean sea level (MSL) at State Route 90 (Cayuga Street), down to about 380 feet near the Cayuga Lake shore. The proposed location of site remediation ranges from approximately 380 to 395 feet above MSL.

3.1.2 ECOLOGIAL COVERTYPES

At the time of this investigation the site consisted of a developed manufacturing plant, a maintained lawn, and undeveloped, hardwood forest. A NYSDEC-regulated freshwater marsh abuts the site to the north. The site contains two structures, including the manufacturing facility and a dilapidated building in the woods.

The site included several different cover types. Upland cover types included:

- Mowed lawn;
- Paved road/path;
- Urban structure exterior; and
- Successional northern hardwood forest.

Wetland cover types included:

- Shallow emergent marsh; and
- Shrub swamp

3.1.3 WETLAND, WATERWAYS, AND FLOODPLAINS

3.1.3.1 WETLANDS

Freshwater wetlands were identified and delineated within the zone of proposed disturbance in June 2014, updated in March 2019, and reviewed by Anthony M. Cimpi, a Professional Wetland Scientist, in October 2023 and April 2026. The wetland delineation memorandum is provided as Appendix A. Shallow emergent marsh and shrub swamp were both identified on the Site. Both of

these wetland areas correspond to federal and state mapped jurisdictional wetlands. United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) identifies a wetland labelled as PEM1E, a palustrine, persistent emergent, seasonally flooded/saturated wetland. NYSDEC identifies the entire area as part of Freshwater Wetland US-1.

Wetlands are dominated by non-native vegetation such as:

- Narrow-leaf cattail (*Typha angustifolia*)
- Reed canarygrass (*Phalaris arundinacea*)
- Common buckthorn (*Rhamnus cathartica*)
- Multiflora rose (*Rosa multiflora*)

Both wetland areas are connected through an intermittent stream and drain to the west into Cayuga Lake. Remediation of the canal will require impact to Freshwater Wetland US-1. Both wetlands are depicted in Figure 2.

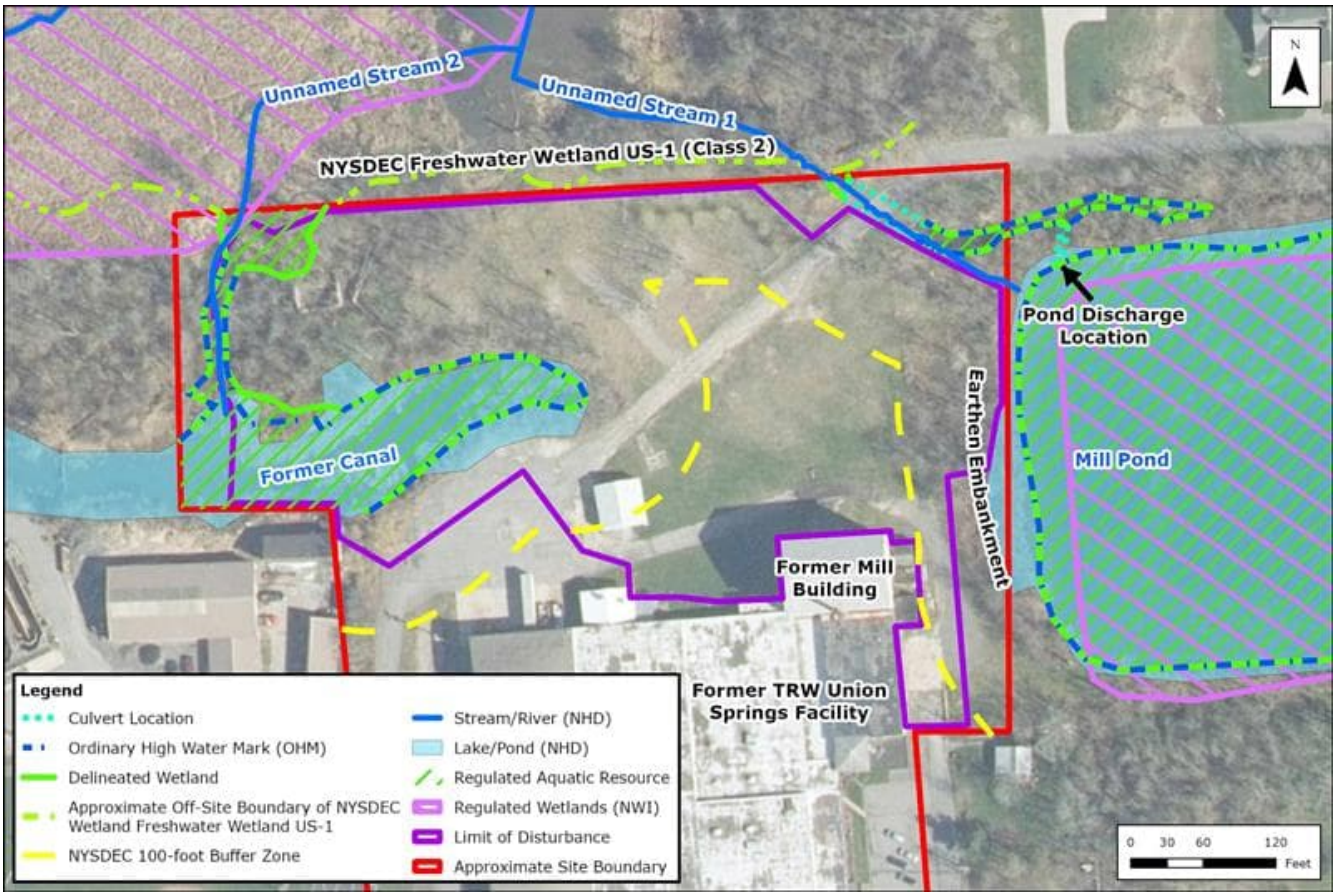


FIGURE 2 WETLAND MAP

3.1.3.2 WATERCOURSES

Two stream segments were found during the onsite wetland delineation. Stream 1 was a perennial unnamed tributary that drains overflow from Mill Pond to wetland US-1 off-site. Stream 2 was an intermittent unnamed tributary that drains the off-site portion of wetland US-1 to the onsite portion (canal). Both streams were delineated in their entirety and act as connectors between associated wetlands.

Water quality will be protected during construction by implementing the following erosion and sediment control measures:

- Installation of recessed silt fence downslope of all grading activities to prevent disturbed soils from being discharged to surface waters.
- Setting all sediment and soil stockpiles in upland areas, stabilizing the stockpiles with tarp prior to the onset of precipitation events, and surrounding the stockpiles with silt fence.
- Installing protection at all stormwater inlets; and
- Dewatering the open portion of the canal through the dam and pump method during construction to prevent the potential migration of soluble contaminants.

In addition, as part of the required Wastewater Discharge Permit for the Site, ZF is required to monitor all wastewater discharges for acceptable contaminant thresholds and conduct pretreatment of all wastewater discharges.

The implementation of erosion and sediment controls on Site, as well as the wastewater monitoring and pretreatment requirements will minimize the risk of any adverse impacts to water quality.

3.1.3.3 FLOODPLAINS

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Flood Map lists the wetland portion of the Site as having a 1 percent annual chance of flood hazard. The proposed remediation activities will not result in any fills within the 100-year floodplain.

3.1.4 THREATENED AND ENDANGERED SPECIES

Several species were identified by publicly available resources that may be present, have potential suitable habitat, or could be within the zone of proposed disturbance. The USFWS Information for Planning and Consultation (IPaC) online tool was accessed to obtain information regarding the species listed under the federal Endangered Species Act (ESA) (USFWS 2026). Desktop review of the IPaC database within the zone of proposed disturbance identified one (1) federally endangered species, the northern long-eared bat (*Myotis septentrionalis*; NLEB); and one (1) federally proposed threatened species, the monarch butterfly (*Danaus plexippus*) as identified in Appendix B. No federally designed critical habitat is present in the vicinity. The IPaC report is included in Appendix B, with follow-up correspondence from the USFWS in Appendix C.

There are no known maternity roost trees for the NLEB within 150 feet of the Site and no hibernacula within ¼ mile of the Site, so incidental take from tree clearing is exempt from prohibition under the Endangered Species Act, per the Final Section 4(d) Rule for the NLEB. Therefore, the interim

remedial measure (IRM) activities are not likely to adversely affect the NLEB, as documented in the follow-up correspondence from the USFWS (Appendix C).

In concurrence with the NYSDEC, the New York Natural Heritage Program (NYNHP) database was reviewed for potential rare or state-listed animals and plants in the vicinity of the proposed disturbance zone. The records from the database on February 3, 2021, identified two (2) state threatened species, lake sturgeon (*Acipenser fulvescens*) and bald eagle (*Haliaeetus leucocephalus*); and one (1) state endangered plant species, few-flowered spike rush (*Eleocharis quinqueflora*). No comprehensive field surveys have been conducted to confirm these identifications. The NYSDEC Natural Heritage Database correspondence is included in Appendix D.

3.1.5 CULTURAL RESOURCES

On 14 April 2025, ERM conducted a review of previously recorded and known cultural resources and surveys within the site and a 0.25-mile radius buffer using New York Office of Parks, Recreation, and Historic Preservation's (OPRHP) confidential Cultural Resources Information System (CRIS) included in Appendix E.

Within a 0.25-mile radius surrounding the Project area, there are 28 previously recorded architectural resources (OPRHP 2025). Two of these resources are listed on the NRHP and six are considered eligible. One resource, the potentially NRHP-eligible Howland Mill Complex (01148.000172), is located within the site; the remaining 27 recorded resources are within the 0.25-mile radius.

ERM initiated correspondence with the New York State Historic Preservation Office (SHPO) on 22 December 2020. On 7 January 2021, SHPO issued a response that identified three structures within the Site vicinity that were eligible for the State and Natural Registers for Historic Places. These places are: Former TRW Automotive – Addition, George Howland Grist Mill, and Howland Mill Complex Historic District. The SHPO letter stated that the IRM activities are not likely to adversely impact the historic structures provided that a construction protection plan will be created and implemented to protect those buildings from construction vehicles and vibrations. The SHPO correspondence is included in Appendix F.

In 2024, the USACE and SHPO entered into two programmatic agreements (PAs) in regard to the list of activities that would be acceptable for bank stabilization, replacement and repair. The other PA was related to the Transportation Regional General Permit that is still active until 2034. Both PAs are Appendix G and Appendix H respectively.

3.1.6 STATE ENVIRONMENTAL QUALITY REVIEW (SEQR)

ERM submitted Part 1 of the New York State Environmental Quality Review Act (SEQRA) Full Environmental Assessment Form (FEAF) to the NYSDEC on February 25, 2021. On March 9, 2021, the NYSDEC informed ERM via telephone call that the project does not require the completion of Parts 2 and 3. Part 1 of the FEAF is included in Appendix I.

4. DESCRIPTION OF PROPOSED ACTIVITY

4.1 PURPOSE AND NEED

ZF is proposing to do site remediation to remove contaminated sediment and replace it with clean fill. A Canal IRM (95 Percent) Design Work Plan is under review by NYSDEC. The design drawings are presented as Appendix K. During site investigations, contamination in the former canal in excess of applicable regulatory standards and/or the Site-specific remedial action objectives (RAOs). Contaminants have been found in the soils, groundwater, surface water, and sediment at the Site. This will require excavation of 2 feet of contaminated subsoil for removal and proper off-site disposal. The area of contamination includes the east end of the canal and immediate surroundings, so the excavation will require disturbance within the canal and its narrow fringe of wetland, as well as within the regulated AA. Contaminated soils will be replaced with engineered topsoil, consisting of a 1:1 mixture of mineral soil and compost within wetland areas, to mimic hydric soils. Excavated areas in the surrounding uplands will be backfilled with clean topsoil and/or structural fill. Wetlands will be restored with plantings and seedings of native wetland plants, shrubs, and trees to create a naturalistic wetland community. Surrounding uplands will also be restored with native herbaceous and woody species. The following table presents the chemicals that were identified on site in one or more environmental medium at concentrations above applicable regulatory standards or guidelines:

- Chlorinated volatile organic compounds (CVOCs): primarily TCE and its degradation products (cis-1,2-dichlorethene [cDCE], trans-1,2-dichloroethene, and vinyl chloride [VC]), but also sporadic detections of tetrachloroethene, 1,1,1-trichloroethane, and 1,1-dichloroethene;
- Additional VOCs: methylene chloride, benzene, acetone, and 2-butanone (methyl ethyl keytone);
- Polycyclic aromatic hydrocarbons (PAHs);
- Polychlorinated naphthalenes (PCNs);
- Polychlorinated biphenyls (PCBs);
- Perfluorooctanoic acid (PFOA);
- Pesticides;
- Per- and polyfluoroalkyl substances (PFASs); and
- Metals: arsenic, aluminum, cadmium, chromium, copper, iron, manganese, magnesium, lead, sodium, vanadium, and zinc.

4.2 PROJECT DESCRIPTION AND NARRATIVE

The proposed Project will involve the removal of sediment and soil, construction of groundwater treatment measures, and restoration of the disturbed wetland area. The Site will be cleared of vegetation and topsoil, including the eastern canal segment (Freshwater Wetland US-1). After the

sediment and soil is removed, new topsoil will be broadcast across the site. A 50/50 mixture of topsoil and organic material will be broadcast across the canal to mimic hydric soil conditions until wetland hydrology converts this mixture into hydric soil. Wetland restoration will occur in the existing wetland US-1 after the remediation of sediment and soil.

4.2.1 SITE PREPARATION

The site will be prepared by staking limits of disturbance and locations of proposed excavation activities and establishing sedimentation and erosion (S&E) controls. S&E controls will primarily consist of staked, recessed silt fence located downslope from all earth moving activities and doubled on the upslope side of wetlands. Other S&E controls will include coir logs at the wetland edge to prevent potential sedimentation of the canal. These coir logs will be left to decay in place as a growth medium for wetland plants. Soils stockpiled on site will be staked and covered to prevent erosion and sedimentation during precipitation events.

4.2.2 VEGETATION CLEARING

Once the S&E controls are in place, the contractor will proceed with clearing vegetation from the site, stockpiling cuttings/establishing skidding yards only in upland areas that are more than 100 feet from regulated wetland boundaries until they can be cut or chipped, used on Site and/or removed from the site. Smaller limbs/twigs may be disposed of onsite by forming brush piles for wildlife habitat, but only if such brush piles are placed more than 100 feet from wetland boundaries.

4.2.3 GRADING

Upon completion of vegetation clearing, the site will be excavated to remove contaminated soils and sediment. The wetland restoration area will be graded first to 12 inches below finished grade to allow for the deposition of topsoil/organic material mixture. Soil and sediment removed from wetland restoration area will be removed from the site for proper disposal at an approved disposal facility. The contractor will mix the topsoil and organic material at a 1:1 ratio and will broadcast that soil 12 inches deep across the wetland restoration area to establish hydric soil conditions within the root zone of the restoration area.

Further details of the creation of the restoration area are outlined in the mitigation plan in Appendix J. Grading will then proceed further up the site.

No soil excavation, grading, movement, or filling will take place in areas that are not protected by S&E controls. S&E controls will be maintained throughout the construction of the project until all unconsolidated soil materials are stabilized by rooted vegetation. S&E controls will be renewed, restored, or replaced to maintain their functional capacity as needed, until the site is stabilized.

4.2.4 CONSTRUCTION

Remediation activities are proposed to commence in August 2026. Construction shall not commence until all applicable permits and authorizations are obtained. Prior to construction, all permanent and temporary erosion and sediment controls and all temporary construction facilities

(soil and sediment stockpile area, decontamination pad, etc.), as documented on the 95 Percent Design of Canal 1 and 2 AOC Interim Remedial Measures Work Plan (Plan) will be installed. All temporary construction facilities will be installed outside the limits of the delineated wetland/canal areas. The construction contractor shall provide the equipment necessary to divert the 2-year storm event around the construction area. Phased construction for the open and buried canals will be completed in accordance with the Plan and will generally consist of Phase 1) excavation and stockpiling of materials for presumptive beneficial use, Phase 2) shallow soil mixing in the upland area of the Site, Phase 3) installation of permeable reactive barrier and recirculation system; Phase 4) excavation of top two feet of soil/ sediment within the open canal; and Phase 5) restoration activities. Construction will be completed in the dry, and the construction of the canal remediation area will be dewatered using the dam and pump method.

The proposed remediation project will include drainage improvements to accommodate flows into the canal. The existing 10-inch diameter culvert conveying flows underneath Howland Street from the south will be replaced with a 24-inch diameter culvert and a flume to accommodate high flow events.

4.2.5 SITE STABILIZATION/ RESTORATION

Upon completion of remediation activities, the site will be stabilized by finish grading in construction areas and in the restoration area, followed by proposed plantings and seeding, as noted in the attached site plan in Figure 1. The currently maintained lawn will be seeded with native wildflower and mixed grasses seed mixes, selected to provide nectar and pollen for variety of pollinating insects. This dense-rooted vegetation cover will help to stabilize soils and avoid erosion, retain soil moisture, as well as provide wildlife habitat value. The south bank of the canal will be restored with an engineered slope to ensure long-term bank stability and minimize erosion (Figure 3).

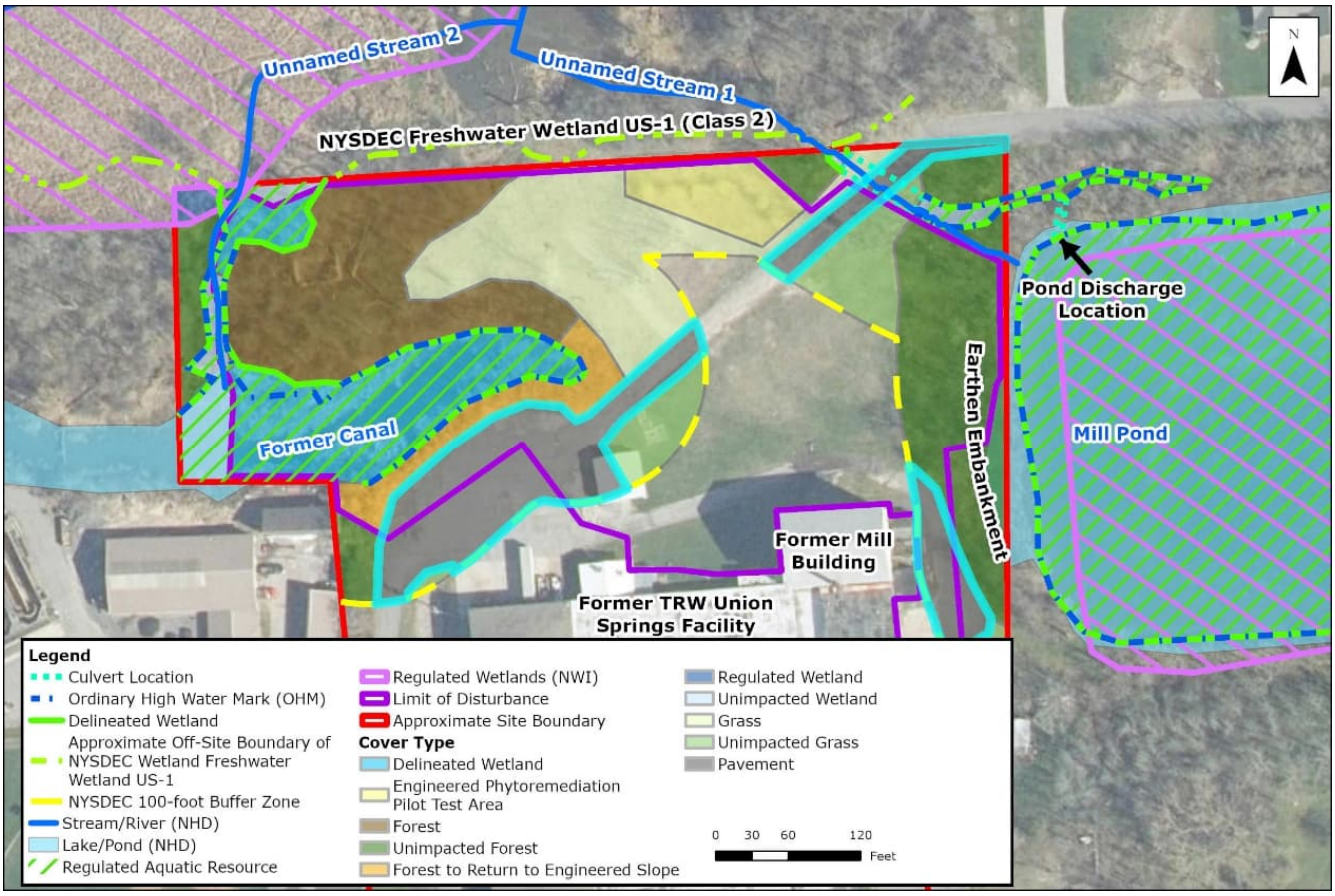


FIGURE 3 RESTORATION WITHIN BUFFER

4.2.6 MONITORING AND MAINTENANCE

Monitoring of the restoration wetland will follow construction completion and will continue for up to 5 years, depending on how the restoration wetland develops. Per the mitigation plan outlined in Appendix J, the restoration site will be monitored twice annually, during the growing season. The site monitor will assess the condition of trees, shrubs, and will survey 5 random sample plots to determine what groundcover vegetation is developing. The monitor will also conduct a random walk survey to search for non-native plants. If non-native invasive plant species are detected, they will be removed by manual pulling and will be disposed of offsite. If non-native invasive plant removal results in large areas of bare ground being exposed, New England Wetmix seed mix, or similar will be broadcast to cover the bare patches. The restoration site will be considered successful once 80% of the area has established rooted native vegetation. If this occurs by the end of the fifth year of monitoring, then monitoring will cease at that time. If, at the end of the 3rdh year of monitoring, the wetland has not yet successfully established, then monitoring and active maintenance will continue for up to an additional 2 years to try to bring the site into compliance. The applicant has agreed to conduct post-construction monitoring of the mitigation site (see Appendix J, Mitigation Plan).

4.2.7 SITE PROTECTION

The site will remain regulated by both the U.S. Army Corps of Engineers (USACE) and the NYSDEC. As such, the wetlands and their adjacent areas are protected under federal Section 404 regulations and NYSDEC Article 24 requirements. Any ground disturbance (including filling, grading, clearing, or hydrologic modification) will continue to require prior authorization from both agencies. This dual jurisdiction ensures that regulated wetland resources remain protected and that no work may proceed without appropriate review, permitting, and impact-avoidance measures.

4.3 ALTERNATIVE ANALYSIS

ZF is completing this as an IRM within the BCP to address shallow sediments exceeding Class C sediment criteria and shallow soil along the banks of the open canal exceeding soil cleanup objectives. No action was the only alternative considered due to the limited extent of sediment with Class C exceedances.

4.3.1 NO ACTION

The No Action alternative would involve not restoring the Site and leaving the site in its contaminated state. Whereas this alternative would avoid proposed wetland impacts, it would not provide the environmental benefit of removing contaminants from the Site. Leaving these contaminants could allow further/potential negative impacts to the Site and the adjacent areas. Cayuga Lake is a winter waterfowl concentration area, and bald eagles are known to occur on the lake. These contaminants magnify the trophic levels and can contribute to wildlife mortality and fishery contamination.

4.3.2 PREFERRED ALTERNATIVE

The proposed remediation site was selected due to the levels of contaminants exceeding the acceptable standard and Site-specific RAOs. Some of these exceedances were located within the former canal and will encroach into NYSDEC-regulated wetland US-1 and its 100-foot Regulated AA. The project sponsor proposes to remove the highest concentrations of contaminated soil and then plant the cleared area with native shrubs, trees, and herbaceous seed mix to restore valuable wetland habitat. This will restore a naturalistic vegetated buffer around the wetland that will help to protect the wetland ecosystem services. The proposed wetland restoration will improve wetland vegetation found onsite by replacing non-native invasive species with native species.

5. REGULATED ACTVITIIES/ SPECIFIC NATIONWIDE PERMIT (NWP) FOR ACTIVITY (#38)/ARTICLE 24/SECTION 10

Wetlands on the Former TRW Union Springs site are regulated by both the USACE and the NYSDEC. The proposed project requires the clearing of wooded wetlands, disturbance of soils, and discharges within wetlands on the site, as well as disturbance within the 100-foot AA to NYSDEC Freshwater Wetlands. Therefore, these activities (clearing of vegetation, excavating and grading of soils, construction, and mitigation) require a permit under the authorization under the Clean Water Act, Section 404 (Discharge into Waters of the U.S.), NWP #38, and Section 401 (Water Quality Certification). Remediation activities are exempt from New York State Environmental Conservation Law (NYSECL) Article 24 (the Freshwater Wetlands Act) permits but are still required to meet Freshwater Wetlands permitting standards.

The wetland elevation is approximately 382 feet. The mean Ordinary High-Water Mark (OHWM) of Cayuga Lake is 383.50 feet, and therefore the wetland is subject to Section 404 Clean Water Act Section 10 Rivers and Harbors Appropriation Act permitting.

Streams on the Site are classified as Class C within the project site. NYSECL Article 15 only requires permits for disturbance to bed and banks of streams classified as Class C, Standard C(T) or higher. Therefore, no Article 15 permit should be required for this project.

6. ENVIRONMENTAL IMPACTS

Environmental impacts reviewed for this project include disturbance to the vegetation, soils, wetlands/watercourses, listed species and other wildlife, and cultural resources. Direct and indirect impacts are considered below.

6.1 VEGETATION CLEARING

The Project will require the clearing of 1.1 acres of existing vegetation from the Site. This will include clearing 0.05 acre of existing vegetation within a regulated wetland (which is to be restored in kind upon completion of construction) and 0.53 acre of a delineated wetland. Direct temporary impacts from this clearing will include the removal of cattails within the canal and shrubs and some trees along the edge, which will minimally reduce wildlife habitat value for the wetland area and could destabilize soils in the wetland, as stumps and roots will need to be removed. Indirect impacts from vegetation clearing on the rest of the site may include an increase in erosion potential, as roots and stumps will be removed on slopes. Shade will be reduced in currently forested areas, which may cause a loss of soil moisture until the site is revegetated, which should restore both shade, soil stability, and soil moisture-holding capacity. Loss of trees may also increase soil moisture content somewhat, as trees transpire large amounts of water from the ground, and they will no longer do that once the forest habitat on the site is cleared. Upon completion of the project, the site will be vegetated with herbaceous growth, which will restore the soil stability and moisture-holding capacity of the soil. Forested habitat will be reduced until trees take root and grow. Some currently maintained lawn will be converted to old field habitat, which is in shorter supply in the region. This will result in diversification of habitat on the Site, which will increase biodiversity in both the plant and wildlife communities on the site.

6.2 SOIL DISTURBANCE, EROSION, AND SEDIMENTATION

Whenever soils are disturbed, there is a risk of erosion and sedimentation. Potential for erosion/sedimentation impacts will be minimized by placing staked, recessed silt fence downslope of each area of excavation, fill, or grading to capture any soils that may inadvertently erode from unconsolidated soil areas. Soil and sediment stockpiles will be surrounded by staked silt fences and will be covered with tarps at the onset of precipitation events, and if they must be left overnight, to prevent erosion of unconsolidated soils. Following construction and revegetation, soils will be stabilized with rooted vegetation, so further risk of erosion and sedimentation should be eliminated.

6.3 WETLAND IMPACTS

Remediation of the site will unavoidably require temporary disturbance and discharge into 0.05 acre of regulated wetlands and waters of the U.S. No direct impacts to watercourses or waterbodies are proposed or anticipated. This area of impact will be offset by the restoration of 0.05-acre wetland in place, which will yield a wetland restoration ratio of 1:1.

6.4 WETLAND 100-FOOT BUFFER ZONE

Remediation activities within the 100-foot protected buffer area around the regulated wetland boundaries will require the temporary disturbance of 0.83 acre forest, 0.58 acre of maintained lawn, and 0.65 acre of paved access roads and parking lots. These areas temporarily disturbed during remediation activities will be restored to pre-remediation cover type conditions, apart from approximately 0.17 acre forest along the south bank of the canal, which will be restored as an engineered bank stabilization feature to ensure long-term bank stability and minimize erosion and sedimentation within the restored canal (Figure 3).

6.5 THREATENED & ENDANGERED SPECIES

The proposed project site falls within the range of the northern long-eared bat, lake sturgeon, bald eagle, and few-flowered spike rush. Habitat for lake sturgeon does not occur on the site, and S&E controls will prevent adverse impacts to waters that flow to Cayuga Lake, so we assume no impact to this species. No eagle nests are located on site and therefore impacts to bald eagles are not expected.

Few-flowered spike rush (*Eleocharis quinqueflora*) is a small, rhizomatous spike rush with a last known occurrence onsite in 1979. This plant grows in calcareous, seepy shores, ledges, and fens. It typically groups in association with Clinton's clubsedge (*Trichophorum clintonii*). Clinton's clubsedge is also endangered in New York. Due to age of the record and the historic impacts to the site, it is unlikely that this species occurs onsite. A survey was suggested by the NYNHP if suitable habitat is present. Habitat onsite may support low potential and therefore will be a field review conducted in the fruiting season (June – September). This was suggested in the response letter from NYNHP dated 3 February 2021 and can be found in Appendix D.

Potential habitat for northern long-eared bat is found onsite. Whereas potential forested roosting habitat for bats will decrease on the site, it is not known occupied habitat, and such habitat is not limiting for bats in this region. Further, the clearing will create edge habitat that will still provide potential foraging habitat for bats. There are no known maternity roosts within 150 feet of the site and no hibernacula within ¼ mile, so incidental take from tree clearing is exempt from prohibition under the ESA, per the Final Section 4(d) Rule for the NLEB. Therefore, this project is not likely to adversely affect the northern long-eared bat.

6.6 WILDLIFE DISTURBANCE

Local wildlife species may be temporarily disturbed by construction activities due to increased human activity and noise. This impact will be avoided and minimized by working only during the daylight hours, which will avoid impacting nocturnal species, and by completing the project in the fall/winter (late October / early February), to avoid nesting birds and spawning herptiles. Some indirect disturbance of wildlife is unavoidable during construction, but it will only be temporary in nature, lasting only as long as construction activities. After construction, operation of the site requires infrequent human activity, so operation of the remediation site is not anticipated to disturb wildlife.

6.7 CULTURAL RESOURCES IMPACTS

ERM submitted a request to SHPO. SHPO issued a No Adverse Effect letter on January 7, 2021. SHPO created a project number for the Former TRW Wetland Restoration project, 20PR08099. SHPO identified that three buildings on the site are eligible for State and National Registers of Historic Places. These places are: Former TRW Automotive – Addition, George Howland Grist Mill and Howland Mill Complex Historic District. The No Adverse Effect letter is contingent that a construction protection plan will be created and implanted to protect those buildings from construction vehicles and vibrations. The concurrence letter can be found in Appendix F.

ERM submitted a request to SHPO under SEQRA on July 18, 2025. Under SEQRA, OPRHP has no comments regarding the impacts to historical or archaeological resources. OPRHP created a project number for the Former TRW Union Springs project, 25PR06543. OPRHP identified that one building on site is eligible for listing in the State and National Registers of Historic Places. That place is the Howland Mill Complex. The concurrence letter can be found in Appendix E.

7. MITIGATION STATEMENT

NWP General Condition #23 requires mitigation for wetland impacts in excess of 0.10-acre. The proposed project will result in impacts to 0.05-acre of wetlands and waters of the U.S., therefore not requiring mitigation.

In order to meet the standards in the 6 NYCRR 663 Freshwater Wetlands permit, the applicant must fully compensate for any remaining loss of wetland acreage and function. Wetland restoration will take place in the open canal after sediment removal and will meet the standard of 6 NYCRR 663. The details of the wetland mitigation plan can be found in the wetland mitigation plan Narrative in Appendix J.

Creation of wetlands for wetland impact mitigation is not always successful, usually due to a lack of adaptive management (monitoring and maintenance). Therefore, the project sponsor proposes a 3–5-year monitoring and maintenance plan that allows for adaptive management of the created wetland that should facilitate its successful establishment.

8. CONCLUSION

The proposed Former TRW Union Springs Property remediation has been planned to avoid adverse impacts to protected wetland resources to the degree practicable, but due to the configuration of the site, the sediment and soil removal from the canal is unavoidable, so impacts to wetlands and regulated AA could not be entirely avoided. Wetland US-1 found within the open canal restoration area will be restored to pre-disturbance conditions as soon as the construction is completed.

No adverse effects are anticipated to listed species or protected cultural resources. During construction, all ground disturbance areas and unconsolidated soil and sediment stockpiles will have staked, recessed silt fence secured downslope and will be covered in the event of precipitation to avoid erosion and sedimentation. Sedimentation and erosion controls will be maintained throughout the construction period until soils are stabilized. Therefore, no significant adverse impacts are anticipated as a result of this project.

APPENDIX A FORMER TRW UNION SPRINGS – WETLAND DELINEATION MEMORANDUM

Former TRW Union Springs- Wetlands Delineation Memorandum

Former Union Springs Facility Union Springs, New York

PREPARED FOR
ZF Active Safety and Electronics US LLC

DATE
May 2026

REFERENCE
0777953



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Former TRW Union Springs- Wetlands Delineation Memorandum

Former Union Springs Facility Union Springs, New York

0777953



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CONTENTS

1.	INTRODUCTION	1
2.	EXISTING CONDITIONS	1
2.1	AQUATIC RESOURCES	1
2.1.1	Mill pond	1
2.1.2	stream 1	2
2.1.3	NYSDEC freshwater wetland US-1	3
2.1.4	Stream 2	3
2.2	RARE SPECIES AND COMMUNITIES	3
3.	REGULATORY AUTHORITY	4
3.1	U.S. ARMY CORPS OF ENGINEERS	4
3.2	NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION	4
3.3	U.S. FISH AND WILDLIFE SERVICE	5
4.	REFERENCES	5

APPENDIX A NYSDEC NORTHERN LONG-EARED BAT OCCURANCE MAP & IPAC

APPENDIX B WETLAND DATA SHEET

APPENDIX C SITE PHOTOGRAPHS

1. INTRODUCTION

Environmental Resources Management (ERM) completed a delineation of the onsite aquatic resources on the former TRW Union Springs Site on 12 and 13 June 2014 in support of ongoing environmental characterization and potential future subsurface remediation activities (i.e., installation of a permeable reactive barrier (PRB) and planting hundreds of trees as part of a phytoremediation system). The delineation was completed in accordance with the U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0) (USACE 2011). Additionally, the wetland delineation was also completed in accordance with the New York State Freshwater Wetlands Delineation Manual (Browne et al. 1995).

A second site visit occurred on 15 March 2019 to update and reflag the wetland boundary. This visit determined that the previously delineated wetlands boundaries had not changed and therefore would not require new mapping. Flagging was placed on the wetland boundary and a wetland data plot was taken along with new site photographs attached in Attachment C. The wetland data form can be found in Attachment B.

ERM conducted a review of wetland boundaries in October 2023 to update wetland boundaries. During this visit, it was determined that wetland boundaries remained the same as they were identified during the 2019 update. No new data was taken during this visit.

ERM conducted a site visit on 23 April 2026 to update wetland boundaries. As requested by the USACE following initial review of the joint application permit in 2026 new data was collected during the April 2026 Site visit. The wetland data form is included in Attachment B. New photographs have been attached in Attachment C.

Delineation activities occurred on parcel numbers 141.09-1-21 and 141.09-1-21.1, both currently owned by LPW Development, LLC. (LPW), and 141.09-1-21.2 owned by the Village of Union Springs (the Village). All three parcels comprise the former TRW Union Springs BCP Site in Union Springs, New York. The following sections summarize the findings of the onsite delineation. All areas and aquatic resources referenced in this document are shown in Figure 1.

2. EXISTING CONDITIONS

2.1 AQUATIC RESOURCES

The onsite investigation identified the presence of regulated aquatic resources including wetlands, streams, the Mill Pond, and the former canal. The following sections briefly describe the existing conditions of each of the resources identified.

2.1.1 MILL POND

The Mill Pond was located in the eastern portion of the site on parcel 141.09-1-21.2. For the purposes of this investigation, the portion making up the western third of the pond was delineated due to its proximity to proposed on-site remedial activities. The pond is a man-made waterbody artificially impounded by an earthen dam along its western boundary and

contains a single outlet consisting of a 30-inch metal pipe located near the northwestern corner of the pond that discharges into Stream 1 (discussed below). The banks of the pond are approximately 1- to 2-feet high; nearly vertical; and well vegetated by upland species such as black willow (Salix nigra), common buckthorn (*Rhamnus cathartica*), multiflora rose (*Rosa multiflora),* and eastern poison ivy (*Toxicodendron radicans*). The substrate of the pond appeared to consist mainly of sand and fine particles (i.e., silt/clay) with significant amounts of cobbles and boulders scattered throughout. At the time of the onsite investigation, the depth of water was approximately 1 foot at the edge of the impoundment. Wildlife observed included frogs and waterfowl.

The Mill Pond was delineated as a watercourse (i.e., Water of the United States (WOUS)) and no fringe wetlands were noted adjacent to the pond. Mill Pond is a relatively permanent water (RPW), which discharges into Stream 1 and ultimately flows into Cayuga Lake. Cayuga Lake is a Traditionally Navigable Waterway (TNW); thus, Mill Pond is a tributary of a TNW and meets the definition of a WOUS and is subject to Section 404 of the Clean Water Act (CWA). The Mill Pond is neither mapped as occurring within nor does it occur adjacent to a New York State Department of Environmental Conservation (NYSDEC) freshwater wetland. Therefore, Mill Pond is not subject to Article 24 of the New York Environmental Conservation Law (NY ECL) or its accompanying regulations at 10 NYCRR §662-663.

2.1.2 STREAM 1

Stream 1 is an intermittent stream located to the north of the Mill Pond and south of Howland Street. It originates offsite to the east where it flows west via a culvert underneath N. Cayuga Street and enters the Village-owned parcel. As previously discussed, the single outlet to the Mill Pond discharges into the stream at the northwest corner of the pond. From that confluence, the stream meanders to the northwest onto the LPW-owned parcel and under Howland Street via an approximately 72-inch corrugated metal pipe (CMP) until it flows offsite to the north and discharges to NYSDEC Freshwater Wetland US-1. The banks of the stream are sparsely to moderately vegetated with species including black locust (*Robinia pseudoacacia),* box elder (*Acer negundo*), multiflora rose, and moneywort (*Lysimachia nummularia).* Additionally, the banks are approximately 10-feet high with a 45-degree slope. The channel of the stream is approximately 20-feet wide at the top of bank and 3- to 6-feet wide at the water surface. At the time of the investigation, there was approximately 1 foot of water in the channel, which was flowing at approximately 3 feet per second (fps). The bed of the stream consisted of primarily sand with minimal fine material (i.e., silt/clay) and cobbles. In addition, sporadic fringe wetlands were identified at the toe of slope adjacent to the stream channel. Those wetlands generally consist of linear emergent/scrub-shrub communities dominated by hydrophytic species such as silky dogwood (*Cornus ammomum*), American elm (*Ulmus americana*), jewelweed (*Impatiens capensis*), and switchgrass (*Panicum virgatum*). Indicators of hydric soils included fine particles (i.e., silt/clay) and low chroma colors while indicators of hydrology included a shallow water table and saturated soils.

The fringe wetlands meet the definition of a wetland since they contain hydrophytic vegetation, hydric soils, and sufficient hydrology; therefore, those wetlands are subject to Section 404 of the CWA. Additionally, Stream 1 meets the definition of a WOUS since it is a RPW that discharges into a TNW. As such, Stream 1 is subject to Section 404 of the CWA. The fringe wetlands are neither mapped as occurring within nor do they occur adjacent to a NYSDEC

freshwater wetland. Therefore, those wetlands are not subject to Article 24 of the NY ECL or its accompanying regulations at 10 NYCRR §662-663. Stream 1 is classified as a class "C" stream by the NYSDEC. As such, Stream 1 is not subject to the regulations of 6 NYCRR §608.

2.1.3 NYSDEC FRESHWATER WETLAND US-1

A portion of this wetland occurs in the northwest portion of the parcel 141.09-1-21; however, the majority of the wetland occurs slightly offsite directly adjacent to the northern property boundary. The onsite portion of this wetland generally consists of an emergent/scrub-shrub wetland dominated by hydrophytic species such as green ash (*Fraxinus pennsylvanica*), silky dogwood, southern arrowwood (*Viburnum dentatum*), and jewelweed. Hydric soil indicators generally include fine-grained particles with low chroma colors. Indicators of hydrology include a shallow water table, saturated soils, geomorphic position, and rivulets and channels.

NYSDEC Freshwater Wetland US-1 meets the definition of a wetland since it contains hydrophytic vegetation, hydric soils, and sufficient hydrology. As such, NYSDEC Freshwater Wetland US-1 is subject to Section 404 of the CWA. Additionally, NYSDEC Freshwater Wetland is a Class 2 wetland that is mapped by the NYSDEC. Therefore, this wetland is subject to Article 24 of the NY ECL and its accompanying regulations at 10 NYCRR §662-663.

2.1.4 STREAM 2

Stream 2 is located in the northwestern portion of parcel 141.09-21. This stream originates offsite to the north within NYSDEC Freshwater Wetland US-1. It flows in a southerly direction from the wetland adjacent to the western boundary of the parcel before discharging into the former canal (discussed below), an extension of Wetland US-1. The banks of the stream are approximately 2- to 4-feet high with a nearly vertical slope and well vegetated with shrubs including multiflora rose and box elder in addition to herbs/forbs. The channel of the stream ranges from approximately 6 to 15 feet wide. At the time of the onsite investigation, there was approximately 12 to 18 inches of water in the channel moving at approximately 2 to 3 fps. The bed of the stream consists of mostly sand with some fine material (i.e., silt/clay) and cobbles. Stream 2 was delineated as a watercourse.

Stream 2 contains limited fringe wetlands at its southern terminus were it discharges into the former canal (described below), Wetland US-1. Those fringe wetlands meet the definition of a wetland since they contain hydrophytic vegetation, hydric soils, and sufficient hydrology. As such, those wetlands are subject to Section 404 of the CWA. Stream 2 is a RPW covered tributary that ultimately connects to a TNW (i.e., Cayuga Lake); therefore, Stream 2 meets the definition of a WOUS and is subject to Section 404 of CWA. The fringe wetlands are neither mapped as occurring within nor do they occur adjacent to a NYSDEC mapped freshwater wetland. As such, they are not subject to Article 24 of the NY ECL or its accompanying regulations at 10 NYCRR 662-663. Additionally, Stream 2 is not mapped as a stream by the NYSDEC; however, since it flows from a class "C" stream, it is assigned the same classification. Stream 2 is not subject to the regulations of 6 NYCRR 608.

2.2 RARE SPECIES AND COMMUNITIES

An ERM biologist reviewed the U.S. Fish and Wildlife Service's (USFWS) Information, Planning, and Conservation (IPaC) System (USFWS 2014) to investigate the potential presence of federally-listed threatened, endangered, or candidate species or their critical habitats. The

IPaC System identified the potential presence of one federally-listed species, the federally threatened northern long-eared bat (NLEB) (*Myotis septentrionalis*) In addition to the IPaC System, the New York Environmental Mapper (NYDEC 2014) was reviewed to investigate the potential presence of NYSDEC-regulated resources including rare species and communities. That review showed that no rare species or communities were located within or in close proximity to the site. The NYSDEC Northern Long-eared Bat Occurrence by Town map confirms that the Town of Springport has a known NLEB summer occurrence. This map and the IPaC are included within Attachment A.

3. REGULATORY AUTHORITY

3.1 U.S. ARMY CORPS OF ENGINEERS

The USACE regulates the discharge of dredged or fill material into WOUS, including wetlands. Resources regulated by the USACE do not have an associated buffer. As such, a Section 404 CWA permit is not required for future remediation work conducted outside the boundary of the WOUS.

3.2 NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

The NYSDEC regulates freshwater wetlands larger than 12.4 acres, smaller wetlands of significant local importance (e.g., kettle hole bogs), and a 100-foot buffer zone (i.e., Adjacent Area) around the wetlands boundary within the adjacent uplands. The proposed remedial activities north of Howland Street/ Tarvia Access Road (i.e. the north field) are located within the 100-foot buffer zone of NYSDEC Freshwater Wetland US-1, a Class 2 wetland. The mill pond, the onsite fringe wetlands, and former canal are not regulated by the NYSDEC since they are neither mapped as occurring within nor located adjacent to a NYSDEC mapped freshwater wetland. NYSDEC regulates streams with a classification of “C (T)” or greater including streams classified as “C(TS)” and/or “B” and/or “A” followed by either “(T)” or “(TS)” (NY ECL, part 701). However, all of the onsite streams are class “C” streams, meaning that they are less pristine resulting in no additional regulation under the NYSDEC.

The proposed excavation and filling associated with construction of a PRB within the Adjacent Area would be a regulated activity by the NYSDEC under 10 NYCRR 663. The NYSDEC provides two authorizations for work within regulated areas: Letters of Permission and Article 24 Permits. In general, Letters of Permission can be granted for activities that will not substantially alter or impair the natural function of a wetland (10 NYCRR 663.4); whereas Article 24 Permits are usually required for activities that will result in significant impacts that will alter or impair the wetland’s natural function.

Construction activities associated with installation of the proposed PRB would likely be authorized by NYSDEC via a Letter of Permission. The proposed tree plantings (i.e. phytoremediation) do not require authorization from the NYSDEC. The first step to obtaining a Letter of Permission is a pre-application conference with the NYSDEC to discuss the proposed impacts of the project. Given that the proposed PRB and planting of numerous poplar trees would improve water quality, wildlife habitat, and the overall quality of the wetland habitat, it is anticipated that the NYSDEC would authorize the construction of the proposed PRB through

a Letter of Permission and would not require the filing of a permit due to the strategies improvement to the quality of habitat available at the site.

3.3 U.S. FISH AND WILDLIFE SERVICE

Any proposed activities that would result in a “take” of protected species or their critical habitats would require authorization from the USFWS. The proposed remediation work may result in a take of protected species or their critical habitat. As such, further investigation regarding the presence/absence of protected species is recommended.

4. REFERENCES

Browne, S., S. Crocoll, D. Goetke, N. Heaslip, T. Kerpez, K. Kogut, S. Stanford, and D. Spada. 1995. New York State Freshwater Wetlands Delineation Manual. New York State Department of Environmental Conservation, Albany, New York.

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New York Department of Environmental Conservation. 2014. New York Environmental Resource Mapper. New York Department of Environmental Conservation, Albany, New York. Website: http://www.dec.ny.gov/imsmaps/ERM/viewer.htm.

U.S. Army Corps of Engineers. 2011. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center.

U.S. Fish and Wildlife Service. 2014. Information, Planning, and Conservation (IPaC) System. U.S. Department of the Interior, Fish and Wildlife Service. Website: http://ecos.fws.gov/ipac/.

APPENDIX A NYSDEC NORTHERN LONG-EARED BAT OCCURANCE MAP & IPAC

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Cayuga County, New York



Local office

New York Ecological Services Field Office

(607) 753-9334
(607) 753-9699
fw5es_nyfo@fws.gov

3817 Luker Road
Cortland, NY 13045-9385

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

NOT FOR CONSULTATION

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs
The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

NOT FOR CONSULTATION

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

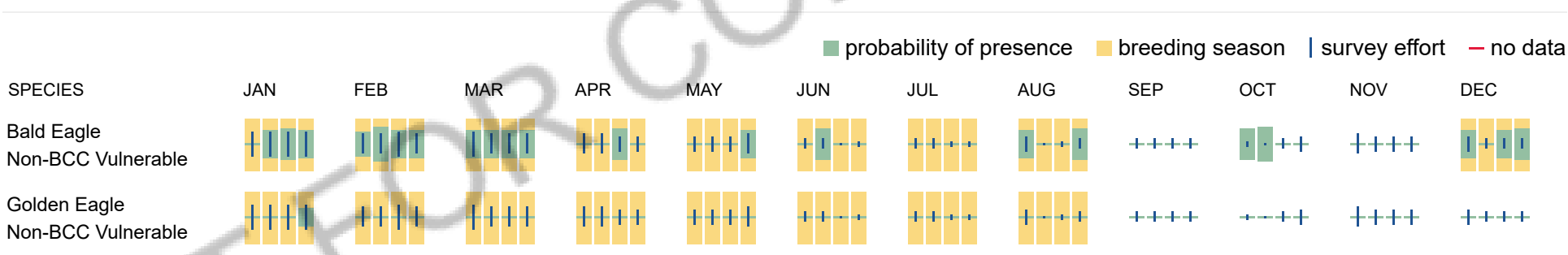
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report
On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

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The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases birds of concern, including Birds of Conservation Concern (BCC), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the Nationwide avoidance and minimization measures for birds document, and any other project-specific avoidance and minimization measures suggested at the link Measures for avoiding and minimizing impacts to birds for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles document, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs
The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

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Belted Kingfisher Megaceryle alcyon This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 15 to Jul 25
Black-billed Cuckoo Coccyzus erythropthalmus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink Dolichonyx oryzivorus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Chimney Swift Chaetura pelagica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Eastern Meadowlark Sturnella magna This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 25 to Aug 31
Evening Grosbeak Coccothraustes vespertinus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Pectoral Sandpiper Calidris melanotos This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Rose-breasted Grosbeak Pheucticus ludovicianus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 15 to Jul 31
Semipalmated Sandpiper Calidris pusilla This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▄)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

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1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



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Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Bald and Golden Eagle Protection Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ “Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds”.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs

NOT FOR CONSULTATION

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

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Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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APPENDIX B WETLAND DATA SHEET

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: TRW City/County: Union Springs, Cayuga Sampling Date: 3/15/2019

Applicant/Owner: TRW State: NY Sampling Point: US-1 Wet

Investigator(s): Anthony Cimpi Section, Township, Range:

Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR L Lat: 42.845823 Long: -76.695722 Datum: WGS 84

Soil Map Unit Name: Schoharie silt loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area**		
Hydric Soil Present?	Yes X	No ____	**within a Wetland?**	**Yes** X	**No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID:		

Remarks: (Explain alternative procedures here or in a separate report.)
NYSDEC FW Wetland US-1. Large wetland found offsite, some onsite. Sample point taken on fringe of wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches):	5
Water Table Present?	Yes X	No ____	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches):	0

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Standing water found onsite with some areas of open water. Many waterfowl species seen during investigation.

VEGETATION – Use scientific names of plants. Sampling Point: US-1 Wet

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix nigra*	15	Yes	OBL
2. *Fraxinus pennsylvanica*	10	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	25	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Rosa multiflora*	5	Yes	FACU
2. *Cornus amomum*	5	Yes	FACW
3. *Rhamnus cathartica*	5	Yes	FAC
4.			
5.			
6.			
7.			
	15	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Typha angustifolia*	65	Yes	OBL
2. *Phalaris arundinacea*	35	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	50	x 2 =	100
FAC species	5	x 3 =	15
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	140 (A)		215 (B)

Prevalence Index = B/A = 1.54

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Shrubs and trees found on fringe of wetland

SOIL

Sampling Point: US-1 Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/1	90	10YR 5/8	10	C	M	Loamy/Clayey	Prominent redox concentrations
6-20	10YR 5/2	85	10YR 5/8	15	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 8.1 2018 Errata. (http://soils.usda.gov/use/hydric)

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Former TRW Restoration City/County: Union Springs/Cayuga Sampling Date: 4/23/26

Applicant/Owner: ZF State: NY Sampling Point: US-1

Investigator(s): T Cimpi Section, Township, Range:

Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope %:

Subregion (LRR or MLRA): LRR L Lat: 42.845598 Long: -76.696265 Datum: WGS 1984

Soil Map Unit Name: Schoharie silt loam NWI classification: PEM1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No	**within a Wetland?** **Yes** X **No**
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
Large emergent marsh associated with Cayuga Lake.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
USFWS NWI Maps; NYSDEC FWW Maps; USEPA NHD Maps; USDA/NRCS Hydric Soils Maps; Aerial Imagery; Historical Imagery; USGS Topographic Maps.

Remarks:
Hydrology present

VEGETATION – Use scientific names of plants. Sampling Point: US-1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rhamnus cathartica*	5	Yes	FAC
2. *Rosa multiflora*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	10	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Lysimachia nummularia*	55	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	55	x 2 =	110
FAC species	5	x 3 =	15
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	65 (A)		145 (B)

Prevalence Index = B/A = 2.23

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytes dominate the plot

SOIL

Sampling Point: US-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	90	7.5YR 4/4	10	C	PL	Loamy/Clayey	Distinct redox concentrations
12-20	10YR 4/2	80	10YR 4/4	20	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Hydric soil conditions present

APPENDIX C SITE PHOTOGRAPHS



Former Canal



Mill Pond



Stream 1 - Downstream



Stream 1 - Upstream



Stream 2 - Downstream



Stream 2 - Upstream



Upland Maintained Lawn



Upland Woods



US-1 Offsite



US-1 Onsite

Appendix B: Photographic Log

CLIENT: ZF Active Safety and Electronics US LLC	SITE LOCATION: Former TRW Restoration	PROJECT NO.: 0777953

PHOTO NO.	DATE
1.	23 April 2026

DIRECTION PHOTO TAKEN
West

DESCRIPTION
Former Canal Section of Wetland US-1



PHOTO NO.	DATE
2.	23 April 2026

DIRECTION PHOTO TAKEN
East

DESCRIPTION
Former Canal Section of Wetland US-1



Appendix B: Photographic Log

CLIENT: ZF Active Safety and Electronics US LLC	SITE LOCATION: Former TRW Restoration	PROJECT NO.: 0777953

PHOTO NO.	DATE
3.	23 April 2026

DIRECTION PHOTO TAKEN
North

DESCRIPTION
Wetland US-1



PHOTO NO.	DATE
4.	23 April 2026

DIRECTION PHOTO TAKEN
South

DESCRIPTION
Wetland US-1



Appendix B: Photographic Log

CLIENT: ZF Active Safety and Electronics US LLC	SITE LOCATION: Former TRW Restoration	PROJECT NO.: 0777953

PHOTO NO.	DATE
5.	23 April 2026

DIRECTION PHOTO TAKEN
West

DESCRIPTION
Wetland US-1



APPENDIX B UNITED STATES FISH AND WILDLIFE SERVICE INFORMATION FOR PLANNING AND CONSULTATION DATA OUTPUT

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Cayuga County, New York



Local office

New York Ecological Services Field Office

(607) 753-9334
(607) 753-9699
fw5es_nyfo@fws.gov

3817 Luker Road
Cortland, NY 13045-9385

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

NOT FOR CONSULTATION

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs
The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

NOT FOR CONSULTATION

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

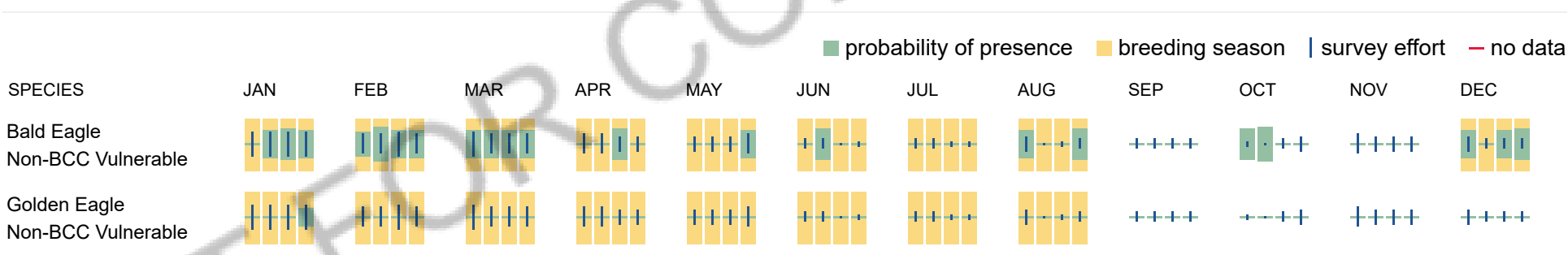
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report
On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

NOT FOR CONSULTATION

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases birds of concern, including Birds of Conservation Concern (BCC), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the Nationwide avoidance and minimization measures for birds document, and any other project-specific avoidance and minimization measures suggested at the link Measures for avoiding and minimizing impacts to birds for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles document, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs
The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

NOT FOR CONSULTATION

Belted Kingfisher Megaceryle alcyon This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 15 to Jul 25
Black-billed Cuckoo Coccyzus erythropthalmus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink Dolichonyx oryzivorus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Chimney Swift Chaetura pelagica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Eastern Meadowlark Sturnella magna This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 25 to Aug 31
Evening Grosbeak Coccothraustes vespertinus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Pectoral Sandpiper Calidris melanotos This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Rose-breasted Grosbeak Pheucticus ludovicianus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 15 to Jul 31
Semipalmated Sandpiper Calidris pusilla This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▄)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

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1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



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Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Bald and Golden Eagle Protection Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ “Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds”.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs

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Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

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Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

APPENDIX C UNITED STATES FISH AND WILDLIFE SERVICE CONCURRENCE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
http://www.fws.gov/northeast/nyfo/es/section7.htm

IPaC Record Locator: 927-98993413 February 04, 2021

Subject: Consistency letter for the 'Former TRW Wetland Restoration' project indicating that any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Dear Anthony Cimpi:

The U.S. Fish and Wildlife Service (Service) received on February 04, 2021 your effects determination for the 'Former TRW Wetland Restoration' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. You indicated that no Federal agencies are involved in funding or authorizing this Action. This IPaC key assists users in determining whether a non-Federal action may cause "take"[1] of the northern long-eared bat that is prohibited under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the Action is not likely to result in unauthorized take of the northern long-eared bat.

Please report to our office any changes to the information about the Action that you entered into IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation.

If your Action proceeds as described and no additional information about the Action's effects on species protected under the ESA becomes available, no further coordination with the Service is required with respect to the northern long-eared bat.

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Former TRW Wetland Restoration

2. Description

The following description was provided for the project 'Former TRW Wetland Restoration':

> ZF Active Safety and Electronics U.S., LLC (ZF), voluntarily entered into a Brownfield Cleanup Agreement with the New York State Department of Environmental Conservation (NYSDEC) on 7 January 2016. ZF proactively proposed to remediate soil contamination at their Union Springs Facility, located at 107 Salem Street, Union Springs, New York, including portions of three parcels that formerly made up this facility. ZF will be removing sediment from the site, including the open canal. The open canal is connected to Cayuga Lake and is the current boundary of NYSDEC Freshwater Wetland US-1. The portion of the properties currently regulated under the Brownfield Cleanup Agreement. The Site is an approximate 12-acre manufacturing facility with associated parking and maintained lawn.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.84426135,-76.69504779208823,14z



Determination Key Result

This non-Federal Action may affect the northern long-eared bat; however, any take of this species that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o).

Determination Key Description: Northern Long-eared Bat 4(d) Rule
This key was last updated in IPaC on **May 15, 2017**. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for non-Federal actions is to assist determinations as to whether proposed actions are excepted from take prohibitions under the northern long-eared bat 4(d) rule.

If a non-Federal action may cause prohibited take of northern long-eared bats or other ESA-listed animal species, we recommend that you coordinate with the Service.

Determination Key Result

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

   No

2. Will your activity purposefully **Take** northern long-eared bats?

   No

3. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?

   Automatically answered
   No

4. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

   Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html.

   Yes

5. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

   No

6. Will the action involve Tree Removal?

   Yes

7. Will the action only remove hazardous trees for the protection of human life or property?

   No

8. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

   No

9. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

   No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

0

2. If known, estimated acres of forest conversion from April 1 to October 31

0

3. If known, estimated acres of forest conversion from June 1 to July 31

0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

APPENDIX D NEW YORK NATURAL HERITAGE PROGRAM CONCURRENCE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

February 3, 2021

Anthony Cimpi
ERM
304 Sayles Street
Oneida, NY 13421

Re: Former TRW Wetland Restoration
County: Cayuga Town/City: Springport

Dear Anthony Cimpi:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities that our database indicates occur in the vicinity of the project site.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our database. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 7 Office, Division of Environmental Permits, at dep.r7@dec.ny.gov.

Sincerely,

Heidi Krahling
Environmental Review Specialist
New York Natural Heritage Program

The following state-listed animals have been documented in the vicinity of the project site.

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing.

For information about any permit considerations for your project, please contact the Permits staff at the NYSDEC Region 7 Office at dep.r7@dec.ny.gov, 315-426-7438.

The following species has been documented in Cayuga Lake within 200 yards of the project site.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Fish				
Lake Sturgeon	*Acipenser fulvescens*	Threatened		13888

The following species has been documented within 0.8 mile of the project site.

COMMON NAME	*SCIENTIFIC NAME*	*NY STATE LISTING*	*FEDERAL LISTING*	
Birds				
Bald Eagle *Breeding*	*Haliaeetus leucocephalus*	Threatened		15943

This report only includes records from the NY Natural Heritage database.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, and from NYSDEC at www.dec.ny.gov/animals/7494.html.

The following rare plant has a historical record in the vicinity of the project site.

The following rare plant was documented in the vicinity of the project site at one time, but has not been documented there since 1979 or earlier, and/or there is uncertainty regarding its continued presence. There is no recent information on this plant in the vicinity of the project site and its current status there is unknown. In most cases the precise location of the plant in this vicinity at the time it was last documented is also unknown.

If suitable habitat for this plant is present in the vicinity of the project site, it is possible that it may still occur there. We recommend that any field surveys to the site include a search for this species, particularly at sites that are currently undeveloped and may still contain suitable habitat.

COMMON NAME	*SCIENTIFIC NAME*	*NYS LISTING*	*HERITAGE CONSERVATION STATUS*
Vascular Plants			
Few-flowered Spike Rush	*Eleocharis quinqueflora*	Endangered	Critically Imperiled in NYS

16201

This report only includes records from the NY Natural Heritage database. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the rare animals and plants in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.guides.nynhp.org, from NatureServe Explorer at www.natureserve.org/explorer, and from USDA's Plants Database at http://plants.usda.gov/index.html (for plants).

APPENDIX E NEW YORK STATE OFFICE PARKS, RECREATION, AND HISTORIC PRESERVATION CONCURRENCE

New York State
Parks, Recreation and
Historic Preservation

KATHY HOCHUL
Governor

RANDY SIMONS
Commissioner Pro Tempore

August 12, 2025

Annika Liger
ERM
277 Park Avenue, 20th Floor
New York, NY 10172

Re: SEQRA
Former TRW Union Springs
Union Springs, Cayuga County
25PR06543

Dear Annika Liger:

Thank you for requesting the comments of the Division for Historic Preservation of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the submitted documents under the State Environmental Quality Review Act (SEQRA) as requested. These comments are those of the Division for Historic Preservation and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project.

We note that the proposed project is within the Howland Mill Complex, which is eligible for listing in the State and National Registers of Historic Places. Therefore, under SEQRA, our office as subject matter experts, have reviewed the submission received on July 18, 2025, including the Phase IA Literature Search dated July 18, 2025. Based on that review, we have no comments regarding impacts to historic or archaeological resources.

Please be aware that if this project will involve state or federal permits, funding or licenses it may be subject to review under Section 14.09 of the NYS Parks, Recreation and Historic Preservation Law or Section 106 of the National Historic Preservation Act.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

If you have any questions, you can call or e-mail me at the contact information below.

Sincerely,

Robyn Sedgwick
Historic Site Restoration Coordinator
e-mail: robyn.sedgwick@parks.ny.gov

APPENDIX F STATE HISTORIC PRESERVATION OFFICE CONCURRENCE AND NO EFFECT LETTER

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ERIK KULLESEID
Commissioner

January 7, 2021

Margaret Crawford
USACE
7413 Country House Road
Auburn, NY 13021

Re: USACE
Former TRW Wetland Restoration
Howland Street, Union Springs, Cayuga County
20PR08099

Dear Margaret Crawford:

Thank you for requesting the comments of the New York State Historic Preservation Office (SHPO). We have reviewed the provided documentation in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include other environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

We note that the proposed project is adjacent to several properties eligible for listing in the State and National Registers of Historic Places. These properties include: Former TRW Automotive – Addition, George Howland Grist Mill and Howland Mill Complex Historic District. We have reviewed the submission received on December 22, 2020 including the drawings dated January 2020. Based on that review, we note the project, as described, will have No Adverse Effect on historic or archaeological resources provided the following condition is met:

- A construction protection plan will be created and implemented to protect the adjacent eligible historic resources from construction vehicles and vibrations.

Should you be unable to meet this condition, consultation with our office will resume. If you have any questions, I can be reached at 518-268-2170.

Sincerely,

Robyn Sedgwick
Historic Site Restoration Coordinator
e-mail: robyn.sedgwick@parks.ny.gov via e-mail only

cc: A. Cimpi – ERM

APPENDIX G UNITED STATES ARMY CORPS OF ENGINEERS AND STATE HISTORIC PRESERVATION OFFICE PROGRAMMATIC AGREEMENTS 2024

PROGRAMMATIC AGREEMENT AMONG
U.S. ARMY CORPS OF ENGINEERS
NEW YORK DISTRICT REGULATORY BRANCH
BUFFALO DISTRICT REGULATORY BRANCH
NEW YORK STATE OFFICE OF PARKS, RECREATION AND HISTORIC PRESERVATION STATE HISTORIC PRESERVATION OFFICE REGARDING IMPLEMENTATION OF THE CORPS OF ENGINEERS REGULATORY PROGRAM WITHIN THE STATE OF NEW YORK

WHEREAS, the U.S. Army Corps of Engineers New York and Buffalo Districts (Corps) administer the Corps' Regulatory Permit Program authorized by Section 404 of the Clean Water Act of 1973, Section 10 of the Rivers and Harbors Act of 1899, and Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972; and

WHEREAS, the Corps has generally determined that projects authorized by the Corps may have effects upon properties included in or eligible for inclusion in the National Register of Historic Places (NRHP) and has consulted with the Advisory Council on Historic Preservation (ACHP) and the New York State Office of Parks, Recreation and Historic Preservation State Historic Preservation Office (SHPO) pursuant to Section 800.14(b) of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (54 U.S.C. 30618), and Section 110(f) of the same Act (54 U.S.C. 30617); and

WHEREAS, the Corps and SHPO have developed a Streamlined Activity List of certain activities which both agencies agree will result in no effects to historic properties or no adverse effects to historic properties; and

WHEREAS, the Corps and SHPO have developed a Standard Operating Procedure for evaluation of permit applications falling within the Streamlined Activity List; and

WHEREAS, pursuant to 36 CFR 800.14(b), a Programmatic Agreement (PA) may be used to govern the implementation of a particular program when effects on historic properties are similar and repetitive or are regional in scope; and

WHEREAS, the Corps contacted federally recognized tribes by letter signed by the New York and Buffalo District Regulatory Chiefs on September 11, 2019 inviting their participation in development of this programmatic agreement as a consulting party. The Tribes contacted included the Cayuga Nation, Oneida Indian Nation, Oneida Tribe of Indians Wisconsin, Onondaga Indian Nation, Seneca Nation of New York, Seneca-Cayuga Nation, Shinnecock Nation, Stockbridge-Munsee Community, St. Regis Band of Mohawk Indians, Tonawanda Seneca Nation, Tuscarora Nation, Delaware Nation, Delaware Tribe, Unkechaug Nation, and the Mohawk Nation; and the Delaware Tribe and the Unkechaug Nation requested to be consulting parties; and

WHEREAS, the Corps issued a public notice on September 11, 2019 soliciting comments from the public, the Tribes listed above on the PA and subsequently received comments from the New York Archaeological Council; and

WHEREAS, pursuant to 800.14(b), the Corps has invited the participation of the ACHP in this consultation, and the ACHP has elected not to participate in the development of this PA; and

WHEREAS, the Corps reached out to the New York State Department of Environmental Conservation (NYSDEC), which requested to be a consulting party; and

WHEREAS, Draft versions of the Streamlined Activity List and this PA were sent to the consulting parties on July 27, 2020, and responses were received from the Delaware Tribe and the NYSDEC, but not from the Unkechaug Nation; and

NOW, THEREFORE, the Corps, the ACHP, and the SHPO agree that applications for Corps Permits shall be administered in accordance with the following stipulations to satisfy the Corps' Section 106 Responsibilities.

STIPULATIONS

1. Review of applications for Corps Permits will be conducted in accordance with 36 CFR §800.4-800.6 of the Council's regulations, *Protection of Historic Properties*, (36 CFR Part 800) and the Corps' Regulations (33 CFR 325 Appendix C with Interim Guidance from 2005 and 2007).

2. The Corps shall follow the enclosed Standard Operating Procedure for Review of the Streamlined Activities list (Attachment A).

3. Dispute Resolution:

    a. Should any signatory or concurring party to this PA object at any time to any actions proposed or the manner in which the terms of this PA are implemented with respect to the Undertaking, the Corps shall consult with such party to resolve the objection. If the Corps determines that such objection cannot be resolved, the Corps will:

        i. Forward all documentation relevant to the dispute, including the Corps' proposed resolution, to the ACHP. The ACHP shall provide the Corps with its advice on the resolution of the objection within fifteen (15) calendar days of receiving all documentation relevant to the dispute. Prior to reaching a final decision on the dispute, the Corps shall prepare a written response that considers and addresses any timely advice or comments regarding the dispute from the ACHP, signatories, and concurring parties, and provide them with a copy of this written response. The Corps will then proceed according to its final decision.

ii. If the ACHP does not provide its advice regarding the dispute within the fifteen (15) day time period, the Corps may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the Corps shall prepare a written response that considers and addresses any timely comments regarding the dispute from the signatories and concurring parties to the PA, and provide them and the ACHP with a copy of such written response.

iii. The Corps' responsibility to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

4. Amendments

a. This PA may only be amended when such an amendment is agreed to in writing by all signatory parties, in consultation with concurring parties. Following consultation, concurring parties may choose in writing to concur in or to decline to concur in a proposed amendment. The amendment will be effective on the date a copy of the amendment is signed by all signatory parties and filed with the ACHP.

5. Duration and Extension

a. Duration and Extension. This Agreement shall remain in effect from the date of final signature for a period not to exceed ten (10) years unless terminated earlier pursuant to Stipulation 7.

b. The Signatories may collectively agree to execute this Agreement to cover additional calendar years, or portions thereof, provided that the original agreement has not expired.

6. Interim Reviews

a. The Corps and SHPO will meet no fewer than every two years to discuss the status of this PA and determine if amendments are needed. Consulting parties identified in this document will be invited to these discussions.

7. Termination

a. If any signatory to the PA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation 4 above. If within thirty (30) days an amendment cannot be reached, any signatory party may terminate the PA upon written notification to the other signatory parties.

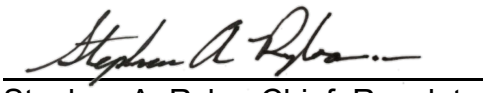
8. Severability
    a. If any section, subsection, paragraph, sentence, clause, or phrase in this PA is, for any reason, held to be unconstitutional, invalid, or ineffective, such decision shall not affect the validity or effectiveness of the remaining portions of this PA.

9. Counterparts
    a. This PA may be executed in counterparts, with a separate page for each signatory. This PA will become effective upon the date of the final signature. The Corps will ensure that each signatory is provided with a complete copy of the final PA.

Execution of this PA by the Corps and SHPO, and implementation of its terms is evidence that the Corps has taken into account the effects of this Undertaking on historic properties and has afforded the ACHP an opportunity to comment, in satisfaction of its responsibilities under Section 106 of the National Historic Preservation Act.

SIGNATORIES:

UNITED STATES ARMY CORP OF ENGINEERS NEW YORK DISTRICT



Date 07 JANUARY 2021

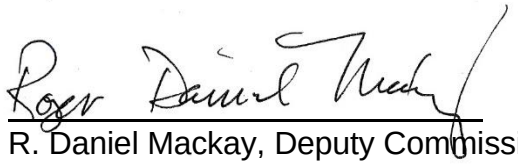
Stephan A. Ryba, Chief, Regulatory Branch

UNITED STATES ARMY CORP OF ENGINEERS BUFFALO DISTRICT

Diane C Kozlowski Date 29 Dec 2020

Diane C. Kozlowski,
Chief, Regulatory Branch

NEW YORK STATE HISTORIC PRESERVATION OFFICER



Date 1-7-2021

R. Daniel Mackay, Deputy Commissioner for Historic Preservation/SHPO

CONCURRING PARTIES:

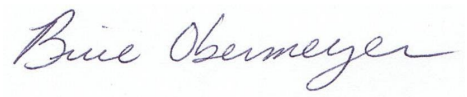
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION



_____ Date__Jan 4, 2021_____

Charles Vandrei, Agency Historic Preservation Officer

DELAWARE TRIBE



_____ Date_____12/29/2020_____

Brice Obermeyer, Tribal Historic Preservation Officer

Attachment A

Standard Operating Procedure for Review of Certain Activities with Respect to Section 106 of the National Historic Preservation Act**

I. Review for Historic/Cultural Resources
   a. The Corps will research each undertaking in the New York Cultural Resource Information System (CRIS) Online database to determine if there are any listed or eligible historic properties within 500 feet of the Corps Permit Area (Permit Area)/Area of Potential Effects (APE) or if the Permit Area/APE is located in an archaeologically sensitive area.

II. Determine if Consultation with New York State Office of Parks, Recreation and Historic Preservation Office (SHPO) is Required
   a. If the undertaking meets one of the following conditions, NO CONSULTATION IS REQURED WITH SHPO:
      i. The Permit Area/APE is not located within an archeologically sensitive area and there are no listed or eligible historic properties (buildings/structures), based upon NY CRIS data, within 500 feet of the Permit Area/APE, and the proposed ground disturbance within the Permit Area/APE is less than one acre
      ii. The project is an in-kind culvert replacement/maintenance/rehabilitation within previously disturbed soils and meets the following conditions:
         1. Is placed on the same alignment as the old; and
         2. Is no more than 33% larger in cross section only and not in length; and
         3. Does not remove, disturb, or obscure any stone wing or headwalls associated with the culvert or its predecessors; and
         4. Is placed such that all pre-construction contours and conditions are restored.
      iii. The project consists of bank stabilization with no cut back of the existing stream/lake bank
      iv. The project consists of bank stabilization along a lake shore or non-perennial stream bank, with a bank cut that is at least 500 feet from a known archaeological site (based upon existing CRIS data)
      v. The project consists of bank stabilization along a perennial stream bank outside of the counties listed in Appendix A, with a bank cut that is at least 500 feet from a known archaeological site (based upon existing CRIS data)
      vi. The project consists of stream bank stabilization to restore/replace areas lost to erosion and does not extend beyond 10 feet upstream or downstream of the eroded area
      vii. The project consists of maintenance dredging of recently accumulated sediments (this does not apply to areas of new dredging or to deepening of previously dredged areas beyond previously authorized depths)
      viii. The project consists of a residential use dock (floating, open pile or crib supported)
      ix. Project consists of work within an active stream/river channel, provided the following conditions:

1. Project is a replacement/repair of an existing utility crossing or similar feature
2. Project does not result in greater than 200 square feet of excavation into previously undisturbed river bed

x. SHPO has previously indicated that the work will have no effect or no adverse effect to historic properties and the Corps makes the same determination.

b. If the project does not meet any of the above conditions and the Corps determines that there is potential for the project to cause an effect to Historic Properties, the Corps will consult with SHPO through the CRIS Online system and any Native American tribes/nations, as appropriate.

III. Procedures if no consultation is required with SHPO pursuant to II. a. (i.-x.)

a. Decision Document/MFR will state that the project has No Effect or No Adverse Effect to Historic Properties, including rationale
b. Place CRIS map print out in administrative record
c. Choose appropriate subordinate action in Corps database (ORM2)

**Note – If at any time during the review process it is determined that consultation with Native American tribes/nations is required, this SOP does not apply.

Appendix A:

Counties where bank stabilization with bank cuts are not covered by this Programmatic Agreement:

ALBANY
BRONX
BROOME
CHEMUNG
COLUMBIA
DELAWARE
DUTCHESS
GREENE
KINGS
NASSAU
NEW YORK
ORANGE
PUTNAM
QUEENS
RICHMOND
ROCKLAND
SUFFOLK
SULLIVAN
TIOGA
ULSTER
WESTCHESTER

APPENDIX H UNITED STATES ARMY CORPS OF ENGINEERS AND STATE HISTORIC PRESERVATION OFFICE TRANSPORATION REGIONAL GENERAL PERMIT 2024

PROGRAMMATIC AGREEMENT AMONG
U.S. ARMY CORPS OF ENGINEERS
BUFFALO AND NEW YORK DISTRICT REGULATORY BRANCHES, ADVISORY COUNCIL ON HISTORIC PRESERVATION, AND NEW YORK STATE OFFICE OF PARKS, RECREATION AND HISTORIC PRESERVATION
STATE HISTORIC PRESERVATION OFFICE

REGARDING IMPLEMENTATION OF THE TRANSPORTATION REGIONAL GENERAL PERMIT (TRGP-1) AND SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

WHEREAS, the U.S. Army Corps of Engineers Buffalo and New York District Regulatory Branches (USACE) administer the USACE Regulatory Permit Program authorized by Section 404 of the Clean Water Act of 1973, Section 10 of the Rivers and Harbors Act of 1899, and Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972; and

WHEREAS, the Transportation Regional General Permit (TRGP-1) and any subsequently reissued versions, provides USACE regulatory authorization for certain kinds of work in nontidal waters and wetlands in New York associated with certain kinds of transportation-related projects conducted by the New York State Department of Transportation (NYSDOT), New York State Thruway Authority (NYSTA), and/or the New York State Canal Corporation (NYSCC); and

WHEREAS, pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, 54 U.S.C. 306108, and 33 CFR Part 325, Appendix C, “Processing of Department of the Army Permits: Procedures for Protection of Historic Places”, and “Revised Interim Guidance for Implementing Appendix C of 33 Part 325 with the Revised Advisory Council on Historic Preservation Regulations at 36 CFR Part 80” dated April 25, 2005, and any revised regulations or procedures, the USACE is required to take into account the effects of undertakings authorized by TRGP-1 on properties included in or eligible for inclusion in the National Register of Historic Places (NRHP) prior to the issuance of permits for the undertakings and to consult with the New York State Office of Parks, Recreation and Historic Preservation State Historic Preservation Office (SHPO), Federally recognized Indian Tribes, representatives of local government, permit applicants, and other consulting parties; and

WHEREAS, the USACE has generally determined that activities authorized under the TRGP-1 may have an adverse effect upon properties included in or eligible for inclusion in the NRHP and has consulted with the Advisory Council on Historic Preservation

(ACHP) and the SHPO pursuant to Section 800.14(b) of the regulations (36 CFR Part 800) implementing Sections 106 and 110(f) of the NHPA; and

WHEREAS, the USACE and SHPO have developed a Streamlined Activity List of certain activities which both agencies agree will result in no effects to historic properties or no adverse effects to historic properties; and

WHEREAS, the USACE and SHPO have developed a Standard Operating Procedure (SOP) to be followed by NYSDOT, NYSTA, and NYSCC with respect to use of TRGP-1 for activities consistent with the Streamlined Activity List; and

WHEREAS, the Streamlined Activity List will not apply to projects located on tribal lands or within 500 feet of tribal reservation or trust lands; and

WHEREAS, the USACE issued a public notice on February 14, 2019, that announced the proposed development of TRGP-1, including the establishment of procedures to allow delegation of certain responsibilities to NYSDOT, NYSTA, and NYSCC for screening for historic properties and consultation with SHPO in association with certain activities authorized under TRGP-1, and solicited interest of agencies, organizations, and the public; and

WHEREAS, the USACE consulted federally- and state-recognized Tribes (Cayuga Nation, Oneida Indian Nation, Oneida Tribe of Indians Wisconsin, Onondaga Indian Nation, Seneca Nation of New York, Seneca-Cayuga Nation, Shinnecock Nation, Stockbridge Munsee Community Band of Mohicans, St. Regis Band of Mohawk Indians, Tonawanda Seneca Nation, Tuscarora Nation, Delaware Nation, Delaware Tribe, Unkechaug Nation, and the Mohawk Nation) by letters signed by the New York and Buffalo District Regulatory Chiefs on August 4, 2020, inviting their participation in development of this Programmatic Agreement (PA) as consulting parties, and the USACE did not receive a request for participation in the agreement; and

WHEREAS, the USACE has consulted with the Federal Highway Administration (FHWA), NYSDOT, NYSTA, and NYSCC and invited them to sign this PA as concurring parties; and

WHEREAS, pursuant to 40 CFR 800.14(b), the USACE has invited the participation of the ACHP in this consultation, and the ACHP has elected not to participate in the development of this PA; and

NOW, THEREFORE, the USACE and the SHPO agree that processing of the TRGP-1 shall be administered in accordance with the following stipulations in order to satisfy Section 106 responsibilities of the USACE with respect to authorizations under TRGP-1.

STIPULATIONS

The USACE, in coordination with NYSDOT, NYSTA, NYSCC and SHPO will ensure that the following stipulations are carried out:

1. Review of applications for USACE TRGP-1 authorizations will be conducted in accordance with 36 CFR Part 800 and 33 CFR 325, Appendix C, and any interim guidance.

2. The enclosed Standard Operating Procedure for Review of the Streamlined Activities lists (Attachment A) will be made part of TRGP-1. Failure of NYSDOT, NYSTA, or NYSCC to follow these procedures will constitute non-compliance with the permit.

3. Dispute Resolution:

    a. Should any signatory or concurring party to this PA object at any time to the manner in which the terms of this PA are implemented, the USACE shall consult with such party to resolve the objection. If the USACE determines that such objection cannot be resolved, the USACE will:

        i. Forward all documentation relevant to the dispute, including the USACE's proposed resolution, to the ACHP. The ACHP shall provide the USACE with its advice on the resolution of the objection within fifteen (15) calendar days of receiving all documentation relevant to the dispute. Prior to reaching a final decision on the dispute, the USACE shall prepare a written response that considers and addresses any timely advice or comments regarding the dispute from the ACHP, signatories, and concurring parties, and provide them with a copy of this written response. The USACE will then proceed according to its final decision.

        ii. If the ACHP does not provide its advice regarding the dispute within the fifteen (15) day time period, the USACE may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the USACE shall prepare a written response that considers and addresses any timely comments regarding the dispute from the signatories and concurring parties to the PA and provide them and the ACHP with a copy of such written response.

        iii. The USACE's responsibility to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

4. Amendments

    a. This PA may only be amended when such an amendment is agreed to in writing by all signatories and invited signatories, in

consultation with concurring parties. Following consultation, concurring parties may choose in writing to concur in or to decline to concur in a proposed amendment. The amendment will be effective on the date a copy of the amendment is signed by all signatory parties and filed with the ACHP.

5. Duration

    a. This PA will expire if its terms are not carried out within ten (10) years from the date of its execution. The duration of the PA may be extended only upon approval from all signatories.

6. Termination

    a. If any signatory or invited signatory to the PA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation 4, above. If within thirty (30) calendar days an amendment cannot be reached, any signatory party may terminate the PA upon written notification to the other signatory parties.

7. Severability

    a. If any section, subsection, paragraph, sentence, clause, or phrase in this PA is, for any reason, held to be unconstitutional, invalid, or ineffective, such decision shall not affect the validity or effectiveness of the remaining portions of this PA.

8. Counterparts

    a. This PA may be executed in counterparts, with a separate page for each signatory. This PA will become effective upon the date of the final signature. The USACEs will ensure that each signatory is provided with a complete copy of the final PA.

Execution of this PA by the USACE and the SHPO and implementation of its terms is evidence that the USACE has taken into account the effects of potential undertakings associated with TRGP-1 authorizations on historic properties and has afforded the ACHP an opportunity to comment, in satisfaction of its responsibilities under Section 106 of the NHPA.

SIGNATORIES:

UNITED STATES ARMY CORP OF ENGINEERS NEW YORK DISTRICT



Date: **07 SEP 2022**

Stephan A. Ryba, Chief, Regulatory Branch

SIGNATORIES:

UNITED STATES ARMY CORP OF ENGINEERS BUFFALO DISTRICT

Date: 13 Sep 2022

Steven V. Metivier, Chief, Regulatory Branch

SIGNATORIES:

NEW YORK STATE HISTORIC PRESERVATION OFFICER

R. Daniel Mackay Date: 8/30/2022

R. Daniel Mackay, Deputy Commissioner for Historic Preservation/SHPO

APPENDIX I STATE ENVIRONMENT QUALITY REVIEW ACT FULL ENVIRONMENTAL ASSESSMENT FORM

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: Former TRW Union Springs		
Project Location (describe, and attach a general location map): 107 Salem Street, Union Springs, Cayuga County, New York		
Brief Description of Proposed Action (include purpose or need): An Interim Remedial Measure (IRM) will be implemented under the NYSDEC Brownfield Cleanup Program (BCP) and will include remediation and restoration activities within a wetland and the abutting property, including excavation and fill placement within a delineated wetland and associated buffer area.		
Name of Applicant/Sponsor: Robert Bleazard	Telephone: 480-722-4866 E-Mail: robert.bleazard@zf.com	
Address: 11202 East Germann Rd		
City/PO: Mesa	State: AZ	Zip Code: 85212
Project Contact (if not same as sponsor; give name and title/role): Robert Sents	Telephone: 315-256-5350 E-Mail: Rob.Sents@erm.com	
Address: 4311 Fly Rd		
City/PO: East Syracuse	State: NY	Zip Code: 13057
Property Owner (if not same as sponsor): LPW Development, LLC	Telephone: 800-947-1523 ext 238 E-Mail: peter.marshall@stottanddavis.com	
Address: 18 Garfield Street		
City/PO: Auburn	State: NY	Zip Code: 13021

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☐Yes ☐No		
b. City, Town or Village Planning Board or Commission ☐Yes ☐No		
c. City, Town or Village Zoning Board of Appeals ☐Yes ☐No		
d. Other local agencies ☐Yes ☐No		
e. County agencies ☐Yes ☐No		
f. Regional agencies ☐Yes ☐No		
g. State agencies ☐Yes ☐No		
h. Federal agencies ☐Yes ☐No		

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☐Yes ☑No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes ☐No

If Yes, identify the plan(s):

Remediaton Sites:706012, Remediaton Sites:C706019, Remediaton Sites:C706019A

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
commercial use

b. Is the use permitted or allowed by a special or conditional use permit? ☑ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? Union Springs Central School District

b. What police or other public protection forces serve the project site?
Cayuga County Sheriff's Office and the New York State Police

c. Which fire protection and emergency medical services serve the project site?
Union Springs Fire Department

d. What parks serve the project site?
municipally managed and protected by local village authorities

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? commercial

b. a. Total acreage of the site of the proposed action? 2.1 acres
b. Total acreage to be physically disturbed? 2.1 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 11.8 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☑ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 8 months
ii. If Yes:
- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

f. Does the project include new residential uses? ☐ Yes ☑ No

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase				
At completion of all phases				

g. Does the proposed action include new non-residential construction (including expansions)? ☐ Yes ☑ No

If Yes,

i. Total number of structures _____

ii. Dimensions (in feet) of largest proposed structure: _____height; _____width; and _____ length

iii. Approximate extent of building space to be heated or cooled: _____ square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐ Yes ☑ No

If Yes,

i. Purpose of the impoundment: t_____

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐ Other specify:

_____

iii. If other than water, identify the type of impounded/contained liquids and their source.

_____

iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres

v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

TBD _____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? ☑ Yes ☐ No
(Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite)

If Yes:

i .What is the purpose of the excavation or dredging? remediation

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): ~1,200
- Over what duration of time? 6 months

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

Two foot cut of sediment which will be managed off site at a permitted landfill

iv. Will there be onsite dewatering or processing of excavated materials? ☑ Yes ☐ No

If yes, describe. A temporary cofferdam (or temporary water control structure) was installed to isolate the wetland area during remediation, water will be treated with an water

v. What is the total area to be dredged or excavated? 0.4 acres

vi. What is the maximum area to be worked at any one time? 0.4 acres

vii. What would be the maximum depth of excavation or dredging? 2 feet

viii. Will the excavation require blasting? ☐ Yes ☑ No

ix. Summarize site reclamation goals and plan: _____

There is a restoration plan included in the work plan under review by the NYSDEC

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☑ Yes ☐ No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): The wetland and associated waterbody will be restored in place to pre-project conditions. No net increase in wetland area or encroachment is anticipated, and the project design requires zero fill.

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☑ Yes ☐ No
If Yes, describe: remediation of the sediment is the purpose of the project, it will be excavated and restored

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☑ Yes ☐ No
If Yes:

- acres of aquatic vegetation proposed to be removed: 0.4
- expected acreage of aquatic vegetation remaining after project completion: 0.4
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): remediation
- proposed method of plant removal: remediation of sediment and banks
- if chemical/herbicide treatment will be used, specify product(s): no planned, excavation only

v. Describe any proposed reclamation/mitigation following disturbance:
A zero net fill and planting of native wetland species, cluster of shrubs and upland trees on banks

c. Will the proposed action use, or create a new demand for water? ☐ Yes ☑ No
If Yes:

i. Total anticipated water usage/demand per day: _____ gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☐ Yes ☐ No
If Yes:

- Name of district or service area: _____
- Does the existing public water supply have capacity to serve the proposal? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No
- Do existing lines serve the project site? ☐ Yes ☐ No

iii. Will line extension within an existing district be necessary to supply the project? ☐ Yes ☐ No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____
- Source(s) of supply for the district: _____

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☐ No
If, Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- Proposed source(s) of supply for new district: _____

v. If a public water supply will not be used, describe plans to provide water supply for the project: _____

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☐ Yes ☑ No
If Yes:

i. Total anticipated liquid waste generation per day: _____ gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): _____

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐ Yes ☐ No
If Yes:

- Name of wastewater treatment plant to be used: _____
- Name of district: _____
- Does the existing wastewater treatment plant have capacity to serve the project? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No

- Do existing sewer lines serve the project site? ☐Yes ☐No
- Will a line extension within an existing district be necessary to serve the project? ☐Yes ☐No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☐No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

_____

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 0 acres (impervious surface)

_____ Square feet or 11.8 acres (parcel size)

ii. Describe types of new point sources. Not anticipated

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

Erosion and sediment control will be installed around the construction site, staging areas, etc. Sheet flow will be directed toward the excavation areas, allowing infiltration into the ground where possible, and any excess water will be collected and conveyed to a temporary on-site treatment system.

- If to surface waters, identify receiving water bodies or wetlands: not anticipated
- Will stormwater runoff flow to adjacent properties? ☑Yes ☐No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☑Yes ☐No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☑Yes ☐No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

construction equipment, including deliveries and off site transport

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

potential for a batch plant for soil mixing the need will be TBD

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

NA

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

_____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

_____

_____

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☐No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

_____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

_____

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☐Yes ☑No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

_____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

_____

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☐No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 7AM- 5PM
- Saturday: NA
- Sunday: NA
- Holidays: NA

ii. During Operations:

- Monday - Friday: NA
- Saturday: NA
- Sunday: NA
- Holidays: NA

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Operation of construction equipment, with anticipated working hours 7AM- 5PM

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe: _____

n. Will the proposed action have outdoor lighting? ☐ Yes ☑ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☑ No

Describe: _____

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☑ Yes ☐ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

Diesel equipment/ exhaust during construction activities weekday 7AM-5PM; excavation activities may result in intermittent odors, which are expected to be short-lived and controlled through dust and odor mitigation measures (e.g., application of Rustmar Foam, etc.).

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities: _____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☑ Yes ☐ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: TBD tons per TBD (unit of time)
- Operation : NA tons per NA (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: There is potential for hazardous and nonhazardous waste to be generated, the amount will be determined based on analytical data and resulting concentrations in the media. Soil mixing will allow the majority of the soil to be managed in situ.
- Operation: NA

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: If hazardous waste is generated it will be managed off site at a permit facility. The facility will be vetted during the procurement process and selected based the concentrations and constituents in the media, their permit type, etc.
- Operation: NA

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☑ Commercial ☐ Residential (suburban) ☑ Rural (non-farm)
☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other (specify): _____

ii. If mix of uses, generally describe:

This is a commercial zoned property with abutting vacant land and municipal town property including storage sheds, maintenance garages, sewage treatment, fleet parking, and a park.

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	6.7	6.7	0
• Forested	0	0	0
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	1.5	2	+0.5
• Agricultural (includes active orchards, field, greenhouse etc.)	0	0	0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0.6	0.6	0
• Wetlands (freshwater or tidal)	0.6	0.6	0
• Non-vegetated (bare rock, earth or fill)	0	0	0
• Other Describe: maintained grass/ lawn	3.0	2.5	-0.5

c. Is the project site presently used by members of the community for public recreation? ☐ Yes ☑ No

i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐ Yes ☑ No

If Yes,

i. Identify Facilities:

_____

_____

e. Does the project site contain an existing dam? ☑ Yes ☐ No

If Yes:

i. Dimensions of the dam and impoundment:

- Dam height: 14 feet
- Dam length: 315 feet
- Surface area: 5.5 acres
- Volume impounded: 22 gallons OR acre-feet

ii. Dam's existing hazard classification: A

iii. Provide date and summarize results of last inspection:

4/27/16- Dam required tree removal by owner

_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Has the facility been formally closed? ☐ Yes ☐ No

- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

_____

_____

iii. Describe any development constraints due to the prior solid waste activities: _____

_____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☑ Yes ☐ No

If Yes:

i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

Hazardous waste was generated during operations prior to 1997. Hazardous waste generated after manufacturing ceased was the result of investigation or remedial activities; this waste was characterized, profiled, and transported off site for management at permitted receiving facilities.

_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☑ Yes ☐ No

If Yes:

i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☑ Yes ☐ No

☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____

☑ Yes – Environmental Site Remediation database — Provide DEC ID number(s): 706012, C706019, C706019A

☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: _____

_____

_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☑ Yes ☐ No

If yes, provide DEC ID number(s): 706012, C706019, C706019A

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

_____

_____

v. Is the project site subject to an institutional control limiting property uses? ☑ Yes ☐ No

- If yes, DEC site ID number: C706019
- Describe the type of institutional control (e.g., deed restriction or easement): Deed restrictions
- Describe any use limitations: limits use of water, or excavation of soil without approval from ZF
- Describe any engineering controls: there are currently soil cover and asphalt caps over 6 areas outside of the proposed work area
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☑ No
- Explain:

The proposed remediation will not impact existing private deed restrictions or private institutional controls, which were established between property owners and are not regulatory institutional controls enforceable by NYSDEC. The EC that are currently in place are outside the area of disturbance.

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? 60 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? ____%

c. Predominant soil type(s) present on project site:

sandy silt	50 %
silty clay	10 %
till	40 %

d. What is the average depth to the water table on the project site? Average: 7 feet

e. Drainage status of project site soils:
☐ Well Drained: 50 % of site
☐ Moderately Well Drained: 40 % of site
☐ Poorly Drained 10 % of site

f. Approximate proportion of proposed action site with slopes:
☑ 0-10%: 75 % of site
☐ 10-15%: 20 % of site
☑ 15% or greater: 5 % of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe:

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☑ Yes ☐ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name 898-229 Classification C
- Lakes or Ponds: Name ____ Classification ____
- Wetlands: Name Federal Waters, Federal Waters, Federal Waters,... Approximate Size 0.03 acres (on site)
- Wetland No. (if regulated by DEC) ____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☑ No

If yes, name of impaired water body/bodies and basis for listing as impaired:

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100-year Floodplain? ☑ Yes ☐ No

k. Is the project site in the 500-year Floodplain? ☑ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:

i. Name of aquifer:

m. Identify the predominant wildlife species that occupy or use the project site:

Whitetail Deer	rodents	turkey vultures/ scavenger birds
Geese	song birds	reptiles
Ducks	mesopredators	amphibians

n. Does the project site contain a designated significant natural community? ☐ Yes ☑ No

If Yes:

i. Describe the habitat/community (composition, function, and basis for designation): _____

ii. Source(s) of description or evaluation: _____

iii. Extent of community/habitat:

- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☑ Yes ☐ No

If Yes:

i. Species and listing (endangered or threatened): _____

Lake Sturgeon

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐ Yes ☑ No

If Yes:

i. Species and listing: _____

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐ Yes ☑ No

If yes, give a brief description of how the proposed action may affect that use: _____

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☑ No

If Yes, provide county plus district name/number: _____

b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☑ No

i. If Yes: acreage(s) on project site? _____

ii. Source(s) of soil rating(s): _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☑ No

If Yes:

i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature

ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐ Yes ☑ No

If Yes:

i. CEA name: _____

ii. Basis for designation: _____

iii. Designating agency and date: _____

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☑ Yes ☐ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☑ Historic Building or District

ii. Name: Eligible property:George Howland Grist Mill, Eligible property:Former TRW Automotive - Addition

iii. Brief description of attributes on which listing is based:

Reviewed under SHPO submission X85B1EFGKQPF, Project 25PR06543- historic stone buildings, a canal and mill pond

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☐ Yes ☑ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☑ Yes ☐ No

If Yes:

i. Identify resource: Cayuga Lake Scenic Byway, Frontenac Park and Cayuga Lake Shoreline/ waterfront

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): highway segment with natural overlooks, lake shore landscapes, a park with recreation access, viewing areas, scenic value and public access

iii. Distance between project and resource: < 5 miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name _____ Date_____

Signature_____ Title_____

PRINT FORM

EAF Mapper Summary Report

Tuesday, January 20, 2026 4:40 PM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources to confirm data provided by the Mapper or to obtain data not provided by the Mapper.



B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Yes - Digital mapping data are not available for all Special Planning Districts. Refer to EAF Workbook.
C.2.b. [Special Planning District - Name]	Remediaton Sites:706012, Remediaton Sites:C706019, Remediaton Sites:C706019A
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Yes - Digital mapping data for Spills Incidents are not available for this location. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Yes
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Yes
E.1.h.i [DEC Spills or Remediation Site - DEC ID Number]	706012, C706019, C706019A
E.1.h.iii [Within 2,000' of DEC Remediation Site]	Yes
E.1.h.iii [Within 2,000' of DEC Remediation Site - DEC ID]	706012, C706019, C706019A
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.ii [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.

E.2.h.iv [Surface Water Features - Stream Name]	898-229
E.2.h.iv [Surface Water Features - Stream Classification]	C
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	Yes
E.2.k. [500 Year Floodplain]	Yes
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	Yes
E.2.o. [Endangered or Threatened Species - Name]	Lake Sturgeon
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National or State Register of Historic Places or State Eligible Sites - Name]	Eligible property:George Howland Grist Mill, Eligible property:Former TRW Automotive - Addition
E.3.f. [Archeological Sites]	No
E.3.i. [Designated River Corridor]	No

APPENDIX J WETLAND MITIGATION PLAN NARRATIVE

Former TRW Union Springs

Wetland Mitigation Plan

PREPARED FOR
ZF Active Safety and Electronics US LLC

DATE
12 May 2026

REFERENCE
0777953



SIGNATURE PAGE

Former TRW Union Springs

Wetland Mitigation Plan

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CONTENTS

1.	MITIGATION JUSTIFICATION	1
2.	MITIGATION SITE SELECTION RATIONAL	1
3.	BASELINE INFORMATION FOR MITIGATION SITE	1
3.1	LOCATION	1
3.2	SITE DESCRIPTION	1
3.3	FUNCTIONS AND VALUES ASSESSMENT OF IMPACTED AREA	2
3.4	EXISTING HYDROLOGY	2
3.5	EXISTING SOILS	2
3.6	EXISTING VEGETATION	2
4.	MITIGATION WORK PLAN	3
4.1	INSTALLATION SCHEDULE	3
4.2	GRADING/SEEDING/PLANTING	3
5.	MAINTENANCE PLAN	5
5.1	MAINTENANCE ACTIVITIES	5
5.2	GENERAL MAINTENANCE	5
5.3	NON-NATIVE AND INVASIVE PLANT CONTROL	5
5.4	FERTILIZATION	5
5.5	MOWING	6
6.	MONITORING PLAN	6
6.1	MONITORING SITE VISITS	6
6.2	PHOTOGRAPHS	7
6.3	REPORTING	7
7.	PERFORMANCE CRITERIA	7
7.1	HYDROLOGY	7
7.2	SOILS	7
7.3	HERBACEOUS AND EMERGENT AERIAL COVERAGE	7
7.4	TREES AND SHRUBS	7

ATTACHMENT A- FORMER TRW UNION SPRINGS- WETLAND DELINEATION MEMORANDUM

ATTACHMENT B- FUNCTIONS AND VALUES ASSESSMENT OF IMPACTED AREA

ATTACHMENT C- SEED MIXES

1. MITIGATION JUSTIFICATION

ZF Active Safety and Electronics US LLC. is proposing a remediation plan to remove contaminated soil from their site as part of a Brownfield Site clean-up. The subsurface remediation activities include the removal of sediment within a drainage canal and associated wetland, and will result in 0.4 acre of wetland impact (Wetland US-1). In accordance to Article 24 of New York State Environmental Conservation Law (NYSECL), the impacted wetland will be mitigated at a ratio of 1:1. The impacted wetland will be returned to its original grade and restored with native wetland seed, plugs, and woody plantings. The upland area surrounding the mitigation wetland will also be seeded with a native upland mix. The native vegetation will create a more floristically diverse community than what currently exists, which will improve the wildlife habitat and aesthetics. The plantings will also improve water quality by increasing stormwater infiltration, reducing stormwater velocity, and promoting the uptake of soluble contaminants.

2. MITIGATION SITE SELECTION RATIONAL

The proposed mitigation site consists of the restoration of the wetland that will be impacted by the remediation activities; and therefore, will be in a location that currently functions as a wetland. The proposed restoration will be completed at the existing grade of the current wetland, and will continue to receive most of its hydrology from the existing canal. The existing wetland is currently dominated by cattail species, and is surrounded by manicured lawn and a degraded wooded area. The impacted wetland has low floristic diversity and provides minimal habitat for surrounding wildlife. The primary function of the existing wetland is the improvement of water quality. The addition of native vegetation within the restored wetland and surrounding upland area, as well as the proposed maintenance and monitoring activities documented in this plan, will improve all of the current functions of the existing wetland on-site.

3. BASELINE INFORMATION FOR MITIGATION SITE

3.1 LOCATION

The Former TRW Union Springs Site (Site) is located on the east side of Cayuga Lake off of Howland Street, in the Village of Union Springs, Cayuga County, New York (42.845481oN, -76.694832oW). The Site consists of two tax parcels (141.09-1-21 and 141.09-1-21.1) approximately 11.8 acres in area, and is mostly developed, with some maintained lawn and forests to the north of the side. The site is an irregular polygon shape with a residential area of the Auburn, NY (1960) US Geological Survey (USGS) 7.5-minute topographic quadrangle map.

The Site is in the Southeastern Ontario Lake Basin and situated in the Seneca River Watershed (HUC Unit 04140201), which has a drainage area of 3,430 square miles.

3.2 SITE DESCRIPTION

Historically, the site was an automotive manufacturing plant. There is an industrial building and associated parking lots. The northern portion of the site is forested and directly abuts a large New York State Department of Environmental Conservation (NYSDEC) Freshwater Wetland

offsite. At the time of this investigation the site consisted of a developed manufacturing plant, a maintained lawn, and undeveloped, hardwood forest. The site consists of two structures, including the manufacturing facility and a dilapidated building in the woods.

The site included several different cover types. Upland cover types included:

- Mowed lawn;
- Paved road/path;
- Urban structure exterior; and
- Successional northern hardwood forest.

Wetland cover types included:

- Shallow emergent marsh; and
- Shrub swamp

3.3 FUNCTIONS AND VALUES ASSESSMENT OF IMPACTED AREA

This has been calculated based on US Army Corps of Engineers (USACE) New England District: The Highway Methodology Workbook. See Appendix B for worksheet.

3.4 EXISTING HYDROLOGY

The impacted wetland, US-1, exhibited primary hydrology indicators of surface water, high water table, saturation within the upper 12 inches of the surface during the growing season, water marks on trees, and inundation visible on aerial imagery. Secondary hydrology indicators of drainage patterns, saturation visible on aerial imagery, geomorphic position, and a positive FAC-neutral test were also present. The wetland datasheet is found in the datasheet appendix of the wetland delineation report which is Appendix A.

3.5 EXISTING SOILS

Wetland US-1 contains soils that meet the criteria for the hydric soil indicator of depleted matrix. The datasheet can be found in Appendix A. During construction, the top layer of soil will be removed and replaced with a top soil and organic material mixture that will mimic hydric soil until such time that wetland hydrology changes the soil to meet hydric soil criteria.

3.6 EXISTING VEGETATION

Wetland US-1 is an emergent wetland (PEM) and contains the following vegetation:

- *Salix nigra* – black willow
- *Fraxinus pennsylvanica* – green ash
- *Rosa multiflora* – multiflora rose
- *Cornus amomum* – silky dogwood
- *Rhamnus cathartica* – common buckthorn
- *Typha angustifolia* – narrowleaf cattail
- *Phalaris arundinacea* – reed canary grass

During transplantation of hydric soil to the mitigation site, care will be taken to ensure invasive species are not transplanted. A wetland datasheet can be found in Appendix A.

4. MITIGATION WORK PLAN

4.1 INSTALLATION SCHEDULE

Implementation of this mitigation plan will begin with project approval, at which time seed orders will be placed. The recommended seed mix is designed to increase diversity, create competition for invasive species, and promote plant community stability.

Spring seeding of the wetland area should be conducted before June 30, as summer temperatures can lead to the loss of seedlings. Fall dormant seeding should be conducted after October 15 and before the soil freezes. Dormant seeding is recommended for wetland seed, as winter freezing and thawing allows for the stratification (breaking of seed coats) of wetland forbs and sedges.

4.2 GRADING/SEEDING/PLANTING

- Staked and recessed silt fence shall be placed downslope of the proposed grading and disturbance areas, and between grading areas and wetlands, as shown in the restoration plan. Silt fence shall be monitored and maintained until at least the previously disturbed area contains at least 85 percent aerial coverage of rooted vegetation.
- Coir logs shall be placed at the ordinary high-water mark of the canal to provide additional soil stability. Coir logs shall be placed downslope of the silt fence. Coir logs must be secured with wooden stakes that will naturally decompose. Native plant seed mix should be broadcast on coir logs as part of the mitigation area seeding.
- Top soil shall be brought in and mixed at a 50/50 ratio with composted organic material to mimic hydric soil conditions within wetland area until such time that hydric soils are created with the introduction of water.
- Areas within wetland will be graded to 12 inches below finish grade to allow for 12 inches of soil/organic mix (Note 3) to be broadcast over the entire wetland area. The addition of soil/organic mix will achieve finish grade within the wetland
- Upland (non-wetland) excavated areas shall be backfilled with clean topsoil.
- All excess excavated spoils shall be removed and placed in stockpile locations away from the wetland.
- The wetland mitigation area will be planted with:
  - 1 pin oak (*Quercus palustris*)
  - 2 red maple (*Acer rubrum*)
  - 3 black willow (*Salix nigra*)
  - 1 swamp white oak (*Quercus bicolor*)
  - 3 silver maple (*Acer saccharinum*)
- Saplings shall be at minimum 2-3 inch caliper. Similar wetland tolerant species can be used as well if some species are not available.
- Trees should be inter-planted with the following native shrubs:
  - 24 southern arrowwood (*Viburnum dentatum*)
  - 24 winterberry (*Ilex verticillata*)
  - 24 red osier dogwood (*Cornus sericea*)

- 24 silky dogwood (*Cornus amomum*)

- These shrubs will be in gallon containers. They will be planted in clusters of 4 plants per species in low areas between the water edge and ordinary high-water elevation (383.5')
- The ground within the wetland area shall be seeded with a custom seed mix with the following seeds and planting ratios:
  - Former canal center:
    - Softstem bulrush (*Schoenoplectus tabernaemontani*) – 1 plug per 12 inches, a 500 plugs.
    - Wool grass (*Scirpus cyperinus*) – 0.1 lb/acre.
    - Pickerelweed (*Pontederia cordata*) – 1 rhizome every 24 inches, 200 rhizomes.
  - Between the edge of water and ordinary high-water elevation
    - Soft rush (*Juncus effusus*) – 1 lb/200 sq ft.
    - Cardinal flower (*Lobelia cardinalis*) – 1 lb/acre.
    - Marsh marigold (*Caltha palustris*) – 1 plug per 12 inches, 200 plugs.
    - Harlequin blueflag (*Iris versicolor*) – 1 rhizome every 24 inches, 150 rhizomes.
- Seed mix should be mulched with seed-free straw (or similar), to hold seed and moisture until germination and rooted vegetation is established.
- Disturbed area adjacent to wetland restoration area shall be seeded with New England Wetland Plants' New England Conservation/Wildlife Mix (Appendix C) (or similar), at a ratio of 1 pound / 1,750 square feet per package directions. This area shall be left to grow, and not mowed, to produce habitat for grassland species.
- The disturbed area adjacent to the wetland restoration area that will continue to be mowed after the restoration, shall be seeded with Nature's Seed's Northeast Seed Blend (Appendix C) (or similar), at a ratio of 3 pounds / 1,000 square feet per the package directions.
- Seeded areas shall be mulched with seed-free straw, or similar, which shall be maintained until rooted vegetation is established to cover 85% of the disturbed area.
- The area directly adjacent to the wetland reconstruction and within the currently forested upland area should be planted with:
  - 24 black chokeberry (*Aronia melanocarpa*)
  - 24 nannberry (*Viburnum lentago*)
  - 24 common ninebark (*Physocarapus opulifolius*)
- Nannyberry shrubs should be planted in clusters of four. Ninebark and chokeberry should be planted intermittently throughout the area. Shrubs will be 1 gallon containers.
- Upland trees shall be planted within the currently forested area. They include:
  - 10 sugar maple (*Acer saccharum*)
  - 10 red oak (*Quercus rubra*)
  - 10 tulip poplar (*Liriodendron tulipifera*)
- These saplings should be at least 2-3 inch caliper.
- Trees shall be staked to hold in place until they sink deeper roots. Shrubs shall be planted in tree tubes to protect them from deer/rabbit grazing. Tubes shall be maintained for at least 5 years to protect plants.

- After planting is complete, remove and dispose of any excess materials, trash or stockpiles.
- After germination of the broadcast seeding, the contractor shall hand seed the specified mixes into areas that did not germinate, and lightly rake the hand spread seed into the soil.

5. MAINTENANCE PLAN

5.1 MAINTENANCE ACTIVITIES

A maintenance and monitoring program is proposed to ensure the successful establishment and persistence of the created wetland habitat. The maintenance program will involve removal of trash, weed control, and any remedial measures deemed necessary for the success of the mitigation habitat program (e.g., reseeding and re-planting). Frequent site visits to monitor the establishment of vegetation are essential to controlling the establishment of weeds and invasive species.

5.2 GENERAL MAINTENANCE

It is ZF's responsibility to keep all planted areas free of debris, monitoring plant material condition and health, and conduct weeding and erosion control. During the first year of the establishment, these events will be conducted once a month during the growing season (April-October); for the remainder of the maintenance period, maintenance activities will be conducted on an as-needed basis.

5.3 NON-NATIVE AND INVASIVE PLANT CONTROL

Particular emphasis will be placed on proactive removal of non-native and invasive plants. Eradication of these species will be conducted as necessary to minimize competition that could prevent the establishment of native species. Non-native and invasive plants should be removed by hand or controlled with proper herbicides. Efforts to control highly invasive non-native plants should extend to areas near the project area so as to minimize spread into the mitigation site.

Problematic perennial weeds that typically do not decrease over time often need to be spot treated with herbicide for sufficient control. Examples include reed canary grass and purple loosestrife. The use of chemical herbicides will be limited to situations where there are significant clumps of invasive species that cannot effectively be eliminated by manual removal. Herbicide application will not occur on excessively windy days that would create risks of drifting onto native plantings within the mitigation area or off-site areas. All herbicide application equipment will be inspected prior to use to ensure that the herbicide application is limited to the targeted invasive species. All contractors apply chemical herbicides will be properly licensed.

5.4 FERTILIZATION

Fertilizer will not be applied within the wetland mitigation area.

5.5 MOWING

Mowing is an essential step in the establishment of native vegetation in the seeded upland area. Mowing at least twice during the first growing season and at least once during the second growing season with a flail mower (to prevent smothering plants) is necessary for native vegetation establishment. Weeds should be mowed to between five and eight inches before seed is allowed to set (usually as weeds reach 12-14 inches). Mowing height should be raised as native plants establish. Primary goals of mowing are to allow sufficient light to reach native plant seedlings and preventing weed seed production.

6. MONITORING PLAN

The purpose of mitigation wetland monitoring is to measure wetland success relative to the performance criteria outlined in Section 7 below, and to identify any needed corrective actions during the monitoring period necessary to achieve that criteria.

6.1 MONITORING SITE VISITS

The designated monitoring contractor will visit the mitigation wetland twice annually for a maximum of five years after installation of the native plantings. Both site visits will be conducted during the growing season, one in spring/early summer, and another in late summer/early fall. During the first monitoring site visit the contractor will establish five random 1-m2 plot locations where vegetative coverage of native species can be assessed. The contractor will review each of these plots during each site visit, and will also complete a meander survey to identify species that occur outside the plots and any areas that contain significant amounts of invasive species.

During each site visit the contractor will also note:

- Any wildlife observed during the site visit.
- Any erosion or maintenance concerns within the wetland or adjacent upland area.
- The overall condition of the native tree and shrub plantings.
- Any concerns with wetland hydrology that would affect the functional value of the mitigation wetland (flooding, drought, etc).

Any maintenance recommendations to address site deficiencies will be promptly reported to maintenance personnel, and the follow-up maintenance activities will be documented in the annual monitoring report.

Once during each growing season for the 5-year monitoring period, the monitoring contractor take a representative soil profile to document the site meets hydric soil criteria, and will perform a presence/absence survey for the planted trees and shrubs.

A mitigation goal of 85% survival of plantings and ground cover will be achieved. Invasive species will be noted during the monitoring visits. ERM will contract with a invasive species removal specialist to prescribe necessary treatments to keep the mitigation area free of invasive species. If the goal of 85% survival and absence of invasive species is achieved at the conclusion of the Year 3 monitoring window, then the monitoring will be deemed as complete and the mitigation will be considered successful.

6.2 PHOTOGRAPHS

During the first monitoring site visit, representative photograph locations will be identified and marked in the field. These locations should be situated to obtain a thorough perspective of all the wetland mitigation components. The monitoring contractor will collect representative photographs at each of these locations during each monitoring visit.

6.3 REPORTING

An annual report will be prepared each year during the monitoring period. Each report will present the results of the annual assessment, evaluate the success of the mitigation effort to date and provide any recommendations for future work that may be deemed necessary. Annual monitoring reports will be submitted to the New York Department of Environmental Conservation prior to December 31 of the monitoring year. Reports will include restatement of project goals, objectives and performance standards, monitoring results, progress towards meeting performance standards, maintenance activities undertaken, and recommendations/plans for the next monitoring year.

7. PERFORMANCE CRITERIA

The following sections provide performance standards to determine the successful completion of the wetland mitigation effort. Performance Standards define expected outcomes for the establishment of native vegetation and hydrology on mitigation projects. Attainment of these standards indicates that the mitigation area is progressing toward providing the habitat functions and services targeted by this mitigation effort, as outlined in this plan.

7.1 HYDROLOGY

The target hydrology performance standard consists of a water table within 12 inches of the surface for a minimum of 23 consecutive days, or two periods of 14 consecutive days, during the growing season under normal to wetter-than-normal conditions. Inundation during the growing season shall not occur except following the 10-year frequency or greater storm event. The depth of inundation shall be 6 inches or less and the duration of any inundation event shall be less than 14 days.

7.2 SOILS

At the conclusion of the 5 year monitoring period the site should contain hydric soils, as defined by the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual, Northcentral and Northeast Regional Supplement.

7.3 HERBACEOUS AND EMERGENT AERIAL COVERAGE

Following the completion of the fifth year of monitoring, the mitigation wetland and adjacent seeded upland area must have a minimum of 85 percent coverage by native species.

7.4 TREES AND SHRUBS

At the conclusion of the fifth year of monitoring, the survival rate of the planted trees and shrubs must be at least 70 percent.

ATTACHMENT A- FORMER TRW UNION SPRINGS- WETLAND DELINEATION MEMORANDUM

Former TRW Union Springs- Wetlands Delineation Memorandum

Former Union Springs Facility Union Springs, New York

PREPARED FOR
ZF Active Safety and Electronics US LLC

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Former TRW Union Springs- Wetlands Delineation Memorandum

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CONTENTS

1.	INTRODUCTION	1
2.	EXISTING CONDITIONS	1
2.1	AQUATIC RESOURCES	1
2.1.1	Mill pond	1
2.1.2	stream 1	2
2.1.3	NYSDEC freshwater wetland US-1	3
2.1.4	Stream 2	3
2.2	RARE SPECIES AND COMMUNITIES	3
3.	REGULATORY AUTHORITY	4
3.1	U.S. ARMY CORPS OF ENGINEERS	4
3.2	NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION	4
3.3	U.S. FISH AND WILDLIFE SERVICE	5
4.	REFERENCES	5

APPENDIX A NYSDEC NORTHERN LONG-EARED BAT OCCURANCE MAP & IPAC

APPENDIX B WETLAND DATA SHEET

APPENDIX C SITE PHOTOGRAPHS

1. INTRODUCTION

Environmental Resources Management (ERM) completed a delineation of the onsite aquatic resources on the former TRW Union Springs Site on 12 and 13 June 2014 in support of ongoing environmental characterization and potential future subsurface remediation activities (i.e., installation of a permeable reactive barrier (PRB) and planting hundreds of trees as part of a phytoremediation system). The delineation was completed in accordance with the U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0) (USACE 2011). Additionally, the wetland delineation was also completed in accordance with the New York State Freshwater Wetlands Delineation Manual (Browne et al. 1995).

A second site visit occurred on 15 March 2019 to update and reflag the wetland boundary. This visit determined that the previously delineated wetlands boundaries had not changed and therefore would not require new mapping. Flagging was placed on the wetland boundary and a wetland data plot was taken along with new site photographs attached in Attachment C. The wetland data form can be found in Attachment B.

ERM conducted a review of wetland boundaries in October 2023 to update wetland boundaries. During this visit, it was determined that wetland boundaries remained the same as they were identified during the 2019 update. No new data was taken during this visit.

ERM conducted a site visit on 23 April 2026 to update wetland boundaries. As requested by the USACE following initial review of the joint application permit in 2026 new data was collected during the April 2026 Site visit. The wetland data form is included in Attachment B. New photographs have been attached in Attachment C.

Delineation activities occurred on parcel numbers 141.09-1-21 and 141.09-1-21.1, both currently owned by LPW Development, LLC. (LPW), and 141.09-1-21.2 owned by the Village of Union Springs (the Village). All three parcels comprise the former TRW Union Springs BCP Site in Union Springs, New York. The following sections summarize the findings of the onsite delineation. All areas and aquatic resources referenced in this document are shown in Figure 1.

2. EXISTING CONDITIONS

2.1 AQUATIC RESOURCES

The onsite investigation identified the presence of regulated aquatic resources including wetlands, streams, the Mill Pond, and the former canal. The following sections briefly describe the existing conditions of each of the resources identified.

2.1.1 MILL POND

The Mill Pond was located in the eastern portion of the site on parcel 141.09-1-21.2. For the purposes of this investigation, the portion making up the western third of the pond was delineated due to its proximity to proposed on-site remedial activities. The pond is a man-made waterbody artificially impounded by an earthen dam along its western boundary and

contains a single outlet consisting of a 30-inch metal pipe located near the northwestern corner of the pond that discharges into Stream 1 (discussed below). The banks of the pond are approximately 1- to 2-feet high; nearly vertical; and well vegetated by upland species such as black willow (Salix nigra), common buckthorn (*Rhamnus cathartica*), multiflora rose (*Rosa multiflora),* and eastern poison ivy (*Toxicodendron radicans*). The substrate of the pond appeared to consist mainly of sand and fine particles (i.e., silt/clay) with significant amounts of cobbles and boulders scattered throughout. At the time of the onsite investigation, the depth of water was approximately 1 foot at the edge of the impoundment. Wildlife observed included frogs and waterfowl.

The Mill Pond was delineated as a watercourse (i.e., Water of the United States (WOUS)) and no fringe wetlands were noted adjacent to the pond. Mill Pond is a relatively permanent water (RPW), which discharges into Stream 1 and ultimately flows into Cayuga Lake. Cayuga Lake is a Traditionally Navigable Waterway (TNW); thus, Mill Pond is a tributary of a TNW and meets the definition of a WOUS and is subject to Section 404 of the Clean Water Act (CWA). The Mill Pond is neither mapped as occurring within nor does it occur adjacent to a New York State Department of Environmental Conservation (NYSDEC) freshwater wetland. Therefore, Mill Pond is not subject to Article 24 of the New York Environmental Conservation Law (NY ECL) or its accompanying regulations at 10 NYCRR §662-663.

2.1.2 STREAM 1

Stream 1 is an intermittent stream located to the north of the Mill Pond and south of Howland Street. It originates offsite to the east where it flows west via a culvert underneath N. Cayuga Street and enters the Village-owned parcel. As previously discussed, the single outlet to the Mill Pond discharges into the stream at the northwest corner of the pond. From that confluence, the stream meanders to the northwest onto the LPW-owned parcel and under Howland Street via an approximately 72-inch corrugated metal pipe (CMP) until it flows offsite to the north and discharges to NYSDEC Freshwater Wetland US-1. The banks of the stream are sparsely to moderately vegetated with species including black locust (*Robinia pseudoacacia),* box elder (*Acer negundo*), multiflora rose, and moneywort (*Lysimachia nummularia).* Additionally, the banks are approximately 10-feet high with a 45-degree slope. The channel of the stream is approximately 20-feet wide at the top of bank and 3- to 6-feet wide at the water surface. At the time of the investigation, there was approximately 1 foot of water in the channel, which was flowing at approximately 3 feet per second (fps). The bed of the stream consisted of primarily sand with minimal fine material (i.e., silt/clay) and cobbles. In addition, sporadic fringe wetlands were identified at the toe of slope adjacent to the stream channel. Those wetlands generally consist of linear emergent/scrub-shrub communities dominated by hydrophytic species such as silky dogwood (*Cornus ammomum*), American elm (*Ulmus americana*), jewelweed (*Impatiens capensis*), and switchgrass (*Panicum virgatum*). Indicators of hydric soils included fine particles (i.e., silt/clay) and low chroma colors while indicators of hydrology included a shallow water table and saturated soils.

The fringe wetlands meet the definition of a wetland since they contain hydrophytic vegetation, hydric soils, and sufficient hydrology; therefore, those wetlands are subject to Section 404 of the CWA. Additionally, Stream 1 meets the definition of a WOUS since it is a RPW that discharges into a TNW. As such, Stream 1 is subject to Section 404 of the CWA. The fringe wetlands are neither mapped as occurring within nor do they occur adjacent to a NYSDEC

freshwater wetland. Therefore, those wetlands are not subject to Article 24 of the NY ECL or its accompanying regulations at 10 NYCRR §662-663. Stream 1 is classified as a class "C" stream by the NYSDEC. As such, Stream 1 is not subject to the regulations of 6 NYCRR §608.

2.1.3 NYSDEC FRESHWATER WETLAND US-1

A portion of this wetland occurs in the northwest portion of the parcel 141.09-1-21; however, the majority of the wetland occurs slightly offsite directly adjacent to the northern property boundary. The onsite portion of this wetland generally consists of an emergent/scrub-shrub wetland dominated by hydrophytic species such as green ash (*Fraxinus pennsylvanica*), silky dogwood, southern arrowwood (*Viburnum dentatum*), and jewelweed. Hydric soil indicators generally include fine-grained particles with low chroma colors. Indicators of hydrology include a shallow water table, saturated soils, geomorphic position, and rivulets and channels.

NYSDEC Freshwater Wetland US-1 meets the definition of a wetland since it contains hydrophytic vegetation, hydric soils, and sufficient hydrology. As such, NYSDEC Freshwater Wetland US-1 is subject to Section 404 of the CWA. Additionally, NYSDEC Freshwater Wetland is a Class 2 wetland that is mapped by the NYSDEC. Therefore, this wetland is subject to Article 24 of the NY ECL and its accompanying regulations at 10 NYCRR §662-663.

2.1.4 STREAM 2

Stream 2 is located in the northwestern portion of parcel 141.09-21. This stream originates offsite to the north within NYSDEC Freshwater Wetland US-1. It flows in a southerly direction from the wetland adjacent to the western boundary of the parcel before discharging into the former canal (discussed below), an extension of Wetland US-1. The banks of the stream are approximately 2- to 4-feet high with a nearly vertical slope and well vegetated with shrubs including multiflora rose and box elder in addition to herbs/forbs. The channel of the stream ranges from approximately 6 to 15 feet wide. At the time of the onsite investigation, there was approximately 12 to 18 inches of water in the channel moving at approximately 2 to 3 fps. The bed of the stream consists of mostly sand with some fine material (i.e., silt/clay) and cobbles. Stream 2 was delineated as a watercourse.

Stream 2 contains limited fringe wetlands at its southern terminus were it discharges into the former canal (described below), Wetland US-1. Those fringe wetlands meet the definition of a wetland since they contain hydrophytic vegetation, hydric soils, and sufficient hydrology. As such, those wetlands are subject to Section 404 of the CWA. Stream 2 is a RPW covered tributary that ultimately connects to a TNW (i.e., Cayuga Lake); therefore, Stream 2 meets the definition of a WOUS and is subject to Section 404 of CWA. The fringe wetlands are neither mapped as occurring within nor do they occur adjacent to a NYSDEC mapped freshwater wetland. As such, they are not subject to Article 24 of the NY ECL or its accompanying regulations at 10 NYCRR 662-663. Additionally, Stream 2 is not mapped as a stream by the NYSDEC; however, since it flows from a class "C" stream, it is assigned the same classification. Stream 2 is not subject to the regulations of 6 NYCRR 608.

2.2 RARE SPECIES AND COMMUNITIES

An ERM biologist reviewed the U.S. Fish and Wildlife Service's (USFWS) Information, Planning, and Conservation (IPaC) System (USFWS 2014) to investigate the potential presence of federally-listed threatened, endangered, or candidate species or their critical habitats. The

IPaC System identified the potential presence of one federally-listed species, the federally threatened northern long-eared bat (NLEB) (*Myotis septentrionalis*) In addition to the IPaC System, the New York Environmental Mapper (NYDEC 2014) was reviewed to investigate the potential presence of NYSDEC-regulated resources including rare species and communities. That review showed that no rare species or communities were located within or in close proximity to the site. The NYSDEC Northern Long-eared Bat Occurrence by Town map confirms that the Town of Springport has a known NLEB summer occurrence. This map and the IPaC are included within Attachment A.

3. REGULATORY AUTHORITY

3.1 U.S. ARMY CORPS OF ENGINEERS

The USACE regulates the discharge of dredged or fill material into WOUS, including wetlands. Resources regulated by the USACE do not have an associated buffer. As such, a Section 404 CWA permit is not required for future remediation work conducted outside the boundary of the WOUS.

3.2 NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

The NYSDEC regulates freshwater wetlands larger than 12.4 acres, smaller wetlands of significant local importance (e.g., kettle hole bogs), and a 100-foot buffer zone (i.e., Adjacent Area) around the wetlands boundary within the adjacent uplands. The proposed remedial activities north of Howland Street/ Tarvia Access Road (i.e. the north field) are located within the 100-foot buffer zone of NYSDEC Freshwater Wetland US-1, a Class 2 wetland. The mill pond, the onsite fringe wetlands, and former canal are not regulated by the NYSDEC since they are neither mapped as occurring within nor located adjacent to a NYSDEC mapped freshwater wetland. NYSDEC regulates streams with a classification of “C (T)” or greater including streams classified as “C(TS)” and/or “B” and/or “A” followed by either “(T)” or “(TS)” (NY ECL, part 701). However, all of the onsite streams are class “C” streams, meaning that they are less pristine resulting in no additional regulation under the NYSDEC.

The proposed excavation and filling associated with construction of a PRB within the Adjacent Area would be a regulated activity by the NYSDEC under 10 NYCRR 663. The NYSDEC provides two authorizations for work within regulated areas: Letters of Permission and Article 24 Permits. In general, Letters of Permission can be granted for activities that will not substantially alter or impair the natural function of a wetland (10 NYCRR 663.4); whereas Article 24 Permits are usually required for activities that will result in significant impacts that will alter or impair the wetland’s natural function.

Construction activities associated with installation of the proposed PRB would likely be authorized by NYSDEC via a Letter of Permission. The proposed tree plantings (i.e. phytoremediation) do not require authorization from the NYSDEC. The first step to obtaining a Letter of Permission is a pre-application conference with the NYSDEC to discuss the proposed impacts of the project. Given that the proposed PRB and planting of numerous poplar trees would improve water quality, wildlife habitat, and the overall quality of the wetland habitat, it is anticipated that the NYSDEC would authorize the construction of the proposed PRB through

a Letter of Permission and would not require the filing of a permit due to the strategies improvement to the quality of habitat available at the site.

3.3 U.S. FISH AND WILDLIFE SERVICE

Any proposed activities that would result in a “take” of protected species or their critical habitats would require authorization from the USFWS. The proposed remediation work may result in a take of protected species or their critical habitat. As such, further investigation regarding the presence/absence of protected species is recommended.

4. REFERENCES

Browne, S., S. Crocoll, D. Goetke, N. Heaslip, T. Kerpez, K. Kogut, S. Stanford, and D. Spada. 1995. New York State Freshwater Wetlands Delineation Manual. New York State Department of Environmental Conservation, Albany, New York.

Environmental Conservation Law, part 701. Website: http://www.dec.ny.gov/regs/4592.html#15987

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

New York Department of Environmental Conservation. 2014. New York Environmental Resource Mapper. New York Department of Environmental Conservation, Albany, New York. Website: http://www.dec.ny.gov/imsmaps/ERM/viewer.htm.

U.S. Army Corps of Engineers. 2011. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center.

U.S. Fish and Wildlife Service. 2014. Information, Planning, and Conservation (IPaC) System. U.S. Department of the Interior, Fish and Wildlife Service. Website: http://ecos.fws.gov/ipac/.

APPENDIX A NYSDEC NORTHERN LONG-EARED BAT OCCURANCE MAP & IPAC

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Cayuga County, New York



Local office

New York Ecological Services Field Office

(607) 753-9334
(607) 753-9699
fw5es_nyfo@fws.gov

3817 Luker Road
Cortland, NY 13045-9385

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

NOT FOR CONSULTATION

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs
The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

NOT FOR CONSULTATION

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

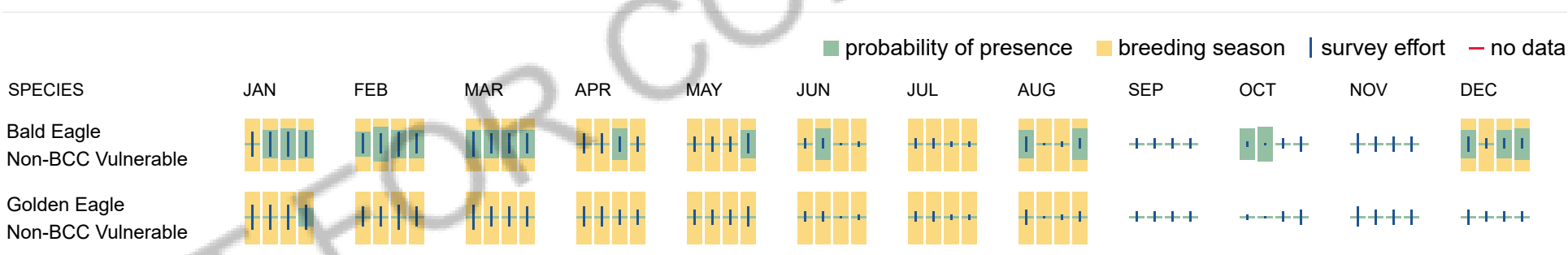
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report
On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

NOT FOR CONSULTATION

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases birds of concern, including Birds of Conservation Concern (BCC), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the Nationwide avoidance and minimization measures for birds document, and any other project-specific avoidance and minimization measures suggested at the link Measures for avoiding and minimizing impacts to birds for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles document, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs
The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

NOT FOR CONSULTATION

Belted Kingfisher Megaceryle alcyon This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 15 to Jul 25
Black-billed Cuckoo Coccyzus erythropthalmus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink Dolichonyx oryzivorus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Chimney Swift Chaetura pelagica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Eastern Meadowlark Sturnella magna This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 25 to Aug 31
Evening Grosbeak Coccothraustes vespertinus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Pectoral Sandpiper Calidris melanotos This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Rose-breasted Grosbeak Pheucticus ludovicianus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 15 to Jul 31
Semipalmated Sandpiper Calidris pusilla This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▄)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

NOT FOR CONSULTATION

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



NOT FOR CONSULTATION

Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Bald and Golden Eagle Protection Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ “Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds”.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs

NOT FOR CONSULTATION

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

NOT FOR CONSULTATION

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

APPENDIX B WETLAND DATA SHEET

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: TRW City/County: Union Springs, Cayuga Sampling Date: 3/15/2019

Applicant/Owner: TRW State: NY Sampling Point: US-1 Wet

Investigator(s): Anthony Cimpi Section, Township, Range:

Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR L Lat: 42.845823 Long: -76.695722 Datum: WGS 84

Soil Map Unit Name: Schoharie silt loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area**		
Hydric Soil Present?	Yes X	No ____	**within a Wetland?**	**Yes** X	**No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID:		

Remarks: (Explain alternative procedures here or in a separate report.)
NYSDEC FW Wetland US-1. Large wetland found offsite, some onsite. Sample point taken on fringe of wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches):	5
Water Table Present?	Yes X	No ____	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches):	0

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Standing water found onsite with some areas of open water. Many waterfowl species seen during investigation.

VEGETATION – Use scientific names of plants. Sampling Point: US-1 Wet

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix nigra*	15	Yes	OBL
2. *Fraxinus pennsylvanica*	10	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	25	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Rosa multiflora*	5	Yes	FACU
2. *Cornus amomum*	5	Yes	FACW
3. *Rhamnus cathartica*	5	Yes	FAC
4.			
5.			
6.			
7.			
	15	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Typha angustifolia*	65	Yes	OBL
2. *Phalaris arundinacea*	35	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80
FACW species	50	x 2 =	100
FAC species	5	x 3 =	15
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	140 (A)		215 (B)

Prevalence Index = B/A = 1.54

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Shrubs and trees found on fringe of wetland

SOIL

Sampling Point: US-1 Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/1	90	10YR 5/8	10	C	M	Loamy/Clayey	Prominent redox concentrations
6-20	10YR 5/2	85	10YR 5/8	15	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 8.1 2018 Errata. (http://soils.usda.gov/use/hydric)

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Northcentral and Northeast Region
See ERDC/EL TR-12-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Former TRW Restoration City/County: Union Springs/Cayuga Sampling Date: 4/23/26

Applicant/Owner: ZF State: NY Sampling Point: US-1

Investigator(s): T Cimpi Section, Township, Range:

Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope %:

Subregion (LRR or MLRA): LRR L Lat: 42.845598 Long: -76.696265 Datum: WGS 1984

Soil Map Unit Name: Schoharie silt loam NWI classification: PEM1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No	**within a Wetland?** **Yes** X **No**
Wetland Hydrology Present?	Yes X	No	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
Large emergent marsh associated with Cayuga Lake.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
USFWS NWI Maps; NYSDEC FWW Maps; USEPA NHD Maps; USDA/NRCS Hydric Soils Maps; Aerial Imagery; Historical Imagery; USGS Topographic Maps.

Remarks:
Hydrology present

VEGETATION – Use scientific names of plants. Sampling Point: US-1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Rhamnus cathartica*	5	Yes	FAC
2. *Rosa multiflora*	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	10	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Lysimachia nummularia*	55	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55	=Total Cover	
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	55	x 2 =	110
FAC species	5	x 3 =	15
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	65 (A)		145 (B)

Prevalence Index = B/A = 2.23

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytes dominate the plot

SOIL

Sampling Point: US-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	90	7.5YR 4/4	10	C	PL	Loamy/Clayey	Distinct redox concentrations
12-20	10YR 4/2	80	10YR 4/4	20	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Mesic Spodic (A17) **(MLRA 144A, 145, 149B)**
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)
- ___ Red Parent Material (F21) **(MLRA 145)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Red Parent Material (F21) **(outside MLRA 145)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Hydric soil conditions present

APPENDIX C SITE PHOTOGRAPHS



Former Canal



Mill Pond



Stream 1 - Downstream



Stream 1 - Upstream



Stream 2 - Downstream



Stream 2 - Upstream



Upland Maintained Lawn



Upland Woods



US-1 Offsite



US-1 Onsite

Appendix B: Photographic Log

CLIENT: ZF Active Safety and Electronics US LLC	SITE LOCATION: Former TRW Restoration	PROJECT NO.: 0777953

PHOTO NO.	DATE
1.	23 April 2026

DIRECTION PHOTO TAKEN
West

DESCRIPTION
Former Canal Section of Wetland US-1



PHOTO NO.	DATE
2.	23 April 2026

DIRECTION PHOTO TAKEN
East

DESCRIPTION
Former Canal Section of Wetland US-1



Appendix B: Photographic Log

CLIENT: ZF Active Safety and Electronics US LLC	SITE LOCATION: Former TRW Restoration	PROJECT NO.: 0777953

PHOTO NO.	DATE
3.	23 April 2026

DIRECTION PHOTO TAKEN
North

DESCRIPTION
Wetland US-1



PHOTO NO.	DATE
4.	23 April 2026

DIRECTION PHOTO TAKEN
South

DESCRIPTION
Wetland US-1



Appendix B: Photographic Log

CLIENT: ZF Active Safety and Electronics US LLC	SITE LOCATION: Former TRW Restoration	PROJECT NO.: 0777953

PHOTO NO.	DATE
5.	23 April 2026

DIRECTION PHOTO TAKEN
West

DESCRIPTION
Wetland US-1



ATTACHMENT B- FUNCTIONS AND VALUES ASSESSMENT OF IMPACTED AREA

Wetland Function-Value Evaluation Form

Total area of wetland 14 ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Industrial/residential/public/forest Distance to nearest roadway or other development 10 feet

Dominant wetland systems present PEM/PUB Contiguous undeveloped buffer zone present Some

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 3 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. US-1

Latitude _____ Longitude _____

Prepared by: AMC Date 16 April 2020

Wetland Impact:
Type Sediment removal Area 0.05

Evaluation based on:
Office Yes Field Yes

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	3, 4, 5, 7, 15		
Floodflow Alteration	Y	1, 3, 5, 6, 7, 8, 9, 10, 11, 13, 16, 18	X	
Fish and Shellfish Habitat	Y	2, 3, 4, 7, 8, 9, 10, 11, 12, 14, 17	X	
Sediment/Toxicant Retention	Y	1, 2, 4, 5, 6, 7, 8, 10, 11, 12, 15, 16	X	
Nutrient Removal	Y	1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12		
Production Export	Y	1, 2, 4, 5, 6, 7		
Sediment/Shoreline Stabilization	Y	3, 4, 9, 15		
Wildlife Habitat	Y	5, 6, 7, 8, 11, 13, 20, 21		
Recreation	Y	5, 12		
Educational/Scientific Value	N	5		
Uniqueness/Heritage	Y	1, 5, 17, 19, 22		
Visual Quality/Aesthetics	Y	1, 2, 8, 9		
ES Endangered Species Habitat	N			
Other				Only a small portion of the wetland is being impacted. After sediment removal, wetland restoration will occur within footprint of construction

Notes:

* Refer to backup list of numbered considerations.

ATTACHMENT C- SEED MIXES

NEW ENGLAND WETLAND PLANTS, INC

820 WEST STREET, AMHERST, MA 01002

PHONE: 413-548-8000 FAX 413-549-4000

EMAIL: INFO@NEWP.COM WEB ADDRESS: WWW.NEWP.COM

New England Conservation/Wildlife Mix

Botanical Name	Common Name	Indicator
Elymus virginicus	Virginia Wild Rye	FACW-
Schizachyrium scoparium	Little Bluestem	FACU
Andropogon gerardii	Big Bluestem	FAC
Festuca rubra	Red Fescue	FACU
Sorghastrum nutans	Indian Grass	UPL
Panicum virgatum	Switch Grass	FAC
Chamaecrista fasciculata	Partridge Pea	FACU
Desmodium canadense	Showy Tick Trefoil	FAC
Asclepias tuberosa	Butterfly Milkweed	NI
Bidens frondosa	Beggar Ticks	FACW
Eupatorium purpureum (Eutrochium maculatum)	Purple Joe Pye Weed	FAC
Rudbeckia hirta	Black Eyed Susan	FACU-
Aster pilosus (Symphyotrichum pilosum)	Heath (or Hairy) Aster	UPL
Solidago juncea	Early Goldenrod	

PRICE PER LB. $39.50 MIN. QUANITY 2 LBS. **TOTAL:** $79.00 APPLY: 25 LBS/ACRE :1750 sq ft/lb

The New England Conservation/Wildlife Mix provides a permanent cover of grasses, wildflowers, and legumes
For both good erosion control and wildlife habitat value. The mix is designed to be a no maintenance seeding, and is appropriate for cut and fill slopes, detention basin side slopes, and disturbed areas adjacent to commercial and residential projects.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse, Plus SH and applicable taxes.

NEW ENGLAND WETLAND PLANTS, INC

820 WEST STREET, AMHERST, MA 01002

PHONE: 413-548-8000 FAX 413-549-4000

EMAIL: INFO@NEWP.COM WEB ADDRESS: WWW.NEWP.COM

New England Erosion Control/Restoration Mix For Detention Basins and Moist Sites

Botanical Name	Common Name	Indicator
Elymus riparius	Riverbank Wild Rye	FACW
Schizachyrium scoparium	Little Bluestem	FACU
Festuca rubra	Red Fescue	FACU
Andropogon gerardii	Big Bluestem	FAC
Panicum virgatum	Switch Grass	FAC
Vernonia noveboracensis	New York Ironweed	FACW+
Agrostis perennans	Upland Bentgrass	FACU
Bidens frondosa	Beggar Ticks	FACW
Eupatorium maculatum (Eutrochium maculatum)	Spotted Joe Pye Weed	OBL
Eupatorium perfoliatum	Boneset	FACW
Aster novae-angliae (Symphyotrichum novae-anglia	New England Aster	FACW-
Scirpus cyperinus	Wool Grass	FACW
Juncus effusus	Soft Rush	FACW+

PRICE PER LB. $37.00 MIN. QUANITY 3 LBS. **TOTAL:** $111.00 APPLY: 35 LBS/ACRE :1250 sq ft/lb

The New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites contains a selection of native grasses and wildflowers designed to colonize generally moist, recently disturbed sites where quick growth of vegetation is desired to stabilize the soil surface. It is an appropriate seed mix for ecologically sensitive restorations that require stabilization as well as long-term establishment of native vegetation. This mix is particularly appropriate for detention basins that do not hold standing water. Many of the plants in this mix can tolerate infrequent inundation, but not constant flooding. The mix may be applied by hand, by mechanical spreader, or by hydro-seeder. After sowing, lightly rake, roll or cultipack to insure good seed-to-soil contact. Best results are obtained with a Spring or late Summer seeding. Late Fall and Winter dormant seeding requires an increase in the application rate. A light mulching of clean, weed-free straw is recommended

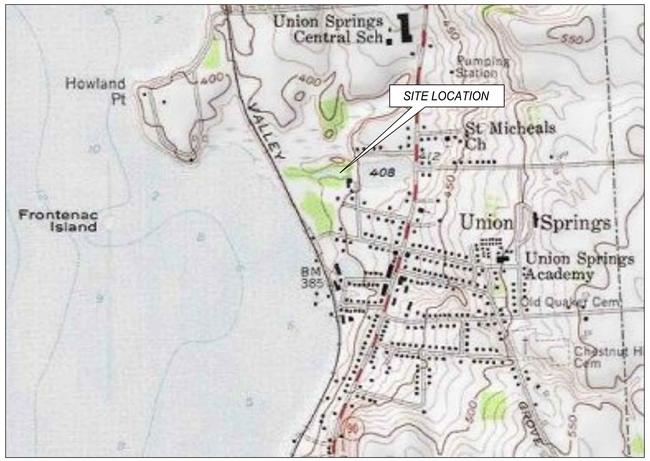
New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse, Plus SH and applicable taxes.

APPENDIX K DESIGN OF AREA 7, 8, AND 9 INTERM REMEDIAL MEASURE WORKPLAN DRAWINGS

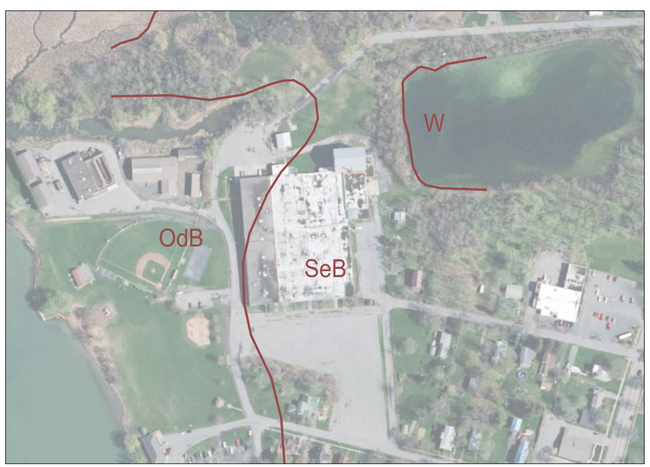
DESIGN OF AREA 7, 8 AND 9
INTERIM REMEDIAL MEASURES WORK PLAN

FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

SITE LOCATION MAP



SITE VICINITY AERIAL



SOIL SURVEY STAFF, NATURAL RESOURCES CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE. WEB SOIL SURVEY. AVAILABLE ONLINE AT HTTPS://WEBSOILSURVEY.NRCS.USDA.GOV/. ACCESSED JANUARY 2021

REVISION F
RESPONSE TO COMMENTS FROM NYSDEC
NOT FOR CONSTRUCTION

JUNE 2026

PREPARED FOR
TRW AUTOMOTIVE U.S. LLC

PREPARED BY

ERM

Environmental Resources Management

Syracuse Office 315-445-2534

STATE OF NEW YORK
STEPHEN ANTHONY MIRABELLO
LICENSED PROFESSIONAL ENGINEER
089550
6/30/26

STEPHEN MIRABELLO, P.E.
NEW YORK PROFESSIONAL ENGINEER LICENSE NO. PE 089550

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW ARTICLE 145 FOR ANY PERSON TO ALTER ANY DOCUMENT THAT BEARS THE SEAL OF A PROFESSIONAL ENGINEER, UNLESS THE PERSON IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER.

DRAWING INDEX

00	COVER SHEET
01	GENERAL NOTES AND LEGEND
02	EXISTING CONDITIONS
03	EROSION AND SEDIMENT CONTROL PLAN
04	UTILITY MANAGEMENT PLAN AND PROFILES
05	TRAFFIC CONTROL PLAN
06	EXCAVATION PLAN
07	AREA 7 PHASE 2: IN SITU SORPTION AND SOLIDIFICATION PLAN AND PROFILE
08	AREA 7 PHASE 3: SUPPLEMENTAL REMEDIAL PIPING INFRASTRUCTURE
09	FINAL GRADING PLAN
10	AREA 7, 8, AND 9 RESTORATION PLAN
11	GRADING PROFILES
12	CULVERT AND FLUME DESIGN
13	ACCESS ROAD DESIGN
14	CONSTRUCTION DETAILS (1 OF 2)
15	CONSTRUCTION DETAILS (2 OF 2)
16	STORMWATER DETAILS
17	EROSION AND SEDIMENT CONTROL DETAILS (1 OF 2)
18	EROSION AND SEDIMENT CONTROL DETAILS (2 OF 2)

C:\Users\James.Hoelzel\OneDrive - ERM\0585868.ZF Former TRW Union Springs - Work Plan - Response to Comments\00_Cover.dwg

GENERAL NOTES:

1. KNOW WHAT'S BELOW - CONTRACTOR TO CALL BEFORE YOU DIG! CALL NEW YORK ONE CALL AT 811 AT LEAST THREE FULL BUSINESS DAYS (NOT COUNTING WEEKENDS OR HOLIDAYS) PRIOR TO BEGINNING WORK. MAINTAIN CONFIRMATION FOR THE DURATION OF EXCAVATION ACTIVITIES. PRESERVE AND PROTECT MARKED-OUT UTILITIES.
2. PRIOR TO EXCAVATION OR ANY OTHER LAND DISTURBANCE ACTIVITIES, EXISTING SURFACE AND SUBSURFACE UTILITIES/STRUCTURES WITHIN THE PROJECT SITE (OR WHICH MAY BE AFFECTED BY OR INTERFERE WITH THE PROPOSED WORK), SHALL BE LOCATED BY CONTRACTOR UNLESS OTHERWISE DIRECTED BY THE OWNER'S REPRESENTATIVE.
3. ALL IMPORTED STONE OR SOIL SHALL BE DEMONSTRATED TO BE IN COMPLIANCE WITH THE LATEST VERSION OF THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) REGULATIONS (6 NYCRR PART 360). ALL IMPORTED MATERIALS MUST BE PRE-APPROVED BY THE NYSDEC AND THE OWNER'S REPRESENTATIVE PRIOR TO BRINING ON-SITE.
4. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK AND SHALL COMPLY WITH ALL OWNER AND OWNER'S REPRESENTATIVE HEALTH AND SAFETY REQUIREMENTS.
5. ANY EXISTING SITE FEATURE THAT IS DAMAGED OR REMOVED DURING THE WORK SHALL BE REPAIRED OR REPLACED UNLESS OTHERWISE NOTED.
6. PLAN LOCATIONS AND DIMENSIONS SHALL BE STRICTLY ADHERED TO UNLESS OTHERWISE DIRECTED BY THE OWNER'S REPRESENTATIVE.
7. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS PRIOR TO ORDERING AND/OR FABRICATING ANY MATERIALS.
8. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, PROCEDURES AND SEQUENCES, EXCEPT FOR THE OVERALL SEQUENCE OF CONSTRUCTION. THE CONSTRUCTION SHALL BE SEQUENCED IN ACCORDANCE WITH THE SOIL EROSION & SEDIMENT CONTROL PLAN.
9. CONTRACTOR SHALL PATCH, REPAIR AND FINISH OR REPLACE ALL SURFACES, EQUIPMENT, OR FEATURES RESTORING SAID SURFACES, EQUIPMENT OR FEATURES DAMAGED DURING THE WORK TO THEIR PRE-WORK OR AS-DESIGNED CONDITION.
10. FABRICATION AND INSTALLATION OF ALL MATERIALS, FINISHES, ETC. SHALL BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, UNLESS OTHERWISE SPECIFIED IN THE DESIGN
11. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH LOCAL BUILDING CODES AND THE NEW YORK DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE STANDARDS UNLESS OTHERWISE SPECIFIED.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF UTILITIES, WHETHER SHOWN OR NOT SHOWN ON THE DRAWINGS, AND SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED IN THE REPAIR OF ANY DAMAGE TO SAME RESULTING FROM THE CONTRACTOR'S WORK ASSOCIATED WITH THIS PROJECT. ANY DISCREPANCIES SHOULD BE REPORTED TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.
13. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE DONE TO THEM OR INTERRUPTION OF SERVICE DUE TO THE CONTRACTOR'S NEGLIGENCE SHALL BE IMMEDIATELY AND COMPLETELY REPAIRED AT HIS/HER EXPENSE.
14. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THERE IS SUFFICIENT COVER ON ALL PIPING DURING CONSTRUCTION TO PREVENT DAMAGE TO, OR FAILURE OF PIPES AS REQUIRED BY MANUFACTURER'S GUIDANCE FOR PIPE SIZE AND MATERIAL.
15. ALL EXCAVATIONS SHALL BE KEPT DRY AT ALL TIMES UNLESS OTHERWISE NOTED.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR PERMITS AS DESCRIBED IN THE TECHNICAL SPECIFICATIONS.

SURVEY INFORMATION

1. EXISTING SITE SURVEY PERFORMED BY RICHARD M. RYBINSKI. L.S., 8236 INDIAN HILL ROAD, MANLIUS NY 13104 FROM 2011 TO JUNE 2020. ADDITIONAL SURVEY PROVIDED BY THEW ASSOCIATED FROM JUNE 2020 TO DECEMBER 2022.
2. THESE PLANS ARE BASED ON SURVEY INFORMATION AVAILABLE AT THE TIME THEY WERE PREPARED AND ACTUAL CONDITIONS MAY VARY.
3. THE EXISTING SURVEY'S COORDINATE SYSTEM IS NEW YORK STATE PLANE, CENTRAL ZONE, US FOOT COORDINATE SYSTEM.
4. THE EXISTING SURVEY'S HORIZONTAL DATUM IS NAD 1983 AND VERTICAL DATUM IS NAVD 1929.
5. CONTRACTOR SHALL PROVIDE A PRE-CONSTRUCTION SURVEY OF THE WORK AREA TO THE LIMITS OF DISTURBANCE AS SHOWN PRIOR TO CONSTRUCTION. SURVEY REQUIREMENTS ARE FOUND IN THE TECHNICAL SPECIFICATIONS.

LEGEND

EXISTING CONDITIONS

- 400 — EXISTING GROUND INDEX CONTOUR (INTERVAL = 5 FT.)
- 399 — EXISTING GROUND INTERMEDIATE CONTOUR
- BORING LOCATIONS
- STORM SEWER MANHOLE
- WATER VALVE
- HYDRANT
- SANITARY SEWER MANHOLE
- UTILITY POLE
- SURVEY CONTROL POINTS
- EXISTING WELLS
- SAMPLE LOCATION
- STAFF GAUGE
- PROPERTY LINE
- CHAIN-LINK FENCE
- BRUSH LINE
- BURIED CULVERT
- G — GAS LINE
- W — WATER LINE
- UE — UNDERGROUND ELECTRIC LINE
- OP — OVERHEAD POWER LINE
- SW — STORMWATER LINE
- SS — SANITARY SEWER LINE
- FM — SEWER FORCE MAIN
- 100-YEAR FEMAQ3 FLOODPLAIN
- 100-FT WETLAND BUFFER
- MHW — MEAN HIGH WATER LEVEL
- SS-507 — CLEAN SAMPLE LOCATIONS
- SS-507 — IMPACTED SAMPLE LOCATIONS
- WETLAND
- OPEN WATER/STREAMS/PONDS
- CONCRETE

CONSTRUCTION/PROPOSED CONDITIONS

- 400 — PROPOSED GROUND INDEX CONTOUR (INTERVAL = 5 FT.)
- 399 — PROPOSED GROUND INTERMEDIATE CONTOUR
- AREA 7 LIMITS
- AREA 8 LIMITS
- AREA 9 LIMITS
- LOD — LIMIT OF DISTURBANCE
- LOL — LIMIT OF LINER
- LE — LIMIT OF EXCAVATION
- C — LIMIT OF CAP
- TRAFFIC FLOW
- INGRESS
- EGRESS
- ALLOWABLE STAGING AREAS
- NON-ALLOWABLE STAGING AREAS
- TEMPORARY CONSTRUCTION FENCE
- SF — SILT FENCE
- FS — COMPOST FILTER SOCK
- TC — TURBIDITY CURTAIN
- CD — COFFERDAM
- SB — SORBENT BOOM
- GUIDE RAIL
- STABILIZED CONSTRUCTION ENTRANCE
- FABRIC DROP INLET
- PROPOSED MANHOLE
- ASPHALT
- GABION BASKET
- RENO MATTRESS
- LAWN SEED MIX FOR RESTORATION
- FORMER CANAL CENTER
- STONE FOR RESTORATION
- UPLAND FORESTED AREA FOR RESTORATION
- NEW ENGLAND CONSERVATION/WILDLIFE MIX FOR RESTORATION
- WETLAND SHRUBS FOR RESTORATION
- BENEFICIAL RE-USE MATERIAL
- STABILIZATION MIX ZONE
- CAP MATERIAL
- STRUCTURAL SAND
- BACKFILL MATERIAL
- NATIVE SUBGRADE
- TREES FOR RESTORATION
- PRB MATERIAL (60% ZVI, 25% MASON SAND, 15% POND SAND)

1302 — DRAWING NUMBER WHERE DETAIL IS LOCATED / DETAIL DESIGNATION

1101 — DRAWING NUMBER WHERE PROFILE IS LOCATED / PROFILE DESIGNATION

DIRECTION OF PROFILE VIEW

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STATE OF NEW YORK — STEPHEN ANTHONY MIRABELLO — LICENSED PROFESSIONAL ENGINEER — 089550

Rev.	Date	Description	By	Chk
F	JUNE 2026	RESPONSE TO COMMENTS FROM NYSDEC	DF	JR
E	JULY 2025	ISSUED FOR PERMIT	DF	JR
D	JULY 2023	ISSUED FOR PERMIT	DF	JR
C	NOV 2022	ISSUED FOR PERMIT	DF	JR
B	AUG 2021	ISSUED FOR PERMIT	MB	JR
A	JAN 2021	ISSUED FOR REVIEW	MB	JR

DRAWN BY: JH | CADD Review: MB | CHECKED BY: SM

ERM

Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN

FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

GENERAL NOTES AND LEGEND

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	01	F
DATE DRAWN: JAN 2021			

REVISIONS TO BE MADE ON THE CADD FILE ONLY

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DATE	MW-2 SURFACE ELEVATION FT ASML	MW-2 DEPTH TO WATER FT	MW-2 WATER ELEVATION FT AMSL	MW-9 SURFACE ELEVATION FT ASML	MW-9 DEPTH TO WATER FT	MW-9 WATER ELEVATION FT AMSL	Staff Gauge Former Canal SURFACE ELEVATION FT ASML	Staff Gauge Former Canal DEPTH TO WATER FT	Staff Gauge Former Canal WATER ELEVATION FT AMSL
18-Nov-2011	387.21	5.46	381.75	-	-	-	-	-	-
12-Dec-2012	387.21	5.8	381.41	389.39	5.47	383.92	-	-	-
14-Jan-2015	387.21	5.71	381.5	389.39	5.81	383.58	-	-	-
12-Dec-2016	387.21	5.73	381.48	389.39	5.31	384.08	380.82	0.8	380.02
11-Jan-2018	387.21	5.38	381.83	389.39	5.15	384.24	380.82	0.6	380.22
23-Jan-2018	387.21	5.68	381.53	389.39	5.36	384.03	380.82	0.5	380.32
21-Feb-2018	387.21	5.3	381.91	389.39	5.9	383.49	380.82	0.35	380.47
09-Mar-2018	387.21	6.15	381.06	389.39	5.91	383.48	380.82	0.25	380.57
14-Mar-2018	387.21	5.82	381.39	389.39	5.85	383.54	380.82	0.25	380.57
26-Mar-2018	387.21	7.7	379.51	389.39	6.5	382.89	380.82	0.25	380.57
12-Apr-2018	387.21	6.74	380.47	389.39	6.06	383.33	380.82	0.25	380.57
19-Apr-2018	387.21	7.57	379.64	389.39	6.39	383	380.82	0.25	380.57
03-May-2018	387.21	6.79	380.42	389.39	6.11	383.28	380.82	1.05	379.77
11-Jul-2018	387.21	5.87	381.34	389.39	5.8	383.59	380.82	1.1	379.72
31-Jul-2018	387.21	5.15	382.06	389.39	5.1	384.29	380.82	1.1	379.72
17-Oct-2018	387.21	5.94	381.27	389.39	6.12	383.27	380.82	0.5	380.32
30-Oct-2018	387.21	7.43	379.78	389.39	6.41	382.98	380.82	1.6	379.22
14-Nov-2018	387.21	6.5	380.71	389.39	6.2	383.19	380.82	0.85	379.97
20-Nov-2018	387.21	8.92	378.29	389.39	5.51	383.88	380.82	0.95	379.87
27-Nov-2018	387.21	6.02	381.19	389.39	5.73	383.66	380.82	1.1	379.72
04-Dec-2018	387.21	6.93	380.28	389.39	6.38	382.81	380.82	1.1	379.72
20-Dec-2018	387.21	6.92	380.29	389.39	6.32	383.07	380.82	1.45	379.37
02-Jan-2019	387.21	6.81	380.4	389.39	6.7	382.69	380.82	1.7	379.12
08-Jan-2019	-	-	-	-	-	-	380.82	1.9	378.92
15-Jan-2019	-	-	-	-	-	-	380.82	1.9	378.92
27-Feb-2019	-	-	-	-	-	-	380.82	1.15	379.67
23-Apr-2019	-	-	-	-	-	-	380.82	1.2	379.62
01-May-2019	-	-	-	-	-	-	380.82	1.7	379.12
16-May-2019	-	-	-	-	-	-	380.82	1.8	379.02
28-May-2019	-	-	-	-	-	-	380.82	1.8	379.02
11-Jun-2019	-	-	-	-	-	-	380.82	1.3	379.52
02-Jul-2019	-	-	-	-	-	-	380.82	1.85	378.97
10-Jul-2019	-	-	-	-	-	-	380.82	1.6	379.22
17-Jul-2019	-	-	-	-	-	-	380.82	1.6	379.22
06-Aug-2019	-	-	-	-	-	-	380.82	1.6	379.22
13-Aug-2019	-	-	-	-	-	-	380.82	1.8	379.02
27-Aug-2019	-	-	-	-	-	-	380.82	1.5	379.32
04-Sep-2019	-	-	-	-	-	-	380.82	1.6	379.22
01-Oct-2019	-	-	-	-	-	-	380.82	1.5	379.32
25-Oct-2019	-	-	-	-	-	-	380.82	0.8	380.02
21-Nov-2019	-	-	-	-	-	-	380.82	1.1	379.72
26-Nov-2019	-	-	-	-	-	-	380.82	1.1	379.72
30-Mar-2020	-	-	-	-	-	-	380.82	1.4	379.42
09-Jun-2020	-	-	-	-	-	-	380.82	1.9	378.92
16-Dec-2020	-	-	-	-	-	-	380.82	-1.68	382.5
26-Jan-2021	-	-	-	-	-	-	380.82	1.7	379.12
14-Sep-2021	-	-	-	-	-	-	380.82	1.4	379.42
08-Dec-2021	-	-	-	-	-	-	380.82	1.4	379.42
22-Mar-2022	-	-	-	-	-	-	380.82	1.7	379.12
14-Jun-2022	-	-	-	-	-	-	380.82	1.6	379.22
23-Aug-2022	-	-	-	-	-	-	380.82	1.6	379.22
20-Dec-2022	-	-	-	-	-	-	380.82	-	-
27-Mar-2023	-	-	-	-	-	-	380.82	1	379.82
27-Jun-2023	-	-	-	-	-	-	380.82	1.3	379.52
11-Sep-2023	-	-	-	-	-	-	380.82	1.4	379.42
12-Dec-2023	-	-	-	-	-	-	380.82	1.2	379.62
18-Jun-2024	-	-	-	-	-	-	380.82	1.6	379.22

NOTE:

1. SEE DRAWING NO. 01 FOR GENERAL NOTES AND LEGEND.
2. ALL SITE TRAFFIC SHALL BE DIRECTED PER DRAWING NO. 05 TRAFFIC CONTROL PLAN.
3. ALL VEGETATION IS NOT INDICATED ON DRAWING. CONTRACTOR RESPONSIBLE FOR IDENTIFYING CURRENT CONDITIONS.
4. CONTRACTOR IS RESPONSIBLE FOR ENSURING PUBLIC AND PRIVATE ROADS OUTSIDE OF THE LOD ARE FREE OF SOIL OR OTHER MATERIALS FROM THE PROPERTY. THE CONTRACTOR SHALL MAINTAIN THE PROPERTY ROADS TO MINIMIZE THE TRACKING OF SOIL MATERIALS ONTO PUBLIC ROADS AND SHALL INSPECT AND CLEAN PUBLIC ROADS, AS NECESSARY. THE CONTRACTOR SHALL INSPECT THE TIRES OF EXITING VEHICLES AND USE A TIRE-WASH STATION TO CLEAN TIRES, AS NECESSARY. ALL WATER FROM THE TIRE WASHING SHALL BE COLLECTED AND CONTAINED.
5. UTILITY LOCATIONS ARE APPROXIMATE. ERM TO PROVIDE SUB-SURFACE CLEARANCE OF KNOWN EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL EXISTING STRUCTURES, EASEMENTS, PIPES, AND UTILITIES.
6. ALL EXISTING MONITORING WELLS WITHIN THE LIMITS OF DISTURBANCE SHALL BE PROPERLY ABANDONED BY OTHERS PRIOR TO THE START OF WORK.
7. PER REQUIREMENTS IN THE NYSECL ARTICLE 24 (THE FRESHWATER WETLANDS ACT) AND 6 NYCRR PART 663 (PERMIT ISSUANCE STANDARDS), NO STOCKPILING OF ANY UNCONSOLIDATED MATERIALS (SOILS, GRAVEL, ETC.) WITHIN 100 FEET FROM STATE REGULATED WETLAND).

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW ARTICLE 145 FOR ANY PERSON TO ALTER ANY DOCUMENT THAT BEARS THE SEAL OF A PROFESSIONAL ENGINEER, UNLESS THE PERSON IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER.

STATE OF NEW YORK
STEPHEN ANTHONY MICHELTO
089550
LICENSED PROFESSIONAL ENGINEER

Rev.	Date	Description	By	Chk
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Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN

FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

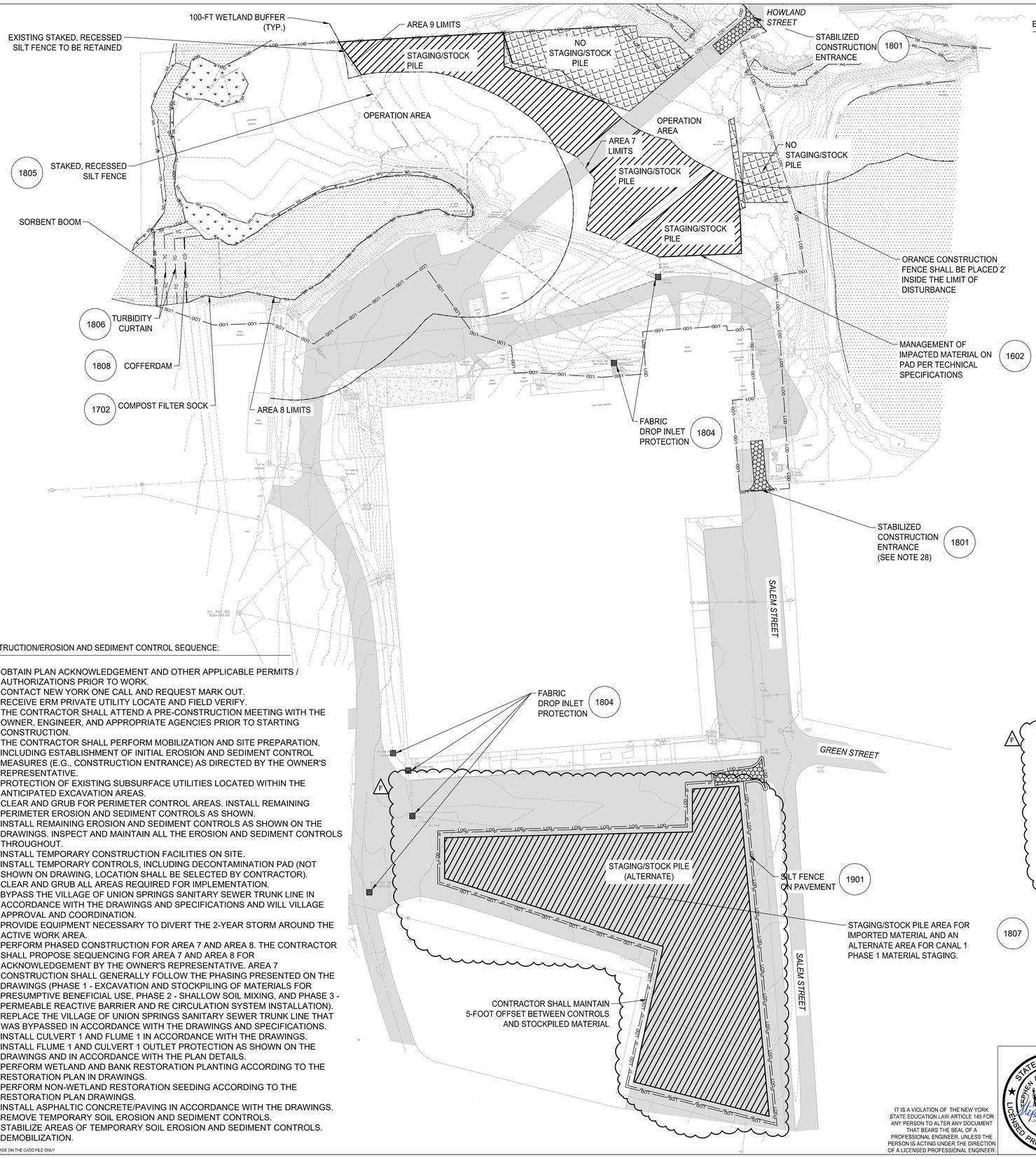
EXISTING CONDITIONS

SCALE: AS SHOWN
DATE DRAWN: JAN 2021
PROJECT NUMBER: 0820721
DRAWING: 02
REV.: F

SCALE (IN FEET): 0 20 40

REVISIONS TO BE MADE ON THE CADD FILE ONLY.

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CONSTRUCTION/EROSION AND SEDIMENT CONTROL SEQUENCE:

1. OBTAIN PLAN ACKNOWLEDGEMENT AND OTHER APPLICABLE PERMITS / AUTHORIZATIONS PRIOR TO WORK.
2. CONTACT NEW YORK ONE CALL AND REQUEST MARK OUT.
3. RECEIVE ERM PRIVATE UTILITY LOCATE AND FIELD VERIFY.
4. THE CONTRACTOR SHALL ATTEND A PRE-CONSTRUCTION MEETING WITH THE OWNER, ENGINEER, AND APPROPRIATE AGENCIES PRIOR TO STARTING CONSTRUCTION.
5. THE CONTRACTOR SHALL PERFORM MOBILIZATION AND SITE PREPARATION, INCLUDING ESTABLISHMENT OF INITIAL EROSION AND SEDIMENT CONTROL MEASURES (E.G., CONSTRUCTION ENTRANCE) AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
6. PROTECTION OF EXISTING SUBSURFACE UTILITIES LOCATED WITHIN THE ANTICIPATED EXCAVATION AREAS.
7. CLEAR AND GRUB FOR PERIMETER CONTROL AREAS. INSTALL REMAINING PERIMETER EROSION AND SEDIMENT CONTROLS AS SHOWN.
8. INSTALL REMAINING EROSION AND SEDIMENT CONTROLS AS SHOWN ON THE DRAWINGS. INSPECT AND MAINTAIN ALL THE EROSION AND SEDIMENT CONTROLS THROUGHOUT.
9. INSTALL TEMPORARY CONSTRUCTION FACILITIES ON SITE.
10. INSTALL TEMPORARY CONTROLS, INCLUDING DECONTAMINATION PAD (NOT SHOWN ON DRAWING, LOCATION SHALL BE SELECTED BY CONTRACTOR).
11. CLEAR AND GRUB ALL AREAS REQUIRED FOR IMPLEMENTATION.
12. BYPASS THE VILLAGE OF UNION SPRINGS SANITARY SEWER TRUNK LINE IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS AND WILL VILLAGE APPROVAL AND COORDINATION.
13. PROVIDE EQUIPMENT NECESSARY TO DIVERT THE 2-YEAR STORM AROUND THE ACTIVE WORK AREA.
14. PERFORM PHASED CONSTRUCTION FOR AREA 7 AND AREA 8. THE CONTRACTOR SHALL PROPOSE SEQUENCING FOR AREA 7 AND AREA 8 FOR ACKNOWLEDGEMENT BY THE OWNER'S REPRESENTATIVE. AREA 7 CONSTRUCTION SHALL GENERALLY FOLLOW THE PHASING PRESENTED ON THE DRAWINGS (PHASE 1 - EXCAVATION AND STOCKPILING OF MATERIALS FOR PRESUMPTIVE BENEFICIAL USE, PHASE 2 - SHALLOW SOIL MIXING, AND PHASE 3 - PERMEABLE REACTIVE BARRIER AND RE CIRCULATION SYSTEM INSTALLATION).
15. REPLACE THE VILLAGE OF UNION SPRINGS SANITARY SEWER TRUNK LINE THAT WAS BYPASSED IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
16. INSTALL CULVERT 1 AND FLUME 1 IN ACCORDANCE WITH THE DRAWINGS.
17. INSTALL FLUME 1 AND CULVERT 1 OUTLET PROTECTION AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE PLAN DETAILS.
18. PERFORM WETLAND AND BANK RESTORATION PLANTING ACCORDING TO THE RESTORATION PLAN IN DRAWINGS.
19. PERFORM NON-WETLAND RESTORATION SEEDING ACCORDING TO THE RESTORATION PLAN DRAWINGS.
20. INSTALL ASPHALTIC CONCRETE/PAVING IN ACCORDANCE WITH THE DRAWINGS.
21. REMOVE TEMPORARY SOIL EROSION AND SEDIMENT CONTROLS.
22. STABILIZE AREAS OF TEMPORARY SOIL EROSION AND SEDIMENT CONTROLS.
23. DEMOBILIZATION.

EROSION AND SEDIMENT CONTROL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THESE DRAWINGS AND SPECIFICATIONS, AND THE NEW YORK STATE BLUE BOOK. IN THE CASE THAT CONTROL MEASURES CONFLICT, NYS PROCEDURES SHALL TAKE PRECEDENCE.
2. CONTRACTOR SHALL MANAGE CONTACT WATER FROM EXCAVATION AREAS BY PUMPING THE WATER TO THE ON-SITE WATER TREATMENT SYSTEM.
3. WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACTOR'S PREPARED EXCAVATION SECTION OF THE CONTRACTOR'S CONSTRUCTION PLAN.
4. NO DISTURBANCE SHALL BE PERMITTED BEYOND THE EROSION AND SEDIMENT CONTROL (I.E. LIMIT OF DISTURBANCE).
5. CONTRACTOR SHALL PREPARE, SUBMIT AND IMPLEMENT, WITH THE PRIOR APPROVAL OF THE ENGINEER, A CONTINGENCY PLAN FOR MANAGING STORMWATER FLOWS IN THE PROJECT AREA DURING SIGNIFICANT EVENTS SO AS NOT TO IMPACT NEIGHBORING PROPERTIES. SPECIFIC ACTIONS TO BE IMPLEMENTED SHALL BE IDENTIFIED IN THE CONTINGENCY PLAN, BUT AT A MINIMUM SHALL INCLUDE THE FOLLOWING:
   i. EXCAVATION, BACKFILLING, AND ANY OTHER GROUND-DISTURBING ACTIVITIES SHALL CEASE.
   ii. EXCAVATED MATERIAL SHALL BE TRANSPORTED TO THE SEDIMENT MANAGEMENT AREA AND PROTECTED FROM WIND AND PRECIPITATION TRANSPORT.
   iii. EQUIPMENT SHALL BE MOVED FROM THE EXCAVATION AREA TO THE SEDIMENT MANAGEMENT AREA FOR THE DURATION OF THE EVENT.
6. IN THE EVENT OF A BLOWOUT OR OTHER SIGNIFICANT EROSION RESULTING FROM A RAIN EVENT OR OTHERWISE, CONTRACTOR SHALL FOLLOW PROCEDURE OUTLINED IN THE SWPPP OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
7. CONTRACTOR SHALL INSPECT EROSION AND SEDIMENT CONTROLS DAILY TO ASSURE PROPER PERFORMANCE AND STABILITY. PARTICULAR ATTENTION SHOULD BE GIVEN TO THE EXCAVATION SUPPORT SYSTEMS. ANY UNSTABLE OR SETTLED AREAS SHALL BE REINFORCED BY CONTRACTOR IMMEDIATELY.
8. MINOR REPAIRS TO EROSION AND SEDIMENT CONTROLS (I.E. RESTAKING SILT FENCE, REMOVING ACCUMULATED SEDIMENT) SHALL BE PERFORMED BY CONTRACTOR WITHIN 1 BUSINESS DAY OF OBSERVATION OF THE DAMAGE. MAJOR REPAIRS (I.E. MATERIAL REPLACEMENT) SHALL BE PERFORMED BY CONTRACTOR WITHIN 5 BUSINESS DAYS OF THE OBSERVATION.
9. CONTRACTOR SHALL MAINTAIN THE AREA OF INGRESS AND EGRESS AND CONSTRUCTION ACCESS IN A CONDITION WHICH SHALL PREVENT TRACKING OF SOIL/SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY OR STREETS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL AGGREGATE. ALL SOIL/SEDIMENT SPILLED, DROPPED, OR WASHED ONTO PUBLIC RIGHTS-OF-WAY SHALL BE REMOVED BY CONTRACTOR IMMEDIATELY. ANY ROADWAYS WITH SEDIMENT DROPPED ONTO THEM SHALL BE SWEPT BY CONTRACTOR THE SAME DAY. CONTRACTOR SHALL ADJUST CONTROLS WHENEVER NECESSARY IF TRACKING OF SEDIMENT INTO THE PUBLIC RIGHT-OF-WAY / ROADWAYS OCCURS.
10. CONTRACTOR SHALL CLEAN WHEELS TO REMOVE SEDIMENT FROM ENTERING INTO THE PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO A STATE APPROVED SEDIMENT-TRAPPING DEVICE. CONTRACTOR SHALL PREVENT ALL SEDIMENT FROM ENTERING STORM DRAINS, DITCHES, OR WATERCOURSES.
11. IN CONSTRUCTION AREAS WHERE MACHINERY SHALL BE OPERATED AND SOFT SOILS / SUBGRADES EXIST, INCLUDING THE UNDERLYING GLACIO-LUCUSTRINE CLAY IN AREA 7 AND 8 AND THE AREA 8 SEDIMENTS, THE CONTRACTOR SHALL INSTALL TIMBER CRANE MATS OR TIMBER PLANK MATS OR ALTERNATE TEMPORARY ROADWAYS SELECTED BY THE CONTRACTOR.
12. CONTRACTOR SHALL INSTALL AND MAINTAIN SILT FENCE IN ADDITIONAL AREAS AS SHOWN HEREIN. EXISTING SILT FENCE MAY BE IN PLACE AT THE TIME OF CONSTRUCTION AND MAY BE RETAINED BY THE CONTRACTOR SO LONG AS IT IS NOT DAMAGED AND IS FUNCTIONING PROPERLY. CONTRACTOR IS RESPONSIBLE FOR THE PERFORMANCE, INSTALLATION, REPLACEMENT AND MAINTENANCE OF ALL SILT FENCE. MAINTENANCE SHALL BE PERFORMED BY CONTRACTOR AS NEEDED AND MATERIAL REMOVED WHEN BULGES DEVELOP IN THE SILT FENCE.
13. CONTRACTOR SHALL TEMPORARILY SEED STOCKPILES AND ALL OTHER AREAS THAT REMAIN DISTURBED BUT INACTIVE FOR AT LEAST FOURTEEN (14) DAYS.
14. CONTRACTOR SHALL SURROUND ALL STOCKPILE AREAS FOR UNCONSOLIDATED SOILS WITH STAKED, RECESSED SILT FENCE OR FILTER SOCKS. PER REQUIREMENTS IN THE NYSECL ARTICLE 24 (THE FRESHWATER WETLANDS ACT) AND 6 NYCRR PART 663 (PERMIT ISSUANCE STANDARDS), THE CONTRACTOR SHALL NOT STOCKPILE ANY UNCONSOLIDATED MATERIALS (SOILS, GRAVEL, ETC.) WITHIN 100 FEET OF STATE REGULATED WETLANDS. THE 100-FOOT WETLAND BUFFER IS SHOWN HEREIN.
15. CONTRACTOR SHALL INSTALL AND FILTER SOCKS IN AREAS AS SHOWN HEREIN.
16. CONTRACTOR SHALL INSPECT FILTER SOCKS WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED BY CONTRACTOR IN THE MANNER REQUIRED BY THE MANUFACTURER OR REPLACED WITHIN 24 HOURS OF INSPECTION NOTIFICATION.
17. ACCUMULATED SEDIMENT SHALL BE REMOVED BY CONTRACTOR WHEN IT REACHES HALF THE ABOVE GROUND HEIGHT OF THE SOCK AND FENCE AND DISPOSED OF IN ACCORDANCE WITH RECEIVING FACILITY REQUIREMENTS.
18. CONTRACTOR SHALL REPLACE BIODEGRADABLE FILTER SOCKS AFTER 6 MONTHS; PHOTODEGRADABLE FILTER SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED BY CONTRACTOR ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
19. UPON STABILIZATION OF THE WATERSHED AREA CONTRIBUTING TO THE SOCK, STAKES SHALL BE REMOVED BY CONTRACTOR. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED IN ACCORDANCE WITH THE STABILIZATION PLAN. FOR REMOVAL THE MESH CAN BE CUT AND THE COMPOST SPREAD AS AN ADDITIONAL MULCH TO ACT AS A SOIL SUPPLEMENT.
20. THE COMPOST INFILL SHALL BE WELL DECOMPOSED (MATURED AT LEAST 3 MONTHS), WEED-FREE, ORGANIC MATTER. IT SHALL BE AEROBICALLY COMPOSED, POSSES NO OBJECTIONABLE ODORS, AND CONTAIN LESS THAN 1% BY DRY WEIGHT, OF MANMADE FOREIGN MATTER. THE PHYSICAL PARAMETERS OF THE COMPOST SHALL MEET THE STANDARDS LISTED IN THE LATEST EDITION OF THE NEW YORK STATE BLUE BOOK - TABLE 5.2.
21. CONTRACTOR SHALL INSPECT THE TURBIDITY CURTAIN DAILY AND REPAIRED OR REPLACED IMMEDIATELY. REMOVAL OF SEDIMENT DEPOSITED BEHIND THE CURTAIN SHALL BE DONE BY HAND BY THE CONTRACTOR PRIOR TO REMOVAL OF THE BARRIER OR AS OTHERWISE ACKNOWLEDGED BY THE OWNER'S REPRESENTATIVE. ALL REMOVED SILT SHALL BE STABILIZED AWAY FROM THE WATERBODY. THE CONTRACTOR SHALL REMOVE THE BARRIER BY CAREFULLY PULLING IT TOWARD THE CONSTRUCTION SITE TO MINIMIZE THE RELEASE OF ATTACHED SEDIMENT. ANY FLOATING CONSTRUCTION OR NATURAL DEBRIS SHALL BE IMMEDIATELY REMOVED TO PREVENT DAMAGE TO THE TURBIDITY CURTAIN.
22. IF THE TURBIDITY CURTAIN IS ORIENTED IN A MANNER THAT FACES THE PREVAILING WINDS, CONTRACTOR SHALL FREQUENTLY CHECK THE ANCHORAGE.
23. THE SPECIFIED COFFERDAM TO BE USED (WHETHER SOIL DAM, AQUATUBE, OR PORTA DAM OR ALTERNATE) SHALL BE SELECTED BY THE CONTRACTOR AND ACKNOWLEDGED BY THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL REVIEW EXISTING SEDIMENT INVESTIGATION FOR WATER DEPTH, BATHYMETRY, AND SOIL PROPERTIES AND SHALL COORDINATE WITH COFFERDAM SUPPLIERS TO CONFIRM THE SUITABILITY OF THEIR PRODUCT FOR THIS PROJECT. COFFERDAM DESIGN/ENGINEERING IS EXCLUDED FROM THESE DRAWINGS.
24. ~~CONTRACTOR SHALL REPAIR ANY HOLES, LEAKS, OR TORN AREAS OF THE COFFERDAM IMMEDIATELY.~~
25. ANY SHIFTING, MOVEMENT, OR SETTLING OF THE COFFERDAM SHALL BE ADDRESSED BY CONTRACTOR IMMEDIATELY TO PROTECT WORKERS IN THE CONSTRUCTION AREA.
26. A QUALIFIED INSPECTOR (AS DEFINED BY THE NYSDEC SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY, PERMIT NO. GP-0-25-001 (CGP)) SHALL CONDUCT SITE INSPECTIONS AT LEAST ONCE EVERY 7 CALENDAR DAYS WHERE SOIL DISTURBANCES ARE ONGOING. AT NO TIME SHALL DISTURBANCE EXCEED 5 ACRES UNLESS DER AND DOW IS NOTIFIED PRIOR TO DISTURBANCE. WHERE SOIL DISTURBANCE ACTIVITIES HAVE BEEN TEMPORARILY SUSPENDED AND TEMPORARY STABILIZATION MEASURES HAVE BEEN APPLIED TO ALL DISTURBED AREAS, THE QUALIFIED INSPECTOR MAY CONDUCT A SITE INSPECTION AT LEAST ONCE EVERY 30 CALENDAR DAYS AFTER NOTIFYING THE DER AND DOW PROGRAM CONTACTS.
27. WHERE A QUALIFIED INSPECTOR IDENTIFIES CORRECTIVE ACTIONS THAT NEED TO BE TAKEN, CORRECTIVE ACTIONS MUST BEGIN WITHIN ONE BUSINESS DAY AND BE COMPLETED WITHIN 5 BUSINESS DAYS WHERE THE CORRECTIVE ACTION DOES NOT REQUIRE ENGINEERING DESIGN. WHEN THE CORRECTIVE ACTION REQUIRES ENGINEERING DESIGN, BEGIN THE ENGINEERING DESIGN PROCESS WITHIN 5 BUSINESS DAYS AND COMPLETE THE CORRECTIVE ACTION IN A REASONABLE TIME FRAME BUT NO LATER THAN WITHIN 60 CALENDAR DAYS. NOTE THAT THE CONSTRUCTION ACTIVITY MUST ALSO COMPLY WITH ANY WATER QUALITY STANDARDS THAT ARE DEFINED BY SUCH MEASURES OF PURITY OR QUALITY FOR ANY WATERS IN RELATION TO THEIR REASONABLE AND NECESSARY USE AS PROMULGATED IN 6 NYCRR PART 700 ET SEQ.
28. IF CREAMERY ROAD IS DAMAGED DURING CONSTRUCTION AS THE RESULT OF CONSTRUCTION TRAFFIC OR DIVERTED TRAFFIC (E.G., TRUCKS DELIVERING TO THE SITE'S OWNER AND/OR TENANTS), CREAMERY ROAD SHALL BE RESTORED. RESTORATION SHALL BE CONDUCTED IN ACCORDANCE WITH REQUIREMENTS OF THE VILLAGE OF UNION SPRINGS AND/OR TOWN OF SPRINGPORT.

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STATE OF NEW YORK · STEPHEN ANTHONY MIRABELLA · 089550 · LICENSED PROFESSIONAL ENGINEER

Rev.	Date	Description	By	Chk
F	JUNE 2026	RESPONSE TO COMMENTS FROM NYSDEC	DF	JR
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DRAWN BY: JH | CADD Review: MB | CHECKED BY: SM

Environmental Resources Management

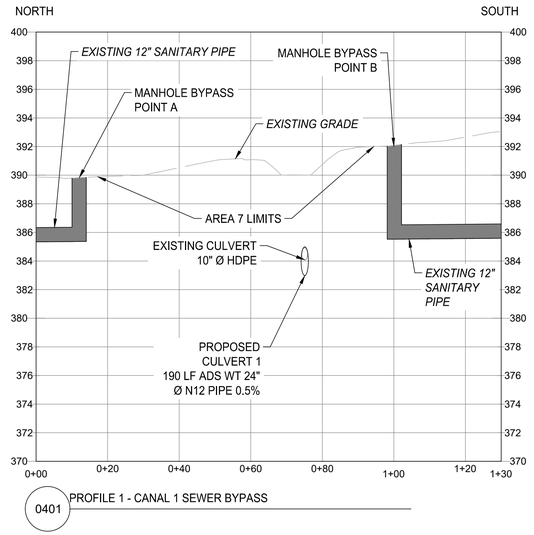
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DESIGN OF AREA 7, 8, AND 9 INTERIM REMEDIAL MEASURES WORK PLAN

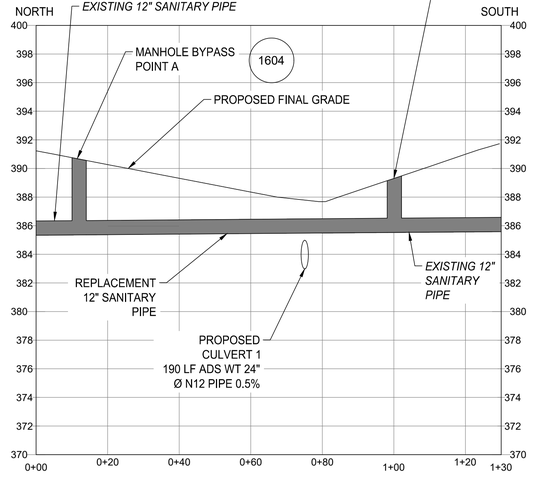
FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

EROSION AND SEDIMENT CONTROL PLAN

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	03	F
DATE DRAWN: JAN 2021			



0401 PROFILE 1 - CANAL 1 SEWER BYPASS



0402 PROFILE 2 - CANAL 1 RECONSTRUCTED SEWER

NOTE:
1. REPLACEMENT SEWER PIPE SHALL BE EXCAVATED AND PLACED WITH THE MATERIAL MIXED DURING PHASE 3. SEE DRAWING NOs. 07 AND 08 FOR ADDITIONAL DETAILS.

0 20
SCALE (IN FEET)

AREA 9 LIMITS

AREA 8 LIMITS

AREA 7 LIMITS

EXISTING 10" Ø HDPE CULVERT TO BE REPLACED WITH A 24" Ø HDPE CULVERT

VILLAGE OF UNION SPRINGS 12" SANITARY SEWER INTERSECTION WITH AREA 7 LIMITS

1504 VILLAGE OF UNION SPRINGS 12" SANITARY SEWER BYPASS - POINT A (SEE NOTES 3 AND 4)

0401 1+30 1504 VILLAGE OF UNION SPRINGS 12" SANITARY SEWER BYPASS POINT B (SEE NOTES 3 AND 4)

VILLAGE OF UNION SPRINGS 12" SANITARY SEWER INTERSECTION WITH AREA 7 LIMITS

0402 0+00

ACTIVE GROUNDWATER RECOVERY SUMP DISCHARGE

GAS LINE IN PROPOSED RE-GRADING AREA

WATER LINE IN PROPOSED RE-GRADING AREA

UNDERGROUND ELECTRIC LINE IN PROPOSED RE-GRADING AREA

0 20 40
SCALE (IN FEET)

NOTE:
1. ERM TO PROVIDE SUB-SURFACE CLEARANCE OF EXISTING UTILITIES. CONTRACTOR TO VERIFY LOCATIONS ON SITE BEFORE STARTING WORK.
2. SEE TECHNICAL SPECIFICATIONS FOR DETAILED UTILITY MANAGEMENT REQUIREMENTS.
3. THE TEMPORARY COMPONENTS OF THE BY-PASS SYSTEM ARE NOT SHOWN, AND ARE THE RESPONSIBILITY OF THE CONTRACTOR TO DESIGN AND IMPLEMENT. CONTRACTOR SHALL PROVIDE 24-HOUR SUPERVISION OF BYPASS OPERATION IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.
4. CONTRACTOR MAY DESIGN AND PROPOSE A TEMPORARY SUPPORT AND BRACING SYSTEM IN LIEU OF BYPASS TO BE REVIEWED AND APPROVED BY THE OWNER'S REPRESENTATIVE.

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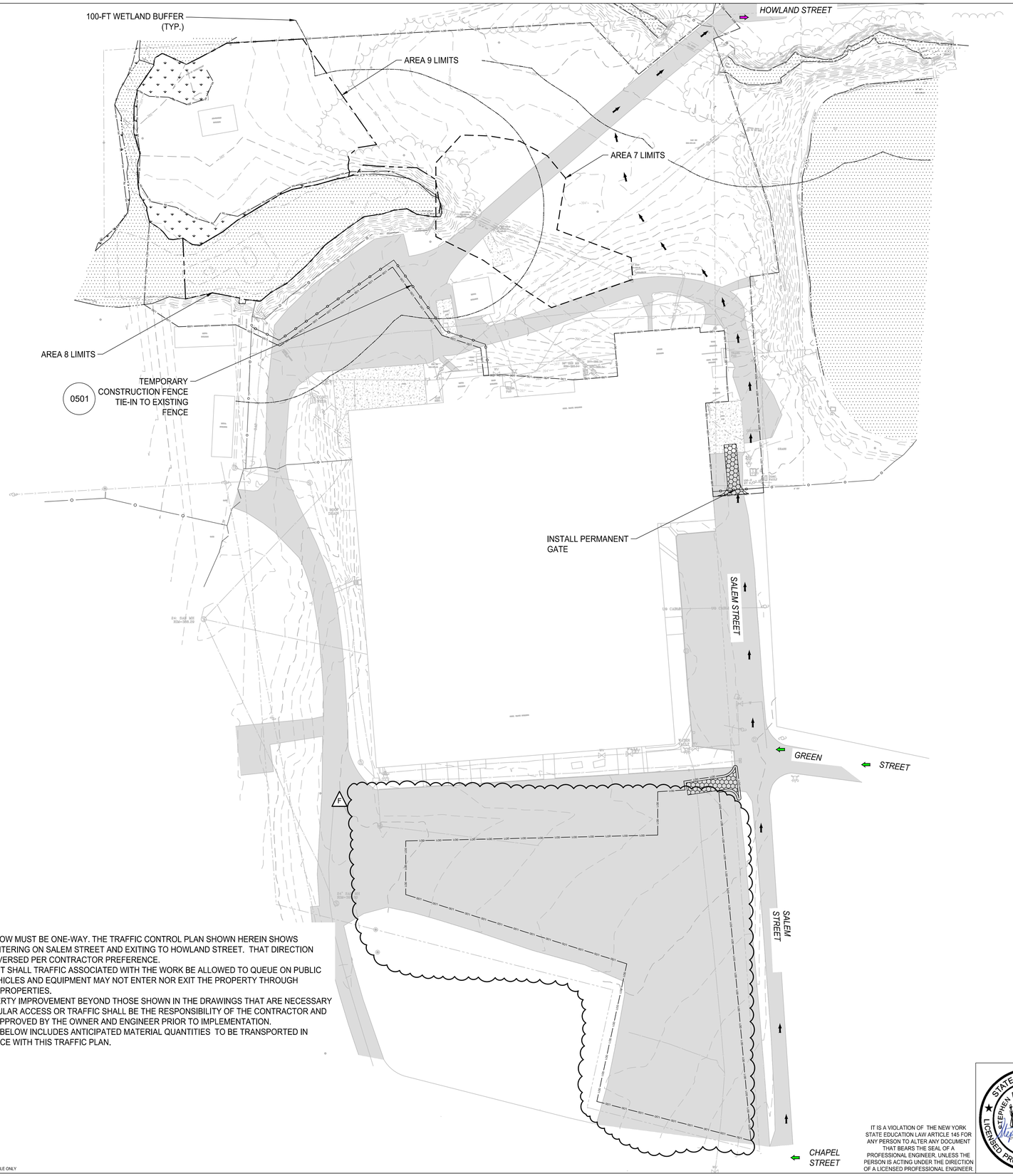
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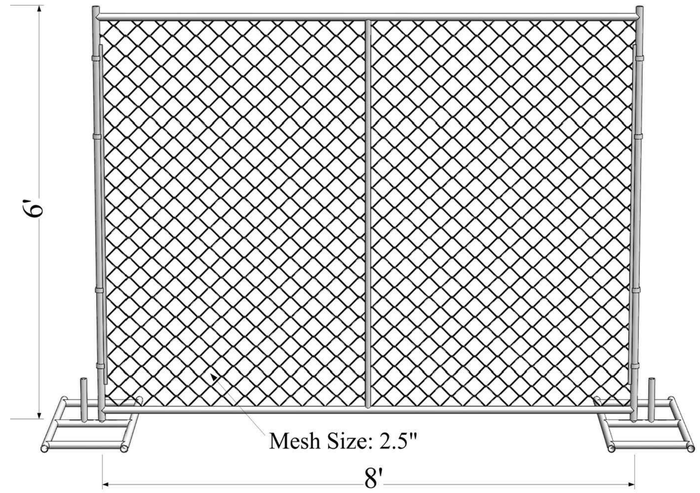
UTILITY MANAGEMENT PLAN AND PROFILES

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	04	F
DATE DRAWN JAN 2021			

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0501 TEMPORARY CONSTRUCTION FENCE

NOT TO SCALE

NOTES:

1. TRAFFIC FLOW MUST BE ONE-WAY. THE TRAFFIC CONTROL PLAN SHOWN HEREIN SHOWS TRAFFIC ENTERING ON SALEM STREET AND EXITING TO HOWLAND STREET. THAT DIRECTION MAY BE REVERSED PER CONTRACTOR PREFERENCE.
2. AT NO POINT SHALL TRAFFIC ASSOCIATED WITH THE WORK BE ALLOWED TO QUEUE ON PUBLIC ROADS. VEHICLES AND EQUIPMENT MAY NOT ENTER NOR EXIT THE PROPERTY THROUGH ADJOINING PROPERTIES.
3. ANY PROPERTY IMPROVEMENT BEYOND THOSE SHOWN IN THE DRAWINGS THAT ARE NECESSARY FOR VEHICULAR ACCESS OR TRAFFIC SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE APPROVED BY THE OWNER AND ENGINEER PRIOR TO IMPLEMENTATION.
4. THE TABLE BELOW INCLUDES ANTICIPATED MATERIAL QUANTITIES TO BE TRANSPORTED IN ACCORDANCE WITH THIS TRAFFIC PLAN.

N

0 50 100

SCALE (IN FEET)

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Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
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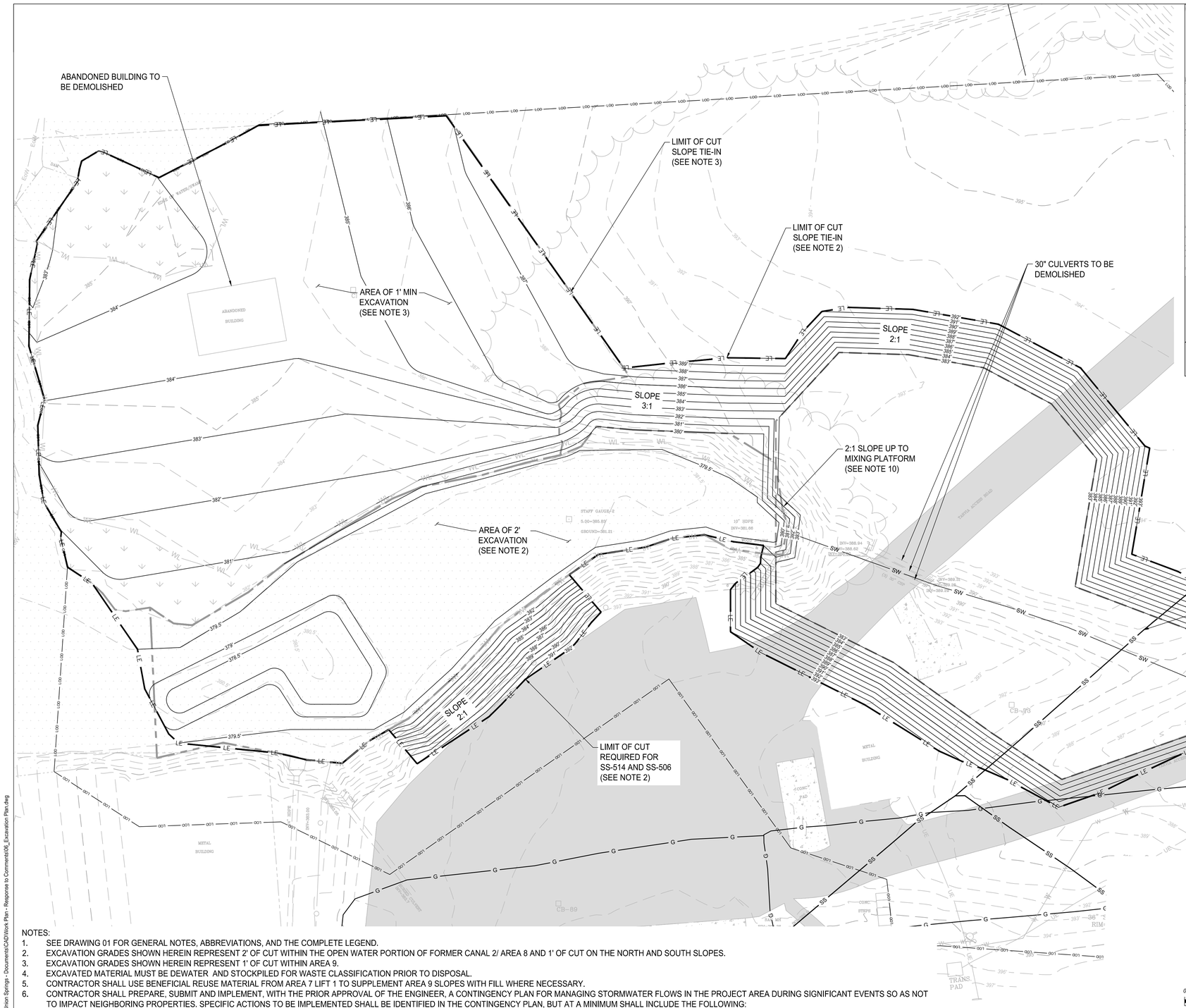
FORMER TRW UNION SPRINGS
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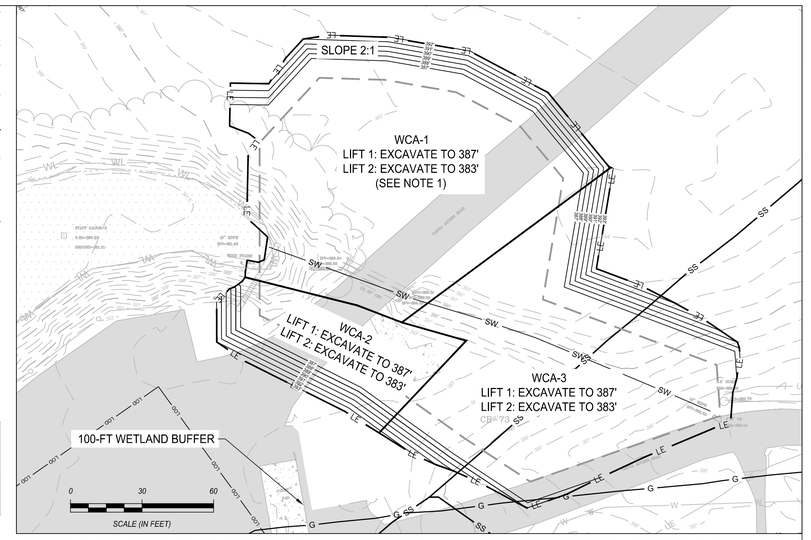
TRAFFIC CONTROL PLAN

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	05	F
DATE DRAWN: JAN 2021			

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PHASE 1 LIFT 1 EXCAVATION AND STOCKPILING FOR MATERIALS PRESUMPTIVE BENEFICIAL REUSE AND DISPOSAL

NOTES:

1. THE WASTE CHARACTERIZATION AREA (WCA) LIMITS SHOWN HEREIN REPRESENT THE MINIMUM LIMITS OF EXCAVATION. THE ELEVATIONS SHOWN IN THE PLAN VIEW MUST BE MET FOR EACH WCA IN ITS ENTIRETY. THE EXCAVATION VOLUMES IN THESE NOTES ASSUMES VERTICAL EXCAVATION LIMITS. THE CONTRACTOR SHALL DESIGN AND SUBMIT AN EXCAVATION SUPPORT SYSTEM TO ACHIEVE THE MINIMUM EXCAVATION SHOWN. EXCAVATION SUPPORT SYSTEM ENGINEERING/DESIGN IS EXCLUDED FROM THESE DRAWINGS. ELEVATIONS FOR PHASE 1 LIFT 2 MAY CHANGE DURING CONSTRUCTION BASED ON SEASONAL CHANGES IN GROUNDWATER.
2. LIFT 1 IS ASSUMED TO BE BENEFICIAL REUSE MATERIAL AS REPRESENTED BY THE EXCAVATION GRADES SHOWN HEREIN. THE VOLUME OF BENEFICIAL REUSE MATERIAL IS APPROXIMATELY 4,500 CY.
3. WITHIN WASTE CHARACTERIZATION AREA (WCA) 1, EXCAVATED MATERIAL 0-3 FEET BELOW GRADE SHALL BE STOCK PILED AS RE-USE MATERIAL. EXCAVATED MATERIAL 3-6 FEET BELOW GRADE SHALL BE STOCK PILED SEPARATELY TO BE TESTED. WCA-2 AND WCA-3 MAY BE STOCKPILED AS RE-USE MATERIAL TO THE DEPTHS SHOWN WITHOUT TESTING.

NOTES:

1. SEE DRAWING 01 FOR GENERAL NOTES, ABBREVIATIONS, AND THE COMPLETE LEGEND.
2. EXCAVATION GRADES SHOWN HEREIN REPRESENT 2' OF CUT WITHIN THE OPEN WATER PORTION OF FORMER CANAL 2/ AREA 8 AND 1' OF CUT ON THE NORTH AND SOUTH SLOPES.
3. EXCAVATION GRADES SHOWN HEREIN REPRESENT 1' OF CUT WITHIN AREA 9.
4. EXCAVATED MATERIAL MUST BE DEWATER AND STOCKPILED FOR WASTE CLASSIFICATION PRIOR TO DISPOSAL.
5. CONTRACTOR SHALL USE BENEFICIAL REUSE MATERIAL FROM AREA 7 LIFT 1 TO SUPPLEMENT AREA 9 SLOPES WITH FILL WHERE NECESSARY.
6. CONTRACTOR SHALL PREPARE, SUBMIT AND IMPLEMENT, WITH THE PRIOR APPROVAL OF THE ENGINEER, A CONTINGENCY PLAN FOR MANAGING STORMWATER FLOWS IN THE PROJECT AREA DURING SIGNIFICANT EVENTS SO AS NOT TO IMPACT NEIGHBORING PROPERTIES. SPECIFIC ACTIONS TO BE IMPLEMENTED SHALL BE IDENTIFIED IN THE CONTINGENCY PLAN, BUT AT A MINIMUM SHALL INCLUDE THE FOLLOWING:
   - 6.1. EXCAVATION, BACKFILLING, AND ANY OTHER GROUND-DISTURBING ACTIVITIES SHALL CEASE.
   - 6.2. EXCAVATED MATERIAL SHALL BE TRANSPORTED TO THE SEDIMENT MANAGEMENT AREA AND PROTECTED FROM WIND AND PRECIPITATION TRANSPORT.
   - 6.3. EQUIPMENT SHALL BE MOVED FROM THE EXCAVATION AREA TO THE SEDIMENT MANAGEMENT AREA FOR THE DURATION OF THE EVENT.
7. CONTRACTOR SHALL MANAGE CONTACT WATER FROM EXCAVATION AREAS BY PUMPING THE WATER TO THE ON-SITE WATER TREATMENT SYSTEM.
8. WHEN RAIN IS ANTICIPATED, TURBIDITY SHALL BE MANAGED AS REQUIRED IN THE TECHNICAL SPECIFICATIONS.
9. AS SET FORTH BY DER-10 SECTION 4.1 (F)2, TWO FEET OF SEDIMENT WILL BE REMOVED OVER THE PROPOSED FOOT PRINT TO MINIMIZE POTENTIAL EXPOSURE. AN ACTIVE CAPPING SYSTEM WILL BE INSTALLED INCLUDING A REACTIVE CORE MAT TO MINIMIZE/ RETARD THE POTENTIAL UPWARD MIGRATION OF RESIDUAL CONTAMINATION PRESENT BELOW THE CAP, TO IMPEDE BURROWING, AND TO ACT AS A DEMARCATION LAYER.
10. MIXING PLATFORM MAY BE ADJUSTED BASED ON WATER TABLE CONDITIONS DURING IMPLEMENTATION.

SEQUENCE OF CONSTRUCTION:

1. CONTRACTOR SHALL FOLLOW INITIAL CONSTRUCTION SEQUENCE AS OUTLINED ON DRAWING NO. 06. DETAILED SEQUENCE FOR THE EXCAVATION OF AREA 7, 8, AND 9 IS AS FOLLOWS:
2. CONTRACTOR SHALL MANAGE CONTACT WATER IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS THROUGH TO THE COMPLETION OF FINAL SITE RESTORATION.
3. COMMENCE EXCAVATION, AND PROCEED FROM THE UPGRADIENT REGION TOWARD THE DOWNGRADIENT. SEE PLAN FOR EXCAVATION DEPTHS.
4. COMPLETE EXCAVATION, BACKFILL AND RESTORE THE AREA IN ACCORDANCE WITH THE FINAL GRADING AND RESTORATION PLAN (DRAWINGS 09 AND 10).

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STATE OF NEW YORK
STEPHEN ANTHONY MRABIT
089550
LICENSED PROFESSIONAL ENGINEER
6/15/26

Rev.	Date	Description	By	Chk
F	JUNE 2026	RESPONSE TO COMMENTS FROM NYSDEC	DF	JR
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Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN

FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

EXCAVATION PLAN

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	06	F

DATE DRAWN: JAN 2021

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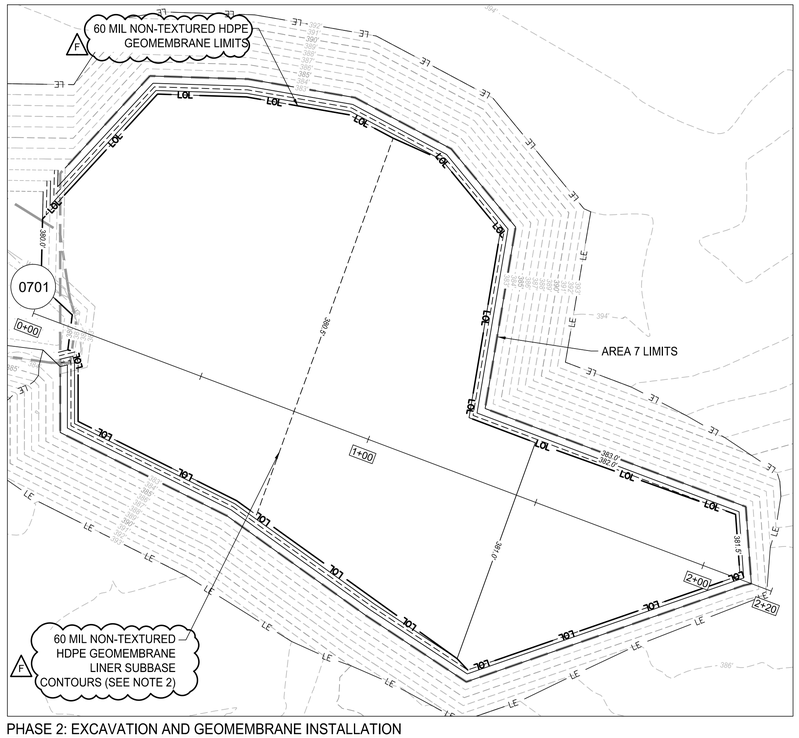
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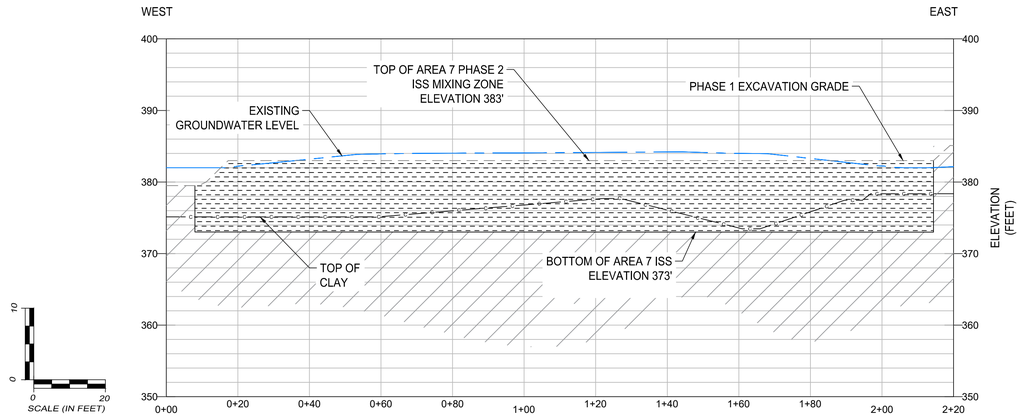
PHASE 2: SHALLOW SOIL MIXING GRID

NOTES:

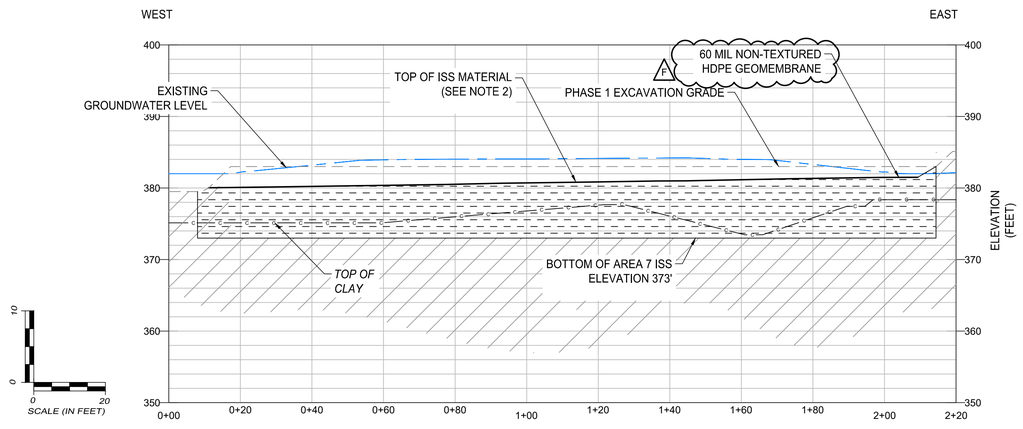
1. INITIAL QUALITY CONTROL TESTING SHALL BEGIN WITH 1 SAMPLE TAKEN FOR EVERY 200 CUBIC YARDS OF MATERIAL EXCAVATED FOR THE FIRST 2,000 CUBIC YARDS.



PHASE 2: EXCAVATION AND GEOMEMBRANE INSTALLATION



0701 PROFILE 1: IN SITU SORPTION AND SOLIDIFICATION



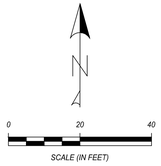
0701 PROFILE 1: ISS MATERIAL EXCAVATION AND GEOMEMBRANE LINER INSTALLATION

MATERIAL LEGEND

- ISS MIX ZONE
- NATIVE SUBGRADE

NOTES:

1. THE TOP OF IN SITU SORPTION AND SOLIDIFICATION (ISS) MIX ZONE SHALL BE 383' AMSL, THE BOTTOM OF ISS SHALL BE 373' AMSL AS SHOWN HEREIN. THE VOLUME OF MATERIAL WITHIN THE SHALLOW MIXING ZONE IS APPROXIMATELY 6,800 CY.
2. THE TOP OF STABILIZED MATERIAL SHALL BE LIMITED TO THE 60 MIL NON-TEXTURED HDPE GEOMEMBRANE SUBBASE CONTOURS SHOWN HEREIN. ANY SWELL GENERATED DURING MIXING ACTIVITIES SHALL BE STOCKPILED FOR WASTE CLASSIFICATION AND OFF-SITE DISPOSAL. THE VOLUME OF SWELL MATERIAL TO BE DISPOSED OFF-SITE IS 1,500 CY.
3. MIX DESIGN AND ADDITIONAL SPECIFICATIONS CAN BE FOUND IN THE TECHNICAL SPECIFICATIONS.



F

Table 1(a) – High Density Polyethylene (HDPE) Geomembrane -Smooth — U.S. (Standard) Units

Properties	Test Method	Test Value							Testing Frequency (minimum)
		30 mils	40 mils	50 mils	60 mils	80 mils	100 mils	120 mils	
Thickness (min. ave.) - mils	D5199	nom.	nom.	nom.	nom.	nom.	nom.	nom.	per roll
• lowest individual of 10 values - %		-10	-10	-10	-10	-10	-10	-10	
Formulated Density (min. ave.) - g/cc	D 1505/D 792	0.940	0.940	0.940	0.940	0.940	0.940	0.940	200,000 lb
Tensile Properties *(1)* (min. ave.)	D 6693 Type IV								20,000 lb
• yield strength - lb/in.		63	84	105	126	168	210	252	
• break strength - lb/in.		114	152	190	228	304	380	456	
• yield elongation - %		12	12	12	12	12	12	12	
• break elongation - %		700	700	700	700	700	700	700	
Tear Resistance (min. ave.) - lb	D 1004	21	28	35	42	56	70	84	45,000 lb
Puncture Resistance (min. ave.) - lb	D 4833	54	72	90	108	144	180	216	45,000 lb
Stress Crack Resistance *(2)* - hr.	D5397 (App.)	500	500	500	500	500	500	500	per GRI-GM10
Carbon Black Content (range) - %	D 4218 *(3)*	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	2.0-3.0	20,000 lb
Carbon Black Dispersion	D 5596	note *(4)*	note *(4)*	note *(4)*	note *(4)*	note *(4)*	note *(4)*	note *(4)*	45,000 lb
Oxidative Induction Time (OIT) (min. ave.)*(5)*									200,000 lb
(a) Standard OIT - min.	D 8117	100	100	100	100	100	100	100	
— or —									
(b) High Pressure OIT - min.	D 5885	400	400	400	400	400	400	400	
Oven Aging at 85°C *(5), (6)*	D 5721								
(a) Standard OIT (min. ave.) - % retained after 90 days	D 8117	55	55	55	55	55	55	55	per each formulation
— or —									
(b) High Pressure OIT (min. ave.) - % retained after 90 days	D 5885	80	80	80	80	80	80	80	
UV Resistance *(7)*	D 7238								
(a) Standard OIT (min. ave.)	D 8117	N.R. *(8)*	N.R. *(8)*	N.R. *(8)*	N.R. *(8)*	N.R. *(8)*	N.R. *(8)*	N.R. *(8)*	per each formulation
— or —									
(b) High Pressure OIT (min. ave.) - % retained after 1600 hrs *(9)*	D 5885	50	50	50	50	50	50	50	

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STATE OF NEW YORK — STEPHEN ANTHONY MORABITO — 089550 — LICENSED PROFESSIONAL ENGINEER

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B	AUG 2021	ISSUED FOR PERMIT	MB	JR
A	JAN 2021	ISSUED FOR REVIEW	MB	JR

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Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9 INTERIM REMEDIAL MEASURES WORK PLAN

FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

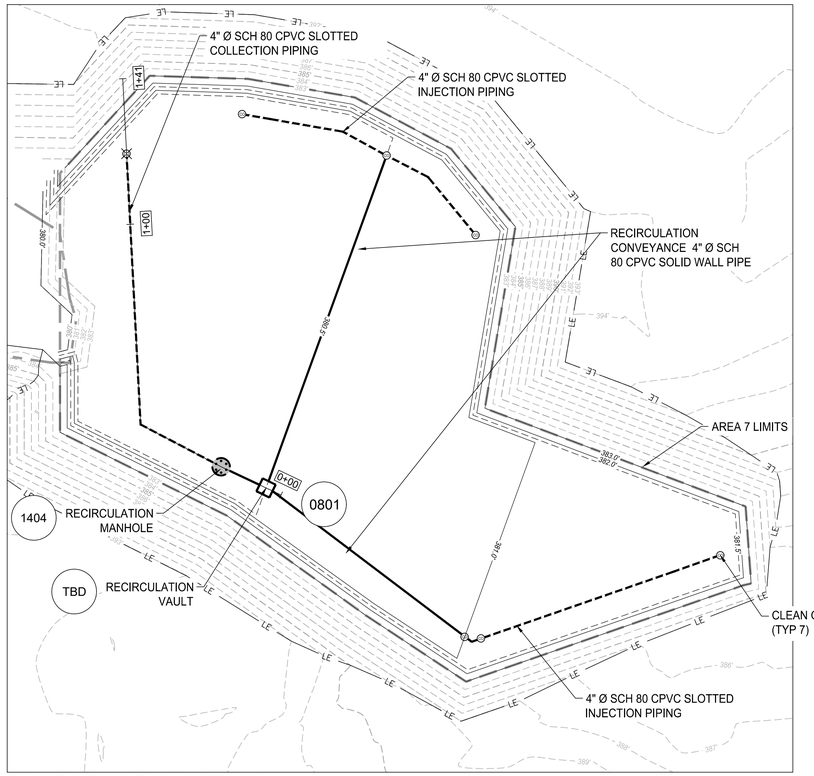
AREA 7 PHASE 2: IN SITU SORPTION AND SOLIDIFICATION PLAN AND PROFILE

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	07	F

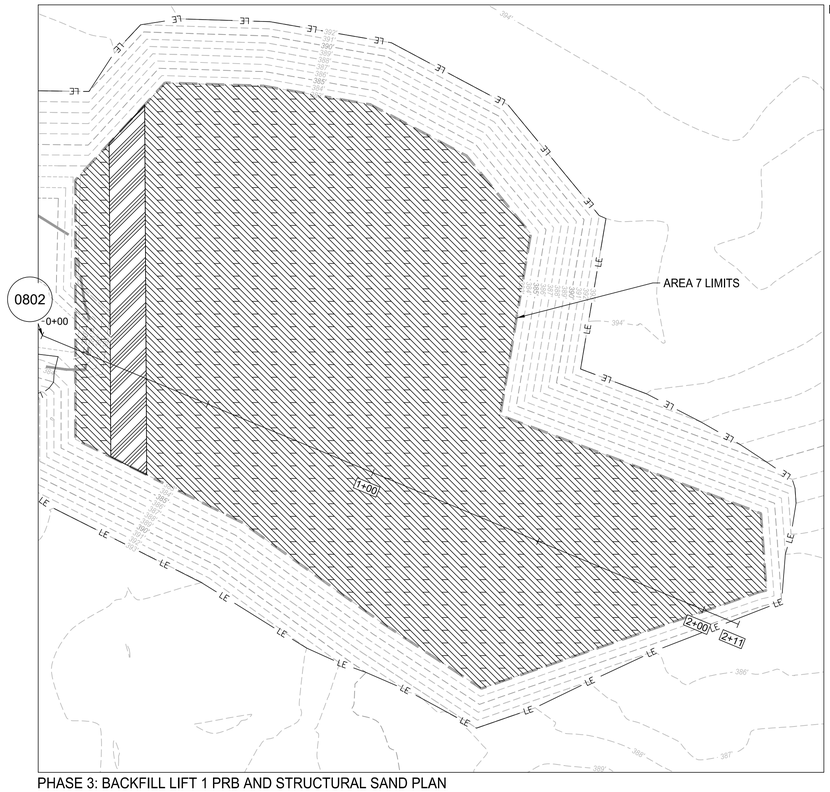
DATE DRAWN JAN 2021

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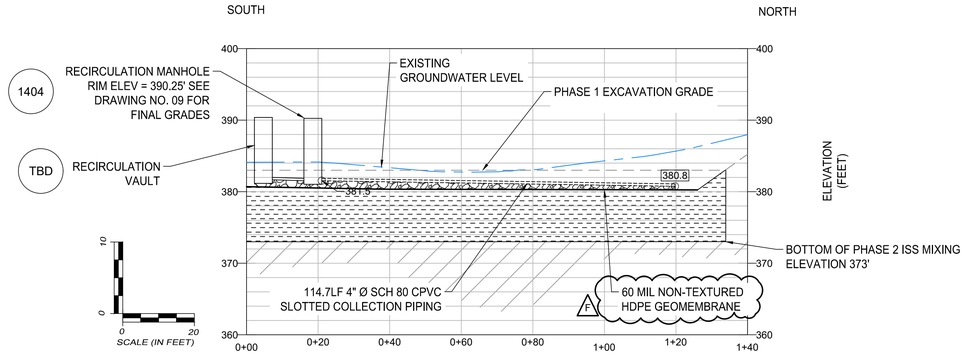
PHASE 3: SUPPLEMENTAL SYSTEM PLAN



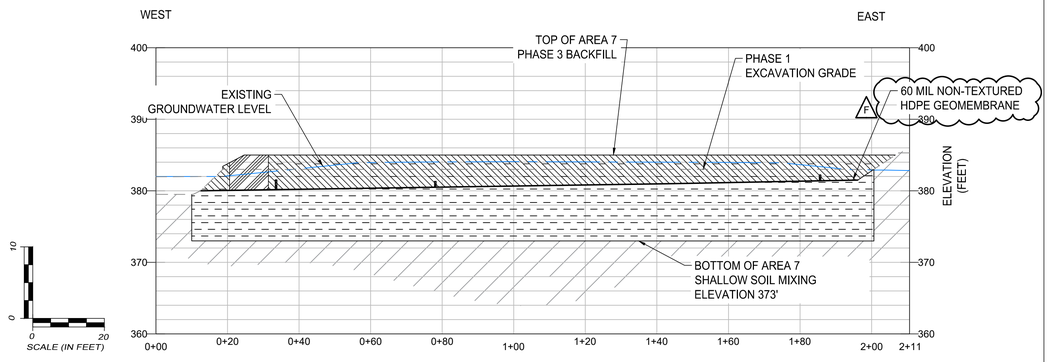
PHASE 3: BACKFILL LIFT 1 PRB AND STRUCTURAL SAND PLAN

NOTES:

1. THE CONTOURS SHOWN HERE-IN REPRESENT THE AREA 7 FINAL GRADES AFTER THE INSTALLATION OF THE PRB AND FIRST LIFT OF STRUCTURAL SAND BACKFILL.
2. THE SUPPLEMENTAL REMEDIATION SYSTEM INCLUDES SLOTTED COLLECTION PIPING AND SOLID CONVEYANCE PIPING AS SHOWN ON THE PLAN AS DASHED AND CONTINUOUS LINES RESPECTIVELY.
3. THE SUPPLEMENTAL REMEDIATION SYSTEM IS SUBJECT TO CHANGE PENDING THE RESULTS OF THE ONGOING TREATABILITY STUDY.



0801 PROFILE 1



0802 PROFILE 2

MATERIAL LEGEND

- BENEFITIAL REUSE MATERIAL
- ISS MIX ZONE
- STRUCTURAL SAND
- DENSE GRADED AGGREGATE
- NATIVE SUBGRADE
- F PRB MATERIAL (60% ZVI, 25% MASON SAND, 15% POND SAND)

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A	JAN 2021	ISSUED FOR REVIEW	MB	JR

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Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9 INTERIM REMEDIAL MEASURES WORK PLAN

FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

AREA 7 PHASE 3: SUPPLEMENTAL REMEDIATION PIPING INFRASTRUCTURE

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	08	F

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AREA 9 LIMITS

AREA 7 LIMITS

AREA 8 LIMITS

1505 INACTIVE CAPPING SYSTEM

SLOPE 20:1

SLOPE 3:1

SLOPE 13:1

MEAN HIGH WATER LEVEL (EL. 383.5')

1604 9-FT GABION BASKET

1606 PIPE OUTLET PROTECTOR

1604 6-FT GABION BASKET

1605 FLUME

1402 ASPHALT

END OF GUIDE RAIL TERMINATE WITH POST

1602 STORMWATER CULVERT

1404 BYPASS MANHOLE

REMOVE EXISTING 3.5' SUMP AND FILL WITH #57 STONE

1601 INSTALL INLET RIM = 386.74'

FORMER AREA 5 LIMITS

INACTIVE CAPPING SYSTEM DETAIL 1505

SOUTH SLOPE SURFACE SHALL BE RIPRAP D50=6"

1504 ACTIVE CAPPING SYSTEM

END OF GUIDE RAIL TERMINATE AT POST

CORRUGATED-BEAM GUIDE RAIL 1506

1404 RECIRCULATION MANHOLE

1404 BYPASS MANHOLE

1602 CULVERT 1
190 LF ADS WT
24" Ø N12 PIPE
@ 0.5%

2%

2%

NOTES:

1. SEE DRAWING NO. 01 FOR GENERAL NOTES, ABBREVIATIONS, AND THE COMPLETE LEGEND.
2. SLOPES SHALL BE GRADED AS SHOWN, AT NO LOCATION SHALL THE FINAL GRADES EXCEED 2.5:1 OR BE LESS THAN 1% WITHOUT APPROVAL OF THE ENGINEER.
3. THE SOIL COVER SHALL BE PLACED OVER THE EXCAVATION GRADES (SEE DRAWING NO. 09).
4. THE FINAL CONTOURS DEPICT THE TOP OF 2-FOOT THICK FINAL COVER SYSTEM WITHIN THE LIMITS OF OPEN WATER IN FORMER CANAL 2/AREA 8, THE TOP OF THE 1 FOOT COVER SYSTEM ON THE NORTH AND SOUTH SLOPES OF AREA 8, AND BENEFICIAL REUSE MATERIAL EXCAVATED FROM AREA 7 DURING PHASE 1 GRADED ELSEWHERE WITHIN THE LOD AND PLACED AT EXISTING AREA 5.
5. THE EXISTING ON-SITE ROADS ARE A MIX OF ASPHALT AND STONE. ANY ROADS REMAINING IN PLACE AT THE TIME OF RESTORATION MAY BE BURIED BENEATH THE PROPOSED ASPHALT SHOWN HERE-IN SO LONG AS THE GRADING PLAN PRESENTED ABOVE IS MET. ANY EXISTING ROAD MATERIAL ABOVE THE GRADES PRESENTED ABOVE SHALL BE REMOVED AND DISPOSED OF.
6. METAL BUILDING SHALL BE DEMOLISHED BY THE CONTRACTOR AND DISPOSED OF OFFSITE. FINAL GRADES SHALL BE INCLUSIVE OF THE REMOVAL OF THE BUILDING.

0 20 40

SCALE (IN FEET)

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STATE OF NEW YORK
STEPHEN ANTHONY MARCELLO
089550
LICENSED PROFESSIONAL ENGINEER

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Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN

FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

FINAL GRADING PLAN

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	09	F

DATE DRAWN: JAN 2021

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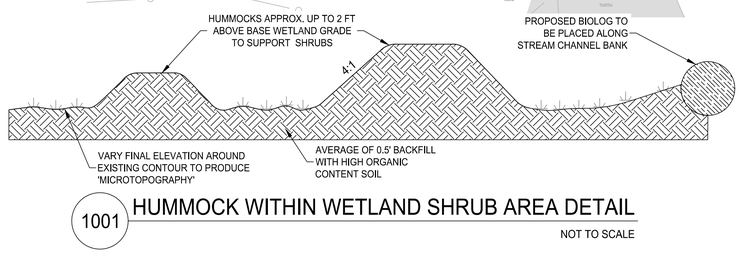
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CAYUGA CO.
NEW YORK

1001 WETLAND RESTORATION

F EDGE OF WATER

1001 WETLAND RESTORATION



1001 HUMMOCK WITHIN WETLAND SHRUB AREA DETAIL

NOT TO SCALE

ASPHALT
GABION BASKET
RENO MATTRESS
LAWN SEED MIX FOR RESTORATION
FORMER CANAL CENTER
STONE FOR RESTORATION
UPLAND FORESTED AREA FOR RESTORATION
NEW ENGLAND CONSERVATION/WILDLIFE MIX
WETLAND SHRUBS FOR RESTORATION
F TREES FOR RESTORATION

NOTES:

F CONTRACTOR SHALL RESTORE THE AREA WITHIN THE LOD IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:

1. IN ADDITION TO THE EROSIONS AND SEDIMENT CONTROLS SHOWN ON DRAWING NO 03, STAKED AND RECESSED SILT FENCE OR COMPOST FILTER SOCK SHALL BE PLACED BETWEEN GRADING AREAS AND WETLANDS, AS SHOWN IN THE RESTORATION PLAN. SILT FENCE OR COMPOST FILTER SOCK SHALL BE MONITORED AND MAINTAINED UNTIL ROOTED VEGETATION IS ESTABLISH OVER AT LEAST 85% OF DISTURBED AREA.
2. COIR LOGS SHALL BE PLACED AT THE EDGE OF WATER LEVEL TO PROVIDE ADDITIONAL SOIL STABILITY. COIR LOGS MUST BE STAKED WITH WOODEN STAKES, AND LEFT TO DECAY IN PLACE AFTER PLANTING. NATIVE PLANT SEED MIX SHOULD BE BROADCAST ON COIR LOGS WHEN SEEDING AREA.
3. COIR MATS SHALL BE PLACED ON ALL SLOPES 3:1 OR GREATER WHICH DO NOT HAVE RIP RAP ON THE SURFACE. COIR MATS MUST BE STAKED WITH WOODEN STAKES, AND LEFT TO DECAY IN PLACE. NATIVE PLANT SEED MIX SHOULD BE BROADCAST ON COIR MATS WHEN SEEDING AREA.
4. TOP SOIL MATERIAL AND INSTALLATION SHALL BE MEET THE REQUIREMENTS IN THE TECHNICAL SPECIFICATIONS.
5. WETLAND MITIGATION AREA SHALL BE PLANTED WITH:
   5.1. 1 PIN OAK (QUERCUS PALUSTRIS)
   5.2. 2 RED MAPLE (ACER RUBRUM)
   5.3. 3 BLACK WILLOW (SALIX NIGRA)
   5.4. 1 SWAMP WHITE OAK (QUERCUS BICOLOR)
   5.5. 3 SILVER MAPLE (ACER SACCHARINUM)
   SAPLINGS SHALL BE AT MINIMUM 2-3 INCH CALIPER. SIMILAR WETLAND TOLERANT SPECIES CAN BE USED AS WELL IF SOME SPECIES ARE NOT AVAILABLE WITH THE OWNER'S REPRESENTATIVE APPROVAL.
6. TREES SHALL BE INTER-PLANTED WITH:
   6.1. 24 SOUTHERN ARROWWOOD (VIBURNUM DENTATUM)
   6.2. 24 WINTERBERRY (ILEX VERTICILLATA)
   6.3. 24 RED OSIER DOGWOOD (CORNUS SERICEA)
   6.4. 24 SILKY DOGWOOD (CORNUS AMOMUM)
   THESE SHRUBS SHALL BE IN GALLON CONTAINERS. THEY SHALL BE PLANTED IN CLUSTERS OF 4 PLANTS PER SPECIES IN LOW AREAS NEAR WETLAND EDGE.
7. SEED MIX SHALL BE MULCHED WITH SEED-FREE STRAW (OR SIMILAR), TO HOLD SEED AND MOISTURE UNTIL GERMINATION AND ROOTED VEGETATION IS ESTABLISHED.
8. THE GROUND WITHIN THE WETLAND AREA SHALL BE SEEDED WITH A CUSTOM SEED MIX WITH THE FOLLOWING SEEDS AND PLANTING RATIOS:
   8.1. FORMER CANAL CENTER
      8.1.1. SOFTSTEM BULRUSH (SCHOENOPLECTUS TABERNAEMONTANI) - 1 PLUG PER 12 INCHES, A 500 PLUGS.
      8.1.2. WOOL GRASS (SCIRPUS CYPERINUS) - 0.1 LB/ACRE.
      8.1.3. PICKERELWEED (PONTEDERIA CORDATA) - 1 RHIZOME EVERY 24 INCHES, 200 RHIZOMES.
   8.2. BETWEEN THE EDGE OF WATER AND ORDINARY HIHG-WATER ELEVATION
      8.2.1. SOFT RUSH (JUNCUS EFFUSUS) - 1 LB/200 SQ FT.
      8.2.2. CARDINAL FLOWER (LOBELIA CARDINALIS) - 1 LB/ACRE.
      8.2.3. MARSH MARIGOLD (CALTHA PALUSTRIS) - 1 PLUG PER 12 INCHES, 200 PLUGS.
      8.2.4. HARLEQUIN BLUEFLAG (IRIS VERSICOLOR) - 1 RHIZOME EVERY 24 INCHES, 150 RHIZOMES.
9. SEED MIX SHOULD BE MULCHED WITH SEED-FREE STRAW (OR SIMILAR), TO HOLD SEED AND MOISTURE UNTIL GERMINATION AND ROOTED VEGETATION IS ESTABLISHED.
10. DISTURBED AREA ADJACENT TO WETLAND RESTORATION AREA SHALL BE SEEDED WITH NEW ENGLAND WETLAND PLANTS' NEW ENGLAND CONSERVATION/WILDLIFE MIX (APPENDIX C) (OR SIMILAR), AT A RATIO OF 1 POUND / 1,750 SQUARE FEET PER PACKAGE DIRECTIONS. THIS AREA SHALL BE LEFT TO GROW, AND NOT MOWED, TO PRODUCE HABITAT FOR GRASSLAND SPECIES.
11. THE DISTURBED AREA ADJACENT TO THE WETLAND RESTORATION AREA THAT WILL CONTINUE TO BE MOWED AFTER THE RESTORATION, SHALL BE SEEDED WITH NATURE'S SEED'S NORTHEAST SEED BLEND (APPENDIX C) (OR SIMILAR), AT A RATIO OF 3 POUNDS / 1,000 SQUARE FEET PER THE PACKAGE DIRECTIONS.
12. SEEDED AREAS SHALL BE MULCHED WITH SEED-FREE STRAW, OR SIMILAR, WHICH SHALL BE MAINTAINED UNTIL ROOTED VEGETATION IS ESTABLISHED TO COVER 85% OF THE DISTURBED AREA.
13. AREA 8 SHALL BE PLANTED WITH 575 RHIZOMES OF BROADLEAF CATTAIL (TYPHA LATIFOLIA). BROADLEAF CATTAIL SEED WILL ALSO BE BROADCAST OVER THE SAME AREA
14. SEEDED AREAS SHALL BE MULCHED WITH SEED-FREE STRAW, OR SIMILAR, WHICH SHALL BE MAINTAINED UNTIL ROOTED VEGETATION IS ESTABLISHED TO COVER 85% OF THE DISTURBED AREA.
15. THE AREA DIRECTLY ADJACENT TO THE WETLAND RECONSTRUCTION SHALL BE PLANTED WITH:
   15.1. 24 BLACK CHOKEBERRY (ARONIA MELANOCARPA)
   15.2. 24 NANNBERRY (VIBURNUM LENTAGO)
   15.3. 24 COMMON NINEBARK (PHYSOCARAPUS OPULIFOLIUS)
   NANNYBERRY SHRUBS SHOULD BE PLANTED IN CLUSTERS OF FOUR. NINEBARK AND CHOKEBERRY SHOULD BE PLANTED INTERMITTENTLY THROUGHOUT THE AREA. SHRUBS WILL BE 1 GALLON CONTAINERS.
16. DISTURBED AREA ADJACENT TO WETLAND RESTORATION AREA SHALL BE SEEDED WITH NEW ENGLAND WETLAND PLANTS' NEW ENGLAND CONSERVATION/WILDLIFE MIX (OR SIMILAR), AT A RATIO OF 1 POUND / 1,750 SQUARE FEET PER PACKAGE DIRECTIONS. THIS AREA SHALL BE LEFT TO GROW, AND NOT MOWED, TO PRODUCE HABITAT FOR GRASSLAND SPECIES.
17. UPLAND TREES SHALL BE PLANTED AT THE TOP OF THE RESTORED BANKS. THEY INCLUDE:
   17.1. 10 SUGAR MAPLE (ACER SACCHARUM)
   17.2. 10 RED OAK (QUERCUS RUBRA)
   17.3. 10 TULIP POPLAR (LIRIODENDRON TULIPIFERA)
   THESE SAPLINGS SHALL BE AT LEAST 2-3 INCH CALIPER.
18. TREES SHALL BE STAKED TO HOLD IN PLACE UNTIL THEY SINK DEEPER ROOTS. SHRUBS SHALL BE PLANTED IN TREE TUBES TO PROTECT THEM FROM DEER/RABBIT GRAZING. TUBES SHALL BE MAINTAINED FOR AT LEAST 2 YEARS TO PROTECT PLANTS.
19. MITIGATION AREA SHALL BE MONITORED TWICE PER YEAR DURING THE GROWING SEASON, FOR AT LEAST 2 YEARS. DURING THESE VISITS, THE ESTABLISHMENT OF ROOTED VEGETATION AND GROWTH OF TREES AND SHRUBS SHALL BE MONITORED AND RECORDED. THESE VISITS WILL ALSO PREVENT THE ESTABLISHMENT OF NON-NATIVE INVASIVE SPECIES, PER MITIGATION MONITORING AND MAINTENANCE PLAN.

N

0 30 60
SCALE (IN FEET)

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STATE OF NEW YORK
STEPHEN ANTHONY MIRABELLA
089550
LICENSED PROFESSIONAL ENGINEER

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DRAWN BY JH | CADD Review MB | CHECKED BY SM

Environmental Resources Management

ERM

DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN

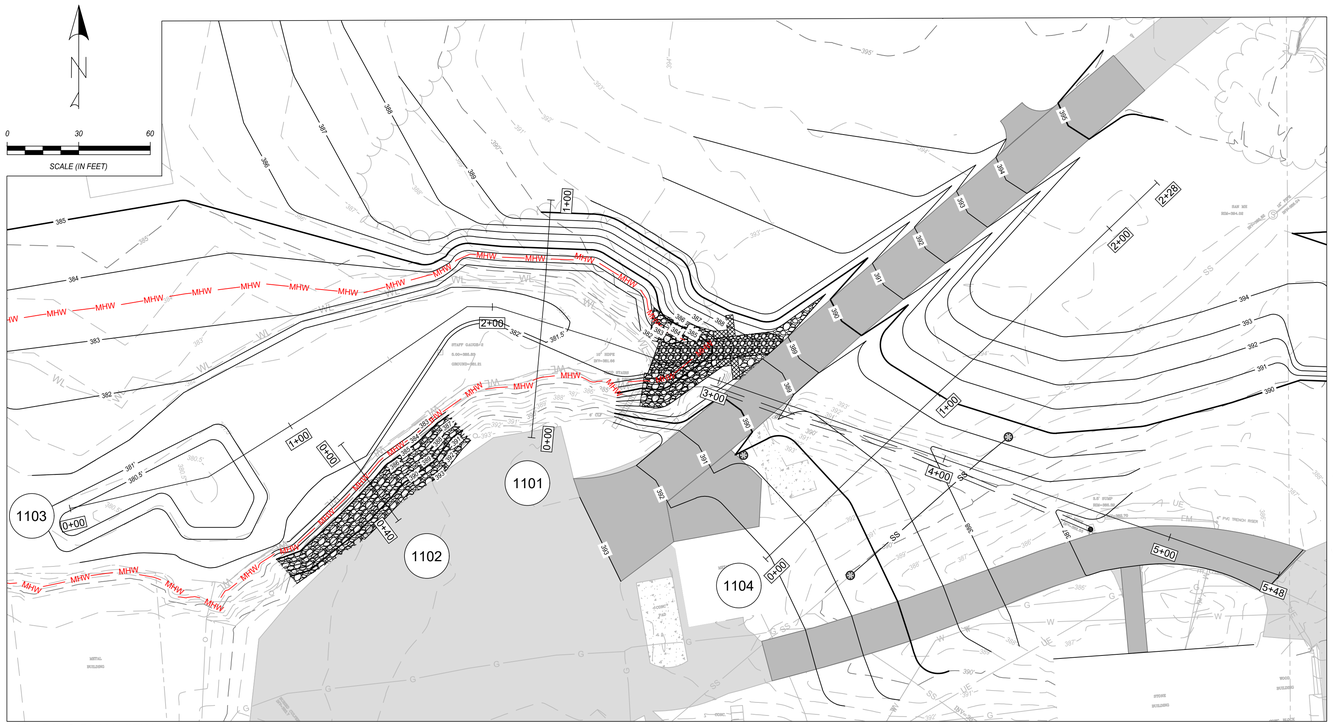
FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

AREA 7, 8, AND 9 RESTORATION PLAN

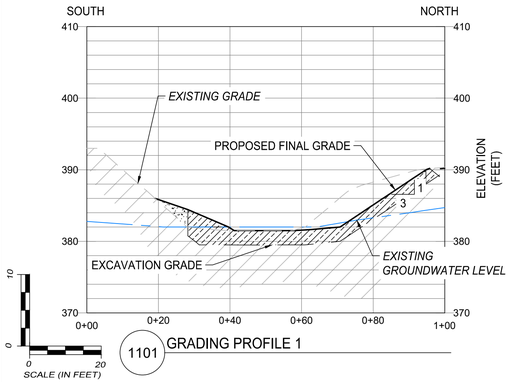
SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	10	F
DATE DRAWN: JAN 2021			

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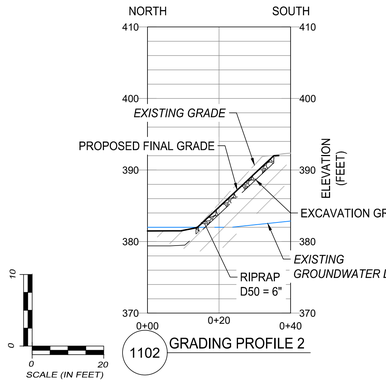
REVISIONS TO BE MADE ON THE CADD FILE ONLY



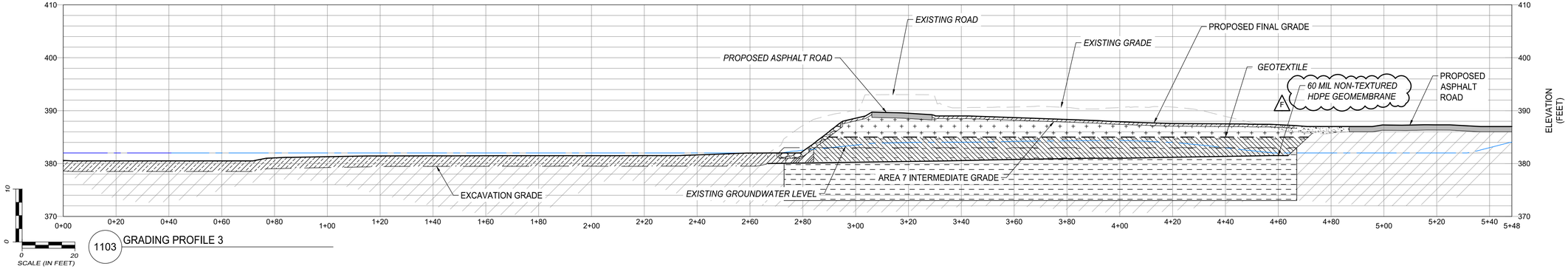
GRADING PLAN VIEW



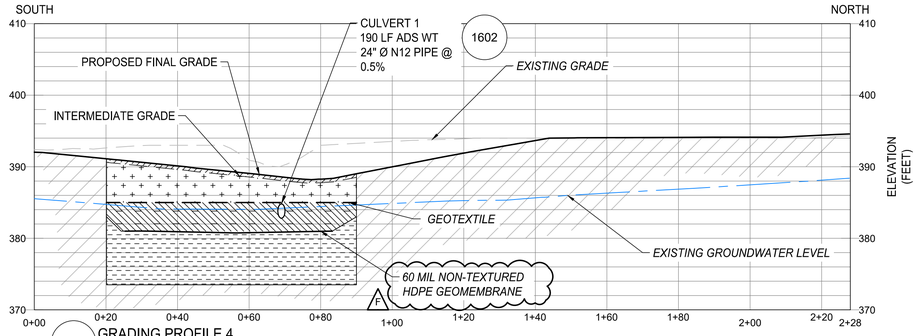
1101 GRADING PROFILE 1



1102 GRADING PROFILE 2



1103 GRADING PROFILE 3



1104 GRADING PROFILE 4

BENEFICIAL REUSE MATERIAL

STABILIZATION MIX ZONE

CAP MATERIAL

STRUCTURAL SAND

BACKFILL MATERIAL

DENSE GRADED AGGREGATE

NATIVE SUBGRADE

ASPHALT

PRB MATERIAL (60% ZVI, 25% MASON SAND, 15% POND SAND)

NOTES:
1. THE GROUNDWATER CONTOURS PRESENTED ON THESE PROFILES AND ALL PROFILES IN THIS DRAWING SET ARE BASED ON A GROUNDWATER MEASUREMENT EVENT ON OCTOBER 2018 AND REPRESENTS NORMAL GROUNDWATER LEVELS. GROUNDWATER DATA IS PROVIDED IN THE BID DOCUMENTS.

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Environmental Resources Management

ERM

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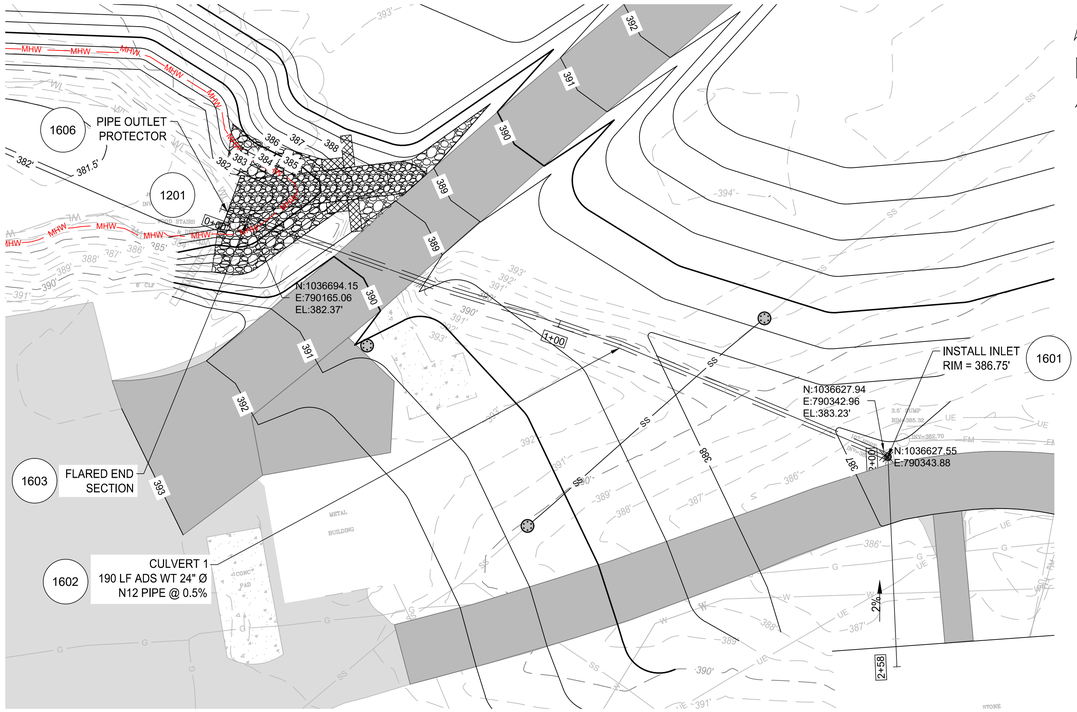
FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

GRADING PROFILES

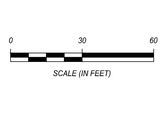
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AS SHOWN	0820721	11	F
DATE DRAWN: JAN 2021			

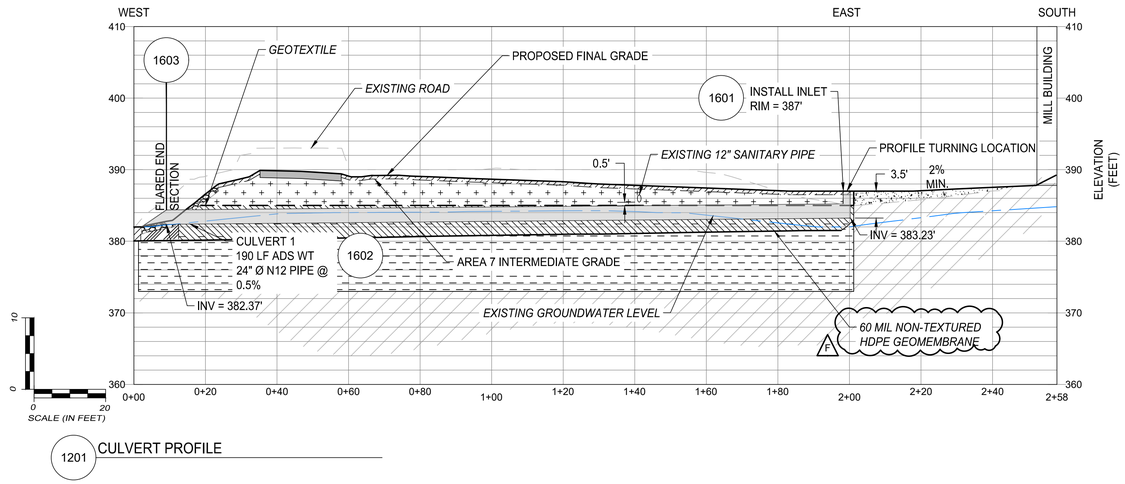
REVISIONS TO BE MADE ON THE CADD FILE ONLY

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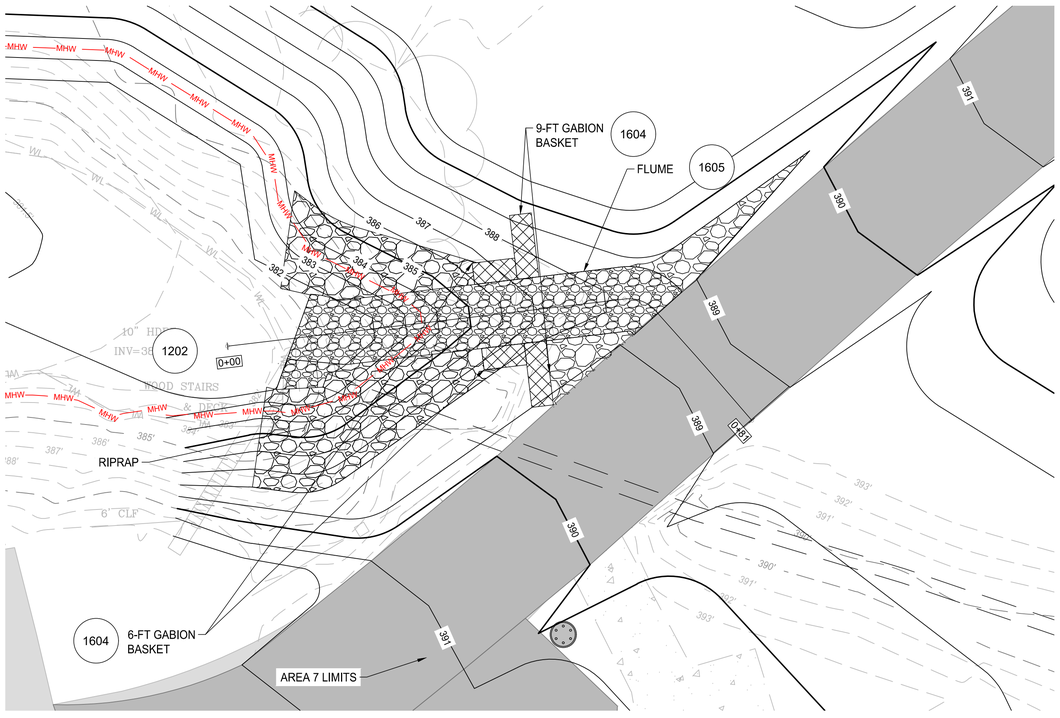
CULVERT PLAN VIEW



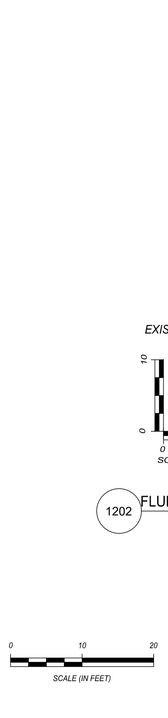


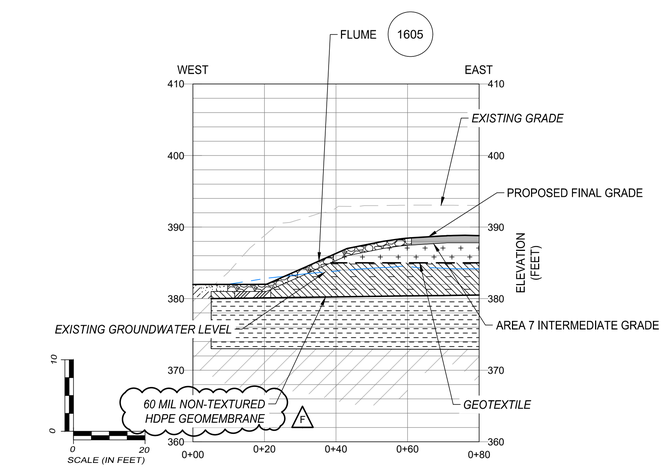
1201 CULVERT PROFILE

NOTES:
1. CULVERT SHALL BE TRENCHED INTO THE MATERIAL MIXED DURING PHASE 2. ADDITIONAL DETAILS ARE SHOWN ON DRAWING NOs. 07 AND 08.



FLUME PLAN VIEW





1202 FLUME PROFILE

- BENEFICIAL REUSE MATERIAL
- STABILIZATION MIX ZONE
- CAP MATERIAL
- STRUCTURAL SAND
- BACKFILL MATERIAL
- DENSE GRADED AGGREGATE
- NATIVE SUBGRADE
- ASPHALT
- PRB MATERIAL (60% ZVI, 25% MASON SAND, 15% POND SAND)

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DRAWN BY JH · CADD Review MB · CHECKED BY SM

ERM
Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9 INTERIM REMEDIAL MEASURES WORK PLAN

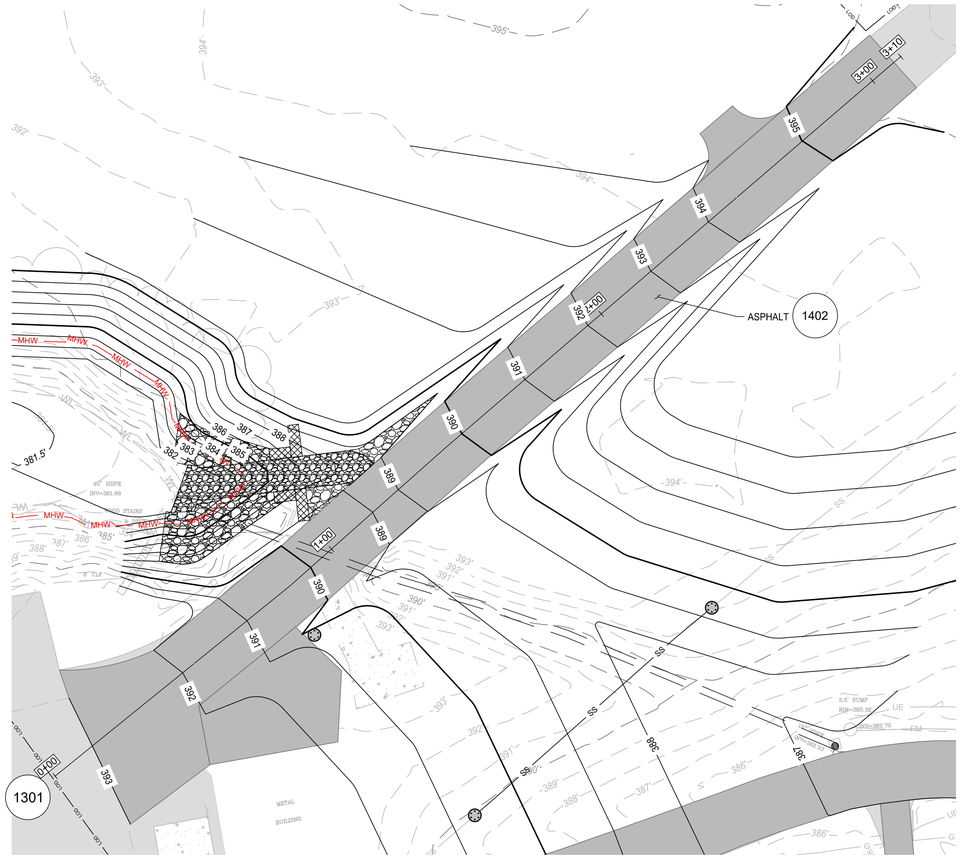
FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

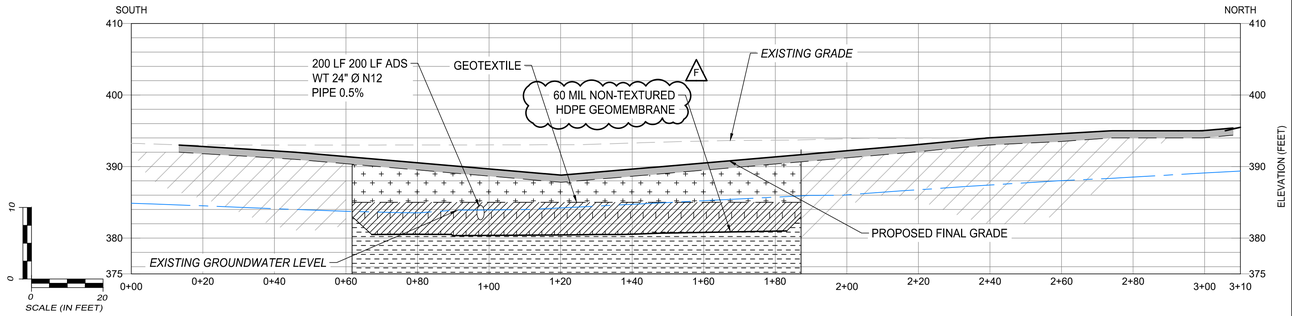
CULVERT AND FLUME DESIGN

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	12	F
DATE DRAWN: JAN 2021			

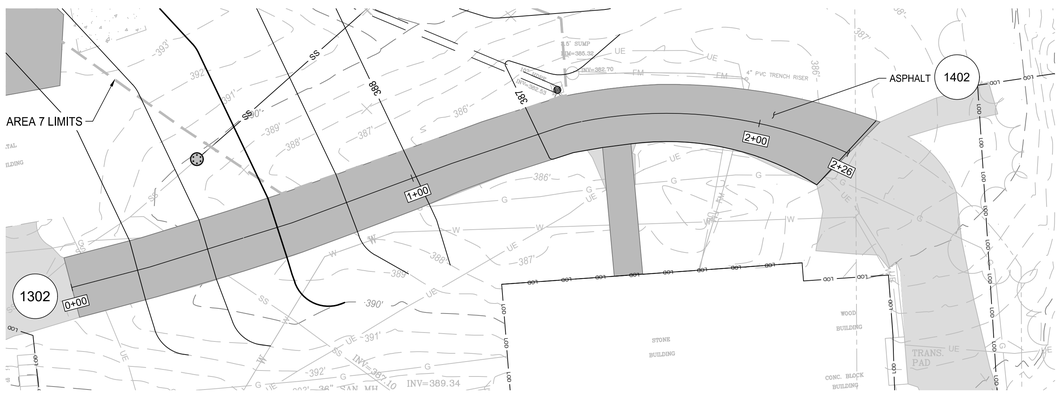
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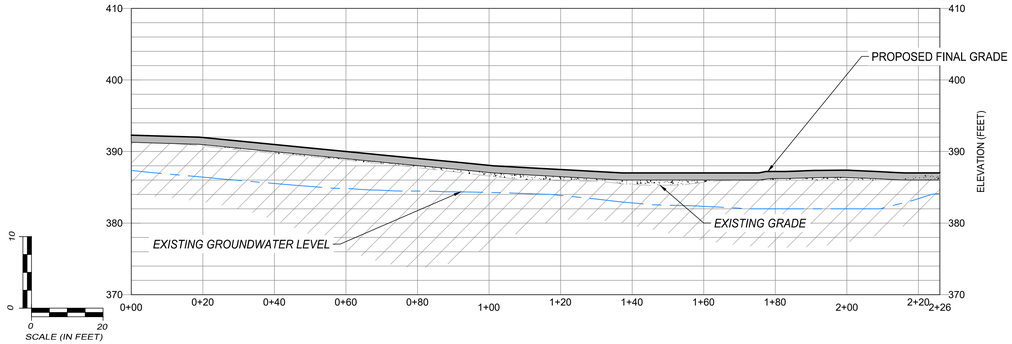
REVISIONS TO BE MADE ON THE CADD FILE ONLY





1301 ACCESS ROAD 1 PROFILE





1302 ACCESS ROAD 2 PROFILE

BENEFICIAL REUSE MATERIAL

STABILIZATION MIX ZONE

CAP MATERIAL

STRUCTURAL SAND

BACKFILL MATERIAL

DENSE GRADED AGGREGATE

NATIVE SUBGRADE

ASPHALT

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Environmental Resources Management

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UNION SPRINGS, NEW YORK

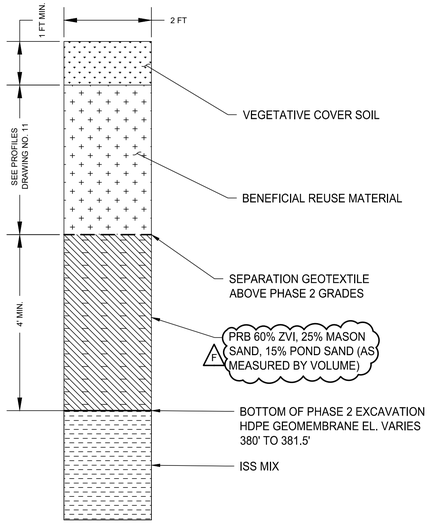
ACCESS ROADS DESIGN

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	13	F

DATE DRAWN: JAN 2021

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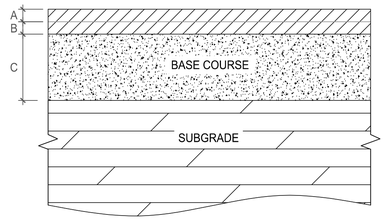


NOTES:

1. PRB MATERIAL IMPLEMENTED WHEN SHOWN IN PLAN OTHERWISE JUST STRUCTURAL SAND.

1401 TRENCH TYPE 2: PRB PERIMETER DETAIL

NOT TO SCALE



FULL DEPTH SECTION

STANDARD DUTY PAVING

A = 3" ASPHALT CONCRETE - SURFACE COURSE
B = 3" ASPHALT CONCRETE - BINDER COURSE
C = 6" AGGREGATE BASE

STRUCTURAL FILL COMPOSITION

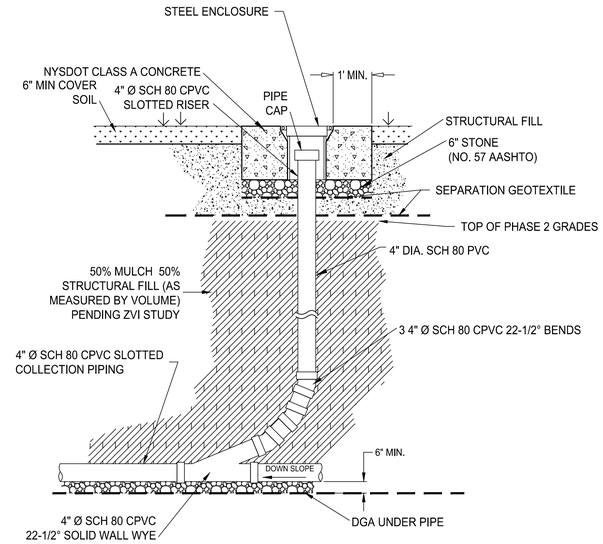
U.S. STANDARD SIEVE SIZE	PERCENT FINER BY WEIGHT
2"	100
3/4"	100
3/8"	80 -100
NO. 4	40 - 90
NO. 10	30 - 70
NO. 40	20 - 50
NO. 100	15 - 40
NO. 200	8 - 12

NOTES:

1. SUBGRADE COMPACTION: (PER SPECIFICATIONS)
2. THE AGGREGRATE BASE COURSE SHALL CONSIST OF CRUSH STONE, GRAVEL OR OTHER ACCEPTABLE LOCAL MATERIAL, UNIFORMLY SPREAD AND COMPACTED WITH A POWER ROLLER WEIGHING NOT LESS THAN 10 TONS.
3. ALL SUBGRADE AND PAVEMENT OPERATIONS AND MATERIALS SHALL MEET THE MINIMUM REQUIREMENTS OF THE CURRENT NEW YORK DOT STANDARD SPECIFICATION.
4. PROVIDE TACK COAT BETWEEN BASE COURSE AND SURFACE COURSE IF NEW YORK DOT SPECIFICATIONS REQUIRE OR CONDITIONS WARRANT.
5. WHEN MEETING AN EXISTING PAVEMENT, ADD A 12"W X 2"D KEY BE MILLED IN EXISTING SURFACE AND A 24"W LAYER OF PETROMAT BE INSTALLED BETWEEN BASE AND SURFACE COURSES TO PREVENT CRACKS FROM REFLECTING THROUGH PAVEMENT.

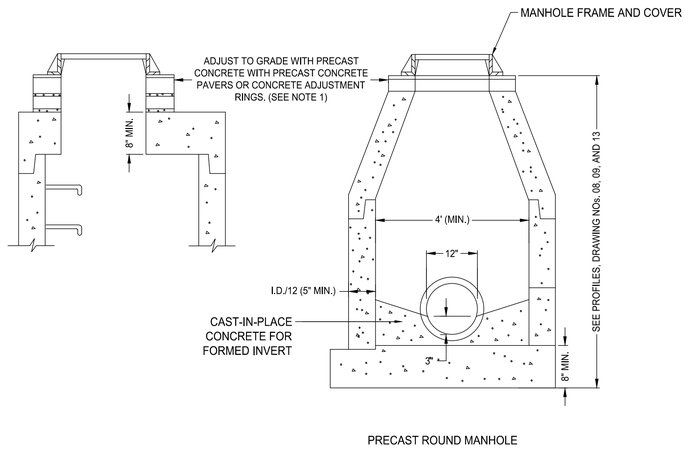
1402 ASPHALT PAVING DETAIL

NOT TO SCALE



1403 CLEAN OUT DETAIL

NOT TO SCALE



PRECAST ROUND MANHOLE

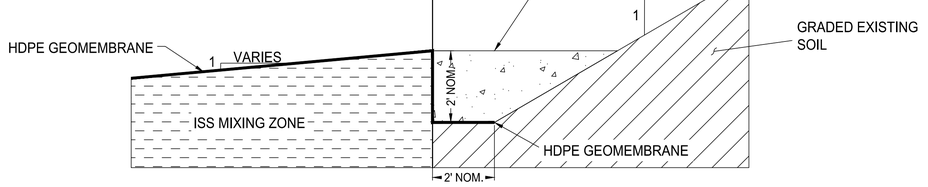
NOTES:

1. FINISHING PIPE ENTRIES - THE BELLS OF CONCRETE PIPE SHALL BE CUT OFF AT EVERY PIPE ENTRY WHERE THE BELL ENTERS A STRUCTURE. CONNECTIONS BETWEEN THE STRUCTURE AND PIPE SHALL BE MADE BY EITHER; USING A RESILIENT CONNECTOR MEETING THE REQUIREMENTS OF ASTM C1478 M OR BY COMPLETELY FILLING THE SPACE AROUND EACH PIPE WITH CONCRETE GROUTING MATERIAL OR CONCRETE REPAIR MATERIAL. IN CASE OF LARGE SPACES AROUND PIPES, CONCRETE PAVERS COMPLETELY BEDDED IN GROUT OR CONCRETE REPAIR MATERIAL, MAY BE USED.

1404 MANHOLE DETAIL

NOT TO SCALE

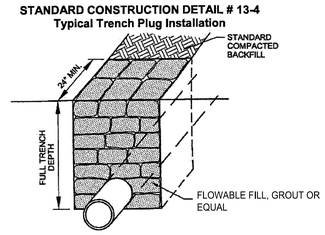
MANHOLE DETAIL FURNISHED AS PER NYSDOT #M6048R1 (DRAWING NO. 4 OF 4)



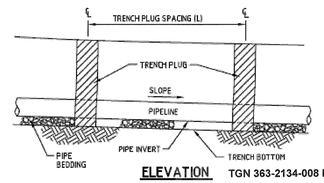
1405 HDPE GEOMEMBRANE TRENCHING DETAIL

NOT TO SCALE

STANDARD CONSTRUCTION DETAIL # 13-4
Typical Trench Plug Installation



SECTION VIEW



ELEVATION TGN 363-2134-008 March 2012

PA DEP

MAXIMUM SPACING AND MATERIALS FOR TRENCH PLUGS		
Trench Slope (%)	Spacing L (ft)	Plug Material
< 5	1000	*Flowable fill, grout or equal
5 -15	500	*Flowable fill, grout or equal
15 - 25	300	*Flowable fill, grout or equal
25 - 35	200	*Flowable fill, grout or equal
35 - 100	100	*Flowable fill, grout or equal
> 100	50	*Flowable fill, grout or equal

***TOPSOIL MAY NOT BE USED TO FILL SACKS.**

Impervious trench plugs are required for all stream, river, wetland, or other water body crossings.

1406 TRENCH PLUG DETAIL

NOT TO SCALE

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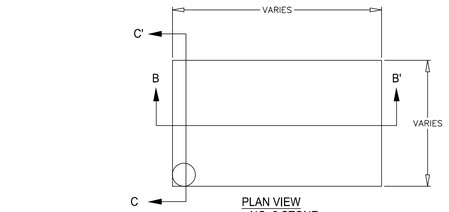
FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

CONSTRUCTION DETAILS (1 OF 2)

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	14	F
DATE DRAWN JAN 2021			

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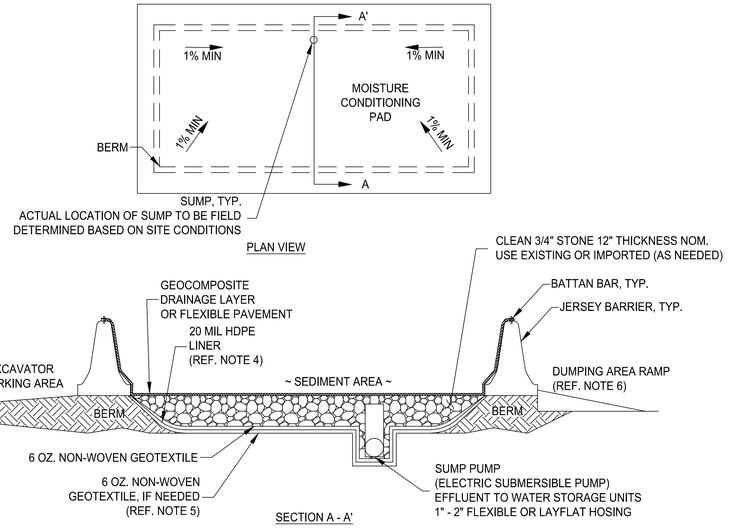
REVISIONS TO BE MADE ON THE CADD FILE ONLY



NOTES
1. FOLLOWING EXCAVATION, IF SUBGRADE HAS SIGNIFICANT GRAVEL OR DEBRIS LARGER THAN 2" IN DIAMETER, SUBGRADE GEOTEXTILE SHALL BE INSTALLED, OR THE LARGER GRAVEL, DEBRIS SHALL BE REMOVED MANUALLY.

1501 DECONTAMINATION PAD

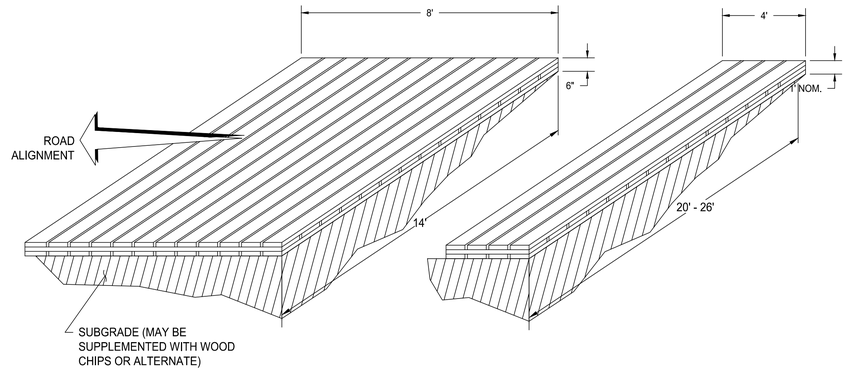
NOT TO SCALE



NOTES
1. COMPONENTS, MATERIALS, AND DIMENSIONS MAY CHANGE BASED ON FIELD CONDITIONS SO LONG AS PAD IS A MINIMUM OF 3,000 SF. RESURFACING OF EXISTING PAVED SURFACES MAY ALSO BE SUBMITTED FOR CONSIDERATION.
2. THE SURFACE OF THE PAD SHALL BE SLOPED SO FREE-DRAINING LIQUIDS CAN BE COLLECTED AND TRANSFERRED TO THE WATER STORAGE AND TREATMENT AREA.
3. PLASTIC DRAWING NO.ING SHALL BE USED TO TEMPORARILY COVER STOCKPILED MATERIALS, AS NEEDED, TO REDUCE EXPOSURE TO SUBSTANTIAL PRECIPITATION EVENTS. COVER TO BE REMOVED AFTER PRECIPITATION EVENTS.
4. HEAVY EQUIPMENT SHALL NOT ENTER THE BERMED AREA TO PREVENT TRACKING, STRESS, AND IMPACTS TO THE LINER. DURING SOLIDIFICATION OPERATIONS CONTRACTOR SHALL MINIMIZE IMPACTS TO LINER.
5. FOLLOWING EXCAVATION, IF SUBGRADE HAS MINIMAL GRAVEL LARGER THAN 2" IN DIAMETER, SUBGRADE GEOTEXTILE SHALL NOT BE REQUIRED. LARGER GRAVEL, STICKS, ETC. SHALL BE REMOVED MANUALLY, AS NECESSARY.
6. DUMPING AREA RAMP MAY BE BUILT UP WITH STONE OR SOIL AS NECESSARY TO ENABLE TRUCKS TO DUMP OVER THE JERSEY BARRIER.

1502 SOIL/SEDIMENT STORAGE AND MOISTURE CONDITIONING PAD

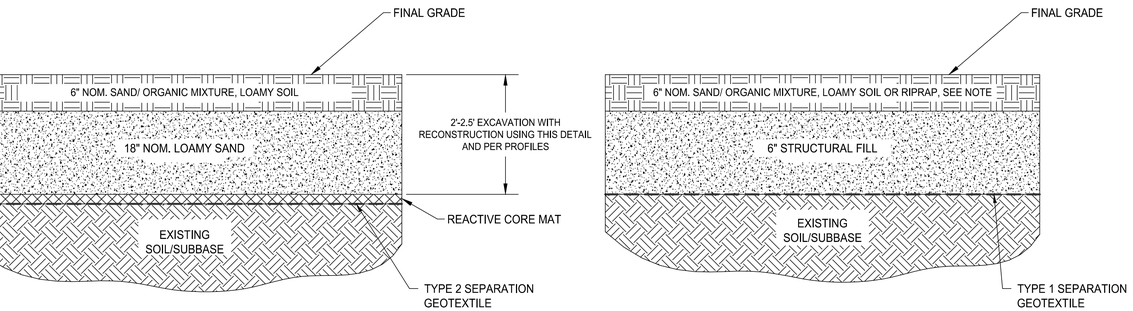
NOT TO SCALE



NOTE:
1. CRANE MATS SHALL BE USED BY EXCAVATORS WHILE PERFORMING WORK IN THE WETLAND AREA, AS NECESSARY.
2. TEMPORARY ROADS MAY BE TIMBER PLANK MAT OR ENGINEER ACKNOWLEDGED EQUIVALENT.

1503 TEMPORARY ROAD DETAIL

NOT TO SCALE



DESIGN NOTES:

1. AS SET FORTH BY DER-10 SECTION 4.1 (F)2, TWO FEET OF SEDIMENT SHALL REMOVED OVER THE PROPOSED FOOT PRINT TO MINIMIZE POTENTIAL EXPOSURE. AN ACTIVE CAPPING SYSTEM SHALL BE INSTALLED INCLUDING A REACTIVE CORE MAT TO MINIMIZE/ RETARD THE POTENTIAL UPWARD MIGRATION OF RESIDUAL CONTAMINATION PRESENT BELOW THE CAP, TO IMPEDE BURROWING AND TO ACT AS A DEMARCATION LAYER.
2. THE HORIZONTAL EXTENT WAS DETERMINED BASED ON THE AVAILABLE DATA AND THE RISK ASSESSMENT COMPLETED FOR THE SITE. NO SAND/ORGANIC MIXTURE SHALL BE PLACED BELOW THE WATER TABLE ELEVATION OF 382' AMSL. BENEATH THE WATER TABLE THE ACTIVE CAP SHALL CONSIST OF REACTIVE CORE MAT AND 24" LOAMY SAND.

1504 ACTIVE CAPPING SYSTEM DETAIL

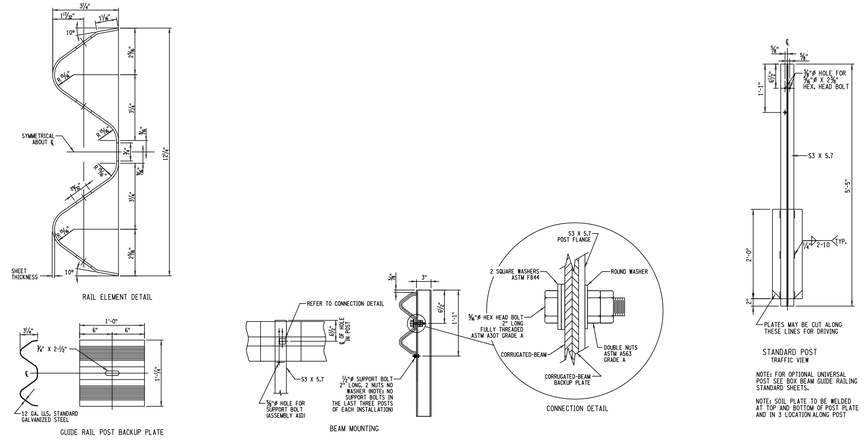
NOT TO SCALE

DESIGN NOTES:

1. THE INACTIVE CAP ON THE NORTH SLOPE OF CANAL 2 SHALL CONSIST OF 6" OF STRUCTURAL FILL AND 6" OF SAND/ORGANIC MXITURE, LOAMY SOIL.
2. THE INACTIVE CAP ON THE SOUTH SLOPE OF CANAL 2 SHALL CONSIST OF 6" OF STRUCTURAL FILL AND 6" OF RIPRAP D50=4.5".

1505 CAPPING SYSTEM DETAIL

NOT TO SCALE



CORRUGATED-BEAM GUIDE RAIL DETAIL FURNISHED AS PER NYSDOT #EB 13-028 DRAWING NO. 606-07

1506 CORRUGATED-BEAM GUIDE RAIL DETAIL

NOT TO SCALE

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STATE OF NEW YORK · STEPHEN ANTHONY MIRABELLA · 089550 · LICENSED PROFESSIONAL ENGINEER

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DRAWN BY JH | CADD Review MB | CHECKED BY SM

Environmental Resources Management

ERM

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FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

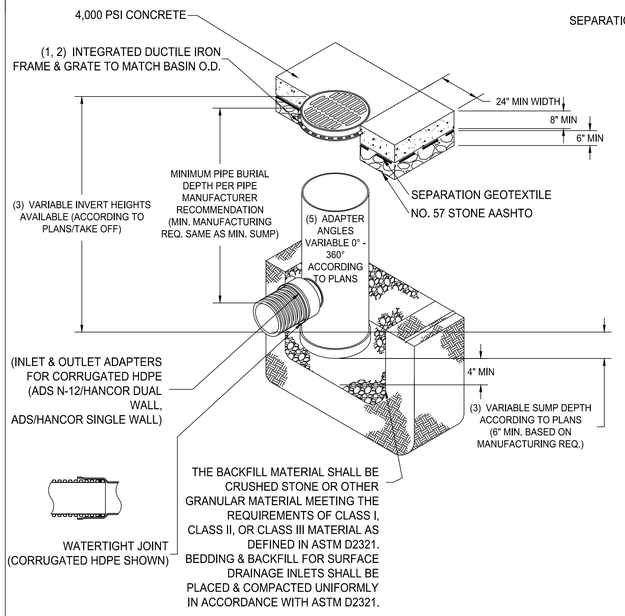
CONSTRUCTION DETAILS (2 OF 2)

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	15	F

DATE DRAWN: JAN 2021

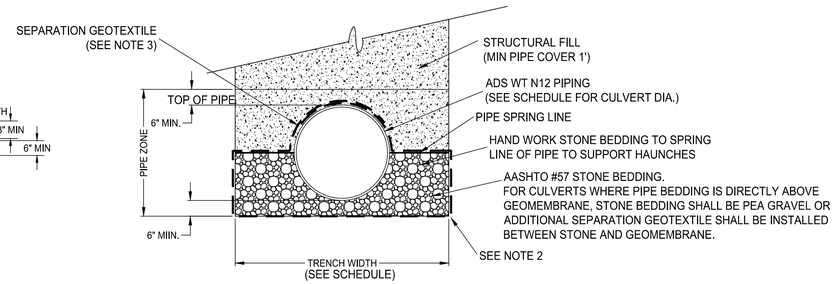
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REVISIONS TO BE MADE ON THE CADD FILE ONLY



1601 NYLOPLAST DROP INLET

SOURCE: ADS NOT TO SCALE

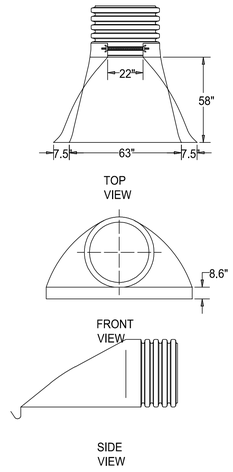


CULVERT INSIDE DIAMETER (IN.)	MIN. TRENCH WIDTH (IN., NOMINAL)
24	48

NOTES:
1. ALL BACKFILL MATERIAL SHALL BE COMPACTED IN 8" LIFTS UNLESS OTHERWISE SPECIFIED.
2. BOTTOM OF TRENCH SHALL BE FIRM. REMOVE ALL LOOSE MATERIAL. WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE OWNER'S REPRESENTATIVE AND REPLACE WITH AGGREGATE/GEOTEXTILE.
3. GEOTEXTILE SHALL BE OVERLAPPED (ALONG TRENCH AXIS).
4. TRENCH PLUGS SHALL BE CONSTRUCTED OF ON-SITE CLAY MATERIAL OR MATERIAL OTHERWISE ACKNOWLEDGED BY OWNER'S REPRESENTATIVE. TRENCH PLUGS SHALL BE KEYED INTO THE BOTTOM AND SIDES OF THE TRENCH AT A MINIMUM DISTANCE OF 6 INCHES. A MINIMUM OF 2 TRENCH PLUGS PER CULVERT TRENCH SHALL BE INSTALLED AND A MINIMUM OF 1 PER 100' OF CULVERT PIPE. A PLUG SHALL BE INSTALLED WITHIN 5 FEET OF THE INLET AND 5 FEET OF THE OUTLET OF EACH CULVERT.

1602 CULVERT #1 TRENCH DETAIL

NOT TO SCALE

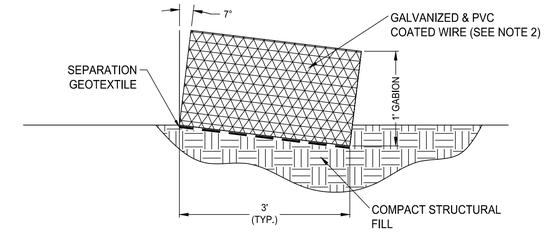


ADS FLARED END SECTION SPECIFICATION

NOTES:
1. THE ADS FLARED END SECTION SHALL BE HIGH DENSITY POLYETHYLENE MEETING ASTM D3350 MINIMUM CELL CLASSIFICATION 213320C; CONTACT MANUFACTURER FOR ADDITIONAL CELL CLASSIFICATION INFORMATION. WHEN PROVIDED, THE METAL THREADED FASTENING ROD SHALL BE STAINLESS STEEL.
2. INSTALLATION SHALL BE IN ACCORDANCE WITH ADS INSTALLATION INSTRUCTIONS AND WITH THOSE ISSUES BY STATE OR LOCAL AUTHORITIES. CONTACT YOUR LOCAL ADS REPRESENTATIVE OR VISIT WWW.ASD-PIPE.COM FOR THE LATEST INSTALLATION INSTRUCTIONS.

1603 ADS FLARED END SECTION FOR 24" ADS HDPE PIPING SYSTEM

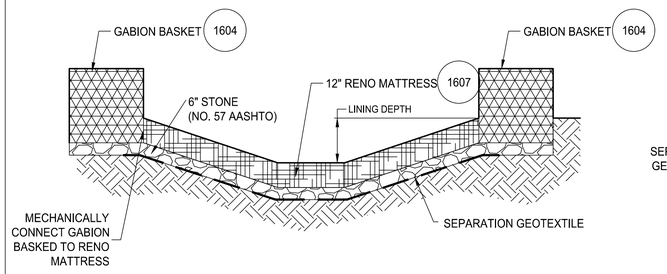
SOURCE: ADS NOT TO SCALE



NOTES:
1. FILL GABION BASKETS AND MATTRESSES WITH D_{50} = 5" STONE.
2. GABION BELOW THE WATER TABLE MUST BE COATED WITH PVC.

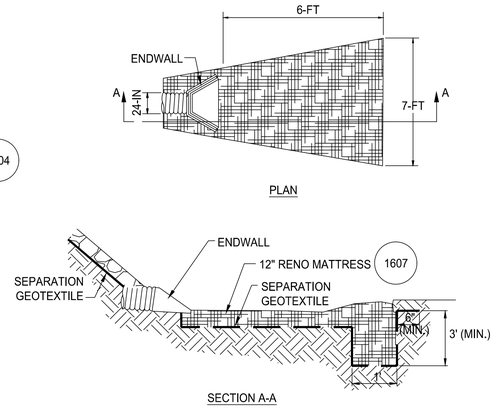
1604 GABION BASKET

NOT TO SCALE



1605 FLUME #1 DETAIL

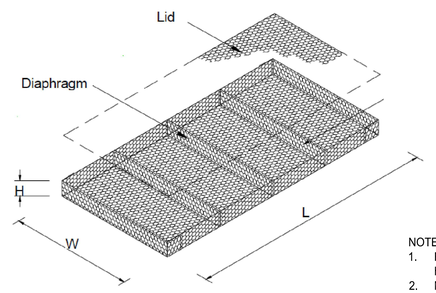
NOT TO SCALE



NOTE:
1. OUTLET LINING LAYOUT AS PER PLANS.

1606 PIPE OUTLET PROTECTION

NOT TO SCALE



NOTE:
1. REFER TO GEOSOLUTIONS INC. FOR ADDITIONAL SPECIFICATIONS: https://www.geosolutionsinc.com/products/pdfs/2005-PSS-Reno-mattress-galvanized-PVC.pdf
2. MATTRESS SHALL BE GALVANIZED BUT DOES NOT HAVE TO PVC COATED ABOVE ELEVATION 384'. MATTRESS SHALL BE PVC COATED BELOW ELEVATION 384'.
3. FILL MATTRESSES WITH D_{50} = 5" STONE.

Table of sizes for Reno mattresses

L=Length ft (m)	W=Width ft (m)	H=Height in (mm)	# of cells
9 (2.7)	6 (1.8)	6 (150)	3
12 (3.6)	6 (1.8)	6 (150)	4
9 (2.7)	6 (1.8)	9 (230)	3
12 (3.6)	6 (1.8)	9 (230)	4
12 (3.6)	6 (1.8)	12 (300)	4

1607 RENO MATTRESS GALVANIZED AND PVC COATED

SOURCE: MACAFERRI NOT TO SCALE

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DRAWN BY: JH | CADD Review: MB | CHECKED BY: SM

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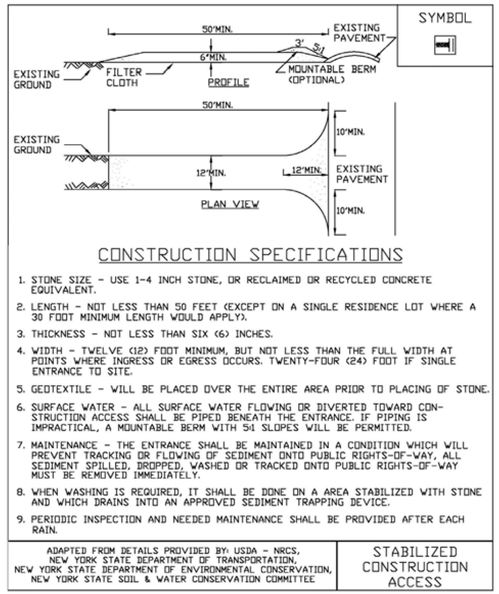
STORMWATER DETAILS

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	16	F
DATE DRAWN: JAN 2021			

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Figure 2.1

Stabilized Construction Access



CONSTRUCTION SPECIFICATIONS

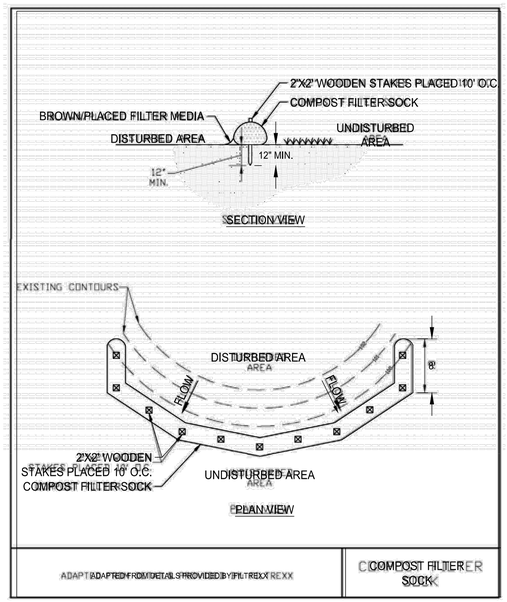
1. STONE SIZE - USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ACCESS SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STABILIZED CONSTRUCTION ACCESS

Figure 5.2

Compost Filter Sock

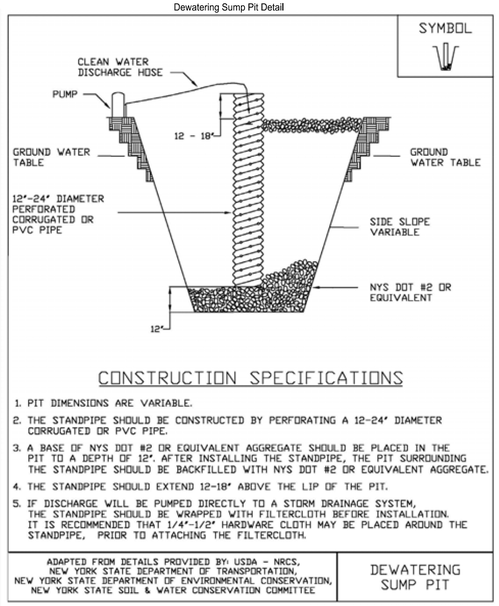


ADAPTED FROM DETAILS PROVIDED BY: FILTREXX

COMPOST FILTER SOCK

Figure 3.3

Dewatering Sump Pit Detail

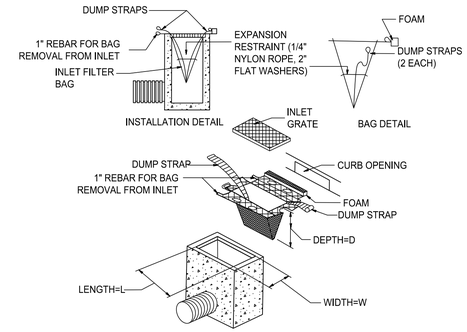


CONSTRUCTION SPECIFICATIONS

1. PIT DIMENSIONS ARE VARIABLE.
2. THE STANDPIPE SHOULD BE CONSTRUCTED BY PERFORATING A 12-24" DIAMETER CORRUGATED OR PVC PIPE.
3. A BASE OF NYS DOT #2 OR EQUIVALENT AGGREGATE SHOULD BE PLACED IN THE PIT TO A DEPTH OF 12". AFTER INSTALLING THE STANDPIPE, THE PIT SURROUNDING THE STANDPIPE SHOULD BE BACKFILLED WITH NYS DOT #2 OR EQUIVALENT AGGREGATE.
4. THE STANDPIPE SHOULD EXTEND 12-18" ABOVE THE LIP OF THE PIT.
5. IF DISCHARGE WILL BE PUMPED DIRECTLY TO A STORM DRAINAGE SYSTEM, THE STANDPIPE SHOULD BE WRAPPED WITH FILTERCLOTH BEFORE INSTALLATION. IT IS RECOMMENDED THAT 1/4"-1/2" HARDWARE CLOTH MAY BE PLACED AROUND THE STANDPIPE, PRIOR TO ATTACHING THE FILTERCLOTH.

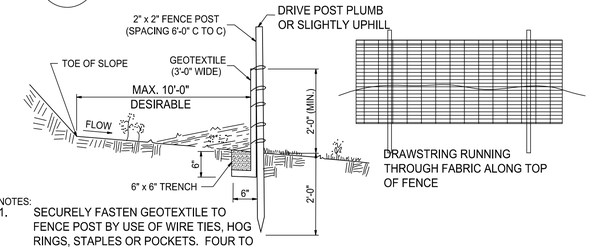
ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

DEWATERING SUMP PIT



1701 STABILIZED CONSTRUCTION ACCESS

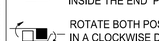
NOT TO SCALE



NOTES:
1. SECURELY FASTEN GEOTEXTILE TO FENCE POST BY USE OF WIRE TIES, HOG RINGS, STAPLES OR POCKETS. FOUR TO SIX FASTENERS PER POST.
2. BURY BOTTOM 1'-0" OF GEOTEXTILE AND TAMP IN PLACE.
3. SECURELY FASTEN ENDS OF INDIVIDUAL ROLLS OF GEOTEXTILE TO A POST BY WRAPPING EACH END OF THE GEOTEXTILE AROUND THE POST TWICE AND ATTACHING AS SPECIFIED IN NOTE 1 ABOVE. SPLICING OF INDIVIDUAL ROLLS SHALL NOT OCCUR AT LOW POINTS.
4. SET SILT FENCE WITHIN PROJECT LIMITS. 10'-0" DESIRABLE.

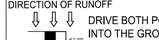


PLACE THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE.



ROTATE BOTH POSTS AT LEAST 360 DEGREES IN A CLOCKWISE DIRECTION TO CREATE A TIGHT SEAL WITH THE GEOTEXTILE.

DIRECTION OF RUNOFF

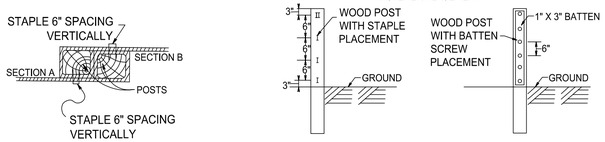


DRIVE BOTH POSTS ABOUT 10 INCHES INTO THE GROUND AND BURY FLAP.

FASTENERS FOR WOOD POSTS

	GAUGE	CROWN	LEGS	STAPLES/POST
WIRE STAPLES	17 MIN.	3/4" WIDE	1/2" LONG	5 MIN.
			PHILLIPS HEADS	
SCREWS		LENGTH		SCREW/POST
		2 "	2"	6 MIN.

SOURCE: GA SWCC

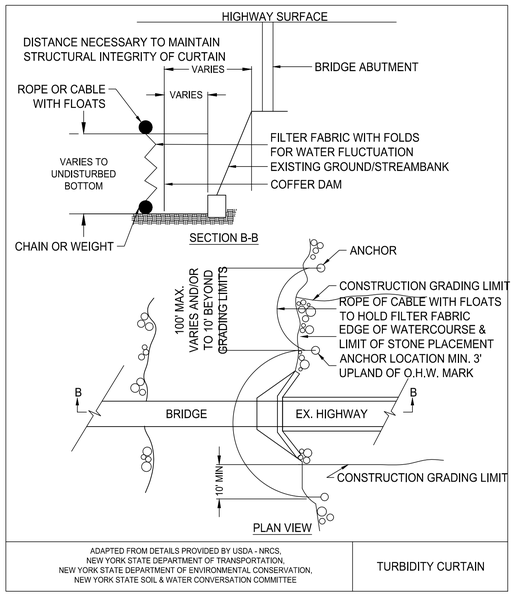


1702 COMPOST FILTER SOCK

NOT TO SCALE

Figure 5.35

Turbidity Curtain

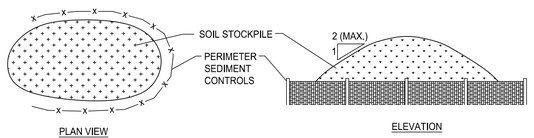


ADAPTED FROM DETAILS PROVIDED BY USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONVERSATION COMMITTEE

TURBIDITY CURTAIN

1703 DEWATERING SUMP PIT

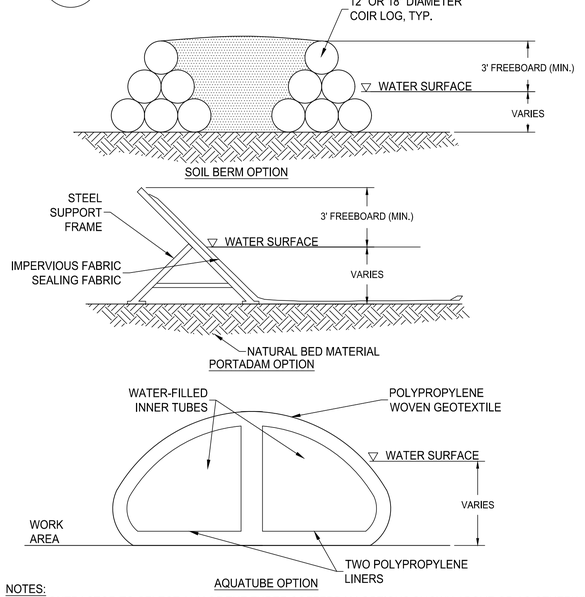
NOT TO SCALE



NOTES:
1. THE DETAIL PRESENTED ABOVE ONLY APPLIES TO STOCKPILES OF IMPORT MATERIALS. ALL EXCAVATED AND CONTAMINATED MATERIALS SHALL BE STOCKPILED AND STORED ON A SOIL/SEDIMENT STORAGE AND MOISTURE CONDITIONING PAD AS SHOWN IN DETAIL 1602.
2. THE STOCKPILE AREA SHALL BE LINED WITH A TARP.
3. PERIMETER SEDIMENT CONTROLS (E.G. HAYBALES, FILTER SOCK, SILT FENCE) TO BE PLACED AROUND THE PERIMETER OF THE STOCKPILE. IMMEDIATELY APPLY TEMPORARY SEEDING TO STOCKPILES WHICH WILL BE IN PLACE FOR 14 DAYS OR MORE.

1704 FABRIC DROP INLET PROTECTION

NOT TO SCALE



NOTES:
1. CONTRACTOR TO SELECT ANY OF THE THREE COFFERDAM OPTIONS SHOWN ABOVE OR AS OTHERWISE ACKNOWLEDGED BY ENGINEER BUT SHALL PROVIDE THE REQUIRED CREST HEIGHT
2. CONTRACTOR SHALL REVIEW EXISTING SEDIMENT INVESTIGATION FOR WATER DEPTH, BATHYMETRY, AND SOIL PARAMETERS AND WILL WORK WITH PORTA DAM AND/OR AQUATUBE PERSONNEL TO CONFIRM THE APPLICABILITY OF PRODUCT FOR THIS PROJECT.
3. CONTRACTOR SHALL MAINTAIN A CONSTANT CREST HEIGHT ALONG ENTIRE DAM.

1705 STAKE, RECESSED SILT FENCE

NOT TO SCALE

1706 TURBIDITY CURTAIN

NOT TO SCALE

1707 STOCKPILE

NOT TO SCALE

1708 COFFER DAM DETAIL

NOT TO SCALE

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ERM

Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN
FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

EROSION AND SEDIMENT CONTROL DETAILS (1 OF 2)

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	17	F

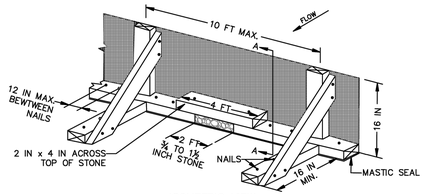
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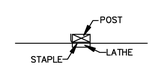
REVISIONS TO BE MADE ON THE CADD FILE ONLY

Detail E-2

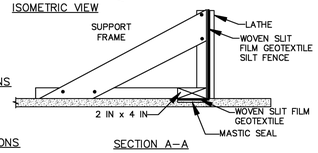
Silt Fence on Pavement



ISOMETRIC VIEW



JOINING ADJACENT SECTIONS OF GEOTEXTILE



SECTION A–A

CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH X 4 INCH LUMBER.
2. USE WOVEN SLIT FILM GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS.
3. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H–1 MATERIALS.
4. SPACE UPRIGHT SUPPORTS NO MORE THAN 10 FEET APART.
5. PROVIDE A TWO FOOT OPENING BETWEEN EVERY SET OF SUPPORTS AND PLACE STONE IN THE OPENING OVER GEOTEXTILE.
6. KEEP SILT FENCE TAUT AND SECURELY STAPLE TO THE UPSLOPE SIDE OF UPRIGHT SUPPORTS. EXTEND GEOTEXTILE UNDER 2x4.
7. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, FOLD, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. ATTACH LATHE.
8. PROVIDE A MASTIC SEAL BETWEEN PAVEMENT, GEOTEXTILE, AND 2x4 TO PREVENT SEDIMENT–LADEN WATER FROM ESCAPING BENEATH SILT FENCE INSTALLATION.
9. SECURE BOARDS TO PAVEMENT WITH 40D 5 INCH MINIMUM LENGTH NAILS.
10. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. MAINTAIN WATER TIGHT SEAL ALONG BOTTOM. REPLACE STONE IF DISPLACED.

Maryland Standards and Specifications
For Soil Erosion and Sediment Control

1801 SILT FENCE ON PAVEMENT

NOT TO SCALE

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REVISIONS TO BE MADE ON THE CADD FILE ONLY

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW ARTICLE 145 FOR ANY PERSON TO ALTER ANY DOCUMENT THAT BEARS THE SEAL OF A PROFESSIONAL ENGINEER, UNLESS THE PERSON IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER.

STATE OF NEW YORK · STEPHEN ANTHONY MIRABELLA · 089550 · LICENSED PROFESSIONAL ENGINEER

Rev.	Date	Description	By	Chk
F	JUNE 2026	RESPONSE TO COMMENTS FROM NYSDEC	DF	JR
E	JULY 2025	ISSUED FOR PERMIT	DF	JR
D	JULY 2023	ISSUED FOR PERMIT	DF	JR
C	NOV 2022	ISSUED FOR PERMIT	DF	JR
B	AUG 2021	ISSUED FOR PERMIT	MB	JR
A	JAN 2021	ISSUED FOR REVIEW	MB	JR

DRAWN BY JH | CADD Review MB | CHECKED BY SM

ERM

Environmental Resources Management

DESIGN OF AREA 7, 8, AND 9
INTERIM REMEDIAL MEASURES WORK PLAN
FORMER TRW UNION SPRINGS
UNION SPRINGS, NEW YORK

EROSION AND SEDIMENT CONTROL DETAILS (2 OF 2)

SCALE	PROJECT NUMBER	DRAWING	REV.
AS SHOWN	0820721	18	F
DATE DRAWN JAN 2021			

APPENDIX L JOINT APPLICATION FORM

NEW YORK STATE | Department of Environmental Conservation | Office of General Services | Department of State | US Army Corps of Engineers

JOINT APPLICATION FORM

For Permits for activities activities affecting streams, waterways, waterbodies, wetlands, coastal areas, sources of water, and endangered and threatened species.

You must separately apply for and obtain Permits from each involved agency before starting work. Please read all instructions.

1. **Applications To:**

>NYS Department of Environmental Conservation ☑ Check here to confirm you sent this form to NYSDEC.

Check all permits that apply:

- ☑ Stream Disturbance
- ☐ Excavation and Fill in Navigable Waters
- ☐ Docks, Moorings or Platforms
- ☐ Dams and Impoundment Structures
- ☑ 401 Water Quality Certification*
- ☑ Freshwater Wetlands
- ☐ Tidal Wetlands
- ☐ Wild, Scenic and Recreational Rivers
- ☐ Coastal Erosion Management
- ☐ Water Withdrawal
- ☐ Long Island Well
- ☐ Incidental Take of Endangered / Threatened Species

* See Instructions (page 3)

>US Army Corps of Engineers ☑ Check here to confirm you sent this form to USACE.

Check all permits that apply: ☑ Section 404 Clean Water Act ☑ Section 10 Rivers and Harbors Act

Is the project Federally funded? ___ Yes ✓ No

If yes, name of Federal Agency:

General Permit Type(s), if known: Nationwide 38

Preconstruction Notification: ✓ Yes ___ No

>NYS Office of General Services ☐ Check here to confirm you sent this form to NYSOGS.

Check all permits that apply:

- ☐ State Owned Lands Under Water
- ☐ Utility Easement (pipelines, conduits, cables, etc.)
- ☐ Docks, Moorings or Platforms

>NYS Department of State ☐ Check here to confirm you sent this form to NYSDOS.

Check if this applies: ☐ Coastal Consistency Concurrence

2. **Name of Applicant**

ZF Active Safety and Electronics US, LLC

Taxpayer ID (if applicant is NOT an individual)

Mailing Address	Post Office / City	State	Zip
15811 Centennial Dr	Northville	MI	48168

Telephone 480-600-8036 Email Robert.Bleazard@ZF.com

Applicant Must be (check all that apply): ☐ Owner ☑ Operator ☐ Lessee

3. **Name of Property Owner (if different than Applicant)**

LPW Development LLC

Mailing Address	Post Office / City	State	Zip
18 Garfield Street	Auburn	NY	13021

Telephone 800-947-1523 Email Peter.Marshall@stottanddavis.com

For Agency Use Only	Agency Application Number:

4. **Name of Contact / Agent**

Rob Sents

Mailing Address	Post Office / City	State	Zip
6311 Fly Road Suite 102	East Syracuse	NY	13057

Telephone 315-256-5350 Email rob.sents@erm.com

5. **Project / Facility Name**

Union Springs Brownfield Site

Property Tax Map Section / Block / Lot Number: 141.09-1-21

Project Street Address, if applicable	Post Office / City	State	Zip
107 Salem Street	Union Springs	NY	13160

Provide directions and distances to roads, intersections, bridges and bodies of water

The Facility is located on the east side of caygua Lake off of Howland Street

Town	Village	City	County	Stream/Waterbody Name
Union Springs			Cayuga	Unnamed Tributary

Project Location Coordinates: Enter Latitude and Longitude in degrees, minutes, seconds:

Latitude: 42 ° 50 ' 42.8 " Longitude: 76 ° 41 ' 45.01 "

6. **Project Description:** Provide the following information about your project. Continue each response and provide any additional information on other pages. **Attach plans on separate pages.**

a. Purpose of the proposed project:

See Joint Permit Application, section 4.1

b. Description of current site conditions:

See Joint Permit Application, section 3.0

c. Proposed site changes:

See Joint Permit Application, section 4.2

d. Type of structures and fill materials to be installed, and quantity of materials to be used (e.g., square feet of coverage, cubic yards of fill material, structures below ordinary/mean high water, etc.):

See Appendix K of the Joint Permit Application

e. Area of excavation or dredging, volume of material to be removed, location of dredged material placement:

See Joint Permit Application, section 4.2 and Appendix K

f. Is tree cutting or clearing proposed? ✓ Yes If Yes, explain below. No

Timing of the proposed cutting or clearing (month/year): March/2026 or soon as approved

Number of trees to be cut: Acreage of trees to be cleared: approximatley 1

g. Work methods and type of equipment to be used:

See Joint Permit Application, section 4.2 and Appendix K

h. Describe the planned sequence of activities:

See Joint Permit Application, section 4.2 and Appendix K. A detailed sequencing will be determined through procurment and by selected contractor

i. Pollution control methods and other actions proposed to mitigate environmental impacts:

See Joint Permit Application, Section 6.0

j. Erosion and silt control methods that will be used to prevent water quality impacts:

See Joint Permit Application, Section 4.2.1 and Appendix K.

k. Alternatives considered to avoid regulated areas. If no feasible alternatives exist, explain how the project will minimize impacts:

See Joint Permit Application, Section 4.3

l. Proposed use: ☐ Private ☐ Public ☑ Commercial

m. Proposed Start Date: 2026 (pending DEC approval) Estimated Completion Date: estimated 8 months after start

n. Has work begun on project? Yes If Yes, explain below. ✓ No

o. Will project occupy Federal, State, or Municipal Land? ___ Yes If Yes, explain below. ✓ No

p. List any previous DEC, USACE, OGS or DOS Permit / Application numbers for activities at this location:

q. Will this project require additional Federal, State, or Local authorizations, including zoning changes?

___ Yes If Yes, list below. ✓ No

7. **Signatures.**

Applicant and Owner (If different) must sign the application. If the applicant is the landowner, the **landowner attestation form** can be used as an electronic signature as an alternative to the signature below, if necessary. Append additional pages of this Signature section if there are multiple Applicants, Owners or Contact/Agents.

I hereby affirm that information provided on this form and all attachments submitted herewith is true to the best of my knowledge and belief.

Permission to Inspect - I hereby consent to Agency inspection of the project site and adjacent property areas. Agency staff may enter the property without notice between 7:00 am and 7:00 pm, Monday - Friday. Inspection may occur without the owner, applicant or agent present. If the property is posted with "keep out" signs or fenced with an unlocked gate, Agency staff may still enter the property. Agency staff may take measurements, analyze site physical characteristics, take soil and vegetation samples, sketch and photograph the site. I understand that failure to give this consent may result in denial of the permit(s) sought by this application.

False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the NYS Penal Law. Further, the applicant accepts full responsibility for all damage, direct or indirect, of whatever nature, and by whomever suffered, arising out of the project described herein and agrees to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from said project. In addition, Federal Law, 18 U.S.C., Section 1001 provides for a fine of not more than $10,000 or imprisonment for not more than 5 years, or both where an applicant knowingly and willingly falsifies, conceals, or covers up a material fact; or knowingly makes or uses a false, fictitious or fraudulent statement.

Signature of Applicant | Date: 3/12/26

Applicant Must be (check all that apply): ☐ Owner ☑ Operator ☐ Lessee

Printed Name: Robert G. Bleazard | Title: Sr. EHS Manager - Remediation

Signature of Owner (if different than Applicant) | Date: 3-5-26

Printed Name: Peter Marshall | Title: Member

Signature of Contact / Agent | Date: 3/5/2026

Printed Name: Robert Sents | Title: Project Manager/ Principal Consultant

For Agency Use Only **DETERMINATION OF NO PERMIT REQUIRED**

Agency Application Number: _____

_____ (Agency Name) has determined that No Permit is required from this Agency for the project described in this application.

Agency Representative:

Printed Name: _____ Title: _____

Signature: _____ Date: _____

APPENDIX M APPLICATION FOR PERMIT- SECTION 401 STATE WATER QUALITY CERTIFICATION

NEW YORK STATE | Department of Environmental Conservation

APPLICATION FOR PERMIT
FOR SECTION 401 STATE WATER QUALITY CERTIFICATION

Supplement WQC-1

DEC ID (if known): _____

Applicant Information:

Name of Applicant (from Joint Application Form): ZF Active Safety and Electronics US, LLC			
Email: robert.bleazard@zf.com		Phone: 480-600-8036	
Mailing Address: Street: 15811 Centennial Dr.	City: Northville	State: MI	Zip: 48168
Project Location (from Joint Application Form): Former TRW Union Springs Facility			
Town (where property taxes paid): Union Springs		County: Cayuga	
Street Address: 107 Salem Street	City: Union Springs	State: NY	Zip: 13160

To apply for New York State Section 401 Water Quality Certification, all items below must be completed and the applicant must sign page 3 of this form. Attach additional sheets, plans, drawings, and other materials, as necessary.

1.	By signing this form, the applicant affirms that the project proponent(s) and a point of contact were accurately identified in the Joint Application for Permit provided with this supplement.
2.	By signing this form, the applicant affirms that the proposed project is accurately and completely identified in the Joint Application for Permit provided with this supplement, and in any supporting plans, photos, reports or other project information.
3.	Identify here the applicable federal license or permit for this request: To be assigned If this request relates to a Section 404 Nationwide Permit administered by the US Army Corps of Engineers, please identify the appropriate Nationwide Permit number(s): To be assigned
4.	Please identify the location, area (acreage), and nature of any potential discharges of fill that may result from the proposed project and the location of receiving waters (attached additional information as needed): The Facility is located on the east side of Cayuga Lake, in the Village of Union Springs, Cayuga County, New York (42.845481oN, -76.694832oW). The Site consists of two tax parcels (141.09-1-21 and 141.09-1-21.1) approximately 12 acres in area. Further information is included in section 3 of the joint application permit document.
5.	Please provide a description of any methods and means proposed to monitor the discharge and the equipment or measures planned to treat, control, or manage the discharge (attach additional information as needed): The site will implement temporary water management measures to control surface water and construction-related contact water. Measures may include diversion ditches, temporary sumps, and collection systems to route water to a controlled treatment area. Final water management details, including system configuration, flow routing, and treatment methods, will be developed during contractor procurement and following NYSDEC review and approval of the 95% Design Work Plan. All measures will be implemented in accordance with NYSDEC guidance to minimize sediment, turbidity, and constituent impacts to nearby surface waters.

6.	If the activity (project) resulting in the discharge will disturb over one acre of land, please provide a Stormwater Pollution Prevention Plan (SWPPP) for the project prepared in accordance with the requirements of the New York State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities (GP-0-20-001): These permits will be prepared and submitted following the review and approval of the IRM (95 Percent) Design Work Plan by the NYSDEC and prior to issuance of the permit and final work plan. Date of SWPPP: TBD based on reviews and approvals Name of Preparer: Will be prepared under the direction of a ERM NYS licensed engineer and project engineer of record
7.	If the activity (project) resulting in the discharge will involve in-water construction in a stream, river or other water body with flowing water, please explain how flowing water will be managed during construction and provide a plan showing all water management measures (e.g., cofferdams, pump-arounds, temporary diversions, etc.): A Portadam, cofferdam or equivalent will be used hydraulic isolation of water into the construction zone. Influent water into the canal will be minimal and pumped around. Construction activities may generate contact water from excavation and dewatering operations. If necessary, water will be collected within excavation sumps and conveyed to a temporary on-site treatment system designed to remove suspended solids and potential contaminants prior to discharge. The treatment system may include sedimentation, filtration, and activated carbon treatment as appropriate based on water quality. Treated water may be discharged to a nearby surface water body in accordance with the requirements of the NYSDEC State Pollutant Discharge Elimination System (SPDES) program. Final system design, effluent criteria, monitoring requirements, and discharge authorization will be developed following NYSDEC review and approval of the Work Plan and during contractor procurement.
8.	If the activity (project) resulting in the discharge will involve in-water construction in a lake or other water body, please explain how the work area will be contained or isolated from the water body and provide a plan showing all related work area containment measures (e.g., cofferdams, turbidity curtains, etc.): Temporary in-water controls will be used as necessary to isolate the work area and minimize impacts to adjacent surface waters. These may include Portadam or cofferdams, silt curtains, or equivalent measures. The specific configuration, sequencing, and installation details will be finalized during contractor procurement and following NYSDEC review and approval of the 95% Design Work Plan. All measures will be implemented in accordance with applicable NYSDEC guidance to maintain water quality and prevent sediment or turbidity impacts to downgradient waters.
9.	If the activity (project) resulting in the discharge will involve dewatering of the work area, please explain where the dewatering discharge will occur and how any turbid discharges will be managed, and provide a plan showing the details of all dewatering measures: Final water management and treatment details will be developed during the procurement process and following NYSDEC review and approval of the 95% Work Plan. As noted above, construction and dewatering contact water will be managed on-site using a temporary treatment system. The system is anticipated to include batch fracturation tanks, sedimentation and turbidity filtration, and additional treatment such as granular activated carbon or equivalent to address constituents of concern. Effluent from the temporary treatment system will be monitored and discharged in compliance with NYSDEC water quality standards and any SPDES or other applicable approvals. The specific design, flow rates, and treatment train will be finalized once the Work Plan is approved and contractor procurement is completed.
10.	If the activity (project) resulting in the discharge will involve horizontal directional drilling (HDD), please explain what measures have been taken to minimize the risks of inadvertent fluid release (i.e., frac-outs), what measures will be undertaken to contain and manage all drilling fluids, and what contingency measures will be in place to contain, remove and remediate any inadvertent fluid releases (i.e., a frac-out plan). Also provide copies of all drawings and plans that address these items: Not applicable

11.	If the activity (project) resulting in the discharge will involve the temporary placement of timber work mats, stone fill work areas, stone fill causeways, or other temporary work or staging areas within waters of the US, please show all such measures on plan drawings, explain how and when such measures will be installed and removed, and explain all measures that will be undertaken to minimize impacts on water quality: It is not anticipated that timber mats or equivalent access platforms will be required for excavation within the proposed remediation area, as the work can be performed using a long-stick excavator. However, temporary work platforms may be required to facilitate placement of materials and restoration activities. Restoration will proceed from the canal access from the northern, with work areas pulled back as restoration is completed. All activities will occur within the temporary hydraulic isolation barriers to minimize impacts outside the work zone. Final means and methods, including platform design and placement, will be developed during contractor procurement and following NYSDEC review and approval of the 95% Design Work Plan.
12.	If the activity (project) requires a license from the Federal Energy Regulatory Commission or Nuclear Regulatory Commission, the request for a Section 401 Water Quality Certification must also include any documents required under the relevant federal filing requirements, as identified in regulation or by DEC during the pre-filing/pre-application review. Please indicate here which documents in the federal license application address water quality requirements: Not applicable.
13.	Please provide a list of all other federal, interstate, tribal, state, territorial, or local agency authorizations required for the proposed project, including all approvals or denials already received: The project will obtain all required federal, state, and local authorizations prior to commencing work within or adjacent to wetlands. This includes the approval of the proposed remediation outlined in the work plan currently under review by the NYSDEC; NYSDEC Article 24 Freshwater Wetlands and Article 15 Protection of Waters permits, SPDES permits for any water discharges, SWPPP, and Section 401 Water Quality Certification. We have received concurrence from US Fish and Wildlife Service Coordination that the proposed action is not prohibited under the ESA Section 4(d). The Division for Historic Preservation of the Office of Parks, Recreation and Historic Preservation (OPRHP) through a SEQRA review indicated the project do not include potential impacts to NY Parkland (Review number 25PR06543). Execution of programmatic agreement among USACE, New York State Office of Parks, Recreation and Historic Preservation State Historic Preservation Office (SHPO) and federally recognized tribes opportunity to comment, in satisfaction of its responsibilities under Section 106 of the National Historic Preservation Act and associated with Transportation Regional General Permit (TRGP-1). Authorizations required for the proposed project are being sought concurrently with the NYSDEC and other regulatory agencies review of the Interim Remedial Measure (95 percent) Work Plan.

Certification:

In addition to the Joint Application Form provided with this supplement, I hereby submit this form and the attachments indicated to request a Section 401 Water Quality Certification from DEC. All information contained herein is true, accurate, and complete to the best of my knowledge and belief.

Robert A Blazejewski — 3/12/26

Project Applicant/Proponent Signature — Date