HALEY ALDRICH

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REPORT ON

NOTICE OF INTENT (NOI)
TEMPORARY CONSTRUCTION DEWATERING
FORMER KRAFT ATLANTIC GELATIN FACILITY - THE VALE REDEVELOPMENT
WOBURN, MASSACHUSETTS

by
Haley & Aldrich, Inc.
Boston, Massachusetts

for
US Environmental Protection Agency
Boston, Massachusetts 02109

File No. 129856-009
January 2021

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19 January 2021
File No. 129856-009

US Environmental Protection Agency
Office of Ecosystem Protection
5 Post Office Square - Suite 100 (OEP06-01)
Boston, Massachusetts 02109

Attention: Ms. Shauna Little

Subject: Notice of Intent (NOI)
Temporary Construction Dewatering
Former Kraft Atlantic Gelatin Facility - The Vale Redevelopment
Woburn, Massachusetts

Dear Ms. Little:

On behalf of our client, Montvale Land LLC, c/o Leggat McCall Properties LLC (Montvale Land), and in accordance with the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) in Massachusetts, MAG910000, this letter submits a Notice of Intent (NOI) and the applicable documentation as required by the US Environmental Protection Agency (EPA) for temporary construction site dewatering under the RGP. Haley & Aldrich, Inc. (Haley & Aldrich) has prepared this submission to facilitate off-site discharge of temporary dewatering during construction for the commercial redevelopment portion of the Former Kraft Atlantic Gelatin Facility, known as The Vale, located at 6 Hill Street in Woburn, Massachusetts ("The Site").

A copy of the Notice of Intent (NOI) is included in Appendix A. A companion NPDES RGP application for the portion of the Former Kraft Atlantic Gelatin Facility to be developed for residential multi-unit and townhouse condominium use (the "Townhouse Area") is being submitted concurrently with this application under a separate cover.

SITE CONDITIONS

The former Kraft Atlantic Gelatin Facility ("Kraft Facility") occupies approximately 57 acres of land (the "Property") located in Woburn, Massachusetts, as shown on Figure 1. The Kraft Facility contains approximately 400,000 sq ft of building space occupied by the former gelatin processing plant, a flavorings tower, office and laboratory space, storage buildings and a power plant (identified as "Russell Station power plant"), along with various exterior above-ground tanks, underground utilities wastewater treatment facilities, and an area of buried gelatin fill material within the southwest portion of the Property. Figure 2 illustrates the interpreted area of buried gelatin fill based on historical boring logs, results of Haley & Aldrich due diligence explorations and review of historical photographs and topographic maps. Areas of former lagoons from a 1938 aerial photograph are superimposed on the

plan, and it shows that the mapped wetland area bordering the Aberjona River coincides with a former lagoon.

Sweetwater Brook flows westerly through the northern portion of the Property, passing within culverts beneath pavement and buildings for some segments and exposed within open channel/pond sections, ultimately discharging into the Aberjona River, which flows to the south generally along the western property boundary. Locus and layout of the Kraft Facility are shown on Figures 1 and 2, respectively.

SITE HISTORY

Haley & Aldrich assessed past and present usage and filling history of the Site through a review of available historical records including Sanborn maps dated from 1888 to 2012 and aerial photographs taken periodically between 1938 and 2012. The Atlantic Gelatin Company began occupancy of the property in 1919. The facility was acquired by General Foods by 1930. The facility expanded in size with the addition of buildings throughout the late 1930s, 1940s and 1950s and came to be known as "The Gelly." The Phillip Morris Companies acquired General Foods in 1985 and Kraft in 1988 and in 1989, the two were combined into Kraft General Foods and then identified as Kraft Heinz.

Gelatin products have been produced at the former Kraft Facility since 1919. The gelatin production process included the extraction and concentration of protein from animal skins after degreasing by acids and alkalizers. Wastes generated during the extraction process were directed to a series of settling tanks and clarifying basins prior to being discharged to the MWRA sewer system. The remaining solids were removed off site to the City of Woburn landfill since at least 1980; however, prior to 1980 these materials (referred to hereinafter as "gelatin fill") were landfilled in the southwestern corner of the Property. According to Haley & Aldrich conversations with a long-term retired plant engineer, the gelatin fill material was generally comprised of diatomaceous earth which has been used on process filter screens. The facility was decommissioned by Kraft and has been vacant since approximately May 2016.

MASSDEP REGULATORY BACKGROUND

Massachusetts Department of Environmental Protection (MassDEP) active Release Tracking Numbers (RTNs) 3-33991, 3-34191 and 3-01737 are currently associated with the site. RTN 3-33991 pertains to arsenic and other urban fill constituents in gelatin fill and fill soils. RTN 3-34191 is associated with ammonia in groundwater and surface water. RTNs 3-33991 and 3-34191 pertain to the areas proposed for dewatering discharge under the RGP. RTN 3-01737 covers No. 6 fuel oil NAPL beneath the Russel Station power plant. Dewatering for RTN 3-01737 will be managed separately either with a vacuum truck for off-site disposal or recharged on-site under the MCP and is not covered under the proposed RGP. These RTNs are summarized below and shown on Figure 2.

RTN 3-33991

A BWSC103 Release Notification Form (RNF) was submitted to MassDEP on 14 December 2016 based on detection of arsenic in gelatin fill materials at concentrations in excess of applicable MCP RCS-1

reporting criteria. MassDEP assigned RTN 3-33991 to the release. Montvale Land LLC, an "Eligible Person," finalized acquisition of the Kraft Facility property during February 2018. Haley & Aldrich submitted a Release Abatement Measure (RAM) Plan to MassDEP on 16 November 2019, under RTN 3-33991 for the Townhouse Area. RAM activities were related to removal and management of gelatin fill and other fill materials along with associated earthwork, remediation, and response actions necessary to achieve a Permanent Solution for the Townhouse Area. Construction activities under the Townhouse RAM Plan have not been initiated pending local permitting. Townhouse Area RAM Status Reports No. 1 and 2 were submitted to MassDEP under RTN 3-33991 on 17 April 2020 and 22 September 2020, respectively. These status reports described limited exploration and geotechnical testing programs.

A draft RAM Plan for The Vale Redevelopment was submitted to MassDEP on 5 August 2020 by Montvale Land for the commercial aspects of the project master plan, and the network of new roadways and utilities. This RAM Plan presents procedures to be followed for excavation and management of fill and gelatin fill, wetlands and NAPL area remediation, soil and groundwater management associated with proposed construction, and associated response actions necessary to achieve a Permanent Solution. The final Vale RAM Plan will be submitted to MassDEP prior to the start of RAM activities, anticipated during the first quarter of 2021.

RTN 3-34191

RTN 3-34191 corresponds to ammonia detected in groundwater and surface water in the vicinity of the Kraft former lagoon and downgradient wetlands, for which response actions were conducted by Montvale Land under an MCP Immediate Response Action (IRA). The IRA condition was reported to MassDEP by Kraft on 14 April 2017. MassDEP assigned RTN 3-34191.

Haley & Aldrich submitted a Modified IRA Plan/IRA Status Report No. 2 on 15 February 2018. IRA objectives have been achieved and therefore IRA field activities are considered complete. An IRA Completion Report was submitted to MassDEP on 28 October 2020 to support future response actions for remediation of the overall former Kraft Facility and former lagoon which will ultimately achieve MCP regulatory compliance for RTN 3-34191.

Planned remedial activities to address ammonia in groundwater exceeding applicable MCP GW-3 involve excavation of gelatin fill materials within a limited source area bordering the eastern slope of the former lagoon. Localized long-term flow from site Outfall #14 and associated localized degradation of the gelatin fill is concluded to comprise the primary source of the elevated ammonia concentrations in groundwater in the area of the former lagoon. An "apron" of existing impacted wetland sediments adjoining this source area will also be excavated and replaced.

PROPOSED VALE CONSTRUCTION

The project master plan development includes: Office/Retail, Medical Office, Hotel, Laboratory/Flex, Parking Garages, Multi-Unit and Townhouse Residential Condominiums ("Townhouse Area") and Senior Housing. The Vale redevelopment is associated with this application. The Vale work generally covers

early site preparation for the commercial aspects of the project master plan, and perimeter access roadways and utilities to proposed building pads.

Construction is anticipated to involve demolition of existing above- and below-grade structures of the former Kraft Facility; earthwork for proposed site grading, roadways and installation of utilities; new site retaining walls or earth embankments to accommodate site grading; possible pile foundations to support a new bridge crossing over Sweetwater Brook, and preparation of building pads. Initial demolition is scheduled to begin during the fourth quarter of 2020.

Environmental aspects of the project involve remediation and/or earthwork for management of gelatin fill and other fill which does not meet applicable MCP residential standards, reuse of suitable stabilized gelatin fill within commercial areas, sediment remediation and wetlands restoration within the former lagoon area, dewatering discharge under an NPDES RGP permit, and TSCA remediation of PCBs in building components and soil at certain transformer areas. Note that the PCBs detected are primarily within building components and in localized shallow soil where dewatering will not be required. Improvements are also planned for Sweetwater Brook.

Excavations ranging from approximately 3 to 20 ft below ground surface (bgs) are anticipated to remove existing gelatin fill and fill materials to the natural ground surface. Groundwater levels recorded across the proposed area of fill excavation ranged approximately from 7 to 20 ft bgs, and generally follow the sloping topography and surface of the glacial till deposits. Groundwater elevations ranged from approximately El. 70 in the upland area down to approximately El. 25 - 30 bordering the Aberjona River.

Based on anticipated depths of excavation and groundwater levels, construction dewatering will likely be required during excavation of existing fill and gelatin fill within The Vale and Townhouse Area, and for remedial excavations within a limited source area bordering the eastern slope of the wetlands/former lagoon. Rapid groundwater inflow was encountered in some test pits at/near the upland portion of the Townhouse Area. Lower rates of groundwater inflow were experienced in test pits within the thicker gelatin fill area.

GROUNDWATER QUALITY DATA

To evaluate groundwater quality at the site, observation wells (HA16-B3 (OW) and HA18-B6(OW)) were installed at the site on 3 May 2016 and 26 September 2018, respectively. Groundwater samples were collected from the observation wells on 13 November 2019 in support of this RGP submission. The sampling locations are shown on Figure 2.

The samples were submitted to Alpha Analytical, Inc. of Westborough, Massachusetts (Alpha) for analysis of volatile organic compounds (VOCs), semi volatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH), total metals, polychlorinated biphenyls (PCBs), ammonia, cyanide, total hardness, total chloride, total residual chlorine, total phenols, and total suspended solids, chromium (trivalent and hexavalent), pH, and salinity.

Results of the analyses indicated concentrations of iron exceed the draft site-specific NPDES RGP effluent criteria. The results are provided in Table I, and the laboratory data reports are included in Appendix B.

RECEIVING WATER QUALITY INFORMATION AND DILUTION FACTOR

On 11 November 2019, Haley & Aldrich collected two surface water samples designated SW BROOK NO. 1 and SW BROOK NO. 2 from Sweetwater Brook at the locations shown on Figure 2, in support of this RGP submission. The samples were submitted to Alpha for total metals, ammonia, hardness, and pH. The results of the surface water samples are summarized in Table I and copies of the laboratory data reports are included in Appendix B.

The seven-day-ten-year flow (7Q10) of the receiving water was established using the U.S. Geological Survey (USGS) StreamStats program and confirmed by MassDEP on 16 January 2020. We have additionally confirmed with the MassDEP that the dilution factor for the receiving waters is 2.33 and will be applied to any parameter for which the receiving water is not impaired. Pollutants that impair the receiving water will be calculated at no dilution. The StreamStats Report, Dilution Factor calculations, and confirmation from MassDEP are included in Appendix C.

AGE OF DATA

The groundwater and receiving water samples were collected in November 2019. The project has been delayed due to local permitting and COVID-19 restrictions. To the knowledge of Haley & Aldrich, no environmental incidents have occurred at the Site that could potentially influence groundwater or surface water quality at the Site since collection of the samples. Therefore, these data are considered representative of current groundwater quality.

EFFLUENT CRITERIA DOCUMENTATION

Groundwater and Receiving Water data were input into the MALimitsBook calculation spreadsheet provided by EPA and used to calculate the effluent criteria for the site. Copies of the "EnterData" and "FreshwaterResults" tabs from the provided excel file are included in Appendix C. The effluent limitations calculated are included for reference in Table I.

DEWATERING SYSTEM AND OFF-SITE DISCHARGE

During demolition and construction activities, it will be necessary to perform temporary dewatering to control surface water runoff from precipitation, groundwater seepage, and construction-generated water to enable excavation and construction in-the-dry. Construction and construction dewatering activities are currently anticipated to be required for a period of over 12 months. On average, we estimate effluent discharge rates of about 50 gallons per minute (gpm) or less, with occasional peak flows of approximately 100 gpm during significant precipitation events. Temporary dewatering will be conducted from sumps located in excavations.

Construction dewatering will include piping and discharging to at least one storm drain or catch basin in the vicinity of the site that discharges into Sweetwater Brook through existing outfalls as shown on Figure 3. An effluent treatment system will be designed by the Contractor to meet the 2017 NPDES RGP Discharge Effluent Criteria. Prior to discharge, collected water will be routed through a fractionation tank and bag filters and other necessary treatment components, to remove suspended solids and undissolved chemical constituents, as shown on Figure 4. A Notice of Change (NOC) will be submitted to EPA if additional treatment components need to be mobilized at the site.

The same outfall locations are proposed for the companion NPDES RGP for the Townhouse Area. It is not expected to discharge from both sites at the same time. However, if offsite dewatering discharge is necessary from both sites concurrently, dewatering effluent will be discharged through different outfalls and tracked separately.

DOCUMENTATION OF NATIONAL HISTORIC PRESERVATION ACT ELIGIBILITY REQUIREMENTS

Based on a review of the resources provided by the U.S. National Register of Historic Places and a review of the Massachusetts Cultural Resource Information System (MACRIS), no historic properties have been established to be present at the project site, and discharges and discharge-related activities are not considered to have the potential to affect historic properties. The discharge is considered to meet Criterion A. Documentation is included in Appendix D.

DETERMINATION OF ENDANGERED SPECIES ACT ELIGIBILITY

According to the guidelines outlined in Appendix I of the 2017 NPDES RGP, a preliminary determination for the action area associated with this project was established using the U.S. Fish and Wildlife Service (FWS) Information for Planning and Consultation (IPaC) online system. One threatened species, the northern long-eared bat, was listed on the IPaC review, but correspondence with the FWS indicated that there were no critical habits in the project area. Based on the results of the IPaC and the correspondence with the FWS, the project and action area are considered to meet the FWS Criterion B as consultation with the FWS under section 7 of the ESA resulted in a no jeopardy opinion. A copy of the IPaC report and the consultation with the FWS is attached in Appendix E.

ETHANOL DISCUSSION

The site history does not suggest that ethanol was stored at the property, or that a petroleum product containing ethanol was released at the site.

BEST MANAGEMENT PRACTICES PLAN

A Best Management Practices Plan (BMPP), which outlines the proposed discharge operations covered under the RGP, will be available at the site.

Owner and Operator Information

Owner:
Montvale Land LLC, c/o Leggat McCall Properties LLC
10 Post Office Square
Boston, MA
Attn: Chad Reynolds

Operator:
Erland Construction, Inc.
71 Third Street
Burlington, MA
Attn: Brian Gately

APPENDICES

The completed "Suggested Notice of Intent" (NO)I form as provided in the RGP is enclosed in Appendix A. The site owner is Montvale Land LLC. Montvale Land LLC has hired Erland Construction, Inc. as the Contractor conducting the site work, including dewatering activities. The excavation subcontractor will operate the dewatering system. Haley & Aldrich is monitoring the Contractor's dewatering activities on behalf of Montvale Land LLC in accordance with the requirements for this NOI submission.

Copies of the groundwater testing laboratory data reports are provided in Appendix B. Calculations to determine the dilution factor and effluent criteria for the site as well as MassDEP confirmation for the dilution factor used is included in Appendix C. Appendices D and E include the National Register of Historic Places and Endangered Species Act Documentation, respectively.

CLOSING

Thank you very much for your consideration. Please feel free to contact us should you wish to discuss the information contained herein or if you need additional information.

Sincerely yours,
HALEY & ALDRICH, INC.

Liza Joyce
Engineer

Kenneth N. Alepidis, P.G. (NH)
Senior Technical Specialist

Elliot I. Steinberg, P.E. (MA), LSP
Senior Associate

Attachments:

Table I – Summary of Groundwater and Receiving Water Quality Data
Figure 1 – Project Locus

Figure 2 – Site and Subsurface Exploration Location Plan
Figure 3 – Proposed Discharge Routes
Figure 4 – Proposed Treatment System Schematic
Appendix A – Notice of Intent (NOI)
Appendix B – Laboratory Data Reports
Appendix C – Dilution Factor and Effluent Limit Calculations and DEP Confirmation
Appendix D – National Register of Historic Places Documentation
Appendix E – Endangered Species Act Documentation

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TABLE

TABLE I
SUMMARY OF GROUNDWATER QUALITY DATA
Former Kraft Atlantic Gelatin Facility - The Vale Redevelopment
WOBURN, MA
FILE NO. 129856

			INFLUENT SAMPLES		RECEIVING WATER SAMPLES	
Location Name	MCP	2017 NPDES	HA16-B3	HA18-B6	SW BROOK NO. 1	SW BROOK NO. 2
Sample Name	Reportable	RGP Project-	HA16-B3_20191113	HA18-B6_20191113	SW BROOK NO. 1-20191111	SW BROOK NO. 2-20191111
Sample Date	Concentration	Specific Effluent	11/13/2019	11/13/2019	11/11/2019	11/11/2019
Lab Sample ID	RCGW-2	Limit	L1954281-01	L1954279-01	L1953746-01	L1953749-01
Volatile Organic Compounds (ug/L)						
1,1,1-Trichloroethane	4000	200	ND (2)	ND (2)	-	-
1,1,2-Trichloroethane	900	5	ND (1.5)	ND (1.5)	-	-
1,1-Dichloroethane	2000	70	ND (1.5)	ND (1.5)	-	-
1,1-Dichloroethene	80	3.2	ND (1)	ND (1)	-	-
1,2-Dibromoethane (Ethylene Dibromide)	2	0.05	ND (0.01)	ND (0.01)	-	-
1,2-Dichlorobenzene	2000	600	ND (5)	ND (5)	-	-
1,2-Dichloroethane	5	5	ND (1.5)	ND (1.5)	-	-
1,3-Dichlorobenzene	6000	320	ND (5)	ND (5)	-	-
1,4-Dichlorobenzene	60	5	ND (5)	ND (5)	-	-
Acetone	50000	7970	ND (10)	ND (10)	-	-
Benzene	1000	5	ND (1)	ND (1)	-	-
Carbon tetrachloride	2	4.4	ND (1)	ND (1)	-	-
cis-1,2-Dichloroethene	20	70	ND (1)	ND (1)	-	-
Ethylbenzene	5000	100**	ND (1)	ND (1)	-	-
m,p-Xylenes	NA	100**	ND (2)	ND (2)	-	-
Methyl Tert Butyl Ether	5000	70	ND (10)	ND (10)	-	-
Methylene chloride	2000	4.6	ND (1)	ND (1)	-	-
o-Xylene	NA	100**	ND (1)	ND (1)	-	-
Tert-Amyl Methyl Ether (TAME)	NA	90	ND (20)	ND (20)	-	-
Tert-Butyl Alcohol (tert-Butanol)	NA	120	ND (100)	ND (100)	-	-
Tetrachloroethene	50	5	ND (1)	ND (1)	-	-
Toluene	40000	100**	ND (1)	ND (1)	-	-
Trichloroethene	5	5	ND (1)	ND (1)	-	-
Vinyl chloride	2	2	ND (1)	ND (1)	-	-
Xylene (total)	3000	100**	ND (1)	ND (1)	-	-
Total BTEX	NA	100	ND	ND	-	-
SUM of VOCs	NA	NA	ND	ND	-	-
Volatile Organic Compounds SIM (ug/L)						
1,4-Dioxane	6000	200	ND (50)	ND (50)	-	-
Semi-Volatile Organic Compounds (ug/L)						
bis(2-Ethylhexyl)phthalate	50000	101	ND (2.2)	ND (2.2)	-	-
Butyl benzylphthalate	10000	NA	ND (5)	ND (5)	-	-
Diethyl phthalate	9000	NA	ND (5)	ND (5)	-	-
Dimethyl phthalate	50000	NA	ND (5)	ND (5)	-	-
Di-n-butylphthalate	5000	NA	ND (5)	ND (5)	-	-
Di-n-octyl phthalate	100000	NA	ND (5)	ND (5)		
Total Phthalates	NA	190	ND	ND	-	-
Semi-Volatile Organic Compounds (SIM) (ug/L)						
Acenaphthene	6000	100*	ND (0.1)	ND (0.1)	-	-
Acenaphthylene	40	100*	ND (0.1)	ND (0.1)	-	-
Anthracene	30	100*	ND (0.1)	ND (0.1)	-	-
Benzo(a)anthracene	1000	1	ND (0.1)	ND (0.1)	-	-
Benzo(a)pyrene	500	1	ND (0.1)	ND (0.1)	-	-
Benzo(b)fluoranthene	400	1	ND (0.1)	ND (0.1)	-	-
Benzo(g,h,i)perylene	20	1	ND (0.1)	ND (0.1)	-	-
Benzo(k)fluoranthene	100	1	ND (0.1)	ND (0.1)	-	-
Chrysene	70	1	ND (0.1)	ND (0.1)	-	-
Dibenz(a,h)anthracene	40	1	ND (0.1)	ND (0.1)	-	-
Fluoranthene	200	100*	ND (0.1)	ND (0.1)	-	-
Fluorene	40	100*	ND (0.1)	ND (0.1)	-	-
Indeno(1,2,3-cd)pyrene	100	1	ND (0.1)	ND (0.1)	-	-
Naphthalene	700	20	ND (0.1)	ND (0.1)	-	-
Pentachlorophenol	200	1	ND (1)	ND (1)	-	-
Phenanthrene	10000	100*	ND (0.1)	ND (0.1)	-	-
Pyrene	20	100*	ND (0.1)	ND (0.1)	-	-
Total Petroleum Hydrocarbons (mg/L)						
Petroleum hydrocarbons	5	5	**ND (5.2)**	**ND (5.2)**	-	-
Total Metals (mg/L)						
Antimony	8	0.206	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)
Arsenic	0.9	0.104	0.00915	ND (0.001)	ND (0.001)	ND (0.001)
Cadmium	0.004	0.0102	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.0002)
Chromium III (Trivalent)	0.6	0.323	ND (0.01)	ND (0.01)	-	-
Chromium VI (Hexavalent)	0.3	0.323	ND (0.01)	ND (0.01)	-	-
Chromium	0.3	0.323	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Copper	100	0.242	ND (0.001)	ND (0.001)	0.00232	0.00223
Cyanide	0.03	178	ND (0.005)	ND (0.005)	-	-
Hardness	NA	NA	410	194	117	120
Iron	NA	1.573	**5.35**	0.38	0.178	0.236
Lead	0.01	0.16	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Mercury	0.02	0.000739	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.0002)
Nickel	0.2	1.45	ND (0.002)	0.00201	ND (0.002)	ND (0.002)
Selenium	0.1	0.2358	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
Silver	0.007	0.0351	ND (0.0004)	ND (0.0004)	ND (0.0004)	ND (0.0004)
Zinc	0.9	0.42	ND (0.01)	ND (0.01)	0.02646	0.01998
PCBs (ug/L)						
Aroclor-1016	5	NA	ND (0.25)	ND (0.25)	-	-
Aroclor-1221	5	NA	ND (0.25)	ND (0.25)	-	-
Aroclor-1232	5	NA	ND (0.25)	ND (0.25)	-	-
Aroclor-1242	5	NA	ND (0.25)	ND (0.25)	-	-
Aroclor-1248	5	NA	ND (0.25)	ND (0.25)	-	-
Aroclor-1254	5	NA	ND (0.25)	ND (0.25)	-	-
Aroclor-1260	5	NA	ND (0.2)	ND (0.2)	-	-
SUM of PCBs	5	0.000064	ND (0.2)	ND (0.2)	-	-
Other						
Total Ammonia (mg/L)	NA	Report	3.68	1.72	ND (0.075)	ND (0.075)
Total Chloride (mg/L)	NA	Report	21.8	65.7	-	-
Total Residual Chlorine (mg/L)	NA	19	ND (0.02)	ND (0.02)	-	-
Total Phenols (mg/L)	NA	1080	ND (0.03)	ND (0.03)	-	-
Total Suspended Solids (TSS) (mg/L)	NA	30	13	ND (5)	-	-
pH (lab)	NA	NA	7.3	6.8	7.6	7.5
Salinity (SU)	NA	NA	ND (2)	ND (2)	-	-

ABBREVIATIONS:
- : Not analyzed
mg/L: milligram per liter
NA: Not Applicable
ND (2.5): Result not detected above reporting limit (shown in parentheses)
ug/L: microgram per liter

NOTES:
1. Volatile and Semi-Volatile Organics Compounds detected in at least one sample are reported herein. For a complete list of analytes see the laboratory data sheets.
2. **Bold** values indicate an exceedance of the MCP GW-2 or NPDES criteria.
3. *: Indicates effluent limit is limited as total Group II PAHs of 100 ug/l
4. **: Indicates effluent limit is limited as total BTEX of 100 ug/l

FIGURES

LEGEND

APPROXIMATE LIMITS OF KRAFT PROPERTY

NOTE

1. IMAGE, DATED 10 MAY 2016, TAKEN ELECTRONICALLY FROM GOOGLE EARTH PRO.

0 600 1200

SCALE IN FEET

HALEY ALDRICH

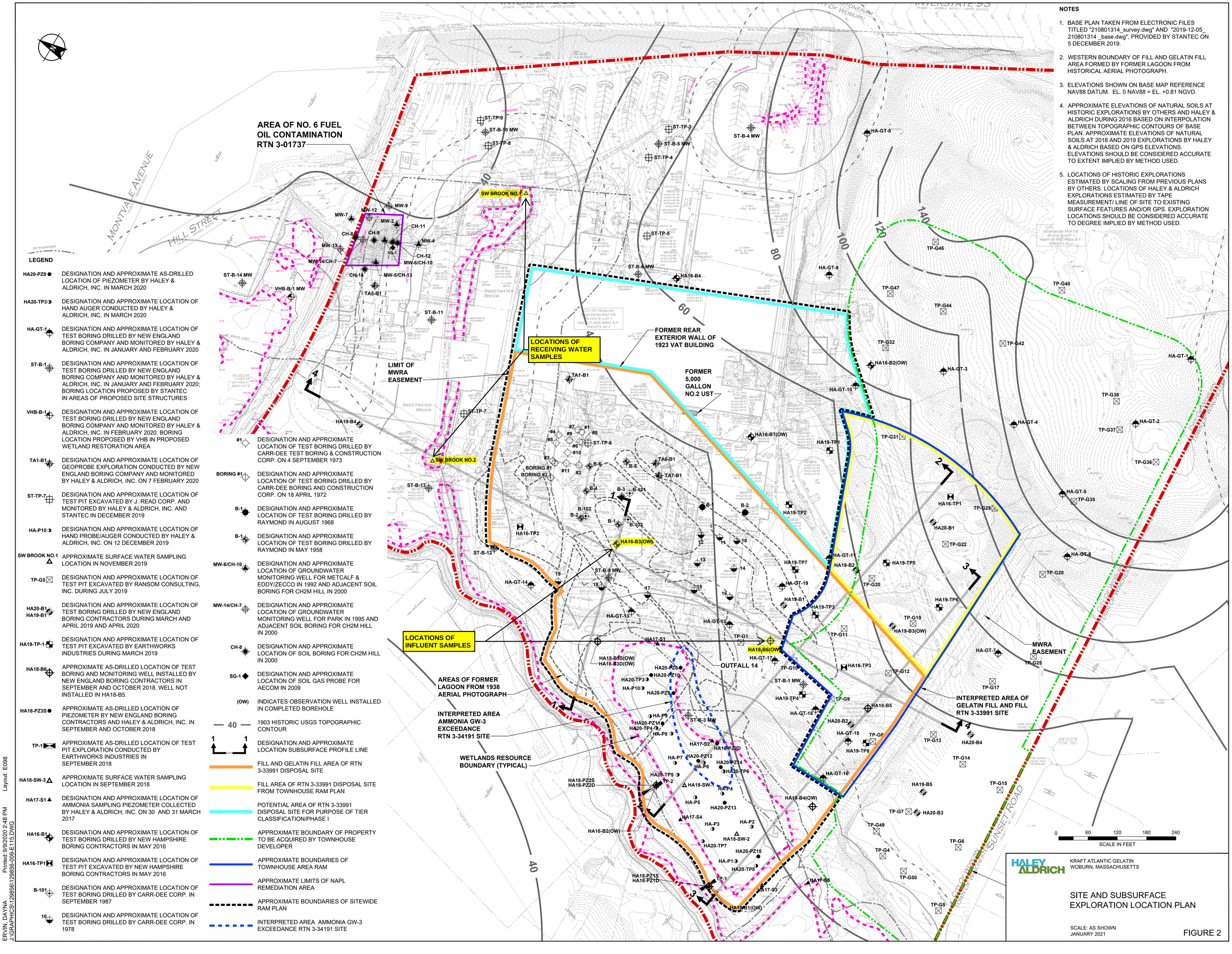
FORMER KRAFT ATLANTIC GELATIN FACILITY
WOBURN, MASSACHUSETTS

SITE LOCUS

SCALE: AS SHOWN
JANUARY 2021

FIGURE 1

ERVIN, DAYNA Printed: 7/9/2020 10:32 AM Layout: B113
J:\GRAPHICS\129856\129856-009-B113.DWG



NOTES

1. BASE PLAN TAKEN FROM ELECTRONIC FILES TITLED "210801314_survey.dwg" AND "2019-12-05_ 210801314 _base.dwg", PROVIDED BY STANTEC ON 5 DECEMBER 2019.
2. WESTERN BOUNDARY OF FILL AND GELATIN FILL AREA FORMED BY FORMER LAGOON FROM HISTORICAL AERIAL PHOTOGRAPH.
3. ELEVATIONS SHOWN ON BASE MAP REFERENCE NAV88 DATUM. EL. 0 NAV88 = EL. +0.81 NGVD.
4. APPROXIMATE ELEVATIONS OF NATURAL SOILS AT HISTORIC EXPLORATIONS BY OTHERS AND HALEY & ALDRICH DURING 2016 BASED ON INTERPOLATION BETWEEN TOPOGRAPHIC CONTOURS OF BASE PLAN. APPROXIMATE ELEVATIONS OF NATURAL SOILS AT 2018 AND 2019 EXPLORATIONS BY HALEY & ALDRICH BASED ON GPS ELEVATIONS. ELEVATIONS SHOULD BE CONSIDERED ACCURATE TO EXTENT IMPLIED BY METHOD USED.
5. LOCATIONS OF HISTORIC EXPLORATIONS ESTIMATED BY SCALING FROM PREVIOUS PLANS BY OTHERS. LOCATIONS OF HALEY & ALDRICH EXPLORATIONS ESTIMATED BY TAPE MEASUREMENT/ LINE OF SITE TO EXISTING SURFACE FEATURES AND/OR GPS. EXPLORATION LOCATIONS SHOULD BE CONSIDERED ACCURATE TO DEGREE IMPLIED BY METHOD USED.

LEGEND

- HA20-PZ8 ● — DESIGNATION AND APPROXIMATE AS-DRILLED LOCATION OF PIEZOMETER BY HALEY & ALDRICH, INC. IN MARCH 2020
- HA20-TP3 ◑ — DESIGNATION AND APPROXIMATE LOCATION OF HAND AUGER CONDUCTED BY HALEY & ALDRICH, INC. IN MARCH 2020
- HA-GT-1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING COMPANY AND MONITORED BY HALEY & ALDRICH, INC. IN JANUARY AND FEBRUARY 2020
- ST-B-1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING COMPANY AND MONITORED BY HALEY & ALDRICH, INC. IN JANUARY AND FEBRUARY 2020; BORING LOCATION PROPOSED BY STANTEC IN AREAS OF PROPOSED SITE STRUCTURES
- VHB-B-1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING COMPANY AND MONITORED BY HALEY & ALDRICH, INC. IN FEBRUARY 2020. BORING LOCATION PROPOSED BY VHB IN PROPOSED WETLAND RESTORATION AREA
- TA1-B1 — DESIGNATION AND APPROXIMATE LOCATION OF GEOPROBE EXPLORATION CONDUCTED BY NEW ENGLAND BORING COMPANY AND MONITORED BY HALEY & ALDRICH, INC. ON 7 FEBRUARY 2020
- ST-TP-7 — DESIGNATION AND APPROXIMATE LOCATION OF TEST PIT EXCAVATED BY J. READ CORP. AND MONITORED BY HALEY & ALDRICH, INC. AND STANTEC IN DECEMBER 2019
- HA-P10 ◑ — DESIGNATION AND APPROXIMATE LOCATION OF HAND PROBE/AUGER CONDUCTED BY HALEY & ALDRICH, INC. ON 12 DECEMBER 2019
- SW BROOK NO.1 △ — APPROXIMATE SURFACE WATER SAMPLING LOCATION IN NOVEMBER 2019
- TP-G5 ☒ — DESIGNATION AND APPROXIMATE LOCATION OF TEST PIT EXCAVATED BY RANSOM CONSULTING, INC. DURING JULY 2019
- HA20-B1 / HA19-B1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS DURING MARCH AND APRIL 2019 AND APRIL 2020
- HA19-TP-1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST PIT EXCAVATED BY EARTHWORKS INDUSTRIES DURING MARCH 2019
- HA18-B6 — APPROXIMATE AS-DRILLED LOCATION OF TEST BORING AND MONITORING WELL INSTALLED BY NEW ENGLAND BORING CONTRACTORS IN SEPTEMBER AND OCTOBER 2018. WELL NOT INSTALLED IN HA18-B5.
- HA18-PZ3S ● — APPROXIMATE AS-DRILLED LOCATION OF PIEZOMETER BY NEW ENGLAND BORING CONTRACTORS AND HALEY & ALDRICH, INC. IN SEPTEMBER AND OCTOBER 2018
- TP-1 — APPROXIMATE AS-DRILLED LOCATION OF TEST PIT EXPLORATION CONDUCTED BY EARTHWORKS INDUSTRIES IN SEPTEMBER 2018
- HA18-SW-3 △ — APPROXIMATE SURFACE WATER SAMPLING LOCATION IN SEPTEMBER 2018
- HA17-S1 ▲ — DESIGNATION AND APPROXIMATE LOCATION OF AMMONIA SAMPLING PIEZOMETER COLLECTED BY HALEY & ALDRICH, INC. ON 30 AND 31 MARCH 2017
- HA16-B1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW HAMPSHIRE BORING CONTRACTORS IN MAY 2016
- HA16-TP1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST PIT EXCAVATED BY NEW HAMPSHIRE BORING CONTRACTORS IN MAY 2016
- B-101 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY CARR-DEE CORP. IN SEPTEMBER 1987
- 10 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY CARR-DEE CORP. IN 1978
- #1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY CARR-DEE TEST BORING & CONSTRUCTION CORP. ON 4 SEPTEMBER 1973
- BORING #1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY CARR-DEE BORING AND CONSTRUCTION CORP. ON 18 APRIL 1972
- B-1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY RAYMOND IN AUGUST 1968
- B-1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY RAYMOND IN MAY 1958
- MW-6/CH-10 — DESIGNATION AND APPROXIMATE LOCATION OF GROUNDWATER MONITORING WELL FOR METCALF & EDDY/ZECCO IN 1992 AND ADJACENT SOIL BORING FOR CH2M HILL IN 2000
- MW-14/CH-7 — DESIGNATION AND APPROXIMATE LOCATION OF GROUNDWATER MONITORING WELL FOR PARK IN 1995 AND ADJACENT SOIL BORING FOR CH2M HILL IN 2000
- CH-8 — DESIGNATION AND APPROXIMATE LOCATION OF SOIL BORING FOR CH2M HILL IN 2000
- SG-1 ◆ — DESIGNATION AND APPROXIMATE LOCATION OF SOIL GAS PROBE FOR AECOM IN 2009
- (OW) — INDICATES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE
- 40 — 1903 HISTORIC USGS TOPOGRAPHIC CONTOUR
- 1 — 1 — DESIGNATION AND APPROXIMATE LOCATION SUBSURFACE PROFILE LINE
- FILL AND GELATIN FILL AREA OF RTN 3-33991 DISPOSAL SITE
- FILL AREA OF RTN 3-33991 DISPOSAL SITE FROM TOWNHOUSE RAM PLAN
- POTENTIAL AREA OF RTN 3-33991 DISPOSAL SITE FOR PURPOSE OF TIER CLASSIFICATION/PHASE I
- APPROXIMATE BOUNDARY OF PROPERTY TO BE ACQUIRED BY TOWNHOUSE DEVELOPER
- APPROXIMATE BOUNDARIES OF TOWNHOUSE AREA RAM
- APPROXIMATE LIMITS OF NAPL REMEDIATION AREA
- APPROXIMATE BOUNDARIES OF SITEWIDE RAM PLAN
- INTERPRETED AREA AMMONIA GW-3 EXCEEDANCE RTN 3-34191 SITE

HALEY ALDRICH

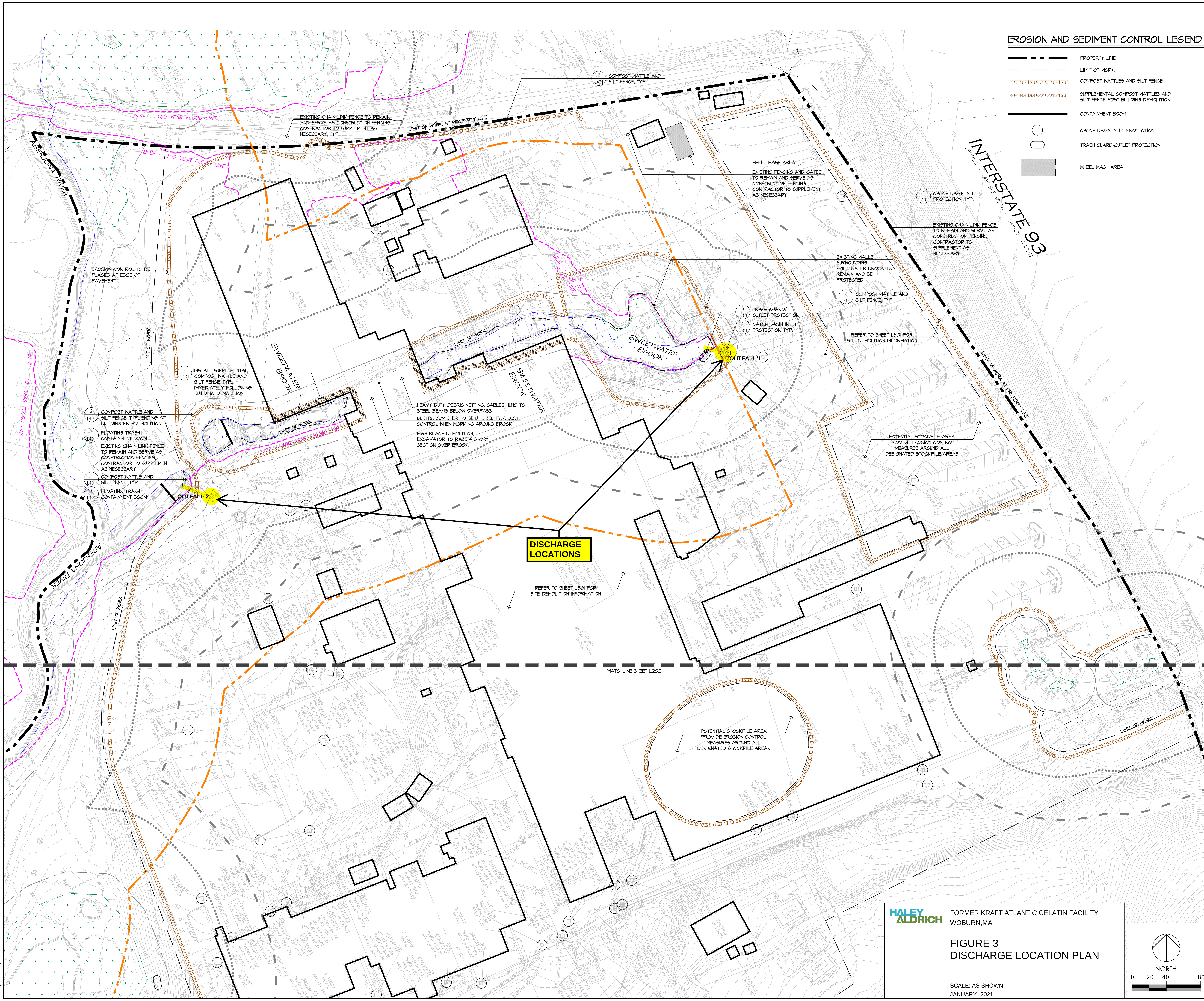
KRAFT ATLANTIC GELATIN
WOBURN, MASSACHUSETTS

SITE AND SUBSURFACE EXPLORATION LOCATION PLAN

SCALE: AS SHOWN
JANUARY 2021

FIGURE 2

ERVIN, DAYNA
J:\GRAPHICS\129856\129856-009-E116.DWG
Printed: 9/9/2020 2:48 PM
Layout: E098



EROSION AND SEDIMENT CONTROL LEGEND
PROPERTY LINE
LIMIT OF WORK
COMPOST WATTLES AND SILT FENCE
SUPPLEMENTAL COMPOST WATTLES AND SILT FENCE POST BUILDING DEMOLITION
CONTAINMENT BOOM
CATCH BASIN INLET PROTECTION
TRASH GUARD/OUTLET PROTECTION
WHEEL WASH AREA
INTERSTATE 93
ABERJONA RIVER
SWEETWATER BROOK
OUTFALL 1
OUTFALL 2
DISCHARGE LOCATIONS
COMPOST WATTLE AND SILT FENCE, TYP.
EXISTING CHAIN LINK FENCE TO REMAIN AND SERVE AS CONSTRUCTION FENCING; CONTRACTOR TO SUPPLEMENT AS NECESSARY, TYP.
LIMIT OF WORK AT PROPERTY LINE
WHEEL WASH AREA
EXISTING FENCING AND GATES TO REMAIN AND SERVE AS CONSTRUCTION FENCING; CONTRACTOR TO SUPPLEMENT AS NECESSARY
CATCH BASIN INLET PROTECTION, TYP.
EXISTING CHAIN LINK FENCE TO REMAIN AND SERVE AS CONSTRUCTION FENCING; CONTRACTOR TO SUPPLEMENT AS NECESSARY
EXISTING WALLS SURROUNDING SWEETWATER BROOK TO REMAIN AND BE PROTECTED
TRASH GUARD/ OUTLET PROTECTION
CATCH BASIN INLET PROTECTION, TYP.
REFER TO SHEET L501 FOR SITE DEMOLITION INFORMATION
EROSION CONTROL TO BE PLACED AT EDGE OF PAVEMENT
INSTALL SUPPLEMENTAL COMPOST WATTLE AND SILT FENCE, TYP.; IMMEDIATELY FOLLOWING BUILDING DEMOLITION
COMPOST WATTLE AND SILT FENCE, TYP.; ENDING AT BUILDING PRE-DEMOLITION
FLOATING TRASH CONTAINMENT BOOM
EXISTING CHAIN LINK FENCE TO REMAIN AND SERVE AS CONSTRUCTION FENCING; CONTRACTOR TO SUPPLEMENT AS NECESSARY
HEAVY DUTY DEBRIS NETTING CABLES HUNG TO STEEL BEAMS BELOW OVERPASS
DUSTBOSS/MISTER TO BE UTILIZED FOR DUST CONTROL WHEN WORKING AROUND BROOK
HIGH REACH DEMOLITION EXCAVATOR TO RAZE 4 STORY SECTION OVER BROOK
POTENTIAL STOCKPILE AREA PROVIDE EROSION CONTROL MEASURES AROUND ALL DESIGNATED STOCKPILE AREAS
LIMIT OF WORK
100 YEAR FLOOD LINE
MATCHLINE SHEET L202
NORTH
0 20 40 80

HALEY ALDRICH

FORMER KRAFT ATLANTIC GELATIN FACILITY
WOBURN,MA

FIGURE 3
DISCHARGE LOCATION PLAN

SCALE: AS SHOWN
JANUARY 2021

Stantec

Stantec Planning and Landscape Architecture P.C.
226 Causeway St.
Boston MA 02114 U.S.A.
Tel. 617.523.8103
Fax. 617.523.4333
www.stantec.com

Consultants

Legend

Key Plan

NOT FOR CONSTRUCTION

CONSERVATION COMMISSION	XL	DS	12.19.19
PRICING SET	EB	GR	09.20.19
Issued	By	Appd.	MM.DD.YY

File Name: | Dwn. | Chkd. | Dsgn. | MM.DD.YY

Permit-Seal

Client/Project

THE VALE
SITE DEMOLITION

HILL STREET
WOBURN, MA

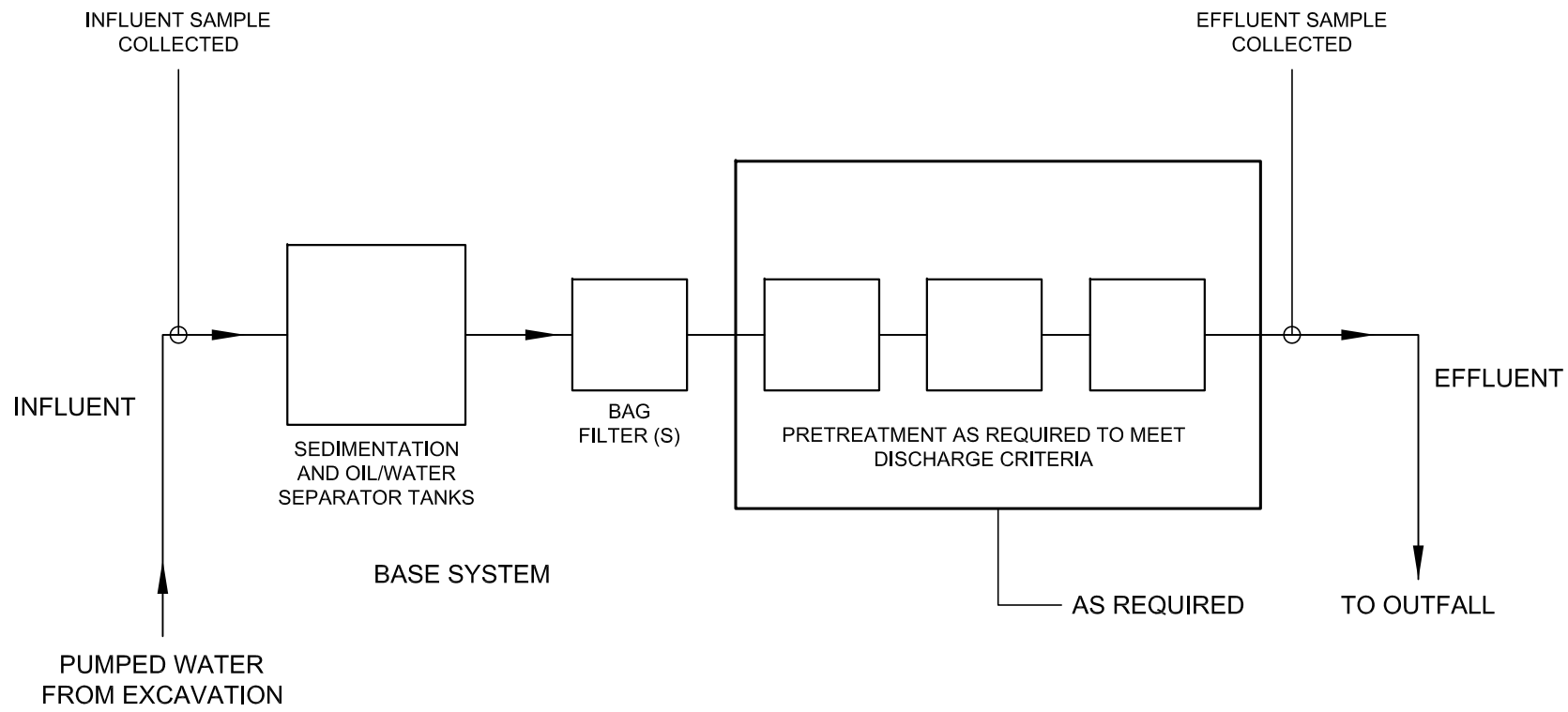
Title

EROSION AND SEDIMENT CONTROL PLAN - SHEET 1

Project No. 210801314
Scale AS NOTED

Drawing No.
L201

G:\38625\NPDES\FIGURES\COPY-A142.DWG



LEGEND:

→ DIRECTION OF FLOW

NOTE:

1. DETAILS OF TREATMENT SYSTEM MAY VARY FROM SYSTEM INDICATED ABOVE. SPECIFIC MEANS AND METHODS OF TREATMENT TO BE SELECTED BY CONTRACTOR. WATER WILL BE TREATED TO MEET REQUIRED EFFLUENT STANDARDS.

HALEY ALDRICH

KRAFT ATLANTIC GELATIN
WOBURN, MASSACHUSETTS

PROPOSED TREATMENT SYSTEM SCHEMATIC

SCALE: NONE
JANUARY 2021

FIGURE 4

APPENDIX A

Notice of Intent

II. Suggested Format for the Remediation General Permit Notice of Intent (NOI)

A. General site information:

<table>
<tr><td rowspan="2">1. Name of site:
Former Kraft Atlantic Gelatin Facility</td><td colspan="3">Site address: 6 Hill Street
Street:</td></tr>
<tr><td>City: Woburn</td><td>State: MA</td><td>Zip: 01801</td></tr>
<tr><td rowspan="4">2. Site owner
Montvale Land LLC, c/o Leggat McCall Properties LLC

Owner is (check one): ☐ Federal ☐ State/Tribal ■ Private
☐ Other; if so, specify:</td><td colspan="3">Contact Person: Chad Reynolds</td></tr>
<tr><td colspan="2">Telephone: 617-875-6892</td><td>Email: Chad.Reynolds@lmp.com</td></tr>
<tr><td colspan="3">Mailing address: 10 Post Office Square
Street:</td></tr>
<tr><td>City: Boston</td><td>State: MA</td><td>Zip: 02109</td></tr>
<tr><td rowspan="4">3. Site operator, if different than owner
Erland Construction, Inc.</td><td colspan="3">Contact Person: Brian Gately</td></tr>
<tr><td colspan="2">Telephone: 781-272-9440</td><td>Email: BGately@erland.com</td></tr>
<tr><td colspan="3">Mailing address:
Street: 71 Third Avenue</td></tr>
<tr><td>City: Burlington</td><td>State: MA</td><td>Zip: 01803</td></tr>
<tr><td>4. NPDES permit number assigned by EPA:
NOT APPLICABLE

NPDES permit is (check all that apply: ■ RGP ☐ DGP ☐ CGP
☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:</td><td colspan="3">5. Other regulatory program(s) that apply to the site (check all that apply):
■ MA Chapter 21e; list RTN(s):
3-33991, 3-34191
☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:
☐ CERCLA
☐ UIC Program
☐ POTW Pretreatment
☐ CWA Section 404</td></tr>
</table>

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Sweetwater Brook	MA71-01	Class B

Receiving water is (check any that apply): ☐ Outstanding Resource Water ☐ Ocean Sanctuary ☐ territorial sea ☐ Wild and Scenic River

2. Has the operator attached a location map in accordance with the instructions in B, above? (check one): ■ Yes ☐ No

Are sensitive receptors present near the site? (check one): ☐ Yes ☐ No
If yes, specify:

3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP. Yes, Impairment - physical substrate habitat alterations. Indicated pollutants - ammonia (un-ionized), arsenic, benthic macroinvertebrates, dissolved oxygen, escherichia coli, phosphorus, sediment bioassay

4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.	0.167 cfs
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.	2.33

6. Has the operator received confirmation from the appropriate State for the 7Q10and dilution factor indicated? (check one): ■ Yes ☐ No
If yes, indicate date confirmation received: 1/16/2020

7. Has the operator attached a summary of receiving water sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No

C. Source water information:

1. Source water(s) is (check any that apply):

■ Contaminated groundwater Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ■ Yes ☐ No	☐ Contaminated surface water Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ☐ Yes ☐ No	☐ The receiving water ☐ A surface water other than the receiving water; if so, indicate waterbody:	☐ Potable water; if so, indicate municipality or origin: ☐ Other; if so, specify:

2. Source water contaminants: iron	
a. For source waters that are contaminated groundwater or contaminated surface water, indicate are any contaminants present that are not included in the RGP? (check one): ☐ Yes ■ No If yes, indicate the contaminant(s) and the maximum concentration present in accordance with the instructions in Appendix VIII.	b. For a source water that is a surface water other than the receiving water, potable water or other, indicate any contaminants present at the maximum concentration in accordance with the instructions in Appendix VIII? (check one): ☐ Yes ☐ No
3. Has the source water been previously chlorinated or otherwise contains residual chlorine? (check one): ☐ Yes ■ No	

D. Discharge information

1.The discharge(s) is a(n) (check any that apply): ☐ Existing discharge ■ New discharge ☐ New source	
Outfall(s): Outfall 1 Outfall 2 See Figure 3 on the attached Haley & Aldrich application letter.	Outfall location(s): (Latitude, Longitude) 42.477637, -71.115083 42.477248, -71.117310
Discharges enter the receiving water(s) via (check any that apply): ■ Direct discharge to the receiving water ☐ Indirect discharge, if so, specify: ■ A private storm sewer system ☐ A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): ■ Yes ☐ No Has the operator has received permission from the owner to use such system for discharges? (check one): ■ Yes ☐ No, if so, explain, with an estimated timeframe for obtaining permission: Has the operator attached a summary of any additional requirements the owner of this system has specified? (check one): ☐ Yes ☐ No	
Provide the expected start and end dates of discharge(s) (month/year): October 2020-November 2022 Indicate if the discharge is expected to occur over a duration of: ☐ less than 12 months ■ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ■ Yes ☐ No	

<table>
<tr><td>2. Activity Category: (check all that apply)</td><td colspan="2">3. Contamination Type Category: (check all that apply)</td></tr>
<tr><td rowspan="5">☐ I – Petroleum-Related Site Remediation
☐ II – Non-Petroleum-Related Site Remediation
■ III – Contaminated Site Dewatering
☐ IV – Dewatering of Pipelines and Tanks
☐ V – Aquifer Pump Testing
☐ VI – Well Development/Rehabilitation
☐ VII – Collection Structure Dewatering/Remediation
☐ VIII – Dredge-Related Dewatering</td><td colspan="2">a. If Activity Category I or II: (check all that apply)

☐ A. Inorganics
☐ B. Non-Halogenated Volatile Organic Compounds
☐ C. Halogenated Volatile Organic Compounds
☐ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
☐ F. Fuels Parameters</td></tr>
<tr><td colspan="2">b. If Activity Category III, IV, V, VI, VII or VIII: (check either G or H)</td></tr>
<tr><td>■ G. Sites with Known Contamination</td><td>☐ H. Sites with Unknown Contamination</td></tr>
<tr><td>c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply)

■ A. Inorganics
☐ B. Non-Halogenated Volatile Organic Compounds
☐ C. Halogenated Volatile Organic Compounds
☐ D. Non-Halogenated Semi-Volatile Organic Compounds
☐ E. Halogenated Semi-Volatile Organic Compounds
☐ F. Fuels Parameters</td><td>d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply</td></tr>
</table>

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
A. Inorganics									
Ammonia		✔	2	121,4500N	75	3680	4540	Report mg/L	---
Chloride		✔	2	44,300.0	500	65700	43750	Report µg/l	---
Total Residual Chlorine	✔		2	121,4500C	20	<20	<20	0.2 mg/L	19 ug/L
Total Suspended Solids		✔	2	121,2540D	5000	13000	6500	30 mg/L	---
Antimony	✔		2	3,200.8	4	<4	<4	206 µg/L	1120 ug/L
Arsenic		✔	2	3,200.8	1	9.15	4.575	104 µg/L	18 ug/L
Cadmium	✔		2	3,200.8	0.2	<0.2	<0.2	10.2 µg/L	1.0309 ug/L
Chromium III	✔		2	NA	10	<10	<10	323 µg/L	356.3 ug/L
Chromium VI	✔		2	1,7196A	10	<10	<10	323 µg/L	20.2 ug/L
Copper	✔		2	3,200.8	1	<1	<1	242 µg/L	38.3 ug/L
Iron		✔	2	19,200.7	50	5350	2865	5,000 µg/L	1573 ug/L
Lead	✔		2	3,200.8	1	<1	<1	160 µg/L	21.19 ug/L
Mercury	✔		2	3,245.1	0.2	<0.2	<0.2	0.739 µg/L	1.59 ug/L
Nickel		✔	2	3,200.8	2	2.01	1.005	1,450 µg/L	221.9 ug/L
Selenium	✔		2	3,200.8	5	<5	<5	235.8 µg/L	8.8 ug/L
Silver	✔		2	3,200.8	0.4	<0.4	<0.4	35.1 µg/L	40.3 ug/L
Zinc	✔		2	3,200.8	10	<10	<10	420 µg/L	490.5 ug/L
Cyanide	✔		2	121,4500C	5	<5	<5	178 mg/L	9.1 ug/L
B. Non-Halogenated VOCs									
Total BTEX	✔		2	128,624.1	1	<1	<1	100 µg/L	---
Benzene	✔		2	128,624.1	1	<1	<1	5.0 µg/L	---
1,4 Dioxane	✔		2	128,624.1-	50	<50	<50	200 µg/L	---
Acetone	✔		2	128,624.1	10	<10	<10	7.97 mg/L	---
Phenol	✔		2	4,420.1	30	<30	<30	1,080 µg/L	525 ug/L

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride	✔		2	128,624.1	1	<1	<1	4.4 µg/L	2.8 ug/L
1,2 Dichlorobenzene	✔		2	128,624.1	5	<5	<5	600 µg/L	---
1,3 Dichlorobenzene	✔		2	128,624.1	5	<5	<5	320 µg/L	---
1,4 Dichlorobenzene	✔		2	128,624.1	5	<5	<5	5.0 µg/L	---
Total dichlorobenzene	✔		2	NA	5	<5	<5	763 µg/L in NH	---
1,1 Dichloroethane	✔		2	128,624.1	1.5	<1.5	<1.5	70 µg/L	---
1,2 Dichloroethane	✔		2	128,624.1	1.5	<1.5	<1.5	5.0 µg/L	---
1,1 Dichloroethylene	✔		2	128,624.1	1	<1	<1	3.2 µg/L	---
Ethylene Dibromide	✔		2	14,504.1	10	<10	<10	0.05 µg/L	---
Methylene Chloride	✔		2	128,624.1	1	<1	<1	4.6 µg/L	---
1,1,1 Trichloroethane	✔		2	128,624.1	2	<2	<2	200 µg/L	---
1,1,2 Trichloroethane	✔		2	128,624.1	1.5	<1.5	<1.5	5.0 µg/L	---
Trichloroethylene	✔		2	128,624.1	1	<1	<1	5.0 µg/L	---
Tetrachloroethylene	✔		2	128,624.1	1	<1	<1	5.0 µg/L	5.8 ug/L
cis-1,2 Dichloroethylene	✔		2	128,624.1	1	<1	<1	70 µg/L	---
Vinyl Chloride	✔		2	128,624.1	1	<1	<1	2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates	✔		2	129,625.1	5	<5	<5	190 µg/L	NA
Diethylhexyl phthalate	✔		2	129,625.1	2.2	<2.2	<2.2	101 µg/L	3.9 ug/L
Total Group I PAHs	✔		2	129,625.1-	0.1	<0.1	<0.1	1.0 µg/L	---
Benzo(a)anthracene	✔		2	129,625.1-	0.1	<0.1	<0.1	As Total PAHs	0.0067 ug/L
Benzo(a)pyrene	✔		2	129,625.1-	0.1	<0.1	<0.1		0.0067 ug/L
Benzo(b)fluoranthene	✔		2	129,625.1-	0.1	<0.1	<0.1		0.0067 ug/L
Benzo(k)fluoranthene	✔		2	129,625.1-	0.1	<0.1	<0.1		0.0067 ug/L
Chrysene	✔		2	129,625.1-	0.1	<0.1	<0.1		0.0067 ug/L
Dibenzo(a,h)anthracene	✔		2	129,625.1-	0.1	<0.1	<0.1		0.0067 ug/L
Indeno(1,2,3-cd)pyrene	✔		2	129,625.1-	0.1	<0.1	<0.1		0.0067 ug/L

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
Total Group II PAHs	✔		2	129,625.1-	NA	<0.1	<0.1	100 µg/L	---
Naphthalene	✔		2	129,625.1-	0.1	<0.1	<0.1	20 µg/L	---
E. Halogenated SVOCs									
Total PCBs	✔		2	127,608.3	2	<2	<2	0.000064 µg/L	---
Pentachlorophenol	✔		2	129,625.1-	1	<1	<1	1.0 µg/L	---
F. Fuels Parameters									
Total Petroleum Hydrocarbons	✔		2	74,1664A	5200	<5200	<5200	5.0 mg/L	---
Ethanol	✔		0	NA	NA	NA	NA	Report mg/L	---
Methyl-tert-Butyl Ether	✔		2	128,624.1	10	<10	<10	70 µg/L	35 µg/L
tert-Butyl Alcohol	✔		2	128,624.1	100	<100	<100	120 µg/L in MA 40 µg/L in NH	---
tert-Amyl Methyl Ether	✔		2	128,624.1	20	<20	<20	90 µg/L in MA 140 µg/L in NH	---
Other (i.e., pH, temperature, hardness, salinity, LC_{50}, additional pollutants present); if so, specify:									
Total Hardness		✔	2	19,200.7	660	410000	302000		
pH		✔	2	44,300.0	NA	7.3	7.45		

Additional Compounds detected in soil:

VOCs:
1,2,4-Trimethylbenzene
1,2-Dichlorobenzene
1,3,5-Trimethylbenzene
1,4-Dichlorobenzene
2-Butanone (Methyl Ethyl Ketone)
Acetone
Benzene
Carbon disulfide
Chlorobenzene
cis-1,2-Dichloroethene
Cymene (p-Isopropyltoluene)
Ethylbenzene
Naphthalene
n-Butylbenzene
n-Propylbenzene
Toluene
Trichloroethene
Xylene (total)

SVOCs:
1,4-Dichlorobenzene
2-Methylnaphthalene
3-Methylphenol
Acenaphthene
Acenaphthylene
Anthracene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(g,h,i)perylene
Benzo(k)fluoranthene
Chrysene
Dibenz(a,h)anthracene
Dibenzofuran
Fluoranthene
Fluorene
Indeno(1,2,3-cd)pyrene
Naphthalene
Phenanthrene
Phenol
Pyrene

Metals:
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Lead
Mercury
Nickel
Selenium
Silver
Vanadium
Zinc

Other:
Total Petroleum Hydrocarbons
Conductivity

E. Treatment system information

1. Indicate the type(s) of treatment that will be applied to effluent prior to discharge: (check all that apply)

☐ Adsorption/Absorption ☐ Advanced Oxidation Processes ☐ Air Stripping ☐ Granulated Activated Carbon ("GAC")/Liquid Phase Carbon Adsorption
☐ Ion Exchange ☐ Precipitation/Coagulation/Flocculation ☐ Separation/Filtration ■ Other; if so, specify:
sedimentation and fractionation tank and bag filters

The following will be applied IF REQUIRED per effluent monitoring sampling:

2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge.
See attached Haley & Aldrich application letter. Prior to discharge, collected water will be routed through a fractionation tank and bag filters and other necessary treatment components (potentially ion exchange, GAC, oil/water separator), to remove suspended solids and undissolved chemical constituents, as shown on Figure 4 of the permit application.

Identify each major treatment component (check any that apply):
■ Fractionation tanks☐ Equalization tank ■ Oil/water separator ☐ Mechanical filter ☐ Media filter
☐ Chemical feed tank ☐ Air stripping unit ■ Bag filter ☐ Other; if so, specify:

Indicate if either of the following will occur (check any that apply):
☐ Chlorination ☐ De-chlorination

3. Provide the **design flow capacity** in gallons per minute (gpm) of the most limiting component. Indicate the most limiting component: 100 gpm Is use of a flow meter feasible? (check one): ■ Yes ☐ No, if so, provide justification:	
Provide the proposed maximum effluent flow in gpm.	100
Provide the average effluent flow in gpm.	50
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	

4. Has the operator attached a schematic of flow in accordance with the instructions in E, above? (check one): ■ Yes ☐ No

F. Chemical and additive information

1. Indicate the type(s) of chemical or additive that will be applied to effluent prior to discharge or that may otherwise be present in the discharge(s): (check all that apply)

☐ Algaecides/biocides ☐ Antifoams ☐ Coagulants ☐ Corrosion/scale inhibitors ☐ Disinfectants ☐ Flocculants ☐ Neutralizing agents ☐ Oxidants ☐ Oxygen ☐ scavengers ☐ pH conditioners ☐ Bioremedial agents, including microbes ☐ Chlorine or chemicals containing chlorine ☐ Other; if so, specify:

2. Provide the following information for each chemical/additive, using attachments, if necessary:

Not Applicable

a. Product name, chemical formula, and manufacturer of the chemical/additive;
b. Purpose or use of the chemical/additive or remedial agent;
c. Material Safety Data Sheet (MSDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive;
d. The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the chemical/additive;
e. Any material compatibility risks for storage and/or use including the control measures used to minimize such risks; and
f. If available, the vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)).

3. Has the operator attached an explanation which demonstrates that the addition of such chemicals/additives may be authorized under this general permit in accordance with the instructions in F, above? (check one): ☐ Yes ☐ No; if no, has the operator attached data that demonstrates each of the 126 priority pollutants in CWA Section 307(a) and 40 CFR Part 423.15(j)(1) are non-detect in discharges with the addition of the proposed chemical/additive?
(check one): ☐ Yes ☐ No

G. Endangered Species Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

☐ **FWS Criterion A**: No endangered or threatened species or critical habitat are in proximity to the discharges or related activities or come in contact with the "action area".

■ **FWS Criterion B**: Formal or informal consultation with the FWS under section 7 of the ESA resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by FWS on a finding that the discharges and related activities are "not likely to adversely affect" listed species or critical habitat (informal consultation). Has the operator completed consultation with FWS? (check one): ■ Yes ☐ No; if no, is consultation underway? (check one): ☐ Yes ☐ No

☐ **FWS Criterion C**: Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the operator and affirmed by EPA, that the discharges and related activities will have "no effect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the FWS. This determination was made by: (check one) ☐ the operator ☐ EPA ☐ Other; if so, specify:

☐ **NMFS Criterion**: A determination made by EPA is affirmed by the operator that the discharges and related activities will have "no effect" or are "not likely to adversely affect" any federally threatened or endangered listed species or critical habitat under the jurisdiction of NMFS and will not result in any take of listed species. Has the operator previously completed consultation with NMFS? (check one): ☐ Yes ☐ No

2. Has the operator attached supporting documentation of ESA eligibility in accordance with the instructions in Appendix I, and G, above? (check one): ■ Yes ☐ No

See attached Haley & Aldrich report

Does the supporting documentation include any written concurrence or finding provided by the Services? (check one): ☐ Yes ■ No; if yes, attach.

H. National Historic Preservation Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

■ **Criterion A**: No historic properties are present. The discharges and discharge-related activities (e.g., BMPs) do not have the potential to cause effects on historic properties.

☐ **Criterion B**: Historic properties are present. Discharges and discharge related activities do not have the potential to cause effects on historic properties.

☐ **Criterion C**: Historic properties are present. The discharges and discharge-related activities have the potential to have an effect or will have an adverse effect on historic properties.

2. Has the operator attached supporting documentation of NHPA eligibility in accordance with the instructions in H, above? (check one): ■ Yes ☐ No

See attached Haley & Aldrich report

Does the supporting documentation include any written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the operator will carry out to mitigate or prevent any adverse effects on historic properties? (check one): ☐ Yes ☐ No

I. Supplemental information

Describe any supplemental information being provided with the NOI. Include attachments if required or otherwise necessary.

See attached Haley & Aldrich application letter

Has the operator attached data, including any laboratory case narrative and chain of custody used to support the application? (check one): ■ Yes ☐ No

Has the operator attached the certification requirement for the Best Management Practices Plan (BMPP)? (check one): ■ Yes ☐ No

J. Certification requirement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

BMPP certification statement: A BMPP meeting the requirements of this general permit will be implemented upon initiation of discharge

Notification provided to the appropriate State, including a copy of this NOI, if required.	Check one: Yes ☐ No ■ Not Required
Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐
Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.	Check one: Yes ■ No ☐ NA ☐
Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission.	Check one: Yes ■ No ☐ NA ☐
Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:	Check one: Yes ☐ No ☐ NA ■

Signature: Stephen A. Craft Date: 10/21/20

Print Name and Title: Steve Craft, Project Executive - Erland Construction, Inc.

APPENDIX B

Laboratory Data Reports

ANALYTICAL REPORT

Lab Number:	L1953746
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Lee Vanzler
Phone:	(617) 886-7561
Project Name:	FORMER KRAFT
Project Number:	129856-009
Report Date:	11/15/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1953746
Report Date: 11/15/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1953746-01	SW BROOK NO. 1	WATER	WOBURN, MA	11/11/19 14:25	11/11/19

Project Name:	FORMER KRAFT	**Lab Number:**	L1953746
Project Number:	129856-009	**Report Date:**	11/15/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1953746
Report Date: 11/15/19

Case Narrative (continued)

Total Metals

The WG1308926-1 Method Blank, associated with L1953746-01 (SW BROOK NO. 1), has a concentration above the reporting limit for nickel. Since the sample was non-detect to the RL for this target analyte, no further actions were taken. The results of the original analysis are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 11/15/19

METALS

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1953746
Report Date: 11/15/19

SAMPLE RESULTS

Lab ID: L1953746-01
Client ID: SW BROOK NO. 1
Sample Location: WOBURN, MA
Sample Depth:
Matrix: Water

Date Collected: 11/11/19 14:25
Date Received: 11/11/19
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	11/14/19 17:36	11/15/19 00:23	EPA 3005A	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	11/14/19 17:36	11/15/19 00:23	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	11/14/19 17:36	11/15/19 00:23	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	11/14/19 17:36	11/15/19 00:23	EPA 3005A	3,200.8	AM
Copper, Total	0.00232		mg/l	0.00100	--	1	11/14/19 17:36	11/15/19 00:23	EPA 3005A	3,200.8	AM
Iron, Total	0.178		mg/l	0.050	--	1	11/14/19 17:36	11/15/19 00:51	EPA 3005A	19,200.7	MC
Lead, Total	ND		mg/l	0.00100	--	1	11/14/19 17:36	11/15/19 00:23	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	11/14/19 12:02	11/14/19 15:22	EPA 245.1	3,245.1	GD
Nickel, Total	ND		mg/l	0.00200	--	1	11/14/19 17:36	11/15/19 00:23	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	11/14/19 17:36	11/15/19 00:23	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	11/14/19 17:36	11/15/19 00:23	EPA 3005A	3,200.8	AM
Zinc, Total	0.02646		mg/l	0.01000	--	1	11/14/19 17:36	11/15/19 00:23	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	117		mg/l	0.660	NA	1	11/14/19 17:36	11/15/19 00:51	EPA 3005A	19,200.7	MC

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1953746
Report Date: 11/15/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1308771-1										
Mercury, Total	ND		mg/l	0.00020	--	1	11/14/19 12:02	11/14/19 15:18	3,245.1	GD

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1308926-1										
Antimony, Total	ND		mg/l	0.00400	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Nickel, Total	0.00536		mg/l	0.00200	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1308928-1										
Iron, Total	ND		mg/l	0.050	--	1	11/14/19 17:36	11/14/19 21:50	19,200.7	MC

Prep Information

Digestion Method: EPA 3005A

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1953746
Report Date: 11/15/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01 Batch: WG1308928-1										
Hardness	ND		mg/l	0.660	NA	1	11/14/19 17:36	11/14/19 21:50	19,200.7	MC

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1953746

Report Date: 11/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1308771-2								
Mercury, Total	98		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1308926-2								
Antimony, Total	88		-		85-115	-		
Arsenic, Total	94		-		85-115	-		
Cadmium, Total	100		-		85-115	-		
Chromium, Total	100		-		85-115	-		
Copper, Total	99		-		85-115	-		
Lead, Total	103		-		85-115	-		
Nickel, Total	99		-		85-115	-		
Selenium, Total	105		-		85-115	-		
Silver, Total	102		-		85-115	-		
Zinc, Total	105		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1308928-2								
Iron, Total	103		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1308928-2								
Hardness	86		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1953746
Report Date: 11/15/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308771-3 QC Sample: L1953746-01 Client ID: SW BROOK NO. 1												
Mercury, Total	ND	0.005	0.00471	94		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308771-5 QC Sample: L1953749-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00482	96		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308926-3 QC Sample: L1953734-05 Client ID: MS Sample												
Antimony, Total	ND	0.5	0.5225	104		-	-		70-130	-		20
Arsenic, Total	0.00398	0.12	0.1073	86		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.05455	107		-	-		70-130	-		20
Chromium, Total	0.00133	0.2	0.2075	103		-	-		70-130	-		20
Copper, Total	0.00209	0.25	0.2600	103		-	-		70-130	-		20
Lead, Total	0.00302	0.51	0.5388	105		-	-		70-130	-		20
Nickel, Total	0.0117	0.5	0.5310	104		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1495	124		-	-		70-130	-		20
Silver, Total	ND	0.05	0.05442	109		-	-		70-130	-		20
Zinc, Total	0.03225	0.5	0.5863	111		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308928-3 QC Sample: L1953734-05 Client ID: MS Sample												
Iron, Total	0.800	1	1.86	106		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308928-3 QC Sample: L1953734-05 Client ID: MS Sample												
Hardness	82.3	66.2	140	87		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308928-7 QC Sample: L1953734-07 Client ID: MS Sample												
Iron, Total	6.04	1	6.45	**41**	Q	-	-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1953746
Report Date: 11/15/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308928-7 QC Sample: L1953734-07 Client ID: MS Sample									
Hardness	124	66.2	176	79	-	-	75-125	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1953746
Report Date: 11/15/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308771-4 QC Sample: L1953746-01 Client ID: SW BROOK NO. 1						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308771-6 QC Sample: L1953749-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308926-4 QC Sample: L1953734-05 Client ID: DUP Sample						
Arsenic, Total	0.00398	0.00397	mg/l	0		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	0.00133	0.00156	mg/l	16		20
Copper, Total	0.00209	0.00201	mg/l	4		20
Lead, Total	0.00302	0.00310	mg/l	3		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.03225	0.03406	mg/l	5		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308928-4 QC Sample: L1953734-05 Client ID: DUP Sample						
Iron, Total	0.800	0.806	mg/l	1		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308928-4 QC Sample: L1953734-05 Client ID: DUP Sample						
Hardness	82.3	81.9	mg/l	0		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308928-8 QC Sample: L1953734-07 Client ID: DUP Sample						
Iron, Total	6.04	5.31	mg/l	13		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1953746

Report Date: 11/15/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308928-8 QC Sample: L1953734-07 Client ID: DUP Sample					
Hardness	124	121	mg/l	2	20

INORGANICS
&
MISCELLANEOUS

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1953746
Report Date: 11/15/19

SAMPLE RESULTS

Lab ID: L1953746-01
Client ID: SW BROOK NO. 1
Sample Location: WOBURN, MA

Date Collected: 11/11/19 14:25
Date Received: 11/11/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	7.6		SU	-	NA	1	-	11/12/19 10:00	121,4500H+-B	JA
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	11/13/19 08:12	11/13/19 22:43	121,4500NH3-BH	AT

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1953746
Report Date: 11/15/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1307916-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	11/13/19 08:12	11/13/19 22:25	121,4500NH3-BH	AT

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1953746

Report Date: 11/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1307476-1								
pH	99		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1307916-2								
Nitrogen, Ammonia	107		-		80-120	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1953746
Report Date: 11/15/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1307916-4 QC Sample: L1953710-05 Client ID: MS Sample												
Nitrogen, Ammonia	ND	4	3.80	95		-	-		80-120	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1953746

Report Date: 11/15/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1307476-2 QC Sample: L1953238-01 Client ID: DUP Sample						
pH	7.5	7.5	SU	0		5
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1307916-3 QC Sample: L1953710-05 Client ID: DUP Sample						
Nitrogen, Ammonia	ND	0.089	mg/l	NC		20

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1953746
Report Date: 11/15/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1953746-01A	Plastic 60ml unpreserved	A	7	7	4.7	Y	Absent		PH-4500(.01)
L1953746-01B	Plastic 250ml HNO3 preserved	A	<2	<2	4.7	Y	Absent		HOLD-METAL-DISSOLVED(180)
L1953746-01C	Plastic 250ml HNO3 preserved	A	<2	<2	4.7	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),HARDU(180),FE-UI(180),SE-2008T(180),AG-2008T(180),HG-U(28),AS-2008T(180),PB-2008T(180),SB-2008T(180),CR-2008T(180)
L1953746-01D	Plastic 500ml H2SO4 preserved	A	<2	<2	4.7	Y	Absent		NH3-4500(28)

*Values in parentheses indicate holding time in days

Project Name:	FORMER KRAFT	**Lab Number:**	L1953746
Project Number:	129856-009	**Report Date:**	11/15/19

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	FORMER KRAFT	**Lab Number:**	L1953746
Project Number:	129856-009	**Report Date:**	11/15/19

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: Data Usability Report

Project Name:	FORMER KRAFT	**Lab Number:**	L1953746
Project Number:	129856-009	**Report Date:**	11/15/19

REFERENCES

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193
Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers
Brewer, ME 04412 Portsmouth, NH 03801 Mahwah, NJ 07430 Albany, NY 12205
Tonawanda, NY 14150 Holmes, PA 19043

Page 1 of 1

Date Rec'd in Lab: 11/12/19

ALPHA Job #: L1953746

Project Information
- Project Name: Former Kraft
- Project Location: Woburn, MA
- Project #: 129856-009
- (Use Project name as Project #) ☑
- Project Manager: L. Vanzler
- ALPHAQuote #:

Turn-Around Time
- Standard ☑ Due Date:
- (only if pre approved) ☐ # of Days: 5 Day

H&A Information
- H&A Client: Leggat McCall
- H&A Address 465 Medford St, Boston, MA 02129-1400
- H&A Phone: 617-886-7400
- H&A Fax:
- H&A Email: Kalepidis, Lvanzler

Deliverables
- ☑ Email ☐ Fax
- ☐ EQuIS (1 File) ☑ EQuIS (4 File)
- ☐ Other:

Billing Information
- ☑ Same as Client Info
- PO #

Regulatory Requirements (Program/Criteria)
MA NPDES RGP

Note: Select State from menu & identify criteria.

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility: ☐ NJ ☐ NY ☐ Other:

These samples have been previously analyzed by Alpha

Other project specific requirements/comments:

**Field Filtered
PLEASE RUN FOR FULL 2017 RGP SUITE, MINUS ETHANOL
Analyze using the EPA 2017 RGP Approved Testing Methods
Please specify Metals or TAL.

ANALYSIS

Sample Filtration: ☐ Done ☐ Lab to do
Preservation: ☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TSS-2540, TRC-4500	TCN-4500, 504	8260, 8260-SIM for Dioxane	HEXCR-3500, Trivalent Chromium	8270TCL (also including Diethylhexylphthalate),	8270TCL-SIM	Total Metals: Ag, As, Cd, Cr, Cu, Ni, Pb, Sb, Se, Zn, Fe,	CL-300	Ammonia	hardness	TPH-1664, PCB-608, TPHENOL-420	**HOLD DISSOLVED METALS	pH	Salinity	Sample Specific Comments	TOTAL BOTTLES
	HA16-B1-			AQ		X	X	X	X	X	X	X	X	X	X	X	X	X	X	HOLD diss metals sample	
	HA16-B3-			AQ		X	X	X	X	X	X	X	X	X	X	X	X	X	X	HOLD diss metals sample	
53746-01	SW Brook No. 1	11/11/19	1425	AQ	MJD							X		X	X		X	X		HOLD diss metals sample	4
Container Type												P		P	P		P	P			
Preservative												C		D	C		C	A			

4 TOTAL

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, K/E = Zn Ac/NaOH, O = Other

Container Code: P = Plastic, A = Amber Glass, V = Vial, G = Glass, B = Bacteria Cup, C = Cube, O = Other, E = Encore, D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
	11/11/19		11/11/19 16:30
	11/11/19 16:30		AAL 11/11/19 16:30
	11/11/19 1800		11/11/19 1800

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. Alpha Analytical's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement# 2015-18-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.

Document ID: 20455 Rev 1 (1/28/2016)

ANALYTICAL REPORT

Lab Number:	L1953749
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Lee Vanzler
Phone:	(617) 886-7561
Project Name:	FORMER KRAFT
Project Number:	129856-009
Report Date:	11/15/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1953749
Report Date: 11/15/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1953749-01	SW BROOK NO. 2	WATER	WOBURN, MA	11/11/19 14:00	11/11/19

Project Name:	FORMER KRAFT	**Lab Number:**	L1953749
Project Number:	129856-009	**Report Date:**	11/15/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	FORMER KRAFT	**Lab Number:**	L1953749
Project Number:	129856-009	**Report Date:**	11/15/19

Case Narrative (continued)

Total Metals

The WG1308926-1 Method Blank, associated with L1953749-01 (SW BROOK NO. 2), has a concentration above the reporting limit for nickel. Since the sample was non-detect to the RL for this target analyte, no further actions were taken. The results of the original analysis are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 11/15/19

METALS

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1953749
Report Date: 11/15/19

SAMPLE RESULTS

Lab ID: L1953749-01
Client ID: SW BROOK NO. 2
Sample Location: WOBURN, MA
Sample Depth:
Matrix: Water

Date Collected: 11/11/19 14:00
Date Received: 11/11/19
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	11/14/19 17:36	11/15/19 00:27	EPA 3005A	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	11/14/19 17:36	11/15/19 00:27	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	11/14/19 17:36	11/15/19 00:27	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	11/14/19 17:36	11/15/19 00:27	EPA 3005A	3,200.8	AM
Copper, Total	0.00223		mg/l	0.00100	--	1	11/14/19 17:36	11/15/19 00:27	EPA 3005A	3,200.8	AM
Iron, Total	0.236		mg/l	0.050	--	1	11/14/19 17:36	11/15/19 00:56	EPA 3005A	19,200.7	MC
Lead, Total	ND		mg/l	0.00100	--	1	11/14/19 17:36	11/15/19 00:27	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	11/14/19 12:02	11/14/19 15:29	EPA 245.1	3,245.1	GD
Nickel, Total	ND		mg/l	0.00200	--	1	11/14/19 17:36	11/15/19 00:27	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	11/14/19 17:36	11/15/19 00:27	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	11/14/19 17:36	11/15/19 00:27	EPA 3005A	3,200.8	AM
Zinc, Total	0.01998		mg/l	0.01000	--	1	11/14/19 17:36	11/15/19 00:27	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	120		mg/l	0.660	NA	1	11/14/19 17:36	11/15/19 00:56	EPA 3005A	19,200.7	MC

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1953749
Report Date: 11/15/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1308771-1										
Mercury, Total	ND		mg/l	0.00020	--	1	11/14/19 12:02	11/14/19 15:18	3,245.1	GD

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1308926-1										
Antimony, Total	ND		mg/l	0.00400	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Nickel, Total	0.00536		mg/l	0.00200	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	11/14/19 17:36	11/14/19 22:16	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1308928-1										
Iron, Total	ND		mg/l	0.050	--	1	11/14/19 17:36	11/14/19 21:50	19,200.7	MC

Prep Information

Digestion Method: EPA 3005A

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1953749
Report Date: 11/15/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01 Batch: WG1308928-1										
Hardness	ND		mg/l	0.660	NA	1	11/14/19 17:36	11/14/19 21:50	19,200.7	MC

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1953749

Report Date: 11/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1308771-2								
Mercury, Total	98		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1308926-2								
Antimony, Total	88		-		85-115	-		
Arsenic, Total	94		-		85-115	-		
Cadmium, Total	100		-		85-115	-		
Chromium, Total	100		-		85-115	-		
Copper, Total	99		-		85-115	-		
Lead, Total	103		-		85-115	-		
Nickel, Total	99		-		85-115	-		
Selenium, Total	105		-		85-115	-		
Silver, Total	102		-		85-115	-		
Zinc, Total	105		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1308928-2								
Iron, Total	103		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1308928-2								
Hardness	86		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1953749
Report Date: 11/15/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308771-3 QC Sample: L1953746-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00471	94		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308771-5 QC Sample: L1953749-01 Client ID: SW BROOK NO. 2												
Mercury, Total	ND	0.005	0.00482	96		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308926-3 QC Sample: L1953734-05 Client ID: MS Sample												
Antimony, Total	ND	0.5	0.5225	104		-	-		70-130	-		20
Arsenic, Total	0.00398	0.12	0.1073	86		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.05455	107		-	-		70-130	-		20
Chromium, Total	0.00133	0.2	0.2075	103		-	-		70-130	-		20
Copper, Total	0.00209	0.25	0.2600	103		-	-		70-130	-		20
Lead, Total	0.00302	0.51	0.5388	105		-	-		70-130	-		20
Nickel, Total	0.0117	0.5	0.5310	104		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1495	124		-	-		70-130	-		20
Silver, Total	ND	0.05	0.05442	109		-	-		70-130	-		20
Zinc, Total	0.03225	0.5	0.5863	111		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308928-3 QC Sample: L1953734-05 Client ID: MS Sample												
Iron, Total	0.800	1	1.86	106		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308928-3 QC Sample: L1953734-05 Client ID: MS Sample												
Hardness	82.3	66.2	140	87		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308928-7 QC Sample: L1953734-07 Client ID: MS Sample												
Iron, Total	6.04	1	6.45	**41**	Q	-	-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1953749
Report Date: 11/15/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308928-7 QC Sample: L1953734-07 Client ID: MS Sample									
Hardness	124	66.2	176	79	-	-	75-125	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1953749
Report Date: 11/15/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308771-4 QC Sample: L1953746-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308771-6 QC Sample: L1953749-01 Client ID: SW BROOK NO. 2						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308926-4 QC Sample: L1953734-05 Client ID: DUP Sample						
Arsenic, Total	0.00398	0.00397	mg/l	0		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	0.00133	0.00156	mg/l	16		20
Copper, Total	0.00209	0.00201	mg/l	4		20
Lead, Total	0.00302	0.00310	mg/l	3		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.03225	0.03406	mg/l	5		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308928-4 QC Sample: L1953734-05 Client ID: DUP Sample						
Iron, Total	0.800	0.806	mg/l	1		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308928-4 QC Sample: L1953734-05 Client ID: DUP Sample						
Hardness	82.3	81.9	mg/l	0		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308928-8 QC Sample: L1953734-07 Client ID: DUP Sample						
Iron, Total	6.04	5.31	mg/l	13		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1953749

Report Date: 11/15/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1308928-8 QC Sample: L1953734-07 Client ID: DUP Sample					
Hardness	124	121	mg/l	2	20

INORGANICS
&
MISCELLANEOUS

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1953749
Report Date: 11/15/19

SAMPLE RESULTS

Lab ID: L1953749-01
Client ID: SW BROOK NO. 2
Sample Location: WOBURN, MA

Date Collected: 11/11/19 14:00
Date Received: 11/11/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
pH (H)	7.5		SU	-	NA	1	-	11/12/19 10:00	121,4500H+-B	JA
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	11/13/19 08:12	11/13/19 22:44	121,4500NH3-BH	AT

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1953749
Report Date: 11/15/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1307916-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	11/13/19 08:12	11/13/19 22:25	121,4500NH3-BH	AT

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1953749

Report Date: 11/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1307476-1								
pH	99		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1307916-2								
Nitrogen, Ammonia	107		-		80-120	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1953749
Report Date: 11/15/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1307916-4 QC Sample: L1953710-05 Client ID: MS Sample												
Nitrogen, Ammonia	ND	4	3.80	95		-	-		80-120	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1953749

Report Date: 11/15/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1307476-2 QC Sample: L1953238-01 Client ID: DUP Sample						
pH	7.5	7.5	SU	0		5
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1307916-3 QC Sample: L1953710-05 Client ID: DUP Sample						
Nitrogen, Ammonia	ND	0.089	mg/l	NC		20

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1953749
Report Date: 11/15/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1953749-01A	Plastic 60ml unpreserved	A	7	7	2.3	Y	Absent		PH-4500(.01)
L1953749-01B	Plastic 250ml HNO3 preserved	A	<2	<2	2.3	Y	Absent		HOLD-METAL-DISSOLVED(180)
L1953749-01C	Plastic 250ml HNO3 preserved	A	<2	<2	2.3	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),HARDU(180),FE-UI(180),CU-2008T(180),SE-2008T(180),AS-2008T(180),HG-U(28),AG-2008T(180),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1953749-01D	Plastic 500ml H2SO4 preserved	A	<2	<2	2.3	Y	Absent		NH3-4500(28)

*Values in parentheses indicate holding time in days

Project Name:	FORMER KRAFT	**Lab Number:**	L1953749
Project Number:	129856-009	**Report Date:**	11/15/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	FORMER KRAFT	**Lab Number:**	L1953749
Project Number:	129856-009	**Report Date:**	11/15/19

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: Data Usability Report

Project Name:	FORMER KRAFT	**Lab Number:**	L1953749
Project Number:	129856-009	**Report Date:**	11/15/19

REFERENCES

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193
Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers
Brewer, ME 04412 Portsmouth, NH 03801 Mahwah, NJ 07430 Albany, NY 12205
Tonawanda, NY 14150 Holmes, PA 19043

Page 1 of 1

Date Rec'd in Lab: 11/12/19

ALPHA Job #: L1953749

Project Information
Project Name: Former Kraft
Project Location: Woburn, MA
Project #: 129856-009
(Use Project name as Project #) ☐
Project Manager: L. Vanzler
ALPHAQuote #:

Turn-Around Time
Standard ☑ Due Date:
(only if pre approved) ☐ # of Days: 5 Day

Deliverables
☑ Email ☐ Fax
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other:

Billing Information
☑ Same as Client Info
PO #

Regulatory Requirements (Program/Criteria)
MA NPDES RGP
Note: Select State from menu & identify criteria.

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

H&A Information
H&A Client: Leggat McCall
H&A Address 465 Medford St
Boston, MA 02129-1400
H&A Phone: 617-886-7400
H&A Fax:
H&A Email: Kalepidis, Lvanzler

These samples have been previously analyzed by Alpha

Other project specific requirements/comments:
**Field Filtered
PLEASE RUN FOR FULL 2017 RGP SUITE, MINUS ETHANOL
Analyze using the EPA 2017 RGP Approved Testing Methods
Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TSS-2540, TRC-4500	TCN-4500, 504	8260, 8260-SIM for Dioxane	HEXCR-3500, Trivalent Chromium	8270TCL (also including Diethylhexylphthalate),	8270TCL-SIM	Total Metals: Ag, As, Cd, Cr, Cu, Ni, Pb, Sb, Se, Zn, Fe,	CL-300	Ammonia	hardness	TPH-1664, PCB-608, TPHENOL-420	**HOLD DISSOLVED METALS	pH	Salinity			Sample Specific Comments	Total # Bottles
	~~HA18-B6~~			AQ		X	X	X	X	X	X	X	X	X	X	X	X	X	X			HOLD diss metals sample	
	~~HA19-B3~~			AQ		X	X	X	X	X	X	X	X	X	X	X	X	X	X			HOLD diss metals sample	
53744-01	SW Brook No. 2	11/11/19	1400	AQ	MJD							X		X	X		X	X				HOLD diss metals sample	4
																						4 TOTAL	

Container Type: P | P | P | P
Preservative: C | D | C | C | A

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; K/E = Zn Ac/NaOH; O = Other

Container Code: P = Plastic; A = Amber Glass; V = Vial; G = Glass; B = Bacteria Cup; C = Cube; O = Other; E = Encore; D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
	11/11/19	Mi CUTTS	11/11/19 1630
Mi CUTTS	11/11/19 1630		GAL 11/11/19 1630
	11/11/19 1830		11/11/19 1830

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. Alpha Analytical's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement# 2015-18-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.

Document ID: 20455 Rev 1 (1/28/2016)

ANALYTICAL REPORT

Lab Number:	L1954279
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Lee Vanzler
Phone:	(617) 886-7561
Project Name:	FORMER KRAFT
Project Number:	129856-009
Report Date:	11/19/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954279
Report Date: 11/19/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1954279-01	HA18-B6_20191113	WATER	WOBURN, MA	11/13/19 14:00	11/13/19

Project Name:	FORMER KRAFT	**Lab Number:**	L1954279
Project Number:	129856-009	**Report Date:**	11/19/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich

Caitlin Walukevich

Title: Technical Director/Representative

Date: 11/19/19

ORGANICS

VOLATILES

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954279
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954279-01
Client ID: HA18-B6_20191113
Sample Location: WOBURN, MA
Date Collected: 11/13/19 14:00
Date Received: 11/13/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 11/15/19 20:03
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethane	ND		ug/l	1.5	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.5	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethane	ND		ug/l	1.5	--	1
1,1,1-Trichloroethane	ND		ug/l	2.0	--	1
Benzene	ND		ug/l	1.0	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	5.0	--	1
1,3-Dichlorobenzene	ND		ug/l	5.0	--	1
1,4-Dichlorobenzene	ND		ug/l	5.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
Acetone	ND		ug/l	10	--	1
Methyl tert butyl ether	ND		ug/l	10	--	1
Tert-Butyl Alcohol	ND		ug/l	100	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--	1

Project Name: FORMER KRAFT
Lab Number: L1954279
Project Number: 129856-009
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954279-01
Client ID: HA18-B6_20191113
Sample Location: WOBURN, MA
Date Collected: 11/13/19 14:00
Date Received: 11/13/19
Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	95		60-140
Fluorobenzene	95		60-140
4-Bromofluorobenzene	95		60-140

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954279
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954279-01
Client ID: HA18-B6_20191113
Sample Location: WOBURN, MA
Date Collected: 11/13/19 14:00
Date Received: 11/13/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 11/15/19 20:03
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	50	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	83		60-140
4-Bromofluorobenzene	91		60-140

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954279
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954279-01
Client ID: HA18-B6_20191113
Sample Location: WOBURN, MA

Date Collected: 11/13/19 14:00
Date Received: 11/13/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 11/14/19 18:39
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 11/14/19 14:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	--	1	A

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954279
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 11/14/19 16:42
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 11/14/19 14:20

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG1308855-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	A

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954279
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 11/15/19 18:12
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1309367-12					
Methylene chloride	ND		ug/l	1.0	--
1,1-Dichloroethane	ND		ug/l	1.5	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.5	--
Tetrachloroethene	ND		ug/l	1.0	--
1,2-Dichloroethane	ND		ug/l	1.5	--
1,1,1-Trichloroethane	ND		ug/l	2.0	--
Benzene	ND		ug/l	1.0	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	5.0	--
1,3-Dichlorobenzene	ND		ug/l	5.0	--
1,4-Dichlorobenzene	ND		ug/l	5.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
Acetone	ND		ug/l	10	--
Methyl tert butyl ether	ND		ug/l	10	--
Tert-Butyl Alcohol	ND		ug/l	100	--
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954279
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 11/15/19 18:12
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1309367-12					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	94		60-140
Fluorobenzene	95		60-140
4-Bromofluorobenzene	93		60-140

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954279
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
Analytical Date: 11/15/19 18:12
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1310085-4					
1,4-Dioxane	ND		ug/l	50	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	81		60-140
4-Bromofluorobenzene	92		60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954279

Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab	Associated sample(s): 01		Batch: WG1308855-2						
1,2-Dibromoethane	93		-		80-120	-			A

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954279
Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1309367-11								
Methylene chloride	85		-		60-140	-		28
1,1-Dichloroethane	85		-		50-150	-		49
Carbon tetrachloride	115		-		70-130	-		41
1,1,2-Trichloroethane	80		-		70-130	-		45
Tetrachloroethene	80		-		70-130	-		39
1,2-Dichloroethane	100		-		70-130	-		49
1,1,1-Trichloroethane	115		-		70-130	-		36
Benzene	95		-		65-135	-		61
Toluene	80		-		70-130	-		41
Ethylbenzene	90		-		60-140	-		63
Vinyl chloride	75		-		5-195	-		66
1,1-Dichloroethene	80		-		50-150	-		32
cis-1,2-Dichloroethene	85		-		60-140	-		30
Trichloroethene	85		-		65-135	-		48
1,2-Dichlorobenzene	80		-		65-135	-		57
1,3-Dichlorobenzene	80		-		70-130	-		43
1,4-Dichlorobenzene	80		-		65-135	-		57
p/m-Xylene	88		-		60-140	-		30
o-xylene	85		-		60-140	-		30
Acetone	84		-		40-160	-		30
Methyl tert butyl ether	90		-		60-140	-		30
Tert-Butyl Alcohol	71		-		60-140	-		30
Tertiary-Amyl Methyl Ether	115		-		60-140	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954279

Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1309367-11								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	95				60-140
Fluorobenzene	96				60-140
4-Bromofluorobenzene	94				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954279

Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1310085-3								
1,4-Dioxane	81		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	81				60-140
4-Bromofluorobenzene	92				60-140

Matrix Spike Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954279

Report Date: 11/19/19

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*	*Column*
Microextractables by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308855-3 QC Sample: L1953043-01 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.245	0.217	89		-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.245	0.225	92		-	-		80-120	-		20	A
1,2,3-Trichloropropane	ND	0.245	0.227	93		-	-		80-120	-		20	A

SEMIVOLATILES

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954279
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954279-01
Client ID: HA18-B6_20191113
Sample Location: WOBURN, MA

Date Collected: 11/13/19 14:00
Date Received: 11/13/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 11/18/19 17:35
Analyst: ALS

Extraction Method: EPA 625.1
Extraction Date: 11/15/19 07:39

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		42-122
2-Fluorobiphenyl	68		46-121
4-Terphenyl-d14	81		47-138

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954279
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954279-01
Client ID: HA18-B6_20191113
Sample Location: WOBURN, MA

Date Collected: 11/13/19 14:00
Date Received: 11/13/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 11/16/19 12:50
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 11/15/19 07:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	--	1
Fluoranthene	ND		ug/l	0.10	--	1
Naphthalene	ND		ug/l	0.10	--	1
Benzo(a)anthracene	ND		ug/l	0.10	--	1
Benzo(a)pyrene	ND		ug/l	0.10	--	1
Benzo(b)fluoranthene	ND		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	ND		ug/l	0.10	--	1
Acenaphthylene	ND		ug/l	0.10	--	1
Anthracene	ND		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	ND		ug/l	0.10	--	1
Phenanthrene	ND		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--	1
Pyrene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	1.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	48		25-87
Phenol-d6	33		16-65
Nitrobenzene-d5	73		42-122
2-Fluorobiphenyl	76		46-121
2,4,6-Tribromophenol	111		45-128
4-Terphenyl-d14	59		47-138

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954279
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 11/18/19 11:25
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 11/15/19 07:39

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1309194-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		42-122
2-Fluorobiphenyl	66		46-121
4-Terphenyl-d14	78		47-138

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954279
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 11/16/19 12:34
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 11/15/19 07:41

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1309196-1					
Acenaphthene	ND		ug/l	0.10	--
Fluoranthene	ND		ug/l	0.10	--
Naphthalene	ND		ug/l	0.10	--
Benzo(a)anthracene	ND		ug/l	0.10	--
Benzo(a)pyrene	ND		ug/l	0.10	--
Benzo(b)fluoranthene	ND		ug/l	0.10	--
Benzo(k)fluoranthene	ND		ug/l	0.10	--
Chrysene	ND		ug/l	0.10	--
Acenaphthylene	ND		ug/l	0.10	--
Anthracene	ND		ug/l	0.10	--
Benzo(ghi)perylene	ND		ug/l	0.10	--
Fluorene	ND		ug/l	0.10	--
Phenanthrene	ND		ug/l	0.10	--
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--
Pyrene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	1.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	48		25-87
Phenol-d6	33		16-65
Nitrobenzene-d5	69		42-122
2-Fluorobiphenyl	68		46-121
2,4,6-Tribromophenol	107		45-128
4-Terphenyl-d14	64		47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954279
Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1309194-2								
Bis(2-ethylhexyl)phthalate	97		-		29-137	-		82
Butyl benzyl phthalate	103		-		1-140	-		60
Di-n-butylphthalate	98		-		8-120	-		47
Di-n-octylphthalate	99		-		19-132	-		69
Diethyl phthalate	90		-		1-120	-		100
Dimethyl phthalate	91		-		1-120	-		183

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	67				42-122
2-Fluorobiphenyl	69				46-121
4-Terphenyl-d14	73				47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954279
Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1309196-2								
Acenaphthene	93		-		60-132	-		30
Fluoranthene	84		-		43-121	-		30
Naphthalene	84		-		36-120	-		30
Benzo(a)anthracene	100		-		42-133	-		30
Benzo(a)pyrene	100		-		32-148	-		30
Benzo(b)fluoranthene	102		-		42-140	-		30
Benzo(k)fluoranthene	105		-		25-146	-		30
Chrysene	96		-		44-140	-		30
Acenaphthylene	89		-		54-126	-		30
Anthracene	93		-		43-120	-		30
Benzo(ghi)perylene	100		-		1-195	-		30
Fluorene	96		-		70-120	-		30
Phenanthrene	88		-		65-120	-		30
Dibenzo(a,h)anthracene	102		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	107		-		1-151	-		30
Pyrene	88		-		70-120	-		30
Pentachlorophenol	84		-		38-152	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954279

Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1309196-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	54				25-87
Phenol-d6	38				16-65
Nitrobenzene-d5	79				42-122
2-Fluorobiphenyl	74				46-121
2,4,6-Tribromophenol	99				45-128
4-Terphenyl-d14	64				47-138

PCBS

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954279
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954279-01
Client ID: HA18-B6_20191113
Sample Location: WOBURN, MA

Date Collected: 11/13/19 14:00
Date Received: 11/13/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 11/17/19 17:38
Analyst: KB

Extraction Method: EPA 608.3
Extraction Date: 11/16/19 10:47
Cleanup Method: EPA 3665A
Cleanup Date: 11/16/19
Cleanup Method: EPA 3660B
Cleanup Date: 11/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.200	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	60		37-123	B
Decachlorobiphenyl	68		38-114	B
2,4,5,6-Tetrachloro-m-xylene	60		37-123	A
Decachlorobiphenyl	68		38-114	A

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954279
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 11/17/19 17:14
Analyst: KB

Extraction Method: EPA 608.3
Extraction Date: 11/16/19 10:47
Cleanup Method: EPA 3665A
Cleanup Date: 11/16/19
Cleanup Method: EPA 3660B
Cleanup Date: 11/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG1309723-1						
Aroclor 1016	ND		ug/l	0.250	--	A
Aroclor 1221	ND		ug/l	0.250	--	A
Aroclor 1232	ND		ug/l	0.250	--	A
Aroclor 1242	ND		ug/l	0.250	--	A
Aroclor 1248	ND		ug/l	0.250	--	A
Aroclor 1254	ND		ug/l	0.250	--	A
Aroclor 1260	ND		ug/l	0.200	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	56		37-123	B
Decachlorobiphenyl	62		38-114	B
2,4,5,6-Tetrachloro-m-xylene	57		37-123	A
Decachlorobiphenyl	61		38-114	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954279

Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 Batch: WG1309723-2									
Aroclor 1016	75		-		50-140	-		36	A
Aroclor 1260	84		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	62				37-123	B
Decachlorobiphenyl	73				38-114	B
2,4,5,6-Tetrachloro-m-xylene	63				37-123	A
Decachlorobiphenyl	73				38-114	A

METALS

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954279
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954279-01
Client ID: HA18-B6_20191113
Sample Location: WOBURN, MA
Sample Depth:
Matrix: Water

Date Collected: 11/13/19 14:00
Date Received: 11/13/19
Field Prep: Refer to COC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	11/18/19 14:48	11/19/19 10:15	EPA 3005A	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	11/18/19 14:48	11/19/19 10:15	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	11/18/19 14:48	11/19/19 10:15	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	11/18/19 14:48	11/19/19 10:15	EPA 3005A	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	11/18/19 14:48	11/19/19 10:15	EPA 3005A	3,200.8	AM
Iron, Total	0.380		mg/l	0.050	--	1	11/18/19 14:48	11/18/19 18:52	EPA 3005A	19,200.7	MC
Lead, Total	ND		mg/l	0.00100	--	1	11/18/19 14:48	11/19/19 10:15	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	11/18/19 07:38	11/18/19 12:58	EPA 245.1	3,245.1	GD
Nickel, Total	0.00201		mg/l	0.00200	--	1	11/18/19 14:48	11/19/19 10:15	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	11/18/19 14:48	11/19/19 10:15	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	11/18/19 14:48	11/19/19 10:15	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	11/18/19 14:48	11/19/19 10:15	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	194		mg/l	0.660	NA	1	11/18/19 14:48	11/18/19 18:52	EPA 3005A	19,200.7	MC
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		11/19/19 10:15	NA	107,-	

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954279
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1310005-1										
Mercury, Total	ND		mg/l	0.00020	--	1	11/18/19 07:38	11/18/19 11:43	3,245.1	GD

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1310205-1										
Antimony, Total	ND		mg/l	0.00400	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1310206-1										
Iron, Total	ND		mg/l	0.050	--	1	11/18/19 14:48	11/18/19 18:36	19,200.7	MC

Prep Information

Digestion Method: EPA 3005A

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954279
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01 Batch: WG1310206-1										
Hardness	ND		mg/l	0.660	NA	1	11/18/19 14:48	11/18/19 18:36	19,200.7	MC

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954279

Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1310005-2								
Mercury, Total	102		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1310205-2								
Antimony, Total	91		-		85-115	-		
Arsenic, Total	98		-		85-115	-		
Cadmium, Total	113		-		85-115	-		
Chromium, Total	108		-		85-115	-		
Copper, Total	105		-		85-115	-		
Lead, Total	109		-		85-115	-		
Nickel, Total	110		-		85-115	-		
Selenium, Total	107		-		85-115	-		
Silver, Total	105		-		85-115	-		
Zinc, Total	113		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1310206-2								
Iron, Total	107		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1310206-2								
Hardness	101		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954279
Report Date: 11/19/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310005-3 QC Sample: L1952419-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00512	102		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310005-5 QC Sample: L1953944-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00498	100		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310205-3 QC Sample: L1954279-01 Client ID: HA18-B6_20191113												
Antimony, Total	ND	0.5	0.5060	101		-	-		70-130	-		20
Arsenic, Total	ND	0.12	0.1269	106		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.05806	114		-	-		70-130	-		20
Chromium, Total	ND	0.2	0.2193	110		-	-		70-130	-		20
Copper, Total	ND	0.25	0.2742	110		-	-		70-130	-		20
Lead, Total	ND	0.51	0.5685	111		-	-		70-130	-		20
Nickel, Total	0.00201	0.5	0.5593	111		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1534	128		-	-		70-130	-		20
Silver, Total	ND	0.05	0.05406	108		-	-		70-130	-		20
Zinc, Total	ND	0.5	0.5659	113		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310206-3 QC Sample: L1954279-01 Client ID: HA18-B6_20191113												
Iron, Total	0.380	1	1.48	110		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310206-3 QC Sample: L1954279-01 Client ID: HA18-B6_20191113												
Hardness	194	66.2	262	103		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954279
Report Date: 11/19/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310005-4 QC Sample: L1952419-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310005-6 QC Sample: L1953944-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310205-4 QC Sample: L1954279-01 Client ID: HA18-B6_20191113						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	ND	ND	mg/l	NC		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	ND	ND	mg/l	NC		20
Copper, Total	ND	ND	mg/l	NC		20
Lead, Total	ND	ND	mg/l	NC		20
Nickel, Total	0.00201	ND	mg/l	NC		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310206-4 QC Sample: L1954279-01 Client ID: HA18-B6_20191113						
Iron, Total	0.380	0.377	mg/l	1		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310206-4 QC Sample: L1954279-01 Client ID: HA18-B6_20191113						
Hardness	194	191	mg/l	2		20

INORGANICS
&
MISCELLANEOUS

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954279
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954279-01
Client ID: HA18-B6_20191113
Sample Location: WOBURN, MA

Date Collected: 11/13/19 14:00
Date Received: 11/13/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
SALINITY	ND		SU	2.0	--	1	-	11/14/19 01:27	121,2520B	JW
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	11/14/19 14:57	121,2540D	DR
Cyanide, Total	ND		mg/l	0.005	--	1	11/15/19 12:00	11/15/19 14:35	121,4500CN-CE	LH
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	11/13/19 23:58	121,4500CL-D	AS
pH (H)	6.8		SU	-	NA	1	-	11/14/19 19:13	121,4500H+-B	AS
Nitrogen, Ammonia	1.72		mg/l	0.075	--	1	11/14/19 17:19	11/15/19 22:44	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	5.20	--	1.3	11/14/19 16:30	11/14/19 23:16	74,1664A	ML
Phenolics, Total	ND		mg/l	0.030	--	1	11/18/19 05:57	11/18/19 10:50	4,420.1	MV
Chromium, Hexavalent	ND		mg/l	0.010	--	1	11/14/19 05:30	11/14/19 07:26	1,7196A	JW
Anions by Ion Chromatography - Westborough Lab										
Chloride	65.7		mg/l	5.00	--	10	-	11/15/19 21:12	44,300.0	AT

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954279
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1308434-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	11/13/19 23:58	121,4500CL-D	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1308533-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	11/14/19 05:30	11/14/19 07:25	1,7196A	JW
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1308749-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	11/14/19 17:19	11/15/19 22:38	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1308772-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	11/14/19 14:57	121,2540D	DR
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1308920-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	11/14/19 16:30	11/14/19 23:16	74,1664A	ML
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1309131-1										
Phenolics, Total	ND		mg/l	0.030	--	1	11/18/19 05:57	11/18/19 10:50	4,420.1	MV
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1309311-1										
Cyanide, Total	ND		mg/l	0.005	--	1	11/15/19 12:00	11/15/19 14:24	121,4500CN-CE	LH
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1309587-1										
Chloride	ND		mg/l	0.500	--	1	-	11/15/19 14:17	44,300.0	AT

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954279

Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1308434-2								
Chlorine, Total Residual	92		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1308484-1								
SALINITY	101		-			-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1308533-2								
Chromium, Hexavalent	96		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1308749-2								
Nitrogen, Ammonia	100		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1308920-2								
TPH	92		-		64-132	-		34
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1308945-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1309131-2								
Phenolics, Total	94		-		70-130	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954279

Report Date: 11/19/19

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1309311-2					
Cyanide, Total	92	-	90-110	-	
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1309587-2					
Chloride	100	-	90-110	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954279
Report Date: 11/19/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308434-4 QC Sample: L1953791-02 Client ID: MS Sample												
Chlorine, Total Residual	ND	0.25	0.30	120		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308533-4 QC Sample: L1954279-01 Client ID: HA18-B6_20191113												
Chromium, Hexavalent	ND	0.1	0.096	96		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308749-4 QC Sample: L1953613-01 Client ID: MS Sample												
Nitrogen, Ammonia	ND	4	3.59	90		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308920-4 QC Sample: L1953784-01 Client ID: MS Sample												
TPH	10.2	20	29.8	98		-	-		64-132	-		34
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1309131-4 QC Sample: L1954390-02 Client ID: MS Sample												
Phenolics, Total	ND	0.8	0.71	89		-	-		70-130	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1309311-4 QC Sample: L1954281-01 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.187	94		-	-		90-110	-		30
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1309587-3 QC Sample: L1954003-06 Client ID: MS Sample												
Chloride	22.1	4	25.5	**86**	Q	-	-		90-110	-		18

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954279
Report Date: 11/19/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308434-3 QC Sample: L1953791-01 Client ID: DUP Sample						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308484-2 QC Sample: L1953976-01 Client ID: DUP Sample						
SALINITY	ND	ND	SU	NC		
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308533-3 QC Sample: L1954279-01 Client ID: HA18-B6_20191113						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308749-3 QC Sample: L1953613-01 Client ID: DUP Sample						
Nitrogen, Ammonia	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308772-2 QC Sample: L1954113-01 Client ID: DUP Sample						
Solids, Total Suspended	560	630	mg/l	12		29
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308920-3 QC Sample: L1953784-01 Client ID: DUP Sample						
TPH	10.2	12.9	mg/l	23		34
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308945-2 QC Sample: L1954111-02 Client ID: DUP Sample						
pH	8.3	8.2	SU	1		5
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1309131-3 QC Sample: L1954390-02 Client ID: DUP Sample						
Phenolics, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1309311-3 QC Sample: L1954279-01 Client ID: HA18-B6_20191113						
Cyanide, Total	ND	ND	mg/l	NC		30

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954279

Report Date: 11/19/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1309587-4 QC Sample: L1954003-06 Client ID: DUP Sample					
Chloride	22.1	22.1	mg/l	0	18

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954279
Report Date: 11/19/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1954279-01A	Vial Na2S2O3 preserved	A	NA		3.6	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L1954279-01A1	Vial Na2S2O3 preserved	A	NA		3.6	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L1954279-01B	Vial Na2S2O3 preserved	A	NA		3.6	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L1954279-01B1	Vial Na2S2O3 preserved	A	NA		3.6	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L1954279-01C	Vial Na2S2O3 preserved	A	NA		3.6	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L1954279-01C1	Vial Na2S2O3 preserved	A	NA		3.6	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L1954279-01D	Vial Na2S2O3 preserved	A	NA		3.6	Y	Absent		504(14)
L1954279-01E	Vial Na2S2O3 preserved	A	NA		3.6	Y	Absent		504(14)
L1954279-01F	Plastic 250ml NaOH preserved	A	>12	>12	3.6	Y	Absent		TCN-4500(14)
L1954279-01G	Plastic 250ml NaOH preserved	A	>12	>12	3.6	Y	Absent		TCN-4500(14)
L1954279-01H	Plastic 250ml HNO3 preserved	A	<2	<2	3.6	Y	Absent		HOLD-METAL-DISSOLVED(180)
L1954279-01J	Plastic 250ml HNO3 preserved	A	<2	<2	3.6	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),HARDU(180),FE-UI(180),CU-2008T(180),SE-2008T(180),AS-2008T(180),HG-U(28),AG-2008T(180),SB-2008T(180),CR-2008T(180),PB-2008T(180)
L1954279-01K	Plastic 500ml H2SO4 preserved	A	<2	<2	3.6	Y	Absent		NH3-4500(28)
L1954279-01L	Plastic 950ml unpreserved	A	7	7	3.6	Y	Absent		SALINITY(28),HEXCR-7196(1),CL-300(28),TRC-4500(1),PH-4500(.01)
L1954279-01M	Plastic 950ml unpreserved	A	7	7	3.6	Y	Absent		TSS-2540(7)
L1954279-01N	Amber 1000ml Na2S2O3	A	7	7	3.6	Y	Absent		PCB-608.3(7)
L1954279-01P	Amber 1000ml Na2S2O3	A	7	7	3.6	Y	Absent		PCB-608.3(7)
L1954279-01Q	Amber 1000ml Na2S2O3	A	7	7	3.6	Y	Absent		PCB-608.3(7)
L1954279-01R	Amber 1000ml Na2S2O3	A	7	7	3.6	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1954279-01S	Amber 1000ml Na2S2O3	A	7	7	3.6	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1954279-01T	Amber 1000ml Na2S2O3	A	7	7	3.6	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)

*Values in parentheses indicate holding time in days

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954279
Report Date: 11/19/19

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L1954279-01U	Amber 1000ml HCl preserved	A	NA		3.6	Y	Absent		TPH-1664(28)
L1954279-01V	Amber 1000ml HCl preserved	A	NA		3.6	Y	Absent		TPH-1664(28)
L1954279-01W	Amber 950ml H2SO4 preserved	A	<2	<2	3.6	Y	Absent		TPHENOL-420(28)

*Values in parentheses indicate holding time in days

Project Name:	FORMER KRAFT	**Lab Number:**	L1954279
Project Number:	129856-009	**Report Date:**	11/19/19

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	FORMER KRAFT	**Lab Number:**	L1954279
Project Number:	129856-009	**Report Date:**	11/19/19

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: Data Usability Report

Project Name:	FORMER KRAFT	**Lab Number:**	L1954279
Project Number:	129856-009	**Report Date:**	11/19/19

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

4 Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.

14 Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

74 Method 1664,Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-98-002, February 1999.

107 Alpha Analytical - In-house calculation method.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

127 Method 608.3: Organochlorine Pesticides and PCBs by GC/HSD, EPA 821-R-16-009, December 2016.

128 Method 624.1: Purgeables by GC/MS, EPA 821-R-16-008, December 2016.

129 Method 625.1: Base/Neutrals and Acids by GC/MS, EPA 821-R-16-007, December 2016.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193

Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers: Brewer, ME 04412 — Portsmouth, NH 03801 — Mahwah, NJ 07430 — Albany, NY 12205 — Tonawanda, NY 14150 — Holmes, PA 19043

Page 1 of 1

Date Rec'd in Lab: 11/13/19

ALPHA Job #: L1954279

H&A Information

H&A Client: Leggat McCall

H&A Address 465 Medford St

Boston, MA 02129-1400

H&A Phone: 617-866-7400

H&A Fax:

H&A Email: Kalepidis, Lvanzler

Project Information

Project Name: Former Kraft

Project Location: Woburn, MA

Project #: 129856-009

(Use Project name as Project #)

Project Manager: L. Vanzler

ALPHAQuote #:

Turn-Around Time

Standard ☑ Due Date:

(only if pre approved) ☐ # of Days: 5 Day

Deliverables

☑ Email ☐ Fax

☐ EQuIS (1 File) ☑ EQuIS (4 File)

☐ Other:

Billing Information

☑ Same as Client Info

PO #

Regulatory Requirements (Program/Criteria)

MA NPDES RGP

Note: Select State from menu & identify criteria.

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:

☐ NJ ☐ NY

☐ Other:

These samples have been previously analyzed by Alpha

Other project specific requirements/comments:

**Field Filtered

PLEASE RUN FOR FULL 2017 RGP SUITE, MINUS ETHANOL

Analyze using the EPA 2017 RGP Approved Testing Methods

Please specify Metals or TAL.

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TSS-2540, TRC-4500	TCN-4500, 504	8260, 8260-SIM for Dioxane	HEXCR-3500, Trivalent Chromium	8270TCL (also including Diethylhexylphthalate),	8270TCL-SIM	Total Metals: Ag, As, Cd, Cr, Cu, Ni, Pb, Sb, Se, Zn, Fe,	CL-300	Ammonia	hardness	TPH-1664, PCB-608, TPHENOL-420	**HOLD DISSOLVED METALS	pH	Salinity	Sample Specific Comments	Total Bottles
L1954279-01	HA18-B6 - 20191113	11/13/19	1400	AQ	MJD	X	X	X	X	X	X	X	X	X	X	X	X	X	X	HOLD diss metals sample	25
	HA19-B3			AQ		X	X	X	X	X	X	X	X	X	X	X	X	X	X	HOLD diss metals sample	
	SW Brook NB12			AQ								X		X	X		X	X		HOLD diss metals sample	

Sample Filtration

☐ Done ☐ Lab to do

Preservation

☐ Lab to do

(Please Specify below)

25 TOTAL

Container Type: P P AV P A A P P P P A P P

Preservative: A E H A H H C A D C D C A

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, K/E = Zn Ac/NaOH, O = Other

Container Code: P = Plastic, A = Amber Glass, V = Vial, G = Glass, B = Bacteria Cup, C = Cube, O = Other, E = Encore, D = BOD Bottle

Westboro: Certification No: MA935

Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
	11/13/19		11/13/19 1630
	11/13/19 1630		AAL 11/13/19 1650
	11/13/19 1814		11/13/19 1814

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. Alpha Analytical's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement# 2015-18-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.

Document ID: 20455 Rev 1 (1/28/2016)

ANALYTICAL REPORT

Lab Number:	L1954281
Client:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Charlestown, MA 02129-1400
ATTN:	Lee Vanzler
Phone:	(617) 886-7561
Project Name:	FORMER KRAFT
Project Number:	129856-009
Report Date:	11/19/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954281
Report Date: 11/19/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1954281-01	HA16-B3_20191113	WATER	WOBURN, MA	11/13/19 11:45	11/13/19

Project Name:	FORMER KRAFT	**Lab Number:**	L1954281
Project Number:	129856-009	**Report Date:**	11/19/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich

Caitlin Walukevich

Title: Technical Director/Representative

Date: 11/19/19

ORGANICS

VOLATILES

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954281
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954281-01
Client ID: HA16-B3_20191113
Sample Location: WOBURN, MA
Date Collected: 11/13/19 11:45
Date Received: 11/13/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1
Analytical Date: 11/15/19 20:40
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethane	ND		ug/l	1.5	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.5	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethane	ND		ug/l	1.5	--	1
1,1,1-Trichloroethane	ND		ug/l	2.0	--	1
Benzene	ND		ug/l	1.0	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	5.0	--	1
1,3-Dichlorobenzene	ND		ug/l	5.0	--	1
1,4-Dichlorobenzene	ND		ug/l	5.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
Acetone	ND		ug/l	10	--	1
Methyl tert butyl ether	ND		ug/l	10	--	1
Tert-Butyl Alcohol	ND		ug/l	100	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--	1

Project Name: FORMER KRAFT **Lab Number:** L1954281

Project Number: 129856-009 **Report Date:** 11/19/19

SAMPLE RESULTS

Lab ID: L1954281-01 Date Collected: 11/13/19 11:45

Client ID: HA16-B3_20191113 Date Received: 11/13/19

Sample Location: WOBURN, MA Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	94		60-140
Fluorobenzene	92		60-140
4-Bromofluorobenzene	93		60-140

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954281
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954281-01
Client ID: HA16-B3_20191113
Sample Location: WOBURN, MA
Date Collected: 11/13/19 11:45
Date Received: 11/13/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 11/15/19 20:40
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	50	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	81		60-140
4-Bromofluorobenzene	91		60-140

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954281
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954281-01
Client ID: HA16-B3_20191113
Sample Location: WOBURN, MA

Date Collected: 11/13/19 11:45
Date Received: 11/13/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 11/14/19 18:56
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 11/14/19 14:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	--	1	A

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954281
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 11/14/19 16:42
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 11/14/19 14:20

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG1308855-1						
1,2-Dibromoethane	ND		ug/l	0.010	--	A

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954281
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 11/15/19 18:12
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1309367-12					
Methylene chloride	ND		ug/l	1.0	--
1,1-Dichloroethane	ND		ug/l	1.5	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.5	--
Tetrachloroethene	ND		ug/l	1.0	--
1,2-Dichloroethane	ND		ug/l	1.5	--
1,1,1-Trichloroethane	ND		ug/l	2.0	--
Benzene	ND		ug/l	1.0	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	5.0	--
1,3-Dichlorobenzene	ND		ug/l	5.0	--
1,4-Dichlorobenzene	ND		ug/l	5.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
Acetone	ND		ug/l	10	--
Methyl tert butyl ether	ND		ug/l	10	--
Tert-Butyl Alcohol	ND		ug/l	100	--
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954281
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 11/15/19 18:12
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1309367-12					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	94		60-140
Fluorobenzene	95		60-140
4-Bromofluorobenzene	93		60-140

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954281
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
Analytical Date: 11/15/19 18:12
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1310085-4					
1,4-Dioxane	ND		ug/l	50	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	81		60-140
4-Bromofluorobenzene	92		60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954281

Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab	Associated sample(s): 01		Batch: WG1308855-2						
1,2-Dibromoethane	93		-		80-120	-			A

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954281
Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1309367-11								
Methylene chloride	85		-		60-140	-		28
1,1-Dichloroethane	85		-		50-150	-		49
Carbon tetrachloride	115		-		70-130	-		41
1,1,2-Trichloroethane	80		-		70-130	-		45
Tetrachloroethene	80		-		70-130	-		39
1,2-Dichloroethane	100		-		70-130	-		49
1,1,1-Trichloroethane	115		-		70-130	-		36
Benzene	95		-		65-135	-		61
Toluene	80		-		70-130	-		41
Ethylbenzene	90		-		60-140	-		63
Vinyl chloride	75		-		5-195	-		66
1,1-Dichloroethene	80		-		50-150	-		32
cis-1,2-Dichloroethene	85		-		60-140	-		30
Trichloroethene	85		-		65-135	-		48
1,2-Dichlorobenzene	80		-		65-135	-		57
1,3-Dichlorobenzene	80		-		70-130	-		43
1,4-Dichlorobenzene	80		-		65-135	-		57
p/m-Xylene	88		-		60-140	-		30
o-xylene	85		-		60-140	-		30
Acetone	84		-		40-160	-		30
Methyl tert butyl ether	90		-		60-140	-		30
Tert-Butyl Alcohol	71		-		60-140	-		30
Tertiary-Amyl Methyl Ether	115		-		60-140	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954281

Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1309367-11								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	95				60-140
Fluorobenzene	96				60-140
4-Bromofluorobenzene	94				60-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954281

Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1310085-3								
1,4-Dioxane	81		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	81				60-140
4-Bromofluorobenzene	92				60-140

Matrix Spike Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954281

Report Date: 11/19/19

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*	*Column*
Microextractables by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308855-3 QC Sample: L1953043-01 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.245	0.217	89		-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.245	0.225	92		-	-		80-120	-		20	A
1,2,3-Trichloropropane	ND	0.245	0.227	93		-	-		80-120	-		20	A

SEMIVOLATILES

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954281
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954281-01
Client ID: HA16-B3_20191113
Sample Location: WOBURN, MA

Date Collected: 11/13/19 11:45
Date Received: 11/13/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 11/18/19 18:02
Analyst: ALS

Extraction Method: EPA 625.1
Extraction Date: 11/15/19 07:39

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--	1
Butyl benzyl phthalate	ND		ug/l	5.0	--	1
Di-n-butylphthalate	ND		ug/l	5.0	--	1
Di-n-octylphthalate	ND		ug/l	5.0	--	1
Diethyl phthalate	ND		ug/l	5.0	--	1
Dimethyl phthalate	ND		ug/l	5.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	48		42-122
2-Fluorobiphenyl	51		46-121
4-Terphenyl-d14	58		47-138

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954281
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954281-01
Client ID: HA16-B3_20191113
Sample Location: WOBURN, MA

Date Collected: 11/13/19 11:45
Date Received: 11/13/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 11/16/19 13:07
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 11/15/19 07:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.10	--	1
Fluoranthene	ND		ug/l	0.10	--	1
Naphthalene	ND		ug/l	0.10	--	1
Benzo(a)anthracene	ND		ug/l	0.10	--	1
Benzo(a)pyrene	ND		ug/l	0.10	--	1
Benzo(b)fluoranthene	ND		ug/l	0.10	--	1
Benzo(k)fluoranthene	ND		ug/l	0.10	--	1
Chrysene	ND		ug/l	0.10	--	1
Acenaphthylene	ND		ug/l	0.10	--	1
Anthracene	ND		ug/l	0.10	--	1
Benzo(ghi)perylene	ND		ug/l	0.10	--	1
Fluorene	ND		ug/l	0.10	--	1
Phenanthrene	ND		ug/l	0.10	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--	1
Pyrene	ND		ug/l	0.10	--	1
Pentachlorophenol	ND		ug/l	1.0	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	40		25-87
Phenol-d6	28		16-65
Nitrobenzene-d5	57		42-122
2-Fluorobiphenyl	60		46-121
2,4,6-Tribromophenol	84		45-128
4-Terphenyl-d14	47		47-138

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954281
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
Analytical Date: 11/18/19 11:25
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 11/15/19 07:39

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1309194-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.2	--
Butyl benzyl phthalate	ND		ug/l	5.0	--
Di-n-butylphthalate	ND		ug/l	5.0	--
Di-n-octylphthalate	ND		ug/l	5.0	--
Diethyl phthalate	ND		ug/l	5.0	--
Dimethyl phthalate	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		42-122
2-Fluorobiphenyl	66		46-121
4-Terphenyl-d14	78		47-138

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954281
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 11/16/19 12:34
Analyst: CB

Extraction Method: EPA 625.1
Extraction Date: 11/15/19 07:41

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01 Batch: WG1309196-1					
Acenaphthene	ND		ug/l	0.10	--
Fluoranthene	ND		ug/l	0.10	--
Naphthalene	ND		ug/l	0.10	--
Benzo(a)anthracene	ND		ug/l	0.10	--
Benzo(a)pyrene	ND		ug/l	0.10	--
Benzo(b)fluoranthene	ND		ug/l	0.10	--
Benzo(k)fluoranthene	ND		ug/l	0.10	--
Chrysene	ND		ug/l	0.10	--
Acenaphthylene	ND		ug/l	0.10	--
Anthracene	ND		ug/l	0.10	--
Benzo(ghi)perylene	ND		ug/l	0.10	--
Fluorene	ND		ug/l	0.10	--
Phenanthrene	ND		ug/l	0.10	--
Dibenzo(a,h)anthracene	ND		ug/l	0.10	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	--
Pyrene	ND		ug/l	0.10	--
Pentachlorophenol	ND		ug/l	1.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	48		25-87
Phenol-d6	33		16-65
Nitrobenzene-d5	69		42-122
2-Fluorobiphenyl	68		46-121
2,4,6-Tribromophenol	107		45-128
4-Terphenyl-d14	64		47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954281
Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1309194-2								
Bis(2-ethylhexyl)phthalate	97		-		29-137	-		82
Butyl benzyl phthalate	103		-		1-140	-		60
Di-n-butylphthalate	98		-		8-120	-		47
Di-n-octylphthalate	99		-		19-132	-		69
Diethyl phthalate	90		-		1-120	-		100
Dimethyl phthalate	91		-		1-120	-		183

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	67				42-122
2-Fluorobiphenyl	69				46-121
4-Terphenyl-d14	73				47-138

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954281
Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1309196-2								
Acenaphthene	93		-		60-132	-		30
Fluoranthene	84		-		43-121	-		30
Naphthalene	84		-		36-120	-		30
Benzo(a)anthracene	100		-		42-133	-		30
Benzo(a)pyrene	100		-		32-148	-		30
Benzo(b)fluoranthene	102		-		42-140	-		30
Benzo(k)fluoranthene	105		-		25-146	-		30
Chrysene	96		-		44-140	-		30
Acenaphthylene	89		-		54-126	-		30
Anthracene	93		-		43-120	-		30
Benzo(ghi)perylene	100		-		1-195	-		30
Fluorene	96		-		70-120	-		30
Phenanthrene	88		-		65-120	-		30
Dibenzo(a,h)anthracene	102		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	107		-		1-151	-		30
Pyrene	88		-		70-120	-		30
Pentachlorophenol	84		-		38-152	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954281
Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01 Batch: WG1309196-2								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	54				25-87
Phenol-d6	38				16-65
Nitrobenzene-d5	79				42-122
2-Fluorobiphenyl	74				46-121
2,4,6-Tribromophenol	99				45-128
4-Terphenyl-d14	64				47-138

PCBS

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954281
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954281-01
Client ID: HA16-B3_20191113
Sample Location: WOBURN, MA

Date Collected: 11/13/19 11:45
Date Received: 11/13/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 11/17/19 17:50
Analyst: KB

Extraction Method: EPA 608.3
Extraction Date: 11/16/19 10:47
Cleanup Method: EPA 3665A
Cleanup Date: 11/16/19
Cleanup Method: EPA 3660B
Cleanup Date: 11/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.200	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	66		37-123	B
Decachlorobiphenyl	69		38-114	B
2,4,5,6-Tetrachloro-m-xylene	67		37-123	A
Decachlorobiphenyl	68		38-114	A

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954281
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
Analytical Date: 11/17/19 17:14
Analyst: KB

Extraction Method: EPA 608.3
Extraction Date: 11/16/19 10:47
Cleanup Method: EPA 3665A
Cleanup Date: 11/16/19
Cleanup Method: EPA 3660B
Cleanup Date: 11/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01 Batch: WG1309723-1						
Aroclor 1016	ND		ug/l	0.250	--	A
Aroclor 1221	ND		ug/l	0.250	--	A
Aroclor 1232	ND		ug/l	0.250	--	A
Aroclor 1242	ND		ug/l	0.250	--	A
Aroclor 1248	ND		ug/l	0.250	--	A
Aroclor 1254	ND		ug/l	0.250	--	A
Aroclor 1260	ND		ug/l	0.200	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	56		37-123	B
Decachlorobiphenyl	62		38-114	B
2,4,5,6-Tetrachloro-m-xylene	57		37-123	A
Decachlorobiphenyl	61		38-114	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954281

Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01 Batch: WG1309723-2									
Aroclor 1016	75		-		50-140	-		36	A
Aroclor 1260	84		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	62				37-123	B
Decachlorobiphenyl	73				38-114	B
2,4,5,6-Tetrachloro-m-xylene	63				37-123	A
Decachlorobiphenyl	73				38-114	A

METALS

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954281
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954281-01
Client ID: HA16-B3_20191113
Sample Location: WOBURN, MA
Sample Depth:
Matrix: Water

Date Collected: 11/13/19 11:45
Date Received: 11/13/19
Field Prep: Refer to COC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	11/18/19 14:48	11/19/19 10:19	EPA 3005A	3,200.8	AM
Arsenic, Total	0.00915		mg/l	0.00100	--	1	11/18/19 14:48	11/19/19 10:19	EPA 3005A	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	11/18/19 14:48	11/19/19 10:19	EPA 3005A	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	11/18/19 14:48	11/19/19 10:19	EPA 3005A	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	11/18/19 14:48	11/19/19 10:19	EPA 3005A	3,200.8	AM
Iron, Total	5.35		mg/l	0.050	--	1	11/18/19 14:48	11/18/19 20:23	EPA 3005A	19,200.7	MC
Lead, Total	ND		mg/l	0.00100	--	1	11/18/19 14:48	11/19/19 10:19	EPA 3005A	3,200.8	AM
Mercury, Total	ND		mg/l	0.00020	--	1	11/18/19 07:38	11/18/19 13:01	EPA 245.1	3,245.1	GD
Nickel, Total	ND		mg/l	0.00200	--	1	11/18/19 14:48	11/19/19 10:19	EPA 3005A	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	11/18/19 14:48	11/19/19 10:19	EPA 3005A	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	11/18/19 14:48	11/19/19 10:19	EPA 3005A	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	11/18/19 14:48	11/19/19 10:19	EPA 3005A	3,200.8	AM
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	410		mg/l	0.660	NA	1	11/18/19 14:48	11/18/19 20:23	EPA 3005A	19,200.7	MC
General Chemistry - Mansfield Lab											
Chromium, Trivalent	ND		mg/l	0.010	--	1		11/19/19 10:19	NA	107,-	

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954281
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1310005-1										
Mercury, Total	ND		mg/l	0.00020	--	1	11/18/19 07:38	11/18/19 11:43	3,245.1	GD

Prep Information

Digestion Method: EPA 245.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1310205-1										
Antimony, Total	ND		mg/l	0.00400	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Arsenic, Total	ND		mg/l	0.00100	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Cadmium, Total	ND		mg/l	0.00020	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Chromium, Total	ND		mg/l	0.00100	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Copper, Total	ND		mg/l	0.00100	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Lead, Total	ND		mg/l	0.00100	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Nickel, Total	ND		mg/l	0.00200	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Selenium, Total	ND		mg/l	0.00500	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Silver, Total	ND		mg/l	0.00040	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM
Zinc, Total	ND		mg/l	0.01000	--	1	11/18/19 14:48	11/19/19 09:58	3,200.8	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1310206-1										
Iron, Total	ND		mg/l	0.050	--	1	11/18/19 14:48	11/18/19 18:36	19,200.7	MC

Prep Information

Digestion Method: EPA 3005A

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954281
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01 Batch: WG1310206-1										
Hardness	ND		mg/l	0.660	NA	1	11/18/19 14:48	11/18/19 18:36	19,200.7	MC

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954281

Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1310005-2								
Mercury, Total	102		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1310205-2								
Antimony, Total	91		-		85-115	-		
Arsenic, Total	98		-		85-115	-		
Cadmium, Total	113		-		85-115	-		
Chromium, Total	108		-		85-115	-		
Copper, Total	105		-		85-115	-		
Lead, Total	109		-		85-115	-		
Nickel, Total	110		-		85-115	-		
Selenium, Total	107		-		85-115	-		
Silver, Total	105		-		85-115	-		
Zinc, Total	113		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1310206-2								
Iron, Total	107		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 Batch: WG1310206-2								
Hardness	101		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954281
Report Date: 11/19/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310005-3 QC Sample: L1952419-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00512	102		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310005-5 QC Sample: L1953944-01 Client ID: MS Sample												
Mercury, Total	ND	0.005	0.00498	100		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310205-3 QC Sample: L1954279-01 Client ID: MS Sample												
Antimony, Total	ND	0.5	0.5060	101		-	-		70-130	-		20
Arsenic, Total	ND	0.12	0.1269	106		-	-		70-130	-		20
Cadmium, Total	ND	0.051	0.05806	114		-	-		70-130	-		20
Chromium, Total	ND	0.2	0.2193	110		-	-		70-130	-		20
Copper, Total	ND	0.25	0.2742	110		-	-		70-130	-		20
Lead, Total	ND	0.51	0.5685	111		-	-		70-130	-		20
Nickel, Total	0.00201	0.5	0.5593	111		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1534	128		-	-		70-130	-		20
Silver, Total	ND	0.05	0.05406	108		-	-		70-130	-		20
Zinc, Total	ND	0.5	0.5659	113		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310206-3 QC Sample: L1954279-01 Client ID: MS Sample												
Iron, Total	0.380	1	1.48	110		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310206-3 QC Sample: L1954279-01 Client ID: MS Sample												
Hardness	194	66.2	262	103		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954281
Report Date: 11/19/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310005-4 QC Sample: L1952419-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310005-6 QC Sample: L1953944-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310205-4 QC Sample: L1954279-01 Client ID: DUP Sample						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	ND	ND	mg/l	NC		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	ND	ND	mg/l	NC		20
Copper, Total	ND	ND	mg/l	NC		20
Lead, Total	ND	ND	mg/l	NC		20
Nickel, Total	0.00201	ND	mg/l	NC		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	ND	ND	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310206-4 QC Sample: L1954279-01 Client ID: DUP Sample						
Iron, Total	0.380	0.377	mg/l	1		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1310206-4 QC Sample: L1954279-01 Client ID: DUP Sample						
Hardness	194	191	mg/l	2		20

INORGANICS
&
MISCELLANEOUS

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954281
Report Date: 11/19/19

SAMPLE RESULTS

Lab ID: L1954281-01
Client ID: HA16-B3_20191113
Sample Location: WOBURN, MA

Date Collected: 11/13/19 11:45
Date Received: 11/13/19
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
SALINITY	ND		SU	2.0	--	1	-	11/14/19 01:27	121,2520B	JW
Solids, Total Suspended	13.		mg/l	5.0	NA	1	-	11/14/19 14:57	121,2540D	DR
Cyanide, Total	ND		mg/l	0.005	--	1	11/15/19 12:00	11/15/19 14:37	121,4500CN-CE	LH
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	11/13/19 23:58	121,4500CL-D	AS
pH (H)	7.3		SU	-	NA	1	-	11/14/19 19:13	121,4500H+-B	AS
Nitrogen, Ammonia	3.68		mg/l	0.075	--	1	11/14/19 17:19	11/15/19 22:45	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	5.20	--	1.3	11/14/19 16:30	11/14/19 23:16	74,1664A	ML
Phenolics, Total	ND		mg/l	0.030	--	1	11/18/19 05:57	11/18/19 10:50	4,420.1	MV
Chromium, Hexavalent	ND		mg/l	0.010	--	1	11/14/19 05:30	11/14/19 06:34	1,7196A	JW
Anions by Ion Chromatography - Westborough Lab										
Chloride	21.8		mg/l	0.500	--	1	-	11/15/19 19:56	44,300.0	AT

Project Name: FORMER KRAFT
Project Number: 129856-009
Lab Number: L1954281
Report Date: 11/19/19

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1308434-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	11/13/19 23:58	121,4500CL-D	AS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1308531-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	11/14/19 05:30	11/14/19 06:31	1,7196A	JW
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1308749-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	11/14/19 17:19	11/15/19 22:38	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1308772-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	11/14/19 14:57	121,2540D	DR
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1308920-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	11/14/19 16:30	11/14/19 23:16	74,1664A	ML
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1309131-1										
Phenolics, Total	ND		mg/l	0.030	--	1	11/18/19 05:57	11/18/19 10:50	4,420.1	MV
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1309311-1										
Cyanide, Total	ND		mg/l	0.005	--	1	11/15/19 12:00	11/15/19 14:24	121,4500CN-CE	LH
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1309587-1										
Chloride	ND		mg/l	0.500	--	1	-	11/15/19 14:17	44,300.0	AT

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954281

Report Date: 11/19/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1308434-2								
Chlorine, Total Residual	92		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1308484-1								
SALINITY	101		-			-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1308531-2								
Chromium, Hexavalent	96		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1308749-2								
Nitrogen, Ammonia	100		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1308920-2								
TPH	92		-		64-132	-		34
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1308945-1								
pH	100		-		99-101	-		5
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1309131-2								
Phenolics, Total	94		-		70-130	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954281

Report Date: 11/19/19

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1309311-2					
Cyanide, Total	92	-	90-110	-	
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1309587-2					
Chloride	100	-	90-110	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954281
Report Date: 11/19/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308434-4 QC Sample: L1953791-02 Client ID: MS Sample												
Chlorine, Total Residual	ND	0.25	0.30	120		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308531-4 QC Sample: L1954281-01 Client ID: HA16-B3_20191113												
Chromium, Hexavalent	ND	0.1	0.087	87		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308749-4 QC Sample: L1953613-01 Client ID: MS Sample												
Nitrogen, Ammonia	ND	4	3.59	90		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308920-4 QC Sample: L1953784-01 Client ID: MS Sample												
TPH	10.2	20	29.8	98		-	-		64-132	-		34
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1309131-4 QC Sample: L1954390-02 Client ID: MS Sample												
Phenolics, Total	ND	0.8	0.71	89		-	-		70-130	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1309311-4 QC Sample: L1954281-01 Client ID: HA16-B3_20191113												
Cyanide, Total	ND	0.2	0.187	94		-	-		90-110	-		30
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1309587-3 QC Sample: L1954003-06 Client ID: MS Sample												
Chloride	22.1	4	25.5	**86**	Q	-	-		90-110	-		18

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954281
Report Date: 11/19/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308434-3 QC Sample: L1953791-01 Client ID: DUP Sample						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308484-2 QC Sample: L1953976-01 Client ID: DUP Sample						
SALINITY	ND	ND	SU	NC		
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308531-3 QC Sample: L1954281-01 Client ID: HA16-B3_20191113						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308749-3 QC Sample: L1953613-01 Client ID: DUP Sample						
Nitrogen, Ammonia	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308772-2 QC Sample: L1954113-01 Client ID: DUP Sample						
Solids, Total Suspended	560	630	mg/l	12		29
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308920-3 QC Sample: L1953784-01 Client ID: DUP Sample						
TPH	10.2	12.9	mg/l	23		34
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1308945-2 QC Sample: L1954111-02 Client ID: DUP Sample						
pH	8.3	8.2	SU	1		5
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1309131-3 QC Sample: L1954390-02 Client ID: DUP Sample						
Phenolics, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1309311-3 QC Sample: L1954279-01 Client ID: DUP Sample						
Cyanide, Total	ND	ND	mg/l	NC		30

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER KRAFT

Project Number: 129856-009

Lab Number: L1954281

Report Date: 11/19/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1309587-4 QC Sample: L1954003-06 Client ID: DUP Sample					
Chloride	22.1	22.1	mg/l	0	18

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954281
Report Date: 11/19/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1954281-01A	Vial Na2S2O3 preserved	B	NA		2.5	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L1954281-01A1	Vial Na2S2O3 preserved	B	NA		2.5	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L1954281-01B	Vial Na2S2O3 preserved	B	NA		2.5	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L1954281-01B1	Vial Na2S2O3 preserved	B	NA		2.5	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L1954281-01C	Vial Na2S2O3 preserved	B	NA		2.5	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L1954281-01C1	Vial Na2S2O3 preserved	B	NA		2.5	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L1954281-01D	Vial Na2S2O3 preserved	B	NA		2.5	Y	Absent		504(14)
L1954281-01E	Vial Na2S2O3 preserved	B	NA		2.5	Y	Absent		504(14)
L1954281-01F	Plastic 250ml NaOH preserved	B	>12	>12	2.5	Y	Absent		TCN-4500(14)
L1954281-01G	Plastic 250ml NaOH preserved	B	>12	>12	2.5	Y	Absent		TCN-4500(14)
L1954281-01H	Plastic 250ml HNO3 preserved	B	<2	<2	2.5	Y	Absent		HOLD-METAL-DISSOLVED(180)
L1954281-01J	Plastic 250ml HNO3 preserved	B	<2	<2	2.5	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),HARDU(180),FE-UI(180),CU-2008T(180),AS-2008T(180),SE-2008T(180),AG-2008T(180),HG-U(28),CR-2008T(180),PB-2008T(180),SB-2008T(180)
L1954281-01K	Plastic 500ml H2SO4 preserved	B	<2	<2	2.5	Y	Absent		NH3-4500(28)
L1954281-01L	Plastic 950ml unpreserved	B	7	7	2.5	Y	Absent		SALINITY(28),HEXCR-7196(1),CL-300(28),TRC-4500(1),PH-4500(.01)
L1954281-01M	Plastic 950ml unpreserved	B	7	7	2.5	Y	Absent		TSS-2540(7)
L1954281-01N	Amber 1000ml Na2S2O3	B	7	7	2.5	Y	Absent		PCB-608.3(7)
L1954281-01P	Amber 1000ml Na2S2O3	B	7	7	2.5	Y	Absent		PCB-608.3(7)
L1954281-01Q	Amber 1000ml Na2S2O3	B	7	7	2.5	Y	Absent		PCB-608.3(7)
L1954281-01R	Amber 1000ml Na2S2O3	B	7	7	2.5	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1954281-01S	Amber 1000ml Na2S2O3	B	7	7	2.5	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)
L1954281-01T	Amber 1000ml Na2S2O3	B	7	7	2.5	Y	Absent		625.1-RGP(7),625.1-SIM-RGP(7)

*Values in parentheses indicate holding time in days

Project Name: FORMER KRAFT
Project Number: 129856-009

Lab Number: L1954281
Report Date: 11/19/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1954281-01U	Amber 1000ml HCl preserved	B	NA		2.5	Y	Absent		TPH-1664(28)
L1954281-01V	Amber 1000ml HCl preserved	B	NA		2.5	Y	Absent		TPH-1664(28)
L1954281-01W	Amber 950ml H2SO4 preserved	B	<2	<2	2.5	Y	Absent		TPHENOL-420(28)

*Values in parentheses indicate holding time in days

Project Name:	FORMER KRAFT	**Lab Number:**	L1954281
Project Number:	129856-009	**Report Date:**	11/19/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	FORMER KRAFT	**Lab Number:**	L1954281
Project Number:	129856-009	**Report Date:**	11/19/19

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: Data Usability Report

Project Name:	FORMER KRAFT	**Lab Number:**	L1954281
Project Number:	129856-009	**Report Date:**	11/19/19

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

4 Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.

14 Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

74 Method 1664,Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-98-002, February 1999.

107 Alpha Analytical - In-house calculation method.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

127 Method 608.3: Organochlorine Pesticides and PCBs by GC/HSD, EPA 821-R-16-009, December 2016.

128 Method 624.1: Purgeables by GC/MS, EPA 821-R-16-008, December 2016.

129 Method 625.1: Base/Neutrals and Acids by GC/MS, EPA 821-R-16-007, December 2016.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

L1954281

CHAIN OF CUSTODY

ALPHA ANALYTICAL

Service Centers
Brewer, ME 04412 Portsmouth, NH 03801 Mahwah, NJ 07430 Albany, NY 12205
Tonawanda, NY 14150 Holmes, PA 19043

Page 1 of 1

Date Rec'd in Lab: 11/13/19

ALPHA Job # ~~L1954279~~

Westborough, MA 01581 — 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA 02048 — 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288

H&A Information
H&A Client: Leggat McCall
H&A Address 465 Medford St
Boston, MA 02129-1400
H&A Phone: 617-886-7400
H&A Fax:
H&A Email: Kalepidis, Lvanzler

Project Information
Project Name: Former Kraft
Project Location: Woburn, MA
Project # 129856-009
(Use Project name as Project #) ☑
Project Manager: L. Vanzler
ALPHAQuote #:

Turn-Around Time
Standard ☑ Due Date:
(only if pre approved) ☐ # of Days: 5 Day

Deliverables
☑ Email ☐ Fax
☐ EQuIS (1 File) ☑ EQuIS (4 File)
☐ Other:

Regulatory Requirements (Program/Criteria)
MA NPDES RGP
Note: Select State from menu & identify criteria.

Billing Information
☑ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha

Other project specific requirements/comments:
**Field Filtered
PLEASE RUN FOR FULL 2017 RGP SUITE, MINUS ETHANOL
Analyze using the EPA 2017 RGP Approved Testing Methods
Please specify Metals or TAL.

Sample Filtration
☐ Done ☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TSS-2540, TRC-4500	TCN-4500, 504	8260, 8260-SIM for Dioxane	HEXCR-3500, Trivalent Chromium	8270TCL (also including Diethylhexylphthalate),	8270TCL-SIM	Total Metals: Ag, As, Cd, Cr, Cu, Ni, Pb, Sb, Se, Zn, Fe,	CL-300	Ammonia	hardness	TPH-1664, PCB-608, TPHENOL-420	**HOLD DISSOLVED METALS	pH	Salinity			Sample Specific Comments	Total Bottles
54281	~~HA16-B1~~			AQ		X	X	X	X	X	X	X	X	X	X	X	X	X	X			HOLD diss metals sample	25
~~54279-01~~	HA16-B3 20191113	11/13/19	1145	AQ	MJD	X	X	X	X	X	X	X	X	X	X	X	X	X	X			HOLD diss metals sample	
	~~SW Brook No 1~~			AQ								X		X	X		X	X				HOLD diss metals sample	
																						25 TOTAL	

Preservative Code: A = None, B = HCl, C = HNO_3, D = H_2SO_4, E = NaOH, F = MeOH, G = $NaHSO_4$, H = $Na_2S_2O_3$, K/E = Zn Ac/NaOH, O = Other

Container Code: P = Plastic, A = Amber Glass, V = Vial, G = Glass, B = Bacteria Cup, C = Cube, O = Other, E = Encore, D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	P	P	AV	P	A	A	P	P	P	P	A	P	P										
Preservative	A	E	H	A	H	H	C	A	D	C	D	C	A										

Relinquished By:	Date/Time	Received By:	Date/Time
	11/13/19	M. Cutts	11/13/19 16:30
M. Cutts	11/13/19 16:30		AAL 11/21/19 1630
	11/13/19 1814		11/13/19 1814

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. Alpha Analytical's services under this Chain of Custody shall be performed in accordance with terms and conditions within Blanket Service Agreement# 2015-18-Alpha Analytical by and between Haley & Aldrich, Inc., its subsidiaries and affiliates and Alpha Analytical.

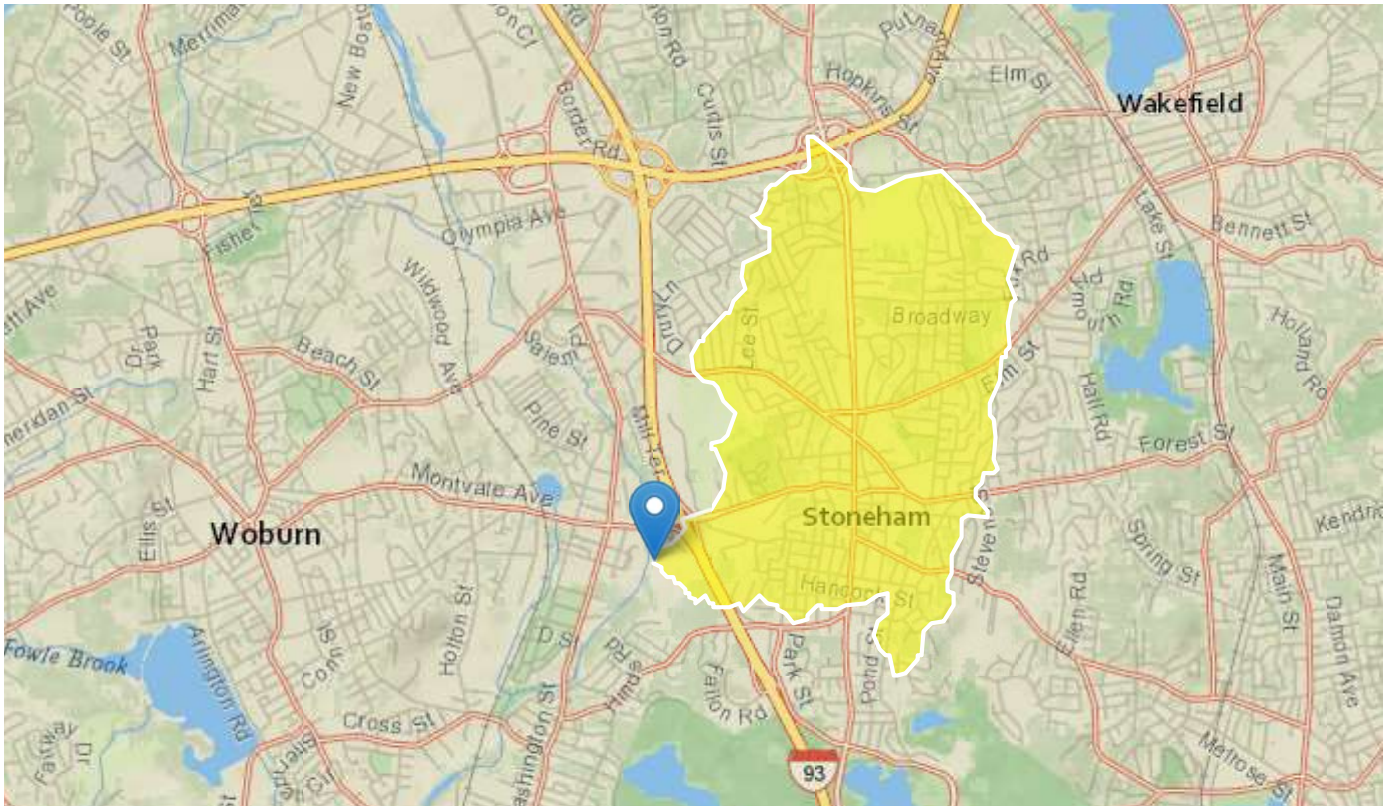
Document ID: 20455 Rev 1 (1/28/2016)

APPENDIX C

Dilution Factor and Effluent Limit Calculations and DEP Confirmation

StreamStats Report

Region ID: MA
Workspace ID: MA20200114142516833000
Clicked Point (Latitude, Longitude): 42.47737, -71.11738
Time: 2020-01-14 09:25:33 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	2.27	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	2.655	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.44	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters[Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	2.27	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	2.655	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.44	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Flow Report[Statewide Low Flow WRIR00 4135]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	SE	SEp
7 Day 2 Year Low Flow	0.336	ft^3/s	0.0854	1.27	49.5	49.5
7 Day 10 Year Low Flow	0.167	ft^3/s	0.0346	0.748	70.8	70.8

Low-Flow Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

Application Version: 4.3.11

HALEY & ALDRICH, INC.		**CALCULATIONS**	FILE NO.	129856-009
			SHEET	1 of 1
CLIENT	Montvale Land LLC		DATE	14 January 2020
PROJECT	Former Kraft Gelatin Facility		COMPUTED BY	KGD
SUBJECT	Dilution Factor Calculations			

PURPOSE: Calculate Dilution Factor (DF) for project based on 7 Day 10 Year (7Q10) Low Flow values.

APPROACH: Calculate DF based on EPA formula $(Q_S + Q_D)/Q_D$, where Q_S is 7Q10 in million gallons per day (MGD) and Q_D is discharge flow in MGD.

ASSUMPTIONS:
1. 7Q10 is 0.167 cfs (from StreamStats)
2. A conversion of 7.48 is used to convert cubic feet to gallons
3. A maximum discharge flowrate of 100 gpm is assumed

CALCULATIONS:

7Q10 Low Flow Value (Q_S)

$$Q_S = \frac{0.167\ ft^3}{sec} \times \frac{7.48\ gallons}{ft^3} \times \frac{86{,}400\ sec}{day} \times \frac{1\ MG}{1{,}000{,}000\ gallons}$$

Q_S = 0.108 MGD

Discharge Flowrate (Q_D)

$$Q_D = \frac{100\ gallons}{min} \times \frac{1{,}440\ min}{day} \times \frac{1\ MG}{1{,}000{,}000\ gallons}$$

Q_D = 0.144 MGD

Dilution Factor (DF)

$$DF = \frac{Q_S + Q_D}{QD} = \frac{0.108\ MGD + 0.144\ MGD}{0.108\ MGD} = 2.33$$

CONCLUSION The dilution factor for this project is calculated to be 2.33 based on the provided 7Q10 low flow value and discharge flowrate.

Daylor, Grace

From: Ruan, Xiaodan (DEP) <xiaodan.ruan@state.ma.us>
Sent: Thursday, January 16, 2020 11:09 AM
To: Daylor, Grace
Cc: Vakalopoulos, Catherine (DEP)
Subject: RE: NPDES RGP Application - Former Kraft Facility - 7Q10 and Dilution Factor Confirmation

CAUTION: External Email

Hi Grace,

I can confirm that the 7Q10 of 0.167 cfs and the dilution factor of 2.33 are correct for the project at 6 Hill St., Woburn, with a proposed discharge to Sweetwater Brook, at a maximum flow rate of 100 gpm are correct.

To assist you with filling out the NOI for coverage under the RGP, the segment of the Aberjona River that the Sweetwater Brook flows into is identified as MA71-01, classified as Class B, and is not listed as an Outstanding Resource Water. The Aberjona River is within the Boston Harbor watershed, and there is an approved TMDL for pathogens (https://www.mass.gov/doc/final-pathogen-tmdl-report-for-the-boston-harbor-weymouth-weir-and-mystic-watersheds/download). To see the causes of impairments, go to: https://www.mass.gov/files/documents/2016/08/sa/14list2_0.pdf and search for "MA71-01".

In addition to submitting the EPA NOI for the RGP, if this is not a *current* MCP site, you will have to apply to MassDEP and submit a fee (unless fee exempt, e.g., a municipality). Instructions are located here: https://www.mass.gov/how-to/wm-15-npdes-general-permit-notice-of-intent.

Please let me know if you have any questions.

Thanks,
Xiaodan

From: Daylor, Grace <GDaylor@haleyaldrich.com>
Sent: Tuesday, January 14, 2020 3:40 PM
To: Ruan, Xiaodan (DEP) <xiaodan.ruan@mass.gov>
Cc: Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@mass.gov>
Subject: RE: NPDES RGP Application - Former Kraft Facility - 7Q10 and Dilution Factor Confirmation

Xiaodan,

A discharge point will be located at approximately latitude and longitude of 42.477652 and -71.115083

Grace Daylor, EIT
Staff Engineer

Haley & Aldrich, Inc.
465 Medford Street | Suite 2200

Boston, Massachusetts 02129

T: 617.886.7433
C: 804.514.5255
www.haleyaldrich.com

From: Ruan, Xiaodan (DEP) <xiaodan.ruan@state.ma.us>
Sent: Tuesday, January 14, 2020 10:51 AM
To: Daylor, Grace <GDaylor@haleyaldrich.com>
Cc: Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@state.ma.us>
Subject: RE: NPDES RGP Application - Former Kraft Facility - 7Q10 and Dilution Factor Confirmation

CAUTION: External Email

Hi Grace,

Thanks for the reply.
Since you are still determining the exact discharge point, it will be good to know roughly where the discharge point would be. The location information may help us to determine whether a dilution factor can be applied. Thanks.

Xiaodan

From: Daylor, Grace <GDaylor@haleyaldrich.com>
Sent: Tuesday, January 14, 2020 10:44 AM
To: Ruan, Xiaodan (DEP) <xiaodan.ruan@mass.gov>; Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@mass.gov>
Subject: RE: NPDES RGP Application - Former Kraft Facility - 7Q10 and Dilution Factor Confirmation

Thank you for catching that Xiaodan. I attached a new Stream Stats report using a point in Sweetwater Brook for the calculation. We are still determining the exact discharge point. See attached updated calcs. I also confirmed that Sweetwater Brook is not an artificial stream and also not a perennial stream. Does this mean we cannot use a dilution factor?

Thanks,

Grace Daylor, EIT
Staff Engineer

Haley & Aldrich, Inc.
465 Medford Street | Suite 2200
Boston, Massachusetts 02129

T: 617.886.7433
C: 804.514.5255
www.haleyaldrich.com

From: Ruan, Xiaodan (DEP) <xiaodan.ruan@state.ma.us>
Sent: Monday, January 13, 2020 11:10 AM
To: Daylor, Grace <GDaylor@haleyaldrich.com>; Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@state.ma.us>
Subject: RE: NPDES RGP Application - Former Kraft Facility - 7Q10 and Dilution Factor Confirmation

CAUTION: External Email

Hi Grace,

In the email below, you described that the effluent will discharge into the Sweetwater Brook. In the attached StreamStats report, a point of Abejona River was used for 7Q10 calculation. Could you provide the latitude and longitude for the actual discharge point? Is the Sweetwater Brook an artificial stream. According to GIS information, it is not a perennial stream. Could you please confirm? Thank you.

Xiaodan

From: Daylor, Grace <GDaylor@haleyaldrich.com>
Sent: Friday, January 10, 2020 4:13 PM
To: Vakalopoulos, Catherine (DEP) <catherine.vakalopoulos@mass.gov>; Ruan, Xiaodan (DEP) <xiaodan.ruan@mass.gov>
Subject: NPDES RGP Application - Former Kraft Facility - 7Q10 and Dilution Factor Confirmation

Hi Cathy/Xiaodan,

As required in Appendix V of the 2017 RGP, I have attached to this email our StreamStats report detailing the 7 Day 10 Year (7Q10) low flow value for our project (listed below) along with the dilution factor calculations for your review and confirmation.

Project:
The Vale
Former Kraft Atlantic Gelatin Facility
6 Hill Street
Woburn, Massachusetts

7 Day 10 Year Low Flow value (from attached StreamStats Report) = 0.658 cfs, 0.425 MGD

Dilution Factor (from attached calculations) = 3.95

We are assuming an average flow of 50 gpm with peak flows up to 100 gpm. The effluent will discharge into Sweetwater Brook.

Can you please confirm if these values are appropriate for use for our project?

Thanks,
Grace

Grace Daylor, EIT
Staff Engineer

Haley & Aldrich, Inc.
465 Medford Street | Suite 2200
Boston, Massachusetts 02129

T: 617.886.7433
C: 804.514.5255

Enter number values in green boxes below

Notes:

Enter values in the units specified

↓

0.108	Q_R = Enter upstream flow in **MGD**
0.144	Q_P = Enter discharge flow in **MGD**
0	Downstream 7Q10

Freshwater: Q_R equal to the 7Q10; enter alternate Q_R if approved by the State; enter 0 if no dilution factor approved
Saltwater (estuarine and marine): enter Q_R if approved by the State; enter 0 if no entry
Discharge flow is equal to the design flow or 1 MGD, whichever is less
Only if approved by State as the entry for Q_R; leave 0 if no entry

Enter a dilution factor, if other than zero

↓

2.33

Saltwater (estuarine and marine): only if approved by the State
Leave 0 if no entry

Enter values in the units specified

↓

410	C_d = Enter influent hardness in **mg/L** $CaCO_3$
120	C_s = Enter receiving water hardness in **mg/L** $CaCO_3$

Freshwater only

Enter **receiving water** concentrations in the units specified

↓

7.6	pH in **Standard Units**
0	Temperature in **°C**
0	Ammonia in **mg/L**
120	Hardness in **mg/L** $CaCO_3$
0	Salinity in **ppt**
0	Antimony in **µg/L**
0	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
2.32	Copper in **µg/L**
236	Iron in **µg/L**
0	Lead in **µg/L**
0	Mercury in **µg/L**
0	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
26.46	Zinc in **µg/L**

pH, temperature, and ammonia required for all discharges
Hardness required for freshwater
Salinity required for saltwater (estuarine and marine)
Metals required for all discharges if present and if dilution factor is > 1
Enter 0 if non-detect or testing not required

Enter **influent** concentrations in the units specified

↓

0	TRC in **µg/L**
3.68	Ammonia in **mg/L**
0	Antimony in **µg/L**
9.15	Arsenic in **µg/L**
0	Cadmium in **µg/L**
0	Chromium III in **µg/L**
0	Chromium VI in **µg/L**
0	Copper in **µg/L**
5350	Iron in **µg/L**
0	Lead in **µg/L**
0	Mercury in **µg/L**
2.01	Nickel in **µg/L**
0	Selenium in **µg/L**
0	Silver in **µg/L**
0	Zinc in **µg/L**
0	Cyanide in **µg/L**
0	Phenol in **µg/L**
0	Carbon Tetrachloride in **µg/L**
0	Tetrachloroethylene in **µg/L**
0	Total Phthalates in **µg/L**
0	Diethylhexylphthalate in **µg/L**
0	Benzo(a)anthracene in **µg/L**
0	Benzo(a)pyrene in **µg/L**
0	Benzo(b)fluoranthene in **µg/L**
0	Benzo(k)fluoranthene in **µg/L**
0	Chrysene in **µg/L**
0	Dibenzo(a,h)anthracene in **µg/L**
0	Indeno(1,2,3-cd)pyrene in **µg/L**
0	Methyl-tert butyl ether in **µg/L**

if >1 sample, enter maximum
if >10 samples, may enter 95th percentile
Enter 0 if non-detect or testing not required

Dilution Factor	1.8					
A. Inorganics	TBEL applies if bolded		WQBEL applies if bolded		Compliance Level applies if shown	
Ammonia	**Report**	mg/L	---			
Chloride	**Report**	µg/L	---			
Total Residual Chlorine	0.2	mg/L	**19**	µg/L	50	µg/L
Total Suspended Solids	**30**	mg/L	---			
Antimony	**206**	µg/L	1120	µg/L		
Arsenic	**104**	µg/L	18	µg/L		
Cadmium	**10.2**	µg/L	1.0309	µg/L		
Chromium III	**323**	µg/L	356.3	µg/L		
Chromium VI	**323**	µg/L	20.0	µg/L		
Copper	**242**	µg/L	38.3	µg/L		
Iron	5000	µg/L	**1573**	µg/L		
Lead	**160**	µg/L	21.19	µg/L		
Mercury	**0.739**	µg/L	1.59	µg/L		
Nickel	**1450**	µg/L	221.9	µg/L		
Selenium	**235.8**	µg/L	8.8	µg/L		
Silver	**35.1**	µg/L	40.3	µg/L		
Zinc	**420**	µg/L	490.5	µg/L		
Cyanide	**178**	mg/L	9.1	µg/L	---	µg/L
B. Non-Halogenated VOCs						
Total BTEX	**100**	µg/L	---			
Benzene	**5.0**	µg/L	---			
1,4 Dioxane	**200**	µg/L	---			
Acetone	**7970**	µg/L	---			
Phenol	**1,080**	µg/L	525	µg/L		
C. Halogenated VOCs						
Carbon Tetrachloride	**4.4**	µg/L	2.8	µg/L		
1,2 Dichlorobenzene	**600**	µg/L	---			
1,3 Dichlorobenzene	**320**	µg/L	---			
1,4 Dichlorobenzene	**5.0**	µg/L	---			
Total dichlorobenzene	**---**	µg/L	---			
1,1 Dichloroethane	**70**	µg/L	---			
1,2 Dichloroethane	**5.0**	µg/L	---			
1,1 Dichloroethylene	**3.2**	µg/L	---			
Ethylene Dibromide	**0.05**	µg/L	---			
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	**5.0**	µg/L	5.8	µg/L		
cis-1,2 Dichloroethylene	**70**	µg/L	---			
Vinyl Chloride	**2.0**	µg/L	---			
D. Non-Halogenated SVOCs						
Total Phthalates	**190**	µg/L	---	µg/L		
Diethylhexyl phthalate	**101**	µg/L	3.9	µg/L		
Total Group I Polycyclic Aromatic Hydrocarbons	**1.0**	µg/L	---			
Benzo(a)anthracene	**1.0**	µg/L	0.0067	µg/L	---	µg/L
Benzo(a)pyrene	**1.0**	µg/L	0.0067	µg/L	---	µg/L
Benzo(b)fluoranthene	**1.0**	µg/L	0.0067	µg/L	---	µg/L
Benzo(k)fluoranthene	**1.0**	µg/L	0.0067	µg/L	---	µg/L
Chrysene	**1.0**	µg/L	0.0067	µg/L	---	µg/L
Dibenzo(a,h)anthracene	**1.0**	µg/L	0.0067	µg/L	---	µg/L
Indeno(1,2,3-cd)pyrene	**1.0**	µg/L	0.0067	µg/L	---	µg/L
Total Group II Polycyclic Aromatic Hydrocarbons	**100**	µg/L	---			
Naphthalene	**20**	µg/L	---			
E. Halogenated SVOCs						
Total Polychlorinated Biphenyls	**0.000064**	µg/L	---		0.5	µg/L
Pentachlorophenol	**1.0**	µg/L	---			
F. Fuels Parameters						
Total Petroleum Hydrocarbons	**5.0**	mg/L	---			
Ethanol	**Report**	mg/L	---			
Methyl-tert-Butyl Ether	**70**	µg/L	35	µg/L		
tert-Butyl Alcohol	**120**	µg/L	---			
tert-Amyl Methyl Ether	**90**	µg/L	---			

APPENDIX D

National Register of Historic Places Documentation

National Register of Historic Places

Public, non-restricted data depicting National Register spatial data processed by the Cultural Resources GIS facility. Data last updated in April, 2014.

National Park Service
U.S. Department of the Interior

Disclaimer (https://www.nps.gov/npmap/disclaimer/) | Geocoding by Esri | © Mapbox (https://www.mapbox.com/about/maps/) © OpenStreetMap (https://www.openstreetmap.org/copyright) contributors

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Woburn; Street Name: Hill St; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year

APPENDIX E

Endangered Species Act Documentation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: January 23, 2020
Consultation Code: 05E1NE00-2020-SLI-1076
Event Code: 05E1NE00-2020-E-03047
Project Name: The Vale

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2020-SLI-1076

Event Code: 05E1NE00-2020-E-03047

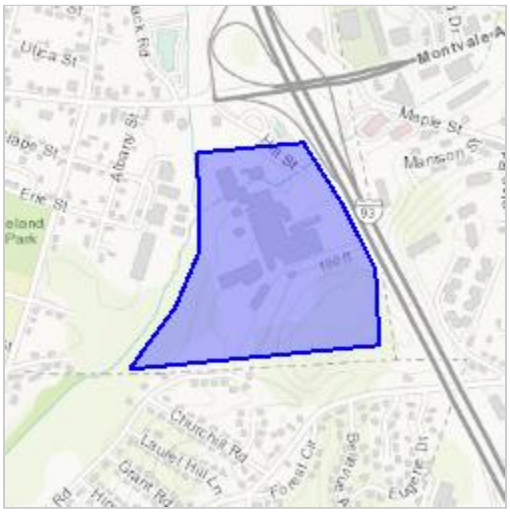
Project Name: The Vale

Project Type: DEVELOPMENT

Project Description: The former Kraft Atlantic Gelatin Facility occupies approximately 57 acres of land located in Woburn, Massachusetts. Planned development uses include Office/Retail, Medical Office, Hotel, Laboratory/Flex, Parking Garages, Townhomes, Multi-family Apartments and Senior Housing. Initial demolition of existing buildings and site work for construction of the perimeter access road by Montvale Land is scheduled to begin in early 2020.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.476211824784464N71.11529130543086W



Counties: Middlesex, MA

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. 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.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

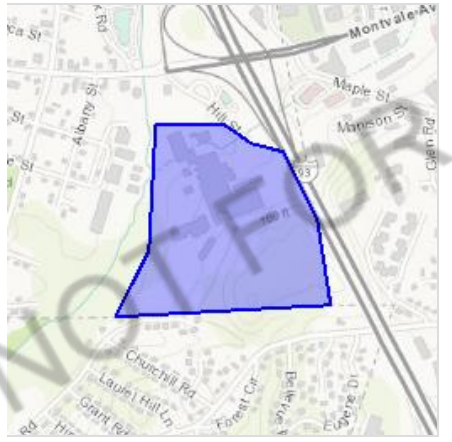
IPaC resource list

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

Middlesex County, Massachusetts



Local office

New England Ecological Services Field Office

(603) 223-2541
(603) 223-0104

70 Commercial Street, Suite 300
Concord, NH 03301-5094

http://www.fws.gov/newengland

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.
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 No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	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.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act

[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird

species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
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 Oct 15 to Aug 31
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
Canada Warbler *Cardellina canadensis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
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

Nelson's Sparrow Ammodramus nelsoni This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Sep 5
Prairie Warbler Dendroica discolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler Protonotaria citrea This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-throated Loon Gavia stellata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Rusty Blackbird Euphagus carolinus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Semipalmated Sandpiper Calidris pusilla This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Snowy Owl Bubo scandiacus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	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

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/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 migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

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) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle 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, please visit the AKN Phenology Tool.

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 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, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, 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 Eagle 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 try 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 eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

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.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

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 also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). 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 is not perfect; 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 helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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

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.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

- PSS1E
- PSS1Ed

RIVERINE

- R2UBH
- R4SBC
- R5UBH
- R5UBFx
- R4SBCx

A full description for each wetland code can be found at the National Wetlands Inventory website

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.

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.