Bureau of Water Protection and Land Reuse
Remediation Division

WATER PROTECTION AND LAND REUSE
REMEDIATION DIVISION
Date Stamp (DEEP Use Only)
MAR 0 2 2020
SITE NAME
ADDRESS
TOWN
REM

Completion of Investigation Transmittal Form

This form is prescribed by the Commissioner pursuant to CGS 22a-134a(g)(1)(A), and must be completed as a cover to transmit a final site investigation report. A report on the completed investigation of the parcel is to be attached to this form, as well as all other applicable documentation which demonstrates that the investigation of the parcel has been completed in accordance with prevailing standards and guidelines. The report should conform to all reporting requirements described in the Site Characterization Guidance Document (SCGD), rev. 12/2010.

Part I of this form is to be completed and signed by the Party responsible to complete the investigation of the parcel. Part II of this form is to be completed, signed and sealed by a licensed environmental professional (LEP).

All sections of this form must be completed, as applicable.

PART I: GENERAL INFORMATION

Remediation ID No. (Rem#): 11169

Site Identification

Site Name: Former CL&P Operations
Site Address: 176 Cumberland Avenue
City/Town: Wethersfield State: CT Zip Code: 06109-

Description in Property Deed:
Recorded on page 0121 of volume 1731 of the Town of Wethersfield
land records, as lot block 001 on map 161 in the Tax Assessor's Office.

Site Contact Information

1. Business/person submitting this form:
   Business Name: Wethersfield LLC
   Name of Authorized Representative: David Lansey Title: CEO
   Mailing Address: c/o ABC Properties, 152 W. 57th Street, 12th Floor
   E-mail Address: dlansey@abcproperties.com
   City/Town: New York State: NY Zip Code: 10019-
   Business Phone: 212-246-2801 Ext. Fax: - -
2. Owner of the parcel:
   Name: Capital Region Education Council E-mail Address:
   Mailing Address: 111 Charter Oak Avenue
   City/Town: Hartford State: CT Zip Code: 06106-
   Business Phone: - - Ext. Fax: - -

Completion of Investigation Transmittal Form (continued)

Rem#: 11169

PART I: GENERAL INFORMATION (continued)

Check the box indicating under which program this documentation is being submitted:

- ☒ Connecticut General Statutes (CGS) section 22a-134a(a)-(e), Property Transfer filing
- ☐ CGS section 22a-133x, Voluntary Remediation
- ☐ Other (specify)

List Additional Supporting Documentation and identify whether the documents are attached to this transmittal form ("A") or are already on file with the Department ("F").

DOCUMENT	DATED	PREPARED BY	ATTACHED (A) / ON FILE (F)
Completion of Investigation	1/31/2020	Apex Companies, LLC	A

Certification

"I submit this form and attached final site investigation report, approved in writing by a licensed environmental professional, and other applicable documentation which demonstrates the investigation of the parcel has been completed in accordance with prevailing standards and guidelines."

ARTHUR B. CORFIELD
Printed Name of Signatory

MANAGER
Title

Authorized Signature

2/20/2020
Date

Representing (Name of Company): Wethersfield, LLC
Address: c/o ABC Properties, 152 W. 57th Street, 12th Floor
City/Town: New York State: NY Zip Code: 10019-
Phone: 212-246-2801

Completion of Investigation Transmittal Form (continued)

Rem#: 11169

PART II: SITE SUMMARY

To be completed by the LEP:

Groundwater Class: GA

Drainage Basin Number: 4005-00-1

Distance to / location of nearest surface water body: 700 feet

Name of water body: Folly Brook

Type of water body: Brook

Surface Water Class: A

Wastewater Discharge (check appropriate box):

- ☐ on-site septic/leachfield
- ☒ sanitary sewer — NPDES Permit Number:
- ☐ municipal stormwater system — Stormwater Discharge Permit Number:
- ☐ other (specify):

On-site groundwater use (check all that apply):	☐ Industrial ☐ Irrigation ☐ Potable water
Abutting land uses (check all that apply):	☐ Industrial ☒ Commercial ☒ Residential ☐ Agricultural
Sensitive receptor land use in vicinity (check all that apply):	☒ school ☐ childcare facility ☐ healthcare facility ☐ recreational ☐ other (specify):

Bedrock Type: Portland Arkose

Depth to Bedrock: 8-12 Feet

Overburden Material: Glacial Till and Fines

Depth to Water Table: Variable

Groundwater Flow Direction: East

Seasonally low water table beneath elevation of bedrock surface anywhere on the site? ☒ Yes ☐ No

Groundwater Flow Rate: 0.012 ft/ft

Hydraulic Conductivity: 6 E-10

Description of establishment operations: The Site was comprised of agricultural fields and undeveloped woodlands from at least 1930 until around 1954. In the 1930s and 1940s the Site was developed with a grandstand associated with a horse riding academy. In the mid-1950s, the property was developed with a building and parking area by an electric utility (Connecticut Power Company, later Hartford Electric Light Company, Connecticut Light & Power/Northeast Utilities, and Eversource Energy) for use as a call/data center. The property has also been used as a vehicle maintenance garage and equipment warehouse. Eversource Energy, its predecessors, or affiliated companies occupied the Site form the mid-1950s through 2006. The property was unoccupied except for mobile communications utilities between 2006 and its redevelopment for use as a school (CREC Discovery Academy), which began operation in 2015.

Completion of Investigation Transmittal Form (continued) Rem#: 11169

PART II: SITE SUMMARY (continued)

Findings

Date Phase I ESA completed: 2009/2011	Number of AOCs identified: 7
Date Phase II investigation completed: 2008/2009	Number of AOCs tested: 6
Date Phase III investigation completed: 2009	Number of releases identified: 4
Bedrock aquifer investigated? ☒ Yes ☐ No If not, provide rationale:	
Are NAPLs present on-site? ☐ Yes ☒ No If yes, explain:	
List COCs detected in soil: VOCs, SVOCs, Metals and ETPH - See attached for complete list	
List COCs detected in groundwater (indicate if bedrock or overburden aquifer): VOCs, SVOCs, Metals, and ETPH - See attached for complete list	
Groundwater plume, originating from on-site source, migrating off-site?	☐ Yes ☒ No
List substance(s) detected on-site attributed to a background condition; media in which substance(s) detected; and concentrations: naturally occurring metals (soil and groundwater)	
Representative sampling has been conducted to demonstrate background conditions	☐ Yes ☒ No

Completion of Investigation Transmittal Form (continued) Rem#: 11169

PART II: SITE SUMMARY (continued)

Findings (continued)

Remediation or some alternative means to demonstrate / achieve compliance with the RSRs is required:	☒ Yes ☐ No
RSR Criterion Exceeded:	☒ ResDEC ☐ I/C DEC ☐ PMC ☒ GWPC ☒ SWPC ☒ Res VolC ☒ I/C VolC
List COCs and concentrations for each criterion exceeded: ResDEC: ETPH (1,000 mg/kg) Note area remediated via soil excavation/off-site disposal; GWPC: 1,2-Dichloroethane 5.8-9.0 ug/L; Benzene 1.4 ug/L; Aniline 6.8 ug/L; Benzo(a)anthracene 0.23 ug/L; Benzo(a)pyrene 0.23 ug/L; Bis(2-Ethylhexyl)phthalate 2-3.4 ug/L; Tetrahydrofuran 15-83 ug/L; SWPC: Phenanthrene 0.34-0.614 ug/L; Arsenic 0.0052-0.011 mg/L; Total Zinc 0.160-0.74 mg/L; Dissolved Zinc 0.140 mg/L:GWPC & SWPC: Benzo(b)fluoranthene 0.32 ug/L; Bis(2-Ethylhexyl)phthalate 2-3.4 ug/L; ETPH (0.27-0.38 mg/L); VolC ETPH 1.7 mg/L	
Was analysis for TCE conducted? ☒ Yes ☐ No If TCE was detected in groundwater or soil vapor, was it evaluated and addressed in light of the February 2015 joint DPH/DEEP guidance? ☐ Yes ☐ No ☒ N/A Explain all "No" answers:	
Note: If chlorinated solvents (specifically TCA) were detected in groundwater, 1,4-Dioxane may also be present. Was analysis for 1,4-Dioxane conducted? ☐ Yes ☒ No If 1,4-Dioxane was detected in groundwater, was it evaluated in light of *CTDPH's established Action Levels of 3.0 ug/L for drinking water and 50 ug/L for dermal contact?* ☐ Yes ☐ No ☒ N/A Explain all "No" answers: Not a COC for this Site, groundwater not used for drinking water	
If VolC has been exceeded, has a survey been conducted to identify all occupied buildings (on-site and off-site) which overly the plume?	☐ Yes ☒ No
If VolC has been exceeded, has a survey been conducted to identify all occupied buildings downgradient of plume which may be considered at risk?	☐ Yes ☒ No

Provide explanation for "No" answers: VolC exceedence limited to slightly elevated concentrations of ETPH, predominately on-site. Recent data indicates EPTH at downgradient locations not above VolC.
Number of occupied buildings overlying plume identified : 1

Completion of Investigation Transmittal Form (continued) Rem#: 11169

PART II: SITE SUMMARY (continued)

Findings (continued)

Describe type of building use for each occupied building: Site is developed for use by CREC Discovery Academy Magnet School (pre-K to 5th grade). Development includes one (1) main school building.	
Has vapor intrusion been assessed for each occupied building?	☒ Yes ☐ No ☐ Assessment plan being developed
Explain results: Groundwater analytical results suggest that vapor intrusion from petroleum related compounds (ETPH) is not a risk for the building at this time.	

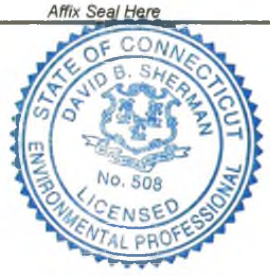
Potable Well Receptor Survey / Assessment

Date Potable Well Receptor Survey completed? 4/2012	Radius of survey: 500'
If not completed, explain:	
Number of water supply wells identified: 0	
Distance to nearest public water supply well from Release Area: >500'	
Distance to nearest private water supply well from Release Area: >500'	

Phone: 860-282-1700

e-mail: dsherman@apexcos.com

Affix Seal Here



Submit this completed form and supporting documents to:

REMEDIATION DIVISION, 2ND FLOOR,
BUREAU OF WATER PROTECTION AND LAND REUSE
DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
79 ELM STREET, HARTFORD, CT 06106 - 5127

Completion of Investigation Transmittal Form
176 Cumberland Avenue
Wethersfield, CT

Former CL&P Operations Center
REMID 11169

PART II: SITE SUMMARY

List COCs detected in Soil

Table 2 - COCs Detected in Soils			
VOCs			
Ethylbenzene			
SVOCs			
Benzo(a)anthracene	Benzo(b)fluoranthene	Chrysene	Fluoranthene
Phenanthrene	Pyrene		
CT RSR Metals			
Arsenic	Barium	Chromium	Copper
Copper	Lead	Nickel	Vanadium
Zinc			
Petroleum Hydrocarbon			
ETPH			

List COCs detected in groundwater (indicate if bedrock or overburden aquifer)

Table 2 - COCs Detected in Overburden Aquifer			
VOCs			
Acetone	2-Butanone (MEK)	Benzene	n-Butylbenzene
sec-Butylbenzene	Carbon Disulfide	Carbon Tetrachloride	Chloroform
1,2-Dichloroethane	Di-isopropyl ether	Ethylbenzene	Isopropylbenzene
p-Isopropyltoluene	Methyl tert-butyl ether	Naphthalene	n-Propylbenzene
Tetrahydrofuran	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
Xylenes			
SVOCs			
Acenaphthalene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene
Benzo(b)fluoranthene	Bis(2-Ethylhexyl)phthalate	Fluoranthene	Fluorene
1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene
Pyrene			
CT RSR Metals			
Arsenic	Barium	Chromium	Copper
Lead	Nickel	Thallium	Vanadium
Zinc			

Completion of Investigation Transmittal Form
176 Cumberland Avenue
Wethersfield, CT

Former CL&P Operations Center
REMID 11169

Table 2a - COCs Detected in Shallow Bedrock Aquifer			
SVOCs			
Aniline			
CT RSR Metals			
Arsenic	Barium	Chromium	Copper
Lead	Zinc		

VIA CERTIFIED MAIL

February 21, 2020

Mr. Ray Frigon
Remediation Division
Bureau of Water Protection and Land Reuse
Connecticut Department of Energy and Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

RE: Completion of Investigation
Former CL&P Operations Center
176 Cumberland Avenue
Wethersfield, Connecticut
REM ID: 11169

Dear Mr. Frigon:

Apex Companies, LLC (Apex) has prepared the attached Completion of Investigation for the former Connecticut Light and Power Company (CL&P) facility located at 176 Cumberland Avenue in Wethersfield, Connecticut.

On October 4, 2012, the Connecticut Department of Energy and Environmental Protection (CTDEEP) issued a letter to Wethersfield, LLC acknowledging receipt of a Form III and an Environmental Condition Assessment Form (ECAF) in support of a transfer of property from Wethersfield, LLC to the Capitol Region Education Council (CREC). Wethersfield, LLC was the certifying party for the transfer. Responsibility of assessment and remediation at this Site has been delegated to a Connecticut Licensed Environmental Professional (LEP) under CGS Section 22a-134x. On March 13, 2019, the CTDEEP issued a letter to Mr. Alan Fisher of Wethersfield, LLC indicating that the Completion of Investigation (COI) was past due for the Transfer of Establishment (22a-134a(g)(1). This submittal completes the requirements of the COI documentation.

Should you have any questions regarding the information presented, please contact either of the undersigned at (860) 282-1700.

Sincerely,

APEX COMPANIES, LLC

Donna L. Kask
Senior Project Manager

APEX COMPANIES, LLC

David Sherman, LEP
Program Manager

Attachments
ecc: Mr. David Lansey, ABC Properties/Fisher Associates

APEX

WATER PROTECTION AND LAND REUSE
REMEDIATION DIVISION

MAR 0 2 2020

SITE NAME
ADDRESS
TOWN
TYPE REM

ENTERED BY
ON 3/6/20

COMPLETION OF INVESTIGATION REPORT

Former CL&P Operations Center
176 Cumberland Avenue
Wethersfield, Connecticut

REM ID No. 11169

Apex Project No. 6089-015

February 2020

Prepared by:

Apex Companies, LLC
58H Connecticut Avenue
South Windsor, CT 06074-3452

APEX

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1.0 INTRODUCTION

1.1 Purpose and Background

Apex Companies, LLC (Apex) conducted environmental site assessment activities at the Former Connecticut Light and Power Company (CL&P) facility located at 176 Cumberland Avenue, Wethersfield, Connecticut (the "Site", **Figure 1** and **2**).

On October 4, 2012, the Connecticut Department of Energy and Environmental Protection (CTDEEP) issued a letter to Wethersfield, LLC acknowledging receipt of a Form III and an Environmental Conditions Assessment Form (ECAF) in support of a transfer of property from Wethersfield, LLC to the Capitol Region Education Council (CREC). Wethersfield, LLC was the certifying party for the transfer. Responsibility of assessment and remediation at this Site has been delegated to a Connecticut Licensed Environmental Professional (LEP) under CGS Section 22a-134(a)e.

Pursuant to the Property Transfer Act filing in 2012, Apex, on behalf of Wethersfield, LLC, submitted a Schedule of Investigation dated December 17, 2012 to the CTDEEP.

1.2 Current and Past Uses of the Property

The Site was initially developed in the mid-1950s by CL&P (then a subsidiary of Northeast Utilities, or NU, now known as Eversource Energy) primarily for use as a call/data center. Additional uses included vehicle maintenance and equipment warehousing. Historical records indicate that CL&P and other NU companies (collectively NU) occupied the Site from the mid-1950s until 2006. These records also indicate that the Site was owned by a series of real estate companies for which NU was a tenant. Town of Wethersfield records document that Wethersfield, LLC purchased the property in 1996, and CREC has been the current property owner since 2012.

The Site has been redeveloped by CREC for use as a school (CREC Discovery Academy). The redevelopment plan involved the preservation of certain portions of the Site structure and demolition of other portions of the Site building. Construction was completed at the Site in the Fall of 2015, and the school has been open since then.

The Site is located in a mixed-use commercial and residential area of Wethersfield. The Site is bordered to the east and south primarily by residential properties. It is bordered to the northeast by office buildings, to the northwest by the Wilbur Cross Highway, and is primarily undeveloped and wooded to the west. The geographic location of the Site and its immediate surroundings are included in **Figure 1**. A Site Plan depicting pertinent Site features is included as **Figure 2**.

A Remedial Action Plan (RAP) was prepared by Apex and submitted to the CTDEEP in April 2013. The RAP described Site conditions, remedial goals, and remedial activities for soil and groundwater impacted with petroleum constituents related to former Site operations. As detailed in the RAP, Apex performed a review of remediation alternatives and determined that two remedial technologies were the most applicable and cost-effective for remediating soil and groundwater at this Site: excavation and off-site disposal of impacted soils and monitored natural attenuation of impacted groundwater. The soil excavation activities were completed in 2013. Monitored natural attenuation was initiated in 2013.

2.0 ENVIRONMENTAL SETTING

2.1 Bedrock Geology

According to the Connecticut Environmental Conditions Online (CT ECO) and *Bedrock Geological Map of Connecticut* (John Rodgers 1985), the bedrock underlying the Site consists of the Portland Arkose. The lithology is classified as a reddish brown to maroon, micaceous arkose and siltstone and red to black fissile silty shale. Bedrock was encountered at 8 feet and 12 feet below surface grade in the central and southern portion of the Site.

2.2 Surficial Geology/Hydrogeology

According to the CT ECO database and Surficial Materials Map of Connecticut (Stone, 1992), the surficial deposits at the Site consist of glacial till. Observations made during the subsurface investigations indicate that the overburden material predominately consists of sand and silt with varying amounts of clay extending to depths of approximately 12 feet below grade.

Data collected during the Site investigation activities revealed that depth to overburden groundwater at the Site demonstrates extreme variability throughout the Site. Variable groundwater depth throughout the Site is attributed to varied presence of clay in the subsurface and backfilling of more permeable materials associated with Site buildings and utilities. Overburden groundwater flows in a general easterly direction across the Site.

2.3 Groundwater and Surface Water Classification

According to the CTDEEP Water Quality Classification Map of Connecticut, groundwater beneath the Site is classified as GA, which is defined as groundwater that is suitable for drinking without treatment. The Site is not located within a zone of contribution to a public water supply (CTDEEP, 2019).

The nearest surface water body is Folly Brook, located approximately 700 feet to the west of the Site. According to the CT ECO database, the surface water for Folly Brook is classified as A. Surface water that is classified as A is designated as a potential drinking water source, habitat for fish and other aquatic life and wildlife, recreation, navigation and industrial and agricultural water supply.

According to the CT ECO database and FEMA Flood Insurance Rate Maps in Connecticut, the Site is not located within a flood zone.

According to the CT ECO database, the Site is not located within a Natural Diversity area.

2.4 Sensitive Receptor Survey

Apex personnel performed a Sensitive Receptor Survey (SRS) in April 2012. The SRS was conducted to evaluate the presence of absence of drinking water supply wells located within 500 feet of the subject property.

The results of the 2012 SRS indicated that all properties within 500 feet are serviced by public potable water. The nearest drinking water well is a public well located within a strip mall about a mile south of the Site.

In addition, results of the SRS indicated there are no aquifer protection areas within one (1) mile of the subject site.

An official Inland Wetlands and Water Courses Map dated July 1, 1986 showed wetlands approximately 600 feet west of the Site. A property survey map dated November 11, 2011, prepared for the Capital Region Education Counsel (but unsigned by the surveyor), indicated the presence of inland wetlands to the east approximately 150 feet from the Site and to the west approximately 200 to 250 feet west of the Site. A Capital Region Council of Governments (CRCOG) internet-based map indicated poorly drained and/or very poorly drained soils several hundred feet west of the Site and potentially present at the southwest corner of the Site. Another CTDEEP GIS Services map also indicated that there are no Natural Diversity Database Areas located within 500 feet of the Site. Apex conducted a drive-by survey of the area within a 500-foot radius of the Site and was unable to observe any wetlands or potentially sensitive receptors during the survey.

During the drive-by survey, Apex observed the presence of basements on the surrounding properties. In addition to surrounding residential properties, a healthcare facility was also identified.

3.0 PUBLIC NOTIFICATION

Public notification activities regarding future remedial activities were performed in June 2013 in accordance with CGS Section 22a-134(a)(i). The public notification activities included:

- Posting a sign reading "Environmental Clean-up in Progress at This Site For Further Information Contact David Melycher, Apex Companies, LLC 860-282-1700" on July 1, 2013;
- Publication of remediation activities in the Hartford Courant Zone 6 (circulating in Wethersfield, Connecticut); the notification was published on June 18, 2013; and
- Notification to the Director of Health (Central Connecticut Health District) on June 26, 2013.

No comments were received during the public notice comment period.

4.0 REGULATORY APPLICABILITY

The Site is an establishment pursuant to CGS 22a-134a due to its history as a small quantity hazardous waste generator. Laboratory analytical results of soil and groundwater samples obtained during assessment of Areas of Concern identified at the Site were compared to the numeric criteria in the Regulations of Connecticut State Agencies (RCSA) Sections 22a-133k-1 through 22a-133k-3, commonly referred as the Remediation Standard Regulations (RSRs), as described below.

4.1 Soil

The RSR criteria applicable to soil at the Site assuming unrestricted Site use include:

- Residential Direct Exposure Criteria (Res DEC), which apply to soil within 15 feet of the ground surface, regardless of the depth of the water table.

- GA Pollutant Mobility Criteria (GA PMC), which apply to soil above the seasonal low water table.

4.2 Groundwater

The RSR criteria applicable to the groundwater at the Site include:

- Groundwater Protection Criteria (GWPC), which apply to groundwater within a GA classified groundwater area.
- Surface Water Protection Criteria (SWPC), which apply to a groundwater plume at the point where the plume discharges to a surface water body.
- Residential Volatilization Criteria for groundwater (RVC), which apply to groundwater within 15 feet of the ground surface.

In addition, the Connecticut Water Quality Standards were evaluated by analyzing select groundwater samples for dissolved metals to evaluate potential toxicity risk to surface water.

5.0 REGULATORY SUBMITTALS

As discussed above, a Form III and an ECAF in support of a transfer of property from Wethersfield, LLC to the Capitol Region Education Council (CREC) was submitted to the CTDEEP in 2012. On October 4, 2012, CTDEEP issued a letter to Wethersfield, LLC acknowledging receipt of the property transfer submitted. Responsibility of assessment and remediation at this Site has been delegated to a Connecticut Licensed Environmental Professional (LEP) under CGS Section 22a-134(a)e. Wethersfield, LLC was the certifying party for the transfer.

Since the Site's entry into the Property Transfer Program, the required regulatory documentation has been submitted to the CTDEEP, with the exception of this Completion of Investigation report. The submittals have included Schedule of Investigation and Remediation, Remedial Action Plan and annual status reports. A summary of the documents submitted to the CTDEEP is provided in **Appendix A**.

As documented in the 2012 ECAF filing and supplemental report filings, multiple investigation activities have occurred at the Site that have included Phase I Environmental Site Assessments (ESA) (2009 and 2011), Limited Phase II Environmental Site Assessments (2008/2009) and Phase III Environmental Site Assessments (2009), additional details pertaining to these documents are as follows:

- Phase I ESA and Partial Phase II Environmental Investigation (Bartley & Associates, January 2009);
- Supplemental Site Characterization Report – Former CL&P Operations Center (Apex Companies, LLC., December 2009);
- Groundwater Monitoring Results – Former CL&P Operations Center (Apex Companies, LLC, April 2010); and
- Phase I Environmental Site Assessment – 176 Cumberland Avenue (HRP Associates, November 2011).

6.0 CONCEPTUAL SITE MODEL

The development of a Conceptual Site Model (CSM) is a planning tool used for evaluating assessment and remedial actions at an impacted site through an assessment framework that integrates new site information as it becomes available. The Phase I ESA determined that oil and hazardous material (OHM) was used and stored at the Site. Each area of concern (AOC) is a potential source for OHM impacts. The approximate locations of the AOCs are shown on **Figure 3**. The CSM incorporates Site-specific and hydrological information to describe:

- Constituents of concern (COCs), i.e., what was or might have been released.
- Release mechanisms, i.e., surface spill, subsurface discharge, leaky tank, etc.
- Transport mechanisms, i.e., infiltration through unsaturated zone to groundwater, non-aqueous phase or dissolved-phase transport within groundwater, preferential flow along utility trenches, etc.
- Potential environmental or human receptor impacts, which consider exposure pathways, such as vapor intrusion, drinking water, direct contact, seepage into streams or wetlands, etc.
- Investigation procedures completed or proposed to assess and evaluate the proper contaminated or potentially contaminated media.

The CSM is discussed below and summarized in **Appendix B**.

As reported in the 2012 ECAF, a total of seven AOCs have been identified:

- AOC #1 – Former Gasoline USTs and Dispensers
- AOC #2 – Former Fuel Oil UST/Former Fuel Oil AST
- AOC #3 – Former Waste Oil UST
- AOC #4 – Former Hazardous Waste Area (Garage)
- AOC #5 – Sanitary Sewer Line
- AOC #6 – Former Loading Dock
- AOC #7 – Former Generator previously located at West Side of Former Data Building

One or more of the following constituents were evaluated with respect to each of the AOCs:

- Volatile Organic Compounds (VOCs) in accordance with EPA Method 8260;
- Polyaromatic hydrocarbons (PAHs)/Semi-Volatile Organic Compounds (SVOCs) in accordance with EPA Method 8270;
- Toxicity characteristic (TC) total metals in accordance with US EPA Methods 6010 and 7471;
- Extractable Total Petroleum Hydrocarbons (ETPH) in accordance with the Connecticut Method;
- Polychlorinated Biphenyls (PCBs) in accordance with United States Environmental Protection Agency (USEPA) Method 8082; and
- Synthetic Precipitation Leaching Procedure (SPLP) extraction and subsequent analyses for VOCs, PAH, ETPH, PCBs and/or TC metals.

A detailed summary of the investigatory activities conducted to assess subsurface media at each of the identified AOCs is provided in the following sections.

6.1 AOC #1 – Former Gasoline USTs and Dispensers

AOC #1, located in the northwestern portion of the Site, was identified as the former location of gasoline USTs and pump dispensers. The primary COCs for this AOC include VOCs. Other compounds evaluated at this AOC include SVOC, EPTH, metals and PCBs. This AOC overlaps AOC #3 (Former Waste Oil UST) and AOC #6 (Former Loading Dock). Limited investigation activities were performed in 2008 that included the advancement of four soils borings, three completed as groundwater monitoring wells (B1/MW1, B2, B3, B5/MW3). Reported soil and groundwater results warranted the need for supplemental investigation activities which were performed in 2009 and included:

- Installation of four (4) groundwater monitoring wells (AP-1R, AP-2R, AP-3R, and AP-4R) in the overburden aquifer;
- One (1) soil boring (AP-5); and
- Sixteen (16) Gore™ passive soil vapor samples (1 through 15 and 21).

A total of thirteen (13) soil samples from soil borings AP-1 through AP-5 at various intervals were collected and submitted for ETPH, PCBs, VOCs, SVOCs, and/or metals. Low concentrations of compounds of concern including ETPH, limited VOC compounds and SVOC compounds and metals were detected in the soil samples collected from AOC #1, but below all applicable RSR criteria. Arsenic was initially detected at concentrations above the RSR criteria in samples collected from AP-2 (2'), AP-2 (6-8'), and AP-4 (4'). However, subsequent laboratory reanalysis was conducted utilizing different methods (ICP/MS) to rule out analyte interference. The reanalysis demonstrated that the arsenic concentrations were below all applicable RSR criteria. No other COCs were detected in the submitted soil samples.

A total of 36 groundwater samples were collected from monitoring wells AP-1R through AP-4R between November 2009 and July 2019 to evaluate groundwater quality relative to AOC #1 and overlapping AOC #3. Groundwater samples were submitted for laboratory analysis of VOCs, SVOCs, ETPH, and total CT RSR metals.

A comparison of the groundwater data collected from these AOCs to the applicable RSRs indicated that the majority of the compounds of concern are below the applicable RSR criteria. Only select compounds have periodically exceeded the applicable RSR criteria. The most recent sampling event performed in 2019 indicate that the only compound of concern detected above the applicable RSR criteria was ETPH detected in well AP-1R.

Summaries of the soil and groundwater analytical results are provided in **Tables 1** and **2**.

In order to evaluate groundwater volatilization potential, Gore™ passive soil vapor collection modules were installed in the area of this AOC. The analysis of the Gore™ modules indicated the isolated presence of low concentrations of VOCs, SVOCs and total petroleum hydrocarbons (TPH).

During groundwater gauging events, no measurable amounts of non-aqueous phase liquid (NAPL) or distinct NAPL layers were detected with the interface probe (IP) in monitoring wells located at AOC #1.

Based on the results of the assessment activities within this AOC and overlapping AOCs, the horizontal and vertical extent of impact has been adequately defined. Releases of petroleum

compounds identified in this AOC are likely attributable to overlapping AOCs. Detections of metals in this AOC may be attributable to naturally occurring elements.

Based on the results of the assessment activities, the investigation of the former gasoline USTs and dispensers is deemed to be complete.

6.2 AOC #2 – Former Fuel Oil UST/Former Fuel Oil AST

AOC #2, located in the north-central portion of the Site, was identified as the former location of a fuel oil UST and AST. The primary COCs for this AOC include VOCs, SVOCs and ETPH. Other compounds evaluated at this AOC include metals and PCBs. Limited investigation activities were performed in 2008 that included the advancement of one soil boring which was completed as a groundwater monitoring well (B6/MW4). Reported soil and groundwater results from this location warranted supplemental investigation activities which were performed in 2009 and included:

- Installation of one (1) groundwater monitoring well (AP-12R) in the overburden aquifer; and
- One (1) Gore™ passive soil vapor sample (22).

Soil samples collected from AP-12 (13-15') were submitted for ETPH, PCBs, VOCs, SVOCs, and metals. Low concentrations of metals were detected in the soil sample collected from AP-12 but below all applicable RSR criteria. No other COCs were detected in the submitted soil sample.

A total of nine groundwater samples were collected from monitoring well AP-12R between November 2009 and July 2019. Groundwater samples were submitted for laboratory analysis of one or more of the following: VOCs, SVOCs, ETPH, total and/or dissolved CT RSR metals.

A comparison of the data collected to the applicable RSR criteria between 2009 and 2019 from this AOC indicated that detected concentrations of zinc from monitoring well AP-12R exceeded the SWPC. Detected concentrations of ETPH in the July 2019 groundwater sample slightly exceeded the GWPC, SWPC, RVC, and I/C VC. No other COCs were detected in exceedance of applicable RSR criteria.

Summaries of the soil and groundwater analytical results are provided in **Tables 1** and **2.**

One Gore™ passive soil vapor collection module was installed in this AOC. The analysis of the Gore™ module indicated the isolated presence of low concentrations of VOCs, SVOCs and/or TPH.

During groundwater gauging events, no measurable amounts of NAPL or distinct NAPL layers were detected with the IP in monitoring wells located at AOC #2.

Based on the results of the assessment activities within this AOC, the horizontal and vertical extent of impact has been adequately defined. Releases of petroleum compounds identified in this AOC are likely attributable to the former fuel oil UST. Detections of metals in groundwater at this AOC may be attributable to naturally occurring elements and may be a result of elevated nephelometric turbidity units (NTU) collected during low-flow sampling procedures.

Based on the results of these assessment activities, investigation of the former fuel oil UST/former AST is deemed to be complete.

6.3 AOC #3 – Former Waste Oil UST

AOC #3, located in the northwestern portion of the Site, was identified as the former location of a waste oil UST. The primary COCs for this AOC include VOCs, SVOCs, ETPH, metals and PCBs. This AOC overlaps AOC #1 (Former Gasoline USTs and Dispensers) and AOC #6 (Former Loading Dock). Limited investigation activities were performed in 2008 that included the advancement of one soil boring completed as a monitoring well (B4/MW2). Reported soil and groundwater results warranted the need for supplemental investigation activities which were performed in 2009 and included:

- Installation of one (1) groundwater monitoring well (AP-4) in the overburden aquifer;
- One (1) soil boring (AP-5); and
- One (1) Gore™ passive soil vapor sample (10).

Soil samples were collected from AP-4 and AP-5 at various intervals and were submitted for ETPH, PCBs, VOCs, SVOCs, and metals. Low concentrations of metals were detected in the soil samples collected from AP-4 and AP-5 but were below all applicable RSR criteria. However, arsenic was initially detected at concentrations above the RSR criteria in samples collected from AP-4 (4'). However, subsequent laboratory reanalysis was conducted utilizing different methods (ICP/MS) to rule out analyte interference. The reanalysis demonstrated that the arsenic concentrations were below all applicable RSR criteria. Concentrations of ethylbenzene were detected at concentrations significantly below the RSR criteria. No other COCs were detected in the submitted soil samples.

A total of nine groundwater samples were collected from monitoring well AP-4R between November 2009 and July 2019. Groundwater samples were submitted for laboratory analysis of one or more of the following: VOCs, SVOCs, ETPH, and total CT RSR metals.

A comparison of the groundwater data collected from this AOC to the applicable RSRs indicated majority of the compounds of concern are below the applicable RSR criteria. Only certain COCs (select VOCs and SVOCs) have periodically exceeded the applicable RSR criteria, predominately prior to 2017. Total arsenic was detected above the SWPC in 2009 and 2010 but has been below laboratory reporting limits in all subsequent sampling events. The most recent sampling event performed in 2019 indicate that all compounds of concern were below laboratory reporting limits, with the exception of detected concentrations of ETPH and select metals below applicable RSR criteria.

Summaries of the soil and groundwater analytical results are provided in **Tables 1** and **2**.

One Gore™ passive soil vapor collection module was installed in this AOC. The analysis of the Gore™ module indicated the isolated presence of low concentrations of SVOCs and TPH.

During groundwater gauging events, no measurable amounts of NAPL or distinct NAPL layers were detected with the IP in the monitoring well located at AOC #3.

Based on the results of the assessment activities within this AOC and overlapping AOCs, the horizontal and vertical extent of impact has been adequately defined. Releases of petroleum compounds identified in this AOC are likely attributable the former fuel oil UST and overlapping AOCs (former gasoline UST/dispenser and loading dock). Detections of metals in groundwater at this AOC may be attributable naturally occurring elements.

Based on the results of these assessment activities, investigation of the former waste oil UST is deemed to be complete.

6.4 AOC #4 – Former Hazardous Waste Storage Area

AOC #4, located in the northwestern portion of the Site, was identified as the former location of hazardous waste storage for the former garage. The primary COCs for this AOC include VOCs, SVOCs, ETPH, metals and PCBs.

Supplemental investigation activities of this AOC performed in 2009 included:

- Installation of one (1) groundwater monitoring well (AP-101R) in the overburden aquifer.

Soil samples were collected from AP-101 and submitted for ETPH, PCBs, VOCs, SVOCs, and metals. Low concentrations of ETPH, select metals, VOCs and SVOCs were detected in the soil sample collected from AP-101 but below all applicable RSR criteria. No other COCs were detected in the submitted soil sample.

A total of eight (8) groundwater samples were collected from monitoring well AP-101R between June 2013 and July 2019. Groundwater samples were submitted for laboratory analysis of one or more of the following: VOCs, SVOCs, ETPH, total CT RSR metals, and/or dissolved CT RSR Metals.

A comparison of the data collected from this AOC to the applicable RSRs indicated detected concentrations of phenanthrene, ETPH and arsenic exceeded the SWPC during isolated sampling events. The most recent sampling event performed in 2019 indicate that all compounds of concern were below laboratory reporting limits.

Summaries of the soil and groundwater analytical results are provided in **Tables 1** and **2**.

During groundwater gauging events, no measurable amounts of NAPL or distinct NAPL layers were detected with the IP in monitoring wells located at AOC #4.

Based on the results of the assessment activities within this AOC, the horizontal and vertical extent of impact has been adequately defined. Releases identified in this AOC are likely attributable to the former hazardous waste storage area. Detections of metals in groundwater at this AOC may also be attributable naturally occurring elements.

Based on the results of these assessment activities, investigation of the former hazardous waste storage area is deemed to be complete.

6.5 AOC #5 – Sanitary Sewer Line

AOC #5, located in the southeastern portion of the Site, was identified as the former location of a release associated with the sanitary sewer line. The primary COCs for this AOC include VOCs, SVOCs, metals and EPTH. Other compounds evaluated at this AOC include PCBs. Investigation of this AOC included:

- Installation of one (1) groundwater monitoring well (AP-15R) in the overburden aquifer;

- Installation of one (1) groundwater monitoring well (AP-15R-BR) in the shallow bedrock aquifer; and
- One (1) soil boring (AP-14).

Shallow refusal was encountered at boring AP-14, and a soil sample was not collected. Subsequent soil samples were collected from AP-15 (2.5 to 4.5 feet) corresponding to the depth of the sanitary sewer line and submitted for ETPH, PCBs, VOCs, SVOCs, and metals analysis. Low concentrations of metals were detected in the soil samples collected from AP-15 below all applicable RSR criteria. No other COCs were detected above the laboratory reporting limits in the submitted soil sample.

Monitoring well AP-15R had been notably reported as dry and/or did not contain sufficient volume of groundwater for sampling during the annual groundwater sampling events. This well was installed 8 feet below grade (fbg) where bedrock was encountered. Therefore, in August 2018, a new shallow bedrock well (AP-15R-BR) was installed at this location to evaluate shallow bedrock groundwater. Monitoring well AP-15R was over drilled to install well AP-15R-BR to a depth of 25fbg and screened between 15 to 25 fbg.

A total of five (5) groundwater samples were collected from monitoring well AP-15R/AP-15R-BR between 2009 and 2019. Groundwater samples were submitted for laboratory analysis of VOCs, SVOCs, ETPH, and total CT RSR metals.

A comparison of the groundwater data collected from this AOC to the applicable RSRs indicated that detected concentrations of benzene GWPC, aniline GWPC , and ETPH periodically exceeded the GWPC. Total zinc and ETPH also periodically exceeded the SWPC. No other COCs were detected in exceedance of the RSR criteria. The most recent sampling event performed in 2019 indicated that only concentrations of zinc were detected above the SWPC.

Summaries of the soil and groundwater analytical results are provided in **Tables 1** and **2**.

During groundwater gauging events, no measurable amounts of NAPL or distinct NAPL layers were detected with the IP in monitoring wells located at AOC #5.

Based on the results of the assessment activities within this AOC, the horizontal and vertical extent of impact has been adequately defined. Releases identified in this AOC may be attributable to the sanitary sewer line. Detections of metals in groundwater at this AOC may also be attributable naturally occurring elements and elevated NTUs collected during low-flow sampling procedures.

Based on the results of these assessment activities, investigation of the sanitary sewer line is deemed complete.

6.6 AOC #6 – Former Loading Dock

AOC #6, located in the northwestern portion of the Site, was identified as the former loading dock location. The primary COCs for this AOC include VOCs, SVOCs, metals and EPTH. Other compounds evaluated at this AOC include PCBs. This AOC overlaps AOC #1 (Former Gasoline USTs and Dispensers) and AOC #3 (Former Waste Oil UST). Limited investigation activities were performed in 2008 that included the advancement of one soil boring completed as a groundwater monitoring well (B8/MW-6). Reported soil and groundwater results warranted the need for supplemental investigation activities which were performed in 2009 and included:

- Installation of three (3) groundwater monitoring wells (AP-6R, AP-9R, and AP-11R) in the overburden aquifer;
- Nine (9) Gore samples (10, 11, 14 through 20); and
- Seven (7) soil borings (AP-5 through AP-11).

Soil samples were collected from AP-5 (4-6'), AP-6 (8-10'), AP-7 (2-4'), AP-8 (2-4'), AP-9 (4-6'), AP-10 (3-4' and 7-8') and AP-11 (8-10'). Samples were submitted for ETPH, PCBs, VOCs, SVOCs, and/or metals. Low concentrations of metals were detected in the soil samples below all applicable RSR criteria. ETPH was detected in the samples submitted from AP-6 and AP-9 below all applicable RSR criteria. However, concentrations of ETPH in AP-11 exceeded Res DEC and GA PMC. No other COCs were detected in the submitted soil samples.

Compounds of concern were not detected in exceedance of the applicable RSR criteria in shallow soils, as identified in the CSM for this AOC. It is likely the elevated concentrations of petroleum compounds detected at depth in boring AP-11 are related to overlapping AOCs in this area.

A total of twenty-seven (27) groundwater samples were collected from monitoring wells located within this AOC between November 2009 and July 2019. Groundwater samples were submitted for laboratory analysis of VOCs, SVOCs, ETPH and total CT RSR metals.

A comparison of the groundwater data collected from this AOC to the applicable RSRs indicated detected concentrations of bis(2-ethylhexyl)phthalate and tetrahydrofuran exceeded GWPC in samples collected in 2016 and 2017, which are not compounds of concern for the Site. Concentrations of ETPH were detected in monitoring well AP-6R in one sampling event (May 2016) that exceeded GWPC, SWPC, RVC, and I/C VC. No other COCs were detected above RSR criteria. In addition, the most recent sampling event performed in 2019 indicate that detected compounds of concern were below RSR criteria.

Summaries of the soil and groundwater analytical results are provided in **Tables 1** and **2**.

In order to evaluate groundwater volatilization potential, nine (9) Gore™ passive soil vapor collection modules were installed in this AOC. The analysis of the Gore™ modules indicated the isolated presence of low concentrations of VOCs, SVOCs and TPH.

During groundwater gauging events, no measurable amounts of NAPL or distinct NAPL layers were detected with the IP in monitoring wells located at AOC #6.

Based on the results of the assessment activities within this AOC, the horizontal and vertical extent of impact has been adequately defined. Releases identified in this AOC are likely attributable to overlapping AOCs in this area.

In addition, as discussed in **Section 7.0**, soil remediation, through soil excavation and off-site disposal, were performed to remove ETPH impacted soils in 2013.

Based on the results of these assessment activities, investigation of the former loading dock is deemed to be complete.

6.7 AOC #7 – Former Generator at West Side of Data Building

AOC #7, located in the central-eastern portion of the Site, was identified as the former location of a generator servicing the former data building. The former generator was located to the west of the former data building. A release of engine coolant observed to be contained to the generator unit was documented in the 2011 Phase I ESA. However, a release to the surrounding environment was not observed. Since the release of engine coolant was documented to have been contained to the generator unit, additional investigation was not warranted in this AOC, and investigations are complete.

7.0 SOIL REMEDIATION

Soil excavation activities were conducted by True Blue Environmental, Inc. of Wallingford, Connecticut on July 17, 2013 and were overseen by an Apex environmental scientist. Excavation activities were conducted in the vicinity of monitoring well AP-11, located in a former loading dock area (AOC #6) on the western side of the original building. Prior sampling results identified ETPH detected at concentrations above applicable RSR criteria at boring AP-11 (8'-10').

The completed excavation measured 10 feet by 10 feet and centers on monitoring well AP-11 and extended to 12 fbg. Confirmatory soil samples were collected by Apex personnel from 8 to 10 feet below grade (fbg) on all four sidewalls and from the bottom of the excavation. The samples were submitted to Con-Test Analytical Laboratory (Con-Test) of East Longmeadow, Massachusetts and analyzed for ETPH. Analytical results for the submitted samples reported no detections of ETPH above the laboratory reporting limits (RLs) in any of the post-excavation samples. Following receipt of the sampling results, the excavation was backfilled to grade with clean fill material.

A total of 69.75 tons of petroleum impacted soils were excavated and transported off site for disposal at Ondrick Material and Recycling LLC in Chicopee, Massachusetts. The soil remediation activities are detailed in a letter report submitted to CTDEEP, dated August 27, 2013.

8.0 GROUNDWATER MONITORING WELL REPLACEMENT

During redevelopment and related construction activities for the school, many groundwater monitoring wells were destroyed and required replacement. In September 2014, replacement wells AP-6R and AP-11R were installed. Subsequently, during June 2015, nine additional replacement groundwater monitoring wells were installed (AP-1R, AP-2R, AP-3R, AP-4R, AP-9R, AP-12R, AP-13R, AP-15R, and AP-101R). Monitoring well replacement activities were described in the 2015 Annual Status Report.

Since installation of the replacement wells in 2015, two of these wells (AP-13R and AP-15R) had been notably reported as dry and/or did not contain enough groundwater for sampling during groundwater sampling events. Two new shallow bedrock wells (AP-13R-BR and AP-15R-BR) were installed at these locations on August 17, 2018. Monitoring well AP-13R-BR was installed in a small landscaped area adjacent to monitoring well AP-13R. Monitoring well AP-15R was over-drilled to install well AP-15R-BR. Details of the August 2018 well installation were described in the 2018 Annual Status Report. Replacement well locations are depicted on **Figure 2**.

9.0 EXTENT OF CONTAMINATION

Based on the laboratory analytical data for soil samples collected at the Site, residual concentrations of ETPH above Res DEC were reported at boring AP-11 (AOC #6). As detailed in **Section 7.0**, soils at this location were excavated and transported off site for disposal. Post-remedial analytical data did not report any detections of ETPH above RLs.

Recent 2019 groundwater monitoring data indicates that concentrations of VOCs and SVOCs were below laboratory reporting limits at all on-site monitoring well locations. Concentrations of ETPH were detected at all monitoring well locations below RSR criteria with the exception at 2 locations (AP-1R and AP-12R) where the concentrations were detected slightly above the RSR criteria. The majority of detected metal concentrations were below laboratory reporting limits at all monitoring well locations with the exception of the following metals detected below RSR criteria: barium and copper (all well locations); arsenic at two locations (AP-6R and AP-15R-BR); lead at three locations (AP-1R, AP-4R and AP-12R); and nickel at one location (AP-3R). Total zinc was detected at well locations AP-12R and AP-15R-BR at concentrations above the SWPC; however, dissolved zinc was detected at a concentration below the SWPC in well AP-15R-BR.

The groundwater analytical data collected to date has demonstrated an overall decrease of dissolved-phase plume of concentrations across the Site. Concentrations of petroleum hydrocarbons in wells have decreased over time, and the majority of locations are below the applicable RSR criteria. The data has demonstrated that the petroleum groundwater plume is stable and is not migrating. Detected concentrations of metals above the SWPC, specifically zinc, is periodically observed in select monitoring wells. The detected metal concentrations may be related to elevated NTUs collected during low-flow sampling procedures and/ or in combination with limited groundwater recharge.

In accordance with the April 2013 RAP, monitored natural attenuation is recommended for this Site. Laboratory analytical data suggest that concentrations of COCs have been decreasing throughout the Site and that a petroleum groundwater plume is not migrating off site. In addition, the elevated dissolved metal concentrations are currently limited to two isolated locations. In accordance with CGS §22a-133ee, based on soil and groundwater data collected through Site assessment and interim soil remediation activities, Site investigation activities are considered complete, and no further investigation is necessary.

10.0 FUTURE ACTIVITIES

Based on the soil and groundwater data collected through Site assessment and interim soil remediation activities and CGS §22a-133ee, Site investigations are considered complete, and no further investigation is necessary. In accordance with the 2013 RAP, long-term groundwater monitoring for natural attenuation will continue on an annual basis until compliance monitoring can be initiated.

Future regulatory documents to be prepared and submitted to the CTDEEP include:

- A Status Report summarizing the activities conducted in 2020; and
- Interim Verification in October 2020.

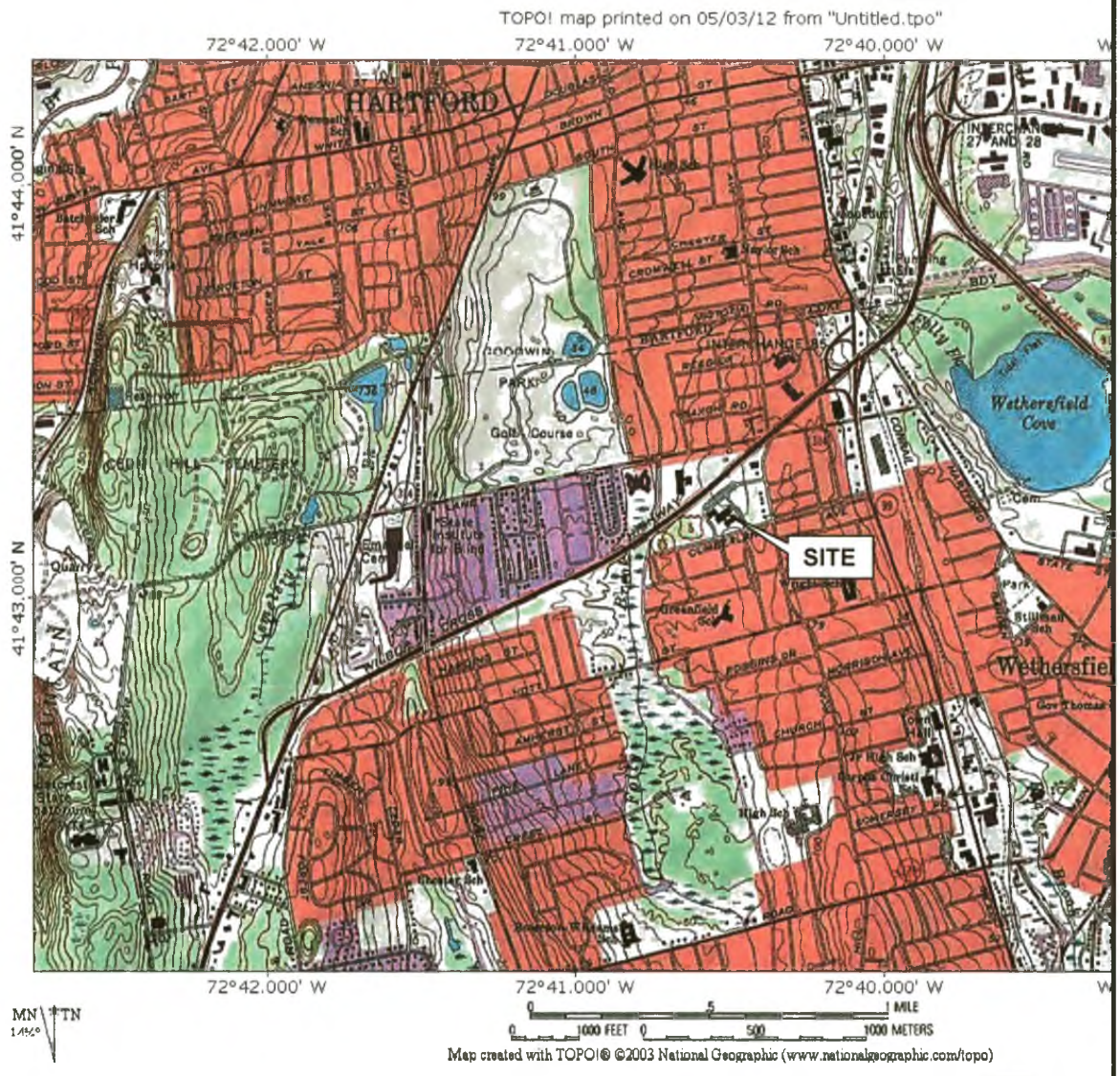
Figures

APEX

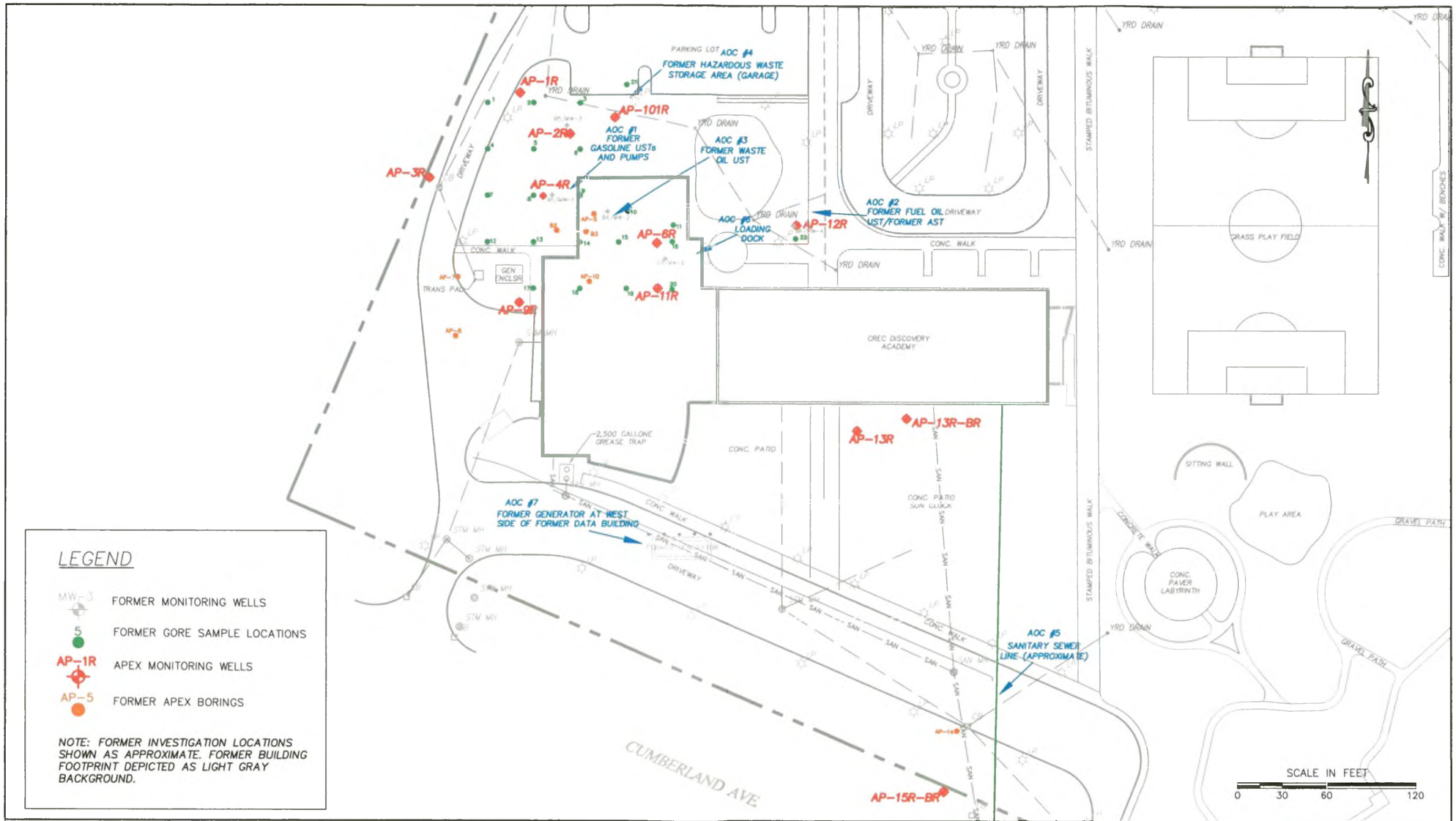
FIGURES

Figure 1
Site Location Map

176 Cumberland Avenue
Wethersfield, Connecticut



APEX 58H Connecticut Avenue South Windsor, Connecticut Telephone: (860) 282-1700	United States Department of the Interior Geological Survey 7.5 Minute Series Topographic Map Contour Interval: 20 feet Scale: 1 inch = 2,000 feet Wethersfield, Connecticut, 2003	Project: Site Assessment Apex Job #: 5783-012	



LEGEND

- MW-3 — FORMER MONITORING WELLS
- 5 — FORMER GORE SAMPLE LOCATIONS
- AP-1R — APEX MONITORING WELLS
- AP-5 — FORMER APEX BORINGS

NOTE: FORMER INVESTIGATION LOCATIONS SHOWN AS APPROXIMATE. FORMER BUILDING FOOTPRINT DEPICTED AS LIGHT GRAY BACKGROUND.

NOTES:

THE BASE MAP WAS PREPARED BY O'BRIEN ASSOCIATES, INC. FILE 3395 DATED SEP. 29, 2015.

CHECK BY	DK
DRAWN BY	AMK
DATE	11/27/2019
SCALE	1"=60'
CAD NO.	FIGURE 3
PRJ NO.	6089-015

AREA OF CONCERN MAP

FORMER CL&P OPERATIONS CENTER
176 CUMBERLAND AVE.
WETHERSFIELD, CONNECTICUT

APEX

FIGURE 3



NOTES:

THE BASE MAP WAS PREPARED BY O'BRIEN ASSOCIATES, INC. FILE 3395 DATED SEP. 29, 2015.

CHECK BY	DK
DRAWN BY	MCK
DATE	2/20/2019
SCALE	1"=100'
CAD NO.	FIGURE 1
PRJ NO.	6089-015

SITE PLAN

FORMER CL&P OPERATIONS CENTER
176 CUMBERLAND AVE.
WETHERSFIELD, CONNECTICUT

APEX

FIGURE
2

Tables



TABLES

TABLE 1
Soil Analytical Results - Detected Analytes
178 Cumberland Avenue
Wethersfield, CT

Parameter	RSR DEC		RSR PMC		AOC #3								AOC #1 and #3	AOC #1 and #3	AOC #1 and #3	AOC #1 and #3	AOC #1, #3 and #6	AOC #6											AOC #5		AOC #5	AOC #4
					SAMPLING LOCATION																											
	I/C DEC	R(S DEC	GA PMC	GB PMC	AP-1 (2-4)	AP-2 (2ft)	AP-2 (2ft)	AP-2 (2ft)	AP-2 (6-8)	AP-2 (6-8	AP-2 (6-8	AP-3 (2-4)	AP-4 (4ft)	AP-4 (4ft)	AP-4 (4ft)	AP-4 (4-6)	AP-5 (4-6)	AP-6 (8-10)	AP-7 (2-4)	AP-8 (2-4)	AP-9 (4-6)	AP-10 3-4	AP-10 7-8	AP-11 (8-10)	AP-11 8-10	AP-12 13-15	AP-13 4-6.5	AP-15 2.5-4.5	AP-101 0-5 ft
Sampling Date					10/16/2009	10/13/2009	10/13/2009	10/13/2009	10/16/2009	10/16/2009	10/16/2009	10/16/2009	10/13/2009	10/13/2009	10/13/2009	10/16/2009	10/16/2009	10/16/2009	10/16/2009	10/16/2009	10/16/2009	10/27/2019	10/27/2019	10/16/2009	10/26/2009	10/27/2009	10/27/2009	10/27/2009	5/17/2013
Sample Depth					2-4 Feet	2- Feet	2- Feet	2- Feet	6-8 Feet	0- Feet	6-8 Feet	2-4 Feet	4- Feet	4- Feet	4- Feet	4-6 Feet	4-6 Feet	8-10 Feet	2-4 Feet	2-4 Feet	4-6 Feet	3-4 Feet	7-8 Feet	8-10 Feet	8-10 Feet	13-15 Feet	4-6 Feet	2.5-4 Feet	0.5 Feet
Laboratory Report Number					0910588	0910528	0910017	0910671	0910588	0910018	0910672	0910588	0910528	0910017	0910671	0910588	0910588	0910588	0910588	0910588	0910588	0910587	0910587	0910588	0910672	0910587	0910587	0910587	1311079
CTDEEP ETPH (mg/Kg dry)																														
ETPH	2500	500	500	2500	37	330	NT	NT	83	NT	NT	ND (13)	ND (26)	NT	NT	ND (13)	ND (12)	170	ND (12)	ND (12)	330	ND (12)	ND (13)	1800	NT	ND (12)	ND (11)	ND (11)	270
CTDEEP ETPH (mg/L)																														
ETPH	~	~	0.1	1.0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND (0.075)	NT	NT	NT	NT
SM 2540G (% Wt)																														
% Solids	~	~	~	~	92.5	73.1	NT	NT	82.1	NT	NT	79.7	76.2	NT	NT	79.9	86.6	92.0	80.3	82.4	87.1	80.8	76.6	93.4	82.1	86.8	87.4	88.6	81.8
SW-846 6010B (mg/Kg dry)																														
ANTIMONY	8200	27	~	~	ND (4.3)	ND (5.5)	NT	NT	ND (4.9)	NT	NT	ND (5.0)	ND (5.3)	NT	NT	ND (5.0)	ND (4.6)	ND (4.3)	ND (5.0)	ND (4.8)	ND (4.6)	ND (4.9)	ND (5.2)	ND (4.3)	NT	ND (4.6)	ND (4.6)	ND (4.5)	ND (2.8)
Arsenic	10	10	~	~	4.8	15	NT	NT	12	NT	NT	3.2	12	NT	NT	4.0	3.6	3.9	7.1	3.1	5.1	4.6	10	4.3	NT	6.7	5.5	4.4	ND (2.8)
Barium	140000	4700	~	~	88	210	NT	NT	270	NT	NT	39	210	NT	NT	65	64	56	170	45	60	87	290	35	NT	190	86	83	230
BERYLLIUM	2	2	~	~	ND (1.3)	ND (0.34)	NT	NT	ND (1.5)	NT	NT	ND (1.6)	ND (0.33)	NT	NT	ND (1.6)	ND (1.4)	ND (1.4)	ND (1.5)	ND (1.5)	ND (1.4)	ND (1.5)	ND (1.6)	ND (1.3)	NT	ND (1.4)	ND (0.28)	ND (0.28)	ND (1.4)
Cadmium	1000	34	~	~	ND (0.27)	0.47	NT	NT	0.33	NT	NT	ND (0.31)	0.55	NT	NT	ND (0.31)	ND (0.29)	ND (0.27)	ND (0.31)	ND (0.30)	ND (0.29)	ND (0.31)	0.36	ND (0.27)	NT	ND (0.29)	ND (0.28)	ND (0.28)	0.79
Chromium	~	~	~	~	19	32	NT	NT	36	NT	NT	13	34	NT	NT	15	12	12	31	12	16	19	51	9.8	NT	29	17	17	34
COPPER	76000	2500	~	~	22	82	NT	NT	34	NT	NT	8.1	50	NT	NT	10	15	19	28	9.4	24	17	46	24	NT	33	33	30	32
LEAD	1000	400	~	~	12	19	NT	NT	17	NT	NT	4.4	64	NT	NT	17	13	6.1	14	5.1	8.3	17	18	5.9	NT	14	13	9.4	15
Nickel	7500	1400	~	~	19	28	NT	NT	31	NT	NT	8.5	34	NT	NT	9.9	11	11	27	8.5	17	16	43	14	NT	27	18	19	30
Selenium	10000	340	~	~	ND (5.4)	ND (6.8)	NT	NT	ND (6.1)	NT	NT	ND (6.3)	ND (6.6)	NT	NT	ND (6.2)	ND (5.8)	ND (5.4)	ND (6.2)	ND (6.1)	ND (5.7)	ND (6.2)	ND (6.5)	ND (5.3)	NT	ND (5.8)	ND (5.7)	ND (5.6)	ND (5.6)
Silver	10000	340	~	~	ND (0.54)	ND (0.68)	NT	NT	ND (0.61)	NT	NT	ND (0.63)	ND (0.66)	NT	NT	ND (0.62)	ND (0.58)	ND (0.54)	ND (0.62)	ND (0.61)	ND (0.57)	ND (0.62)	ND (0.65)	ND (0.53)	NT	ND (0.58)	ND (0.57)	ND (0.56)	ND (0.56)
THALLIUM	160	5.4	~	~	ND (3.2)	ND (4.1)	NT	NT	ND (3.7)	NT	NT	ND (3.8)	ND (3.9)	NT	NT	ND (3.7)	ND (3.5)	ND (3.3)	ND (3.7)	ND (3.6)	ND (3.4)	ND (3.7)	ND (3.9)	ND (3.2)	NT	ND (3.5)	ND (3.4)	ND (3.4)	ND (2.8)
Vanadium	14000	470	~	~	27	52	NT	NT	50	NT	NT	21	52	NT	NT	27	19	30	46	20	40	30	78	57	NT	43	27	23	53
Zinc	610000	20000	~	~	44	92	NT	NT	81	NT	NT	25	130	NT	NT	34	34	29	66	23	44	45	100	37	NT	63	48	42	73
SW-846 7471A (mg/Kg dry)																														
Mercury	610	20	~	~	ND (0.021)	0.027	NT	NT	ND (0.016)	NT	NT	ND (0.016)	ND (0.014)	NT	NT	ND (0.019)	ND (0.017)	ND (0.015)	ND (0.016)	ND (0.016)	ND (0.023)	0.032	ND (0.026)	ND (0.015)	NT	0.022	ND (0.022)	ND (0.019)	ND (0.030)
SW-846 6010B (mg/L)																														
Arsenic	~	~	~	0.1	NT	NT	NT	0.010	NT	NT	0.012	NT	NT	NT	ND (0.010)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SW-846 6020A (µg/Kg)																														
Arsenic	10000	10000	~	0.1	NT	NT	3.8	NT	NT	1.92	NT	NT	NT	3.74	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
SW-846 6020A (µg/L)																														
Barium					NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	170
Lead					NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	9.3
Arsenic	~	~	~	100	NT	NT	NT	NT	NT	0.0034	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND (2.0)
SW-846 8082 (mg/Kg dry)																														
PCBs	10	1	~	~	ND (0.11)	ND (0.14)	NT	NT	ND (0.12)	NT	NT	ND (0.13)	ND (0.13)	NT	NT	ND (0.13)	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.12)	ND (0.13)	ND (0.11)	NT	ND (0.12)	ND (0.13)	ND (0.11)	ND (0.12)
VOCS SW-846 8260B (mg/Kg dry)																														
ETHYLBENZENE	1000	500	10.1	10.1	ND (0.0017)	ND (0.0026)	NT	NT	ND (0.0022)	NT	NT	ND (0.0022)	ND (0.0023)	NT	NT	0.0023	ND (0.0021)	ND (0.0019)	ND (0.0024)	ND (0.0022)	ND (0.0021)	NT	ND (0.0023)	ND (0.0022)	NT	ND (0.0071)	ND (0.0023)	ND (0.0021)	ND (0.00078)
SVOCS SW-846 8270C (mg/Kg dry)																														
BENZO(A)ANTHRACENE	7.8	1	1	1	0.21	ND (0.47)	NT	NT	ND (0.21)	NT	NT	ND (0.21)	ND (0.45)	NT	NT	ND (0.21)	ND (0.20)	ND (0.18)	ND (0.21)	ND (0.21)	ND (0.20)	ND (0.21)	ND (0.22)	ND (0.73)	NT	ND (0.20)	ND (0.19)	ND (0.19)	0.25
BENZO(B)FLUORANTHENE	7.8	1	1	1	0.21	ND (0.47)	NT	NT	ND (0.21)	NT	NT	ND (0.21)	ND (0.45)	NT	NT	ND (0.21)	ND (0.20)	ND (0.18)	ND (0.21)	ND (0.21)	ND (0.20)	ND (0.21)	ND (0.22)	ND (0.73)	NT	ND (0.20)	ND (0.19)	ND (0.19)	0.23
CHRYSENE	780	84	1	1	0.19	ND (0.47)	NT	NT	ND (0.21)	NT	NT	ND (0.21)	ND (0.45)	NT	NT	ND (0.21)	ND (0.20)	ND (0.18)	ND (0.21)	ND (0.21)	ND (0.20)	ND (0.21)	ND (0.22)	ND (0.73)	NT	ND (0.20)	ND (0.19)	ND (0.19)	0.23
FLUORENE	2500	1000	5.6	56	ND (0.18)	ND (0.47)	NT	NT	ND (0.21)	NT	NT	ND (0.21)	ND (0.45)	NT	NT	ND (0.21)	ND (0.20)	ND (0.18)	ND (0.21)	ND (0.21)	ND (0.20)	ND (0.21)	ND (0.22)	ND (0.73)	NT	ND (0.20)	ND (0.19)	ND (0.19)	ND (0.21)
PHENANTHRENE	2500	1000	4	40	0.25	ND (0.47)	NT	NT	ND (0.21)	NT	NT	ND (0.21)	ND (0.45)	NT	NT	ND (0.21)	ND (0.20)	ND (0.18)	ND (0.21)	ND (0.21)	ND (0.20)	ND (0.21)	ND (0.22)	ND (0.73)	NT	ND (0.20)	ND (0.19)	ND (0.19)	0.48
PYRENE	2500	1000	4	4	0.27	ND (0.47)	NT	NT	ND (0.21)	NT	NT	ND (0.21)	ND (0.45)	NT	NT	ND (0.21)	ND (0.20)	ND (0.18)	ND (0.21)	ND (0.21)	ND (0.20)	ND (0.21)	ND (0.22)	ND (0.73)	NT	ND (0.20)	ND (0.19)	ND (0.19)	0.41

NOTES:
An asterisk (*) following a detection limit indicates that the minumum laboratory reporting limit exceeds one or more of the regulatory criteria
NT = Not tested
ND = Not detected above laboratory reporting limits
~ = No Standard available
Shaded values exceed the RSR Direct Exposure Criteria (DEC) for the parameter.
Bolded values exceed the RSR PMC for the parameter
RSR criteria are in the same units as the analyte.
RSR = Connecticut Remediation Standard Regulations
I/C DEC = Industrial/Commercial Direct Exposure Criteria
Res DEC = Residential Direct Exposure Criteria
PMC = Pollutant Mobility Criteria
mg/kg = miligrams per kilogram
ug/kg - micrograms per kilogram
mg/l = miligrams per liter
ug/l = micrograms per liter

APEX

TABLE 2
Groundwater Analytical Results - Detected Analytes

Former CL&P Operations Center
Eversource Energy
176 Cumberland Avenue
Wethersfield, Connecticut

| AOC | AOC #1 | | |

TABLE 2 con't
Groundwater Analytical Results - Detected Analytes

Former CL&P Operations Center
Eversource Energy
176 Cumberland Avenue
Wethersfield, Connecticut

AOC	AOC #1 and AOC #3									AOC #6												
Well ID	AP-4R									AP-6R												
Date Sampled	11/5/2009	3/26/2010	8/12/2015	11/12/2015	3/1/2016	5/24/2016	5/31/2017	10/10/2018	7/30/2019	11/5/2009	3/26/2010	8/13/2015	11/11/2015	3/2/2016	5/24/2016	5/31/2017	10/11/2018	7/31/2019	GWPC	SWPC	Residential Volatilization Criteria	Industrial/Commercial Volatilization Criteria
VOCs via EPA 8260 (µg/L)																						
Acetone	ND<500	ND<50	ND<10.0	ND<10.0	ND<50	ND<10	ND<10	ND<10	ND<10	ND<5.0	ND<5.0	ND<10.0	ND<10.0	ND<10	ND<10	ND<10	ND<10	ND<10	700	10,000 *	50,000	50,000
Benzene	18	11	ND<1.0	ND<1.0	***ND<2.5***	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1	710	215	530
2-Butanone (MEK)	ND<20	ND<20	ND<10.0	ND<10.0	ND<25	ND<10	ND<5.0	ND<5.0	ND<5.0	ND<2.0	ND<2.0	ND<10.0	ND<10.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	400	10,000 *	50,000	50,000
n-Butylbenzene	11	14	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	350 *	10,000 *	1,800 *	21,800 *
sec-Butylbenzene	5.4	ND<10	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	350 *	10,000 *	1,500 *	20,100 *
Carbon disulfide	ND<0.50	ND<500	ND<2.0	ND<2.0	ND<25	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<0.50	ND<50	ND<2.0	ND<2.0	ND<2.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0	40 *	150 *	2,100 *	5,200 *
Carbon tetrachloride	ND<0.50	ND<20	ND<1.0	ND<1.0	ND<2.5	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.0	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	5	132	16	40
Chloroform	3.1	ND<5.0	ND<1.0	ND<1.0	ND<5.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	6	14,100	287	710
1,2-Dichloroethane	ND<0.50	ND<5.0	**9.0**	**5.8**	***ND<2.5***	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1	2,970	21	90
Di-isopropyl ether	NS	NS	8.3	6.0	ND<2.5	ND<0.50	NS	NS	NS	NS	NS	ND<1.0	ND<1.0	ND<0.50	ND<0.50	NS	NS	NS	NE	NE	NE	NE
Ethylbenzene	440	560	ND<1.0	ND<1.0	ND<2.5	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	700	580,000	50,000	50,000
Isopropylbenzene	**50**	**82**	ND<1.0	ND<1.0	ND<2.5	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	25 *	210 *	900 *	2,200 *
p-Isopropyltoluene	1.6	ND<5.0	ND<1.0	ND<1.0	ND<2.5	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	25 *	200 *	870 *	2,100 *
Methyl tert-butyl ether (MTBE)	1.7	ND<5.0	19.5	21.6	ND<2.5	1.1	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	100	10,000 *	50,000	50,000
Naphthalene	150	120	ND<1.0	ND<1.0	ND<10	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<1.0	ND<1.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	280	210 *	NE	NE
n-Propylbenzene	**87**	**160**	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	50 *	10,000 *	1,200 *	2,900 *
Tetrahydrofuran	***ND<10***	***ND<100***	ND<2.0	ND<2.0	***ND<50***	***ND<10***	***ND<10***	***ND<10***	***ND<10***	***ND<10***	***ND<10***	ND<2.0	ND<2.0	***ND<10***	***ND<10***	***ND<10***	***ND<10***	***ND<10***	4 *	9,600 *	250 *	3,700
Toluene	4.3	ND<10	ND<1.0	ND<1.0	ND<5.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1000	4,000,000	23,500	50,000
1,2,4-Trimethylbenzene	78	110	ND<1.0	ND<1.0	ND<2.5	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	140 *	150 *	940 *	12,800 *
1,3,5-Trimethylbenzene	8.8	24	ND<1.0	ND<1.0	ND<2.5	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	140 *	260 *	730 *	10,000 *
Total Xylenes	138.4	**282**	ND<2.0	ND<2.0	ND<10	ND<2	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	530	270 *	21,300	50,000
SVOCs via EPA 8270 (µg/L)																			GWPC	SWPC	Residential Volatilization Criteria	Industrial/Commercial Volatilization Criteria
Acenaphthene	ND<5.0	ND<5.0	ND<0.300	ND<0.050	ND<0.30	ND<0.30	ND<0.30	ND<0.29	ND<0.31	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<0.30	ND<0.30	ND<0.30	ND<0.33	ND<0.30	420 *	150 *	30,500 *	50,000 *
Anthracene	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<0.20	ND<0.20	ND<0.20	ND<0.19	ND<0.20	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<0.20	ND<0.20	ND<0.20	ND<0.22	ND<0.20	2,000	1,100,000	NE	NE
Aniline	ND<5.0	ND<5.0	ND<7.25	ND<5.21	ND<5.0	ND<5.0	ND<5.0	ND<4.8	ND<5.1	ND<5.0	ND<5.0	ND<5.05	ND<5.15	ND<5.0	ND<5.0	ND<5.0	ND<5.6	ND<5.0	6.1 *	41 *	NE	NE
Benzo(a)anthracene	***ND<5.0***	***ND<5.0***	ND<0.050	ND<0.050	**0.23**	ND<0.050	ND<0.050	ND<0.048	ND<0.051	***ND<5.0***	***ND<5.0***	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.056	ND<0.050	0.06	0.3	NE	NE
Benzo(a)pyrene	***ND<5.0***	***ND<5.0***	ND<0.050	ND<0.050	**0.23**	ND<0.010	ND<0.099	ND<0.096	ND<0.10	***ND<5.0***	***ND<5.0***	ND<0.050	ND<0.050	ND<0.10	ND<0.10	ND<0.10	ND<0.11	ND<0.10	0.2	0.3	NE	NE
Benzo(b)fluoranthene	***ND<5.0***	***ND<5.0***	ND<0.050	ND<0.050	**0.32**	ND<0.050	ND<0.050	ND<0.048	ND<0.051	***ND<5.0***	***ND<5.0***	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.056	ND<0.050	0.08	0.3	NE	NE
Bis(2-Ethylhexyl)phthalate	***ND<10***	***ND<10***	***ND<7.25***	***ND<5.21***	ND<2.0	**2.1**	***ND<5.0***	***ND<9.6***	***ND<10***	***ND<10***	***ND<10***	***ND<5.05***	***ND<5.15***	ND<2.0	**2.2**	***ND<5.0***	***ND<2.2***	***ND<10***	2	59	NE	NE
Chrysene	ND<5.0	ND<5.0	ND<0.050	ND<0.050	0.24	ND<0.20	ND<0.20	ND<0.19	ND<0.20	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<0.20	ND<0.20	ND<0.20	ND<0.22	ND<0.20	4.8 *	0.54 *	NE	NE
Fluoranthene	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<0.50	ND<0.50	ND<0.50	ND<0.48	ND<0.51	ND<5.0	ND<5.0	ND<0.050	0.090	ND<0.50	ND<0.50	ND<0.50	ND<0.56	ND<0.50	280	3,700	NE	NE
Fluorene	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<1.0	ND<1.0	ND<0.99	ND<0.96	ND<1.0	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<1.0	ND<1.0	ND<1.0	ND<1.1	ND<1.0	280	140,000	NE	NE
1-Methylnaphthalene	NS	NS	ND<0.065	ND<0.050	ND<5.0	ND<5.0	NS	NS	NS	NS	NS	ND<0.050	ND<0.050	ND<5.0	ND<5.0	NS	NS	NS	5 *	61 *	20 *	320 *
2-Methylnaphthalene	15	19	ND<0.075	ND<0.050	ND<1.0	ND<1.0	ND<0.99	ND<0.96	ND<1.0	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<1.0	ND<1.0	ND<1.0	ND<1.1	ND<1.0	28 *	62 *	1,000 *	13,100 *
Naphthalene	50	77	ND<0.050	ND<0.050	ND<1.0	ND<1.0	ND<0.99	ND<0.96	ND<1.0	ND<5.0	ND<5.0	0.074	ND<0.050	ND<1.0	ND<1.0	ND<1.0	ND<1.1	ND<1.0	280	210 *	NE	NE
Phenanthrene	***ND<5.0***	***ND<5.0***	ND<0.050	0.062	0.11	ND<0.050	ND<0.050	ND<0.048	ND<0.051	***ND<5.0***	***ND<5.0***	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.056	ND<0.050	200	0.3	NE	NE
Pyrene	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<1.0	ND<1.0	ND<0.99	ND<0.96	ND<1.0	ND<5.0	ND<5.0	ND<0.050	0.091	ND<1.0	ND<1.0	ND<1.0	ND<1.1	ND<1.0	200	110,000	NE	NE
ETPH via CTETPH (mg/L)																			GWPC	SWPC	Residential Volatilization Criteria	Industrial/Commercial Volatilization Criteria
CT ETPH	**1.7**	**1.2**	ND<0.08	NS<0.2	0.28	0.19	0.17	**0.27**	0.19	ND<0.075	ND<0.075	ND<0.2	ND<0.2	ND<0.075	**0.31**	ND<0.075	0.16	0.17	0.25	0.25 *	0.25	0.25
Total Metals (mg/L)																			GWPC	SWPC	Residential Volatilization Criteria	Industrial/Commercial Volatilization Criteria
Antimony	ND<0.005	ND<0.005	ND<0.0060	ND<0.0060	ND<0.0060	ND<0.0060	ND<0.0060	ND<0.0060	ND<0.0060	ND<0.005	ND<0.005	ND<0.0060	ND<0.0060	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0010	0.006	86	NE	NE
Arsenic	**0.0072**	**0.015**	ND<0.0040	ND<0.0040	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.00080	ND<0.002	ND<0.002	ND<0.0040	ND<0.0040	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	0.0014	0.05	0.004	NE	NE
Barium	0.6	0.96	0.182	0.129	0.068	0.110	0.063	0.095	0.077	ND<0.25	ND<0.12	0.132	0.137	0.180	0.190	0.240	0.220	0.180	1	2.2 *	NE	NE
Beryllium	ND<0.002	ND<0.002	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.00080	ND<0.002	ND<0.002	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.00040	0.004	0.004	NE	NE
Cadmium	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.00020	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.00020	0.005	0.006	NE	NE
Chromium (total)	ND<0.05	ND<0.05	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	0.0012	ND<0.05	ND<0.05	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	0.0016	0.05	0.11**	NE	NE
Copper	ND<0.025	ND<0.025	ND<0.0100	ND<0.0100	ND<0.025	ND<0.025	ND<0.025	ND<0.025	0.0076	ND<0.025	ND<0.025	ND<0.0100	ND<0.0100	ND<0.025	ND<0.025	ND<0.025	ND<0.025	0.0067	1.3	0.048	NE	NE
Lead	ND<0.005	ND<0.005	ND<0.0075	ND<0.0075	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	0.00058	ND<0.005	ND<0.005	ND<0.0075	ND<0.0075	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.00050	0.015	0.013	NE	NE
Mercury	ND<0.00010	ND<0.00010	ND<0.00020	ND<0.00020	ND<0.00010	ND<0.00010	ND<0.00010	ND<0.00010	ND<0.00010	ND<0.00010	ND<0.00010	ND<0.00020	ND<0.00020	ND<0.00010	ND<0.00010	ND<0.00010	ND<0.00010	ND<0.00010	0.002	0.0004	NE	NE
Nickel	ND<0.025	ND<0.025	ND<0.0050	ND<0.0050	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.0050	ND<0.025	ND<0.025	ND<0.0050	ND<0.0050	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.0050	0.1	0.88	NE	NE
Selenium	ND<0.025	ND<0.025	ND<0.0150	ND<0.0150	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.0050	ND<0.025	ND<0.025	ND<0.0150	ND<0.0150	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.0050	0.05	0.05	NE	NE
Silver	ND<0.0025	ND<0.0025	ND<0.0050	ND<0.0050	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.00020	ND<0.0025	ND<0.0025	ND<0.0050	ND<0.0050	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.00020	0.036	0.012	NE	NE
Thallium	ND<0.001	ND<0.001	ND<0.0050	ND<0.0050	ND<0.0010	ND<0.0010	ND<0.0010	ND<0.0010	ND<0.00020	ND<0.001	ND<0.001	ND<0.0050	ND<0.0050	ND<0.0010	ND<0.0010	ND<0.0010	ND<0.0010	ND<0.00020	0.005	0.063	NE	NE
Vanadium	ND<0.025	ND<0.025	ND<0.0050	ND<0.0050	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.0050	ND<0.025	ND<0.025	ND<0.0050	ND<0.0050	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.0050	0.05	0.27 *	NE	NE
Zinc	ND<0.1	ND<0.1	0.0193	0.0182	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.010	ND<0.1	ND<0.1	ND<0.0100	0.0148	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.010	5	0.123	NE	NE

Notes:

Results presented in **Bold** and Yellow highlight indicates a detection above one or more applicable criteria
Results presented in ***bold italic*** type face indicate that the laboratory detection limit is above one or more applicable criteria
µg/L = micrograms per liter
mg/L = milligrams per liter
VOCs = Volatile Organic Compounds
SVOCs = Semi-Volatile Organic Compounds
ETPH = Extractable Total Petroleum Hydrocarbons
ND = Not detected
NS = Not sampled
NE = No standard established
EPA = Environmental Protection Agency
GWPC = Groundwater Protection Criteria
SWPC = Surface Water Protection Criteria
* = Additional Polluting Substance Criteria (APS) (CTDEEP revised 2/29/2016)
** = Since there is no default numeric criteria for total chromium, analytical results were compared to the more conservative hexavalent chromium standard
A = Result value from the associated duplicate sample taken at the well during the sampling event (higher value presented of the sample vs. the duplicate)
B = Analyte also detected in the associated Blank during the sampling event
During multiple sampling events, wells AP-13 and AP-15 were dry and unable to be sampled.
All wells were damaged during 2014/2015 on-site construction activities for the CREC center. All replacement wells have suffix "R". AP-6R and AP-11R replaced on 9/30/2014; AP-13R replaced on 6/28/2015; all other wells replaced on 6/4-5/2015.
Wells AP-13R-BR and AP-15R-BR were installed on 8/17/2018.

APEX

TABLE 2 con't
Groundwater Analytical Results - Detected Analytes

Former CL&P Operations Center
Eversource Energy
176 Cumberland Avenue
Wethersfield, Connecticut

AOC	AOC #6									AOC #6										AOC #2											
Well ID:	AP-9R									AP-11R										AP-12R											
Date Sampled	11/5/2009	3/25/2010	8/12/2015	11/11/2015	3/2/2016	5/24/2016	5/30/2017	10/10/2018	7/30/2019	11/5/2009	3/26/2010	8/13/2015	11/12/2015	3/1/2016	5/24/2016	5/31/2017	10/11/2018	7/31/2019	11/4/2009	3/25/2010	8/13/2015	11/12/2015	3/1/2016	5/24/2016	5/31/2017	10/10/2018	7/30&31/2019	GWPC	SWPC	Residential Volatilization Criteria	Industrial/Commercial Volatilization Criteria
VOCs via EPA 8260 (µg/L)																														
Acetone	ND<5.0	ND<5.0	ND<10.0	ND<10.0	ND<10	ND<10	ND<10	ND<10	ND<10	ND<5.0	ND<5.0	ND<10.0	ND<10.0	ND<10	ND<10	ND<10	ND<10	ND<10	ND<50	ND<5.0	ND<10.0	ND<10.0	ND<10	ND<10	ND<10	ND<10	ND<10	700	10,000 *	50,000	50,000
Benzene	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	0.94	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1	710	215	530
2-Butanone (MEK)	ND<2.0	ND<2.0	ND<10.0	ND<10.0	ND<5.0	ND<10	ND<5.0	ND<5.0	ND<5.0	ND<2.0	ND<2.0	ND<10.0	ND<10.0	ND<5.0	ND<10	ND<5.0	ND<5.0	ND<5.0	3.0	ND<2.0	ND<10.0	ND<10.0	ND<5.0	ND<10	ND<5.0	ND<5.0	ND<5.0	400	10,000 *	50,000	50,000
n-Butylbenzene	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	350 *	10,000 *	1,600 *	21,800 *
sec-Butylbenzene	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	350 *	10,000 *	1,500 *	20,100 *
Carbon Disulfide	ND<0.50	ND<0.50	ND<2.0	ND<2.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.0	ND<2.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.2	ND<0.50	ND<2.0	ND<2.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	40 *	150 *	2,100 *	5,200 *
Carbon Tetrachloride	ND<0.50	ND<2.0	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.4 A	ND<2.0	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<2.0	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	5	132	16	40
Chloroform	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	0.63	1.7	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	6	14,100	287	710
1,2-Dichloroethane	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1	2,970	21	90
Di-isopropyl ether	NS	NS	ND<1.0	ND<1.0	ND<0.50	ND<0.50	NS	NS	NS	NS	NS	ND<1.0	ND<1.0	ND<0.50	ND<0.50	NS	NS	NS	NS	NS	ND<1.0	ND<1.0	ND<0.50	ND<0.50	NS	NS	NS	NE	NE	NE	NE
Ethylbenzene	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	700	580,000	50,000	50,000
Isopropylbenzene	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	25 *	210 *	900 *	2,200 *
p-Isopropyltoluene	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	25 *	200 *	870 *	2,100 *
Methyl tert-butyl ether (MTBE)	1.6	2.1	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	1.1	ND<1.0	0.67	0.53	0.72	0.66	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	100	10,000 *	50,000	50,000
Naphthalene	ND<2.0	ND<2.0	ND<1.0	ND<1.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<1.0	ND<1.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<5.0	ND<2.0	5.1	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	280	210 *	NE	NE
n-Propylbenzene	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	50 *	10,000 *	1,200 *	2,900 *
Tetrahydrofuran	ND<10	ND<10	89.4	83.0	24	50	15	ND<10	ND<10	***ND<10***	***ND<10***	ND<2.0	ND<2.0	***ND<10***	***ND<10***	***ND<10***	***ND<10***	***ND<10***	***ND<10***	***ND<10***	ND<2.0	***ND<10***	***ND<10***	***ND<10***	***ND<10***	***ND<10***	***ND<10***	4 *	9,600 *	250 *	3,700
Toluene	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0	1000	4,000,000	23,500	50,000
1,2,4-Trimethylbenzene	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	140 *	150 *	940 *	12,800 *
1,3,5-Trimethylbenzene	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<1.0	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50	140 *	260 *	730 *	10,000 *
Total Xylenes	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<2.0	530	270 *	21,300	50,000
SVOCs via EPA 8270 (µg/L)																												GWPC	SWPC	Residential Volatilization Criteria	Industrial/Commercial Volatilization Criteria
Acenaphthene	ND<5.0	ND<5.0	ND<0.100	0.269	ND<0.30	ND<0.30	ND<0.27	ND<0.31	ND<0.31	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<0.30	ND<0.30	ND<0.30	ND<0.33	ND<0.80	NS	ND<5.0	NS	0.110	ND<0.30	NS	ND<0.30	ND<0.29	NS	420 *	150 *	NE	50,000 *
Anthracene	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<0.20	ND<0.20	ND<0.18	ND<0.20	ND<0.20	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<0.20	ND<0.20	ND<0.20	ND<0.22	ND<0.20	NS	ND<5.0	NS	ND<0.050	ND<0.20	NS	ND<0.20	ND<0.19	NS	2,000	1,100,000	NE	NE
Aniline	ND<5.0	ND<5.0	ND<5.0	ND<5.32	ND<5.0	ND<5.0	ND<4.5	ND<5.1	ND<5.1	ND<5.0	ND<5.0	ND<5.10	ND<5.21	ND<5.0	ND<5.0	ND<5.0	ND<5.6	ND<5.0	NS	ND<5.0	NS	ND<8.33	ND<5.0	NS	ND<5.0	ND<4.8	NS	6.1 *	41 *	NE	NE
Benzo(a)anthracene	***ND<5.0***	***ND<5.0***	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.045	ND<0.051	NS<0.051	***ND<5.0***	***ND<5.0***	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.056	ND<0.050	NS	***ND<5.0***	NS	ND<0.050	ND<0.050	NS	ND<0.050	ND<0.048	NS	0.06	0.3	NE	NE
Benz(a)pyrene	***ND<5.0***	***ND<5.0***	ND<0.050	ND<0.050	ND<0.10	ND<0.10	ND<0.091	ND<0.10	ND<0.10	***ND<5.0***	***ND<5.0***	ND<0.050	ND<0.050	ND<0.10	ND<0.10	ND<0.10	ND<0.11	ND<0.10	NS	***ND<5.0***	NS	ND<0.050	ND<0.10	NS	ND<0.099	ND<0.096	NS	0.2	0.3	NE	NE
Benzo(b)fluoranthene	***ND<5.0***	***ND<5.0***	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.045	ND<0.051	ND<0.051	***ND<5.0***	***ND<5.0***	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.056	ND<0.050	NS	***ND<5.0***	NS	ND<0.050	ND<0.050	NS	ND<0.050	ND<0.048	NS	0.08	0.3	NE	NE
Bis(2-Ethylhexyl)phthalate	***ND<10***	***ND<5.10***	***ND<5.32***	ND<2.0	2.4	***ND<9.1***	***ND<10***	***ND<10***	***ND<10***	***ND<10***	***ND<10***	***ND<5.10***	***ND<5.21***	ND<2.0	2.1	***ND<5.0***	***ND<2.2***	***ND<10***	NS	***ND<10***	NS	***ND<8.33***	ND<2.0	NS	***ND<5.0***	***ND<9.6***	NS	2	59	NE	NE
Chrysene	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<0.20	ND<0.20	ND<0.18	ND<0.20	ND<0.20	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<0.20	ND<0.20	ND<0.20	ND<0.22	ND<0.20	NS	ND<5.0	NS	ND<0.050	ND<0.20	NS	ND<0.20	ND<0.19	NS	4.8 *	0.54 *	NE	NE
Fluoranthene	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<0.50	ND<0.50	ND<0.45	ND<0.51	ND<0.51	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<0.50	ND<0.50	ND<0.50	ND<0.56	ND<0.50	NS	ND<5.0	NS	ND<0.050	ND<0.50	NS	ND<0.50	ND<0.48	NS	280	3,700	NE	NE
Fluorene	ND<5.0	ND<5.0	ND<0.050	0.064	ND<1.0	ND<1.0	ND<0.91	ND<1.0	ND<1.0	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<1.0	ND<1.0	ND<1.0	ND<1.1	ND<1.0	NS	ND<5.0	NS	ND<0.050	ND<1.0	NS	ND<0.099	ND<0.096	NS	280	140,000	NE	NE
1-Methylnaphthalene	NS	NS	ND<0.065	0.054	ND<5.0	ND<5.0	NS	NS	NS	NS	NS	ND<0.050	ND<0.050	ND<5.0	ND<5.0	NS	NS	NS	NS	NS	NS	ND<0.050	ND<5.0	NS	NS	NS	NS	5 *	61 *	20 *	320 *
2-Methylnaphthalene	ND<5.0	ND<5.0	ND<0.075	0.063	ND<1.0	ND<1.0	ND<0.91	ND<1.0	ND<1.0	ND<5.0	ND<5.0	0.059	ND<0.050	ND<1.0	ND<1.0	ND<1.0	ND<1.1	ND<1.0	NS	ND<5.0	NS	ND<0.050	ND<1.0	NS	ND<0.099	ND<0.096	NS	28 *	62 *	1,000 *	13,100 *
Naphthalene	ND<5.0	ND<5.0	0.092	ND<0.050	ND<1.0	ND<1.0	ND<0.91	ND<1.0	ND<1.0	ND<5.0	ND<5.0	0.019	ND<0.050	ND<1.0	ND<1.0	ND<1.0	ND<1.1	ND<1.0	NS	ND<5.0	NS	ND<0.050	ND<1.0	NS	ND<0.099	ND<0.096	NS	280	210 *	NE	NE
Phenanthrene	***ND<5.0***	***ND<5.0***	0.055	0.071	ND<0.050	ND<0.050	ND<0.045	ND<0.051	ND<0.051	***ND<5.0***	***ND<5.0***	ND<0.050	ND<0.050	ND<0.050	ND<0.050	0.052	ND<0.056	ND<0.050	NS	***ND<5.0***	NS	ND<0.050	ND<0.050	NS	ND<0.050	ND<0.048	NS	200	0.3	NE	NE
Pyrene	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<1.0	ND<1.0	ND<0.91	ND<1.0	ND<1.0	ND<5.0	ND<5.0	ND<0.050	ND<0.050	ND<1.0	ND<1.0	ND<1.0	ND<1.1	ND<1.0	NS	ND<5.0	NS	ND<0.050	ND<1.0	NS	ND<0.099	ND<0.096	NS	200	110,000	NE	NE
ETPH via CTETPH (mg/L)																												GWPC	SWPC	Residential Volatilization Criteria	Industrial/Commercial Volatilization Criteria
CT ETPH	0.14	ND<0.076	ND<0.2	ND<0.2	0.17	0.14	0.10	0.17	ND<0.15	0.20 A	ND<0.075	ND<0.2	ND<0.2	ND<0.075	ND<0.075	ND<0.075	0.13	0.17	NS	ND<0.075	NS	NS	0.20	0.18	ND<0.075	0.19	**0.28**	0.25	0.25 *	0.25	0.25
Total Metals (mg/L)																												GWPC	SWPC	Residential Volatilization Criteria	Industrial/Commercial Volatilization Criteria
Antimony	ND<0.005	ND<0.005	ND<0.0060	ND<0.0060	ND<0.005	ND<0.005	ND<0.0050	ND<0.0050	ND<0.0010	ND<0.005	ND<0.005	ND<0.0060	ND<0.0060	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0010	NS	ND<0.005	NS	NS	ND<0.005	ND<0.005	ND<0.005	ND<0.0050	ND<0.0010	0.006	86	NE	NE
Arsenic	ND<0.002	ND<0.002	ND<0.0040	ND<0.0040	ND<0.002	ND<0.002	ND<0.0020	ND<0.0020	ND<0.0080	ND<0.002	ND<0.002	ND<0.0040	ND<0.0040	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.00080	NS	ND<0.002	NS	NS	0.0038	0.0029	ND<0.0020	ND<0.0020	ND<0.00080	0.05	0.004	NE	NE
Barium	ND<0.25	0.19	0.0704	0.0692	0.076	ND<0.050	0.062	0.084	0.064	ND<0.25	0.13	0.0958	0.0946	0.140	0.140	0.140	0.160	0.150	NS	ND<0.12	NS	NS	0.083	0.095	0.065	0.100	0.100	1	2.2 *	NE	NE
Beryllium	ND<0.002	ND<0.002	ND<0.0020	ND<0.0020	ND<0.002	ND<0.002	ND<0.0020	ND<0.0020	ND<0.00040	ND<0.002	ND<0.002	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.0020	ND<0.00040	NS	ND<0.002	NS	NS	ND<0.002	ND<0.002	ND<0.0020	ND<0.0020	ND<0.00040	0.004	0.004	NE	NE
Cadmium	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.00020	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.00020	NS	ND<0.0025	NS	NS	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.00020	0.005	0.006	NE	NE
Chromium (total)	ND<0.05	ND<0.05	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0010	ND<0.05	ND<0.05	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0010	NS	ND<0.05	NS	NS	ND<0.05	ND<0.05	ND<0.0050	ND<0.0050	0.0015	0.05	0.11 *	NE	NE
Copper	ND<0.025	ND<0.025	ND<0.0100	ND<0.0100	ND<0.025	ND<0.025	ND<0.025	ND<0.025	0.0076	ND<0.025	ND<0.025	ND<0.0100	ND<0.0100	ND<0.025	ND<0.025	ND<0.025	ND<0.025	0.0067	NS	ND<0.025	NS	NS	ND<0.025	ND<0.025	ND<0.025	ND<0.025	0.011	1.3	0.048	NE	NE
Lead	ND<0.005	ND<0.005	ND<0.0075	ND<0.0075	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.000500	ND<0.005	ND<0.005	ND<0.0075	ND<0.0075	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.000500	NS	ND<0.005	NS	NS	ND<0.005	ND<0.005	ND<0.0050	ND<0.0050	0.0016	0.015	0.013	NE	NE
Mercury	ND<0.00010	ND<0.00010	ND<0.00020	ND<0.00020	ND<0.00010	ND<0.00010	ND<0.00010	ND<0.00010	ND<0.00010	ND<0.00010	ND<0.00010	ND<0.00020	ND<0.00020	ND<0.00010	ND<0.00010	ND<0.00010	ND<0.00010	ND<0.00010	NS	ND<0.00010	NS	NS	ND<0.00010	ND<0.00010	ND<0.00010	ND<0.00010	ND<0.00010	0.002	0.0004	NE	NE
Nickel	ND<0.025	ND<0.025	ND<0.0050	ND<0.0050	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.0050	ND<0.025	ND<0.025	ND<0.0050	ND<0.0050	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.0050	NS	ND<0.025	NS	NS	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.0050	0.1	0.88	NE	NE
Selenium	ND<0.025	ND<0.025	ND<0.0150	ND<0.0150	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.0050	ND<0.025	ND<0.025	ND<0.0150	ND<0.0150	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.0050	NS	ND<0.025	NS	NS	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.0050	0.05	0.05	NE	NE
Silver	ND<0.0025	ND<0.0025	ND<0.0050	ND<0.0050	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.00020	ND<0.0025	ND<0.0025	ND<0.0050	ND<0.0050	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.00020	NS	ND<0.0025	NS	NS	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.0025	ND<0.00020	0.036	0.012	NE	NE
Thallium	ND<0.001	ND<0.001	ND<0.0050	ND<0.0050	ND<0.0010	ND<0.0010	ND<0.0010	ND<0.0010	ND<0.00020	ND<0.001	ND<0.001	ND<0.0050	ND<0.0050	ND<0.0010	ND<0.0010	ND<0.0010	ND<0.0010	ND<0.00020	NS	ND<0.001	NS	NS	ND<0.001	ND<0.001	ND<0.0010	ND<0.0010	ND<0.00020	0.005	0.063	NE	NE
Vanadium	ND<0.025	ND<0.025	ND<0.0050	ND<0.0050	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.0050	ND<0.025	ND<0.025	ND<0.0050	ND<0.0050	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.0050	NS	ND<0.025	NS	NS	ND<0.025	ND<0.025	ND<0.025	ND<0.025	ND<0.0050	0.05	0.27 *	NE	NE
Zinc	ND<0.1	ND<0.1	ND<0.0100	ND<0.0100	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.010	ND<0.1	ND<0.1	ND<0.0100	ND<0.0100	ND<0.050	ND<0.050	ND<0.050	ND<0.050	ND<0.010	NS	ND<0.1	NS	NS	**0.420**	**0.170**	0.079	ND<0.050	**0.290**	5	0.123	NE	NE
Dissolved Metals (mg/L)																												GWPC	SWPC	Residential Volatilization Criteria	Industrial/Commercial Volatilization Criteria
Antimony	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND<0.005	NS	NS	0.006	86	NE	NE
Arsenic	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.0031	NS	NS	NS	0.05	0.004	NE	NE
Barium	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.085	NS	NS	NS	1	2.2 *	NE	NE
Beryllium	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND<0.002	NS	NS	NS	0.004	0.004	NE	NE
Cadmium	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND<0.0025	NS	NS	NS	0.005	0.006	NE	NE
Chromium (total)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND<0.05	NS	NS	NS	0.05	0.11 *	NE	NE
Copper	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND<0.025	NS	NS	NS	1.3	0.048	NE	NE
Lead	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND<0.005	NS	NS	NS	0.015	0.013	NE	NE
Mercury	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND<0.00010	NS	NS	NS	0.002	0.0004	NE	NE
Nickel	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND<0.025	NS	NS	NS	0.1	0.88	NE	NE
Selenium	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND<0.025	NS	NS	NS	0.05	0.05	NE	NE
Silver	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND<0.0025	NS	NS	NS	0.036	0.012	NE	NE
Thallium	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND<0.001	NS	NS	NS	0.005	0.063	NE	NE
Vanadium	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND<0.025	NS	NS	NS	0.05	0.27 *	NE	NE
Zinc	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.056	0.063	NS	NS	5	0.123	NE	NE

Notes:

Results presented in **Bold** and Yellow highlight indicates a detection above one or more applicable criteria
Results presented in ***bold italic*** type face indicate that the laboratory detection limit is above one or more applicable criteria
µg/L = micrograms per liter
mg/L = milligrams per liter
VOCs = Volatile Organic Compounds
SVOCs = Semi-Volatile Organic Compounds
ETPH = Extractable Total Petroleum Hydrocarbons
ND = Not detected
NS = Not sampled
NE = No standard established
EPA = Environmental Protection Agency
GWPC = Groundwater Protection Criteria
SWPC = Surface Water Protection Criteria
* = Additional Polluting Substance Criteria (APS) (CTDEEP revised 2/29/2016)
** = Since there is no default numeric criteria for total chromium, analytical results were compared to the more conservative hexavalent chromium standard
A = Result value from the associated duplicate sample taken at the well during the sampling event (higher value presented of the sample vs. the duplicate)
B = Analyte also detected in the associated Blank during the sampling event
During multiple sampling events, wells AP-13 and AP-15 were dry and unable to be sampled
All wells were damaged during 2014/2015 on-site construction activities for the CREC center. All replacement wells have suffix "R". AP-6R and AP-11R replaced on 9/30/2014; AP-13R replaced on 6/28/2015; all other wells replaced on 6/4-5/2015.
Wells AP-13R-BR and AP-15R-BR were installed on 8/17/2018

[redacted]

Appendix A

[redacted]



APPENDIX A

Regulatory Submittals

CTDEEP Document Submittal Summary

176 Cumberland Avenue
Wethersfield, Connecticut
REMID 11169

Document Title	Date	Consultant	Comment
2018 Annual Status Report	February 2019	Apex Companies, LLC	Submitted to CTDEEP
2017 Annual Status Report	February 2018	Apex Companies, LLC	Submitted to CTDEEP
Status Report	February 2017	Apex Companies, LLC	Submitted to CTDEEP
Status Report	May 2016	Apex Companies, LLC	Submitted to CTDEEP
Status Report	May 2015	Apex Companies, LLC	Submitted to CTDEEP
Soil Excavation Letter Report	August 27, 2013	Apex Companies, LLC	Submitted to CTDEEP
Public Notification Activities	June 2013	Apex Companies, LLC	Letter to Public Health Director (6/26/2013), Legal Notice in Hartford Courant 6/18/2013; Sign posted on-site for 30 days
Remedial Action Plan	April 30, 2013	Apex Companies, LLC	Submitted to CTDEEP
Schedule for Investigation and Remediation	December 12, 2012	Apex Companies, LLC	Submitted to CTDEEP
Form III and ECAF Filing	August 2012	Apex Companies, LLC	Submitted to CTDEEP (with Form III resubmitted in September/October 2012)
Sensitive Receptor Survey	May 8, 2012	Apex Companies, LLC	Submitted with 2012 ECAF filing
Phase I ESA - 176 Cumberland Avenue	November 30, 2011	HRP Associates, Inc.	Submitted with 2012 ECAF filing
Groundwater Monitoring Results	April 8, 2010	Apex Companies, LLC	Submitted with 2012 ECAF filing
Supplemental Site Characterization Report - Former CL&P Operations Center	December 10, 2009	Apex Companies, LLC	Submitted with 2012 ECAF filing
Phase ESA and Partial Phase II Environmental Investigation - 176 Cumberland Avenue	January 2009	Bartley & Associates	Submitted with 2012 ECAF filing

[redacted]

Appendix B

[redacted]





APPENDIX B

Conceptual Site Model

Conceptual Site Model

Former CL&P Operations Center
176 Cumberland Avenue
Wethersfield, Connecticut

AOC/REC		OHM Used/Stored	Primary COCs	Release Mechanisms	Transport Mechanisms	Potential Receptors	Soil Samples	Groundwater Monitoring Wells*	Gore™ Passive Soil Vapor
AOC-1	Former Gasoline USTs and Dispensers	Petroleum Products (Gasoline)	VOCs, SVOCs, ETPH	Releases from USTs, dispensers, associated piping, spills to surface from fueling operations	Adsorbed onto underlying soil, adsorbed into surrounding soils, downward percolation to water table, dissolution into groundwater and transport via advection	Indoor air/vapor intrusion, soils, groundwater, and surface water	AP-1, AP-2, AP-3, AP-4, AP-5, B-1, B2, B3, B5	AP-1R, AP-2R, AP-3R, AP-4R, MW1, MW5	1 through 15, 21
AOC-2	Former Fuel Oil UST/Former Fuel Oil AST	Petroleum Products (#2 Fuel Oil)	VOCs, SVOCs, ETPH, metals	Releases from UST, AST, and associated piping, spills to surface from fueling operations	Adsorbed onto asphalt, penetration through cracks to underlying soil, adsorbed into surrounding soils, downward percolation to water table, dissolution into groundwater and transport via advection	Indoor air/vapor intrusion, soils, groundwater, and surface water	AP-12, B6	AP-12R, MW4	22
AOC-3	Former Waste Oil UST	Petroleum Products (Waste Oil)	VOCs, SVOCs, ETPH, metals, PCBs	Releases from USTs and associated piping, spills to surface from filling operations	Adsorbed onto underlying soil, adsorbed into surrounding soils, downward percolation to water table, dissolution into groundwater and transport via advection	Indoor air/vapor intrusion, soils, groundwater, and surface water	AP-4, AP-5, B4	AP-4R, MW2	10
AOC-4	Former Hazardous Waste Area (Garage)	Petroleum, volatile organic compounds, semi-volatile organic compounds, metals	VOCs, SVOCs, ETPH, metals, PCBs	Releases to the pavement from material handling and storage	Adsorbed onto asphalt, penetration through cracks to underlying soil, adsorbed into surrounding soils, downward percolation to water table, dissolution into groundwater and transport via advection	Indoor air/vapor intrusion, soils, groundwater, and surface water	AP-101	AP-101R	
AOC-5	Sanitary Sewer Line	Metals (copper and lead), potential disposal of OHM (Petroleum, solvents)	VOCs, SVOCs, ETPH, metals	Releases to soils sanitary sewer piping	Release to underlying soil, downward percolation to water table, dissolved groundwater flow and transport via advection	Indoor air/vapor intrusion, soils, groundwater, and surface water	AP-14, AP-15	A-15R, AP-15R-BR	
AOC-6	Former Loading Dock	Petroleum, volatile organic compounds, semi-volatile organic compounds, metals	VOCs, SVOCs, ETPH,	Releases from material handling or vehicles	Adsorbed onto asphalt, penetration through cracks to underlying soil, adsorbed into surrounding soils, downward percolation to water table, dissolution into groundwater and transport via advection	Indoor air/vapor intrusion, soils, groundwater, and surface water	AP-5, AP-6, AP-7, AP-8, AP-9, AP-10, AP-11, B8	AP-6R, AP-9R, AP-11R, MW-6	10, 11, 14 through 20
AOC-7	Generator at West Side of Data Building	Coolant (antifreeze)	VOCs, SVOCs, ETPH, metals	Releases from generator system and piping	Adsorbed onto pavement, penetration through cracks to underlying soil, downward percolation to water table	Soils and groundwater	Release was reported to be contained within generator unit. No evidence of release reported in vicinity of generator. No further investigation required.		

Key to Table Acronyms:
AOC = area of concern
UST = underground storage tank
COCs = contaminants of concern
VOCs = volatile organic compounds
SVOCs = semi-volatile organic compounds (polyaromatic hydrocarbons (PAHs))
ETPH = extractable total petroleum hydrocarbons
EPH = extractable petroleum hydrocarbons
PCBs = polychlorinated biphenyls
* = Monitoring wells with "R" suffix were replaced during site redevelopment (i.e., AP-1 was replaced with AP-1R)