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DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
REMEDIATION DIVISION
LEAKING UNDERGROUND STORAGE TANK COORDINATION PROGRAM
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Part I: Primary Recipient*: Remediation or LUST (* required)

For Remediation documents:	For LUST documents:
Primary Program*: Other Remediation Program	UST Facility ID: (if applicable)
Rem ID*:	Spill Case Number: (if known)

Part II: Site Information

Site Name*: English Station
Site Address*: 510/510A Grand Avenue
City/Town*: New Haven State: CT Zip Code: 06513

Secondary Programs (complete as many as applicable for this document):

Program: PCB	Project ID:
Program: Select Secondary Program	Project ID:
Program: Select Secondary Program	Project ID:
Program: Select Secondary Program	Project ID:

Provide Project ID for each secondary program if it is known.
Each program has a unique ID (i.e. Rem ID, Spill Case #, UST Facility ID, etc.)

Part III: Document Information (document type required for appropriate program[s] only)

Remediation*: Phase 3 SOW
LUST*: LUST Document Type
Date of Document*: 9/2/2021 Version: Revised

Part IV: Submitter Information

Name*: Carl Stopper
E-mail*: cstopper@trccompanies.com
Name of company/business this document is being submitted on behalf of: *
The United Illuminating Company

Mr. Gary Trombly, Jr.
Supervising Environmental Analyst
Department of Energy and Environmental Protection
Emergency Response and Spill Prevention Division
Bureau of Materials Management and Compliance Assurance
79 Elm Street
Hartford, Connecticut 06106

Re: Partial Consent Order #COWSPCB 15-001
English Station – Boiler #13 Concrete Foundation and Other Concrete Sampling (PARTIAL) Scope of Study
English Station
510 Grand Avenue
New Haven, Connecticut

Dear Mr. Trombly:

In accordance with the referenced Partial Consent Order and based on the discussions between the United Illuminating Company (UI) and the Connecticut Department of Energy and Environmental Protection (CTDEEP) on August 5, 2021, UI is pleased to provide the revised English Station – Boiler #13 Concrete Foundation and Other Concrete Sampling (PARTIAL) Scope of Study for review and comment by the CTDEEP.

CERTIFICATION

I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, that the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information is punishable as a criminal offense under §53a-157b of the Connecticut General Statutes and any other applicable law.

Should you have any questions or comments regarding this document or any attachments hereto, please don't hesitate to contact Shawn Crosbie at (860) 904-8551.

David A. LaBelle

David LaBelle
AVANGRID, Vice President Environmental, Health & Safety

Shawn C Crosbie

Shawn Crosbie
The United Illuminating Company, Project Manager of Remediation

SCOPE OF STUDY

ENGLISH STATION – BOILER #13
CONCRETE FOUNDATION AND OTHER CONCRETE SAMPLING
(PARTIAL)
510 GRAND AVENUE
NEW HAVEN, CONNECTICUT

Prepared for:

The United Illuminating Company

180 Marsh Hill Road

Orange, Connecticut

Prepared by

TRC

Windsor, Connecticut

Revised: September 2, 2021

SCOPE OF STUDY

ENGLISH STATION – BOILER #13
CONCRETE FOUNDATION AND OTHER CONCRETE SAMPLING (PARTIAL)
510 GRAND AVENUE
NEW HAVEN, CONNECTICUT

Prepared for

The United Illuminating Company
180 Marsh Road
Orange, Connecticut

TRC Project No. 263951

Revised: September 2, 2021

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APPENDICES

Appendix A Copy of Partial Consent Order COWSPCB 15-001

Acronym/Abbreviation List

AEI	Advanced Environmental Interface, Inc.
AOC	Area of Concern
ASNAT	ASNAT Realty, LLC
AST	Aboveground storage tank
ASTM	American Society for Testing and Materials
CET	Complete Environmental Testing, Inc.
cm	Centimeter
cm/sec	Centimeters per second
COC	Contaminant of concern
CSM	Conceptual site model
CTDEEP	Connecticut Department of Energy and Environmental Protection
CT DPH	Connecticut Department of Health
CTL	Connecticut Testing Laboratories, Inc.
DEC	Direct Exposure Criteria
DQA	Data Quality Assessment
DQO	Data Quality Objectives
DUE	Data Usability Evaluation
ECAF	Environmental Condition Assessment Form
ELLAP	Environmental Lead Laboratory Accreditation Program
ELUR	Environmental Land Use Restriction
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
ETPH	Extractable Total Petroleum Hydrocarbons
ftbgs	Feet below ground surface
GEI	GEI Consultants, Inc.
GWPC	Groundwater Protection Criteria
HPLC	High Performance Liquid Chromatography
I/C DEC	Industrial/Commercial Direct Exposure Criteria
LCS	Laboratory Control Sample
IDW	Investigation-Derived Waste
LEP	Licensed Environmental Professional
LQG	Large Quantity Generator
MDL	Minimum Detection Limit
mg/cm^2	Milligrams per square centimeter
mg/kg	Milligrams per kilogram
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NAPL	Non-Aqueous Phase Liquids
NTU	Nephelometric Turbidity Unit
NVLAP	National Voluntary Laboratory Accreditation Program
PAH	Polycyclic Aromatic Hydrocarbons

PCB	Polychlorinated Biphenyl
PCO	Partial Consent Order
PID	Photoionization Detector
PMC	Pollutant Mobility Criteria
PPE	Personal Protective Equipment
ppm	Parts per million
QA/QC	Quality Assurance/Quality Control
QE	Quinnipiac Energy, LLC
%R	Percent Recovery
RAP	Remedial Action Plan
RCP	Reasonable Confidence Protocols
RCRA	Resource Conservation and Recovery Act
RCSA	Regulations of Connecticut State Agencies
RES DEC	Residential Direct Exposure Criteria
RL	Reporting Limit
RPD	Relative percent difference
RSR	Remediation Standard Regulations
SEH	Significant Environmental Hazard
SOP	Standard Operating Procedure
SOS	Scope of Study
SPLP	Synthetic Precipitation Leachate Procedure
SVOC	Semi-Volatile Organic Compound
SWPC	Surface Water Protection Criteria
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbon
TRC	TRC Environmental Corporation
UI	The United Illuminating Company
USCG	United States Coast Guard
USDOT	U.S. Department of Transportation
UST	Underground Storage Tank
V	Volt
VC	Volatilization Criteria
VOC	Volatile Organic Compound

1.0 INTRODUCTION

1.1 Overview

TRC Environmental Corporation (TRC) has been retained by The United Illuminating Company (UI) to provide Licensed Environmental Professional (LEP) services as they relate to adherence to and completion of the tasks outlined in Partial Consent Order (PCO) COWSPCB 15-001, including the preparation of this Scope of Study English Station – Boiler #13 Concrete Foundation and Other Concrete Sampling (Partial) (SOS). On August 4, 2016, the PCO pertaining to environmental matters at the approximate 8.9-acre parcel of land located at 510/510A Grand Avenue in New Haven, Connecticut known as "English Station" (the "Site"), see **Figure 1**, became effective. For the purposes of the PCO, the Site includes the two main buildings (both the English Station building and former Station B building), and associated structures located on the Site , as well as the soil, on-site sediment in drains/pits/sumps, groundwater and surface water located within the confines of the perimeter of the Site as shown on **Figure 2**.

As the Respondent, UI has committed to conducting the investigation and remediation of the Site in accordance with the provisions of the PCO. Other general requirements of the PCO include:

- Development of SOS's for areas of interest and associated schedule;
- Implementation of SOS's once approved by the CTDEEP (and if required, any approved supplemental SOS's);
- Development and submission for review and approval by the CTDEEP an Investigation Report that fully describes the investigatory activities conducted, evaluates the results of analyses conducted for sample media as identified in the PCO, evaluates remedial alternatives and proposes a preferred alternative;
- An alternatives analysis outlining remedial options consistent with investigation results and compliant with the requirements outlined under the PCO;
- Development of plans and specifications for the approved remedial actions, including a list of permits required in order to complete the remedial actions;
- Implementation of the CTDEEP-approved remedial actions;

- Preparation of a report describing, in detail, the remedial actions performed at the Site and the proposed monitoring program designed to determine the effectiveness of the remediation (including the development and implementation of an environmental land use restriction (ELUR) in conjunction with the property owner); and

- Implementation and documentation of the results of the post-remediation monitoring activities.

There are two focal points of the investigation and remediation required by the PCO, environmental media (i.e., soil, on-site sediment, on-site surface water, groundwater, oils, and porous/non-porous media subject to releases) and building materials. Whereas the general requirements of the PCO were outlined above, the following sections provide more detailed information about the objectives associated with the development of this SOS document which is specific only to certain porous media being addressed as part of the Boiler #13 Interim Remedial Measure (IRM) Area, including:

- the interior of concrete structures that comprise the Boiler #13 Sealed Intake Pump Chamber (AOC-19B)

- the Boiler #13 Intake/Discharge Cooling Water Pipe Trench (AOC-19B)

- the Condenser #7 Sump Pit (AOC-16I)

- a portion of the concrete mat foundation and other subsurface foundation components that lies beneath the interstitial fill south of the Boiler #13 Cooling Water Discharge Pipe Trench (AOC-16EE, AOC-16FF, AOC-HH and AOC-17F).

The PCO is included for reference in **Appendix A**.

Note, the concrete foundation area to be investigated as part of this SOS is located below the 1st floor and interstitial fill (IF) material in the Boiler #13 area. The 1st floor and IF material in this area are proposed to be removed as part of an IRM, the details of which are described in a document entitled *Boiler #13 Interim Remedial Measure PCB Remedial Action Plan, TRC, dated February 2021*(Boiler #13 IRM). As the date of this SOS document, the Boiler #13 IRM is under review for approval by CT DEEP and the areas covered in this SOS are inaccessible. In order to meet the PCO requirement under condition B.1.b this document shall be considered a companion

to the following SOS documents prepared by TRC that detailed interior investigation activities for environmental media the English Station building:

- Scope of Study, Western Portion of English Station (Partial), TRC, May 2018, Last Revised July 2020
- Scope of Study, Eastern Portion of English Station Interior (Partial): Boiler 1-12 Area, TRC, August 2018, Last Revised September 2018
- Scope of Study (Partial), English Station Interior, High-Pressure Boiler Area (Boilers #13 and #14), TRC, October 2018
- First Floor of English Station – Interstitial Fill Material (Partial) Scope of Study, TRC, August 2020.

1.2 Objectives

The primary objective of this SOS document is to provide a framework for identification and delineation of PCB impacts, if present to the mat foundation in the Boiler #13 IRM Area and to the other concrete structures covered in this SOS as noted in Section 1.1 in order to fulfill the obligations of the PCO. Specifically, the SOS objectives as they relate to porous media (concrete) within and beneath a building include:

- Identifying the existing and potential extent and degree of PCB contamination (defining the three-dimensional extent and distribution of PCBs associated with each release) while complying with prevailing standards and guidelines (including, but not limited to *Connecticut's Site Characterization Guidance Document* (CTDEEP, 2010a).
- Implement a porous media sampling program that complies with the 3.0-meter grid sampling requirements of 40 CFR 761 Subpart N and the EPA Region 1 *Standard Operating Procedure for Sampling Porous Surfaces for Polychlorinated Biphenyls (PCBs)* (EPA, 2011).

These objectives will be accomplished by implementing the proposed sampling and analytical program noted in this SOS. Information relevant to the areas to be sampled as part of this SOS can be found in the following documents:

- *First Floor of English Station – Interstitial Fill Material (Partial) Scope of Study, TRC, August 2020,* and

- *First Floor of English Station and Interstitial Fill Material (Partial) Investigation Report, TRC, TRC May 2021*

These documents provide a summary of previous investigation efforts conducted within the first-floor interior of English Station; and an updated conceptual site model (CSM) related to the first-floor interior portions of AOCs 16, 17, 18 and 19.

2.0 SITE INFORMATION

2.1 Site Location and Description

The English Station Site is located at 510/510A Grand Avenue in the City of New Haven, Connecticut. The Site consists of 8.9-acres of land located on a man-made island (Ball Island) situated within the Mill River which flows north to south into the Long Island Sound. The island is retained via steel bulkhead which surrounds the Site to the east, west, and south, Grand Avenue is located to the north. The Site location is shown in **Figure 1**. Geographic coordinates for the Site are:

Latitude/Longitude:	41° 18’ 23" North/72° 54’ 24" West
UTM Coordinates:	Zone 18
	675,239.9 meters Northing
	4,574,883.6 meters Easting

The Site has been split into two parcels (Parcel A and Parcel B), which are owned by two separate entities. The portion of the Site identified as “Parcel A” (the northern portion) is approximately 3.58 acres in size. Parcel A is occupied by a portion of a former electrical generating plant, commonly referred to as Station B (demolished in 2019). Parcel A is not a subject of this SOS.

The remainder of the property, identified as “Parcel B”, encompasses the southern portion of the Site and is approximately 5.32 acres in size. Parcel B is occupied by the English Station former power generating plant (“the Plant” or “English Station”) which is the subject of this SOS. The Site as a whole is bounded to the east, west and south by the Mill River (note that the water-facing sides of the Site are bulk-headed) and to the north by Grand Avenue. The parcel boundaries and general Site layout are shown on **Figure 2**.

2.2 Site History and Background

The Site was first occupied by Enos S. Kimberly and Company in the late 1880s and was utilized as a coal and lumber facility. In 1890, New Haven Electric Company purchased the Site and began the construction of what is known as Station B. Station B is located immediately south of Grand Avenue on the northern portion of the Site. As part of the construction of Station B, Ball Island's footprint was expanded via the filling of the portion of the Mill River south Station B. Station B reportedly operated as a coal-fired power plant until 1903.

UI purchased the property in 1914 and began the construction of the English Station Power Plant in 1924 on the southern end of Ball Island. The initial construction of English Station consisted of a coal-fired, low-pressure boiler system and associated turbines, which were completed in 1929. Sometime between 1948 and 1952, two additional coal fired, high-pressure boilers and turbines were constructed at the southern end of English Station. At that time, Ball Island was further expanded to the South and East by the additional filling of the Mill River. The English Station Power plant operated as a coal-fired power plant until sometime in the mid-1950s when the facility was converted into an oil-fired plant. English Station then operated as an oil-fired plant until 1992 when it was placed on deactivated reserve status.

In 2000, UI sold the Site to Quinnipiac Energy, LLC (QE). From 2000 through 2008, Advanced Environmental Interface, Inc. (AEI) performed environmental assessment activities on behalf of QE. Assessment activities were ceased in 2008. In 2006 QE filed for bankruptcy and divided the property into two parcels (Parcel A and Parcel B). Subsequently, QE sold Parcel A to Evergreen Power, LLC (Evergreen) and Parcel B to ASNAT Realty, LLC (ASNAT). Parcel A and Parcel B were sold in 2019 to Haven River Properties and Paramount View Millennium, LLC.

From 2008 to 2011, the Site was unused and no longer maintained as suitable for power generation. In 2011, the Site owners at that time (ASNAT and Evergreen) contracted Grant Mackay Company (Grant Mackay) and Classic Environmental Inc. (Classic Environmental) to demolish the existing structures on-Site with the intention of generating enough money through the sale of scrap-metal steel to fund the future environmental investigation and eventual cleanup of the Site. The initial focus of this project was at the main English Station power plant building. In 2012, CT DEEP conducted an on-Site inspection which concluded that there was potential for

tracking and spreading of PCB contamination from source areas to other uncontaminated areas of the Site. In February 2012, CTDEEP issued a Cease and Desist Order (CDOWSUST 12-001) which terminated on-Site activities. The United States Coast Guard (USCG), issued an Administrative Order, 002-14, on September 19, 2012 to the new Site Owners and to UI as the former Site owner. Actions performed by the USCG included placing booms around the southern end of Ball Island and removal of liquid wastes and drummed materials from the Oil Room because of the potential to discharge to a nearby catch basin.

When the Cease and Desist Order was issued, demolition or asbestos abatement activities were halted, and equipment owned or leased by Grant Mackay and Classic Environmental was left on-site. In the summer of 2017 UI began a project to construct a clean corridor from the east entrance to facilitate decontamination and removal of the Grant Mackay and Classic Environmental equipment, remove and dispose of the Turbine Hall debris and perform the boiler house "make safe" interim measure abatement work. The "make safe" interim measure was subsequently expanded to include the abatement of asbestos-containing materials in the Boiler 1-12 Area and the Boiler #13 and #14 Area. The equipment and interim abatement work was completed in September 2018.

2.3 English Station Construction and Past Operations

The English Station Generating Facility was constructed in four separate phases spanning from 1927 through 1952. The record drawings for all four phases were reviewed by TRC and show details of a pile-supported construction for each phase. Refer to **Figure 3** for a layout of the first floor of the building.

The first phase of construction in 1927 consisted of the Boiler #1 through #6 Low-Pressure Boiler House, Turbine Hall with three steam turbine generators, Reactors, Switch Cells and other support portions of the facility on the west side. The low-pressure boiler system was configured such that two boilers served one turbine and one condenser. Thus, at this time, the low-pressure boiler system consisted of six boilers, three turbines, and three condensers. The island was expanded to the south with a new wooden bulkhead and fill to accommodate phase one and two of the building's construction.

The building foundation was first constructed by driving numerous piles to support the weight of the structure. An approximate 3-foot-thick reinforced concrete mat was poured across the top of the piles over the entire footprint of the building. The top of the mat sits approximately 6-8 feet below the top of the first-floor building slab. Numerous reinforced concrete grade beams and pier foundations sit on top of the mat to support building structural elements and equipment. The space between the first-floor slab and the mat is filled with compacted fill material, commonly called within this and other English Station related documents as the "interstitial fill layer." The first-floor slab consists of reinforced concrete measuring 6 to 14 inches thick.

As part of the construction of the Boiler #1 through Boiler #6 portion of the low-pressure boiler system, one cooling water intake and discharge pipe tunnel was constructed running from the western bulkhead to the original location of the eastern bulkhead beneath the building mat foundation. The intake for Boilers #1 through #6 range in width from ten feet to 20 feet and the bottom is located approximately 8.5 feet below the first-floor slab. The discharge tunnel measures approximately 9 feet wide by 10 feet high. The outlet of the discharge tunnel on the east side of the building terminated at the original bulkhead face which was approximately 15 feet from the outer wall of the building. The bottom of the discharge tunnel is approximately 20 feet below the top of the first-floor slab. The cooling intake tunnel runs from the west bulkhead face to the west side of the Turbine Hall. The cooling water intake and discharge tunnel sections were connected only by the pipes that pumped once-through, non-contact cooling water through the three condenser units.

The second phase of construction began in 1929 and added Low Pressure Boilers #7 through #12 and three more turbine/generators. The second phase was constructed immediately south of the first phase as a building addition. This phase of construction was nearly a mirror image of the first phase, except that the cooling discharge tunnel from the first phase was used for the discharge for phase two. A separate cooling water intake tunnel from the western bulkhead was constructed for the second phase. Like the intake tunnel for Boilers #1 through #6, this intake ranges in width from ten feet to 20 feet and the bottom is located approximately 8.5 feet below the first-floor slab.

The third phase of construction began in 1947. This addition to the facility immediately south required further expansion of the bulkhead to accommodate the 9-story High Pressure Boiler #13 and a single turbine/generator. The building foundation construction was similar to the first two phases with driven piles supporting a reinforced concrete mat. The third phase incorporated a new cooling water intake tunnel. The major difference from the Low-Pressure Boiler facility, is that the non-contact cooling water from the pump intakes on the west side of the building to the discharge on the east side bulkhead, are fully contained within two 42-inch diameter steel pipes that sit in a reinforced concrete pipe trench just beneath the first-floor slab.

The fourth and final phase of construction began in 1952 and added another high-pressure boiler system to the southern end of the facility (High Pressure Boiler #14). High Pressure Boiler #14 is nearly a mirror image of Boiler #13. Boiler #14 has its own separate cooling water intake at the southwest corner of the island, and like Boiler #13, the cooling water system consists of an intake on the west side of the facility and a discharge on the east side. Again, the cooling water system is a once-through, non-contact system where the cooling water was contained in large diameter piping that sat in a reinforced concrete pipe trench just beneath the floor slab. A cross-sectional view of the English Station building through the high-pressure boiler area, including the cooling water tunnel system, is presented in **Figure 5**.

3.0 PREVIOUS ENVIRONMENTAL WORK – BOILER #13 IRM AREA

3.1 Previous Environmental Media Investigations

To date, the four following reports summarizing the results of the environmental media investigations proposed (and completed) in each of the four SOS documents listed in Section 1.1 above have been drafted, three have been submitted to the CTDEEP for review:

- (*Investigation Report, Eastern Portion of English Station Interior (Partial): Boiler 1-12 Area*, TRC, May 2019;
- *Investigation Report, Western Portion of English Station Interior (Partial)*, TRC, August 2019);
- *Investigation Report, First Floor of English Station and Interstitial Fill Material (Partial), TRC, May 2021;* and
- the remaining one (*English Station Interior, High-Pressure Boiler Area Boilers #13 and #14*), is being finalized prior to issuance to the Department.

The following section gives a brief description of the findings of these investigations as they pertain to the Boiler #13 IRM area that is the subject of this SOS.

3.2 English Station - First Floor Interior Environmental Media Investigation Results

A summary of the results of investigations in the Boiler #13 IRM Area completed by TRC throughout the first floor of English Station are presented below, organized by AOC. The results of these investigations were evaluated in concert with one another based on their interconnections from an operational perspective and based on migration pathways as outlined in the CSM presented in each of the referenced SOS documents for English Station. Presentation of the conclusions formulated as a result of investigation activities completed within the first-floor interior of English Station are discussed in terms of the facility's operational history and layout. In addition, note that there are key numerical thresholds for PCBs referenced throughout this section with respect to various types of media. For soil, on-site sediment, and concrete inside and beneath first floor of the buildings the threshold established in 40 CFR 761.61 is 1 mg/kg (the

"High Occupancy Standard") and is applicable per the provisions of the PCO. For on-site water, the threshold of 0.5 µg/L established in 40 CFR 761.61 is applicable and for non-porous surfaces, the threshold under 40 CFR 761.61 is 10 µg/100 cm^2.

References in the section that follows to sources or potential sources are based on the detection of PCBs over 1 mg/kg in a residual oil sample collected from a piece of equipment and/or the exceedance of the 10 µg/100 cm^2 threshold for a wipe sample collected from an equipment surface.

3.3 Project Focus Area (AOC-16E, AOC-16I, AOC-16EE, AOC-16FF, AOC-16HH, AOC-17F & AOC-19B)

This SOS encompasses areas of concern (AOC) in the Boiler #13 Area of the English Station Building referred to as AOC-16E, AOC-16I, AOC-16EE, AOC-16FF, AOC-16HH, , AOC-17F & AOC-19B (**Figure 3**). Description of these AOCs containing PCB sources are as follows:

Level 1 Boiler #13 Area (AOC-16EE), Boiler #13 Former Transformers (AOC-16FF), Boiler #13 Area Manholes (AOC-16HH), Boiler #13 Drainage System (AOC-17F), Condenser #7 Pit (AOC-16I) and Boiler #13 Cooling Water Pipe Trench and Sealed Cooling Water Intake Pump Chamber (AOC-19B)

- Based on visual observations, an oil release has occurred in the Boiler #13 Area. Based on the contaminants detected, the source of the release appears to have been either of the two former 1,500 kVA transformers (AOC-16FF). Concentrations of PCBs >500 mg/kg, were detected in several different media near the transformers.

- The apparent release from the former 1,500 kVA transformers containment appears to have impacted the adjacent conduit vaults (AOC-16HH), a portion of the drainage system (AOC-17F), and the cooling water discharge pipe trench for Boiler #13 (AOC-19B). Based on the occurrence and distribution of concrete samples exhibiting PCB concentrations above 1.0 mg/kg in the Boiler #13 Area (AOC-16EE) it appears the release may have extended to this area.

- The concrete containment area (AOC-16-FF) in which the two transformers formerly sat is contaminated with PCBs at concentrations >500 mg/kg. In addition,

the majority of the concrete floor (AOC-16EE) in the Boiler #13 exhibits PCB concentrations above 1.0 mg/kg in the area around the transformers.

- Oil with concentrations of PCBs >1 mg/kg and standing water contaminated with PCBs above 0.5 ug/L were noted in the conduit vault (AOC-16HH) located adjacent to the former 1,500 kVA transformers containment.

- PCBs were detected in solids samples collected from the Boiler #13 Area drainage system (AOC-17F).
- Oil containing PCBs above 1.0 mg/kg is present on top of the water within the Boiler #13 concrete cooling water discharge pipe trench (AOC-19B). In addition, water within the same pipe trench exhibits levels of PCB contamination above 0.5 ug/L.

- Interstitial fill material samples collected beneath and adjacent to the former 1,500 kVA transformers containment (AOC-16FF) indicate that fill material 6-8 feet below the floor slab are contaminated with PCBs >50 mg/kg. Twelve fill material samples exceed the regulatory criteria of 1.0 mg/kg and ranged from 2.1 mg/kg to 17,000 mg/kg. This fill material interval lies directly above the reinforced concrete mat foundation. Based on the Aroclors detected and the presence of chlorinated solvents in the fill material samples, the source of this contamination appears to be the two former 1,500 kVA transformers. Samples of the interstitial fill material collected from locations on the north side of the Boiler #13 Area (north of the cooling water discharge pipe trench) (AOC-16EE) did not exhibit concentrations of PCBs above 1 mg/kg.

- Two sources of PCB contamination were identified within AOC-16I (a cathodic rectifier and the lube oil tank/piping and appurtenances).

- A portion of the cooling water pipe trench (AOC-19B) that extends from the sealed cooling intake pump chamber in Screen House #3 (AOC-16E) to Condenser #7 (AOC-16I) is contaminated with PCBs and ETPH. Concentrations of PCBs detected in samples of multiple media at this location were above criteria.

- The portion of the sealed cooling water intake pump chamber (AOC-19B) located under the east side of Screen House #3 (AOC-16E) is impacted with PCBs above criteria. However, it was observed that oil was not present west of the intake pump chamber.

- PCB contamination is present in the Condenser #7 area (AOC-16I). In particular, the condenser pit contains oil, water, bottom solids, debris and concrete contaminated with PCBs above criteria.

PCBs were not detected in the samples collected of the interstitial fill material between the floor slab and the building mat within AOC-16I.

4.0 CONCEPTUAL SITE MODEL

4.1 Presentation of the Conceptual Site Model (CSM)

The most updated CSM for the AOC's included in this SOS were previously presented in the document entitled: *First Floor of English Station – Interstitial Fill Material (Partial) Scope of Study, TRC, August 2020*. For each AOC, the following information was summarized in that report:

- a brief description of the AOC;
- the known or potential contaminants of concern (COCs);
- whether or not there is evidence of a release within a given AOC;
- media affected by identified releases;
- nature of release mechanisms/fate and transport; a summary of the completed characterization; and
- identification of the need for additional data, if any.

4.2 Additional Data Requirements Analysis Summary

Since the work proposed in the *First Floor of English Station – Interstitial Fill Material (Partial) Scope of Study, TRC, August 2020* is completed and the results presented in the report entitled: *Investigation Report First Floor of English Station and Interstitial Fill Material (Partial), TRC, May 2021* there have been identified additional data that is required to complete the assessment. The following section along with **Table 4-1** provides a brief summary of the proposed investigation of porous media (concrete) to satisfy the additional data needs.

4.2.1 AOC-16EE: Level 1 - Boiler #13, AOC-16FF: Boiler #13 Transformers, AOC-16HH: Manhole Structures in Boiler #13 Area, AOC-16I: Condenser #7 Pit, AOC-17F: Drainage System Beneath Boiler #13 Area & AOC-19B: Cooling Water Intake and Discharge Pipe Trench System and Sealed Cooling Water Intake Pump Chamber For Boiler #13

These six AOCs are in close proximity to each other and are interrelated with each other. A release has occurred in the Boiler #13 Area. Based on the contaminants detected, the source of the release appears to be the 1,500 kVA Transformers (AOC-16FF) and the rectifiers in AOC-16I.

Concentrations of PCBs above thresholds were detected in several different media in close proximity to the transformers. Sampling of various media has identified contamination of the concrete secondary containment above which the transformers sit, the concrete floor throughout most of AOC-16EE, the interstitial fill beneath a portion of AOC-16EE and AOC-16FF, oil and water in AOC-16I Condenser #7 Pit, water and bottom solids in the drainage system (AOC-17F), oil and water in the manhole and conduit vault (AOC-16HH) and oil, water and sediments in the Cooling Water Intake and Discharge Pipe Trench and Sealed Cooling Water Intake Pump Chamber(AOC-19B).

Two further assess porous media beneath the first-floor slab and interstitial fill of AOC's-16EE, 16FF, 16HH & 17F the following is proposed following removal of the first-floor slab and interstitial fill in the area between the AOC-19B Cooling Water Discharge Pipe Trench and the south wall of the Boiler #13 Area:

- Collect concrete core samples of the mat foundation, grade beams, column foundation piers and the outside face of the south wall of the AOC-19B Cooling Water Discharge Pipe Trench;
- Core samples shall be collected on a 3.0-meter horizontal grid, which grid shall extend up the vertical face of foundation elements (Refer to **Figure 4**); and
- Core samples shall be to a depth of 12-inches, except the outside of the south wall of the AOC-19B Cooling Water Discharge Pipe Trench shall be cored to a depth of 6-inches.

Throughout portions of AOC-19B and the AOC-16I Condenser #7 Pit, a total of 9 oil samples were collected, seven of which exhibited concentrations of PCBs above 1 mg/kg, with a high concentration of 560 mg/kg. A total of 8 water samples and 7 bottom solids samples were also collected from AOC-19B and AOC-16I. PCBs were detected in seven of the water samples above 0.5 ug/l with the highest result of 930 ug/l. PCBs were detected in six of the bottom solids samples above 1mg/kg with a high concentration of 88 mg/kg.

To further assess porous media (concrete) within the interior of the AOC-19B Cooling Water Intake and Discharge Pipe Trench, the Sealed Cooling Water Intake Pump Chamber and the AOC-16I Condenser #7 Pit the following is proposed once the removal of the trench covers, water, oil, sediment, debris, pumps and cooling water pipes running from the Sealed Cooling Water Intake Chamber on the west side of the building to the east wall of the Boiler #13 Area is completed (Refer to **Figures 5 & 6**):

- Collect concrete core samples and/or drill samples of the interior bottom and sidewalls of the structures listed directly above;
- Samples shall be collected on a 3.0-meter horizontal grid, which grid shall extend up the vertical faces of the structure elements (Refer to **Figure 4**); and
- Core samples and/or drill samples shall be collected to a minimum depth of 3-inches, with deeper samples collected if PCBs are found greater than 1 mg/kg at the deepest interval.

5.0 FIELD INVESTIGATION PLAN

5.1 Overall Approach

The approach outlined within this scope of study is the assessment of porous media using the verification sampling 3.0-meter grid spacing requirements defined under 40 CFR 761 SUBPART N. The method and spacing of sampling will provide horizontal and vertical delineation of PCB impacts to the porous media within the Boil # 13 IRM Area following the implementation of the IRM (i.e., portions of the AOCs covered by this SOS are currently inaccessible).

5.2 Sample Procedures

The following sections provide a description of the approach that will be used to collect and process concrete samples, including a discussion of data quality objectives, sampling methodologies, and QA/QC procedures. Proposed sample locations for each AOC are shown on **Figure 4**.

5.3 Data Quality Objectives (DQOs) for Concrete/Porous Media Sampling

Data collected during the investigations are intended to evaluate the current contaminant concentrations for the purpose of creating a remedial strategy to complete the requirements of the PCO. The number of environmental sampling locations proposed is based on a 3.0-meter grid, which is the grid required under 40 CFR 761 Subpart N - Cleanup Site Characterization Sampling for PCB Remediation Waste in Accordance with § 761.61(a)(2). Following completion of the Boiler #13 IRM it is anticipated that a Self-Implementing Cleanup under § 761.61(a)(6) will be performed. The porous media sampling being performed is to determine if PCB impacts are present, and if present characterize the horizontal and vertical extent of PCB contamination and not verification of porous media cleanup. The overall quality assurance objective for laboratory analysis of concrete/porous media samples is to provide a laboratory QA/QC program that is sufficient to ensure that data quality objectives are achieved. The data collected will be subjected to the Reasonable Confidence Protocols (RCPs) (CTDEEP, 2010b) as well as additional data quality assessment and data usability evaluations conducted in accordance with the CTDEEP's

Laboratory Quality Assurance and Quality Control Data Quality Assessment (DQA) and Data Usability Evaluation (DUE) (CTDEEP, 2010c).

5.3.1 Concrete Sampling and Laboratory Analytical Methodology

The Boiler #13 IRM contractor shall surface clean and decontaminate the concrete surface in accordance with the *Boiler #13 Interim Remedial Measure PCB Remedial Action Plan, TRC, dated February* 2021 before concrete sampling is performed. Concrete coring will be performed to the depths specified in Section 4.2.1 and **Table 4-1** of the SOS using motor driven concrete coring devices fitted with 3 to 4-inch inside diameter core barrels. The coring machine and core barrels will be thoroughly decontaminated after each sample location is completed using the procedures described in the EPA Region 1 *Standard Operating Procedure for Sampling Porous Surfaces for Polychlorinated Biphenyls (PCBs)* (EPA, 2011). Each concrete core will be placed in a labeled sealed poly-storage bag and stored in a refrigerator with a temperature of less than 40^0 Fahrenheit (F). Each extracted concrete core will be used to collect the individual ½ inch depth interval concrete samples that represent each sample location. One half inch interval concrete samples will be collected from the sides of the extracted concrete cores in accordance with the procedures described in the EPA Region 1 *Standard Operating Procedure for Sampling Porous Surfaces for Polychlorinated Biphenyls (PCBs)* (EPA, 2011). Each extracted concrete core will be marked off at ½-inch intervals beginning at the surface. The concrete samples collected for laboratory analysis will be collected by drilling the sidewall of the core within each of the ½-inch depth intervals using a masonry drill bit decontaminated following each discrete sample interval. Clean aluminum foil will be used to capture the concrete dust from drilling at each depth interval, which will then be placed into properly labeled, laboratory-supplied sample jars and placed in a cooler with ice. For areas where concrete coring cannot be used due to access obstructions, each concrete sample will be collected starting from the concrete surface to a depth of ½ inch into the concrete utilizing a properly decontaminated hammer-type drill to pulverize the concrete. Clean aluminum foil will be used to capture the concrete dust from drilling at each depth interval, which will then be placed into properly labeled, laboratory-supplied sample jars and placed in a cooler with ice. Each drill hole area will be vacuumed out before proceeding to the next ½ inch depth

interval. Immediately following completion of coring and direct drill sampling, the core holes and drill holes will be completely filled with cement grout.

Concrete samples collected in the above manner will be analyzed for PCBs by first using Soxhlet extraction Method 3500B/3540C from EPA's SW-846, Test Methods for Evaluating Solid Waste followed by using Method 8082 from SW-846 to analyze the extracts for PCBs. In general, the shallowest sample from a given location will be analyzed first and once the lab result is reported the next deeper sample interval will be activated for laboratory analysis if the preceding interval is greater than 1mg/kg PCB concentration. In cases where the shallowest sample has PCB concentration greater than 500 mg/kg, then an interval deeper than the next interval may be selected for analysis. PCB analysis will continue at deeper intervals at each location until a PCB concentration equal to or less than 1 mg/kg is achieved. The deepest interval concrete sample from each location will be analyzed for halogenated volatile organic compounds in accordance with EPA Method 8260C, due the previous detection of dichlorobenzenes and trichlorobenzenes in fill material above the mat foundation.

5.4 Investigation-Derived Waste (IDW) Management

An investigation-derived waste (IDW) storage area has been established in the west side of the building for other sampling efforts and polyethylene covers the floor surface.

In addition to concrete cores, IDW generated during field investigation activities are anticipated to include used personal protective equipment (PPE), plastic sheeting, and decontamination fluids. IDW will be handled and disposed of in accordance with applicable State and Federal regulations (e.g., 40 CFR 761 and 40 CFR 261).

5.4.1 Decontamination

A worker and equipment decontamination area will be constructed on the Site as part of the Boiler #13 IRM activities.

Decontamination solutions will be segregated and then collected in U.S. Department of Transportation (USDOT) approved 55-gallon drums and shipped off-site for disposal following any necessary waste characterization by the receiving disposal facility.

5.4.2 Expendable Equipment

Used PPE that has been decontaminated will be collected and disposed of as a nonhazardous solid waste. PPE that cannot be decontaminated will be placed in a separate USDOT approved 55-gallon drum and disposed of in the same manner as the waste in which it has come into contact. Used disposable sample equipment will also be disposed of in the same manner as the waste in which it has come into contact. Used PPE and disposable sample equipment will be disposed of in accordance with all local, state and federal requirements.

Decontamination wastes, PPE, and polyethylene that comes in contact with PCB Remediation Wastes will be disposed of as PCB Remediation Wastes. These wastes will be segregated as to each respective matrix (e.g., aqueous, non-aqueous liquids, or solid materials) and stored in drums or lined containers prior to transport from the Site for disposal.

5.5 Quality Assurance/Quality Control (QA/QC) Procedures

QA/QC procedures are discussed in the following sections. For the purpose of the discussions, the party conducting the sampling is referred to as the environmental consultant while the party conducting the chemical analyses is referred to as the laboratory. The discussion also includes references to the environmental consultant's Project Manager and Field Team Leader and to the laboratory's Project Manager, Section Leader and analyst or technician.

5.5.1 Measurement Quality Objectives

Precision

Precision is the agreement among a set of replicate measurements without consideration of the "true" or accurate value (i.e., variability between measurements of the same material for the same analyte). Precision is measured in a variety of ways including statistically, such as calculating variance or standard deviation. Field work and laboratory precision will follow the

precision guidelines laid out in the *CTDEEP Laboratory Quality Assurance and Quality Control Guidance Reasonable Confidence Protocols (RCP) Guidance Document* dated November 2007 and revised December 2010 (CTDEEP, 2010b).

Field precision is assessed through the collection and measurement of field duplicates (one extra sample in addition to the original field sample). Field duplicates will be collected at a frequency of one per twenty investigative samples per analytical parameter for each environmental medium sampled. Precision will be measured through the calculation of relative percent difference (RPD). The resulting information will be used to assess sampling and analytical variability. Field duplicate RPDs must be <30% for aqueous samples and <50% for solid samples. These criteria apply only if the sample and/or duplicate results are >5x the reporting limit; if both results are <5x the reporting limit, the criterion will be doubled.

Laboratory precision will be assessed through the analysis of MS/matrix spike duplicate (MSD) samples and/or field duplicates. MS/MSD samples will be performed at a frequency of one per twenty investigative samples per matrix per parameter. Laboratory duplicate samples will be performed at a frequency of one per twenty investigative samples per matrix per parameter.

Accuracy

Accuracy is the closeness of agreement between an observed value and an accepted reference value. The difference between the observed value and the reference value includes components of both systematic error (bias) and random error.

Accuracy in the field is assessed through the adherence to all field instrument calibration procedures, sample handling, preservation, and holding time requirements, through the collection of equipment blanks prior to the collection of samples for each type of equipment being used, and through the use of trip blanks with each shipment of samples for VOC analysis.

Laboratories assess the overall accuracy of their instruments and analytical methods (independent of sample or matrix effects) through the measurement of "standards", materials of accepted reference value. Accuracy will vary from analysis to analysis because of individual sample and matrix effects. In an individual analysis, accuracy will be measured in terms of method blank results, the percent recoveries (%Rs) of surrogate compounds in organic analyses, or %Rs

of spiked compounds in MSs and/or MSDs and/or LCSs in all analyses. This gives an indication of expected recovery for analytes tending to behave chemically like the spiked or surrogate compounds. Upon selection of a laboratory for this project, the laboratory will be asked to provide their accuracy control limits.

Representativeness

Representativeness is a qualitative parameter which expresses the degree to which data accurately and precisely represent either a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition within a defined spatial and/or temporal boundary. To ensure representativeness, the sampling locations have been selected to provide coverage over a wide area and to highlight potential trends in the data.

Representativeness in the field is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the work plan is followed, that proper sampling, sample handling, and sample preservation techniques are used, and the use of field screening to allow for the collection of more samples in a specified area.

Representativeness in the laboratory is ensured by using the proper analytical procedures, appropriate methods, and meeting sample holding times.

Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions. "Normal conditions" are defined as the conditions expected if the sampling plan was implemented as planned.

Field completeness is a measure of the amount of (1) valid measurements obtained from all the measurements taken in the project and (2) valid samples collected. The field completeness objective is greater than 90 percent.

Laboratory completeness is a measure of the amount of valid measurements obtained from all valid samples submitted to the laboratory. The laboratory completeness objective is greater than 95 percent.

Comparability

Comparability expresses the confidence with which one data set can be compared to another. Field comparability is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the work plan is followed and that proper sampling techniques are used. Maximization of comparability with previous data sets is expected because the sampling design and field protocols are consistent with those previously used.

Comparability in the laboratory is expected due to the use of recognized EPA or equivalent analytical methods and the reporting of data in standardized units.

Sensitivity

Sensitivity is the ability of the method or the instrument to detect the contaminants of concern at the level of interest. Project reporting limits (RLs) will be based on the lowest concentration calibration standard for organic parameters and the analysis of a low-level standard for metals analyses, as required by the analytical methods. The laboratory will utilize RCP methods, which should ensure that all laboratory RLs meet the Connecticut RCP and the most stringent levels of the applicable CT RSRs. For samples analyzed for waste characterization purposes, the RLs must meet the RCRA limits for hazardous waste determination (defined at 40 CFR 261.24).

5.5.2 Field Quality Control Samples

Field QC samples will include equipment blanks, field duplicates, MS/MSDs, cooler and temperature blanks.

5.5.2.1 Equipment Blanks

Equipment blanks will be collected in order to determine the cleanliness of sample collection equipment. Equipment blanks will consist of pouring analyte-free water over decontaminated sampling equipment and will be used to check for procedural contamination at the Site that may cause sample contamination and to ensure that the decontamination procedure has

been adequately carried out. The equipment blank will be collected by pouring laboratory-supplied, high performance liquid chromatography (HPLC)-grade, American Society for Testing and Materials (ASTM) Type II water over the decontaminated sample collection equipment and into the appropriate sample containers. Equipment blanks will be collected from equipment that is used for sample collection. One equipment blank will be collected for each type of equipment used, each day a field decontamination event is conducted. Equipment blanks will be collected at the beginning of the day's sampling event and will accompany the samples collected that day. Equipment blanks will be submitted for the same parameters as the associated sample matrix.

5.5.2.2 Field Duplicates

Field duplicates are an additional aliquot of the same sample submitted for the same parameters as the original sample. Field duplicates will be used to assess the sampling and analytical reproducibility. The procedure for collecting field duplicate samples consists of alternating the collection of the sample between the sample collection bottle and the duplicate bottle. Field duplicates will be submitted at a frequency of one per twenty investigative samples for each sampled medium for all parameters.

5.5.2.3 MS/MSDs

MSs and/or MSDs are an additional aliquot of the same sample submitted for the same parameters as the original sample. However, the additional aliquot is spiked with the compounds of concern. Matrix spikes provide information about the effect of the sample matrix on digestion and/or measurement methodology. MS/MSDs will be submitted at a frequency of one per every twenty investigative samples per matrix for each parameter.

5.5.2.4 Temperature Blanks

Cooler temperature blanks consist of a laboratory-supplied sample container filled with non-preserved water (potable or distilled) and are included in all coolers. The laboratory uses these temperature blanks to ensure that proper preservation of the samples has been maintained during sample shipment. The temperature of these blanks must be 4 º Celsius (C) ±2º to

demonstrate that proper preservation has been maintained. The laboratory records the results of the temperature blanks on the chain-of-custody immediately upon receipt of the samples at the laboratory, prior to inventory and refrigeration.

5.5.3 Sample Sequence

An attempt will be made to coordinate a sampling sequence hierarchy from less likely to more likely contaminated locations to reduce the potential for cross-contamination between locations.

5.5.4 Sample Documentation Requirements

5.5.4.1 Field Notes

Field team members will keep a field logbook to document all field activities. Field logbooks will provide the means of recording the chronology of data collection activities performed during the investigation. As such, entries will be described in as much detail as possible so that a particular situation could be reconstructed without reliance on memory.

The logbook will be a bound notebook with water-resistant pages. Logbook entries will be dated, legible, and contain accurate and inclusive documentation of the activity. The title page of each logbook will contain the following:

- Person to whom the logbook is assigned,
- The logbook number,
- Project name and number,
- Site name and location,
- Project start date, and
- End date.

Entries into the logbook will contain a variety of information. At the beginning of each entry, the date, start time, weather, and names of all sampling team members present will be entered. Each page of the logbook will be signed and dated by the person making the entry. All

notebooks will have consecutively numbered pages. All entries will be made in permanent ink, signed, and dated and no erasures or obliterations will be made. If an incorrect entry is made, the information will be crossed out with a single strike mark which is initialed and dated by the sampler. The correction shall be written adjacent to the error.

Field activities will be fully documented. Information included in the logbook will include, but may not be limited to the following:

- Chronology of activities, including entry and exit times;
- Names of all people involved in sampling activities;
- Level of personal protection used;
- Any changes made to planned protocol;
- Names of visitors to the Site during sampling and reason for their visit;
- Sample location and identification;
- Changes in weather conditions;
- Dates (month/day/year) and times (military) of sample collection;
- Sample matrix (e.g., concrete);
- Sample collection methods and equipment;
- Sample interval using the surface as the reference;
- Sample description (color, odor, texture, etc.);
- Sample identification code;
- Tests or analyses to be performed;
- Sample preservation and storage conditions;
- Equipment decontamination procedures;
- QC sample collection;
- Unusual observations;

- Record of photographs;
- Sketches or diagrams; and
- Signature of person recording the information.

Field logbooks will be reviewed weekly by the environmental consultant's Field Team Leader. Logbooks will be supported by standardized forms. Documents that may be included in the project file for the investigations include: field documents, correspondence, photographs, laboratory data, reports, subcontract agreements, authorizations, logs, and sketches.

5.5.4.2 Chain-of-Custody Records

Chain-of-custody records are initiated by the samplers in the field. A chain-of-custody record will accompany the sample from initial sample container selection and preparation at the laboratory to the field for sample containment and preservation and through its return to the laboratory. If samples are split and sent to different laboratories, a copy of the chain-of-custody record will be sent with each sample. The environmental consultant will retain one copy of the chain-of-custody upon relinquishing the sample. The field portion of the custody documentation should include: (1) the project name; (2) signatures of samplers; (3) the sample number, date and time of collection, and whether the sample is grab or composite; (4) signatures of individuals involved in sampling; and (5) if applicable, air bill or other shipping number.

On a daily basis, samples will be transferred to the custody of the respective laboratories, via third-party commercial carriers or via laboratory courier service.

5.5.4.3 Sample Labeling

Each sample collected during field activities will be assigned a unique ID that distinguishes it from samples collected during previous field investigation activities. The sample identification will include information that reflects the general area from which the sample was collected, a sample number, the sample matrix, and reference to the depth interval from which the sample was collected, as appropriate.

The sample identification will first include a two or three letter abbreviation that refers to the consultant/entity collecting the sample. The remainder of the sample identification will include information that reflects the general area from which the sample was collected, a sample number, the sample matrix, and reference to the depth interval from which the sample was collected, as appropriate. For example, a concrete sample collected by TRC from the location identified as number 43 within the confines of AOC-16EE as identified on the Site mapping (see **Figure 3**) would be designated as TRC-AOC16EE-CO-43 (1.0" – 1.5") where the terminology indicates the following:

TRC:	indicates that TRC is the consultant collecting the sample
AOC16EE:	indicates a sample collected from AOC-16EE
CO:	indicates a concrete sample
43:	indicates the 43rd sequential sample of this media collected from AOC-16EE as part of the entire building investigation program
(1.0"-1.5")	indicates this sample was collected from a depth interval starting at 1 inch below the surface and ending 1.5 inches below the surface

Where samples will be used to evaluate conditions at more than one AOC, the sample name shall bear the AOC number associated with the primary AOC being evaluated.

Should supplemental investigations be conducted within an AOC already investigated, supplemental samples will simply continue to be numbered sequentially (e.g., TRC-AOC16EE-CO-44, TRC-AOC16EE-CO-45, TRC-AOC16EE-CO-46, etc).

QA/QC samples will also require specific identification and labeling. The following approach will be used when identifying QA/QC samples during the investigation:

- Field duplicate samples will be labeled as blind duplicates by giving them sample numbers indistinguishable from a normal sample.
- Cooler temperature blanks will be spelled out and included on one line of the chain-of-custody.
- Equipment blanks will be spelled out and the associated matrix will be identified (e.g. Equipment Blank, Concrete).

- MS/MSDs will be noted in the "Remarks" column of the chain-of-custody.

5.5.5 Sample Handling and Shipping

Appropriate sample containers will be used so no chemical alteration occurs between the collection of samples in the field and the receipt of samples at the laboratory. The sample bottles will be prepared and shipped to the field by the subcontracted analytical laboratory(ies) under the direction of the Laboratory QC Coordinator. The sample bottles will be transported to the Site within a sealed shipping cooler.

Sample containers will be selected to ensure compatibility with the potential contaminants and to minimize breakage during transportation. Sample jars shall be 4-ounce jars with Teflon seal lids, holding times shall be 14 days prior to extraction and 40 days from extraction to time of analysis.

Sample labels will be filled out at the time of sampling and will be affixed to each container to identify the project name and/or sample location, sample number, sampler's initials, date and time of collection, number of containers per parameter (e.g., 1 of 2, etc.), preservatives added, and analyses requested for the sample. Sample labels will be completed for each sample using waterproof ink unless prohibited by weather conditions. For example, a logbook notation would explain that a pencil was used to fill out the sample label because the pen would not function in wet weather.

After the bottles for a given sample location have been filled, they will be immediately preserved and placed in a shipping cooler. Samples will be stored in such a way as to protect them from temperature extremes, light, breakage and water damage. Each glass sample container will be placed in an individual bubble wrap bag before being placed in the cooler. Field personnel will add bags of crushed ice or ice packs to the shipping coolers as the samples are collected.

Samples will be delivered to the laboratory for analysis as soon as practical after the number of samples and sample containers are sufficient to comprise a shipment, preferably the same day the samples are collected. Samples will be stored in coolers at a temperature of 4ºCelsius. During sampling and sample shipment activities, the environmental consultant's Project Manager

(or his/her designee) will contact the laboratory daily to provide information about impending shipments.

5.5.6 Sample Custody

Custody is one of several factors that are necessary for the admissibility of environmental data as evidence in a court of law. Custody procedures help to satisfy the two major requirements for admissibility: relevance and authenticity. Sample custody is addressed in three parts: field sample collection, laboratory analysis, and final evidence files. A sample or evidence file is considered to be under a person's custody if:

- the item is in the actual possession of a person;
- the item is in the view of the person after being in actual possession of the person;
- the item was in the actual physical possession of the person but is locked up to prevent tampering; or
- the item is in a designated and identified secure area.

5.5.6.1 Field Custody Procedures

Samples will be collected following the sampling procedures documented earlier in this section of the SOS. Documentation of sample collection is described in Section 5.5.4 of this document. Sample chain-of-custody and packaging procedures are summarized below. These procedures will ensure that the samples will arrive at the laboratory with the chain-of-custody intact.

- The field sampler is personally responsible for the care and custody of the samples until they are transferred or dispatched properly. Field procedures have been designed such that as few people as possible will handle the samples.
- All bottles will be identified by the use of sample labels with sample numbers, sampling locations, date/time of collection, and type of analysis. The sample numbering system is presented in Section 5.5.4.3 of this document.
- Sample labels will be completed for each sample using waterproof ink unless prohibited by weather conditions. For example, a logbook notation would explain that a pencil was used to fill out the sample label because the pen would not function in wet weather.

- Samples will be accompanied by a properly completed chain-of-custody form. The sample numbers and locations will be listed on the chain-of-custody form. When transferring the possession of samples, the individuals relinquishing and receiving will sign, date, and note the time on the record. This record documents the transfer of custody of samples from the sampler to another person, to a mobile laboratory, to the permanent laboratory, or to/from a secure storage location.

- All shipments will be accompanied by the chain-of-custody record identifying the contents. A minimum of two copies of the chain-of-custody record will accompany the shipment to the laboratory, and copies will be retained by the sampler and placed in the project files. The laboratory will maintain one file copy, and the completed original will be returned to the environmental consultant's Project Manager. A copy of the completed original will be returned as part of the final analytical report.

- Samples will be properly packaged for shipment and dispatched to the appropriate laboratory for analysis, with a separate signed custody record enclosed in and secured to the inside top of each sample box or cooler. Shipping containers will be secured with strapping tape and custody seals for shipment to the laboratory. The custody seals will be attached to the front right and back left of the cooler and covered with clear plastic tape after being signed by field personnel. The cooler will be strapped shut with strapping tape in at least two locations.

- If the samples are sent by common carrier, the air bill will be used. Air bills will be retained as part of the permanent documentation. Commercial carriers are not required to sign off on the custody forms since the custody forms will be sealed inside the sample cooler and the custody seals will remain intact.

- Samples remain in the custody of the sampler until transfer of custody is completed. This consists of delivery of samples to the laboratory sample custodian, and signature of the laboratory sample custodian on chain-of-custody document as receiving the samples and signature of sampler as relinquishing samples.

5.5.6.2 Laboratory Custody Procedures

The environmental consultant's Project Manager or his/her designee will notify the laboratory of upcoming field sampling activities and subsequent sample transfer to the laboratory. This notification will include information concerning the number and type of samples to be shipped, as well as the anticipated sample arrival date. Samples will be received and logged in by a designated sample custodian or his/her designee. The sample custodian is responsible for

maintaining sample custody and for maintaining all associated custodial documentation records.

Upon sample receipt, the sample custodian will:

- Examine the shipping containers to verify that the custody tape is intact,
- Examine all sample containers for damage (i.e., breakages or leaks),
- Determine if the temperature required for the requested testing program has been maintained during shipment using the cooler temperature blanks and document the temperature on the chain-of-custody records,
- Compare samples received against those listed on the chain-of-custody,
- Verify that sample holding times have not been exceeded,
- Examine all shipping records for accuracy and completeness,
- Determine sample pH (if applicable) of aqueous samples and record on chain-of-custody forms,
- Sign and date the chain-of-custody immediately (if shipment is accepted), note the time that the samples were received and attach the air bill (if applicable),
- Note any problems associated with the coolers and/or samples on the cooler receipt form and notify the laboratory's Project Manager, who will be responsible for contacting the environmental consultant's Project Manager,
- Attach laboratory sample container labels with unique laboratory identification and test, and
- Place the samples in the proper laboratory storage.

Following receipt, samples will be logged in according to the following procedure:

- The samples will be entered into the laboratory tracking system. At a minimum, the following information will be entered: project name or identification, unique sample numbers (both client and internal laboratory), type of sample, required tests, date and time of laboratory receipt of samples, and field ID provided by field personnel.
- The laboratory's Project Manager will be notified of sample arrival.

The completed chain-of-custody, air bills, and any additional documentation will be placed in the final evidence file.

5.5.7 Field Equipment Decontamination Procedures

Moveable equipment, tools, and sampling equipment that has contacted PCB Remediation Wastes will be decontaminated prior to leaving the Site. Decontamination procedures will comply with either §761.79(b)(3)(i)(A), §761.79(b)(3)(ii)(A) or §761.79(c)(2).

Additionally, the general procedure for decontamination of equipment, tools and sampling equipment that have not directly contacted PCB Remediation Wastes will be in accordance with the following procedures:

1. Wash and scrub with low phosphate detergent (e.g., Alconox) in tap water;
2. Rinse with tap water;
3. Distilled and deionized water rinse;
4. Air dry on clean polyethylene sheeting;
5. Wrap in aluminum foil, shiny side out, for transport (if not being used immediately).

Decontamination solutions generated as a result of cleaning investigation or sampling equipment that has come into contact with hazardous materials and PPE decontamination solutions will be collected in U.S. Department of Transportation (USDOT) approved 55-gallon drums and prepared for shipment for off-site disposal following any necessary waste characterization required by the receiving disposal facility.

5.5.8 Data Validation and Reporting

Data validation is the process of reviewing data and associated quality control criteria, and accepting, qualifying, or rejecting it on the basis of quality control criteria. Both field data evaluation and data validation are discussed below.

Appropriate QC measures will be used to ensure the generation of reliable data from sampling and analysis activities. Proper collection and organization of accurate information followed by clear and concise reporting of the data is a primary goal in this project.

5.5.8.1 Data Reporting

For all analyses, the laboratory will report results which are below the laboratory's RL; these results will be qualified as estimated (J) by the laboratory. Results for concrete samples must be reported on a dry weight basis. The laboratory will provide all data in RCP data package format.

5.5.8.2 Field Data Evaluation

Measurements and sample collection information will be transcribed directly into the field logbook or onto standardized forms. If errors are made, results will be legibly crossed out, initialed and dated by the person recording the data, and corrected in a space adjacent to the original (erroneous) entry. Daily reviews of the field records by the environmental consultant's Field Team Leader will ensure that:

- Logbooks and standardized forms have been filled out completely and that the information recorded accurately reflects the activities that were performed.
- Records are legible and in accordance with good record keeping procedures (i.e., entries are signed and dated, data are not obliterated, changes are initialed, dated, and explained).
- Sample collection, handling, preservation, and storage procedures were conducted in accordance with the protocols described in this document, and that any deviations were documented and approved by the appropriate personnel.

5.5.8.3 Analytical Data Validation

Analytical data validation will include procedures within the laboratory and independent of the laboratory.

Data from laboratory analyses will be reviewed by the laboratory prior to release. Prior to being released as final, laboratory data will proceed through a tiered review process. Data verification starts with the analyst or technician who performs a 100 percent review of the data to ensure the work was done correctly the first time. It is the responsibility of the analyst or technician to ensure that the verification of data in his or her area is complete. The data reduction and initial verification process must ensure that:

- Sample preparation and analysis information is correct and complete;
- Results are correct and complete;

- The appropriate Standard Operating Procedures (SOPs) have been followed and are identified in the project records;
- Proper documentation procedures have been followed;
- Non-conformances have been documented; and
- Project-specific requirements have been met.

Following the completion of the initial verification by the analyst or technician, a systematic check of the data will be performed by an experienced peer, Laboratory Section Leader, or designee. This check will be performed to ensure that initial review has been completed correctly and thoroughly. Included in this review will be an assessment of the acceptability of the data with respect to:

- Adherence of the procedure used to laboratory SOPs and any project-specific methods and specific instructions;
- Correct interpretation of data (e.g., mass spectra, chromatographic interferences, etc.);
- Correctness of numerical input when computer programs are used (checked randomly) and numerical correctness of calculations and formulas (checked randomly);
- Acceptability of QC data;
- Documentation that instruments were operating according to method specifications (calibrations, performance checks, etc.);
- Documentation of dilution factors, standard concentrations, etc.;
- Sample holding time assessment; and
- Nonconforming events have been addressed by corrective action as defined on a nonconformance memo.

A third-level review will be performed by the Laboratory's Project Manager before results are submitted to the environmental consultant. This review serves to verify the completeness of the data report and to ensure that project requirements are met for the analyses performed. The items to be reviewed will include:

- Results are present for every sample in the analytical batch or reporting group;

- Every parameter or target compound requested is reported;
- The correct units and correct number of significant figures are utilized;
- All non-conformances, including holding time violations, and data evaluation statements that impact the data quality, are accompanied by clearly expressed comments from the laboratory; and
- The final report is legible, contains all the supporting documentation required by the project, and is in either the standard format or in the client-required format.

A narrative to accompany the final report will be finalized by the laboratory's Project Manager. This narrative will include relevant comments, including data anomalies and non-conformances.

The environmental consultant will be responsible for performing an independent validation of the analytical data. The data validation will be performed by a person with prior data validation experience in accordance with the *CTDEEP's Laboratory Quality Assurance and Quality Control Data Quality Assessment and Data Usability Evaluation (DQA/DUE) Guidance Document* dated May 2009 and revised in December 2010 (CTDEEP, 2010c).

Upon completion of the validation, a report will be prepared. This report will summarize the samples reviewed, elements reviewed, any non-conformances with the established criteria, and validation actions (including data qualifiers).

6.0 INVESTIGATION SUMMARY REPORT

Following the completion of the investigation described herein, an Investigation Summary Report will be prepared.

7.0 REFERENCES

CTDEEP, 2010a. Site Characterization Guidance Document, Prepared by the State of Connecticut, Department of Energy and Environmental Protection, effective date: September, 2007; Revised: December 2010.

CTDEEP, 2010b. Laboratory Quality Assurance and Quality Control Guidance Reasonable Confidence Protocols (RCP) Guidance Document, Prepared by the State of Connecticut, Department of Energy and Environmental Protection, November, 2007; Revised: December 2010.

CTDEEP, 2010c. Laboratory Quality Assurance and Quality Control Data Quality Assessment and Data Usability Evaluation (DQA/DUE) Guidance Document, Prepared by the State of Connecticut, Department of Energy and Environmental Protection, May 2009; Revised: December 2010.

Boiler #13 Interim Remedial Measure PCB Remedial Action Plan, TRC, dated February 2021

First Floor of English Station – Interstitial Fill Material (Partial) Scope of Study, TRC, August 2020

First Floor of English Station and Interstitial Fill Material (Partial) Investigation Report, TRC, TRC May 2021

Scope of Study, Western Portion of English Station (Partial), TRC, May 2018, Revised August 2018

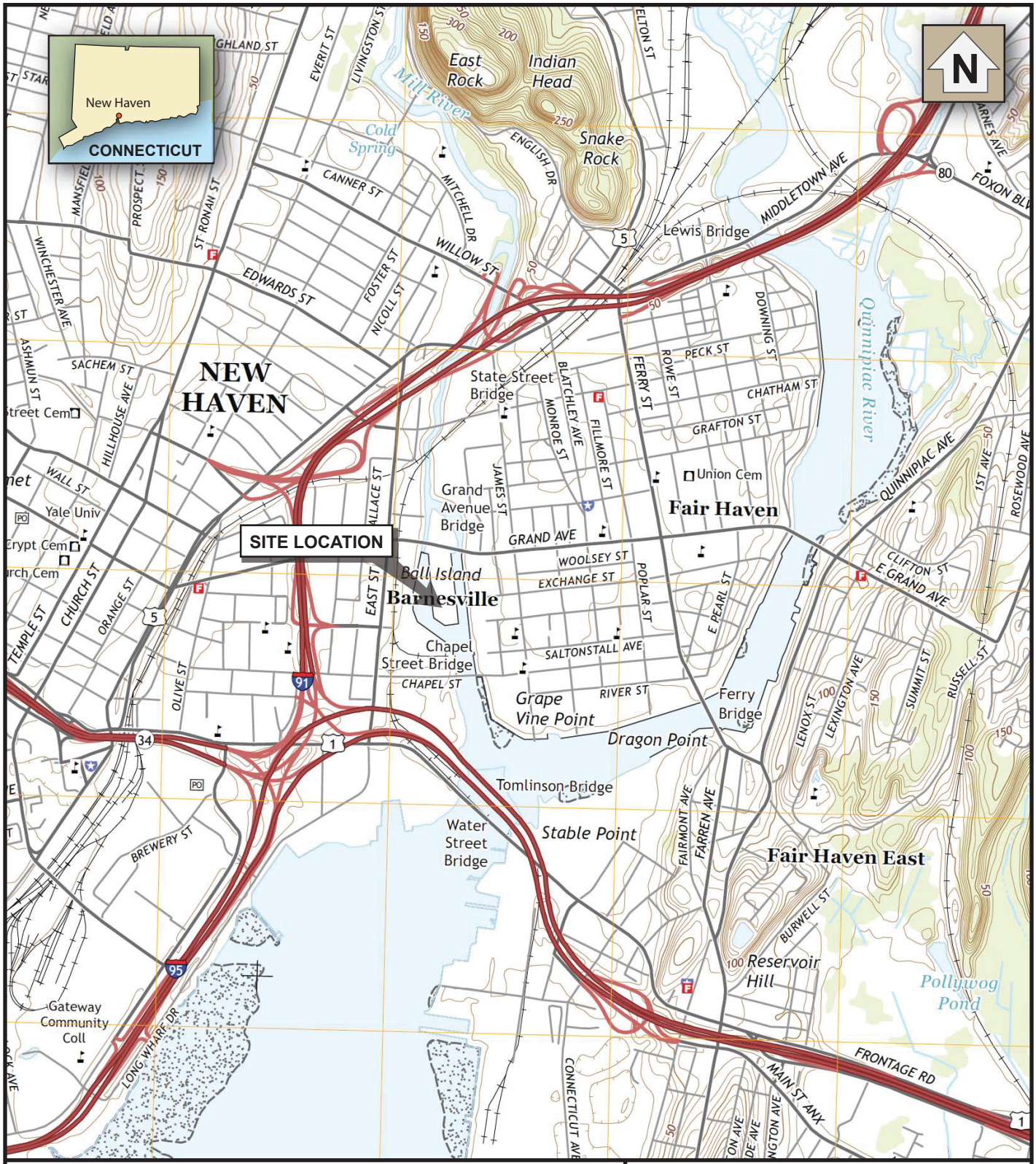
Scope of Study, Eastern Portion of English Station Interior (Partial): Boiler 1-12 Area, TRC, August 2018, Revised September 2018

Scope of Study (Partial), English Station Interior, High-Pressure Boiler Area (Boilers #13 and #14), TRC, October 2018

Investigation Report, Eastern Portion of English Station Interior (Partial): Boiler 1-12 Area, TRC, May 2019

Investigation Report, Western Portion of English Station Interior (Partial), TRC, August 2019

FIGURES



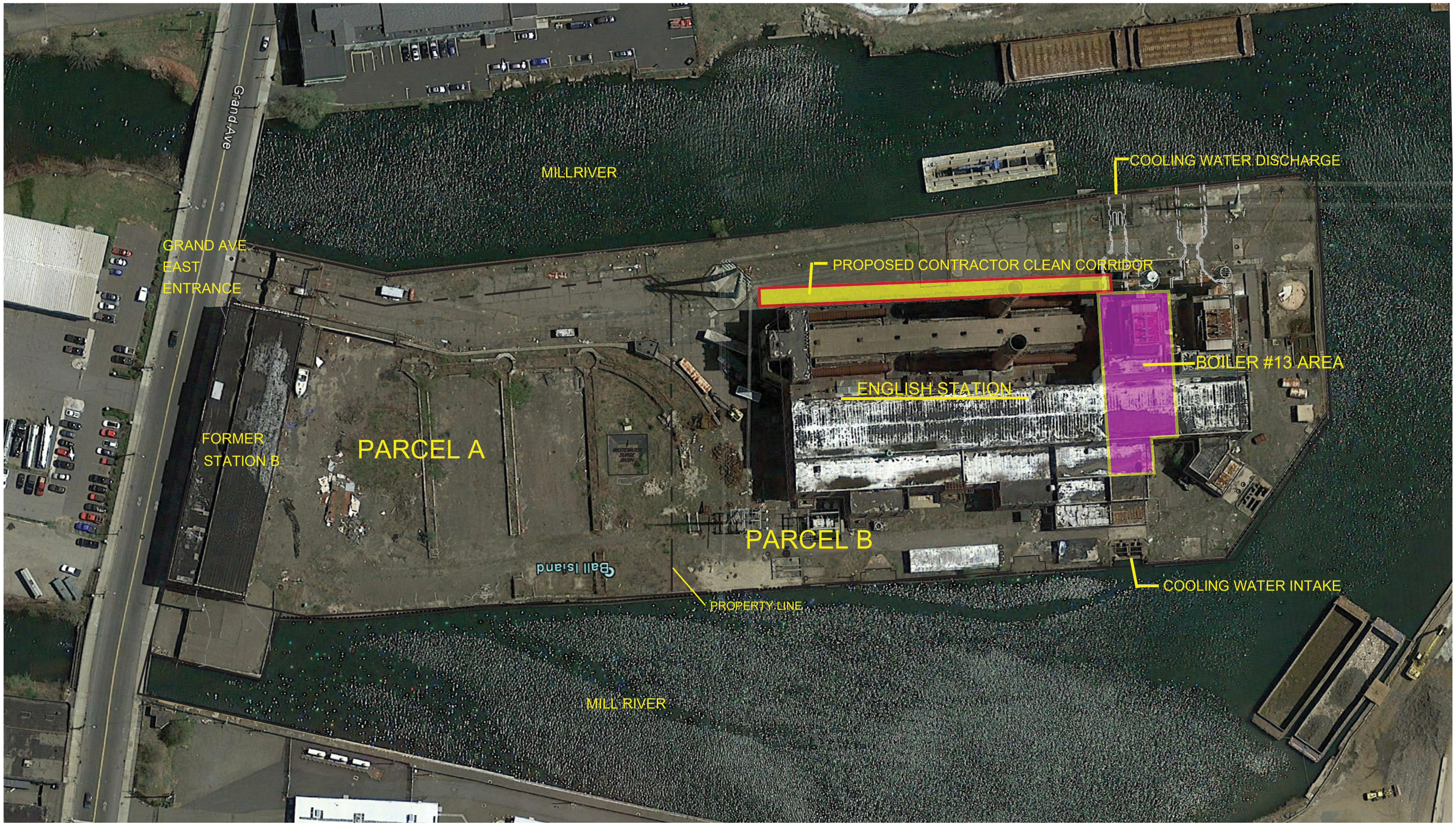
1:24000
BASE CREATED WITH 7.5' USGS TOPOGRAPHIC MAP
NEW HAVEN, CT 2015

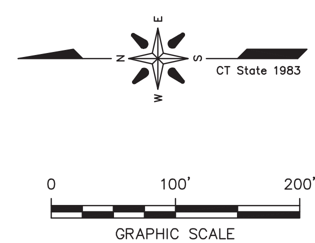
TRC
21 Griffin Road North
Windsor, CT 06095
Phone: 860.298.9692

ENGLISH STATION
510 GRAND AVENUE, NEW HAVEN, CT

FIGURE 1
SITE LOCATION MAP

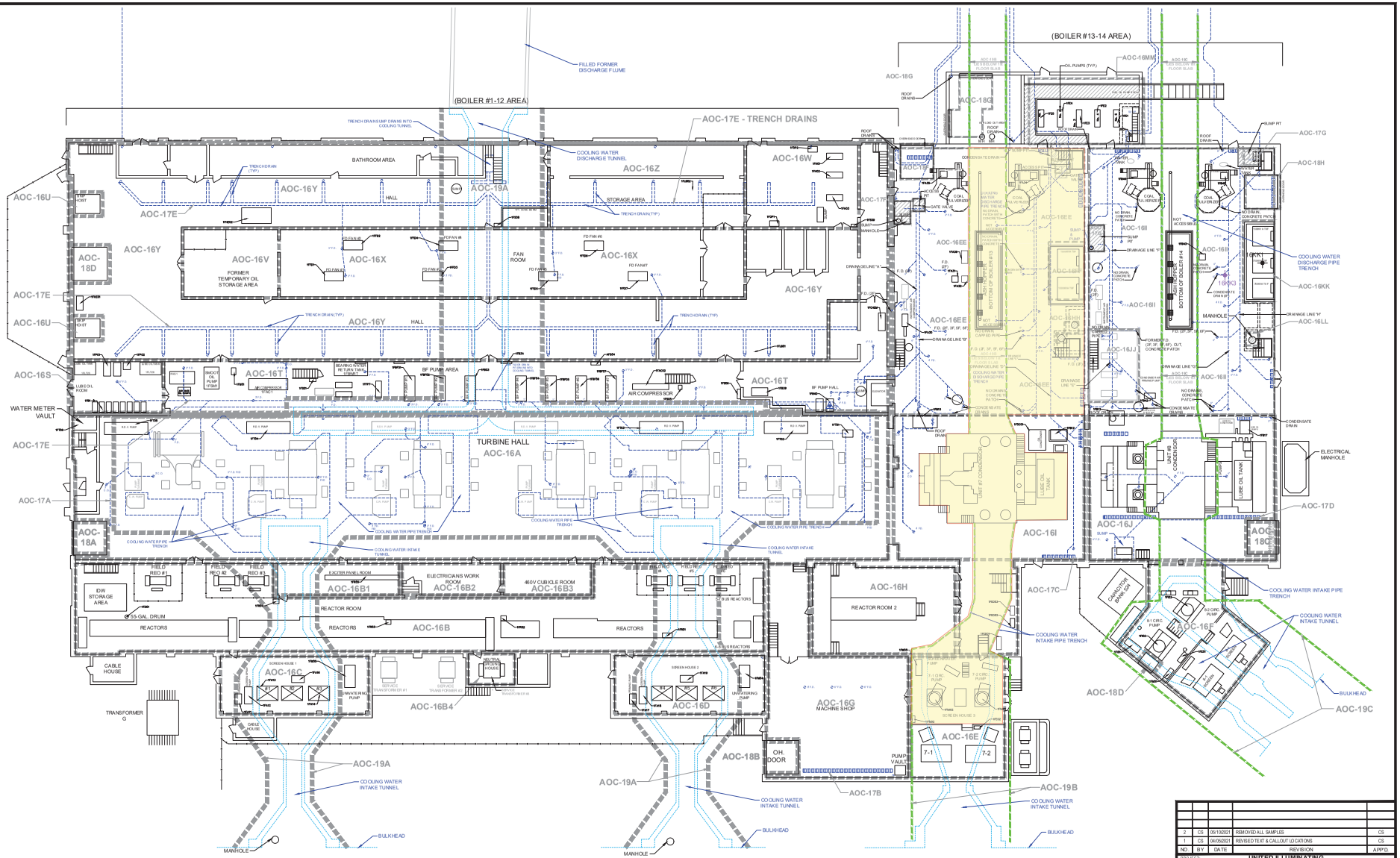
DATE: 10/2016 | PROJECT NO. 263951.0000.000000





PROJECT:	UNITED ILLUMINATING ENGLISH STATION POWER PLANT 510 Grand Avenue New Haven, Connecticut		
TITLE:	SITE PLAN AND APPROXIMATE PARCEL BOUNDARIES		
DRAWN BY:	K. Hollenbeck	PROJ NO.:	263951-000007-000000
CHECKED BY:	R. Gille	FIGURE 2	
APPROVED BY:	M. Kearney		
DATE:	04/19/2018		
TRC		21 Griffin Road North Windsor, CT 06095 Phone: 860.298.9692 www.trcsolutions.com	
FILE NO.:		09/02/2021 Figure 1-2 & Figure 2-1.dwg	

DRAWING NAME: J:\CAD\United Illuminating\English Station-263951\Building Scope Of Study-000007\000000\ Figure 1-2 & Figure 2-1.dwg --- PLOT DATE: April 19, 2018 - 11:28AM --- LAYOUT: Figure 1-2



LEGEND

- TRC EQUIPMENT IDENTIFIER
- COOLING WATER PIPE TRENCH BELOW 1st FLOOR SLAB
- BOILER #13 IRM AREA
- AREA OF CONCERN (AOC)

AOC-17 STRUCTURES

- TRENCH DRAIN
- FLOOR DRAIN PIPING
- F.D. FLOOR DRAIN
- C.O. FLOOR DRAIN CLEANOUT
- FI/D FILLED IN/ DESTROYED

SOURCE:
MAP TITLED "PLAN PREPARED FOR UNITED ILLUMINATING COMPANY, ENGLISH STATION, NEW HAVEN, CONNECTICUT, 1ST FLOOR HIGH & LOW PRESSURE BOILER AREAS, PLATE-1", SCALE: 1"=16', DATED: JAN. 2000, BY GEI CONSULTANTS, INC.

CT State 1983

0 16' 32'
GRAPHIC SCALE

NO.	BY	DATE	REVISION	APP'D.
2	CS	06/10/2021	REMOVED ALL SAMPLES	CS
1	CS	04/05/2021	REVISED TEXT & CALLOUT LOCATIONS	CS

PROJECT:
UNITED ILLUMINATING
ENGLISH STATION POWER PLANT
510 Grand Avenue
New Haven, Connecticut

TITLE:
ENGLISH STATION FIRST FLOOR PLAN & BOILER 13 INTERIM REMEDIAL MEASURE AREA

DRAWN BY:	R. Hamilton	PROJ. NO:	263951-000037-000007
CHECKED BY:	M. Blumstein		Figure 3
APPROVED BY:	M. Mahoney		
DATE:	6/9/2/2021		

TRC
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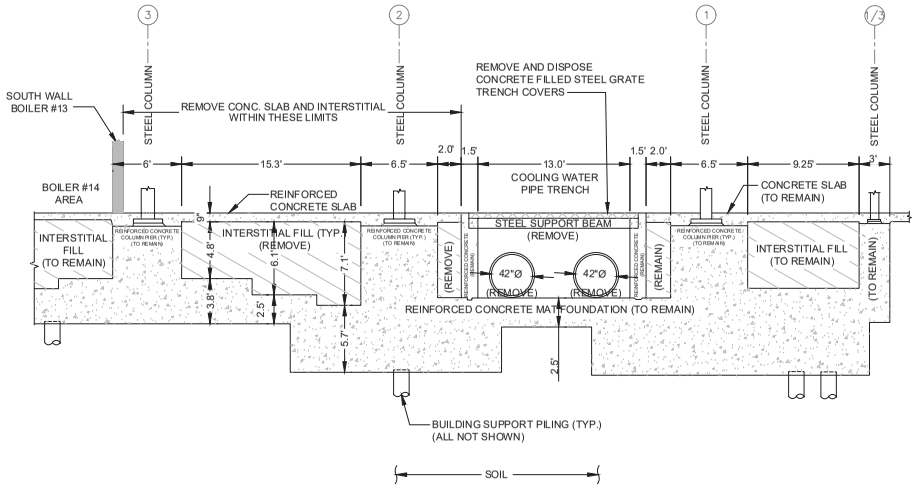
Windsor, CT 06095
Phone: 860.298.9692
www.trccompanies.com

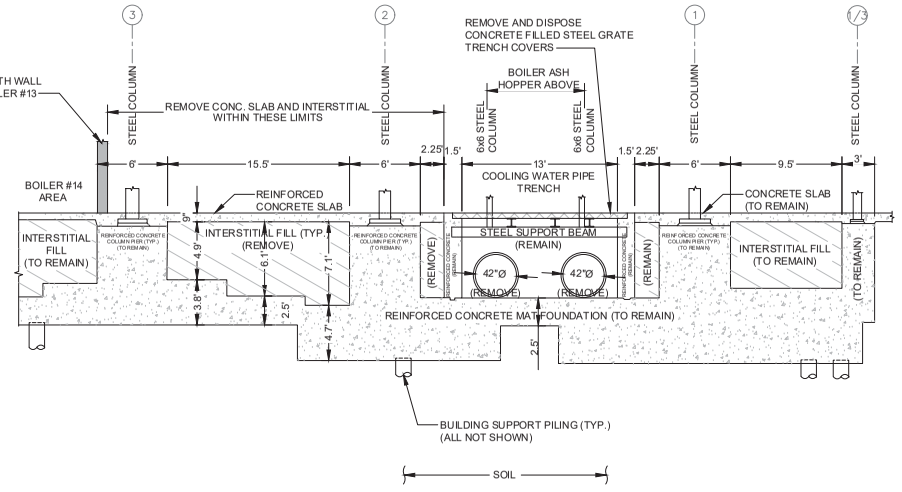
FILENO: Figure 8_05_10_21.dwg

09/02/2021



SECTION - COLUMN LINE E

GRAPHIC SCALE 0 5' 10'



SECTION - COLUMN LINE C

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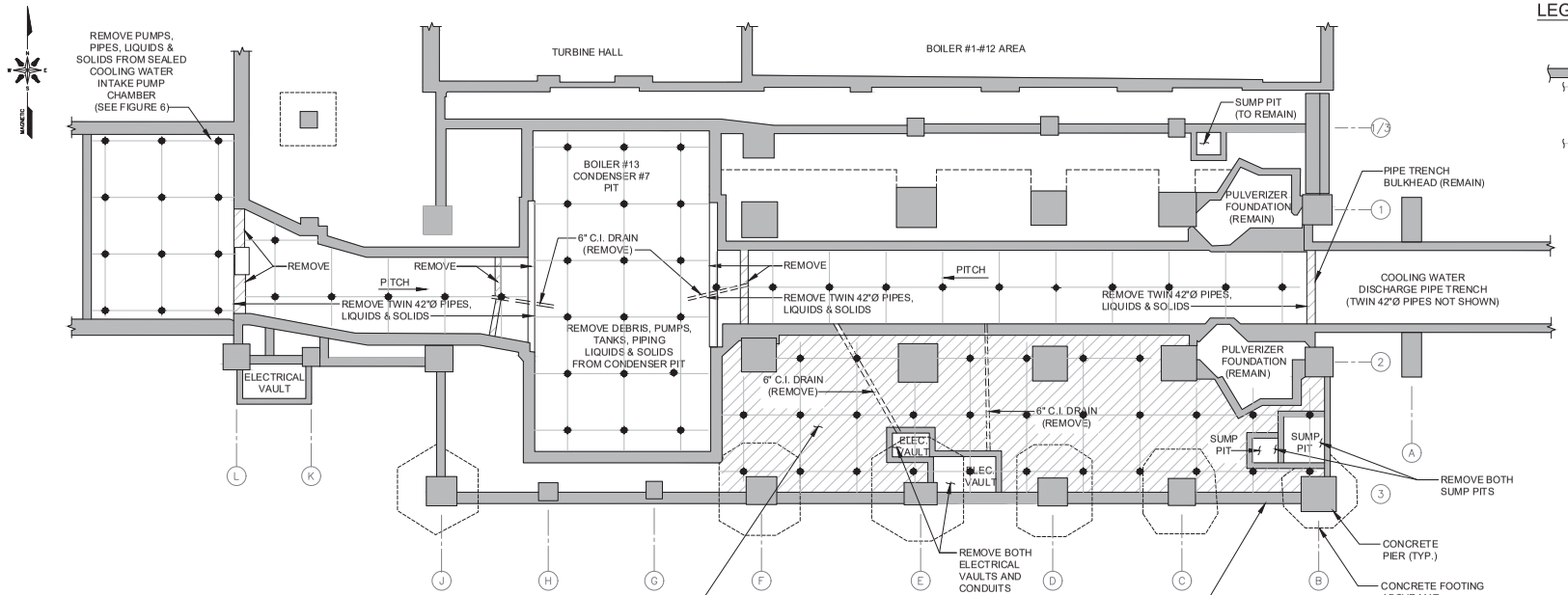

BOILER #13 AREA - BENEATH 1ST FLOOR SLAB

GRAPHIC SCALE 0 10' 20'

LEGEND

- WALL OR OTHER VERTICAL SURFACE
- GRID CONTINUES UP VERTICAL SURFACE WITH SAMPLES COLLECTED EVERY 3.0 METERS (TYPICAL)
- HORIZONTAL 3.0–METER SAMPLING GRID
- EACH ◆ INDICATES A CONCRETE SAMPLE LOCATION (TYPICAL)

PROJECT: UNITED ILLUMINATING
ENGLISH STATION POWER PLANT
510 & 510A GRAND AVENUE
New Haven, Connecticut

TITLE: PROPOSED SAMPLE LOCATION PLAN AND SECTIONS - BOILER #13

DRAWN BY:	R. Hamilton	PROJ NO:	26365.00037.000007
CHECKED BY:	C. Stopper		
APPROVED BY:	C. Stopper		Figure 4
DATE:	09/26/2021		

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Phone: 860.298.9692
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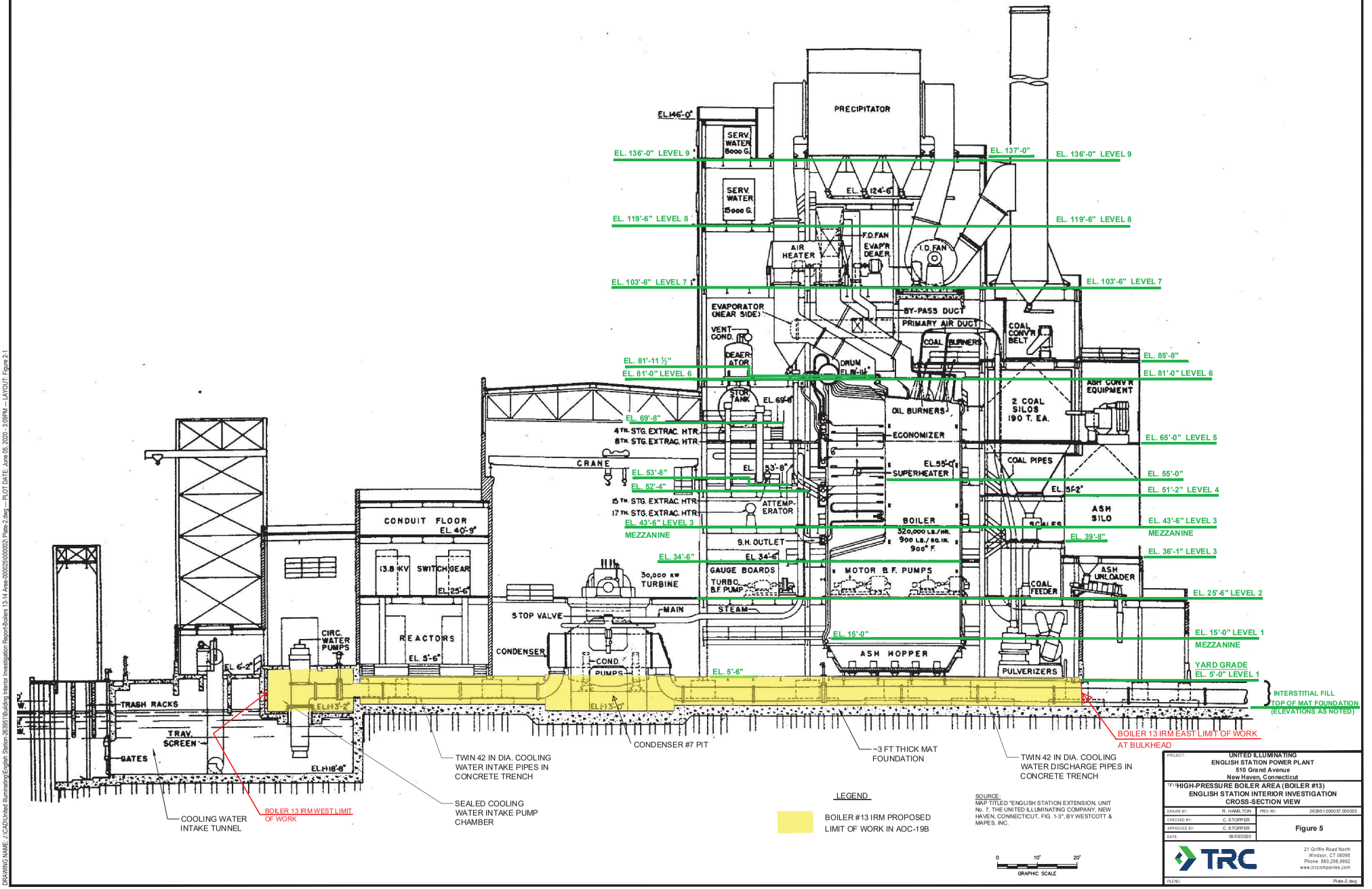
FILENO: Boiler 13 plan_05_26_21.dwg

09/02/2021



PROJECT: UNITED ILLUMINATING
ENGLISH STATION POWER PLANT
510 Grand Avenue
New Haven, Connecticut

TITLE: HIGH-PRESSURE BOILER AREA (BOILER #13)
ENGLISH STATION INTERIOR INVESTIGATION
CROSS-SECTION VIEW

DRAWN BY:	R. HAMILTON	PROJ NO:	263951.00037.00025
CHECKED BY:	C. STOPPER		
APPROVED BY:	C. STOPPER		
DATE:	08/05/2020		

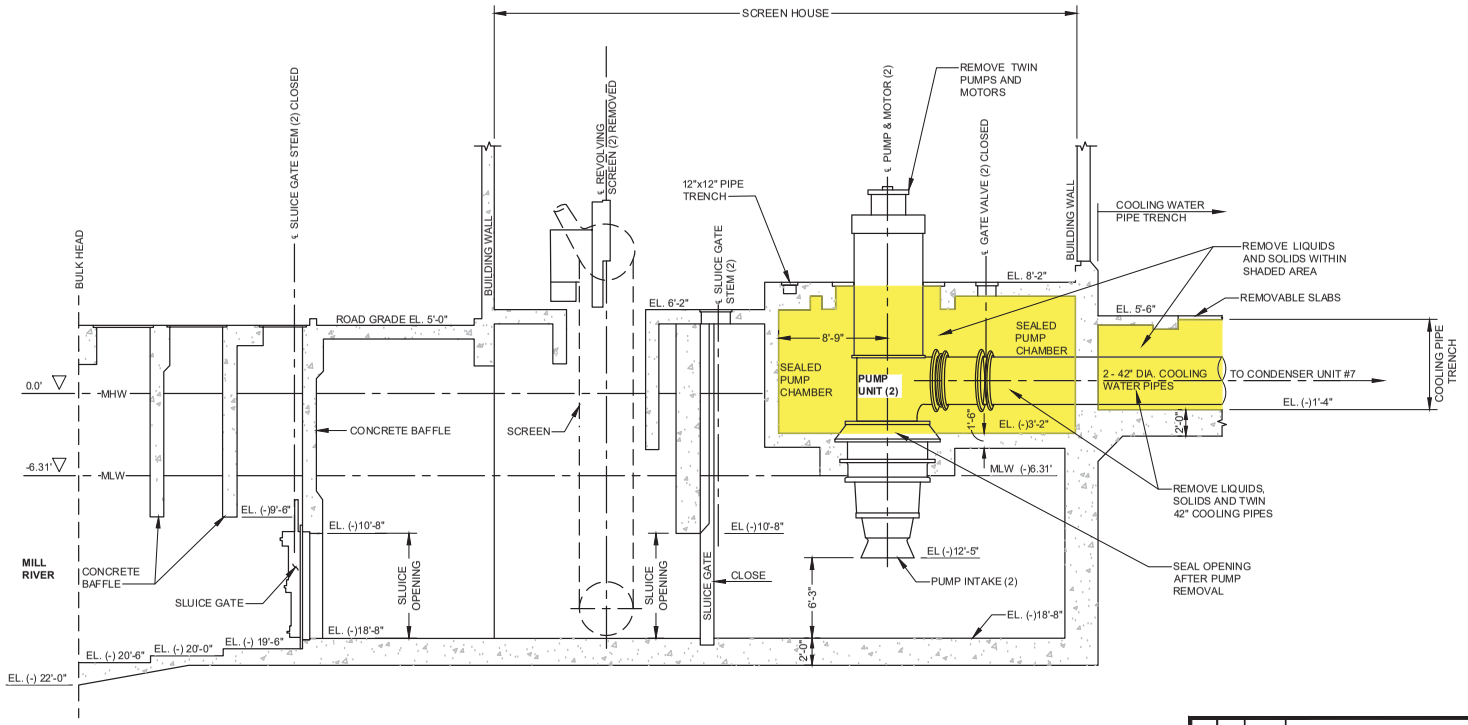
Figure 5

TRC
21 Griffin Road North
Windsor, CT 06095
Phone: 860.298.9692
www.trccompanies.com

FILENO: Plate-2.dwg

09/02/2021

DRAWING NAME: J:\CAD\United Illuminating\English Station-263951\Building Interior Investigation Report-Boilers 13-14 Area-0002520000002 Plate-2.dwg — PLOT DATE: June 05, 2020 - 3:09PM — LAYOUT: Figure 2-1



BOILER #13 /CONDENSER UNIT #7 COOLING WATER INTAKE SYSTEM SECTION (AOC-19B)

N.T.S.

LEGEND

MHW MEAN HIGH WATER
MLW MEAN LOW WATER

NO.	BY	DATE	REVISION	APP'D.
3	CS	06/03/2021	ADDED SHADED AREA WITH REMOVAL NOTES	CS
2	CS	04/21/2021	REMOVED PCBs VALUES	CS
1	CS	04/05/2021	ADDED LEGEND & PCBs VALUES	CS

PROJECT:
ENGLISH STATION - 510 & 510A GRAND AVENUE
NEW HAVEN, CT

TITLE: **BOILER #13/CONDENSER UNIT #7 COOLING WATER INTAKE SYSTEM CROSS - SECTION (AOC-19B)**

DRAWN BY:	R. HAMILTON	PROJ NO.:	263951.000028.000002
CHECKED BY:	C. STOPPER		
APPROVED BY:			**FIGURE 6**
DATE:	01/31/2020		

TRC
21 Griffin Road North
Windsor, CT 06095
Phone: 860.298.9692
www.trcompanies.com

FILE NO.: Cooling Intake System - 06_03_21.dwg 06/03/2021

TABLE 4-1

TABLE 4-1
PROPOSED CONCRETE CORING SAMPLING AND ANALYSES
English Station
510 Grand Avenue
New Haven, Connecticut

AOC ID	AOC Description	Generalized Sampling Approach - Refer to Figure 4 for Sample Grid Layout	Planned Coring Depth	Number of Cores	Planned Sample Analyses	
					PCBs	VOCs
ENGLISH STATION - BOILER #13 INTERIM REMEDIAL MEASURE						
16I	**Condenser #7 Pit**	3 inch deep core samples for all horizontal and veritical surfaces. Sample grid is 3 meters square. 1/2-inch depth interval samples will be collected from concrete core sidewalls begining with the shallowest interval and working deeper until 1 mg/kg PCB concentration or less achieved. The number of samples analyzed will vary based on the actual analyticl results.	3" Deep	36	X	
16EE, 16FF, 16HH & 17F	**Level 1 - Boiler #13Boiler #13, Transformers, Manhole Structures in Boiler #13 Area & Drainage System Beneath Boiler #13 Area**	12 inch deep core samples for horizontal surfaces such as the mat foundation and concrete pier footings. 6 inch deep core samples for vertical concrete foundation walls. Sample grid is 3 meters square. 1/2-inch depth interval samples will be collected from concrete core sidewalls begining with the shallowest interval and working deeper until 1 mg/kg PCB concentration or less achieved. The number of samples analyzed will vary based on the actual analyticl results. VOC analysis is for 0"-1/2" depth interval only.	12" Deep	50	X	X
			6" Deep	7	X	X
19B	**Cooling Water Intake, Distribution, and Discharge Associated With Boiler #13**	3 inch deep core samples for all horizontal and veritical surfaces. Sample grid is 3 meters square. 1/2-inch depth interval samples will be collected from concrete core sidewalls begining with the shallowest interval and working deeper until 1 mg/kg PCB concentration or less achieved. The number of samples analyzed will vary based on the actual analyticl results.	3" Deep	52	X	
19B	**Sealed Cooling Water Intake Pump Chamber**	3 inch deep core samples for all horizontal and veritical surfaces. Sample grid is 3 meters square. 1/2-inch depth interval samples will be collected from concrete core sidewalls begining with the shallowest interval and working deeper until 1 mg/kg PCB concentration or less achieved. The number of samples analyzed will vary based on the actual analyticl results.	3" Deep	26	X	
TOTAL PROPOSED CORE SAMPLE LOCATIONS				**171**		

8/3/2021

APPENDIX A

PARTIAL CONSENT ORDER COWSPCB 15-001

STATE OF CONNECTICUT	:	AOWSPCB 13-001
	:	
V.	:	
	:	
THE UNITED ILLUMINATING COMPANY		

PARTIAL CONSENT ORDER NUMBER COWSPCB 15-001[1]

Date Issued: _____

A. The Commissioner of Energy and Environmental Protection (the "Commissioner") finds:

1. Respondent The United Illuminating Company ("UI") is a regional electric distribution company, established in New Haven, Connecticut in 1899, currently engaged in the purchase, transmission, distribution and sale of electricity and related services to residential, commercial and industrial customers.

2. Respondent has a business address of 180 Marsh Hill Road, Orange, Connecticut.

3. From 1914 until December of 2000, Respondent owned an approximately 8.9 acre parcel of land located at 510 Grand Avenue in New Haven, Connecticut, as set forth in Sections A.5. through A.10. below, said site is presently described in two deeds recorded at page 14 of volume 7814, and page 195 volume 7817 of the City of New Haven land records (the "Site"). The Site, part of an island in the Mill River, is depicted on the map included as Exhibit A to this Consent Order. For purposes of Respondent's obligations under this Consent Order, any reference to the Site includes all soil, surface water, groundwater and sediment located within the perimeter of the Site as shown on Exhibit A, but shall not include offsite soil, groundwater and sediment in the Mill River, including the East and West branches of said River or any areas that are offsite from the Site.

4. The Site is referred to and known as "English Station."

5. On or about August 16, 2000, Respondent transferred the Site to Quinnipiac Energy, LLC ("Quinnipiac Energy") as described in a deed which is recorded at page 72 of volume 5716 of the City of New Haven land records.

[1] This Consent Order is referred to herein as "Partial Consent Order", "Consent Order" or "order."

6. At some point prior to December 9, 2006, the Site was divided into two parcels, Parcel A and Parcel B.

7. Parcel A is located on the northern portion of the Site adjacent to Grand Avenue and includes, among other structures, a building known as Station B.

8. Parcel B is located on the southern portion of the Site and includes, among other structures, a former power generation building.

9. On December 9, 2006, Quinnipiac Energy sold Parcel A to Evergreen Power, LLC ("Evergreen"), as described in a deed which is recorded at page 14 of volume 7814 of the City of New Haven land records.

10. On December 13, 2006, Quinnipiac Energy sold Parcel B to ASNAT Realty, LLC ("ASNAT"), as described in a deed which is recorded at page 195 of volume 7817 of the City of New Haven land records.

SITE HISTORY AND ENVIRONMENTAL SETTING

11. Groundwater below and near the Site is classified as a GB groundwater area.

12. The surface water of the adjacent Mill River is classified as SD/SB.

13. From 1929 through 1992 Respondent operated an electrical power plant ("the Plant") at the Site.

14. The Plant was constructed on a man-made island in the middle of the Mill River located south of Grand Avenue in New Haven, CT. The island is constructed of historically placed fill and comprised of ash, dredge spoils, and other miscellaneous debris.

15. In 1992 the Plant was placed on deactivated status.

16. Respondent's activities on the Site involved the use and storage of equipment and oil, both containing polychlorinated biphenyls ("PCBs").

17. PCBs are a class of human-made chemicals whose manufacture, along with many of its uses, was banned by the United States Environmental Protection Agency ("EPA") in 1979. PCBs have been shown to cause cancer in animals. PCBs have been shown to cause other non-cancer health effects in animals and humans including, but not limited to, effects on the immune system, reproductive system, endocrine system, and

nervous system. Studies in humans provide supportive evidence for the potential impact of PCBs on humans.

18. Respondent's activities on the Site also involved the use and/or management of other equipment and/or materials that contained various pollutants including but not limited to metals, volatile organic compounds, semivolatile organic compounds, and total petroleum hydrocarbons.

19. Respondent operated five (5) PCB transformers ("PCB Transformers"), seventy (70) large high voltage capacitors, and eight (8) pieces of PCB containing electrical equipment including additional transformers and circuit breakers.

20. Respondent also operated two (2) PCB storage areas at the Site.

21. Respondent's employees routinely sprayed waste oil, including transformer oil contaminated with PCBs, for dust control, on coal piles, transit areas and handling areas.

22. Between 1975 and 1997, Respondent filed a number of spill reports with the Commissioner in connection with spills at the Site.

23. On or about December 8, 1997, while excavating on the Site, Respondent's employees discovered an oily material on the groundwater table at the Site, which later broke out through a rotted bulkhead and spilled into the Mill River. Analysis of the oily material indicated the presence of PCBs at levels near 350 parts per million ("ppm").

24. The Site has been the subject of a number of plans, reports and investigations that, among other things, have confirmed the presence of PCBs and other hazardous contaminants at the Site at levels exceeding Connecticut's Remediation Standards Regulations ("RSRs"), Regulations of Connecticut State Agencies ("R.C.S.A.") §§22a-133k-1 through 22a-133k-3. Notwithstanding that not all of the these plans, reports or investigations, may have been reviewed and approved by the Commissioner, these plans, reports and investigations shall be taken into account by Respondent in connection with its investigation and remedial actions hereunder, including the following:

- A 1999 Draft Asbestos and Hazardous Materials Survey for English Station, prepared by GEI Consultants, Inc.;
- A May 2000 Draft Remedial Action Report prepared by GEI Consultants, Inc.;
- A 2000 Dismantling Cost Study prepared by TLG Services, Inc.;

- A 2002 Site-Wide PCB Characterization and Clean-Up Plan, prepared by Advanced Environmental Interface;

- A 2012 Conceptual Remediation Action Plan for PCB Impacted soil, prepared by Stantec Consulting Services;

- A 2015 Subsurface Investigation Report for the Former English Station, prepared by HRP Associates; and

- A Revised Equipment Decontamination Work Plan, prepared by Partner Engineering and Science, Inc.

25. The RSRs apply to any action taken to remediate polluted soil or other environmental media, surface water or a groundwater plume at or emanating from a release area which action is required pursuant to Chapter 445 or 446k of the General Statutes.

26. On March 27, 2003 the Commissioner granted a Widespread Polluted Fill Variance for the Site in accordance with R.C.S.A. § 22a-133k-2(f)(1) ("Fill Variance").

27. On or about March 1, 2005, Quinnipiac Energy submitted a Significant Environmental Hazard Report to the Commissioner reporting that PCBs, at concentrations greater than thirty (30) times the industrial/commercial direct exposure criteria established by the RSRs, were present in surface soils at the Site, posing a potential risk to human health through contact and exposure as required by Connecticut General Statutes ("C.G.S.") § 22a-6u.

28. On or about May 22, 2007, EPA Region 1 conditionally approved a PCB cleanup plan for Parcel A of the Site proposed by Quinnipiac Energy, although the clean-up was not completed.

29. To date, five (5) PCB Transformers, which contained PCB transformer oil, remain at the Site in the Plant on Parcel B.

ESTABLISHING A FACILITY, CREATING A CONDITION, AND/OR MAINTAINING A FACILITY OR CONDITION WHICH CAN REASONABLY BE EXPECTED TO CREATE A SOURCE OF POLLUTION TO THE WATERS OF STATE

30. By virtue of the above, prior to the transfer of the Site to Quinnipiac Energy on August 16, 2000, Respondent established a facility or created a condition and/or maintained a facility or condition which reasonably can be expected to create a source of pollution to the waters of the State; maintained a discharge of waste in violation of Conn. Gen. Stat. §22a-427; initiated, created, or originated or maintained an unpermitted discharge in

violation of Conn. Gen. Stat. §22a-430; and/or disposed of PCBs or PCB-containing items, products or materials in violation of Conn. Gen. Stat. §22a-467. Respondent denies each such allegation and admits no liability hereunder.

31. Proper disposal of PCBs and the prevention of pollution are within the jurisdiction of the Commissioner under the provisions of Chapters 439, 445 and 446k of the Connecticut General Statutes, including but not limited to, §§ 22a-5, 22a-6, 22a-427, 22a-430, 22a-432, 22a-464, 22a-465, and §22a-467.

32. On April 8, 2013, the Commissioner issued Administrative Order # AOWSPCB 13-001 to Respondent and several other respondents, including ASNATand Evergreen (collectively, the "Current Owner"), Uri Kaufman, Ira Schwartz, and Mehboob Shah, as well as Quinnipiac Energy, and Grant MacKay Company Inc.

33. By agreement to the issuance of this Consent Order Respondent makes no admission of fact or law with respect to the matters addressed herein, including the allegations set forth above, other than the facts asserted in Sections A.1 through 5, A.13, A.15 and A.34 and Respondent shall not be deemed to have made any such admissions by the fact that the Respondent has agreed to perform work pursuant to this Consent Order.

34. The Commissioner and Respondent acknowledge and agree that the current zoning for the Site is heavy industrial and further acknowledge and agree that the remedial actions shall be consistent with this current zoned use.

B. Now, therefore, with the agreement of Respondent, the Commissioner, acting under §22a-6, §22a-424, §22a-425, §22a-427, §22a-430, §22a-431, §22a-432, §22a-449, §22a-465, and §22a-467 of the Connecticut General Statutes, orders Respondent as follows:

1. On-Site Remediation: Respondent shall conduct the investigation and cleanup of the Site in accordance with this Consent Order. Such investigation and cleanup shall be completed pursuant to a schedule acceptable to the Commissioner, provided however that the cleanup, not including any confirmatory monitoring performed by Respondent after the completion of such cleanup activities, shall be completed within 3 years of the Access Date defined in Section B.5 below, unless a later completion date is specified in writing by the Commissioner. Whenever this Consent Order refers to the RSRs, the standards shall be those in effect at the time of the Effective Date unless the Commissioner and the Respondent otherwise agree. The Commissioner and Respondent further agree as follows:

    a. On or before thirty (30) days from the Effective Date of this order, Respondent shall retain one or more Licensed Environmental Professional(s) ("LEP"(s)) acceptable to the Commissioner to prepare the documents and

implement or oversee the actions required by this order and shall, by that date, notify the Commissioner in writing of the identity of such LEP(s). Respondent shall retain one or more LEP(s) acceptable to the Commissioner until this order is fully complied with, and, within ten (10) days after retaining any LEP(s) other than the one(s) originally identified under this section, Respondent shall notify the Commissioner in writing of the identity of such other LEP(s). The consultants (LEP(s)) retained to perform PCB investigation, remediation, disposal, and confirmatory sampling must be familiar with the PCB requirements of both the applicable state and federal regulations, including but not limited to, those found at 40 CFR Part 761. Respondent shall submit to the Commissioner a description of the LEP's education, experience and training which is relevant to the work required by this order within ten (10) days after a request for such a description. Nothing in this section shall preclude the Commissioner from finding a previously acceptable LEP unacceptable; the Commissioner has determined that the LEPs listed on Exhibit B hereto are acceptable.

b. On or before sixty (60) days from the Access Date of this order, Respondent shall submit for the Commissioner's review and written approval a scope of study for an investigation of the Site and its potential impact on human health and the environment, including, but not limited to, the existing and potential extent and degree of contamination of soil and ground water, surface water, and sediment within the Site boundary (i.e., within the tunnel on the Site), as well as contamination of the Plant and any other building structures on the Site and any content therein (the "Scope of Study"). The Scope of Study shall:

- be consistent with and comply with the sampling requirements in 40 CFR Part 761 for PCBs, including but not limited to the Standard Operating Procedure for sampling on, into and through concrete;

- identify, document, inventory and assess asbestos and asbestos-containing materials to determine if such materials are friable, damaged, unstable, and accessible or may be disturbed by other actions required by this Consent Order, and to determine how to conduct asbestos abatement in a manner that is necessary to comply with all applicable laws in connection with a plan of abatement for such materials in accordance with Section B.1.e.8. below.

- other than with respect to asbestos characterization as addressed above, fully characterize PCB constituents of all caulk, paint, flooring, roofing, mastics, fireproofing, soundproofing, waterproofing, sealants and all other materials. Notwithstanding the above, Respondent shall investigate the presence of lead and mercury.

- identify non-hazardous and hazardous waste and other hazardous materials at the Site; and

- comply with all prevailing standards and guidelines, including, but not limited to, the Connecticut Department of Energy and Environmental Protection's (the "Department" or "DEEP") Site Characterization Guidance Document; and

- include:

    - the proposed location and depths of any additional ground water monitoring wells;

    - a proposed sampling and analytical program including at least the parameters to be tested, proposed sampling and analytical methods, for sediments within the boundary of the Site and soils, surface water, groundwater, the Plant and other structures at the Site and any contents therein as set forth above;

    - quality assurance and quality control procedures; and

    - a schedule for conducting the investigation.

The proposed Scope of Study for the Commissioner's review and approval may reference and evaluate existing data to support the proposed investigation.

c. If the Commissioner determines that the investigation carried out under the approved Scope of Study, in addition to previous studies and investigations of the Site, does not fully characterize the extent and degree of soil, sediment (within the boundaries of the Site), ground water, and surface water pollution at the Site as well as contamination of the Plant or other structures on the Site and any contents therein, to the satisfaction of the Commissioner, Respondent shall perform additional investigation in accordance with a supplemental plan and schedule approved in writing by the Commissioner. Unless otherwise specified in writing by the Commissioner, the supplemental plan and schedule shall be submitted by Respondent for the Commissioner's review and written approval on or before thirty (30) days after notice from the Commissioner that such supplemental plan is required.

d. Respondent shall implement the approved Scope of Study and, if same are required, any approved supplemental plan(s), in accordance with the approved schedule(s). Respondent shall notify the Commissioner of the date and time of installation of monitoring wells and of each soil, on-site

sediment, building material and water sampling event at least five (5) full business days prior to such installation or sampling.

e. Except as may be provided in the investigation schedule approved by the Commissioner, on or before thirty (30) days after the approved date for completion of the investigation, Respondent shall submit for the Commissioner's review and written approval a comprehensive and thorough report which:

1) describes in detail the investigation performed;
2) identifies the type, quantity and location of all asbestos, non-hazardous and hazardous wastes or other hazardous materials on the Site;
3) defines the existing and potential extent and degree of soil, sediment within the boundary of the Site, ground water, and surface water pollution as well as all contamination of the Plant and any other structures on the Site and contents therein;
4) evaluates the alternatives for remedial actions to abate on-site pollution and impacts for industrial/commercial use of the Site, including but not limited to any alternative specified by the Commissioner, which alternatives are in compliance with all applicable state and federal statutes and regulations, provided that

- to address the direct exposure and volatilization requirements under the RSRs for all contaminants (other than PCBs which are addressed below), Respondent will not be obligated to evaluate alternatives for remedial actions other than those required to comply with the commercial/industrial provisions in the RSRs;

- for PCBs, for direct exposure, a) outside the buildings, Respondent will not be obligated to evaluate alternatives for remedial actions other than those required to comply with 40 CFR Part 761 and with the inaccessible soil provisions of §22a-133k-2(b)(3) of the RSRs, b) inside the buildings, the Respondent shall only be obligated to evaluate alternatives for remedial actions associated with the high occupancy standards in 40 CFR Part 761, and c) under the buildings, the Respondent shall only be obligated to evaluate alternatives for remedial actions associated with the more stringent of the high occupancy standards in 40 CFR Part 761 and the inaccessible soil provisions of §22a-133k-2(b)(3) of the RSRs; and

- The RSR Pollutant Mobility provisions, for both PCBs and for releases into fill, apply in full to all alternatives; the Fill Variance exempts the Pollutant Mobility provisions with respect to the fill itself. The alternatives for remedial actions evaluated by Respondent must also include those alternatives for remedial actions required to comply with this Consent Order as set forth in this subsection B.1. and any approval

issued to Respondent by the Connecticut Department of Public Health requiring Respondent to abate asbestos containing materials that are friable, damaged, unstable, and accessible or may be disturbed by other actions required by this Consent Order.

5) states in detail the most expeditious schedule for performing each alternative;
6) lists all permits and approvals required for each alternative, including but not limited to any permits required under Sections 22a-32, 22a-42a, 22a-342, 22a-361, 22a-368, 22a-430, 22a-465 or 22a-467 of the Connecticut General Statutes;
7) proposes a preferred alternative from among those evaluated pursuant to and consistent with the provisions identified in Section B.1.e.4., with supporting justification therefor;
8) provides that Respondent shall only be required to abate asbestos that is friable, damaged, unstable, and accessible or may be disturbed by other actions required by this Consent Order, and to determine how to conduct asbestos abatement in a manner that is necessary to comply with all applicable laws; and
9) proposes a detailed program and schedule to perform the preferred on-site remedial actions, including but not limited to a schedule for applying for and obtaining all permits and approvals required for such remedial actions.

f. Unless otherwise specified in writing by the Commissioner, on or before thirty (30) days after approval of the report described in the preceding section, Respondent shall submit, for the Commissioner's review and written approval, contract plans and specifications for the approved remedial actions, a revised list of all permits and approvals required for such on-site actions, and a revised schedule for applying for and obtaining such permits and approvals, consistent with all applicable state and federal statutes and regulations and this Consent Order. Respondent shall use best efforts to obtain all required permits and approvals.

g. Respondent shall implement the approved remedial actions in accordance with the approved schedule. Respondent shall notify the Commissioner at least five (5) full business days prior to conducting remedial actions at the Site. Any such notice may include multiple dates that Respondent expects to be undertaking remediation at the Site. Within fifteen (15) days after completing such actions, Respondent shall certify to the Commissioner in writing that the actions have been completed as approved.

h. Except as may be provided in the approved remedial action schedule, on or before thirty (30) days after the approved date for completion of the remediation, Respondent shall submit for the Commissioner's review and written approval a comprehensive and thorough report which describes all remedial actions performed at the Site. Such report shall also include a soil,

on-site sediment, ground water and surface water post-remediation monitoring program to determine the degree to which the approved on-site remedial actions have been effective, and a schedule for performing the post-remediation monitoring program. Respondent shall implement the approved monitoring program to determine the effectiveness of the remedial actions in accordance with the approved schedule.

i. If the approved remedial actions do not result in the prevention and abatement of soil, on-site sediment, ground water, and surface water pollution and contamination of the Plant, other structures on the Site or items contained therein, in a manner that complies with all applicable state and federal statutes and regulations, to the satisfaction of the Commissioner, additional remedial actions and measures for monitoring and reporting on the effectiveness of those actions shall be performed in accordance with a supplemental plan and schedule approved in writing by the Commissioner, provided Respondent shall not be required to take actions more stringent than as provided in section B.1.e.4. and section B.1.k. Unless otherwise specified in writing by the Commissioner, the supplemental plan and schedule shall be submitted for the Commissioner's review and written approval on or before thirty (30) days after notice from the Commissioner that such supplemental plan is required.

j. On a schedule established by the Commissioner or, if no such schedule is established, on a quarterly basis beginning no later than ninety (90) days after completion of the approved remedial actions or, as applicable, supplemental remedial actions, Respondent shall submit for the Commissioner's review and written approval a report describing the results to date of the approved monitoring program to determine the effectiveness of the on-site remedial actions.

k. The current zoning of the Site is heavy industrial. The remedial actions shall be consistent with the current zoned use and be no more stringent than those alternatives referenced in Section B.1.e.4. and Section B.1.e.7., and, if approved therein, may make use of environmental land use restrictions ("ELURs") and/or existing or constructed features that render soil inaccessible or environmentally isolated in accordance with the RSRs. Nothing herein prevents Respondent from agreeing to a more stringent standard of remediation.

2. Revisions. Respondent may, by written request, ask that the Commissioner approve, in writing, revisions to any document approved hereunder in order to make such document consistent with law or for any other appropriate reason.

3. Site Security. Subject to Section B.18. concerning Site Access, upon the Access Date of this Consent Order and until Respondent is in full compliance with the requirements of Section B.1. hereto (as provided in Section B.7.), Respondent shall maintain security at the Site. Respondent shall maintain security at the Site to, at a

minimum, the current level of security maintained at the Site by the Current Owner and approved by the Commissioner.

4. Effective Date. Respondent's parent company has made application to the Public Utilities Regulatory Authority ("PURA") and Massachusetts Department of Public Utilities ("MDPU") for approval of a merger transaction ("Transaction") with a subsidiary of Iberdrola USA, Inc. (the "PURA Application"). Respondent shall promptly notify the Commissioner when the Transaction closes. The "Effective Date" of this order shall be the later of the Closing of the Transaction or when this Consent Order becomes a final order of the Commissioner; provided, however, that if the Transaction does not close within ninety (90) days following the receipt of PURA approval and approval of the MDPU, then the Commissioner has the discretion to terminate this agreement. If PURA does not approve the PURA Application then this agreement is null and void. Respondent shall have no obligations under this Consent Order until the Effective Date.

5. Access Date. The "Access Date" is the date that the Commissioner provides written notification to Respondent that the Commissioner has secured "Required Access" as defined in Section B.18. and that such Required Access is in effect after the Effective Date. For purposes of this Consent Order, Respondent shall have no obligations under this Consent Order prior to the Effective Date.

6. Progress Reports. On or before the last day of each month following the Effective Date and continuing until all actions required by this order have been completed as approved and to the Commissioner's satisfaction, Respondent shall submit a progress report to the Commissioner describing the actions which Respondent has taken to date to comply with this order including the amounts incurred regarding such compliance; provided, however, that for any period in which actions required by this order consist solely of groundwater monitoring, Respondent shall submit a progress report on or before the last day of each month in which a groundwater monitoring event takes place.

7. Full Compliance. Respondent shall not be considered in full compliance with this Consent Order until all actions required by this order have been completed as approved and to the Commissioner's satisfaction. Subject to Section B.15., upon such full compliance or in the event of payment by Respondent as provided in Section B.18. or Section B.24., the Commissioner will issue to Respondent a certificate of compliance, which shall fully and finally conclude Respondent's obligations with respect to the Site, and Respondent shall have no further obligation or liability for any matter within the jurisdiction of the Commissioner relating thereto, except in the event of Respondent's unlawful behavior or gross negligence.

8. Sampling. All sampling shall be performed in accordance with procedures specified or approved in writing by the Commissioner, or, if no such procedures have been specified or approved, in accordance with the most recent final version of EPA publication SW-846, entitled "Test Methods for Evaluating Solid Waste,

Physical/Chemical Methods," Standard Operating Procedures for Sampling Porous Surfaces For Polychlorinated Biphenyls, the most recent final version of the Department's "Site Characterization Guidance Document," and relevant policies and guidelines issued by the Commissioner.

9. Sample Analyses. All sample analyses which are required by this order and all reporting of such sample analyses shall be conducted by a laboratory certified by the Connecticut Department of Public Health and approved to conduct such analyses. In addition,

    - The Reasonable Confidence Protocols shall be used when there is a method published by Department. In all cases where the Reasonable Confidence Protocol method is used, a properly completed laboratory QA/QC certification form, certified by the laboratory shall be provided to the Commissioner with the analytical data.
    - In cases where a Reasonable Confidence Protocol method has not been published, the analytical data shall be generated using a method approved by the Commissioner, such method shall include and report a level of quality control and documentation equivalent to the Reasonable Confidence Protocols.
    - The reporting limit shall be established consistent with the Reasonable Confidence Protocols and standard industrial and laboratory practices. The Reporting Limit shall not be set at levels greater than those used in such standard practices, as determined by the Commissioner, in consultation with the Commissioner of Public Health and in no case shall be greater than the Applicable Criteria or Background Concentration established in §22a-133k-1 through §22a-133k-3 of the Regulations of Connecticut State Agencies. The Reporting Limit for a given sample shall be corrected for specific sample weight or volume, and dilutions, and, for soil and sediment samples moisture content (reported as dry weight).

10. Approvals. Respondent shall use best efforts to submit to the Commissioner all documents required by this order in a complete and approvable form. If the Commissioner notifies Respondent that any document or other action is deficient, and does not approve it with conditions or modifications, it is deemed disapproved, and Respondent shall correct the deficiencies and resubmit it within the time specified by the Commissioner or, if no time is specified by the Commissioner, within thirty (30) days of the Commissioner's notice of deficiencies. In approving any document or other action under this order, the Commissioner may approve the document or other action as submitted or performed or with such conditions or modifications as the Commissioner deems necessary to carry out the purposes of this order. Nothing in this section shall excuse noncompliance or delay. Any reference in this Consent Order to an approved document such as a scope of work or a schedule shall mean approved by the Commissioner.

11. Definitions. As used in this order, "Commissioner" means the Commissioner or a representative of the Commissioner.

12. Dates. The date of submission to the Commissioner of any document required by this order shall be the date such document is received by the Commissioner. The date of any notice by the Commissioner under this order, including but not limited to, notice of approval or disapproval of any document or other action, shall be the date such notice is deposited in the U.S. mail or is personally delivered, whichever is earlier. Except as otherwise specified in this order, the word "day" as used in this order means calendar day. Any document or action which is required by this order to be submitted or performed by a date which falls on a Saturday, Sunday or a Connecticut or federal holiday shall be submitted or performed by the next day which is not a Saturday, Sunday or Connecticut or federal holiday.

13. Certification of Documents. Any document, including but not limited to any notice, which is required to be submitted to the Commissioner under this order shall be signed by Respondent or, if a Respondent is not an individual, by such Respondent's chief executive officer or a duly authorized representative of such officer, or by a "responsible corporate officer" of Respondent as that term is defined in §22a-430-3(b)(2) of the Regulations of Connecticut State Agencies, and by the LEP(s) or other individual(s) responsible for actually preparing such document, and Respondent or Respondent's chief executive officer and each such individual shall certify in writing as follows:

> "I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, that the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information is punishable as a criminal offense under §53a-157b of the Connecticut General Statutes and any other applicable law."

14. False Statements. Any false statement in any information submitted pursuant to this order is punishable as a criminal offense under §53a-157b of the Connecticut General Statutes and any other applicable law.

15. Commissioner's Powers. Subject to provisions of Section B.23., nothing in this order shall affect the Commissioner's authority to institute any proceeding or take any other action to prevent or abate violations of law, prevent or abate pollution, recover costs and natural resource damages, and to impose penalties for past, present, or future violations of law. If at any time the Commissioner determines that the actions taken by Respondent pursuant to this order have not successfully corrected all violations, fully characterized the extent and degree of any pollution or successfully abated or prevented pollution, the Commissioner may institute any

proceeding to require Respondent to undertake further investigation or further action to prevent or abate violations or pollution; provided, however, that in the event the Commissioner issues a certificate of compliance pursuant to Section B.7., the Commissioner may only institute any proceeding to require Respondent to undertake further investigation or further action to prevent or abate violations or pollution after issuing a certificate of compliance if the Commissioner determines that a certificate of compliance was obtained through the submittal of materially inaccurate or erroneous information, or otherwise materially misleading information or that material misrepresentations were made in connection with the obtaining of the certificate of compliance. In accordance with Conn. Gen. Stat. Sec. 22a-6dd, the requirements and standards for remediation required of Respondent pursuant to this Consent Order shall not be modified by the Department unless both the Department and Respondent agree to such modification.

16. Respondent's Obligations Under Law. Nothing in this order shall relieve Respondent of other obligations under applicable federal, state and local law.

17. No Assurance by Commissioner. No provision of this order and no action or inaction by the Commissioner shall be construed to constitute an assurance by the Commissioner that the actions taken by Respondent pursuant to this order will result in compliance or prevent or abate pollution.

18. Access to Site. The Commissioner and Respondent acknowledge that Respondent does not currently own, or control access to, the Site, and that Respondent requires access, without interference from the Current Owner or the property owner, necessary to be able to comply with its obligations under this Consent Order to investigate, remediate, monitor and secure the Site and shall not be obligated to proceed with such obligations that require Site access unless and until it has such access and only for so long as it continues to have access pursuant to the terms of this Section B.18. The Commissioner will endeavor, using all reasonable efforts, to obtain and, if so obtained, will use all reasonable efforts to maintain, access to, or control of, the Site, pursuant to a written access agreement, on terms that enable Respondent to comply with the terms and conditions of this Consent Order requiring Respondent to investigate, remediate, monitor and secure the Site, and that require the Current Owner (or, as applicable, any subsequent owners) to (i) refrain from engaging in actions that adversely, substantially and materially affect Respondent's ability to comply with the obligations under this Consent Order or otherwise engaging in activities that cause environmental conditions or exacerbate or contribute to existing environmental conditions at the Site that cause a significant increase in costs, (ii) agree to the recordation and implementation of ELURs pursuant to 40 CFR Part 761 and the RSRs, as applicable, and (iii) include notice of such ELURs in any sale or lease agreement regarding the Site and terms that expressly condition any such sale or lease agreement on the purchaser's or lessee's (as applicable) agreement to assume all liabilities arising from the failure by such purchaser or lessee to comply with the ELUR(s) ("Required Access"). Respondent shall make all reasonable efforts to

support any effort by the Commissioner to obtain the Required Access and shall not take any actions to impede or prevent the Required Access. Reasonable efforts by Respondent shall include, but not be limited to, providing a release, indemnification and hold harmless to the Current Owner from liability as the Current Owner arising solely out of the activities of Respondent or its contractors on the Site in the course of performing work under this Consent Order, and shall further include, if requested by the Commissioner, a release by Respondent of contribution claims against the Current Owner in respect of onsite conditions at the Site as long as the Current Owner, on behalf of itself and its owners, agents, officers, directors, shareholders, partners and members, also agrees to provide a reciprocal general release reasonably acceptable to Respondent. Reasonable efforts by Respondent shall not include paying the Current Owner or its owners, agents, officers, directors, shareholders, partners and members or reimbursing or funding, directly or indirectly, all or any part of any payment to the Current Owner or its owners, agents, officers, directors, shareholders, partners and members by others or remediating to standards that are more stringent than required by this Consent Order. In the event that the Commissioner after the Effective Date, in his sole discretion, determines (following consultation with Respondent) that the Commissioner is unable to secure the Required Access, the Commissioner may direct Respondent to make payment to the Commissioner in accordance with this section in lieu of completing performance of work otherwise required in this Consent Order. In the event that the Commissioner, after the Effective Date, is unable to maintain Required Access to the Site, then the three year period for completion in Section B.1. is tolled until either the Commissioner obtains access or until the Commissioner, following consultation with Respondent, but in his sole discretion, directs Respondent to make payment to the Commissioner in accordance with this section in lieu of completing performance of work otherwise required by this Consent Order. The Commissioner shall give notice of such direction to Respondent together with a draft certificate of compliance. Within one hundred twenty (120) days of receipt of such notice, Respondent shall pay, by cashier or certified check, $30 million minus any costs incurred or accrued for remediation and investigation (not including attorney's fees and any direct time charges of Respondent's employees, managers or officers) after the Effective Date of this order for compliance with this order, to the account designated by the Commissioner, and such payment shall fully resolve Respondent’s obligations herein and the Commissioner shall provide a certificate of compliance as provided for in Section B.7. herein. The Commissioner shall use the funds for the investigation and remediation of the Site, and any funds remaining after the completion of the investigation and remediation of the Site shall, with the concurrence of the Governor and the Attorney General, be used for a public purpose. Within thirty (30) days of the Commissioner’s issuance of such notice and certificate of compliance, Respondent shall provide a detailed accounting of any remedial costs incurred. Payment of the funds required by this section shall satisfy Respondent’s obligations under this Consent Order.

19. No Effect on Rights of Other Persons. This order neither creates nor affects any rights of persons, entities (of any form or nature) or municipalities that are not parties to this order. Without limiting the generality of the foregoing, the parties expressly disclaim any intent to create any rights enforceable by any non-parties as third-party beneficiaries hereunder.

20. Notice to Commissioner of Changes. Within fifteen (15) days of the date Respondent becomes aware of a change in any information submitted to the Commissioner under this order, or that any such information was inaccurate or misleading or that any relevant information was omitted, Respondent shall submit the correct or omitted information to the Commissioner.

21. Notification of Noncompliance. In the event that Respondent becomes aware that it did not or may not comply, or did not or may not comply on time, with any requirement of this order or of any document required hereunder, Respondent shall immediately notify by telephone the individuals identified in the next section and shall take all reasonable steps to ensure that any noncompliance or delay is avoided or, if unavoidable, is minimized to the greatest extent possible. Within five (5) days of the initial notice, Respondent shall submit in writing the date, time, and duration of the noncompliance and the reasons for the noncompliance or delay and propose, for the review and written approval of the Commissioner, dates by which compliance will be achieved, and Respondent shall comply with any dates which may be approved in writing by the Commissioner. Notification by Respondent shall not excuse noncompliance or delay, and the Commissioner's approval of any compliance dates proposed shall not excuse noncompliance or delay unless specifically so stated by the Commissioner in writing.

22. Submission of Documents. Any document required to be submitted to the Commissioner under this order shall, unless otherwise specified in this order or in writing by the Commissioner, be directed to:

    Gary Trombly, Jr.
    Department of Energy and Environmental Protection
    Storage Tank & PCB Enforcement Unit
    79 Elm Street
    Hartford, Connecticut 06106

    And

    Craig Bobrowiecki
    Department of Energy and Environmental Protection
    Remediation Division
    79 Elm Street
    Hartford, Connecticut 06106

23. Effect of Order. Except as provided herein, as of the Effective Date, other than as may be necessary to compel Respondent's compliance with this Consent Order (i) this Consent Order fully resolves all matters alleged in Administrative Order No. AOWSPCB 13-001 against Respondent at the Site, and all known claims of the Commissioner against Respondent related to environmental conditions at the Site, (ii) subject to Section B.15., upon such full compliance or in the event of payment by Respondent as provided for in Section B.18. and Section B.24., the Commissioner will issue to Respondent a certificate of compliance, which shall fully and finally conclude Respondent's obligations with respect to the Site and Respondent shall have no further obligation or liability for any matter within the jurisdiction of the Commissioner relating thereto, except in the event of Respondent's unlawful behavior or gross negligence, (iii) the Commissioner agrees to dismiss all claims, orders, demands, and allegations raised in Administrative Order No. AOWSPCB 13-001 against Respondent in connection with environmental conditions at the Site.Nothing in this Consent Order shall prevent the Commissioner from maintaining Administrative Order No. AOWSPCB 13-001 and proceedings relating thereto, or initiating new proceedings or actions, with respect to environmental impacts at off-site locations, including, but not limited to, sediments, soil, groundwater or any contaminants that have emanated offsite from the Site.

24. Provisions Relating to the Cost of Compliance with this Order. If the total costs to Respondent of performing the obligations after the Effective Date of this Consent Order exceed $30 million, the State, at Respondent's request, will discuss options for recovering or funding any costs above that amount, for example, through public funding or recovery from third parties, but is not bound to agree to or support any means of recovery or funding. Nothing in this section shall alter Respondent's obligation to fully comply with this Consent Order, including but not limited to, the time for compliance during any time that there are discussions about recovery of costs exceeding $30 million. Respondent shall comply with this Consent Order even if the costs of such compliance exceed $30 million, except in the event of payment by Respondent as provided for in Section B.18.

    Respondent shall maintain an accounting of all of the costs incurred or accrued regarding compliance with this Consent Order. Upon issuance of a certificate of compliance pursuant to Section B.7. herein, to the extent that the costs incurred by Respondent under this Consent Order for the investigation and remediation of the Site after the Effective Date are less than $30 million, then Respondent shall remit to the State the difference between such costs and $30 million for a public purpose as determined in the discretion of the Governor, the Attorney General, and the Commissioner .. Within thirty (30) days of a written demand by the Commissioner for the accounting of the costs incurred by Respondent regarding compliance with this Consent Order, Respondent shall provide a detailed accounting of such costs. Within thirty (30) days following a written demand by the Commissioner and the issuance by the Commissioner of a certificate of compliance resolving Respondent's liabilities regarding matters addressed in this

Consent Order, Respondent shall make payment of the difference between such costs (which shall include any costs incurred or accrued in relation to the cessation of activities) and $30 million to the recipient identified by the Commissioner.

Respondent consents to the issuance of this Partial Consent Order without further notice. The undersigned certifies that JAMES P. TORGERSON is fully authorized to enter into this Partial Consent Order and to legally bind Respondent The United Illuminating Company to the terms and conditions of the Consent Order.

Respondent The United Illuminating Company

BY: _____

DATE: 9/16/15

ORDER NO. _____

Issued as a final order of the Commissioner of Energy and Environmental Protection.

BY: _____

Commissioner

DATE: _____

Exhibit A - English Station, 510 Grand Avenue, New Haven

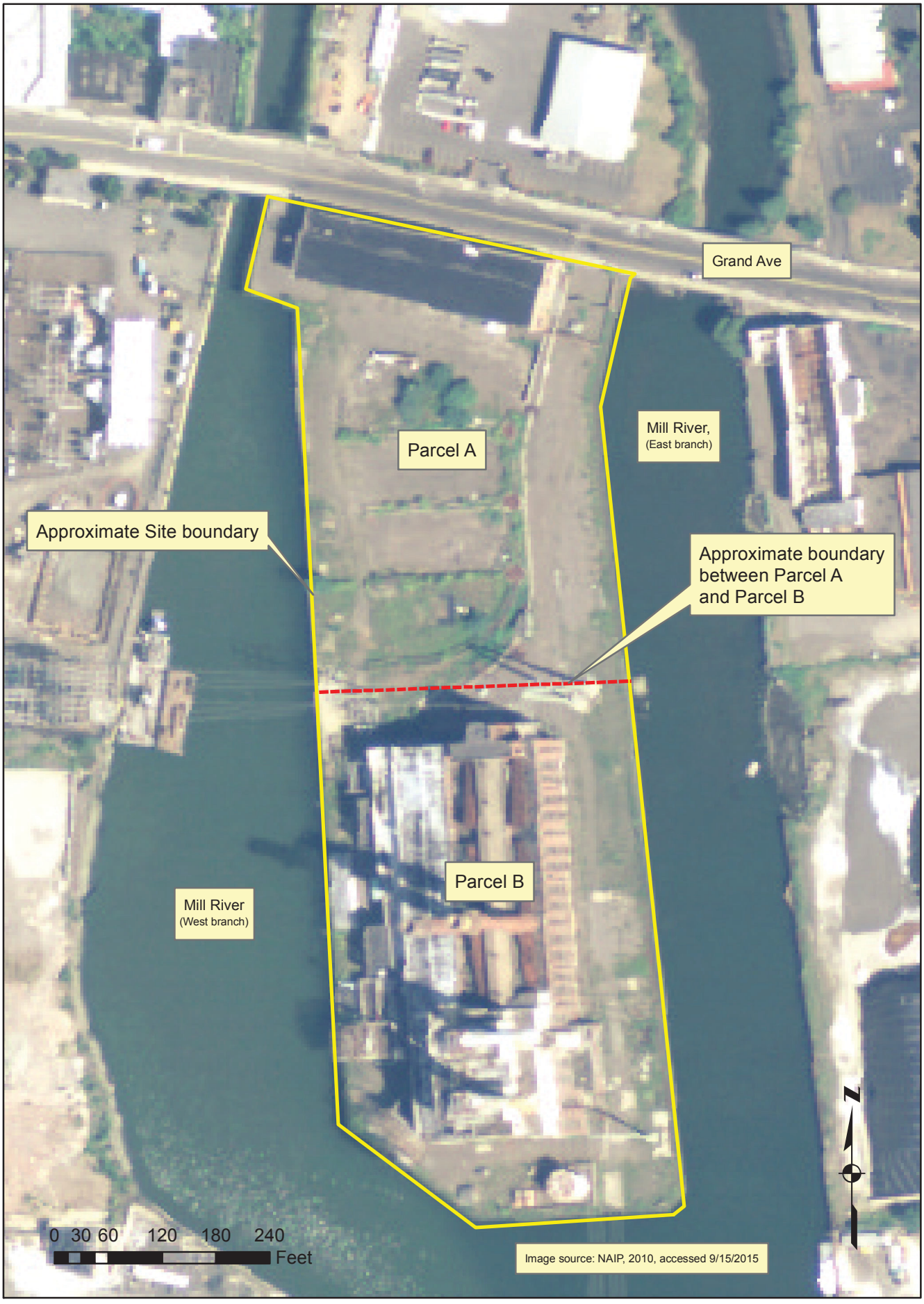


EXHIBIT B TO PARTIAL CONSENT ORDER NUMBER COWSPCB 15-001

Project Management Consultant:
TRC Environmental Corporation
21 Griffin Road North
Windsor, Connecticut 06095
860-298-9692

Project Licensed Environmental Professional (LEP):
Sarah Trombetta, CPG, LEP, CHMM
TRC Windsor, Connecticut Office
Licensed Environmental Professional, Connecticut (#294, 1998)
Certified Professional Geologist, American Institute of Professional Geologist, (#8899, 1993)
Certified Hazardous Materials Manager (#15404, 2010)

Project Support LEP:
Marya Mahoney, LEP
TRC Windsor, Connecticut Office
Licensed Environmental Professional, Connecticut, (#478, 2007)

TRC Project Resources:

Ed Doubleday, Project Management and Project Performance
TRC Windsor, Connecticut Office
Certified Project Management Professional (2011)
FEMA Incident Command Station Certification (2008)
U.S. Naval Academy

Carl Stopper, P.E., Connecticut Professional Engineer, TRC PCB and Site Remediation Expert
TRC Windsor, Connecticut Office
Professional Engineer, Connecticut (#13255, 1984)

Eric Plimpton, P.E., Connecticut Professional Engineer, TRC Asbestos Materials Expert
TRC Windsor Connecticut Office
Professional Engineer, Connecticut (#20593) 1998
Certified Hazardous Materials Manager, Master Level (#11384) 2002
Certified Safety Management Practitioner (#14197) 2013
Asbestos Analyst, AIHA (#4554) 1992
Asbestos Project Monitor, Connecticut (#000082) 1993
Asbestos Management Planner, Connecticut (#000219) 2002
Asbestos Inspector, Connecticut (#000074/000219) 1993
Asbestos Project Designer, Connecticut (#000152) 1999
Lead Inspector/Risk Assessor, Connecticut (#001206) 1996
Lead Planner Project Designer, Connecticut (#001866) 1998

David Sullivan, TRC Indoor TSCA/PCB Expert
TRC Lowell, Massachusetts Office
Massachusetts Licensed Site Professional (#1488, 2004)
Extensive experience with USEPA Region I TSCA Office and Managers

Stacy McAnulty, P.E., TRC Site Remediation and PCB Sediment Expert
TRC Madison, Wisconsin, Office
Professional Engineer in Wisconsin, Maine, Colorado, and North Carolina