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Division of Environmental Remediation
Remedial Bureau B
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Subject:
Off-Site Supplemental Remedial Investigation Work Plan
Parcel C
Hunts Point Manufactured Gas Plant
Bronx, New York
NYSDEC VCA #V00554

Dear Mr. Lee:

This Off-Site Supplemental Remedial Investigation Work Plan presents the activities to be conducted at/near Parcel C at the Hunts Point former Manufactured Gas Plant (MGP) site (the Site). This Work Plan has been prepared in accordance with the Voluntary Cleanup Agreement between the New York State Department of Environmental Conservation (NYSDEC) and Consolidated Edison Company of New York, Inc. (Con Edison). This work plan is presented as an addendum to the NYSDEC-approved Off-Site Characterization Work Plan (ARCADIS 2012) which described investigation of off-site areas associated with the Site. These investigation activities were performed and documented in the Off-Site Remedial Investigation Report (ARCADIS 2014) which recommended additional RI activities on Parcel C. The NYSDEC approved the Off-Site Remedial Investigation Report and recommendation of additional RI activities (herein after referred to as SRI activities) in a May 12, 2014 approval letter.

The Hunts Point former MGP site is an approximately 160-acre tract of land located within the Hunts Point peninsula at the confluence of the Bronx and East Rivers. For investigation purposes, portions of the Site have been divided into parcels (Parcels A through F). The Site also contains the Sultana and Citarella property, located south of Parcel C; the Krasdale Foods property, located between Parcels D and F; and The City of New York Department of Sanitation marine transfer station, located on the southern portion of the former MGP (Figure 1). Various investigations and remediation of Parcels A through F and the Krasdale Foods property have been completed and are documented in several reports (ARCADIS 2014). An overview of Parcel C, the subject of this work plan, is provided below.

Background

The following reports related to Parcel C were reviewed as part of the summary provided below:

- *Hunts Point Cooperative Market Redevelopment Plan, Response Plan for the Operating Unit Portion of Parcel C, Bronx, New York, Final Revised* (LMS 2001)
- *Hunts Point Food Distribution Center Redevelopment Plan, Sections of the Redevelopment Plan for the Operable Unit 1 Portion of Parcel C, Bronx, New York, Final Revised* (Henningson, Durham & Richardson Architecture and Engineering P.C. [HDR] 2009)

Two subsurface investigations were completed in 1997 and 1999 by HDR on Parcel C under the NYSDEC Voluntary Cleanup Program (VCP). The 1997 investigation consisted of the completion of five soil borings to a depth of 6 to 10 feet below ground surface (bgs) and the installation of one monitoring well screened across the water table. The 1999 investigation consisted of the completion of four test trenches and five test pits to the water table, one soil boring to 40 feet bgs, as well as the collection and analysis of soil and groundwater samples.

A coal layer was encountered across most of Parcel C from the surface to 2 to 4 feet bgs, with greatest thickness near the center of the site. Occasional coal tar/tar boils (1 to 4 feet in diameter) were also observed at the surface, and occasionally at 3 to 4 feet bgs. Areas of “soft ground” were also encountered during the 1999 investigation but were not investigated, as the areas could not support the excavator. In addition, petroleum-impacted soils were noted in the southern portion of the parcel. Groundwater conditions at Parcel C exhibited no evidence of product, including dense or light non-aqueous phase liquid (DNAPL, LNAPL).

An occasional sheen on groundwater was noted during completion of the trenches and, during the 1999 investigation, a sheen was also noted on the East River at low tide approximately 20 feet offshore (Figure 2). The sheen was observed adjacent to a former outfall in the bulkhead. A test boring was installed in line with the observed sheen to identify any source areas or conduits for this sheen. No visual evidence of impacts was observed throughout the boring. Several unidentified former utilities were noted during the trenching. These utilities appeared to be steel or iron pipes buried at relatively shallow depths and were thought to be remnants of the former MGP. Two pipes observed in the southern portion of the trenches included an 8-inch diameter adjacent to a 4-inch diameter pipe. Both pipes appeared to be in good condition and were encountered in the southern end of the trenches, perpendicular to the bulkhead. A single concrete pipe was also found and was estimated to be about 4 feet in diameter. The pipe was perpendicular to the bulkhead and appeared to be some kind of storm water drainage pipe. A fourth pipe was

discovered in the southern end of the trenches. The pipe was 3 feet in diameter and appeared to be concrete and intact with no materials noted to be exiting from it.

Following the investigation, HDR prepared a Response Plan for Parcel C for the NYSDEC, dated March 2001 and revised November 2001. The Response Plan compiled historical background information, site investigation data, and site development plans for the purposes of evaluating the chosen remedy. The Response Plan was approved by both the NYSDEC and New York State Department of Health.

Since the investigations described above, Parcel C and surrounding areas have been redeveloped. The redeveloped property has been referred to as the Anheuser Busch (AB) Parcel, which includes Parcel C as well as an area to the south which was formerly a Con Edison easement. This area, referred to as the non-VCP AB Parcel has not previously been investigated under the VCP; however, it is included under the Site Management Plan for the AB Parcel. The northern and eastern perimeters are occupied by the future Greenway Park as part of the South Bronx Greenway Master Plan. An easement for the Iroquois Pipeline occupies the southernmost portion of the AB Parcel. The various parcel and areas described above are shown on Figures 1 and 2.

The majority of the Parcel C was redeveloped to a slab on-grade warehouse occupied by Anheuser Busch. The non-VCP AB Parcel was redeveloped as a parking lot. The AB Parcel remedy, incorporated during redevelopment, included installation of a passive sub-slab depressurization system under the building slab, engineered cap, and 1 foot of imported fill in landscaped areas. In addition, to raise the surface elevation of the parcel 4 to 5 feet out of the Federal Emergency Management Agency flood zone, approximately 14,000 cubic yards (cy) of excavated soils generated during the bulkhead rehabilitation project on Parcel B, as well as an additional 26,000 cy of excavated soils from other areas of the project, were used as fill material on Parcel C. As part of the redevelopment project, the bulkhead was rehabilitated. Coal tar-impacted soils encountered on the landward side of the former bulkhead were removed during the rehabilitation project and properly disposed.

Remedial Investigation Activities

An off-site RI was completed in 2013 to evaluate the potential presence and extent of MGP-related impacts in the Bronx and East Rivers, adjacent to the Site (ARCADIS 2014). Off-site investigation activities consisted of field reconnaissance of the shoreline and a sediment investigation consisting of the advancement of sediment cores and sediment sampling and analyses. The shoreline reconnaissance was conducted to identify outfalls and/or preferential pathways from the upland to the rivers. An unknown 60-inch concrete outfall, Outfall 4, was identified along the shoreline of Parcel C.

Eighty-one cores were advanced within the Bronx and East Rivers within three investigation areas: northern, central, and southern. Anthropogenic materials were

observed within sediment cores across the investigation area that included degraded coal fragments, pyrite/coal pieces, debris, glass fragments, and wood pieces/chips/fragments. During the field investigation, non-aqueous phase liquid (NAPL) or indication of NAPL, significant sheening, or evidence of purifier waste, was not observed in any of the cores. Sheens, primarily in trace to little amounts as tiny dots within the sediment pore spaces, were observed in the sediment. Subsequent forensic evaluations concluded that the sheens were primarily associated with petroleum hydrocarbons from weathered heavy and mid-distillate oils. In addition to identifying petroleum hydrocarbons, the forensic evaluation also identified the presence of pyrogenic materials (e.g., coal tar products, such as, but not limited to, MGP residuals, creosote, asphalt sealcoat). Sheens were only observed on the water surface during the retrieval of sediment core SD-07B located near Outfall 4.

Based on the results of the off-site RI activities, the potential migration and extent of MGP-related impacts to/in sediments off site of the Hunts Point former MGP were sufficiently characterized, with the exception of the area adjacent to Parcel C where a sheen was observed during coring at location SD-07B adjacent to Outfall 4 (blue staining observed at the discharge point of the Krasdale storm sewer [Outfall 1] is being addressed as part of the investigation and remediation of OU2 of the Krasdale property).

These SRI activities will be conducted to evaluate the potential presence or ongoing migration of MGP-related impacts from the AB Parcel to the sediments in the area at and around SD-07B, Outfall 4, and in an area where sheen was historically observed in the river. The potential presence of preferential pathways on the AB Parcel, such as current/former buried utility lines will be evaluated.

SRI activities will generally consist of the following:

- Conducting a site reconnaissance to confirm current site conditions
- Completing a subsurface geophysical survey to locate subsurface utilities and/or potential preferential pathways
- Completing a closed-circuit television inspection of the piping associated with the outfall, to the extent possible (and other piping as appropriate)
- Advancing soil borings along the piping associated with the outfall, or other piping as appropriate, and adjacent to river boring SD-07B, Outfall 4, and the area where sheen was historically observed in the river

SRI activities will be consistent with the methods presented in the following NYSDEC-approved documents:

- *Off-Site Characterization Work Plan* (ARCADIS 2012)
- *Site Characterization Work Plan* – Krasdale Foods Inc., Leasehold (ARCADIS 2011)

Detailed descriptions of the investigation methods and techniques, including standard operating procedures, are provided in the Field Sampling Plan (FSP) (Appendix B to the *Off-Site Characterization Work Plan*) and a subsequent addendum to the FSP (Appendix A of the *Site Characterization Work Plan*). Analytical methods and procedures that will be used to analyze samples collected during the field activities and quality assurance/quality control requirements are provided in the Quality Assurance Project Plan (QAPP) (Appendix D of the *Off-Site Characterization Work Plan*) and a subsequent addendum to the QAPP (Appendix B of the *Site Characterization Work Plan*).

Any deviation from this Off-Site Characterization Work Plan Addendum and supporting plans will be communicated to Con Edison's Project Manager and the NYSDEC's Project Manager, and will be documented in the field book.

Site Reconnaissance

Prior to commencement of activities described below, ARCADIS will conduct a site reconnaissance of the AB Parcel adjacent to Outfall 4 (Figure 2). The paved area including the bulkhead will be inspected for the presence of storm drains, indications of underground piping or other potential preferential pathways, surface drainage pathways, and evidence of historical surface releases, if any. Pertinent observations from the site reconnaissance will be used to refine the limits of the geophysical survey and the locations of soil borings, both described below.

Geophysical Survey

A geophysical survey will be conducted to locate subsurface utilities that could potentially serve as a preferential pathway for the migration of MGP-related impacts from the AB Parcel to sediments in the East River. The approximate boundary of the geophysical survey is shown on Figure 2. This boundary includes the area adjacent (upgradient) to previously completed sediment boring SD-07B, the area adjacent (upgradient) to Outfall 4, piping previously identified near Outfall 4, and includes areas adjacent to where coal tar was historically observed in the subsurface and the historical sheen observed in the river. The area of the geophysical survey boundary may be expanded to investigate any utilities found. Ground penetrating radar, electromagnetic induction, and magnetometer survey methods will be used to complete the survey. Following completion of the field survey, a detailed map will be prepared presenting the findings. The results of the geophysical survey will also be used to assist with the utility clearance required for the installation of soil borings described below.



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Television Video Inspection

Following completion of the geophysical survey, a television video inspection of the piping for Outfall 4 will be conducted, as well as a video inspection of other relevant piping located during the geophysical survey as feasible. The television video inspection will be used to evaluate the integrity of the piping. Specifically, the pipes will be inspected for signs of leaks, or other indications that the condition of the piping has been compromised.

Soil Boring Installation

A total of seven soil borings (SB-01 through SB-07) will be completed at the proposed preliminary locations shown on Figure 2 to evaluate subsurface conditions inland (upgradient) of SD-07B, Outfall 4, and historically observed sheen in the river.

Additionally, SB-02 will be advanced at the location where coal tar was historically observed in the subsurface and SB-07 will be advanced adjacent to the subsurface piping previously identified near Outfall 4. Soil borings may be added or re-located based on observations during the geophysical survey. The rationale for each soil boring is provided in Table 1. Locations of proposed borings may be adjusted based on the locations of aboveground or underground utilities, visual observations, and access. Any changes to the proposed boring locations will be communicated to Con Edison's Project Manager and the NYSDEC's Project Manager. Prior to soil boring installation, proposed soil boring locations will be subject to review and approval by the property owner.

Each soil boring will be completed using hollow-stem auger, rotary sonic (rotasonic), or direct-push methods in accordance with the protocols presented in the FSP. The soil boring method will be selected by Con Edison following the completion of the geophysical survey and evaluation of results. The first 5 feet of each soil boring (i.e., ground surface to 5 feet bgs) will be excavated, to the extent practicable, by non-mechanical means (i.e., hand auger, post-hole digger, air knife, and/or vacuum truck). Below 5 feet, soil samples will be collected continuously from each soil boring. Proposed soil borings will be advanced to the native layer (described as fine sand and/or silt and clay with fine sand). Based on subsurface information obtained from borings advanced at the neighboring property to the north, this material is expected to be encountered between the elevation of -5 ft to -18 ft North American Vertical Datum of 1988 depending on the proximity to the river (ARCADIS 2013). This equates to approximately 15 ft to 28 ft bgs. Additional details regarding soil boring installation methods, including decontamination procedures, are provided in the FSP.

Each 1-foot soil sample interval will be visually characterized and screened with a photoionization detector. Observations including the presence of non-aqueous phase liquid (NAPL), coal tar, or other visual impacts will be recorded.

Soil samples from intervals where NAPL or other visual impacts are present will be frozen and archived, pursuant to the holding requirement outlined in the QAPP, for potential forensic polycyclic aromatic hydrocarbon (PAH) and forensic total petroleum hydrocarbon (TPH) analysis via modified USEPA SW-846, modified Method 8270, and modified method 8015B, respectively.

Additional details regarding methods for sample collecting, handling, packing, and shipping and the procedures for equipment decontamination are provided in the FSP and FSP Addendum.

Following completion of the soil borings, the borehole will be backfilled with cuttings if no evidence of impacts is observed. If evidence of impacts is observed, drill cuttings will be containerized and the borehole will be tremie-grouted to the ground surface using a cement-bentonite grout. Soil borings completed in a paved area will be repaired with an asphalt patch or concrete, as appropriate.

If NAPL is observed at the water table, a groundwater monitoring well would be installed at that location to determine the potential mobility of the NAPL. The locations and well construction details would be provided to NYSDEC for consultation prior to well installation.

Investigation Support

Supporting activities will be conducted in accordance with the *Site Characterization Work Plan* and *Off-Site Characterization Work Plan* and their respective supporting appendices.

These activities may include the following:

- Notification and access
- Utility clearance
- Equipment decontamination
- Investigation-derived waste management
- Surveying
- Health and safety
- Community air monitoring

Reporting

The results of the investigation will be included in an Off-Site SRI Report. The Off-Site SRI Report will evaluate the information collected in the context of the existing conceptual site model (CSM) and the CSM will be updated as appropriate. The Off-Site SRI Report will include proposed next steps with respect to existing MGP related impacts



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in sediments. The Off-Site SRI Report text will be supported by boring logs, tables, and figures illustrating RI findings, as appropriate.

References

ARCADIS. 2011. *Site Characterization Work Plan* – Krasdale Foods Inc., Leasehold. Hunts Point Former Manufactured Gas Plant. Bronx, New York, NY. Prepared for Consolidated Edison Company of New York, Inc.

ARCADIS. 2012. *Off-Site Characterization Work Plan*. Hunts Point Former Manufactured Gas Plant. Bronx, New York, NY. Prepared for Consolidated Edison Company of New York, Inc.

ARCADIS. 2013. *Site Characterization Report – Krasdale Foods Inc., Leasehold*. Hunts Point Former Manufactured Gas Plant. Bronx, New York, NY. Prepared for Consolidated Edison Company of New York, Inc.

ARCADIS. 2014. *Off-Site Remedial Investigation Report*. Hunts Point Former Manufactured Gas Plant. Bronx, New York, NY. Prepared for Consolidated Edison Company of New York, Inc.

HDR. 2009. *Hunts Point Food Distribution Center Redevelopment Plan, Sections of the Redevelopment Plan for the Operable Unit 1 Portion of Parcel C*. Bronx, New York, Final Revised.

LMS. 2001. *Hunts Point Cooperative Market Redevelopment Plan, Response Plan for the Operating Unit Portion of Parcel C*. Bronx, New York, Final Revised.

Please contact me at (718) 204-4205 or at skorobogatov@coned.com should you have any comments or questions regarding this submittal.

Very truly yours,

A handwritten signature in black ink, appearing to read "Y. Skorobogatov".

Yelena Skorobogatov
Technical Specialist
MGP Remediation
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Table 1
Soil Boring Locations and Rationale

Off-Site Supplemental Remedial Investigation Work Plan
Consolidated Edison Company of New York, Inc.
Hunts Point Former Manufactured Gas Plant - Bronx, New York

Sampling Location ID	Coordinates¹		Rationale
	Northing	Easting	
SB-01	718638.50	666579.69	Evaluate the presence, if any, of NAPL or other visual impacts where coal tar was historically observed
SB-02	718590.80	666553.56	and adjacent (upgradient) of the area where sheen was historically observed in the river.
SB-03	718539.57	666522.38	Evaluate the presence, if any, of NAPL or other visual impacts adjacent (upgradient) to Outfall 4.
SB-04	718521.42	666514.25	
SB-05	718439.34	666472.27	Evaluate the presence, if any, of NAPL or other visual impacts adjacent (upgradient) of SD-07B, where
SB-06	718412.62	666458.90	sheen was generated during collection of the sediment core.
SB-07	718589.63	666454.71	Evaluate the presence, if any, of NAPL or other visual impacts adjacent to the piping previously identified near Outfall 4.

Notes:

¹ Coordinates provided in New York State Plane coordinates (North American Datum of 1983).

All borings will be completed to the native material (fine sand and/or silt and clay with fine sand) or refusal, whichever is encountered first.

NAPL = non-aqueous phase liquid



LEGEND:

- CURRENT/FORMER OUTFALL LOCATION
- HISTORICAL SITE FEATURE (APPROXIMATE)
- HISTORICAL SURFACE DRAINAGE (APPROXIMATE)
- BRONX RIVER FEDERAL NAVIGATION CHANNEL
- CURRENT/FORMER DREDGED CHANNEL (APPROXIMATE)
- FILLED LAND (1947-1975)
- APPROXIMATE EXTENT OF FORMER MGP
- PARCEL BOUNDARY
- ANHEUSER BUSCH REDEVELOPMENT PARCEL (AB PARCEL)
- GREENWAY REDEVELOPMENT PARCEL
- IROQUOIS PIPELINE VCP PORTION OF ANHEUSER BUSCH PARCEL
- IROQUOIS PIPELINE VCP PORTION OF THE GREENWAY
- NON-VCP PORTION OF ANHEUSER BUSCH PARCEL
- NON-VCP PORTION OF GREENWAY

0 500 1,000
Feet
GRAPHIC SCALE

NOTES:

1. IMAGERY OBTAINED FROM ESRI IMAGE SERVICE.
2. PARCEL BOUNDARIES ADOPTED FROM CADD FILE PREPARED BY LAWLER, MATUSKY, AND SKELLY ENGINEERS, LLP.
3. HISTORIC SITE FEATURES ADOPTED FROM CADD FILE PREPARED BY PARSONS ENGINEERING SCIENCE.

VCP = VOLUNTARY CLEANUP PROGRAM

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
HUNTS POINT FORMER MANUFACTURED GAS PLANT

OFF-SITE SUPPLEMENTAL
REMEDIATION WORK PLAN

SITE PLAN

 ARCADIS

FIGURE
1



NOTES:

1. IMAGERY OBTAINED FROM ESRI IMAGE SERVICE.
2. ALL LOCATIONS ARE APPROXIMATE.
3. PARCEL BOUNDARIES ADOPTED FROM CADDFILE PREPARED BY LAWLER, MATUSKY, AND SKELLY ENGINEERS, LLP.
4. THE POTENTIAL UNIDENTIFIED UTILITY CROSSINGS AND IROQUOIS PIPELINE ARE APPROXIMATE AND BASED ON A REVIEW OF THE NAVIGATIONAL CHART FOR THE EAST RIVER FROM TALLMAN ISLAND TO QUEENSBORO BRIDGE (CHART NUMBER 12339, EDITION 46, JUNE 2008) AVAILABLE AT THE NOAA OFFICE OF COAST SURVEY ON-LINE CHART VIEWER.
5. HISTORIC SITE FEATURES ADOPTED FROM CADD FILE PREPARED BY PARSONS ENGINEERING SCIENCE.

NYCEP = NEW YORK CITY ENVIRONMENTAL PROTECTION
 CSO = COMBINED SEWER OVERFLOW
 VCP = VOLUNTARY CLEANUP PROGRAM

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
 HUNTS POINT FORMER MANUFACTURED GAS PLANT
**OFF-SITE SUPPLEMENTAL
 REMEDIAL INVESTIGATION WORK PLAN**

**PROPOSED REMEDIAL
 INVESTIGATION ACTIVITIES**

ARCADIS

FIGURE
 2