SUPPLEMENTAL SITE CHARACTERIZATION WORK PLAN

East 108th Street Holder Station (Site No. V00545) and East 111th Street Works (Site No. V00539)

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SECTION 1

INTRODUCTION

1.1 PROJECT BACKGROUND

Site Characterizations of the East 108th Street Holder Station and the East 111th Street Works Site (Figure 1) were conducted by Parsons in February through April 2004. The investigations were conducted in accordance with New York State Department of Environmental Conservation-(NYSDEC-) approved Site Characterization Work Plan for each site (Parsons, 2003 and 2004). The results of the investigations are documented in Site Characterization Reports (Parsons, 2004) which have been submitted to the NYSDEC for review. Based on the results of the Site Characterization, additional investigation activities were recommended for both the East 108th and East 111th Street Sites.

1.2 SITE CHARACTERIZATION RESULTS

1.2.1 East 111th Street Works Site

The former East 111th Street Works is comprised of five separate properties referred to as Parcels A through E in the Site Characterization Study Report and shown in Figure 2. Parcel A is currently occupied by a New York City Housing Authority (NYCHA) apartment building and Parcel B includes a portion of Thomas Jefferson Park. As documented in the Site Characterization Report for the East 111th Street Works, no apparent MGP-related impacts were encountered at either Parcels A or B. Therefore no further action was recommended for these properties. Based on the results of the field investigation activities at the East 111th Street Works, the Site Characterization Report recommended additional investigation activities for only three of the five parcels (Parcels C, D and E).

Parcel C of the East 111th Street Works is the Consolidated Edison Company of New York (Con Edison) East 110th Street Service Center. The Service Center has been identified by Con Edison as a potential development location. The additional investigation activities for Parcel C were previously proposed to the NYSDEC in a separate Site Characterization Work Plan Addendum dated August 19, 2004. The additional investigation activities at Parcel C were completed in October 2004.

This Supplemental Site Characterization Work Plan describes the additional investigation activities proposed for Parcel D (the Lafayette Footwear Warehouse), Parcel E (Building D of the East River Landing residential development) and the East 108th Street Holder Station (Building B of the East River Landing residential development).

Parcel D – Lafayette Footwear Warehouse

Analytical data for Parcel D indicated SVOC concentrations exceeding NYSDEC Recommended Soil Cleanup Objectives (RSCOs) which may be associated with former MGP operations. Chemical fingerprint analysis indicates that material encountered at the

site between approximately 0.5 and 3.5 feet bgs contains coal tar which may have originated from a coal carbonization process. Due to the PAH concentrations detected at relatively shallow depth in close proximity to the warehouse building, further investigation at Parcel D is recommended to determine the extent of shallow impacts and, in the event that shallow impacts extend into the building, whether soil gas is a potential exposure pathways for impacts present in the subsurface.

BTEX and naphthalene were detected at Parcel D in groundwater from monitoring well MW-4 at concentrations exceeding NYSDEC Groundwater Quality Standards (GWQS). The groundwater investigation results are summarized on Figure 3. To further investigate groundwater impacts at MW-4, additional groundwater investigation upgradient to and downgradient from Parcel D is recommended.

Parcel E – East River Landing (Building D)

Site Characterization results for Parcel E indicate total VOC concentrations greater than the 10 ppm RSCO detected at one location (MW-6) at Parcel E at a depth between 13 and 19 feet bgs. Exceedences for several individual PAHs were also encountered in subsurface soil; however total SVOC concentrations (all less than 370 ppm) were less than the RSCO. A soil gas and indoor air investigation has been completed by RETEC at Parcel E. Results of the investigation indicate that intrusion of vapors emanating from any MGP-related material that may be present at Parcel E is not evident. A report documenting the results of this investigation has been submitted to the NYSDEC and NYSDOH for review. Given the depth of impacted soil, the presence of structures and paving over the majority of the site, and the results of the indoor air and soil gas investigation, no further action with respect to soil at Parcel E is recommended.

VOC and SVOC concentrations exceeding GWQS were detected in both monitoring wells (MW-5 and MW-6) at Parcel E. However, similar concentrations were not detected at monitoring well MW-7 on Parcel B which appears to be located upgradient of Parcel E with respect to groundwater flow direction as measured on April 19, 2004 (Figure 3). Additional groundwater investigation at Parcel E is recommended to determine the extent of VOC and SVOC concentrations detected during the Site Characterization. This information will be used to supplement additional groundwater data to be obtained at Parcel D and assist in determining whether groundwater impacts are increasing or decreasing and also whether the source of groundwater impacts is related to former MGP operations.

1.2.2 East 108th Street Holder Station Site

This Supplemental Site Characterization Work Plan describes additional investigation activities proposed for the East 108th Street Site (Figure 3). This site is occupied by Building B of the East River Landing apartment complex.

PAHs at concentrations exceeding their respective NYSDEC RSCOs were encountered in subsurface soil at the East 108th Street Holder Station Site. However total SVOC concentrations at all sample locations were less than 200 ppm (which is less than the total SVOC RSCO of 500 ppm). As discussed above, a soil gas and interior air investigation has been completed by RETEC on behalf of Con Edison for the East River Landings apartment building present on the

Site. Results of the investigation indicate that intrusion of vapors emanating from any gasholder-related material that may be present at the Site is not evident. A report documenting the results of this investigation has been submitted to the NYSDEC and NYSDOH for review. Given the depth of impacted soil, the presence of structures, concrete, and asphalt over the majority of the site, and the results of the interior air and soil gas investigation, no further action with respect to soil at the East 108th Street Site was recommended.

VOC and SVOC concentrations exceeding GWQS were detected at monitoring well MW-2 at the East 108th Street Gasholder Station (Figure 3). These concentrations may be attributable to the impacts encountered at this location below the water table (between 11 and 13 feet bgs). According to groundwater elevations obtained on April 19, 2004 from both the East 108th Gasholder Station Site and East 111th Street Gas Works Site monitoring wells, MW-2 is located side-gradient of the former gasholder at the East 108th Street Site (Figure 3). However, MW-2 is located downgradient of former MGP structures (including former gasholders) associated with the East 111th Street Works.

Additional subsurface investigation activities were recently conducted at the Con Edison East 110th Street Service Center (Parcel C of the East 111th Street Site) located west of First Avenue between 110th and 111th Streets. To determine whether impacted materials detected in the subsurface soils may potentially be migrating off the property, three additional groundwater monitoring wells (MW-101, MW-102, and MW-103) were installed along 110th Street and First Avenue (Figure 3). Analytical results for groundwater samples collected from these wells indicate VOCs at relatively low concentrations and concentrations of SVOCs below laboratory detection limits. Based on these results, impacted materials present at Parcel C of the East 111th Street Site does not appear to be the source for groundwater impacts encountered at MW-2 at the East 108th Street Site.

To further investigate the source of groundwater impacts encountered at monitoring well MW-2 at the East 108th Street Gasholder Station, additional soil borings are recommended along First Avenue to the north and potentially upgradient of MW-2. In addition, further investigation is warranted to determine the extent of the groundwater impacts encountered at MW-2. Therefore, the installation of additional monitoring wells to the south of MW-2 is recommended.

SECTION 2

SCOPE OF WORK

The following sections describe the scope of work for the proposed additional investigation activities at the East 111th and 108th Street Sites. The investigation activities will be conducted in accordance with the NYSDEC-approved Site Characterization Work Plans (Parsons, 2003), including the Field Sampling Plans (Appendices A), the Quality Assurance Project Plans (Appendices B), and the site-specific Health and Safety Plans (Appendices C). Any modifications/additions to the field protocols provided in these documents are identified in this Supplemental Site Characterization Work Plan, as appropriate. Table 1 provides a summary of the samples and analyses proposed for each site.

2.1 EAST 111TH STREET SITE – PARCEL D

2.1.1 Soil Borings

A total of seven additional soil borings (SB-111 through SB-117) will be advanced at the proposed locations shown on Figure 4. The purpose of the soil borings is to determine the extent of the impacted shallow soils identified during the Site Characterization. SB-111, SB-112, SB-114, and SB-115 will be advanced within the loading bay portion of the warehouse building. Due to the inaccessibility of the remaining areas of the warehouse building, SB-113, SB-116, and SB-117 will be installed on the sidewalks adjacent to the warehouse building. Data from the proposed boring locations will be reviewed and additional borings completed if necessary. All drilling locations are subject to change based on accessibility, utility clearance, and site conditions encountered during the site inspection and field activities.

Soil borings will be advanced using a hollow stem auger (HSA) drilling method, if possible. If access is limited within the building, alternative drilling methods (e.g., direct push techniques) may be used. Soil samples will be collected continuously to the bottom of the borings (approximately 25 feet bgs), visually classified for soil type, grain size, texture, moisture content, and visible evidence of staining or impacts, and screened for the presence of volatile organic compounds with a photoionization detector (PID).

As specified in the Site Characterization Work Plan, two soil samples will be selected from each soil boring location and submitted to the laboratory for chemical analysis. The two samples will be collected as follows:

- One sample will be collected from the zone with the highest PID readings or visual impacts from either the test pit or boring. If no visual impacts or high PID readings are observed, a sample will be collected from directly above the water table.
- One sample will be collected below the impacted zone or near the base of the boring to define the vertical extent of impacts at that location.

The soil samples will be analyzed for TCL VOCs and SVOCs, cyanide, and TAL metals. If free product is encountered in any boring, a representative sample will be collected for hydrocarbon fingerprint analysis. All borings will be grouted to the surface following completion.

2.1.2 Soil Gas Sampling

At five of the new soil boring locations (SB-111 through SB-113, SB-116, and SB-117), a soil gas sample will be collected prior to the drilling of the soil boring. Soil gas sampling will be conducted to evaluate soil gas quality beneath the warehouse building.

The soil gas sampling procedures will conform to the protocols described by ASTM Method D5314-92. If the floor of the building is constructed of poured concrete, a hole (approximately 4) inches in diameter) will be drilled through the slab or sidewalk and a hand auger will be used to reach a depth of one foot below the slab. A sample of the soil gas from beneath the slab or sidewalk will be collected using a 1/4 –inch OD stainless steel probe. The probe assembly will contain a slotted screened portion and will be connected to a length of disposal Teflon tubing. The screen will be exposed to the soil when an expendable drive point head is detached from the bottom of the probe assembly and the probe is pulled-back to a depth of two feet below the concrete floor or sidewalk. Approximately 0.5 feet of slotted screen will then be exposed for collection of the soil gas sample from 2.5 to 2.0 feet below the slab. The sample probe intake will be in communication with the slab/soil interface so that potentially intruded soil air is sampled. The annulus around the probe assembly at the concrete floor or sidewalk will be sealed with granular bentonite, which will be hydrated to form an airtight seal. Soil gas air samples will be collected in stainless steel canisters over a 60-minute period by drawing air through the slotted screen and tubing. The combined soil gas probe and tubing will be purged to remove at least one volume before collecting the soil gas sample at each location. A vacuum gauge will be used to check both the initial and final vacuum in the canisters.

For soil gas locations inside the building, if the inspection of the basement indicates that a competent slab does not exist (i.e., dirt floor, significant cracks in the slab, etc.) then a soil gas sample will still be collected, but from a minimum soil gas probe depth of 5 feet. The condition of the floor will be documented during the sampling activities.

The sample probe will be installed and removed the same day that the sample is collected. A vacuum gauge will be used to check both the initial and final vacuum in the canisters. The sample probe will be installed and removed the same day that the sample is collected. Each soil gas sample will be submitted to STL for laboratory analysis of VOCs using an EPA Method TO-15 with Extended Analytes list.

2.1.3 Monitoring Well Installation and Groundwater Sampling

To further investigate the potential source of groundwater impacts at monitoring well MW-4, one new monitoring well (MW-104) will be installed at the proposed location shown on Figure 4. Groundwater is anticipated to be approximately 8 to 12 feet bgs; therefore, MW-104 is anticipated to be installed to approximately 15 to 20 feet bgs. The monitoring well boring will

be advanced and soil samples will be collected as described in Section 2.1.1 and following the protocols and procedures set forth in the Site Characterization Work Plan.

The monitoring well will be constructed, developed, and sampled as described in the Site Characterization Work Plan. In addition to new monitoring well MW-104, existing well MW-4 will also be sampled. The groundwater samples will be analyzed for TCL VOCs and SVOCs, total and available cyanide, and TAL metals. If free product is encountered in either of the wells, a representative sample will be collected for hydrocarbon fingerprint analysis.

2.2 EAST 111^{TH} STREET SITE – PARCEL E

2.2.1 Soil Boring Installation

One soil borings (SB-118) will be advanced at the proposed location shown on Figure 5. The purpose of this soil boring is to determine whether potential impacts potentially associated with the former tank in this area are present.

The soil boring will be advanced using a hollow stem auger (HSA) drilling method, if possible. Soil samples will be collected continuously to the bottom of the boring (approximately 25 feet bgs), visually classified for soil type, grain size, texture, moisture content, and visible evidence of staining or impacts, and screened for the presence of volatile organic compounds with a photoionization detector (PID).

As specified in the Site Characterization Work Plan, two soil samples will be selected from the soil boring location and submitted to the laboratory for chemical analysis. The two samples will be collected as follows:

- One sample will be collected from the zone with the highest PID readings or visual impacts from either the test pit or boring. If no visual impacts or high PID readings are observed, a sample will be collected from directly above the water table.
- One sample will be collected below the impacted zone or near the base of the boring to define the vertical extent of impacts at that location.

The soil samples will be analyzed for TCL VOCs and SVOCs, cyanide, and TAL metals. If free product is encountered, a representative sample will be collected for hydrocarbon fingerprint analysis. The boring will be grouted to the surface following completion.

2.2.2 Monitoring Well Installation

To further investigate the VOC and SVOC concentrations detected during the Site Characterization at monitoring wells MW-5 and MW-6, two additional monitoring wells MW-108 and MW-109 will be installed at the locations shown on Figure 5. The monitoring well borings will be advanced and soil samples will be collected as described in Section 2.1.1 and following the protocols and procedures set forth in the Site Characterization Work Plan.

The monitoring wells will be constructed, developed, and sampled as described in the Site Characterization Work Plan. In addition to new monitoring wells MW-108 and MW-109, existing wells MW-45 and MW-6 will also be sampled. The groundwater samples will be

analyzed for TCL VOCs and SVOCs, total and available cyanide, and TAL metals. If free product is encountered in any of the wells, a representative sample will be collected for hydrocarbon fingerprint analysis.

2.3 EAST 108TH STREET SITE

2.3.1 Soil Boring Installation

Site Characterization results indicate VOC and SVOC concentrations exceeding GWQS were detected at monitoring well MW-2 (Figure 3). These exceedences may be attributable to the MGP tar encountered at this location below the water table (11 to 13 feet bgs). According to groundwater elevations obtained on April 19, 2004 from both the East 108th Gasholder Station Site and East 111th Street Gas Works Site monitoring wells, MW-2 appears to be located side-gradient of the former gasholder at the East 108th Street Site. However, MW-2 appears to be located downgradient of former MGP structures (including former gasholders) associated with the East 111th Street Gas Works Site at Parcel C (the Con Edison Service Center).

To determine whether impacted materials detected in the subsurface soils may potentially be migrating from Parcel C, three additional monitoring wells (MW-101, MW-102, and MW-103) were recently installed along 110th Street and First Avenue (Figure 3). Groundwater analytical results indicate relatively low concentrations of VOCs and no SVOCs were detected in these wells.

To further investigate the source of groundwater impacts encountered at monitoring well MW-2 at the East 108th Street Site, a total of four additional soil borings (SB-119 through SB-122) will be installed along First Avenue as shown on Figure 6. All drilling locations are subject to change based on accessibility, utility clearance, and site conditions encountered during the site inspection and field activities. The soil borings will be advanced and soil samples will be collected as described in Section 2.1.1 following the protocols and procedures set forth in the Site Characterization Work Plan. If non-aqueous phase liquid (NAPL) is encountered during installation of soil borings SB-119 through SB-122, one or more of these borings may be converted to a monitoring well following the procedures outlined in the Site Characterization Work Plan.

2.3.2 Monitoring Well Installation and Groundwater Sampling

To further investigate the extent of impacted groundwater encountered at the East 108th Street Site at MW-2 and determine whether impacts are potentially migrating off site, four additional monitoring wells (MW-105 through MW-108) will be installed at the locations shown on Figure 6. These additional wells will also be used to further assist in determining groundwater flow direction for the East 108th and East 111th Street Sites. All proposed well locations are subject to change based on accessibility, utility clearance, and site conditions encountered during the site inspection and field activities.

New monitoring wells MW-105 through MW-108 will be installed, developed, and sampled as described in the Site Characterization Work Plan. In addition to the four new wells, existing wells MW-2 and MW-3 at the East 108th Street Site will also be sampled to confirm previous Site Characterization results. The groundwater samples will be analyzed for TCL VOCs and

SVOCs, total and available cyanide, and TAL metals. If free product is encountered in a well, a representative sample will be collected for hydrocarbon fingerprint analysis.

2.4 GROUNDWATER LEVEL MEASUREMENTS

Following installation of additional monitoring wells proposed herein as part of the Supplemental Site Characterization, a comprehensive round of groundwater level measurements will be obtained from all monitoring wells at both the East 111th and East 108th Street sites to facilitate development of an updated groundwater contour map which incorporates the additional data points.

SECTION 3

REPORTING

Following receipt of the analytical results, a Supplemental Site Characterization Report will be prepared. The Supplemental Site Characterization Report will provide the following with respect to both the East 108th and East 111th Street Sites:

- Brief summary of previous Site Characterization activities and results;
- Detailed description of the Supplemental Site Characterization activities;
- Documentation of the Supplemental Site Characterization activities and results including soil boring/well logs, Data Usability Summary Report, geologic cross sections, and tables and figures summarizing analytical data and field observations;
- A comprehensive evaluation of investigation data including comparison to NYSDEC RSCOs and GWQS and assessment of human health exposure.

Based on the results of the Supplemental Site Characterization, the need for further investigation and/or remedial measures (if necessary) will be evaluated to facilitate potential future development/closure of the sites. If remedial measures are warranted, a separate Remedial Action Work Plan will be developed for the NYSDEC's review/approval and public comment in accordance with the Voluntary Cleanup Agreements for each Site.

Table 1
Summary of Samples and Analyses

			Field Samples			QC B			
Matrix	Parameter	Analytical Method	Field Samples	Field Duplicate	MS/MSD ^(a) (Total)	Sub- Total	Trip Blank	Rinse Blank ^(b)	Total
East 111th Stree	et Site (Parcel D)								
Soil Samples (SB-111, SB-112, SB-113, SB-114, SB-115, SB-116, SB-117, MW-104)	TCL VOCs TCL SVOCs	EPA SW 8260 EPA SW 8270B	16 16	1 1	1/1 1/1	19 19	0 0	7 7	26 26
	Cyanide TAL Metals	EPA SW 335.2 EPA SW 6010, 7470/7471, 7841, 9010	16 16	1	1/1 1/1	19 19	0	7	26 26
Groundwater Samples	TCL VOCs TCL SVOCs	EPA SW 8260 EPA SW 8270	2 2	1 1	1/1 1/1	5 5	1 -	1 1	7 6
(MW-4, MW-104)	Cyanide (total) Cyanide (available)	EPA SW 335.2 EPA SW OIA-1677	2 2	1 1	1/1 1/1	5 5	-	1 1	6
	TAL Metals	EPA SW 6010, 7470/7471, 7841, 9010	2	1	1/1	5	-	1	6
Soil Gas (SB-111, SB-112, SB-113)	VOCs	EPA Method TO-15 (extended list)	5	-	-	5	-	-	5
East 111th Stree	East 111 th Street Site (Parcel E)								
Soil Samples (MW-108, MW-109, SB-118)	TCL VOCs TCL SVOCs Cyanide	EPA SW 8260 EPA SW 8270B EPA SW 335.2	6 6 6	1 1 1	1/1 1/1 1/1	9 9 9	0 0 0	3 3 3	12 12 12
	TAL Metals	EPA SW 6010, 7470/7471, 7841, 9010	6	1	1/1	9	0	3	12
Groundwater	TCL VOCs	EPA SW 8260	4	1	1/1	7	1	1	9
Samples (MW-5, MW-6, MW-109, MW-	TCL SVOCs Cyanide (total)	EPA SW 8270 EPA SW 335.2	4	1	1/1 1/1	7 7	-	1 1	8
110)	Cyanide (available) TAL Metals	EPA SW OIA-1677 EPA SW 6010, 7470/7471, 7841, 9010	4 4	1	1/1 1/1	7 7	-	1 1	8 8

Table 1 **Summary of Samples and Analyses**

			Field Samples				<u>QC Blanks</u>			
Matrix	Parameter	Analytical Method	Field Samples	Field Duplicate	MS/MSD ^(a) (Total)	Sub- Total	Trip Blank	Rinse Blank ^(b)	Total	
East 108 th Street Site										
Soil Samples	TCL VOCs	EPA SW 8260	16	1	1/1	19	0	8	27	
(SB-116, SB-117,	TCL SVOCs	EPA SW 8270B	16	1	1/1	19	0	8	27	
SB-118, SB-119, SB-120, MW-105,	Cyanide	EPA SW 335.2	16	1	1/1	19	0	8	27	
MW-106, MW-	TAL Metals	EPA SW 6010, 7470/7471,	16	1	1/1	19	0	8	27	
107)		7841, 9010							1	
Groundwater	TCL VOCs	EPA SW 8260	6	1	1/1	9	1	1	11	
Samples	TCL SVOCs	EPA SW 8270	6	1	1/1	9	-	1	10	
(MW-2, MW-3,	Cyanide (total)	EPA SW 335.2	6	1	1/1	9	-	1	10	
MW-105, MW- 106, MW-107,	Cyanide (available)	EPA SW OIA-1677	6	1	1/1	9	-	1	10	
MW-108)	TAL Metals	EPA SW 6010, 7470/7471,	6	1	1/1	9	-	1	10	
		7841, 9010]	

⁽a) Matrix spike/matrix spike duplicate for organic analyses; matrix spike and laboratory duplicate for inorganic analysis.(b) Rinse blanks will be collected for each day non-disposable sampling equipment is used.













