Phase III
Remedial Investigation Work Plan
Rensselaer Non-Owned Former MGP Site
Rensselaer, New York

Prepared for
Niagara Mohawk Power Corporation
d/b/a National Grid
Syracuse, New York
March 2012

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300 Erie Boulevard West
Syracuse, New York 13202

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I James L. Marolda certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Remedial Investigation Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

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Section 1

Introduction

In the cover letter to the New York State Department of Environmental Conservation (NYSDEC) dated August 3, 2011, which accompanied the Data Summary Report for the supplemental Remedial Investigation (RI) activities (Brown and Caldwell Associates, August 2011) performed in 2010, National Grid provided recommendations for conducting additional RI activities at the Rensselaer Non-Owned Former Manufactured Gas Plant (MGP) Site (hereafter referred to as the "Site) to further evaluate the nature and extent of MGP-related impacts. The NYSDEC concurred with these recommendations in a letter dated February 14, 2012. In addition, the NYSDEC requested in their letter that soil vapor sampling be conducted adjacent to the New York State Office of Children and Family Services building located to the east of the Site to confirm that soil vapor intrusion (SVI) sampling activities inside the building are not needed. This Phase III RI Work Plan describes the scope of work and procedures that will be used to implement additional RI activities at the Site including these recommendations by National Grid and the additional activities requested by the NYSDEC.

Investigation activities at the Site are being conducted pursuant to the Voluntary Consent Order (VCO) between NYSDEC and Niagara Mohawk Power Corporation, doing business as National Grid, dated January 25, 2002 (Order Index Number D0-0001-0011).

The specific objectives of the Phase III RI are to:

1. Further evaluate the extent of non-aqueous phase liquid (NAPL) in overburden soils east of the Site;
2. Further evaluate the extent of MGP-related constituents in soil above applicable Soil Cleanup Objectives (SCOs) as set forth in 6 NYCRR Subpart 375-6;
3. Further evaluate MGP-related dissolved-phase impacts in overburden and bedrock groundwater;
4. Assess the degree of hydraulic communication between water-bearing fractures in bedrock that are intersected by the screens of Site monitoring wells;
5. Evaluate the degree of groundwater level fluctuation in the overburden and bedrock groundwater over time, and the degree to which these groundwater levels respond to potential influences such as changes in levels in nearby surface water bodies, precipitation and barometric pressure;
6. Identifying potential pathways by which human or ecological receptors could be exposed to Site-related constituents, if any; and
7. Collect additional data necessary for evaluating the feasibility of potential remedial action alternatives.

Section 2.0 provides a summary of the findings from previous investigations. Section 3.0 describes the scope of work and the methods and materials to be used in performing the Phase III RI. Section 4.0 provides the anticipated schedule for completion of the Phase III RI.

Section 2
Background

2.1 Site Setting

The Site is located on Washington Street in the City of Rensselaer, Rensselaer County, New York (see Figure 2-1). The former MGP was located on land that is currently associated with a single parcel of property owned by the City of Rensselaer and is zoned for commercial use.

The Site is abutted to the northwest by Academy Street and residences on the opposite side of this street; to the southeast by Washington Street and the Capital View Office Park; and to the northeast by Huyck Square and undeveloped land surrounding Huyck Stream on the opposite side of Huyck Square. The area surrounding the Site to the northeast, southeast and southwest is primarily used for commercial purposes. Residences are located to the northwest of the site.

The topography of the Site is generally flat with a slight decline from the west to the east, and from the south to the north. North of the Site across Huyck Square, the topography steepens towards Huyck Stream. The Hudson River is located approximately 800 feet west of the Site.

Based on a review of historical maps, the original MGP was apparently built between 1860 and 1887 and gas manufacturing at the Site ceased sometime between 1918 and 1925. A more detailed history of Site operations was previously provided in the original RI work plan (Remedial Investigation Work Plan, Rensselaer Non-Owned Former Manufactured Gas Plant Site (V00488), 89 Washington Street, Rensselaer, New York; Brown and Caldwell Associates, November 2008).

2.2 Summary of Previous Investigations

The findings from the Site Characterization (SC) as documented in the Site Characterization Data Summary Report (Brown and Caldwell Associates, February 2006) and subsequent RI activities as documented in the RI, Additional RI, and Supplemental RI Data Summary Reports (Brown and Caldwell Associates, June 2009, May 2010 and August 2011) are summarized below.

Subsurface Deposits & Stratigraphy: The geologic materials encountered at the Site generally consist in ascending order of dark gray shale bedrock, glacial till, a sand and gravel deposit, a finer silt and sand deposit, and anthropogenic fill.

From examination of rock core samples and rock fragments retained in the split spoon sampler after refusal, the bedrock immediately underlying the Site can generally be described as grey to black shale that has undergone some degree of deformation. The surface of the bedrock drops from an elevation of approximately 1 feet NGVD east of Washington Street to 22 feet NGVD north of Huyck Stream. A subtle longitudinal depression that may extend SW NE across the Site is apparent in the bedrock surface.

Glacial till underlying the former MGP ranges in thickness from approximately 4 to 18 feet. The till generally consists of dense, poorly sorted silt, sand and gravel. It becomes thinner and less dense toward the north. In the northern part of the study area, where the till and bedrock surfaces are deeper, the till is overlain by approximately 2 to 15 feet of grey, poorly sorted sand and gravel with minor amounts of silt.

The overlying silt and sand deposit generally consists of mixtures of grey to brown sand and silt with occasional, relatively minor zones of fine to medium gravel. At several locations in the study area the upper 3 to 5 feet of the silt and sand deposit consist of silty clay or clayey silt. The silt and sand deposit generally thickens to the north. The uppermost unconsolidated material in the study area is generally anthropogenic fill composed primarily of reworked sand and silt mixed with varying amounts of brick, cinders, ash, and coal fragments. The fill varies in thickness from a few inches to more than 10 feet and is largely absent immediately adjacent to the present day channel of Huyck Stream.

Subsurface Former MGP Structures: Subsurface structures related to the former MGP were identified during the SC. These included subsurface portions of both gas holders (TP-101-05, TP-102-05) and possibly a portion of the purifier room and meter room. The tar well indicated on the 1909 Sanborn map was encountered through excavation of test pit TP-105-08 during the RI activities conducted in November 2008.

Groundwater Occurrence and Flow: The water table occurs in the fill and the silt and sand deposit, generally about five to ten feet below ground surface. Water level data collected during the last phase of RI activities (March 28, 2011) indicate that the overburden groundwater in the vicinity of the Site flows north-northeast to north toward Huyck Stream (see Figure 2-2). Overburden groundwater immediately north of the stream also appears to flow south toward the stream. A local mounding of groundwater is apparent in the area of monitoring well MW-103. The area around this well is unpaved and snow plowed from the parking lot during the winter was piled in this area of the Site. Snow melt during the time preceding the March 28 water level measurements would have contributed to localized recharge in this area of the site.

Water levels measured in the deep/shallow well pair MW 106S/D on the above dates indicate an upward gradient. Water levels measured in deep/shallow well pair MW-109S/D indicate an upward gradient on November 15, 2010 and March 29, 2011, whereas a downward gradient is indicated on March 28, 2011. Water levels in wells screened in the deeper overburden materials (MW-106D and MW-109D) composed of course sand and gravel may be influenced by tidal fluctuations in the nearby Hudson River, which could account for the reversal of gradient observed. Similar subsurface deposits consisting of coarse sands and gravels were encountered at relatively the same elevation (from approximately 0 to -15 feet, NGVD) at the Troy (Water Street) former MGP Site located approximately seven miles upstream from the Rensselaer Site. Continuous water level monitoring data collected at the Troy Site from wells screened entirely within the coarse sand and gravel deposit indicated that heads in this unit are substantially influenced by tidal fluctuations. Given the potential for transient, tidally influenced heads at the Rensselaer site, continuous water level measurements through several tidal cycles (in shallow overburden, deep overburden, and bedrock monitoring wells) will be conducted during this phase of investigation to conclusively evaluate vertical gradients at the Site.

Based on the available water level data, groundwater elevations in the shallow and deep wells on both sides of Huyck Stream are higher than the water level in the adjacent section of the stream and thus it appears overburden groundwater present beneath the Site discharges to Huyck Stream.

In situ hydraulic conductivity tests (slug tests) were performed on each monitoring well installed at the site to provide estimated horizontal hydraulic conductivity (K_h) values for the saturated formation adjacent to the screened intervals. The K_h values, based on slug tests conducted on wells screened in overburden materials, range from 1.1×10^{-5} to 1.7×10^{-3} cm/sec. The saturated materials adjacent to the screens for the overburden wells are composed of a variety of subsurface deposits including: 1) silt and clay; 2) silt and clay and glacial till; 3) sand and silt and glacial till; 4) sand and silt; 5) fill and silt and sand; 6) fill and glacial till; and 7) sand and gravel and weathered till. The greatest hydraulic conductivities were measured in wells screened primarily in loose fill (MW-111-09) or sand and gravel and weathered till (MW-109D-09). The lowest hydraulic conductivities were measured in wells screened

in silt and clay and dense glacial till (MW-101-05) or sand and silt and glacial till (MW-104-08). The estimated geometric mean K_h for the water-bearing fractures in the shallow bedrock is 3.5×10^{-5} cm/sec, and ranges from 4.6×10^{-6} to 3.9×10^{-4} cm/sec.

NAPL/Tar Occurrence:

Overburden

Figure 2-3 provides a plan view of locations where NAPL has been observed in overburden soil and/or within overburden monitoring wells throughout the course of the SC and RI field activities. Table 2-1 provides a description for these observations. Where present, the NAPL is usually first encountered at depths of seven to ten feet bgs, or deeper. However, within the former MGP structures (tar well and gas holders), NAPL/tar has been encountered at shallower depths (approximately five feet bgs). In general, the NAPL occurs as blebs or grain coatings within the overburden materials. More viscous NAPL/tar with a roofing tar-like consistency was observed within the tar well. The intervals of NAPL in the overburden are typically less than two-feet in thickness; however, within the former MGP structures, the intervals of NAPL/tar are substantially thicker (e.g., approximately five feet thick in the tar well and 6.8 thick in the southern gas holder). Most of the NAPL observations exhibited tar-like odors and thus, NAPL at these locations is likely associated with former MGP operations. However, based on observations and odor, some of the NAPL encountered appeared to be petroleum-based and is not likely associated with former MGP operations. A review of historic maps indicated that coal carbonization was likely the process used at the MGP, which did not require petroleum as a feedstock.

Observations of NAPL within three overburden monitoring wells have been documented during NAPL gauging events (MW-102-05, MW-106S-08, and MW-106D-08). Typically, these observations include NAPL sheens and droplets on the interface probe when removed from the water surface (possible LNAPL) and black-brown NAPL adhering to the interface probe.

NAPL was observed at eight out of the 17 locations where soil borings were advanced through the overburden materials during the October/November 2010 RI activities. These observations indicate NAPL impacts farther to the south and east of those previously identified. For instance, NAPL was observed south of the southern gas holder in soil boring MW-113R-10 from approximately 8 to 8.9 feet bgs. East of Washington Street, NAPL (as blebs or grain coatings) with a tar like odor was observed in the silt and sand deposit overlying glacial till in borings B-120-10 (12 to 13.8 feet bgs) and B-125-10 (10.6 to 12 feet bgs). NAPL was observed below the silt and sand deposit within the underlying glacial till deposits at B-124-10 (12 to 14 and 15.5 to 16 feet bgs).

Bedrock

Although NAPL was not directly identified in the core samples collected from the seven bedrock drilling locations completed during the October/November 2010 RI activities, there are potential indications of NAPL within the bedrock, as follows:

- Sheens and a tar-like odor were observed in the return water during the coring process at MW-106R-10 (approximately 36.5 feet bgs).
- Concentrations of naphthalene in MW-102R-10 and MW-106R-10 were above one percent of the aqueous solubility limit, an empirical guideline that is used as an indicator of the potential presence of NAPL in the vicinity of the well. Of note, the naphthalene concentrations were detected above this level during the November 2010 sampling event, but not during the March 2011 event.
- A spot of sheen with a tar-like odor was observed on the outside of the rock core at MW-108R-10 (approximately 49.8 feet bgs).

Surface Soil Quality: During previous RI activities, surface soil samples were collected at ten locations from the top two inches of soil after the overlying vegetation was removed. The surface soil samples were analyzed for Target Compound List (TCL) semi-volatile organic compounds (SVOCs), total cyanide, and free cyanide. The results of these analyses were compared to the NYSDEC Subpart 375-6 Soil Cleanup Objectives (SCOs) for Protection of Public Health-Residential Use, Protection of Ecological Resources, and Protection of Groundwater. Polycyclic aromatic hydrocarbons (PAHs), were detected above one or more of the SCOs in surface soil samples from four locations. These exceedances were limited to carcinogenic PAHs, which have very low SCOs for protection of public health (1 mg/kg or less). Total PAH concentrations in surface soil ranged from 1.3 to 37 mg/kg, levels that are not unexpected given the urban setting. No other SVOCs (i.e., non-PAH SVOCs) were detected in the surface soil samples above the applicable SCOs. Total cyanide was not detected above the applicable SCOs at any surface soil sample.

Subsurface Soil Quality: Typically, the primary constituents of concern for assessing the degree of impact to soil from MGP operations are benzene, toluene, ethylbenzene, and isomers of xylene (BTEX); PAH compounds; and cyanide complexes. BTEX compounds measured in soil samples collected at the Site ranged from non-detect to a high of 1,721 mg/kg within the 12 to 44 foot interval sample collected from boring B-110-08, located in the area of the northern gas holder. PAHs ranged from non-detect to a high of 17,860 mg/kg within the 4 to 5 foot interval sample collected from test pit TP-105-08, located within the former tar well. Total cyanide concentrations ranged from non-detect to a high of 19 mg/kg within the 12 to 14 foot interval sample collected from boring MW-103-05. The distribution of BTEX, PAHs and cyanide in subsurface soils is depicted on Figure 2-4.

Concentrations of constituents measured in subsurface soil samples collected during the SC and RI activities to date were compared to the applicable NYSDEC's Remedial Program SCOs. Specifically, the data were compared to the Protection of Public Health SCOs for residentially zoned properties (Site is zoned for residential use), Protection of Ecological Resources SCOs, and the Protection of Groundwater SCOs. Results of this comparison are summarized below.

Subsurface soil samples from 15 locations collected across the Site and on adjacent off-site properties contained concentrations of benzene, toluene, ethylbenzene, or isomers of xylene (BTEX compounds) above one or more of the applicable SCOs. Samples with exceedances of the SCOs generally fall within areas impacted by NAPL.

PAHs were detected above one or more of the applicable SCOs in soil samples from 23 locations (on-site and off-site). The locations with exceedances of the SCOs for PAHs fall within areas impacted by NAPL or sheens.

Total cyanide was not detected above the applicable SCOs in subsurface soil samples from any location.

As described in Section 3.4, additional soil samples will be collected and submitted for laboratory analyses during this phase of RI activities to further evaluate the extent of MGP-related constituents in soil above applicable SCOs.

Stream Sediment Analytical Results: Stream sediment samples (approximate 0-6 inch depth interval) were collected at two locations near the south shore of the Huyck Stream during the RI activities conducted in 2008. A third sediment sample was collected east of the Washington Street bridge (upstream from the former MGP) site to evaluate impacts by urban runoff and other, non-MGP substances. The sample locations are shown on Figure 2-2. The sediment samples were analyzed for BTEX, total cyanide, free cyanide, and total organic carbon (TOC). An additional analysis for an expanded list of PAHs (including 34 commonly identified PAH compounds consisting of 18 parent [non-alkylated] PAH compounds and 16 alkylated PAH compounds) was also performed as part of a forensic evaluation.

The results of the sediment sampling and analyses indicate that there are no site related impacts in the shallow sediments in Huyck Stream. BTEX compounds were not detected in any sediment sample. Total cyanide was only detected in the upstream sediment sample SED-1, which was selected to be representative of background conditions. PAH concentrations in the upstream sample are slightly higher than those in the samples from the locations in the stream adjacent to the Site. Overall, these PAH concentrations are relatively low, with total PAH concentrations ranging from 2.8 to 15 mg/kg. These findings indicate the PAHs in the sediment are representative of background conditions associated with an urban setting, with the PAHs being derived from storm water runoff, soot, and/or atmospheric deposition.

As discussed in more detail in the RI Data Summary Report (Brown and Caldwell Associates, June 2009), the concentrations of each PAH compound (non-alkylated and alkylated) within the sediment samples indicate a predominance of higher molecular weight PAHs and a pattern within homolog groups of the parent compound having the highest concentration, with concentration decreasing with the increased number of carbons in the alkyl group (e.g., chrysene>C1-chrysenes>C2- chrysenes>C3-chrysenes). Both of these characteristics suggest a pyrogenic origin for the PAHs such as soot or urban road run-off, or possibly weathered coal tar (unweathered coal tar would typically be indicated by the presence of greater concentrations of the lighter molecular weight PAHs, e.g., naphthalene). A further indicator of pyrogenic origin is that the fluoranthene:pyrene ratio is greater than 1, which has been shown to be an indicator of derivation from high temperature combustion (versus lower temperature processes, such as distillation).

Groundwater Quality: Six rounds of groundwater sampling have been conducted during the course of the SC and previous RI activities. The groundwater samples were analyzed for TCL volatile organic compounds (VOCs), TCL SVOCs, total cyanide, and free cyanide (SC samples excluded). Prior to each round of sampling, water level measurements and NAPL gauging was performed. No groundwater samples were collected from wells where NAPL was detected during the gauging activities. Accordingly, samples have never been collected from MW-106S-08 or MW-106D-08 since their installation and samples were not collected from MW-102-10 during three out of the six sampling events.

Results of the analyses were compared to the 6 NYCRR Part 703 groundwater standards for Class GA water (groundwater) or, where no such standard exists, the corresponding guidance value from Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. Provided below is a summary of overburden and bedrock groundwater quality data.

Overburden

Generally, the most prevalent constituents detected in overburden groundwater at levels above the Class GA criteria were BTEX compounds, naphthalene and total cyanide. These constituents are often associated with MGP-related residuals, but can also be related to non-MGP sources. These constituents are used as indicators for evaluating dissolved-phase impacts in overburden groundwater at the Site. Concentrations of BTEX and naphthalene in overburden groundwater for the sampling rounds conducted to date are posted on Figure 2-5, and the concentrations of total and free cyanide data are shown on Figure 2-6. Concentrations that are above the Class GA criteria are shown in bold type.

Constituent concentrations in overburden groundwater were measured at levels above the New York State Class GA Groundwater Quality criteria for one or more constituents in samples from five monitoring wells (MW-101-05, MW-102-05, MW-103-05, MW-105-08 and MW-107-08). BTEX compounds were detected above the standards in monitoring wells MW-102-05, MW-103-05, MW-105-08 (concentrations have been below standards for last three sampling events), and MW-107-08. Total cyanide was detected above the Class GA criterion in the sample collected from upgradient well MW-101-05.

Bedrock

Concentrations of BTEX and naphthalene in bedrock groundwater for the November 2010 and March 2011 sampling rounds are posted on Figure 2-7, while the concentrations of total and free cyanide data are shown on Figure 2-8. Concentrations that are above the Class GA criteria are shown in bold type.

BTEX and naphthalene concentrations were above the Class GA criteria in samples collected from MW-102R-10 and MW-106R-10. Total cyanide was not detected above the Class GA criteria from any bedrock monitoring well.

Of note, results from the March 2011 sampling round for MW-102R-10 and MW-106R-10 revealed a substantial decrease in constituent concentrations from the November 2010 round, which was conducted relatively soon after the installation and development process. Such reductions are not uncommon with newly installed monitoring wells, which may have constituents introduced from shallower zones during the well drilling and construction process. Further, based on the water level data collected prior to the November 2010 sampling event, groundwater levels had not reached equilibrium at the MW-102R-10 location. Additional groundwater sampling is proposed herein to evaluate whether constituent concentrations are continuing to decline at these locations, thereby providing a more representative depiction of potential dissolved-phase impacts in bedrock groundwater in this area of the Site.

Soil Vapor Intrusion Evaluation: A SVI evaluation was conducted during the 2009 RI activities. A total of 10 samples (soil vapor and ambient air) were collected to evaluate the potential for soil vapor impacts in the vicinity of: 1) the residences located west of the former MGP; 2) the commercial buildings located south of the former MGP; and 3) the uninhabited area immediately north of the former MGP. The sampling results were provided to the property owners in a letter dated April 21, 2010 from National Grid. Based on a review of the data, MGP-related soil vapors do not appear to be a concern on the northern, western, and southern sides of the former MGP. However, further evaluation of the potential for impacts from soil vapor is required east of the former MGP property, adjacent to the Office of Children and Family Services (OCFS) building. As shown on Figure 2-3, NAPL has been observed in close proximity to the OCFS building and thus, additional soil vapor sampling for this area is proposed herein to verify that SVI sampling inside the building is not needed.

Section 3

Scope of Work

The proposed RI activities are described below. Specific methods and procedures associated with these RI activities will be conducted in accordance with the following plans:

- Generic Field Sampling Plan for Site Investigations at Non-Owned Former MGP Sites, (Foster Wheeler, November 2002) (referred to as "FSP").
- Generic Quality Assurance Project Plan for Site Investigations at Non-Owned Former MGP Sites, (Foster Wheeler, November 2002) (referred to as "QAPP").
- Generic Health & Safety Plan for Site Investigations at Non-Owned Former MGP Sites (Foster Wheeler, November 2002).
- Update of Health and Safety Plan for Supplemental Remedial Investigation of Rensselaer Non-Owned Former MGP Site (Brown and Caldwell, November 2008; Revised September 2010) (referred to as "Health and Safety Plan"). This plan was developed consistent with the Generic Health & Safety Plan for Site Investigations at Non-Owned Former MGP Sites (Foster Wheeler, November 2002)
- DER-10/Technical Guidance for Site Investigation and Remediation (NYSDEC, May 2010).

The scope of work for the RI is described in the subsections below.

3.1 Property Access Activities

Prior to the SC field activities, the owner of the property that occupies the former MGP Site, the City of Rensselaer Industrial Development Agency, was contacted and an access permission agreement was established allowing National Grid to conduct the investigation activities. An additional access agreement was established with the owner of the properties positioned north and east of the former MGP Site (Capital View Office Park) prior to implementing RI activities. The City of Rensselaer was contacted to obtain permission to install monitoring wells in the public rights-of-way along Washington Street, Academy Street and Huyck Square. The access agreements previously obtained with each property owner require an update to reflect revised termination dates for the agreements as well as the proposed RI scope of work.

Prior to initiating the RI field activities, the City of Rensselaer, the City of Rensselaer Industrial Development Agency, and the Capital View Office Park will be contacted to brief them on the activities described below.

3.2 Phase IA Cultural Resources Evaluation

A Phase IA cultural resource investigation of the former MGP Site will be performed as part of the Phase III RI. The purpose of this evaluation is to better assess the level of previous ground disturbance and to determine if a Phase IB subsurface investigation for the project is warranted. The evaluation will be conducted in compliance with the State Environmental Quality Review Act. The archeological investigation will be conducted according to New York Archaeological Council (NYAC) 2004 standards (NYAC 2004), as approved by the New York State Office of Parks, Recreation and Historic Preservation (OPRHP 2005).

3.3 Utility Mark-Outs and Clearance

Prior to conducting the intrusive activities described below, the locations for these activities will be marked in the field. New York Dig Safely will be contacted to obtain utility clearance for the subscribed underground utilities, while the City of Rensselaer will be contacted to obtain clearance for utilities that they maintain (e.g., sewer and water). The owners of the properties will be requested to identify and locate known on-site private utilities.

Some of the proposed drilling and sampling locations may be adjusted to provide adequate clearance from underground utilities. The final locations of soil borings and soil vapor probes will also be subject to drilling rig clearance requirements for overhead power and telephone lines.

At some locations, National Grid may opt to confirm clearance of subsurface utilities at a location by physical means. For example, vacuum soil extraction may be used to remove the soil at a drilling location to a depth below where utilities would be expected to be encountered.

3.4 Soil Borings

Soil borings are proposed at the five (5) locations (B-129-12 through B-133-12) shown on Figure 3-1. As mentioned above, the locations of these borings may be modified based on the utility mark-outs. The boring locations were selected in order to further evaluate extent of NAPL in overburden soils east of the Site and evaluate the extent of MGP related constituents in soils above applicable SCOs. Information from the borings will also be used to improve the understanding of the stratigraphy and hydrogeologic properties of the overburden. A summary of the technical rationale for locations and depths of the proposed soil borings is presented on Table 3-1.

During the advancement of the soil borings, a Community Air Monitoring Plan (CAMP) will be followed that meets or exceeds the requirements of the New York State Department of Health NYSDOH's Generic CAMP. Soil borings will be advanced using direct-push technology (GeoProbe®) and continuously sampled from ground surface to the end of the boring, with a four-foot long, 3.25-inch outside diameter Macrocore® sampler equipped with an acetate liner for sample retention. The soil borings will be advanced to a depth to be determined in the field based on the objective of the boring location (see Table 3-1). The soil samples will be described in the field to characterize soil type, including grain size, texture, and apparent moisture content. Soil samples will be logged in accordance with the Burmister Soil Classification System and classified using the Unified Soil Classification System (USCS) as per the FSP. The samples will also be field screened for indications of MGP-related impacts or other impacts based on appearance, odors or organic vapor concentration measurements using a photoionization detector (PID). Head-space screening will be conducted using the PID by immediately transferring a representative subsample of the soil to a clean glass jar and sealing its lid with aluminum foil. To allow the sample to equilibrate, it will remain sealed for a period of time (approximately 15 minutes) and then the tip of the PID will be inserted through the foil and the maximum instrument reading will be recorded. Upon completion, the soil borings will be backfilled with cement/bentonite grout.

In the event that NAPL is encountered in a boring, and conditions in the boring are such that continued drilling may introduce NAPL into deeper stratigraphic intervals via the borehole (e.g., potentially mobile NAPL perched above a confining layer), measures will be taken to reduce this potential (e.g., the boring will be terminated and consideration given to advancing a boring in an alternate location).

One (1) to two (2) soil samples from each of the borings are proposed for analysis of TCL VOCs, TCL SVOCs, and total cyanide. The depth interval(s) selected for sampling will be based on visual observations/field screening of the soil samples (biased toward apparent impacts and/or determining

the extent of impacts); and/or the results of borings completed during prior investigations (e.g., depth of localized NAPL or intervals where PAHs in soils were above applicable SCOs in previous nearby borings). A summary of the planned soil analyses is provided in Table 3-2.

Analysis of soil samples will be conducted by a laboratory certified under the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) to provide Analytical Services Protocol (ASP)/Contract Laboratory Program (CLP) deliverables. The analytical results will be provided to the NYSDEC as an Electronic Data Deliverable (EDD) formatted to the NYSDEC's required specifications. This will include: 1) populating the NYSDEC EDD with the analytical data; 2) validating the EDD using the database software application EQuIS™ from EarthSoft®, Inc.; and 3) submitting the validated EDD to the NYSDEC.

3.5 Monitoring Well Installation

Overburden monitoring wells are proposed at the two (2) locations (MW-114-12 and MW-115-12) shown on Figure 3-1. The locations of the wells may be modified based on the utility mark-outs. The well locations were selected in order to further evaluate the extent of MGP-related dissolved-phase impacts in overburden groundwater. In particular, the proposed wells are intended to monitor shallow overburden groundwater located hydraulically downgradient of the MW-6 well cluster, where NAPL has been observed in wells MW-106S-08 and MW-106D-10 during gauging activities. At each of the two proposed locations, the base of the screen will be positioned approximately five feet below ground surface to evaluate shallow overburden groundwater quality adjacent to Huyck Stream.

The soil borings advanced for the purposes of installing the overburden monitoring wells will be drilled using a GeoProbe® rig or manual methods (e.g., hand auger), dependent upon drill rig accessibility and local ground conditions as the wells are proposed to be installed in the flood plain south of Huyck Stream. Soil samples will be collected continuously during the advancement of the borings and will be described in the field to characterize soil type, including grain size, texture, and apparent moisture content. Soil samples will be logged in accordance with the Burmister Soil Classification System and classified using the USCS as per the FSP. The samples will also be field screened for indications of MGP-related impacts or other impacts based on appearance, odors or organic vapor concentration measurements using a PID. Head-space screening will be conducted as described above in Section 3.4.

The monitoring wells will be constructed of Schedule 40 PVC well casing with 0.020 inch slot PVC pre-packed well screens (Vee-Pack™) manufactured by Johnson screens®. The PVC pre-packed well screens will be 2.5 feet in length and will have an inside diameter of two inches. Following installation, the wells will be developed in accordance with procedures in the FSP.

3.6 Groundwater Monitoring and NAPL Gauging

As discussed in Section 2.2, bedrock groundwater quality data from the March 2011 sampling round for MW-102R-10 and MW-106R-10 revealed a substantial decrease in constituent concentrations from the November 2010 round, which was conducted relatively soon after the installation and development process. In order to further evaluate potential MGP-related dissolved-phase impacts in overburden and bedrock groundwater, two (2) rounds of groundwater sampling will be conducted as part of the Phase III RI activities.

3.6.1 Well Re-Development

Prior to implementing the groundwater sampling events discussed below, monitoring wells MW-102R-10 and MW-106R-10 will be re-developed. Bedrock coring, packer pressure testing and geophysical logging did not indicate presence of any potentially substantial water-bearing zones at these locations. Wells were installed with screens positioned across minor caliper and/or water temperature anomalies on the

geophysical logs. Although these wells do yield some groundwater, the yield is very low. Attempts to slug test these wells indicate the K_h in the bedrock interval adjacent to the screen is relatively low (MW-102R-10: 4.6 x 10^{-6} cm/sec; MW-106R-10: 1.6 x 10^{-5} cm/sec). Accordingly, due to the low rate of groundwater inflow, additional development potentially could improve the yield of these wells.

Well development will be accomplished using the surge and evacuate method in which a submersible pump will be moved up and down the screened interval to forcefully move water in and out of the screen to loosen particles from the screen, filter pack and rock fractures and suspend them in water column for subsequent removal. During the well development process, water quality parameters (pH, temperature, electrical conductivity, and turbidity) will be recorded to document improvement, to the extent practicable. Development will be considered complete once stabilization of the field parameters has been achieved and/or when there is no visible increase in the clarity of the evacuated water.

As discussed in Section 3.7, slug tests will be performed on the wells selected for re-development following stabilization of water levels following development. The results of the testing will be compared to the original slug testing data from these locations to evaluate whether or not improvement of well yield occurred as a result of the re-development.

3.6.2 Groundwater Sampling

For each of the two (2) rounds of sampling, groundwater samples will be collected from the existing monitoring wells previously installed at the Site and the two overburden monitoring wells installed pursuant to this work plan (see Section 3.5). The first round of groundwater sampling will be initiated approximately three (3) weeks following re-development of MW-102R-10 and MW-106R-10 to allow for water levels to stabilize at these locations. The second round will be conducted approximately three months (one quarter) after the first round, preferably in a time period where the groundwater elevation conditions differ seasonally from the first round. For example, if the first round is conducted during a period when the water table is relatively high, then it is preferable to schedule the second round for a period when the water table is relatively low.

Prior to groundwater sampling, depth to water measurements and NAPL gauging will be conducted on each monitoring well. In the event that NAPL is detected in a monitoring well, a groundwater sample will not be collected from that well. Groundwater samples will be collected according to the USEPA low flow sampling protocol and in accordance with procedures outlined in the FSP.

The groundwater samples will be submitted for analysis of TCL VOCs, TCL SVOCs, and total cyanide. The groundwater samples will also be analyzed in the field for pH, specific conductivity, temperature, turbidity, and dissolved oxygen.

Analysis of groundwater samples will be conducted by a laboratory certified under NYSDOH ELAP to provide ASP/CLP deliverables. As described in Section 3.4, the analytical results will be provided to the NYSDEC as an EDD formatted to the NYSDEC's required specifications.

3.7 Slug Tests

In-situ hydraulic conductivity tests (i.e., slug tests) will be performed on each monitoring well installed pursuant to this work plan to evaluate the horizontal hydraulic conductivity of the adjacent formation. In addition, subsequent to the re-development activities discussed above, slug tests will be conducted on wells MW-102R-10 and MW-106R-10. Rising head slug tests will be conducted in accordance with the procedures described in the FSP and the data generated will be input into AQTESOLV® software for hydraulic conductivity calculations using analytical solutions appropriate for the hydrogeologic conditions.

3.8 Continuous Water Level Monitoring

Continuous monitoring of water levels in Huyck Stream, the Hudson River, and monitoring wells (bedrock and overburden) located on the Site and on off-site properties will be conducted over an extended period (±1 week) to establish the degree of communication between groundwater and surface water. In addition, these measurements will provide data necessary for further evaluating the hydrogeologic characteristics and groundwater flow in the shallow bedrock (i.e., ±5 to 20 feet below the top of rock). This period of continuous monitoring will also be used as the antecedent data prior to the pumping tests discussed below in order to facilitate the evaluation of the degree to which changes in groundwater levels are induced by pumping of water from the test well during the pumping tests versus other potential influences.

The continuous monitoring will be accomplished using pressure transducers equipped with automatic data loggers (e.g., In-Situ Level TROLLS®) installed in selected monitoring wells and staff gauges to be established in Huyck Stream and the Hudson River. The pressure transducers measure water levels and the automatic data logger records the measurements at set time interval. The data loggers will be configured to record water levels every five (5) minutes during the monitoring period, after which they will be removed and the data will be uploaded to an Excel spreadsheet for evaluation and preparation of hydrographs. Manual water level measurements will also be made in the wells equipped with pressure transducers and in all the other monitoring wells, including overburden wells at the beginning and end of the monitoring period. Hourly barometric pressure data and precipitation data for the period of the continuous monitoring will be obtained from the NOAA meteorological measurement station located closest to the Site.

3.9 Pumping Tests

A constant rate pumping test will be conducted on a bedrock monitoring well in order to assess the degree of hydraulic communication between water-bearing fractures in bedrock that are intersected by monitoring well screens and between these water-bearing fractures and overburden groundwater. The pumping well will be selected following evaluation of the data collected from the re-development and slug testing activities.

The test will consist of extracting groundwater at a generally constant rate for three (3) to six (6) hours. Groundwater will be extracted for the duration of the pumping test at a rate determined in the field. Water levels and the pumping rate will be measured frequently in the pumping well in order to estimate the amount and rate of water level drawdown. The pumping rate will be measured using the “bucket and stop watch method”. The pumping rate will be adjusted at the beginning of the test, as necessary, in an attempt to stabilize the water level in the well at a position at, or just above, the top of the screened interval. The extracted groundwater will be containerized in tanks staged on-site pending appropriate off-site disposal.

The pumping rate and water level in the pumping well will be measured and recorded periodically during the course of the test, and the pumping rate adjusted, if necessary, to maintain the target water level. Water levels in all monitoring wells will be measured manually just prior to the initiation of pumping and periodically throughout the test from select monitoring wells. Additionally, water level data will be collected automatically using pressure transducers equipped with automatic data loggers (e.g., In-Situ Level TROLLS®) to supplement the manual data collection efforts. At a minimum, Level TROLLS® will be installed in the locations monitored during the continuous water level monitoring described in Section 3.8. The NYSDEC will be informed of the bedrock well identified for pumping and the associated water level monitoring network prior to implementation of the test.

Hourly barometric pressure data and precipitation data for the period during, and one week prior to the pumping test will be obtained from the NOAA meteorological measurement station located closest to the Site (Albany International Airport). The pumping test will be conducted directly following the continuous water level monitoring described in Section 3.8. The data obtained from the water level monitoring will be used as antecedent data (i.e., pre-pumping) to facilitate the evaluation of the degree to which changes in groundwater levels identified during the pumping tests were induced by groundwater extraction from the pumping well, or by other potential influences.

Depending on the extent of drawdown recorded from the surrounding well network in response to the pumping, an additional pumping test may be performed at an alternate bedrock monitoring well location.

3.10 Soil Vapor Sampling

In a letter dated February 14, 2012, the NYSDEC and NYSDOH requested that two (2) additional soil vapor samples be collected adjacent to the New York State Office of Children and Family Services (OCFS) building to evaluate the potential for MGP residuals to be contributing VOCs to soil vapor, and the potential for such VOCs to impact indoor air in the OCFS building. Soil vapor sampling will be conducted east of the Site at the two (2) soil vapor sampling point locations shown on Figure 3-1 (SV-6-12 and SV-7-12) and listed on Table 3-1. The sampling point locations may be adjusted if the proposed location is not practical due to access difficulties. Adjustments, if any, will be made in consultation with the NYSDEC/DOH.

Samples of ambient air (outdoor air) will be collected at two (2) to three (3) locations during the soil vapor sampling. Analytical results from the ambient air samples will be used to evaluate background air concentrations and will be compared to the results of the soil vapor samples. The sampling flow rate will be calibrated to collect the ambient air samples over an eight-hour period. At least one of the outdoor air samples will be collected from an area upwind of the Site. The actual positions of the ambient air samples will be finalized on the day of the soil vapor sampling to take into account wind, weather and site conditions.

The soil vapor and ambient air samples will be collected in accordance with the draft document titled "Standard Operating Procedures for Soil Vapor Intrusion Evaluations at National Grid MGP Sites in New York State" (O'Brien & Gere, September 2007). This document was developed in consideration of NYSDOH's "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (NYSDOH, October 2006), input from NYSDEC and NYSDOH, National Grid's experience at sites in New York and New England, and the SVI experience of various environmental consulting firms. Information regarding the procedures for installation of the soil vapor sampling points and collection of soil vapor and ambient air samples is provided in Appendices A and B of the above-referenced document.

The soil vapor sampling points will be installed by advancing a GeoProbe® Implant Anchor/Drive Point (PR-14) to a desired depth using a direct push rig. Each soil vapor sampling point will consist of six-inch stainless steel screen attached to food grade tubing through which the soil vapor will be drawn. The screens will be placed at a depth interval above the estimated seasonally high water table. Filter pack material (appropriately sized glass beads) will be placed in the annular space surrounding the soil vapor implant and tubing to a depth of approximately one to two feet above the top of the stainless steel screen. A two to three foot bentonite seal will be placed in the annulus above the filter pack material followed by a flush-mounted surface completion set into concrete.

Prior to the collection of soil vapor samples, the potential for ambient air to be introduced into the soil vapor sample will be assessed using a tracer gas (helium) and a field meter capable of detecting the tracer gas. Procedures for the tracer gas evaluation are described in Appendix A of the document referenced above (O'Brien & Gere, September 2007).

The soil vapor and ambient air samples will be collected using six (6) liter Summa® passivated stainless steel canisters. The Summa® canisters will be batch certified as clean by the laboratory. Flow controllers will also be provided by the laboratory and will be pre-calibrated for the desired flow rate (approximately 0.2 liters per minute for the soil vapor samples) or duration of sample collection (approximately eight hours for the ambient air samples). The soil vapor samples will be collected within the timeframe that the ambient air samples are collected. Applicable field data including weather conditions, initial and final vacuum pressures for the Summa® canisters, purge rates and volumes, and the results of the tracer gas evaluation, will be recorded on field forms. A copy of the field forms that will be used are provided in Appendix A.

Appropriate QA/QC samples will be collected, including a duplicate sample for soil vapor. The samples will be analyzed using USEPA Method TO-15, including n-alkanes and tentatively identified compounds (TICs). The analyte list is provided in Table 3-3. Analysis of the samples will be conducted by a laboratory certified under NYSDOH ELAP to provide ASP/CLP deliverables. As described in Section 3.4, the analytical results will be provided to the NYSDEC as an EDD formatted to the NYSDEC's required specifications.

3.11 Survey

Each of the soil boring, soil vapor probe and surface soil sampling locations will be surveyed. The survey will include location coordinates and ground surface elevation data. Coordinates will be referenced to the State Plane coordinate system for New York using the North American Datum of 1983 (NAD 1983) in units of feet. Elevations will be referenced to the National Geodetic Vertical Datum (NGVD) of 1929 in units of feet. The survey will be performed by a New York licensed surveyor.

3.12 Data Evaluation and Reporting

Laboratory results for the soil, groundwater, soil vapor and ambient air samples will be forwarded to a qualified data validator for preparation of a Data Usability Summary Report (DUSR). The DUSR will present a summary of data usability, including a discussion of qualified and rejected data and provide recommendations for resampling/reanalysis, as applicable. Per the agreement between National Grid and the NYSDOH, preliminary (non-validated) analytical soil vapor and ambient air data will be forwarded to the NYSDOH and the NYSDEC within 48 hours of initial receipt of the unvalidated data.

A RI Data Summary Report for the Site will be prepared and provided to the NYSDEC. The RI Data Summary Report will include the following:

- Data generated during the field investigation in a format compatible with NYSDEC's EQuIS™ system;
- DUSR and tabular and graphic summaries of the analytical results;
- Maps of sampling locations;
- Maps of groundwater elevations and flow directions;
- Hydrographs and change in water elevation graphs depicting the results of the continuous monitoring and pumping test activities.

Accompanying the RI Data Summary Report will be conclusions related to the objectives of the Phase III RI, and an assessment of whether or not the data collected to date are sufficient to meet the RI objectives for the Site. Also included will be either a recommendation that a RI Report be prepared (if the data collected to-date are sufficient), or recommendations for addressing additional data needs to complete the RI, including human and ecological exposure assessments.

In the event that preparation of a RI Report is recommended and the NYSDEC concurs with this recommendation, a RI Report will be prepared to address the following:

- The identity and characteristics of the source(s) of MGP-related impacts;
- The amount, concentration, phase, location, environmental fate and transport, and other significant characteristics of any MGP-related constituents present;
- Hydrogeologic characteristics, including grain-size, hydraulic conductivity of saturated formations monitored, depth to saturated zone, nature of bedrock, hydraulic gradients, proximity to surface water, floodplains, or wetlands;
- Assess routes of exposure and potential human receptors via a qualitative human health exposure assessment in accordance with Section 3.1(C)17 and Appendix 3B of the May 2010 DER-10 Technical Guidance for Site Investigation and Remediation; and
- A determination as to whether or not Steps 1 through 2b of a Fish and Wildlife Resource Impact Analysis (FWRIA) are required to be conducted based on Appendix 3C of the May 2010 DER-10 Technical Guidance for Site Investigation and Remediation, and if so conduct , Steps 1 through 2b in accordance with the following NYSDEC guidance documents: 1) Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites (FWIA); October 1, 1994 (Steps 1 through 2b); and 2) DER-10 Technical Guidance for Site Investigation and Remediation, May 2010.

The RI report will include the following:

- Pertinent information obtained throughout the implementation of this work plan and previous investigations;
- Descriptions of the work done under this work plan and the results of that completed work;
- Deviations from this work plan that result from unexpected conditions encountered during the investigation;
- Summary of the overall nature and extent of contamination referencing any exceedances of applicable State standards, criteria, and guidance;
- Summary of any ecological assessments conducted;
- Summary tables of analytical data collected;
- Soil boring logs and well construction diagrams, which will include well development data and field instrument (PID) readings;
- Groundwater elevation contour maps with flow directions specified;
- Hydrogeologic cross-sections of the Site;
- Figure depicting the elevation contours of the top of bedrock surface;
- Figures illustrating the distribution of constituent concentrations in soils and groundwater, including sample depths; and
- Conclusions which summarize the areas of concern, identify any potentially completed exposure pathways, and recommendations for any future work (e.g., none, additional investigation, or an evaluation of remedial alternatives.

Section 4

Schedule

Following NYSDEC/DOH review and approval of this work plan, efforts to update the existing access agreements will commence. Field activities will be initiated after approximately two weeks following notification to the property owners of the planned RI activities.

It is anticipated that approximately four (4) to five (5) weeks will be required to conduct the field activities through completion of: soil borings; monitoring well installations; well development/re-development; slug tests; continuous water level monitoring; pumping tests; installation of soil vapor probes and collection of soil vapor and ambient air samples; and the first round of groundwater sampling. As noted in Section 3.6.2, the second round of groundwater sampling will be conducted approximately three (3) months following the first round, preferably in an interval of hydrologic conditions that differ seasonally from the first round. Within approximately eight (8) weeks of completion of the second round of groundwater sampling, the laboratory analyses and the DUSR are expected to be complete.

The RI Data Summary Report will be submitted approximately 10 weeks after the DUSR is received from the data validator. If following NYSDEC's review of the Data Summary Report (see Section 3.12), it is determined that the RI is complete, then a schedule for submitting a RI Report will be developed.

References

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Brown and Caldwell Associates, February 2006. "Site Characterization Data Summary Report, Rensselaer Non-Owned Former MGP Site, 89 Washington Street, Rensselaer, New York".

Foster Wheeler, November, 2002. "Generic Field Sampling Plan for Site Investigations at Non-Owned Former MGP Sites".

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New York State Department of Health (NYSDOH). October 2006. Guidance for Evaluating Vapor Intrusion in New York State.

O'Brien and Gere, September 2007. Standard Operating Procedures for Soil Vapor Intrusion Evaluations at National Grid MGP Sites in New York State.

Tables

TABLE 2-1
SUMMARY OF VISUAL/OLFACTORY FIELD OBSERVATIONS IN SOIL
RENSSELAER NON-OWNED FORMER MGP SITE
RENSSELAER, NEW YORK

Location	Depth (ft., BGS)	Description
SOIL BORINGS		
B-104-05	4-6	Tar-like odor.
	6-8	Strong tar-like odor.
	8-10	Saturated with water and tar, strong tar-like odor, sheen observed on soils.
B-105-05	4.3-4.5	Strong tar-like odor.
B-106-05	6.2-8	Tar-like odor, very faint sheen .
	8-10.2	Tar-like odor, pockets of sheen.
	10.2-10.3	Pockets of brown tar.
	10.3-12	Tar-like odor, pockets of sheen.
	12-15	Faint tar-like odor.
B-107-08		No observations or odor indicative of MGP-related materials.
B-108-08	4.4	Strong tar-like odor.
	6.4	Strong fuel-like odor.
	8.3	Strong fuel-like odor in gravel zone.
	8.7	Moderate hydrocarbon odor.
B-109-08	14-16	Sheen observed on outside of spoon, but not within soils when broken apart. Slight tar-like odor.
B-110-08	8.2	Slight sheen observed on soils.
	13	Partially saturated with NAPL/tar in gravelly zone.
	14-14.9	Sheen observed throughout, NAPL/tar on outside of spoon.
	16.4	Gravel seam coated with NAPL.
	16.9	Moderate tar-like odor.
	18	Strong tar-like odor.
	19	Sheen observed on soil.
B-111-08	8.5	Slight fuel-like odor.
	10	Slight fuel-like odor.
	13.5	NAPL coating on gravel grains, moderate tar-like odor throughout.
	14.2	NAPL coating coarser sand grains.
	15.2	NAPL coating coarser sand grains.
	16.7	Sheen observed on soils.
	17	Sheen observed on soils, slight tar-like odor.
	18.7	NAPL blebs on coarser material.
B-112-08	8-12	Strong hydrocarbon odor.
B-113-09	5.2-5.8	Slight hydrocarbon odor
	5.8-7.8	Strong tar-like odor.
	7.1-7.8	Blebs of red-black NAPL.
	7.8-8.0	Saturated with groundwater and red-brown NAPL, strong tar-like odor.
	8.0-9.3	Strong tar-like odor.

TABLE 2-1
SUMMARY OF VISUAL/OLFACTORY FIELD OBSERVATIONS IN SOIL
RENSSELAER NON-OWNED FORMER MGP SITE
RENSSELAER, NEW YORK

Location	Depth (ft., BGS)	Description
B-114-09	6.5-7.2	Sheen present, tar-like odor
	8.8-9.6	Strong tar-like odor.
	9.6-9.8	Brown NAPL blebs found throughout, strong tar-like odor.
	12.0-12.7	Brown NAPL blebs found throughout, strong tar-like odor.
B-115-09	10.0-11.3	Scattered sheen on water, slight tar-like odor.
	16.0-16.9	Faint tar-like odor.
B-116-09	10.9-11.4	Scattered sheen and trace NAPL blebs, tar-like odor
	12.0-12.9	Scattered sheen on grains, tar-like odor
	13.2-13.6	Soils partially saturated in red-black NAPL, tar-like odor
B-117-09		No observations or odor indicative of MGP-related materials.
B-118-10		No observations or odor indicative of MGP-related materials.
B-119-10		No observations or odor indicative of MGP-related materials.
B-120-10	12-13.8	Sporadic NAPL blebs coating coarse-grained soils (sand and gravel), sheen, moderate tar-like odor
B-121-10		No observations or odor indicative of MGP-related materials.
B-122-10		No observations or odor indicative of MGP-related materials.
B-123-10		No observations or odor indicative of MGP-related materials.
B-124-10	12-14	Sporadic occureence of NAPL blebs and sheen within soil.
	15.5-16	NAPL coating coarse sand and gravel, strong tar-like odor.
B-125-10	10.6-12	NAPL coating coarse sand and gravel, strong tar-like odor.
B-127-10	5.6-12.4	Fill materials saturated with groundwater and NAPL, strong tar-like odor.
B-128-10	4.7-5.3	Fill materials saturated with groundwater and NAPL, strong tar-like odor.
	8-9	Fill materials saturated with groundwater and NAPL, strong tar-like odor.
SOIL BORINGS AT MONITORING WELL LOCATIONS		
MW-101-05		No observations or odor indicative of MGP-related materials.
MW-102-05	3.8-4	Tar-like odor
	8-10	Blebs of light-colored NAPL, petroleum-like odor. Few blebs of tar around gravel, intermittent sheen.
	10-12	Blebs of brown-red tar, strong tar-like odor.
	12-13.5	Tar around gravel
	14-18	Occasional tar on gravel, moderate sheen, strong tar-like odor.
	18-20	Frequent brown-red tar throughout, heavy sheen, very strong tar-like odor.
	21.4	String of tar.

TABLE 2-1
SUMMARY OF VISUAL/OLFACTORY FIELD OBSERVATIONS IN SOIL
RENSSELAER NON-OWNED FORMER MGP SITE
RENSSELAER, NEW YORK

Location	Depth (ft., BGS)	Description
MW-102R-10	13-23	NAPL coating bottom 10' of hollow-stem augers, strong tar-like odor.
MW-103-05	12-14	Tar coats gravel in veins throughout soil, strong tar-like odor
	14-19	Saturated with water and tar, strong tar-like odor, sheen observed on soils.
	19-20	Occasional tar near gravel, tar-like odor, sheen.
	20-21.5	Sheen observed on outside of soils, but not within soils when broken apart.
MW-104-08	9-11	Slight hydrocarbon odor.
	13-15	Sheen observed on outside of spoon.
MW-104R-10	9.6-10	NAPL coating coarse-grained layers of sand and gravel within glacial till unit. Moderate to strong tar-like odor
	10-10.5	Moderate tar-like odor.
		No impacts observed in bedrock core samples
MW-105-08	10.9-11.3	Sheen observed on soils.
	11.1	Sporadic blebs of NAPL and sheen observed on coarse sand and gravel, moderate tar-like odor.
	15	Slight tar-like odor.
	20.4	Very slight hydrocarbon odor.
MW-106S-08	16-18	Sheen observed on soils and in water in spoon, tar-like odor.
	18.25	Sheen observed on soils, tar-like odor.
	20	Tar-like odor, very slight sheen.
	22.9-25.6	Coarse grains soils partially saturated with NAPL, tar-like odor.
	24	Partially saturated with NAPL, NAPL blebs on outside of spoon.
MW-106D-08	12.5	Slight tar-like and organic odor.
	14.6	Abundant sheen, red-black NAPL bleb.
	16	Moderate tar-like odor.
	18	Sheen on cobble.
	20	Moderate to strong tar-like odor.
	22	Sheen, tar-like odor.
	24	Abundant sheen with occasional red-brown NAPL blebs.
MW-106R-10	11-15	NAPL coating outside of augers.
	15-27	NAPL observed sporadically on outside of augers.
	36.5	Sheen and tar-like odor observed in return water during coring process
MW-107-08	5.2	Very slight hydrocarbon odor.
	7-9	Slight fuel-like odor.
	9-11	Abundant sheen observed on coarser grained soils, sparse blebs of black-red NAPL. Moderate tar-like odor.
	11-13	Strong fuel-like/hydrocarbon odor, occasional slight sheen.
	13-15	Slight hydrocarbon odor.
MW-108-09		No observations or odor indicative of MGP-related materials.

TABLE 2-1
SUMMARY OF VISUAL/OLFACTORY FIELD OBSERVATIONS IN SOIL
RENSSELAER NON-OWNED FORMER MGP SITE
RENSSELAER, NEW YORK

Location	Depth (ft., BGS)	Description
MW-108R-10	35-37	Faint tar-like odor observed from base of overburden soils.
	49.8	Small spot of sheen with tar-like odor observed on outside of core.
MW-109S-09		Refer to observations recorded for MW-109D-09
MW-109D-09		No observations or odor indicative of MGP-related materials.
MW-110-09	18-20	PID reading of 92 ppm from soils in interval.
MW-110R-10		No observations or odor indicative of MGP-related materials encountered in overburden soils or bedrock core samples.
MW-111-09	10.0-10.6	Sheen on water inside spoon. Trace red-brown-black NAPL blebs, slight tar-like odor.
	10.6-11.2	Slight tar-like odor.
	14.0-14.3	Occasional sheen on water inside spoon. Slight tar-like odor.
MW-112-10		continuous sampling not conducted.
MW-112R-10		No observations or odor indicative of MGP-related materials encountered in overburden soils or bedrock core samples.
MW-113R-10	4.7	Slight to moderate tar-like and petroleum-like odor.
	5.2	Black staining with slight to moderate petroleum-like and tar-like odor
	6-8	Sporadic black staining with slight petroleum-like and tar-like odor
	8-8.9	Sporadic blebs of NAPL and NAPL coating larger sand and gravel grains throughout, strong tar-like odor.
		No observations or odor indicative of MGP-related materials encountered in bedrock core samples.
TEST PITS		
TP-101-05	4.1-7.8	Petroleum-like odor.
TP-102-05	2.4-4.2	Strong tar-like odor and sheen.
	7-7.1	NAPL blebs.
TP-103-05	2.8-4.9	Slight sulfur-like odor, potential purifier waste material.
	10.4	NAPL blebs.
TP-104-05	7-8.4	NAPL blebs.
	8.4	NAPL seep.
	8.4-9.3	NAPL blebs.

TABLE 2-1
SUMMARY OF VISUAL/OLFACTORY FIELD OBSERVATIONS IN SOIL
RENSSELAER NON-OWNED FORMER MGP SITE
RENSSELAER, NEW YORK

Location	Depth (ft., BGS)	Description
TP-105-08	5-10	Viscous black NAPL/tar, strong tar-like odor.
SOIL VAPOR PROBES		
SV-1-09		No observations or odor indicative of MGP-related materials.
SV-2-09		No observations or odor indicative of MGP-related materials.
SV-3-09		No observations or odor indicative of MGP-related materials.
SV-4-09		No observations or odor indicative of MGP-related materials.
SV-5-09		No observations or odor indicative of MGP-related materials.

TABLE 3-1
RATIONALE FOR REMEDIAL INVESTIGATION LOCATIONS
FULTON (NORTH ONTARIO ST.) FORMER MGP SITE
FULTON, NEW YORK

Location ID	Objective	Target Depth
MONITORING WELLS		
MW-114-12	Evaluate shallow overburden groundwater quailty located hydraulically downgradient from the MW-106 well cluster, where NAPL has been observed in wells MW-106S-08 and MW-106D-08 during gauging activities.	Approximately 5 feet bgs.
MW-115-12	As above for MW-1114-12.	Approximately 5 feet bgs.
SOIL BORINGS		
B-129-12	Evaluate extent of NAPL observed in soils from locations B-120-10 and MW-111-09; assess extent of PAHs in soils above applicable SCOs detected in soil samples from B-115-09, B-119-20, B-120-10 and MW-111-09.	15 feet or below impacts identified by field screening (if any).
B-130-12	As above for B-B-129-12.	15 feet or below impacts identified by field screening (if any).
B-131-12	Evaluate extent of NAPL observed in soils from locations B-125-10; assess extent of PAHs in soils above applicable SCOs detected in soil samples from B-125-10.	15 feet or below impacts identified by field screening (if any).
B-132-12	As above for B-B-131-12.	15 feet or below impacts identified by field screening (if any).
B-133-12	Assess extent of PAHs in soils above applicable SCOs detected in soil sample from MW-105-08.	15 feet or below impacts identified by field screening (if any).
SOIL VAPOR MONITORING POINTS		
SV-6-12	Evaluate potential VOC concentrations in soil vapor east of Site, adjacent ot Office of Children and Family Services building.	Screen to be placed above seasonally high water table and saturated soils based on field observations at the time of installation. Targeted screen depth is 5.5-6 feet bgs. Estimated depth of water table is approximately 7-8 feet bgs.
SV-7-12	As above for SV-6-12	Screen to be placed above seasonally high water table and saturated soils based on field observations at the time of installation. Targeted screen depth is 5.5-6 feet bgs. Estimated depth of water table is approximately 7-8 feet bgs.

Note: Suffix "12" after location ID designates year of installation (2012).

TABLE 3-2
SUMMARY OF LABORATORY ANALYSES
RENSSELAER NON-OWNED FORMER MGP SITE
RENSSELAER, NEW YORK

Media and Sample Type	TCL VOCs Method 8260B	TCL SVOCs Method 8270C	Total Cyanide
Soil Boring Samples (5 borings, 2 soil samples each)	10	10	10
Duplicate[1]	1	1	1
MS/MSD[1]	1	1	1
Trip Blank[2]	1	--	--
Equipment Blank[1]	1	1	1
Groundwater (23 wells, 2 events) [3]	44	44	44
Duplicate [1]	4	4	4
MS/MSD [1]	4	4	4
Trip Blank [2]	±6	--	--
Equipment Blank [1]	4	4	4

Notes:
(1) - Per the QAPP, one duplicate sample, one MS/MSD pair, and one equipment blank will be submitted and analyzed for every Sample Deliver y Group (maximum 20 samples).
(2) - Per the QAPP, one trip blank will be included in every shipment of water samples to be analyzed for VOCs, and subsequently analyzed.
(3) - If NAPL is identified in well, groundwater samples will not be analyzed.

TABLE 3-3
SOIL VAPOR AND AMBIENT AIR ANALYTES
RENSSELAER NON-OWNED FORMER MGP SITE
RENSSELAER, NEW YORK

Primary Analytes			
	RL (µg/m^3)[1]		RL (µg/m^3)
Acetone	12	Hexachlorobutadiene	2.1
Benzene	0.64	Isopropyl Alcohol	12.5
Bromodichloromethane	13	Isopropylbenzene	TBD
Bromoethene	0.87	Methyl Butyl Ketone	2.05
Bromoform	2.1	Methyl Ethyl Ketone	1.5
Bromomethane	0.78	Methyl Isobutyl Ketone	2.05
1,3-Butadiene	0.49	Methylene chloride	1.7
Carbon disulfide	1.6	Methyl tert-butyl ether	1.8
Carbon tetrachloride	1.3	Naphthalene	2.9
Chlorobenzene	0.92	Styrene	0.85
Chloroethane	0.53	tert-Butyl Alcohol	15
Chloroform	0.98	1,1,2,2-Tetrachloroethane	1.4
Cloromethane	0.41	Tetrachloroethene	1.4
3-Chloropropene	0.63	Toluene	0.75
2-Chlorotoluene (o-Chlorotoluene)	1.04	1,2,4-Trichlorobenzene	3.7
Cyclohexane	0.69	1,1,1-Trichloroethane	1.1
Dibromochloromethane	2.0	1,1,2-Trichloroethane	1.1
1,2-Dibromoethane (EDB)	1.5	Trichloroethene	1.07
1,2-Dichlorobenzene	1.2	Trichlorofluoromethane	1.1
1,3-Dichlorobenzene	1.2	1,1,2-Trichloro-1,2,2-trifluoroethar	1.5
1,4-Dichlorobenzene	1.2	1,2,4-Trimethylbenzene	0.98
Dichlorodifluoromethane	0.99	1,3,5-Trimethylbenzene	0.98
1,1-Dichloroethane	0.81	Vinyl chloride	0.51
1,2-Dichloroethane	0.81	m-Xylenes & p-Xylene	0.87
1,1-Dichloroethene	0.79	o-Xylene	0.87
cis-1,2-Dichloroethene	0.79	n-Butane [2]	TBD
trans-1,2-Dichloroethene	0.79	n-Decane [2]	TBD
1,2-Dichloropropane	0.92	n-Dodecane [2]	TBD
cis-1,3-Dichloropropene	0.91	n-Heptane [2]	0.83
trans-1,3-Dichloropropene	0.91	n-Hexane [2]	0.70
1,2-Dichloro-1,1,2,2-tetrafluoroethai	1.4	n-Nonane [2]	TBD
1,4-Dioxane	18	n-Octane [2]	TBD
Ethylbenzene	0.87	n-Pentane [2]	TBD
4-Ethyltoluene (p-Ethyltoluene)	0.98	n-Undecane [2]	TBD

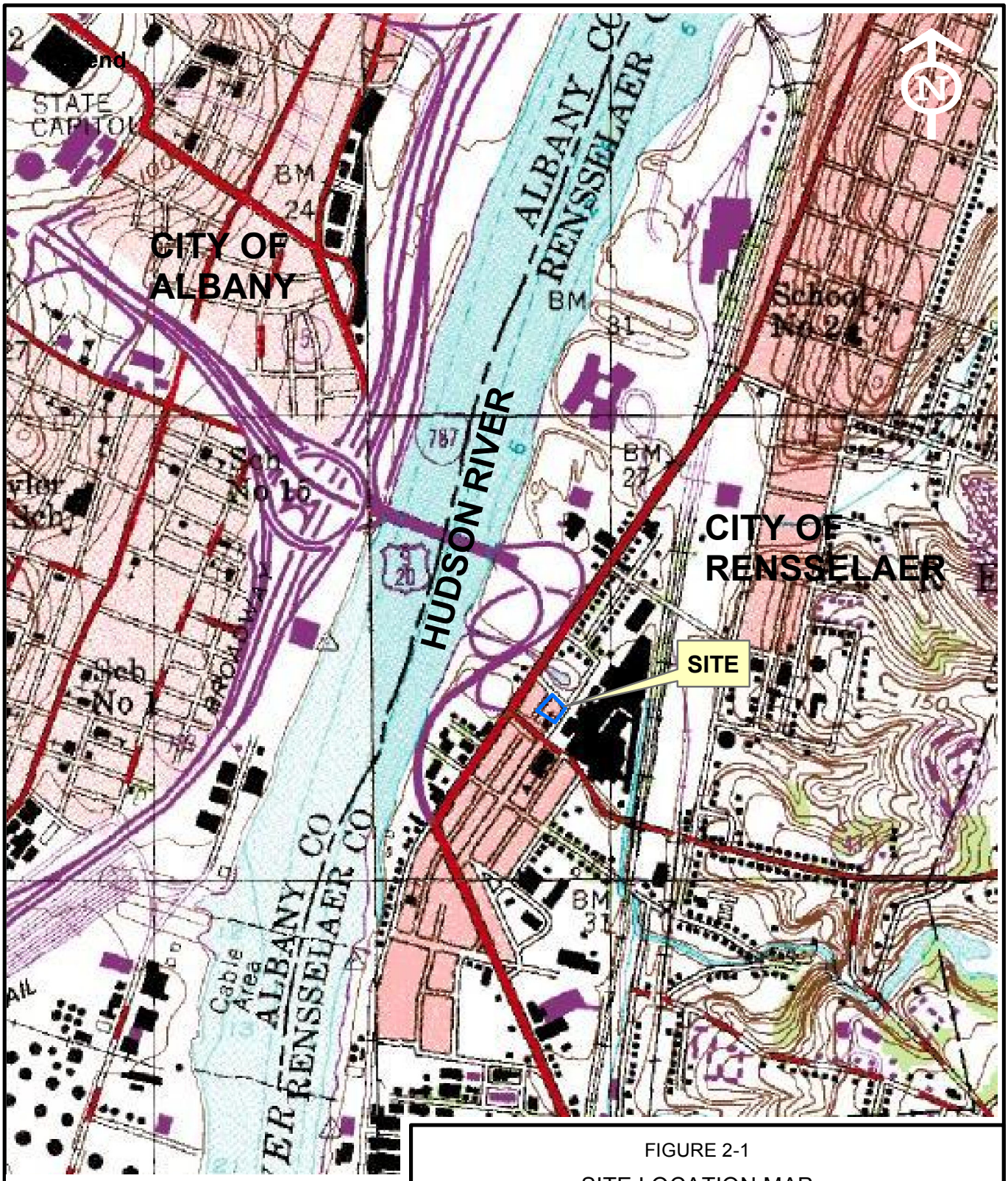
Tentatively Identified Compounds (TICs) [3]			
	RL (µg/m^3)		RL (µg/m^3)
Butylcyclohexane [4]	TBD	Indene	TBD
2,3-Dimethylheptane [4]	TBD	Tetramethylbenzene isomers	TBD
2,3-Dimethylpentane [4]	TBD	Thiophenes	TBD
Isopentane [4]	TBD	1,2,3-Trimethylbenzene	0.98
2,2,4-Trimethylpentane [4]	1.08	1-Methylnaphthalene	TBD
Indane	TBD	2-Methylnaphthalene	TBD

Notes:

(1) -Actual reporting limits may be higher due to sample dilution by the laboratory to quantify compunds at elevated concentrations, if any. If diluted runs are necessary for quantifying certain compunds, the results of both the diluted and undiluted runs will be provided by the laboratory.

(2) - Noted compounds are straight-chain alkanes
(3) - Compounds will be reported as TICs if detected
(4) - Noted compounds are branched-chain alkanes
RL - Reporting limit
TBD - To be determined
µg/m^3 - micrograms per cubic meter

Figures



Source:
USGS 7.5 Minute Quadrangles
Troy South, NY, 1953, Photorevised 1980
Albany, NY, 1953, Photorevised 1980

0 500 1,000 2,000 Feet

FIGURE 2-1

SITE LOCATION MAP

RENSSELAER NON-OWNED FORMER MGP SITE
RENSSELAER, NEW YORK

DATE	PROJECT NUMBER
03/12	139984.204

Brown AND Caldwell
Associates

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Legend

- Ground Surface Elevation Contour (ft., NGVD)
- Property Line
- Pavement Edge
- Water
- Sewer Line
- Building
- Sewer Manhole
- Former MGP Structure Location. Locations are Approximate. Based on 1909 Sanborn Map.
- Monitoring Well
- Soil Boring
- Sediment Sample
- Surface Soil Sample
- Surface Soil Sample/Hand Auger Boring
- Test Pit
- Soil Vapor Probe
- Staff Gauge
- Sediment Probing Location
- Sediment Probing Transect
- Generalized Direction of Groundwater Flow (3/28/11)

SOURCES:
1) Base map developed based on drawing provided by MJ Engineering and Land Surveying, P.C. (7/25/05, Revised 11/17/10). Refer to this drawing for site details.
2) Aerial Photo from NYSDOP 2011 Survey.

N

SOIL-1-08
SED-1-08
MW-109D-09
MW-109S-09
MW-108-09
MW-108R-10
SG-4-10
SG-1-09
T-1A
T-1B
T-1C
T-1D
T-1E
T-2A
SG-2-09
T-2B
SG-3-10
T-2C
T-2D
T-2E
T-2F
HUYCK STREAM
SED-2-08
SOIL-2-08
B-114-09
T-3A
T-3B
T-3C
T-3D
T-3E
SED-3-08
SOIL-3-08
SOIL-4-08
B-113-09
SOIL-6-08
SOIL-5-08
MW-105-08
SV-4-09
MW-110-08
MW-110R-10
WASHINGTON STREET
MW-112-10
MW-112R-10
MW-106S-08
MW-106R-10
MW-106D-08
SV-5-09
HUYCK SQUARE
B-115-09
B-119-10
B-120-10
MW-111-09
B-109-08
B-121-10
B-122-10
MW-103-05
B-111-08
SOIL-7-08
TP-105-08
TAR WELL
SV-3-09
MW-102-05
CB#2
CB#1
B-110-08
TP-103-05
TP-101-05
MW-102R-10
RETORT HOUSE
MW-104-08
B-104-05
MW-104R-10
GAS HOLDER
B-128-10
MH#1
SOIL-10-08
B-124-10
B-116-09
MW-107-08
B-123-10
B-125-10
ACADEMY STREET
COAL SHED
B-127-10
B-108-08
PURIFIER & CONDENSER ROOMS
GAS HOLDER
B-105-05
SV-2-09
B-106-05
TP-102-05
METER ROOM
TP-104-05
B-112-08
B-117-09
OFFICE OF CHILDREN AND FAMILY SERVICES BUILDING
B-118-10
MW-113R-10
B-107-08
MW-101-05
SV-1-09
SOIL-8-08
SOIL-9-08

0 25 50 100 Feet

FIGURE 2-2

SITE PLAN

RENSSELAER NON-OWNED FORMER MGP SITE
RENSSELAER, NEW YORK

DATE 3/7/12

PROJECT NUMBER 139984.204

Brown AND Caldwell
Associates

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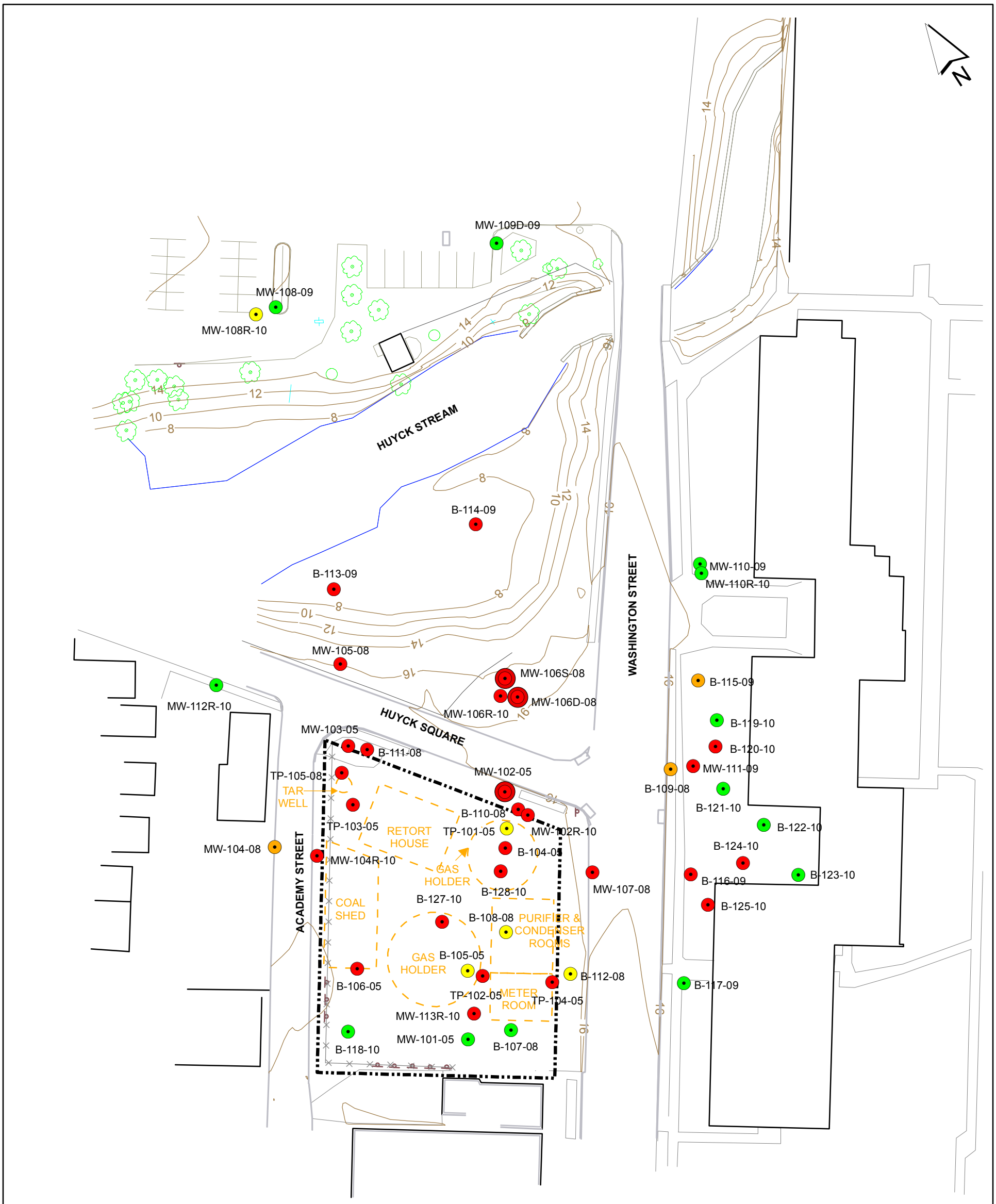

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Legend

- Ground Surface Elevation Contour (ft., NGVD)
- Property Line
- Pavement Edge
- Water
- Building
- Former MGP Structure Location. Locations are Approximate. Based on 1909 Sanborn Map.

- No impacts observed in soil boring
- Hydrocarbon odors observed in soil boring
- Sheens and hydrocarbon odors observed in soil boring
- NAPL/Tar observed in soil boring
- NAPL/Tar observed in soil boring and in monitoring well during gauging events

Note:
Refer to Table 2-1 for descriptions and depth intervals of NAPL observations.

Source:
Base map developed based on drawing provided by MJ Engineering and Land Surveying, P.C. (7/25/05, Revised 11/17/10). Refer to this drawing for site details.

0 25 50 100 Feet

FIGURE 2-3

VISUAL/OLFACTORY OBSERVATIONS

RENSSELAER NON-OWNED FORMER MGP SITE
RENSSELAER, NEW YORK

DATE 3/7/12

PROJECT NUMBER 139984.204

Brown AND Caldwell Associates

SOIL1-08	0.5-1	3-3.5
Total BTEX	ND	ND
Total PAHs	ND	ND
Total Cyanide	ND	ND
Free Cyanide	ND	ND

MW-109D-09	14-16	26-28
Total BTEX	0.00059	0.0041
Total PAHs	ND	ND
Total Cyanide	ND	ND
Free Cyanide	ND	ND

MW-108-09	16-18	22-24
Total BTEX	0.00064	0.00073
Total PAHs	1.2	ND
Total Cyanide	ND	ND
Free Cyanide	ND	ND

B-114-09	8.5-9.5	13-15
Total BTEX	0.17	0.0081
Total PAHs	**137**	0.37
Total Cyanide	ND	ND
Free Cyanide	ND	ND

SOIL2-08	0.5-1	3.5-4
Total BTEX	0.0008	ND
Total PAHs	4.2	**14**
Total Cyanide	ND	ND
Free Cyanide	ND	ND

SOIL3-08	0.5-1	3-3.5
Total BTEX	ND	0.0085
Total PAHs	2.5	10
Total Cyanide	ND	ND
Free Cyanide	ND	ND

MW-110-09	12-14	20-22
Total BTEX	0.0028	0.00057
Total PAHs	5.9	ND
Total Cyanide	ND	ND
Free Cyanide	ND	ND

B-115-09	10-12	18-20
Total BTEX	0.012	0.0034
Total PAHs	**64**	0.37
Total Cyanide	ND	ND
Free Cyanide	ND	ND

B-113-09	7.5-8.5	10-11
Total BTEX	**0.28**	0.00037
Total PAHs	**339**	0.11
Total Cyanide	1.4	ND
Free Cyanide	0.0916J	ND

B-119-10	4-6	8-10
Total BTEX	ND	0.04497
Total PAHs	ND	**77**
Total Cyanide	ND	ND
Free Cyanide	ND	ND

B-120-10	12-14	16-18
Total BTEX	0.00715	ND
Total PAHs	**13**	ND
Total Cyanide	ND	ND
Free Cyanide	0.0277J	ND

SOIL4-08	0.5-1	3-3.5
Total BTEX	0.001	ND
Total PAHs	4.2	4.8
Total Cyanide	ND	ND
Free Cyanide	ND	ND

MW-106S08	16-18	22-24
Total BTEX	0.44	**75**
Total PAHs	**57**	**494**
Total Cyanide	ND	ND
Free Cyanide	ND	ND

MW-106D08	20-22	24-26
Total BTEX	**0.83**	**33**
Total PAHs	**4.1**	**36**
Total Cyanide	ND	ND
Free Cyanide	0.013 J	0.04 J

MW-105-08	10-12	22-24
Total BTEX	0.13	0.074
Total PAHs	**179**	0.69
Total Cyanide	ND	ND
Free Cyanide	0.014 J	ND

B-121-10	4-6	8-10
Total BTEX	ND	ND
Total PAHs	0.82	ND
Total Cyanide	ND	ND
Free Cyanide	ND	ND

MW-111-09	10-11*	16-18
Total BTEX	0.0099	0.0095
Total PAHs	**30**	0.22
Total Cyanide	5.7	ND
Free Cyanide	0.0306J	ND

MW-103-05	12-14	18-20
Total BTEX	0.0065	0.34
Total PAHs	3.2	5.5
Total Cyanide	19	ND
Free Cyanide	NA	NA

B-122-10	4-6	10-12
Total BTEX	ND	ND
Total PAHs	ND	ND
Total Cyanide	ND	ND
Free Cyanide	ND	ND

MW-102-05	8-10	20-22
Total BTEX	0.013	**8**
Total PAHs	**55**	**69**
Total Cyanide	ND	ND
Free Cyanide	NA	NA

B-109-08	10-12	16-18
Total BTEX	0.036	0.014
Total PAHs	4.1	0.49
Total Cyanide	1.68	ND
Free Cyanide	0.017 J	ND

B-124-10	14-16	17-19
Total BTEX	0.0522	ND
Total PAHs	**212**	ND
Total Cyanide	ND	ND
Free Cyanide	ND	ND

B-110-08	8-10	12-14	18-20
Total BTEX	**46**	**1721**	**86**
Total PAHs	**291**	**1323**	**214**
Total Cyanide	ND	ND	ND
Free Cyanide	ND	0.014 J	ND

B-111-08	14-16	22-24
Total BTEX	**16**	0.03
Total PAHs	**208**	0.12
Total Cyanide	ND	ND
Free Cyanide	ND	ND

B-123-10	4-6	10-12
Total BTEX	ND	ND
Total PAHs	ND	ND
Total Cyanide	ND	ND
Free Cyanide	ND	ND

TP-105-08	2-5	4-5	6-8
Total BTEX	ND	**877**	ND
Total PAHs	**227**	**17860**	0.27
Total Cyanide	10.8	5.99	2.12
Free Cyanide	0.014 J	0.024 J	0.015 J

B-116-09	11-12	13-14
Total BTEX	0.0045	0.035
Total PAHs	**19**	**180**
Total Cyanide	ND	ND
Free Cyanide	ND	ND

MW-107-08	9-11	19-21
Total BTEX	**5.2**	0.0038
Total PAHs	**70**	0.2
Total Cyanide	ND	ND
Free Cyanide	ND	ND

MW-104-08	5-7	17-19*
Total BTEX	0.0013	0.0044
Total PAHs	ND	ND
Total Cyanide	ND	ND
Free Cyanide	ND	ND

B-128-10	4-6*	8-10
Total BTEX	**22**	**61**
Total PAHs	**170**	**1646**
Total Cyanide	0.65	14.1
Free Cyanide	ND	ND

B-125-10	10-12	12-14
Total BTEX	0.0028	0.00036
Total PAHs	**730**	0.043
Total Cyanide	ND	ND
Free Cyanide	ND	ND

TP-101-05	0.3-4.1
Total BTEX	**0.8**
Total PAHs	NA
Total Cyanide	NA
Free Cyanide	NA

B-106-05	8-10
Total BTEX	0.15
Total PAHs	3.9
Total Cyanide	ND
Free Cyanide	NA

B-108-08	8-10	19-21
Total BTEX	**41**	0.031
Total PAHs	**134**	0.11
Total Cyanide	ND	ND
Free Cyanide	0.014 J	0.019 J

B-117-09	8-10	10-12
Total BTEX	0.002	0.00065
Total PAHs	ND	ND
Total Cyanide	ND	ND
Free Cyanide	ND	ND

B-127-10	4-6	8-10
Total BTEX	**111**	**217**
Total PAHs	**116**	**1038**
Total Cyanide	2.91	0.23
Free Cyanide	0.462J	ND

B-118-10	4-6	10-12
Total BTEX	ND	0.00047
Total PAHs	0.044	ND
Total Cyanide	ND	ND
Free Cyanide	ND	ND

B-112-08	8-10	15-17
Total BTEX	**1.5**	0.0029
Total PAHs	**140**	0.056
Total Cyanide	ND	ND
Free Cyanide	ND	ND

B-105-05	10-12
Total BTEX	ND
Total PAHs	13
Total Cyanide	ND
Free Cyanide	NA

TP-102-05	2.4-4.2
Total BTEX	**7.2**
Total PAHs	5.8
Total Cyanide	4.21
Free Cyanide	NA

MW-101-05	4-6	10-12
Total BTEX	0.0095	0.0019
Total PAHs	ND	ND
Total Cyanide	ND	ND
Free Cyanide	NA	NA

TP-104-05	3.3-7*
Total BTEX	**13.6**
Total PAHs	**49**
Total Cyanide	ND
Free Cyanide	NA

B-107-08	8-10	10-12*
Total BTEX	0.0030	0.0062
Total PAHs	ND	0.18
Total Cyanide	ND	ND
Free Cyanide	0.013 J	0.014 J

HUYCK STREAM

HUYCK SQUARE

WASHINGTON STREET

ACADEMY STREET

TAR WELL

RETORT HOUSE

GAS HOLDER

COAL SHED

PURIFIER & CONDENSER ROOMS

GAS HOLDER

METER ROOM

N

0 25 50 100 Feet

Legend

- Monitoring Well: green symbol indicates no exccedance of SCOs; red symbol indicates one or more constituents exceed SCO(s)
- Soil Boring: green symbol indicates no exccedance of SCOs; red symbol indicates one or more constituents exceed SCO(s)
- Hand Auger Boring: green symbol indicates no exccedance of SCOs; red symbol indicates one or more constituents exceed SCO(s)
- Test Pit Sample: green symbol indicates no exccedance of SCOs; red symbol indicates one or more constituents exceed SCO(s)
- Ground Surface Elevation Contour (ft., NGVD)
- Property Line
- Pavement Edge
- Water
- Building
- Former MGP Structure Location. Locations are approximate. Based on 1909 Sanborn Map.

Explanation of terms and abbreviations:
BTEX - Benzene, Tolune, Ethylbenzene, Xylenes
PAHs - Polycyclic Aromatic Hydrocarbons
Bold Value - Indicates one or more constituents are above NYS Part 375 Soil Cleanup Objectives
ND - Not Detected
J - Estimated concentration
NA - Not Analyzed

Results reported in milligrams per kilogram (mg/kg)

* - Table lists the highest concentration from original and duplicate sample

SOURCE: Base map developed based on drawing provided by MJ Engineering and Land Surveying, P.C. (7/25/05, Revised 11/17/10). Refer to this drawing for site details.

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FIGURE 2-4

BTEX, PAHs, AND CYANIDE CONCENTRATIONS IN SUBSURFACE SOIL

RENSSELAER NON-OWNED FORMER MGP SITE
RENSSELAER, NEW YORK

DATE 3/7/12

PROJECT NUMBER 139984.204

Brown AND Caldwell Associates

N

MW-109D-09	12/7/2009	11/16/2010	3/29/2011
Benzene	ND	ND	ND
Toluene	ND	ND	ND
Ethylbenzene	ND	ND	ND
o-Xylene	ND	ND	ND
m&p-Xylenes	ND	ND	ND
Naphthalene	ND	ND	ND

MW-108-09	12/8/2009**	11/16/2010	3/28/2011
Benzene	ND	ND	ND
Toluene	ND	ND	ND
Ethylbenzene	ND	ND	ND
o-Xylene	ND	ND	ND
m&p-Xylenes	ND	ND	ND
Naphthalene	ND	ND	ND

MW-109S-09	12/7/2009	11/15/2010	3/29/2011
Benzene	ND	ND	ND
Toluene	ND	ND	ND
Ethylbenzene	ND	ND	ND
o-Xylene	0.3 J	ND	ND
m&p-Xylenes	0.71 J	ND	ND
Naphthalene	ND	ND	ND

MW-105-08	12/18/2008	4/28/2009	12/8/2009	11/19/2010	3/31/2011
Benzene	**4 J**	0.81 J	0.4 J	0.40 J	0.32J
Toluene	0.4 J	ND	ND	ND	ND
Ethylbenzene	4 J	2.4 J	1.2 J	0.75 J	ND
o-Xylene	**6 J**	2.5 J	1.2 J	0.87 J	ND
m&p-Xylenes	1 J	0.52 J	ND	ND	ND
Naphthalene	**19**	**11**	1.3 J	1.6 J	2J

MW-110-09	12/9/2009	11/16/2010	3/29/2011
Benzene	ND	ND	ND
Toluene	ND	ND	ND
Ethylbenzene	ND	ND	ND
o-Xylene	ND	ND	ND
m&p-Xylenes	ND	ND	ND
Naphthalene	ND	ND	ND

MW-103-05	7/6/2005	12/19/2008	4/27/2009	12/8/2009	11/17/2010	3/30/2011
Benzene	**2 J**	**3 J**	**1.8 J**	**4.8 J**	**5.1**	**1.7**
Toluene	0.95 J	0.3 J	ND	ND	0.28 UJ	ND
Ethylbenzene	**91**	**8 J**	4.4 J	**12**	**5.6**	2
o-Xylene	**36**	3 J	2.1 J	4.8 J	2.6	0.69
m&p-Xylenes	**11**	0.5 J	0.37 J	0.59 J	ND	ND
Naphthalene	ND	10 J	3.1 J	5.7 J	2.4 J	ND

MW-111-09	12/9/2009	11/16/2010**	3/28/2011
Benzene	ND	ND	ND
Toluene	ND	ND	ND
Ethylbenzene	ND	ND	ND
o-Xylene	ND	ND	ND
m&p-Xylenes	ND	ND	ND
Naphthalene	ND	ND	ND

MW-112-10	11/17/2010	3/30/2010
Benzene	ND	ND
Toluene	ND	ND
Ethylbenzene	ND	ND
o-Xylene	ND	ND
m&p-Xylenes	ND	ND
Naphthalene	ND	ND

MW-102-05	7/6/2005	12/18/2008	4/28/2009	12/9/2009	3/31/2011
Benzene	NS	NS	**630**	**540**	**340**
Toluene	NS	NS	**58**	**39**	**45**
Ethylbenzene	NS	NS	**720**	**660**	**430**
o-Xylene	NS	NS	**270**	**230**	**160**
m&p-Xylenes	NS	NS	**360**	**340**	**180**
Naphthalene	NS	NS	**2500**	**2400**	**1700**

MW-104-08	12/18/2008**	4/27/2009	12/8/2009	11/16/2010	3/30/2011**
Benzene	ND	0.95 J	ND	ND	ND
Toluene	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND	ND
m&p-Xylenes	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND

MW-107-08	12/19/2008	4/28/2009	12/9/2009	11/18/2010	3/30/2011
Benzene	**89**	**9.7 J**	**9.3 J**	**17**	**29**
Toluene	**6 J**	1.1 J	ND	ND	1.7
Ethylbenzene	**300**	**41**	**40**	**32**	**28**
o-Xylene	**97**	**16**	**12**	**11**	**9.1**
m&p-Xylenes	**120**	**19**	**14**	**12**	**12**
Naphthalene	**850**	**260**	**190**	**130**	**87**

MW-101-05	7/6/2005**	12/18/2008	4/27/2009	12/9/2009	11/17/2010	3/30/2011
Benzene	ND	0.6 J	0.36 J	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND	ND	ND
m&p-Xylenes	ND	ND	ND	ND	ND	ND
Naphthalene	ND	1 J	ND	ND	ND	ND

MW-106S-08

MW-106D-08

HUYCK STREAM

HUYCK SQUARE

WASHINGTON STREET

ACADEMY STREET

TAR WELL

RETORT HOUSE

GAS HOLDER

COAL SHED

PURIFIER CONDENSER ROOMS

GAS HOLDER

METER ROOM

Legend

- Monitoring well where constituent concentrations are below Class GA Criteria
- Monitoring well where one or more constituent concentrations are above Class GA Criteria
- Monitoring well not sampled due to NAPL presence
- 11 Water Table Elevation Contour (ft. NGVD).
- Generalized Direction of Groundwater Flow (3/28/11)
- Ground Surface Elevation Contour (ft., NGVD)
- Property Line
- Pavement Edge
- Water
- Building
- Former MGP Structure Location. Locations are approximate. Based on 1909 Sanborn Map.

Explanation of terms and abbreviations:
BTEX - Benzene, Tolune, Ethylbenzene, Xylenes
Bold Value - Indicates constituent concentration above Class GA Criterion
ND - Not Detected
NS - Not Sampled
J - Estimated concentration
* - Table lists the highest concentration from original and duplicate sample
** - Duplicate sample collected

Results reported in micrograms per liter (µg/L)

SOURCE: Base map developed based on drawing by MJ Engineering and Land Surveying ,P.C. (7/25/05, Revised 11/17/10). Refer to this drawing for site details.

0 25 50 100 Feet

FIGURE 2-5

BTEX AND NAPHTHALENE CONCENTRATIONS IN OVERBURDEN GROUNDWATER

RENSSELAER NON-OWNED FORMER MGP SITE
RENSSELAER, NEW YORK

DATE 3/7/12

PROJECT NUMBER 139984.204

Brown AND Caldwell Associates

P:/GIS/National_Grid/Rensselaer_BTEX_Naph_GW_2011_overburden(2x3)_phase_iii_RI_wrk_pln.mxd

N

MW-109D-09	12/7/2009	11/16/2010	3/29/2011
Total Cyanide	ND	ND	ND
Free Cyanide	ND	ND	ND

MW-109S-09	12/7/2009	11/15/2010	3/29/2011
Total Cyanide	ND	ND	ND
Free Cyanide	ND	ND	ND

MW-108-09	12/8/2009 **	11/16/2010	3/28/2011
Total Cyanide	ND	ND	ND
Free Cyanide	ND	ND	ND

MW-105-08	12/18/2008	4/28/2009	12/8/2009	11/19/2010	3/31/2011
Total Cyanide	129 J	169	124	48	74
Free Cyanide	ND	5 J	ND	ND	ND

MW-110-09	12/9/2009	11/16/2010	3/29/2011
Total Cyanide	ND	ND	ND
Free Cyanide	ND	ND	ND

MW-103-05	7/6/2005 *	12/19/2008	4/27/2009 *	12/8/2009	11/17/2010	3/30/2011
Total Cyanide	**274**	149 J	111	113	125	109
Free Cyanide	ND	2 J	2 J	ND	7 J	ND

MW-112-10	11/17/2010	3/30/2011
Total Cyanide	ND	17
Free Cyanide	ND	ND

MW-111-09	12/9/2009	11/16/2010 *	3/28/2011
Total Cyanide	ND	ND	ND
Free Cyanide	ND	ND	ND

MW-102-05	7/6/2005	12/18/2008	4/28/2009	12/10/2009	11/15/2010	3/31/2011
Total Cyanide	NS	NS	76	82	NS	54
Free Cyanide	NS	NS	3 J	4 J	NS	ND

MW-104-08	12/18/2008 **	4/27/2009	12/8/2009	11/16/2010	3/30/2011**
Total Cyanide	ND	ND	ND	ND	ND
Free Cyanide	ND	ND	ND	ND	ND

MW-107-08	12/19/2008	4/28/2009	12/9/2009	11/18/2010	3/30/2011
Total Cyanide	26.1 J	ND	27	32	18
Free Cyanide	ND	ND	ND	ND	ND

MW-101-05	7/6/2005 *	12/18/2008	4/27/2009	12/9/2009	11/17/2010	3/30/2011
Total Cyanide	195	**235 J**	**266**	**260**	**228**	**217**
Free Cyanide	NA	ND	3 J	8 J	7 J	4J

MW-106S-08

MW-106D-08

HUYCK STREAM

HUYCK SQUARE

WASHINGTON STREET

ACADEMY STREET

TAR WELL

RETORT HOUSE

GAS HOLDER

COAL SHED

GAS HOLDER

PURIFIER & CONDENSER ROOMS

METER ROOM

Legend

- Monitoring well where total cyanide concentration is below Class GA Criterion
- Monitoring well where total cyanide concentration is above Class GA Criterion
- Monitoring well not sampled due to NAPL presence
- 11 Water Table Elevation Contour (ft. NGVD).
- Generalized Direction of Groundwater Flow (3/28/11)
- Ground Surface Elevation Contour (ft., NGVD)
- Property Line
- Pavement Edge
- Water
- Building
- Former MGP Structure Location. Locations are approximate. Based on 1909 Sanborn Map.

Explanation of terms and abbreviations:
Bold Value - Indicates constituent concentration above Class GA Criterion
ND - Not Detected
NS - Not Sampled
J - Estimated concentration
* - Table lists the highest concentration from original and duplicate sample
** - Duplicate sample collected

Results reported in micrograms per liter (µg/L)

SOURCE: Base map developed based on drawing provided by MJ Engineering and Land Surveying, P.C. (7/25/05, Revised 11/17/10). Refer to this drawing for site details.

0 25 50 100 Feet

FIGURE 2-6

CYANIDE CONCENTRATIONS IN OVERBURDEN GROUNDWATER

RENSSELAER NON-OWNED FORMER MGP SITE
RENSSELAER, NEW YORK

DATE 3/7/12

PROJECT NUMBER 139984.204

Brown AND Caldwell

Associates

P:/GIS/National_Grid/Rensselaer_Cyanide_GW_2011_overburden(2x3)_phase_iii_RI_wrk_pln.mxd

MW-108R-10	11/18/2010	3/28/2011
Benzene	ND	ND
Toluene	ND	ND
Ethylbenzene	1	ND
o-Xylene	0.47 J	ND
m&p-Xylenes	ND	ND
Naphthalene	ND	ND

MW-110R-10	11/17/2010	3/29/2011
Benzene	ND	ND
Toluene	ND	ND
Ethylbenzene	ND	ND
o-Xylene	ND	ND
m&p-Xylenes	ND	ND
Naphthalene	ND	ND

MW-106R-10	11/18/2010	3/31/2011
Benzene	**8700**	**3200**
Toluene	ND	**35**
Ethylbenzene	**1100**	**240**
o-Xylene	**460**	**110**
m&p-Xylenes	**800**	**170**
Naphthalene	**1300 D**	**240**

MW-112R-10	11/17/2010	3/30/2011
Benzene	ND	ND
Toluene	ND	ND
Ethylbenzene	ND	ND
o-Xylene	ND	ND
m&p-Xylenes	ND	ND
Naphthalene	ND	ND

MW-102R-10	11/18/2010	3/31/2011
Benzene	**2700 D**	**540**
Toluene	**3500 D**	**1300**
Ethylbenzene	**830 D**	**260**
o-Xylene	**620 D**	**330**
m&p-Xylenes	**1200 D**	**480**
Naphthalene	**2200 D**	**800**

MW-104R-10	11/18/2010	3/30/2011
Benzene	ND	ND
Toluene	ND	ND
Ethylbenzene	ND	ND
o-Xylene	ND	ND
m&p-Xylenes	ND	ND
Naphthalene	ND	ND

MW-113R-10	11/18/2010	3/30/2011
Benzene	ND	ND
Toluene	ND	ND
Ethylbenzene	ND	ND
o-Xylene	ND	ND
m&p-Xylenes	ND	ND
Naphthalene	ND	ND

HUYCK STREAM

HUYCK SQUARE

WASHINGTON STREET

ACADEMY STREET

TAR WELL

RETORT HOUSE

GAS HOLDER

COAL SHED

PURIFIER & CONDENSER ROOMS

GAS HOLDER

METER ROOM

N

Legend

- Monitoring well where constituent concentrations are below Class GA Criteria
- Monitoring well where constituent concentrations are above Class GA Criteria
- Ground Surface Elevation Contour (ft., NGVD)
- Property Line
- Pavement Edge
- Water
- Building
- Former MGP Structure Location. Locations are approximate. Based on 1909 Sanborn Map.

Explanation of terms and abbreviations:
BTEX - Benzene, Tolune, Ethylbenzene, Xylenes
Bold Value - Indicates constituent concentration above Class GA Criterion
ND - Not Detected
NS - Not Sampled
NA - Not Analyzed
J - Estimated concentration
D - Result is representative of a diluted analysis

Results reported in micrograms per liter (µg/L)

SOURCE: Base map developed based on drawing provided by MJ Engineering, P.C. (7/25/05, Revised 11/17/10). Refer to this drawing for site details.

0 25 50 100 Feet

FIGURE 2-7

BTEX AND NAPHTHALENE CONCENTRATIONS IN BEDROCK GROUNDWATER

RENSSELAER NON-OWNED FORMER MGP SITE RENSSELAER, NEW YORK

DATE 3/7/12

PROJECT NUMBER 139984.204

Brown AND Caldwell Associates

P:/GIS/National_Grid/Rensselaer_BTEX_Naph_GW_2011_BR_phase_iii_RI_wrk_pln.mxd

MW-108R-10	11/18/2010	3/28/2011
Total Cyanide	ND	ND
Free Cyanide	ND	ND

MW-110R-10	11/17/2010	3/29/2011
Total Cyanide	ND	ND
Free Cyanide	ND	ND

MW-106R-10	11/18/2010	3/31/2011
Total Cyanide	60	43
Free Cyanide	ND	ND

MW-112R-10	11/17/2010	3/30/2011
Total Cyanide	12	ND
Free Cyanide	ND	ND

MW-102R-10	11/18/2010	3/31/2011
Total Cyanide	ND	ND
Free Cyanide	ND	4J

MW-113R-10	11/18/2010	3/30/2011
Total Cyanide	ND	ND
Free Cyanide	ND	4J

MW-104R-10	11/18/2010	3/30/2011
Total Cyanide	29	11
Free Cyanide	ND	ND

HUYCK STREAM

HUYCK SQUARE

WASHINGTON STREET

ACADEMY STREET

TAR WELL

RETORT HOUSE

GAS HOLDER

COAL SHED

PURIFIER & CONDENSER ROOMS

GAS HOLDER

METER ROOM

N

Legend

- Monitoring well where total cyanide concentration is below Class GA Criterion
- Ground Surface Elevation Contour (ft., NGVD)
- Property Line
- Pavement Edge
- Water
- Builiding
- Former MGP Structure Location. Locations are approximate. Based on 1909 Sanborn Map

Explanation of terms and abbreviations:
Bold Value - Indicates constituent concentration above Class GA Criterion
ND - Not Detected
NS - Not Sampled
NA - Not Analyzed
J - Estimated concentration

Results reported in micrograms per liter (µg/L)

SOURCE:
Base map developed based on drawing by MJ Engineering and Land Surveying, P.C. (7/25/05, Revised 11/17/10). Refer to this drawing for site details.

0 25 50 100 Feet

FIGURE 2-8

CYANIDE CONCENTRATIONS IN BEDROCK GROUNDWATER

RENSSELAER NON-OWNED FORMER MGP SITE
RENSSELAER, NEW YORK

DATE 3/7/12

PROJECT NUMBER 139984.204

Brown AND Caldwell Associates

P:/GIS/National_Grid/Rensselaer_Cyanide__GW_2011_BR_phase_iii_RI_wrk_pln.mxd

Legend

- Ground Surface Elevation Contour (ft., NGVD)
- Property Line
- Pavement Edge
- Water
- Sewer Line
- Building
- Sewer Manhole
- Former MGP Structure Location. Locations are Approximate. Based on 1909 Sanborn Map.
- Monitoring Well
- Soil Boring
- Sediment Sample
- Surface Soil Sample (0-2" bgs)
- Surface Soil Sample/Hand Auger Boring
- Test Pit
- Soil Vapor Probe
- Staff Gauge
- Sediment Probing Location
- Sediment Probing Transect
- Proposed Soil Boring
- Proposed Monitoring Well
- Proposed Soil Vapor Probe

SOURCES:
1) Base map developed based on drawing provided by MJ Engineering and Land Surveying, P.C. (7/25/05, Revised 11/17/10). Refer to this drawing for site details.
2) Aerial Photo from NYSDOP 2011 Survey.

N

MW-109D-09
MW-109S-09
MW-108-09
MW-108R-10
SG-4-10
SG-1-09
T-1A
T-1B
T-1C
T-1D
T-1E
T-2A
SG-2-09
T-2B
SG-3-10
T-2C
T-2D
T-2E
T-2F
T-3A
T-3B
T-3C
T-3D
T-3E
HUYCK STREAM
SED-2-08
SOIL-2-08
B-114-09
SOIL-3-08
MW-115-12
SED-3-08
SOIL-4-08
MW-114-12
B-113-09
SOIL-5-08
SOIL-6-08
MW-105-08
B-133-12
MW-106S-08
SV-4-09
MW-106R-10
MW-106D-08
SV-5-09
MW-112-10
MW-112R-10
HUYCK SQUARE
MW-103-05
B-111-08
SOIL-7-08
TP-105-08
MW-102-05
TAR WELL
SV-3-09
TP-103-05
B-110-08
TP-101-05
MW-102R-10
RETORT HOUSE
MW-104-08
B-104-05
MW-104R-10
GAS HOLDER
B-128-10
COAL SHED
B-127-10
B-108-08
PURIFIER & CONDENSER ROOMS
ACADEMY STREET
GAS HOLDER
B-105-05
SV-2-09
B-106-05
TP-102-05
METER ROOM
TP-104-05
B-112-08
B-118-10
MW-113R-10
B-107-08
MW-101-05
SV-1-09
SOIL-8-08
SOIL-9-08
WASHINGTON STREET
SOIL-1-08
SED-1-08
MW-110-08
MW-110R-10
B-115-09
SV-6-12
B-119-10
B-120-10
MW-111-09
B-109-08
B-121-10
B-122-10
SOIL-10-08
MH#1
B-124-10
B-116-09
SV-7-12
B-123-10
B-125-10
MW-107-08
B-117-09
OFFICE OF CHILDREN AND FAMILY SERVICES BUILDING
B-129-12
B-130-12
B-131-12
B-132-12
0 25 50 100
Feet

FIGURE 3-1

PROPOSED RI LOCATIONS

RENSSELAER NON-OWNED FORMER MGP SITE
RENSSELAER, NEW YORK

DATE 3/7/12

PROJECT NUMBER 139984.204

Brown AND Caldwell
Associates

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Appendix A: SVI Sampling Field Forms

nationalgrid

Ambient Air (Canister) Sample Collection Field Form

Project # _____ Consultant _____

Project Name _____ Collector _____

Sample ID _____

Vacuum gauge "zero" ("Hg) _____

Start Date/Time _____ Start Pressure ("Hg) _____

End Date/Time _____ End Pressure ("Hg) _____

Canister ID _____ End pressure > "zero"? _____

Flow controller ID _____ Sampling duration (intended) _____

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc

Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Weather Conditions at Start of Sampling:

Air temperature (^{o}F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Relative humidity _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

_____

_____

Site Plan showing sample location, building(s) being sampled, building HVAC inlet, outdoor air sources, wind direction

Comments: _____

_____

_____

_____

_____

nationalgrid

Soil Vapor (Canister) Sample Collection Field Form

Project # _____ Consultant _____

Project Name _____ Collector _____

Sample ID _____

Vacuum gauge "zero" ("Hg) _____

Start Date/Time _____ Start Pressure ("Hg) _____

End Date/Time _____ End Pressure ("Hg) _____

Canister ID _____ End pressure > "zero"? _____

Flow controller ID _____ Sampling duration (intended) _____

Associated ambient air sample ID _____ Depth of sample point below grade _____

Tubing type used _____ Length of tubing _____ cm Tubing volume _____ cc

Volume purged _____ cc @ _____ min 1 to 3 volumes purged @ < 200cc/min? _____

Chamber tracer gas conc. _____ Tracer gas conc. during purging _____

Weather Conditions during Probe Installation:

Air temperature (°F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Weather Conditions at Start of Sampling:

Air temperature (°F) _____ Rainfall _____ Wind direction _____

Barometric pressure _____ Wind speed (mph) _____

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

Comments: _____

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway, Albany, New York 12233-7014
Phone: (518) 402-9662 • **Fax:** (518) 402-9679
Website: www.dec.ny.gov

Joe Martens
Commissioner

April 25, 2012

Brian Stearns, PE
National Grid
300 Erie Boulevard West
Syracuse, NY 13202

RE: Phase III Remedial Investigation Work Plan
Rensselaer – Washington Street Non-Owned Former MGP Site
Rensselaer (c), Rensselaer County, Site #V00488

Dear Mr. Stearns:

The New York State Department of Environmental Conservation (Department) and the New York State Department of Health (NYSDOH) have reviewed the Phase III Remedial Investigation Work Plan (Work Plan) dated March 2012 prepared by Brown and Caldwell on behalf of National Grid for the above referenced site. This letter serves to approve the Work Plan with the following modifications:

- Section 3.10 Soil Vapor Sampling:
    - As indicated in this work plan, the screens for the two proposed soil vapor sampling points will be placed at a depth interval above the estimated seasonally high water table. The samples from both soil vapor points for analysis should be collected at about one foot above the water table as outlined in the Department's February 14, 2012 letter.
    - The Department and NYSDOH agree with the proposed locations for the two soil vapor sample points, but recommend as indicated in the NYSDOH Soil Vapor Intrusion Guidance that when collecting soil vapor samples around a building with no surrounding surface confining layer, such as is the case here, samples should be located in native or undisturbed soils away from fill material surrounding the building (approximately 10 feet away from the building). The sampling in native soil is recommended in order to avoid sampling in an area that may be influenced by the building's HVAC systems and therefore not be representative of worst case conditions.

This is the only section of the Work Plan that the Department is modifying. Pursuant to 6 NYCRR 375-1.6(d)(3), the remedial party must respond in writing within 15 days as to whether the Department's modifications will be accepted. Alternatives to accepting the Department's modifications are set forth at 6 NYCRR 375-1.6(d)(3)(ii).

If the modifications are accepted, attach this letter to the work plan and submit it to the site's document repository. If you have any questions or comments please feel free to contact me at (518) 402-9662.

Sincerely,

Jamie Verrigni

Jamie Verrigni
Project Manager
Remedial Bureau C
Division of Environmental Remediation

ec: Maureen Schuck – NYSDOH
Joe Crua – NYSDOH
Brian Stearns – National Grid – brian.stearns@us.ngrid.com
James Marolda – Brown and Caldwell – Jmarolda@Brwncald.com