**New York State Department of Environmental Conservation**
**Division of Environmental Remediation**
**Remedial Bureau C, 11th Floor**
625 Broadway, Albany, New York 12233-7014
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Joe Martens
Commissioner

February 6, 2015

William Ryan
Project Manager
Site Investigation & Remediation
National Grid
175 East Old Country Road
Hicksville, NY 11801

Re: Equity Former MGP Site
Remedial Investigation
Addendum #4 Work Plan, Site No. 224050

Dear Mr. Ryan:

The New York State Department of Environmental Conservation (Department) and the New York State Department of Health have reviewed the Remedial Investigation Addendum #4 Work Plan for the Equity Former MGP Site. The Work Plan is acceptable and is hereby approved. Please notify the Department a minimum of 10 days prior to the commencement of field work.

Sincerely,

Henry T. Willems
Engineering Geologist 1

ec: W. Ryan, National Grid
T. Leissing, National Grid
G. Cross, NYSDEC
G. Heitzman, NYSDEC
A. DeMarco, NYSDOH

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Project Manager
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February 4, 2015

Mr. Henry Willems
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C, 11th Floor
625 Broadway
Albany, New York 12233-7014

**Subject: Remedial Investigation Work Plan Addendum (No. 4)**
**Equity Works Former Manufactured Gas Plant (MGP) Site**
**Brooklyn, New York**
**NYSDEC Site No.: 224050, Order on Consent Index #: A2-0552-0606**

Dear Mr. Willems:

National Grid is submitting the following Remedial Investigation Work Plan (RIWP) Addendum (No. 4) for the Equity Works former manufactured gas plant (MGP) site (the Site), located at 222–254 Maspeth Avenue in Brooklyn, New York. This addendum describes work to be performed at the private properties located to the south of the former MGP at 1 and 7-9 Rewe Street.

As you are aware, the Remedial Investigation of the Site is being conducted by National Grid pursuant to a Multi-site Order on Consent and Administrative Settlement with the NYSDEC, Index # A2-0552-0606, executed on February 22, 2007 and modified on August 10, 2007, and in accordance with applicable guidelines of the NYSDEC and the New York State Department of Health (NYSDOH). Specifics of the RI scope of work are presented in the NYSDEC-approved work plan (Remedial Investigation Work Plan, Equity Works Former MGP) produced by AECOM in July 2009.

National Grid submitted the RIWP Addendums No. 1, No.2, No. 2 Modification, and No. 3 to the NYSDEC in August 2011, April 2012, May 2013, and August 2013, respectively, to addend the July 2009 RIWP. The purpose of the work described in this RIWP Addendum (No. 4) is to investigate the presence or absence of potential MGP residuals, or other impacts in soils beneath the Rewe Street buildings focused on areas where former tidal channels were present. The locations of the tidal channels are based on the historic drawings and on a 1924 aerial photograph. This investigation will also evaluate soil vapor and indoor air samples from the building areas adjacent to (south and west of) the former MGP. Specifically, the work includes:

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- Geophysical surveying as part of utility pre-clearance prior to borehole advancement.
- Floor coring through the concrete slabs at each soil vapor sampling location to construct a temporary soil gas sampling location.
- Collection of soil gas, indoor air, and ambient air samples for laboratory analysis of volatile organic compounds (VOCs) by USEPA SW846 Method TO-15.
- Advancement of soil borings to intersect the first confining unit in the subsurface identified as the "intermediate clay" layer or approximately 50 feet below ground surface (bgs) in areas if the intermediate clay is not encountered.
- Field screening and soil sampling, as required, to evaluate the presence of potential MGP residuals or other impacts, if encountered.
- Management of investigation derived waste (IDW) at an approved off-site facility.

The proposed soil vapor, indoor air, and soil boring locations are shown on Figure 1. All work will be performed in accordance with the procedures specified in the 2009 NYSDEC Approved RI Work Plan except where noted below.

**RIWP Addendum Scope of Work**

***Geophysical Survey***

A geophysical survey will be performed at each proposed investigation location to provide information on potential buried utilities in the proposed work areas outlined on Figure 1. Results may be used to modify the sample locations in consultation with NYSDEC if utilities are located in the proposed sampling areas. Techniques to be used may include radio frequency, M-scope electromagnetic instrument, EM-61 metal detector, and ground penetrating radar.

***Soil Vapor/Indoor Air Sampling***

A soil vapor intrusion survey will be performed at sub-slab locations in buildings 1 and 7-9 Rewe Street. The work will be performed in accordance with *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (NYSDOH, 2006) and the USEPA document entitled *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils, Office of Solid Waste and Emergency Response* (USEPA, 2002).

The proposed sampling plan consists of the concurrent collection of a total of 8 samples (3 sub-slab vapor samples, 1 duplicate, 3 indoor air samples, and 1 ambient air sample). The sampling will be preceded by a chemical inventory check within these buildings completed at least 24 hours in advance of the proposed sampling date to allow for removal of potential indoor sources of VOCs that could affect the sampling results. Following the utility clearance processes, sub-slab soil vapor samples will be collected from immediately below the concrete slab below the buildings in accordance with NYSDEC Guidance. The sub-slab sampling implants will be installed by drilling a small diameter hole through the concrete slab and placing Teflon tubing or a brass sampling implant in the hole. An air-tight seal will be created between the concrete and the sampling device. The integrity of the seals around the implants will be confirmed by placing a helium-filled "shroud" around the insertion points. One to three volumes of air will be purged with a helium meter at a rate not to exceed 0.2 liters per minute. Detections of helium will indicate a leak in the seal, requiring that the seal be repaired or replaced.

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The sample tubing will be attached to the sample container (6-liter Summa canister) with Swagelok™ fittings. All samples will be collected in batch certified clean canisters through regulators set for an eight-hour sample duration, which conforms to the NYSDOH Guidance. Following the sub-slab vapor sample collection, all concrete coring holes will be sealed and patched to match the existing grade. Additional information regarding the methods to be used for the soil vapor sampling is presented in the 2009 NYSDEC Approved RI Work Plan.

The indoor air sample will be collected in batch certified (clean), 6-liter Summa canisters through regulators set for an eight-hour sample duration, consistent with the soil vapor samples. The ambient air sample will be collected at a location determined to be upwind of the buildings at time of sampling. The air and soil gas samples will be shipped overnight to a NY ELAP-certified laboratory for analysis.

The laboratory samples will be analyzed for VOCs (including naphthalene) by USEPA SW846 Method TO-15, with an extended analyte list including: 1,2,3-trimethyl benzene, 1-methylnaphthalene, 2-methylnaphthalene, tetramethylbenzene, indene, indane, thiophene, 2-methylpentane, isopentane, and 2,3-dimethylpentane. The helium analysis will be performed using modified method ASTM D1945. The laboratory turn-around-time will be 14 days from the date the samples are received by the laboratory. The analytical results will be provided by the laboratory in a summary table, which will also include NYSDOH background concentrations for the respective target compounds.

The results of the indoor air and ambient air results will be evaluated by first comparing the VOC concentrations to typical background values published by NYSDOH. If compounds are detected above the typical background range, the data will be evaluated to determine the sources of these compounds.

***Borehole Advancement***

Five sub-slab soil borings are anticipated to be completed at the locations outlined on Figure 1. Locations of soil borings may be adjusted in the field following completion of geophysical surveying efforts. Any significant alterations to the proposed soil boring program will be confirmed with NYSDEC prior to advancement. The target completion depth for soil borings will be the top of the “intermediate clay” unit if detected, or a maximum depth of approximately 50 ft bgs based on existing data in the area. The purpose of the borings is to identify the presence or absence of potential MGP residuals, or other impacts at locations:

- proximate to known former MGP structures;
- near areas with documented residuals in the subsurface above the “intermediate clay” unit; and/or
- within historic tidal channels.

If gross impacts, consisting of non-aqueous phase liquid (NAPL) globules, coatings, or saturation, are observed, additional soil borings may be completed to define the possible extent of impacts.

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Prior to advancement, each boring location will be cleared for utilities following National Grid and AECOM utility pre-clear protocols/standard operating procedures (SOP) and low energy/soft-dig excavation techniques. Once the locations are cleared by soft-dig methods to a minimum of 5 ft bgs, soil borings will be advanced by direct–push or sonic drilling methods. Soils will be logged continuously and screened with a photoionization detector (PID) from ground surface to the terminus of the borehole.

Following completion, soil borings will be tremie-grouted to approximately one-foot below the top of the concrete slab and completed to grade with concrete to match existing slab conditions.

***Soil Sampling***

Soil samples will be collected at the following depth intervals based on field observations:

- At the water table.
- At depth intervals exhibiting worst-case impacts based on evidence from PID readings and/or visual observation. If no impacts are noted a sample will be collected at a depth corresponding to impacts at a nearby boring to support horizontal delineation.
- At the base of the borehole.

Actual soil sampling depths may be adjusted based on field conditions or in consultation with NYSDEC field oversight personnel. Soil samples, if collected, will be analyzed for:

- Volatile organic compounds (VOCs) by EPA Method 8260B.
- Semi-volatile organic compounds (SVOCs) by EPA Method 8270C.
- Total Petroleum Hydrocarbons (TPH) by GC/FID by EPA Method 8015C.
- TAL Metals by EPA Method 6010.

***Community Air Monitoring Plan***

A Community Air Monitoring Plan (CAMP) has been developed for this project and will be followed during all invasive fieldwork (soil boring advancement and sampling). The CAMP will monitor concentrations of VOCs and particulate matter less than 10 microns in size (PM-10) in accordance with NYSDEC and NYSDOH guidance. The CAMP will monitor these parameters inside the buildings at two locations around the work area, with a focus towards areas of occupied space. Included in the CAMP is a description of methods that may be used to control odors during the RI if needed. The CAMP is part of the approved RI Work Plan for the Site.

***Schedule***

Field work can commence following the approval of this Work Plan addendum and following coordination with property owner(s). AECOM and their drilling and geophysical surveying subcontractors are ready to initiate field activities within two weeks of NYSDEC approval pending property owner access.

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Following completion of this addendum, it is envisioned that the data from this work plan will be combined with data derived from the original July 2009 RIWP, the August 2011 RIWP Addendum (No. 1), the April 2012 RIWP Addendum (No. 2), the May 2013 No. 2 Mod, and the August 2014 RIWP Addendum (No. 3) and presented in a single, all-inclusive RI Report.

Yours sincerely,

For

William J. Ryan

cc: A. DeMarco (NYSDOH) – electronic file only

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# Figure

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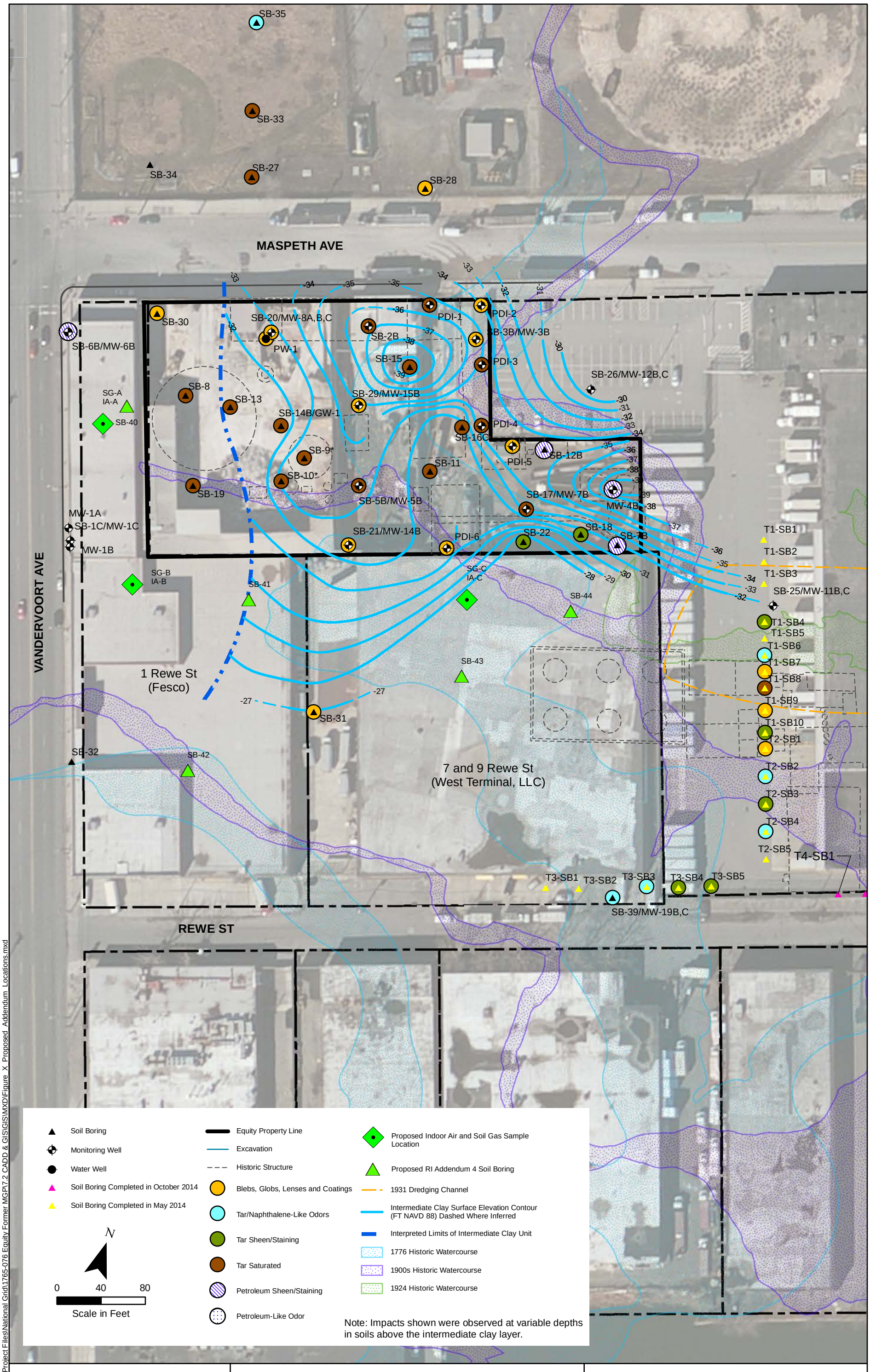


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AECOM

NATIONAL GRID
EQUITY FORMER MGP SITE, BROOKLYN, NY

PROPOSED RI ADDENDUM NO. 4
INVESTIGATION LOCATIONS

| DATE: 1/22/2015 | DRWN: H.K.M. | PROJECT: 60137362 | | FIGURE 1 |
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