nationalgrid

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Mr. Bernard Franklin
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau C
625 Broadway
Albany, NY 12233-7017

Re: Supplemental Remedial Investigation Work Plan
Ogdensburg (King Street) Non-Owned Former MGP Site
Ogdensburg, New York
Site # V00479-6

Dear Bernie:

This letter presents the Supplemental Remedial Investigation (SRI) work plan proposed at National Grid's non-owned former manufactured gas plant (MGP) site (the "site") located on King Street in Ogdensburg, New York. The RI activities were initiated by National Grid in January 2006 and continued through October 2006. Subsequent correspondence, meetings and discussions between National Grid, New York State Department of Environmental Conservation (NYSDEC), and New York State Department of Health (NYSDOH) included:

- National Grid's October 13, 2006 RI Interim Data Summary;
  NYSDEC's November 7, 2006 comments on the Interim RI Data Summary;
  A project meeting with NYSDEC and NYSDOH in Albany on November 29, 2006 to discuss NYSDEC's and NYSDOH's November 7, 2006 comments and discuss a proposed scope for additional RI work; and
- National Grid's December 15, 2006 letter which responded to NYSDEC's November 7, 2006 comments.

As agreed to during the November 29, 2006 project meeting, additional soil vapor intrusion (SVI) investigation activities will proceed independently from the SRI and a separate response to NYSDEC's December 26, 2006 letter regarding SVI issues was provided on January 23, 2007.

A summary of the SRI scope agreed to during the November 29, 2006 project meeting (as documented in the meeting summary e-mailed to NYSDEC on December 8, 2006) is provided in Table 1. Figure 1 shows the investigation locations referenced in the table. A summary of the SRI field methods and sampling protocol and proposed schedule for conducting the fieldwork is provided below.

Field Methods and Sampling Protocol

The SRI field and sampling activities will be conducted in general accordance with the NYSDEC-approved *Generic Site Characterization/IRM Work Plan for Site Investigations at Non-Owned Former MGP Sites* (Generic Work Plan) and supporting appendices (Field Sampling Plan [FSP] and Quality Assurance Project Plan [QAPP]), dated November 2002. The health and safety protocol to be followed during the RI work will be in accordance the site-specific Health and Safety Plan.

As described in the QAPP, soil and groundwater samples will be submitted for laboratory analysis using United States Environmental Protection Agency (USEPA) SW-846 Methods as referenced in the most current edition of the NYSDEC Analytical Services Protocol (ASP), with Category B analytical laboratory reports. The sample(s) (including quality assurance/quality control [QA/QC] samples) will be collected, packaged, handled, and shipped in accordance with the QA/QC protocols and the sampling protocols presented in the FSP and QAPP.

Closing

We look forward to your review and written approval of the SRI scope of work discussed in this letter. Please contact me by phone at (315) 428-5652 or by e-mail at Steven.Stucker@us.ngrid.com if you have any question or comments on this scope of work.

Sincerely,

Steven P. Stucker
Environmental Department

Attachments

cc: George Heitzman, P.E., New York State Department of Environmental Conservation
Ian Ushe, New York State Department of Health
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Table 1. Additional RI Scope of Work
National Grid, Ogdensburg (King Street) Non-Owned Former MGP Site

Location/Task	Action	Rationale
First Mobilization – Data Collected during this mobilization will be used to fine tune the scope of work of the second mobilization.		
Water Level Measurement	A complete, synoptic round of water level measurements is proposed to be conducted prior to installing additional bedrock monitoring wells. Given the slow response rate of water levels previously observed inside of monitoring wells MW-4R and MW-12R after the wells are uncapped, the water levels in these wells will be allowed to recover to static conditions prior to measuring the water level round. This may require venting the wells for several weeks and/or installing pressure transducers prior to measuring the water levels.	Water levels measured in bedrock monitoring wells to date cannot be used to evaluate groundwater flow in bedrock and vertical hydraulic gradients between the overburden and the bedrock. Previous measurement rounds suggest that the water levels in at least two monitoring wells (MW-4R and MW-12R) had not reached static conditions prior to measuring the water levels. As such, groundwater flow and vertical gradients in the bedrock have not been fully evaluated. The water levels measured during this new round will be used to assess groundwater flow direction and gradients in the bedrock and to fine tune the locations of additional bedrock monitoring wells discussed under the "Second Mobilization", below. That is, once groundwater flow direction in the bedrock is determined, an assessment of appropriate well locations can then be made.
Re-Sampling MW-3 and MW-12R	National Grid proposes to re-sample groundwater from MW-3 and MW-12R for TCL VOCs and SVOCs using the same sampling method (low-flow) and same laboratory methods (USEPA Method 8260 for VOC and USEPA Method 8270 for SVOCs) that were previously used. In addition, a PIANO analysis is proposed to be conducted on the samples collected from these wells. The PIANO analysis consists of analyzing the sample for paraffin (P), isoparaffin (I), aromatic (A), naphthene (N), and olefin (O) compounds by a modified Method 8240. A forensic chemist will evaluate the data to attempt to determine the potential source material of detected compounds.	VOCs, SVOCs, and total cyanide were detected in the groundwater sample collected from MW-12R. Several monoaromatic hydrocarbon compounds and the SVOCs 2,4-dimethylphenol, naphthalene, and phenol were detected at concentrations above their respective NYSDEC Class GA Standards/Guidance Values. Of particular note, benzene was detected at a concentration of 3,000 ug/L, which is noticeably high when compared to the other monoaromatic compounds (toluene, ethylbenzene, and xylene). Typically, dissolved BTEX concentrations associated with coal tars have a benzene concentration at similar or lower concentrations than the other BTEX constituents. Benzene detected at the MW-12R location is approximately two orders of magnitude higher than the other detected BTEX constituents. The resampling and subsequent forensic evaluation is intended to assess whether or not the VOCs and SVOCs detected at MW-3 and MW-12R are MGP-related. If groundwater at MW-12R is adversely affected by MGP-related constituents, then a shallow bedrock monitoring well will be proposed east of the Huot property to define the extent of the elevated dissolved phase constituents. Additional investigations will not be proposed in this area if the forensic evaluation suggests that the groundwater is not affected by the MGP.

Table 1. Additional RI Scope of Work
National Grid, Ogdensburg (King Street) Non-Owned Former MGP Site

Location/Task	Action	Rationale
Second Mobilization – Data collected during the first mobilization will be used to fine tune the scope of work of this mobilization. The monitoring well locations discussed below are tentative and may change based on the groundwater flow direction determined during the first mobilization.		
MW-2R	The approximate locations of the new monitoring wells are shown on Figure 1. The depth of each corehole and subsequent monitoring well will be dependent on the results of the drilling and packer testing at MW-2R. Installation is proposed to be completed at each location by continuous soil sampling using 2-inch outside diameter split spoon samplers concurrent with advancement of hollow stem augers (HSA) to the top of bedrock. Soil recovered from each sample interval will be visually characterized for color, texture, and moisture content. The presence of visible staining, NAPL, and obvious odors encountered in the soil will also be noted. When bedrock is encountered, a rock socket will be drilled with a roller bit (minimum depth of 2 feet) and a permanent 4-inch diameter steel casing will be installed with cement/bentonite grout into the rock socket. The grout will be allowed to set at least 24-hours prior to coring bedrock at each location. Coreholes are proposed to be advanced using HQ-sized (resulting in an approximately 3.8-inch-diameter corehole) coring equipment to the approximate total depth noted in the column to the right. Retrieved cores will be reviewed and logged in terms of	This bedrock well is proposed to be installed prior to the other proposed bedrock wells. This well is proposed to be installed to a depth dependent on the packer test sampling results. The screened interval for this well is proposed to be positioned below observed NAPL/elevated dissolved phase constituents to attempt to provide a vertical delineation on site. Based on data collected to date, BBL anticipates that the MGP-related impacts will be primarily constrained to the upper few feet of bedrock and that this new well will likely be installed no deeper than 50 feet below grade. If, however, packer test data suggest that this well could be installed deeper (i.e., the 40 to 50 feet bgs packer interval has elevated dissolved phase constituents), National Grid will consult with NYSDEC. The information learned while drilling and packer testing at this location will be used to determine the drilling depths for the subsequent downgradient bedrock well locations. Given that this location is on the presumed downgradient/down bedding plane dip edge of the site and also hydraulically downgradient or near potential MGP source structures (holders, tar wells, etc.), data collected at this location could be used to assess the vertical limits of MGP-related NAPL and dissolved-phase constituents; therefore, help evaluate the drilling depths at the subsequent bedrock monitoring wells.
MW-13R		This monitoring well location is proposed in response to the observation of NAPL on the bedrock surface and in the upper few feet of bedrock at MW-7R. This bedrock monitoring well is proposed to be installed on the right-of-way easement along Canal Street (west of site). The target depth of this well will be determined by packer testing results at this location and the findings of the drilling and packer testing at MW-2R. Groundwater sampling results at this location will be used to evaluate bedrock groundwater quality side-gradient/west of the site.

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MW-14R	lithology, texture, color, and fracture patterns. Fractures in the core will be logged in terms of depth, dip angle, coloration, staining, and presence/absence of sheen/NAPL. Continuous packer testing/specific capacity testing will be performed at each location. Packer testing will be conducted at approximately 10-foot intervals to assess the hydraulic characteristics of the bedrock. Screening level groundwater samples will be obtained from each packer zone to assess the potential vertical distribution of MGP-related constituents. Groundwater will be analyzed under a rapid turnaround time for the MGP-related indicator parameters benzene, toluene, ethylbenzene, xylenes (BTEX), polynuclear aromatic hydrocarbons (PAHs), and total cyanide to enable a timely evaluation of the results to determine well screen placement. The packer testing and screening-level groundwater sampling results will be evaluated to determine the appropriate well screen length and location. With the exception of the bedrock well cluster installed at MW-15R/RD, all wells are proposed to be constructed using 2-inch-diameter schedule 40 PVC, 20-slot screens, 2-foot bentonite seals, and appropriate-sized silica sandpacks. A 2-foot grouted sump will be installed at the bottom of each well. Two 1-inch diameter PVC wells are proposed to be installed inside the single corehole at the MW-15R/RD well cluster. A bentonite seal with a minimum thickness of 5-feet is proposed to be installed between well screens.	This monitoring well location is proposed in response to the observation of MGP-related NAPL and elevated dissolved phase in the overburden and bedrock at monitoring wells MW-8R, MW-9, and MW-10R. This bedrock well is proposed to be installed along the western side of the Primo Foods building and north of the site. The target depth of this well will be determined by packer testing results at this location and the findings of the drilling and packer testing at MW-2R and, as discussed below, MW-15R/RD. This location is in the presumed downgradient and down bedding plane dip direction from the site. Groundwater sampling results at this location will be used to evaluate bedrock groundwater quality north and downgradient from the site.
MW-15/MW-15R/MW-15RD		This three-well cluster is proposed in response to the observation of MGP-related NAPL and elevated dissolved phase constituents in the overburden and bedrock at monitoring wells MW-8R, MW-9, and MW-10R. This well cluster is proposed to be installed along the eastern side of the Primo Foods building and north of the site. This location is in the presumed hydraulically downgradient and down bedding plane dip direction from the site and depending on measured vertical gradients and the density of the NAPL, a deeper well is proposed for this location. The deeper well in this cluster (MW-15RD) is proposed to be installed no deeper than 60 feet; however, the final screened interval will be based on packer testing results at this location and the findings of the drilling and packer testing at MW-2R. The shallow bedrock well in this cluster (MW-15R) is proposed to be installed in the upper approximately 20 to 30 feet of bedrock. The overburden well at this location will be installed with a well screen immediately above the bedrock surface only if sufficient thickness of overburden materials are encountered. Groundwater sampling results at this cluster location will be used to evaluate overburden and shallow and deep bedrock groundwater quality north and downgradient from the site. Water levels measured at this cluster will help to assess vertical gradients in this area.
MW-16R (contingent)		This bedrock monitoring well may be installed dependent on the results of the forensic evaluation of groundwater sampling performed at MW-12R during the first mobilization. If the forensic evaluation suggests that the affected groundwater at MW-12R is MGP-related, than this well is proposed to be installed east of the Huot property, on the eastern edge of Lake Street. This well will be installed at a depth similar to that of MW-12R; however, the final well construction details will be determined in the field based on knowledge gained from the investigations discussed above..

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Location/Task	Action	Rationale
Soil Borings B-11, B-12, and B-13 Contingent soil borings B-14, B-15, and B-16	Drill three soil borings (B-11, B-12, and B-13) southeast of the site and three contingent soil borings (B-14, B-15, and B-16) based on the results of the initial three soil borings. Collect up to two soil samples from each boring for TCL VOC, TCL SVOC, and total cyanide analysis based on field observations (odors, staining, sheen, PID readings, etc.). Soil borings are proposed to be advanced and soil samples may be collected using direct-push drilling techniques. Collect a grab groundwater sample from soil boring SB-13 (or one other soil boring in this area based on presence of sufficient saturated overburden) for analysis of TCL VOCs to help assess source of impacted groundwater at MW-12R	Information from these borings will be used to assess the nature and extent of MGP-related fill materials (cinders, ash, potential purifier waste) that was previously observed on the three residential properties immediately east of the site (owned by Huot, Boyer, and Durham). The three contingent soil borings are proposed to be drilled should MGP-related fill materials be observed in the initial three soil borings. The results of the grab sample from SB-13 will be used to help assess the source of impacted groundwater at MW-12R.
Additional Related Activities		
Survey	All new wells and soil borings will be located by a licensed land surveyor. Information measured will include the horizontal location and elevation of the top of the protective casing, the top of the inner casing, and the ground surface adjacent to/at the well/corehole/boring. Sewer invert elevation along King Street will also be surveyed.	Provide the information necessary to determine groundwater and top of bedrock elevations, elevation of lithologic changes, fractures, and potential solution features encountered in the bedrock. Sewer invert elevations will be compared to the bedrock, groundwater, and observed elevation of NAPL in the area of King Street. This information will be evaluated to assess whether sewer lines could be potential preferential pathways for MGP-related material migrating downgradient from the site.
Well Development	All new monitoring wells are proposed to be developed by surging and purging the screened interval (assuming DNAPL is not present in the well/piezometer). Development is proposed to be performed using an inertial pump with a surge block and foot-valve.	Well development is anticipated to promote hydraulic communication between the well screen and sandpack and the surrounding formation.

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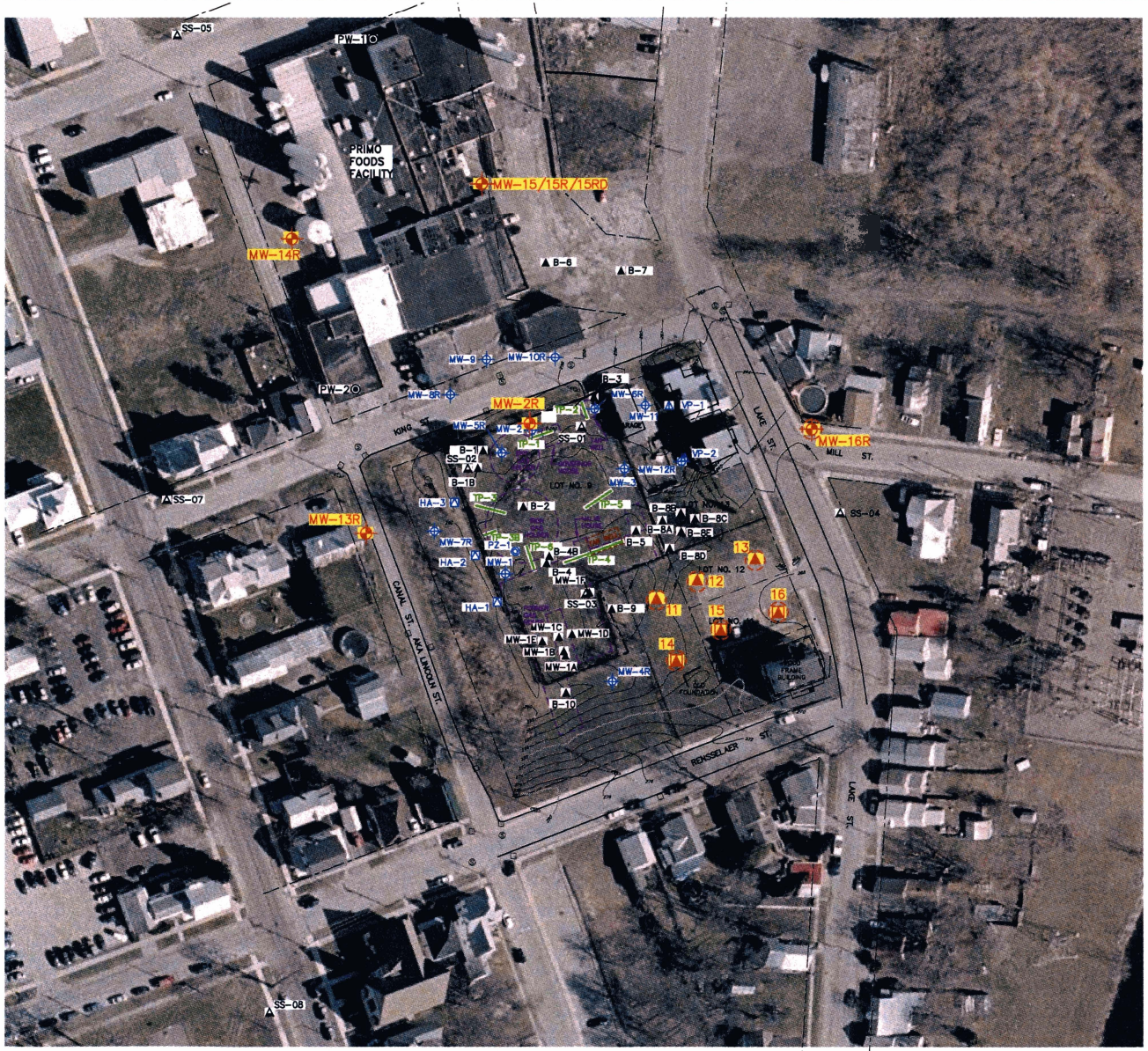
Location/Task	Action	Rationale
Groundwater Sampling	Groundwater samples are proposed to be collected using low-flow procedures at the five new bedrock wells and all existing monitoring wells. Groundwater samples are proposed to be collected from the two pumping wells (PW-1 and PW-2 on Figure 1) located inside the Primo Foods facility. Assuming that an appropriate sampling port (e.g., hose bib) is available, these groundwater samples will be collected by opening the valves at the well heads and collecting water samples directly into sample containers. Note that it may be difficult to sample these wells given the condition of the well heads (i.e., poor condition, potential artesian pressure build-up, etc.) observed during a site visit on January 10, 2007. If an appropriate sampling port is not available, samples will not be collected from these wells. Groundwater will be analyzed for TCL VOCs, TCL SVOCs, and total cyanide using the most recent NYSDEC ASP methods. Category B deliverables will be requested from the analytical laboratory.	Groundwater sampling results will be evaluated to assess the distribution of MGP-related constituents in groundwater.



LEGEND:

- W-14R — PROPOSED MONITORING WELL
- W-18R — PROPOSED CONTINGENT MONITORING WELL
- 15 — PROPOSED SOIL BORING
- 14 — PROPOSED CONTINGENT SOIL BORING
- MW-10 — MONITORING WELL
- VP-1 — SOIL VAPOR SAMPLING POINT
- PZ-1 — PIEZOMETER
- HA-1 — HAND-AUGER BORING
- TP-1 — TEST PIT
- B-1 — SOIL BORING
- SS-01 — SURFACE SOIL SAMPLE
- PW-1 — APPROXIMATE LOCATION OF PRODUCTION WELL LOCATED INSIDE PRIMO FOODS FACILITY
- TAR WELL — FEATURE FROM 1909 SANBORN MAP
- TAR WELL — FEATURE FROM SEPTEMBER 1925 SANBORN MAP
- APPROXIMATE SITE BOUNDARY
- APPROXIMATE ROAD RIGHT-OF WAY
- CHAINLINK FENCE
- UTILITY POLE
- CATCH BASIN
- MANHOLE
- 258 — TOPOGRAPHIC CONTOUR (2 FT. CONTOUR INTERVAL)

NOTES:

1. BASE MAP FROM SURVEY BY WCT SURVEYORS, P.C., ON 11/21/2003, 12/22/2003 AND 4/7/2004. ELEVATIONS ARE BASED ON THE NAVD 88 DATUM. BASE MAP UPDATED BY C.T. MALE SURVEYORS ON SEPTEMBER 7, 2006.
2. HISTORICAL FEATURE LOCATIONS AND SCALE ARE APPROXIMATE.

0 100' 200'

GRAPHIC SCALE

NATIONAL GRID
OGDENSBURG (KING STREET) NON-OWNED FORMER MGP SITE
OGDENSBURG, NEW YORK
REMEDIAL INVESTIGATION

ADDITIONAL INVESTIGATION LOCATIONS

ARCADIS BBL

FIGURE 1

SYR-BS-RCB AMS RCB L: ON=*; OFF=REF*
G:\CAD\ACTIVE\-DWG\ACT\36671001\36671B07.DWG SAVED:1/26/2007 8:40 PM LAYOUT:Layout1 PAGESETUP:---- PENTABLE:PLITFULL.CTB PRINTED:1/26/2007 8:40 PM BY:RBASSETT
PROJECTNAME:----
XREFS: IMAGES: 36671X01.sid