



October 21, 2011

Geotechnical
Environmental
Water Resources
Ecological

Elizabeth B. Lukowski
Division of Environmental Remediation
NYSDEC
625 Broadway, 11th Floor
Albany, NY 12233-7014

**RE: Supplemental Remedial Investigation Work Plan
Hornell Former MGP Site
Site # 8-51-032 / ACO # A8-0634-02-10**

Dear Ms. Lukowski:

On behalf of National Fuel Gas Distribution Corporation, Inc. (National Fuel Gas), GEI Consultants, Inc. has prepared this work plan supplement for the Remedial Investigation (RI) of the former manufactured gas plant (MGP) site on Franklin Street in Hornell, New York.

BACKGROUND

The RI was initiated in late September; the soil borings and monitoring wells were completed, soil vapor points installed, and surface soil samples collected. The attached figure shows our preliminary mapping of soil impacts from the Site Characterization and Remedial Investigations. The field observations from the soil borings found that MGP impacts are present at the investigation points along the southern property line.

In order to complete the RI and the delineation of impacts associated with the former MGP, it will be necessary to expand the area of investigation at the site. This work plan identifies locations to the north, west, and south of the site where additional subsurface investigation is needed. The objective of this supplemental investigation will be to define the limits of MGP impact in soil, soil vapor, and groundwater.

RI SCOPE OF WORK

The scope of work for this supplemental phase of the RI is described below. All field activities will be performed according to the approved work plan dated September 2010 for the Site Characterization Investigation (SCI). Prior to mobilization, the site-specific Health and Safety Plan (HASP) will be reviewed and updated as needed. The methods employed will be as specified by the SCI Work Plan (September 2010), with the modifications specified by the July 27, 2011 RI Work Plan.

Field Investigation

Utility Clearance. Dig Safely NY will be contacted not more than two weeks prior to mobilization to update the utility mark-out for the site. The areas within the right-of-way for Franklin Street will be a particular focus to identify the locations for soil borings which are necessary to define the northern limits of MGP-related impacts.

Soil Borings. Ten additional soil borings will be performed in order to more completely define the lateral extent of MGP impacts in the subsurface. The borings will be advanced using hollow-stem augers, with direct-push sampling used for soil sampling. The list of borings, their locations, and rationale for including them in this scope of work is attached as Table 1, and the locations of the borings are shown on Figure 1. The borings advanced at the site during the SCI and the RI did not find MGP impacts more than 30 feet below ground surface (bgs); therefore the target depth for all borings for the RI will remain at 30 feet. However, if soil impacts are observed at 30 feet bgs in a boring, it will be advanced further until 5 feet of apparently non-impacted soil is observed.

Typically two soil samples will be obtained from each soil boring, with particular focus on characterizing the zone from the ground surface to 15 feet bgs for comparison to the soil cleanup objectives (SCOs) defined by the New York State Department of Environmental Conservation (NYSDEC) document DER-10. The soil samples obtained from the borings will be analyzed according to the following sampling rationale, as described in the RI Work Plan:

- **0 to 15 feet** – Benzene, toluene, ethylbenzene, xylene (BTEX) / polycyclic aromatic hydrocarbons (PAH) / Target Analyte List (TAL) Metals / total cyanide.
- **Below 15 feet** – BTEX / PAH / total cyanide.

Monitoring Well Installations. Two additional monitoring wells will be installed at the site (see Table 1). MW-13 will be installed at the northwest corner of the site; to help define the direction of groundwater flow and the limits of groundwater impact. The location for the second well (MW-14) will be determined prior to mobilization to the site, based on the field observations during groundwater sampling (which will be conducted on October 24-26) and on a new water table map created from the groundwater elevation measurements from this sampling event.

All additional wells will be constructed as water table wells with 10-foot-long screened sections and 0.020-inch slots. The target depth for screen installation is from 12 to 22 feet bgs (groundwater has been measured to be at approximately 16 feet bgs). The target depth will be re-examined based on the measurements from the October groundwater sampling event. Wells MW-13 and 14 are not expected to encounter non-aqueous phase liquid (NAPL), in which case conventional well construction using 20-slot well screens will be performed. However, if sheens are observed in the soils or groundwater at either location, 30-slot screen will be used and a 2-foot dense non-aqueous phase liquid (DNAPL) sump will be installed.

Soil Vapor Sampling. Three additional soil vapor sampling points will be established at off-site locations, as shown on Figure 1, to assess soil vapor conditions. The samples will be collected in accordance with New York State Department of Health (NYSDOH) guidance and GEI's Standard Operating Procedure SG-002 (provided in the Site Characterization Investigation Work Plan), with the following exceptions:

- Samples will be collected using 6-liter SUMMA canisters.
- The flow controllers will be set for a two hour collection time.

Each sample will be obtained from just below the bottom of the clay/silt unit which is present across the site. The base of this unit was observed to range from 6.5 to 12 feet bgs. Soil vapor samples will be analyzed by EPA Method TO-15, with six additional MGP indicator compounds.

Groundwater Sampling. Groundwater sampling for the wells installed during the SCI and the RI is scheduled for October 24-26, 2011. Monitoring wells MW-13 and MW-14 will be sampled not less than two weeks after installation and development. A set of synoptic water level measurements will also be obtained at that time, and a new water table map will be prepared.

Laboratory Analysis. All soil, groundwater, and soil vapor samples will be collected, analyzed, and validated according to the methods specified by the approved September 2010 Work Plan, with the only change being the reduction in the analyte list for soils as specified in the July 27, 2011 Work Plan.

Surveying. The locations and elevations of all new sampling points and monitoring wells will be surveyed during the groundwater sampling event. An updated base map will be produced which will be used for mapping the results of the investigation.

Reporting

Upon completion of the supplemental RI field investigation and receipt of validated laboratory results, a comprehensive final report will be prepared which presents the results of both the SCI and both phases of the RI.

Schedule

Upon approval of this work plan, National Fuel Gas will obtain access agreements with each of the four property owners where investigation activities are to be performed. Mobilization will take place following execution of the access agreement. The target date for mobilization is no later than November 14, with drilling to be completed prior to Thanksgiving (November 24). Groundwater and soil vapor sampling will be performed no sooner than two weeks following well installation.

Ms. Elizabeth Lukowski

October 21, 2011

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If you have any questions regarding this work plan, please contact me at (607) 216-8959.

Sincerely yours,

GEI CONSULTANTS, INC.

A handwritten signature in black ink, reading "Bruce Coulombe". The signature is fluid and cursive, with the first name "Bruce" and last name "Coulombe" clearly distinguishable.

Bruce Coulombe, P.G.
Senior Geologist

BC:mlr

Attachments: Table 1 – Remedial Investigation Sample Summary and Rationale
Figure 1 – Proposed Boring, Well, and SVI Locations

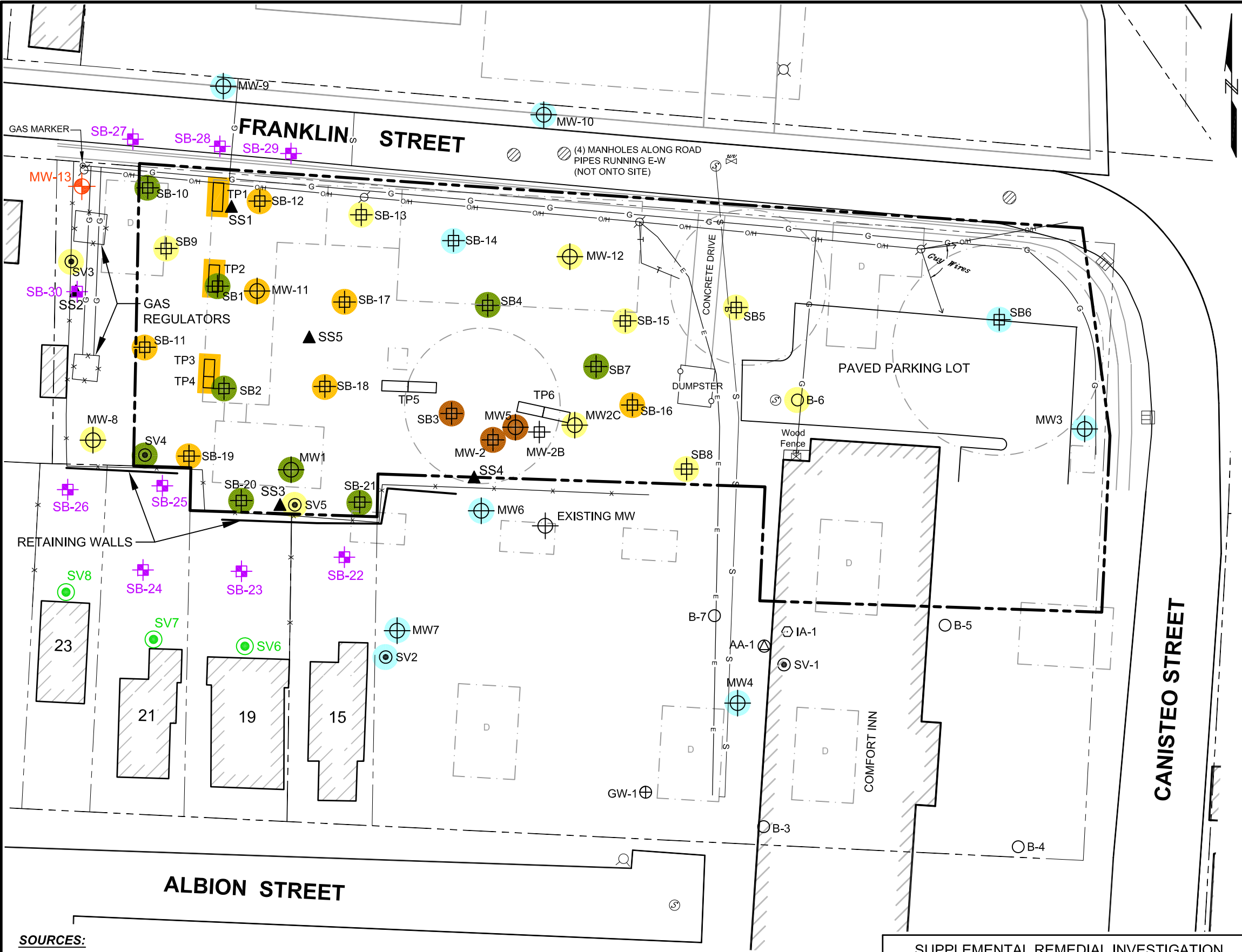
cc: Tanya Alexander – National Fuel Gas Distribution Corporation
Dave Terry – GEI

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Table 1
Supplemental Remedial Investigation Sample Summary and Rationale
Hornell Former MGP Site
Hornell, New York

Type of Sampling	Location	Rationale	Number of Samples	Target Completion Depth	Laboratory Analyses
Soil Sampling					
Boring SB22	Off-site, south of the former MGP	Assess the off-site limits of soil impacts south of the site at 15 Albion Street	2	30 feet	BTEX, PAHs TAL Metals + Cyanide (1)
Boring SB23	Off-site, south of the former MGP	Assess the off-site limits of soil impacts south of the site at 19 Albion Street	2	30 feet	BTEX, PAHs TAL Metals + Cyanide (1)
Boring SB24	Off-site, south of the former MGP	Assess the off-site limits of soil impacts south of the site at 21 Albion Street	2	30 feet	BTEX, PAHs TAL Metals + Cyanide (1)
Boring SB25	Off-site, south of the former MGP	Assess the off-site limits of soil impacts south of the site at 21 Albion Street	2	30 feet	BTEX, PAHs TAL Metals + Cyanide (1)
Boring SB26	Off-site, southwest of the former MGP	Assess the off-site limits of soil impacts southwest of the site at 23 Albion Street	2	30 feet	BTEX, PAHs TAL Metals + Cyanide (1)
Boring SB27	Off-site, beneath the south side of Franklin Street	Assess the limits of soil impacts along Franklin Street, north of the former MGP	2	30 feet	BTEX, PAHs TAL Metals + Cyanide (1)
Boring SB28	Off-site, beneath the south side of Franklin Street	Assess the limits of soil impacts along Franklin Street, north of the former MGP	2	30 feet	BTEX, PAHs TAL Metals + Cyanide (1)
Boring SB29	Off-site, beneath the south side of Franklin Street	Assess the limits of soil impacts along Franklin Street, north of the former MGP	2	30 feet	BTEX, PAHs TAL Metals + Cyanide (1)
Boring SB30	Western edge of the site	Assess the limits of soil impacts west of the former MGP	2	30 feet	BTEX, PAHs TAL Metals + Cyanide (1)
Well MW13	Northwest corner of the site	Assess the limits of soil impact at the northwest corner of the site	2	30 feet	BTEX, PAHs TAL Metals + Cyanide (1)
Groundwater Sampling					
MW13	Center of Screened Interval	Assess groundwater conditions at northwest corner of the site	1	~19 feet bgs	TCL VOCs, TCL SVOCs TAL Metals + Cyanide Free Cyanide
MW14	Center of Screened Interval	Assess groundwater conditions offsite to the south of the former MGP - Location to be determined based on October 2011 groundwater sampling results	1	~19 feet bgs	TCL VOCs, TCL SVOCs TAL Metals + Cyanide Free Cyanide
Soil Vapor/Air Sampling					
SV6	Soil vapor sample	Assess soil vapor conditions at upgradient side of residence at 19 Albion Street	1	Below clay/silt soil unit	VOCs by EPA Method TO-15+6 Helium by ASTM Method D-1945
SV7	Soil vapor sample	Assess soil vapor conditions at upgradient side of residence at 21 Albion Street	1	Below clay/silt soil unit	VOCs by EPA Method TO-15+6 Helium by ASTM Method D-1945
SV8	Soil vapor sample	Assess soil vapor conditions at upgradient side of residence at 23 Albion Street	1	Below clay/silt soil unit	VOCs by EPA Method TO-15+6 Helium by ASTM Method D-1945

Note (1) Soil samples from below 15 feet will not be analyzed for metals.



LEGEND

--- APPROXIMATE SITE BOUNDARY (FROM NYSDEC)

--- APPROXIMATE PROPERTY BOUNDARIES

x CHAIN-LINK FENCE

[Hatched Box] EXISTING STRUCTURE

[Dashed Box] APPROXIMATE LOCATION OF HISTORICAL STRUCTURES

INDICATES DWELLING

OH ELECTRIC OVERHEAD WIRE

E UNDERGROUND ELECTRIC LINE

G UNDERGROUND GAS LINE

T TELEPHONE LINE

S SANITARY SEWER LINE

Utility Pole Symbols

Gas Meter

Water Valve

Manhole

Sanitary Sewer

Fire Hydrant

Drop Inlet

REMEDIAL INVESTIGATION SAMPLE LOCATIONS

MW1 MONITORING WELL LOCATION

B1 SOIL BORING LOCATION

TP1 TEST PIT LOCATION

IA-1 INDOOR AIR SAMPLE LOCATION

AA-1 AMBIENT AIR SAMPLE LOCATION

SV-1 SOIL VAPOR SAMPLE LOCATION

GW-1 FORMER MONITORING WELL LOCATION

B-1 FORMER SOIL BORING LOCATION

SS1 SURFACE SOIL SAMPLE LOCATION

VISUAL IMPACTS

[Light Blue Box] NO IMPACTS

[Yellow Box] MGP-LIKE ODORS

[Green Box] TAR STAINING OR SHEEN

[Orange Box] TAR BLEBS, GLOBS, LENSES, COATINGS

[Brown Box] TAR SATURATED

PROPOSED REMEDIAL INVESTIGATION SAMPLE LOCATIONS

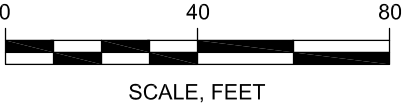
MW-5 PROPOSED MONITORING WELL LOCATION

SB-10 PROPOSED SOIL BORING LOCATION

SV-2 PROPOSED SOIL VAPOR SAMPLE LOCATION

SOURCES:

- 1. Survey prepared for GEI Consultants, Inc. by William J Tucker, II PLS #50369, Clear Creek Land Surveying, L.L.C., Springville, N.Y. dated February 11, 2011.
- 2. City of Hornell, Steuben County, NY Tax Map No. 166.06 dated Oct. 18, 2008.
- 3. Modification to Order on Consent and Administrative Settlement, Attachment 1 between New York State Department of Environmental Conservation, Office of General Counsel, and National Fuel Gas dated Oct. 21, 2010.
- 4. Sanborn Fire Insurance Maps from 1888 to 1961.



SUPPLEMENTAL REMEDIAL INVESTIGATION
WORK PLAN
HORNELL FORMER MGP SITE
HORNELL, NEW YORK

NATIONAL FUEL GAS DISTRIBUTION COMPANY

GEI Consultants

Project 102260

PROPOSED BORING, WELL,
AND SVI LOCATIONS

October 2011

Figure 1