September 11, 2020

Mr. John B. Miller, P.E.
New York State Department of Environmental Protection
Division of Environmental Remediation
625 Broadway, 11th floor
Albany, NY 12233-7014

Consulting
Engineers and
Scientists

RE: Bedrock Monitoring Well Installation Work Plan
National Grid LeRoy Non-Owned Former MGP Site
LeRoy, New York

Dear Mr. Miller:

On behalf of our client, National Grid, GEI Consultants, Inc., P.C. (GEI) has prepared this Work Plan for the installation of bedrock monitoring wells as part of the Remedial Investigation (RI) of National Grid's non-owned former manufactured gas plant (MGP) site in the Village of LeRoy, New York. This Work Plan has been prepared pursuant to your letter dated October 11, 2019, which provided comments from the New York State Department of Environmental Conservation (NYSDEC) on the results of the April 2019 groundwater sampling event and the May 2018 RI report.

Based on the review of the RI report, the NYSDEC is requesting the installation of at least two bedrock monitoring wells as part of the RI. The scope of work and work plan that National Grid is proposing to satisfy these requests is described below.

Scope of Work

National Grid will install and sample two bedrock groundwater monitoring wells at the LeRoy former MGP site. The proposed locations for the wells are shown on the site plan provided as Figure 1, with details of the well construction shown on the cross-section provided as Figure 2. A summary of the anticipated well construction is as follows:

Well ID	Predicted Depth to Bedrock	Depth to Base of Isolation Casing	Depth to Top of Well Screen	Depth to Top of Sump	Total Depth of Well
MW-9	12	16	18	28	30
MW-10	10	14	16	26	28

Note that the depths for the well elements may be adjusted in the field based on the soil and bedrock conditions encountered.

The work will be performed in accordance with the approved Site Characterization Work Plan (March 1, 2016), including the Community Air Monitoring Plan (CAMP), Health and Safety Plan (HASP), Field Sampling Plan, Quality Assurance Plan, and applicable Standard Operating Procedures. The steps in performing this supplemental investigation will be as follows:

GEI Consultants, Inc., P.C.
1301 Trumansburg Road, Suite N, Ithaca, NY 14850
607.216.8955

Soil Borings

The soil borings for the wells will be performed by advancing 4 ¼-inch ID hollow stem augers using a rotary drilling rig at the locations shown on Figure 1, from the ground surface to refusal on competent bedrock. Continuous soil sampling will be performed using 2-foot split-spoons or a 4-foot direct-push sampler. The soils will be logged in the field by a GEI environmental scientist, and samples obtained for laboratory testing.

Soil samples will be collected from each boring for laboratory analyses according to the rationale described below:

- One sample will be collected from the 0.2 to 2.0 foot interval for analysis of both MGP and Emerging Contaminant analytes. (Emerging Contaminants are the 21 NYSDEC-identified Polyfluorinated compounds and 1,4-Dioxane.)
- One sample from each boring will be collected from the most apparently impacted interval based on photo-ionization detector (PID) screening and field observations. Analysis will be for all MGP analytes only.
- If present, an additional sample will be collected from below the impacted soil zone to confirm "non-impacted" conditions, or at the top of bedrock, whichever is encountered first. If impacts are not encountered, a sample will be collected from the 1-foot interval immediately below the water table. Note that, due to the current use of the property, no surface soil sampling will be performed. (MW-9 is to be installed in an equipment storage area, and MW-10 is to be installed in a paved area.) These samples will be analyzed for MGP analytes only.

Isolation Casing Installation

A 4-inch diameter carbon steel isolation casing will be set into the socket drilled in the top of bedrock and grouted in place from the bottom to the ground surface. The grout will be allowed to set for at least one day before resuming drilling.

Bedrock Well Installation

The grout and bedrock will be cored using an H-size core barrel (3.8 inch hole diameter, 2.5 inch rock core size) to the total well depths listed in the table above. The rock core will be logged in the field. A 2-inch PVC monitoring well will then be constructed in the rock boring. The well will have a 10-foot long screen with a 0.020-inch slot size, with a 2-foot long sump installed at its base. The wells will be secured by flush-mount road box covers. The wells will be developed by the drillers following installation, with the development water containerized in drums or a poly-tank for later off-site disposal.

Soil Testing

The soil samples will be analyzed for the following analytes:

- Benzene, toluene, ethylbenzene, xylene (BTEX) (EPA Method 5035/8260C)
- Polycyclic aromatic hydrocarbons (PAHs) (EPA Method 8270D)
- TAL metals (EPA Method 6000 series)
- Total cyanide (EPA Method 9012A)

- Polychlorinated biphenyls (PCBs) (EPA Method 8082)
- 1,4-dioxane (EPA Method 8270D SIM)
- PFAS - 21 compounds by laboratory-modified EPA Method 537.1

The samples will be shipped via courier or by overnight delivery service to Alpha Analytical of Westborough, Massachusetts.

Bedrock Well Sampling

The new bedrock wells will be allowed to stabilize for a minimum of two weeks following development before sampling. Prior to sampling, the wells will be checked for the presence of light non-aqueous phase liquid (LNAPL) and dense non-aqueous phase liquid (DNAPL), and the water levels measured. The wells will then be purged, and samples will be collected when the field measurements have stabilized as described in the project work plans. The samples will then be collected and shipped to Alpha Analytical by courier or by overnight delivery services. The samples will be analyzed as follows:

- BTEX (EPA Method 8260C)
- PAHs (EPA Method 8270D)
- TAL metals (EPA Method 6000 series)
- Total cyanide (EPA Method 9012A)
- PCBs (EPA Method 8082)

Reporting

A letter report will be prepared and submitted to the NYSDEC to transmit the results of the bedrock well installation and soil and water analysis. If the NYSDEC determines that no further investigation is necessary, these results and those from the April 2019 sampling event will be incorporated into a revised RI report for re-submittal to the NYSDEC.

Schedule

National Grid has begun the process of obtaining access from the site owner to implement this Work Plan. On August 13, 2020, a conference call was conducted with the property owner (Mr. Tom McGinnis) and representatives of National Grid and GEI. The plan for installation of the bedrock wells was discussed, and the proposed schedule was reviewed. Based on the outcome of this call, the following schedule is anticipated:

- **Summer 2020** – National Grid and GEI will meet with the property owner to review the locations for the wells and the scope of work for the well installation.
- **Fall 2020** – Installation of bedrock monitoring wells. The well installation is projected to take four work days. Groundwater sampling will be performed at least two weeks following the completion of the wells.
- **Fall/Winter 2020** – Update and resubmittal of the RI report.

If you have questions regarding this Work Plan, please contact me at (607) 216-8959, or Steve Stucker at National Grid at (315) 428-5652.

Sincerely yours,

GEI CONSULTANTS, INC., P.C.

Bruce Coulombe, P.G.
Project Manager

Jeffrey S. Holden, P.E.
Senior Engineer

BC:mlr

Attachments: Figure 1 – Proposed Bedrock Well Locations
Figure 2 – Cross-section of Proposed Bedrock Wells

c: Steve Stucker – National Grid

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OIL SEPARATOR
(RIM EL. 849.66)

Retaining Wall

Gravel Drive

MW5

SB15

MW6

SB10

Chain Link Fence

SB9
GAS HOLDER

TP1

TP2

TP3C

TP3B

TP3A

Site Benchmark No. 2
Elevation 850.21'

MW9

SB6

MW2

SB5

SB4

SB7

MW3

SB8

Concrete

MW10

GAS
HOUSE

Wood
Frame
Storage

MW7

Overhang

SB13

Chain Link Fence

SB14

Asphalt Parking Area

Masonry
Building

Covered
Storage

Concrete

SB3

Wood Frame Garage

SB1

PURIFIER

SB12

MW4

Concrete Slab

RETORT

SB2

SB11

TP4

MW1

SB16

Asphalt Drive

TP5

Site Benchmark No. 2
Elevation 850.88'

MW8

COAL

DYNAMOS

Oatka Creek

A

A'

N

LEGEND:

- CROSS SECTION LOCATION, SEE FIG. 2
- PROPOSED BEDROCK WELL
- SOIL BORING
- MONITORING WELL
- SEDIMENT PROBE TRANSECT END POINTS
- TEST PIT
- APPROXIMATE LOCATION OF FORMER MGP FEATURES

SOURCES:

1. Survey titled: Former Leroy National Grid MGP Site, Lands of Thomas W. McGinnis, Tax Parcel No. 6.-1-56, 78-1/2 Lake Street, Village of Leroy, Count of Genesee, State of New York, prepared by Thew Associates Land Surveyors, Date: 6/24/2016.
2. 1885, 1892, 1987, 1903 and 1910 Sanborn Fire Insurance Maps, Assembled by EDR, Order Date: 3/17/2015, Inquiry Number 4236142.3.

0 20' 40'

SCALE: 1" = 20'

Remedial Investigation
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PROPOSED BEDROCK WELL LOCATIONS

September 2020 Fig. 1

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A

A'

GAS HOLDER

FORMER PURIFIER BUILDING

FORMER GAS HOUSE

SB4 El. 862.6 0 ft
TOPSOIL
FILL
SP-SM

SB8 El. 857.5 Offset 16 ft R
TOPSOIL
FILL
FILL
FILL

SB7 El. 854.6 Offset 16 ft R
TOPSOIL
FILL
FILL

MW3 El. 852.0 Offset 20 ft R
FILL

SB5 El. 850.8 Offset 14 ft R
TOPSOIL
FILL
SP-SM
SP-SM
SP-SM
SP-SM
SP-SM
SHALE
SHALE

MW9 (Proposed)

MW2 El. 848.2 Offset 22 ft R
TOPSOIL
CONCRETE
FILL
FILL
FILL
SP-SM
SHALE

SB6 El. 848.0 ft Offset 20 ft R
FILL
FILL
FILL
BEDROCK

SB10 El. 846.0 Offset 10 ft R
FILL
FILL
SHALE

MW10 (Proposed)

MW6 El. 847. Offset 7 ft R
FILL
FILL
SP-SM
SAND/ SILT/ GRAVEL

843.49
842.58
838.14

OAKTA CREEK
EL. 838.8

SAND/ SILT/ GRAVEL

ISOLATION CASING
ISOLATION CASING
10' WELL SCREEN
10' WELL SCREEN
2' SUMP
2' SUMP

ELEVATION (FT)
865
860
855
850
845
840
835
830
825
820

	WELL SCREEN
	GROUNDWATER
	NAPL SATURATED
	NAPL COATED MATERIAL
	SOLID NAPL
	NAPL BLEBS, GLOBS, SHEEN
	STAINING, ODOR
	INDUSTRIAL IMPACTS - (PETROLEUM OR OTHER UNNATURAL) SATURATION & SHEENS
	INDUSTRIAL IMPACTS - (PETROLEUM OR OTHER UNNATURAL) STAINING & ODORS
	WOOD CHIPS/BLUE DISCOLORATION/SULFER-LIKE ODOR
	NO OBSERVED IMPACTS

Note: In instances where multiple impacts are present, a combination of colors should be used (such as a color with cross hatching) to clearly identify where these co-mingled impacts are present.

HORIZONTAL SCALE: 1" = 20'
0 20' 40'
0 5' 10'
VERTICAL SCALE: 1" = 5'
NOTE: 4x VERTICAL EXAGGERATION

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PROPOSED BEDROCK WELL CROSS-SECTION

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Fig. 2