November 22, 2016

Ms. Sarah Saucier, P.E.
New York State Department of Environmental Conservation
Division of Environmental Remediation, 11th Floor
625 Broadway
Albany, New York 12233-7014

Consulting
Engineers and
Scientists

RE: Groundwater Sampling and Well Decommissioning Report
National Grid Canastota Non-Owned Former MGP Site
Village of Canastota, New York

Dear Ms. Saucier:

On behalf of National Grid, GEI Consultants, Inc., P.C. (GEI) is providing you with the results from the groundwater sampling and well decommissioning field event of National Grid's Non-Owned Former Manufactured Gas Plant (MGP) site in the Village of Canastota, New York. This event was performed in response to a request by the owner of the downgradient property that the monitoring well on his property (MW-14) be abandoned. This request was approved by the New York State Department of Environmental Conservation (NYSDEC) on July 20, 2016, under condition that the well be sampled prior to abandonment.

Scope of Work

Tasks completed included collecting groundwater analytical samples at select locations (MW-7 and MW-14). After the completion of collecting a groundwater sample at MW-14, the well was decommissioned at the request of the property owner and approval of NYSDEC. All other existing wells were inspected for damage and no repairs were determined necessary. The groundwater samples were collected to determine the current conditions of the downgradient plume on the northwest portion of the site.

Field Work Performed

Mobilization to the site for groundwater sampling and decommissioning of MW-14 was on October 28, 2016. Parratt-Wolff Drillers from East Syracuse, NY performed the well abandonment. GEI and Parratt-Wolff also inspected each of the monitoring wells associated with the project site to determine if repairs were needed. All wells were found to be in acceptable condition and not in need of any repairs at the time of this field event. The Well Decommissioning Record is provided as Attachment A.

Prior to abandonment, monitoring wells MW-7 and MW-14 were gauged and sampled by GEI. (MW-7 was sampled along with MW-14 in order to assess the current groundwater condition at the most downgradient on-site well.)

MW-14 was installed in September 2014. It was a 2-inch-diameter PVC well set with a screen from 2 to 12 feet below grade. Upon completion of the collection of a groundwater sample from the well, Parratt-Wolff decommissioned the well by pulling it out of the ground by hand. The entire well was able to be removed and the void was sealed with bentonite, with sand at the ground surface. Due to extremely wet field conditions, the well was not tremie grouted first, as drill rig access would have compromised the property owner's land.

GEI Consultants, Inc., P.C.
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Groundwater Sampling Results

The groundwater sample from MW-14 did not have any detections of the constituents of concern at the site. This result confirms the downgradient extent of impacts observed at the site are the same as observed at the end of the RI.

Monitoring well MW-7 was sampled in order to assess whether any changes have occurred to groundwater conditions at the property line. The results of BTEX and PAH testing are consistent with the history for this well. Conditions at MW-7 have fluctuated over time due to presumed groundwater flow pulses caused by high precipitation events. The analytical results for MW-7 were total BTEX 7,100 µg/L and total PAHs 2,221.06 µg/L (as shown in Table 1), versus total BTEX 8,190 µg/L and total PAHs 1,972.3 µg/L in 2014.

The electronic data delivery for the 2016 groundwater sampling results will be prepared for submittal to the NYSDEC website.

If you have questions regarding this data submittal or would like to discuss the results, please contact Steve Stucker at National Grid at (315) 428-5652.

Sincerely yours,

GEI CONSULTANTS, INC., P.C.

Jennifer Belonsoff, P.G.
Project Geologist

Bruce Coulombe, P.G.
Senior Geologist

JB:mlr

Attachments: Attachment A – Well Decommissioning Record
Table 1 – Groundwater Analytical Results

c: Steve Stucker – National Grid
Richard Jones – NYSDOH

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Attachment A

Well Decommissioning Record

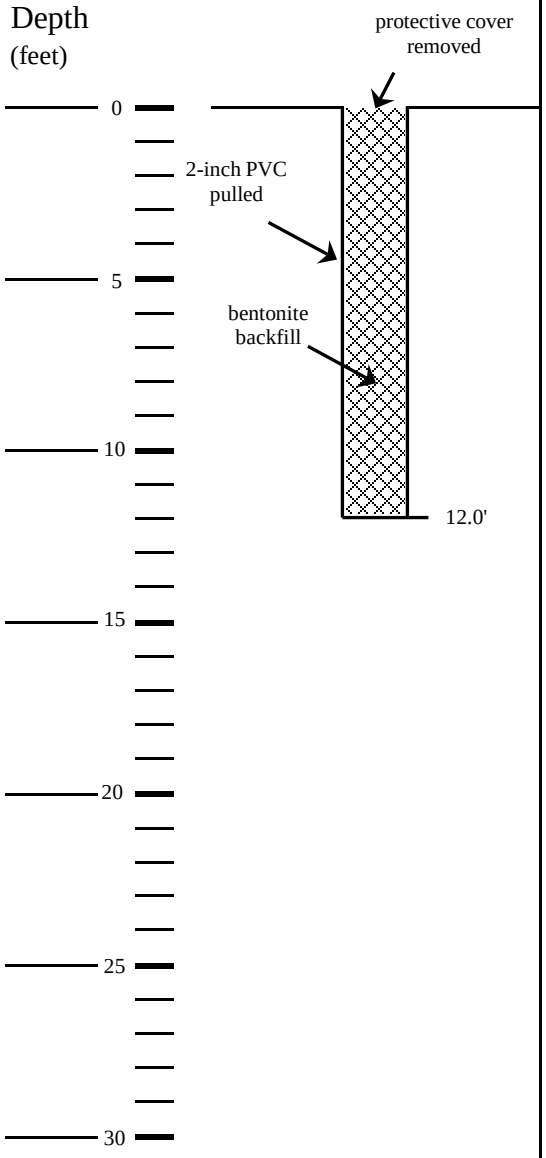
FIGURE 3
WELL DECOMMISSIONING RECORD

Site Name: **Former MGP Site**	Well I.D.: **MW-14**
Site Location: **Canal Street, Canastota, NY**	Driller: **Ian Grassie**
Drilling Co.: **Parratt-Wolff, Inc.**	Inspector:
	Date: **10/28/16**

DECOMISSIONING DATA
(Fill in all that apply)

OVERDRILLING	
Interval Drilled	NA
Drilling Method(s)	NA
Borehole Dia. (in.)	NA
Temporary Casing Installed? (y/n)	N
Depth temporary casing installed	NA
Casing type/dia. (in.)	NA
Method of installing	NA
CASING PULLING	
Method employed	pull
Casing retrieved (feet)	12'
Casing type/dia. (in)	PVC / 2"
CASING PERFORATING	
Equipment used	NA
Number of perforations/foot	NA
Size of perforations	NA
Interval perforated	NA
GROUTING	
Interval grouted (FBLS)	0 - 12.0
# of batches prepared	1
For each batch record:	
Quantity of water used (gal.)	NA
Quantity of cement used (lbs.)	NA
Cement type	NA
Quantity of bentonite used (lbs.)	25
Quantity of calcium chloride used (lbs.)	NA
Volume of grout prepared (gal.)	NA
Volume of grout used (gal.)	NA

WELL SCHEMATIC*



COMMENTS:

* Sketch in all relevant decommissioning data, including: interval overdrilled, interval grouted, casing left in hole, well stickup, etc.

Drilling Contractor

Department Representative

GEI Consultants, Inc. 1301 Trumansburg Road Suite N Ithaca, NY 14850 (607) 216-8955	CLIENT: National Grid PROJECT: Canastota Former MGP CITY/STATE: Canastota, NY GEI PROJECT NUMBER: 034390-1-1016	WELL CONSTRUCTION LOG PAGE 1 of 1 MW-14

GROUND SURFACE ELEVATION (FT): 420.30 LOCATION: Canastota, NY
NORTHING (FT): 1123607 EASTING (FT): 1044338 TOTAL DEPTH (FT): 12.0
DRILLED BY: Parratt-Wolff / Jolaan Price DATUM VERT. / HORZ.: NAVD 88 / NAD 83
LOGGED BY: J. Belonsoff DATE START / END: 9/9/2014 - 9/9/2014
DRILLING DETAILS: Geoprobe/Hollow Stem Auger / Geoprobe 7822DT
WATER LEVEL DEPTHS (FT):
GENERAL NOTE: Top of PVC elevation = 419.58

ELEV. FT.	DEPTH FT.	SAMPLE INFO TYPE and NO.	PEN/REC FT/FT	PID (ppm)	STRATA	SOIL / BEDROCK DESCRIPTION	WELL DETAILS
420	0	1	2.0/1.4	0.3		(0'- 0.7') SILTY SAND (SM); ~60% sand, fine to medium, ~40% fines; trace roots, dry, brown, TOPSOIL, moderately loose. (0.7'- 2') SILTY SAND (SM); ~80% sand, fine, ~20% fines; moist, light brown, moderately loose.	
		2	2.0/1.7	0.2		(2'- 3.1') moist to wet.	
		3	2.0/1.9	0.1		(3.1'- 4') SILT WITH SAND (ML); ~75% fines, non plastic, ~25% sand, fine to coarse, subangular; 5% clay, moist, reddish brown. (4'- 5') ~5% gravel; wet.	
415	5					(5'- 6') SILT (ML); ~90% fines, non plastic, ~10% sand, fine; wet, reddish brown, very stiff, sand is in thin (1-2 mm thick) lenses.	
		4	2.0/2.0	0.3		(6'- 6.5') NARROWLY GRADED SAND (SP); ~100% sand, fine to medium; wet, brown, moderately loose. (6.5'- 8') LEAN CLAY (CL); ~80% fines, non plastic, ~10% gravel, fine, ~10% sand, fine; wet, brown, very stiff, hard.	
		5	2.0/2.0	0.2		(8'- 8.4') SILT (ML); ~90% fines, low plasticity, ~10% sand, fine to medium; 10% clay, wet, reddish brown, medium stiff. (8.4'- 9.1') SILT (ML); ~100% fines, non plastic; wet, reddish brown, stiff. (9.1'- 10') LEAN CLAY (CL); ~100% fines, low plasticity; moist, reddish brown, stiff.	
410	10	6	2.0/1.8	0.1		(10'- 10.8') ELASTIC SILT WITH SAND (MH); ~60% fines, medium plasticity, ~40% sand, fine; wet, brown. (10.8'- 12') LEAN CLAY (CL); ~90% fines, low plasticity, ~10% sand, coarse; wet, reddish brown, stiff.	

End of Boring at 12 feet.

NOTES:

PEN = PENETRATION LENGTH OF SAMPLER OR CORE BARREL
REC = RECOVERY LENGTH OF SAMPLE
PID = PHOTOIONIZATION DETECTOR READING (JAR HEADSPACE)
NA = NOT AVAILABLE
WOH= WEIGHT OF HAMMER
WOR= WEIGHT OF RODS

ppm = PARTS PER MILLION
IN. = INCHES
FT. = FEET

NLO = NAPHTHALENE LIKE ODOR
PLO = PETROLEUM LIKE ODOR
TLO = TAR LIKE ODOR
CLO = CHEMICAL LIKE ODOR
ALO = ASPHALT LIKE ODOR

CrLO= CREOSOTE LIKE ODOR
OLO = ORGANIC LIKE ODOR
SLO = SULFUR LIKE ODOR
MLO = MUSTY LIKE ODOR

Table 1

Groundwater Analytical Results

Table 1
Groundwater Analytical Results
National Grid Canastota Non-Owned Former MGP Site
Canastota, New York

Analyte	Class GA Standards	MW7 10/28/2016	MW14 10/28/2016
Volatile Organic Compounds			
Benzene	1	**5300**	1 U
Ethylbenzene	5	**1000**	1 U
Toluene	5[a]	**180 J**	1 U
Xylenes, Total	5	**620**	2 U
Semivolatile Organic Compounds			
2-Methylnaphthalene	NA	**70**	1.9 U
Acenaphthene	20	**41**	1.9 U
Acenaphthylene	NA	**1.8 J**	1.9 U
Anthracene	50	**0.36 J**	1.9 U
Benzo[a]anthracene	0.002[a]	1.9 U	1.9 U
Benzo[a]pyrene	NA	1.9 U	1.9 U
Benzo[b]fluoranthene	0.002[a]	1.9 U	1.9 U
Benzo[g,h,i]perylene	NA	1.9 U	1.9 U
Benzo[k]fluoranthene	0.002[a]	1.9 U	1.9 U
Chrysene	0.002[a]	1.9 U	1.9 U
Dibenz(a,h)anthracene	NA	1.9 U	1.9 U
Fluoranthene	50	1.9 U	1.9 U
Fluorene	50	**7.9**	1.9 U
Indeno[1,2,3-cd]pyrene	0.002[a]	1.9 U	1.9 U
Naphthalene	10	**2100**	1.9 U
Phenanthrene	50	1.9 U	1.9 U
Pyrene	50	1.9 U	1.9 U

Notes:
Results reported in micrograms per liter (ug/L); equivalent to parts per billion (ppb).
Bolded values are detected.
Highlighted values exceed applicable standard.
a = Guidance Value.
NA = Not Applicable.
J = approximate value.
U = Not detected above associated detection limit.