



Mr. Tracy L. Blazicek, CHMM
Senior Environmental Specialist
Licensing & Environmental Operations
New York State Electric & Gas Corporation
Corporate Drive, Kirkwood Industrial Park
P.O. Box 5224
Binghamton, NY 13902-5224

ARCADIS of New York, Inc.
6723 Towpath Road
P O Box 66
Syracuse
New York 13214-0066
Tel 315 446 9120
Fax 315 449 0017
www.arcadis-us.com

ENVIRONMENTAL

Subject:
NYSEG Binghamton Court Street Site
66-inch Storm Sewer Replacement
Pre-Remediation In-Situ Sampling and Analysis Report

Date:
July 26, 2011

Dear Mr. Blazicek:

Contact:
Jason Brien, P.E.

This letter presents the *Pre-Remediation In-Situ Sampling and Analysis Report* (Pre-Remediation Sampling Report) for soil anticipated to be excavated during the replacement of the 66-inch storm sewer at the NYSEG Court Street Site located in Binghamton, New York. The primary objective of the pre-remediation sampling was to pre-characterize soil that would be excavated during installation of a new section of storm sewer piping to allow for direct loading for transportation and off-site treatment/disposal of the excavated material.

Phone:
315.671.9114

Email:
jason.brien@arcadis-us.com

Our ref:
B0013103

Pre-remediation sampling was conducted on March 29 and 30, 2011 in accordance with the March 10, 2011 *Pre-Remediation In-Situ Sampling and Analysis Work Plan* letter (Pre-Remediation Sampling Work Plan) that was submitted to the New York State Department of Environmental Conservation (NYSDEC). A summary of the soil sampling activities and results is provided below.

Soil Sampling Activities and Results

A total of four soil borings were completed at the locations shown on Figure 1 using a direct-push drill rig. Borings were advanced to depths up to 16 feet below grade to correspond with the target excavation depth associated with storm sewer replacement activities. Pre-remediation in-situ sampling was not completed for soil within the limits of the Gas Holder No. 4 foundation (i.e., approximately the southern 140 feet of the storm sewer excavation). The presence of the Gas Holder No. 4

Imagine the result

foundation prohibited the completion of soil borings in this area as the direct-push drill rig could not break through the concrete foundation. Although it is anticipated that the in-situ soil samples are representative of the material that will be generated during the storm sewer replacement activities, additional waste characterization samples may be required to meet the sample frequency requirements of the treatment/disposal facilities (as discussed in the following subsections).

Soil samples were collected continuously to the total depth of the boring and characterized for the presence/absence of visible discoloration, NAPL, and obvious odors. Soil samples from the top half (i.e., approximately 0 to 8 feet below grade) and the bottom half (i.e., approximately 8 to 16 feet below grade) of each boring were submitted to TestAmerica, Inc. (TestAmerica) located in Amherst, New York for laboratory analysis for waste characterization parameters required by the treatment/disposal facilities anticipated to be utilized during the storm sewer replacement activities (i.e., Seneca Meadows Landfill located in Waterloo, New York and Environmental Soil Management Companies' [ESMI's] Fort Edward, New York facility).

Excavated material that contains visible NAPL, total polycyclic aromatic hydrocarbons (PAHs) at concentrations greater than 1,000 milligram per kilogram (mg/kg), or that is characteristically hazardous for benzene is anticipated to be treated via low-temperature thermal desorption (LTTD) at ESMI. Soil that does not exceed these criteria will be disposed of as a non-hazardous solid waste at Seneca Meadows Landfill located in Waterloo, NY.

Detailed analytical results for soil samples are presented in Table 1 and soil boring logs are included as Attachment A¹. A summary of the visual impacts observed in the soil borings and total benzene, toluene, ethylbenzene, and xylene (BTEX) and PAH concentrations detected in the soil samples are presented in Table 2.

As indicated in Table 2, soil at sampling location TW-11-1 (8 to 16 feet) contained trace NAPL blebs at 10 feet below grade and soil at sampling location TW-11-2 (8 to 15 feet) contained trace NAPL from 8 to 10 feet below grade. Additionally, as

¹ Temporary piezometers were installed in the soil borings to collect groundwater samples in support of the design of a water treatment system to be used storm sewer replacement activities. The boring logs include piezometer construction information.

indicated in Table 2, these soil sampling intervals contained the highest concentrations of total BTEX and PAHs.

Potential Soil Treatment/Disposal Facilities

A plan and profile of the excavation for the new storm sewer pipe is shown on Figure 1. As a conservative measure, soil characterized by samples TW-11-1 (8 to 16 feet) and TW-11-2 (8 to 15 feet) is anticipated to be transported to ESMI for thermal treatment due to the presence of visible NAPL. All other soil is anticipated to be transported to Seneca Meadows for disposal as a non-hazardous solid waste. Assuming a 15-foot wide excavation, approximately 900 cubic-yards (cy) (1,400 tons) of soil would be sent to ESMI and 1,600 cy (2,400 tons) of soil would be sent to Seneca Meadows.

Additional Waste Characterization Sampling Requirements

Per ESMI and Seneca Meadows waste characterization sampling requirements, and based on recent conversations with the facilities, sufficient in-situ waste characterization soil samples have been collected to characterize the following:

- ESMI – 300 tons
- Seneca Meadows – 3,000 tons

Additional soil requiring treatment or disposal greater than these quantities will require additional waste characterization sampling at the following frequencies:

- ESMI – 1 additional sample for the next 450 tons (i.e., 3 samples required for the initial 750 tons) and 1 additional sample for each additional 750 tons (after the initial 750 tons)
- Seneca Meadows – 1 sample for each additional 500 tons

Laboratory analyses required by ESMI consist of the following:

- TPH (GRO and DRO) using USEPA Method 8015
- Total VOCs using USEPA Method 8260B
- Total SVOCs using USEPA Method 8270C
- Total PCBs using USEPA Method 8080

- Total Metals (plus antimony, beryllium, nickel, thallium, vanadium, and zinc) using USEPA Method 6010B
- Mercury using USEPA Method 7471B
- Total Cyanide using USEPA Method 9010
- Percent Sulfur using USEPA Method D129-64
- BTU using ASTM D240-87

Laboratory analyses required by Seneca Meadows consist of the following:

- TCLP VOCs using USEPA Method 8260
- TCLP SVOCs using USEPA Method 8270
- TCLP Metals using USEPA Method 6010B
- TCLP Mercury using USEPA Method 7471
- Pesticides/Herbicides using USEPA Method 8081/8151A
- PCBs (total) using USEPA Method 8082
- Corrosivity (pH) using USEPA Method 9040C
- Reactivity (Cyanide) using USEPA Method 9012
- Reactivity (Sulfide) using USEPA Method 9030A
- Ignitibility using USEPA Method 9010

During the implementation of the storm sewer replacement, the Oversight Engineer will be responsible for the following:

- Coordinating with treatment/disposal facilities
- Scheduling the transportation for off-site treatment/disposal of excavated material
- Collecting additional waste characterization samples (as required)
- Coordinating with the laboratory for the expedited analysis of the samples
- Reviewing analytical results and identifying the appropriate facility for treatment or disposal

Please do not hesitate to contact me at 315.671.9114 with any questions regarding the information presented in this letter.

Sincerely,

ARCADIS of New York, Inc.



Jason Brien, P.E.
Senior Engineer

Copies:

Mr. Mark O. Gravelding, P.E., ARCADIS

Table 1
Soil Analytical Results

NYSEG - Court Street Site - Binghamton, New York

Location ID: Sample Depth(Feet): Date Collected:	NYSDEC Part 371 TCLP Criteria	Units	TW-11-1 0 - 8 03/29/11	TW-11-1 8 - 16 03/29/11	TW-11-2 0 - 8 03/29/11	TW-11-2 8 - 15 03/29/11	TW-11-3 0 - 7.5 03/30/11	TW-11-3 7.5 - 16 03/30/11	TW-11-4 0 - 7.5 03/30/11	TW-11-4 7.5 - 16 03/30/11
TPH										
Diesel Range Organics [C10-C28]	--	mg/kg	260	2,900	1,600	14,000	700	790	1,100	1,700
GRO (C6-C10)	--	mg/kg	2.4	140	110	77	2.8	130	32	62
PCBs										
PCB-1016	--	mg/kg	0.018 U	0.022 U	0.088 U	0.020 U	0.17 U	0.19 U	0.18 U	0.20 U
PCB-1221	--	mg/kg	0.018 U	0.022 U	0.088 U	0.020 U	0.17 U	0.19 U	0.18 U	0.20 U
PCB-1232	--	mg/kg	0.018 U	0.022 U	0.088 U	0.020 U	0.17 U	0.19 U	0.18 U	0.20 U
PCB-1242	--	mg/kg	0.018 U	0.022 U	0.088 U	0.020 U	0.17 U	0.19 U	0.18 U	0.20 U
PCB-1248	--	mg/kg	0.018 U	0.022 U	0.088 U	0.020 U	0.17 U	0.19 U	0.18 U	0.20 U
PCB-1254	--	mg/kg	0.018 U	0.022 U	0.088 U	0.020 U	0.17 U	0.19 U	0.18 U	0.20 U
PCB-1260	--	mg/kg	0.013 J	0.020 J	0.088 U	0.020 U	0.17 U	0.13 J	0.18 U	0.20 U
VOCs										
1,1,1-Trichloroethane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
1,1,2,2-Tetrachloroethane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
1,1,2-Trichloro-1,2,2-trifluoroethane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
1,1,2-Trichloroethane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
1,1-Dichloroethane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
1,1-Dichloroethene	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
1,2,4-Trichlorobenzene	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
1,2-Dibromo-3-Chloropropane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
1,2-Dibromoethane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
1,2-Dichlorobenzene	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
1,2-Dichloroethane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
1,2-Dichloropropane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
1,3-Dichlorobenzene	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
1,4-Dichlorobenzene	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
2-Butanone	--	mg/kg	0.027 U	3.3 U	0.25 U	3.0 U	0.026 U	0.27 U	0.21 U	0.28 U
2-Hexanone	--	mg/kg	0.027 U	3.3 U	0.25 U	3.0 U	0.026 U	0.27 U	0.21 U	0.28 U
4-Methyl-2-pentanone	--	mg/kg	0.027 U	3.3 U	0.25 U	3.0 U	0.026 U	0.27 U	0.21 U	0.28 U
Acetone	--	mg/kg	0.027 U	3.3 U	0.070 J	3.0 U	0.0044 J	0.27 U	0.039 J	0.11 J
Benzene	--	mg/kg	0.0011 J	0.61 J	0.94	2.1	0.00069 J	0.20	0.0067 J	0.20
Bromodichloromethane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Bromoform	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Bromomethane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Carbon Disulfide	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Carbon Tetrachloride	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Chlorobenzene	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Chloroethane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U

Table 1
Soil Analytical Results

NYSEG - Court Street Site - Binghamton, New York

Location ID: Sample Depth(Feet): Date Collected:	NYSDEC Part 371 TCLP Criteria	Units	TW-11-1 0 - 8 03/29/11	TW-11-1 8 - 16 03/29/11	TW-11-2 0 - 8 03/29/11	TW-11-2 8 - 15 03/29/11	TW-11-3 0 - 7.5 03/30/11	TW-11-3 7.5 - 16 03/30/11	TW-11-4 0 - 7.5 03/30/11	TW-11-4 7.5 - 16 03/30/11
Chloroform	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Chloromethane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
cis-1,2-Dichloroethene	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
cis-1,3-Dichloropropene	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Cyclohexane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Dibromochloromethane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Dichlorodifluoromethane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Ethylbenzene	--	mg/kg	0.0013 J	91	9.3	30	0.0026 J	1.4	0.39	7.0
Isopropylbenzene	--	mg/kg	0.0053 U	9.3	0.26	3.1	0.0052 U	0.21	0.044	0.23
Methyl acetate	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Methyl tert-butyl ether	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Methylcyclohexane	--	mg/kg	0.0053 U	2.4	0.051 U	0.61 U	0.0052 U	0.011 J	0.041 U	0.0098 J
Methylene chloride	--	mg/kg	0.013 B	0.66 U	0.11 B	0.61 U	0.013 B	0.11 B	0.090 B	0.13 B
Styrene	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Tetrachloroethene	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Toluene	--	mg/kg	0.0043 JB	0.32 J	0.36 B	0.27 J	0.00076 JB	0.020 JB	0.013 JB	0.052 JB
Total Xylenes	--	mg/kg	0.0011 J	90	3.4	17	0.0022 J	0.72	0.30	1.4
trans-1,2-Dichloroethene	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
trans-1,3-Dichloropropene	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Trichloroethene	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Trichlorofluoromethane	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Vinyl chloride	--	mg/kg	0.0053 U	0.66 U	0.051 U	0.61 U	0.0052 U	0.054 U	0.041 U	0.057 U
Total BTEX	--	mg/kg	0.0078 J	180 J	14	49 J	0.0063 J	2.3 J	0.71 J	8.7 J
SVOCs										
2,2'-Oxybis(1-Chloropropane)	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
2,4,5-Trichlorophenol	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
2,4,6-Trichlorophenol	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
2,4-Dichlorophenol	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
2,4-Dimethylphenol	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
2,4-Dinitrophenol	--	mg/kg	7.1 U	22 U	6.9 U	20 U	17 U	19 U	18 U	19 U
2,4-Dinitrotoluene	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
2,6-Dinitrotoluene	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
2-Chloronaphthalene	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
2-Chlorophenol	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
2-Methylnaphthalene	--	mg/kg	3.6 U	60	52	84	0.86 J	34	21	33
2-Methylphenol	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
2-Nitroaniline	--	mg/kg	7.1 U	22 U	6.9 U	20 U	17 U	19 U	18 U	19 U
2-Nitrophenol	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U

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3,3'-Dichlorobenzidine	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
3-Nitroaniline	--	mg/kg	7.1 U	22 U	6.9 U	20 U	17 U	19 U	18 U	19 U
4,6-Dinitro-2-methylphenol	--	mg/kg	7.1 U	22 U	6.9 U	20 U	17 U	19 U	18 U	19 U
4-Bromophenyl phenyl ether	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
4-Chloro-3-methylphenol	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
4-Chloroaniline	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
4-Chlorophenyl phenyl ether	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
4-Methylphenol	--	mg/kg	7.1 U	22 U	6.9 U	20 U	17 U	19 U	18 U	19 U
4-Nitroaniline	--	mg/kg	7.1 U	22 U	6.9 U	20 U	17 U	19 U	18 U	19 U
4-Nitrophenol	--	mg/kg	7.1 U	22 U	6.9 U	20 U	17 U	19 U	18 U	19 U
Acenaphthene	--	mg/kg	3.6 U	80	28	46	0.84 J	8.3 J	6.2 J	14
Acenaphthylene	--	mg/kg	1.5 J	8.5 J	11	8.9 J	9.4	4.7 J	6.3 J	5.5 J
Acetophenone	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Anthracene	--	mg/kg	0.62 J	25	18	25	2.5 J	4.9 J	4.4 J	7.5 J
Atrazine	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Benzaldehyde	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Benzo(a)anthracene	--	mg/kg	2.8 J	9.7 J	13	15	4.9 J	6.1 J	5.0 J	7.7 J
Benzo(a)pyrene	--	mg/kg	2.0 J	7.4 J	15	17	14	7.9 J	7.7 J	8.5 J
Benzo(b)fluoranthene	--	mg/kg	3.7	5.2 J	12 K	13	12 K	5.6 J	6.3 J	8.8 J
Benzo(ghi)perylene	--	mg/kg	2.3 J	3.3 J	8.5	10	13	5.7 J	6.8 J	7.2 J
Benzo(k)fluoranthene	--	mg/kg	3.6 U	2.3 J	3.6 U	10 U	8.7 U	3.4 J	9.1 U	9.8 U
Biphenyl	--	mg/kg	3.6 U	11	8.6	15	8.7 U	2.6 J	2.2 J	3.8 J
Bis(2-chloroethoxy) methane	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Bis(2-chloroethyl) ether	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Bis(2-ethylhexyl) phthalate	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Butyl benzyl phthalate	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Caprolactam	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Carbazole	--	mg/kg	3.6 U	11 U	0.45 J	10 U	8.7 U	10 U	9.1 U	9.8 U
Chrysene	--	mg/kg	3.4 J	8.3 J	11	14	5.3 J	5.8 J	5.4 J	6.9 J
Dibenzo(a,h)anthracene	--	mg/kg	0.63 J	1.0 J	1.9 J	2.1 J	2.6 J	1.2 J	1.2 J	1.4 J
Dibenzofuran	--	mg/kg	3.6 U	9.0 J	2.9 J	3.6 J	8.7 U	0.89 J	0.88 J	1.5 J
Diethyl phthalate	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Dimethyl phthalate	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Di-n-butyl phthalate	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Di-n-octyl phthalate	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Fluoranthene	--	mg/kg	3.1 J	20	24	27	3.6 J	11	6.4 J	11
Fluorene	--	mg/kg	3.6 U	55	20	23	1.0 J	6.8 J	6.0 J	11
Hexachlorobenzene	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U

Table 1
Soil Analytical Results

NYSEG - Court Street Site - Binghamton, New York

Location ID: Sample Depth(Feet): Date Collected:	NYSDEC Part 371 TCLP Criteria	Units	TW-11-1 0 - 8 03/29/11	TW-11-1 8 - 16 03/29/11	TW-11-2 0 - 8 03/29/11	TW-11-2 8 - 15 03/29/11	TW-11-3 0 - 7.5 03/30/11	TW-11-3 7.5 - 16 03/30/11	TW-11-4 0 - 7.5 03/30/11	TW-11-4 7.5 - 16 03/30/11
Hexachlorobutadiene	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Hexachlorocyclopentadiene	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Hexachloroethane	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Indeno(1,2,3-cd)pyrene	--	mg/kg	1.8 J	2.5 J	5.9	5.8 J	8.4 J	3.8 J	4.9 J	4.6 J
Isophorone	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Naphthalene	--	mg/kg	3.6 U	91	100	160	1.6 J	44	26	53
Nitrobenzene	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
N-Nitroso-Di-n-propylamine	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
N-nitrosodiphenylamine	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Pentachlorophenol	--	mg/kg	7.1 U	22 U	6.9 U	20 U	17 U	19 U	18 U	19 U
Phenanthrene	--	mg/kg	1.7 J	120	69	91	1.9 J	19	15	27
Phenol	--	mg/kg	3.6 U	11 U	3.6 U	10 U	8.7 U	10 U	9.1 U	9.8 U
Pyrene	--	mg/kg	4.0	22	37	42	9.6	13	11	18
Total CPAHs	--	mg/kg	14 J	36 J	59 J	67 J	47 J	34 J	31 J	38 J
Total PAHs	--	mg/kg	28 J	530 J	430 J	590 J	92 J	190 J	140 J	230 J
Inorganics										
Aluminum	--	mg/kg	10,200	11,400	7,510	12,400	8,480	8,050	9,280	10,900
Antimony	--	mg/kg	15.9 U	19.1 U	16.2 U	18.2 U	15.8 U	17.4 U	16.6 U	17.6 U
Arsenic	--	mg/kg	8.50	10.5	9.90	4.70	6.90	6.70	7.30	5.40
Barium	--	mg/kg	85.3	140	63.1	88.2	187	85.7	74.6	83.4
Beryllium	--	mg/kg	0.440	0.310	0.350	0.480	0.430	0.410	0.410	0.490
Cadmium	--	mg/kg	0.390	0.0660 J	0.290	0.240	0.630	1.20	0.410	0.370
Calcium	--	mg/kg	11,300 B	762 B	151,000 B	8,230 B	26,200 B	32,000 B	31,300 B	18,600 B
Chromium	--	mg/kg	16.1	17.6	9.70	15.9	12.7	11.7	12.2	12.9
Cobalt	--	mg/kg	8.40	6.10	7.50	7.20	8.10	6.90	7.60	9.20
Copper	--	mg/kg	31.5	22.1	20.9	12.1	26.5	33.2	57.6	25.6
Cyanide, Reactive	--	mg/kg	10.0 U	1.60 J	10.0 U	NA	10.0 U	10.0 U	10.0 U	10.0 U
Cyanide, Total	--	mg/kg	8.20	1.50 U	1.40	1.10 U	1.00 U	6.00	2.00	1.40
Iron	--	mg/kg	23,100 B	27,600 B	13,800 B	17,200 B	18,600	19,400	17,700	19,400
Lead	--	mg/kg	102	25.6	68.8	101	146	244	150	97.5
Magnesium	--	mg/kg	4,180	2,980	5,530	2,990	4,260	5,000	6,550	3,560
Manganese	--	mg/kg	478 B7	210 B7	574 B7	220 B7	413 B	336 B	482 B	320 B
Mercury	--	mg/kg	3.1 H	0.04 H	0.30 H	0.24 H	0.33 H	2.8 H	0.15 H	0.21 H
Nickel	--	mg/kg	19.8	17.6	15.2	18.4	18.8	22.6	17.3	18.9
Potassium	--	mg/kg	1,250	974	1,140	1,200	1,170	1,080	1,140	1,110
Selenium	--	mg/kg	1.10 J	5.10 U	1.70 J	0.980 J	4.20 U	4.70 U	4.40 U	4.70 U
Silver	--	mg/kg	0.530 U	0.640 U	0.540 U	0.610 U	0.530 U	0.580 U	0.550 U	0.590 U
Sodium	--	mg/kg	172	80.1 J	161	131 J	173	167	117 J	136 J

Table 1
Soil Analytical Results

NYSEG - Court Street Site - Binghamton, New York

Location ID: Sample Depth(Feet): Date Collected:	NYSDEC Part 371 TCLP Criteria	Units	TW-11-1 0 - 8 03/29/11	TW-11-1 8 - 16 03/29/11	TW-11-2 0 - 8 03/29/11	TW-11-2 8 - 15 03/29/11	TW-11-3 0 - 7.5 03/30/11	TW-11-3 7.5 - 16 03/30/11	TW-11-4 0 - 7.5 03/30/11	TW-11-4 7.5 - 16 03/30/11
Thallium	--	mg/kg	6.30 U	7.60 U	6.50 U	7.30 U	0.330 J	7.00 U	6.70 U	7.00 U
Vanadium	--	mg/kg	16.8	17.1	12.1	16.4	14.5	13.8	14.5	14.5
Zinc	--	mg/kg	84.7	49.0	58.7	74.5	143	151	86.7	73.6
Miscellaneous										
Flashpoint	--	°F	>176	>176	>176	NA	>176	>176	>176	>176
Free Liquid	--	mL/100g	passed	passed	passed	NA	passed	passed	passed	passed
Gross Calorific Value	--	BTU/lb	358	230	274	276	319	715	876	1,370
pH	--	SU	7.63	6.55	10.4	NA	8.39	7.66	7.90	7.87
Sulfide, Reactive	--	mg/kg	10.0 U	40.1	10.0 U	NA	10.0 U	20.5	20.5	20.5
VOCs-TCLP										
1,1-Dichloroethene	0.7	mg/L	0.010 U	0.010 U	0.010 U	NA	0.010 U	0.010 U	0.010 U	0.010 U
1,2-Dichloroethane	0.5	mg/L	0.010 U	0.010 U	0.010 U	NA	0.010 U	0.010 U	0.010 U	0.010 U
2-Butanone	200	mg/L	0.050 U	0.050 U	0.050 U	NA	0.050 U	0.050 U	0.050 U	0.050 U
Benzene	0.5	mg/L	0.010 U	0.025	0.011	NA	0.010 U	0.016	0.010 U	0.011
Carbon Tetrachloride	0.5	mg/L	0.010 U	0.010 U	0.010 U	NA	0.010 U	0.010 U	0.010 U	0.010 U
Chlorobenzene	100	mg/L	0.010 U	0.010 U	0.010 U	NA	0.010 U	0.010 U	0.010 U	0.010 U
Chloroform	6.0	mg/L	0.010 U	0.010 U	0.010 U	NA	0.010 U	0.010 U	0.010 U	0.010 U
Tetrachloroethene	0.7	mg/L	0.010 U	0.010 U	0.010 U	NA	0.010 U	0.010 U	0.010 U	0.010 U
Trichloroethene	0.5	mg/L	0.010 U	0.010 U	0.010 U	NA	0.010 U	0.010 U	0.010 U	0.010 U
Vinyl chloride	0.2	mg/L	0.010 U	0.010 U	0.010 U	NA	0.010 U	0.010 U	0.010 U	0.010 U
SVOCs-TCLP										
1,4-Dichlorobenzene	7.5	mg/L	0.010 U	0.010 U	0.010 U	NA	0.010 U	0.010 U	0.010 U	0.010 U
2,4,5-Trichlorophenol	400	mg/L	0.005 U	0.005 U	0.005 U	NA	0.005 U	0.005 U	0.005 U	0.005 U
2,4,6-Trichlorophenol	2.0	mg/L	0.005 U	0.005 U	0.005 U	NA	0.005 U	0.005 U	0.005 U	0.005 U
2,4-Dinitrotoluene	30.13	mg/L	0.005 U	0.005 U	0.005 U	NA	0.005 U	0.005 U	0.005 U	0.005 U
2-Methylphenol	4,200	mg/L	0.005 U	0.005 U	0.005 U	NA	0.005 U	0.005 U	0.005 U	0.005 U
3-Methylphenol	4,200	mg/L	0.010 U	0.010 U	0.010 U	NA	0.010 U	0.010 U	0.010 U	0.010 U
4-Methylphenol	4,200	mg/L	0.010 U	0.010 U	0.010 U	NA	0.010 U	0.010 U	0.010 U	0.010 U
Hexachlorobenzene	30.13	mg/L	0.005 U	0.005 U	0.005 U	NA	0.005 U	0.005 U	0.005 U	0.005 U
Hexachlorobutadiene	0.5	mg/L	0.005 U	0.005 U	0.005 U	NA	0.005 U	0.005 U	0.005 U	0.005 U
Hexachloroethane	3.0	mg/L	0.005 U	0.005 U	0.005 U	NA	0.005 U	0.005 U	0.005 U	0.005 U
Nitrobenzene	2.0	mg/L	0.005 U	0.005 U	0.005 U	NA	0.005 U	0.005 U	0.005 U	0.005 U
Pentachlorophenol	100	mg/L	0.010 U	0.010 U	0.010 U	NA	0.010 U	0.010 U	0.010 U	0.010 U
Pyridine	35	mg/L	0.025 U	0.025 U	0.025 U	NA	0.025 U	0.025 U	0.025 U	0.025 U
Organochlorine Pesticides-TCLP										
Chlordane (technical)	0.03	mg/L	0.002 U	0.040 U	0.002 U	NA	0.002 U	0.002 U	0.002 U	0.002 U
Endrin	0.02	mg/L	0.00020 U	0.004 U	0.00020 U	NA	0.00020 U	0.00020 U	0.00020 U	0.00020 U
gamma-BHC (Lindane)	0.4	mg/L	0.00020 U	0.004 U	0.00020 U	NA	0.00020 U	0.00020 U	0.00020 U	0.00020 U

Table 1
Soil Analytical Results

NYSEG - Court Street Site - Binghamton, New York

Location ID: Sample Depth(Feet): Date Collected:	NYSDEC Part 371 TCLP Criteria	Units	TW-11-1 0 - 8 03/29/11	TW-11-1 8 - 16 03/29/11	TW-11-2 0 - 8 03/29/11	TW-11-2 8 - 15 03/29/11	TW-11-3 0 - 7.5 03/30/11	TW-11-3 7.5 - 16 03/30/11	TW-11-4 0 - 7.5 03/30/11	TW-11-4 7.5 - 16 03/30/11
Heptachlor	0.008	mg/L	0.00020 U	0.004 U	0.00020 U	NA	0.00020 U	0.00020 U	0.00020 U	0.00020 U
Heptachlor epoxide	- -	mg/L	0.00020 U	0.004 U	0.00020 U	NA	0.00020 U	0.00020 U	0.00020 U	0.00020 U
Methoxychlor	10	mg/L	0.00020 U	0.004 U	0.00020 U	NA	0.00020 U	0.00020 U	0.00020 U	0.00020 U
Toxaphene	0.5	mg/L	0.002 U	0.040 U	0.002 U	NA	0.002 U	0.002 U	0.002 U	0.002 U
Herbicides-TCLP										
2,4-D	10.0	mg/L	0.002 U	0.002 U	0.002 U	NA	0.002 U	0.002 U	0.002 U	0.002 U
Silvex (2,4,5-TP)	1.0	mg/L	0.002 U	0.002 U	0.002 U	NA	0.002 U	0.002 U	0.002 U	0.002 U
Inorganics-TCLP										
Arsenic	5.0	mg/L	0.010 U	0.028	0.015	NA	0.010 U	0.0088 J	0.010 U	0.012
Barium	100	mg/L	0.920 B	1.10 B	0.910 B	NA	0.770 B	0.690 B	0.730 B	0.790 B
Cadmium	1.0	mg/L	0.0036	0.000720 J	0.0022	NA	0.0053	0.011	0.004	0.0032
Chromium	5.0	mg/L	0.0055 B	0.011 B	0.0072 B	NA	0.0073 N	0.0049 B	0.0029 JB	0.013 B
Lead	5.0	mg/L	0.070	0.037	0.071	NA	0.061	0.160	0.058	0.160
Mercury	0.2	mg/L	0.00015 J	0.00015 J	0.00020 U	NA	0.00020 U	0.00020 U	0.00020 U	0.00017 J
Selenium	1.0	mg/L	0.015 U	0.015 U	0.015 U	NA	0.015 U	0.015 U	0.015 U	0.015 U
Silver	5.0	mg/L	0.003 U	0.003 U	0.003 U	NA	0.003 U	0.003 U	0.003 U	0.003 U

Notes:

1. Samples collected by ARCADIS.
2. Samples analyzed by TestAmerica in Amherst, New York.
3. B - Indicates compound was found in the sample blank and within the sample.
4. B7 - Indicates the target analyte detected in method blank at or above the method reporting limit. Concentration found in the sample was 10 times above than the concentration found in the sample blank.
5. J - Indicates the result is less than the Reporting Limit but greater than or equal to the Method Detection Limit and the concentration is an approximate value.
6. K - Indicates that benzo(b&k)fluoranthene are unresolved due to matrix and the results is reported as benzo(b)fluoranthene.
7. U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
8. H - Indicates the samples was prepared and analyzed beyond the specified holding time.

Table 2
Proposed Disposal/Treatment Facilities

NYSEG - Court Street Site - Binghamton, New York

Boring ID	Depth Interval (ft bgs)	Summary of Visual Impacts	Total BTEX / PAHs (mg/kg)	Proposed Treatment/ Disposal Facility	Volume (cy)
TW-11-1	0 - 8	SHEEN on water table @ 7.5'	< 1 / 28	Seneca Meadows	600
	8 - 16	Trace SHEEN @ 9', trace BLEBS @ 10'	180 / 530	LTDD - ESMI Fort Edward	600
TW-11-2	0 - 8	None	14 / 430	Seneca Meadows	290
	8 - 15	STAINING @ 9', trace NAPL @ 8 to 10'	49 / 590	LTDD - ESMI Fort Edward	290
TW-11-3	0 - 7.5	None	< 1 / 92	Seneca Meadows	170
	7.5 - 16	Trace SHEEN @ 8'	2.3 / 190	Seneca Meadows	190
TW-11-4	0 - 7.5	None	< 1 / 140	Seneca Meadows	150
	7.5 - 16	None	8.7 / 230	Seneca Meadows	170

Notes:

1. Volume estimates based on assumed excavation depth of 16 feet below grade and excavation width of 15 feet.

Figure



ARCADIS

Attachment

Date Start/Finish: 3/29/2011 Drilling Company: Arcadis Driller's Name: JG/MP Drilling Method: Geoprobe Rig Type: Truckmounted Geoprobe Sampling Method: Geoprobe 3" x 2' Split Spoon	Northing: NA Easting: NA Water Depth: 7 feet bgs. Borehole Depth: 16 feet bgs. Descriptions By: MWE	Boring ID: TW-11-1 Client: NYSEG Location: Court Street Former MGP Site Binghamton, New York DRAFT
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Boring Construction
0	0								
		1	0-4	3.3	1.0			Brown fine SAND and fine to medium subangular GRAVEL, trace Silt (very stiff) (fill material) (M,NP).	Temporary Protective Barrier Locking 1" J-Plug
								Brown fine SAND and fine to medium subangular GRAVEL, trace Silt, Clay, Coal frags (M,NP).	Bentonite Seal (0'-5' bgs.). 1" Sch. 40 PVC Riser (-3'-6' bgs.).
-5	-5	2	4-8	1.7	0.6			Dark brown fine SAND, little fine to medium subangular Gravel, Silt, little to trace Coal (M,NP). faint Petroleum-like odor, trace Sheen at water table.	
								Grey/brown SILT, some Clay, little fine to coarse subangular Gravel (S,NP). moderate Petroleum-like odor, trace Sheen.	#0 Silica Sand Pack (5'-16' bgs.).
-10	-10	3	8-12	2.4	42.3			Grey/brown CLAY, some Silt, decrease odor with depth, trace NAPL blebs, moderate MGP-like odor (S,MP).	1" Sch. 40 PVC Screen (6'-16' bgs.).
		4	12-16	4.0	1.7				
-15	-15								

 <i>Infrastructure, environment, buildings</i>	Remarks: bgs = below ground surface; bss = below sediment surface; ND = non-detect; NA = not available/applicable; AMSL = Above Mean Sea Level; NR = No Recovery;
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Date Start/Finish: 3/29/2011 Drilling Company: Arcadis Driller's Name: JG/MP Drilling Method: Geoprobe Rig Type: Truckmounted Geoprobe Sampling Method: Geoprobe 3" x 2' Split Spoon	Northing: NA Easting: NA Water Depth: 7 feet bgs. Borehole Depth: 16 feet bgs. Descriptions By: MWE	Boring ID: TW-11-2 Client: NYSEG Location: Court Street Former MGP Site Binghamton, New York DRAFT
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Boring Construction
0	0								
		1	0-4	3.7	4.6			Brown fine SAND and fine to medium subangular GRAVEL, little Silt (M,NP). faint MGP-like odor.	Temporary Protective Barrier Locking 1" J-Plug Bentonite Seal (0'-5' bgs.). 1" Sch. 40 PVC Riser (-3'-6' bgs.).
-5	-5	2	4-8	2.2	117			Grey/brown fine SAND and SILT, little fine to medium subangular Gravel (M,NP). moderate MGP-like odor.	
-10	-10	3	8-12	2.0	46.2			Grey/brown SILT, some fine Sand, little fine to medium subangular Gravel (S,NP). moderate MGP-like odor, dark staining.	#0 Silica Sand Pack (5'-16' bgs.).
		4	12-16	4.0	72.6			heavy MGP-like odor, green/brown color.	1" Sch. 40 PVC Screen (6'-16' bgs.).
-15	-15							Grey/brown SILT, some fine Sand, little Clay (M,NP). faint MGP-like odor.	

 <i>Infrastructure, environment, buildings</i>	Remarks: bgs = below ground surface; bss = below sediment surface; ND = non-detect; NA = not available/applicable; AMSL = Above Mean Sea Level; NR = No Recovery;
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Date Start/Finish: 3/30/2011 Drilling Company: Arcadis Driller's Name: JG/MP Drilling Method: Geoprobe Rig Type: Truckmounted Geoprobe Sampling Method: Geoprobe 3" x 2' Split Spoon	Northing: NA Easting: NA Water Depth: 8 feet bgs. Borehole Depth: 16 feet bgs. Descriptions By: MWE	Boring ID: TW-11-3 Client: NYSEG Location: Court Street Former MGP Site Binghamton, New York DRAFT
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Boring Construction
0	0								
		1	0-4	2.8	0.0			Brown fine SAND and fine to coarse subangular GRAVEL, trace Silt, Coal (M,NP).	Temporary Protective Barrier Locking 1" J-Plug Bentonite Seal (0'-5' bgs.). 1" Sch. 40 PVC Riser (-3'-6' bgs.).
5	-5	2	4-8	3.7	26			faint MGP-like odor.	
								Grey fine SAND, some Silt, fine to medium Gravel, trace red Brick (S,NP).	
								trace Sheen, moderate MPG-like odor.	#0 Silica Sand Pack (5'-16' bgs.).
10	-10	3	8-12	1.0	122				1" Sch. 40 PVC Screen (6'-16' bgs.).
		4	12-16	4.0	64				
15	-15							Grey/brown SILT, some Clay, trace fine to medium Gravel (S,NP).	

	Remarks: bgs = below ground surface; bss = below sediment surface; ND = non-detect; NA = not available/applicable; AMSL = Above Mean Sea Level; NR = No Recovery;
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Date Start/Finish: 3/30/2011 Drilling Company: Arcadis Driller's Name: JG/MP Drilling Method: Geoprobe Rig Type: Truckmounted Geoprobe Sampling Method: Geoprobe 3" x 2' Split Spoon	Northing: NA Easting: NA Water Depth: 8 feet bgs. Borehole Depth: 16 feet bgs. Descriptions By: MWE	Boring ID: TW-11-4 Client: NYSEG Location: Court Street Former MGP Site Binghamton, New York DRAFT
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Boring Construction
0	0								
		1	0-4	3.0	0.6			Brown fine SAND and fine to medium subangular GRAVEL, little Silt, trace red Brick (M,NP).	Temporary Protective Barrier Locking 1" J-Plug
								Brown fine SAND and SILT, little fine to medium subangular Gravel, trace Coal frags, Wood (M,NP). faint MGP-like odor.	Bentonite Seal (0'-5' bgs.). 1" Sch. 40 PVC Riser (-3'-6' bgs.).
-5	-5	2	4-8	2.8	47.3			moderate MGP-like odor.	
								Dark grey SILT, little fine to coarse subangular Gravel, trace Clay, fine Sand (S,NP).	#0 Silica Sand Pack (5'-16' bgs.).
-10	-10	3	8-12	2.0	111				1" Sch. 40 PVC Screen (6'-16' bgs.).
		4	12-16	3.5	7.2				
-15	-15								

 <i>Infrastructure, environment, buildings</i>	Remarks: bgs = below ground surface; bss = below sediment surface; ND = non-detect; NA = not available/applicable; AMSL = Above Mean Sea Level; NR = No Recovery;
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