8976 Wellington Road
Manassas, VA 20109

November 14, 2013

Alex Czuhanich
Engineering Geologist
New York State Department of Environmental Conservation
Division of Environmental Remediation Bureau E
625 Broadway, 12th Floor
Albany, NY 12233-7017

Re: Transmittal of Documentation
Analytical Summary Report – May through August 2013
Operable Unit #5 (OU#5)
Order on Consent Index # A7-0502-0104, Site # 704014, Endicott, New York

Dear Mr. Czuhanich:

Attached please find an Analytical Summary Report (ASR) for Operable Unit #5, Building 57. This ASR was prepared and is being submitted in accordance with Subparagraph XII. B. of Order on Consent Index # A7-0502-0104, Site # 704014. As agreed during a meeting with Robert Knizek on February 2, 2006, this and all subsequent ASR reports will be submitted to you electronically.

Should you have any questions, please contact me at 703-257-2582.

Sincerely,

Kevin Whalen
IBM Program Manager

cc: B. Callaghan, NYSDOH - Troy

Encl. OU#5 Analytical Summary Report – May through August 2013

8976 Wellington Road
Manassas, VA 20109

November 14, 2013

Alex Czuhanich
Engineering Geologist
New York State Department of Environmental Conservation
Division of Environmental Remediation Bureau E
625 Broadway, 12th Floor
Albany, NY 12233-7017

Re: Transmittal of Documentation
Analytical Summary Report – May through August 2013
Operable Unit #5 (OU#5)
Order on Consent Index # A7-0502-0104, Site # 704014, Endicott, New York

Dear Mr. Czuhanich:

Attached please find an Analytical Summary Report (ASR) for Operable Unit #5, Building 57. This ASR was prepared and is being submitted in accordance with Subparagraph XII. B. of Order on Consent Index # A7-0502-0104, Site # 704014. As agreed during a meeting with Robert Knizek on February 2, 2006, this and all subsequent ASR reports will be submitted to you electronically.

Should you have any questions, please contact me at 703-257-2582.

Sincerely,

Kevin Whalen
IBM Program Manager

cc: B. Callaghan, NYSDOH - Troy

Encl. OU#5 Analytical Summary Report – May through August 2013

SANBORN HEAD

Building Trust. Engineering Success.

Mr. Kevin Whalen
IBM Corporate Environmental Affairs
8976 Wellington Road
Manassas, VA 20110

November 14, 2013
File No. 2466.02

Re: Analytical Summary Report – May through August 2013
Supplemental Remedial Investigation
Operable Unit #5: Building 57 Area
Union and Endicott, New York
AOC Index # A7-0502-0104, Site # 704014, Endicott, New York

Dear Mr. Whalen:

Sanborn, Head & Associates, Inc. (Sanborn Head) prepared this Analytical Summary Report (ASR) for Operable Unit #5 (OU#5) as a routine submittal pursuant to the Administrative Order on Consent (AOC) referenced above. This ASR was prepared for your submittal to the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH; collectively, the Agencies) consistent with the periodic reporting requirement as outlined under subsection XII, B of the AOC.

This report is intended to transmit groundwater analytical laboratory data recorded in completion of Supplemental Remedial Investigations (SRI) during the period from May to August, 2013. This report includes the results of groundwater sampling at newly-installed groundwater monitoring locations, and post-thermal-remediation groundwater sampling of selected existing monitoring wells. Specifically, the scope of work included:

- Collection of characterization water quality samples from four overburden monitoring wells installed to replace monitoring points decommissioned prior to thermal remediation (wells EN-721 through EN-724);
- Collection of characterization water quality samples from three bedrock monitoring wells installed to allow assessment of bedrock groundwater conditions (EN-725 through EN-727); and
- Collection of groundwater samples from selected overburden monitoring wells on and near the OU#5 property, as a "snapshot" of water quality conditions following the completion of thermal remediation. Routine monitoring of OU#5 area wells will continue on a semi-annual basis.

The work was conducted in general accordance with our September 9, 2004 Work Plan[1] and subsequent work plan addenda. We understand that this report will be submitted to

[1] Sanborn, Head Engineering, P.C., September 9, 2004, "Work Plan for Source Area Evaluation, Supplemental Remedial Investigation and Focused Feasibility Study, Operable Unit #5 – Building 57 Area, Union and Endicott, New York".

the Agencies to comply with the routine AOC requirement for submittal of an ASR within "90 days of completing a discrete sampling event," pursuant to subsection XII, B of AOC.

Consistent with the AOC requirements, this report includes a tabular summary of the data provided in Table 1, which is presented without interpretation. Laboratory analyses of groundwater samples were conducted according to USEPA methods, as indicated in the enclosed data table. Laboratory analytical and quality assurance/quality control reports are retained in our project files, and are available upon request. Monitoring well locations are shown on Figure 1. Logs of newly-installed monitoring wells are provided in Attachment A.

We will prepare and submit an addendum to the SRI Report of Findings[2], which will present a summary of findings and interpretation of the bedrock groundwater quality assessment. Consistent with reporting conventions established for other operable units, future routine monitoring data will be reported on a semi-annual basis (by Groundwater Sciences Corporation), and will not be transmitted in ASRs.

This report has been prepared for and is intended for the exclusive use of the IBM Corporation. The contents of this report should not be relied upon by any party other than IBM without the express written consent of IBM and Sanborn Head.

Please contact us if you have any questions or require further assistance at this time. Thank you for the opportunity to be of service on this project.

Very truly yours,
SANBORN, HEAD & ASSOCIATES, INC.

Jonathan Ordway, P.E.
Vice President

LJJ/JO: ljj

Encl. Table 1 – Groundwater Analytical Results
Figure 1 – Exploration Location Plan
Attachment 1 – Monitoring Well Logs

S:\PORDATA\2400s\2466.02\Source Files\20131114 ASR WQD May-Aug 2013\20131114 ASR Text.docx

[2] Sanborn, Head Engineering, P.C., March 11, 2010, "Report of Findings, Supplemental Remedial Investigation, Operable Unit #5/Building 57 Area, Union and Endicott, New York".

Table 1
Groundwater Analytical Results – VOCs
May through August 2013 Analytical Summary Report
Supplemental Remedial Investigation
OU#5/Building 57
Union and Endicott, New York

		DEC-MW-34D	EN-604	EN-606	EN-608	EN-623	EN-624	EN-641	EN-651		EN-653	EN-692	EN-694	EN-696	EN-698	EN-700	EN-702	EN-710	EN-712	
Analyte Name	Reference #	5/18/2013	6/20/2013	6/20/2013	6/20/2013	5/19/2013	5/18/2013	5/19/2013	6/19/2013	6/19/2013	6/19/2013	5/20/2013	6/18/2013	6/19/2013	6/18/2013	6/18/2013	6/19/2013	5/20/2013	5/17/2013	5/17/2013
Acetone	67-64-1	**87**	<5	**12**	<5	<5	<50	**4.7 J**	<5	<5	<5	<5	<5	**6.1**	**16**	**46 J**	<5	**4.3 J**	<5	<5
Benzene	71-43-2	**0.3 J**	<0.5	<0.5	**0.3 J**	**0.3 J**	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	**0.3 J**	<0.5	<0.5
Bromodichloromethane	75-27-4	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Bromoform	75-25-2	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Bromomethane	74-83-9	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Butanone (2-) (MEK)	78-93-3	<5	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	**1.3 J**	<5	<5
Carbon disulfide	75-15-0	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	56-23-5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene (Monochlorobenzene)	108-90-7	**0.1 J**	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.6**	<5	<0.5	<0.5	<0.5	<0.5
Chloroethane	75-00-3	<0.5	<0.5	<0.5	**0.2 J**	<0.5	<5	<0.5	<0.5	<0.5	<0.5	**3.8**	<0.5	**0.1 J**	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Chloroform (Trichloromethane)	67-66-3	<0.5	**0.2 J**	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Chloromethane	74-87-3	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Cyclohexane	110-82-7	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Dibromo-3-chloropropane (1,2-)	96-12-8	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Dibromochloromethane	124-48-1	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Dibromoethane (1,2-)	106-93-4	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Dichlorobenzene (1,2-)	95-50-1	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Dichlorobenzene (1,3-)	541-73-1	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Dichlorobenzene (1,4-)	106-46-7	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane (CFC12)	75-71-8	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	**0.3 J**	**0.3 J**	**0.3 J**	<0.5	<0.5	**0.7**	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Dichloroethane (1,1-)	75-34-3	**41**	<0.5	2.7	0.7	2.2	<5	**0.8**	**0.8**	**0.8**	**0.3 J**	**22**	**0.4 J**	**7.6**	**1**	**6.9**	<0.5	**0.3 J**	**2.4**	**2.4**
Dichloroethane (1,2-)	107-06-2	**0.2 J**	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Dichloroethene (1,1-)	75-35-4	**0.2 J**	<0.5	**0.4 J**	**0.3 J**	**0.4 J**	<5	<0.5	**0.5 J**	**0.5 J**	<0.5	<0.5	<0.5	**0.6**	**0.5 J**	**2.1 J**	<0.5	<0.5	<0.5	<0.5
Dichloroethene (cis-1,2-)	156-59-2	**92**	**0.4 J**	**2.4**	**16**	**1.7**	**27**	**66**	**5.9**	**5.9**	**0.9**	**2.8**	**0.2 J**	**1.7**	**1.4**	**9.2**	**1.1**	**1.3**	**36**	**35**
Dichloroethene (trans-1,2-)	156-60-5	**6.7**	<0.5	<0.5	**0.6**	<0.5	**2.5 J**	**1.2**	**0.2 J**	**0.2 J**	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	**2.1**	**2**
Dichloropropane (1,2-)	78-87-5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Dichloropropene (cis-1,3-)	10061-01-5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Dichloropropene (trans-1,3-)	10061-02-6	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (CFC113)	76-13-1	**0.4 J**	**7.3**	**84**	<0.5	<0.5	<5	<0.5	**0.9**	**0.8**	**0.6**	**180**	**0.7**	**19**	**140**	**530**	**0.4 J**	**17**	**1.1**	**1.1**
Ethane, 1,2-dichloro-1,1,2-trifluoro- (CFC123a)	354-23-4	**29**	**17**	**35**	**9.2**	**0.5 J**	<5	**1.6**	**1.3**	**1.3**	**0.8**	**200**	**0.8**	**8.5**	**8.2**	**35**	**0.4 J**	**47**	**3**	**2.9**
Ethylbenzene	100-41-4	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Hexanone (2-)	591-78-6	<5	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5	<5	<5
Isopropylbenzene (Cumene)	98-82-8	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Methyl Acetate	79-20-9	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Methyl-2-pentanone (4-) (MIBK)	108-10-1	**1.2 J**	<5	<5	<5	**1.2 J**	<50	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	1.7 J	<5	<5
Methyl-tert Butyl Ether (MTBE)	1634-04-4	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Methylcyclohexane	108-87-2	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Methylene Chloride (Dichloromethane)	75-09-2	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	**0.2 J**	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Styrene	100-42-5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethane (1,1,1,2-)	630-20-6	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethane (1,1,2,2-)	79-34-5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (PCE)	127-18-4	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Tetrahydrofuran	109-99-9	<5	<5	**2.6 J**	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5	<5	<5
Toluene	108-88-3	**4.3**	<0.5	<0.5	<0.5	**5.7**	**13**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	**15**	<0.5	<0.5
Trichlorobenzene (1,2,4-)	120-82-1	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Trichloroethane (1,1,1-)	71-55-6	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	**0.1 J**	<0.5	<0.5	**0.4 J**	<5	**0.9**	<0.5	<0.5	<0.5
Trichloroethane (1,1,2-)	79-00-5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Trichloroethene (TCE)	79-01-6	**0.2 J**	<0.5 UJ	**0.6 J**	**2.6 J**	<0.5 UJ	<5 UJ	**2.8 J**	**15 J**	**15 J**	**0.9 J**	**0.7 J**	**1.3 J**	<0.5 UJ	**3.5 J**	**39 J**	**0.5 J**	**0.2 J**	**14 J**	**14 J**
Trichlorofluoromethane	75-69-4	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.2 J**	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Trimethylbenzene (1,2,4-)	95-63-6	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Trimethylbenzene (1,3,5-)	108-67-8	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*
Vinyl acetate	108-05-4	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Vinyl chloride	75-01-4	**100**	<0.5	**0.2 J**	**1.6**	**1.8**	**6.2**	**0.4 J**	**0.2 J**	**0.2 J**	**2.2**	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	**7.7**	**7.6**
Xylene (m,p-)	179601-23-1	**0.1 J**	<0.5	**0.1 J**	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Xylene (o-)	95-47-6	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5
Xylenes	1330-20-7	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*

Table 1
Groundwater Analytical Results – VOCs
May through August 2013 Analytical Summary Report
Supplemental Remedial Investigation
OU#5/Building 57
Union and Endicott, New York

		EN-721				EN-722				EN-723						EN-724			
Analyte Name	Reference #	5/18/2013	5/29/2013	6/18/2013	8/26/2013	5/19/2013	5/29/2013	6/18/2013	8/27/2013	5/19/2013	5/19/2013	5/29/2013	6/17/2013	6/17/2013	8/27/2013	5/18/2013	5/29/2013	6/17/2013	8/27/2013
Acetone	67-64-1	**57**	**63**	**6.6**	**3.8 J**	**14**	<3	**8**	**3.3 J**	<5	<5	<3	**5.5 J**	**4.8 J**	**44**	**86**	**20**	**43 J**	**25**
Benzene	71-43-2	**0.4 J**	**0.7**	**0.8**	**1**	**0.3 J**	**0.2 J**	**0.3 J**	**0.3 J**	**0.3 J**	**0.3 J**	**0.2 J**	**0.4 J**	**0.4 J**	**0.6**	**0.4 J**	**0.3 J**	**0.3 J**	**0.2 J**
Bromodichloromethane	75-27-4	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Bromoform	75-25-2	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Bromomethane	74-83-9	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Butanone (2-) (MEK)	78-93-3	**6.7**	**10**	<5	<1	**5.2**	**1.8 J**	<5	<1	<5	<5	<1	<5 UJ	<5	<1	**23**	**8.1**	**9.6 J**	**1.7 J**
Carbon disulfide	75-15-0	**0.5**	<0.4	<0.5	<0.4	<0.5	<0.4	<0.5	<0.4	<0.5	<0.5	**0.5**	<0.5	<0.5	<0.4	<0.5	**1.1**	<0.5	<0.4
Carbon tetrachloride	56-23-5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Chlorobenzene (Monochlorobenzene)	108-90-7	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Chloroethane	75-00-3	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	**0.1 J**	**0.4 J**	<0.5	**0.7**	<0.5	**0.5 J**	**0.4 J**	**0.3 J**
Chloroform (Trichloromethane)	67-66-3	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Chloromethane	74-87-3	**0.2 J**	<0.2	<0.5	<0.2	<0.5	<0.2	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.2	<0.5	<0.2
Cyclohexane	110-82-7	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1	*NS*	**0.9**	*NS*	*NS*	<0.1	*NS*	*NS*	**1.1**	*NS*	<0.1	*NS*	**0.8**
Dibromo-3-chloropropane (1,2-)	96-12-8	*NS*	<0.2	*NS*	<0.2	*NS*	<0.2	*NS*	<0.2	*NS*	*NS*	<0.2	*NS*	*NS*	<0.2	*NS*	<0.2	*NS*	<0.2
Dibromochloromethane	124-48-1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Dibromoethane (1,2-)	106-93-4	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1	*NS*	*NS*	<0.1	*NS*	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1
Dichlorobenzene (1,2-)	95-50-1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Dichlorobenzene (1,3-)	541-73-1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Dichlorobenzene (1,4-)	106-46-7	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Dichlorodifluoromethane (CFC12)	75-71-8	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Dichloroethane (1,1-)	75-34-3	<0.5	<0.1	<0.5	**0.3 J**	**1.2**	**1.1**	**1.2**	**1**	**5.2**	**5.2**	**5.3**	**8.6**	**8.6**	**13**	**1.1**	**1.1**	**1.1**	**0.9**
Dichloroethane (1,2-)	107-06-2	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Dichloroethene (1,1-)	75-35-4	<0.5	**0.2 J**	**0.2 J**	**0.2 J**	**0.5**	**0.6**	**0.8**	**0.8**	**1.5 J**	<0.5 UJ	**1.2**	**2.6**	**2.6**	**4.7**	<0.5	<0.1	<0.5	<0.1
Dichloroethene (cis-1,2-)	156-59-2	**20**	**31**	**35**	**29**	**120**	**100**	**130**	**130**	**20**	**20**	**24**	**39**	**39**	**78**	**0.8**	**0.5 J**	**0.8**	**1**
Dichloroethene (trans-1,2-)	156-60-5	**0.4 J**	**0.8**	**0.9**	**1.8**	**1.4**	**1.2**	**1.6**	**1.3**	**0.9**	**0.9**	**0.8**	**1.7**	**1.7**	**2.9**	<0.5	<0.1	<0.5	<0.1
Dichloropropane (1,2-)	78-87-5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Dichloropropene (cis-1,3-)	10061-01-5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Dichloropropene (trans-1,3-)	10061-02-6	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (CFC113)	76-13-1	<0.5	**0.2 J**	<0.5	<0.2	**0.2 J**	**0.4 J**	<0.5	<0.2	**2.3**	**2.4**	**2.8**	**4.3**	**4.2**	**3.1**	**17**	**6.8**	**0.5**	<0.2
Ethane, 1,2-dichloro-1,1,2-trifluoro- (CFC123a)	354-23-4	<0.5	<0.2	<0.5	**0.5**	**5.5**	**7.7**	**2.6**	**0.7**	**11**	**11**	**11**	**20**	**19**	**23**	**42**	**34**	**15**	**3.5**
Ethylbenzene	100-41-4	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Hexanone (2-)	591-78-6	<5	<1	<5	<1	<5	<1	<5	<1	<5	<5	<1	<5	<5	<1	**1 J**	**1.4 J**	<5	<1
Isopropylbenzene (Cumene)	98-82-8	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1	*NS*	*NS*	<0.1	*NS*	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1
Methyl Acetate	79-20-9	*NS*	<0.3	*NS*	<0.3	*NS*	<0.3	*NS*	<0.3	*NS*	*NS*	<0.3	*NS*	*NS*	<0.3	*NS*	<0.3	*NS*	<0.3
Methyl-2-pentanone (4-) (MIBK)	108-10-1	**3 J**	**1.6 J**	**1.5 J**	<1	**1.3 J**	<1	<5	<1	<5	<5	<1	<5	<5	<1	**3.3 J**	**2.4 J**	**1.6 J**	<1
Methyl-tert Butyl Ether (MTBE)	1634-04-4	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Methylcyclohexane	108-87-2	*NS*	<0.1	*NS*	<0.1	*NS*	**0.2 J**	*NS*	<0.1	*NS*	*NS*	**0.2 J**	*NS*	*NS*	<0.1	*NS*	**0.2 J**	*NS*	<0.1
Methylene Chloride (Dichloromethane)	75-09-2	<0.5	<0.2	<0.5	<0.2	<0.5	<0.2	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.2	<0.5	<0.2	<0.5	<0.2
Styrene	100-42-5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Tetrachloroethane (1,1,1,2-)	630-20-6	<0.5	*NS*	<0.5	*NS*	<0.5	*NS*	<0.5	*NS*	<0.5	<0.5	*NS*	<0.5	<0.5	*NS*	<0.5	*NS*	<0.5	*NS*
Tetrachloroethane (1,1,2,2-)	79-34-5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Tetrachloroethene (PCE)	127-18-4	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Tetrahydrofuran	109-99-9	<5	<2	<5	<2	<5	<2	<5	<2	<5	<5	<2	<5 UJ	<5	<2	<5	**2.2 J**	**3.1 J**	<2
Toluene	108-88-3	**0.8**	**4**	**3.5**	**1**	**3.1**	**2.1**	**5.2**	**7.7**	**0.2 J**	**0.2 J**	**0.2 J**	**0.2 J**	**0.2 J**	**0.3 J**	**16**	**13**	**13**	**8.4**
Trichlorobenzene (1,2,4-)	120-82-1	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1	*NS*	*NS*	<0.1	*NS*	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1
Trichloroethane (1,1,1-)	71-55-6	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Trichloroethane (1,1,2-)	79-00-5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	0.2 J	<0.5	<0.1	<0.5	<0.1
Trichloroethene (TCE)	79-01-6	**3.7 J**	**3**	**1 J**	**0.8**	**13 J**	**6.1**	**3.8 J**	**0.4 J**	**6.1 J**	**6.2 J**	**5.2**	**10 J**	**10 J**	**18**	**0.3 J**	**0.2 J**	**0.2 J**	**0.3 J**
Trichlorofluoromethane	75-69-4	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Trimethylbenzene (1,2,4-)	95-63-6	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1	*NS*	*NS*	<0.1	*NS*	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1
Trimethylbenzene (1,3,5-)	108-67-8	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1	*NS*	*NS*	<0.1	*NS*	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1
Vinyl acetate	108-05-4	<0.5	*NS*	<0.5	*NS*	<0.5	*NS*	<0.5	*NS*	<0.5	<0.5	*NS*	<0.5	<0.5	*NS*	<0.5	*NS*	<0.5	*NS*
Vinyl chloride	75-01-4	**0.8**	**1.6**	**2.3**	**35**	**9.9**	**9.6**	**9.2**	**7.2**	**7.8**	**8**	**6.7**	**20**	**21**	**30**	<0.5	<0.1	<0.5	**0.2 J**
Xylene (m,p-)	179601-23-1	<0.5	**0.1 J**	<0.5	<0.1	**0.1 J**	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Xylene (o-)	95-47-6	<0.5	**0.2 J**	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.5	<0.1	<0.5	<0.1	<0.5	<0.1
Xylenes	1330-20-7	*NS*	**0.3 J**	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1	*NS*	*NS*	<0.1	*NS*	*NS*	<0.1	*NS*	<0.1	*NS*	<0.1

Table 1
Groundwater Analytical Results – VOCs
May through August 2013 Analytical Summary Report
Supplemental Remedial Investigation
OU#5/Building 57
Union and Endicott, New York

		EN-725				EN-726				EN-727		
Analyte Name	Reference #	5/19/2013	5/29/2013	6/17/2013	8/27/2013	7/27/2013	7/27/2013	8/8/2013	8/28/2013	7/27/2013	8/8/2013	8/28/2013
Acetone	67-64-1	<100	**860**	**1,000**	**1,300**	<5	<5	<3	<3	<5	<3	<3
Benzene	71-43-2	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Bromodichloromethane	75-27-4	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Bromoform	75-25-2	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Bromomethane	74-83-9	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Butanone (2-) (MEK)	78-93-3	<100	<20	<500	<200	<5	<5	<1	<1	<5	<1	<1
Carbon disulfide	75-15-0	<10	<8	<50	<80	<0.5	<0.5	<0.4	<0.4	<0.5	<0.4	**0.5**
Carbon tetrachloride	56-23-5	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Chlorobenzene (Monochlorobenzene)	108-90-7	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Chloroethane	75-00-3	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Chloroform (Trichloromethane)	67-66-3	<10	<2	<50	<20	**0.2 J**	**0.2 J**	**0.1 J**	<0.1	<0.5	<0.1	<0.1
Chloromethane	74-87-3	<10	<4	<50	<40	<0.5	<0.5	<0.2	<0.2	<0.5	<0.2	<0.2
Cyclohexane	110-82-7	*NS*	<2	*NS*	<20	*NS*	*NS*	<0.1	<0.1	*NS*	<0.1	<0.1
Dibromo-3-chloropropane (1,2-)	96-12-8	*NS*	<4	*NS*	<40	*NS*	*NS*	<0.2	<0.2	*NS*	<0.2	<0.2
Dibromochloromethane	124-48-1	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Dibromoethane (1,2-)	106-93-4	*NS*	<2	*NS*	<20	*NS*	*NS*	<0.1	<0.1	*NS*	<0.1	<0.1
Dichlorobenzene (1,2-)	95-50-1	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Dichlorobenzene (1,3-)	541-73-1	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Dichlorobenzene (1,4-)	106-46-7	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Dichlorodifluoromethane (CFC12)	75-71-8	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Dichloroethane (1,1-)	75-34-3	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Dichloroethane (1,2-)	107-06-2	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Dichloroethene (1,1-)	75-35-4	<10	**36**	**31 J**	**30 J**	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Dichloroethene (cis-1,2-)	156-59-2	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Dichloroethene (trans-1,2-)	156-60-5	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Dichloropropane (1,2-)	78-87-5	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Dichloropropene (cis-1,3-)	10061-01-5	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Dichloropropene (trans-1,3-)	10061-02-6	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (CFC113)	76-13-1	**11,000**	**13,000**	**11,000**	**9,900**	<0.5	<0.5	<0.2	<0.2	<0.5	<0.2	<0.2
Ethane, 1,2-dichloro-1,1,2-trifluoro- (CFC123a)	354-23-4	**990**	**1,000**	**790**	**770**	<0.5	<0.5	<0.2	<0.2	<0.5	<0.2	<0.2
Ethylbenzene	100-41-4	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Hexanone (2-)	591-78-6	<100	<20	<500	<200	<5	<5	<1	<1	<5	<1	<1
Isopropylbenzene (Cumene)	98-82-8	*NS*	<2	*NS*	<20	*NS*	*NS*	<0.1	<0.1	*NS*	<0.1	<0.1
Methyl Acetate	79-20-9	*NS*	<6	*NS*	<60	*NS*	*NS*	<0.3	<0.3	*NS*	<0.3	<0.3
Methyl-2-pentanone (4-) (MIBK)	108-10-1	<100	<20	<500	<200	<5	<5	<1	<1	<5	<1	<1
Methyl-tert Butyl Ether (MTBE)	1634-04-4	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Methylcyclohexane	108-87-2	*NS*	<2	*NS*	<20	*NS*	*NS*	<0.1	<0.1	*NS*	<0.1	<0.1
Methylene Chloride (Dichloromethane)	75-09-2	<10	<4	<50	<40	<0.5	<0.5	<0.2	<0.2	<0.5	<0.2	<0.2
Styrene	100-42-5	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Tetrachloroethane (1,1,1,2-)	630-20-6	<10	*NS*	<50	*NS*	<0.5	<0.5	*NS*	*NS*	<0.5	*NS*	*NS*
Tetrachloroethane (1,1,2,2-)	79-34-5	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Tetrachloroethene (PCE)	127-18-4	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Tetrahydrofuran	109-99-9	<100	<40	<500	<400	<5	<5	<2	<2	<5	<2	<2
Toluene	108-88-3	<10	<2	<50	<20	<0.5	<0.5	**0.1 J**	<0.1	<0.5	**0.2 J**	<0.1
Trichlorobenzene (1,2,4-)	120-82-1	*NS*	<2	*NS*	<20	*NS*	*NS*	<0.1	<0.1	*NS*	<0.1	<0.1
Trichloroethane (1,1,1-)	71-55-6	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Trichloroethane (1,1,2-)	79-00-5	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Trichloroethene (TCE)	79-01-6	<10 UJ	<2	<50 UJ	<20	<0.5	<0.5	<0.1	<0.1	**0.1 J**	**0.1 J**	<0.1
Trichlorofluoromethane	75-69-4	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Trimethylbenzene (1,2,4-)	95-63-6	*NS*	<2	*NS*	<20	*NS*	*NS*	<0.1	<0.1	*NS*	<0.1	<0.1
Trimethylbenzene (1,3,5-)	108-67-8	*NS*	<2	*NS*	<20	*NS*	*NS*	<0.1	<0.1	*NS*	<0.1	<0.1
Vinyl acetate	108-05-4	<10	*NS*	<50	*NS*	<0.5	<0.5	*NS*	*NS*	<0.5	*NS*	*NS*
Vinyl chloride	75-01-4	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Xylene (m,p-)	179601-23-1	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Xylene (o-)	95-47-6	<10	<2	<50	<20	<0.5	<0.5	<0.1	<0.1	<0.5	<0.1	<0.1
Xylenes	1330-20-7	*NS*	<2	*NS*	<20	*NS*	*NS*	<0.1	<0.1	*NS*	<0.1	<0.1

Notes:

1. Groundwater quality monitoring was performed on the dates noted by Sanborn Head or Groundwater Sciences personnel.

2. All samples were sent to Lancaster Laboratories, Inc. of Lancaster, PA and analyzed for VOCs by USEPA method 8260B, 25 ml purge. Laboratory detections are emboldened. Laboratory analytical reports are retained by Sanborn Head, and available on request.

3. Independent data validation was conducted by New Environmental Horizons, Inc., and Conestoga-Rovers Associates.

3. Concentrations are presented in units of micrograms per liter.

4. < = Result is below the method detection limit
J = Result is estimated
UJ = Result is below estimated reporting limit
NS = Not sampled

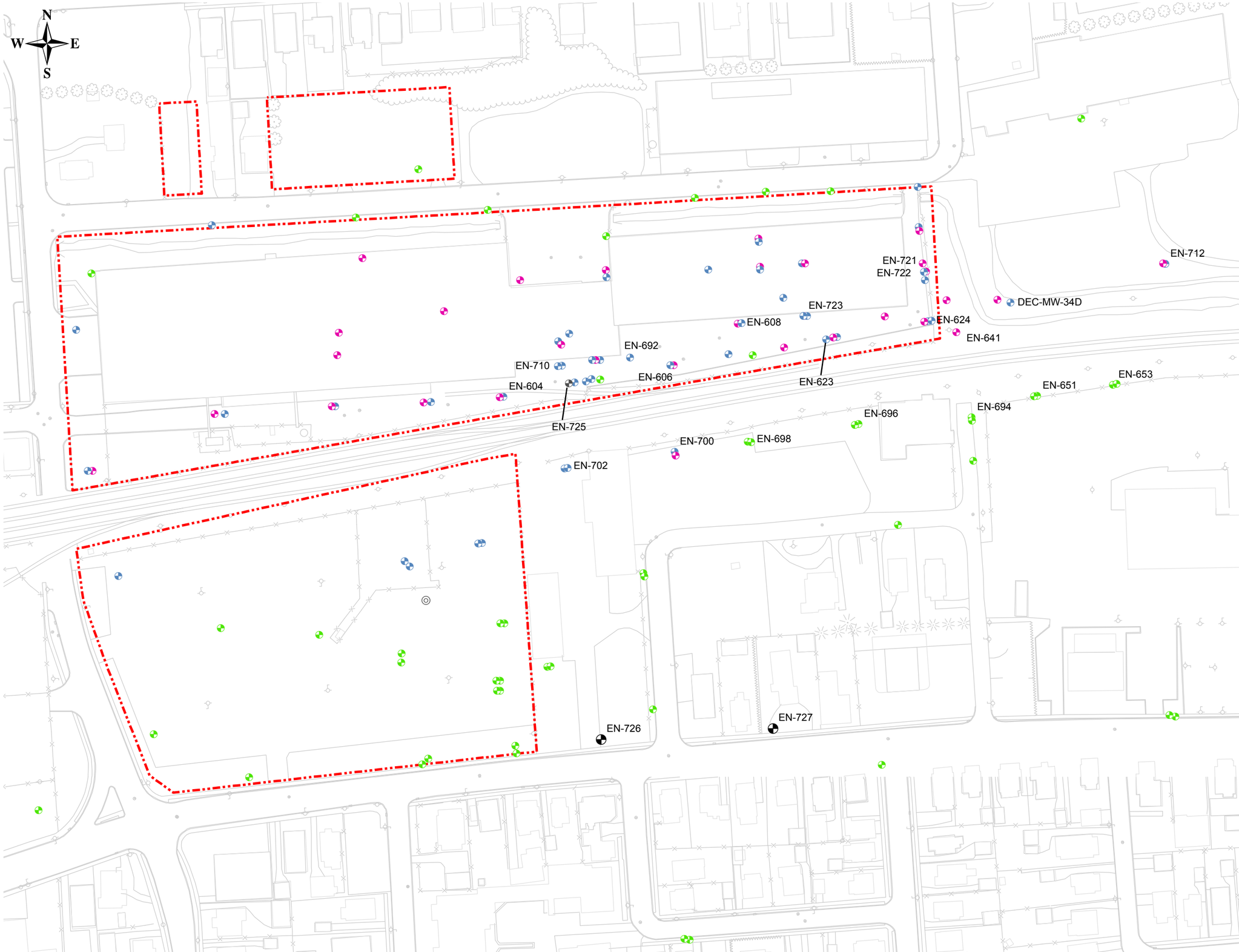

Figure1

Exploration Location Plan

Analytical Summary Report
May through August, 2013
Supplemental Remedial Investigation

OU#5/Building 57 Area
Union and Endicott, New York

Drawn By:	J. Prellwitz
Designed By:	L. Jacob
Reviewed By:	L. Jacob
Project No:	2466.03
Date:	November, 2013

Figure Narrative

This figure depicts monitoring locations in the OU#5 area. Monitoring well labels indicate the locations sampled as part of the Supplemental Remedial Investigation between May and August 2013.

Legend

- Upper WBZ Monitoring Well
- Lower WBZ Monitoring Well
- Upper & Lower WBZ Monitoring Well
- Bedrock Monitoring Well
- Extraction Well
- Site Boundary

62.5 31.25 0 62.5 125 Feet

SANBORN HEAD

ATTACHMENT 1

MONITORING WELL LOGS

SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-721

Ground Elevation: 845.4 feet
PVC Elevation: 844.93 feet
Datum: NGVD 1929

Drilling Method: Vacmaster 4000 (0.3 to 7' bgs) & CME 75 Truck Mounted Drill Rig with 4¼" ID HSA (7 to 9.5' bgs)

Sampling Method: Hand Auger & 24" long by 2" O.D. Split Spoon equipped with 140 lb Safety Hammer

Drilling Company: Parratt-Wolff, Inc.

Foreman: R. Navatka

Date Started: 05/13/13 **Date Finished: 05/14/13**

Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
05/14/13	13:45	Dry		Well Installed	9.2'	<0.5 hr.
05/15/13	07:30	8.88'	Top of PVC	Well Installed	9.2'	21 hrs.
05/18/13	17:30	8.92'	Top of PVC	Well Installed	9.2'	96 hrs.
05/29/13	10:02	8.43'	Top of PVC	Well Installed	9.24'	14 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
0							-----0'-----			
							ASPHALT	ASPHALT. (Vacuum excavated 0.3 - 7' below ground surface).		
							-----0.3'-----			
	S-1	0.3 - 5		---	PID: 0.2 ppmv			S-1A (0.3 to 1'): Light brown, fine to coarse SAND and GRAVEL, trace Silt. Coarse fraction rounded to angular. Moist. FILL.		2" Dia. Sch. 40 PVC Riser (0.3 to 4.5')
					PID: 1.1 ppmv			S-1B (1 to 2'): Light brown, fine to coarse SAND and GRAVEL, little Silt. Coarse fraction subrounded to angular. Moist. FILL.		9" Dia. Flushmounted Road Box with J-Plug Set in Concrete (-0.1 to 1')
2										Filter Sand (0.5 to 2')
					PID: 3.0 ppmv			S-1C (2 to 3'): Gray, Clayey SILT, some Gravel, some Sand, very few Brick fragments. Coarse fraction rounded to angular. Moist. FILL.		
										Bentonite Seal (2 to 3.5')
					PID: 0.8 ppmv		FILL	S-1D (3 to 4'): Gray to slight orange mottling, Clayey SILT, some Gravel, little Sand, trace Organic Peat. Coarse fraction subangular. Moist. FILL.		
4					PID: 5.1 ppmv			S-1E (4 to 5'): Gray, Clayey SILT, little Gravel, trace Sand. Coarse fraction subrounded to subangular. Moist. FILL.		
	S-2	5 - 7		---	PID: 7.3 ppmv			S-2A (5 to 6'): Gray, Clayey SILT, little Gravel, trace Sand. Coarse fraction subrounded to subangular. Moist. FILL.		
6					PID: 3.9 ppmv		-----6'-----	S-2B (6 to 7'): Gray to orange mottling, SILT & CLAY, some Gravel, trace Sand. Coarse fraction rounded to angular. Moist.		Filter Sand (3.5 to 9.5')
	S-3	7 - 9	NR	24/11	PID: 0.9 ppmv			S-3A (7 to 9'): Gray, SILT & CLAY, little Gravel, trace Sand, very few Brick fragments, trace Organic Peat. Coarse fraction subangular. Moist. Wet at 8.9 feet.		2" Dia. Sch. 40 PVC Well Screen (0.010" Slots) (4.5 to 9.4')
8							SILT & CLAY			
		9 - 9.5	NR	---	PID: 0.8 ppmv			S-3B (9 to 9.5'): Gray, SILT & CLAY.		
							-----9.5'-----	Boring terminated at 9.5 feet. No refusal encountered.		2" Dia. Sch. 40 PVC Conical End Cap (9.4 to 9.5')
10										
								NOTES:		
								1. Soil samples were screened for volatile organic compounds (VOCs) using a MiniRae 3000 Photoionization Detector (PID) with a 10.6 eV lamp, calibrated to a 100 parts per million by volume (ppmv) isobutylene-in-air standard using a response factor of 1.0. ND indicates non-detect.		
12								2. No soil samples were submitted for laboratory analysis.		
								3. Replacement monitoring well for EN-721 (i.e., EN-615) was decommissioned prior to Thermal Remediation.		
								4. NR indicates split spoon blows were not recorded.		
								5. Groundwater encountered during drilling at approximately 8.9' below ground surface.		
14										

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SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-722

Ground Elevation: 845.4 feet
PVC Elevation: 844.86 feet
Datum: NGVD 1929

Drilling Method: Vac 4000 (0.4 to 7' bgs) & CME 75 Truck Mounted Drill Rig with 4¼" ID HSA (7 to 28' bgs) equipped with 140 lb Safety Hammer
Sampling Method: Hand Auger & 4' PVC MacroCore® Sampler

Drilling Company: Parratt-Wolff, Inc.
Foreman: R. Navatka
Date Started: 05/13/13 **Date Finished: 05/14/13**
Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
05/14/13	13:45	14'	Top of PVC	Well Installed	28'	<0.5 hr.
05/16/13	09:27	8.9'	Top of PVC	Well Installed	26.5'	48 hrs.
05/19/13	11:15	11.03'	Top of PVC	Well Installed	27.8'	5 days
05/29/13	10:22	10.87'	Top of PVC	Well Installed	27.85'	14 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
0							-----0'-----			
							ASPHALT	ASPHALT. (Vacuum excavated 0.4 - 7' below ground surface).		2" Dia. Sch. 40 PVC Riser (0.3 to 8')
	S-1	0.4 - 5		---	PID: 0.2 ppmv		-----0.4'-----	S-1A (0.4 to 1'): Light brown, fine to coarse SAND and GRAVEL, trace Silt. Coarse fraction rounded to angular. Moist. FILL.		9" Dia. Flushmounted Road Box with J-Plug Set in Concrete (-0.1 to 1')
					PID: 1.1 ppmv			S-1B (1 to 2'): Light brown, fine to coarse SAND and GRAVEL, little Silt. Coarse fraction subrounded to angular. Moist. FILL.		Filter Sand (0.5 to 1')
2					PID: 3.0 ppmv			S-1C (2 to 3'): Gray, Clayey SILT, some Gravel, some Sand, very few Brick fragments. Coarse fraction rounded to angular. Moist. FILL.		
					PID: 0.8 ppmv		FILL	S-1D (3 to 4'): Gray to slight orange mottling, Clayey SILT, some Gravel, little Sand, trace Organic Peat. Coarse fraction subangular. Moist. FILL.		
4					PID: 5.1 ppmv			S-1E (4 to 5'): Gray, Clayey SILT, little Gravel, trace Sand. Coarse fraction subrounded to subangular. Moist. FILL.		
	S-2	5 - 7		---	PID: 7.3 ppmv			S-2A (5 to 6'): Gray, Clayey SILT, little Gravel, trace Sand. Coarse fraction subrounded to subangular. Moist. FILL.		
6					PID: 3.9 ppmv		-----6'-----	S-2B (6 to 7'): Gray to orange mottling, SILT & CLAY, some Gravel, trace Sand. Coarse fraction rounded to angular. Moist.		
							SILT & CLAY			
	S-3	7 - 10		36/0			-----7'-----	S-3 (7 to 10'): No recovery.		Bentonite/Cement Grout (1 to 14')
8							No Recovery			
10	S-4	10 - 14		48/37	PID: 10.7 ppmv		-----10'-----	S-4A (10 to 12.1'): Dark gray, SILT & CLAY. Wet.		
							SILT & CLAY			
12					PID: 20.1 ppmv		-----12.1'-----	S-4B (12.1 to 14'): Gray with orange mottling, CLAY & SILT. Moist.		
							CLAY & SILT			2" Dia. Sch. 40 Stainless Steel Riser (8 to 18')
14	S-5	14 - 18		48/35	PID: 29.9 ppmv		-----14'-----	S-5 (14 to 18'): Gray with orange mottling, SILT & CLAY. Moist.		
							SILT & CLAY			

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SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-722

Ground Elevation: 845.4 feet
PVC Elevation: 844.86 feet
Datum: NGVD 1929

Drilling Method: Vac 4000 (0.4 to 7' bgs) & CME 75 Truck Mounted Drill Rig with 4¼" ID HSA (7 to 28' bgs) equipped with 140 lb Safety Hammer
Sampling Method: Hand Auger & 4' PVC MacroCore® Sampler

Drilling Company: Parratt-Wolff, Inc.
Foreman: R. Navatka
Date Started: 05/13/13 **Date Finished: 05/14/13**
Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
05/14/13	13:45	14'	Top of PVC	Well Installed	28'	<0.5 hr.
05/16/13	09:27	8.9'	Top of PVC	Well Installed	26.5'	48 hrs.
05/19/13	11:15	11.03'	Top of PVC	Well Installed	27.8'	5 days
05/29/13	10:22	10.87'	Top of PVC	Well Installed	27.85'	14 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
										Bentonite Seal (14 to 16')
16							SILT & CLAY			
18	S-6	18 - 22		48/12	PID: 0.2 ppmv		-----18'-----	S-6 (18 to 22'): Gray, fine to coarse GRAVEL, some Sand, little Silt. Coarse fraction subrounded to angular. Wet.		
20										
22	S-7	22 - 26		48/22	PID: 0.6 ppmv		GRAVEL	S-7A (22 to 25'): Gray, fine to coarse GRAVEL, some Sand, little Silt, (Red Sand Stone Pebbles observed from 24.7 - 25 feet). Coarse fraction rounded to angular. Wet at 22 feet. Moist.		Filter Sand (16 to 28')
24										2" Dia. Sch. 40 Stainless Steel Well Screen (0.010" Slots) (18 to 27.9')
					PID: 0.6 ppmv		-----25'-----	S-7B (25 to 26'): Gray, fine to coarse SAND, some Gravel (fractured Shale), trace Silt. Coarse fraction subangular to angular. Moist. GLACIAL TILL.		
26	S-8	26 - 27		12/0			GLACIAL TILL -----26'----- No Recovery	S-8 (26 to 27'): No recovery.		
	S-9	27 - 28		12/2			-----27'----- WEATHERED ROCK	S-9 (27 to 28'): Medium hard, severely weathered SHALE, red. Dry.		
28							-----28'-----	Boring terminated at 28 feet. No refusal encountered.		2" Dia. Sch. 40 Stainless Steel End Cap (27.9 to 28')

NOTES:

1. Soil samples were screened for volatile organic compounds (VOCs) using a MiniRae 3000 Photoionization Detector (PID) with a 10.6 eV lamp,

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SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-722

Ground Elevation: 845.4 feet
PVC Elevation: 844.86 feet
Datum: NGVD 1929

Drilling Method: Vac 4000 (0.4 to 7' bgs) & CME 75 Truck Mounted Drill Rig with 4¼" ID HSA (7 to 28' bgs) equipped with 140 lb Safety Hammer

Sampling Method: Hand Auger & 4' PVC MacroCore® Sampler

Drilling Company: Parratt-Wolff, Inc.

Foreman: R. Navatka

Date Started: 05/13/13 **Date Finished: 05/14/13**

Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
05/14/13	13:45	14'	Top of PVC	Well Installed	28'	<0.5 hr.
05/16/13	09:27	8.9'	Top of PVC	Well Installed	26.5'	48 hrs.
05/19/13	11:15	11.03'	Top of PVC	Well Installed	27.8'	5 days
05/29/13	10:22	10.87'	Top of PVC	Well Installed	27.85'	14 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
30								calibrated to a 100 parts per million by volume (ppmv) isobutylene-in-air standard using a response factor of 1.0. ND indicates non-detect. 2. No soil samples were submitted for laboratory analysis. 3. Replacement monitoring well for EN-722 (i.e., EN-636) was decommissioned prior to Thermal Remediation. 4. A stainless steel (SS) well screen and a composite PVC/SS riser were installed at this location based on observation of elevated soil temperature's measured using an infrared temperature monitor. 5. Removed approximately 70 gallons of water during development on 5/16/13.		
32										
34										
36										
38										
40										
42										
44										

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SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-723

Ground Elevation: 845 feet
PVC Elevation: 844.7 feet
Datum: NGVD 1929

Drilling Method: Vac 4000 (0.3 to 7' bgs) & CME 75 Truck Mounted Drill Rig with 4¼" ID HSA (7 to 20' bgs) equipped with 140 lb Safety Hammer

Sampling Method: Hand Auger, 24" long by 2" O.D. Split Spoon, 4' PVC MacroCore® Sampler

Drilling Company: Parratt-Wolff, Inc.

Foreman: R. Navatka

Date Started: 05/13/13 **Date Finished: 05/15/13**

Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
05/16/13	09:20	9.75'	Top of PVC	Well Installed	19.77'	21 hrs.
05/17/13	09:50	9.99'	Top of PVC	Well Installed	19.77'	45 hrs.
05/19/13	12:55	10.03'	Top of PVC	Well Installed	19.77'	96 hrs.
05/29/13	12:55	10.01'	Top of PVC	Well Installed	19.81'	14 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Stratum: Description	Geologic Description	Well Diagram	Well Description
0							-----0'-----			
							ASPHALT	ASPHALT. (Vacuum excavated 0.3 - 7' below ground surface).		
							-----0.3'-----			
	S-1	0.3 - 5		---	PID: ND			S-1A (0.3 to 1'): Brown, fine to coarse SAND and GRAVEL, little Silt. Coarse fraction rounded to subangular. Moist. FILL.		2" Dia. Sch. 40 PVC Riser (0.3 to 15')
					PID: ND			S-1B (1 to 2'): Dark gray, fine to coarse SAND and GRAVEL, some Clayey Silt. Coarse fraction rounded to subangular. Moist. FILL.		9" Dia. Flushmounted Road Box with J-Plug Set in Concrete (-0.1 to 1')
2					PID: ND			S-1C (2 to 3'): Dark gray, Clayey SILT, some Sand, some Gravel. Coarse fraction subrounded to subangular. Moist. FILL.		Filter Sand (0.5 to 1')
					PID: 0.3 ppmv			S-1D (3 to 4'): Brown, Clayey SILT, some Sand, some Gravel, trace Cinders. Coarse fraction subrounded to subangular. Moist. FILL.		
4					PID: 0.1 ppmv		FILL	S-1E (4 to 5'): Brown, Clayey SILT, some Sand, some Gravel, trace Cinders. Coarse fraction subrounded to subangular. Moist. FILL.		
	S-2	5 - 7		---	PID: 0.2 ppmv			S-2A (5 to 6'): Brown to grayish, Clayey SILT, some Sand, some Gravel. Coarse fraction subrounded to subangular. Moist. FILL.		
6					PID: 0.1 ppmv			S-2B (6 to 7'): Brown, SILT & CLAY, some Sand, some Gravel. Coarse fraction subrounded to subangular. Moist. FILL.		Bentonite/Cement Grout (1 to 11')
	S-3	7 - 9	NR	24/6	PID: 1.2 ppmv		-----7'-----	S-3A (7 to 8.5'): No recovery.		
8								S-3B (8.5 to 8.8'): Gray, SILT & CLAY, little Gravel, trace fine to coarse Sand. Moist.		
	S-4	9 - 13		48/41	PID: 0.1 ppmv			S-3C (8.8 to 9'): Gray, SILT & CLAY.		
								S-4 (9 to 13'): Gray with orange mottling, SILT & CLAY. Moist. Wet at ~9.0 ft.		
10										
							SILT & CLAY			
12										Bentonite Seal (11 to 13')
	S-5	13 - 15	NR	24/26	PID: 0.3 ppmv			S-5 (13 to 15'): Gray with orange mottling, SILT & CLAY. Moist.		
14										

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SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-723

Ground Elevation: 845 feet
PVC Elevation: 844.7 feet
Datum: NGVD 1929

Drilling Method: Vac 4000 (0.3 to 7' bgs) & CME 75 Truck Mounted Drill Rig with 4¼" ID HSA (7 to 20' bgs) equipped with 140 lb Safety Hammer

Sampling Method: Hand Auger, 24" long by 2" O.D. Split Spoon, 4' PVC MacroCore® Sampler

Drilling Company: Parratt-Wolff, Inc.

Foreman: R. Navatka

Date Started: 05/13/13 **Date Finished: 05/15/13**

Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
05/16/13	09:20	9.75'	Top of PVC	Well Installed	19.77'	21 hrs.
05/17/13	09:50	9.99'	Top of PVC	Well Installed	19.77'	45 hrs.
05/19/13	12:55	10.03'	Top of PVC	Well Installed	19.77'	96 hrs.
05/29/13	12:55	10.01'	Top of PVC	Well Installed	19.81'	14 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
							-----15'-----	SHALE Cobble (Till interface at 15' based on drilling action).		
	S-6	15.5 - 17	7 5 7	18/10	PID: 0.2 ppmv			S-6 (15.5 to 17'): Medium dense, gray, SILT & CLAY and fine to coarse Gravel (fractured Shale). Coarse fraction subangular. Moist. GLACIAL TILL.		
16										Filter Sand (13 to 20')
	S-7	17 - 19	10 9 10 15	24/16	PID: 0.2 ppmv		GLACIAL TILL	S-7 (17 to 19'): Medium dense, gray, SILT & CLAY, some fine to coarse Gravel (fractured Shale). Coarse fraction subangular. Wet at 17.7 feet GLACIAL TILL.		2" Dia. Sch. 40 PVC Well Screen (0.010" Slots) (15 to 19.9')
18										
	S-8	19 - 20	18 17	12/8	PID: 0.1 ppmv			S-8 (19 to 20'): Medium dense, gray, fine to coarse GRAVEL (fractured SHALE), some Silt & Clay. Coarse fraction subangular. Moist. GLACIAL TILL.		
20							-----20'-----	Boring terminated at 20 feet. No refusal encountered.		2" Dia. Sch. 40 PVC End Cap (19.9 to 20')
22										
24										
26										
28										

NOTES:

1. Soil samples were screened for volatile organic compounds (VOCs) using a MiniRae 3000 Photoionization Detector (PID) with a 10.6 eV lamp, calibrated to a 100 parts per million by volume (ppmv) isobutylene-in-air standard using a response factor of 1.0. ND indicates non-detect.
2. No soil samples were submitted for laboratory analysis.
3. Replacement monitoring well for EN-723 (i.e., EN-674) was decommissioned prior to Thermal Remediation.
4. Groundwater encountered during drilling at approximately 9.0' below ground surface.
5. Removed approximately 35 gallons of water during developmnet on 5/16/13.
6. NR indicates Split spoon blows were not recorded.

BORING LOG S:\PORDATA\2400S\2466.02\WORK\LOGS\2466.01_LOGS.GPJ 2010 SANBORN HEAD V1.GLB 2010 SANBORN HEAD V1.GDT 9/23/13

SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-724

Ground Elevation: 842.1 feet
PVC Elevation: 841.79 feet
Datum: NGVD 1929

Drilling Method: Vac 4000 (0.3 to 6' bgs) & CME 75 Truck Mounted Drill Rig with 4¼" ID HSA (6 to 19' bgs) equipped with 140 lb Safety Hammer
Sampling Method: Hand Auger & 4' PVC MacroCore® Sampler

Drilling Company: Parratt-Wolff, Inc.
Foreman: R. Navatka
Date Started: 05/13/13 **Date Finished: 05/16/13**
Logged By: AVK/LJJ **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
05/17/13	08:41	6.44'	Top of PVC	Well Installed	16.08'	22 hrs.
05/18/13	15:50	6.44'	Top of PVC	Well Installed	16.10'	48 hrs.
05/29/13	11:32	5.95'	Top of PVC	Well Installed	16.13'	13 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
0							-----0'-----			
							ASPHALT	ASPHALT. (Vacuum excavated 0.3 - 5' below ground surface).		
	S-1	0.3 - 5		---	PID: ND		-----0.3'-----			2" Dia. Sch. 40 PVC Riser (0.3 to 13.5')
							FILL	S-1A (0.3 to 1'): Dark brown, fine to coarse SAND and GRAVEL, trace Silt. Coarse fraction rounded to subangular. Moist.		9" Dia. Flushmounted Road Box with J-Plug Set in Concrete (-0.1 to 1')
							-----1'-----			
							ASPHALT	Secondary ASPHALT (1 - 1.3').		Filter Sand (0.5 to 1')
					PID: ND		-----1.3'-----			
2								S-1B (1.3 to 3'): Dark brown, fine to coarse SAND and GRAVEL, little Silt. Coarse fraction angular. Moist. FILL.		
					PID: ND		FILL	S-1C (3 to 4'): Dark brown to black, fine to coarse GRAVEL, some Sand, trace Silt, very few Brick fragments. Coarse fraction angular. Wet. FILL.		
4					PID: ND			S-1D (4 to 5'): Dark brown to black, fine to coarse GRAVEL and Clayey Silt, some Sand. Coarse fraction subangular to angular. Moist. FILL.		
	S-2	5 - 6		---	PID: 0.1 ppmv		-----5'-----	S-2 (5 to 6'): Dark gray, CLAY & SILT and fine to coarse Sand, trace Gravel. Coarse fraction angular. Wet.		
							CLAY & SILT			Cement Bentonite Grout (1 to 10.5')
6	S-3	6 - 10		48/24	PID: 1.3 ppmv		-----6'-----	S-3 (6 to 10'): Dark gray, SILT & CLAY. Moist. Wet at 6.0 feet.		
8										
10	S-4	10 - 14		48/24	PID: 2.9 ppmv		SILT & CLAY	S-4A (10 to 13.1'): Dark gray, SILT & CLAY. Moist.		
										Bentonite Seal (10.5 to 12.5')
12										
					PID: 0.5 ppmv			S-4B (13.1 to 13.8'): Dark gray, SILT & CLAY, little GRAVEL (Sandstone). Coarse fraction rounded. Moist.		
					PID: 0.1 ppmv		-----13.8'-----	S-4C (13.8 to 14'): Dark gray, fine to medium GRAVEL (fractured SHALE), little Silt & Clay. Coarse fraction angular. Moist. GLACIAL TILL.		
14	S-5	14 - 17		36/23	PID: 0.8 ppmv		GLACIAL TILL	S-5A (14 to 16.7'): Gray with slight orange mottling, fine to coarse GRAVEL (fractured SHALE), some		Filter Sand (12.5 to 16.5')

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SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-724

Ground Elevation: 842.1 feet
PVC Elevation: 841.79 feet
Datum: NGVD 1929

Drilling Method: Vac 4000 (0.3 to 6' bgs) & CME 75 Truck Mounted Drill Rig with 4¼" ID HSA (6 to 19' bgs) equipped with 140 lb Safety Hammer
Sampling Method: Hand Auger & 4' PVC MacroCore® Sampler

Drilling Company: Parratt-Wolff, Inc.
Foreman: R. Navatka
Date Started: 05/13/13 **Date Finished: 05/16/13**
Logged By: AVK/LJJ **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
05/17/13	08:41	6.44'	Top of PVC	Well Installed	16.08'	22 hrs.
05/18/13	15:50	6.44'	Top of PVC	Well Installed	16.10'	48 hrs.
05/29/13	11:32	5.95'	Top of PVC	Well Installed	16.13'	13 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
16							GLACIAL TILL	Silt & Clay, trace fine to coarse Sand. Coarse fraction angular. Moist. Wet at 15.1 feet. GLACIAL TILL.		2" Dia. Sch. 40 PVC Well Screen (0.010" Slots) (13.5 to 16.4')
							-----16.7'-----			
	S-6	17 - 19		24/13	PID: 0.2 ppmv PID: 0.5 ppmv		WEATHERED ROCK	S-5B (16.7 to 17'): Gray, very soft, severely weathered SHALE. Moist. S-6 (17 to 19'): Gray, very soft, severely weathered SHALE. Moist.		2" Dia. Sch. 40 PVC Conical End Cap (16.4 to 16.5') Sand for well base (16.5 to 19')
18							-----19'-----			
								Boring terminated at 19 feet. No refusal encountered.		
20								NOTES: 1. Soil samples were screened for volatile organic compounds (VOCs) using a MiniRae 3000 Photoionization Detector (PID) with a 10.6 eV lamp, calibrated to a 100 parts per million by volume (ppmv) isobutylene-in-air standard using a response factor of 1.0. ND indicates non-detect. 2. No soil samples were submitted for laboratory analysis. 3. Replacement monitoring well for EN-724 (i.e., EN-688) was decommissioned prior to Thermal Remediation. 4. Removed approximately 35 gallons of water during development on 5/16/13.		
22										
24										
26										
28										

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SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-725

Ground Elevation: 842.1 feet
PVC Elevation: 841.84 feet
Datum: NGVD 1929

Drilling Method: Vac 4000 (0.3 to 6' bgs) & CME 75 Truck Mounted Drill Rig with 4¼" ID HSA (6 to 32' bgs) equipped with 140 lb Safety Hammer

Sampling Method: Hand Auger, 24" long by 2" O.D. Split Spoon, 4' PVC MacroCore® Sampler

Drilling Company: Parratt-Wolff, Inc.

Foreman: R. Navatka

Date Started: 05/13/13 **Date Finished: 05/15/13**

Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
05/16/13	09:35	7'	Top of PVC	Well Installed	31.30'	16 hrs.
05/17/13	08:40	6.89'	Top of PVC	Well Installed	31.47'	40 hrs.
05/19/13	14:25	7.05'	Top of PVC	Well Installed	31.45'	96 hrs.
05/29/13	12:00	6.42'	Top of PVC	Well Installed	31.50'	14 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
0		0 - 0.3		---			-----0'----- ASPHALT -----0.3'-----	ASPHALT (Vacuum excavated 0.3 to 5' below ground surface).		9" Dia. Flushmounted Road Box with J-Plug Set in Concrete (-0.1 to 1')
	S-1	0.3 - 5		---	PID: ND		FILL	S-1A (0.3 to 1'): Dark brown, fine to coarse SAND and GRAVEL, trace Silt. Coarse fraction rounded to subangular. Moist.		2" Dia. Sch. 40 PVC Riser (0.3 to 27')
							-----1'----- ASPHALT -----1.3'-----	Secondary ASPHALT (1 to 1.3').		Filter Sand (0.5 to 1')
					PID: ND			S-1B (1.3 to 3'): Dark brown, fine to coarse SAND and GRAVEL, little Silt. Coarse fraction angular. Moist. FILL.		
2										
					PID: ND		FILL	S-1C (3 to 4'): Dark brown to black, fine to coarse GRAVEL, some Sand, trace Silt, very few Brick fragments. Coarse fraction angular. Wet. FILL.		
4					PID: ND			S-1D (4 to 5'): Dark brown to black, fine to coarse GRAVEL and Clayey Silt, some Sand. Coarse fraction subangular to angular. Moist. FILL.		
	S-2	5 - 6		---	PID: 0.1 ppmv		-----5'----- CLAY & SILT	S-2 (5 to 6'): Dark gray, CLAY & SILT and fine to coarse Sand, trace Gravel. Coarse fraction angular. Wet.		
6	S-3	6 - 10		48/23	PID: 2.1 ppmv		-----6'-----	S-3 (6 to 10'): Gray with orange mottling, SILT & CLAY. Moist.		
8										
							SILT & CLAY			
10	S-4	10 - 14		48/17	PID: 0.4 ppmv			S-4A (10 to 13.3'): Dark gray at top (10 - 12.8'). Gray with orange mottling (12.8 - 13.3'), SILT & CLAY. Moist.		Cement Bentonite Grout (1 to 20')
12										
					PID: 0.4 ppmv		-----13.3'-----	S-4B (13.3 to 14'): Gray, SILT & CLAY, some, fine to coarse GRAVEL (Shale & Sandstone). Coarse fraction rounded to angular. Moist. GLACIAL TILL.		
14	S-5	14 - 15		12/12	PID: 0.1 ppmv		GLACIAL TILL	S-5 (14 to 15'): Gray, SILT & CLAY, some, fine to coarse GRAVEL (Shale & Sandstone), trace Sand. Coarse fraction rounded to angular. Moist. GLACIAL TILL.		

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SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-725

Ground Elevation: 842.1 feet
PVC Elevation: 841.84 feet
Datum: NGVD 1929

Drilling Method: Vac 4000 (0.3 to 6' bgs) & CME 75 Truck Mounted Drill Rig with 4¼" ID HSA (6 to 32' bgs) equipped with 140 lb Safety Hammer

Sampling Method: Hand Auger, 24" long by 2" O.D. Split Spoon, 4' PVC MacroCore® Sampler

Drilling Company: Parratt-Wolff, Inc.

Foreman: R. Navatka

Date Started: 05/13/13 **Date Finished: 05/15/13**

Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
05/16/13	09:35	7'	Top of PVC	Well Installed	31.30'	16 hrs.
05/17/13	08:40	6.89'	Top of PVC	Well Installed	31.47'	40 hrs.
05/19/13	14:25	7.05'	Top of PVC	Well Installed	31.45'	96 hrs.
05/29/13	12:00	6.42'	Top of PVC	Well Installed	31.50'	14 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
	S-6	15 - 16		12/2				S-6 (15 to 16'): Gray, hard, fresh, SHALE. GLACIAL TILL.		
16	S-7	16 - 18		24/14	PID: 0.1 ppmv		GLACIAL TILL	S-7 (16 to 18'): Gray, fine to coarse GRAVEL and Clay & Silt, trace Sand. Coarse fraction subrounded to angular. Moist. GLACIAL TILL.		
18		18 - 19	12 19	---			-----18'-----	Augered (No Sample) (18 to 19').		
							No Sample			
	S-8	19 - 20.2	12 19 50/3"	14/14	PID: 0.5 ppmv		-----19'----- GLACIAL TILL	S-8A (19 to 19.8'): Dense, gray, CLAY & SILT, some fine to coarse Gravel, trace Sand. Coarse fraction angular. Moist. GLACIAL TILL.		
20					PID: 0.2 ppmv		-----19.8'----- WEATHERED ROCK	S-8B (19.8 to 20.2'): Gray, very soft, very severely weathered, very fine-grained SHALE, very thin horizontal bedding. Moist.		
		20.2 - 22.5		---			-----20.2-----	Augered (No Sample) (20.2 to 22.5').		
							No Sample			
22										
	S-9	22.5 - 24.5	12 21 36 13	24/12	PID: 0.5 ppmv		-----22.5'----- WEATHERED ROCK	S-9A (22.5 to 23.5'): Gray, very soft, completely weathered, very fine-grained SHALE. Moist.		Bentonite Seal (20 to 25')
24					PID: 1.2 ppmv			S-9B (23.9 to 24.5'): Gray, medium hard, slightly weathered, very fine-grained SHALE, very thin horizontal bedding. Moist.		
		24.5 - 26		---			-----24.5'-----	Augered (No Sample) (24.5 to 26').		
							No Sample			
26	S-10	26 - 26.9	50 50/0.4"	11/7	PID: 0.4 ppmv		-----26'----- WEATHERED SHALE	S-10A (26 to 26.5'): Gray, very soft, completely weathered, very fine-grained SHALE. Moist.		
					PID: 0.2 ppmv			S-10B (26.5 to 26.9'): Gray, medium hard, slightly weathered, very fine-grained SHALE, very thin horizontal bedding. Moist.		
		26.9 - 29.5		---			-----26.9'-----	Augered (No Sample) (26.9 to 29.5').		
28							No Sample			Filter Sand (25 to 32')
	S-11	29.5 - 31.5	18 20	24/16	PID: 1.3 ppmv		-----29.5'----- WEATHERED SHALE	S-11 (29.5 to 31.5'): Gray, very soft, very severely weathered, very fine-grained SHALE, very thin		2" Dia. Sch. 40 PVC Well Screen (0.010" Slots) (27

BORING LOG S:\PORDATA\2400S\2466.02\WORK\LOGS\2466.01_LOGS.GPJ 2010 SANBORN HEAD V1.GLB 2010 SANBORN HEAD V1.GDT 9/23/13

SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-725

Ground Elevation: 842.1 feet
PVC Elevation: 841.84 feet
Datum: NGVD 1929

Drilling Method: Vac 4000 (0.3 to 6' bgs) & CME 75 Truck Mounted Drill Rig with 4¼" ID HSA (6 to 32' bgs) equipped with 140 lb Safety Hammer

Sampling Method: Hand Auger, 24" long by 2" O.D. Split Spoon, 4' PVC MacroCore® Sampler

Drilling Company: Parratt-Wolff, Inc.

Foreman: R. Navatka

Date Started: 05/13/13 **Date Finished: 05/15/13**

Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
05/16/13	09:35	7'	Top of PVC	Well Installed	31.30'	16 hrs.
05/17/13	08:40	6.89'	Top of PVC	Well Installed	31.47'	40 hrs.
05/19/13	14:25	7.05'	Top of PVC	Well Installed	31.45'	96 hrs.
05/29/13	12:00	6.42'	Top of PVC	Well Installed	31.50'	14 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
30			36 16				WEATHERED SHALE	horizontal bedding. Moist.		to 31.9')
		31.5 - 32		---			-----31.5'----- No Sample	Augered (No Sample) (31.5 to 32').		
32							-----32'-----	Boring terminated at 32 feet. No refusal encountered.		2" Dia. Sch. 40 PVC Conical End Cap (31.9 to 32')
34										
36										
38										
40										
42										
44										

NOTES:

1. Soil samples were screened for volatile organic compounds (VOCs) using a MiniRae 3000 Photoionization Detector (PID) with a 10.6 eV lamp, calibrated to a 100 parts per million by volume (ppmv) isobutylene-in-air standard using a response factor of 1.0. ND indicates non-detect.
2. No soil samples were submitted for laboratory analysis.
3. Removed approximately 75 gallons of water during development on 5/16/2013.

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SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-726

Ground Elevation: 850.9 feet
PVC Elevation: 850.34 feet
Datum: NGVD 1929

Drilling Method: See Note 1.

Sampling Method: 24" long by 2" O.D. Split Spoon; 4' long Macrocores and Triple Tube Wireline Cores

Drilling Company: Parratt-Wolff, Inc.

Foreman: D. Richmond/L. Penrod

Date Started: 07/22/13 **Date Finished: 07/25/13**

Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
07/27/13	07:15	19.1'	Top of PVC		65'	24 hrs.
08/08/13	08:39	19.28'	Top of PVC		65'	13 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
0		0 - 0.5		---			-----0'----- ASPHALT -----0.5'-----	ASPHALT.		9" Dia. Flushmounted Road Box with J-Plug Set in Concrete (-0.1 to 1')
	S-1	0.5 - 3		---				S-1 (0.5 to 3'): Artificial Fill Materials - Cement Gravel. FILL.		2" Dia. Sch. 40 PVC Riser (0.5 to 60')
2							FILL			
	S-2	3 - 4		---	PID: 0.0 ppmv		-----3'-----	S-2 (3 to 4'): Reddish brown, GRAVEL, some fine to coarse Sand. Coarse fraction rounded to subangular. Dry.		
4	S-3	4 - 5		---	PID: 0.0 ppmv			S-3 (4 to 5'): Reddish brown, GRAVEL, some fine to coarse Sand. Coarse fraction rounded to subangular. Dry.		
	S-4	5 - 6		---	PID: 0.0 ppmv			S-4 (5 to 6'): Reddish brown, GRAVEL, some fine to coarse Sand. Coarse fraction rounded to subangular. Moist.		
6										
8	S-5	8 - 12		48/22	PID: 0.0 ppmv			S-5 (8 to 12'): Brown, fine to coarse SAND and GRAVEL, trace Silt. Coarse fraction angular. Moist.		
10										
12	S-6	12 - 15		36/24	PID: 0.0 ppmv		SAND & GRAVEL	S-6A (12 to 13.6'): Brown, fine to coarse SAND and GRAVEL, trace Silt. Coarse fraction rounded to angular. Moist.		
14					PID: 0.0 ppmv			S-6B (13.6 to 14.8'): Brown, fine to medium SAND, little Gravel. Coarse fraction rounded to angular. Moist.		
	S-7	15 - 19		48/12	PID: NR PID: 0.0 ppmv			S-6C (14.8 to 15'): Brown, fine to medium SAND. Moist.		
16					PID: - ppmv			S-7A (15 to 16'): Brown, fine to coarse SAND and GRAVEL, trace Silt, (Cobble stuck at bottom of Macrocore). Coarse fraction rounded to subangular. Moist.		
								S-7B (16 to 19'): No recovery.		
18										
	S-8	19 - 23		48/20	PID: 0.0 ppmv			S-8A (19 to 22.8'): Brown, fine to coarse SAND and GRAVEL, trace Silt. Coarse fraction subrounded to angular. Moist. Wet at 21.5'.		
20										
22										
	S-9	23 - 25		24/20	PID: 0.1 ppmv PID: 0.0 ppmv		-----22.8'----- SAND	S-8B (22.8 to 23'): Brown, fine to medium SAND. Wet. S-9 (23 to 25'): Brown, fine to medium SAND. Wet.		
24										

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SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-726

Ground Elevation: 850.9 feet
PVC Elevation: 850.34 feet
Datum: NGVD 1929

Drilling Method: See Note 1.

Sampling Method: 24" long by 2" O.D. Split Spoon; 4' long Macrocores and Triple Tube Wireline Cores

Drilling Company: Parratt-Wolff, Inc.

Foreman: D. Richmond/L. Penrod

Date Started: 07/22/13 **Date Finished: 07/25/13**

Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
07/27/13	07:15	19.1'	Top of PVC		65'	24 hrs.
08/08/13	08:39	19.28'	Top of PVC		65'	13 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
	S-10	25 - 29		48/48	PID: 0.0 ppmv			S-10 (25 to 29'): Brown, fine to medium SAND. Wet.		
26										Cement Bentonite Grout (0.5 to 53')
28										
	S-11	29 - 38		48/30	PID: 0.0 ppmv			S-11 (29 to 33'): Brown, fine to medium SAND, trace Gravel. Wet.		
30										
32										
	S-12	33 - 35		24/33	PID: 0.2 ppmv			S-12 (33 to 35'): Brown, fine to medium SAND, trace Gravel. Wet.		
34										
	S-13	35 - 39		48/30	PID: 0.0 ppmv			S-13A (35 to 37'): Brown, fine to medium SAND, trace Gravel. Wet.		
36										
					PID: 0.0 ppmv		SAND	S-13B (37 to 39'): Gray, fine SAND. Wet.		
38										
	S-14	39 - 43		48/12	PID: 0.0 ppmv			S-14 (39 to 43'): Gray, fine SAND. Wet.		
40										
42										
	S-15	43 - 45		24/16	PID: 0.0 ppmv			S-15 (43 to 45'): Brown, fine to medium SAND. Wet.		
44										
	S-16	45 - 49		48/36	PID: 0.0 ppmv			S-16A (45 to 48.2'): Brown, fine to medium SAND. Wet.		
46										
48										
					PID: 0.0 ppmv			S-16B (48.2 to 49'): Gray, fine SAND. Wet.		
	S-17	49 - 53		48/24	PID: 0.2 ppmv			S-17A (49 to 52.8'): Brown, fine to medium SAND. Wet.		

BORING LOG S:\PORDATA\2400S\2466.02\WORK\LOGS\2466.01_LOGS.GPJ 2010 SANBORN HEAD V1.GLB 2010 SANBORN HEAD V1.GDT 9/23/13

SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-726

Ground Elevation: 850.9 feet
PVC Elevation: 850.34 feet
Datum: NGVD 1929

Drilling Method: See Note 1.

Sampling Method: 24" long by 2" O.D. Split Spoon; 4' long Macrocores and Triple Tube Wireline Cores

Drilling Company: Parratt-Wolff, Inc.

Foreman: D. Richmond/L. Penrod

Date Started: 07/22/13 **Date Finished: 07/25/13**

Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
07/27/13	07:15	19.1'	Top of PVC		65'	24 hrs.
08/08/13	08:39	19.28'	Top of PVC		65'	13 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
50							SAND			
52							52.8' GLACIAL TILL			
	S-18	53 - 55		24/4	PID: 0.1 ppmv PID: 0.3 ppmv		-----53'-----	S-17B (52.8 to 53'): Gray, CLAY, little fine to coarse Sand, trace Gravel (fractured Shale). Moist. GLACIAL TILL.		
54								S-18 (53 to 55'): Soft, very severely weathered, gray, very fine-grained SHALE (bottom 4" of sample).		
	S-19	55 - 57	11 17 54 18	24/9	PID: 0.1 ppmv			S-19 (55 to 57'): Soft to medium hard, very severely weathered to moderately weathered, gray, very fine-grained SHALE, very thin horizontal bedding. RQD = 0%.		Bentonite Chips (Enviro Plug) (53 to 58')
56										
	S-20	57 - 59	6 10 9 14	24/9	PID: 0.3 ppmv			S-20 (57 to 59'): Soft to medium hard, very severely weathered to moderately weathered, gray, very fine-grained SHALE, very thin horizontal bedding. RQD = 8.3%.		US Silica Grade #0 Sand (58 to 65')
58							WEATHERED ROCK			
60	S-21	60 - 65		60/18	PID: - ppmv			S-21 (60 to 65'): Soft to medium hard, very severely weathered to moderately weathered, gray, very fine-grained SHALE, very thin horizontal bedding. RQD = 8.3%.		
62										2" Dia. Sch. 40 PVC Well Screen (0.010" Slots) (60 to 64.9')
64										
							-----65'-----			2" Dia. Sch. 40 PVC End Cap (64.9 to 65')
								Boring terminated at 65 feet. No refusal encountered.		
66								NOTES:		
68								1. Vacuum excavation was conducted from 0 to 8' below ground surface (bgs) using VAC4000, CME 75 truck-mounted drill rig with 4¼" HSA equipped with 140 lbs. Safety hammer was used from 8 to 55' bgs, and HQ triple-tube wireline rock coring was conducted from 55 to 65'.		
70								2. Soil and rock core samples were screened for volatile organic compounds (VOCs) using a MiniRae 3000 Photoionization Detector (PID) with a 10.6 eV lamp, calibrated to a 100 parts per million by volume (ppmv) isobutylene-in-air standard using a response factor of 1.0. ND indicates non-detect.		
72								3. No soil or rock core samples were submitted for laboratory analysis.		
								4. Approximately 500 gallons of water was lost during WQ triple-tube wireline rock coring.		
								5. Approximately 60 gallons of water was removed during development on 7/26/13.		
74								6. Groundwater was encountered at approximately		

SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-726

Ground Elevation: 850.9 feet
PVC Elevation: 850.34 feet
Datum: NGVD 1929

Drilling Method: See Note 1.

Sampling Method: 24" long by 2" O.D. Split Spoon; 4' long Macrocores and Triple Tube Wireline Cores
Drilling Company: Parratt-Wolff, Inc.
Foreman: D. Richmond/L. Penrod
Date Started: 07/22/13 **Date Finished: 07/25/13**
Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
07/27/13	07:15	19.1'	Top of PVC		65'	24 hrs.
08/08/13	08:39	19.28'	Top of PVC		65'	13 days

Depth (ft)	Sample Information					Stratum		Geologic Description	Well Diagram	Well Description
	Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Log	Description			
								21.5' bgs.		
76										
78										
80										
82										
84										
86										
88										
90										
92										
94										
96										
98										

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SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-727

Ground Elevation: 853.7 feet
PVC Elevation: 853.26 feet
Datum: NGVD 1929

Drilling Method: See Note 1.

Sampling Method: 24" long by 2" O.D. Split Spoon, 4' long MacroCore® and Triple Tube Wireline Cores

Drilling Company: Parratt-Wolff, Inc.

Foreman: D. Richmond/L. Penrod

Date Started: 07/22/13 **Date Finished: 07/24/13**

Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
07/25/13	16:00	21.7'	Top of PVC		80.7'	Post Development
07/27/13	07:30	21.69'	Top of PVC		80.7'	48 hrs.
08/08/13	07:22	21.99'			80.4'	14 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
0							0' ASPHALT 0.3			9" Dia. Flushmounted Road Box with J-Plug Set in Concrete (-0.1 to 1')
	S-1	0 - 0.3		---				ASPHALT.		
		0.3 - 0.5		---	PID: 0.7 ppmv			S-1 (0.3 to 0.5'): Brown, fine to coarse SAND, trace Silt. Coarse fraction rounded. Moist.		2" Dia. Sch. 40 PVC Riser (0.5 to 75.6')
2	S-2	2 - 4		---	PID: 0.0 ppmv			S-2 (2 to 4'): Light brown, fine to coarse SAND, some Gravel, little Silt. Coarse fraction rounded to subangular. Moist.		
4										
	S-3	5 - 6		---	PID: 0.0 ppmv			S-3 (5 to 6'): Dark brown, GRAVEL, some fine to coarse Sand, little Silt. Coarse fraction subrounded. Moist.		
6										
	S-4	7 - 11		48/36	PID: 0.0 ppmv			S-4 (7 to 11'): Dark gray, fine to coarse SAND and GRAVEL, trace Silt. Coarse fraction rounded to subangular. Dry to moist.		
8										
10										
	S-5	11 - 14		36/40	PID: 0.0 ppmv		SAND & GRAVEL	S-5 (11 to 14'): Gray, fine to coarse SAND and GRAVEL, trace Silt. Coarse fraction rounded to subangular. Dry to moist.		
12										
14	S-6	14 - 18		48/43	PID: 0.0 ppmv			S-6 (14 to 18'): Gray, fine to coarse SAND and GRAVEL, trace Silt. Coarse fraction rounded to subangular. Moist.		
16										
18	S-7	18 - 22		48/30	PID: 0.0 ppmv			S-7A (18 to 21.9'): Gray, fine to coarse SAND and GRAVEL, trace Silt. Coarse fraction rounded to subangular. Moist.		
20										
22							-----21.9'-----			
	S-8	22 - 25		36/20	PID: 0.0 ppmv PID: 0.0 ppmv		SAND	S-7B (21.9 to 22'): Brown, fine to medium SAND, trace Silt. Wet at 21.9'. S-8 (22 to 25'): Dark brown, fine to medium SAND. Wet.		
24										

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SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-727

Ground Elevation: 853.7 feet
PVC Elevation: 853.26 feet
Datum: NGVD 1929

Drilling Method: See Note 1.

Sampling Method: 24" long by 2" O.D. Split Spoon, 4' long MacroCore® and Triple Tube Wireline Cores
Drilling Company: Parratt-Wolff, Inc.
Foreman: D. Richmond/L. Penrod
Date Started: 07/22/13 **Date Finished: 07/24/13**
Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
07/25/13	16:00	21.7'	Top of PVC		80.7'	Post Development
07/27/13	07:30	21.69'	Top of PVC		80.7'	48 hrs.
08/08/13	07:22	21.99'			80.4'	14 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
26	S-9	25 - 29		48/31	PID: 0.0 ppmv			S-9A (25 to 27.1'): Dark brown, fine to medium SAND. Wet.		
28					PID: 0.0 ppmv		SAND	S-9B (27.1 to 29'): Light brown, olive, fine SAND, little Clayey Silt. Wet.		
30	S-10	29 - 33		48/22	PID: 0.1 ppmv			S-10A (29 to 31.7'): Dark brown, fine to medium SAND. Wet.		
32					PID: 0.0 ppmv		-----31.7'-----	S-10B (31.7 to 33'): Light gray, Clayey SILT. Wet.		
34	S-11	33 - 37		48/30	PID: 0.0 ppmv			S-11A (33 to 34.5'): Light gray, Clayey SILT. Wet.		Cement Bentonite Grout (0.5 to 68')
36					PID: 0.0 ppmv			S-11B (34.5 to 37'): Light gray, Clayey SILT. Wet.		
38	S-12	37 - 40		36/30	PID: 0.0 ppmv			S-12 (37 to 40'): Light gray, Clayey SILT. Wet.		
40	S-13	40 - 44		48/9	PID: 0.1 ppmv		CLAYEY SILT	S-13 (40 to 44'): Light gray, Clayey SILT. Wet.		
42										
44	S-14	44 - 48		48/42	PID: 0.2 ppmv			S-14 (44 to 48'): Light gray, Clayey SILT. Wet.		
46										
48	S-15	48 - 52		48/48	PID: 0.2 ppmv			S-15 (48 to 52'): Light gray, Clayey SILT. Wet.		

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SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-727

Ground Elevation: 853.7 feet
PVC Elevation: 853.26 feet
Datum: NGVD 1929

Drilling Method: See Note 1.

Sampling Method: 24" long by 2" O.D. Split Spoon, 4' long MacroCore® and Triple Tube Wireline Cores

Drilling Company: Parratt-Wolff, Inc.

Foreman: D. Richmond/L. Penrod

Date Started: 07/22/13 **Date Finished: 07/24/13**

Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
07/25/13	16:00	21.7'	Top of PVC		80.7'	Post Development
07/27/13	07:30	21.69'	Top of PVC		80.7'	48 hrs.
08/08/13	07:22	21.99'			80.4'	14 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
50										
52	S-16	52 - 55		36/48	PID: 0.1 ppmv			S-16 (52 to 55'): Light gray, Clayey SILT. Wet.		
54							CLAYEY SILT			
	S-17	55 - 59		48/48	PID: NA			S-17A (55 to 58.7'): Light gray, Clayey SILT. Wet.		
56										
58										
	S-18	59 - 62		36/18	PID: NA PID: 0.0 ppmv		-----58.7'-----	S-17B (58.7 to 59'): Light gray, fine to coarse SAND, some Gravel (fractured Shale), little Silt & Clay. Moist. GLACIAL TILL. S-18A (59 to 61.4'): Gray, GRAVEL (fractured SHALE), little Clayey Silt. Wet. GLACIAL TILL.		
60										
62	S-19	62 - 64	28 23 22 22	24/19	PID: 0.0 ppmv PID: 2.1 ppmv			S-18B (61.4 to 62'): Soft, gray, very severely weathered, very fine-grained SHALE. Dry. GLACIAL TILL. S-19 (62 to 64'): Dense, dark gray, GRAVEL (fractured SHALE), some Clayey Silt. Coarse fraction angular. Moist. GLACIAL TILL.		
64	S-20	64 - 66	12 29 22 44	24/16	PID: 0.0 ppmv		GLACIAL TILL	S-20 (64 to 66'): Very dense, gray, GRAVEL (fractured SHALE), some Clayey Silt. Coarse fraction angular. Moist. GLACIAL TILL.		
66	S-21	66 - 67.4	53 80 100/4	17/17	PID: 0.0 ppmv			S-21 (66 to 67.4'): Very dense, gray, GRAVEL (fractured SHALE), some Clayey Silt. Coarse fraction angular. Wet from 66 - 66.6'; Moist from 66.6 - 67.4'. GLACIAL TILL.		
68	S-22	68 - 70	23 24 53 74	24/24	PID: 0.0 ppmv			S-22 (68 to 70'): Very dense, gray, GRAVEL (fractured SHALE), some Clayey Silt. Coarse fraction angular. Wet. GLACIAL TILL.		
70	S-23	70 - 72	49 97 73 46	24/18	PID: 0.0 ppmv		-----70'-----	S-23 (70 to 72'): Soft, very severely weathered, gray, very fine-grained SHALE. Very thin horizontal bedding.		Bentonite Chips (Enviro Plug) (68 to 73')
72	S-24	72 - 74	58 63 90 47	24/15	PID: 0.0 ppmv		WEATHERED ROCK	S-24 (72 to 74'): Very soft, very severely weathered, gray, very fine-grained SHALE.		US Silica Grade #0 Sand (73 to 80.7')
74	S-25	74 - 76.5		30/18				S-25 (74 to 76.5'): Soft to medium hard, severely to moderately weathered, gray, very fine-grained		

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SANBORN HEAD

Sanborn, Head & Associates, Inc.

Project: Building 57
Location: Endicott, NY
Project No.: 2466.02

Log of Monitoring Well EN-727

Ground Elevation: 853.7 feet
PVC Elevation: 853.26 feet
Datum: NGVD 1929

Drilling Method: See Note 1.

Sampling Method: 24" long by 2" O.D. Split Spoon, 4' long MacroCore® and Triple Tube Wireline Cores

Drilling Company: Parratt-Wolff, Inc.

Foreman: D. Richmond/L. Penrod

Date Started: 07/22/13 **Date Finished: 07/24/13**

Logged By: AVK **Checked By: LJJ**

Groundwater Readings

Date	Time	Depth to Water	Ref. Pt.	Depth of Casing	Depth of Hole	Stab. Time
07/25/13	16:00	21.7'	Top of PVC		80.7'	Post Development
07/27/13	07:30	21.69'	Top of PVC		80.7'	48 hrs.
08/08/13	07:22	21.99'			80.4'	14 days

Depth (ft)	Sample Information: Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/ Rec (in)	Field Testing Data	Stratum: Log	Description	Geologic Description	Well Diagram	Well Description
76	S-26	76.5 - 81		54/30			WEATHERED ROCK	SHALE, very thin horizontal bedding. RQD = 0%. S-26 (76.5 to 81'): Soft to medium hard, severely to moderately weathered, gray, very fine-grained SHALE, very thin horizontal bedding. RQD = 0%.		
78										2" Dia. Sch. 40 PVC Well Screen (0.010" Slots) (75.6 to 80.6')
80										2" Dia. Sch. 40 PVC End Cap (80.6 to 80.7')
							-----81'-----	Boring terminated at 81 feet. No refusal encountered.		Collapsed Formation (80.7 to 81')
82								NOTES: 1. Vacuum excavation was conducted from 0 to 7' below ground surface (bgs) using VAC4000, CME 75 truck-mounted drill rig with 4¼" HSA equipped with 140 lbs. Safety hammer was used from 7 to 70' bgs, and HQ triple-tube wireline rock coring was conducted from 70 to 81'.		
84								2. Soil and rock core samples were screened for volatile organic compounds (VOCs) using a MiniRae 3000 Photoionization Detector (PID) with a 10.6 eV lamp, calibrated to a 100 parts per million by volume (ppmv) isobutylene-in-air standard using a response factor of 1.0. ND indicates non-detect.		
86								3. No soil or rock core samples were submitted for laboratory analysis.		
88								4. Approximately 500 gallons of water was lost during WQ triple-tube wireline rock coring.		
90								5. Approximately 240 gallons of water was removed during development on 7/25/13.		
92								6. Groundwater was encountered at approximately 21.9' bgs.		
94										
96										
98										

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