

Groundwater Sampling Report December 2008

**34 FREEMAN'S BRIDGE ROAD SITE
Site 4-47-028**

Work Assignment No. D004445-9

Prepared for:

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1.0 INTRODUCTION

This groundwater sampling report has been prepared by Earth Tech Northeast, Inc. (Earth Tech | AECOM) for the 34 Freeman's Bridge Road Site (Site), Site Number 4-47-028, located at 34 Freeman's Bridge Road, Town of Glenville, Schenectady County, New York (See Figure 1). This work is being performed under Work Assignment No. D004445-9 of the Superfund Standby Contract between the New York State Department of Environmental Conservation (NYSDEC) and Earth Tech | AECOM. The purpose of this report is to present the data collected from the December 2008 groundwater sampling event and any conclusions or suggestions drawn from this data. The groundwater sampling event is the second of eight quarterly events required during the first two years of monitoring at the Site as presented in the Site Management Plan (SMP).

1.1 SITE DESCRIPTION AND HISTORY

The Site is located in a commercial and light industrial area in the southeast part of the Town of Glenville, northeast of the Village of Scotia. The Site is on the northeast side of Freeman's Bridge Road approximately 1,000 feet northwest of the reconstructed Freeman's Bridge over the Mohawk River. Across the river lies an industrial and highly urbanized section of the City of Schenectady. The site is currently owned by Lyon's Ventures, Inc.

The site occupies approximately 13 acres, as determined by the estimated limits of impacted fill on the property and adjacent properties. The site is bordered to the east by the Delaware and Hudson Railroad, and Niagara Mohawk power line right of ways; to the north by Warner Creek; to the west by private properties and Freeman's Bridge Road; and to the south by private property. The Site is generally flat, with a rise in the grade approaching the railroad power line and right of ways and a swale centrally located that extends to Warner Creek. The Mohawk River approaches to within 300 feet south of the site. Warner Creek is a Class A designated tributary of the Mohawk River.

The property associated with the 34 Freeman's Bridge Road site was owned and had been used by the Kitchton Cooperage Company as a drum recycling facility since the late 1950's. A 12-acre parcel, Town of Glenville Tax Map # 30.19-01-26.1, was purchased in 1978 by Lyon's Ventures, Inc (Lyon's). In addition to operating a commercial used furniture business, Lyon's operations also included storing drummed waste on the site and receiving large quantities of fill and construction and demolition (C&D) debris that were spread across an 11-acre area south of Warner Creek. Drum recycling operations (late 1950's to 1972) by the Kitchton Cooperage Company, and more recent drum storage and unregulated fill operations conducted by Lyon's, contaminated the soils and groundwater to various degrees on the site, in particular the southwest corner, with polychlorinated biphenyls (PCBs).

A Remedial Investigation/Feasibility Study (RI/FS) was conducted by Earth Tech from 2000 through 2004 and a remediation strategy consisting of excavating and treating on-site via low temperature thermal technologies and the collection and treatment of contaminated water was recommended in the NYSDEC ROD (March 31, 2004). Remedial construction of the preferred alternative began in November 2006 and was completed in October 2007. In addition to treating

over 75,000 tons of hazardous and non-hazardous soils, over 9 million gallons of groundwater from the Site operations was treated by the on-site waste water treatment plant and discharged as per the NYSDEC approved site Dewatering Plan to the Warner's Creek.

A SMP (Earth Tech, 2008) was developed for the Site and approved by the NYSDEC in July 2008.

2.0 GROUNDWATER SAMPLING AND ANALYSIS

Earth Tech collected one round of groundwater samples from each of the 20 Site monitoring wells on December 3, 4, and 5, 2008. All groundwater samples were submitted for the Target Compound and Target Analysis Lists (VOCs by ASP 95-1, SVOCs by ASP 95-2, and TAL Metals by ASP CLP Methodologies). PCBs or pesticides were not detected during the first two rounds of sampling and the NYSDEC has determined that these compounds will be analyzed during annual sampling events. Since this is not an annual sampling event, PCBs and pesticides were not analyzed. Monitoring well purging/sampling logs were completed for each monitoring well and are presented in Appendix A.

2.1 METHODOLOGY

A complete round of depth to water readings was collected prior to sampling. In addition, before purging each well, a depth to water measurement was taken using an interface probe, which was decontaminated with a liquinox bath and rinsed with distilled water between each use. Prior to sampling, each monitoring well was purged of three well volumes. Purge water was disposed on the ground in the immediate vicinity of each well as per NYSDEC directive. Each pump was decontaminated after purging/sampling each monitoring well by a liquinox bath followed by a distilled water rinse.

After purging, temperature, conductivity, pH, turbidity, color and odor of the water were recorded on the monitoring well purging/sampling logs (Appendix A). Groundwater samples were collected using a Whale pump with dedicated polyethylene tubing and foot valve. All groundwater samples were collected in bottles provided by the laboratory. Samples were packed on ice, and submitted with a completed Chain-of-Custody (COC) to Adirondack Environmental Services, Inc., for analyses.

The groundwater levels were collected to develop a potentiometric map for the shallow groundwater zone and to determine the groundwater flow pathways.

3.0 MONITORING RESULTS

The following section presents the results of the December 2008 groundwater sampling events at the Site.

3.1 GROUNDWATER FLOW

Prior to groundwater sampling, water level measurements were collected and recorded for each well (Table 1). These water level elevations were then used to develop a groundwater flow map for the shallow aquifer (Figure 2). The overall direction of groundwater flow in the shallow portion of the aquifer was to the northwest in the southern portion of the site, trending to the north-northeast in the northern section. The water level in MW-16 appeared to be inaccurate in comparison with the other water level data for the Site and was not used in contouring for this sampling event. Groundwater flow in December appears to be influenced by the swale located in the center of the Site which drains to Warner creek to the north.

The December 2008 water level data indicates that groundwater flow in the deeper portion of the aquifer follows an overall northern direction, similar to prior sampling events.

3.2 GROUNDWATER ANALYTICAL RESULTS

This is the second of eight quarterly groundwater samplings as presented in the SMP. The groundwater results were evaluated based on comparison with NYS Ambient Water Quality Standards (AWQS) and guidance values, collectively known as Standards, Criteria and Guidelines (SCGs). In addition, the December 2008 results were compared to the August and March 2008 results (the first round of groundwater samples collected following the completion of the remedial action).

During this sampling event many of the site wells showed a significant amount of sediment in the water being purged from the wells. The fine nature of the thermally treated soil replaced on the site may be the source of the excess sediment in the wells. The particulate matter caused the sampling water to be turbid, leading to difficulties in the sealing of the VOC vials. In addition, MW-20 exhibited a strong odor and yellow coloration during the sampling event. The close proximity of the Veterinarians office to the West of the well may result in septic system discharge into the monitoring well.

Table 2 through 4 presents the groundwater analysis for the 20 monitoring wells sampled during the December 2008 sampling event, and the prior sampling in August and March 2008, for VOCs, SVOCs, and metals, respectively. These tables show only those compounds detected above laboratory detection limits.

3.2.1 Volatile Organic Compounds

The results of the VOC analyses are presented in Table 2. Nine of the monitoring wells showed VOC exceedences this sampling event compared to 10 in August of 2008. As in the previous sampling events, one of the primary compounds detected in the site wells was cis-1,2-

dichloroethene, found in five of the 20 Site wells. Concentrations of cis-1,2-dichloroethene ranged up to 42 µg/L. All but one of the wells (the exception being MW-23) had increases in the concentration of this compound compared to those measured in August 2008. Well MW-23 showed a reduction in cis-1,2-dichloroethene, from 68 µg/L to a concentration of 21 µg/L.

Other volatile compounds detected include vinyl chloride, acetone, methyl tert-butyl ether (MTBE), trichloroethene, ethylbenzene, xylenes, 2-Butanone, chloroethene, and isopropylbenzene. The highest concentrations were for ethylbenzene and xylenes in MW-30, the only well to detect these compounds. This well had a total VOC concentration of 3,393 µg/L, a significant decrease in the concentration from the total VOC concentration of 10,520 µg/L in the August 2008 sampling event. MW-30 is located in a section of the former excavation that exhibited some evidence of non-aqueous phase liquid (NAPL) during the excavation process, and some oily residue has been noted during sampling. In addition, elevated VOC concentrations were detected in shallow monitoring well MW-20, with a total VOC concentration of 3,310 µg/L, an increase from the previous total VOC concentration of 1,400 µg/L in the August 2008 sampling event. The primary compound detected was acetone, at a concentration of 2,900 µg/L. This monitoring well is located along the northwestern boundary of the property, adjacent to the veterinary clinic. This is the second time that this monitoring well has shown a rise in total VOC concentrations. Total VOC concentrations for all the monitoring wells are shown in Figure 3.

As in the March 2008 and August 2008 sampling event, the only deep wells to show any VOC concentrations above detection limits were MW-19D located off-site to the south east, and MW-16D located in the northeastern edge of the site (MW-11D showed methylene chloride at a low concentration of 5 µg/L; most likely a lab contaminant since it was detected in the method blank). Both MW-19D and MW-16D showed concentrations of cis-1,2 dichloroethene above AWQS standards (5 µg/L) at 11 µg/L (MW-16D) and 42 µg/L (MW-19D). These concentrations did not vary significantly from the August 2008 or March 2008 data.

3.2.2 Semi-volatile Organic Compounds

Concentrations of SVOCs above laboratory detection limits were found in four monitoring wells: MW-19, MW-20, MW-30, and MW-32 (see Table 3). Decreased phenol concentrations were found in MW-20, exhibiting a decrease from 1,700 µg/L in August 2008 to 930 µg/L in December 2008. In addition, 2-methylphenol decreased from 200 µg/L to 140 µg/L and 4-methylphenol decreased from 1,100 µg/L in August 2008 to 650 µg/L in December 2008. All of these concentrations remain significantly above the AWQS standards.

In addition MW-19 displayed exceedences in benzo(a)anthracene, benzo(b)fluorathene, and benzo(k)fluoroathene for the first time. The monitoring well also showed several other SVOC hits but these contaminants did not exceed the AWGS standards. The total SVOC concentration for MW-19 was 128 µg/L, an increase from 25 µg/L detected during the August 2008 sampling event. This well is considered upgradient from the Site, therefore, these compounds may be associated with other non Site related sources.

Other monitoring wells showing concentrations exceeding the AWQS standards were MW-32 with 13 µg/L of phenol, and MW-30 with 100 µg/L 2,4-dimethylphenol, and 22 µg/L naphthalene.

3.2.3 Metals plus Cyanide

Table 4 presents the results for the metals analysis for the December 2008 sampling event. Several compounds were detected at concentrations over the AWQS and GV for metals in drinking water. These compounds included antimony, iron, lead, magnesium, manganese, sodium, and thallium. Of these compounds, iron, manganese and sodium were detected in more wells at levels above the AWQS than any of the other compounds. Most of the wells on site showed little variation in the concentrations of each of the metals, with the exception of sodium, which increased in concentration in most of the monitoring wells in comparison with the August 2008 data. There were no exceedences of the AWQS standards for cyanide in any of the Site's monitoring wells.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Comparison of the December 2008 groundwater analytical data to the previous data from August and March 2008 shows changes to six of the 20 site wells. Most notably, there has been a decrease in the concentrations of total VOCs in MW-30 from 10,520 µg/L to 3,393 µg/L. The presence of NAPL during the remedial investigation in the area of MW-30 may be an explanation for ethylbenzene and xylene concentration exceedences and an oily residue has been noted on the sampling tubes during the quarterly sampling events. Additionally, there has been an increase in the concentration of acetone in MW-20 from 1,400 µg/L in August 2008 to 2,900 µg/L in December 2008. MW-23 showed exceedences of chloroethene, vinyl chloride with concentrations of 34 µg/L and 16 µg/L, respectively.

Upgradient well MW-19, located off-site, showed AWQS exceedences of SVOC concentrations of benzo(a)anthracene, benzo(b)fluorathene, and benzo(k)fluoroathene for the first time. In addition, MW-19 has shown exceedences of MTBE in the last two sampling events, and MW-19D continues to show elevated levels of cis-1,2- dichloroethene.

Due to the high volume of sediment in the monitoring wells on the site, an additional round of well re-development is recommended to help improve the turbidity of the samples.

In addition it is recommended that that MW-20 be sampled for nitrates, nitrites, total Coliform bacteria during the next sampling event to determine if septic discharge is possibly entering the well from the veterinary clinic located to the west.

TABLES

Table 1

**Groundwater Elevations and Monitoring Well Details
34 Freemans Bridge Road
Glenville, New York
Site #4-47-028**

December 2008

Date				Dec-08	
Monitoring Well	GROUND Elevation	CASING Elevation	Measuring Point	Depth To Water (ft)	Ground Water Elevation (ft)
MW-11	228.57	231.42	231.23	11.41	219.82
MW-11D	228.61	231.26	231.20	11.16	220.04
MW-12	228.50	231.06	230.68	12.36	218.32
MW-15	FLUSH	224.47	224.14	3.31	220.83
MW-15D	FLUSH	224.49	224.35	3.44	220.91
MW-16	226.09	228.68	228.41	6.15	222.26
MW-16D	225.81	227.67	227.49	8.28	219.21
MW-18	227.29	229.94	229.58	6.41	223.17
MW-19	224.77	227.27	227.12	4.94	222.18
MW-19D	224.89	226.14	226.01	4.15	221.86
MW-20	224.80	226.99	226.89	6.37	220.52
MW-20D	224.72	227.16	227.13	6.58	220.55
MW-21	224.52	227.51	227.46	6.89	220.57
MW-21D	224.71	229.56	229.05	8.61	220.44
MW-23	221.99	224.93	224.86	4.81	220.05
MW-23D	222.36	224.46	224.32	4.02	220.30
MW-30	223.57	226.26	226.19	6.12	220.07
MW-31	223.18	225.55	225.43	5.48	219.95
MW-32	224.92	227.83	227.32	6.68	220.64
MW-33	224.18	227.37	226.99	6.07	220.92

MP = Measuring point established on top of pvc (black marker)

All measurements in Feet

Table 2
Groundwater Analytical Summary
Volatile Organic Compounds
34 Freemans Bridge Road
Glenville, New York
December 2008

Sample ID		MW11			MW11D			MW12			MW15			MW15D			MW16			MW16D			MW18			MW19			MW19D		
Sampling Date		3/27/08	8/26/08	12/3/08	3/27/08	8/26/08	12/3/08	3/24/08	8/26/08	12/5/08	3/26/08	8/26/08	12/5/08	3/26/08	8/26/08	12/5/08	3/25/08	8/26/08	12/3/08	3/25/08	8/26/08	12/3/08	3/26/08	8/26/08	12/5/08	3/26/08	8/25/08	12/4/08	3/26/08	8/25/08	12/4/08
Units		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
VOCs	AWQS/GV Values																														
Vinyl chloride	2	5 U	10 U	10 U	5 U	10 U	10 U	5 U	10 U	10 U	16	76	44	5 U	10 U	10 U	5 U	10 U	10 U	5 U	10 U	10 U	5 U	10 U	10 U	5 U	10 U	10 U	5 U	10 U	10 U
Methylene chloride	5	5 U	5 U	11	5 U	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methyl tert-butyl Ether	10(GV)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.9	5 U	5 U	5 U	5 U	5 U	5 U	23	12	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	8.3	15	17	5 U	5 U	5 U	5 U	5 U	5 U	25	9.2	11	5 U	5 U	5 U	5 U	5 U	5 U	36	33	42
Trichloroethene	5	17	9.9	12	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	5	7	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Total VOC's		24	9.9	23	0	5	5	0	0	0	24.3	91	61	0	0	0	0	24	0	30.9	9.2	11	0	0	0	0	23	12	36	33	42

Sample ID		MW20			MW20D			MW21			MW21D			MW23			MW-23D			MW30			MW31			MW32			MW33		
Sampling Date		3/24/08	8/25/08	12/4/08	3/24/08	8/25/08	12/4/08	3/24/08	8/25/08	12/4/08	3/24/08	8/25/08	12/4/08	3/27/08	8/25/08	12/3/08	4/4/08	8/25/08	12/3/08	3/25/08	8/26/08	12/5/08	3/25/08	8/26/08	12/4/08	3/27/08	8/26/08	12/5/08	3/26/08	8/26/08	12/5/08
Units		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
VOCs	AWQS/GV Values																														
Vinyl chloride	2	5 U	100 U	200 U	5 U	10 U	10 U	5 U	10 U	10 U	5 U	10 U	10 U	10	10 U	16	5 U	10 U	10 U	5 U	200 U	100 U	7.9	13	12	5 U	10 U	10 U	5 U	10 U	10 U
Chloroethane	5	5 U	100 U	200 U	5 U	10 U	10 U	5 U	10 U	10 U	5 U	10 U	10 U	5 U	10 U	34	5 U	10 U	10 U	5 U	200 U	100 U	5 U	10 U	10 U	5 U	10 U	10 U	5 U	10 U	10 U
Acetone	50 (GV)	720 D	1400 D	2900 D	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	200 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U	36	10 U	16
Methylene chloride	5	5 U	50 U	120 D	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	100 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	5	5 U	50 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	49	68	21	5 U	5 U	5 U	50	100 U	50 U	12	10	14	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	50(GV)	77	100 U	290 D	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	200 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	1	5 U	50 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	100 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6	6 U
Methylcyclohexane	NS	5 U	50 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	26	100 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	50 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	69	100 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	50 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	110	1700 D	610 D	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
o-xylene	5	5 U	50 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	110	140 D	73 D	140	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
m&p-xylenes	5	5 U	50 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	3000 D	8500 E	2600 E	5.8	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isopropylbenzene	5	5 U	50 U	100 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	72	180 D	110 D	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Total VOC's		797	1400	3310	0	0	0	0	0	0	0	0	0	59	68	71	0	0	0	3437	10520	3393	165.7	23	26	0	0	0	36	6	16

Qualifiers:
NA - Not analyzed
ND - Non Detect
E - Value above quantitation range
B - For organic analyses - compound detected in laboratory method blank. For inorganic analyses - indicates trace concentration below reporting limit and equal to or above the detection limit.
U - Compound not detected at or above the instrument detection limit (IDL).
J - Estimated concentration above the IDL but less than the contract required detection limits (CRDL).
D - Results from a subsequent dilution of the original sample due to original sample results being outside the linear range.
** New York State Ambient Water Quality Standards (TOGs 1.1.1) GV - guidance value.
NS - no standard or Guidance Value
Detected concentrations shown in bold font. Bold font in shaded cell indicates exceedances of AWQS+GV.

Table 3
Groundwater Analytical Summary
Semi-Volatile Organic Compounds
34 Freemans Bridge Road
Glenville, New York
December 2008

Sample ID		MW11			MW11D			MW12			MW15			MW15D			MW16			MW16D			MW18			MW19			MW19D		
Sampling Date		3/27/08	8/26/08	12/3/08	3/27/08	8/26/08	12/3/08	3/24/08	8/26/08	12/5/08	3/26/08	8/26/08	12/5/08	3/26/08	8/26/08	12/5/08	3/25/08	8/26/08	12/3/08	3/25/08	8/26/08	12/3/08	3/26/08	8/26/08	12/5/08	3/26/08	8/25/08	12/4/08	3/26/08	8/25/08	12/4/08
Units		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
SVOCs	AWQS/GV Values																														
2-Chlorophenol	1	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5 U	9	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenanthrene	50(GV)	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	7	23	5 U	5 U	5 U
Anthracene	50(GV)	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5	11	5 U	5 U	5 U
Fluoranthene	50(GV)	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	7	31	5 U	5 U	5 U
Pyrene	50(GV)	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6	16	5 U	5 U	5 U
Benzo(a)anthracene	0.002	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	11	5 U	5 U	5 U
Chrysene	0.002	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	11	5 U	5 U	5 U
Bis(2-ethylhexyl)phthalate	5	5 U	5 U	5 U	5 U	5 U	6	5.1 U	5 U	7 B	5 U	6 U	7 B	5 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	15 B	5 U	5 U	11 B
Benzo(b)fluoranthene	0.002 (GV)	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	8	5 U	5 U	5 U
Benzo(k)fluoranthene	0.002 (GV)	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	8	5 U	5 U	5 U
Benzo(a)pyrene	ND	5 U	5 U	5 U	5 U	5 U	5 U	5.1 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	9	5 U	5 U	5 U
Total SVOCs		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.8	0	0	0	0	0	0	9	0	0	25	128	0	0	0

Sample ID		MW20			MW20D			MW21			MW21D			MW23			MW-23D			MW30			MW31			MW32			MW33			
Sampling Date		3/24/08	8/25/08	12/4/08	3/24/08	8/25/08	12/4/08	3/24/08	8/25/08	12/4/08	3/24/08	8/25/08	12/4/08	3/27/08	8/25/08	12/3/08	4/4/08	8/25/08	12/3/08	3/25/08	8/26/08	12/5/08	3/25/08	8/26/08	12/4/08	3/27/08	8/26/08	12/5/08	3/26/08	8/26/08	12/5/08	
Units		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
SVOCs	AWQS/GV Values																															
	Phenol	1	180 D	1700 D	930 E	5 U	5 U	5 U	5.2 U	5 U	5 U	5.1 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	11 U	15 U	5 U	5 U	5 U	5 U	5 U	5 U	13	5 U	6 U	6 U
	2-Methylphenol	1	9.2	200 D	140 D	5 U	5 U	5 U	5.2 U	5 U	5 U	5.1 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	11 U	15 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	
	4-Methylphenol	1	NA	1100 D	650 D	NA	5 U	5 U	NA	5 U	5 U	NA	5 U	5 U	NA	5 U	6 U	5 U	5 U	5 U	NA	11 U	15 U	NA	5 U	5 U	NA	5 U	5 U	5 U	6 U	6 U
	2,4-Dimethylphenol	50(GV)	5.1 U	110 U	56 U	5 U	5 U	5 U	5.2 U	5 U	5 U	5.1 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	21	110 D	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	
	Naphthalene	10(GV)	4.8 J	110 U	56 U	5 U	5 U	5 U	5.2 U	5 U	5 U	5.1 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	2.3 J	15 D	22	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	
	Acenaphthylene	NS	3.2 J	110 U	56 U	5 U	5 U	5 U	5.2 U	5 U	5 U	5.1 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U	5 U	11 U	15 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U	6 U	
	Bis(2-ethylhexyl)phthalate	5	5.1 U	110 U	56 U	5 U	5 U	5 U	5.2 U	5 U	14 B	5.1 U	5 U	6 B	5 U	5 U	6 U	5 U	5 U	5 U	11 U	15 U	5 U	5 U	10 B	5 U	5 U	6 B	5 U	6 U	6 U	
	Total SVOCs		197.2	3000	1720	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23.3	125	122	0	0	0	0	0	13	0	0	0

Qualifiers:
NA - Not analyzed
ND - Non Detect
E - Value above quantitation range
B - For organic analyses - compound detected in laboratory method blank. For inorganic analyses - indicates trace concentration below reporting limit and equal to or above the detection limit.
U - Compound not detected at or above the instrument detection limit (IDL).
J - Estimated concentration above the IDL but less than the contract required detection limits (CRDL).
D - Results from a subsequent dilution of the original sample due to original sample results being outside the linear range.
** New York State Ambient Water Quality Standards (TOGS 1.1.1) GV - guidance value.
NS - no standard or Guidance Value
Detected concentrations shown in bold font. Bold font in shaded cell indicates exceedances of AWQS+GV.

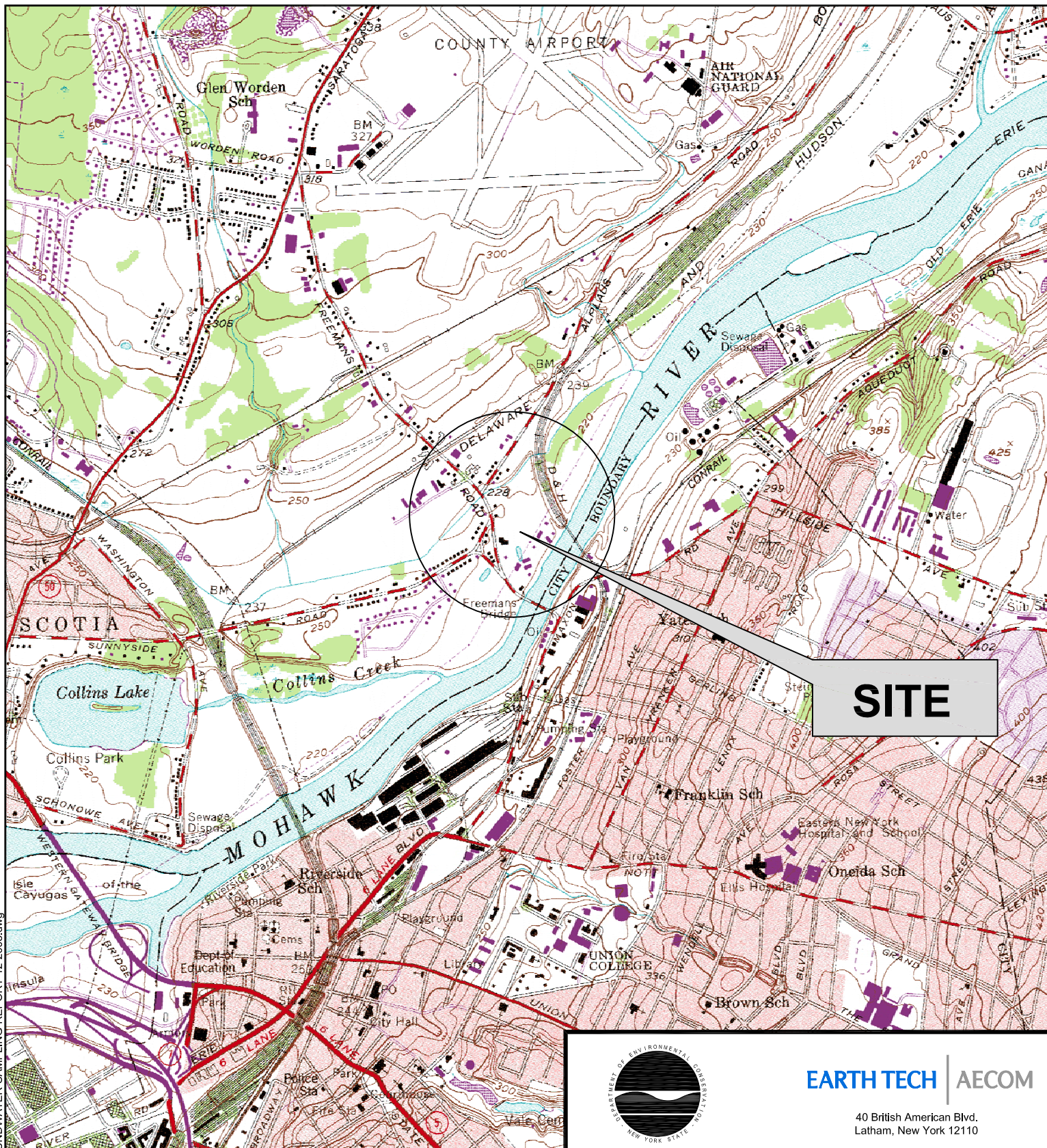
Table 4
Groundwater Analytical Summary
Metals
34 Freemans Bridge Road
Glenville, New York
December 2008


Sample ID		MW11			MW11D			MW12			MW15			MW15D			MW16			MW16D			MW18			MW19			MW19D																			
Sampling Date		3/27/08	8/26/08	12/3/08	3/27/08	8/26/08	12/3/08	3/24/08	8/26/08	12/5/08	3/26/08	8/26/08	12/5/08	3/26/08	8/26/08	12/5/08	3/25/08	8/26/08	12/3/08	3/25/08	8/26/08	12/3/08	3/26/08	8/26/08	12/5/08	3/26/08	8/25/08	12/4/08	3/26/08	8/25/08	12/4/08																	
Units		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l																	
Metals	AWQS/GV Values																																															
Aluminum	NS	4190	521	307	60.4	J	100	U	100	U	830	14100	1460	1840	6660	10900	45.8	U	430	440	45.8	U	100	U	100	U	103	J	100	U	100	U	930	970	386	458	990	1420	694	1390	496							
Antimony	3	6.8	U	60	U	60	U	6.8	U	60	U	60	U	6.8	U	60	U	6.8	U	60	U	60	U	6.8	U	60	U	6.8	U	60	U	60	U	15.1	J	60	U	60	U									
Arsenic	25	5.99	J	5	U	5	U	3.9	U	5	U	5	U	3.9	U	5	U	3.9	U	5	U	7	5	U	3.9	U	5	U	5	S	3.9	U	7	5	U	3.9	U	5	U	5	U							
Barium	1000	79.4	J	67	60	153	J	187	180	40.5	J	181	79	29.3	J	66	90	13.2	J	21	25	247	160	241	35.5	J	54	54	19.6	J	51	21	29.1	J	109	73	42.3	J	60	53								
Beryllium	3	0.59	J	5	U	5	U	0.3	U	5	U	5	U	0.38	J	5	U	5	U	0.3	U	5	U	0.3	U	5	U	0.3	U	5	U	5	U	0.3	U	5	U	0.3	U	5	U	5	U					
Cadmium	5	1.1	U	5	U	5	U	1.1	U	5	U	5	U	1.1	U	5	U	1.1	U	5	U	5	U	1.1	U	5	U	1.1	U	5	U	5	U	1.1	U	5	U	5	U	1.1	U	5	U	5	U			
Calcium	NS	117000	161000	149000	178000	311000	284000	95100	149000	140000	65600	115000	127000	61100	111000	112000	347000	254000	250000	69200	121000	112000	58400	141000	49800	67700	162000	152000	120000	156000	146000																	
Chromium	50	10.4	5	U	5	U	1.2	U	5	U	1.5	J	20	5	U	3.27	J	6	5	U	1.31	J	5	U	5	U	4.33	J	5	U	5	U	4.65	J	5	U	5	U	7.04	J	5	U	5	U				
Cobalt	NS	6.78	J	50	U	50	U	2.4	U	50	U	50	U	3.05	J	50	U	2.4	U	50	U	50	U	2.4	U	50	U	2.56	J	50	U	50	U	2.4	U	50	U	7.29	J	50	U	50	U					
Copper	200	11.4	J	5	U	5	U	1.7	U	5	U	35	8	4.06	J	15	30	1.7	U	5	U	5	U	1.7	U	5	U	7	S	2.86	J	10	5	U	1.93	J	5	U	5	U	5	U						
Iron	300	11500	1640	1250	3100	6310	6820	2160	26500	2610	4080	1110	18400	37	U	864	831	19200	14500	11400	1640	1200	1210	2530	2080	712	S	1520	4570	3410	8990	9350	6950															
Lead	25	11.7	5	U	5	U	4.6	U	5	U	4.6	U	5	U	4.6	U	5	U	4.6	U	5	U	4.6	U	5	U	4.6	U	5	U	4.6	U	5	U	4.6	U	5	U	4.6	U	5	U	4.6	U	5	U		
Magnesium	35000 (GV)	18800	22800	21800	31200	34500	30000	10300	20000	17300	11400	20000	24100	10300	17900	19200	47900	48200	34000	11100	19500	18800	9290	20600	9020	7680	19400	19600	17300	22200	21200																	
Manganese	300	1180	2200	1780	269	540	529	49	242	59	224	474	583	38.7	108	114	2430	3000	1490	841	803	598	62.7	218	48	116	1820	597	429	594	523																	
Mercury	0.7	0.08	U	0.2	U	0.2	U	0.08	U	0.2	U	0.2	U	0.08	U	0.2	U	0.08	U	0.2	U	0.08	U	0.2	U	0.08	U	0.2	U	0.2	U	0.08	U	0.2	U	0.08	U	0.2	U	0.08	U	0.2	U	0.08	U	0.2	U	
Nickel	100	10.9	J	20	U	20	U	4.7	U	20	U	21	20	4.7	U	20	U	29	4.7	U	20	U	20	U	4.7	U	20	U	20	U	4.7	U	20	U	20	U	4.7	U	20	U	20	U	4.7	U	20	U		
Potassium	NS	1590	J	2130	1710	2490	J	2990	2830	1170	J	6180	2970	1540	J	5120	6220	1480	J	3340	3240	7790	6040	9430	1100	J	2680	2430	615	J	1690	752	1560	J	6280	4850	883	J	1670	1330								
Selenium	10	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	S	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	
Silver	50	0.7	U	10	U	10	U	0.7	U	10	U	10	U	0.7	U	10	U	0.7	U	10	U	10	U	0.7	U	10	U	10	S	0.7	U	10	U	10	U	0.7	U	10	U	0.7	U	10	U	0.7	U	10	U	
Sodium	20000	23600	27300	34300	69200	40200	83600	6500	11500	14200	14200	26600	35900	30500	34600	38400	31300	22800	20500	35800	42000	53900	3570	J	10000	13200	8400	15100	12700	5960	5610	6810																
Thallium	0.5 (GV)	8	U	10	U	8	U	10	U	10	U	8	U	10	U	10	U	8	U	10	U	10	U	8	U	10	U	10	U	8	U	10	U	10	U	8	U	10	U	10	U	8	U	10	U	10	U	
Vanadium	NS	12.6	J	20	U	20	U	3.1	U	20	U	31	20	4.9	J	20	U	29	3.1	U	20	U	20	U	3.1	U	20	U	20	U	3.1	U	20	U	20	U	3.1	U	20	U	20	U	3.1	U	20	U	20	U
Zinc	2000 (GV)	51.5	J	10	U	10	U	9.89	J	10	U	10	U	19.2	J	136	23	23	J	34	74	10.6	J	13	13	16.7	J	10	U	10	U	26.6	J	10	U	12	17.3	J	38	35	21.1	J	10	U	10	U		
Cyanide	200	28.1	10	U	10	U	4.5	10	U	10	U	2.9	10	U	10	U	10	U	10	U	10	U	7.6	10	U	10	U	5.1	20	10	U	2.3	10	U	10	U	2.3	10	U	10	U	4.8	10	U	10	U		

Sample ID		MW20			MW20D			MW21			MW21D			MW23			MW-23D			MW30			MW31			MW32			MW33																
Sampling Date		3/24/08	8/25/08	12/4/08	3/24/08	8/25/08	12/4/08	3/24/08	8/25/08	12/4/08	3/24/08	8/25/08	12/4/08	3/27/08	8/25/08	12/3/08	4/4/08	8/25/08	12/3/08	3/25/08	8/26/08	12/5/08	3/25/08	8/26/08	12/4/08	3/27/08	8/26/08	12/5/08	3/26/08	8/26/08	12/5/08														
Units		ug/l		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l														
Metals	AWQS/GV Values																																												
Aluminum	NS	141	J	3090	2060	347	649	136	441	3310	2410	45.8	U	100	U	100	U	386	3650	11400	1400	544	252	401	707	286	265	820	131	1590	2730	13700	45.8	U	1780	812									
Antimony	3	6.8	U	60	U	6.8	U	60	U	60	U	10.2	J	60	U	60	U	6.8	U	60	U	60	U	6.8	U	60	U	6.8	U	60	U	6.8	U	60	U	6.8	U	60	U						
Arsenic	25	4.77	J	21	9	S	3.9	U	5	U	5	U	3.9	U	5	U	5	U	3.9	U	5	U	5	S	3.9	U	5	U	5	U	3.9	U	5	U	3.9	U	5	S							
Barium	1000	64.2	J	240	319	56	J	115	104	67	J	153	286	80.3	J	113	98	44.1	J	132	193	101	J	88	80	132	J	113	100	41.7	J	96	81	89.2	J	142	214	39.8	J	98	81				
Beryllium	3	0.3	U	5	U	0.3	U	5	U	5	U	0.3	U	5	U	5	U	0.3	U	5	U	5	U	0.3	U	5	U	0.36	J	5	U	5	U	0.41	J	5	U	5	U	0.3	U	5	U		
Cadmium	5	1.1	U	5	U	1.1	U	5	U	5	U	1.1	U	5	U	5	U	1.1	U	5	U	5	U	1.1	U	5	U	1.1	U	5	U	5	U	1.1	U	5	U	1.1	U	5	U	1.1	U	5	U
Calcium	NS	168000	460000	635000	61100	114000	102000	186000	351000	341000	82200	114000	98300	88800	136000	147000	123000	110000	100000	126000	126000	103000	115000	183000	179000	99200	156000	217000	128000	415000	596000														
Chromium	50	1.2	U	5	U	1.2	U	5	U	5	U	8.49	J	5	U	44	1.2	U	5	U	5	U	1.73	J	5	U	27	2.67	J	5	U	5	U	1.2	U	5	U	4.85	J	5	U	5	U		
Cobalt	NS	2.4	U	50	U	2.4	U	50	U	50	U	6.67	J	50	U	50	U	2.4	U	50	U	50	U	2.4	U	50	U	2.4	U	50	U	5.84	J	50	U	50	U	5.84	J	50	U	50	U		
Copper	200	12.9	J	29	10	2.1	J	5	U	5	U	1.7	U	5	U	5	U	1.7	U	5	U	5	U	1.7	U	5	U	1.7	U	5	U	1.97	J	5	U	29	1.7	U	8	5	S				
Iron	300	37	U	3660	2350	1630	2480	1420	9160	20400	58700	1050	1650	1400	3890	18000	45900	5560	2630	1840	6430	5410	5510	1800	S	6050	3160	7900	14800	39700	2480	6190	3000	S											
Lead	25	4.6	U	5	U	9	4.6	U	5	U	5	U	4.6	U	5	U	5	U	30.5	130	515	4.96	J	5	U	5	U	4.6	U	5	U	5.73	J	5	U	44	4.6	U	7	5	U				
Magnesium	35000 (GV)	3950	J	5510	1760	9700	18600	17400	28800	50500	58200	13900	19400	17100	13800	23100	27200	19400	16900	15900	20900	16500	16900	17400	39500	36000	17800	29100	39000	12800	20700	22800													
Manganese	300	14.4	J	71	38	52.3	71	47	6730	10300	11700	107	163	136	449	904	800	226	159	129	626	792	678	359	455	364	714	1530	1830	232	413	298													
Mercury	0.7	0.08	U	0.2	U	0.08	U	0.2	U	0.2	U	0.08	U	0.2	U	0.2	U	0.08	U	0.2	U	0.02	U	0.2	U	0.08	U	0.2	U	0.08	U	0.2	U	0.08	U	0.2	U	0.08	U	0.2	U				
Nickel	100	8.81	J	39	54	4.7	U	20	U	20	U	54	4.7	U	20	U	20	U	4.7	U	20	U	20	U	4.7	U	20	U	20	U	35	4.7	U	20	U	20	U	20	U						
Potassium	NS	15100	92600	97100	2000	J	5560	4910	898	J	3000	5900	1640	J	3420	3030	1630	J	4540	5110	15300	2890	2530	1590	J	7060	3750	1590	J	5750	4960	1520	J	2880	7620	4780	J	33600	33400						
Selenium	10	6.18	J	9	7	S	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	S	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	S					
Silver	50	0.7	U	10	10	S	0.7	U	10	U	10	U	0.7	U	10	U	10	U	0.7	U	10	U	10	U	0.7	S	10	U	10	U	0.7	U	10	U	10	U	0.7	U	10	U	10	S			
Sodium	20000	69800	122000	185000	32000	35400	47000	12500	19400	27600	52000	43500	73600	30900	33900	34100	80200	36300	48200	124000	135000	159000	29300	45300	68700	13900	19400	29500	130000	166000	214000														
Thallium	0.5 (GV)	8	U	69	26	8	U	10	U	10	U	8	U	10	U	10	U	8	U	10	U	10	U	8	U	10	U	8	U	10	U	8	U	10	U	8	U	10	U	10	U				
Vanadium	NS	3.67	J	20	36	3.1	U	20	U	20	U	5.96	J	20	U	77	3.1	U	20	U	20	U	3.59	J	20	U	20	U	3.1	U	20	U	20	U	43	3.1	U	20	U	20	U				
Zinc	2000 (GV)	10.9	J	20	23	11.8	J	20	U	10	U	20.8	J	21	178	9.18	J	10	U	10	U	18.8	J	10	U	10	U	19.5	J	11	12	8.35	J	10	U	10	U	21.1	J	20	131	14.2	J	26	22
Cyanide	200	11.2	10	10	U	22.4	10	U	10	U	21.2	10	U	10	U	10	U	8.5	10	U	10	U	4.3	10	U	30	8.4	20	20	79.9	190	3.7	20	20											

FIGURES

FILE NAME = WORK\105886\CADD\...IGROUNDWATER-SAMPLING-REPORT-12-2008.dwg





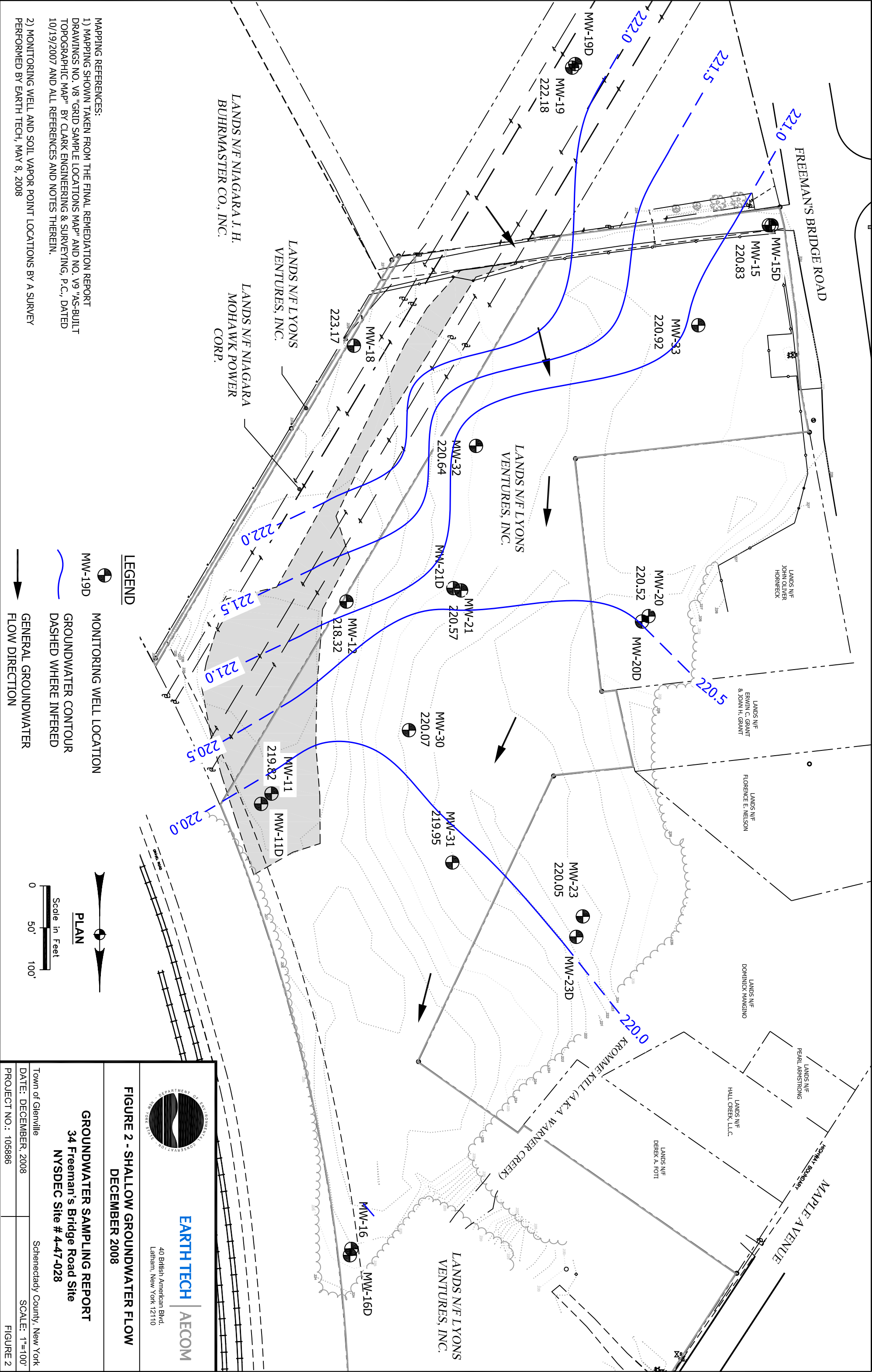
EARTH TECH | AECOM
40 British American Blvd.
Latham, New York 12110

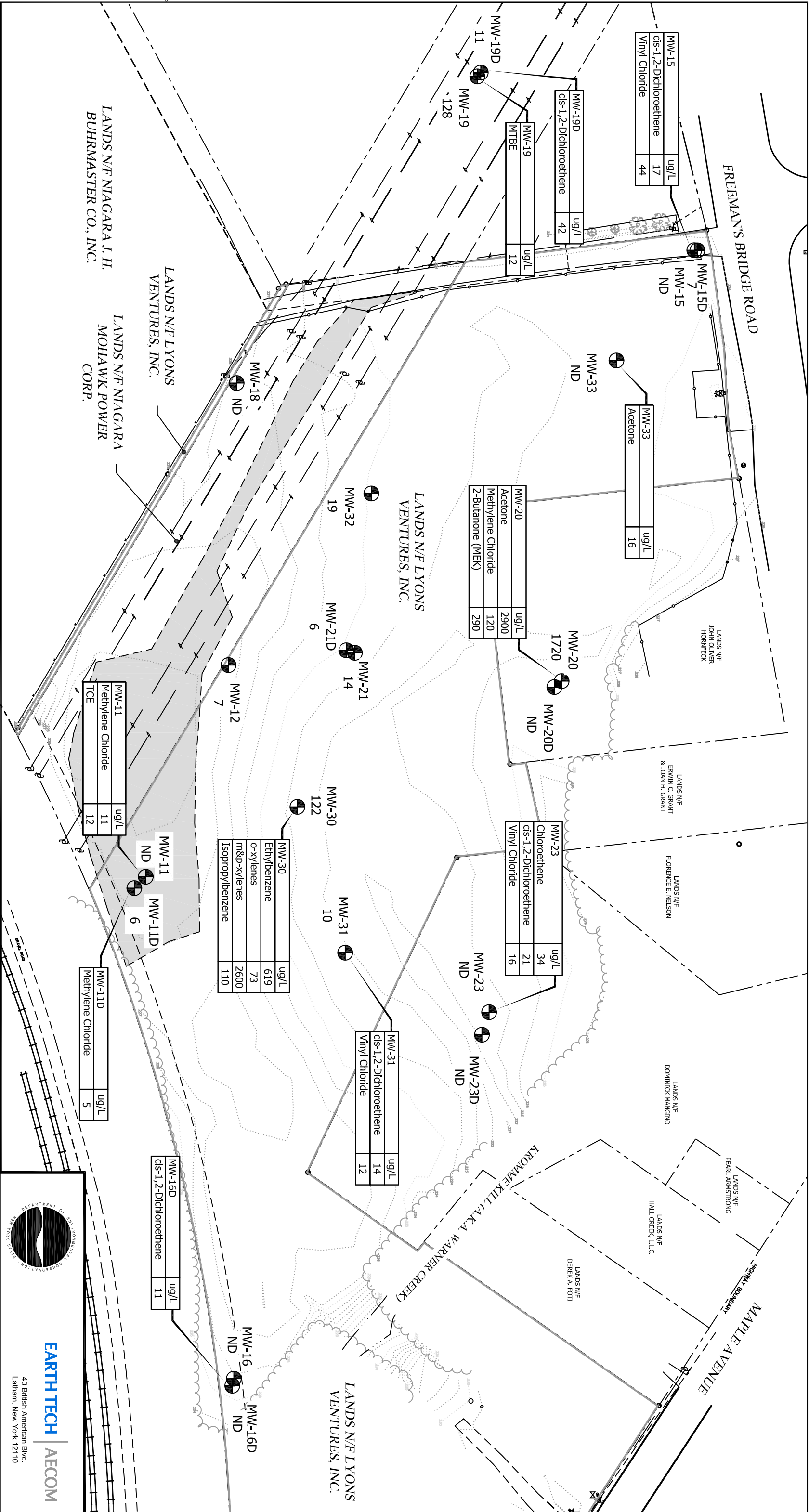
**FIGURE 1
SITE LOCATION MAP**

**GROUNDWATER SAMPLING REPORT
34 Freeman's Bridge Road Site
NYSDEC Site # 4-47-028**

Town of Glenville		Schenectady County, New York	
DATE: DECEMBER, 2008		SCALE: 1"=2000'	
PROJECT NO.: 105886		FIGURE 1	

MAP REFERENCES:
IMAGE FROM USGS 7.5 MIN. QUADRANGLE, SCHENECTADY SERIES.








40 British American Blvd.
Latham, New York 12110




FIGURE 3 - TOTAL VOC CONCENTRATIONS IN GROUNDWATER & AWQS EXCEEDENCES

MAPPING REFERENCES:
1) MAPPING SHOWN TAKEN FROM THE FINAL REMEDIATION REPORT DRAWINGS NO. V8 "GRID SAMPLE LOCATIONS MAP" AND NO. V9 "AS-BUILT TOPOGRAPHIC MAP" BY CLARK ENGINEERING & SURVEYING, P.C., DATED 10/19/2007 AND ALL REFERENCES AND NOTES THEREIN.
2) MONITORING WELL LOCATIONS BY A SURVEY PERFORMED BY EARTH TECH, MAY 8, 2008

LEGEND

 MONITORING WELL LOCATION WITH REPORTED TOTAL VOC CONCENTRATION

 NON-DETECT

SAMPLING LOCATION

Well ID	Constituent	Concentration (ug/L)
MW-31	cis-1,2-Dichloroethene	13
MW-31	Vinyl Chloride	10

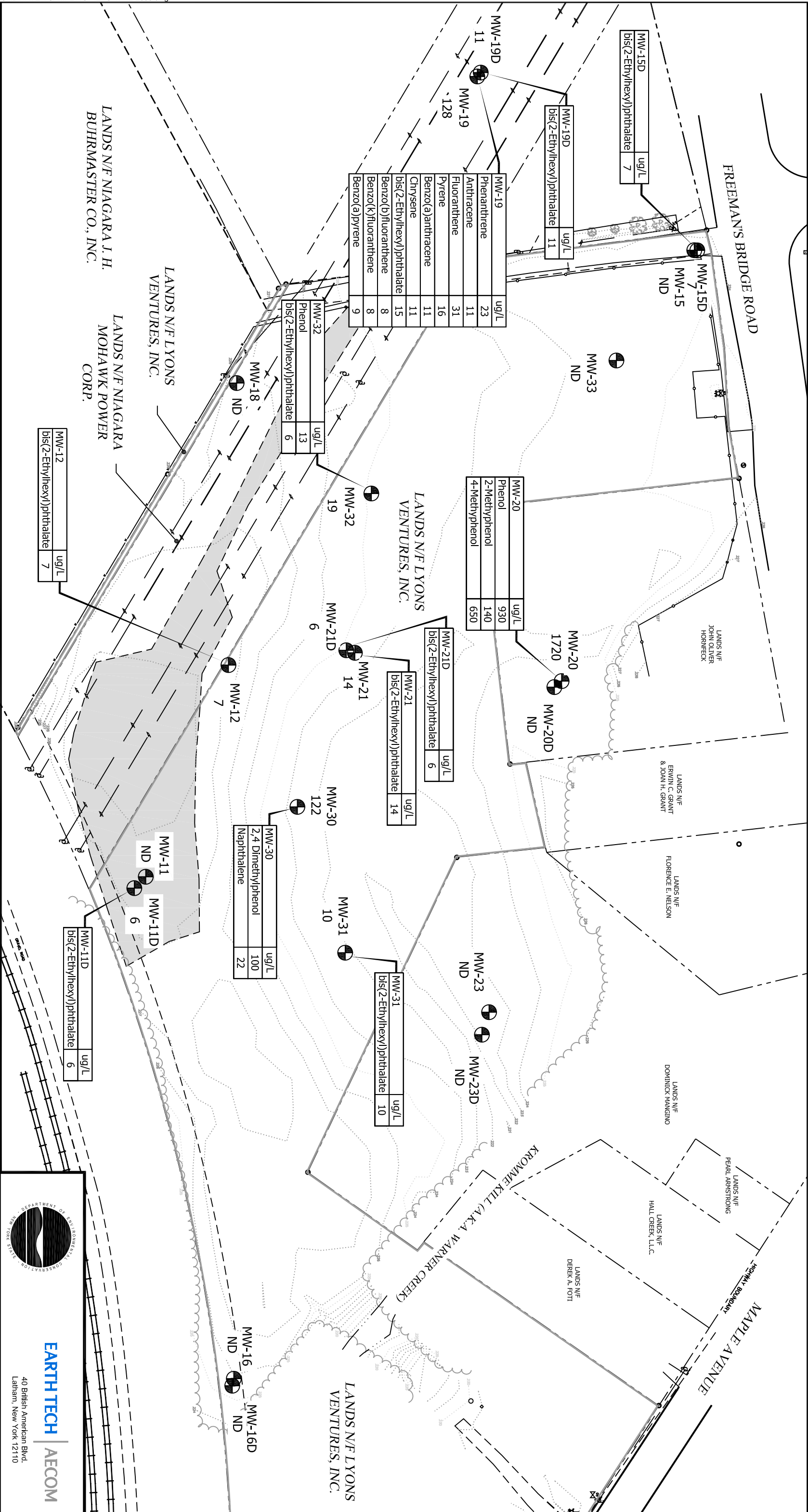
ANALYTICAL RESULT (ug/L)

WHERE CONCENTRATIONS FOUND ABOVE NY'S AMBIENT WATER QUALITY STANDARDS (AWQS)

PLAN

Scale in Feet

0 50' 100'



LEGEND

MAPPING REFERENCES:
1) MAPPING SHOWN TAKEN FROM THE FINAL REMEDIATION REPORT
DRAWINGS NO. V8 "GRID SAMPLE LOCATIONS MAP" AND NO. V9
"AS-BUILT TOPOGRAPHIC MAP" BY CLARK ENGINEERING &
SURVEYING, P.C., DATED 10/19/2007 AND ALL REFERENCES AND
NOTES THEREIN.

MONITORING WELL LOCATION
WITH REPORTED TOTAL SVOC
CONCENTRATION

NON-DETECT

CHEMICAL
CONSTITUENT

ANALYTICAL RESULT (ug/L)
WHERE CONCENTRATIONS
FOUND ABOVE NY'S AMBIENT
WATER QUALITY STANDARDS
(AWQS)

Scale in Feet
0 50' 100'

PLAN

FIGURE 4 - TOTAL SVOC CONCENTRATIONS IN
GROUNDWATER & AWQS EXCEEDENCES

GROUNDWATER SAMPLING REPORT
34 Freeman's Bridge Road Site
NYSDEC Site # 4-47-028

Town of Glenville
DATE: DECEMBER, 2008
PROJECT NO.: 105886

Schenectady County, New York
SCALE: 1"=100'
FIGURE 4

EARTH TECH | AECOM
40 British American Blvd.
Latham, New York 12110

Appendix A
Monitoring Well Purging/Sampling Forms

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 11 Date: 12/3/08Samplers: Tyler Brown and Mark HowardSample Number: MW-11 QA/QC Collected? NonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>19.35</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.17</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>11.41</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>7.94</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>1.29</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	1407	1408	1410	1411			
Water Level	0.33	feet	11.41						
Volume Pumped	N / A	gal	0.00	1.25	3.00	4.00			
Flow Rate	N / A	mL / min	-	-					
Turbidity	(+/-) 10%	NTU	166.0	195.0	453.0	65.2			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-					
Eh / ORP	(+/-) 10	MeV	101	94	74	66			
Conductivity	(+/-) 3%	µmho / cm	1.02	1.06	1.05	1.01			
pH	(+/-) 0.1	pH unit	7.68	7.10	6.97	6.71			
Temp		C	13.57	13.89	13.94	14.01			
Color		Visual	cloudy	cloudy	cloudy	cloudy			
Odor		Olfactory	none	none	none	none			

Comments:

Started purge at 1407
Purged a total of 3.88 gal
Sampled at 1411

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 11 D Date: 12/3/08Samplers: Tyler Brown and Mark HowardSample Number: MW-11 D QA/QC Collected? nonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>53.5</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.17</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>11.16</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>42.34</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>6.90</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	1420	1424	1429	1434			
Water Level	0.33	feet							
Volume Pumped	N / A	gal	0.00	7.00	14.00	21.00			
Flow Rate	N / A	mL / min	-	-	-				
Turbidity	(+/-) 10%	NTU	33.2	37.2	13.0	12.1			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-	-				
Eh / ORP	(+/-) 10	MeV	-55	-65	-74	-57			
Conductivity	(+/-) 3%	µmho / cm	1.16	2.15	2.19	2.15			
pH	(+/-) 0.1	pH unit	6.86	7.08	7.10	7.15			
Temp		C	12.35	11.10	10.71	10.36			
Color		Visual	clear	clear	clear	Clear			
Odor		Olfactory	none	none	none	none			

Comments:

Started purge at 1420
Purged a total of 20.7 gal
Sampled 1434

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 12 Date: 12/5/08Samplers: Tyler Brown and Mark HowardSample Number: MW-12 QA/QC Collected? NonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>17.29</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.17</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>10.36</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>6.93</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>1.30</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	1108	1103	1130				
Water Level	0.33	feet	10.36						
Volume Pumped	N / A	gal	0.00	1.50					
Flow Rate	N / A	mL / min	-	-					
Turbidity	(+/-) 10%	NTU	262.0	max	max				
Dissolved Oxygen	(+/-) 10%	mg / L	-	-					
Eh / ORP	(+/-) 10	MeV	-20	5	27				
Conductivity	(+/-) 3%	µmho / cm	1.13	0.999	1.13				
pH	(+/-) 0.1	pH unit	6.14	5.93	5.77				
Temp		C	10.19	11.67	7.08				
Color		Visual	Brown	Brown	Brown				
Odor		Olfactory	none	none	none				

Comments:

Started purge at 1108
Purged a total of 1.5 gal
Purged dry at 1109
Sampled at 1130

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 15 Date: 12/5/08Samplers: Tyler Brown and Mark HowardSample Number: MW-15 QA/QC Collected? NonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>14.25</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.17</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>3.31</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>10.94</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>1.78</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	804	805	807	809			
Water Level	0.33	feet							
Volume Pumped	N / A	gal	0.00	1.80	5.00	8.50			
Flow Rate	N / A	mL / min	-	-					
Turbidity	(+/-) 10%	NTU	11.2	553.0	908.0	341.0			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-	-				
Eh / ORP	(+/-) 10	MeV	184	139	28	6			
Conductivity	(+/-) 3%	µmho / cm	1.12	1.06	1.08	0.853			
pH	(+/-) 0.1	pH unit	4.47	4.78	5.17	5.22			
Temp		C	8.08	12.07	11.91	13.54			
Color		Visual	Brown	Brown	Brown	Brown			
Odor		Olfactory	none	none	none	none			

Comments:

Started purge at 804
Purged a total of 8.5 gal
Sampled at 809

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 15 D Date: 12/5/08Samplers: Tyler Brown and Mark HowardSample Number: MW-15 D QA/QC Collected? MS/MSDPurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>29.5</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.17</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>3.44</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>26.06</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>4.52</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	826	831	833	834			
Water Level	0.33	feet	3.44						
Volume Pumped	N / A	gal	0.00	4.50	9.00	13.00			
Flow Rate	N / A	mL / min	-	-	-				
Turbidity	(+/-) 10%	NTU	747.0	722.0	595.0	589.0			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-	-				
Eh / ORP	(+/-) 10	MeV	42	52	53	51			
Conductivity	(+/-) 3%	µmho / cm	0.93	0.98	0.99	0.99			
pH	(+/-) 0.1	pH unit	5.75	5.61	5.62	5.63			
Temp		C	8.46	11.39	11.93	12.17			
Color		Visual	Brown	Brown	Brown	Clear			
Odor		Olfactory	none	none	none	none			

Comments:

Started purge at 826
Purged a total of 12.74 gal
Sampled 834

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW-16 Date: 12/3/08Samplers: Tyler Brown and Mark HowardSample Number: MW-16 QA/QC Collected? NonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>13.2</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.17</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>6.15</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>7.05</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>1.20</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	956	952	1003	1018			
Water Level	0.33	feet	6.15						
Volume Pumped	N / A	gal	0.00	1.50	3.25				
Flow Rate	N / A	mL / min	-	-					
Turbidity	(+/-) 10%	NTU	556.0	316.0	582.0	444.0			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-					
Eh / ORP	(+/-) 10	MeV	-31	-82	-82	-83			
Conductivity	(+/-) 3%	µmho / cm	1.52	1.77	1.89	0.469			
pH	(+/-) 0.1	pH unit	7.20	6.41	6.78	7.19			
Temp		C	10.54	12.72	11.92	8.57			
Color		Visual	Brown	Brown	BkBrGr	GrGn			
Odor		Olfactory	sulfur	sulfur	sulfur	sulfur			

Comments:

Started purge at 956
Purged a total of 3.25 gal
Purged dry at 1003
Sampled at 1018

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 16 D Date: 12/3/08Samplers: Tyler Brown and Mark HowardSample Number: MW-16 D QA/QC Collected? NonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>28.64</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.17</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>8.28</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>20.36</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>3.32</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	930	931	932	934			
Water Level	0.33	feet	8.28						
Volume Pumped	N / A	gal	0.00	3.30	6.60	9.96			
Flow Rate	N / A	mL / min	-	-	-				
Turbidity	(+/-) 10%	NTU	518.0	448.0	238.0	205.0			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-	-				
Eh / ORP	(+/-) 10	MeV	183	64	23	11			
Conductivity	(+/-) 3%	µmho / cm	1.05	0.96	1.01	1.02			
pH	(+/-) 0.1	pH unit	6.67	6.65	6.71	6.85			
Temp		C	9.38	11.25	11.42	11.49			
Color		Visual	Brown	Br Cloudy	Br Cloudy	Br Cloudy			
Odor		Olfactory	none	none	none	none			

Comments:

Started purge at 930
Purged a total of 9.96
Sampled at 934

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 18 Date: 12/5/08Samplers: Tyler Brown and Mark HowardSample Number: MW-18 QA/QC Collected? NonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>14.7</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.17</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>6.41</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>8.16</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>1.33</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	926	929	930	931			
Water Level	0.33	feet	6.41						
Volume Pumped	N / A	gal	0.00	4.50	6.50	7.50			
Flow Rate	N / A	mL / min	-	-					
Turbidity	(+/-) 10%	NTU	651.0	841.0	718.0	837.0			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-					
Eh / ORP	(+/-) 10	MeV	97	108	110	115			
Conductivity	(+/-) 3%	µmho / cm	0.662	0.577	0.559	0.559			
pH	(+/-) 0.1	pH unit	6.43	5.72	5.54	5.55			
Temp		C	8.31	10.62	11.12	11.15			
Color		Visual	Brown	Brown	Lt Brown	Clear			
Odor		Olfactory	none	none	none	none			

Comments:

Started purge at 928
Purged a total of 7.5 gal
Sampled at 931

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 19 Date: 12/4/08Samplers: Tyler Brown and Mark HowardSample Number: MW-19 QA/QC Collected? NonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>9.72</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.17</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>4.94</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>4.78</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>0.78</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	1224	1225	1226	1227			
Water Level	0.33	feet							
Volume Pumped	N / A	gal							
Flow Rate	N / A	mL / min	-	-					
Turbidity	(+/-) 10%	NTU	-	8.9	-	-			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-					
Eh / ORP	(+/-) 10	MeV	27	32	24	24			
Conductivity	(+/-) 3%	µmho / cm	0.907	1.01	0.9	0.812			
pH	(+/-) 0.1	pH unit	6.95	6.32	6.33	6.09			
Temp		C	9.00	10.15	10.16	10.53			
Color		Visual	cloudy	Clear	Clear	Clear			
Odor		Olfactory	none	none	none	none			

Comments:

Started purge at 1224
Purged a total of 2.33 gal
Sampled at 1227

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 19 D Date: 12/4/08Samplers: Tyler Brown and Mark HowardSample Number: MW-19 D QA/QC Collected? NonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>22.31</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.17</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>4.15</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>18.16</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>2.96</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	1240	1242	1244	1246			
Water Level	0.33	feet							
Volume Pumped	N / A	gal							
Flow Rate	N / A	mL / min	-	-					
Turbidity	(+/-) 10%	NTU	244.0	147.0	345.0	82.6			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-					
Eh / ORP	(+/-) 10	MeV	-57	-76	-81	-7.7			
Conductivity	(+/-) 3%	µmho / cm	0.934	0.971	0.962	0.961			
pH	(+/-) 0.1	pH unit	6.53	6.22	6.03	6.00			
Temp		C	10.72	11.75	12.24	12.24			
Color		Visual	OrBr	OrBr	OrBr	OrBr			
Odor		Olfactory	none	none	none	none			

Comments:

Started purge at 1240
Purged a total 8.8 gal
Sampled at 1246

Monitoring Well Purging / Sampling Form

Project Name and Number: Freemans Bridge Road 105886.02

Monitoring Well Number: MW- 20 Date: 12/4/08

Samplers: Tyler Brown and Mark Howard

Sample Number: MW-20 QA/QC Collected? None

Purging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>12.41</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.17</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>6.37</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>6.04</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>0.98</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units

Readings

Time		24 hr	756						
Water Level	0.33	feet							
Volume Pumped	N / A	gal							
Flow Rate	N / A	mL / min							
Turbidity	(+/-) 10%	NTU	417.0						
Dissolved Oxygen	(+/-) 10%	mg / L							
Eh / ORP	(+/-) 10	MeV	-150						
Conductivity	(+/-) 3%	µmho / cm	4.59						
pH	(+/-) 0.1	pH unit	6.59						
Temp		C	9.63						
Color		Visual	Brown						
Odor		Olfactory	urine						

Comments:

Started purge at 752 Recalibrated horiba

Purged dry at 756

Started purge at 756

Purged dry at 757 purged 1 gallon

Sampled at 819

It is believed that the strong urine odor is coming from the vet that is located to the north of the well.

Further investigation is needed

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 20 D Date: 12/4/08Samplers: Tyler Brown and Mark HowardSample Number: MW-20 D QA/QC Collected? NonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>31.9</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.17</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>6.58</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>25.32</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>4.13</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	800	803	806	809			
Water Level	0.33	feet							
Volume Pumped	N / A	gal							
Flow Rate	N / A	mL / min	-	-	-	-			
Turbidity	(+/-) 10%	NTU	-	98.3	-	-			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-	-	-			
Eh / ORP	(+/-) 10	MeV	-89	-104	-87	-82			
Conductivity	(+/-) 3%	µmho / cm	1.03	1.04	1.04	0.263			
pH	(+/-) 0.1	pH unit	8.60	7.22	6.81	6.55			
Temp		C	10.64	11.09	11.09	11.05			
Color		Visual	Gr Cloudy	cloudy	clear	clear			
Odor		Olfactory	none	none	none	none			

Comments:

Started purge at 800
Purged a total of 12.38 gal
Sampled at 809

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 21 Date: 12/4/08Samplers: Tyler Brown and Mark HowardSample Number: MW-21 QA/QC Collected? NonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>18.3</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.17</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>6.89</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>11.41</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>1.86</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	1024	1026	1028	1030			
Water Level	0.33	feet							
Volume Pumped	N / A	gal							
Flow Rate	N / A	mL / min	-	-					
Turbidity	(+/-) 10%	NTU	max	385.0	max	925.0			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-					
Eh / ORP	(+/-) 10	MeV	-77	-73	-73	-75			
Conductivity	(+/-) 3%	µmho / cm	1.92	2.03	2.02	2.07			
pH	(+/-) 0.1	pH unit	6.36	6.15	5.99	5.73			
Temp		C	10.25	11.21	11.66	12.49			
Color		Visual	Gray	Gray	Gray	Gray			
Odor		Olfactory	Sulfur	Sulfur	Sulfur	Sulfur			

Comments:

Started purge at 1024
Purged a total of 5.58 gal
Sampled at 1030

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 21 D Date: 12/4/08Samplers: Tyler Brown and Mark HowardSample Number: MW-21 D QA/QC Collected? NonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>50.2</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.17</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>8.61</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>41.6</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>6.78</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	1141	1146	1150	1155			
Water Level	0.33	feet							
Volume Pumped	N / A	gal							
Flow Rate	N / A	mL / min	-	-	-	-			
Turbidity	(+/-) 10%	NTU	53.3	-	-	-			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-	-	-			
Eh / ORP	(+/-) 10	MeV	27	-58	-76	-68			
Conductivity	(+/-) 3%	µmho / cm	1.02	0.98	0.98	0.99			
pH	(+/-) 0.1	pH unit	6.21	6.20	6.25	6.04			
Temp		C	10.33	10.87	11.37	11.18			
Color		Visual	cloudy	clear	clear	clear			
Odor		Olfactory	none	none	none	none			

Comments:

Started purge at 1141
Purged a total 20.34 gal
Sampled 1155

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 23 Date: 08/25/2008Samplers: Tyler Brown and Mark HowardSample Number: MW-23 QA/QC Collected? NonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>11.3</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.17</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>4.81</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>11.49</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>1.95</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	1106	1110	1112	1150			
Water Level	0.33	feet	4.81	8.50					
Volume Pumped	N / A	gal	0.00	2.50					
Flow Rate	N / A	mL / min	-	-					
Turbidity	(+/-) 10%	NTU	max	max	max	max			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-					
Eh / ORP	(+/-) 10	MeV	-88	-74	-71	-63			
Conductivity	(+/-) 3%	µmho / cm	0.902	0.915	0.921	0.92			
pH	(+/-) 0.1	pH unit	7.27	6.97	6.97	7.25			
Temp		C	11.29	11.49	11.95	11.55			
Color		Visual	Gray	Gray	Gray	Lt Gray			
Odor		Olfactory	none	none	none	none			

Comments:

Started purge at 1106
Purged dry at 1113
Purged 5 gallons
Sampled at 1150

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 23 D Date: 12/3/08Samplers: Tyler Brown and Mark HowardSample Number: MW-23 D QA/QC Collected? NonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>55.3</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.17</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>1.02</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>51.28</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>8.72</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization		Units	Readings						
Time		24 hr	1116	1123	1129	1136			
Water Level	0.33	feet	4.02						
Volume Pumped	N / A	gal	0.00	9.00	18.00	27.00			
Flow Rate	N / A	mL / min	-	-					
Turbidity	(+/-) 10%	NTU	588.0	509.0	180.0	229.0			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-					
Eh / ORP	(+/-) 10	MeV	-77	-45	-29	-39			
Conductivity	(+/-) 3%	µmho / cm	0.959	1.04	1.04	0.877			
pH	(+/-) 0.1	pH unit	6.78	6.99	6.92	6.86			
Temp		C	11.48	11.51	11.47	11.82			
Color		Visual	cloudy	cloudy	cloudy	cloudy			
Odor		Olfactory	none	none	none	none			

Comments:

The dissolved Oxygen sensor on the YSI was broken so no parameters will be taken for any wells

Started purge 1116

Purged a total of 26.15 gal

Sampled at 1136

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW-30 Date: 12/5/08Samplers: Tyler Brown and Mark HowardSample Number: MW-30 QA/QC Collected? DUP-1Purging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>16.49</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.33</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>6.12</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>10.37</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>6.74</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	1208	1211	1216	1221			
Water Level	0.33	feet	6.12						
Volume Purged	N / A	gal	0.00	6.75	13.00	20.00			
Flow Rate	N / A	mL / min	-	-					
Turbidity	(+/-) 10%	NTU	343.0	102.0	87.5	122.0			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-					
Eh / ORP	(+/-) 10	MeV	-151	-228	-250	-236			
Conductivity	(+/-) 3%	µmho / cm	2.84	2.6	2.34	2.14			
pH	(+/-) 0.1	pH unit	5.28	5.66	5.60	5.86			
Temp		C	9.18	10.73	11.47	11.62			
Color		Visual	GrSi	Gray	Gray	GrGn			
Odor		Olfactory	Product	Product	Product	Product			

Petro Smell

Comments:

Free product in the well, all over the tubing. A black oil.
Started purge at 1208
Purged a total of 20.22 gal
Sampled at 1221

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 31 Date: 12/4/08Samplers: Tyler Brown and Mark HowardSample Number: MW-31 QA/QC Collected? NonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>16.79</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.33</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>5.48</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>11.31</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>7.35</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	1354	1357	1400	1404			
Water Level	0.33	feet							
Volume Pumped	N / A	gal							
Flow Rate	N / A	mL / min	-	-	-	-			
Turbidity	(+/-) 10%	NTU	235.0	94.4	23.3	-			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-	-				
Eh / ORP	(+/-) 10	MeV	56	-21	-59	-67			
Conductivity	(+/-) 3%	µmho / cm	1.73	1.75	1.67	1.59			
pH	(+/-) 0.1	pH unit	5.67	5.66	5.67	5.88			
Temp		C	10.25	11.19	11.77	11.84			
Color		Visual	cloudy	cloudy	cloudy	clear			
Odor		Olfactory	none	sulfur	sulfur	sulfur			

Comments:

Started purge at 1354
Purged a total of 22.05 gal
Sampled at 1404

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 32 Date: 12/5/08Samplers: Tyler Brown and Mark HowardSample Number: MW-32 QA/QC Collected? NonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>22.24</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.33</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>6.68</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>15.56</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>10.11</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using _____

Parameter Stabilization Units			Readings						
Time		24 hr	1022	1027	1034	1041			
Water Level	0.33	feet	6.68						
Volume Pumped	N / A	gal	0.00	10.00	20.00	30.00			
Flow Rate	N / A	mL / min	-	-	-				
Turbidity	(+/-) 10%	NTU	460.0	max	950.0	max			
Dissolved Oxygen	(+/-) 10%	mg / L	-	-	-				
Eh / ORP	(+/-) 10	MeV	-111	-100	-98	-98			
Conductivity	(+/-) 3%	µmho / cm	1.28	1.47	1.21	1.3			
pH	(+/-) 0.1	pH unit	6.21	6.18	5.65	5.56			
Temp		C	10.15	11.29	11.51	11.75			
Color		Visual	BkGr	BkGr	BkGr	BkGr			
Odor		Olfactory	Sulfur	Sulfur	Sulfur	Sulfur			

Comments:

Started purge at 1022
Purged a total of 30.34gal
Sampled at 1041

Monitoring Well Purging / Sampling FormProject Name and Number: Freemans Bridge Road 105886.02Monitoring Well Number: MW- 33 Date: 12/5/08Samplers: Tyler Brown and Mark HowardSample Number: MW-33 QA/QC Collected? NonePurging / Sampling Method: Whale Pump

1. L = Total Well Depth:	<u>13.94</u>	feet	D (inches)	D (feet)
2. D = Riser Diameter (I.D.):	<u>0.33</u>	feet	1-inch	0.08
3. W = Static Depth to Water (TOC):	<u>6.07</u>	feet	2-inch	0.17
4. C = Column of Water in Casing:	<u>7.87</u>	feet	3-inch	0.25
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$	<u>5.12</u>	gal	4-inch	0.33
			6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using Horiba

Parameter Stabilization			Units		Readings				
Time		24 hr	959	1002					
Water Level	0.33	feet	6.07						
Volume Pumped	N / A	gal	0.00	6.50					
Flow Rate	N / A	mL / min	-	-					
Turbidity	(+/-) 10%	NTU	271.0	522.0					
Dissolved Oxygen	(+/-) 10%	mg / L	-	-					
Eh / ORP	(+/-) 10	MeV	-49	-82					
Conductivity	(+/-) 3%	µmho / cm	6.5	6.79					
pH	(+/-) 0.1	pH unit	5.05	5.28					
Temp		C	8.95	9.72					
Color		Visual	brgrgn	some					
Odor		Olfactory	none	none					

Comments:

Starged purge at 959
Purged dry at 1003
Purged a total of 6.5 gal
Sampled at 1252
Tubing had a black coat