

**GTE Operations Support Incorporated**

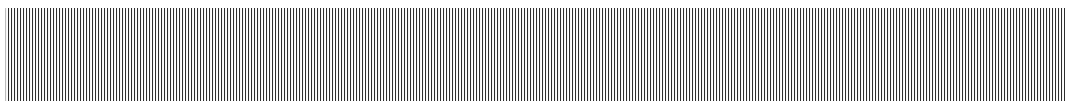
Basking Ridge, New Jersey

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**Former Sylvania Electric Products  
Incorporated Facility  
Hicksville, NY  
Voluntary Cleanup Program  
Site No. V00089-1**

**Data Report  
P102, P104, P110, P112,  
P113, and P114**

January 2008



Report Prepared By:

**Malcolm Pirnie, Inc.**

17-17 Route 208 North  
Fair Lawn, New Jersey 07410  
201.797.7400

4563001

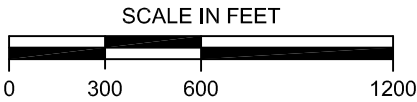
**MALCOLM  
PIRNIÉ**





LEGEND

- PROFILE LOCATION - DATA INCLUDED IN PREVIOUS DATA SUBMITTAL
- PROFILE LOCATION
- MONITORING WELL LOCATION



NOTES

1. AERIAL IMAGE FROM NYS GIS CLEARINGHOUSE HIGH RESOLUTION DIGITAL ORTHOIMAGERY (6-INCH RESOLUTION - 2004).





<b><u>Client:</u></b>	GTEOSI
<b><u>Location:</u></b>	Hicksville, NY
<b><u>Project ID:</u></b>	Groundwater Profiling
<b><u>SEI #:</u></b>	071867-R
<b><u>Date Sampled:</u></b>	02/02/2007-02/21/2007
<b><u>Date Analyzed:</u></b>	02/02/2007-02/21/2007
<b><u>Report Date:</u></b>	3/8/2007

Matrix: Water

[illegible]

*NA = Not Analyzed.*



<u>Client:</u>	GTEOSI
<u>Location:</u>	Hicksville, NY
<u>Project ID:</u>	Groundwater Profiling
<u>SEI #:</u>	071867-R
<u>Date Sampled:</u>	02/28/2007-03/20/2007
<u>Date Analyzed:</u>	02/28/2007-03/20/2007
<u>Report Date:</u>	3/22/2007

**GTE Operations Support, Incorporated**

**Hicksville, NY**

**Matrix: Water**

HOLE ID = P-104										VOC Data, ug/L									
Depth	Vinyl Chloride			1-Dichloroethane			o-Dichloroethane			Trichloroethane			Tetrachloroethane			% SS			
	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF				
75.0	1	U	1	1	U	1	1	U	1	U	1	1	U	1	111				
85.0	1	U	1	1	U	1	1	U	1	U	1	1	U	1	111				
93.4	1	U	1	1	U	1	1	U	1	U	1	1	U	1	103				
105.0	1	U	1	1	U	1	1	U	1	U	1	1	U	1	107				
112.2	1	U	1	1	U	1	1	U	1	U	1	1	U	1	113				
147.7	1	U	1	1	U	1	1	U	1	U	1	1	U	1	114				
155.1	1	U	1	1	U	1	1	U	1	U	1	1	U	1	102				
163.8	1	U	1	1	U	1	1	U	1	U	1	1	U	1	109				
173.1	1	U	1	1	U	1	1	U	1	U	1	1	U	1	114				
184.0	1	U	1	1	U	1	1	U	1	U	1	1	U	1	105				
195.0	1	U	1	1	U	1	1	U	1	U	1	1	U	1	118				
205.0	1	U	1	1	U	1	1	U	4	1	5	1		1	108				
215.0	1	U	1	1	U	1	1	U	1	U	3	1		1	98				
224.7	1	U	1	1	U	1	1	U	1		530	10		99					
235.0	1	U	1	1	U	1	1	U	140	10	560	10		107					
245.0	1	U	1	1	U	1	1	U	230	10	1000	10		112					
253.7	1	U	1	1	U	1	1	U	2	1	11	1		105					
267.8	1	U	1	1	U	1	1	U	47	1	39	1		109					
291.3	1	U	1	1	U	1	2	U	19	1	30	1		105					
313.9	1	U	1	1	U	1	8	1	210	5	530	5		111					
320.0	1	U	1	1	U	1	9	1	940	10	900	10		107					
330.0	1	U	1	1	U	1	9	1	730	10	720	10		113					
340.0	1	U	1	1	U	1	11	1	840	10	1000	10		108					
345.7	1	U	1	1	U	1	20	1	89	10	3300	10		113					
377.4	1	U	1	1	U	1	11	1	24	1	3100	10		108					
385.0	1	U	1	1	U	1	10	1	18	1	2100	10		113					
394.7	1	U	1	1	U	1	2	1	3	1	240	10		113					
400.0	1	U	1	1	U	1	1	U	1	1	95	1		115					
411.0	1	U	1	1	U	1	1	U	1	U	39	1		112					
419.6	1	U	1	1	U	1	1	U	1	U	63	10		113					
427.9	1	U	1	1	U	1	1	U	1	U	21	1		116					
441.1	1	U	1	1	U	1	1	U	1	U	12	1		120					
450.0	1	U	1	1	U	1	1	U	1	U	15	1		117					
461.7	1	U	1	1	U	1	1	U	1	U	7	1		112					
471.0	1	U	1	1	U	1	1	U	1	U	4	1		103					
482.4	1	U	1	1	U	1	1	U	1	U	1	1		121					
482.4	1	U	1	1	U	1	1	U	1	U	1	1	U	1	120				

INORGANIC DATA, mg/L				
Fe <sup>++</sup>	Fe, Total	Ammonia	Chloride	Chlorine, Total
ND	0.32	0.06	113	ND
NA	NA	NA	NA	NA
0.06	0.43	0.28	48	0.04
ND	0.18	ND	38	ND
0.05	0.35	0.18	102	0.03
ND	0.12	0.02	67	ND
ND	0.21	0.02	79	ND
ND	0.19	ND	43	ND
0.04	0.28	0.18	45	0.02
0.11	0.43	0.21	42	0.05
0.12	0.56	0.26	48	0.07
0.23	1.32	0.90	49	0.24
0.15	0.39	0.24	44	0.02
0.36	0.41	0.03	40	ND
0.15	0.15	0.04	28	0.04
0.05	1.90	0.40	14	0.12
0.41	0.51	0.07	12	ND
0.03	0.14	0.07	22	ND
0.46	25.70	4.9	10	0.68
0.10	0.35	0.15	ND	ND
0.04	0.15	0.14	15	ND
0.09	0.20	0.02	14	ND
0.08	0.14	0.04	16	ND
0.07	0.16	0.09	16	0.03
ND	0.35	0.11	32	0.03
0.03	0.09	0.11	47	ND
0.05	0.17	0.19	75	0.05
ND	0.10	0.04	39	ND
0.06	0.11	0.06	19	ND
ND	0.27	0.04	34	0.02
0.09	0.21	0.12	38	0.08
0.10	0.23	0.17	35	0.09
0.04	0.06	0.13	26	0.10
ND	ND	0.03	ND	ND
ND	0.09	0.06	ND	0.02
0.07	0.46	0.04	ND	0.05
ND	ND	0.02	ND	0.03

[illegible][illegible]

Samples with >100 ppb total VOC's cannot be run on a carboxen fiber and will have detection limits of 20 ppb

**%SS = Surrogate Recovery**

U = Undetected below the specified reporting limit.

ND = Value below detection limit.

NA = Not Analyzed.



**Client:** GTEOSI  
**Location:** Hicksville, NY  
**Project ID:** Groundwater Profiling  
**SEI #:** 071867-R  
**Date Sampled:** 6/14/2007-7/03/2007  
**Date Analyzed:** 6/14/2007-7/03/2008  
**Report Date:** 7/10/2007

**GTE Operations Support, Incorporated**  
**Former Sylvania Electric Products Facility**  
**Hicksville, NY**

Matrix: Water

HOLD ID = P-110		VOC DATA, ug/L												% SS
Depth	Vinyl Chloride		1,2-Dichloroethane		1,1-Dichloroethane		Trichloroethane		Tetrachloroethane					
	Value	O DF	Value	O DF	Value	O DF	Value	O DF	Value	O DF				
7.3	1	U	1	U	1	U	1	U	1	U	1	U	108	
80.2	1	U	1	U	1	U	1	U	1	U	1	U	106	
91.0	1	U	1	U	1	U	1	U	1	U	1	U	109	
99.7	1	U	1	U	1	U	1	U	1	U	1	U	110	
106.6	1	U	1	U	1	U	1	U	1	U	1	U	111	
119.7	1	U	1	U	1	U	1	U	1	U	1	U	112	
142.6	1	U	1	U	1	U	1	U	1	U	1	U	102	
150.2	1	U	1	U	1	U	1	U	1	U	1	U	107	
160.2	1	U	1	U	1	U	1	U	1	U	1	U	106	
170.2	1	U	1	U	1	U	1	U	1	U	1	U	108	
180.2	1	U	1	U	1	U	1	U	1	U	1	U	107	
190.2	1	U	1	U	1	U	1	U	1	U	2	1	108	
209.9	1	U	1	U	1	U	1	U	1	U	1	U	108	
209.6	1	U	1	U	1	U	1	U	1	U	1	U	106	
221.8	1	U	1	U	1	U	1	U	1	U	1	U	110	
229.7	1	U	1	U	1	U	1	U	1	U	1	U	109	
239.8	1	U	1	U	1	U	1	U	1	U	1	U	109	
249.2	1	U	1	U	1	U	1	U	2	1	1	U	111	
260.2	1	U	1	U	1	U	1	U	4	1	1	U	119	
269.8	1	U	1	U	1	U	1	U	13	1	1	U	111	
281.7	1	U	1	U	1	U	1	U	24	1	1	U	103	
290.2	1	U	1	U	1	U	1	U	20	1	1	U	103	
311.3	1	U	1	U	1	U	1	U	1	U	1	U	107	
320.2	1	U	1	U	1	U	1	U	1	U	1	U	107	
332.2	1	U	1	U	1	U	1	U	12	1	2	1	107	
338.8	1	U	1	U	1	U	4	1	120	10	6	1	109	
350.2	1	U	1	U	1	U	19	1	400	100	26	1	111	
359.4	1	U	1	U	1	U	6	1	150	1	22	1	107	
384.1	1	U	1	U	1	U	1	U	80	1	51	1	103	
400.0	1	U	1	U	1	U	3	1	220	1	62	1	100	
408.5	1	U	1	U	1	U	1	U	100	1	80	1	103	
421.2	1	U	1	U	1	U	3	1	13	1	350	1	106	
429.4	1	U	1	U	1	U	4	1	21	1	480	24	99	
439.3	1	U	1	U	1	U	13	1	28	1	2100	48	101	
452.2	1	U	1	U	1	U	3	1	10	1	120	1	102	
460.2	1	U	1	U	1	U	2	1	12	1	15	1	107	
470.1	1	U	1	U	1	U	1	U	15	1	36	1	100	
481.7	1	U	1	U	1	U	1	U	3	1	26	1	105	
489.5	1	U	1	U	1	U	1	U	2	1	5	1	101	
496.5	1	U	1	U	1	U	1	U	2	1	3	1	105	
513.4	1	U	1	U	1	U	1	U	1	1	1	1	101	

INORGANIC DATA, mg/L				
Fe*	Fe, Total	Ammonia	Chloride	Chlorine, Total
0.22	0.48	0.13	26	0.05
0.24	0.34	0.09	24	ND
0.09	0.29	0.02	37	ND
0.07	0.30	0.02	36	ND
0.21	0.33	0.80	19	ND
0.41	0.94	1.30	33	0.05
0.43	0.54	0.11	29	0.10
0.40	0.42	0.08	35	ND
0.24	0.28	0.12	36	ND
0.13	0.81	0.12	24	0.04
0.24	0.64	0.19	28	0.28
0.32	0.56	0.28	28	0.06
0.30	1.11	0.20	40	0.07
0.62	1.20	0.40	42	0.19
0.51	1.25	ND	39	1.14
0.71	2.12	0.60	40	0.03
0.29	0.46	0.12	36	ND
0.43	0.61	0.21	36	0.03
0.55	0.82	0.22	22	0.07
0.27	0.54	0.17	20	0.04
0.26	0.39	0.15	20	ND
0.15	0.34	0.07	21	ND
0.28	0.63	0.22	20	0.04
0.43	0.74	0.31	27	0.11
0.32	0.46	0.32	18	0.08
0.19	0.43	0.20	18	0.12
0.15	0.21	0.15	17	0.03
0.14	0.35	0.21	20	0.05
0.04	0.04	0.07	13	ND
0.05	0.48	0.08	17	ND
ND	0.04	0.07	18	ND
0.03	0.08	0.03	23	ND
ND	0.04	0.03	16	ND
0.05	0.12	0.08	18	ND
ND	0.06	0.04	11	0.02
0.23	0.51	0.19	ND	0.32
ND	0.05	0.02	ND	ND
0.19	0.40	0.30	14	0.14
0.19	0.77	0.09	29	0.04
0.35	0.62	0.40	13	0.09
0.15	0.35	0.06	ND	ND

[illegible]

Well	VOC DATA, ug/L																																%SS
	1,1-Dichloroethane		1,1-Dichloroethane		1,1,1-Trichloroethane		1,1,1,2-Tetrachloroethane		Carbon Tetrachloride		Benzene		1,2-Dichloroethane		Toluene		Chlorobenzene		Ethylbenzene		m,p-Xylenes		o-Xylenes		1,3-Dichlorobenzene		1,4-Dichlorobenzene		1,2-Dichlorobenzene				
	Value	A DF	Value	A DF	Value	A DF	Value	A DF	Value	A DF	Value	A DF	Value	A DF	Value	A DF	Value	A DF	Value	A DF	Value	A DF	Value	A DF	Value	A DF	Value	A DF	Value	A DF			
71.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	108			
80.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	106			
91.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	109			
99.7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	110			
108.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	111			
119.7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	112			
142.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	102			
150.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	107			
160.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	105			
170.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	108			
180.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	107			
190.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	108			
199.9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	108			
209.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	106			
221.8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	110			
229.7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	109			
239.8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	109			
249.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	111			
260.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	119			
269.8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	111			
281.7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	103			
290.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	103			
311.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	107			
320.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	107			
329.2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	107			
338.8	4	1	1	1	1	3	1	1	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	109			
350.2	11	1	2	1	1	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	111			
359.4	7	1	1	1	1	6	1	1	1	1	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	107			
391.1	17	1	1	1	1	11	1	1	1	1	18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	103			
400.0	16	1	1	1	1	10	1	1	1	1	14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100			
408.5	32	1	1	1	1	24	1	1	1	1	31	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	103			
421.2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	106			
429.4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	99			
439.3	1	1	1	1	1	1	1	2	1	1	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	101			
452.2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	102			
460.2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	107			
470.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	100			
481.7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	105			
489.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	101			
499.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	105			
513.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	105			

Samples with >100 ppb total VOC's cannot be run on a carboxen fiber and will have detection limits of 20 ppb

%SS = Surrogate Recovery

U = Undetected below the specified reporting limit

ND = Value below detection limit



<u>Client:</u>	GTEOSI
<u>Location:</u>	Hicksville, NY
<u>Project ID:</u>	Groundwater Profiling
<u>SEI #:</u>	071867-R
<u>Date Sampled:</u>	05/07/2007-05/20/2007
<u>Date Analyzed:</u>	05/07/2007-05/20/2007
<u>Report Date:</u>	5/25/2007

**Matrix: Water**

[illegible]

NA = Not Analyzed.



<b><u>Client:</u></b>	GTEOSI
<b><u>Location:</u></b>	Hicksville, NY
<b><u>Project ID:</u></b>	Groundwater Profiling
<b><u>SEI #:</u></b>	071867-R
<b><u>Date Sampled:</u></b>	05/29/2007-06/07/2007
<b><u>Date Analyzed:</u></b>	05/29/2007-06/07/2008
<b><u>Report Date:</u></b>	7/11/2007

Matrix: Water

[illegible]

*NA = Not Analyzed.*



<u>Client:</u>	GTEOSI
<u>Location:</u>	Hicksville, NY
<u>Project ID:</u>	Groundwater Profiling
<u>SEI #:</u>	071867-R
<u>Date Sampled:</u>	7/11/2007-7/28/2007
<u>Date Analyzed:</u>	7/11/2007-7/28/2007
<u>Report Date:</u>	8/9/2007

Matrix: Water

HOLE ID = P-114		VOC DATA, ug/L											
Depth	Vinyl Chloride		1,2-Dichloroethane		o-Dichlorobenzene		Trichlorobenzene		Tetrachloroethene		% SS		
	Value	Q DF	Value	Q DF	Value	Q DF	Value	Q DF	Value	Q DF			
74.10	1	U	1	U	2	1	10	1	1	U	107		
84.75	1	U	1	U	1	U	2	1	1	U	109		
94.75	1	U	1	U	1	U	3	1	1	U	114		
104.75	1	U	1	U	1	U	6	1	1	U	106		
114.55	1	U	1	U	9	1	32	1	12	1	104		
124.75	1	U	1	U	17	1	110	1	15	1	103		
134.75	1	U	1	U	78	1	380	1	35	1	112		
143.80	1	U	1	U	78	1	400	1	26	1	119		
161.50	5	1	1	U	140	1	970	5	22	1	100		
169.70	1	U	1	U	110	5	630	1	13	1	109		
179.10	10	1	1	U	240	1	850	5	14	1	105		
193.80	14	1	1	U	220	4	690	4	6	1	105		
203.85	7	1	1	U	110	24	710	24	24	1	99		
213.80	1	U	1	U	29	1	400	1	16	1	104		
222.80	1	U	1	U	20	1	310	1	21	1	100		
234.80	1	U	1	U	1	U	238	1	13	1	101		
244.40	1	U	1	U	11	1	84	7	1	U	103		
271.90	1	U	1	U	19	1	150	1	8	1	105		
280.00	1	U	1	U	21	1	140	1	10	1	108		
289.80	1	U	1	U	22	1	77	1	4	1	107		
298.25	1	U	1	U	22	1	98	1	4	1	108		
309.80	1	U	1	U	5	1	25	2	1	U	111		
319.80	1	U	1	U	1	U	4	1	1	U	98		
329.00	1	U	1	U	1	U	1	U	1	U	110		
340.15	1	U	1	U	1	U	1	U	1	U	96		
348.15	1	U	1	U	1	U	1	U	1	U	108		
359.80	1	U	1	U	1	U	1	U	1	U	107		
368.10	1	U	1	U	1	U	1	U	1	U	109		
456.38	1	U	1	U	1	U	1	U	1	U	107		
464.90	1	U	1	U	1	U	1	U	1	U	105		
473.41	1	U	1	U	1	U	1	U	1	U	109		
484.10	1	U	1	U	1	U	1	U	1	U	110		
494.00	1	U	1	U	1	U	1	U	1	U	96		
504.96	1	U	1	U	1	U	1	U	1	U	108		
513.30	1	U	1	U	1	U	1	U	1	U	105		
523.90	1	U	1	U	1	U	1	U	1	U	104		

INORGANIC DATA, mg/L				
Fe <sup>++</sup>	Fe, Total	Ammonia	Chloride	Chlorine, Total
0.44	0.58	0.06	94	ND
0.22	0.38	0.13	79	0.07
0.13	0.18	0.04	57	ND
0.18	0.33	0.05	45	ND
0.36	0.45	0.24	36	ND
0.27	0.36	0.08	38	ND
0.43	0.45	0.14	46	ND
0.78	0.78	0.05	45	ND
0.68	0.81	0.13	58	0.02
0.40	0.40	0.08	44	ND
0.41	0.52	0.42	53	ND
0.61	0.72	0.12	52	ND
0.33	1.30	0.25	52	0.04
0.64	0.66	0.05	49	ND
0.20	0.27	0.08	52	0.15
0.35	0.38	0.04	50	ND
0.42	0.47	0.06	60	ND
0.51	0.53	0.02	46	0.04
0.51	0.67	ND	40	ND
0.52	0.62	0.05	38	ND
0.58	0.60	ND	41	ND
0.39	0.34	ND	32	0.05
0.22	0.29	0.08	11	0.03
ND	0.03	ND	ND	ND
NA	NA	NA	NA	NA
0.16	0.32	0.06	40	0.02
0.34	2.60	0.36	58	0.25
0.24	0.36	0.10	33	ND
0.14	0.16	0.03	316	ND
0.04	0.15	0.06	349	ND
0.06	0.17	0.07	233	0.02
0.04	0.08	0.05	35	0.05
0.03	0.09	0.07	37	0.04
0.11	0.21	0.13	29	0.09
0.20	1.98	0.31	13	0.20
0.05	0.06	0.04	ND	0.02

[illegible][illegible]

NA = Not Analyzed.



**STL VOC Data - Groundwater Profiles P-102, P-104, P-110, P-112, and P-114**  
**GTE Operations Support Incorporated**  
**Former Sylvania Electric Products Incorporated Facility**  
**Hicksville, NY**

Compound	Units	Sample ID / Depth (feet below ground surface)								
		P-102 75.45 ft	P-102 138.05 ft	P-102 170.45 ft	P-102 309.40 ft	P-102 320.3 ft	P-104 235.00 ft	P-104 245.00 ft	P-104 377.35 ft	P-104 385.00 ft
1,1,1,2-Tetrachloroethane	ug/L	1 U	1 U	1 U	0.95 J	1 U	1 U	1.1	1.7	1.4 J
1,1,1-Trichloroethane	ug/L	1 U	1.7	6.2	1 U	1 U	1.2	0.55 J	0.22 J	0.18 J
1,1,2,2-Tetrachloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
1,1,2-Trichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.42 J	0.3 J
1,1-Dichloroethane	ug/L	1 U	1	4	1 U	1 U	0.36 J	0.19 J	0.15 J	0.11 J
1,1-Dichloroethene	ug/L	1 U	0.53 J	1.8	1 U	1 U	1.6	0.27 J	0.22 J	1 UJ
1,2-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
1,2-Dichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
1,2-Dichloropropane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
1,3-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
1,4-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
2-Butanone	ug/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 UJ
2-Hexanone	ug/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 U	5 UJ
4-Methyl-2-pentanone (MIBK)	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
Acetone	ug/L	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
Benzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	0.13 J	0.19 J	0.14 J
Bromodichloromethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Bromoform	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Bromomethane	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ
Carbon disulfide	ug/L	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 UJ
Carbon tetrachloride	ug/L	1 U	1 U	1 U	1	0.2 J	1 U	6.9	3.6	2.8J
Chlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Chloroethane	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ
Chloroform	ug/L	1 U	1 U	1 U	0.71 J	2.3	0.69 J	0.51 J	0.7 J	0.5 J
Chloromethane	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ
cis-1,2-Dichloroethene	ug/L	1 U	1 U	1 U	5.1	0.29 J	9.9	9.4	14	12J
cis-1,3-Dichloropropene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Dibromochloromethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 UJ
Ethylbenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Methylene chloride	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Styrene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Tetrachloroethene	ug/L	1 U	1.4	1.6	1000	94	510	920	2900	2300
Toluene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
trans-1,2-Dichloroethene	ug/L	1 U	1 U	1 U	0.45 J	1 U	1 U	0.71 J	1.1	2 J
trans-1,3-Dichloropropene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Trichloroethene	ug/L	1 U	1.3U	1 U	14	1 U	110	170	39	30 J
Vinyl chloride	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Xylenes (total)	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ

Notes

U = the analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

**STL VOC Data - Groundwater Profiles P-102, P-104, P-110, P-112, and P-114**  
**GTE Operations Support Incorporated**  
**Former Sylvania Electric Products Incorporated Facility**  
**Hicksville, NY**

Compound	Units	Sample ID / Depth (feet below ground surface)								
		P-104 427.9 ft	P-104 461.65 ft	P-110 190.15 ft	P-110 260.15 ft	P-110 269.80 ft	P-110 281.70 ft	P-110 290.15 ft	P-110 329.20 ft	P-110 350.15 ft
1,1,1,2-Tetrachloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	ug/L	1 U	1 U	1 U	1 U	0.51 J	0.77 J	0.75 J	0.27 J	6.1
1,1,2,2-Tetrachloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	0.17 J	0.2 J	1 U	1.4
1,1-Dichloroethene	ug/L	1 U	1 U	1 U	1 U	0.37 J	0.83 J	0.72 J	0.18 J	6.4
1,2-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.11 J
1,3-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone	ug/L	5 U	5 U	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
2-Hexanone	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	ug/L	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
Benzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	ug/L	2 U	2 U	2 UJ	2 UJ	2 U	2 U	2 U	2 U	2 U
Carbon disulfide	ug/L	0.11 J	0.14 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon tetrachloride	ug/L	1 U	1 U	1 U	1 U	1 U	0.24 J	0.22 J	1.4	6.9
Chlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	ug/L	2 U	2 U	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U
Chloroform	ug/L	1 U	1 U	0.82 J	1 U	1 U	0.16 J	0.16 J	0.2 J	1.1
Chloromethane	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
cis-1,2-Dichloroethene	ug/L	1 U	1 U	0.97 J	1 U	0.23 J	0.57 J	0.63 J	0.33 J	17
cis-1,3-Dichloropropene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	ug/L	26	7.6 J	0.96 J	1 U	0.31 J	0.69 J	0.35 J	0.81 J	23
Toluene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.59 J
trans-1,3-Dichloropropene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	ug/L	1 U	1 U	0.55 J	2.7	11	23	21	12	300
Vinyl chloride	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.14 J
Xylenes (total)	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Notes

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**STL VOC Data - Groundwater Profiles P-102, P-104, P-110, P-112, and P-114**  
**GTE Operations Support Incorporated**  
**Former Sylvania Electric Products Incorporated Facility**  
**Hicksville, NY**

Compound	Units	Sample ID / Depth (feet below ground surface)								
		P-110 408.45 ft	P-110 421.15	P-110 429.35	P-110 439.25	P-110 452.15	P-110 460.15	P-110 470.05	P-112 179.6 ft	P-112 190.2 ft
1,1,1,2-Tetrachloroethane	ug/L	1 UJ	1 U	0.66 J	1.9	0.18 J	1 U	1 U	1 U	1 UJ
1,1,1-Trichloroethane	ug/L	25 J	0.15 J	0.36 J	1 U	1 U	0.26 J	1 U	1.4	1.2 J
1,1,2,2-Tetrachloroethane	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
1,1,2-Trichloroethane	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
1,1-Dichloroethane	ug/L	0.66 J	1 U	1 U	0.13 J	1 U	1 U	1 U	0.37 J	0.54 J
1,1-Dichloroethene	ug/L	13 J	0.13 J	1 U	1 U	1 U	1 U	1 U	0.99 J	1 UJ
1,2-Dichlorobenzene	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
1,2-Dichloroethane	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
1,2-Dichloropropane	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	0.6 J	1 UJ
1,3-Dichlorobenzene	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
1,4-Dichlorobenzene	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
2-Butanone	ug/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
2-Hexanone	ug/L	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
4-Methyl-2-pentanone (MIBK)	ug/L	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ
Acetone	ug/L	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
Benzene	ug/L	1 UJ	1 U	1 U	0.15 J	1 U	1 U	1 U	1 U	1 UJ
Bromodichloromethane	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Bromoform	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Bromomethane	ug/L	2 UJ	2 UJ	2 UJ	2 U	2 U	2 U	2 U	2 U	2 UJ
Carbon disulfide	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Carbon tetrachloride	ug/L	33 J	1.8 J	2.4 J	3.8	1.4	1.4	0.98 J	1 U	1 UJ
Chlorobenzene	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Chloroethane	ug/L	2 UJ	2 U	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 U	2 UJ
Chloroform	ug/L	0.68 J	0.23 J	0.33 J	0.6 J	0.31 J	0.27 J	0.21 J	0.36 J	0.31 J
Chloromethane	ug/L	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ
cis-1,2-Dichloroethene	ug/L	1 UJ	2.4	4.5	13	2.6	1.4	0.93 J	0.39 J	1 UJ
cis-1,3-Dichloropropene	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Dibromochloromethane	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Ethylbenzene	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Methylene chloride	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	0.42 J	1 U	1 UJ
Styrene	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Tetrachloroethene	ug/L	79	280	480	2000	130 J	56	27	3.8	6.2 J
Toluene	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
trans-1,2-Dichloroethene	ug/L	1 UJ	0.14 J	1 U	1.2	1 U	1 U	1 U	1 U	1 UJ
trans-1,3-Dichloropropene	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Trichloroethene	ug/L	110	14	20	30	10	12	12	20	11J
Vinyl chloride	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ
Xylenes (total)	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ

Notes

U = the analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

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**STL VOC Data - Groundwater Profiles P-102, P-104, P-110, P-112, and P-114**  
**GTE Operations Support Incorporated**  
**Former Sylvania Electric Products Incorporated Facility**  
**Hicksville, NY**

Compound	Units	Sample ID / Depth (feet below ground surface)								
		P-112 232.2 ft	P-112 240.2 ft	P-114 114.8 ft	P-114 124.8 ft	P-114 134.8 ft	P-114 143.8 ft	P-114 161.5 ft	P-114 193.8 ft	P-114 222.8 ft
1,1,1,2-Tetrachloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	0.92 J	1 U	0.45 J
1,1,1-Trichloroethane	ug/L	2.7	0.36 J	2.3	0.55 J	0.9 J	1.1	0.92 J	1.3	0.91 J
1,1,2,2-Tetrachloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.53 J	1 U
1,1-Dichloroethane	ug/L	0.42 J	1 U	3.9	3.7	3.7	3.8	5.2	13	4.2
1,1-Dichloroethene	ug/L	1.1	1 U	2.1	1.5	2.5	2.3	2.9	3.5	2.3
1,2-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U	0.34 J	0.27 J	0.62 J	1 U	1 U
1,2-Dichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	ug/L	1 U	1 U	1 U	0.22 J	0.34 J	0.32 J	0.41 J	0.28 J	0.71 J
1,3-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U	0.24 J	0.17 J	0.31 J	1 U	1 U
2-Butanone	ug/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
2-Hexanone	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	ug/L	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
Benzene	ug/L	1 U	1 U	1 U	1 U	0.11 J	0.11 J	0.27 J	0.57 J	1.2
Bromodichloromethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	ug/L	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
Carbon disulfide	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon tetrachloride	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	ug/L	1 U	1 U	1 U	1 U	0.26 J	0.28 J	0.4 J	1 U	1 U
Chloroethane	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Chloroform	ug/L	0.27 J	0.15 J	0.32 J	0.76 J	1	0.93 J	0.75 J	0.97 J	2
Chloromethane	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
cis-1,2-Dichloroethene	ug/L	0.94 J	7.1	9.4	20	81	72	120	200	24
cis-1,3-Dichloropropene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride	ug/L	1 U	1 U	1 U	1 U	0.44 J	0.45 J	1 U	1	1 U
Styrene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	ug/L	110	100	12	17	35	25	23	11	26
Toluene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	ug/L	1 U	0.36 J	1 U	1 U	0.74 J	0.63 J	0.82 J	2.3	0.34 J
trans-1,3-Dichloropropene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	ug/L	23	35	42	120	460	400	880	660	430
Vinyl chloride	ug/L	1 U	1 U	1 U	1 U	2.4	2.2	6.7	16	1.1
Xylenes (total)	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Notes

U = the analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.



**STL VOC Data - Groundwater Profiles P-102, P-104, P-110, P-112, and P-114**  
**GTE Operations Support Incorporated**  
**Former Sylvania Electric Products Incorporated Facility**  
**Hicksville, NY**

Compound	Units	Sample ID / Depth (feet below ground surface)			
		P-114 271.9 ft	P-114 298.3 ft	P-114 74.1 ft	P-114 84.8 ft
1,1,1,2-Tetrachloroethane	ug/L	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	ug/L	1.8	7.9	8.4	6.4
1,1,2,2-Tetrachloroethane	ug/L	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	ug/L	1 U	1 U	1 U	1 U
1,1-Dichloroethane	ug/L	20	31	1	0.87 J
1,1-Dichloroethene	ug/L	2.7	9.2	0.52 J	0.34 J
1,2-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U
1,2-Dichloroethane	ug/L	1 U	1 U	1 U	1 U
1,2-Dichloropropane	ug/L	0.16 J	1 U	1 U	1 U
1,3-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U
2-Butanone	ug/L	5 UJ	5 UJ	5 UJ	5 UJ
2-Hexanone	ug/L	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	ug/L	5 U	5 U	5 U	5 U
Acetone	ug/L	2 UJ	2 UJ	8.1 UJ	2 UJ
Benzene	ug/L	0.27 J	0.14 J	1 U	1 U
Bromodichloromethane	ug/L	1 U	1 U	1 U	1 U
Bromoform	ug/L	1 U	1 U	1 U	1 U
Bromomethane	ug/L	2 UJ	2 UJ	2 UJ	2 UJ
Carbon disulfide	ug/L	1 U	1 U	1 U	1 U
Carbon tetrachloride	ug/L	1 U	1 U	1 U	1 U
Chlorobenzene	ug/L	1 U	0.64 J	1 U	1 U
Chloroethane	ug/L	2 U	2 U	2 U	2 U
Chloroform	ug/L	0.31 J	0.66 J	1 U	1 U
Chloromethane	ug/L	2 U	2 U	0.15 J	2 U
cis-1,2-Dichloroethene	ug/L	23	28	1.3	1.2
cis-1,3-Dichloropropene	ug/L	1 U	1 U	1 U	1 U
Dibromochloromethane	ug/L	1 U	1 U	1 U	1 U
Ethylbenzene	ug/L	1 U	1 U	1 U	1 U
Methylene chloride	ug/L	1 U	1 U	1 U	1 U
Styrene	ug/L	1 U	1 U	1 U	1 U
Tetrachloroethene	ug/L	8	4.1	1 U	1 U
Toluene	ug/L	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	ug/L	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	ug/L	1 U	1 U	1 U	1 U
Trichloroethene	ug/L	180	120	9.2	7.6
Vinyl chloride	ug/L	0.92 J	1.4	1 U	1 U
Xylenes (total)	ug/L	1 U	1 U	1 U	1 U

Notes

U = the analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-102**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	February 1, 2007
JOB NUMBER:	4563001	END DATE:	February 27, 2007
DRILLING FIRM:	SGS	LOCATION:	Intersection of Charlotte Ave. and Duffy Ave. on Winter Brothers property
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Larry Lynch	LOGGED BY:	J. Hilton, C. Goldsmith
HELPER:	Tom Lynch		

Total depth of Profile: 474.25				Total depth of boring: 420 ft				
GEOLOGIC INFORMATION				Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)		Index of Hyd. Conductivity						
0 0.9 0		3		0	SAND (fine to coarse) and SILT with trace Gravel (fine); dark brown-black, sub-round.	SM		Hollow stem augers used from 0 to 20 ft
				10	SAND (medium to coarse), little Gravel (fine); light-moderate brown.	SW		
				20				Begin mud rotary drilling at 20 ft
				30				
				40				
				50	SAND (fine to medium), trace Gravel (fine); light-moderate brown.	SW		
				60				
				70	SAND (fine to medium), trace Gravel (fine); white.	SW		Begin profiling at 70.20 ft
				80				
				90	SAND (fine to medium), trace Gravel (fine); light brown.	SW		

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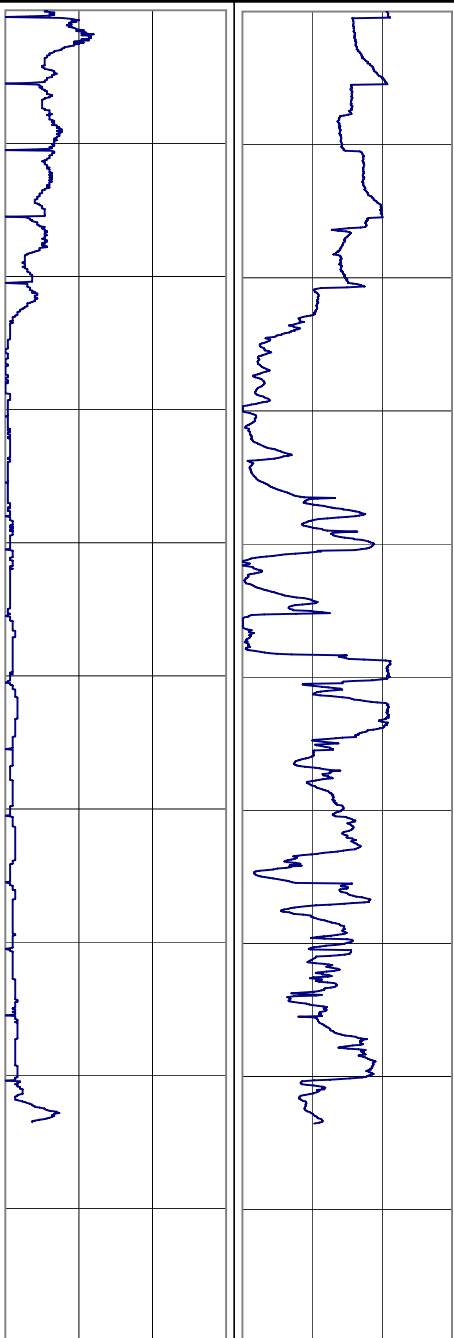
**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-102**

PROJECT NAME: GTEOSI-Hicksville		START DATE: February 1, 2007
JOB NUMBER: 4563001		END DATE: February 27, 2007
DRILLING FIRM: SGS		LOCATION: Intersection of Charlotte Ave. and Duffy Ave. on Winter Brothers property
DRILLING METHOD: Mud Rotary		DATUM: Land Surface
DRILLER: Larry Lynch		LOGGED BY: J. Hilton, C. Goldsmith
HELPER: Tom Lynch		

Total depth of Profile: 474.25		Total depth of boring: 420 ft				
GEOLOGIC INFORMATION		Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)	Index of Hyd. Conductivity					
0	0.9	0				
		100	SAND (fine-coarse), little Gravel; light brown.	SW		
		110				
		120	SAND (medium) with some Silt; moderate brown.	SP		
		130				
		140				
		150				
		160				
		170				
		180	SAND (fine to coarse), with Silt and Clay; moderate brown	SM		Pulled Profiler at 180' bgs, advanced casing from 70' bgs to 180'
		190	SAND (fine) and SILT, trace Clay; white.	SM		Pulled Profiler at 191' bgs. Problems with sample line. Advanced casing from 180' bgs to 200'

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**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-102**

PROJECT NAME: GTEOSI-Hicksville

START DATE: February 1, 2007

JOB NUMBER: 4563001

END DATE: February 27, 2007

DRILLING FIRM: SGS

LOCATION: Intersection of Charlotte Ave. and Duffy Ave.  
on Winter Brothers property

DRILLING METHOD: Mud Rotary

DRILLER: Larry Lynch

DATUM: Land Surface

HELPER: Tom Lynch

LOGGED BY: J. Hilton, C. Goldsmith

Total depth of Profile: 474.25

Total depth of boring: 420 ft

**GEOLOGIC INFORMATION**Penetration Rate (ft/min) 0.9 0  
Index of Hyd. Conductivity 3

Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
200	SAND (fine-coarse) with some Silt; moderate brown.	SM		
210				
220	SAND (fine-medium) with some Silt; light brown.	SM		
230				
240				
250	SAND (fine-Medium) with some Clay; dark gray.	SC		
	SAND (fine); light brown.	SP		
260	SAND (fine-medium), some Clay and Silt; white.	SC		
270	SILT with Sand (fine); white.	ML-SM		
280				
	CLAY with Sand (fine); gray-white.	CL		
290	SILT with Sand (fine); white.	ML-SM		

Mud loss. No cuttings return. Appears to be Clay from 284' to approx. 292' based on drilling character. Clay found on profiler indicated a stiff, gray-white clay. Refusal at 287' bgs. Profiler pulled out and advanced casing from 200' bgs to 290'



**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-102**

PROJECT NAME: GTEOSI-Hicksville

START DATE: February 1, 2007

JOB NUMBER: 4563001

END DATE: February 27, 2007

DRILLING FIRM: SGS

LOCATION: Intersection of Charlotte Ave. and Duffy Ave.

DRILLING METHOD: Mud Rotary

on Winter Brothers property

DRILLER: Larry Lynch

DATUM: Land Surface

HELPER: Tom Lynch

LOGGED BY: J. Hilton, C. Goldsmith

Total depth of Profile: 474.25

Total depth of boring: 420 ft

**GEOLOGIC INFORMATION**Penetration Rate (ft/min) 0.9 0  
Index of Hyd. Conductivity 3

Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
300	SAND (fine-medium) with trace Silt; light brown to white.	SW		
310				
320				
330	SAND (fine to medium), trace Silt and Clay interbeds; light brown to white.	SW		
340				
350	SAND (fine to medium), trace Silt and Clay; light brown to white, micaceous.	SW		Profilor refusal at 350.55' bgs, pulled rods and advanced casing from 290' bgs to 360'
360	SAND (fine to medium), trace Silt and Clay; light brown to white.	SW		
370				
380				
390	SAND (medium-coarse), trace Silt; gray to white, micaceous.	SW		Profilor refusal at 392.30' bgs, pulled rods and advanced casing from 360' bgs to 420'

**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-102**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	February 1, 2007
JOB NUMBER:	4563001	END DATE:	February 27, 2007
DRILLING FIRM:	SGS	LOCATION:	Intersection of Charlotte Ave. and Duffy Ave. on Winter Brothers property
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Larry Lynch	LOGGED BY:	J. Hilton, C. Goldsmith
HELPER:	Tom Lynch		

Total depth of Profile: 474.25		Total depth of boring: 420 ft				
GEOLOGIC INFORMATION		Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)	Index of Hyd. Conductivity					
0	0.9	0				
		3				
		400				
		410	SAND (fine-coarse) with interbedded Silt and Clay; white to gray to gray-brown.	SW		
		420				
		430				
		440	SAND (fine-coarse), trace Silt; white to gray.	SW		Profilor refusal at 439.38' bgs, pulled rods and advanced casing from 420' bgs to 447'
		450				End of mud logging at 447.15 ft
		460				
		470				End of profile at 474.25 ft
		480				
		490				

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**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-104**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	February 28, 2007
JOB NUMBER:	4563001	END DATE:	March 21, 2007
DRILLING FIRM:	SGS	LOCATION:	550 Old Country Road, northeast corner of parking lot
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Larry Lynch	LOGGED BY:	J. Hilton, C. Goldsmith
HELPER:	Tom Lynch		

Total depth of Profile: 491.70 ft				Total depth of boring: 480 ft				
GEOLOGIC INFORMATION								
Penetration Rate (ft/min)				Index of Hyd. Conductivity				
0 1.6 0 6								
Depth (ft bgs)				Description		USCS Symbol	Stratigraphic Column	REMARKS
0				SAND (medium-coarse) w/ little sub-rounded white quartz Gravel (fine-coarse) to 2" dia., moderate-dark brown.		SW-GW		Hollow stem augers used from 0 to 20 ft
10								
20				SAND (medium-coarse); light brown.		SW-GW		Begin mud rotary drilling at 20 ft
30								
40								
50								
60								
70				SAND (medium) with little Silt; gray to brown.		SM		Begin profiling at 69.70 ft
80								
90				SAND (medium-coarse) with some Silt, trace Gravel; light brown.		SW-SM		

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**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-104**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	February 28, 2007
JOB NUMBER:	4563001	END DATE:	March 21, 2007
DRILLING FIRM:	SGS	LOCATION:	550 Old Country Road, northeast corner of parking lot
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Larry Lynch	LOGGED BY:	J. Hilton, C. Goldsmith
HELPER:	Tom Lynch		

Total depth of Profile: 491.70 ft				Total depth of boring: 480 ft				
GEOLOGIC INFORMATION				Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)		Index of Hyd. Conductivity						
0	1.6	0	6	100				Profiler refusal at 124' bgs, pulled rods and advanced casing from 70' bgs to 140'
				110				
				120	SAND (fine-medium) and SILT, w/ thin black carbonaceous clay and lignite interbeds (117 - 125' bgs); black.	SW-SM		
				130				
				140	SAND (medium-coarse) with some Silt; brown.	SW-SM		
				150	SAND (fine) and SILT; gray to brown.	SM		
				160	SAND (fine-coarse) with some Silt; brown.	SM		
				170	SAND (fine), trace Silt and Clay interbedded; brown to white.	SP		
				180	SAND (fine) with Silt, some interbedded white Clay; brown to white.	SM		
				190				

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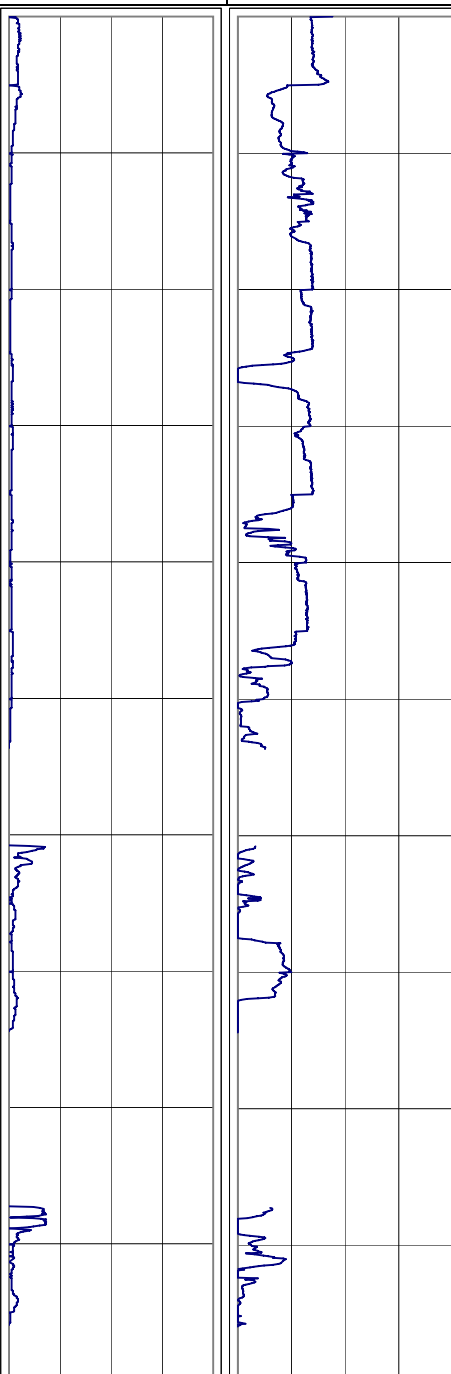
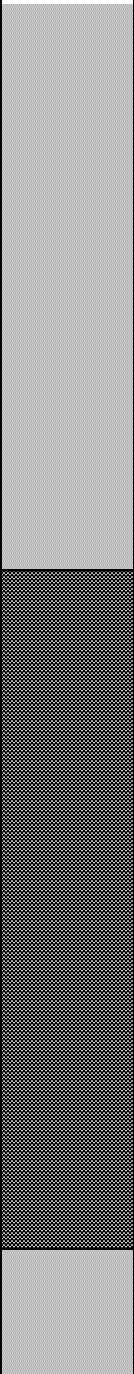
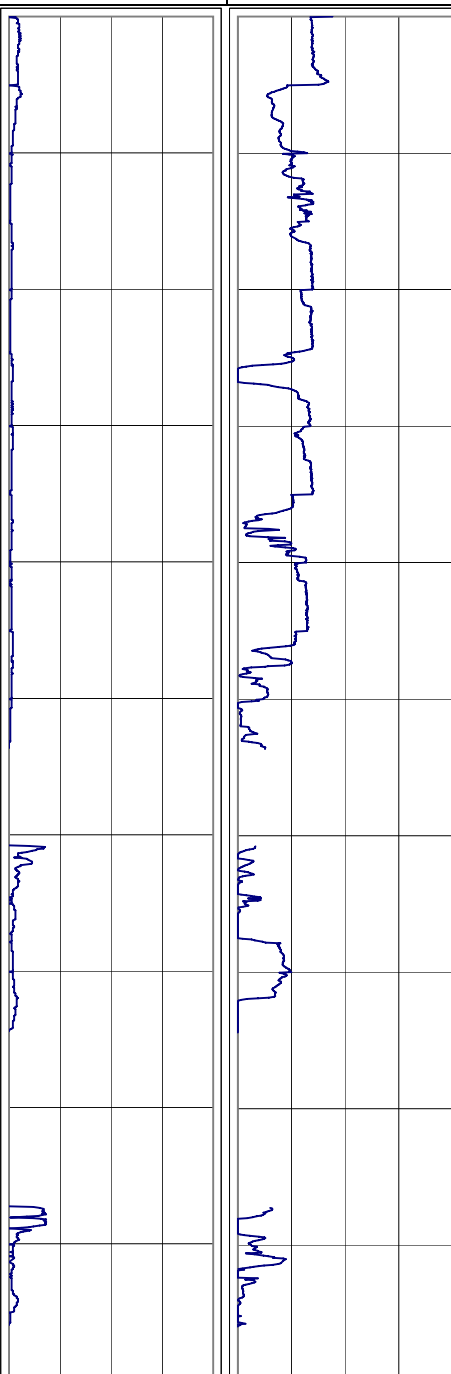
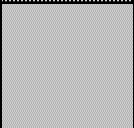
**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-104**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	February 28, 2007
JOB NUMBER:	4563001	END DATE:	March 21, 2007
DRILLING FIRM:	SGS	LOCATION:	550 Old Country Road, northeast corner of parking lot
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Larry Lynch	LOGGED BY:	J. Hilton, C. Goldsmith
HELPER:	Tom Lynch		

Total depth of Profile: 491.70 ft		Total depth of boring: 480 ft				
GEOLOGIC INFORMATION		Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)	Index of Hyd. Conductivity					
0	1.6	0				
		200	SAND (fine) with Silt, trace interbedded Clay; white.	SM		
		210				
		220				
		220	SAND (fine) and SILT, trace white interbedded Clay; brown to gray.	SM		
		230				
		240				
		240	SILT, some Sand (fine), trace interbedded carbonaceous Clay and lignite (272-278); gray to brown.	ML		
		250				
		260				
		260	Pulled profiling rods from 253.65 and advanced casing from 140' to 260' bgs			
270						
280						
280	Profilers refusal at 274' bgs, pulled rods and advanced casing from 260' bgs to 287'					
290						
290		SAND (fine) with little-some Silt, trace interbedded Clay; light gray to brown.	SM			
		290	SAND (fine) with little-some Silt, trace interbedded Clay; light gray to brown.	SM		Profilers refusal at 296' bgs, pulled rods and advanced casing from 287' bgs to 312'

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**MALCOLM PIRNIE, INC.**  
17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-104**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	February 28, 2007
JOB NUMBER:	4563001	END DATE:	March 21, 2007
DRILLING FIRM:	SGS	LOCATION:	550 Old Country Road, northeast corner of parking lot
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Larry Lynch	LOGGED BY:	J. Hilton, C. Goldsmith
HELPER:	Tom Lynch		

Total depth of Profile: 491.70 ft		Total depth of boring: 480 ft						
GEOLOGIC INFORMATION				Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)		Index of Hyd. Conductivity						
0	1.6	0	6	300	SAND (fine) with little-some Silt; brown	SM		
				310				
				320				
				330				
				340				
				350	SAND (fine-medium) with little-some Silt, trace interbedded Clay <.5'; light brown to white.	SM		Profilor refusal at 353' bgs, pulled rods and advanced casing from 312' bgs to 365'
				360				
				370	SAND (fine-coarse) with little-some Silt, trace Clay; light brown to white.	SM		Profilor refusal at 370' bgs, pulled rods and advanced casing from 365' bgs to 375'
				380	SAND (fine-coarse) with little-some Silt and dense angular Sand interbeds, trace Clay lenses <.5' thick; light brown to white.	SM		
				390				

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**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-104**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	February 28, 2007
JOB NUMBER:	4563001	END DATE:	March 21, 2007
DRILLING FIRM:	SGS	LOCATION:	550 Old Country Road, northeast corner of parking lot
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Larry Lynch	LOGGED BY:	J. Hilton, C. Goldsmith
HELPER:	Tom Lynch		

Total depth of Profile: 491.70 ft		Total depth of boring: 480 ft				
GEOLOGIC INFORMATION		Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)	Index of Hyd. Conductivity					
0	1.6	0				
		6				
		400				Profiler refusal at 400' bgs, pulled rods and advanced casing from 375' bgs to 410'
		410	CLAY with interbedded carbonaceous lenses <0.5' thick; dark gray.	CL		
		420				
		430	SAND (fine-medium) and SILT, trace Clay interbeds <0.5' thick; light brown to white.	SM		Profiler malfunction at 435' bgs, pulled rods and advanced casing from 410' bgs to 440'
		440	SAND (fine-medium), trace Clay; light brown to white.	SW		
		450	SAND (fine-medium) and SILT, with dense stiff interbedded Clay at approx. 453-455; light brown to white.	SW-SM		Profiler refusal at 453' bgs, pulled rods and advanced casing from 440' bgs to 460'
		460	SAND (fine), trace Clay; gray to white.	SP		
		470	SAND (fine-medium) and SILT, trace interbedded gray-white Clay esp.at 472-473'; gray to white.	SW-SM		Profiler refusal at 472' bgs, pulled rods and advanced casing from 460' bgs to 480'
		480				End of mud logging at 480.0 ft
		490				End of profile at 491.70 ft
						Profiler refusal at 492' bgs, pulled rods and casing to abandon borehole P-104

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**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-110**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	June 13, 2007
JOB NUMBER:	4563001	END DATE:	July 3, 2007
DRILLING FIRM:	SGS	LOCATION:	West of Levittown park and Acre Lane.
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Tom Lynch	LOGGED BY:	J. Hilton
HELPER:	Julio Cancel		

Total depth of Profile: 513.35 ft.				Total depth of boring: 510 ft.				
GEOLOGIC INFORMATION								
Penetration Rate (ft/min)		Index of Hyd. Conductivity		Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
0	0.6	0	4					
				0	SAND (fine-coarse) w/ little sub-rounded white quartz Gravel (fine-coarse) to 2" dia.; light-moderate gray-brown.	SW		Hollow stem augers advanced from 0 to 20 ft bgs
				10	SAND (fine to medium) w/ little-some fine-grs sub-rnd Gravel 1/4-1/2"dia.; light tan-brown,	SW		
				20	SAND (medium-coarse); light brown.	SW		Begin mud rotary drilling at 20 ft
				30				
				40				
				50				
				60	SAND (fine-medium); light tan-brown.	SW		Begin profiling at 69.75 ft
				70	SAND (fine) with trace interbedded white Silt; light. tan-pink.	SP		
				80	SAND (fine) with red-brown Silt , trace Clay; light gray-brown.	SM		
				90	SAND (fine-med) with trace Silt; light tan, micaceous.	SW		

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**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-110**

PROJECT NAME: GTEOSI-Hicksville

START DATE: June 13, 2007

JOB NUMBER: 4563001

END DATE: July 3, 2007

DRILLING FIRM: SGS

LOCATION:

DRILLING METHOD: Mud Rotary

West of Levittown park and Acre Lane.

DRILLER: Tom Lynch

DATUM: Land Surface

HELPER: Julio Cancel

LOGGED BY: J. Hilton

Total depth of Profile: 513.35 ft.

Total depth of boring: 510 ft.

GEOLOGIC INFORMATION		Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)	Index of Hyd. Conductivity					
0	0.6	0				
		100				
		110				
		120				
		130	SILT and CLAY, dark gray-black, carbonaceous, with interbedded lignite <0.5' thick	ML-CL		Profiler refusal at 132' bgs, pulled rods and advanced casing from 70' bgs to 140'. Start Profiler at 137.25.
		140	SAND (fine); light gray-white, micaceous.	SP		
		150				
		160	SAND (fine) w/ trace-little Silt; light tan, micaceous.	SM		
		170				
		180				
		190				

**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-110**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	June 13, 2007
JOB NUMBER:	4563001	END DATE:	July 3, 2007
DRILLING FIRM:	SGS	LOCATION:	
DRILLING METHOD:	Mud Rotary		West of Levittown park and Acre Lane.
DRILLER:	Tom Lynch	DATUM:	Land Surface
HELPER:	Julio Cancel	LOGGED BY:	J. Hilton

Total depth of Profile: 513.35 ft.		Total depth of boring: 510 ft.		
GEOLOGIC INFORMATION				
Penetration Rate (ft/min)		Index of Hyd. Conductivity		
0	0.6	0	4	
Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
200				
210				
220				Profilor tripped out at 215' bgs, pulled rods and advanced casing from 140' bgs to 220'
230				
240				
250				
260	SAND (fine) with little-some Silt, trace Clay; light gray-white, micaceous.	SM		
270				
280	SAND (fine) with interbedded Silt lenses, trace Clay; light gray-white.	SP		Profilor refusal at 276.2' bgs, pulled rods and advanced casing from 220' bgs to 280'
290				
	SAND, gray-white with little to some interbedded white Silt.	SM		

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**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-110**

PROJECT NAME: GTEOSI-Hicksville

START DATE: June 13, 2007

JOB NUMBER: 4563001

END DATE: July 3, 2007

DRILLING FIRM: SGS

LOCATION:

DRILLING METHOD: Mud Rotary

West of Levittown park and Acre Lane.

DRILLER: Tom Lynch

DATUM: Land Surface

HELPER: Julio Cancel

LOGGED BY: J. Hilton

Total depth of Profile: 513.35 ft.

Total depth of boring: 510 ft.

## GEOLOGIC INFORMATION

Penetration Rate (ft/min)	Index of Hyd. Conductivity
0.6	0

Depth (ft bgs)
4

GEOLOGIC INFORMATION		Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
0	0.6	0				
		300	SILT, white with little fine Sand, micaceous.	ML		Profiler refusal at 297.5' bgs, pulled rods and advanced casing from 280' bgs to 310'
		310	SAND (fine); light gray-white.	SP		
		320				
		330	SAND (fine) with trace Silt; light gray-white to dark gray.	SP		
		340	SAND (medium); gray-white.	SP		
		350	SAND (fine-medium); light brown-white.	SW		Profiler refusal at 369.5' bgs, pulled rods and advanced casing from 310' bgs to 390'
		360				
		370	CLAY and SILT, dark gray, trace carbonaceous interbeds grading to white interbedded Silt at approx. 382'	CL-ML		
		380				
		390	SAND (fine-medium); light tan-white.	SW		
			SAND (fine-medium) with Silt, trace Clay; light tan-white.	SM		

17-17 Route 208 North Fair Lawn, NJ 07401

**P-110**

**START DATE:** June 13, 2007

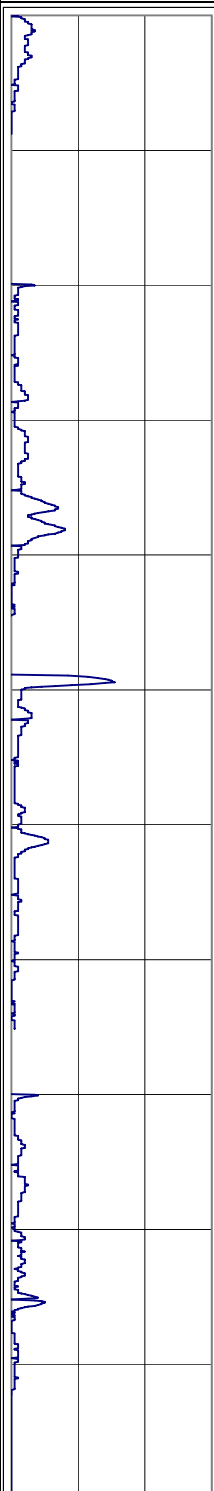
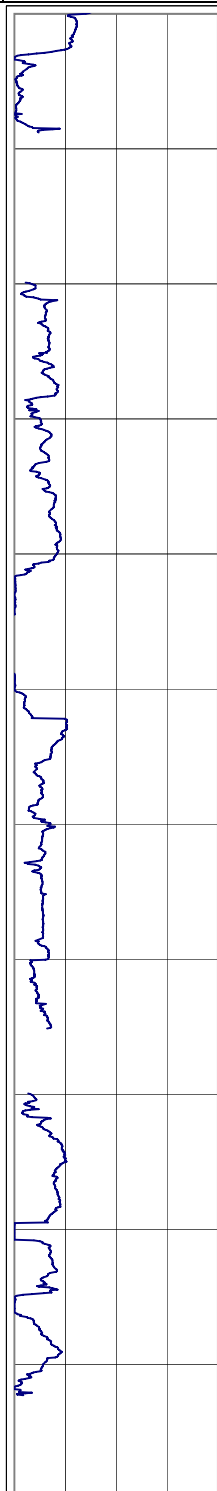
**END DATE:** July 3, 2007

**LOCATION:**

West of Levittown park and Acre Lane.

**DATUM:** Land Surface

LOGGED BY: J. Hilton

Total depth of Profile: 513.35 ft.		Total depth of boring: 510 ft.					
GEOLOGIC INFORMATION		Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS	
Penetration Rate (ft/min)	Index of Hyd. Conductivity						
0	0.6	0					
				400	SAND (medium) with trace Silt; light brown, angular.	SP	Profiler refusal at 408.8' bgs, pulled rods and advanced casing from 390' bgs to 420'
		410	CLAY dark gray, with interbedded carbonaceous lenses <0.5' thick.				
		420	SAND (fine-medium); light brown, angular.	SW			
		430	SAND (medium) with interbedded Silt; white, angular.	SP			
		440	SILT with little some Clay, grading to Sand (fine) at approximately 448' bgs; white.	ML		Profiler refusal at 444.5' bgs, pulled rods and advanced casing from 420' bgs to 450'	
		450	SAND (fine-medium) with trace-little Silt; light gray-white.	SW			
		460					
		470	SAND (fine-coarse) with trace-little Silt; white.	SW		Profiler advancement made difficult due to angular sand, advanced casing from 450' bgs to 480'	
		480	SAND (fine-coarse) with trace-little Silt; white .	SW			
		490					
		500	SAND (fine-medium) with little Silt; white	SW		Profiler refusal at 502.3' bgs, pulled rods and advanced casing from 480' bgs to 510' End of mud logging at 510 ft End of profile at 513.35 ft	

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**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-112**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	May 7, 2007
JOB NUMBER:	4563001	END DATE:	May 20, 2007
DRILLING FIRM:	SGS	LOCATION:	Stop and Shop parking lot North of Old Country Road
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Tom Lynch	LOGGED BY:	J. Hilton
HELPER:	Julio Cancel		

Total depth of Profile: 443 ft.		Total depth of boring: 425 ft				
GEOLOGIC INFORMATION		Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)	Index of Hyd. Conductivity					
0	2	0				

**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-112**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	May 7, 2007
JOB NUMBER:	4563001	END DATE:	May 20, 2007
DRILLING FIRM:	SGS	LOCATION:	Stop and Shop parking lot North of Old Country Road
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Tom Lynch	LOGGED BY:	J. Hilton
HELPER:	Julio Cancel		

Total depth of Profile: 443 ft.		Total depth of boring: 425 ft				
GEOLOGIC INFORMATION		Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)	Index of Hyd. Conductivity					
0	2	0				
		100				
		110				
		120	SAND (fine); light brown.	SP		
		130	SAND (fine) and SILT, trace Clay with in Silt matrix; light gray-brown.	SM		
		140				
		150				
		160	SILT, with some Sand (fine); gray-brown.	ML		
		170				
		180				
		190				

Profiler refusal at 143' bgs, pulled rods and  
advanced casing from 70' bgs to 150'

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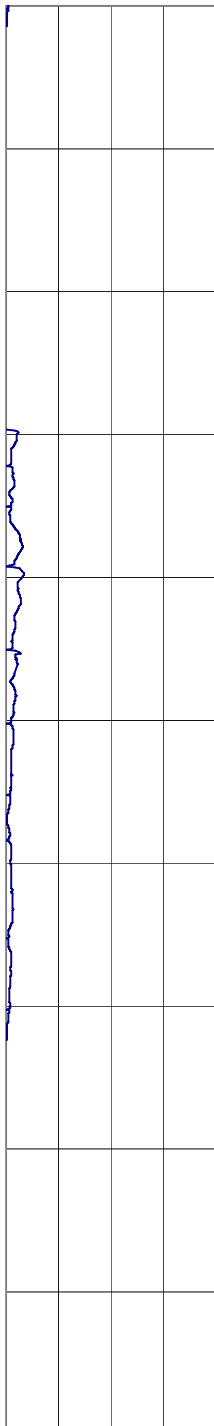
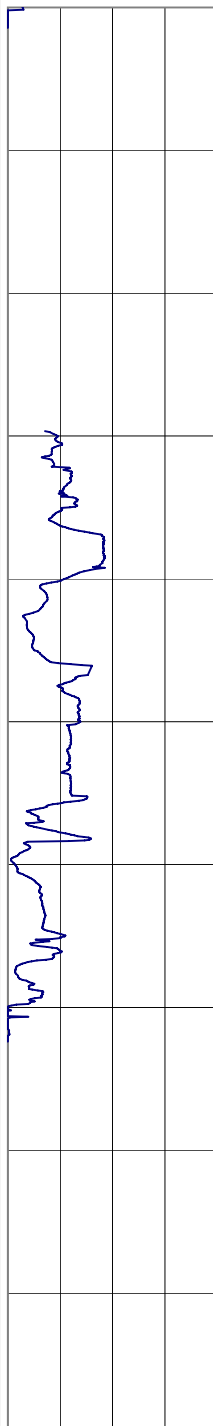
**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-112**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	May 7, 2007
JOB NUMBER:	4563001	END DATE:	May 20, 2007
DRILLING FIRM:	SGS	LOCATION:	Stop and Shop parking lot North of Old Country Road
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Tom Lynch	LOGGED BY:	J. Hilton
HELPER:	Julio Cancel		

Total depth of Profile: 443 ft.		Total depth of boring: 425 ft				
GEOLOGIC INFORMATION		Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)	Index of Hyd. Conductivity					
0	20	6				
		200	SILT and SAND (fine); brown.	ML-SM		Profiler refusal at 201' bgs, pulled rods and advanced casing from 150' bgs to 210'
		210				
		220	SILT and SAND (fine-medium) trace Clay; brown.	ML-SM		
		230				
		240	SAND (fine-medium) with some Gravel; tan-brown.	SW		
		250	SAND (fine-medium) and SILT, with trace Gravel; tan-brown.	SM		
		260	SAND (fine-medium) with some Silt; tan-brown.	SM		
		270	CLAY, gray-white gradational to dark gray with interbedded lignite and carbonaceous Clay 290 - 300'.	CL		
		280				Profiler refusal at 272' bgs, pulled rods and advanced casing from 230' bgs to 300'
		290				

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**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-112**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	May 7, 2007
JOB NUMBER:	4563001	END DATE:	May 20, 2007
DRILLING FIRM:	SGS	LOCATION:	Stop and Shop parking lot North of Old Country Road
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Tom Lynch	LOGGED BY:	J. Hilton
HELPER:	Julio Cancel		

Total depth of Profile: 443 ft.		Total depth of boring: 425 ft				
GEOLOGIC INFORMATION		Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)	Index of Hyd. Conductivity					
0	2	0				
		300	SILT and SAND (fine) with trace carbonaceous Clay; moderate-dark gray.	ML-SM		
		310	SAND (fine-medium) with trace-little gray-brown Silt; gray-white.	SW		
		320	SAND (fine) with tan-brown interbedded Silt; gray-white.	SP		
		330				
		340				
		350	SILT, with stratified fine Sand and Clay; lt. gray-white.	ML		Profiler refusal at 355' bgs, pulled rods and advanced casing from 300' bgs to 360'
		360	SAND (fine) with interbedded Silt; lt. gray-white.	SP		
		370				
		380	SILT, with interbedded Clay lenses <1' thick; white-gray, stiff, dense.	ML-CL		Profiler reed valve malfunction at 374.2, pulled rods and advanced casing from 360' bgs to 390'
			SAND (fine) with Silt; tan-gray.	SM		
		390	SAND (medium-coarse) w/ trace yellow-brwn Silt; white-gray, angular.	SW		

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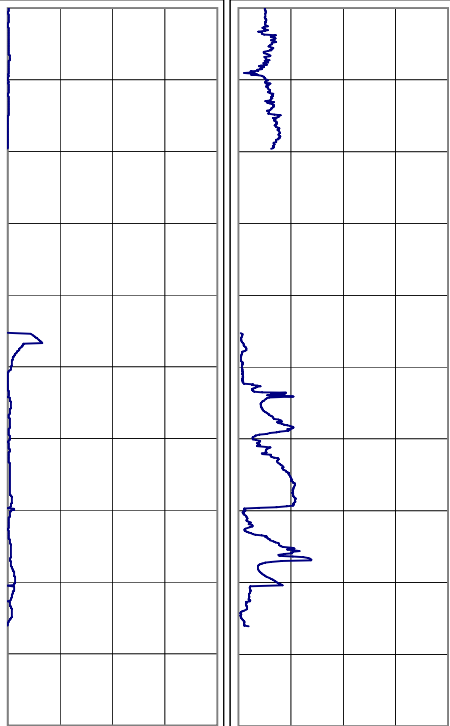
**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-112**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	May 7, 2007
JOB NUMBER:	4563001	END DATE:	May 20, 2007
DRILLING FIRM:	SGS	LOCATION:	Stop and Shop parking lot North of Old Country Road
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Tom Lynch	LOGGED BY:	J. Hilton
HELPER:	Julio Cancel		

Total depth of Profile: 443 ft.		Total depth of boring: 425 ft				
GEOLOGIC INFORMATION		Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)	Index of Hyd. Conductivity					
0	20	6				
		400				
		410	CLAY and SILT, with interbedded Silt and Sand (fine); dark gray-black, carbonaceous, soft.	CL-ML		Profiler advancement difficult at 410- 420' interval, pulled rods and advanced casing from 390' bgs to 425'
		420				
		430				End of mud logging at 425 ft
		440				Profiler refusal at 443' bgs, pulled rods and terminated borehole advancement
		450				End of profile at 443 ft
		460				
		470				
		480				
		490				

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**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-113**

PROJECT NAME: GTEOSI-Hicksville

START DATE: May 29, 2007

JOB NUMBER: 4563001

END DATE: June 7, 2007

DRILLING FIRM: SGS

LOCATION: Southwest corner of intersection of Levittown Pkwy and Old Country Road.

DRILLING METHOD: Mud Rotary

DRILLER: Tom Lynch

DATUM: Land Surface

HELPER: Julio Cancel

LOGGED BY: J. Hilton

Total depth of Profile: 389.9 ft.

Total depth of boring:

GEOLOGIC INFORMATION				Depth (ft bgs)	Description		Stratigraphic Column	REMARKS
Penetration Rate (ft/min)		Index of Hyd. Conductivity						
0	0.6	0	6	0	SAND (medium-coarse) and GRAVEL; brown, sub-rounded, white quartz Gravel to 1" diameter.	SW		Hollow stem augers advanced from 0 to 20 ft bgs
				10				
				20	GRAVEL (fine) with some Sand (fine- medium); brown, sub-round.	GP		Begin mud rotary drilling at 20 ft
				30	SAND (medium-coarse) and GRAVEL (fine); light brown, sub-round Gravel 1/4- 1/2" diameter.	SW-GP		
				40				
				50	SAND (medium-coarse) with little-some Gravel (Fine); gray-brown, sub-round.	SW		
				60	SAND (fine-medium) with little Gravel (fine); gray-brown, sub-round.	SW		
				70	SAND (fine-medium) and SILT; light tan- brown.	SM		Begin profiling at 69.35 ft
					SAND (fine) and SILT; light tan-gray.	SM		
				80	SILT with little fine interbedded Sand < 1' thick; light brown.	ML		
				90	SILT and SAND (fine) with trace white Clay; light gray-brown.	SM		

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**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-113**

PROJECT NAME: GTEOSI-Hicksville

START DATE: May 29, 2007

JOB NUMBER: 4563001

END DATE: June 7, 2007

DRILLING FIRM: SGS

LOCATION: Southwest corner of intersection of Levittown  
Pky and Old Country Road.

DRILLING METHOD: Mud Rotary

DRILLER: Tom Lynch

DATUM: Land Surface

HELPER: Julio Cancel

LOGGED BY: J. Hilton

Total depth of Profile: 389.9 ft.

Total depth of boring:

## GEOLOGIC INFORMATION

Penetration Rate (ft/min)

Index of Hyd. Conductivity

0 0.6 0 6

Depth (ft  
bgs)

Description

Stratigraphic  
Column

REMARKS

100

110

120

130

140

150

160

170

180

190

SAND (fine) and SILT, with stiff Clay lens;  
gray-white to dark brown.

SM

SAND (fine) with little interbedded Silt (1-  
3'), trace Gravel (fine); light tan-brown.

SP

SAND (fine); light tan-brown, with black,  
carbonaceous Silty-Clay interbed <1' thick.

SP

SAND (fine) with little - some Silt; light tan-  
brown.

SP

SILT, with little fine Sand, trace-little Clay  
with in Silt matrix; brown - yellow.

ML

Profiler refusal at 116' bgs, pulled rods and  
advanced casing from 70' bgs to 120'

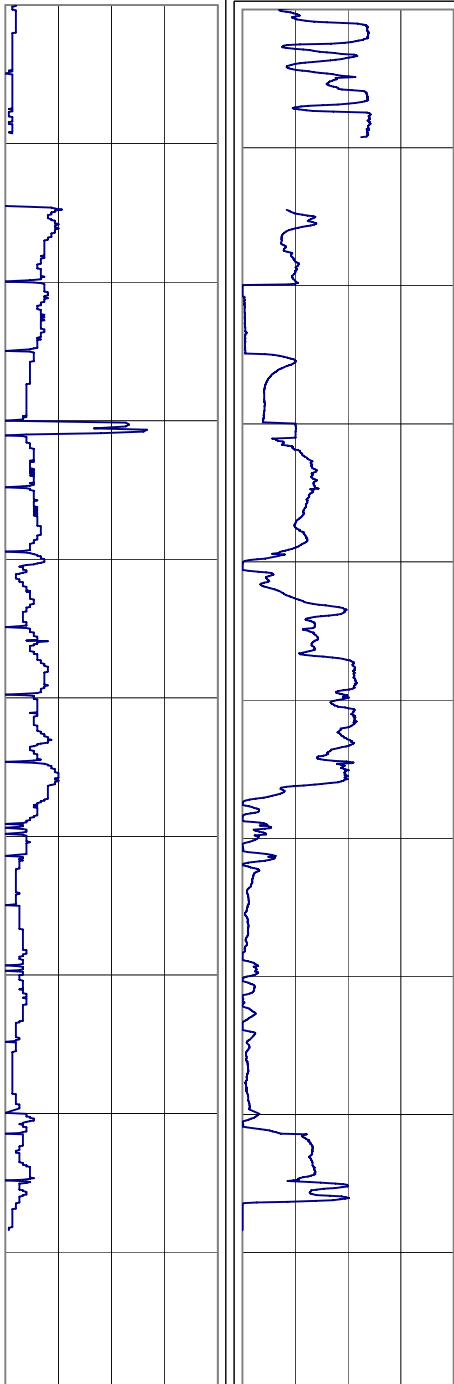
**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-113**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	May 29, 2007
JOB NUMBER:	4563001	END DATE:	June 7, 2007
DRILLING FIRM:	SGS	LOCATION:	Southwest corner of intersection of Levittown Pkwy and Old Country Road.
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Tom Lynch	LOGGED BY:	J. Hilton
HELPER:	Julio Cancel		

Total depth of Profile: 389.9 ft.		Total depth of boring:				
GEOLOGIC INFORMATION		Depth (ft bgs)	Description		Stratigraphic Column	REMARKS
Penetration Rate (ft/min)	Index of Hyd. Conductivity					
0	0.6	0				
		200	Sand (fine) with trace - little silt; light tan.	SP		Pulled rods and advanced casing from 70' bgs to 215'
		210				
		220	SAND (fine) and SILT, with interbedded Sand/Silt lenses; light gray.	SM		
		230				
		240				
		250	SILT, with trace-little Sand (fine); light gray-brown.	ML		
		260				
		270	SILT, with trace Sand (fine); dark gray.	ML		
		280				
		290	CLAY; dark gray-black, carbonaceous with interbedded lignite <1' thick.	CL		

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**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-113**

PROJECT NAME: GTEOSI-Hicksville

START DATE: May 29, 2007

JOB NUMBER: 4563001

END DATE: June 7, 2007

DRILLING FIRM: SGS

LOCATION: Southwest corner of intersection of Levittown  
Pky and Old Country Road.

DRILLING METHOD: Mud Rotary

DRILLER: Tom Lynch

DATUM: Land Surface

HELPER: Julio Cancel

LOGGED BY: J. Hilton

Total depth of Profile: 389.9 ft.

Total depth of boring:

## GEOLOGIC INFORMATION

Penetration Rate (ft/min) Index of Hyd. Conductivity

0 0.6 0 6

Depth (ft bgs)	Description		Stratigraphic Column	REMARKS
300	CLAY; light gray, soft.	CL		
310	CLAY, with stiff, dense interbedded clay fabric; moderate-dark gray.	CL		
320				
330	SAND (fine); moderate gray-brown, micaceous.	SP		Profiling pump malfunction, pulled rods and advanced casing from 330' bgs to 335'
340	SAND (medium-coarse); gray-white.	SW		
350	SILT; with black carbonaceous Clay, trace fine Sand (fine); gray-white.	ML		Profiler refusal at 356.55' bgs, pulled rods and advanced casing from 335' bgs to 365'
360				
370				
380				
390				Profiler refusal at 389.9' bgs, pulled rods and terminated borehole advancement End of mud logging at 365 ft
				End of profile at 389.9 ft

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**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-114**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	July 11, 2007
JOB NUMBER:	4563001	END DATE:	July 28, 2007
DRILLING FIRM:	SGS	LOCATION:	Levittown park between Levittown Pkwy and Acre Lane.
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Tom Lynch	LOGGED BY:	J. Hilton
HELPER:	Julio Cancel		

Total depth of Profile: 523.9 ft.				Total depth of boring: 455 ft.				
GEOLOGIC INFORMATION				Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)		Index of Hyd. Conductivity						
0	0.6	0	4	0	SAND (medium-coarse) with little white quartz Gravel (fine-coarse) to 2" diameter, moderate-dark brown, sub-round.	SW		Hollow stem augers advanced from 0 to 20 ft bgs
				10	SAND (medium-coarse) with some sub-round gravel (coarse) and cobbles to 3" diameter.	SW		
				20	SAND (medium-coarse); light brown.	SW		Begin mud rotary drilling at 20 ft
				30	SAND (coarse) and GRAVEL (coarse), with Gravel (fine) to 1/2' diameter; light brown, sub-round.	SP		
				40				
				50	SAND (medium-coarse) with trace-little fine white quartz Gravel; light tan-white.	SW		Begin profiling at 69.2 ft
				60				
				70	SAND (fine-medium) with trace interbedded white Silt; light tan-pink.	SW		
				80				
				90	SAND (medium) and SILT, with pink-white Silt , trace Gravel (fine); yellow-brown.	SM		

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**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-114**

PROJECT NAME: GTEOSI-Hicksville

START DATE: July 11, 2007

JOB NUMBER: 4563001

END DATE: July 28, 2007

DRILLING FIRM: SGS

LOCATION: Levittown park between Levittown Pkwy and Acre Lane.

DRILLING METHOD: Mud Rotary

DRILLER: Tom Lynch

DATUM: Land Surface

HELPER: Julio Cancel

LOGGED BY: J. Hilton

Total depth of Profile: 523.9 ft.

Total depth of boring: 455 ft.

GEOLOGIC INFORMATION		Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)	Index of Hyd. Conductivity					
0	0.6	0				
		100				
		110	SAND (fine) with trace interbedded Silt; light gray-brown.	SP		
		120	SAND (fine) and SILT, with interbedded oxidized Silt; moderate brown.	SM		
		130				
		140	SAND (medium-coarse), trace Silt; yellow- brown to light gray.	SW		
		150	SAND (fine); light tan.	SP		Profiler refusal at 151' bgs, pulled rods and advanced casing from 70' bgs to 160'
		160	SAND (fine) with little interbedded Silt; light brown-yellow, oxidized.	SP		
		170	SAND (fine-medium); light brown, micaceous.	SW		
		180				
		190				

**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-114**

PROJECT NAME: GTEOSI-Hicksville

START DATE: July 11, 2007

JOB NUMBER: 4563001

END DATE: July 28, 2007

DRILLING FIRM: SGS

LOCATION: Levittown park between Levittown Pkwy and

DRILLING METHOD: Mud Rotary

Acre Lane.

DRILLER: Tom Lynch

DATUM: Land Surface

HELPER: Julio Cancel

LOGGED BY: J. Hilton

Total depth of Profile: 523.9 ft.

Total depth of boring: 455 ft.

GEOLOGIC INFORMATION				Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)	Index of Hyd. Conductivity							
0	0.6	0	4	200				
				210	SILT and SAND; light yellow-white, with light brown, interbedded fine Sand.	SM		
				220				
				230				Profiler refusal at 224.7' bgs, pulled rods and advanced casing from 160' bgs to 230'
				240	SILT, little interbedded fine Sand < 4' thick; Light - dark gray.	ML		
				250	SILT and CLAY, with interbedded Sand (fine-medium) at 267'; dark gray-black, carbonaceous grading to tan.	ML-CL		Profiler refusal at 249' bgs, pulled rods and advanced casing from 230' bgs to 270'
				260				
				270	SILT, with little Sand (fine); dark gray-black, carbonaceous.	ML		
				280	SAND (fine), Light tan, micaceous.	SP		
				290				

**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-114**

PROJECT NAME: GTEOSI-Hicksville

START DATE: July 11, 2007

JOB NUMBER: 4563001

END DATE: July 28, 2007

DRILLING FIRM: SGS

LOCATION: Levittown park between Levittown Pkwy and  
Acre Lane.

DRILLING METHOD: Mud Rotary

DRILLER: Tom Lynch

DATUM: Land Surface

HELPER: Julio Cancel

LOGGED BY: J. Hilton

Total depth of Profile: 523.9 ft.

Total depth of boring: 455 ft.

GEOLOGIC INFORMATION				Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)	Index of Hyd. Conductivity							
0	0.6	0	4	300	SAND (fine), trace-little Silt; light gray-brown.	SP		
				310				
				320				
				330				
				340				
				350				
				360	SAND (fine) and SILT, little Clay to approximatly 378'; moderate.-dark gray.	SM		Pulled rods at 370' bgs and advanced casing from 270' bgs to 380'
				370				
				380	CLAY, with interbedded carbonaceous Clay-Silt lenses; moderate.-dark gray,	CL		Profiler refusal at 381.3' bgs, pulled rods and advanced casing from 380' bgs to 455'
				390				

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**MALCOLM PIRNIE, INC.**

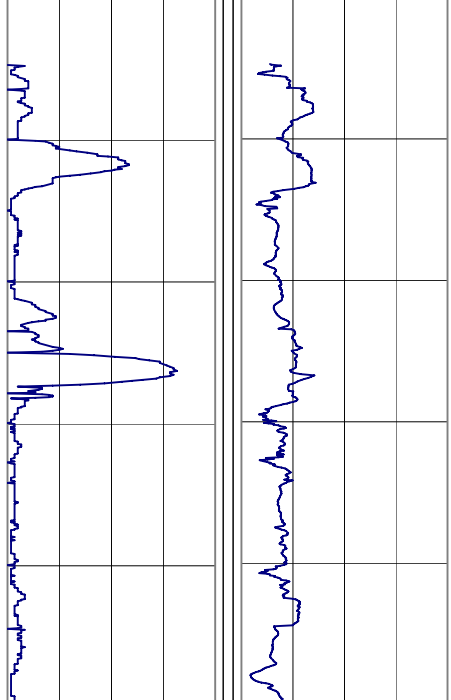
17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-114**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	July 11, 2007
JOB NUMBER:	4563001	END DATE:	July 28, 2007
DRILLING FIRM:	SGS	LOCATION:	Levittown park between Levittown Pkwy and Acre Lane.
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Tom Lynch	LOGGED BY:	J. Hilton
HELPER:	Julio Cancel		

Total depth of Profile: 523.9 ft.				Total depth of boring: 455 ft.				
GEOLOGIC INFORMATION								
Penetration Rate (ft/min)				Index of Hyd. Conductivity				
0 0.6 0				4				
				Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
				400	CLAY with trace - little Silt; buff white, soft, weak plasticity.	CL		
				410	CLAY with interbedded carbonaceous lenses <0.5' thick; dark gray.	CL		
				420	CLAY; buff white, moderately stiff, massive.	CL		
				430				
				440				
				450	SAND (medium-coarse) and SILT, with little-trace silt, trace interbedded Clay <0.5'thick; white.	SM		
				460				End of mud logging at 455 ft
				470				
				480				
				490				



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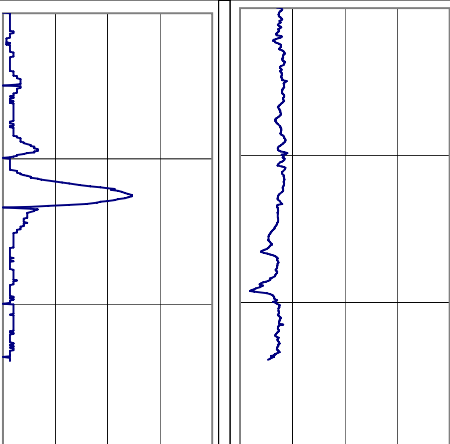
**MALCOLM PIRNIE, INC.**

17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:

**P-114**

PROJECT NAME:	GTEOSI-Hicksville	START DATE:	July 11, 2007
JOB NUMBER:	4563001	END DATE:	July 28, 2007
DRILLING FIRM:	SGS	LOCATION:	Levittown park between Levittown Pkwy and Acre Lane.
DRILLING METHOD:	Mud Rotary	DATUM:	Land Surface
DRILLER:	Tom Lynch	LOGGED BY:	J. Hilton
HELPER:	Julio Cancel		

Total depth of Profile: 523.9 ft.		Total depth of boring: 455 ft.				
GEOLOGIC INFORMATION		Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
Penetration Rate (ft/min)	Index of Hyd. Conductivity					
0	0.6	0				
		500				
		510				
		520				
		530				End of profile at 523.9 ft
		540				
		550				
		560				
		570				
		580				
		590				

Page 6 of 6

**Data Usability Summary Report**  
**Part 1 of 2**  
**Profiles P-102 and P-104**

**Former Sylvania Electric Products Facility**  
**GTE Operations Support Incorporated**  
**Hicksville, NY**



## VALIDATION REPORT

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Attachment A	Validated Data Report Forms
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## Executive Summary

This report addresses data quality for groundwater samples collected south of the former Sylvania Electric Products Incorporated facility in Hicksville, New York. Sample collection activities were conducted by Malcolm Pirnie, Inc. of Fairlawn, NJ between 02/01/07 and 03/18/07.

The environmental samples collected for this investigation were submitted to Severn Trent Laboratories, Inc. of Earth City, MO for Target Compound List Volatile Organic Compound (TCL VOC) analyses using United States Environmental Protection Agency (USEPA) guidance methods. The analytical data generated for this investigation were evaluated by Data Validation Services (DVS) using the quality assurance/quality control (QA/QC) criteria established in the methods as guidance. Non-conformances from the QA/QC criteria were qualified based on guidance provided in the following references:

- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, (SW846) USEPA, Final Update IIIA, April 1998;
- *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review*, EPA 540-R-99-008, October 1999;
- *Analytical Services Protocol (ASP)*, New York State Department of Environmental Conservation (NYSDEC). Guidance documents including Exhibits A, B, C, D, E, F, G, H, and I. (June 2000), and
- *United States Environmental Protection Agency Region II Contract Laboratory Program (CLP) Organics Data Review*, SOP No. HW-6, Revision #11 (USEPA 1996a)

Professional judgment can be used to qualify results as estimated (J or UJ) in instances when so indicated by the overall quality of data.

Method non-conformances included exceedances of the percent differences of the continuing calibration standards, the recoveries of the system monitoring compounds, and matrix spike/matrix spike duplicate analyte recoveries. Most of the equipment and trip blanks contained low level contamination of up to four target compounds. The presence of these contaminants in those blanks indicate that some of the low level sample detections of these same analytes are to be considered as resulting from external contamination.

Also included in the data validation process is the replacement of results determined from responses that exceeded the laboratory calibration range (i.e., qualified with an “E” by the laboratory) with those reflecting responses (from dilution analyses) within the calibration range.

None of the exceedances of method non-conformances were significant enough to jeopardize the usability of the data. The reported sample results are usable based on the findings listed in this Data Usability Summary Report (DUSR).

Overall, 100 percent of the VOC data reported in the laboratory data packages were determined to be usable for qualitative and quantitative purposes. Those sample results qualified as estimated (“J” and “UJ”) due to data validation QA/QC exceedances should be considered conditionally usable. Therefore, the completeness objective of 90 percent, as stated in the quality assurance project plan (QAPP), was met.

# 1. Introduction

## 1.1. Sample Identification

This report addresses the results of a data quality evaluation for groundwater samples collected south of the former Sylvania Electric Products Incorporated facility in Hicksville, New York (the Site). Sample collection activities were conducted between 02/01/07 and 03/18/07 by Malcolm Pirnie, Inc. of Fairlawn, NJ.

The laboratory Sample Delivery Group (SDG) (unique data package number), field identification, and laboratory identification number of the samples that were submitted for data validation are presented in Table 1-1.

<b>Table 1-1: Sample Cross-Reference List</b>			
<b>SDG</b>	<b>Client ID</b>	<b>Laboratory ID</b>	<b>Analysis Requested</b>
F7B070312	EB-P-102-2-1-07 <i>Equipment Blank</i>	F7B070312-001	VOCs by USEPA 8260B
	P-102-75.45	F7B070312-002	VOCs by USEPA 8260B
	P-102-138.05	F7B070312-003	VOCs by USEPA 8260B
	P-102-DUP1 <i>Field Duplicate of P-102-170.45</i>	F7B070312-004	VOCs by USEPA 8260B
	P-102-170.45	F7B070312-005	VOCs by USEPA 8260B
	TB-01-29-02-06 <i>Trip Blank</i>	F7B070312-006	VOCs by USEPA 8260B
F7B210119	P-102-309.40	F7B210119-001	VOCs by USEPA 8260B
	P-102-320.3	F7B210119-002	VOCs by USEPA 8260B
	TB02140220 <i>Trip Blank</i>	F2B210119-003	VOCs by USEPA 8260B
F7C070289	P-104-EB	F7C070289-001	VOCs by USEPA 8260B
	TB-02280306 <i>Trip Blank</i>	F7C070289-002	VOCs by USEPA 8260B
	P-104-DUP1 <i>Field Duplicate of P-104-245.00</i>	F7C070289-003	VOCs by USEPA 8260B
	P-104-245.00	F7C070289-004	VOCs by USEPA 8260B
	P-104-235.00	F7C070289-005	VOCs by USEPA 8260B
F7C210209	P-104-377.35	F7C210209-001	VOCs by USEPA 8260B
	P-104-385.00	F7C210209-002	VOCs by USEPA 8260B
	P-104-427.9	F7C210209-003	VOCs by USEPA 8260B
	P-104-461.65	F7C210209-004	VOCs by USEPA 8260B
	TB-03130322 <i>Trip Blank</i>	F7C210209-005	VOCs by USEPA 8260B

## 1.2. General Considerations

The data validation review process is designed to evaluate the specific technical aspects of the analytical laboratory processing and the sample matrix, to verify that the final data reported for the field samples accurately reflect sample constituency, and to inform the end-user of the limitation of the data in the event that they do not. This report summarizes the findings of the review and outlines any deviations from the applicable QC criteria outlined in the following documents:

- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, (SW846) USEPA, Final Update IIIA, April 1998.
- *Analytical Services Protocol (ASP)*, New York State Department of Environmental Conservation (NYSDEC). Guidance documents including Exhibits A, B, C, D, E, F, G, H, and I. (June 2000)
- *United States Environmental Protection Agency Region II Contract Laboratory Program (CLP) Organics Data Review*, SOP No. HW-6, Revision #11 (USEPA 1996a); and
- *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review*, EPA 540-R-99-008, October 1999.

## 1.3. Analytical Methods

The environmental samples collected for this investigation were submitted to Severn Trent Laboratories, Inc. of Earth City, Missouri for volatile organic compound (VOC) analyses. The laboratory used the following USEPA guidance methods for the analyses:

- SW846 Method 5030B Purge/Trap Analysis
- SW846 Method 8260B Gas Chromatography/Mass Spectrometry

Each data package represents a sample delivery group (SDG), a collection of specific samples assigned during the sample log-in process. The SDG number is the means by which the laboratory tracks samples and controls QC analyses. A total of four SDGs, each containing between two and four groundwater samples (and accompanying field QC), were created and processed for this project scope. The SDG, field identification and laboratory identification for each sample are summarized in Table 1-1.

The following sections of this document address distinct aspects of the validation process. Section 2 lists the data QA/QC protocols used to validate the sample data. A summary of the findings associated with the validation and the specific QA/QC deviations and qualifications performed on the sample data are discussed in Section 3. Data completeness and usability are discussed in Section 4. Section 5 presents the Data Usability Summary Report (DUSR) Summary Information.

## 2. Data Validation Protocols

### 2.1. Sample Analysis Parameters

Validation of the data was performed using guidance from the project QAPP (GTEOSI, 2002), the analytical methodology, and the data validation guidelines referenced in Section 1.

DVS performed a data review of all analytical results to assess data quality. A data review includes an assessment of sample handling protocols, supporting laboratory quality control (QC) parameters, and field QC.

The following is a list of specific analytical information evaluated during the validation:

- Data package completeness review – per the NYSDEC ASP Category B
- Analytical methods performed and test method references
- Sample condition - review of log-in records for cooler temperature, presence of headspace, chemical preservation, etc.
- Holding times (comparison of collection and analysis dates)
- Analytical results (units, values, significant figures, reporting limits, calculation algorithms)
- Sample traceability and comparison to raw data
- Instrument tuning
- Initial calibration standards
- Continuing calibration standards
- Method blank results and laboratory contamination
- Laboratory control sample (LCS/MSB) results and comparison to laboratory and NYSASP control limits
- Matrix spike/matrix spike duplicate (MS/MSD) results and comparison to laboratory control limits
- Field duplicate results and comparison to data review criteria
- Surrogate recoveries and comparison to laboratory control limits
- Internal Standards and comparison to method and validation criteria
- Field QC sample (e.g., trip blanks, equipment blanks, etc.);
- Reporting Limits and dilutions

Review was performed on the laboratory analytical reports to determine completeness of the data packages and the acceptability of the accompanying QC data. When QC results fell outside recommended or required QC limits, validation data qualifiers were applied to the results in order to reflect the potential compromise in the integrity of the originally reported result. These qualifiers are in addition to, or a revision of, the qualifiers provided by the laboratory. A summary of the data qualifiers used for this review is presented in Section 2.2.

## **2.2. Data Qualifiers**

The following qualifiers have been used by the laboratory:

"U"/ "ND"

Non-detected result at the required QAPP reporting limit--- the laboratory utilizes "U" within the full data package, and "ND" in the summary package report Forms I equivalents.

"B" Associated with a result if the compound was identified in the corresponding method blank.

"J" Indicates an estimated value or a value below the established reporting limit but above the method detection limit.

"E" This flag identifies compounds whose concentrations exceed the calibration range of the instrument for the specific analysis; data qualified with an "E" are qualitative only and not useable for quantitative purposes. All results qualified with an "E" were required to be re-analyzed using an applicable dilution and re-reported.

Laboratory qualifiers defined above, are retained in the final database unless revised during the data validation process to one of the following qualifiers:

- “U” The analyte was not detected at the indicated reporting limit.
- “J” Estimated concentration because the result was below the sample reporting limit or quality control criteria were not met.
- “UJ” The chemical was not detected at or above the indicated reporting limit. However, the reporting limit is approximate and may or may not represent the actual limit of reporting necessary to accurately and precisely measure the analyte in the sample.

### **2.3. Data Usability Summary Report Questions**

The DUSR determines whether or not the data meets site-specific criteria for data quality and use. It was developed by reviewing and evaluating the analytical data packages. During the course of this review the following questions were addressed (where applicable):

1. Is the data package complete as defined under the requirements for the NYSDEC ASP Category B or USEPA CLP deliverables?
2. Have all holding times been met?
3. Do all the QC data: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?
4. Have all of the data been generated using established and agreed upon analytical protocols?
5. Does an evaluation of the raw data confirm the results provided in the data summary sheets and quality control verification forms?
6. Have the correct data qualifiers been used?

The answers to the questions presented by the DUSR are presented in the following sections of the report and in the DUSR Summary Information Section, Section 5.

## **3. Data Quality Evaluation**

### **3.1. Summary**

This section summarizes the review evaluation and subsequent usability of the data generated for this sampling event, as indicated by results of quality control parameters associated with the project samples. Laboratory compliance with required deliverables and processing was also assessed.

### **3.2. Validation Review**

#### **3.2.1. Completeness Review**

The laboratory data packages were generated to include summary forms and raw data as specified in the New York State Department of Environmental Conservation (NYSDEC) Category B format. All

summary form and raw data required for full validation review were provided. No resubmissions were requested of the laboratory.

### **3.2.2. Test Methods**

The laboratory performed the analyses using the analytical test methods listed in Section 1.3. These included SW846 Method 5030B (aqueous sample purge/trap analysis) followed by Method 8260B (gas chromatography/mass spectrometry). The samples were analyzed using a 25-mL purge volume, thus providing lower reporting limits for each compound.

### **3.2.3. Sample Receipt**

Nineteen aqueous samples were submitted for VOC analysis between February 1, 2007 and March 18, 2007. This included eleven field samples, two field duplicates, two field blanks, and four trip blanks.

The sample temperatures at the time of receipt were within the recommended temperature range of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$  for all SDGs. Field and laboratory personnel completed the Chain-of-Custody (COC) documents correctly recording the signature, date, and time of custody transfer.

The laboratory recorded the condition of the samples at the time of receipt on a “Conditions Upon Receipt Form.” This Form identifies whether the containers were received undamaged, within the proper temperature range, at the proper pH, in a container that is sealed with a custody seal on the exterior, and with a completed COC enclosed to identify all samples submitted to the laboratory.

### **3.2.4. Holding Times**

The technical and contractual holding times between sample collection and laboratory analyses meet method and QAPP requirements of 14-days for acid preserved samples.

### **3.2.5. Analytical Results**

The laboratory provided a Form I equivalent with the reported analytical results for the requested analyses. The Form I format that was submitted is not strictly in compliance with USEPA CLP requirements as regards the inclusion of laboratory name and code. The forms do show the client sample identification, the laboratory sample identification, the file identification, the matrix, the date and time the sample was collected, the date the sample was received, the date and time the sample was analyzed, the dilution factor, the preparation batch identification number, the chemical abstract service (CAS) number for each analyte, the units of measure; and the laboratory qualifier (if any). Additional CLP forms were provided (e.g., II, III, etc.) to report applicable QC information for the analyses performed. The laboratory provided all the necessary forms for the VOC method.

### **3.2.6. Traceability to Raw Data**

The traceability of the sample results to the raw data was easily accomplished by the use of the information on the summary forms and laboratory analysis logs.

### **3.2.7. Instrument Tuning**

The GC/MS system performance was shown to produce acceptable mass identifications and sensitivity with the evaluation of the instrument tuning compound bromofluorobenzene (BFB). All requirements for mass fragmentation and resolution were met. The instrument performance was checked prior to calibration and once every 12-hour shift for all analytical QC batches.



### 3.2.8. Initial Calibration

Calibration standards are analyzed at required frequency and concentration in order to show that the instrumentation is performing consistently and to establish the linear range of response.

All linearity relative standard deviations (%RSD) met analytical and validation guidelines. Continuing calibration standards produced percent difference (%D) values that meet analysis protocol and validation requirements. Relative response factors (RRFs) were within method protocol requirements. However, responses for up to three compounds in the calibration standards show RRFs typical for this methodology, but below the validation limit of 0.05. Acceptance of these data is based upon the linearity and consistency of standard responses, the recoveries of these analytes in the spiked QC, and the quality of mass spectra for acetone (which can be directly correlated to those for other ketones). Data for the affected chemicals in the associated samples are qualified as estimated. Table 3-1 shows the samples and indicated qualifications:

<b>Table 3-1. Evaluation of Initial Calibration Results</b>			
<b>Package Identification</b>	<b>Sample ID</b>	<b>Compounds*</b>	<b>Action</b>
F7B070312	EB-P-102-2-1-07 <i>Equipment Blank</i>	RRF<0.05: acetone, 2-butanone, 2-hexanone	UJ – all non-detect results J – all positive results above the laboratory reporting limit
	P-102-75.45		
	P-102-138.05		
	P-102-DUP1 <i>Field Duplicate of P-102-170.45</i>		
	P-102-170.45		
	TB-01-29-02-06 <i>Trip Blank</i>		
F7B210119	P-102-309.40	RRF<0.05: acetone, 2-butanone, 2-hexanone	UJ – all non-detect results J – all positive results above the laboratory reporting limit
	P-102-320.3		
	TB02140220 <i>Trip Blank</i>		
F7C070289	P-104-EB	RRF<0.05: acetone, 2-butanone, 2-hexanone	UJ – all non-detect results J – all positive results above the laboratory reporting limit
	TB-02280306 <i>Trip Blank</i>		
	P-104-DUP1 <i>Field Duplicate of P-104-245.00</i>		
	P-104-245.00		
	P-104-235.00		
F7C210209	P-104-377.35	RRF<0.05: acetone	UJ – all non-detect results J – all positive results above the laboratory reporting limit
	P-104-385.00		
	P-104-427.9		
	P-104-461.65		
	TB-03130322 <i>Trip Blank</i>		

### 3.2.9. Continuing Calibration

The continuing calibration standards (CCAL) were performed with a mid-level standard immediately following the tuning check at the beginning of each 12-hour analytical sequence. The CCAL verification analyses met method criteria (i.e., RRFs were  $>0.05$  for the SPCCs, and the percent differences (%Ds) from the avgRRF were  $< 20\%$  for the CCCs) for all analytical QC batches, with the exception of low RRFs for the compounds noted above in the ICAL discussion.

For the target compounds, the %Ds were greater than 20% for two compounds. Although method criteria were met, as a conservative approach the results associated with a CCAL that exceeded 20%D were qualified as estimated (“J” or “UJ”). Table 3-2 shows a summary of the samples and qualified parameters.

**Table 3-2. Evaluation of Continuing Calibration Results**

<b>Package Identification</b>	<b>Sample ID</b>	<b>Compounds</b>	<b>Action</b>
F7C070289	P-104-EB	%D $> 20\%$ carbon disulfide 2-butanone	UJ – all non-detect results J – all positive results above the laboratory reporting limit
	TB-02280306 <i>Trip Blank</i>		
	P-104-DUP1 <i>Field Duplicate of P-104-245.00</i>		
	P-104-245.00		
	P-104-235.00		

### 3.2.10. Laboratory Method Blanks

Blanks are processed to evaluate the potential for external contamination at sample collection, transport, and analysis.

Method blanks are clean water samples that are processed as part of the analytical sequence, and whenever contamination may be present in the analytical system.

Laboratory method blanks show no contamination, and no qualification or edit to the sample results is indicated.

### 3.2.11. Laboratory Control Sample Results

LCSs are fortified blanks that are spiked with known concentrations of specific analytes. The recoveries of these analytes confirm that laboratory processing and instrumentation are producing accurate and consistent results.

LCSs were processed at the correct frequency. All percent recoveries were within laboratory control limits and validation action levels with the exception of those for dibromochloromethane (81% and 80%, below 85%) in one of the LCSs. Results for this compound in the associated samples have been qualified as estimated (“J” or “UJ”), and may have a low bias. Table 3-3 shows the affected samples:

<b>Table 3-3. Evaluation of Laboratory Control Sample Results</b>			
<b>Package Identification</b>	<b>Client ID</b>	<b>Compound</b>	<b>Action</b>
F7C070289	P-104-DUP1	Dibromochloromethane	"UJ" (low recoveries)
	P-104-245.00		
	P-104-235.00		

Correlations of duplicate LCSs were evaluated and show acceptable precision.

### 3.2.12. Matrix Spike/Matrix Spike Duplicate Analyses

Target analyte compounds are added to defined project samples in order to monitor how well those analytes recover through the analytical process. Duplicate matrix spike or duplicate parent sample results are also compared to see how well they correlate to one another. Those recoveries indicate the accuracy and precision of sample reported results.

Project sample P-104-461.65 was submitted for MS/MSD analyses. One compound showed elevated recoveries (135% and 140%, above 133%). The detection in the parent sample is therefore qualified as being estimated in value. This is shown in Table 3-4.

<b>Table 3-4. Evaluation of Matrix Spike/Matrix Spike Duplicate Sample Results</b>			
<b>Package Identification</b>	<b>Client ID</b>	<b>Compound</b>	<b>Action</b>
F7C210209	P-104-461.65	Tetrachloroethene	"J" (due to elevated spike recoveries)

### 3.2.13. Field Duplicate Analyses

Two project samples, P-102-170.45 and P-104-245.00 were submitted with accompanying field duplicates. An evaluation of the precision of the field sampling procedure (as well as the laboratory analysis procedure) was made based on the relative percent difference (RPD) calculated for the original and duplicate sample results. RPD calculations were made only when both results were above the laboratory reporting limits. The RPD values for all compounds were less than 30% (aqueous data evaluation criteria).

### 3.2.14. Trip Blanks and Equipment Blanks

Blanks are processed to evaluate the potential for external contamination at sample collection, transport, and analysis.

- Equipment blanks are collected by pouring de-ionized water through decontaminated sampling equipment in order to verify that the decontamination process is performed completely.
- Trip blanks are sealed vials of clean water that are transported with the sample vials from the laboratory to the site prior to sample collection, and from the site to the laboratory with the collected samples. They are stored and processed with the project samples, thus reflecting potential contamination from external sources.

Four trip blanks and two equipment blanks were submitted with the groundwater samples. Three of the trip blanks and both equipment blanks show low-level detections of acetone, trichloroethene, tetrachloroethene, and/or toluene. Results for these specific analytes in associated field samples that were found at concentrations within the validation action limit have been edited to reflect that the sample detected values may be a result of external contamination. Edits to the affected target compounds were based on trip blank and equipment blank contamination, in accordance with practices described in the validation guidance documents listed in Sections 1.2 and 3.2.10 (method blank contamination). Table 3-5 shows the samples and compounds that were qualified as non-detect (“U”).

<b>Table 3-5. Evaluation of Trip Blank and Equipment Blank Results</b>			
<b>Package Identification</b>	<b>Sample ID</b>	<b>Compound</b>	<b>Action</b>
F7B070312	P-102-75.45 P-102-138.05 P-102-DUP1 P-102-170.45	Trichloroethene	Revised result to “U” (non-detect)
F7B210119	P-102-320.3	Trichloroethene	Revised result to “U” (non-detect)
F7C210209	P-104-427.9 P-104-461.65	Trichloroethene	Revised result to “U” (non-detect)

### 3.2.15. System Monitoring Compounds

System Monitoring Compounds (SMC) are surrogate standards that behave similarly to the target analytes during the analysis procedures, and serve to monitor system performance and potential sample matrix interference.

The three SMC evaluated in the TCL VOA analyses generally show acceptable recoveries in the field samples. This indicates that there are no significant sample matrix effects on the recoveries of target analytes, and aids in the confirmation of reported quantitative values. However, one of the samples exhibited a slightly low recovery for surrogate d8-toluene in the undiluted analysis (74%, below the 76% lower limit of the acceptance range). Therefore, results for all of the analytes in that sample except tetrachloroethene (which is derived from the dilution) are qualified as estimated (“J” or “UJ”), as shown in Table 3-6.

<b>Table 3-6. Evaluation of System Monitoring Compounds</b>			
<b>Package Identification</b>	<b>Sample ID</b>	<b>Compound</b>	<b>Action</b>
F7C210209	P-104-385.00	All analytes except tetrachloroethene	UJ – all non-detect results J – all positive results above the laboratory reporting limit

It is noted that two of the method blanks exhibited elevated recovery for one SMC. Those blanks show no detection of target analytes, and therefore there is no effect on the reported results of those blanks or the associated project samples.

### 3.2.16. Internal Standards

System performance and sample matrix interferences are evaluated during the VOA analyses by the addition of internal standard compounds to all samples and associated QC.

All of the internal standard responses were within the required range of 50-200% of the associated calibration verification. The retention times of the internal standards fell within  $\pm 30$  seconds from that of the most recent calibration for all analyses.

### 3.2.17. Compound Identification and Quantitation of Results

The retention times and mass spectra of detected analytes meet protocol requirements for identification of the target analytes.

The retention times of detected analytes meet protocol requirements for identification.

Raw data were provided for review in the data package. Calculation algorithms, quantitative results, and reporting limit values have been confirmed during this review process.

Seven of the project samples were processed at secondary dilution in order to bring certain of the analyte detected responses into instrument calibration range. The results derived from the dilution analyses are used for those specific sample analyte results, as shown in Table 3-7.

<b>Table 3-7. Summary of Laboratory Re-Analyses</b>		
<b>Package Identification</b>	<b>Client ID</b>	<b>Compound Reported From Dilution Analysis</b>
F7B210119	P-102-309.40	Tetrachloroethene at 1000 ug/L
	P-102-320.3	Tetrachloroethene at 94 ug/L
F7C070289	P-104-DUP1	Trichloroethene at 200 ug/L
		Tetrachloroethene at 1100 ug/L
	P-104-245.00	Trichloroethene at 170 ug/L
		Tetrachloroethene at 920 ug/L
	P-104-235.00	Trichloroethene at 110 ug/L
		Tetrachloroethene at 510 ug/L
F7C210209	P-104-377.35	Tetrachloroethene at 2900 ug/L
	P-104-385.00	Tetrachloroethene at 2300 ug/L

## 4. Summary and Data Usability

This chapter summarizes the analytical data in terms of its completeness and usability. Data completeness is defined as the percentage of sample results that have been determined to be usable during the data validation process. Overall, 100 percent of the VOC data were determined to be usable for qualitative and quantitative purposes. Those sample results qualified as estimated (“J” and “UJ”) due to data validation QA/QC exceedances should be considered conditionally usable. No project data have been rejected.

The samples collected from the site in Hicksville, New York were evaluated based on QA/QC criteria established by methods as listed in Section 1.3, by the data validation guidelines listed in Section 1.2, and by the QAPP (GTEOSI, 2002) established for this project. Major deficiencies in the data generation process would have resulted in data being rejected, indicating that the data are considered unusable for either quantitative or qualitative purposes. Minor deficiencies in the data generation process resulted in some sample data being characterized as approximate or estimated. Identification of a data point as approximate indicates uncertainty in the reported concentration or detection limit of the chemical, but not its assigned identity.

The following paragraphs present the adherence of the data to the precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS) parameters.

Precision is measured through the evaluation of field duplicate samples and laboratory duplicate samples, and LCS recoveries indicate the accuracy of the data.

Holding times, sample preservation, blank analysis, and analyte identification and quantification are indicators of the representativeness of the analytical data.

Comparability is not compromised, provided that the analytical methods do not change over time. A major component of comparability is the use of standard reference materials for calibration and QC. These standards are compared to other unknowns to verify their concentrations. Since standard analytical methods and reporting procedures were consistently used by the laboratory, the comparability criteria for the analytical data were met.

Sensitivity is established by reported detection limits that represent measurable concentrations of analytes that can be determined with a designated level of confidence.

## **5. Data Usability Summary Report Summary Information**

The DUSR was performed to determine whether or not the data meets site-specific criteria for data quality and use. The DUSR is developed by reviewing and evaluating the analytical data package. The following questions were addressed:

1. Is the data package complete as defined under the requirements for the NYSDEC ASP Category B or USEPA CLP deliverables?

*The QAPP required that USEPA Level III deliverables be provided by the laboratory for each data package. This requirement was met as it applies to the methods used by the laboratory for sample analysis. Proper documentation was provided to enable a thorough validation review of the analytical data.*

2. Have all holding times been met?

*All holding times were met.*

3. Do all the QC data: blanks, standards, spike recoveries, replicate analyses, and sample data fall within the protocol-required limits and specifications?

*The laboratory used the laboratory control limits during the analyses performed for this sampling event. Only minor QA/QC deviations were observed, with subsequent minimal qualification to sample data.*

4. Have all of the data been generated using established and agreed upon analytical protocols?

*The QAPP required that USEPA guidance methods be used in the analysis of samples collected for this sampling event. The laboratory used the required method protocols (with some minor modifications) for the analyses performed for this sampling event, which met data user and client needs.*

5. Does an evaluation of the raw data confirm the results provided in the data summary sheets and quality control verification forms?

*The raw data confirms the reported qualitative and quantitative results that were submitted by the laboratory in the data packages.*

Have the correct data qualifiers been used?

*The laboratory applied the correct qualifiers to the sample data (although “ND” was used for “U” on one set of forms. The validation qualifiers were applied as required by validation guidelines listed in Section 1*

## References

*Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, (SW846) USEPA, Final Update IIIA, April 1998;

*USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review*, EPA 540-R-99-008, October 1999;

*Analytical Services Protocol (ASP)*, New York State Department of Environmental Conservation (NYSDEC). Guidance documents including Exhibits A, B, C, D, E, F, G, H, and I. (June 2000), and

*United States Environmental Protection Agency Region II Contract Laboratory Program (CLP) Organics Data Review*, SOP No. HW-6, Revision #11 (USEPA 1996a)



**Data Usability Summary Report**  
**Part 2 of 2**  
**Profiles P-110, P-112, and P-114**

**Former Sylvania Electric Products Facility**  
**GTE Operations Support Incorporated**  
**Hicksville, NY**

# VALIDATION REPORT

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## Executive Summary

This report addresses data quality for groundwater samples collected south of the former Sylvania Electric Products Incorporated facility in Hicksville, New York. Sample collection activities were conducted by Malcolm Pirnie, Inc. of Fairlawn, NJ between May 10, 2007 and July 17, 2007. The environmental samples collected for this investigation were submitted to Test America Laboratories, Inc. (aka Severn Trent Laboratories, Inc.) of Earth City, MO for Target Compound List Volatile Organic Compound (TCL VOC) analyses using United States Environmental Protection Agency (USEPA) guidance methods. The analytical data generated for this investigation were evaluated by Data Validation Services (DVS) using the quality assurance/quality control (QA/QC) criteria established in the methods as guidance. Non-conformances from the QA/QC criteria were qualified based on guidance provided in the following references:

- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, (SW846) USEPA, Final Update IIIA, April 1998;
- *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review*, EPA 540-R-99-008, October 1999;
- *Analytical Services Protocol (ASP)*, New York State Department of Environmental Conservation (NYSDEC). Guidance documents including Exhibits A, B, C, D, E, F, G, H, and I. (June 2000), and
- *United States Environmental Protection Agency Region II Contract Laboratory Program (CLP) Organics Data Review*, SOP No. HW-6, Revision #11 (USEPA 1996a)

Professional judgment can be used to qualify results as estimated (J or UJ) in instances when so indicated by the overall quality of data.

Method non-conformances included exceedances for the calibration standard responses, the recovery of a system monitoring compound, and a Laboratory Control Sample (LCS) recovery. The equipment blanks contained low level contamination of either one or four target compounds. The presence of these contaminants in those blanks indicate that some of the low level sample detections of these same analytes are to be considered as resulting from external contamination.

Also included in the data validation process is the replacement of results determined from responses that exceeded the laboratory calibration range (i.e., qualified with an "E" by the laboratory) with those reflecting responses (from dilution analyses) within the calibration range.

None of the exceedances of method non-conformances were significant enough to jeopardize the usability of the data. The reported sample results are usable based on the findings listed in this Data Usability Summary Report (DUSR).

Overall, 100 percent of the VOC data reported in the laboratory data packages were determined to be usable for qualitative and quantitative purposes. Those sample results qualified as estimated ("J" and "UJ") due to data validation QA/QC exceedances should be considered conditionally usable. Therefore, the completeness objective of 90 percent, as stated in the quality assurance project plan (QAPP), was met.

## 1. Introduction

### 1.1. Sample Identification

This report addresses the results of a data quality evaluation for groundwater samples collected south of the former Sylvania Electric Products Incorporated facility in Hicksville, New York (the Site). Sample collection activities were conducted between 5/10/07 and 7/17/07 by Malcolm Pirnie, Inc. of Fairlawn, NJ. A total of twenty-nine groundwater samples, a field duplicate, four trip blanks, and two equipment blanks were processed.

The laboratory Sample Delivery Group (SDG) (unique data package number), field identification, and laboratory identification number of the samples that were submitted for data validation are presented in Table 1-1.

<b>Table 1-1: Sample Cross-Reference List</b>			
<b>SDG</b>	<b>Client ID</b>	<b>Laboratory ID</b>	<b>Analysis Requested</b>
F7E230113	P-112-179-6	F7E230113-001	VOCs by USEPA 8260B
	P-112-190.2	F7E230113-001	VOCs by USEPA 8260B
	P-112-232.2	F7E230113-001	VOCs by USEPA 8260B
	P-112-240.2	F7E230113-001	VOCs by USEPA 8260B
	TB 05070522	F7E230113-001	VOCs by USEPA 8260B
F7F220256	P-110-190.15	F7F220256-002	VOCs by USEPA 8260B
	P-110-260.15	F7F220256-003	VOCs by USEPA 8260B
	P-110-269.80	F7F220256-004	VOCs by USEPA 8260B
	P-110-281.70	F7F220256-005	VOCs by USEPA 8260B
	P-110-290.15	F7F220256-006	VOCs by USEPA 8260B
	P-110-329.20	F7F220256-007	VOCs by USEPA 8260B
	P-110-350.15	F7F220256-008	VOCs by USEPA 8260B
	P-110-DUP1	F7F220256-009	VOCs by USEPA 8260B
	P-110-EB2	F7F220256-001	VOCs by USEPA 8260B
	TB061207062107	F7F220256-010	VOCs by USEPA 8260B
F7G030134	P-110-408.45	F7G030134-002	VOCs by USEPA 8260B
	P-110-421.15	F7G030134-001	VOCs by USEPA 8260B
	P-110-429.35	F7G030134-003	VOCs by USEPA 8260B
	P-110-439.25	F7G030134-004	VOCs by USEPA 8260B
	P-110-452.15	F7G030134-005	VOCs by USEPA 8260B

**Table 1-1: Sample Cross-Reference List**

<b>SDG</b>	<b>Client ID</b>	<b>Laboratory ID</b>	<b>Analysis Requested</b>
F7G030134	P-110-460.15	F7G030134-006	VOCs by USEPA 8260B
	P-110-470.05	F7G030134-007	VOCs by USEPA 8260B
	TB-062607	F7G030134-008	VOCs by USEPA 8260B
F7G190339	P-114-74.1	F7G190339-001	VOCs by USEPA 8260B
	P-114-84.8	F7G190339-002	VOCs by USEPA 8260B
	P-114-114.8	F7G190339-003	VOCs by USEPA 8260B
	P-114-124.8	F7G190339-004	VOCs by USEPA 8260B
	P-114-134.8	F7G190339-005	VOCs by USEPA 8260B
	P-114-143.8	F7G190339-006	VOCs by USEPA 8260B
	P-114-161.5	F7G190339-007	VOCs by USEPA 8260B
	P-114-193.8	F7G190339-008	VOCs by USEPA 8260B
	P-114-222.8	F7G190339-009	VOCs by USEPA 8260B
	P-114-271.9	F7G190339-010	VOCs by USEPA 8260B
	P-114-298.3	F7G190339-011	VOCs by USEPA 8260B
	EB2	F7G190339-012	VOCs by USEPA 8260B
	TB-70711	F7G190339-013	VOCs by USEPA 8260B

## 1.2. General Considerations

The data validation review process is designed to evaluate the specific technical aspects of the analytical laboratory processing and the sample matrix, to verify that the final data reported for the field samples accurately reflect sample constituency, and to inform the end-user of the limitation of the data in the event that they do not. This report summarizes the findings of the review and outlines any deviations from the applicable QC criteria outlined in the following documents:

- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, (SW846) USEPA, Final Update IIIA, April 1998.
- *Analytical Services Protocol (ASP)*, New York State Department of Environmental Conservation (NYSDEC). Guidance documents including Exhibits A, B, C, D, E, F, G, H, and I. (June 2000)
- *United States Environmental Protection Agency Region II Contract Laboratory Program (CLP) Organics Data Review*, SOP No. HW-6, Revision #11 (USEPA 1996a); and
- *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review*, EPA 540-R-99-008, October 1999.

### **1.3. Analytical Methods**

The environmental samples collected for this investigation were submitted to Severn Trent Laboratories, Inc. of Earth City, Missouri for volatile organic compound (VOC) analyses. The laboratory used the following USEPA guidance methods for the analyses:

- SW846 Method 5030B Purge/Trap Analysis
- SW846 Method 8260B Gas Chromatography/Mass Spectrometry

Each data package represents a sample delivery group (SDG), a collection of specific samples assigned during the sample log-in process. The SDG number is the means by which the laboratory tracks samples and controls QC analyses. A total of four SDGs, each containing between four and eleven groundwater samples (and accompanying field QC), were created and processed for this project scope. The SDG, field identification and laboratory identification for each sample are summarized in Table 1-1.

The following sections of this document address distinct aspects of the validation process. Section 2 lists the data QA/QC protocols used to validate the sample data. A summary of the findings associated with the validation and the specific QA/QC deviations and qualifications performed on the sample data are discussed in Section 3. Data completeness and usability are discussed in Section 4. Section 5 presents the Data Usability Summary Report (DUSR) Summary Information.

## **2. Data Validation Protocols**

### **2.1. Sample Analysis Parameters**

Validation of the data was performed using guidance from the project QAPP (GTEOSI, 2002), the analytical methodology, and the data validation guidelines referenced in Section 1.

DVS performed a data review of all analytical results to assess data quality. A data review includes an assessment of sample handling protocols, supporting laboratory quality control (QC) parameters, and field QC. The following is a list of specific analytical information evaluated during the validation:

- Data package completeness review – per the NYSDEC ASP Category B
- Analytical methods performed and test method references
- Sample condition - review of log-in records for cooler temperature, presence of headspace, chemical preservation, etc.
- Holding times -comparison of collection and analysis dates
- Analytical results -units, values, significant figures, reporting limits, calculation algorithms
- Sample traceability and comparison to raw data
- Instrument tuning
- Initial calibration standards
- Continuing calibration standards
- Method blank results and laboratory contamination
- Laboratory control sample (LCS/MSB) results and comparison to laboratory and NYSASP control limits
- Matrix spike/matrix spike duplicate (MS/MSD) results; comparison to laboratory control limits
- Field duplicate results and comparison to data review criteria
- Surrogate recoveries and comparison to laboratory control limits
- Internal Standards and comparison to method and validation criteria
- Field QC sample (e.g., trip blanks, equipment blanks, etc.) --external contamination;
- Reporting Limits and dilutions

Review was performed on the laboratory analytical reports to determine completeness of the data packages and the acceptability of the accompanying QC data. When QC results fell outside recommended or required QC limits, validation data qualifiers were applied to the results in order to reflect the potential compromise in the integrity of the originally reported result. These qualifiers are in addition to, or a revision of, the qualifiers provided by the laboratory. A summary of the data qualifiers used for this review is presented in Section 2.2.

## **2.2. Data Qualifiers**

The following qualifiers have been used by the laboratory:

**"U"/ "ND"**

Non-detected result at the required QAPP reporting limit--- the laboratory utilizes "U" within the full data package, and "ND" in the summary package report Forms I equivalents.

**"B"** Associated with a result if the compound was identified in the corresponding method blank.

**"J"** Indicates an estimated value or a value below the established reporting limit but above the method detection limit.

**"E"** This flag identifies compounds whose concentrations exceed the calibration range of the instrument for the specific analysis; data qualified with an "E" are qualitative only and not useable for quantitative purposes. All results qualified with an "E" were required to be re-analyzed using an applicable dilution and re-reported.

Laboratory qualifiers defined above, are retained in the final database unless revised during the data validation process to one of the following qualifiers:

**"U"/"ND"**

The analyte was not detected at the indicated reporting limit.

**"J"** Estimated concentration because the result was below the sample reporting limit or quality control criteria were not met.

**"UJ"** The chemical was not detected at or above the indicated reporting limit. However, the reporting limit is approximate and may or may not represent the actual limit of reporting necessary to accurately and precisely measure the analyte in the sample.

## **2.3. Data Usability Summary Report Questions**

The DUSR determines whether or not the data meets site-specific criteria for data quality and use. It was developed by reviewing and evaluating the analytical data packages. During the course of this review the following questions were addressed (where applicable):

1. Is the data package complete as defined under the requirements for the NYSDEC ASP Category B or USEPA CLP deliverables?
2. Have all holding times been met?



3. Do all the QC data: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?
4. Have all of the data been generated using established and agreed upon analytical protocols?
5. Does an evaluation of the raw data confirm the results provided in the data summary sheets and quality control verification forms?
6. Have the correct data qualifiers been used?

The answers to the questions presented by the DUSR are presented in the following sections of the report and in the DUSR Summary Information Section, Section 5.

### **3. Data Quality Evaluation**

#### **3.1. Summary**

This section summarizes the review evaluation and subsequent usability of the data generated for this sampling event, as indicated by results of quality control parameters associated with the project samples. Laboratory compliance with required deliverables and processing was also assessed.

#### **3.2. Validation Review**

##### **3.2.1. Completeness Review**

The laboratory data packages were generated to include summary forms and raw data as specified in the New York State Department of Environmental Conservation (NYSDEC) Category B format. All summary form and raw data required for full validation review were provided. Custody and login forms pertaining to one of the data packages were provided on request.

##### **3.2.2. Test Methods**

The laboratory performed the analyses using the analytical test methods listed in Section 1.3. These included SW846 Method 5030B (aqueous sample purge/trap analysis) followed by Method 8260B (gas chromatography/mass spectrometry). The samples were analyzed using a 25-mL purge volume, thus providing lower reporting limits for each compound than those available with the unmodified method.

##### **3.2.3. Sample Receipt**

Thirty-six aqueous samples were submitted for VOC analysis between May 10, 2007 and July 17, 2007. This included twenty-nine field samples, one field duplicate, two equipment blanks, and four trip blanks.

The sample temperatures at the time of receipt were within the recommended temperature range of 4°C±2°C for all SDGs except that pertaining to samples collected in May. The temperature following overnight delivery was 10°C, just at the upper limit of the validation action range. No qualification is made to the data.

Field and laboratory personnel completed the Chain-of-Custody (COC) documents correctly recording the signature, date, and time of custody transfer. The custody forms for fifteen of the samples show sample IDs with one fewer significant figure than the vial label IDs. The sample IDs were reported by the laboratory per the custody forms.

The laboratory recorded the condition of the samples at the time of receipt on a “Conditions Upon Receipt Form.” This Form identifies whether the containers were received undamaged, within the proper temperature range, at the proper pH, in a container that is sealed with a custody seal on the exterior, and with a completed COC enclosed to identify all samples submitted to the laboratory.

Both vials of P-112-190.15 were received with very small bubble headspace. Results for that sample are therefore qualified as estimated, with a potentially low bias to the reported values. Table 3-1 shows a summary of the sample and qualified parameters.

<b>Table 3-1. Evaluation of Sample Receipt</b>			
<b>Package Identification</b>	<b>Sample IDs</b>	<b>Compounds</b>	<b>Action</b>
F7E230113	P-112-190.2	All	Qualify detections “J” Qualify non-detections “UJ”

### 3.2.4. Holding Times

The technical and contractual holding times between sample collection and laboratory analyses meet method and QAPP requirements of 14-days for acid preserved field samples.

The trip blank associated with the May shipment was received by the laboratory outside of analytical holding time from the date of filling. The results for that blank are therefore qualified as estimated, with a potentially low bias. This means that the potential for external contamination in those four associated project samples has not been thoroughly evaluated. Results for low-level detections in that sample should be used with that consideration. Table 3-1 shows a summary of that blank and qualified parameters.

<b>Table 3-2. Evaluation of Holding Times</b>			
<b>Package Identification</b>	<b>Sample IDs</b>	<b>Compounds</b>	<b>Action</b>
F7E230113	TB 05070522	All	Qualify non-detections “UJ”

### 3.2.5. Analytical Results

The laboratory provided a Form I equivalent with the reported analytical results for the requested analyses. The Form I format that was submitted is not strictly in compliance with USEPA CLP requirements as regards the inclusion of laboratory name and code. The forms do show the client sample identification, the laboratory sample identification, the file identification, the matrix, the date and time the sample was collected, the date the sample was received, the date and time the sample was analyzed, the dilution factor, the preparation batch identification number, the chemical abstract service (CAS) number for each analyte, the units of measure; and the laboratory qualifier (if any). Additional CLP forms were provided (e.g., II, III, etc.) to report applicable QC information for the analyses performed. The laboratory provided all the necessary forms for the VOC method.

### 3.2.6. Traceability to Raw Data

The traceability of the sample results to the raw data was easily accomplished by the use of the information on the summary forms and laboratory analysis logs.

### 3.2.7. Instrument Tuning

The GC/MS system performance was shown to produce acceptable mass identifications and sensitivity with the evaluation of the instrument tuning compound bromofluorobenzene (BFB). All requirements for mass fragmentation and resolution were met. The instrument performance was checked prior to calibration and once every 12-hour shift for all analytical QC batches.

### 3.2.8. Initial Calibration

Calibration standards are analyzed at required frequency and concentration in order to show that the instrumentation is performing consistently and to establish the linear range of response.

All linearity relative standard deviations (%RSD) met analytical and validation guidelines.

Relative response factors (RRFs) were within method protocol requirements. However, responses for acetone and 2-butanone in the calibration standards show RRFs typical for this methodology, but below the validation limit of 0.05. Acceptance of these data is based upon the linearity and consistency of standard responses, the recoveries of these analytes in the spiked QC, and the quality of the mass spectra of acetone. Data for those compounds in all project samples and QC are qualified as estimated. Table 3-3 shows the samples and indicated qualifications:

<b>Table 3-3. Evaluation of Initial Calibration Results</b>			
<b>Package Identification</b>	<b>Sample IDs</b>	<b>Compounds*</b>	<b>Action</b>
F7E230113 F7F220256 F7G030134 F7G190339	All	Acetone and 2-butanone	Qualify detections "J" Qualify non-detections "UJ"

### 3.2.9. Continuing Calibration

The continuing calibration standards (CCAL) were performed with a mid-level standard immediately following the tuning check at the beginning of each 12-hour analytical sequence. The CCAL verification analyses met method criteria (i.e., RRFs were  $>0.05$  for the SPCCs, and the percent differences (%Ds) from the avgRRF were  $<20\%$  for the CCCs) for all analytical QC batches. For the target compounds, the %Ds were greater than 20% for three compounds. Although method criteria were met, as a conservative approach the results associated with a CCAL that exceeded 20%D were qualified as estimated ("J" or "UJ"). Table 3-4 shows a summary of the samples and qualified parameters.

<b>Table 3-4. Evaluation of Continuing Calibration Results</b>			
<b>Package Identification</b>	<b>Sample ID</b>	<b>Compounds</b>	<b>Action</b>
F7F220256	P-110-190.15, P-110-EB2, TB061207062107	Chloroethane and bromomethane	Qualify detections "J" Qualify non-detections "UJ"
	P110-260.15	Bromomethane	Qualify detections "J" Qualify non-detections "UJ"

**Table 3-4. Evaluation of Continuing Calibration Results**

<b>Package Identification</b>	<b>Sample ID</b>	<b>Compounds</b>	<b>Action</b>
F7G190339	P-114-74.1 P-114-84.8 P-114-114.8 P-114-124.8 P-114-134.8 P-114-143.8 P-114-161.5 P-114-193.8 P-114-222.8 P-114-271.9 P-114-298.3 TB-70711	Bromomethane	Qualify detections "J" Qualify non-detections "UJ"
	EB2	2-butanone	Qualify detections "J" Qualify non-detections "UJ"
F7G030134	P-110-408.45 P-110-421.15 P-110-429.35	Bromomethane acetone carbon tetrachloride	Qualify detections "J" Qualify non-detections "UJ"
	P-110-439.25 P-110-452.15 P-110-460.15 P-110-470.05 TB-062607	chloroethane	Qualify detections "J" Qualify non-detections "UJ"

### 3.2.10. Laboratory Method Blanks

Blanks are processed to evaluate the potential for external contamination at sample collection, transport, and analysis.

Method blanks are clean water samples that are processed as part of the analytical sequence, and whenever contamination may be present in the analytical system.

Laboratory method blanks show no contamination, with the exception of one in which bromomethane was detected at a low concentration. There were no detections of this compound in the field samples, and reported results are therefore unaffected.

### 3.2.11. Laboratory Control Sample Results

LCSs are fortified blanks that are spiked with known concentrations of specific analytes. The recoveries of these analytes confirm that laboratory processing and instrumentation are producing accurate and consistent results.

LCSs were processed at the correct frequency. All percent recoveries were within laboratory control limits and validation action levels with the exception of those for carbon tetrachloride (70% and 70%, below 73%) in one pair of the LCSs. Results for this compound in the associated samples have been qualified as estimated ("UJ"), and may have a low bias. Table 3-5 shows the affected samples:

**Table 3-5. Evaluation of Laboratory Control Sample Results**

<b>Package Identification</b>	<b>Client ID</b>	<b>Compound</b>	<b>Action</b>
F7G030134	P-110-408.45 P-110-421.15 P-110-429.35	Carbon tetrachloride	Qualify non-detections "UJ"

Correlations of duplicate LCSs were evaluated and show acceptable precision.

### 3.2.12. Matrix Spike/Matrix Spike Duplicate Analyses

Target analyte compounds are added to defined project samples in order to monitor how well those analytes recover through the analytical process. Duplicate matrix spike or duplicate parent sample results are also compared to see how well they correlate to one another. Those recoveries indicate the accuracy and precision of sample reported results.

Project sample P-110-439.25 was submitted for MS/MSD analyses. All recoveries and duplicate correlations are within guidelines.

### 3.2.13. Field Duplicate Analyses

P-110-350.15 was submitted with an accompanying field duplicate. An evaluation of the precision of the field sampling procedure (as well as the laboratory analysis procedure) was made based on the relative percent difference (RPD) calculated for the original and duplicate sample results. RPD calculations were made only when both results were above the laboratory reporting limits. The RPD values for all compounds were less than 30% (aqueous data evaluation criteria).

### 3.2.14. Trip Blanks and Equipment Blanks

Blanks are processed to evaluate the potential for external contamination at sample collection, transport, and analysis.

- Equipment blanks are collected by pouring de-ionized water through decontaminated sampling equipment in order to verify that the decontamination process is performed completely.
- Trip blanks are sealed vials of clean water that are transported with the sample vials from the laboratory to the site prior to sample collection, and from the site to the laboratory with the collected samples. They are stored and processed with the project samples, thus reflecting potential contamination from external sources.

Four trip blanks and two equipment blanks were submitted with the groundwater samples. The trip blanks show no contamination. One of the equipment blanks shows low-level detections of acetone, trichloroethene, bromomethane, and carbon disulfide. The other shows a low level of carbon disulfide. Results for these specific analytes in associated field samples that were found at concentrations within the validation action limit have been edited to reflect that the sample detected values may be a result of external contamination. Edits to the affected target compounds were based on equipment blank contamination, in accordance with practices described in the validation guidance documents listed in Sections 1.2 and 3.2.10 (method blank contamination). Table 3-6 shows the samples and compounds that were qualified as non-detect ("U").

**Table 3-6. Evaluation of Trip Blank and Equipment Blank Results**

<b>Package Identification</b>	<b>Sample ID</b>	<b>Compound</b>	<b>Action</b>
F7F220256	P-110-190.15 P-110-260.15 P-110-269.80 P-110-281.70 P-110-290.15	Carbon disulfide (0.38 ug/L)	Edit to "U"
F7G190339	P-114-124.8 P-114-134.8 P-114-143.8 P-114-161.5 P-114-222.8 P-114-271.9 P-114-298.3	Carbon disulfide (0.73 ug/L)	Edit to "U"
	P-114-74.1	Acetone (1.9 ug/L)	Edit to "U"

### 3.2.15. System Monitoring Compounds

System Monitoring Compounds (SMC) are surrogate standards that behave similarly to the target analytes during the analysis procedures, and serve to monitor system performance and potential sample matrix interference.

The three SMC evaluated in the TCL VOA analyses generally show acceptable recoveries in the field samples. This indicates that there are no significant sample matrix effects on the recoveries of target analytes, and aids in the confirmation of reported quantitative values. However, one of the samples exhibited a slightly low recovery for surrogate d8-toluene in the undiluted analysis (74%, below the 76% lower limit of the acceptance range). Therefore, results for all of the analytes in that sample except trichloroethene and tetrachloroethene (which is derived from the dilution) are qualified as estimated ("J" or "UJ"), as shown in Table 3-7.

**Table 3-7. Evaluation of System Monitoring Compounds**

<b>Package Identification</b>	<b>Sample ID</b>	<b>Compounds</b>	<b>Action</b>
F7G030134	P-110-408.45	All except trichloroethene and tetrachloroethene	UJ – all non-detect results J – all positive results above the laboratory reporting limit

### 3.2.16. Internal Standards

System performance and sample matrix interferences are evaluated during the VOA analyses by the addition of internal standard compounds to all samples and associated QC.

Although several samples initially showed low internal standard responses, acceptable responses (within the required range of 50-200% of the associated calibration verification) were observed on the reanalyses. Included in the initially outlying analyses was a trip blank, further indicating instrumentation, rather than matrix, as the probable cause for the suppression. The re-analyses results were within holding time, and

are used without qualification. The retention times of the internal standards fell within  $\pm 30$  seconds from that of the most recent calibration for all analyses.

### 3.2.17. Compound Identification and Quantitation of Results

The retention times and mass spectra of detected analytes meet protocol requirements for identification of the target analytes.

The retention times of detected analytes meet protocol requirements for identification.

Raw data were provided for review in the data package. Calculation algorithms, quantitative results, and reporting limit values have been confirmed during this review process.

Eighteen of the project samples were processed at secondary dilution in order to bring certain of the analyte detected responses into instrument calibration range. The results derived from the dilution analyses are used for those specific sample analyte results, as shown in Table 3-8.

<b>Table 3-8. Summary of Laboratory Re-Analyses</b>		
<b>Package Identification</b>	<b>Client ID</b>	<b>Compound Reported From Dilution Analysis</b>
F7G030134	P-110-408.45	trichloroethene tetrachloroethene
	P-110-421.15	tetrachloroethene
	P-110-429.35	tetrachloroethene
	P-110-439.25	tetrachloroethene
	P-110-460.15	tetrachloroethene
F7G190339	P-114-114.8	trichloroethene
	P-114-124.8	tetrachloroethene
		trichloroethene
	P-114-134.8	trichloroethene
		cis-1,2-dichloroethene
	P-114-143.8	trichloroethene
		cis-1,2-dichloroethene
	P-114-161.5	trichloroethene
		cis-1,2-dichloroethene
	P-114-193.8	trichloroethene
		cis-1,2-dichloroethene
	P-114-222.8	trichloroethene
	P-114-271.9	trichloroethene
	P-114-298.3	trichloroethene

**Table 3-8. Summary of Laboratory Re-Analyses**

<b>Package Identification</b>	<b>Client ID</b>	<b>Compound Reported From Dilution Analysis</b>
F7F220256	P-110-350.15	trichloroethene
	P-110-DUP1	trichloroethene
F7E230113	P-112-232.2	tetrachloroethene
	P-112-240.2	tetrachloroethene

The result for tetrachloroethene in sample P-110-452.15 was derived from the undiluted analysis due to the fact that the dilution analysis showed two outlying internal standard responses and one elevated surrogate recovery. The result for that compound is then qualified as estimated because the response is above the established linear range of the instrument.

#### **4. Summary and Data Usability**

This chapter summarizes the analytical data in terms of its completeness and usability. Data completeness is defined as the percentage of sample results that have been determined to be usable during the data validation process. Overall, 100 percent of the VOC data were determined to be usable for qualitative and quantitative purposes. Those sample results qualified as estimated (“J” and “UJ”) due to data validation QA/QC exceedances should be considered conditionally usable. No project data have been rejected.

The samples collected from the site in Hicksville, New York were evaluated based on QA/QC criteria established by methods as listed in Section 1.3, by the data validation guidelines listed in Section 1.2, and by the QAPP (GTEOSI, 2002) established for this project. Major deficiencies in the data generation process would have resulted in data being rejected, indicating that the data are considered unusable for either quantitative or qualitative purposes. Minor deficiencies in the data generation process resulted in some sample data being characterized as approximate or estimated. Identification of a data point as approximate indicates uncertainty in the reported concentration or detection limit of the chemical, but not its assigned identity.

The following paragraphs present the adherence of the data to the precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS) parameters.

Precision is measured through the evaluation of field duplicate samples and laboratory duplicate samples, and LCS recoveries indicate the accuracy of the data.

Holding times, sample preservation, blank analysis, and analyte identification and quantification are indicators of the representativeness of the analytical data.

Comparability is not compromised, provided that the analytical methods do not change over time. A major component of comparability is the use of standard reference materials for calibration and QC. These standards are compared to other unknowns to verify their concentrations. Since standard analytical methods and reporting procedures were consistently used by the laboratory, the comparability criteria for the analytical data were met.

Sensitivity is established by reported detection limits that represent measurable concentrations of analytes that can be determined with a designated level of confidence.



## 5. Data Usability Summary Report Summary Information

The DUSR was performed to determine whether or not the data meets site-specific criteria for data quality and use. The DUSR is developed by reviewing and evaluating the analytical data package. The following questions were addressed:

1. Is the data package complete as defined under the requirements for the NYSDEC ASP Category B or USEPA CLP deliverables?

*The QAPP required that USEPA Level III deliverables be provided by the laboratory for each data package. This requirement was met as it applies to the methods used by the laboratory for sample analysis. Proper documentation was provided to enable a thorough validation review of the analytical data.*

2. Have all holding times been met?

*All holding times were met.*

3. Do all the QC data: blanks, standards, spike recoveries, replicate analyses, and sample data fall within the protocol-required limits and specifications?

*The laboratory used the laboratory control limits during the analyses performed for this sampling event. Only minor QA/QC deviations were observed, with subsequent minimal qualification to sample data.*

4. Have all of the data been generated using established and agreed upon analytical protocols?

*The QAPP required that USEPA guidance methods be used in the analysis of samples collected for this sampling event. The laboratory used the required method protocols (with some minor modifications) for the analyses performed for this sampling event, which met data user and client needs.*

5. Does an evaluation of the raw data confirm the results provided in the data summary sheets and quality control verification forms?

*The raw data confirms the reported qualitative and quantitative results that were submitted by the laboratory in the data packages.*

Have the correct data qualifiers been used?

*The laboratory applied the correct qualifiers to the sample data (although "ND" was used for "U" on the sample results report forms. The validation qualifiers were applied as required by validation guidelines listed in Section 1*

## References

*Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, (SW846) USEPA, Final Update IIIA, April 1998;

*USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review*, EPA 540-R-99-008, October 1999;

*Analytical Services Protocol (ASP)*, New York State Department of Environmental Conservation (NYSDEC). Guidance documents including Exhibits A, B, C, D, E, F, G, H, and I. (June 2000), and

*United States Environmental Protection Agency Region II Contract Laboratory Program (CLP) Organics Data Review*, SOP No. HW-6, Revision #11 (USEPA 1996a)