GTE Operations Support Incorporated

Basking Ridge, New Jersey

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

Data Report
P119 and P120

November 2009

Report Prepared By:

Malcolm Pirnie, Inc.

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

4563001

LEGEND

🟩 PROFILE LOCATION - DATA INCLUDED IN PREVIOUS REPORTS

◒ PROFILE LOCATION - DATA INCLUDED WITHIN THIS REPORT

NOTES

1. AERIAL IMAGE FROM NYS GIS CLEARINGHOUSE HIGH RESOLUTION DIGITAL ORTHOIMAGERY (6-INCH RESOLUTION - 2007).

SCALE IN FEET

0 300 600 1200

MALCOLM PIRNIE

GTE - OPERATIONS SUPPORT, INC.
HICKSVILLE, NY
FORMER SYLVANIA ELECTRIC
PRODUCTS FACILITY

PROFILE LOCATIONS COMPLETED
AS OF OCTOBER 2009

MALCOLM PIRNIE, INC.

November 2009
FIGURE 1

Mobile Lab Data - Groundwater Profiles P-119 and P-120
GTE Operations Support Incorporated
Former Sylvania Electric Products Facility
Hicksville, NY

STONE ENVIRONMENTAL INC

Mobile Laboratory Results Sheet

Client: **GTEOSI**
Location: **Hicksville, NY**
Project ID: **Groundwater Profiling**
SEI #: **071867-R**
Date Sampled: **3/31/2009-4/16/2009**
Date Analyzed: **3/31/2009-4/16/2009**
Report Date: **5/22/2009**

Matrix: Water

HOLE ID = P-119

VOC DATA, ug/L

Depth	Vinyl Chloride			t-Dichloroethene			c-Dichloroethene			Trichloroethene			Tetrachloroethene			% SS
	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	
64.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	89
72.85	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	89
84.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	87
94.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	97
104.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	85
114.45	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	93
124.85	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	93
133.45	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	83
144.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	84
154.95	1	U	1	1	U	1	1	U	1	**6**		1	**3**		1	98
164.95	1	U	1	1	U	1	1	U	1	**2**		1	**4**		1	95
174.95	1	U	1	1	U	1	1	U	1	**1**		1	**5**		1	89
184.95	1	U	1	1	U	1	1	U	1	1	U	1	**3**		1	89
194.95	1	U	1	1	U	1	1	U	1	1	U	1	**5**		1	86
204.50	1	U	1	1	U	1	1	U	1	1	U	1	**20**		1	88
217.80	1	U	1	1	U	1	1	U	1	**25**		1	**200**		1	95
224.80	1	U	1	1	U	1	1	U	1	**34**		1	**1300**		10	91
234.80	1	U	1	1	U	1	1	U	1	1	U	1	**13**		1	80
244.25	1	U	1	1	U	1	1	U	1	1	U	1	**18**		1	86
254.30	1	U	1	1	U	1	1	U	1	1	U	1	**33**		1	91
263.00	1	U	1	1	U	1	1	U	1	**2**		1	**66**		1	88
285.00	1	U	1	1	U	1	1	U	1	**1**		1	**16**		1	101
294.70	1	U	1	1	U	1	1	U	1	1	U	1	**18**		1	99
304.25	1	U	1	1	U	1	1	U	1	1	U	1	**3**		1	97
324.80	1	U	1	1	U	1	1	U	1	1	U	1	**2**		1	101
347.00	1	U	1	1	U	1	1	U	1	1	U	1	**2**		1	94
354.95	1	U	1	1	U	1	1	U	1	1	U	1	**1**		1	92
364.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	89
373.90	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	97
386.80	1	U	1	1	U	1	1	U	1	1	U	1	**4**	U	1	95
388.15	1	U	1	1	U	1	1	U	1	1	U	1	**3**		1	104
397.10	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	100
408.30	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	94

INORGANIC DATA, mg/L

Depth	Fe^{+2}	Fe, Total	Ammonia	Chloride	Chlorine, Total
64.95	NA	NA	NA	NA	NA
72.85	NA	NA	NA	NA	NA
84.95	0.53	1.04	0.27	141	0.41
94.95	0.29	0.57	0.70	22	0.03
104.95	0.24	0.97	0.58	125	0.04
114.45	0.62	1.21	0.24	102	0.05
124.85	0.53	0.59	2.4	143	0.05
133.45	0.14	0.30	0.04	97	0.02
144.95	0.30	0.36	0.80	163	ND
154.95	0.59	0.82	8.0	81	0.02
164.95	1.05	1.96	0.14	20	0.03
174.95	0.44	1.41	0.06	17	0.05
184.95	NA	NA	NA	NA	NA
194.95	NA	NA	0.22	NA	NA
204.50	0.16	0.16	0.13	42	0.03
217.80	NA	NA	0.08	NA	NA
224.80	0.33	1.00	0.23	15	ND
234.80	0.45	1.13	ND	17	0.03
244.25	0.38	0.66	0.14	17	0.17
254.30	ND	ND	0.04	16	ND
263.00	0.93	0.99	0.05	19	ND
285.00	0.16	0.24	0.02	22	ND
294.70	0.22	0.38	0.19	17	ND
304.25	0.11	0.15	0.02	27	ND
324.80	0.09	0.48	0.28	127	0.03
347.00	0.15	0.21	0.10	156	0.04
354.95	0.18	0.28	0.03	117	ND
364.95	0.16	0.32	0.28	67	0.10
373.90	0.16	0.17	0.03	12	ND
386.80	0.26	0.64	0.13	26	0.02
388.15	0.20	0.47	0.07	22	0.02
397.10	0.11	0.19	0.09	18	0.03
408.30	0.14	0.34	0.12	19	0.04

Freons

Depth	Freon 113			Freon 123			Freon 123A		
	Value	Q	DF	Value	Q	DF	Value	Q	DF
64.95	1	U	1	1	U	1	1	U	1
72.85	1	U	1	1	U	1	1	U	1
84.95	1	U	1	1	U	1	1	U	1
94.95	1	U	1	1	U	1	1	U	1
104.95	1	U	1	1	U	1	1	U	1
114.45	1	U	1	1	U	1	1	U	1
124.85	1	U	1	1	U	1	1	U	1
133.45	1	U	1	1	U	1	1	U	1
144.95	1	U	1	1	U	1	1	U	1
154.95	1	U	1	1	U	1	1	U	1
164.95	1	U	1	1	U	1	1	U	1
174.95	1	U	1	1	U	1	1	U	1
184.95	1	U	1	1	U	1	1	U	1
194.95	1	U	1	1	U	1	1	U	1
204.50	1	U	1	1	U	1	1	U	1
217.80	1	U	1	1	U	1	1	U	1
224.80	1	U	1	1	U	1	1	U	1
234.80	1	U	1	1	U	1	1	U	1
244.25	1	U	1	1	U	1	1	U	1
254.30	1	U	1	1	U	1	1	U	1
263.00	1	U	1	1	U	1	1	U	1
285.00	1	U	1	1	U	1	1	U	1
294.70	1	U	1	1	U	1	1	U	1
304.25	1	U	1	1	U	1	1	U	1
324.80	1	U	1	1	U	1	1	U	1
347.00	1	U	1	1	U	1	1	U	1
354.95	1	U	1	1	U	1	1	U	1
364.95	1	U	1	1	U	1	1	U	1
373.90	1	U	1	1	U	1	1	U	1
386.80	1	U	1	1	U	1	1	U	1
388.15	1	U	1	1	U	1	1	U	1
397.10	1	U	1	1	U	1	1	U	1
408.30	1	U	1	1	U	1	1	U	1

VOC DATA, ug/L

Depth	1,1-Dichloroethene			1,1-Dichloroethane			1,1,1-Trichloroethane			1,1,1,2-Tetrachloroethane			Carbon Tetrachloride		
	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF
64.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
72.85	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
84.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
94.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
104.95	**3**		1	**4**		1	**6**		1	1	U	1	1	U	1
114.45	1	U	1	1	U	1	**1**		1	1	U	1	1	U	1
124.85	**4**		1	**6**		1	**10**		1	1	U	1	1	U	1
133.45	**1**		1	**3**		1	**3**		1	1	U	1	1	U	1
144.95	**4**		1	**6**		1	**9**		1	1	U	1	1	U	1
154.95	**2**		1	1	U	1	**3**		1	1	U	1	1	U	1
164.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
174.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
184.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
194.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
204.50	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
217.80	1	U	1	1	U	1	1	U	1	1	U	1	**1**		1
224.80	1	U	1	1	U	1	1	U	1	1	U	1	**2**		1
234.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
244.25	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
254.30	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
263.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
285.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
294.70	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
304.25	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
324.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
347.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
354.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
364.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
373.90	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
386.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
388.15	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
397.10	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
408.30	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1

Depth	Benzene			1,2-Dichlorothane			Toluene			Chlorobenzene			Ethylbenzene		
	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF
64.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
72.85	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
84.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
94.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
104.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
114.45	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
124.85	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
133.45	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
144.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
154.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
164.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
174.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
184.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
194.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
204.50	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
217.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
224.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
234.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
244.25	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
254.30	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
263.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
285.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
294.70	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
304.25	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
324.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
347.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
354.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
364.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
373.90	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
386.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
388.15	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
397.10	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
408.30	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1

Depth	m,p-Xylene			o-Xylene			1,3-Dichlorobenzene			1,4-Dichlorobenzene			1,2-Dichlorobenzene			%SS
	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	
64.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	89
72.85	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	89
84.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	87
94.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	97
104.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	85
114.45	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	93
124.85	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	93
133.45	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	83
144.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	84
154.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	98
164.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	95
174.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	89
184.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	89
194.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	86
204.50	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	88
217.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	95
224.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	91
234.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	80
244.25	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	86
254.30	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	91
263.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	88
285.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	101
294.70	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	99
304.25	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	97
324.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	101
347.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	94
354.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	92
364.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	89
373.90	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	97
386.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	95
388.15	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	104
397.10	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	100
408.30	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	94

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.

J = Estimated value.

ND = Value below detection limit.

NS = Not Sampled

Mobile Lab Data - Groundwater Profiles P-119 and P-120
GTE Operations Support Incorporated
Former Sylvania Electric Products Facility
Hicksville, NY

STONE ENVIRONMENTAL INC

Mobile Laboratory Results Sheet

Client:	**GTEOSI**
Location:	**Hicksville, NY**
Project ID:	**Groundwater Profiling**
SEI #:	**071867-R**
Date Sampled:	**4/17/2009-5/13/2009**
Date Analyzed:	**4/18/2009-5/13/2009**
Report Date:	**5/22/2009**

Matrix: Water

HOLE ID = P-120

VOC DATA, ug/L

	Vinyl Chloride			t-Dichloroethene			c-Dichloroethene			Trichloroethene			Tetrachloroethene			% SS
Depth	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	
74.90	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	108
84.85	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	107
94.75	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	102
103.50	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	110
114.30	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	118
125.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	118
143.20	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	106
154.70	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	96
165.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	106
172.35	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	105
192.10	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	106
200.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	101
210.20	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	110
220.00	1	U	1	1	U	1	1	U	1	**2**		1	**10**		1	105
230.00	1	U	1	1	U	1	1	U	1	**3**		1	**77**		1	103
239.30	1	U	1	1	U	1	1	U	1	**12**		1	**93**		1	101
253.05	1	U	1	1	U	1	**5**		1	**30**		1	**44**		1	103
263.50	1	U	1	1	U	1	**7**		1	**30**		1	**55**		1	102
326.65	1	U	1	1	U	1	**8**		1	**590**		10	**270**		10	115
335.00	1	U	1	1	U	1	**12**		1	**890**		10	**320**		10	111
345.00	1	U	1	1	U	1	**8**		1	**590**		10	**1120**		10	108
361.50	1	U	1	1	U	1	**14**		1	**240**		10	**2400**		10	104
369.00	1	U	1	1	U	1	**21**		1	**280**		10	**830**		10	108
381.70	1	U	1	1	U	1	**36**		1	**150**		10	**1500**		10	110
389.20	1	U	1	1	U	1	**24**		1	**91**		1	**820**		10	111
404.05	1	U	1	1	U	1	**3**		1	**6**		1	**960**		10	107
417.35	1	U	1	1	U	1	1	U	1	**1**		1	**140**		1	119
424.80	1	U	1	1	U	1	1	U	1	1	U	1	**23**		1	105
434.50	1	U	1	1	U	1	1	U	1	1	U	1	**20**		1	106
444.80	1	U	1	1	U	1	1	U	1	1	U	1	**95**		1	102
463.40	1	U	1	1	U	1	1	U	1	1	U	1	**43**		1	101
471.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	99
481.25	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	106

INORGANIC DATA, mg/L

Fe^{+2}	Fe, Total	Ammonia	Chloride	Chlorine, Total
0.28	0.71	0.13	57	0.02
0.63	0.84	0.40	51	0.20
0.57	0.73	0.36	47	0.07
0.37	0.44	0.31	54	0.09
0.31	0.61	0.26	44	0.04
0.41	2.87	0.90	47	0.27
0.34	0.85	0.17	109	0.06
0.38	0.62	0.26	117	0.12
0.22	0.45	0.22	67	0.05
0.15	0.35	0.24	55	0.04
0.10	0.10	0.09	135	ND
0.15	0.20	0.04	54	ND
0.07	0.15	0.15	39	0.03
0.34	0.39	0.06	72	ND
0.32	0.63	0.16	63	0.03
0.46	0.94	0.39	35	0.14
0.24	0.27	0.14	29	0.02
0.21	0.43	0.12	21	0.02
0.25	0.71	0.14	27	0.04
0.70	0.92	0.23	30	0.15
0.41	0.44	0.18	23	ND
0.14	0.17	0.05	22	0.03
0.12	0.15	0.06	21	ND
0.12	0.12	0.09	23	ND
0.17	0.17	0.05	15	ND
0.07	0.23	0.11	58	0.02
0.65	12.50	0.28	43	0.29
0.10	0.14	0.04	40	ND
0.17	0.19	0.07	41	0.06
0.30	0.30	0.15	17	0.08
0.11	0.20	0.06	14	ND
0.31	0.38	0.23	46	0.07
NA	NA	NA	NA	NA

Freons

Freon 113			Freon 123			Freon 123A		
Value	Q	DF	Value	Q	DF	Value	Q	DF
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
7		1	1	U	1	1	U	1
12		1	1	U	1	1	U	1
8		1	1	U	1	1	U	1
2		1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1
1	U	1	1	U	1	1	U	1

VOC DATA, ug/L

	1,1-Dichloroethene			1,1-Dichloroethane			1,1,1-Trichloroethane			1,1,1,2-Tetrachloroethane			Carbon Tetrachloride			Benzene			1,2-Dichlorothane			Toluene		
Depth	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF
74.90	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
84.85	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
94.75	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
103.50	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
114.30	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
125.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
143.20	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
154.70	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
165.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
172.35	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
192.10	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
200.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
210.20	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
220.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
230.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
239.30	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
253.05	1	U	1	1	U	1	1	U	1	1	U	1	**7**		1	1	U	1	1	U	1	1	U	1
263.50	1	U	1	1	U	1	1	U	1	1	U	1	**6**		1	1	U	1	1	U	1	1	U	1
326.65	**2**		1	1	U	1	1	U	1	1	U	1	**8**		1	1	U	1	1	U	1	1	U	1
335.00	**3**		1	1	U	1	**2**		1	1	U	1	**10**		1	1	U	1	1	U	1	1	U	1
345.00	**1**		1	1	U	1	1	U	1	**1**		1	**10**		1	1	U	1	1	U	1	1	U	1
361.50	**1**		1	1	U	1	1	U	1	**2**		1	**6**		1	1	U	1	1	U	1	1	U	1
369.00	1	U	1	1	U	1	1	U	1	1	U	1	**4**		1	1	U	1	1	U	1	1	U	1
381.70	1	U	1	1	U	1	1	U	1	**1**		1	**3**		1	1	U	1	1	U	1	1	U	1
389.20	1	U	1	1	U	1	1	U	1	1	U	1	**4**		1	1	U	1	1	U	1	1	U	1
404.05	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
417.35	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
424.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
434.50	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
444.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
463.40	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
471.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
481.25	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1

	Chlorobenzene			Ethylbenzene			m,p-Xylene			o-Xylene			1,3-Dichlorobenzene			1,4-Dichlorobenzene			1,2-Dichlorobenzene			%SS
Depth	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	Value	Q	DF	
74.90	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	108
84.85	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	107
94.75	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	102
103.50	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	110
114.30	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	118
125.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	118
143.20	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	106
154.70	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	96
165.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	106
172.35	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	105
192.10	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	106
200.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	101
210.20	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	110
220.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	105
230.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	103
239.30	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	101
253.05	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	103
263.50	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	102
326.65	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	115
335.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	111
345.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	108
361.50	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	104
369.00	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	108
381.70	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	110
389.20	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	111
404.05	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	107
417.35	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	119
424.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	105
434.50	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	106
444.80	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	102
463.40	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	101
471.95	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	99
481.25	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	106

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.

J = Estimated value.

ND = Value below detection limit.

Fixed Lab Data - Groundwater Profiles P-119 and P-120
GTE Operations Support Incorporated
Former Sylvania Electric Products Facility
Hicksville, NY

	Sample ID / Date Sampled		**P-119-124.85**	**P-119-144.95**	**P-119-217.80**	**P-119-224.80**	**P-119-304.25**	**P-119-304.25 DUP**	**TB-1-33140809**	**TB-0418042309**	**TB042809**	**P-120-EB-12**
COMPOUND NAME	CAS Number	Units	4/1/2009	4/2/2009	4/3/2009	4/3/2009	4/6/2009	4/6/2009	4/8/2009	4/18/2009	4/28/2009	5/5/2009
1,1,1,2-Tetrachloroethane	630-20-6	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	71-55-6	µg/L	**9.9**	**9**	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	79-00-5	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	75-34-3	µg/L	**6.3**	**5.6**	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	75-35-4	µg/L	**4.3**	**3.9**	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	95-50-1	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	107-06-2	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	78-87-5	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	541-73-1	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	106-46-7	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dioxane	123-91-1	µg/L	80 UJ	80 UJ	80 UJ	80 UJ	80 UJ	80 UJ	80 UJ	R	R	R
2-Butanone	78-93-3	µg/L	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	R	5 U	5 U
2-Hexanone	591-78-6	µg/L	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone (MIBK)	108-10-1	µg/L	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	67-64-1	µg/L	2 U	2 U	2 UJ	2 UJ	2 UJ	2 U	2 U	2 U	**1.8 J**	**1.2 J**
Benzene	71-43-2	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	75-27-4	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	75-25-2	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	74-83-9	µg/L	2 U	2 U	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Carbon disulfide	75-15-0	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon tetrachloride	56-23-5	µg/L	1 U	1 U	**0.99 J**	**1.4**	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	108-90-7	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	75-00-3	µg/L	2 U	2 U	2 UJ	2 UJ	2 UJ	2 U	2 U	2 U	2 UJ	2 UJ
Chloroform	67-66-3	µg/L	1 U	1 U	**0.19 J**	**0.11 J**	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	74-87-3	µg/L	2 U	2 U	2 UJ	2 UJ	2 UJ	2 U	2 U	2 U	2 U	2 U
cis-1,2-Dichloroethene	156-59-2	µg/L	1 U	1 U	**1.1 J**	**1.7**	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	10061-01-5	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	124-48-1	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	100-41-4	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride	75-09-2	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	100-42-5	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	127-18-4	µg/L	1 U	1 U	**170 J**	**930**	**3.2**	**4.2**	**0.22 J**	1 U	**0.82 J**	**0.66 J**
Toluene	108-88-3	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	**0.073 J**	1 U	1 U
trans-1,2-Dichloroethene	156-60-5	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	10061-02-6	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	79-01-6	µg/L	3.5 U	3.5 U	**29 J**	**36**	3.5 U	3.5 U	**3.5**	1 U	**0.22 J**	**0.19 J**
Vinyl chloride	75-01-4	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes (total)	1330-20-7	µg/L	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	**0.16 J**	**0.19 J**	**0.10 J**
TIC- 1,1,2-Trichloro-1,2,2 trifluoroethane	76-13-1	µg/L										

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.

NJ = The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

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.

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the compound cannot be verified.

Fixed Lab Data - Groundwater Profiles P-119 and P-120
GTE Operations Support Incorporated
Former Sylvania Electric Products Facility
Hicksville, NY

	Sample ID / Date Sampled		P-120-103.50	P-120-220	P-120-230	P-120-335.00	P-120-345.00	P-120-361.50	P-120-361.50 DUP	P-120-381.7	P-120-424.80
COMPOUND NAME	CAS Number	Units	4/19/2009	4/22/2009	4/23/2009	4/30/2009	4/30/2009	5/1/2009	5/1/2009	5/2/2009	5/4/2009
1,1,1,2-Tetrachloroethane	630-20-6	µg/L	1 U	1 U	1 U	1 U	**1.1**	**2.2**	**2.3**	**1.3**	1 U
1,1,1-Trichloroethane	71-55-6	µg/L	1 U	1 U	1 U	**2.2**	**0.82 J**	**0.94 J**	**0.97 J**	**0.2 J**	1 U
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	79-00-5	µg/L	1 U	1 U	1 U	**0.37 J**	**0.44 J**	**0.72 J**	**0.75 J**	**0.46 J**	1 U
1,1-Dichloroethane	75-34-3	µg/L	1 U	1 U	1 U	**1.2**	**0.32 J**	**0.19 J**	**0.19 J**	**0.094 J**	1 U
1,1-Dichloroethene	75-35-4	µg/L	1 U	1 U	1 U	**3.8**	**1.2**	**1.3**	**1.3**	**0.29 J**	1 U
1,2-Dichlorobenzene	95-50-1	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	107-06-2	µg/L	1 U	1 U	1 U	**0.19 J**	**0.12 J**	**0.2 J**	**0.17 J**	**0.27 J**	1 U
1,2-Dichloropropane	78-87-5	µg/L	1 U	1 U	1 U	**0.11 J**	**0.06 J**	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	541-73-1	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	106-46-7	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dioxane	123-91-1	µg/L	R	R	R	R	R	R	R	R	R
2-Butanone	78-93-3	µg/L	R	R	R	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	591-78-6	µg/L	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 UJ	5 U
4-Methyl-2-pentanone (MIBK)	108-10-1	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	67-64-1	µg/L	2 U	2 U	2 U	R	R	2 UJ	R	2 UJ	R
Benzene	71-43-2	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	75-27-4	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	75-25-2	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	74-83-9	µg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Carbon disulfide	75-15-0	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon tetrachloride	56-23-5	µg/L	1 U	1 U	1 U	**12**	**9.9**	**6.3**	**6.5**	**3.4**	1 U
Chlorobenzene	108-90-7	µg/L	1 U	1 U	1 U	1 U	**0.16 J**	1 U	1 U	1 U	1 U
Chloroethane	75-00-3	µg/L	2 U	2 U	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
Chloroform	67-66-3	µg/L	1 U	1 U	1 U	**1.2**	**0.75 J**	**0.65 J**	**0.65 J**	**0.86 J**	1 U
Chloromethane	74-87-3	µg/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
cis-1,2-Dichloroethene	156-59-2	µg/L	1 U	1 U	1 U	**16**	**11**	**16**	**16**	**40**	1 U
cis-1,3-Dichloropropene	10061-01-5	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	124-48-1	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	100-41-4	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylene chloride	75-09-2	µg/L	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 UJ	1 U
Styrene	100-42-5	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	127-18-4	µg/L	1 U	**9.6**	**64**	**390**	**1200**	**2700 J**	**1800**	**1500**	**29**
Toluene	108-88-3	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	156-60-5	µg/L	1 U	1 U	1 U	**0.21 J**	**0.14 J**	**0.2 J**	**0.28 J**	**0.71 J**	1 U
trans-1,3-Dichloropropene	10061-02-6	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	79-01-6	µg/L	1 U	3.5 U	3.5 U	**1100**	**690**	**260**	**220**	**190**	1 U
Vinyl chloride	75-01-4	µg/L	1 U	1 U	1 U	**0.16 J**	1 U	1 U	1 U	1 U	1 U
Xylenes (total)	1330-20-7	µg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TIC- 1,1,2-Trichloro-1,2,2 trifluoroethane	76-13-1	µg/L				**6.7 NJ**	**3.3 NJ**	**1 NJ**	**1.1 NJ**		

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.

NJ = The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

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.

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the compound cannot be verified.

Fixed Lab Data - Groundwater Profiles P-119 and P-120
GTE Operations Support Incorporated
Former Sylvania Electric Products Facility
Hicksville, NY

	Sample ID / Date Sampled		**P-119-244.25**	**P-119-263.00**	**P-119-294.70**	**P-119-304.25**	**P-119-304.25 DUP**	**P-119-324.8**	**P-119-354.95**		**EB-006-042909**
COMPOUND NAME	CAS Number	Units	4/4/2009	4/4/2009	4/6/2009	4/6/2009	4/6/2009	4/7/2009	4/8/2009		4/29/2009
1,4-Dioxane	123-91-1	µg/L	**0.37 J**	1.0 U	1.0 U	1.0 U	1.0 U	R	1.0 U		1.0 U

	Sample ID / Date Sampled		**P-120-200**	**P-120-220**	**P-120-239.30**	**P-120-263.50**	**P-120-326.65**	**P-120-335.00**	**P-120-345.00**	**P-120-361.50**	**P-120-361.50 DUP**	**P-120-404.05**
COMPOUND NAME	CAS Number	Units	4/22/2009	4/23/2009	4/23/2009	4/28/2009	4/30/2009	4/30/2009	4/30/2009	5/0/09	5/1/2009	5/4/2009
1,4-Dioxane	123-91-1	µg/L	1.0 U	**0.28 J**	**0.6 J**	**0.90 J**	**4.4**	**6.1**	**4.0**	**3.0**	**3.2**	**0.84 J**

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.

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the compound cannot be verified.

Boring ID:

MALCOLM PIRNIE, INC.

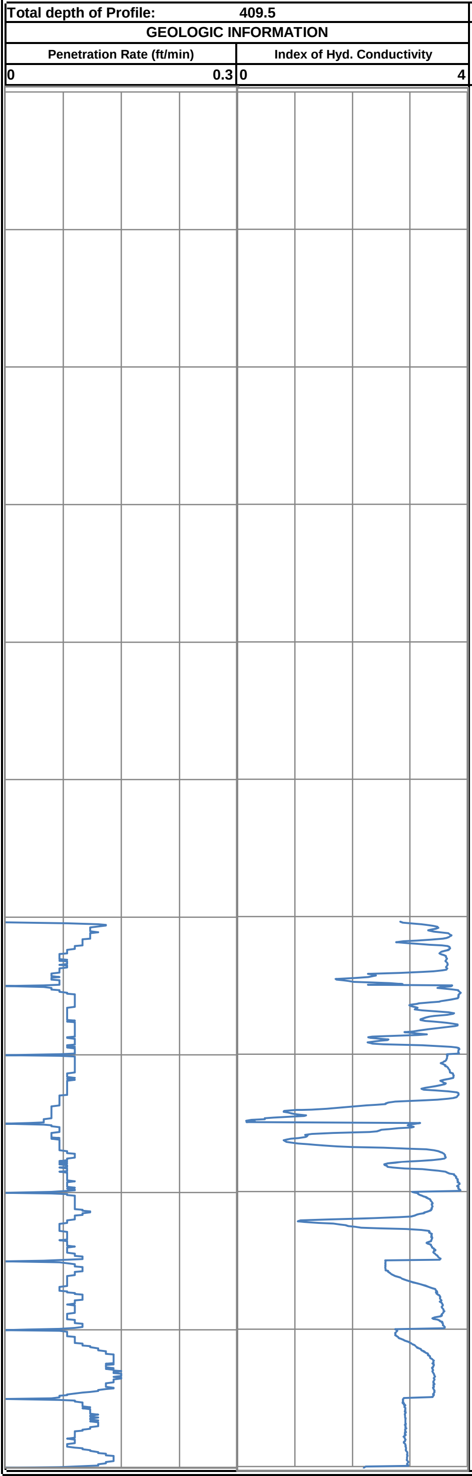
P-119

17-17 Route 208 North Fair Lawn, NJ 07401

PROJECT NAME:	**GTEOSI-Hicksville**	**START DATE:**	**March 30, 2009**
JOB NUMBER:	**4563001**	**END DATE:**	**April 16, 2009**
DRILLING FIRM:	**SGS**	**LOCATION:**	**Intersection of Charlotte Ave. and Duffy Ave. on Winter Brothers property**
DRILLING METHOD:	**Mud Rotary**		
DRILLER:	**Tom Lynch**	**DATUM:**	**Land Surface**
HELPER:	**Mike Melia**	**LOGGED BY:**	**J. Hilton, C. Goldsmith**

Total depth of Profile: **409.5**

Total depth of boring: **405.5**



Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
0	SAND (fine-medium) and SILT, trace-little sub-rounded Gravel (fine),dark brown.	SM		Hollow stem augers advanced from 0 to 20 ft
10	SAND (medium to coarse), little Gravel (fine); moderate brown.	SW		
20	SAND (fine to coarse), little Gravel (fine); fine-moderate brown.	SW		Begin mud rotary drilling at 20 ft
30	SAND (fine-medium), light brown.	SP		
40	SAND (medium-coarse), light brown.	SP		
50	SAND (fine), trace Silt; moderate brown.	SP		
60	SAND (fine) with Silt; light brown.	SM		Begin profiling at 60 ft
70				
80				
90	SAND (fine) with Silt, some Sand (coarse) and Gravel (fine); light brown.	SM		

Boring ID:

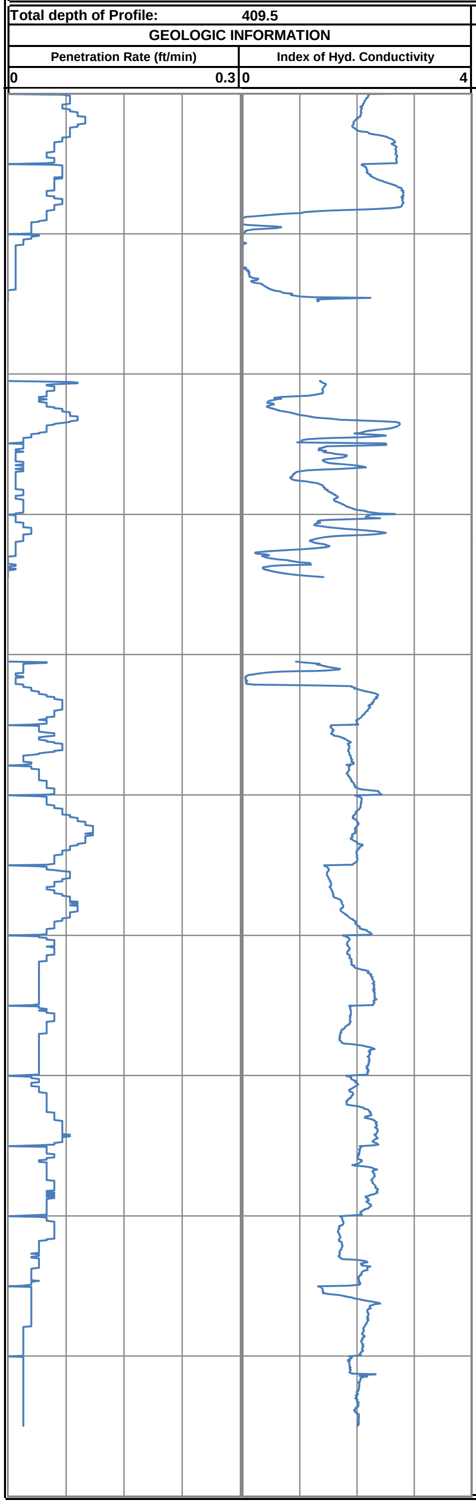
P-119

MALCOLM PIRNIE, INC.

17-17 Route 208 North Fair Lawn, NJ 07401

PROJECT NAME:	**GTEOSI-Hicksville**	**START DATE:**	**March 30, 2009**
JOB NUMBER:	**4563001**	**END DATE:**	**April 16, 2009**
DRILLING FIRM:	**SGS**	**LOCATION:**	**Intersection of Charlotte Ave. and Duffy Ave. on Winter Brothers property**
DRILLING METHOD:	**Mud Rotary**		
DRILLER:	**Tom Lynch**	**DATUM:**	**Land Surface**
HELPER:	**Mike Melia**	**LOGGED BY:**	**J. Hilton, C. Goldsmith**
Total depth of Profile:	**409.5**	**Total depth of boring:**	**405.5**

GEOLOGIC INFORMATION



Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
100			▨	
110	SAND (fine) with Silt, trace white Clay; light brown.	SM	▨	Profiler refusal at 114.80' bgs, pulled rods and advanced casing from 60' bgs to 120'
120	SAND (fine-medium) with some Silt; light-moderate brown.	SM	▨	
130			▨	Profiler refusal at 134.46' bgs, pulled rods and advanced casing from 120' bgs to 140'
140	SAND (fine-medium) some Silt; moderate brown.	SM	▨	
150			▨	
160			▨	
170	SAND (fine-coarse) trace Silt; moderate brown.	SP	░	
180	SAND (fine) with Silt, trace gray Clay; light brown.	SM	▨	
	SAND (fine) light brown, with interbedded light brown and gray Silt.	SM	▨	
190			▨	Profiler tripped out at 194.95, pulled rods and advanced casing from 140' bgs to 200'

Boring ID:

P-119

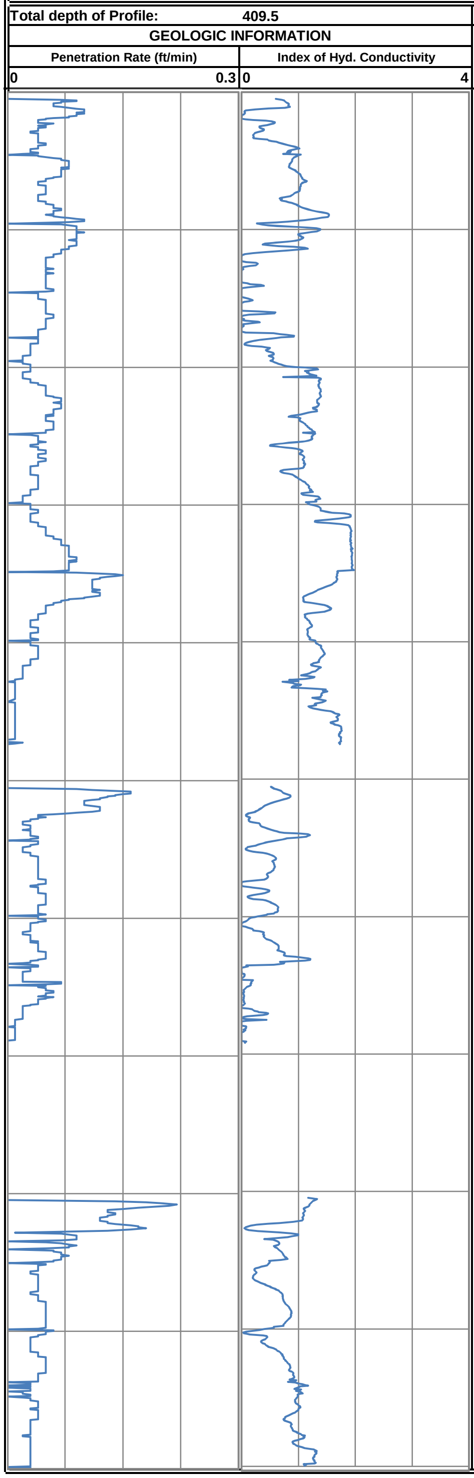
MALCOLM PIRNIE, INC.

17-17 Route 208 North Fair Lawn, NJ 07401

PROJECT NAME:	**GTEOSI-Hicksville**	**START DATE:**	**March 30, 2009**
JOB NUMBER:	**4563001**	**END DATE:**	**April 16, 2009**
DRILLING FIRM:	**SGS**	**LOCATION:**	**Intersection of Charlotte Ave. and Duffy Ave. on Winter Brothers property**
DRILLING METHOD:	**Mud Rotary**		
DRILLER:	**Tom Lynch**	**DATUM:**	**Land Surface**
HELPER:	**Mike Melia**	**LOGGED BY:**	**J. Hilton, C. Goldsmith**

Total depth of Profile: **409.5** **Total depth of boring:** **405.5**

GEOLOGIC INFORMATION



Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
200	SAND (fine-medium) and SILT, trace Clay; moderate brown to gray-brown.	SM	▒	
210	SILT, trace-little fine grain Sand; medium brown w/ black carbonaceous interbeds.	ML	▓	
220	SAND (fine), trace Silt; light brown.	SP	░	
230			░	
240	SAND (medium-coarse), trace Silt; light brown-gray.	SP	░	Profiler tripped out at 247.5, pulled rods and advanced casing from 200' bgs to 250' bgs
250	SILT, trace Sand (fine), trace Clay; light brown-white.	ML	▓	
260			▓	
270			▓	Profiler refusal at 269.2' bgs, pulled rods and advanced casing from 250' bgs to 280'
	SAND (fine), some Silt; light brown.	SM	▒	
280	SILT, some Sand (fine); light brown-white.	ML	▓	
290			▓	

Boring ID:

MALCOLM PIRNIE, INC.

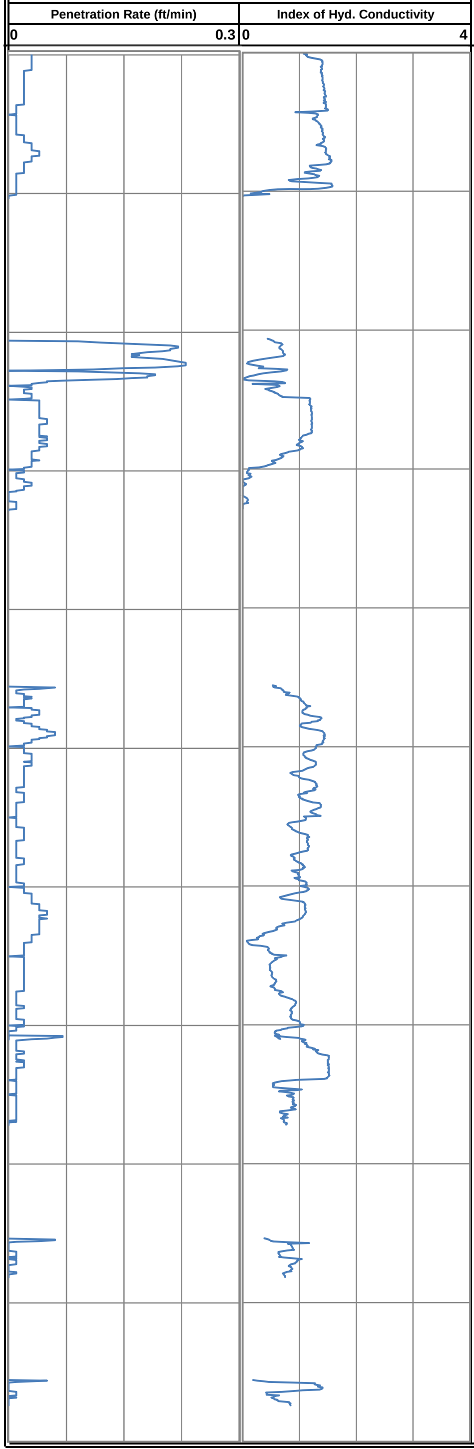
P-119

17-17 Route 208 North Fair Lawn, NJ 07401

PROJECT NAME:	**GTEOSI-Hicksville**	**START DATE:**	**March 30, 2009**
JOB NUMBER:	**4563001**	**END DATE:**	**April 16, 2009**
DRILLING FIRM:	**SGS**	**LOCATION:**	**Intersection of Charlotte Ave. and Duffy Ave. on Winter Brothers property**
DRILLING METHOD:	**Mud Rotary**		
DRILLER:	**Tom Lynch**	**DATUM:**	**Land Surface**
HELPER:	**Mike Melia**	**LOGGED BY:**	**J. Hilton, C. Goldsmith**

Total depth of Profile: **409.5** **Total depth of boring:** **405.5**

GEOLOGIC INFORMATION



Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
300	SAND (fine-medium), some Silt; light brown, micaceous.	SM	▒	
310	SILT, some Sand (fine); white.	ML	▓	Profiler refusal at 310.34' bgs, pulled rods and advanced casing from 280' bgs to 320'
	SAND (fine), some Silt; light brown-white.	SM	▒	
320	SAND (fine-coarse), some Silt; light brown-white, angular.	SM	▒	
330	SAND (fine to medium), trace Silt and Clay interbeds; light brown to white.	ML	▓	Profiler refusal at 332.84' bgs, pulled rods and advanced casing from 320' bgs to 345' bgs
340	SAND (fine), some Silt; light brown.	SM	▒	
350	SAND (fine-coarse) trace-little white Silt; light gray-white.	SM	▒	
360			▒	
370	SAND (fine to medium), trace white Silt; light gray-white, angular	SM	▒	Profiler refusal at 371.2' bgs, pulled rods and advanced casing from 345' bgs to 370'
			▒	Profiler refusal at 377.18' bgs, pulled rods and advanced casing from 370' bgs to 385'
380			▒	
390			▒	Profiler tripped out at 388.15, pulled rods and advanced casing from 385' bgs to 395.5' bgs
	SAND (fine to medium), trace-little Silt; light tan-brown, sub-angular.	SM	▒	

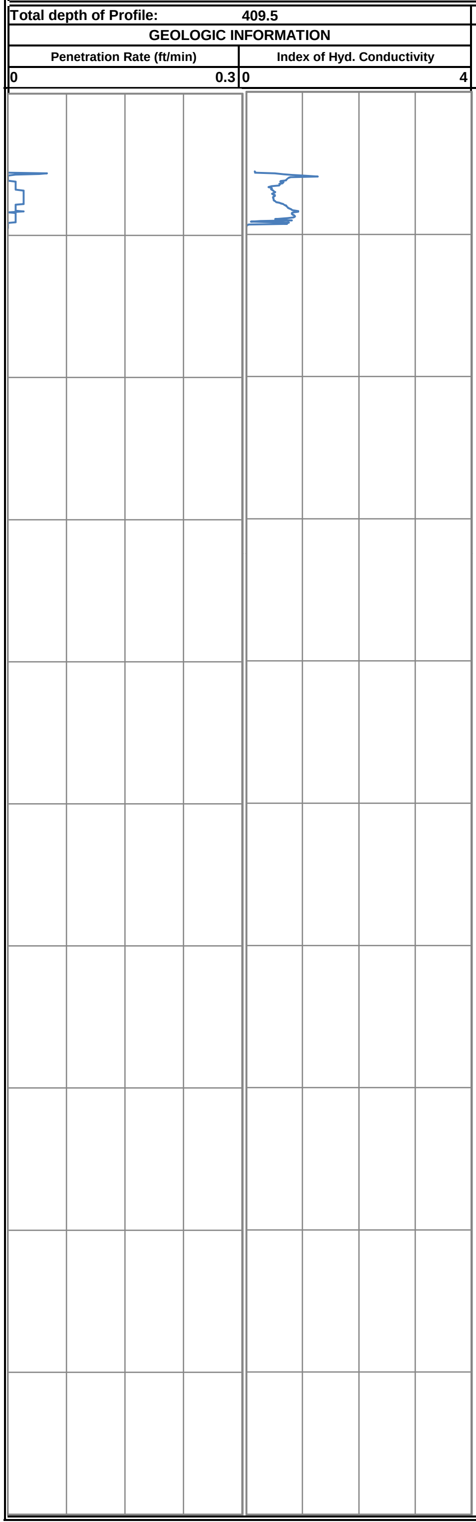
MALCOLM PIRNIE, INC.
17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:
P-119

PROJECT NAME:	**GTEOSI-Hicksville**	**START DATE:**	**March 30, 2009**
JOB NUMBER:	**4563001**	**END DATE:**	**April 16, 2009**
DRILLING FIRM:	**SGS**	**LOCATION:**	**Intersection of Charlotte Ave. and Duffy Ave. on Winter Brothers property**
DRILLING METHOD:	**Mud Rotary**		
DRILLER:	**Tom Lynch**	**DATUM:**	**Land Surface**
HELPER:	**Mike Melia**	**LOGGED BY:**	**J. Hilton, C. Goldsmith**

Total depth of Profile: **409.5**   **Total depth of boring:** **405.5**

GEOLOGIC INFORMATION



Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
400			▨	Profiler refusal at 397.4' bgs, pulled rods and advanced casing from 395.5' bgs to 405.5'
				End of mud logging at 405 ft
410				End of profile at 409.5 ft
420				
430				
440				
450				
460				`
470				
480				
490				

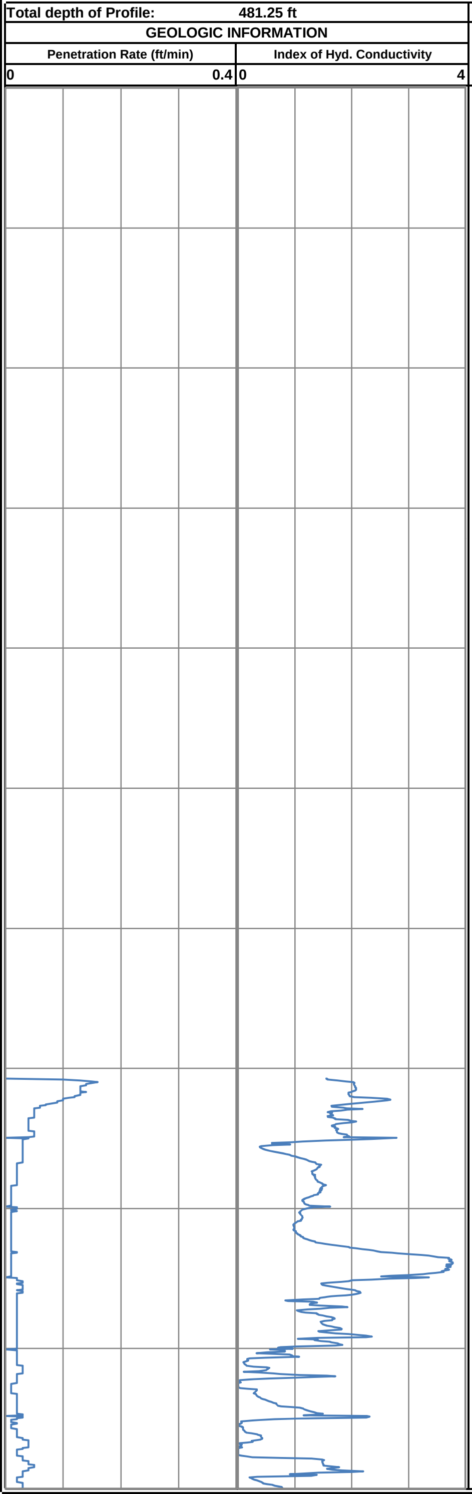
MALCOLM PIRNIE, INC.
17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:
P-120

PROJECT NAME:	**GTEOSI-Hicksville**	**START DATE:**	**April 18, 2009**
JOB NUMBER:	**4563001**	**END DATE:**	**May 13, 2009**
DRILLING FIRM:	**SGS**	**LOCATION:**	
DRILLING METHOD:	**Mud Rotary**		**Town of Oyster Bay, Alpine Lane**
DRILLER:	**Tom Lynch**	**DATUM:**	**Land Surface**
HELPER:	**Mike Melia**	**LOGGED BY:**	**J. Hilton, C. Goldsmith**

Total depth of Profile: **481.25 ft**
Total depth of boring: **480 ft**

GEOLOGIC INFORMATION



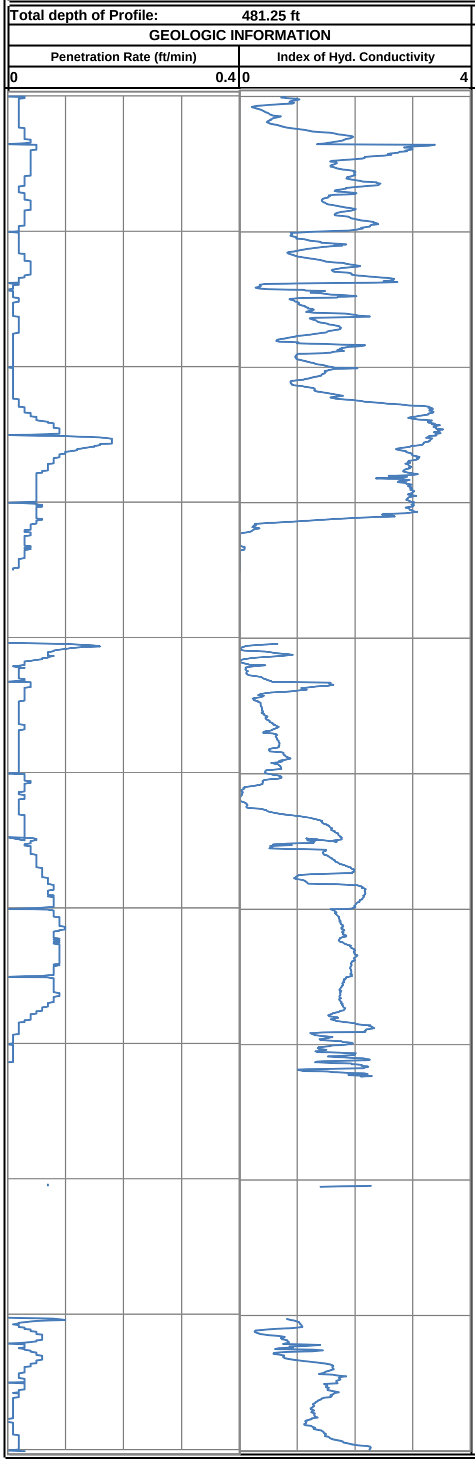
Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
0	ASPHALT and GRAVEL; gray.	GW		
	SAND (medium-coarse), trace Gravel (fine-coarse); yellow-brown, sub-round.	SW		Hollow stem augers advanced from 0 to 20 ft
10	SAND (medium-coarse), some Gravel (fine-coarse); moderate brown, sub-round.	SW		
20	SAND (fine-medium); light brown.	SW		Begin mud rotary drilling at 20 ft
30				
40	SAND (fine-coarse); light brown.	SW		
50	SAND (coarse) and GRAVEL (fine); light brown, sub-round.	SW		
60				
				Begin profiling at 70 ft
70	SAND (fine), trace Silt; light brown.	SP		
80	SAND (fine), trace interbedded white Silt; light brown.	SP		
90	SAND (fine), with orange-brown interbedded Silt; lightbrown-yellow.	SM		

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

Boring ID:
P-120

PROJECT NAME:	**GTEOSI-Hicksville**	**START DATE:**	**April 18, 2009**
JOB NUMBER:	**4563001**	**END DATE:**	**May 13, 2009**
DRILLING FIRM:	**SGS**	**LOCATION:**	
DRILLING METHOD:	**Mud Rotary**		**Town of Oyster Bay, Alpine Lane**
DRILLER:	**Tom Lynch**	**DATUM:**	**Land Surface**
HELPER:	**Mike Melia**	**LOGGED BY:**	**J. Hilton, C. Goldsmith**
Total depth of Profile:	**481.25 ft**	**Total depth of boring:**	**480 ft**

GEOLOGIC INFORMATION



Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
100	SAND (fine), trace Silt; light brown-orange, micaceous.	SP	░	
110				
120				
130	SILT, trace-little black carbonaceous Clay; dark gray-black.	ML	▓	Profiler refusal at 135' bgs, pulled rods and advanced casing from 70' bgs to 140'
140	SAND (fine), trace interbedded white Silt; light gray-white.	SM	▒	
150	SAND (fine); light brown.	SP	░	
160	SAND (fine); light brown-orange.	SP		
170	SAND (fine-coarse), trace -little orange Silt; brown-orange.	SM	▒	Profiler refusal at 172.35' bgs, pulled rods and advanced casing from 140' bgs to 180'
180	SAND (fine), trace orange Silt; light brown.	SM		Profiler tripped out at 184.9, pulled rods and advanced casing from 180' bgs to 190'
190	SAND (fine), some orange oxidized Silt; light brown.	SM		

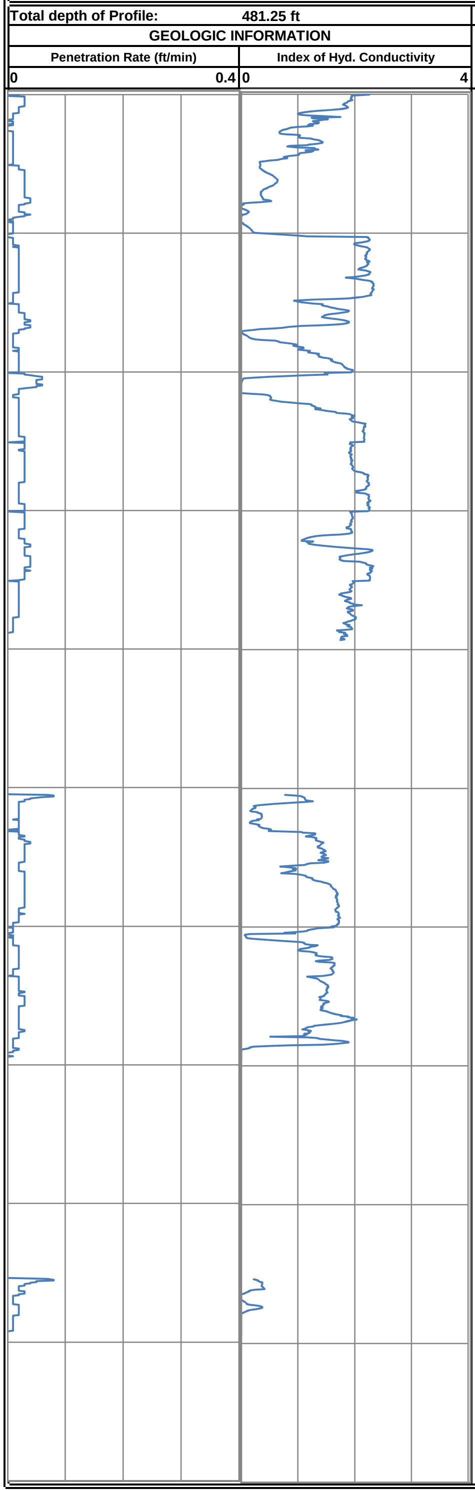
MALCOLM PIRNIE, INC.
17-17 Route 208 North Fair Lawn, NJ 07401

Boring ID:
P-120

PROJECT NAME:	**GTEOSI-Hicksville**	**START DATE:**	**April 18, 2009**
JOB NUMBER:	**4563001**	**END DATE:**	**May 13, 2009**
DRILLING FIRM:	**SGS**	**LOCATION:**	**Town of Oyster Bay, Alpine Lane**
DRILLING METHOD:	**Mud Rotary**		
DRILLER:	**Tom Lynch**	**DATUM:**	**Land Surface**
HELPER:	**Mike Melia**	**LOGGED BY:**	**J. Hilton, C. Goldsmith**

Total depth of Profile: **481.25 ft**
Total depth of boring: **480 ft**

GEOLOGIC INFORMATION



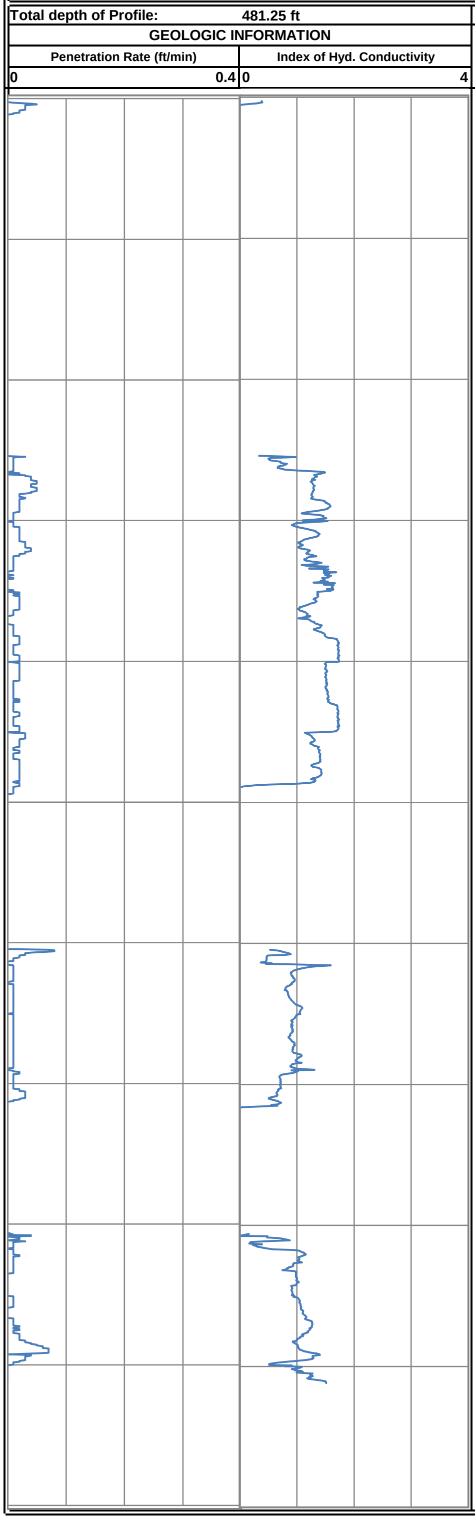
Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
200	SAND (fine-medium), trace Silt; light brown.	SM	▒	
210	SAND (fine-medium); light brown.	SW	░	
220				
230				
240				Profiler refusal at 239.3' bgs, pulled rods and advanced casing from 190' bgs to 250' bgs
	SAND (fine), trace white Silt; light brown.	SP		
250	SAND (fine-medium), trace white-light gray Silt; light brown.	SP		
260				
270	SAND (fine) with interbedded light gray Silt; light brown.	SM	▒	Profiler refusal at 269.6' bgs, pulled rods and advanced casing from 250' bgs to 285'
280				
	SAND (fine) with interbedded white Silt; light brown.			Profiler refusal at 289.4' bgs, pulled rods and advanced casing from 289' bgs to 300'
290	SILT and CLAY, trace Sand (fine); dark gray.	ML	▓	
	SILT with dark gray-black	ML	▓	

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

Boring ID:
P-120

PROJECT NAME:	**GTEOSI-Hicksville**	**START DATE:**	**April 18, 2009**
JOB NUMBER:	**4563001**	**END DATE:**	**May 13, 2009**
DRILLING FIRM:	**SGS**	**LOCATION:**	**Town of Oyster Bay, Alpine Lane**
DRILLING METHOD:	**Mud Rotary**		
DRILLER:	**Tom Lynch**	**DATUM:**	**Land Surface**
HELPER:	**Mike Melia**	**LOGGED BY:**	**J. Hilton, C. Goldsmith**
Total depth of Profile:	**481.25 ft**	**Total depth of boring:**	**480 ft**

GEOLOGIC INFORMATION



Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
300	carbonaceous Clay, trace Sand (fine) lenses; gray-white.			Profiler refusal at 301' bgs, pulled rods and advanced casing from 300' bgs to 325'
310	SILT with trace-little Sand (fine) within matrix, becoming sandy with depth; gray-white.	ML		
320				
	SAND (fine-medium), trace-little Silt; light gray, micaceous.	SP		
330				
340				
	SILT, trace-little Sand (fine); gray-white.	ML		
350				Profiler refusal at 349.5' bgs, pulled rods and advanced casing from 325' to 360' bgs
	SAND (fine-medium); light gray-brown, micaceous.	SW		
360				
370				Profiler refusal at 371.9' bgs, pulled rods and advanced casing from 360' to 380' bgs
	SILT, trace Sand (fine); gray-white.	ML		
	SAND (fine-medium); light brown, angular.	SW		
380	SAND (fine-coarse); light brown, angular.	SW		
390				Profiler refusal at 391.2' bgs, pulled rods and advanced casing from 380' to 400' bgs

Boring ID:

P-120

MALCOLM PIRNIE, INC.

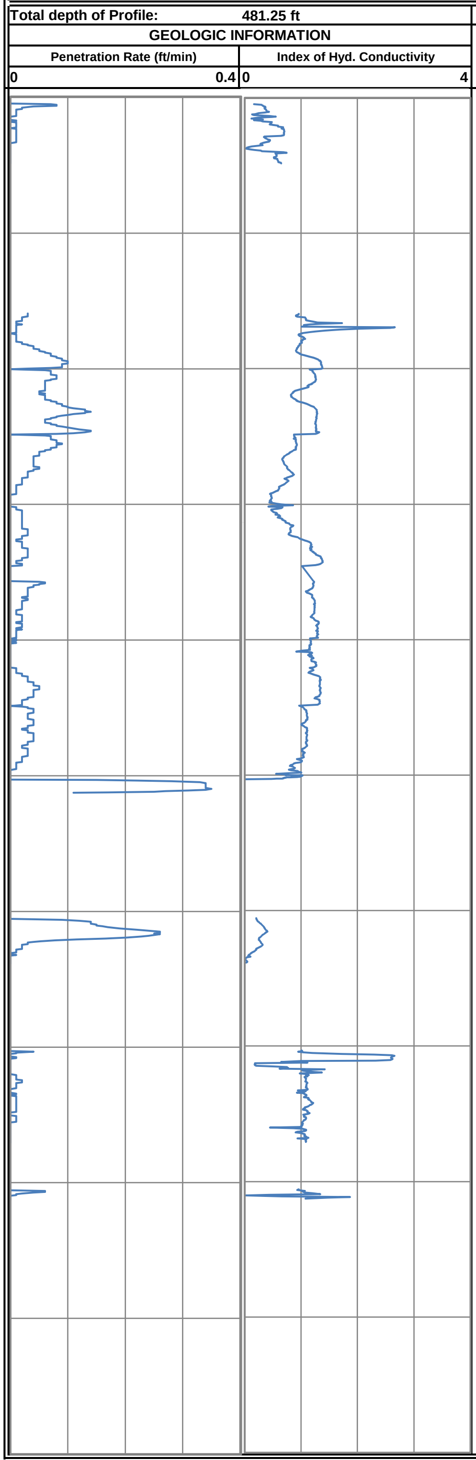
17-17 Route 208 North Fair Lawn, NJ 07401

PROJECT NAME:	**GTEOSI-Hicksville**	**START DATE:**	**April 18, 2009**
JOB NUMBER:	**4563001**	**END DATE:**	**May 13, 2009**
DRILLING FIRM:	**SGS**	**LOCATION:**	
DRILLING METHOD:	**Mud Rotary**		**Town of Oyster Bay, Alpine Lane**
DRILLER:	**Tom Lynch**	**DATUM:**	**Land Surface**
HELPER:	**Mike Melia**	**LOGGED BY:**	**J. Hilton, C. Goldsmith**

Total depth of Profile: **481.25 ft**

Total depth of boring: **480 ft**

GEOLOGIC INFORMATION



Depth (ft bgs)	Description	USCS Symbol	Stratigraphic Column	REMARKS
400	SAND (fine-coarse), some white Silt; light brown-white, angular.	SM		Profiler refusal at 404.85' bgs, pulled rods and advanced casing from 400' to 415' bgs
410	SAND (medium-coarse); light brown, angular.	SW		
	SAND (medium-coarse); gray-white, angular.	SW		
420				
430				
440	SAND (medium-coarse); brown, angular.	SW		
450	SAND (fine-coarse) and SILT with interbedded white brown Silt; brown-gray, angular, micaceous.	SM		Profiler refusal at 451.26' bgs, pulled rods and prep to advance casing from 415' to 460' bgs
460	SAND (fine-medium) and SILT, light brown.	SM		Profiler refusal at 463.84' bgs, pulled rods and prep to advance casing from 460' to 470' bgs
470	SAND (fine-medium), some Silt, light brown.	SM		Profiler refusal at 477.06' bgs, pulled rods and prep to advance casing from 470' to 480' bgs
480				End of mud logging at 480.0 ft End of profile at 481.25 ft
490				

Data Usability Summary Report
Volatile Organics
Profiles P-119 and P-120

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

VALIDATION REPORT

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List of Tables

Executive Summary

This report addresses data quality for groundwater profile samples collected at points south and east of the former Sylvania Electric Products Incorporated Facility in Hicksville, New York. The groundwater profile samples were collected by Malcolm Pirnie, Inc. (Malcolm Pirnie) from April 1, 2009 through May 5, 2009.

The environmental samples collected for this investigation were submitted to TestAmerica, Inc. of Earth City, Missouri, for volatile organic compound (VOC) analysis and to TestAmerica, Inc. of Phoenix, Arizona for 1,4-dioxane analysis using United States Environmental Protection Agency (USEPA) SW-846 guidance methods. A total of 37 samples[1] were submitted, which resulted in 745 VOCs and 18 semivolatile organic compound (SVOC) results[2]. Of this number, 525 of them are actual sample results[3] and the remainder are field quality assurance/quality control (QA/QC) indicators[4] of the samples. The analytical data generated for this investigation were evaluated by Malcolm Pirnie using the QA/QC criteria established in the methods and USEPA guidelines. Non-conformances from the QA/QC criteria were qualified based on guidance provided in the following references:

- United States Environmental Protection Agency. *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*. EPA 540-R-08-01. June 2008.
- United States Environmental Protection Agency. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* SW-846: Final Update IV. January 2008.
- United States Environmental Protection Agency, Region 2. *Validating Semivolatile Organic Compound by Gas Chromatography/Mass Spectrometry SW-846 Method 8270D.* SOP No. HW-22, Revision #3. October 2006.
- United States Environmental Protection Agency, Region 2. *Validating Volatile Organic Compound by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B.* SOP No. HW-24, Revision #2. October 2006.

In circumstances where the quality of the data or the accuracy of the results is suspect, the project's Quality Assurance Project Plan (QAPP) and professional judgment[5] were also used to consider if results should be qualified as estimated ("J" or "UJ"). Since individual guidance documents used (as a source of reference for the validation) may differ slightly in the type of qualification applied to data, Malcolm Pirnie applied qualifiers generally with an err to caution. Method non-conformances included exceedances of the relative percent standard deviation for the initial calibrations, the percent differences of the continuing calibrations, and the excessively low response factors in both the initial and continuing calibrations. Results rejected were due to initial and continuing calibration response factor non-conformances and to extremely poor surrogate recoveries.

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[1] Total number of samples includes field samples, field duplicates, trip blanks, and equipment blanks. For this evaluation, samples with the same sample ID for VOCs and for 1,4-dioxane are considered separate samples.

[2] Total number of results includes 759 results for targeted compounds and 4 results for tentatively identified compounds. This number includes some results that were rejected by the validation process.

[3] This is the total number of results minus trip blank, equipment blank, and field duplicates results.

[4] These indicators do not include Matrix Spike/Matrix Spike Duplicate or other internal laboratory QA/QC indicators.

[5] Professional judgment is performed by a USEPA trained data validator with over a decade of environmental laboratory experience.

Additionally, most laboratory VOC method blanks contained low level contamination from common laboratory contaminants, including acetone and methylene chloride. The presence of these contaminants affected some project samples. Qualification of associated results was performed to show the relationship between the laboratory contamination and the uncertainty of the final sample result. In many cases, the project trip blanks and equipment blank contained low-levels of the same contaminants as were seen in the laboratory method blanks, in addition to other contaminants due to cross-contamination during field sampling activities. Malcolm Pirnie qualified the affected data to show the potential impact on the final sample results.

Other quality issues requiring data validation qualification included replacement of results which exceeded the laboratory calibration range (i.e., qualified with an "E" by the laboratory) with re-analysis results, and qualification of all tentatively identified compounds (TIC). TIC results are qualitative only, and not considered usable for quantitative assessments, in particular risk screening evaluations.

Overall, 97.2 percent[6] of the results retained in the data set as final data were determined to be usable for qualitative and quantitative purposes. The other 2.8 percent were qualified as unusable, "R," – the presence or absence of the compounds cannot be verified. Sample results qualified as estimated, "J" and "UJ," due to quality control (QC) deficiencies should be considered conditionally usable. Therefore, the completeness objective of 90 percent, as presented in the QAPP, was met for the data set.

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[6] Value = (763 total data points - 21 rejected data points) / 763 X 100

1. Introduction

1.1. Sample Identification

This report presents the results of a data quality evaluation for groundwater profile samples collected from profile locations P-119 and P-120 (see Figure 1) by Malcolm Pirnie from April 1, 2009 through May 5, 2009. The samples were collected for the analysis of volatile organic compounds (VOCs) via USEPA Method 8260B and/or for 1,4-dioxane via USEPA Method 8270C.

Cross-references of the sample delivery group (SDG) number (laboratory package identification number), date of sample collection, field sample identification, corresponding laboratory identification, and analytical method utilized are presented in Tables 1-1 and 1-2.

Table 1-1. VOC Sample Cross-Reference List

Package Identification	Sample Collection Date	Sample ID	Laboratory ID	Analytical Method
F9D090153	4/01/09	P-119-124.85	F9D090153-001	8260B
	4/02/09	P-119-144.95	F9D090153-002	8260B
	4/03/09	P-119-217.80	F9D090153-003	8260B
	4/03/09	P-119-224.80	F9D090153-004	8260B
	4/06/09	P-119-304.25	F9D090153-005	8260B
	4/06/09	FD-003-040609 (P119-304.25)	F9D090153-006	8260B
	4/08/09	TB-1-33140809	F9D090153-007	8260B
F9D240242	4/18/09	TB-0418042309	F9D240242-001	8260B
	4/19/09	P-120-103.50	F9D240242-002	8260B
	4/22/09	P-120-220	F9D240242-003	8260B
	4/23/09	P-120-230	F9D240242-004	8260B
F9E060254	5/01/09	P-120-361.50	F9E060254-001	8260B
	5/02/09	P-120-381.7	F9E060254-002	8260B
	5/04/09	P-120-424.80	F9E060254-003	8260B
	4/30/09	P-120-335.00	F9E060254-004	8260B
	4/30/09	P-120-345.00	F9E060254-005	8260B
	5/01/09	P-120-FD2 (P-120-361.50)	F9E060254-006	8260B
	4/28/09	TB042809	F9E060254-007	8260B
	5/05/09	P-120-EB-12	F9E060254-008	8260B

Table 1-2. 1,4-Dioxane Sample Cross-Reference List

Package Identification	Sample Collection Date	Sample ID	Laboratory ID	Analytical Method
PSD0559	4/04/09	P-119-244.25	PSD0559-01	8270C Modified
	4/04/09	P-119-263.00	PSD0559-02	8270C Modified
	4/06/09	P-119-294.70	PSD0559-03	8270C Modified
	4/06/09	P-119-304.25	PSD0559-04	8270C Modified
	4/07/09	P-119-324.8	PSD0559-05	8270C Modified
	4/06/09	FD-003-040609 (P-119-304.25)	PSD0559-06	8270C Modified
	4/08/09	P-119-354.95	PSD0559-07	8270C Modified
PSD1403	4/22/09	P-120-200	PSD1403-01	8270C Modified
	4/23/09	P-120-220	PSD1403-02	8270C Modified
	4/23/09	P-120-239.30	PSD1403-03	8270C Modified
PSE0020	4/28/09	P-120-263.50	PSE0020-01	8270C Modified
	4/30/09	P-120-326.65	PSE0020-02	8270C Modified
	4/29/09	EB-006-042909	PSE0020-03	8270C Modified
	4/30/09	P-120-335.00	PSE0020-04	8270C Modified
	4/30/09	P-120-345.00	PSE0020-05	8270C Modified
PSE0254	5/01/09	P-120-361.50	PSE0254-01	8270C Modified
	5/04/09	P-120-404.05	PSE0254-02	8270C Modified
	5/01/09	P-120-FD2 (P-120-361.50)	PSE0254-03	8270C Modified

1.2. General Considerations

Data validation is a process of determining the suitability of a measurement system for providing useful analytical results. Although the term is frequently used in discussing methodologies, it applies to all aspects of the analytical system, especially to samples, their measurements, and the actual data output. Accordingly, for the samples and analyses addressed herein, this report summarizes the findings of the review and outlines deviations from applicable quality control (QC) criteria referenced in the following documents:

- United States Environmental Protection Agency. *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*. EPA 540-R-08-01. June 2008.
- United States Environmental Protection Agency. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* SW-846: Final Update IV. January 2008.
- United States Environmental Protection Agency, Region 2. *Validating Semivolatile Organic Compound by Gas Chromatography/Mass Spectrometry SW-846 Method 8270D.* SOP No. HW-22, Revision #3. October 2006.
- United States Environmental Protection Agency, Region 2. *Validating Volatile Organic Compound by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B.* SOP No. HW-24, Revision #2. October 2006.
- URS Corporation. *GTE Operations Support Incorporated - Groundwater Investigation Work Plan, Former Sylvania Electric Products Incorporated Facility, Hicksville, New York.* QAPP: Appendix C. September 2002.

1.3. Analytical Methods

The environmental samples presented in this report were collected in Hicksville, New York and submitted to TestAmerica Laboratories, Inc. located in Earth City, Missouri (St. Louis) for VOC analysis and in Phoenix, Arizona (Phoenix) for 1,4-dioxane analysis. The laboratories used the following USEPA guidance methods to conduct the analyses:

- SW-846 Method 5030B: Purge-and-Trap for Aqueous Samples
- SW-846 Method 8260B: Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
- SW-846 3520C: Continuous Liquid-Liquid Extraction
- SW-846 8270C (modified): Semivolatile Organic Compounds (SVOC) by Gas Chromatography/Mass Spectrometry (GC/MS)

The laboratory assigned an SDG number to a group of samples during the sample log-in process. The SDG number is the means by which the laboratory tracks samples and QC analyses. A total of 37 samples, in a total of seven SDGs, are included in this data validation report. The SDG, collection date, field identification, laboratory identification, and analytical method used for each sample are summarized in Table 1-1 for TestAmerica St. Louis analyses and in Table 1-2 for TestAmerica Phoenix analyses.

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

TestAmerica St. Louis is a New York State Department of Health accredited laboratory with laboratory ID number 13715. They are approved to conduct drinking water and wastewater analyses. TestAmerica Phoenix is a New York State Department of Health accredited laboratory with laboratory ID number 11898. NYSDOH does not offer accreditation for the analysis of 1,4-dioxane via modified method 8270C. TestAmerica Phoenix is an accredited testing laboratory for drinking water and/or wastewater analysis for many other states (e.g., Arizona, California, Nevada, and Oregon).

2. Data Validation Protocols

2.1. Sample Analysis Parameters

The data validation of analyses for this project used guidances presented in the QAPP (GTEOSI, 2002), the analytical methodologies, the data validation guidelines referenced in Section 1, and professional judgment[7]. Malcolm Pirnie performed a data review of all analytical results to assess data quality. The data review included an assessment of sample handling protocols and supporting laboratory and field QC parameters. The following is a list of specific analytical information evaluated during the data validation:

- Data package completeness review – sufficient to fully conduct data validation
- Analytical methods performed and test method references
- Sample condition - review of log-in records for cooler temperature, absence of headspace, chemical preservation, etc.
- Holding times - comparison of collection, preparation, and analysis dates
- Analytical results - units, values, significant figures
- Sample traceability to raw data
- Instrument tuning
- Initial calibration – comparison to technical guideline criteria
- Continuing calibration – comparison to technical guideline criteria
- Method blank results and laboratory contamination
- Laboratory control sample (LCS) results and comparison to laboratory control limits
- Matrix spike/matrix spike duplicate (MS/MSD) results and comparison to laboratory control limits
- Field replicate/duplicate results and comparison to technical guideline criteria
- Field QC sample (i.e., trip blanks, field blanks, equipment blanks)
- Surrogate standard recoveries and comparison to laboratory control limits
- Internal standards and comparison to technical guideline criteria
- Compound identifications, quantitations, dilutions, and reporting limits
- Tentatively Identified Compounds (TICs)
- Electronic Data Deliverables (EDDs) – comparison to the hardcopy analytical

The analytical reports were reviewed for completeness and the accompanying QC data were reviewed for acceptable performance. When QC results indicated poor performance, Malcolm Pirnie applied data qualifiers to the results to inform the data user of the possible performance problem. 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.

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[7] Professional judgment is performed by a USEPA trained data validator with over a decade of environmental laboratory experience.

2.2. Data Qualifiers

The following qualifiers have been used by the laboratory for organic analyses:

"U"	Non-detect result at the laboratory established reporting limit.
“B”	Associated with a result if the compound was also identified in the corresponding method blank.
“J”	Indicates an estimated value or a value below the laboratory 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.
“D”	This flag identifies compounds whose concentration is from a secondary dilution analysis.

During the data validation process, the laboratory qualifiers are retained, amended, or removed and/or new qualifiers are added based on the data validation findings. If any laboratory qualifiers are retained after the data validation process, they are considered data validation qualifiers. The following are data validation qualifiers and are the only qualifiers, if any, associated with this report’s validated results.

“U”	The compound was analyzed for, but was not detected above the reported quantitation limit.
“J”	The compound was positively identified; the associated numerical value is the approximate concentration of the compound in the sample.
“N”	The analysis indicates the presence of a compound for which there is presumptive evidence to make a “tentative identification”.
“NJ”	The analysis indicates the presence of a compound that has been “tentatively identified” and the associated numerical value represents its approximate concentration.
“UJ”	The compound 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 compound in the sample.
“R”	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the compound cannot be verified.

2.3. Data Usability Summary Report Questions

The DUSR determines whether or not the data meets project specific criteria for data quality and use. It was developed to review and evaluate 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

This section summarizes the evaluation of QA/QC parameters that were specified in Section 2.1, and whether they met validation criteria. The evaluation of VOCs is presented in Section 3.1 and the evaluation of 1,4-dioxane is presented in Section 3.2. Summaries of the individual components of the evaluation are described in their respective subsections.

3.1. Data Quality Evaluation for VOCs

3.1.1. Completeness Review

The laboratory provided the analytical results using formats based on the Contract Laboratory Program (CLP). Most documents were included in the report packages including a case narrative summarizing the QC issues associated with the project analyses. It should be noted that although the case narratives were included in each SDG, they were indiscriminately written and contains information that are not relevant to the data reported for this project. They were not relied upon in this data validation.

3.1.2. Test Methods

The laboratory performed the analyses using the analytical test methods listed in Section 1.3. They included USEPA SW-846 Method 5030B (purge and trap sample introduction) followed by Method 8260B (gas chromatography/mass spectrometry sample analysis). All samples were analyzed using a 25 mL (common volume used is 5 mL) purge volume, which offered lower reporting limits for each compound.

3.1.3. Sample Receipt

The laboratory received 19 water samples for VOC analysis between April 9, 2009 and May 6, 2009. The temperatures within all VOC sample shipment coolers at the time of laboratory receipt were within the recommended temperature range of 4°C ± 2°C. Field and laboratory personnel completed the Chain-of-Custody (COC) documents 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, 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.

There were no custody seals attached to individual sample bottles. No qualification is necessary because the exterior of the shipment coolers had intact custody seals.

3.1.4. Holding Times

The maximum technical holding time for VOC samples that are preserved with HCl to a pH of ≤ 2 is 14 days from date of sample collection. The maximum technical holding time for VOC samples that are not preserved to a pH of ≤ 2 is 7 days. All samples were preserved in the field and the pH is check at the laboratory immediately prior to sample analysis when the sample bottle is opened.

The following problem with holding time was found:

- SDG F9D090153: when the pH of sample P-119-217.80 was checked immediately prior to sample analysis, the pH value was not ≤ 2, and since it was on the 10th day from the date of sample collection, the applicable 7 day maximum holding time has been exceeded. Therefore, all detect concentrations for sample P-119-217.80 will be qualified as estimated, "J", biased low, and based on professional judgment, all non-detect reporting limits will also be qualified as estimated values, "UJ", biased low.
- SDG F9D240242: no problems found
- SDG F9E060254: no problems found

3.1.5. Analytical Results

For each sample tested, the laboratory provided the analytical test information using formats based on the CLP program. This format requires the use of stylized forms to present critical information pertaining to the analyses performed. For all analytical results, the laboratory provided a "Form I" with the reported analytical results for the requested analyses. The Form I format shows the following information for organic analyses: laboratory name; laboratory sample identification; sample matrix; field sample identification; date the sample was received; date the sample was analyzed; dilution factor; chemical abstract service (CAS) number; unit of measurement; and laboratory qualifier (if any).

3.1.6. Traceability to Raw Data

Traceability of the VOC analyses is established by Form V (Instrument Performance Check). These forms were all supplied and list the project samples analyzed per laboratory batch processed and the corresponding QC samples performed with the project samples.

3.1.7. Instrument Tuning

The GC/MS instrument performance (i.e., "tuning data," or a check of mass spectral ion intensities using bromofluorobenzene [BFB]) met method criteria. The instrument performance was checked prior to calibration and once every 12-hour shift for all analytical batches. There were no deficiencies found.

- SDG F9D090153: tuning results acceptable
- SDG F9D240242: tuning results acceptable
- SDG F9E060254: tuning results acceptable

3.1.8. Initial Calibration

Initial Calibrations (ICALs) were performed at multiple concentration levels with most compound concentrations from 0.5 ug/L to 40 ug/L. The initial calibration for SDG F9D090153 was calibrated at seven concentration levels and the initial calibration for SDG F9D240242 was calibrated at eight concentration levels. The average relative response factors (RRFs) were all evaluated with respect to the acceptance criterion of ≥ 0.05 (or ≥ 0.10 for chloromethane, 1,1-dichloroethane, and bromoform, or ≥ 0.30 for chlorobenzene and 1,1,2,2-tetrachloroethane) to determine acceptable detection sensitivity. All compound response factors were also evaluated for linearity over the calibration range. A percent relative standard deviation (%RSD) ≤ 20.0 indicates linearity through the origin and an average RF would be used). For some chemicals with elevated %RSD, the laboratory had employed a linear regression equation to determine the calibration curve. Since the %RSDs were not presented by the laboratory for these chemicals, an acceptable calibration must have a coefficient of the determination (COD) greater than or equal to 0.99 (SW-846 8000B criterion).

Some compounds in the ICALs did not meet data validation criteria (i.e., average RRFs < 0.05 and/or the %RSDs > 20%). Table 3.1-1 shows a summary of the samples and compounds qualified as estimated, "J," or not usable, "R," due to ICAL deficiencies.

Table 3.1-1. Evaluation of VOC Initial Calibration Results

Package Identification	Initial Calibration Date	Sample ID	Compounds	Action
F9D090153	03/31/09, 11:21	P-119-124.85 P-119-144.95 P-119-217.80 P-119-224.80 P-119-304.25 FD-003-040609 TB-1-33140809	RRF: None %RSD: None	RRF < 0.05 None %RSD > 20% None
F9D240242	04/30/09, 11:23	TB-0418042309 P-120-103.50 P-120-220 P-120-230	RRF: 2-Butanone 1,4-Dioxane %RSD: None	RRF < 0.05 R – all non-detect results %RSD > 20% None
F9E060254	05/05/09, 15:02	P-120-361.50 P-120-381.7 P-120-424.80 P-120-335.00 P-120-345.00 P-120-FD2 TB042809 P-120-EB-12	RRF: Acetone 1,4-Dioxane %RSD: None	RRF < 0.05 R – all non-detect results J – all positive results %RSD > 20% None

3.1.9. Continuing Calibration

The continuing calibration verification (CCV) analyses were performed with a mid-level standard immediately following the tuning check at the beginning of each 12-hour analytical sequence. All RRFs were evaluated with respect to the acceptance criterion of ≥ 0.05 (or ≥ 0.10 for chloromethane, 1,1-dichloroethane, and bromoform, or ≥ 0.30 for chlorobenzene and 1,1,2,2-tetrachloroethane) to determine continued acceptable detection sensitivity. All compound responses were also evaluated for continued agreement with the initial calibration - a percent difference (%D) criterion of ≤ 20% for the RRF or calculated amount must be met (USEPA HW-24 criterion).

Some compounds in the CCV analyses did not meet data validation criteria (i.e., RRFs < 0.05, and/or the %Ds > 20%). Table 3.1-2 shows a summary of the samples and compounds qualified as estimated, "J," or not usable, "R," due to CCV deficiencies.

Table 3.1-2. Evaluation of VOC Continuing Calibration Results

Package Identification	CCV Date	Sample ID	Compounds	Action
F9D090153	04/13/09, 9:35	P-119-124.85 P-119-144.95 P-119-217.80 P-119-224.80 FD-003-040609 TB-1-33140809	RRF: None % D: 1,4-Dioxane	RRF < 0.05 None %D > 20% UJ – all non-detect results

Table 3.1-2. Evaluation of VOC Continuing Calibration Results

Package Identification	CCV Date	Sample ID	Compounds	Action
	04/14/09, 11:26	P-119-217.80 DL P-119-224.80 DL P-119-304.25	RRF: None % D: Chloromethane Chloroethane Acetone	RRF < 0.05 None %D > 20% UJ – all non-detect results J – all positive results
F9D240242	05/01/09, 08:38	TB-0418042309 P-120-103.50 P-120-220 P-120-230 P-120-230 DL	RRF: 2-Butanone 1,4-Dioxane % D: None	RRF < 0.05 R – all non-detect results %D > 20% None
F9E060254	05/11/09, 10:22	P-120-361.50 P-120-381.7	RRF: Acetone 1,4-Dioxane % D: Chloroethane Methylene chloride 2-Hexanone	RRF < 0.05 R – all non-detect results J – all positive results %D > 20% UJ – all non-detect results
	05/12/05, 09:25	P-120-424.80 P-120-335.00 P-120-345.00 P-120-FD2 TB042809 P-120-EB-12 P-120-361.50 DL P-120-381.7 DL P-120-335.00 DL P-120-345.00 DL P-120-FD2 DL P-120-361.50 DLDL	RRF: Acetone 1,4-Dioxane % D: Chloroethane	RRF < 0.05 R – all non-detect results J – all positive results %D > 20% UJ – all non-detect results J – all positive results

Note:
DL Suffix – Indicates a secondary diluted sample reanalysis
DLDL Suffix – Indicates a tertiary diluted sample reanalysis

3.1.10. Laboratory Method Blanks

There were minor contaminations detected in several of the method blanks. In general, most laboratory method blanks contained trace levels of one or more common laboratory contaminants. The following contaminants were detected in the following method blanks:

- SDG F9D090153: 4/13/09 none; 4/14/09- none
- SDG F9D240242: 5/01/09- methylene chloride, styrene
- SDG F9E060254: 5/11/09- benzene, bromomethane; 5/12/09- acetone, styrene, tetrachloroethene

The corresponding sample results for the identified contaminants were revised to non-detect results if these results were “less than five times” (< 5 X) the method blank results for laboratory contaminants in accordance with the QAPP (GTEOSI, 2002). However, per National Functional Guidelines (EPA 540-R-99-008), common laboratory contaminants (methylene chloride, acetone, and 2-butanone) criterion is “< 10 X” the method blank results. The National Functional Guidelines’ criterion was also used. Most samples were affected by these qualification guidelines. A summary of the samples and compounds that were revised due to laboratory contamination are presented in Table 3.1-3.

Table 3.1-3. Evaluation of VOC Laboratory Method Blank Results

Package Identification	Blank Date/Time	Sample Affected	Compounds	Action
F9D090153	4/13/09 12:12	None	None	None
	4/14/09 14:10	None	None	None
F9D240242	5/01/09 10:22	P-120-230	Methylene chloride	Revise "B" qualifier to "U" to indicate non-detect result
		None	Styrene	None
F9E060254	5/11/09 12:25	P-120-361.50 P-120-381.7 P-120-335.00 P-120-345.00 P-120-FD2	Benzene	Revised result to "U" (non-detect)
	5/12/09 11:09	TB042809 P-120-EB-12	Acetone Tetrachloroethene	Removed "B" qualifier. No need to qualify TB or EB with MB
		P-120-424.80	Tetrachloroethene	Removed "B" qualifier. Blank concentration < 5X of sample

In addition to the above, the following actions were also performed.

- SDG F9D240242: although not detected in the same day's method blank (5/12/09), based on professional judgment, samples P-120-335.00, P-120-345.00, P-120-FD2 were qualified for benzene with the previous day's method blank (5/11/09) as non-detects.

3.1.11. Laboratory Control Sample Results

The laboratory analyzed a laboratory control sample (LCS) for each day of sample analysis. Most LCS percent recoveries were within the laboratory control limits for each of the batches. Generally, for recoveries exceeding laboratory control limits substantially, the associated data would be qualified as estimated ("J" or "UJ") using the following validation guidance: 1) if the percent recovery was greater than the upper control limit, positive results are qualified as estimated; non-detects are not qualified; 2) if the percent recovery was below the lower control limit, both positive and non-detect results are qualified as estimated. For compounds that were slightly out, but were within the method default range of 70% to 130%, they were not qualified based on professional judgment. Table 3.1-4 shows the evaluation of LCS samples.

Table 3.1-4. Evaluation of VOC Laboratory Control Sample Results

Package Identification	LCS Date	Compound(s) Out	Affected Samples	Action
F9D090153	04/13/09	Acetone	None	None (high %R but not detected in samples)
	04/14/09	None	None	None
F9D240242	05/01/09	None	None	None

Table 3.1-4. Evaluation of VOC Laboratory Control Sample Results				
Package Identification	**LCS Date**	**Compound(s) Out**	**Affected Samples**	**Action**
F9E060254	05/11/09	None	None	None
	05/12/09	None	None	None

3.1.12. Matrix Spike/Matrix Spike Duplicate Analyses

MS/MSD analyses are designed to provide information about the effect of sample matrix on the sample preparation procedures and the measurement methodology. Data precision from field sampling and analytical techniques can also be assessed.

Only the associated non-spiked MS/MSD samples were evaluated for qualification (unless a trend can be determined for all other samples within the SDG). Where recoveries exceeded laboratory control limits, the associated data are qualified as estimated ("J" or "UJ") using the following validation guidance: 1) if the percent recovery was greater than the upper control limit, positive results are qualified as estimated; 2) if the percent recovery was below the lower control limit, both positive and non-detect results are qualified as estimated. No qualification of data is required when percent recoveries are above the upper control limit and the VOC results are non-detect. However, there were no MS/MSDs submitted that were relevant to the samples of this project.

- SDGs F9D090153, F9D240242, and F9E060254: MS/MSDs were not performed or were performed on samples from other clients of the laboratory. Matrix effect of the samples for accuracy and precision was not evaluated because those MS/MSDs offer no pertinent information on matrix effects of field samples from this project.

Table 3.1-5 shows the samples and compounds that were qualified as estimated due to MS/MSD percent recoveries exceeding criteria.

Table 3.1-5. Evaluation of VOC Matrix Spike/Matrix Spike Duplicate Sample Results			
Package Identification	**Sample ID**	**Compounds**	**Action**
Not Evaluated			None

Since no project samples were analyzed for MS/MSD, sample matrix effects were not evaluated for this project.

3.1.13. Field Duplicate Analyses

Blind field duplicate samples were collected and analyzed to assess the overall sampling and analytical technique's precision. And by design, the laboratory was never made aware of which field samples the blind duplicates were associated with. The following samples were analyzed for field duplicate:

- SDG F9D090153: sample FD-003-040609 is a blind field duplicate of sample P119-304.25
- SDG F9E060254: sample P-120-FD2 is a blind field duplicate of sample P-120-361.50

An evaluation on the precision of the field sample collection 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 the results were above the laboratory reporting limits. The RPD values for all compounds were less than 30% (aqueous data evaluation criteria) with the following exception:

- SDG F9E060254: the RPD for tetrachloroethene is 40.0%, for the P-120-FD2 duplicate pair. This may be due to the high dilution needed (200x and 100x) to bring the elevated tetrachloroethene concentration within the calibration range. Therefore, all samples where the dilution of 100x or above was conducted for tetrachloroethene are qualified as estimated values, "J". The only affected samples are the duplicate samples, P-120-361.50 and P-120-FD2.

There were no field duplicates submitted with SDG F9D240242. It should be noted that QAPP requirements (GTEOSI, 2002) specified that a field duplicate sample be collected at a rate of one sample for every ten samples (collection rate of 10%). There were 2 field duplicates collected for the 13 field samples submitted (not including blank samples collected as QCs) for analysis. Therefore, the frequency is satisfied and field precision is considered to have been evaluated to the QAPP's requirements.

3.1.14. Trip Blanks, Field Blanks, and Equipment Blanks

Three trip blanks, no field blanks, and one equipment blank were submitted for analysis. Many of the trip blanks that were submitted contained some contaminants. Edits made on the affected target compound results, which were based on trip blank and equipment blank contamination, were in accordance with practices described in the validation guidance documents listed in Sections 1.2 and on professional judgment. For all common contaminants (methylene chloride, 2-butanone, and acetone) that are greater than the reporting limit, positive sample results at less than 10x the highest blank concentration will be considered false positives (based on professional judgment) and qualified as non-detects "U". For all other contaminants that are greater than the reporting limit, positive sample results at less than 5x the highest blank concentration will be considered false positives (based on professional judgment) and qualified as non-detects "U". There were no field blanks submitted with any of the SDGs. The only equipment blank submitted was in SDG F9E060254, which was used for evaluating all SDG groundwater profiler location samples in the project. It should be noted that the results for the trip blanks and the equipment blank themselves were not revised with respect to the method blank's contamination; but the original results were retained to show data users the presence and concentrations of contamination that was used to qualify the project sample results. Any laboratory "B" qualifiers in the trip blanks and the equipment blank would be removed. The contamination in the trip blanks, like the project samples, is potentially attributable to cross-contamination from samples during shipment or contamination during the preparation and analysis of samples (including QC samples) at the laboratory. Contaminations detected in the equipment blank can also be used to identify contaminants introduced during the sample collection activities. Table 3.1-6 shows the samples and compounds that were qualified as non-detect "U" due to the presence trip blank and/or equipment blank contamination.

Table 3.1-6. Evaluation of VOC Trip Blank, Field Blank, and Equipment Blank Results

Package Identification	Sample Affected	Compound	Action
F9D090153	P-119-124.85 P-119-144.95	Tetrachloroethene Trichloroethene	Revised result to "U" (non-detect)
	P119-304.25 FD-033-040609 P-120-220 P-120-230	Trichloroethene	
F9D240242	None	Toluene o-Xylene	None, no sample detections
F9E060254	P-120-361.50 P-120-381.7	Acetone	Revised result to "U" (non-detect)

Table 3.1-6. Evaluation of VOC Trip Blank, Field Blank, and Equipment Blank Results			
Package Identification	**Sample Affected**	**Compound**	**Action**
	P-120-424.80	Trichloroethene	Revised result to “U” (non-detect)

For clarification, it should be noted that the following actions were performed.

- SDG F9D240242: although not detected in this SDG’s trip blank, the trichloroethene sample concentrations in samples P-120-220 (2.3 ug/L) and P-120-230 (2.9 ug/L) were similar to that of the trip blank concentration from SDG F9D090153 (3.5 ug/L). Therefore, based on professional judgment, trichloroethene is qualified as a non-detect, “U”, for samples P-120-220 and P-120-230 at the SDG F9D090153 trip blank level of 3.5 ug/L

3.1.15. System Monitoring Compounds

All percent recoveries for the VOC surrogates in all primary sample analyses were within laboratory control limits. However, there were three secondary or tertiary re-analyses with 4-bromofluorobenzene recoveries slightly below the laboratory’s recovery range but greater than 70% recovery. The re-analyses were for the VOCs of tetrachloroethene and/or trichloroethene. The affected samples are P-120-361.50, P-120-381.7, and P-120-FD2 from SDG F9E060254. Since the surrogate 4-bromofluorobenzene is not associated with these two VOCs, no qualification actions are necessary.

- SDG F9D090153: no qualification actions performed
- SDG F9D240242: no qualification actions performed
- SDG F9E060254: no qualification actions performed

3.1.16. Internal Standards

All internal standard retention times were within ± 0.5 minutes from that of the associated calibration for all analyses. The responses (area counts) of all internal standards were within the range of 50-200% of the associated calibration verification for all samples. There were no deficiencies found.

- SDG F9D090153: all internal standards were acceptable
- SDG F9D240242: all internal standards were acceptable
- SDG F9E060254: all internal standards were acceptable

3.1.17. Compound Identification and Quantitation of Results / Dilutions

The laboratory’s evaluations of the gas chromatograms and mass spectra for the identified compounds were acceptable with the exception.

- SDG F9D090153: no deficiencies found
- SDG F9D240242: Sample TB-0418042309 – o-xylene was positively detected and the concentration given in the quantitation report was 0.16 ug/L. The laboratory did not report the concentration, probably, because the concentration was low. The result for total-xylene will be

changed from non-detect to 0.16 J ug/L. The qualifier "J" is to denote that the concentration is below the reporting limit and, therefore, it is an estimated value.

- SDG F9E060254: Samples TB042809 and P-120-EB-12 – o-xylene was positively detected and the concentration given in the quantitation report was 0.19 ug/L and 0.10 ug/L, respectively. The laboratory did not report the concentration, probably, because the concentration was low. The result for total-xylene will be changed from non-detect to 0.19 J ug/L and 0.10 J ug/L, respectively. The qualifier "J" is to denote that the concentration is below the reporting limit and, therefore, it is an estimated value.

Some samples contained elevated concentrations of target compounds that exceeded the calibration range for the VOC analysis. The laboratory reported and qualified these results with an "E" qualifier. As part of the laboratory's corrective action, the affected samples were reanalyzed at a dilution to obtain usable results within the established calibration curve range. As part of this validation, specific compound results, which exceeded the calibration range in the original analysis, were replaced with the compound results from the secondary dilution analysis. The sample results, in effect, are made whole when the initial and secondary analyses are "hybridized," into one. A list of the re-analyzed samples and the affected compounds is presented in Table 3.1-7.

Table 3.1-7. Summary of VOC Laboratory Re-Analyses

Package Identification	Sample ID	Compound Reported From Re-Analysis
F9D090153	P-119-217.80 P-119-224.80	Tetrachloroethene
F9D240242	P-120-230	Tetrachloroethene
F9E060254	P-120-361.50 P-120-381-7 P-120-335.00 P-120-345.00 P-120-FD2	Tetrachloroethene Trichloroethene

Table 3.1-8. Summary of VOC Samples Analyzed Diluted Without an Undiluted Analysis

Package Identification	Sample ID	Initial Dilution
Not applicable		

3.1.18. Tentatively Identified Compounds (TICs)

The laboratory was required to perform library searches for TICs present in the samples and QC matrices for the VOC analyses. Since the TIC evaluation provides only the identity of a possible compound in the matrix and an estimated concentration of a compound, all TIC data should be considered tentatively qualitative and quantitative. The "N" qualifier was added to all TIC results to indicate to the data user that the compound identifications are tentative. The "J" qualifier was added to all TIC results to indicate to the data user that the values are estimated.

- TICs were only detected in SDG F9E060254. They were all the same TIC (1,1,2-trichloro-1,2-ethane) detected in samples P-120-361.50, P-120-335.00, P-120-345.00, and P-120-FD2. They were not detected in any of the blanks. There were no other TICs detected.

3.1.19. Electronic Data Deliverables

The results in the electronic data set matched results listed on the hardcopy analytical report including laboratory qualifiers. The qualifiers and results were revised based on quality control issues; and foundation for changes are listed in previous sections of this data validation report. The qualifiers were also placed onto the reporting forms located near the beginning of each hardcopy deliverable package (i.e., SDG package).

3.2. Data Quality Evaluation for 1,4-Dioxane

3.2.1. Completeness Review

The laboratory provided the analytical results in a Level IV data package. The package was not presented in a USEPA CLP format. Most documents were included in the report packages including a case narrative summarizing the QC issues associated with the project analyses. It should be noted that although the case narratives were included in each SDG, they do not necessarily contains information that are relevant to the data reported for this project. The case narratives were not relied upon in this data validation.

3.2.2. Test Methods

The laboratory performed the analyses using the analytical test methods listed in Section 1.3. They included USEPA SW-846 Method 3520C (continuous liquid-liquid extraction) followed by modified Method 8270C (SVOCs by GC/MS). All samples were prepared using an initial sample volume of 1 L, extracted down to a final volume of 1 mL. In the modification of the method, deuterated 1,4-dioxane (1,4-dioxane-d8) was added to the samples during sample extraction to be used as a surrogate standard to evaluate the extraction procedure and also used as an internal standard to quantify 1,4-dioxane in the samples (isotope dilution). The laboratory had quantitated each analytical run twice, first to ensure that the run meets Method 8270C analytical criteria, then again to determine the concentration of 1,4-dioxane, if detected, via 1,4-dioxane-d8.

3.2.3. Sample Receipt

The laboratory received 19 water samples for VOC analysis between April 9, 2009 and May 6, 2009. The temperatures within all SVOC sample shipment coolers at the time of laboratory receipt were within the recommended temperature range of 4°C ± 2°C, with the exception of samples of SDG PSD1403 at 8°C. However, the laboratory noted that the sample was "on ice" and therefore, no qualifications are necessary. Field and laboratory personnel completed the Chain-of-Custody (COC) documents recording the signature, date, and time of custody transfer.

3.2.4. Holding Times

The maximum technical holding time for SVOC samples from date of sample collection to date of sample extraction is 7 days, and from date of sample extraction to date of sample analysis is 40 days.

The following problems with holding time were found:

- SDG PSD0559: Due to poor surrogate standard recoveries with samples P-119-304.35, P-119-324.8, and FD-003-040609, the samples were re-extracted outside of holding time by 9 days, 8 days, and 9 days, respectively. Therefore, based on the poor surrogate standard recoveries of the initial analysis and the exceedance of holding time on the second analysis, the following actions are taken:

  Sample P-119-304.35: qualify 1,4-dioxane as an estimated non-detect

  Sample P-119-324.8: qualify 1,4-dioxane as an estimated non-detect

  Sample FD-003-040609: qualify 1,4-dioxane as an estimated non-detect
- SDG PSD1403: no problems found
- SDG PSE0020: Due to poor surrogate recoveries with the method blank and the detection of 1,4-dioxane in samples P-120-326.65, P-120-335.00, and P-120-345.00, these samples were re-extracted. However, these samples were re-extracted outside of the holding time by 11 days.

Since the equipment blank surrogates in the original extraction batch was acceptable and because the surrogates in method blank in the re-extracted batch was still poor, the results from the re-extracted batch will not be used. The original extraction batch, with acceptable holding time and acceptable equipment blank (in place of the method blank) will be used.

- SDG PSE0254: no problems found

3.2.5. Analytical Results

For each sample tested, the laboratory provided the analytical test information using their own formats into full data package (Level IV Data Package). For all analytical results, the laboratory provided a summary results form per SDG. The form format shows the following information for the analyses: laboratory name; laboratory sample identification; field sample identification, sample matrix; reporting unit; analytical method, sample preparation batch identification, reporting limit, sample result, dilution factor, date of sample extraction, date of sample analysis, and data qualifier (if any). Also included were surrogate recoveries.

3.2.6. Traceability to Raw Data

Traceability of the SVOC analyses is established by the Extraction Record sheets and the GCMS Run Logbook sheets. These sheets were all supplied and list the project samples analyzed per laboratory batch processed and the corresponding QC samples performed with the project samples.

3.2.7. Instrument Tuning

The GC/MS instrument performance (i.e., “tuning data,” or a check of mass spectral ion intensities using decafluorotriphenylphosphine [DFTPP]) met method criteria. The instrument performance was checked prior to calibration and once every 12-hour shift for all analytical batches. There were no deficiencies found.

- SDG PSD0599: tuning results acceptable
- SDG PSD1403: tuning results acceptable
- SDG PSE0020: tuning results acceptable
- SDG PSE0254: tuning results acceptable

3.2.8. Initial Calibration

Initial Calibrations (ICALs) were performed at eight levels with concentrations from 1 ug/L to 100 ug/L. A deuterated 1,4-dioxane (1,4-dioxane-d8) was used as the internal standard for 1,4-dioxane. Based on the response factors of nearly unity, they behave chromatographically similar. The average relative response factors (RRFs) were all evaluated with respect to the acceptance criterion of ≥ 0.05. All compound response factors were also evaluated for linearity over the calibration range. A percent relative standard deviation (%RSD) ≤ 15.0 indicates linearity through the origin and an average RF would be used.

1,4-Dioxane in all ICALs met data validation criteria (i.e., average RRFs < 0.05 and/or the %RSDs $>$ 15%). Table 3.2-1 shows a summary of the samples and compounds qualified as estimated, “J,” or not usable, “R,” due to ICAL deficiencies, if any.

Table 3.2-1. Evaluation of 1,4-Dioxane Initial Calibration Results

Package Identification	Initial Calibration Date	Sample ID	Compounds	Action
PSD0559	04/07/09, 18:02	P-119-244.25 P-119-263.00 P-119-294.70 P-119-304.25 P-119-324.8 FD-003-040609 P-119-354.95	RRF: None %RSD: None	RRF < 0.05 None %RSD > 15% None
PSD1403	04/07/09, 18:02	P-120-200 P-120-220 P-120-239.30	RRF: None %RSD: None	RRF < 0.05 None %RSD > 15% None
PSE0020	05/08/09, 00:32	P-120-263.50 P-120-326.65 EB-006-042909 P-120-335.00 P-120-345.00	RRF: None %RSD: None	RRF < 0.05 None %RSD > 15% None
PSE0254	05/08/09, 00:32	P-120-361.50 P-120-404.05 P-120-FD2	RRF: None %RSD: None	RRF < 0.05 None %RSD > 15% None

3.2.9. Continuing Calibration

The continuing calibration verification (CCV) analyses were performed with a mid-level standard immediately following the tuning check at the beginning of each 12-hour analytical sequence. All RRFs were evaluated with respect to the acceptance criterion of ≥ 0.05 to determine continued acceptable detection sensitivity. All compound responses were also evaluated for continued agreement with the initial calibration - a percent difference (%D) criterion of ≤ 20% for the RRF or calculated amount must be met (USEPA HW-22 criterion).

1,4-Dioxane in all CCV analyses met data validation criteria (i.e., RRFs < 0.05, and/or the %Ds > 20%). Table 3.2-2 shows a summary of the samples and compounds qualified as estimated, "J," or not usable, "R," due to CCV deficiencies, if any.

Table 3.2-2. Evaluation of 1,4-Dioxane Continuing Calibration Results

Package Identification	CCV Date	Sample ID	Compounds	Action
PSD0559	04/14/09, 13:10	P-119-244.25 P-119-263.00 P-119-294.70 P-119-304.25 P-119-324.8 FD-003-040609 P-119-354.95	RRF: None % D: None	RRF < 0.05 None %D > 20% None
	04/16/09, 12:00	P-119-304.25 RE P-119-324.8 RE FD-003-040609 RE	RRF: None % D: None	RRF < 0.05 None %D > 20% None

Table 3.2-2. Evaluation of 1,4-Dioxane Continuing Calibration Results

Package Identification	CCV Date	Sample ID	Compounds	Action
PSD1403	05/01/09, 17:26	P-120-200 P-120-220 P-120-239.30	RRF: None % D: None	RRF < 0.05 None %D > 20% None
PSE0020	05/08/09, 01:20	P-120-263.50 P-120-326.65 EB-006-042909 P-120-335.00 P-120-345.00	RRF: None % D: None	RRF < 0.05 None %D > 20% None
PSE0254	05/12/09, 11:29	P-120-361.50 P-120-404.05 P-120-FD2	RRF: None % D: None	RRF < 0.05 None %D > 20% None

Note:
RE Suffix – Indicates a reanalyzed sample

3.2.10. Laboratory Method Blanks

There were no 1,4-dioxane contamination detected in any of the method blanks. The following contaminants were detected in the following method blanks:

- SDG PSD0559: 4/10/09 - none; 4/15/09- none
- SDG PSD1403: 5/01/09 - none
- SDG PSE0020: 5/04/09 - none
- SDG PSE0254: 5/07/09 - none

A summary of the samples and compounds that were revised due to laboratory contamination are presented in Table 3.2-3.

Table 3.2-3. Evaluation of 1,4-Dioxane Laboratory Method Blank Results

Package Identification	Blank: Date Extracted	Sample Affected	Compounds	Action
PSD0559	4/10/09	None	None	None
	4/15/09	None	None	None
PSD1403	4/29/09	None	None	None
PSE0020	5/04/09	None	None	None
PSE0254	5/07/09	None	None	None

In addition to the above, the following actions were also performed.

- SDG PSD0559: although there was no 1,4-dioxane detected in both method blanks, both method blanks have poor 1,4-dioxane-d8 recoveries. Since, it is not known if contamination was detectable, based on professional judgment, positive sample results are consequently qualified as estimated "J".

- SDG PDE0020: the surrogate recoveries of the method were poor (1,4-dioxane-d8 = 7%, nitrobenzene-d5 = 23%). Therefore, it cannot be certain if the detections of 1,4-dioxane in the associated samples are or are not from contamination that would otherwise show up in the method blank. However, since an equipment blank sample was extracted with the batch and its surrogate recoveries were acceptable, the equipment blank will be used in place of the method blank. A re-extracted batch (5/20/09), also with poor method blank surrogate recoveries, will not be used. There was no contamination of 1,4-dioxane detected in the equipment blank.

3.2.11. Laboratory Control Sample Results

The laboratory analyzed a laboratory control sample (LCS) for each extraction batch. All LCS percent recoveries were within the laboratory control limits for each of the batches. No qualification actions are necessary. Table 3.2-4 shows the evaluation of LCS samples.

Table 3.2-4. Evaluation of 1,4-Dioxane Laboratory Control Sample Results

Package Identification	LCS: Date Extracted	Compound(s) Out	Affected Samples	Action
PSD0559	4/10/09	None	None	None
	4/15/09	None	None	None
PSD1403	04/29/09	None	None	None
PSE0020	05/04/09	None	None	None
PSE0254	05/0709	None	None	None

3.2.12. Matrix Spike/Matrix Spike Duplicate Analyses

MS/MSD analyses are designed to provide information about the effect of sample matrix on the sample preparation procedures and the measurement methodology. Data precision from field sampling and analytical techniques can also be assessed.

Only the associated non-spiked MS/MSD samples were evaluated for qualification (unless a trend can be determined for all other samples within the SDG). Where recoveries exceeded laboratory control limits, the associated data are qualified as estimated ("J" or "UJ") using the following validation guidance: 1) if the percent recovery was greater than the upper control limit, positive results are qualified as estimated; 2) if the percent recovery was below the lower control limit, both positive and non-detect results are qualified as estimated. No qualification of data is required when percent recoveries are above the upper control limit and the SVOC results are non-detect. The following MS/MSD results were found:

- SDG PSD1403: an MS/MSD set was analyzed for sample P-120-239.30. The recoveries were acceptable at 101% and 105%. The relative percentage difference was acceptable at 4% (≤20%). There were no sample matrix effected detected.

- SDGs PSD0559, PEE0020, and PSE0254: MS/MSDs were not performed or were performed on samples from other clients of the laboratory. Matrix effect of the samples for accuracy and precision was not evaluated because those MS/MSDs offer no pertinent information on matrix effects of field samples from this project.

Table 3.2-5 shows the samples and compounds that were qualified as estimated due to MS/MSD percent recoveries exceeding criteria.

Table 3.2-5. Evaluation of 1,4-Dioxane Matrix Spike/Matrix Spike Duplicate Sample Results

Package Identification	Sample ID	Compounds	Action
PSD1403	P-120-239.30	1,4-Dioxane	None

3.2.13. Field Duplicate Analyses

Blind field duplicate samples were collected and analyzed to assess the overall sampling and analytical technique's precision. And by design, the laboratory was never made aware of which field samples the blind duplicates were associated with. The following samples were analyzed for field duplicate:

- SDG PSD0559: sample FD-003-040609 is a blind field duplicate of sample P119-304.25
- SDG PSE0254: sample P-120-FD2 is a blind field duplicate of sample P-120-361.50

An evaluation on the precision of the field sample collection 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 the results were above the laboratory reporting limits. The RPD values for 1,4-dioxane were less than 30%. No qualification actions are necessary.

There were no field duplicates submitted with SDGs PSD1403 or PSD0020. It should be noted that QAPP requirements (GTEOSI, 2002) specified that a field duplicate sample be collected at a rate of one sample for every ten samples (collection rate of 10%). There were 2 field duplicates collected for the 15 field samples submitted (not including blank samples collected as QCs) for analysis. Therefore, the frequency is satisfied and field precision is considered to have been evaluated to the QAPP's requirements.

3.2.14. Field Blanks and Equipment Blanks

There were no field blanks submitted with any of the SDGs. The only equipment blank submitted was in SDG PSE0020, which was used for evaluating all SDG groundwater profiler location samples in the project. There was no contamination (1,4-dioxane) detected in the equipment blank. Table 3.2-6 shows the samples and compounds that were qualified as non-detect "U". There were no qualifications necessary.

Table 3.2-6. Evaluation of 1,4-Dioxane Equipment Blank Results

Package Identification	Sample Affected	Compound	Action
PSD0559	None	None	None
PSD1403	None	None	None
PSE0020	None	None	None
PSE0254	None	None	None

3.2.15. System Monitoring Compounds

A deuterated 1,4-dioxane (1,4-dioxand-d8) was extracted with the samples and evaluated as a surrogate standard along with nitrobenzene-d5. There were sample recovery results that did not meet the laboratory's acceptance ranges. It appears that the poor recoveries are related to poor extraction practices because several method blanks and laboratory control samples were also affected in addition to some samples. This deficiency appears to be random and does not appear to be related to sample matrix interferences. Below is a summary of the surrogate recovery findings and qualification actions taken.

- SDG PSD0559: Due to poor surrogate recoveries below the laboratory's acceptance range (1,4-dioxane acceptance range 38.6 % to 88.3%) with samples P-119-304.35, P-119-324.8, and FD-003-040609, the samples were re-extracted. Unfortunately, the re-extracted surrogate recoveries were also below the laboratory's acceptance range. Therefore, the results for these samples are qualified as estimated. However, the result for sample P-119-324.8 is qualified as unusable (R) because the recovery for 1,4-dioxane in the original analysis was only 5% and because the re-extracted sample was extracted 8 days past holding time of 7 days.
- SDG PSD1403: poor recoveries in the LCS and LCSD; no qualification actions performed
- SDG PSE0020: poor recoveries in the method blanks; no qualification actions performed
- SDG PSE0254: all recoveries were acceptable; no qualification actions performed

3.2.16. Internal Standards

All internal standard retention times were within ± 0.5 minutes from that of the associated calibration for all analyses. The responses (area counts) of all internal standards were within the range of 50-200% of the associated calibration verification for all samples. There were no deficiencies found.

- SDG PSD0559: all internal standards were acceptable
- SDG PSD1403: all internal standards were acceptable
- SDG PSE0020: all internal standards were acceptable
- SDG PSE0254: all internal standards were acceptable

3.2.17. Compound Identification and Quantitation of Results / Dilutions

The laboratory's evaluations of the gas chromatograms and mass spectra for the identified compounds were acceptable with the exception.

- SDG PSD0559: Sample P-119-244.24 – 1,4-dioxane was detected at a concentration of 0.37 ug/L. The laboratory did not report the concentration because the concentration was below the calibration range. The result for 1,4-dioxane will be changed from non-detect to 0.37 J ug/L. The qualifier "J" is to denote that the concentration is below the reporting limit and, therefore, it is an estimated value.
- SDG PSD1403: Samples P-120-220 and P-120-239.30 – 1,4-dioxane was detected at concentrations of 0.28 ug/L and 0.60 ug/L, respectively. The laboratory did not report the concentrations because the concentration was below the calibration range. The results for 1,4-dioxane will be changed from non-detects to 0.28 J ug/L and 0.60 J ug/L, respectively. The qualifiers "J" is to denote that the concentrations are below the reporting limit and, therefore, it are estimated values.

- SDG PSE0254: Sample P-120-404.05 – 1,4-dioxane was detected at a concentration of 0.84 ug/L. The laboratory did not report the concentration because the concentration was below the calibration range. The result for 1,4-dioxane will be changed from non-detect to 0.84 J ug/L. The qualifier "J" is to denote that the concentration is below the reporting limit and, therefore, it is an estimated value.
- SDG PSE0020: Sample P-120-263.50 – 1,4-dioxane was detected at a concentration of 0.90 ug/L. The laboratory did not report the concentration because the concentration was below the calibration range. The result for 1,4-dioxane will be changed from non-detect to 0.90 J ug/L. The qualifier "J" is to denote that the concentration is below the reporting limit and, therefore, it is an estimated value.

There were no samples that contained elevated concentrations of 1,4-dioxane that exceeded the calibration range. A list of the re-analyzed samples due to elevated concentrations and the affected compounds is presented in Table 3.2-7.

Table 3.2-7. Summary of 1,4-Dioxane Laboratory Re-Analyses Due to Need for Dilution

Package Identification	**Sample ID**	**Compound Reported From Re-Analysis**
PSD0559	None	None
PSD1403	None	None
PSE0020	None	None
PSE0254	None	None

Table 3.2-8. Summary of 1,4-Dioxane Samples Analyzed Diluted Without an Undiluted Analysis

Package Identification	**Sample ID**	**Initial Dilution**
Not applicable		

3.2.18. Tentatively Identified Compounds (TICs)

The search for TICs is not required in the analysis for 1,4-dioxane. However, it should be noted that there are TICs detected in many of the sample chromatograms.

3.2.19. Electronic Data Deliverables

The results in the electronic data set matched results listed on the hardcopy analytical report including laboratory qualifiers. The qualifiers and results were revised based on quality control issues; and foundation for changes are listed in previous sections of this data validation report. The qualifiers were also placed onto the reporting forms located near the beginning of each hardcopy deliverable package (i.e., SDG package).

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, 97.2 percent[8] of the data (individual compound results) were determined to be usable for qualitative and quantitative purposes. The other 2.8 percent were qualified as unusable – the presence or absence of the compounds cannot be verified. Those sample results qualified as estimated, "J" and "UJ," due to QC deficiencies should be considered conditionally usable. TIC identifications are only presumptive evidence of the compound's presence, and are qualified with "N."

The samples collected from profile locations P-119 and P-120 were evaluated based on QA/QC criteria established by methods as listed in Section 1.3, in the data validation guidelines listed in Section 1.2, on the QAPP (GTEOSI, 2002) established for the Sylvania Electric Products Incorporated Facility project, and by professional judgment[9]. Major deficiencies in the data generation process have resulted in some sample data being rejected, indicating that the data are considered unusable for either quantitative or qualitative purposes. Minor deficiencies in the data generation process have resulted in some sample data being characterized as approximate or estimated results. Identification of a data point as approximate, "J," 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. Completeness has been discussed above.

Precision is measured through the evaluation of field duplicate samples. For the analyses, none of the data were rejected due to precision non-conformances. The frequency of duplicates analysis is 15.4 percent for VOCs and 13.3 percent for 1,4-dioxane, which is above the QAPP's minimum requirement of 10 percent.

LCS, MS, and MSD recoveries indicate the accuracy of the data. For the analyses, none of the data were rejected due to LCS deficiencies. There were no 1,4-dioxane data rejected due to MS/MSD recoveries. However, MS/MSD recoveries were not evaluated for the VOC analyses because there were no MS/MSD data that were relevant to this project. Therefore, accuracy of the VOC data was not evaluated.

Holding times, sample preservation, blank analysis, and analyte identification and quantification are indicators of the representativeness of the analytical data. There were some data qualified as unusable due to holding time exceedances and to poor blank surrogate recoveries. There were some data qualified as false-positives due to field and/or laboratory contamination. And there were some data qualified as false-negatives due to detected concentrations that are below the calibration range. Details are summarized within Section 3.

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 laboratories, 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. Sensitivity requirements were not met for several compounds in several project samples due to excessively poor compound responses in the initial

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[8] Value = (763 total data points - 21 rejected data points) / 763 X 100

[9] Professional judgment is performed by a USEPA trained data validator with over a decade of environmental laboratory experience.

and continuing calibrations performed. Many of the rejected data were due to this sensitivity non-conformance.

5. Data Usability Summary Report Summary Information

The DUSR was performed to determine whether or not the data meets project specific criteria for data quality and use. The DUSR is developed by reviewing and evaluating the analytical data packages. 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. Full CLP deliverable packages were received for the VOC analyses and Level IV deliverables were received for the 1,4-dioxane analyses. The evaluation of the sample data was completed using the information provided in the data packages provided by the laboratory.

2. *Have all holding times been met?*

   The holding times was not met for one VOC sample due to deficient sample pH preservation. The holding times was not met for many 1,4-dioxane sample due to the need for re-extraction as a result deficient surrogate recoveries either in the associated method blanks or the samples.

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. QA/QC deviations and qualifications performed on the sample data are discussed in Chapter 3. Major non-conformances were observed with the initial and continuing calibrations performed and with surrogate recoveries – 2.8 percent of all data were qualified as not usable.

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

   USEPA guidance and modified methods were used in the analysis of the samples. The laboratory used the method specified. Some samples had results which were somewhat over diluted.

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

   The evaluation of selected raw data confirmed all information provided in the data packages with minor errors. There were several occasions where individual xylene compounds were identified in the raw data but the laboratory neglected to manually convert them to total-xylene, and therefore not reported. There were also some compounds that were detected but not reported due to concentrations being below the calibration range. These situations were corrected in the data validation process.

6. *Have the correct data qualifiers been used?*

   The laboratory applied the correct qualifiers to the sample data. The validation qualifiers were applied as required by validation guidelines listed in Section 1. The laboratory and validation qualifier definitions are listed in Section 2.2.

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