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Results of 1st Half 1999 IRM Groundwater Monitoring

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SKINNER LANDFILL
WEST CHESTER, OHIO

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Skinner Landfill PRP Group

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1.0 INTRODUCTION

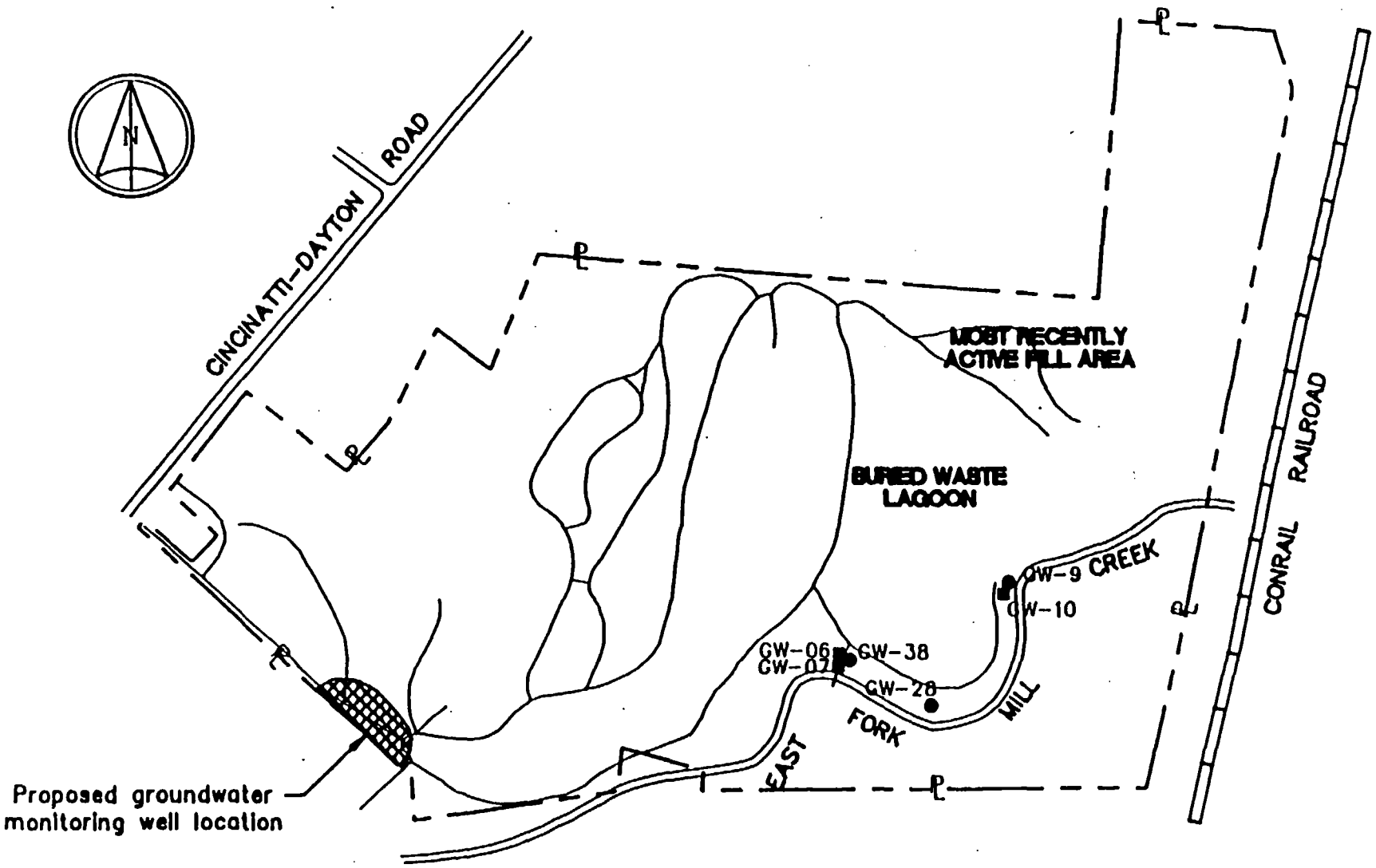
This report presents and discusses the analytical results of the 1st Half 1999 round of IRM groundwater sampling at the Skinner Landfill site. This groundwater sampling and analysis was performed in accordance with the December 9, 1992 Administrative Consent Order, the June 4, 1993 Quality Assurance Project Plan (QAPjP), and the modifications to these documents outlined in a letter to Dr. Larry I. Bone, Chairperson of the Skinner PRP Group Technical Committee from Mr. Jamey Bell, USEPA Remedial Project Manager, dated October 10, 1995.

2.0 GROUNDWATER SAMPLING AND ANALYTICAL RESULTS

2.1 Groundwater Sampling and Analysis

Groundwater samples were collected on April 20 and 21, 1999 by Earth Tech, Inc. (formerly Rust Environment & Infrastructure, Inc.) personnel. The locations of the nine IRM monitoring wells are shown on Figure 1. Table 1 presents some basic information about these wells (*i.e.*, depth, screened interval, and nature of formation being monitored). Field notes documenting sample collection, field measurements and field calibrations are presented in Appendix A. Laboratory analysis for volatile organics and inorganics was performed by Severn Trent Envirotest (STL). All samples were analyzed following USEPA Contract Laboratory Program (CLP) protocols. The volatile organics were analyzed following the USEPA low level CLP procedure, OLC01.0, and the inorganics were analyzed following the CLP ILM03.0 Statement of Work (SOW).

The laboratory data have been validated by Earth Tech chemists, and the data validation summaries are presented by parameter group in Appendices B and C. Analytical results are presented in Tables 2 and 3. With the exception of data modified by the data validation process, the tables show the results as reported by the laboratory using standard CLP data qualifiers. The most frequently used qualifiers are as follows: U indicates not detected at the listed reporting limit; J (organics) and B (inorganics) indicate an estimated value above the method detection limit (MDL) or the instrument detection limit (IDL) but below the CLP contract required quantitation or detection limit. Data modified by the data validation process are shown in shaded boxes, and detections are shown in bold with bold outlining on the table grid.



LEGEND:

GW-10 ■ Overburden Monitoring Well

GW-9 ● Bedrock Monitoring Well

EARTH TECH

A Tyco INTERNATIONAL LTD. COMPANY

MONITORING WELL LOCATION MAP

SKINNER LANDFILL

WEST CHESTER, OHIO

PROJECT NO. 03215-02691	DATE 6APR93	DWG. NO. 2A9268_2	SCALE 1"=400'	FIGURE NO. 1

Table 1
Well Information
Skinner Landfill

Well ID	Total Depth	Screened Interval	Unit Screened
PW-01	18.5 '	6 - 18.5 '	Silty Clay with Gravel
PW-02	65 '	51.5 - 65 '	Fine to Medium Gravel
PW-03	86.5 '	79 - 86.5 '	Interbedded Shale and Limestone
GW-06	41 '	28.5 - 41'	Silty Clay and Clayey Silt
GW-07R	16 '	6 - 16'	Silty Clay with Gravel
GW-09	27 '	19 - 27'	Interbedded Shale and Limestone
GW-10	14 '	3 - 14'	Sandy Silt
GW-28	28 '	19.3 - 28 '	Interbedded Shale and Limestone
GW-38	60 '	39.4 - 60'	Interbedded Shale and Limestone

2.2 Volatile Organics Results

Volatile organic analytical results are summarized in Table 2. Low concentrations of four volatile organic compounds were detected in the groundwater sample collected from monitoring well GW-07R and three compounds were detected in monitoring well GW-10. All of the reported concentrations were below the applicable USEPA drinking water standards. Estimated concentrations of acetone were detected in monitoring wells PW-01, GW-06, GW-07 and GW-28. Acetone is not considered a site related contaminant, and these sample results are likely related to laboratory contamination. However, since not acetone was detected in any blank analysis related to the samples, the acetone results were not negated during the validation process.

Please note that all of the 2-butanone and 1,2-dibromo-3-chloropropane results have been rejected and are considered unusable. 2-Butanone, and 1,2-dibromo-3-chloropropane are not site related contaminants, and rejection of the results for these three compounds does not impact use of the volatile organic analytical data in evaluating the groundwater quality at the site. The Volatile Organic Data Validation Summary (Appendix B) discusses this issue in more detail.

2.3 Inorganics Results

Inorganic analytical data are summarized in Table 3. Metal analyses were performed on samples that were field filtered through 0.45micron filters prior to preservation. The samples contained essentially no suspended sediment, and therefore represent dissolved matrix samples.

The thallium concentration measured in GW-07 (3.6 ug/l) was slightly higher than the USEPA National Primary Drinking Water Standard of 2 ug/l. This data is not consistent with historical data from GW-07, indicating a possible change in the quality of groundwater at that location. Thallium concentrations in GW-07 will be followed closely in future sampling events.

Aluminum concentrations in groundwater from monitoring well GW-28 exceeded the USEPA National Secondary Drinking Water Standard (NSDWS) of 200 ug/l. Manganese concentrations in groundwater from monitoring wells PW-01, PW-03, GW-06, GW-07R, GW-10 and GW-28 exceeded the of 50 ug/l NSDWS. Iron concentrations detected in groundwater from PW-03, GW-09 and GW-28 exceeded the 300 ug/l NSDWS. The NSDWS are not enforceable by law, and the aluminum, iron and manganese standards are based primarily on aesthetic reasons (i.e., taste, staining of laundry and porcelain, *etc.*).

3.0 SUMMARY

Analytical data indicated that groundwater from each of the monitoring wells exhibited volatile organic concentrations that were below applicable USEPA Drinking Water Standards. Thalium was detected in one well at a concentration slightly higher than the NPDWS. The data also indicated that groundwater from one (1) of the monitoring wells exhibited aluminum concentrations that exceed the NSDWS, six (6) of the monitoring wells exhibited manganese concentrations that exceeded the

NSDWS, and that the iron concentrations in groundwater samples from 3 monitoring well locations exceeded the NSDWS. As noted above, the NSDWS are not enforceable by law, and the manganese and iron standards are based primarily on aesthetic reasons (taste, staining of laundry and porcelain, *etc.*).

Table 2 - Volatile Organics Results

Analytical Method: OLC01.0
Sample Media: water
Analytical Units: ug/L

Skinner Landfill
Summary of Groundwater Analysis Per IRM

ANALYTE / Well #	PW-01	PW-02	PW-03	GW-06	GW-07R	GW-09	GW-10	GW-28	GW-38
Date Sampled	4/20/99	NS	4/21/99	4/21/99	4/20/99	4/21/99	4/21/99	4/21/99	4/20/99
Date Analyzed	4/29/99	NA	4/30/99	4/29/99	4/29/99	4/29/99	4/29/99	4/29/99	4/29/99
Dilution Factor	1.0	NA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Chloromethane	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	1 U	NS	1 U	1 U	1 U	1 U	1 0	1 U	1 U
Methylene Chloride	2 U	NS	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Acetone	3 J	NS	R	4.3 J	4 J	R	R	2.7 J	R
Carbon Disulfide	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	1 U	NS	1 U	1 U	0.6 J	1 U	2.7	1 U	1 U
cis-1,2-Dichloroethene	1 U	NS	1 U	1 U	1 U	1 U	0.6 J	1 U	1 U
trans-1,2-Dichloroethene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	1 U	NS	1 U	1 U	1.3	1 U	1 U	1 U	1 U
2-Butanone	R	NS	R	R	R	R	R	R	R
Bromochloromethane	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	1 U	NS	1 U	1 U	2.2	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1 U	NS	1 U	1 U	0.7 J	1 U	1 U	1 U	1 U
Benzene	1 U	NS	1 U	1 U	1 U	1 U	1.1	1 U	1 U
trans-1,3-Dichloropropene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Methyl-2-Pentanone	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dibromoethane	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	R	NS	R	R	R	R	R	R	R
Vinyl Acetate	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Notes:
1) All results expressed in micrograms per liter (ug/L).
2) Standard Organic Data Qualifiers have been used.
3) Sample PW-09 Dup is a field duplicate of sample PW-09.

Table 3 - Inorganics Results

Analytical Method: ILM03.0
Sample Media: water
Analytical Units: ug/L

Skinner Landfill
Summary of Groundwater Analysis Per IRM

ANALYTE / Well # / Date Sampled	PW-01 4/20/99	PW-02 NS	PW-03 4/21/99	GW-06 4/21/99	GW-07R 4/20/99	GW-09 4/21/99	GW-10 4/21/99	GW-28 4/21/99	GW-38 4/20/99
Aluminum	33.6 B	NS	74.8 B	33 B	26.3 B	40.1 B	43.2 B	2260	42.7 B
Antimony	4.8 B	NS	2.4 B	3.4 B	2.3 U	2.3 U	2.3 U	2.3 U	5.5 B
Arsenic	1.2 U	NS	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Barium	63.3 B	NS	1,570	372	89.4 B	742	47.3 B	77.8 B	573
Beryllium	0.3 B	NS	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Cadmium	0.4 B	NS	0.3 B	0.2 U	0.3 B	0.2 U	0.2 B	0.3 B	0.2 B
Calcium	170,000	NS	134,000	76,400	136,000	88,600	242,000	45,200	55,000
Chromium	0.6 U	NS	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	26.8	0.6 U
Cobalt	2 B	NS	3.5 B	1.8 B	3.3 B	0.9 B	3.8 B	3.6 B	0.9 B
Copper	3.6 B	NS	11.9 B	7.4 B	4.3 B	2.1 B	12.3 B	10.4 B	3.2 B
Cyanide (total)	11.4	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	12 B	NS	1,390	29 B	154	1,340	1.3 U	3,650	140
Lead	3.7	NS	2.8 B	1.1 U	3.5	4.8	7.1	1.1 U	1.1 U
Magnesium	32,000	NS	60,300	24,400	20,200	39,700	81,200	16,600	28,500
Manganese	1,100	NS	144	234	1120	33	542	93.4	47.6
Mercury	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	4.3 B	NS	133	2.7 B	5.7 B	1.4 B	11.8 B	26.0 B	0.9 B
Potassium	1,900 B	NS	28,800	14,200	2,560 B	4,020 B	30,400	15,400	8,830
Selenium	R	NS	R	R	R	R	R	R	R
Silver	1.2 U	NS	1.2 U	1.2 U	1.7 B	1.2 U	1.2 U	1.2 U	1.2 U
Sodium	44,000	NS	984,000	74,000	15,000	47,800	90,200	417,000	112,000
Thallium	6.5 B	NS	1.1 U	1.8 B	3.6 B	1.8 B	1.6 B	1.1 U	1.3 B
Vanadium	1.2 U	NS	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	4 B	1.2 U
Zinc	7.2 B	NS	4.2 B	5.2 B	10.7 B	6.3 B	10 B	16.6 B	12 B

Notes:
1) All results expressed in micrograms per liter (ug/L).
2) Standard Inorganic Data Qualifiers have been used.
3) Sample PW-09 Dup is a field duplicate of sample PW-09.

APPENDIX A

GROUNDWATER SAMPLING FIELD NOTES

Date: 4/20/99
Time: 7:50
Site: Skinner Landfill
Personnel: Earth Tech, Rich Knowles & Pat Higgins
Task: Sample/Gauge MW's.

7:50 met Rich at Frisbie, held Safety Meeting, discussed site & Route to hospital
8:15 Drove to site
- Wear long sleeve shirts, steel toe boots, hard hats, Safety glasses, tyvek will be worn during sampling
8:35 Probed wells - used PID to screen breathing zone

well #	DTW	DTB	water Thickness	Comments	PID
* GW-07R	4.08			2" no odor rust color	0.0
* GW-06	14.26			2" no odor	
GW-30	10.88			2" stainless steel no odor	
GW-31	11.67			2" stainless steel no odor	
GW-50	14.72			2" no odor	
* GW-38	15.25			2" stainless steel no odor	
GW-52	7.74			2" clear, no odor	
* GW-28	16.51			2" stainless steel no odor	
GW-24	could not locate	wooded area		"	
GW-25	"	"	"	"	
GW-53	5.78			2" no odor, rust colored water	

at MW's 30 & 31, background reading jumps up to 2.4 ppm. no odors noticed.

GW-51	could not locate, in landfill area				
* GW-9	22.66			2" no odor	0.0
* GW-10	2.98			2" no odor	
GW-54	14.62			2" no odor	

- OVM Model 580B calibrated to 100 ppm isobutylene, reads 102 ppm

(2)

well #	DTW	DTB	Thickness	comments	PID
GW-31		could not locate, wooded area			
GW-27		"		"	
GW-20		"		"	
GW-55	10.52	~~[illegible]~~		2" no odor	0.0
GW-54	5.79			2" No odor	
GW-57	6.10	~~6.10~~		2" No odor	
GW-11	6.52	~~6.52~~		2" No odor	
GW-12		could not locate. wooded area			

- All DTW measurements made to the N. side of the PVC casing, most wells have N. marked
- Probe decomned between wells w/ water/alconox wash, water rinse with final DI water rinse.
- Some locks will not open, locks cut off, will be replaced later today with same Master Lock.

GW-23	~~[illegible]~~	could not locate, shrubs all around		
GW-17	26.15		2" No odor	0.0
GW-18	21.08		2" clear, No odor Rusty water	0.0
GW-15				
GW-29				
GW-14				
GW-21	could not locate, heavily wooded			
GW-26	"		"	
GW-19	"		"	
GW-32	"		"	
GW-33	"		"	
GW-35	"		"	
GW-36	"		"	
PW-01	11.98		2" no odor	0.0
* wells to sample.				0.0
PW-02	~~[illegible]~~ 13.44		2" no odor	0.0
PW-03	14.75		2"	

(3)

11:30 finished probing wells, took lunch, went to buy tubing, locks and calculate purge volumes.
12:50 Returned to site, calculated purge volumes

P-01	P-02	P-03	
20.012	65.114	88.57	
11.98	13.44	14.75	
8.04	51.70	73.82	Vol of water
X.17	X.17	X.17	
5620	36190	51674	
804	5170	7382	
1366	07890	12,5494	

GW-3	GW-6	GW-7R	
48.105	34.76	15.98	
15.25	14.26	4.08	
32.80	20.50	11.90	Vol. of water
X.17	X.17	X.17	
22960	21350	10330	
3280	2050	1190	
5.5760	4.1050	2.0230	

GW-9	GW-10	GW-28	
29.40	14.76	29.99	
23.66	2.98	16.51	
5.74	11.58	13.48	Vol. of water
X.17	X.17	X.17	
4018	8106	9436	
574	1158	1348	
.9758	1,9686	2,2516	

1 well Volume

PW-01	1.36	gal.
PW-02	8.78	gal.
PW-03	12.59	gal.
GW-38	5.57	gal.
GW-06	4.18	gal.
GW-7R	2.02	gal.
GW-28	2.29	gal.
GW-09	.97	gal.
GW-10	1.96	gal.

- calibrated pH meter 4 → 4.02 7 → 6.98 10 → 9.98
- calibrated turbidity meter to 0.02 NTU standard

13:20 started bailing PW-01

Vol. (total gal)	pH	COND.	temp.	turb.	comments
1.5	6.92	1404 µS/cm	59.7°F	1232 (x100) NTU	no odor
3.0	7.03	1189	56.2°F	895	light brown
4.5	7.01	1155	55.6°F	860	no sheen

1345 sampled P-01, collected MS/MSD sample as well. ~~[illegible]~~ metal samples filtered in field w/ Geo Pump and 0.45 micron filters 13:48 collected MS ~~[illegible]~~

1350 started bailing PW-02 13:50 collected MSD

Vol. (total gal)	pH	COND.	temp.	turb.	comments
9					

1410 Bailed 3 gallons from PW-02 and bailer became lodged in well, 3-4' below the water table. unable to remove bailer. Called Brett Mangillo in Albany E.T. office. The bailer will be left where it is, and the states of PW-02 will be reported to the OOPA. The well will not be sampled at this time. PW-02 is PVC, bailer in well is stainless steel, stuck ~20' below ground surface.

(5)

1500 Began bailing PW-03

vol. (total gal)	pH	temp.	cond.	turb. (x100)	comments
13 gal.	8.12	54.5°F	6610 µS/cm	35.4 NTU	clear, no odor
15.5 gal.	8.17	50.4°F	6290 µS/cm	283 (x100) NTU	clear, no odor

well bailed dry after 15.5 gallons, will let well sit overnight.

1610 Began bailing GW-06

GW-06

vol.	pH	temp.	cond.	turb.	comments
---	---	---	<	---	---
5.0 gal.	8.36	52.2°F	1500 µS/cm	942 (x100) NTU	light green/yellow
5.25 gal.	8.07	54.6°F	1199 µS/cm	1173 (x100) NTU	

well went dry after 5.25 gal. will let well sit overnight

GW-38 - began bailing at 1700

vol.	pH	temp.	cond.	turb.	comments
6 gal.	8.77	48.6°	955	120 (x100)	clear, no odor
12 gal.	8.89	50.4°	1174	202 (x100)	light gray, no odor
18 gal.	8.57	49.8°	1241	290 (x100)	
22 gal.	8.74	48.6°	1190	246 (x100)	

1725 Sampled well for VOC's, metals & cyanide

1730 Collected dupe sample (GW-38)

GW-7R began bailing at 1635

vol. (gal.)	pH	temp	cond	turb.	comments
2 gal.	7.05	54.4°	910	382 (x100)	light brown, no odor
4 gal.	6.99	53.6°	858	890 (x100)	
6 gal.	7.03	53.8°	864	904 (x100)	
8 gal.	7.09	54.4°	880	918 (x100)	

1745 Sampled GW-7R

(6)

- replaced gloves between wells, replaced ropes as well.
- deconned stainless steel bailers at ET office on Sun 4/18/99 w/ alconox water wash, water rinse, DI water rinse. wrapped clean bailers in Heavy-duty Aluminum foil for transport to site. Used stainless bailers to purge wells, and same bailer to collect sample. deconned meters between wells w/ ~~[illegible]~~ alconox water wash, water rinse, DI water rinse.
- Tyvek's worn during purging process
- purge water placed in 5-gal. buckets and disposed of at top of landfill

18:30 locked gates, left site

Date: 4/21/99
Skinner Landfill
Personnel: Pat Higgins / Rich Knowles, EarthTech
Task: Complete site sampling
TIME: 6:55 met at Frisch's for Breakfast, and to wait out rain
Weather: Raining, lightning, T-storms

- while waiting out weather, calculated purge vols for remaining wells.

8:10 Drove to site, set up over GW-9 & GW-10

8:30 Started bailing GW-09

Vol	Temp	cond.	pH	turb.	comments
1 gal.	56.3°	~~600~~ 1226	7.41	533 (visual)	light gray, no odor
2 gal.	55.8°	1064	7.54	480 (visual)	
3 gal.	55.9°	1050	7.01	473 (visual)	
4 gal.	55.1°	1053	7.19	476 (visual)	

9:10 Sampled well VOC's / metals / cyanide

9:25 started bailing GW-10

Vol.	Temp	cond.	pH	turb.	comments
2 gal.	52.1°	1105	8.95	283 (visual)	light brown no odor
4 gal.	53.5°	1029	8.44	372 (visual)	
6 gal.	53.1°	1018	8.31	337 (visual)	

9:40 sampled well VOC's / metals / cyanide

(304) 735-6567 Rich Knowles

10:30 Begin purging GW-28

Vol.	Temp	pH	COND	Turb.	comments
2.5	52.3°	7.82	1022	322 (xxxx)	light brown, no odor
5.0	53.6°	8.31	1034	322	↓
7.5	53.8°	8.25	1036	350	↓

11:00 sampled GW-28

11:20 collected sample from GW-06, well bailed dry on 4/20/99, let sit overnight to recharge

- lab sent 2 VOA's for Trip blanks, ~~collected them as Skinner Landfill~~. Packaged them for shipment

12:00 collected Field blank, used DI water supplied by lab

- truck tires through entrance area of main gate, tire tracks do not belong to G.T truck, someone entered gate last night.

12:30 ~~12:15~~ collected sample from PW-03

12:30 used tire jack to pull rope on bailer lodged in PW-02. bailer will not budge, unable to apply enough tension to rope, rope stretches jack upsets.

12:50 Rich Knowles leaves site, ~~[illegible]~~

- I took lunch,

1330 Return - finish fence inspection walk

- a total of 12 locks were replaced

1420 leave site

- packed samples at home, filled out COC
- shipped samples via FED EX to STL in Newburgh NY
- Shipped on 4/21/99 Priority overnight FED EX # 810618060236

APPENDIX B

VOLATILE DATA VALIDATION SUMMARY

Volatile Organic Data Validation Summary
Skinner Landfill Site
West Chester, Ohio
Analytical Laboratory: Severn Trent Envirotest
Sample Delivery Group 201813

Analytical results for eight (8) groundwater samples with matrix QC, one (1) field duplicate, one (1) field blank and one (1) trip blank from the Skinner Landfill site were reviewed to evaluate the data quality. Data were assessed in accordance with the United States Environmental Protection Agency (USEPA) **National Functional Guidelines for Organic Data Review** (Draft 12/90, Revised 6/91) and the USEPA **Superfund Analytical Methods for Low Concentration Water for Organics Analysis** (6/91). This validation pertains to the following samples collected by Earth Tech, Inc. (formerly Rust Environment & Infrastructure) personnel on April 20 and 21, 1999:

PW-01	**GW-06**	**GW-38**
PW-01MS	**GW-07R**	**GW-38 DUP**
PW-01MSD	**GW-09**	**Field Blank**
PW-03	**GW-10**	**Trip Blank**
	GW-28	

The following items/criteria applicable to the samples listed above were reviewed:

- Deliverable Requirements
- Case Narrative
- Holding Times
- Surrogate Recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- Laboratory Control Sample (LCS) Data
- Blank Summary and Data
- GC/MS Instrument Performance Check
- Target Compound Identification/Quantitation
- EPA/NIH Mass Spectral Library Search for TICs
- Quantitation Reports and Mass Spectral Data
- Initial and Continuing Calibration Data
- Internal Standard Areas and Retention Times
- Field Duplicate Data

The above items were in compliance with USEPA OLC01.0 laboratory quality control (QC) criteria with the exception of the items discussed in the following text. The data have been validated according to the above procedures and qualified as described on the attached definitions list.

Deliverable Requirements

Please note that sample GW-07R was collected from well GW-07R, a replacement well for well GW-07, which contains an un-removable obstruction and can not be sampled. Sample PW-02 could not be sampled during this event due to an obstruction.

Surrogate Recoveries

All bromofluorobenzene (BFB) surrogate recoveries were within the contract required QC limits.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

Sample PW-01 was selected for MS/MSD analysis and all applicable matrix QC criteria have been met for this analysis.

Blank Summary and Data

The table below presents the laboratory method blank, field blank and trip blank results and the associated samples. In accordance with EPA data validation criteria, sample results less than five times the associated laboratory concentration are rejected. Please note that rejection of this data has no effect on the usability or validity of the data reported for target compounds in these samples.

Blank ID	Compound	Result	Associated Samples
Field Blank	chlorobenzene	1.0	All Samples
Trip Blank	chlorobenzene	1.2	All Samples

Initial and Continuing Calibration Data

Although the Statement of Work (SOW) specifies a minimum average relative response factor (RRF) of 0.01 for all volatile compounds, the criteria employed for technical review purposes are different from those used in the method. For data review purposes, all volatile compounds must have an RRF of 0.05 or greater. The RRF for acetone (RRF=0.025), 2-butanone (RRF=0.035) and 1,2-dibromo-3-chloropropane (0.041) in the initial calibration were less than the technical criteria specified. In accordance with EPA data validation guidelines, non-detect results for acetone, 2-butanone and 1,2-dibromo-3-chloropropane have been rejected and are considered unusable and positive results have been flagged "J" and are considered estimated.

Field Duplicate Data

Sample DUP 1 is a field duplicate of sample GW-38. No volatile organic target compounds were detected in either sample GW-38 or its field duplicate. Therefore, the field duplicate data is indicative of acceptable sampling and analytical precision.

Summary

In summary, based on 369 sample data points, 6 of which were qualified as estimated, and 23 qualified as unusable, and since estimated data are considered valid and usable, the usability of this data package is 93.8%.

C. Brett Mongillo

Reviewed By
C. Brett Mongillo
Manager Chemistry Services

7-22-99

Date

Volatile Organic Analytical Data

Skinner Landfill

West Chester, Ohio

Sampling Dates: April 20 and 21, 1999

Sample ID / Compound	PW-01	PW-02	PW-03	GW-06	GW-07R	GW-09	GW-10	GW-28	GW-38	GW-38 Dup	Field Blank	Trip Blank
Chloromethane	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Vinyl Chloride	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroethane	1 UV	NS	1 U	1 U	1 U	1 U	1	1 U	1 U	1 U	1 U	1 U
Methylene Chloride	2 U	NS	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1 U	2 U
Acetone	3 JV	NS	R	4.3 JV	4 JV	R	R	2.7 JV	R	R	R	R
Carbon Disulfide	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	1 U	NS	1 U	1 U	0.6 J	1 U	2.7	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	1 U	NS	1 U	1 U	1 U	1 U	0.6 J	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	1 U	NS	1 U	1 U	1.3	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone	R	NS	R	R	R	R	R	R	R	R	R	R
Bromochloromethane	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	1 U	NS	1 U	1 U	2.2	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1 U	NS	1 U	1 U	0.7 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Benzene	1 U	NS	1 U	1 U	1 U	1 U	1.1	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Methyl-2-Pentanone	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dibromoethane	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	1 UV	NS	1 UV	1 U	1 UV	1 UV	1 UV	1 UV	1 UV	1 UV	1 V	1.2 V
Ethylbenzene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylene (total)	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	R	NS	R	R	R	R	R	R	R	R	R	R
Vinyl Acetate	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Notes:

1) All results expressed in micrograms per liter (ug/L).
2) Standard Organic Data Qualifiers have been used.
3) Sample PW-09 Dup is a field duplicate of sample PW-09.
4) PW-02 was not sampled.

Volatile Organics Analysis Data Sheet
Form I VOA
91.4

Client ID:	PW-01	Date Collected:	20-APR-99
STL Sample Number:	201813-01	Date Received:	22-APR-99
Client Name:	EARTH TECH	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	29-APR-99
% Solid:	NA	Report Date:	15-JUN-99
Matrix:	2 GW/WW	Column:	DB-624
Sample Wt/Vol:	25ml	Lab File Id:	W0693.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
74-87-3	Chloromethane	1		U
74-83-9	Bromomethane	1		U
75-01-4	Vinyl chloride	1		U
75-00-3	Chloroethane	1		U
75-09-2	Methylene chloride	2		U
67-64-1	Acetone	5	3	J
75-15-0	Carbon Disulfide	1		U
75-35-4	1,1-Dichloroethene	1		U
75-35-3	1,1-Dichloroethane	1		U
156-59-4	cis-1,2-Dichloroethene	1		U
156-60-5	trans-1,2-Dichloroethene	1		U
67-66-3	Chloroform	1		U
107-06-2	1,2-Dichloroethane	1		U
78-93-3	2-Butanone	5		U
74-97-5	Bromochloromethane	1		U
71-55-6	1,1,1-Trichloroethane	1		U
56-23-5	Carbon tetrachloride	1		U
75-27-4	Bromodichloromethane	1		U
78-87-5	1,2-Dichloropropane	1		U
10061-01-5	cis-1,3-Dichloropropene	1		U
79-01-6	Trichloroethene	1		U
124-48-1	Dibromochloromethane	1		U
79-00-5	1,1,2-Trichloroethane	1		U
71-43-2	Benzene	1		U
10061-02-6	trans-1,3-Dichloropropene	1		U
75-25-2	Bromoform	1		U
108-10-1	4-Methyl-2-pentanone	5		U
591-78-6	2-Hexanone	5		U
127-18-4	Tetrachloroethene	1		U
79-34-5	1,1,2,2-tetrachloroethane	1		U
106-93-4	1,2-Dibromoethane	1		U
108-88-3	Toluene	1		U
108-90-7	Chlorobenzene	1	8	J
100-41-4	Ethyl Benzene	1		U
100-42-5	Styrene	1		U
108-38-3/106-42-3	m,p-Xylene	1		U
95-47-6	o-Xylene	1		U
541-73-1	1,3-Dichlorobenzene	1		U
106-46-7	1,4-Dichlorobenzene	1		U
95-50-1	1,2-Dichlorobenzene	1		U
96-12-8	1,2-Dibromo-3-chloropropane	1		U
108-05-4	Vinyl acetate	1		U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client ID:	PW-01	Date Collected:	4/20/99
STL Lab No.:	201813-01	Date Received:	4/22/99
Client Name:	Earth Tech	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	4/29/99
% Solid:		Report Date:	6/15/99
Matrix:	Water	Column:	DB-624
Sample Wt/Vol.:	25 ml	Lab File ID:	W0693.D
Level:	Low	Dilution Factor:	1
Soil Extract Volume:	ul	Soil Aliquot Volume:	ul

CAS No.	Compound	RT or Scan Number	Estimated Conc ug/l	
71-23-8	1-Propanol	11.41	1.2	J N

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Volatile Organics Analysis Data Sheet
Form I VOA
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Client ID:	GW-38	Date Collected:	20-APR-99
STL Sample Number:	201813-02	Date Received:	22-APR-99
Client Name:	EARTH TECH	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	29-APR-99
% Solid:	NA	Report Date:	15-JUN-99
Matrix:	2 GW/WW	Column:	DB-624
Sample Wt/Vol:	25ml	Lab File Id:	W0694.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
74-87-3	Chloromethane	1		U
74-83-9	Bromomethane	1		U
75-01-4	Vinyl chloride	1		U
75-00-3	Chloroethane	1		U
75-09-2	Methylene chloride	2		U
67-64-1	Acetone	5		U
75-15-0	Carbon Disulfide	1		U
75-35-4	1,1-Dichloroethene	1		U
75-35-3	1,1-Dichloroethane	1		U
156-59-4	cis-1,2-Dichloroethene	1		U
156-60-5	trans-1,2-Dichloroethene	1		U
67-66-3	Chloroform	1		U
107-06-2	1,2-Dichloroethane	1		U
78-93-3	2-Butanone	5		U
74-97-5	Bromochloromethane	1		U
71-55-6	1,1,1-Trichloroethane	1		U
56-23-5	Carbon tetrachloride	1		U
75-27-4	Bromodichloromethane	1		U
78-87-5	1,2-Dichloropropane	1		U
10061-01-5	cis-1,3-Dichloropropene	1		U
79-01-6	Trichloroethene	1		U
124-48-1	Dibromochloromethane	1		U
79-00-5	1,1,2-Trichloroethane	1		U
71-43-2	Benzene	1		U
10061-02-6	trans-1,3-Dichloropropene	1		U
75-25-2	Bromoform	1		U
108-10-1	4-Methyl-2-pentanone	5		U
591-78-6	2-Hexanone	5		U
127-18-4	Tetrachloroethene	1		U
79-34-5	1,1,2,2-tetrachloroethane	1		U
106-93-4	1,2-Dibromoethane	1		U
108-88-3	Toluene	1		U
108-90-7	Chlorobenzene	1	1	
100-41-4	Ethyl Benzene	1		U
100-42-5	Styrene	1		U
108-38-3/106-42-3	m,p-Xylene	1		U
95-47-6	o-Xylene	1		U
541-73-1	1,3-Dichlorobenzene	1		U
106-46-7	1,4-Dichlorobenzene	1		U
95-50-1	1,2-Dichlorobenzene	1		U
96-12-8	1,2-Dibromo-3-chloropropane	1		U
108-05-4	Vinyl acetate	1		U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client ID:	GW-38	Date Collected:	4/20/99
STL Lab No.:	201813-02	Date Received:	4/22/99
Client Name:	Earth Tech	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	4/29/99
% Solid:		Report Date:	6/15/99
Matrix:	Water	Column:	DB-624
Sample Wt/Vol.:	25 ml	Lab File ID:	W0694.D
Level:	Low	Dilution Factor:	1
Soil Extract Volume:	ul	Soil Aliquot Volume:	ul

CAS No.	Compound	RT or Scan Number	Estimated Conc ug/l
	None found		

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Volatile Organics Analysis Data Sheet
Form I VOA
91.4

Client ID:	DUP I	Date Collected:	20-APR-99
TL Sample Number:	201813-03	Date Received:	22-APR-99
Client Name:	EARTH TECH	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	29-APR-99
% Solid:	NA	Report Date:	15-JUN-99
Matrix:	2 GW/WW	Column:	DB-624
Sample Wt/Vol:	25ml	Lab File Id:	W0695.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
74-87-3	Chloromethane	1		U
74-83-9	Bromomethane	1		U
75-01-4	Vinyl chloride	1		U
75-00-3	Chloroethane	1		U
75-09-2	Methylene chloride	2		U
67-64-1	Acetone	5		U
75-15-0	Carbon Disulfide	1		U
75-35-4	1,1-Dichloroethene	1		U
75-35-3	1,1-Dichloroethane	1		U
156-59-4	cis-1,2-Dichloroethene	1		U
156-60-5	trans-1,2-Dichloroethene	1		U
67-66-3	Chloroform	1		U
107-06-2	1,2-Dichloroethane	1		U
78-93-3	2-Butanone	5		U
74-97-5	Bromochloromethane	1		U
71-55-6	1,1,1-Trichloroethane	1		U
56-23-5	Carbon tetrachloride	1		U
75-27-4	Bromodichloromethane	1		U
78-87-5	1,2-Dichloropropane	1		U
10061-01-5	cis-1,3-Dichloropropene	1		U
79-01-6	Trichloroethene	1		U
124-48-1	Dibromochloromethane	1		U
79-00-5	1,1,2-Trichloroethane	1		U
71-43-2	Benzene	1		U
10061-02-6	trans-1,3-Dichloropropene	1		U
75-25-2	Bromoform	1		U
108-10-1	4-Methyl-2-pentanone	5		U
591-78-6	2-Hexanone	5		U
127-18-4	Tetrachloroethene	1		U
79-34-5	1,1,2,2-tetrachloroethane	1		U
106-93-4	1,2-Dibromoethane	1		U
108-88-3	Toluene	1		U
108-90-7	Chlorobenzene	1	.5	J
100-41-4	Ethyl Benzene	1		U
100-42-5	Styrene	1		U
108-38-3/106-42-3	m,p-Xylene	1		U
95-47-6	o-Xylene	1		U
541-73-1	1,3-Dichlorobenzene	1		U
106-46-7	1,4-Dichlorobenzene	1		U
95-50-1	1,2-Dichlorobenzene	1		U
96-12-8	1,2-Dibromo-3-chloropropane	1		U
108-05-4	Vinyl acetate	1		U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client ID:	DUP I	Date Collected:	4/20/99
STL Lab No.:	201813-03	Date Received:	4/22/99
Client Name:	Earth Tech	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	4/29/99
% Solid:		Report Date:	6/15/99
Matrix:	Water	Column:	DB-624
Sample Wt/Vol.:	25 ml	Lab File ID:	W0695.D
Level:	Low	Dilution Factor:	1
Soil Extract Volume:	' ul	Soil Aliquot Volume:	ul

CAS No.	Compound	RT or Scan Number	Estimated Conc ug/l
	None found		

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Volatile Organics Analysis Data Sheet
Form I VOA
91.4

Client ID:	GW-7R	Date Collected:	20-APR-99
TL Sample Number:	201813-04	Date Received:	22-APR-99
Client Name:	EARTH TECH	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	29-APR-99
% Solid:	NA	Report Date:	15-JUN-99
Matrix:	2 GW/WW	Column:	DB-624
Sample Wt/Vol:	25ml	Lab File Id:	W0696.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
74-87-3	Chloromethane	1		U
74-83-9	Bromomethane	1		U
75-01-4	Vinyl chloride	1		U
75-00-3	Chloroethane	1		U
75-09-2	Methylene chloride	2		U
67-64-1	Acetone	5	4	J
75-15-0	Carbon Disulfide	1		U
75-35-4	1,1-Dichloroethene	1		U
75-35-3	1,1-Dichloroethane	1	.6	J
156-59-4	cis-1,2-Dichloroethene	1		U
156-60-5	trans-1,2-Dichloroethene	1		U
67-66-3	Chloroform	1		U
107-06-2	1,2-Dichloroethane	1	1.3	
78-93-3	2-Butanone	5		U
74-97-5	Bromochloromethane	1		U
71-55-6	1,1,1-Trichloroethane	1		U
56-23-5	Carbon tetrachloride	1		U
75-27-4	Bromodichloromethane	1		U
78-87-5	1,2-Dichloropropane	1	2.2	
10061-01-5	cis-1,3-Dichloropropene	1		U
79-01-6	Trichloroethene	1		U
124-48-1	Dibromochloromethane	1		U
79-00-5	1,1,2-Trichloroethane	1	.7	J
71-43-2	Benzene	1		U
10061-02-6	trans-1,3-Dichloropropene	1		U
75-25-2	Bromoform	1		U
108-10-1	4-Methyl-2-pentanone	5		U
591-78-6	2-Hexanone	5		U
127-18-4	Tetrachloroethene	1		U
79-34-5	1,1,2,2-tetrachloroethane	1		U
106-93-4	1,2-Dibromoethane	1		U
108-88-3	Toluene	1		U
108-90-7	Chlorobenzene	1	.6	J
100-41-4	Ethyl Benzene	1		U
100-42-5	Styrene	1		U
108-38-3/106-42-3	m,p-Xylene	1		U
95-47-6	o-Xylene	1		U
541-73-1	1,3-Dichlorobenzene	1		U
106-46-7	1,4-Dichlorobenzene	1		U
95-50-1	1,2-Dichlorobenzene	1		U
96-12-8	1,2-Dibromo-3-chloropropane	1		U
108-05-4	Vinyl acetate	1		U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client ID:	GW-7R	Date Collected:	4/20/99
STL Lab No.:	201813-04	Date Received:	4/22/99
Client Name:	Earth Tech	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	4/29/99
% Solid:		Report Date:	6/15/99
Matrix:	Water	Column:	DB-624
Sample Wt/Vol.:	25 ml	Lab File ID:	W0696.D
Level:	Low	Dilution Factor:	1
Soil Extract Volume:	ul	Soil Aliquot Volume:	ul

CAS No.	Compound	RT or Scan Number	Estimated Conc ug/l
	None found		

FORM I - VOA

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Volatile Organics Analysis Data Sheet
Form I VOA
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Client ID:	GW-09	Date Collected:	21-APR-99
STL Sample Number:	201813-05	Date Received:	22-APR-99
Client Name:	EARTH TECH	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	29-APR-99
% Solid:	NA	Report Date:	15-JUN-99
Matrix:	2 GW/WW	Column:	DB-624
Sample Wt/Vol:	25ml	Lab File Id:	W0697.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
74-87-3	Chloromethane	1		U
74-83-9	Bromomethane	1		U
75-01-4	Vinyl chloride	1		U
75-00-3	Chloroethane	1		U
75-09-2	Methylene chloride	2		U
67-64-1	Acetone	5		U
75-15-0	Carbon Disulfide	1		U
75-35-4	1,1-Dichloroethene	1		U
75-35-3	1,1-Dichloroethane	1		U
156-59-4	cis-1,2-Dichloroethene	1		U
156-60-5	trans-1,2-Dichloroethene	1		U
67-66-3	Chloroform	1		U
107-06-2	1,2-Dichloroethane	1		U
78-93-3	2-Butanone	5		U
74-97-5	Bromochloromethane	1		U
71-55-6	1,1,1-Trichloroethane	1		U
56-23-5	Carbon tetrachloride	1		U
75-27-4	Bromodichloromethane	1		U
78-87-5	1,2-Dichloropropane	1		U
10061-01-5	cis-1,3-Dichloropropene	1		U
79-01-6	Trichloroethene	1		U
124-48-1	Dibromochloromethane	1		U
79-00-5	1,1,2-Trichloroethane	1		U
71-43-2	Benzene	1		U
10061-02-6	trans-1,3-Dichloropropene	1		U
75-25-2	Bromoform	1		U
108-10-1	4-Methyl-2-pentanone	5		U
591-78-6	2-Hexanone	5		U
127-18-4	Tetrachloroethene	1		U
79-34-5	1,1,2,2-tetrachloroethane	1		U
106-93-4	1,2-Dibromoethane	1		U
108-88-3	Toluene	1		U
108-90-7	Chlorobenzene	1	.6	J
100-41-4	Ethyl Benzene	1		U
100-42-5	Styrene	1		U
108-38-3/106-42-3	m,p-Xylene	1		U
95-47-6	o-Xylene	1		U
541-73-1	1,3-Dichlorobenzene	1		U
106-46-7	1,4-Dichlorobenzene	1		U
95-50-1	1,2-Dichlorobenzene	1		U
96-12-8	1,2-Dibromo-3-chloropropane	1		U
108-05-4	Vinyl acetate	1		U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client ID:	GW-09	Date Collected:	4/20/99
STL Lab No.:	201813-05	Date Received:	4/22/99
Client Name:	Earth Tech	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	4/29/99
% Solid:		Report Date:	6/15/99
Matrix:	Water	Column:	DB-624
Sample Wt/Vol.:	25 ml	Lab File ID:	W0697.D
Level:	Low	Dilution Factor:	1
Soil Extract Volume:	. ul	Soil Aliquot Volume:	ul

CAS No.	Compound	RT or Scan Number	Estimated Conc ug/l
	None found		

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Volatile Organics Analysis Data Sheet
Form I VOA
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Client ID:	GW-10	Date Collected:	21-APR-99
STL Sample Number:	201813-06	Date Received:	22-APR-99
Client Name:	EARTH TECH	Date Extracted:	
Project Name:	4711.01	Date Analyzed:	29-APR-99
% Solid:	NA	Report Date:	15-JUN-99
Matrix:	2 GW/WW	Column:	DB-624
Sample Wt/Vol:	25ml	Lab File Id:	W0698.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
74-87-3	Chloromethane	1		U
74-83-9	Bromomethane	1		U
75-01-4	Vinyl chloride	1		U
75-00-3	Chloroethane	1	1	
75-09-2	Methylene chloride	2		U
67-64-1	Acetone	5		U
75-15-0	Carbon Disulfide	1		U
75-35-4	1,1-Dichloroethene	1		U
75-35-3	1,1-Dichloroethane	1	2.7	
156-59-4	cis-1,2-Dichloroethene	1	.6	J
156-60-5	trans-1,2-Dichloroethene	1		U
67-66-3	Chloroform	1		U
107-06-2	1,2-Dichloroethane	1		U
78-93-3	2-Butanone	5		U
74-97-5	Bromochloromethane	1		U
71-55-6	1,1,1-Trichloroethane	1		U
56-23-5	Carbon tetrachloride	1		U
75-27-4	Bromodichloromethane	1		U
78-87-5	1,2-Dichloropropane	1		U
10061-01-5	cis-1,3-Dichloropropene	1		U
79-01-6	Trichloroethene	1		U
124-48-1	Dibromochloromethane	1		U
79-00-5	1,1,2-Trichloroethane	1		U
71-43-2	Benzene	1	1.1	
10061-02-6	trans-1,3-Dichloropropene	1		U
75-25-2	Bromoform	1		U
108-10-1	4-Methyl-2-pentanone	5		U
591-78-6	2-Hexanone	5		U
127-18-4	Tetrachloroethene	1		U
79-34-5	1,1,2,2-tetrachloroethane	1		U
106-93-4	1,2-Dibromoethane	1		U
108-88-3	Toluene	1		U
108-90-7	Chlorobenzene	1	.6	J
100-41-4	Ethyl Benzene	1		U
100-42-5	Styrene	1		U
108-38-3/106-42-3	m,p-Xylene	1		U
95-47-6	o-Xylene	1		U
541-73-1	1,3-Dichlorobenzene	1		U
106-46-7	1,4-Dichlorobenzene	1		U
95-50-1	1,2-Dichlorobenzene	1		U
96-12-8	1,2-Dibromo-3-chloropropane	1		U
108-05-4	Vinyl acetate	1		U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client ID:	GW-10	Date Collected:	4/21/99
STL Lab No.:	201813-06	Date Received:	4/22/99
Client Name:	Earth Tech	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	4/29/99
% Solid:		Report Date:	6/15/99
Matrix:	Water	Column:	DB-624
Sample Wt/Vol.:	25 ml	Lab File ID:	W0698.D
Level:	Low	Dilution Factor:	1
Soil Extract Volume:	ul	Soil Aliquot Volume:	ul

CAS No.	Compound	RT or Scan Number	Estimated Conc ug/l		
60-29-7	Ether	7.47	2.4	J	N
	Unknown	9.40	2.4	J	

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Volatile Organics Analysis Data Sheet
Form I VOA
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Client ID:	GW-28	Date Collected:	21-APR-99
STL Sample Number:	201813-07	Date Received:	22-APR-99
Client Name:	EARTH TECH	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	29-APR-99
% Solid:	NA	Report Date:	15-JUN-99
Matrix:	2 GW/WW	Column:	DB-624
Sample Wt/Vol:	25ml	Lab File Id:	W0699.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
74-87-3	Chloromethane	1		U
74-83-9	Bromomethane	1		U
75-01-4	Vinyl chloride	1		U
75-00-3	Chloroethane	1		U
75-09-2	Methylene chloride	2		U
67-64-1	Acetone	5	2.7	J
75-15-0	Carbon Disulfide	1		U
75-35-4	1,1-Dichloroethene	1		U
75-35-3	1,1-Dichloroethane	1		U
156-59-4	cis-1,2-Dichloroethene	1		U
156-60-5	trans-1,2-Dichloroethene	1		U
67-66-3	Chloroform	1		U
107-06-2	1,2-Dichloroethane	1		U
78-93-3	2-Butanone	5		U
74-97-5	Bromochloromethane	1		U
71-55-6	1,1,1-Trichloroethane	1		U
56-23-5	Carbon tetrachloride	1		U
75-27-4	Bromodichloromethane	1		U
78-87-5	1,2-Dichloropropane	1		U
10061-01-5	cis-1,3-Dichloropropene	1		U
79-01-6	Trichloroethene	1		U
124-48-1	Dibromochloromethane	1		U
79-00-5	1,1,2-Trichloroethane	1		U
71-43-2	Benzene	1		U
10061-02-6	trans-1,3-Dichloropropene	1		U
75-25-2	Bromoform	1		U
108-10-1	4-Methyl-2-pentanone	5		U
591-78-6	2-Hexanone	5		U
127-18-4	Tetrachloroethene	1		U
79-34-5	1,1,2,2-tetrachloroethane	1		U
106-93-4	1,2-Dibromoethane	1		U
108-88-3	Toluene	1		U
108-90-7	Chlorobenzene	1	.6	J
100-41-4	Ethyl Benzene	1		U
100-42-5	Styrene	1		U
108-38-3/106-42-3	m,p-Xylene	1		U
95-47-6	o-Xylene	1		U
541-73-1	1,3-Dichlorobenzene	1		U
106-46-7	1,4-Dichlorobenzene	1		U
95-50-1	1,2-Dichlorobenzene	1		U
96-12-8	1,2-Dibromo-3-chloropropane	1		U
108-05-4	Vinyl acetate	1		U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client ID:	GW-28	Date Collected:	4/20/99
STL Lab No.:	201813-07	Date Received:	4/22/99
Client Name:	Earth Tech	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	4/29/99
% Solid:		Report Date:	6/15/99
Matrix:	Water	Column:	DB-624
Sample Wt/Vol.:	25 ml	Lab File ID:	W0699.D
Level:	Low	Dilution Factor:	1
Soil Extract Volume:	_ ul	Soil Aliquot Volume:	ul

CAS No.	Compound	RT or Scan Number	Estimated Conc ug/l
	None found		

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Volatile Organics Analysis Data Sheet
Form I VOA
91.4

Client ID:	GW-06	Date Collected:	21-APR-99
STL Sample Number:	201813-08	Date Received:	22-APR-99
Client Name:	EARTH TECH	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	29-APR-99
% Solid:	NA	Report Date:	15-JUN-99
Matrix:	2 GW/WW	Column:	DB-624
Sample Wt/Vol:	25ml	Lab File Id:	W0700.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
74-87-3	Chloromethane	1		U
74-83-9	Bromomethane	1		U
75-01-4	Vinyl chloride	1		U
75-00-3	Chloroethane	1		U
75-09-2	Methylene chloride	2		U
67-64-1	Acetone	5	4.3	J
75-15-0	Carbon Disulfide	1		U
75-35-4	1,1-Dichloroethene	1		U
75-35-3	1,1-Dichloroethane	1		U
156-59-4	cis-1,2-Dichloroethene	1		U
156-60-5	trans-1,2-Dichloroethene	1		U
67-66-3	Chloroform	1		U
107-06-2	1,2-Dichloroethane	1		U
78-93-3	2-Butanone	5		U
74-97-5	Bromochloromethane	1		U
71-55-6	1,1,1-Trichloroethane	1		U
56-23-5	Carbon tetrachloride	1		U
75-27-4	Bromodichloromethane	1		U
78-87-5	1,2-Dichloropropane	1		U
10061-01-5	cis-1,3-Dichloropropene	1		U
79-01-6	Trichloroethene	1		U
124-48-1	Dibromochloromethane	1		U
79-00-5	1,1,2-Trichloroethane	1		U
71-43-2	Benzene	1		U
10061-02-6	trans-1,3-Dichloropropene	1		U
75-25-2	Bromoform	1		U
108-10-1	4-Methyl-2-pentanone	5		U
591-78-6	2-Hexanone	5		U
127-18-4	Tetrachloroethene	1		U
79-34-5	1,1,2,2-tetrachloroethane	1		U
106-93-4	1,2-Dibromoethane	1		U
108-88-3	Toluene	1		U
108-90-7	Chlorobenzene	1		U
100-41-4	Ethyl Benzene	1		U
100-42-5	Styrene	1		U
108-38-3/106-42-3	m,p-Xylene	1		U
95-47-6	o-Xylene	1		U
541-73-1	1,3-Dichlorobenzene	1		U
106-46-7	1,4-Dichlorobenzene	1		U
95-50-1	1,2-Dichlorobenzene	1		U
96-12-8	1,2-Dibromo-3-chloropropane	1		U
108-05-4	Vinyl acetate	1		U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client ID:	GW-06	Date Collected:	4/21/99
STL Lab No.:	201813-08	Date Received:	4/22/99
Client Name:	Earth Tech	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	4/29/99
% Solid:		Report Date:	6/15/99
Matrix:	Water	Column:	DB-624
Sample Wt/Vol.:	25 ml	Lab File ID:	W0700.D
Level:	Low	Dilution Factor:	1
Soil Extract Volume:	ul	Soil Aliquot Volume:	ul

CAS No.	Compound	RT or Scan Number	Estimated Conc ug/l
	None found		

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Volatile Organics Analysis Data Sheet
Form I VOA
91.4

Client ID:	FIELD BLANK	Date Collected:	21-APR-99
STL Sample Number:	201813-09	Date Received:	22-APR-99
Client Name:	EARTH TECH	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	30-APR-99
% Solid:	NA	Report Date:	15-JUN-99
Matrix:	2 GW/WW	Column:	DB-624
Sample Wt/Vol:	25ml	Lab File Id:	W0702.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
74-87-3	Chloromethane	1		U
74-83-9	Bromomethane	1		U
75-01-4	Vinyl chloride	1		U
75-00-3	Chloroethane	1		U
75-09-2	Methylene chloride	2		U
67-64-1	Acetone	5		U
75-15-0	Carbon Disulfide	1		U
75-35-4	1,1-Dichloroethene	1		U
75-35-3	1,1-Dichloroethane	1		U
156-59-4	cis-1,2-Dichloroethene	1		U
156-60-5	trans-1,2-Dichloroethene	1		U
67-66-3	Chloroform	1		U
107-06-2	1,2-Dichloroethane	1		U
78-93-3	2-Butanone	5		U
74-97-5	Bromochloromethane	1		U
71-55-6	1,1,1-Trichloroethane	1		U
56-23-5	Carbon tetrachloride	1		U
75-27-4	Bromodichloromethane	1		U
78-87-5	1,2-Dichloropropane	1		U
10061-01-5	cis-1,3-Dichloropropene	1		U
79-01-6	Trichloroethene	1		U
124-48-1	Dibromochloromethane	1		U
79-00-5	1,1,2-Trichloroethane	1		U
71-43-2	Benzene	1		U
10061-02-6	trans-1,3-Dichloropropene	1		U
75-25-2	Bromoform	1		U
108-10-1	4-Methyl-2-pentanone	5		U
591-78-6	2-Hexanone	5		U
127-18-4	Tetrachloroethene	1		U
79-34-5	1,1,2,2-tetrachloroethane	1		U
106-93-4	1,2-Dibromoethane	1		U
108-88-3	Toluene	1		U
108-90-7	Chlorobenzene	1	1	J
100-41-4	Ethyl Benzene	1		U
100-42-5	Styrene	1		U
108-38-3/106-42-3	m,p-Xylene	1		U
95-47-6	o-Xylene	1		U
541-73-1	1,3-Dichlorobenzene	1		U
106-46-7	1,4-Dichlorobenzene	1		U
95-50-1	1,2-Dichlorobenzene	1		U
96-12-8	1,2-Dibromo-3-chloropropane	1		U
108-05-4	Vinyl acetate	1		U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client ID:	Field Blank	Date Collected:	4/21/99
STL Lab No.:	201813-09	Date Received:	4/22/99
Client Name:	Earth Tech	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	4/30/99
% Solid:		Report Date:	6/15/99
Matrix:	Water	Column:	DB-624
Sample Wt/Vol.:	25 ml	Lab File ID:	W0702.D
Level:	Low	Dilution Factor:	1
Soil Extract Volume:	ul	Soil Aliquot Volume:	ul

CAS No.	Compound	RT or Scan Number	Estimated Conc ug/l	
71-23-8	1-Propanol	11.40	1.5	J N

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Volatile Organics Analysis Data Sheet
Form I VOA
91.4

Client ID:	TRIP BLANK	Date Collected:	21-APR-99
STL Sample Number:	201813-10	Date Received:	22-APR-99
Client Name:	EARTH TECH	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	30-APR-99
% Solid:	NA	Report Date:	15-JUN-99
Matrix:	2 GW/WW	Column:	DB-624
Sample Wt/Vol:	25ml	Lab File Id:	W0703.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
74-87-3	Chloromethane	1		U
74-83-9	Bromomethane	1		U
75-01-4	Vinyl chloride	1		U
75-00-3	Chloroethane	1		U
75-09-2	Methylene chloride	2		U
67-64-1	Acetone	5		U
75-15-0	Carbon Disulfide	1		U
75-35-4	1,1-Dichloroethene	1		U
75-35-3	1,1-Dichloroethane	1		U
156-59-4	cis-1,2-Dichloroethene	1		U
156-60-5	trans-1,2-Dichloroethene	1		U
67-66-3	Chloroform	1		U
107-06-2	1,2-Dichloroethane	1		U
78-93-3	2-Butanone	5		U
74-97-5	Bromochloromethane	1		U
71-55-6	1,1,1-Trichloroethane	1		U
56-23-5	Carbon tetrachloride	1		U
75-27-4	Bromodichloromethane	1		U
78-87-5	1,2-Dichloropropane	1		U
10061-01-5	cis-1,3-Dichloropropene	1		U
79-01-6	Trichloroethene	1		U
124-48-1	Dibromochloromethane	1		U
79-00-5	1,1,2-Trichloroethane	1		U
71-43-2	Benzene	1		U
10061-02-6	trans-1,3-Dichloropropene	1		U
75-25-2	Bromoform	1		U
108-10-1	4-Methyl-2-pentanone	5		U
591-78-6	2-Hexanone	5		U
127-18-4	Tetrachloroethene	1		U
79-34-5	1,1,2,2-tetrachloroethane	1		U
106-93-4	1,2-Dibromoethane	1		U
108-88-3	Toluene	1		U
108-90-7	Chlorobenzene	1	1.2	
100-41-4	Ethyl Benzene	1		U
100-42-5	Styrene	1		U
108-38-3/106-42-3	m,p-Xylene	1		U
95-47-6	o-Xylene	1		U
541-73-1	1,3-Dichlorobenzene	1		U
106-46-7	1,4-Dichlorobenzene	1		U
95-50-1	1,2-Dichlorobenzene	1		U
96-12-8	1,2-Dibromo-3-chloropropane	1		U
108-05-4	Vinyl acetate	1		U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client ID: Trip Blank
STL Lab No.: 201813-10
Client Name: Earth Tech
Project Name: 34711.01
% Solid:
Matrix: Water
Sample Wt/Vol.: 25 ml
Level: Low
Soil Extract Volume: ul

Date Collected: 4/21/99
Date Received: 4/22/99
Date Extracted:
Date Analyzed: 4/30/99
Report Date: 6/15/99
Column: DB-624
Lab File ID: W0703.D
Dilution Factor: 1
Soil Aliquot Volume: ul

CAS No.	Compound	RT or Scan Number	Estimated Conc ug/l
	None found		

FORM I - VOA

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Volatile Organics Analysis Data Sheet
Form I VOA
91.4

Client ID:	PW-03	Date Collected:	21-APR-99
STL Sample Number:	201813-11	Date Received:	22-APR-99
Client Name:	EARTH TECH	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	30-APR-99
% Solid:	NA	Report Date:	15-JUN-99
Matrix:	2 GW/WW	Column:	DB-624
Sample Wt/Vol:	25ml	Lab File Id:	W0706.D
Level:	LOW	Dilution Factor:	1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
74-87-3	Chloromethane	1		U
74-83-9	Bromomethane	1		U
75-01-4	Vinyl chloride	1		U
75-00-3	Chloroethane	1		U
75-09-2	Methylene chloride	2		U
67-64-1	Acetone	5		U
75-15-0	Carbon Disulfide	1		U
75-35-4	1,1-Dichloroethene	1		U
75-35-3	1,1-Dichloroethane	1		U
156-59-4	cis-1,2-Dichloroethene	1		U
156-60-5	trans-1,2-Dichloroethene	1		U
67-66-3	Chloroform	1		U
107-06-2	1,2-Dichloroethane	1		U
78-93-3	2-Butanone	5		U
74-97-5	Bromochloromethane	1		U
71-55-6	1,1,1-Trichloroethane	1		U
56-23-5	Carbon tetrachloride	1		U
75-27-4	Bromodichloromethane	1		U
78-87-5	1,2-Dichloropropane	1		U
10061-01-5	cis-1,3-Dichloropropene	1		U
79-01-6	Trichloroethene	1		U
124-48-1	Dibromochloromethane	1		U
79-00-5	1,1,2-Trichloroethane	1		U
71-43-2	Benzene	1		U
10061-02-6	trans-1,3-Dichloropropene	1		U
75-25-2	Bromoform	1		U
108-10-1	4-Methyl-2-pentanone	5		U
591-78-6	2-Hexanone	5		U
127-18-4	Tetrachloroethene	1		U
79-34-5	1,1,2,2-tetrachloroethane	1		U
106-93-4	1,2-Dibromoethane	1		U
108-88-3	Toluene	1		U
108-90-7	Chlorobenzene	1	6	J
100-41-4	Ethyl Benzene	1		U
100-42-5	Styrene	1		U
108-38-3/106-42-3	m,p-Xylene	1		U
95-47-6	o-Xylene	1		U
541-73-1	1,3-Dichlorobenzene	1		U
106-46-7	1,4-Dichlorobenzene	1		U
95-50-1	1,2-Dichlorobenzene	1		U
96-12-8	1,2-Dibromo-3-chloropropane	1		U
108-05-4	Vinyl acetate	1		U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client ID:	PW-03	Date Collected:	4/21/99
STL Lab No.:	201813-11	Date Received:	4/22/99
Client Name:	Earth Tech	Date Extracted:	
Project Name:	34711.01	Date Analyzed:	4/30/99
% Solid:		Report Date:	6/15/99
Matrix:	Water	Column:	DB-624
Sample Wt/Vol.:	25 ml	Lab File ID:	W0706.D
Level:	Low	Dilution Factor:	1
Soil Extract Volume:	ul	Soil Aliquot Volume:	ul

CAS No.	Compound	RT or Scan Number	Estimated Conc ug/l
	None found		

FORM I - VOA

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APPENDIX C

INORGANIC DATA VALIDATION SUMMARY

Inorganic Data Validation Summary
Skinner Landfill Site
West Chester, Ohio
Analytical Laboratory: Severn Trent Envirotest
Sample Delivery Group 201813

Analytical results for eight (8) groundwater samples with matrix QC, one (1) field duplicate, one (1) field blank and one (1) trip blank from the Skinner Landfill site were reviewed to evaluate the data quality. Data were assessed in accordance with the United States Environmental Protection Agency (USEPA) **Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis** (February 1994 Revision) and the USEPA Region II **Checklist for Evaluation of Metals Data for the Contract Laboratory Program, Appendix A.1**. This validation pertains to the following samples collected by Earth Tech, Inc. (formerly Rust Environment & Infrastructure) personnel on October 19 and 20, 1998:

PW-01	**GW-06**	**GW-38**
PW-01MS	**GW-07R**	**GW-38 DUP**
PW-01MSD	**GW-09**	**Field Blank**
PW-03	**GW-10**	**Trip Blank**
	GW-28	

The following items/criteria applicable to the samples listed above were reviewed:

- Deliverable Requirements
- Case Narrative
- Holding Times and Sample Preparation
- Initial and Continuing Calibration Data
- CRDL Standards for AA and ICP
- Instrument and Preparation Blank Summary and Data
- ICP Interference Check Sample
- Spiked Sample Recovery Data
- Laboratory Duplicate Data
- Laboratory Control Samples (LCS)
- ICP Serial Dilution Data
- Graphite Furnace Atomic Absorption (GFAA) QC Analysis
- Method of Standard Addition (MSA) Results
- Verification of Instrument Parameters
- Field Duplicate Data

The above items were in compliance with USEPA QC criteria with the exception of the items discussed in the following text. The data have been validated according to the above procedures and qualified as described on the attached definitions list.

Deliverable Requirements

Please note that sample GW-07R was collected from well GW-07R, a replacement well for well GW-07 that contains an un-removable obstruction, and can not be sampled. Sample PW-02 could not be sampled due to an obstruction in the well.

Spiked Sample Recovery Data

Sample PW-01 was selected for duplicate and spike analysis and all applicable matrix QC criteria have been met for this analysis with one exceptions; the selenium (0.0%) recovery was outside of the QC limits of 75-125% established in the Statement of Work (SOW). In accordance with EPA data validation guidelines, all non-detect selenium results have each been flagged with an "R" (rejected) and are considered unusable. No positive selenium results were reported.

Field Duplicate Analysis

Table 1 summarizes the relative percent difference (RPD) between sample GW-38 and the field duplicate sample DUP 1. Earth Tech uses the USEPA Region II Checklist for Evaluation of Metals Data for the Contract Laboratory Program, Appendix A.1 for evaluating field duplicates since the USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analysis does not establish QC criteria for field blanks. This document states that field duplicate data is acceptable if duplicate results greater than five times the CRDL exhibit less than 50% RPD and duplicate results less than five times the CRDL exhibit a difference of less than the CRDL. The data presented in Table 1 indicate that, with the exception of iron (%D=128.3) all field duplicate data are acceptable. All sample results for iron have been flagged "V" and are considered estimated due to QC variances.

Summary

In summary, based on 216 sample data points, 9 of which were qualified as estimated, and 9 qualified as unusable, and since estimated data are considered valid and usable, the usability of this data package is 94.9%.

C. Brett Mongillo — 7-22-99

Reviewed By — Date

C. Brett Mongillo

Manager Chemistry Services

Table 1
RPD Calculations - Field Duplicate Analysis

Sample ID	GW-38	DUP 1	RPD
Analyte			
Aluminum	42.7 B	34.6 B	21.0%
Antimony	5.5 B	2.3 U	200.0%
Arsenic	1.2 U	1.2 U	
Barium	573	559	2.5%
Beryllium	0.1 U	0.1 U	
Cadmium	0.2 B	0.2 U	200.0%
Calcium	55,000	59,000	7.0%
Chromium	0.6 U	0.60 U	
Cobalt	0.9 B	1.3 B	36.4%
Copper	3.2 B	2.9 B	9.8%
Cyanide (total)	10 U	10 U	
Iron	140	641	128.3%
Lead	1.1 U	2.4 B	200.0%
Magnesium	28,500	30,700	7.4%
Manganese	47.6	70.4	38.6%
Mercury	0.2 U	0.2 U	
Nickel	0.9 B	1 B	10.5%
Potassium	8,830	9,420	6.5%
Selenium	R	R	
Silver	1.2 U	1.2 U	
Sodium	112,000	170,000	41.1%
Thallium	1.3 B	1.1 U	200.0%
Vanadium	1.2 U	1.2 U	
Zinc	12 B	11.4 B	5.1%

Inorganic Analytical Data

Skinner Landfill
West Chester, Ohio

Sampling Dates: April 20 and 21, 1999

Sample ID / Analyte	PW-01	PW-02	PW-03	GW-06	GW-07R	GW-09	GW-10	GW-28	GW-38	GW-38 DUP	Field Blank
Aluminum	33.6 B	NS	74.8 B	33 B	26.3 B	40.1 B	43.2 B	2260	42.7 B	34.6 B	53.2 B
Antimony	4.8 B	NS	2.4 B	3.4 B	2.3 U	2.3 U	2.3 U	2.3 U	5.5 B	2.3 U	3.0 B
Arsenic	1.2 U	NS	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Barium	63.3 B	NS	1,570	372	89.4 B	742	47.3 B	77.8 B	573	559	0.5 U
Beryllium	0.3 B	NS	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Cadmium	0.4 B	NS	0.3 B	0.2 U	0.3 B	0.2 U	0.2 B	0.3 B	0.2 B	0.2 U	0.2 U
Calcium	170,000	NS	134,000	76,400	136,000	88,600	242,000	45,200	55,000	59,000	93 B
Chromium	0.6 U	NS	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	26.8	0.6 U	0.60 U	0.6 U
Cobalt	2 B	NS	3.5 B	1.8 B	3.3 B	0.9 B	3.8 B	3.6 B	0.9 B	1.3 B	0.6 U
Copper	3.6 B	NS	11.9 B	7.4 B	4.3 B	2.1 B	12.3 B	10.4 B	3.2 B	2.9 B	0.5 U
Cyanide (total)	11.4	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	12 BV	NS	1,390 V	29 BV	154 BV	1,340 BV	1.3 UV	3,650 V	140 V	641 V	7.7 BV
Lead	3.7	NS	2.8 B	1.1 U	3.5	4.8	7.1	1.1 U	1.1 U	2.4 B	1.1 U
Magnesium	32,000	NS	60,300	24,400	20,200	39,700	81,200	16,600	28,500	30,700	40.1 B
Manganese	1,100	NS	144	234	1120	33	542	93.4	47.6	70.4	1.4 B
Mercury	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	4.3 B	NS	133	2.7 B	5.7 B	1.4 B	11.8 B	26.0 B	0.9 B	1 B	0 6 U
Potassium	1,900 B	NS	28,800	14,200	2,560 B	4,020 B	30,400	15,400	8,830	9,420	232 B
Selenium	R	NS	R	R	R	R	R	R	R	R	R
Silver	1.2 U	NS	1.2 U	1.2 U	1.7 B	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Sodium	44,000	NS	984,000	74,000	15,000	47,800	90,200	417,000	112,000	170,000	796 B
Thallium	6.5 B	NS	1.1 U	1.8 B	3.6 B	1.8 B	1.6 B	1.1 U	1.3 B	1.1 U	1.1 U
Vanadium	1.2 U	NS	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	4 B	1.2 U	1.2 U	1.2 U
Zinc	7.2 B	NS	4.2 B	5.2 B	10.7 B	6.3 B	10 B	16.6 B	12 B	11.4 B	5.9 B

Notes:

1) All results expressed in micrograms per liter (ug/L).
2) Standard Inorganic Data Qualifiers have been used.
3) Sample PW-09 Dup is a field duplicate of sample PW-09.

Inorganics Analysis Data Sheet
Form I - IN

Client Name: EARTH TECH

Project Name: 34711.01

STL Sample Number: 201813-01

Client I.D.: PW-01

Date Collected: 20-APR-99

Matrix: 2 GW/WW

Date Received: 22-APR-99

Comments:

Analysis	Result	Units	Method	Analyzed
Aluminum	33.6 B	UG/L	200.7	14-MAY-99
Antimony	4.8 B	UG/L	200.7	14-MAY-99
Arsenic	1.2 U	UG/L	200.7	14-MAY-99
Barium	63.3 B	UG/L	200.7	14-MAY-99
Beryllium	0.3 B	UG/L	200.7	14-MAY-99
Cadmium	0.4 B	UG/L	200.7	14-MAY-99
Calcium	170000	UG/L	200.7	14-MAY-99
Chromium	0.6 U	UG/L	200.7	14-MAY-99
Cobalt	2.0 B	UG/L	200.7	14-MAY-99
Copper	3.6 B	UG/L	200.7	14-MAY-99
Cyanide, Total	11.4	UG/L	4500-CNE	04-MAY-99
Iron	12.2 B	UG/L	200.7	14-MAY-99
Lead	3.7	UG/L	200.7	14-MAY-99
Magnesium	32000	UG/L	200.7	14-MAY-99
Manganese	1100	UG/L	200.7	14-MAY-99
Mercury	0.2 U	UG/L	245.1	28-APR-99
Nickel	4.3 B	UG/L	200.7	14-MAY-99
Potassium	1900 B	UG/L	200.7	14-MAY-99
Selenium	8.0 U W N	UG/L	270.2	04-MAY-99
Silver	1.2 U	UG/L	200.7	14-MAY-99
Sodium	44000	UG/L	200.7	14-MAY-99
Thallium	6.5 B	UG/L	200.7	14-MAY-99
Vanadium	1.2 U	UG/L	200.7	14-MAY-99
Zinc	7.2 B	UG/L	200.7	14-MAY-99

Remarks:

Inorganics Analysis Data Sheet
Form I - IN

Client Name: EARTH TECH

Project Name: 34711.01

STL Sample Number: 201813-02

Client I.D.: GW-38

Date Collected: 20-APR-99

Matrix: 2 GW/WW

Date Received: 22-APR-99

Comments:

Analysis	Result	Units	Method	Analyzed
Aluminum	42.7 B	UG/L	200.7	14-MAY-99
Antimony	5.5 B	UG/L	200.7	14-MAY-99
Arsenic	1.2 U	UG/L	200.7	14-MAY-99
Barium	573	UG/L	200.7	14-MAY-99
Beryllium	0.1 U	UG/L	200.7	14-MAY-99
Cadmium	0.2 B	UG/L	200.7	14-MAY-99
Calcium	55000	UG/L	200.7	14-MAY-99
Chromium	0.6 U	UG/L	200.7	14-MAY-99
Cobalt	0.9 B	UG/L	200.7	14-MAY-99
Copper	3.2 B	UG/L	200.7	14-MAY-99
Cyanide, Total	10.0 U	UG/L	4500-CNE	04-MAY-99
Iron	140	UG/L	200.7	14-MAY-99
Lead	1.1 U	UG/L	200.7	14-MAY-99
Magnesium	28500	UG/L	200.7	14-MAY-99
Manganese	47.6	UG/L	200.7	14-MAY-99
Mercury	0.2 U	UG/L	245.1	28-APR-99
Nickel	0.9 B	UG/L	200.7	14-MAY-99
Potassium	8830	UG/L	200.7	14-MAY-99
Selenium	1.6 U W N	UG/L	270.2	04-MAY-99
Silver	1.2 U	UG/L	200.7	14-MAY-99
Sodium	112000	UG/L	200.7	14-MAY-99
Thallium	1.3 B	UG/L	200.7	14-MAY-99
Vanadium	1.2 U	UG/L	200.7	14-MAY-99
Zinc	12.0 B	UG/L	200.7	14-MAY-99

Remarks:

Inorganics Analysis Data Sheet
Form I - IN

Client Name: EARTH TECH

Project Name: 34711.01

STL Sample Number: 201813-03

Client I.D.: DUP I

Date Collected: 20-APR-99

Matrix: 2 GW/WW

Date Received: 22-APR-99

Comments:

Analysis	Result	Units	Method	Analyzed
Aluminum	34.6 B	UG/L	200.7	14-MAY-99
Antimony	2.3 U	UG/L	200.7	14-MAY-99
Arsenic	1.2 U	UG/L	200.7	14-MAY-99
Barium	559	UG/L	200.7	14-MAY-99
Beryllium	0.1 U	UG/L	200.7	14-MAY-99
Cadmium	0.2 U	UG/L	200.7	14-MAY-99
Calcium	59000	UG/L	200.7	14-MAY-99
Chromium	0.6 U	UG/L	200.7	14-MAY-99
Cobalt	1.3 B	UG/L	200.7	14-MAY-99
Copper	2.9 B	UG/L	200.7	14-MAY-99
Cyanide, Total	10.0 U	UG/L	4500-CNE	04-MAY-99
Iron	641	UG/L	200.7	14-MAY-99
Lead	2.4 B	UG/L	200.7	14-MAY-99
Magnesium	30700	UG/L	200.7	14-MAY-99
Manganese	70.4	UG/L	200.7	14-MAY-99
Mercury	0.2 U	UG/L	245.1	28-APR-99
Nickel	1.0 B	UG/L	200.7	14-MAY-99
Potassium	9420	UG/L	200.7	14-MAY-99
Selenium	1.6 U W N	UG/L	270.2	04-MAY-99
Silver	1.2 U	UG/L	200.7	14-MAY-99
Sodium	170000	UG/L	200.7	14-MAY-99
Thallium	1.1 U	UG/L	200.7	14-MAY-99
Vanadium	1.2 U	UG/L	200.7	14-MAY-99
Zinc	11.4 B	UG/L	200.7	14-MAY-99

Remarks:

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Inorganics Analysis Data Sheet
Form I - IN

Client Name: EARTH TECH

Project Name: 34711.01

STL Sample Number: 201813-04

Client I.D.: GW-7R

Date Collected: 20-APR-99

Matrix: 2 GW/WW

Date Received: 22-APR-99

Comments:

Analysis	Result	Units	Method	Analyzed
Aluminum	26.3 B	UG/L	200.7	14-MAY-99
Antimony	2.3 U	UG/L	200.7	14-MAY-99
Arsenic	1.2 U	UG/L	200.7	14-MAY-99
Barium	89.4 B	UG/L	200.7	14-MAY-99
Beryllium	0.1 U	UG/L	200.7	14-MAY-99
Cadmium	0.3 B	UG/L	200.7	14-MAY-99
Calcium	136000	UG/L	200.7	14-MAY-99
Chromium	0.6 U	UG/L	200.7	14-MAY-99
Cobalt	3.3 B	UG/L	200.7	14-MAY-99
Copper	4.3 B	UG/L	200.7	14-MAY-99
Cyanide, Total	10.0 U	UG/L	4500-CNE	04-MAY-99
Iron	154	UG/L	200.7	14-MAY-99
Lead	3.5	UG/L	200.7	14-MAY-99
Magnesium	20200	UG/L	200.7	14-MAY-99
Manganese	1120	UG/L	200.7	14-MAY-99
Mercury	0.2 U	UG/L	245.1	28-APR-99
Nickel	5.7 B	UG/L	200.7	14-MAY-99
Potassium	2560 B	UG/L	200.7	14-MAY-99
Selenium	8.0 U W N	UG/L	270.2	04-MAY-99
Silver	1.7 B	UG/L	200.7	14-MAY-99
Sodium	15000	UG/L	200.7	14-MAY-99
Thallium	3.6 B	UG/L	200.7	14-MAY-99
Vanadium	1.2 U	UG/L	200.7	14-MAY-99
Zinc	10.7 B	UG/L	200.7	14-MAY-99

Remarks:

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Inorganics Analysis Data Sheet
Form I - IN

Client Name: EARTH TECH

Project Name: 34711.01

STL Sample Number: 201813-05

Client I.D.: GW-09

Date Collected: 21-APR-99

Matrix: 2 GW/WW

Date Received: 22-APR-99

Comments:

Analysis	Result	Units	Method	Analyzed
Aluminum	40.1 B	UG/L	200.7	14-MAY-99
Antimony	2.3 U	UG/L	200.7	14-MAY-99
Arsenic	1.2 U	UG/L	200.7	14-MAY-99
Barium	742	UG/L	200.7	14-MAY-99
Beryllium	0.1 U	UG/L	200.7	14-MAY-99
Cadmium	0.2 U	UG/L	200.7	14-MAY-99
Calcium	88600	UG/L	200.7	14-MAY-99
Chromium	0.6 U	UG/L	200.7	14-MAY-99
Cobalt	0.9 B	UG/L	200.7	14-MAY-99
Copper	2.1 B	UG/L	200.7	14-MAY-99
Cyanide, Total	10.0 U	UG/L	4500-CNE	04-MAY-99
Iron	1340	UG/L	200.7	14-MAY-99
Lead	4.8	UG/L	200.7	14-MAY-99
Magnesium	39700	UG/L	200.7	14-MAY-99
Manganese	33.0	UG/L	200.7	14-MAY-99
Mercury	0.2 U	UG/L	245.1	28-APR-99
Nickel	1.4 B	UG/L	200.7	14-MAY-99
Potassium	4020 B	UG/L	200.7	14-MAY-99
Selenium	1.6 U W N	UG/L	270.2	04-MAY-99
Silver	1.2 U	UG/L	200.7	14-MAY-99
Sodium	47800	UG/L	200.7	14-MAY-99
Thallium	1.8 B	UG/L	200.7	14-MAY-99
Vanadium	1.2 U	UG/L	200.7	14-MAY-99
Zinc	6.3 B	UG/L	200.7	14-MAY-99

Remarks:

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Inorganics Analysis Data Sheet
Form I - IN

Client Name: EARTH TECH

Project Name: 4711.01

STL Sample Number: 201813-06

Client I.D.: GW-10

Date Collected: 21-APR-99

Matrix: 2 GW/WW

Date Received: 22-APR-99

Comments:

Analysis	Result	Units	Method	Analyzed
Aluminum	43.2 B	UG/L	200.7	14-MAY-99
Antimony	2.3 U	UG/L	200.7	14-MAY-99
Arsenic	1.2 U	UG/L	200.7	14-MAY-99
Barium	47.3 B	UG/L	200.7	14-MAY-99
Beryllium	0.1 U	UG/L	200.7	14-MAY-99
Cadmium	0.2 B	UG/L	200.7	14-MAY-99
Calcium	242000	UG/L	200.7	14-MAY-99
Chromium	0.6 U	UG/L	200.7	14-MAY-99
Cobalt	3.8 B	UG/L	200.7	14-MAY-99
Copper	12.3 B	UG/L	200.7	14-MAY-99
Cyanide, Total	10.0 U	UG/L	4500-CNE	04-MAY-99
Iron	1.3 U	UG/L	200.7	14-MAY-99
Lead	7.1	UG/L	200.7	14-MAY-99
Magnesium	81200	UG/L	200.7	14-MAY-99
Manganese	542	UG/L	200.7	14-MAY-99
Mercury	0.2 U	UG/L	245.1	28-APR-99
Nickel	11.8 B	UG/L	200.7	14-MAY-99
Potassium	30400	UG/L	200.7	14-MAY-99
Selenium	8.0 U W N	UG/L	270.2	04-MAY-99
Silver	1.2 U	UG/L	200.7	14-MAY-99
Sodium	90200	UG/L	200.7	14-MAY-99
Thallium	1.6 B	UG/L	200.7	14-MAY-99
Vanadium	1.2 U	UG/L	200.7	14-MAY-99
Zinc	10.0 B	UG/L	200.7	14-MAY-99

Remarks:

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Inorganics Analysis Data Sheet
Form I - IN

Client Name: EARTH TECH

Project Name: 34711.01

STL Sample Number: 201813-07

Client I.D.: GW-28

Date Collected: 21-APR-99

Matrix: 2 GW/WW

Date Received: 22-APR-99

Comments:

Analysis	Result	Units	Method	Analyzed
Aluminum	2260	UG/L	200.7	14-MAY-99
Antimony	2.3 U	UG/L	200.7	14-MAY-99
Arsenic	1.2 U	UG/L	200.7	14-MAY-99
Barium	77.8 B	UG/L	200.7	14-MAY-99
Beryllium	0.1 U	UG/L	200.7	14-MAY-99
Cadmium	0.3 B	UG/L	200.7	14-MAY-99
Calcium	45200	UG/L	200.7	14-MAY-99
Chromium	26.8	UG/L	200.7	14-MAY-99
Cobalt	3.6 B	UG/L	200.7	14-MAY-99
Copper	10.4 B	UG/L	200.7	14-MAY-99
Cyanide, Total	10.0 U	UG/L	4500-CNE	04-MAY-99
Iron	3650	UG/L	200.7	14-MAY-99
Lead	1.1 U	UG/L	200.7	14-MAY-99
Magnesium	16600	UG/L	200.7	14-MAY-99
Manganese	93.4	UG/L	200.7	14-MAY-99
Mercury	0.2 U	UG/L	245.1	28-APR-99
Nickel	26.0 B	UG/L	200.7	14-MAY-99
Potassium	15400	UG/L	200.7	14-MAY-99
Selenium	1.6 U W N	UG/L	270.2	04-MAY-99
Silver	1.2 U	UG/L	200.7	14-MAY-99
Sodium	417000	UG/L	200.7	14-MAY-99
Thallium	1.1 U	UG/L	200.7	14-MAY-99
Vanadium	4.0 B	UG/L	200.7	14-MAY-99
Zinc	16.6 B	UG/L	200.7	14-MAY-99

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Inorganics Analysis Data Sheet
Form I - IN

Client Name: EARTH TECH
Project Name: 34711.01
STL Sample Number: 201813-08
Client I.D.: GW-06
Date Collected: 21-APR-99
Matrix: 2 GW/WW
Date Received: 22-APR-99
Comments:

Analysis	Result	Units	Method	Analyzed
Aluminum	33.4 B	UG/L	200.7	14-MAY-99
Antimony	3.4 B	UG/L	200.7	14-MAY-99
Arsenic	1.2 U	UG/L	200.7	14-MAY-99
Barium	372	UG/L	200.7	14-MAY-99
Beryllium	0.1 U	UG/L	200.7	14-MAY-99
Cadmium	0.2 U	UG/L	200.7	14-MAY-99
Calcium	76400	UG/L	200.7	14-MAY-99
Chromium	0.6 U	UG/L	200.7	14-MAY-99
Cobalt	1.8 B	UG/L	200.7	14-MAY-99
Copper	7.4 B	UG/L	200.7	14-MAY-99
Cyanide, Total	10.0 U	UG/L	4500-CNE	04-MAY-99
Iron	29.2 B	UG/L	200.7	14-MAY-99
Lead	1.1 U	UG/L	200.7	14-MAY-99
Magnesium	24400	UG/L	200.7	14-MAY-99
Manganese	234	UG/L	200.7	14-MAY-99
Mercury	0.2 U	UG/L	245.1	28-APR-99
Nickel	2.7 B	UG/L	200.7	14-MAY-99
Potassium	14200	UG/L	200.7	14-MAY-99
Selenium	8.0 U N	UG/L	270.2	04-MAY-99
Silver	1.2 U	UG/L	200.7	14-MAY-99
Sodium	74000	UG/L	200.7	14-MAY-99
Thallium	1.8 B	UG/L	200.7	14-MAY-99
Vanadium	1.2 U	UG/L	200.7	14-MAY-99
Zinc	5.2 B	UG/L	200.7	14-MAY-99

Remarks:

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Inorganics Analysis Data Sheet
Form I - IN

Client Name: EARTH TECH
Project Name: 34711.01
STL Sample Number: 201813-09
Client I.D.: FIELD BLANK
Date Collected: 21-APR-99
Matrix: 2 GW/WW
Date Received: 22-APR-99
Comments:

Analysis	Result	Units	Method	Analyzed
Aluminum	53.2 B	UG/L	200.7	14-MAY-99
Antimony	3.0 B	UG/L	200.7	14-MAY-99
Arsenic	1.2 U	UG/L	200.7	14-MAY-99
Barium	0.5 U	UG/L	200.7	14-MAY-99
Beryllium	0.1 U	UG/L	200.7	14-MAY-99
Cadmium	0.2 U	UG/L	200.7	14-MAY-99
Calcium	92.6 B	UG/L	200.7	14-MAY-99
Chromium	0.6 U	UG/L	200.7	14-MAY-99
Cobalt	0.6 U	UG/L	200.7	14-MAY-99
Copper	0.5 U	UG/L	200.7	14-MAY-99
Cyanide, Total	10.0 U	UG/L	4500-CNE	04-MAY-99
Iron	7.7 B	UG/L	200.7	14-MAY-99
Lead	1.1 U	UG/L	200.7	14-MAY-99
Magnesium	40.1 B	UG/L	200.7	14-MAY-99
Manganese	1.4 B	UG/L	200.7	14-MAY-99
Mercury	0.2 U	UG/L	245.1	28-APR-99
Nickel	0.6 U	UG/L	200.7	14-MAY-99
Potassium	232 B	UG/L	200.7	14-MAY-99
Selenium	1.6 U N	UG/L	270.2	04-MAY-99
Silver	1.2 U	UG/L	200.7	14-MAY-99
Sodium	796 B	UG/L	200.7	14-MAY-99
Thallium	1.1 U	UG/L	200.7	14-MAY-99
Vanadium	1.2 U	UG/L	200.7	14-MAY-99
Zinc	5.9 B	UG/L	200.7	14-MAY-99

Remarks:

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Inorganics Analysis Data Sheet
Form I - IN

Client Name: EARTH TECH
Project Name: 34711.01
STL Sample Number: 201813-11
Client I.D.: PW-03
Date Collected: 21-APR-99
Matrix: 2 GW/WW
Date Received: 22-APR-99
Comments:

Analysis	Result	Units	Method	Analyzed
Aluminum	74.8 B	UG/L	200.7	14-MAY-99
Antimony	2.4 B	UG/L	200.7	14-MAY-99
Arsenic	1.2 U	UG/L	200.7	14-MAY-99
Barium	1570	UG/L	200.7	14-MAY-99
Beryllium	0.1 U	UG/L	200.7	14-MAY-99
Cadmium	0.3 B	UG/L	200.7	14-MAY-99
Calcium	134000	UG/L	200.7	14-MAY-99
Chromium	0.6 U	UG/L	200.7	14-MAY-99
Cobalt	3.5 B	UG/L	200.7	14-MAY-99
Copper	11.9 B	UG/L	200.7	14-MAY-99
Cyanide, Total	10.0 U	UG/L	4500-CNE	04-MAY-99
Iron	1390	UG/L	200.7	14-MAY-99
Lead	2.8 B	UG/L	200.7	14-MAY-99
Magnesium	60300	UG/L	200.7	14-MAY-99
Manganese	144	UG/L	200.7	14-MAY-99
Mercury	0.2 U	UG/L	245.1	28-APR-99
Nickel	133	UG/L	200.7	14-MAY-99
Potassium	28800	UG/L	200.7	14-MAY-99
Selenium	2.4 U N S	UG/L	270.2	04-MAY-99
Silver	1.2 U	UG/L	200.7	14-MAY-99
Sodium	984000	UG/L	200.7	24-MAY-99
Thallium	1.1 U	UG/L	200.7	14-MAY-99
Vanadium	1.2 U	UG/L	200.7	14-MAY-99
Zinc	4.2 B	UG/L	200.7	14-MAY-99

Remarks:

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