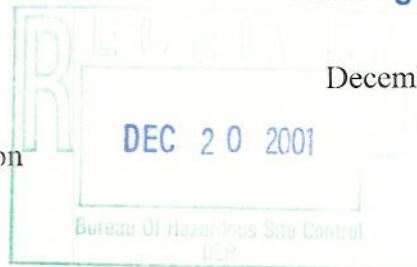




Harding Lawson Associates

December 17, 2001

Mr. Larry Lampman  
Department of Environmental Conservation  
Bureau of Hazardous Site Control  
11<sup>th</sup> Floor  
625 Broadway  
Albany, NY 12233-7014



**Subject: Supplemental Soil Sampling and Analyses  
Sulphur Springs Road Site, Owego, NY  
Site # 7-54-017**

Dear Mr. Lampman:

Harding Lawson Associates (HLA) is submitting results of the supplemental soil sampling and analyses on the Chandler Garage property (Figure 1), south of the Sulphur Springs Road site. The work was performed for the New York State Department of Environmental Conservation (NYSDEC) to supplement conclusions in the Preliminary Site Assessment (PSA) Data Summary Report (HLA, 2001). The objective of the effort was to determine whether chemicals detected in groundwater at the Sulphur Springs Road site (Site) originated from the debris/soil mound located on the Chandler Garage property.

An on-site source of the volatile organic compound (VOC) contamination in groundwater at the Sulphur Springs Road site was not identified during the PSA. The PSA report concluded that the highest concentrations of groundwater contamination were observed near the southeast corner of the site. The report identified the adjacent Chandler debris/soil mound as a potential contaminant source. To maximize the possibility of confirming the debris/soil mound as a contaminant source, the portion of the mound nearest the southeast corner of the Sulphur Springs Road site was selected as the location of the supplemental soil samples.

Analytical results of the debris/soil mound samples do not indicate a chemical source area. The magnitude of chemical concentrations in the soil samples does not appear to be significant enough to cause the groundwater contamination observed in groundwater at the Sulphur Springs Road site.

### Scope of Work

The Chandler Garage property (tax lot number 139.00-2-5.11) is located at 195 Sulphur Springs Road in the Town of Owego. Field activities, conducted on October 11, 2001, included a geophysical survey and the collection of three soil samples. Both activities are described below.

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### Geophysical Survey

HLA conducted a high-resolution metal detection survey using a Geonics EM-61 Time Domain Metal Detector. The survey was conducted prior to soil sampling, in an attempt to locate subsurface metallic objects such as drums or other containers in the debris/soil mound that might contain a contaminant source. Geophysical surveying was limited to open areas of the site. Areas of brush, rugged terrain, and surface waste were not profiled. Survey lines were spaced 5 feet apart; data was collected every 0.6 feet along each transect.

Differential EM-61 response data are presented in Figure 2. Elevated EM-61 response anomalies were observed primarily in the northeastern portion of the site. Data represented by greenish yellow through purple (anomaly >200 millivolts) indicate the presence of metallic objects. Differential response data and field observation indicate most of the observed anomalies are attributable to the presence of subsurface metallic objects. Of the area surveyed, the highest amplitude response anomalies are found east of position 700 of the grid. High-amplitude response anomalies are generally attributable to appreciable masses of metallic wastes. Surface metallic wastes were observed at the time of the survey.

### Soil Sampling

Soil sample locations were chosen after considering analytical results presented in the PSA Data Summary Report for the Sulphur Springs Road site (HLA, 2001). The highest concentrations of volatile organic compounds (VOCs) reported in the PSA report were detected in groundwater samples collected at the southeastern portion of the Site property. Soil samples were collected from a location hydraulically upgradient from the southeast corner of the Sulphur Springs Site, among and north of the significant metallic anomalies detected during the EM-61 survey.

HLA collected soil samples with a hand probe from three locations (TS-01, TS-02 and TS-03) within the debris/soil mound (Figure 1). Two-foot sample tubes were collected continuously from the ground surface to up to 13 feet below ground surface. Samples were described using the Unified Soil Classification System. Sample description and classification, and boring observations were recorded on the Field Data Records (see Attachment A). The apparent fill material extended to approximately 8 feet below ground surface (bgs). Black-stained silty sand with a slight petroleum odor was observed at 8 feet bgs in boring TS-01. No other visible contamination was observed during sampling activities. One soil sample was collected from each of the three borings. Samples were

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selected upon consideration of photoionization detector readings, as well as physical and olfactory observations.

Samples were submitted to Severn Trent Laboratories for VOC analyses using NYSDEC analytical services protocol (ASP) method 95-4, Semivolatile Organic Compound analysis using NYSDEC ASP method 95-2, and TAL Metals analysis using the NYSDEC Superfund method.

### **Analytical Results**

Analytical results were compared to the NYSDEC Technical and Administrative Guidance Memorandum 94-4046, determination of Soil Cleanup Objectives and Cleanup Levels (NYSDEC, 1994). Reported concentrations of individual analytes indicating contravention of guidelines are summarized below, and noted on tables 1, 2 and 3. A Data Usability Summary Report was completed in accordance with the NYSDEC's Guidance for the Development of Data Usability Summary Reports (NYSDEC, 1997). This report and complete analytical results are presented in Attachment B.

### **Soil Sample Results**

VOCs, SVOCs, and metals were detected in all samples. A summary of target compounds detected in soil samples is presented in Tables 1, 2 and 3. As explained in attachment B, the sample collected from boring TS-02 was analyzed for low-concentration VOCs and medium-concentration VOCs. In general, higher concentrations of target compounds were detected in the medium-level methanol extraction run. Both runs were within quality control criteria, and both are reported on Table 1. Acetone was detected in the low concentration run (170 B  $\mu\text{g}/\text{Kg}$ ) at a concentration exceeding the soil cleanup objective (110  $\mu\text{g}/\text{Kg}$ ). Chlorobenzene was detected in the medium concentration run (1800  $\mu\text{g}/\text{Kg}$ ) at a concentration exceeding the soil cleanup objective (1700  $\mu\text{g}/\text{Kg}$ ). No other VOCs or SVOCs were detected at concentrations exceeding soil cleanup objectives.

Analytical results for inorganics are presented in Table 3. Mercury was detected in samples SSTS00200901XX (0.632 mg/Kg) and field duplicate SSTS00200901XD (0.348 mg/Kg) from boring TS-02 above the soil cleanup objectives (0.1 mg/Kg). For other inorganic compounds, soil cleanup objectives are average background concentrations for New York, as reported in a 1984 survey of reference material by E. Carol McGovern, NYSDEC (from TAGM 94-4046). Because site background concentrations are not known, inorganic results are compared to average background concentrations. Results exceeding average background concentrations are highlighted on Table 3.

Mr. Larry Lampman  
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December 17, 2001

**Conclusions:**

- The objective of the sampling effort was to determine whether the debris/soil mound on the Chandler property is the source of chemicals detected in groundwater at the Sulphur Springs Road site.
- Visible surface debris, topographic variations, and elevated EM-61 response data indicate a debris/soil mound on the Chandler property that extends approximately 200 feet by 240 feet, with a depth of up to nine feet. The debris/soil mound may extend onto the property located at 60 South Side Road (Village of Owego tax lot number 128.20-1-1), located east of the Chandler Garage property.
- Analytical results of samples collected from the debris/soil mound do not indicate a chemical source area. Although low concentrations of contaminants were detected in soil, concentrations are not considered high enough to cause the contamination observed in the groundwater at the Sulphur Springs Road site and presented in the PSA Data Summary Report.
- Because three subsurface soil sample results represent only a small fraction of the debris/soil mound, the mound should not be ruled out as a possible source of Sulphur Springs Road site groundwater contamination.

If you have any questions please feel to call Site Manager Chuck Staples or me.

Sincerely,

**HARDING LAWSON ASSOCIATES**



Mark Stelmack, P.E.  
Project Manager

Mr. Larry Lampman

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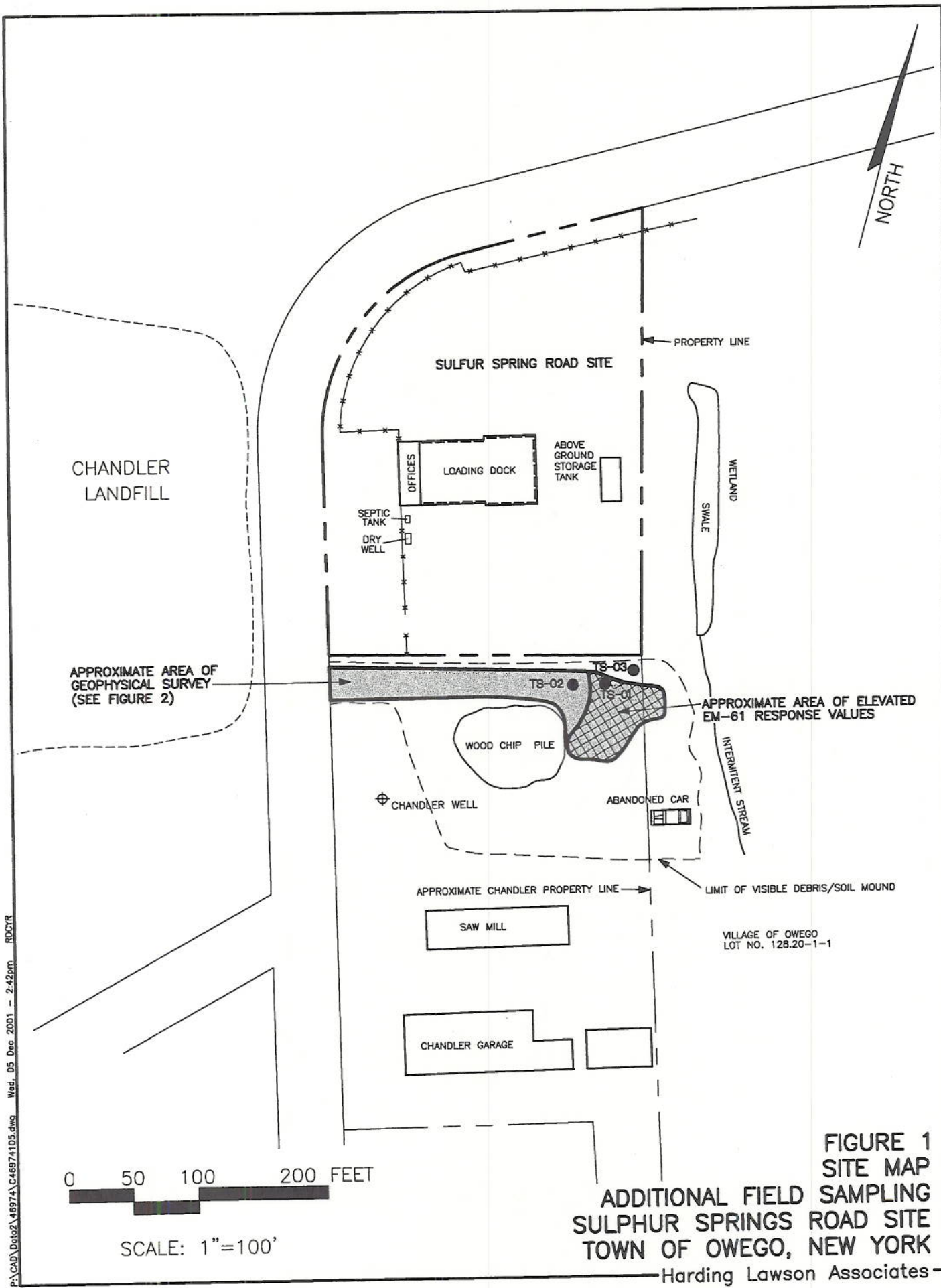
References:

Harding Lawson Associates, 2001. *Final Preliminary Site Assessment Data Summary Report, Sulphur Springs Road Site*. June 2001.

New York State Department of Environmental Conservation (NYSDEC), 1997. "*Guidance for the Development of Data Usability Reports*"; Division of Environmental Remediation. September 1997.

New York State Department of Environmental Conservation (NYSDEC), 1994. Technical and Administrative Guidance Memorandum HWR 94-4046: Determination of Soil Cleanup Objectives and Cleanup Levels. January 1994 (revised).

## FIGURES



**FIGURE 1**  
**SITE MAP**  
**SULPHUR SPRINGS ROAD SITE**  
**TOWN OF OWEGO, NEW YORK**  
 Harding Lawson Associates

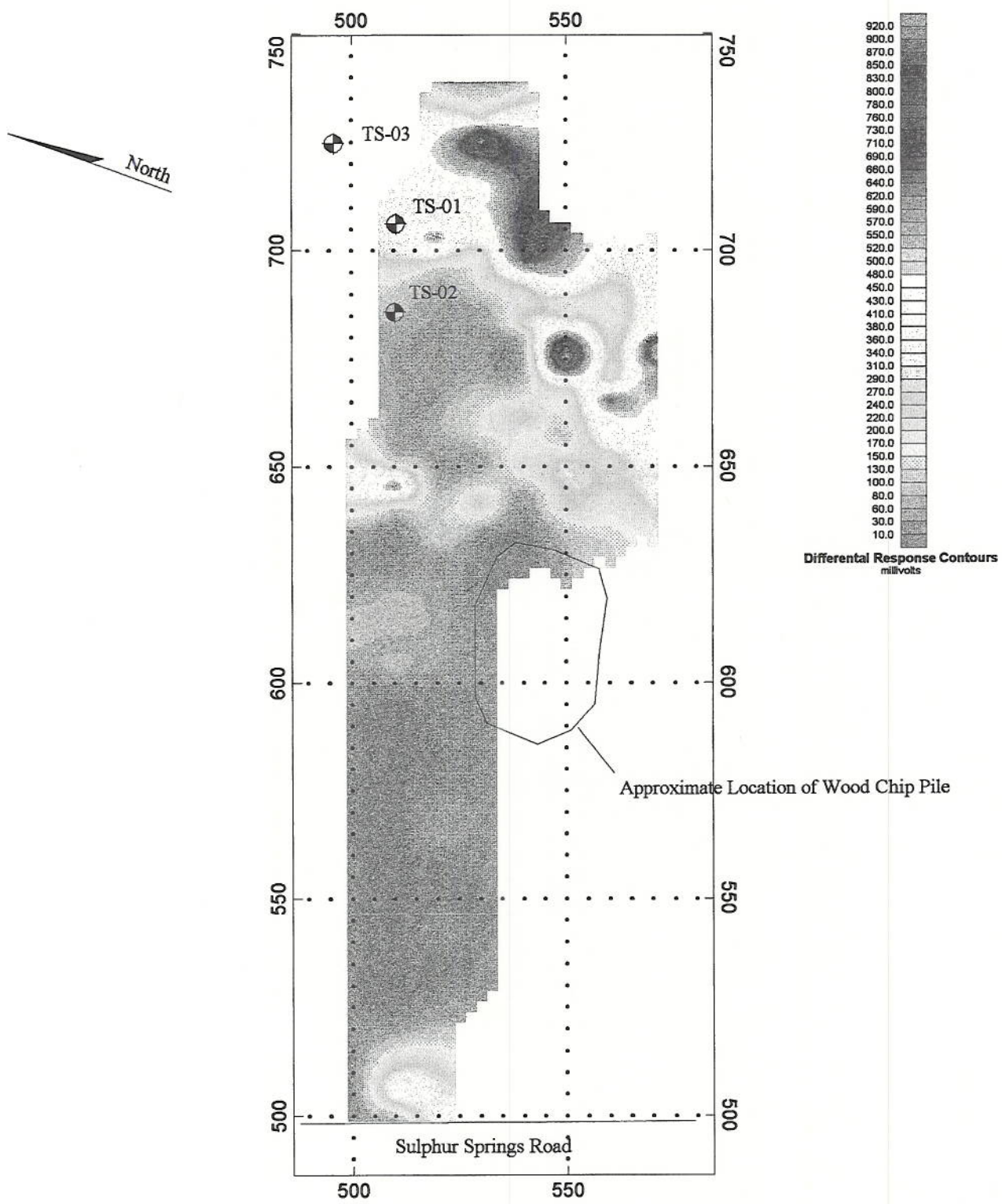


Figure 2  
 EM-61 Metal Detection Survey Results  
 Additional Field Sampling  
 Sulphur Springs Road Site  
 Town of Owego, New York  
 Harding Lawson Associates



## TABLES

TABLE-1  
 Volatile Organic Compound Results  
 Additional Field Sampling  
 Sulphur Springs Road Site  
 Owego, NY

Location	TS-01	TS-02	TS-02 (dilution)	TS-03	
Sample ID	SSTS00101001XX	SSTS00200701XX	SSTS00200701XX	SSTS00300601XX	
Sample Date	10/11/01	10/11/01	10/11/01	10/11/01	
Sample Depth (ft bgs)	10-12	7-9	7-9	6-8	
Parameter	Soil Cleanup Objective*	Result (µg/Kg)	Qual	Result (µg/Kg)	Qual
Chloroethane	1900			950	
Acetone	110	170			52
Carbon Disulfide	2700		10 J		17
1,1-Dichloroethane	200		8 J		
1,2-Dichloroethane (Total)	100		5 J		
2-Butanone	300		58	170 J	5 J
1,1,1-Trichloroethane	760		16	280 J	2 J
Trichloroethene	700		6 J		
2-Hexanone	NE				21
Toluene	1500		43	260 J	
Chlorobenzene	1700		150	1800	
Ethylbenzene	5500		2 J		
Total Xylenes	1200		6 J		

NOTES:

- = ft bgs
- \* = Feet below ground surface.
- = From Technical Administrative Guidance Memorandum 94-4046, "Determination of Soil Cleanup Objectives and Cleanup Levels" (NYSDEC, 1994). Values in µg/Kg.
- = Only detected compounds are shown.
- = micrograms per kilogram
- = Qualifier
- = Not established
- = Values in bold exceed the NYSDECs Soil Cleanup Objectives
- = Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but greater than zero.
- = Identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

TABLE-2  
Semi-Volatile Organic Compound Results  
Additional Field Sampling  
Sulphur Springs Road Site  
Owego, NY

Location	TS-01	TS-01 (duplicate)	TS-02	TS-03	
Sample ID	SSTS00101001XX	SSTS00101001XD	SSTS00200901XX	SSTS00300601XX	
Sample Date	10/11/01	10/11/01	10/11/01	10/11/01	
Sample Depth (ft bgs)	10-12	10-12	9-11	6-8	
Parameter	Soil Cleanup Objective*	Result (µg/Kg)	Qual	Result (µg/Kg)	Qual
Anthracene	700000			52 J	
Benzo(a)anthracene	3000			230 J	
Benzo(a)pyrene	11000			240 J	
Benzo(b)fluoranthene	1100			160 J	12 J
Benzo(ghi)perylene	800000			94 J	
Benzo(k)fluoranthene	11000			210 J	
carbazole	NE			17 J	
Chrysene	400			270 J	12 J
Dibenzo(a,h)anthracene	165000000			43 J	
Fluoranthene	1900000			410 J	25 J
Fluorene	350000			15 J	
Indeno(1,2,3-cd)pyrene	3200			100 J	
Phenanthrene	220000			240 J	14 J
Pyrene	665000			400 J	14 J

NOTES:

- = ft bgs
- = \* Feet below ground surface.
- = From Technical Administrative Guidance Memorandum 94-4046, "Determination of Soil Cleanup Objectives and Cleanup Levels" (NYSDEC, 1994). Values in µg/Kg.
- = Result Only detected compounds are shown.
- = µg/Kg micrograms per kilogram
- = QF Qualifier
- = J Qualifier Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but greater than zero.
- = NE Not established

TABLE-3  
Inorganic Sample Results  
Additional Field Sampling  
Sulphur Springs Road Site  
Owego, NY

Location	TS-01	TS-02	TS-02 (Duplicate)	TS-03
Sample ID	SSTS00101001XX	SSTS00200901XX	SSTS00200901XD	SSTS00300601XX
Sample Date	10/11/01	10/11/01	10/11/01	10/11/01
Sample Depth (ft bgs)	10-12	9-11	9-11	6-8
Parameter	Soil Cleanup Objective**			
Aluminum - Total	SB 11700	SB 12000	SB 10800	SB 14800
Antimony - Total	SB 0.47 J	SB 0.88 J	SB 1.2 J	SB 0.37 UJ
Arsenic - Total	7.5 or SB 2.4	7.5 or SB 7.8	7.5 or SB 12	7.5 or SB 4.9
Barium - Total	300 or SB 56.3	300 or SB 75.8	300 or SB 88.7	300 or SB 112
Beryllium - Total	0.16 or SB 0.5 J	0.16 or SB 0.52 J	0.16 or SB 0.63 J	0.16 or SB 0.68 J
Calcium - Total	SB 1560	SB 3360	SB 6450	SB 2200
Chromium - Total	10 or SB 15	10 or SB 17	10 or SB 16.5	10 or SB 15.8
Cobalt - Total	30 or SB 9.3 J	30 or SB 11.2 J	30 or SB 11.8 J	30 or SB 8.5 J
Copper - Total	25 or SB 16.3	25 or SB 46.5	25 or SB 54.4	25 or SB 13.4
Iron - Total	2,000 or SB 18900	2,000 or SB 37500	2,000 or SB 48300	2,000 or SB 19900
Lead - Total	SB 12.3 J	SB 227 J	SB 244 J	SB 28.2 J
Magnesium - Total	SB 3540 J	SB 3590 J	SB 2970 J	SB 2650 J
Manganese - Total	SB 209 J	SB 403 J	SB 702 J	SB 453 J
Mercury - Total	0.1	0.632	0.348	
Nickel - Total	13 or SB 23.2	13 or SB 25	13 or SB 23	13 or SB 18.2
Potassium - Total	SB 1130 J	SB 968 J	SB 1010 J	SB 967 J
Selenium - Total	2 or SB 0.89 J	2 or SB 2.3	2 or SB 2.4	2 or SB 1.2
Sodium - Total	SB 35.7 J	SB 90.4 J	SB 75 J	SB 57.1 J
Vanadium - Total	150 or SB 15	150 or SB 19.2	150 or SB 21.7	150 or SB 20.4
Zinc - Total	20 or SB 61.6 J	20 or SB 112 J	20 or SB 122 J	20 or SB 83.3 J

Notes:

ft bgs = Feet below ground surface.

\* \* = From Technical Administrative Guidance Memorandum (TAGM) 94-4046, "Determination of Soil Cleanup Objectives and Cleanup Levels" (NYSDEC, 1994). Values in mg/Kg.

= Only detected compounds are shown.

µg/Kg = micrograms per kilogram

Qual = Qualifier

\* = Indicates analysis is not within the quality control limits.

= Values in bold exceed the average background concentrations as reported in a 1984 survey of reference material by E. Carol McGovern, NYSDEC (From TAGM 94-4046).

= Values exceed the NYSDEC Soil Cleanup Objectives.

= Site Background (if known).

**ATTACHMENT A**  
**FIELD DATA RECORDS**

# TEST BORING LOG

Project <b>Sulphur Springs, NY SDEC</b>		Boring/Well No. <b>GP 75-01</b>	Project No. <b>46974</b>		
Client <b>NY SDEC</b>	Site <b>Sulphur Springs Road Site</b>		Sheet No. <b>1</b> of <b>1</b>		
Logged By <b>[Signature]</b>	Ground Elevation	Start Date <b>10/11/07</b>	Finish Date <b>10/11/07</b>		
Drilling Contractor		Driller's Name	Rig Type		
Drilling Method <b>Hand driven Geoprobe 3016 hammer</b>		Protection Level <b>D</b>	P.I.D. (eV) <b>10.6</b>	Casing Size <b>1 inch</b>	Auger Size
Soil Drilled <b>13 feet</b>	Rock Drilled	Total Depth <b>13 ft.</b>	Depth to Groundwater/Date <b>NA</b>		Piez <input type="checkbox"/> Well <input type="checkbox"/> Boring <input checked="" type="checkbox"/>

Depth (Feet)	Sample No. & Penetration/Recovery (Feet)	Sample Type	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Graphic Log	Sample Description	USCS Group Symbol	Notes on Drilling	Monitoring (ppm)			Lab Tests
									PI Meter	Field Scan	PI Meter Head Space	
1	5-1 1.2 2.0 0-2'	SEL				Tan to brown silt, little fine sand, wood fragments, clay.	SM FI					
2												
3												
4	5-2 1.3 2.0 3-5'	SN				Brown silt, little fine sand, gravel fragments, black poly plastic, clay to moist, trace wood fragments	SM FILL					
5												
6												
7	No real recovery					Refusal @ approx 0.5' bgs, more water 3 feet. Bottom of waste on fill materials extends to approx 8-9' bgs based on tip resistance. Soil in tip of 6-8' bgs interval was black stained silt, sand w/ oily-like odor.		Refusal @ 6.5'				
8												
9												
10	5-3 1.9 2.0	ML				Olive brown to tan, mottled gray silt & clay layers, trace organic, wet, moist	ML					
11	10-3					12.5-12.7 interval submitted for VOCs	SN					
12												
13												

T: 1030



sample JP  
SST500101001XX  
@ 1030

VOCs 951  
SPOC 952  
± CLP  
Energy 95  
SUOC 047

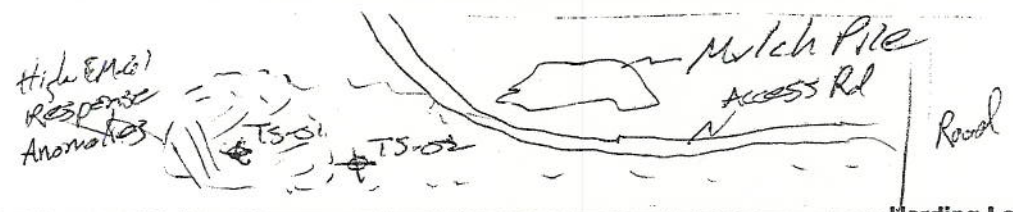
# TEST BORING LOG

Project <b>Sulphur Springs, NY/DEC</b>		Boring/Well No. <b>T5-02</b>	Project No. <b>46974</b>
Client <b>NYSDEC</b>	Site <b>Sulphur Springs Site</b>	Sheet No. <b>1</b> of <b>1</b>	
Logged By <b>AK</b>	Ground Elevation	Start Date <b>10/11/09</b>	Finish Date <b>10/11/09</b>
Drilling Contractor		Driller's Name	Rig Type
Drilling Method <b>Hand Recoprobe - 30lb Hammer</b>		Protection Level <b>0</b>	P.I.D. (eV) <b>battery dead</b>
Soil Drilled <b>12'</b>		Rock Drilled	Total Depth <b>12'</b>
		Depth to Groundwater/Date <b>~10' bgs - perched</b>	
		Piez <input type="checkbox"/>	Well <input type="checkbox"/>
		Boring <input checked="" type="checkbox"/>	

Depth (Feet)	Sample No. & Penetration/Recovery (Feet)	Sample Type	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Graphic Log	Sample Description	USCS Group Symbol	Notes on Drilling	Monitoring (ppm)		Lab Tests
									PI Meter Field Scan	PI Meter Head Space	
0-1	S-1 1.9/2.0	SM				Black to brown to tan silty fine sand w/ trace gravel, dry	SM Fill				
1-2	0.3'										
2-3											
3-4											
4-5	S-2 0.3/2.0 4.6'	SM				Black to gray fine to medium sand, concrete fragments, cobble black @ 4.5, dry.	SW Fill	4.5 pushed, cobble into samples			
5-6								15.5 probe resistance low			
6-7	S-3 0.9/2.0	SM				Brown to black silty fine sand, dry, 8' bgs	SM				VOC 7.5'
7-8						Approx 7.5' brown silty fine sand, wet					
8-9	6-9'					Approx 8' olive clay silt w/ iron staining mottled, moist	ML				
9-10	S-4 1.8/2.0	SM				Brown to black silty fine sand w/ olive gray mottled clayey silt, moist to wet	SM/CL				SUC-12' 12' 12'
10-11											
11-12	9-12'										
12-13											

T:1130

T:1200



# TEST BORING LOG

Project <b>Sulphur Springs - NYSDEC</b>		Boring/Well No. <b>TS-03</b>	Project No. <b>46974</b>
Client <b>NYSDEC</b>	Site <b>Sulphur Springs Road</b>	Sheet No. <u>1</u> of <u>1</u>	
Logged By <b>HC</b>	Ground Elevation	Start Date <b>10/11/01</b>	Finish Date <b>10/11/01</b>
Drilling Contractor _____		Driller's Name _____	Rig Type <b>Hand Geoprobe</b>
Drilling Method <b>Hand Geoprobe - 1" diam</b>		Protection Level <b>D</b>	P.I.D. (eV) <b>battery dead</b>
Soil Drilled <b>11 feet</b>	Rock Drilled _____	Total Depth <b>11 feet</b>	Depth to Groundwater/Date <b>NA</b>
		Piez <input type="checkbox"/>	Well <input type="checkbox"/> Boring <input checked="" type="checkbox"/>

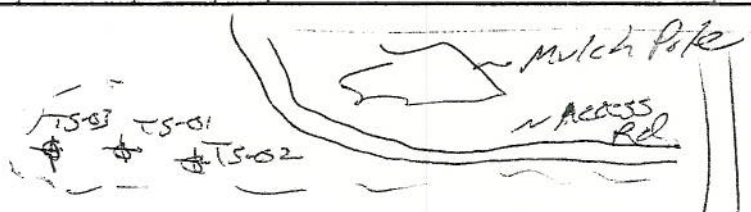
Depth (Feet)	Sample No. & Penetration/Recovery (Feet)	Sample Type	SPT Blows/6" or Core Rec./Rqd. %	SPT-N (Blows/Ft.)	Graphic Log	Sample Description	USCS Group Symbol	Notes on Drilling	Monitoring (ppm)		Lab Tests
									PI Meter Field Scan	PI Meter Head Space	
0-1	5-1 1.0/2.0	SL				Dark brown silty fine sand, with trace gravel, paint chips	SM Fill				
1-2	0-2										
3-4	5-2 1.5/2.0	SL				Dark brown to black silty fine sand, trace wood & gravel, clay.	SN				
4-5	3-5					<del>Break</del>					
5-6											
6-7	5-3 1.7/2.0	SS				Browns tan silt w/ fine sand, moist to wet	SN				
7-8	6-9					- same to 11 feet - clay silt - brown + gray mottling	CL				
8-9											
9-10											
10-11											

T:1325

SS TS00300601X  
SL @ 1325

PI Meter @ 6.5 mwd over twice

100% silt & clay  
Energy





**ATTACHMENT B**  
**DATA USABILITY SUMMARY REPORT**

**ATTACHMENT B  
DATA USABILITY SUMMARY REPORT  
2001 SAMPLING EVENT  
SULPHUR SPRINGS ROAD SITE  
OWEGO, NEW YORK**

**Introduction:**

Soil samples were collected at the Sulfur Springs site in October 2001 and submitted for off-site laboratory analyses. Samples were analyzed for VOCs, SVOCs, and/or TAL Inorganics using NYSDEC methods including 95-1, 95-2, and ILM04. A summary of analytical results is presented in Table 1, Table 2, and Table 3.

Deliverables for the off-site laboratory analyses included a Category B deliverable as defined in the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocols (NYSDEC, 1995).

A project chemist review was completed based on NYSDEC Division of Environmental Remediation guidance (NYSDEC, 1997). The project chemist review included evaluations for data package completeness, holding times, QC data (blanks, instrument calibrations, duplicates, surrogate recovery, and spike recovery) were applicable, and data qualification. A subset of laboratory results were qualified during the data review. The following qualifiers were used:

U = target analyte is not detected at the reported detection limit  
J = concentration is estimated

Off-site sample analysis was completed by Severn Trent Laboratories in Buffalo, New York. With the exception of the items discussed below, results are interpreted to be usable as reported by the laboratory.

**VOLATILES**

Results from a low concentration and medium concentration run are reported for sample SSTS00200701XX. The laboratory completed the medium level methanol extraction analysis because the concentration of chloroethane exceeded the calibration range in the low concentration run. In a comparison of the data for the complete list of detected target compounds, it became apparent that higher concentrations of target compounds were detected in the medium concentration run. Both sets of data are reported in the final results Table 1.

Blanks

Laboratory method blanks contained detections of acetone and methylene chloride. Action levels were calculated as 10X the concentrations observed in blanks, and results less than action levels were qualified non-detect U. Detections of methylene chloride

were qualified U in all samples. Acetone was reported as a detection in samples SSTS00200701XX and SSTS00300601XX due to the high concentration relative to blanks.

#### Instrument Calibration

With the exception of bromomethane in the continuing calibration run on 10/21, all calibrations met method specifications. No results were qualified.

#### **SEMIVOLATILES**

All samples were analyzed as an initial analysis and reanalysis. The laboratory indicated that the samples were reanalyzed due to poor recovery in associated matrix spike/matrix spike duplicate (MS/MSD) samples. The reanalysis results were used as the final data for all samples except SSTS00300601XX. As discussed below, sample SSTS00300601XX had low surrogate recoveries, and the original sample was used.

#### Blanks

Several phthalates including bis(2-ethylhexyl)phthalate and di-n-butyl phthalate were reported in method blanks. In addition, several tentatively identified compounds (TICs) were reported. All detections of these target compounds were qualified non-detect U on the final data Table 2.

In addition, several tentatively identified compounds (TICs) were reported. TICs were reported in a number of samples indicating that low concentration fuel hydrocarbons are present in the samples. The hydrocarbon pattern in the samples did not look like that observed in the blank, and the TICs in the samples are interpreted to be indicative of low concentration heavy fuel oils (<10 ppm).

#### Spike Results

Low recovery of spike compound 4-nitrophenol was reported in the laboratory control sample (LCS) and MS/MSD samples reported in this data set. All results for 4-nitrophenol were qualified rejected R in the final data, and results are not interpreted to be usable.

#### Instrument Calibration

The majority of target compound results met method specification for initial and continuing calibration. Percent difference for butyl benzyl phthalate, di-n-octyl-phthalate, di-n-butyl phthalate, and benzo(k)fluoranthene ranged from 26% to 65%. None of these compounds were reported as positive detections above the quantitation limit, and no additional qualification of data was done based on these calibration responses.

### Surrogate Recovery

All surrogate recoveries were within method limits with the exception of the reanalysis of sample SSTS00300601XX. Low surrogate recovery (10% - 18%) for the majority of surrogate compounds were reported. The original analysis for this sample have good recoveries ranging from 55% to 78%, and this sample was used in the final data Table 2.

### **TAL INORGANICS**

In accordance with CLP reporting procedures, analytes detected between the instrument detection limit and the contract required detection limit (CRDL) are reported with a B qualifier. These B qualifiers were changed to a J during the data review. The qualifiers E and N were also used by the laboratory to indicated QC outliers. The N and E qualified results are reported as estimated J in the final data table.

### QC Blanks

Trace concentrations of aluminum, calcium, iron, magnesium, potassium, zinc, lead, manganese, and mercury were reported in blanks. All concentrations were less than CRDLs for the CLP procedure. With the exception of mercury, blank concentrations were low compared to sample concentrations, and no data were qualified. Low concentration detections of mercury in samples SSTS001010001XX and SSTS00300601XX were qualified non-detect U.

### Spike Results

With the exception of antimony, spike recoveries were within method specifications. Low recovery for antimony (38% -68%) was observed in the LCS and MS/MSD. All results for antimony were qualified estimated in the samples.

### Lab Duplicate

Results for lead (32%) and manganese (109%) in the laboratory duplicate exceeded precision goals for the method. Results for lead and manganese in all samples were qualified estimated J.

### Reference:

New York State Department of Environmental Conservation (NYSDEC), 1995. "Analytical Services Protocols"; 10/95 Edition; October 1995.

New York State Department of Environmental Conservation (NYSDEC), 1997. "Guidance for the Development of Data Usability Reports"; Division of Environmental Remediation; September 1997.

ATTACHMENT B  
TABLE 1  
SUMMARY OF VOC RESULTS  
ADDITIONAL FIELD SAMPLING  
SULPHUR SPRINGS ROAD SITE  
OWEGO, NEW YORK

Location Sample ID Sample Date Sample Time Sample Type	TS-01 SSTS001010001XX 10/11/01 10:30 SOIL	TS-02 SSTS00200701XX 10/11/01 11:30 SOIL	TS-02 SSTS00200701XX DL 10/11/01 11:30 SOIL (dilution)	TS-03 SSTS00300601XX 10/11/01 13:25 SOIL
Parameter	Result	Result	Result	Result
1,1,1-Trichloroethane	19	16	280 DJ	2 J
1,1,2,2-Tetrachloroethane	12 U	14 U	1700 U	13 U
1,1,2-Trichloroethane	12 U	14 U	1700 U	13 U
1,1-Dichloroethane	3 J	8 J	1700 U	13 U
1,1-Dichloroethene	12 U	14 U	1700 U	13 U
1,2-Dichloroethane	12 U	14 U	1700 U	13 U
1,2-Dichloroethene (Total)	2 J	5 J	1700 U	13 U
1,2-Dichloropropane	12 U	14 U	1700 U	13 U
2-Butanone	12 U	58	170 DJ	5 J
2-Hexanone	12 U	5 J	1700 U	21
4-Methyl-2-pentanone	12 U	14 U	1700 U	13 U
Acetone	12 U	170	1700 U	52
Benzene	12 U	14 U	1700 U	13 U
Bromodichloromethane	12 U	14 U	1700 U	13 U
Bromoform	12 U	14 U	1700 U	13 U
Bromomethane	12 U	14 U	1700 U	13 U
Carbon Disulfide	12 U	10 J	1700 U	17
Carbon Tetrachloride	12 U	14 U	1700 U	13 U
Chlorobenzene	14	150	1800 D	13 U
Chloroethane	12 U	990 E	950 DJ	13 U
Chloroform	12 U	14 U	1700 U	13 U
Chloromethane	12 U	14 U	1700 U	13 U
cis-1,3-Dichloropropene	12 U	14 U	1700 U	13 U
Dibromochloromethane	12 U	14 U	1700 U	13 U
Ethylbenzene	12 U	2 J	1700 U	13 U
Methylene chloride	12 U	14 U	1700 U	13 U
Styrene	12 U	14 U	1700 U	13 U
Tetrachloroethene	12 U	14 U	1700 U	13 U
Toluene	12 U	43	260 DJ	13 U
Total Xylenes	12 U	6 J	1700 U	13 U
trans-1,3-Dichloropropene	12 U	14 U	1700 U	13 U
Trichloroethene	6 J	2 J	1700 U	13 U
Vinyl chloride	12 U	14 U	1700 U	13 U

Notes:

units = µg/Kg

U = not detected at associated quantitation limit

J = concentration is estimated

ATTACHMENT B  
TABLE 2  
SUMMARY OF SVOC RESULTS  
ADDITIONAL FIELD SAMPLING  
SULPHUR SPRINGS ROAD SITE  
OWEGO, NEW YORK

Location	TS-01		TS-01 (duplicate)		TS-02		TS-03
Sample ID	SSTS00101001XX		SSTS00101001XD		SSTS00200901XX		SSTS00300601XX
Sample Date	10/11/01		10/11/01		10/11/01		10/11/01
Sample Time	10:30		10:30		12:00		13:25
Type	SOIL		SOIL (duplicate)		SOIL		SOIL
Parameter	Result		Result		Result		Result
1,2,4-Trichlorobenzene	370 U		410 U		420 U		410 U
1,2-Dichlorobenzene	370 U		410 U		420 U		410 U
1,3-Dichlorobenzene	370 U		410 U		420 U		410 U
1,4-Dichlorobenzene	370 U		410 U		420 U		410 U
2,2'-Oxybis(1-Chloropropane)	370 U		410 U		420 U		410 U
2,4,5-Trichlorophenol	910 U		990 U		1000 U		1000 U
2,4,6-Trichlorophenol	370 U		410 U		420 U		410 U
2,4-Dichlorophenol	370 U		410 U		420 U		410 U
2,4-Dimethylphenol	370 U		410 U		420 U		410 U
2,4-Dinitrophenol	910 U		990 U		1000 U		1000 U
2,4-Dinitrotoluene	370 U		410 U		420 U		410 U
2,6-Dinitrotoluene	370 U		410 U		420 U		410 U
2-Chloronaphthalene	370 U		410 U		420 U		410 U
2-Chlorophenol	370 U		410 U		420 U		410 U
2-Methylnaphthalene	370 U		410 U		420 U		410 U
2-Methylphenol	370 U		410 U		420 U		410 U
2-Nitroaniline	910 U		990 U		1000 U		1000 U
2-Nitrophenol	370 U		410 U		420 U		410 U
3,3'-Dichlorobenzidine	370 U		410 U		420 U		410 U
3-Nitroaniline	910 U		990 U		1000 U		1000 U
4,6-Dinitro-2-methylphenol	910 U		990 U		1000 U		1000 U
4-Bromophenyl phenyl ether	370 U		410 U		420 U		410 U
4-Chloro-3-methylphenol	370 U		410 U		420 U		410 U
4-Chloroaniline	370 U		410 U		420 U		410 U
4-Chlorophenyl phenyl ether	370 U		410 U		420 U		410 U
4-Methylphenol	370 U		410 U		420 U		410 U
4-Nitroaniline	910 U		990 U		1000 U		1000 U
4-Nitrophenol	R		R		R		R
Acenaphthene	370 U		410 U		420 U		410 U
Acenaphthylene	370 U		410 U		420 U		410 U
Anthracene	370 U		410 U		52 J		410 U
Benzo(a)anthracene	370 U		410 U		230 J		410 U
Benzo(a)pyrene	370 U		410 U		240 J		410 U
Benzo(b)fluoranthene	370 U		410 U		160 J		12 J
Benzo(ghi)perylene	370 U		410 U		94 J		410 U
Benzo(k)fluoranthene	370 U		410 U		210 J		410 U
Bis(2-chloroethoxy) methane	370 U		410 U		420 U		410 U
Bis(2-chloroethyl) ether	370 U		410 U		420 U		410 U
Bis(2-ethylhexyl) phthalate	370 U		410 U		420 U		410 U
Butyl benzyl phthalate	370 U		410 U		420 U		410 U
Carbazole	370 U		410 U		17 J		410 U
Chrysene	370 U		410 U		270 J		12 J
Di-n-butyl phthalate	370 U		410 U		420 U		410 U
Di-n-octyl phthalate	370 U		410 U		420 U		410 U
Dibenzo(a,h)anthracene	370 U		410 U		43 J		410 U
Dibenzofuran	370 U		410 U		420 U		410 U
Diethyl phthalate	370 U		410 U		420 U		410 U
Dimethyl phthalate	370 U		410 U		420 U		410 U
Fluoranthene	370 U		410 U		410 J		25 J
Fluorene	370 U		410 U		15 J		410 U
Hexachlorobenzene	370 U		410 U		420 U		410 U
Hexachlorobutadiene	370 U		410 U		420 U		410 U
Hexachlorocyclopentadiene	370 U		410 U		420 U		410 U
Hexachloroethane	370 U		410 U		420 U		410 U
Indeno(1,2,3-cd)pyrene	370 U		410 U		100 J		410 U
Isophorone	370 U		410 U		420 U		410 U
N-Nitroso-Di-n-propylamine	370 U		410 U		420 U		410 U
N-nitrosodiphenylamine	370 U		410 U		420 U		410 U
Naphthalene	370 U		410 U		420 U		410 U
Nitrobenzene	370 U		410 U		420 U		410 U
Pentachlorophenol	910 U		990 U		1000 U		1000 U
Phenanthrene	370 U		410 U		240 J		14 J
Phenol	370 U		410 U		420 U		410 U
Pyrene	370 U		410 U		400 J		14 J

Notes:

units = µg/Kg

U = not detected at associated quantitation limit

J = concentration is estimated

ATTACHMENT B  
TABLE 3  
SUMMARY OF INORGANICS RESULTS  
ADDITIONAL FIELD SAMPLING  
SULPHUR SPRINGS ROAD SITE  
OWEGO, NEW YORK

Location	TS-01	TS-02	TS-02	TS-02	TS-03
Sample ID	SSTS00101001XX	SSTS00200901XX	SSTS00200901XD	SSTS00300601XX	
Sample Date	10/11/01	10/11/01	10/11/01	10/11/01	
Sample Time	10:30	12:00	12:00	13:25	
Sample Type	SOIL	SOIL	SOIL (duplicate)	SOIL	
Parameter	Results	Results	Results	Results	Results
Leachable pH	6.74	7.55	7.49	6.79	
Aluminum - Total	11700	12000	10800	14800	
Antimony - Total	0.47 J	0.88 J	1.2 J	0.37 UJ	
Arsenic - Total	2.4	7.8	12	4.9	
Barium - Total	56.3	75.8	88.7	112	
Beryllium - Total	0.5 J	0.52 J	0.63 J	0.68 J	
Cadmium - Total	0.11 U	0.14 U	0.13 U	0.12 U	
Calcium - Total	1560	3360	6450	2200	
Chromium - Total	15	17	16.5	15.8	
Cobalt - Total	9.3 J	11.2 J	11.8 J	8.5 J	
Copper - Total	16.3	46.5	54.4	13.4	
Iron - Total	18900	37500	48300	19900	
Lead - Total	12.3 J	227 J	244 J	28.2 J	
Magnesium - Total	3540 J	3590 J	2970 J	2650 J	
Manganese - Total	209 J	403 J	702 J	453 J	
Mercury - Total	0.031 U	0.632	0.348	0.086 U	
Nickel - Total	23.2	25	23	18.2	
Potassium - Total	1130 J	968 J	1010 J	967 J	
Selenium - Total	0.89 J	2.3	2.4	1.2	
Silver - Total	0.23 U	0.27 U	0.25 U	0.25 U	
Sodium - Total	35.7 J	90.4 J	75 J	57.1 J	
Thallium - Total	0.46 U	0.54 U	0.51 U	0.5 U	
Vanadium - Total	15	19.2	21.7	20.4	
Zinc - Total	61.6 J	112 J	122 J	83.3 J	

Notes:

units = mg/Kg

U = not detected at associated quantitation limit

J = concentration is estimated