

**QUARTERLY PROGRESS REPORT NO. 2
(October 1 through December 31, 2003)**

**FULL SCALE IN-SITU SOIL VAPOR
EXTRACTION SYSTEM
VESTAL AREA 4,
VESTAL, NEW YORK**

Prepared by:

SEVENSON PRAC TEAM MEMBER
Envirogen/Shaw, Inc.
103 College Ave SE
Grand Rapids, MI 49503

Submitted by:

SEVENSON ENVIRONMENTAL SERVICES, INC.
2749 Lockport Road
Niagara Falls, New York 14305

February 23, 2004



February 26, 2004

Stephen J. DeNardis, P.E.
Resident Engineer
West Point Area Office
New York District
U.S. Army Corps of Engineers
Building 667A 3rd Floor
West Point, New York 10996

Attention: Mr. Nicholas Patsis, P.E.

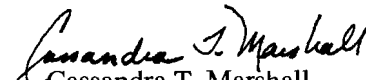
RE: Quarterly Progress Report No. 2
Contract # DACA41-01-D-001-0006
Vestal Wellfield 1-1, Area 4, Vestal, New York

Sirs:

Enclosed is Quarterly Progress Report No. 1 for the referenced contract. This report covers system operations during October, November, and December 2003. O&M activities for the period as well as sampling activities are summarized in this report. Copies of the analytical data are included.

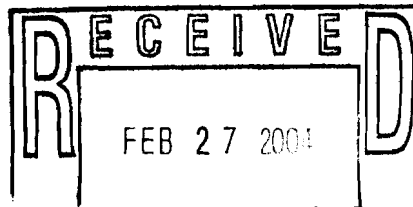
Please email me at cmarshall@sevensonphilly.com or call at 610-388-0721 if you've any questions.

Sincerely,
Sevenson Environmental Services, Inc.


Cassandra T. Marshall
Project Manager

CTM/1

cc: A. LaGreca (Sevenson)
J. Singer (Sevenson)
D. Callahan (Envirogen)
B. Buckrucker (USACE)
F. Bales (USACE)
S. Trocher (USEPA)
M. Dunham (NYSDEC)



TRAI		AL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIALS, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE (Read Instructions on the reverse side prior to initiating this form)			DATE 2/26/04		☒ New Sub. ☐ Resubmittal	
Section I REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS (This section will be initiated by the contractor)								
TO: USACE West Point Area Office New York District Building 667A 3rd Floor West Point, New York 10996			FROM: Severson Environmental Services Inc. 2749 Lockport Rd. Niagara Falls, N.Y. 14302		CONTRACT NO. DACA-41-01-D-0001 T.O.# 0006		TRANSMITTAL NO. 18 PREVIOUS TRANS. NO. (If Any)	
SPECIFICATION SEC. NO. (Cover only one section with each transmittal)				PROJECT TITLE AND LOCATION: Vestal Well 1-1 Superfund Site, Area 2 Soil Vapor Extraction System, Broome County, New York				
ITEM NO.	DESCRIPTION OF ITEMS SUBMITTED (Type, size, model number, etc.)	MFG. OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. (See instruction No. 8)	NO. OF COPIES	CONTRACT REFERENCE DOCUMENT		VARIATIONS (See instruction No. 6)	FOR C E USE CODE	
a.	b.	c.	d.	e.	f.	g.	h.	
1.	Second Quarterly Report		1					
REMARKS: Sent via Federal Express: 2 copies to CENWK 1 copy to USEPA Region II 1 copy to N.Patsis 1 copy to NYSDEC				I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated. <i>Severson Environmental Services, Inc.</i> NAME AND SIGNATURE OF CONTRACTOR 				
Section II APPROVAL ACTION								
INCLOSURES RETURNED (List by Item No.)			NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY				DATE	

ENG FORM 4025, Oct 84 (ER 415-1-10) EDITION OF JUL 81 IS OBSOLETE

(Proponent: CEEC-CE)

SHEET ____ OF ____

**QUARTERLY PROGRESS REPORT NO. 2
(October 1 through December 31, 2003)**

**FULL SCALE IN-SITU SOIL VAPOR
EXTRACTION SYSTEM
VESTAL AREA 4,
VESTAL, NEW YORK**

Prepared by:

SEVENSON PRAC TEAM MEMBER
Envirogen/Shaw, Inc.
103 College Ave SE
Grand Rapids, MI 49503

Submitted by:

SEVENSON ENVIRONMENTAL SERVICES, INC.
2749 Lockport Road
Niagara Falls, New York 14305

February 23, 2004

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	SUMMARY OF ACTIVITIES CONDUCTED DURING THE REPORTING PERIOD	2
3.0	ISVE SYSTEM MONITORING AND ADJUSTMENTS	4
3.1	Pressure/Vacuum Readings	4
3.1.1	Air Blowers	4
3.1.2	Carbon Units	4
3.1.3	Well Field	4
3.2	Temperatures	5
3.3	Process Air Flows	5
3.3.1	Total System Process Air Flow	5
3.3.2	ISVE Well Process Air Flow	6
3.4	Process Air VOC Concentrations	6
3.4.1	ISVE Withdrawal Wells	6
3.4.2	Carbon Process Air Control Samples	6
3.4.3	QA/QC Process Air Samples	7
4.0	VOC YIELD	8
4.1	ISVE Withdrawal Well VOC Yields	8
4.2	Total System VOC Yield	9
5.0	QUARTERLY REPORT No. 2 ANALYSIS OF MONITORING DATA	10
5.1	Total System	10
6.0	PROBLEMS ENCOUNTERED DURING THE REPORTING PERIOD AND RESPECTIVE CORRECTIVE MEASURES	11
7.0	ANTICIPATED ACTIVITIES	12
8.0	AUTHOR IDENTIFICATION	13

LIST OF FIGURES

- 1 SVE System Layout
- 2 Total Target VOC Concentration, December 2-4, 2003
- 3 1,1,1 TCA Concentration (ppm), December 2-4, 2003
- 4 TCE Concentration (ppm), December 2-4, 2003
- 5 Carbon System Sampling Diagram
- 6 Concentration (ppmv) And Yield Rate (lbs/day) Of Total Target VOCs Vs. Time, Total System Sample, Vestal Area 4
- 7 Total Target VOC Yield (lbs/day), December 2-4, 2003
- 8 1,1,1 TCA Yield (lbs/day), December 2-4, 2003
- 9 TCE Yield (lbs/day), December 2-4, 2003
- 10 Total Target Contaminant Yield Start-Up to Date (lbs.) Vs. Time, Total System Sample, Vestal Area 4
- 11 Proposed SVE Well Polarity Changes

LIST OF TABLES

- | | |
|---------|---|
| Table 1 | SVE Well Status, Vestal Area 4, October 15, November 19, & December 2-4, 2003 |
| Table 2 | Analytical Results Of Concentrations Of Target Compounds, Vestal Area 4 |
| Table 3 | Contaminant Concentrations And Yields, December 2-4, 2003, Vestal Area 4 |
| Table 4 | Target Contaminant Yield, Vestal Area 4 |
| Table 5 | Total Target Contaminant Yield To Date, Vestal Area 4 |
| Table 6 | SVE Well Proposed Changes, Vestal Area 4 |

LIST OF APPENDICES

- | | |
|------------|---|
| Appendix A | Operation and Maintenance Data (Including Daily O&M Records, Routine Maintenance and Inspection Forms, and Field Notes) |
| Appendix B | Sampling and Analytical Data - Process Air Data (Including Laboratory Data Summary Sheets, Chain-of-Custody Forms, and Field Sample Log Book Notes) |
| Appendix C | Summary of Operation Data/Contaminant Yield Calculation |

1.0 INTRODUCTION

Sevenson Environmental Services, Inc. and their subcontractor (Shaw Environmental and Infrastructures (SHAW), formerly Envirogen, Inc. of Lansing, Michigan), has prepared this Quarterly Report No. 2 for the Full Scale Soil Vapor Extraction System (SVE System or System) at the Vestal Area 4 Site in Vestal, NY (Site). This report was prepared on behalf of the United States Environmental Protection Agency (USEPA) and the United States Army Corps of Engineers (USACE) who are conducting the Remedial Action for the Vestal Area 4 Site. This report was prepared under contract DACA41-01-D-0001-0006. Sevenson's remedial action work is under supervision of the USEPA and USACE. The second Quarterly Progress Report is provided and prepared in accordance with the approved Workplan. This report discusses the System operation based on data collected during October, November, and December 2003, and also discusses System operation and maintenance during these months.

Figure 1 (shown at the end of this report) is a Site plan showing the SVE System treatment area, cell distribution buildings, and the main SVE treatment building. Construction of the SVE System began in mid-April 2003 and was completed on June 23, 2003. The remedial action began on June 27, 2003, after completion of a successful start-up sequence. The SVE System is operated in accordance with the approved Workplan, O&M Manual and the Final Design documents.

Figure 1 depicts System and SVE well polarity (withdrawal, active injection or temporarily off-line) following the System installation.

Section 2.0 of this report summarizes general activities conducted during the reporting period. Section 3.0 summarizes System monitoring and adjustments. Section 4.0 discusses volatile organic compound (VOC) contaminant yields based on process air analytical data. Section 5.0 discusses analysis of data specific to the Quarterly Report period between October and December 2003. Section 6.0 discusses problems encountered during the reporting period and their respective corrective measures. Section 7.0 lists anticipated future activities.

2.0 SUMMARY OF ACTIVITIES CONDUCTED DURING THE REPORTING PERIOD

The O&M inspections/site visits were performed on October 1, 9, 15, and 28; November 5, 6, 11, and 19; and December 2 and 4, 2003. Air flow and Photo Ionic Detector (PID) readings were measured throughout the System on October 15, November 19, and December 2 and 4, 2003. A full round of process air samples was collected from withdrawal wells on December 2 and 4, 2003.

Samples of process air through the carbon treatment system were collected on October 9, 15, and 28; November 11 and 19; and December 4, 2003.

On October 1, 2003, samples were taken and shipped to the lab. The cooler was returned to the site labeled 'No Delivery Address.' Samples were retaken on October 9, 2003.

On October 9, the system was shut down to rotate the carbon beds. Carbon bed #1 broke through and subsequently taken offline. Carbon bed #2 was moved to the one position and the spare was changed to the number two carbon position.

System process water (approximately 950 gallons per event) was removed on November 5, 2003.

Carbon vessels 1 and 2 were containerized and replaced on November 6, 2003, (approximately 2000 pounds per event).

On December 3, 2003 site technicians shut the System down for site maintenance.

The System shut down on December 9 and 10, 2003, due to a faulty thermocouple-sensing unit on the vacuum line. The unit was replaced and the System restarted.

The System was down December 14, 15, 18, and 22, 2003, due to high water in the main vacuum lines, which reduced the vacuum flows.

Envirogen technicians shut the System down from December 23 through December 29, 2003, due to excessive water on the Site.

Physical monitoring of the System parameters, such as PID readings, temperature, and air flow measurements, along with routine maintenance of the System, was conducted during the October through December reporting period in accordance with the O&M Manual. These O&M measurements and activities were recorded on daily O&M logs, which are provided in Appendix A.

The System operated for 34 days from September 24 to October 28, 25 days from October 28 to November 30, and 16 days in December 2003 bringing the total operational time to approximately 145 days since the June 23, 2003, start-up.

Health and Safety (H&S) monitoring was conducted as outlined in the Site Safety and Health Plan (SSHP). No significant events were observed during this monitoring period.

3.0 SVE SYSTEM MONITORING AND ADJUSTMENTS

This section summarizes monitoring of and adjustments made to the SVE System during the reporting period. Monitoring of the System included pressure/vacuum readings, PID and temperature measurements, air flow measurements, and process air sampling and associated VOC analysis. The locations of the SVE wells are illustrated in Figure 1. System parameters were recorded on O&M daily log sheets, which are provided in Appendix A. The chain-of-custody forms and laboratory data summary sheets are provided in Appendix B. Monitoring and adjustments were performed in accordance with the O&M Manual.

3.1 Pressure/Vacuum Readings

Pressure/vacuum measurements were taken across the air blowers and carbon units, and recorded on the daily log sheets (Appendix A). These measurements were collected on October 9, 15, and 28; November 5, 6, 18, 19, and 25; and December 2 and 4, 2003.

3.1.1 Vacuum Blowers

Pressure drops were measured across the vacuum blowers and filter during System operation. The pressure across the vacuum blower and filter ranged between 9 and 28 inches of water (H₂O).

3.1.2 Carbon Units

The total pressure drop across the two carbon units averaged 24.3 inches of H₂O during the reporting period. This pressure drop includes the carbon units and the connecting piping and fittings.

3.1.3 Well Field

Vacuum flow rate and PID reading for the individual SVE wells on October 15, November 19, and December 2 and 4, 2003, are listed in Table 1. On October 15 vacuum flow rates at the cell distribution buildings ranged from less than 5 to 25 standard cubic feet per minute (scfm) for Cell 1 and less than 5 to 10 scfm for Cell 2. Injection flow rates ranged from: less than 5 to 15 scfm for Cell 1 to less than 5 to 8 in Cell 2.

On November 19, 2003 vacuum flow rates at the cell distribution buildings ranged from less than 5 to 20 scfm for Cell 1 and less than 5 to 9 scfm for Cell 2. Injection flow rates ranged from: less than 5 to 15 scfm for Cell 1 to 4 to 8 in Cell 2.

On December 2 and 4, 2003 (the quarterly monitoring event) vacuum pressures at the cell distribution buildings manifolds ranged from 84 inches of H₂O for Cell 1 to 86 inches of H₂O for Cell 2. Injection pressure was 40 inches of H₂O for both Cell 1 and Cell 2.

3.2 Temperatures

Process air stream temperatures, measured at the discharge of the air blowers and across the carbon treatment system, were recorded on the O&M daily log sheets (Appendix A).

Temperature measurements at the vacuum air blowers did not exceed 180°F, which was below the design settings of 220°F. The temperature at the discharge of the vacuum blower was measured at an average of 166°F, and the temperature at the discharge of the injection blower was measured at an average of 125°F. Temperature at the vacuum header within the Cell distribution buildings ranged from 60°F to 86°F, and ranged between 48°F and 58°F at the injection header. The carbon treatment system influent air stream temperatures ranged from 72°F to 135°F. The carbon treatment system influent exceeded the air stream temperatures design specification of 130°F by 5°F on December 2, 2003. This was due to the internal circuit breaker within the heat exchanger “tripping” shutting down the unit. The heat exchanger was restarted on December 4, 2003 and no further problems have occurred.

3.3 Process Air Flows

This section discusses process air flow measurements and balancing throughout the entire System and for the individual SVE wells. Individual SVE withdrawal and injection well process air flow measurements are provided in Table 1 for October 15, November 19 and December 2, 2003.

3.3.1 Total System Process Air Flow

During the reporting period, air flow throughout the entire System was measured as outlined in the O&M Manual. The air flow through the System was calculated by measuring the pressure drop across the blowers, and using this value to obtain the air flow from the blower curve computer model supplied by the manufacturer. Calculated air flow rates are contained in Table 2. Based on this data, the calculated air flow through the entire System between October and December 2003 averaged 512 scfm. The bypass air flow for October 15, November 19, and December 2 was 225 scfm (Table 1). The entire system flow is a culmination of the bypass flow and the individual flow rates. Estimated wellfield airflow was 287.

3.3.2 SVE Well Process Air Flow

Individual SVE withdrawal and injection well process air flow measurements were recorded on October 15, November 19, and December 2, 2003. This data is contained in Table 1.

Total SVE well air flow on the withdrawal side of the System was 512 scfm on October 15, November 19 and December 2, 2003.

3.4 Process Air VOC Concentrations

Process air samples were collected during the reporting period on October 9, 15 and 28; November 11 and 19; and December 4, 2003. Samples were collected and analyzed in accordance with the O&M Manual. The withdrawal well process air analytical results and the carbon treatment system process air analytical results are contained in Table 2. Quality Assurance/Quality Control (QA/QC) analytical results are also presented in Table 3. The laboratory data summary sheets, chain-of-custody forms, and field sample log book notes are provided in Appendix B.

3.4.1 SVE Withdrawal Wells

Quarterly sampling of the SVE withdrawal wells occurred on December 2 through 4, 2003. Concentrations of total targeted VOCs at individual wells ranged from 0.00 parts per million by volume (ppm_v) in wells B1, F1, H1, I5, J6 and K5, to 184.97 ppm_v in well C3 (Table 3). Trichloroethene (TCE) and 1,1,1-trichloroethane (1,1,1-TCA) show the highest concentrations.

The total targeted VOC concentration contours using the December analytical data are illustrated in Figure 2. Figures 3 and 4 show individual contaminant concentrations of 1,1,1-TCA and TCE, respectively. The highest VOC concentrations were located in the areas of cell 1 between wells B3 and C3, D1, and F4; and cell 2 of the treatment area in the vicinity of wells K3 and J1.

3.4.2 Carbon Process Air Control Samples

Carbon treatment system process air control samples were collected from three (3) sample ports identified and illustrated on Figure 5.

Total System VOC samples are collected prior to the combined process air stream entering the carbon treatment system. System samples were labeled "INFLUENT", "MID", and "EFFLUENT".

Total System samples were collected October 9, 15 and 28; November 11 and 19; and December 4, 2003. The total targeted influent VOC concentration averaged 13.12 ppm_v over the reporting period (Table 2). TCE and 1,1,1-TCA constitute the majority of the VOC mass in the process air stream. Concentrations of target VOCs in the total System samples collected since the initial startup of the System in June 2003 are shown in Figure 6.

Between carbon bed ("MID") and after carbon bed ("EFFLUENT") samples were also collected on the same days as the total System sample to evaluate VOC breakthrough and to determine when carbon change-outs should be performed.

3.4.3 QA/QC Process Air Samples

QA/QC process air samples, including duplicates, sample pump blanks, trip blanks, and instrument blanks, were collected during the sampling events. Duplicates of withdrawal well samples E4 and K3 were collected and analyzed for the targeted VOCs. The results of the analysis are shown on Table 3. The sample pump blank concentrations of total targeted compounds were below the detection limit (0.05 ppm_v). The trip and instrument blanks concentrations were also below the detection limit for total targeted compounds.

4.0 VOC YIELD

This section details the System VOC yield distribution based on the individual SVE withdrawal well samples collected during the December 2 and 4, 2003 sampling event. Also discussed in this section is the total System VOC yield based on the air flow through the blowers and the composite/total System VOC analytical results.

4.1 SVE Withdrawal Well VOC Yields

The VOC yield rate for each SVE withdrawal well was calculated using the Ideal Gas Law, the average molecular weight of the targeted compounds, the flow rate for each individual withdrawal well, and the total targeted VOC concentration for each well. Table 3 summarizes the yield rate in pounds per day (lbs/day) for each SVE withdrawal well as measured during the December sampling event.

The VOC yield rates varied from non-measurable to 0.18 lbs/day (well C-3). Wells A2, B1, C1, and F1 had a non-measurable yield because of low VOC concentration (PID reading less than 10 ppm), and wells H2, I3, I5, J3, L1, M1, N1, and N2 had a non-measurable yield due to very low air flow (5 scfm or lower). Wells D4, H1, J6, K5, L4, and N3 had a non-measurable yield due to both a low VOC concentration and very low air flow. The table below (see next page) summarizes the wells with non-measurable VOC yield rates. Actions to improve flow in wells are noted, but largely the effort is to try to dry out the area to decrease possible entrained moisture. (See Section 7.0 for further detail.)

At this time, some wells located in areas with high contaminant concentrations (as shown in the Pre-Remediation Geoprobe Sampling Summary Report, Vestal Well 1-1, Operable Unit 2, Area 4, March 21, 2002), currently show low VOC yield rates. Air flow rates and VOC contaminant levels with this off-gas data may be limited by subsurface geologic conditions (silt lenses), preferential air flow patterns, and soil moisture content. These conditions are unpredictable and change with varying Site conditions.

Figure 7 illustrates SVE withdrawal well total targeted VOC yield rate contours for the December sampling event. Figures 8 and 9 show individual contaminant yield rates of 1,1,1-TCA and TCE, respectively. Most of the withdrawal wells in the treatment area indicate a yield of less than 0.10 lbs/day total targeted VOC. Higher yield rates were observed in the vicinity of wells B-3, C-3, D-1, and F-4.

SUMMARY OF WELLS WITH LOW YIELD RATES							
SVE WELL #	FLOW RATE	PID READINGS	LOW FLOW	LOW PID (<10ppm)	Soil Concentrations	Proposed Actions to improve	Notes/Action List
F1	20	1.4		X	Low	Alter flow rates	Attempt to dry out area
C1	10	5.9		X	Low	Alter flow rates	Reduce flow rate and allow area to dry
A2	15	2.1		X	Low	Alter flow rates	Goals may be attained
B1	15	1.0		X	Low	Alter flow rates	Attempt to dry out area
D4	2	4.3	X	X	High	Alter flow rates	Concentrate more vacuum flow to well
K5	2	1.1	X	X	High	Alter flow rates	Concentrate more vacuum flow to well
L4	2	4.3	X	X	Low	Alter flow rates	Concentrate more vacuum flow to well
L1	2	13.6	X		Low	Inject air	Concentrate more vacuum flow to well
N1	2	11.6	X		Low	Inject air	Reduce flow rate and allow area to dry
N2	2	23.0	X		Low	Inject air	Reduce flow rate and allow area to dry
N3	2	7.3	X	X	Low	Alter flow rates	Reduce flow rate and allow area to dry
M1	2	26.1	X		Low	Inject air	Concentrate more vacuum flow to well
J6	2	1.8	X	X	High	Alter flow rates	Low PID reading is unexpected at this location of high site contamination
J3	2	143.3	X		High	Inject air	Concentrate more vacuum flow to well
I5	2	13.1	X		High	Inject air	Concentrate more vacuum flow to well
H2	2	10.6	X		Low	Inject air	Concentrate more vacuum flow to well
I3	2	14.2	X		Medium	Inject air	Reverse air flow patterns
H1	2	5.3	X	X	Low	Alter flow rates	Reduce flow rate and allow area to dry

4.2 Total System VOC Yield

The Total System VOC yield (Table 4) was calculated using the total System air flow rate (Section 3.3.1) and the influent System sample ("INFLUENT") analytical results. Based on these calculations, the System has yielded approximately 920 pounds of VOCs through the December 4, 2003 sampling event (Table 5). Therefore, the average yield rate of the System between June 23 and December 4, 2003, is 6.97 lbs/day. TCE constitutes approximately 42 percent and 1,1,1-TCA approximately 58 percent of the total VOC yield since the beginning of the SVE System operation. The increasing mass of total targeted VOCs removed from the treatment area is illustrated in Figure 10.

5.0 QUARTERLY REPORT No. 2 ANALYSIS OF MONITORING DATA

This section provides additional analysis of operational data collected between October and December 2003. Total System data was evaluated for this time period. The following evaluations were performed: analyses of total targeted VOC concentrations and yield rates vs. time and Total Targeted Contaminate Yield start-up to December 4, 2003.

5.1 Total System

Table 2 summarizes the total System VOC concentrations and Table 4 summarizes the Total Contaminate yield per day of each VOC within the process air stream. Figure 6 illustrates concentration and daily yield rates of targeted contaminate vs. time, and Figure 10 illustrates Total Targeted Contaminate Yield from start-up to December 4, 2003. As expected, the yield rate and concentration trends closely match.

1,1,1-TCA is the dominant compound detected (Table 4), ranging from 44 to 62 percent of the VOC component of the total System process air stream. TCE ranged from approximately 38 to 56 percent of the total (Table 4).

The total System air flow rate has been very stable throughout the life of the System at 512 scfm, which was within 2 to 3 percent of the target air flow rate of 500 scfm.

6.0 PROBLEMS ENCOUNTERED DURING THE REPORTING PERIOD AND RESPECTIVE CORRECTIVE MEASURES

As Discussed in section 2.0 of this report, a faulty thermocouple-sensing unit on the vacuum line was replaced on December 10, 2003. The System was down later in December 2003, due to high water in the main vacuum lines, which reduced the vacuum flows.

During this reporting period, several wells were recorded with no air flow. These problems are related to the presence of condensate water in the process piping. Maintenance activities have been performed to remove (increased vacuum to selected wells) and control the amount of water being drawn into the treatment System (closing of selected wells). Should the site soils begin producing substantial quantities of condensate, the pump-out time will be increased in wells constructed with condensate drop legs.

7.0 ANTICIPATED ACTIVITIES

The following activities are anticipated for the next reporting period:

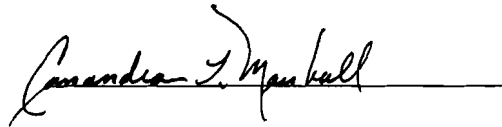
- Continue operations and maintenance of the SVE system,
- Review of SVE well flow patterns and VOC removal (adjustments if necessary),
- The next quarterly sampling event is scheduled for March 2004, and
- To try to improve system well airflow and yields, we propose a SVE well reconfiguration to focus the SVE system on the areas of higher contaminant concentration (as shown in the Pre-Remediation Geoprobe Sampling Summary Report, Vestal Well 1-1, Operable Unit 2, Area 4, March 21, 2002). Under the new configuration, wells A1, A2, C1, E1, F1, K1, and L1 will be changed from vacuum to injection. Wells B2, C2, D2, E2, J2, J4, K2, K4, and M3 will be changed from injection to vacuum. Wells F6, H2, I1, I2, I4, J1, M1, M4, N1, N2, and N3 will be temporarily shut off. This re-configuration tries to preserve the status of wells that are currently yielding contaminant. Table 6 depicts the proposed SVE well polarity changes, and Figure 11 shows the site layout under the proposed conditions. We would propose this configuration for a minimum of 3 months, observe selected wells via PID readings, and then re-evaluate the configuration. Reconfiguration of these wells will occur during the first week of February 2004.

8.0 AUTHOR IDENTIFICATION

This report was prepared and checked by:



Douglas C. Callahan
Project Manager
Envirogen/Shaw Inc.



Cassandra T. Marshall
Project Manager
Sevenson Environmental Services, Inc.

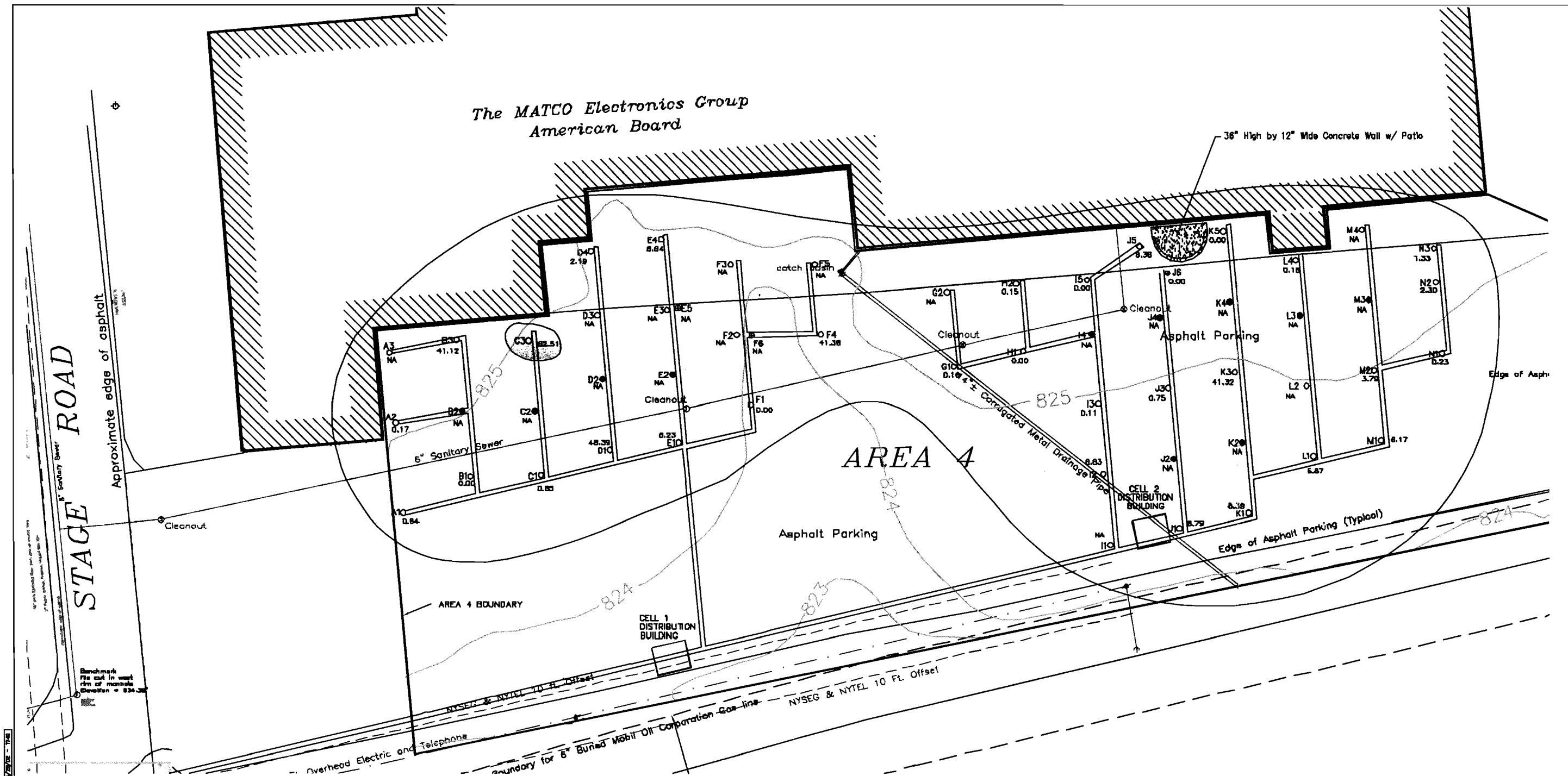
FIGURES

Approximate edge of asphalt

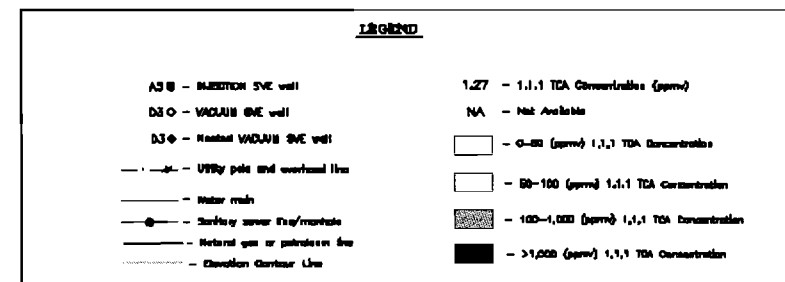


20 0 20
SCALE IN FEET

[illegible]

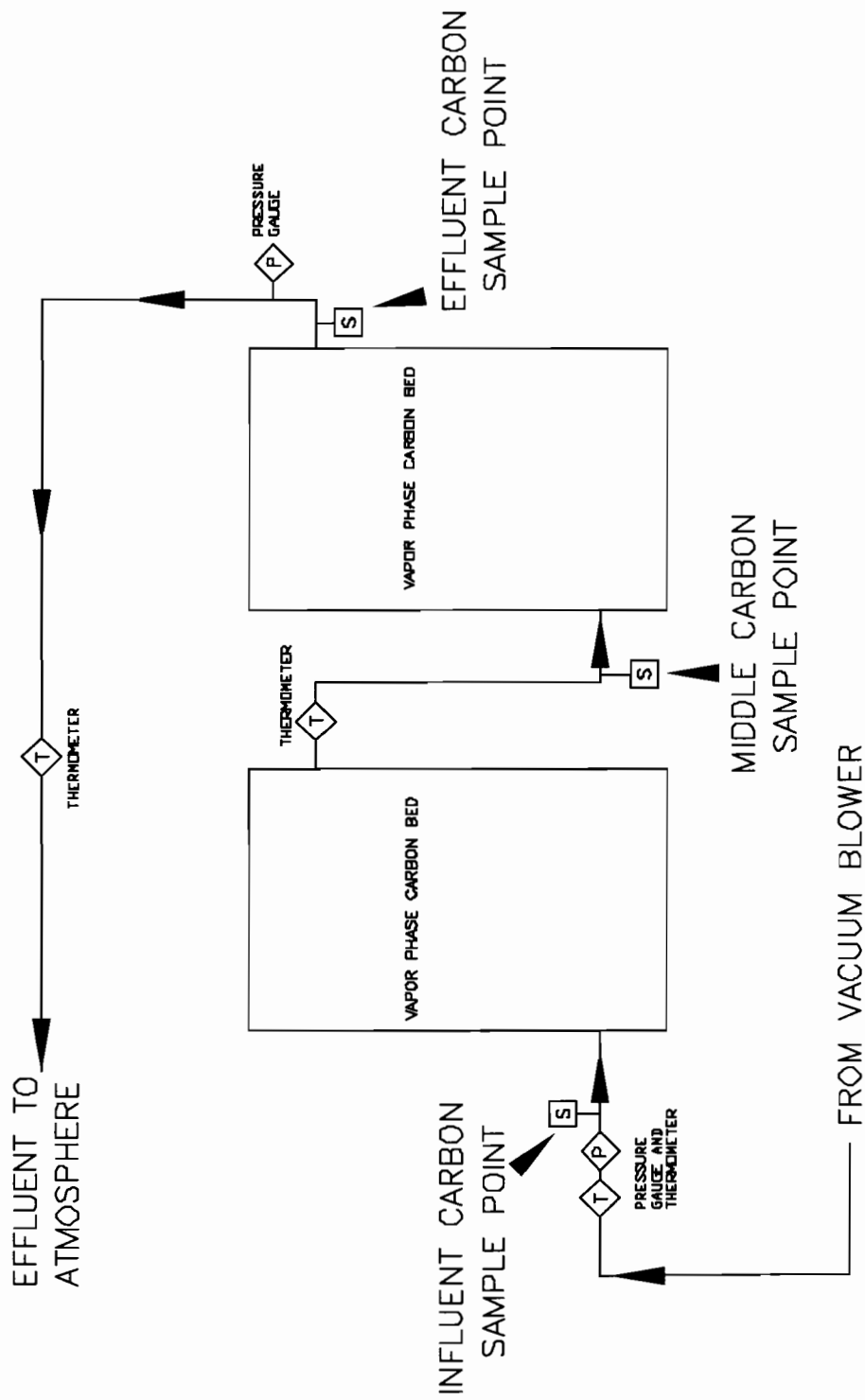


BASE MAP PROVIDED BY JOYCE SURVEYING AND MAPPING



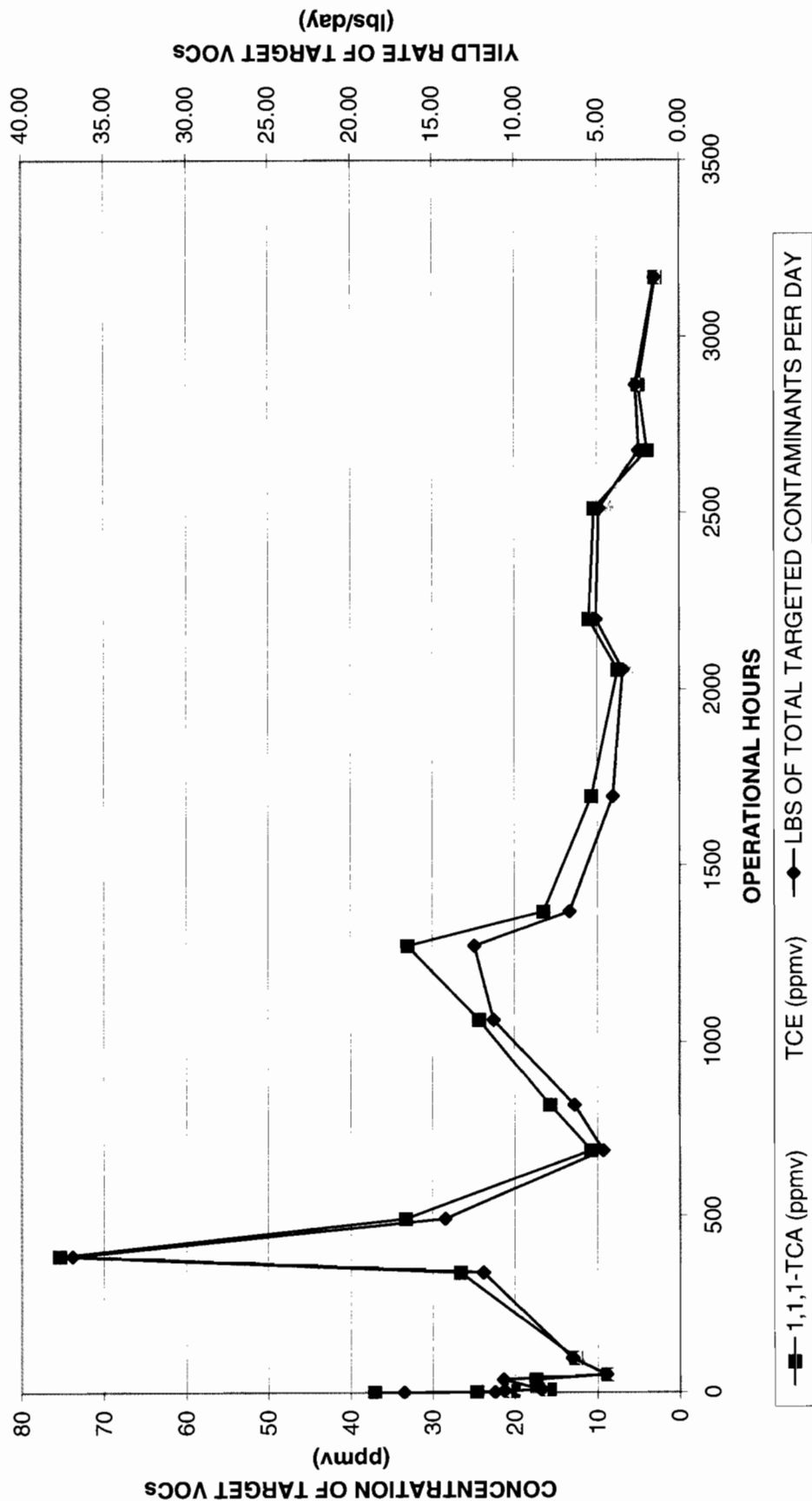
NO.	DATE	ISSUED FOR CLIENT REVIEW	ISSUED FOR	BY
1	4-26-02	ISSUED FOR CLIENT REVIEW		DC

Sevenson Environmental Services Inc. 1740 LEXINGTON ROAD HAGERMAN, IDAHO 83422	ENVIROGEN Shaw E&I Engineering of New York, P.C. 103 COLLEGE AVE SE GRAND RAPIDS, MICHIGAN 49503	US Army Corps of Engineers Korea City District CONTRACT No. DACW41-D1-D-0001	STEWART HARRIS ASHRAE NEW YORK PROFESSIONAL ENGINEER LICENSE NUMBER: 070033	DRAWN: BL CHECKED BY: DC DESIGN ENGINEER: DC APPROVED BY: SA DATE: 1-6-04	SITD: VESTAL AREA 4 TOWN OF VESTAL, BROOME COUNTY, NEW YORK TITLE: 1.1,1 TCA CONCENTRATION (ppmv) DECEMBER 2-4, 2003	SCALE: AS SHOWN REVISION: 081066 DRAWING NUMBER: VES A4- 3 SHEET: 3 of 11

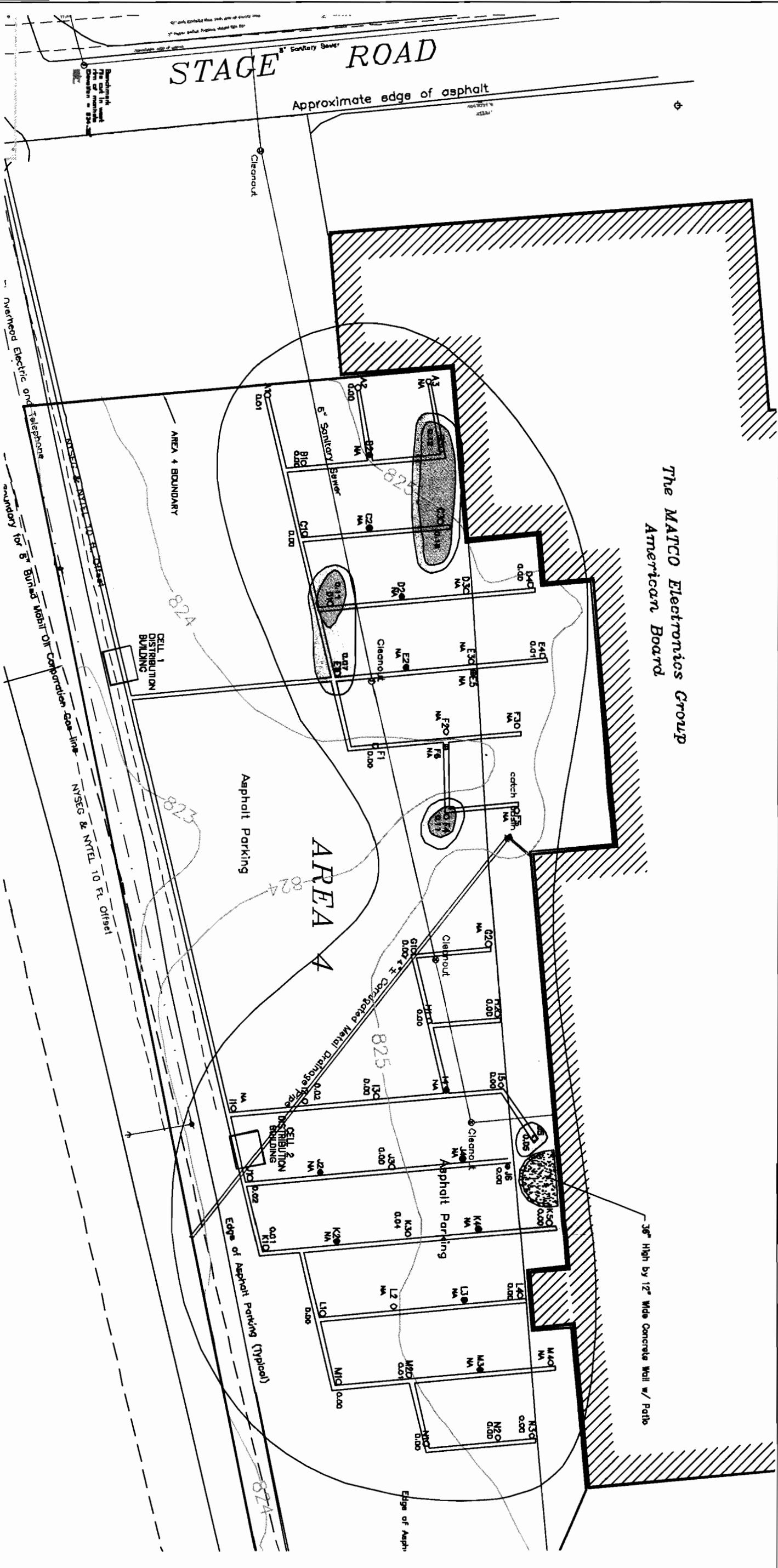


ENVIROGEN Shaw E&I Engineering of New York, P.C. 100 CROSS ST. 10 YONKERS, NY 10596		US Army Corps of Engineers New York District CONTRACT NO. DACW41-01-3-0001		PROJECT NO. 15-4-05 TITLE CARBON SYSTEM SAMPLING DIAGRAM		VESTAL AREA 4 TOWN OF VESTAL, MADISON COUNTY, NEW YORK		SHEET NO. 15-4-05 TOTAL SHEETS 15-4-05	
Environmental Services Inc. 100 CROSS ST. 10 YONKERS, NY 10596		DATE: 10/1/01 DRAWN BY: J. J. J.		CHECKED BY: J. J. J.		APPROVED BY: J. J. J.		SCALE: 1" = 1'-0"	

FIGURE 6
CONCENTRATION (ppmv) AND YIELD RATE (lbs/day)
OF TOTAL TARGET VOCs Vs. TIME
TOTAL SYSTEM SAMPLE
VESTAL AREA 4



The MATCO Electronics Group
American Board

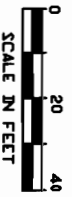


BASE MAP PROVIDED BY JOYCE SURVEYING AND MAPPING

LEGEND

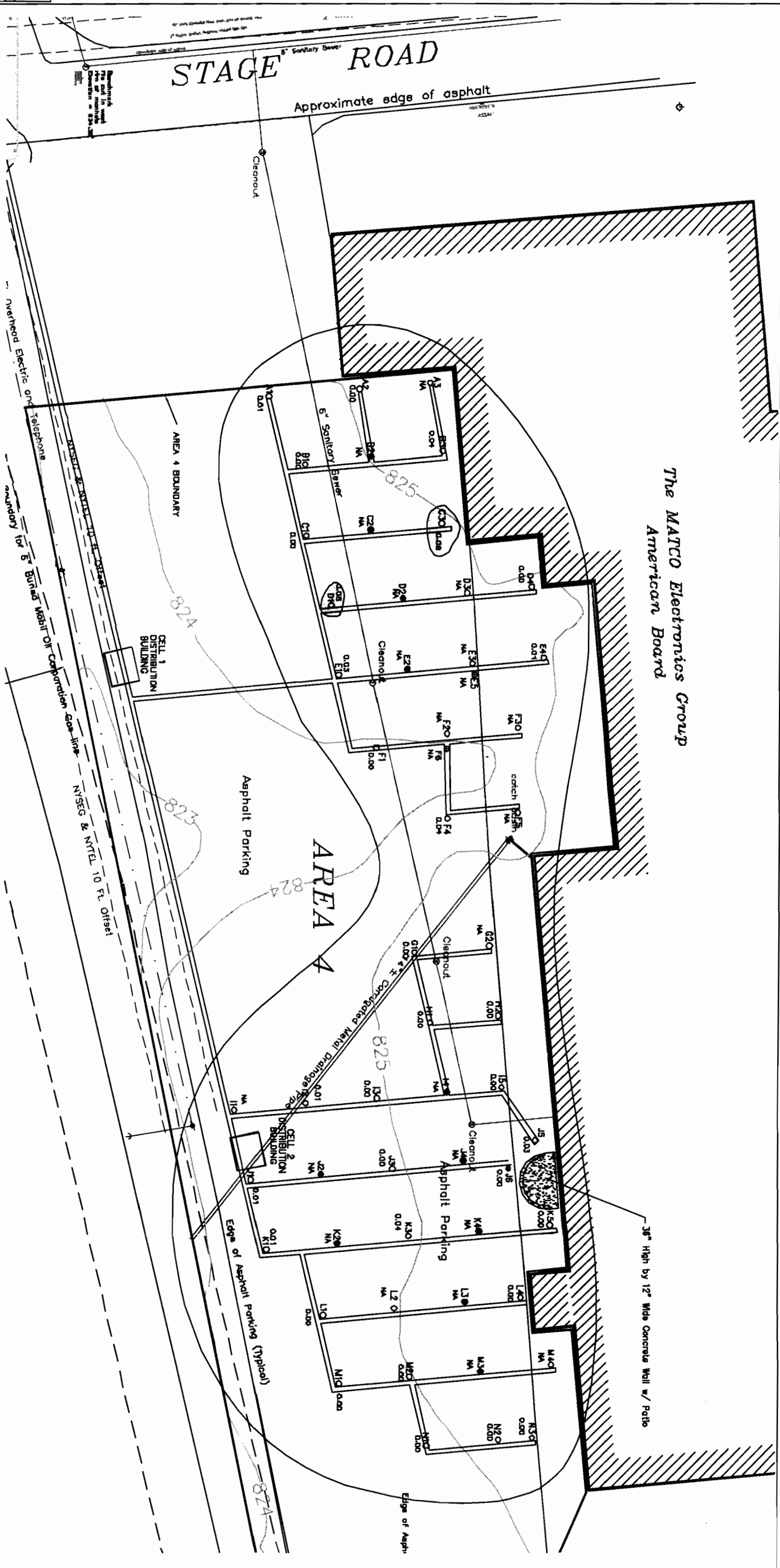
ASB - SECTION ONE WELL
DSD - VERTICAL ONE WELL
S20 - STANDARD VERTICAL ONE WELL
— - - - - Utility pole and overhead line
— - - - - Meter rack
— - - - - Building corner trig/station
— - - - - Section gate or partition line
— - - - - Division Center Line

1,27 - Total Target VOC Yield (lbs/day)
NA - Not Available
— - - - - 0-0.002 (lbs/day) Total Target VOC Yield
— - - - - 0.002-0.015 (lbs/day) Total Target VOC Yield
— - - - - 0.015-0.10 (lbs/day) Total Target VOC Yield
— - - - - 0.10-1.0 (lbs/day) Total Target VOC Yield
— - - - - 1.0-10 (lbs/day) Total Target VOC Yield
— - - - - 10-100 (lbs/day) Total Target VOC Yield



ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENVIROGEN		ENV	
-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----------	--	-----	--

BASE MAP PROVIDED BY JOYCE SURVEYING AND MAPPING



The MATCO Electronics Group
American Board

36" High by 12" Wide Concrete Wall w/ Patio

**Sevenson
Environmental
Services Inc.**
THE LICKERT BROS.
EUGENE, ORE. 97401

 **ENVIROGEN**
Show E&I Engineering
of New York, P.C.
110 COLLEGE AVE. SE.
CUMMINGS, ALABAMA 36021

 US Army Corps of Engineers
Durham City 0120-1-13
CONTRACT NO. DACW41-01-D-00

STEWART HARRIS, A20,000

DATE	1-8-04
APPROVED BY	SA
DESIGN NAME	DC
CHIEFED BY	DC
DRAMA	BA

8116	VESTAL AREA 4 TOWN OF VESTAL, BROOME COUNTY, NEW YORK
7111LD	1,1,1 TCA YIELD (lbs/day) DECEMBER 2-4, 2003

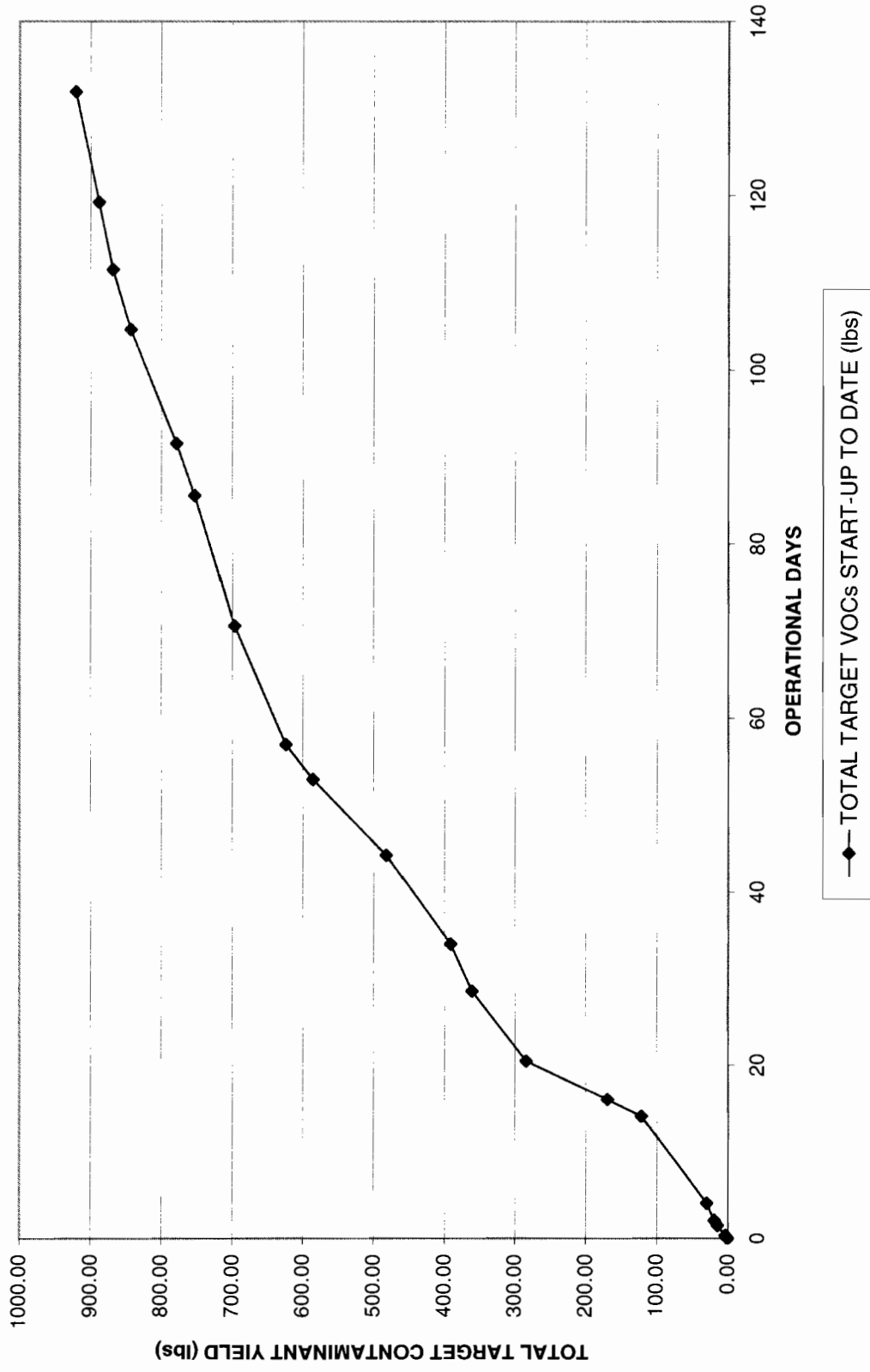
SCHL	AS SHOWN
REVISED	
PROJECT NUMBER	001005
DRAWING NUMBER	VES A4-8

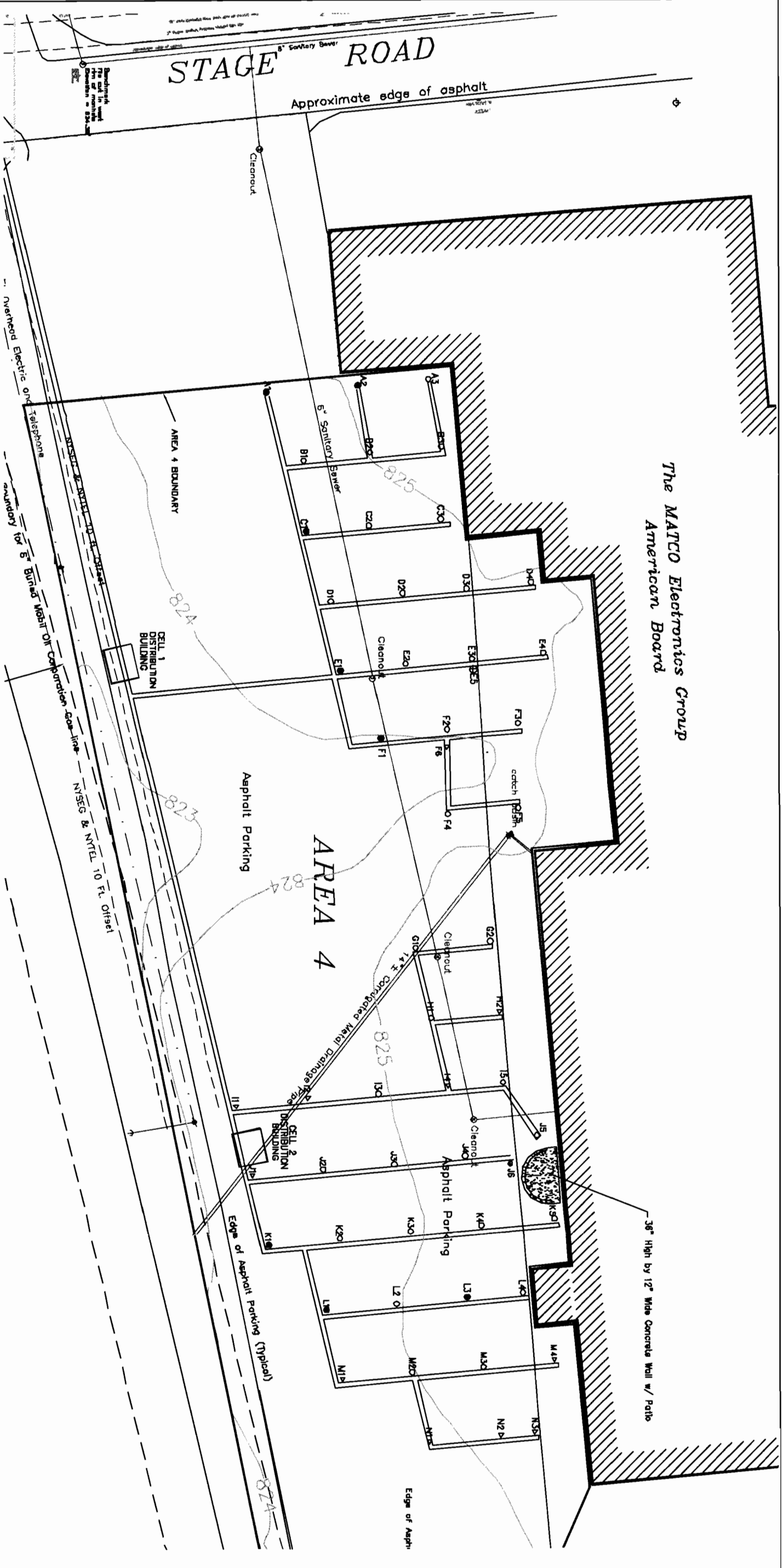
ASB - Auction Site web	1,227 - 1.1, 1 TON 1000 (day/eq)
DAD - Vendors Site web	NA - Not available
D3D - Vendor Vendors Site web	- 0-200 (day/eq) 1.1, 1 TON 1000
- 100 - Utility and overhead line	- 0.05-0.10 (day/eq) 1.1, 1 TON 1000
- 100 - Water main	- 0.10-1.0 (day/eq) 1.1, 1 TON 1000
- 100 - Sewer sewer flycatcher	- 0.10-1.0 (day/eq) 1.1, 1 TON 1000
- 100 - Sewer pipe or perforated line	- 1.0 (day/eq) 1.1, 1 TON 1000
- 100 - Electrical Control Line	- 1.0 (day/eq) 1.1, 1 TON 1000

Legend

0 20 40
SCALE IN FEET

FIGURE 10
TOTAL TARGET CONTAMINANT YIELD START-UP TO DATE (lbs) Vs. TIME
TOTAL SYSTEM SAMPLE
VESTAL, AREA 4





BASE MAP PROVIDED BY JODYCE SURVEYING AND MAPPING

[illegible]

TABLES

TABLE 1
SVE WELL STATUS
VESTAL AREA 4
OCTOBER 15, 2003

SVE WELL #	VAC WELL	INJ WELL	FLOW RATE	STATUS	PID READINGS	SOIL CONCENTRATION ¹
Bypass Flow Rate			225			
INFLUENT			512		13.7	
MIDDLE			512		2.4	
EFFLUENT			512		0.4	
A1	X		18	OPEN	7.4	LOW
A2	X		20	OPEN	2.9	LOW
A3	X		<5	LF	65.2	LOW
B1	X		25	OPEN	2.3	LOW
B2		X	5	NA	NA	LOW
B3	X		3	LF	29.2	LOW
C1	X		6	OPEN	4.1	LOW
C2		X	12	NA	NA	MEDIUM
C3	X		5	LF	93.2	MEDIUM
D1	X		<5	LF	39.7	LOW
D2		X	<5	NA	NA	MEDIUM
D3	X		<5	LF	44.2	HIGH
D4	X		5	OPEN	6.1	HIGH
E1	X		12	OPEN	27.5	LOW
E2		X	15	NA	NA	MEDIUM
E3	X		<5	LF	319.8	HIGH
E4	X		11	LF	14.1	HIGH
E5	X		<5	OPEN	603.0	HIGH
F1	X		15	OPEN	1.5	LOW
F2	X		11	OPEN	103.9	MEDIUM
F3	X		<5	OPEN	2.3	MEDIUM
F4	X		7	OPEN	34.1	LOW
F5	X		<5	LF	6.3	LOW
F6	X		<5	LF	2.1	LOW
G1	X		FULL	WATER	NA	LOW
G2	X		8	OPEN	157.3	LOW
H1	X		<5	LF	3.9	LOW
H2	X		<5	LF	81.7	LOW
I1	X		FULL	WATER	NA	LOW
I2	X		<5	LF	44.1	LOW
I3	X		<5	LF	22.4	MEDIUM
I4		X	<5	NA	NA	MEDIUM
I5	X		<5	LF	1.6	HIGH
J1	X		<5	LF	52.1	LOW
J2		X	7	NA	NA	MEDIUM
J3	X		6	LF	151.8	HIGH

TABLE 1
SVE WELL STATUS
VESTAL AREA 4
OCTOBER 15, 2003

SVE WELL #	VAC WELL	INJ WELL	FLOW RATE	STATUS	PID READINGS	SOIL CONCENTRATION ¹
J4		X	7	LF	NA	HIGH
J5	X		10	OPEN	17.3	HIGH
J6	X		6	OPEN	2.9	HIGH
K1	X		<5	LF	72.1	LOW
K2		X	8	NA	NA	LOW
K3	X		<5	LF	42.9	MEDIUM
K4		X	<5	NA	NA	MEDIUM
K5	X		7	LF	37.1	HIGH
L1	X		<5	LF	66.2	LOW
L2	X		6	OPEN	8.8	HIGH
L3		X	4	NA	NA	LOW
L4	X		4	LF	1.4	LOW
M1	X		<5	LF	41.8	LOW
M2	X		<5	LF	2.3	LOW
M3		X	<5	NA	NA	LOW
M4	X		FULL	WATER	NA	LOW
N1	X		<5	LF	56.4	LOW
N2	X		<5	LF	19.3	LOW
N3	X		<5	LF	2.1	LOW

NOTE: LF= limited airflow
Total System Flow calculated by Roots Blower program
with climate variables of the day of sampling.

¹Concentrations noted here are from the Geoprobe investigation Drawing 4 "Soil Sample Results Total Targeted VOCs", Feb 2002. These concentration assessments may not reflect current VOC concentrations as the system operates.

TABLE 1
SVE WELL STATUS
VESTAL AREA 4
NOVEMBER 19, 2003

SVE WELL #	VAC WELL	INJ WELL	FLOW RATE	STATUS	PID READINGS	SOIL CONCENTRATION ¹
Bypass Flow Rate			225			
INFLUENT			512		12.1	
MIDDLE			512		0.6	
EFFLUENT			512		0.4	
A1	X		18	OPEN	4.1	LOW
A2	X		17	OPEN	2.9	LOW
A3	X		FULL	WATER	NA	LOW
B1	X		20	OPEN	1.7	LOW
B2		X	5	NA	NA	LOW
B3	X		4	LF	44.8	LOW
C1	X		8	OPEN	5.2	LOW
C2		X	12	NA	NA	MEDIUM
C3	X		5	LF	95.7	MEDIUM
D1	X		<5	LF	62.8	LOW
D2		X	<5	NA	NA	MEDIUM
D3	X		<5	LF	30.1	HIGH
D4	X		<5	OPEN	5.9	HIGH
E1	X		11	OPEN	13.7	LOW
E2		X	15	NA	NA	MEDIUM
E3	X		<5	LF	171.5	HIGH
E4	X		<5	LF	12.9	HIGH
E5	X		6	OPEN	501.9	HIGH
F1	X		18	OPEN	1.4	LOW
F2	X		12	OPEN	102.6	MEDIUM
F3	X		FULL	WATER	NA	MEDIUM
F4	X		6	OPEN	52.1	LOW
F5	X		<5	LF	5.8	LOW
F6	X		<5	LF	4.1	LOW
G1	X		6	LF	21.1	LOW
G2	X		FULL	WATER	NA	LOW
H1	X		<5	LF	4.2	LOW
H2	X		<5	LF	37.7	LOW
I1	X		FULL	WATER	NA	LOW
I2	X		<5	LF	97.2	LOW
I3	X		<5	LF	18.3	MEDIUM
I4		X	<5	NA	NA	MEDIUM
I5	X		<5	LF	9.3	HIGH
J1	X		<5	LF	31.8	LOW
J2		X	7	NA	NA	MEDIUM
J3	X		<5	LF	152.3	HIGH

TABLE 1
SVE WELL STATUS
VESTAL AREA 4
NOVEMBER 19, 2003

SVE WELL #	VAC WELL	INJ WELL	FLOW RATE	STATUS	PID READINGS	SOIL CONCENTRATION ¹
J4		X	7	LF	NA	HIGH
J5	X		9	OPEN	12.9	HIGH
J6	X		6	OPEN	2.3	HIGH
K1	X		<5	LF	47.1	LOW
K2		X	8	NA	NA	LOW
K3	X		<5	LF	41.0	MEDIUM
K4		X	<5	NA	NA	MEDIUM
K5	X		<5	LF	29.2	HIGH
L1	X		<5	LF	41.9	LOW
L2	X		5	OPEN	7.1	HIGH
L3		X	4	NA	NA	LOW
L4	X		4	LF	3.3	LOW
M1	X		<5	LF	33.5	LOW
M2	X		<5	LF	4.1	LOW
M3		X	<5	NA	NA	LOW
M4	X		FULL	WATER	NA	LOW
N1	X		<5	LF	43.8	LOW
N2	X		<5	LF	20.3	LOW
N3	X		<5	LF	5.8	LOW

NOTE: LF= limited airflow
Total System Flow calculated by Roots Blower program with
climate variables of the day of sampling.

¹Concentrations noted here are from the Geoprobe investigation Drawing 4 "Soil Sample Results Total Targeted VOCs", Feb 2002. These concentration assessments may not reflect current VOC concentrations as the system operates.

TABLE 1
SVE WELL STATUS
VESTAL AREA 4
DECEMBER 2- 4, 2003

SVE WELL #	VAC WELL	INJ WELL	FLOW RATE	STATUS	PID READINGS	SOIL CONCENTRATION ¹
Bypass Flow Rate			225			
INFLUENT			512		7.7	
MIDDLE			512		4.2	
EFFLUENT			512		0.6	
A1	X		18	OPEN	3.0	LOW
A2	X		15	OPEN	2.1	LOW
A3	X		FULL	WATER	NA	LOW
B1	X		15	OPEN	1.0	LOW
B2		X	<5	NA	NA	LOW
B3	X		<5	LF	52.3	LOW
C1	X		10	OPEN	5.9	LOW
C2		X	10	NA	NA	MEDIUM
C3	X		<5	LF	98.2	MEDIUM
D1	X		<5	LF	73.2	LOW
D2		X	<5	NA	NA	MEDIUM
D3	X		FULL	WATER	NA	HIGH
D4	X		<5	LF	4.3	HIGH
E1	X		10	OPEN	10.2	LOW
E2		X	12	NA	NA	MEDIUM
E3	X		FULL	WATER	NA	HIGH
E4	X		<5	LF	6.5	HIGH
E5	X		FULL	WATER	NA	HIGH
F1	X		20	OPEN	1.4	LOW
F2	X		FULL	WATER	NA	MEDIUM
F3	X		FULL	WATER	NA	MEDIUM
F4	X		<5	OPEN	60.6	LOW
F5	X		FULL	WATER	NA	LOW
F6	X		FULL	WATER	NA	LOW
G1	X		6	OPEN	28.0	LOW
G2	X		FULL	WATER	NA	LOW
H1	X		<5	LF	5.3	LOW
H2	X		<5	LF	10.6	LOW
I1	X		FULL	WATER	NA	LOW
I2	X		<5	LF	17.8	LOW
I3	X		<5	LF	14.2	MEDIUM
I4		X	<5	NA	NA	MEDIUM
I5	X		<5	LF	13.1	HIGH
J1	X		<5	LF	10.5	LOW
J2		X	8	NA	NA	MEDIUM
J3	X		<5	LF	143.3	HIGH

TABLE 1
SVE WELL STATUS
VESTAL AREA 4
DECEMBER 2- 4, 2003

SVE WELL #	VAC WELL	INJ WELL	FLOW RATE	STATUS	PID READINGS	SOIL CONCENTRATION ¹
J4		X	<5	NA	NA	HIGH
J5	X		8	OPEN	8.6	HIGH
J6	X		<5	OPEN	1.8	HIGH
K1	X		<5	LF	16.8	LOW
K2		X	9	NA	NA	LOW
K3	X		<5	LF	40.3	MEDIUM
K4		X	<5	NA	NA	MEDIUM
K5	X		<5	LF	1.1	HIGH
L1	X		<5	LF	13.6	LOW
L2	X		<5	LF	5.0	HIGH
L3		X	4	NA	NA	LOW
L4	X		<5	LF	4.3	LOW
M1	X		<5	LF	26.1	LOW
M2	X		<5	LF	5.0	LOW
M3		X	<5	NA	NA	LOW
M4	X		FULL	WATER	NA	LOW
N1	X		<5	LF	11.6	LOW
N2	X		<5	LF	23.0	LOW
N3	X		<5	LF	7.3	LOW

NOTE: LF= limited airflow
Total System Flow calculated by Roots Blower program
with climate variables of the day of sampling.

¹Concentrations noted here are from the Geoprobe investigation Drawing 4 "Soil Sample Results Total Targeted VOCs", Feb 2002. These concentration assessments may not reflect current VOC concentrations as the system operates.

TABLE 2
ANALYTICAL RESULTS OF CONCENTRATIONS OF TARGET COMPOUNDS
VESTAL AREA 4

SAMPLE DATE	SAMPLE NUMBER	WELL NUMBER	FLOW RATE (SCFM)	PID READINGS (ppm)	1,1,1 TCA (ppmv)	TCE (ppmv)	TOTAL TARGET VOCs (ppmv)
10/9/2003	VS-SVE-INF-100903-0109	INF	512	14.2	7.49	6.01	13.50
10/9/2003	VS-SVE-MID-100903-0110	MID	512	2.2	0.00	0.00	0.00
10/9/2003	VS-SVE-EFF-100903-0111	EFF	512	0.4	2.04	0.00	2.04
10/9/2003	VS-SVE-TB-100903-0113	TB	NA	NA	0.00	0.00	0.00
10/15/2003	VS-SVE-INF-101503-0114	INF	512	13.7	11.02	8.98	20.00
10/15/2003	VS-SVE-MID-101503-0115	MID	512	2.4	12.36	0.00	12.36
10/15/2003	VS-SVE-EFF-101503-0116	EFF	512	0.4	0.00	0.00	0.00
10/15/2003	VS-SVE-TB-101503-0118	TB	NA	NA	0.00	0.00	0.00
10/28/2003	VS-SVE-INF-102803-0119	INF	512	16.4	10.36	8.80	19.16
10/28/2003	VS-SVE-MID-102803-0120	MID	512	15.2	17.75	8.58	26.33
10/28/2003	VS-SVE-EFF-102803-0121	EFF	512	8.6	12.32	0.00	12.32
10/28/2003	VS-SVE-TB-102803-0123	TB	NA	NA	0.00	0.00	0.00
11/11/2003	VS-SVE-INF-111103-0124	INF	512	7.9	3.89	5.81	9.70
11/11/2003	VS-SVE-MID-111103-0125	MID	512	2.7	14.77	0.00	14.77
11/11/2003	VS-SVE-EFF-111103-0126	EFF	512	0.4	0.00	0.00	0.00
11/11/2003	VS-SVE-TB-111103-0128	TB	NA	NA	0.00	0.00	0.00
11/19/2003	VS-SVE-INF-111903-0129	INF	512	12.1	4.96	5.51	10.47
11/19/2003	VS-SVE-MID-111903-0130	MID	512	0.6	0.00	0.00	0.00
11/19/2003	VS-SVE-EFF-111903-0131	EFF	512	0.4	0.00	0.00	0.00
11/19/2003	VS-SVE-TB-111903-0133	TB	NA	NA	0.00	0.00	0.00
12/4/2003	VS-SVE-INF-120403-0187	INF	512	7.7	2.89	3.03	5.92
12/4/2003	VS-SVE-MID-120403-0188	MID	512	4.2	15.31	0.00	15.31
12/4/2003	VS-SVE-EFF-120403-0189	EFF	512	0.6	0.00	0.00	0.00
12/4/2003	VS-SVE-TB-7-120403-0190	TB	NA	NA	0.00	0.00	0.00

NOTE 1: 1,1,1 TCA= 1,1,1-Trichloroethane

TCE= Trichloroethene

NA = Not Applicable

INF= Influent

MID= Middle Carbon

EFF= Effluent

TB= Trip Blank

NOTE 2:

TABLE 3
CONTAMINANT CONCENTRATIONS AND YIELDS
DECEMBER 2-4, 2003
VESTAL, AREA 4

SAMPLE DATE	SAMPLE ID	FLOW (CFM)	PID READING	1,1,1-TCA (ppmv)	TCE (ppmv)	TOTAL TARGETED CONTAMINANTS (ppmv)	LBS OF 1,1,1-TCA	LBS OF TCE	LBS OF TOTAL TARGETED CONTAMINANTS PER DAY
12/2/2003	A1	18	3.0	0.64	0.00	0.64	0.01	0.00	0.01
12/2/2003	E1	10	10.2	5.23	8.65	13.88	0.03	0.04	0.07
12/2/2003	D1	2	73.2	48.39	63.46	111.85	0.05	0.06	0.11
12/2/2003	F1	20	1.4	0.00	0.00	0.00	0.00	0.00	0.00
12/2/2003	E4	2	6.5	8.64	5.04	13.68	0.01	0.00	0.01
12/2/2003	E4-D	2	6.5	8.58	4.63	13.21	0.01	0.00	0.01
12/2/2003	TB-1	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
12/2/2003	F4	2	60.6	41.38	72.39	113.77	0.04	0.07	0.11
12/2/2003	C1	10	5.9	0.85	0.00	0.85	0.00	0.00	0.00
12/2/2003	C3	2	98.2	62.51	122.46	184.97	0.06	0.12	0.18
12/2/2003	B3	2	52.3	41.12	79.95	121.07	0.04	0.08	0.12
12/2/2003	TB-2	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
12/2/2003	A2	15	2.1	0.17	0.00	0.17	0.00	0.00	0.00
12/2/2003	B1	15	1.0	0.00	0.00	0.00	0.00	0.00	0.00
12/2/2003	D4	2	4.3	2.19	2.85	5.04	0.00	0.00	0.00
12/2/2003	TB-3	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
12/2/2003	PB-1	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
12/4/2003	K1	2	16.8	8.39	5.68	14.07	0.01	0.01	0.01
12/4/2003	J1	2	10.5	8.79	6.59	15.38	0.01	0.01	0.02
12/4/2003	K5	2	1.1	0.00	0.00	0.00	0.00	0.00	0.00
12/4/2003	L4	2	4.3	0.18	0.66	0.84	0.00	0.00	0.00
12/4/2003	L1	2	13.6	6.87	7.85	14.72	0.00	0.00	0.00
12/4/2003	TB-4	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
12/4/2003	K3	2	40.3	41.32	0.00	41.32	0.04	0.00	0.04
12/4/2003	K3-D	2	40.3	42.32	0.00	42.32	0.04	0.00	0.04
12/4/2003	N1	2	11.6	0.23	0.45	0.68	0.00	0.00	0.00
12/4/2003	N2	2	23.0	2.30	1.74	4.04	0.00	0.00	0.00
12/4/2003	M2	2	5.0	3.79	3.28	7.07	0.00	0.00	0.01
12/4/2003	N3	2	7.3	1.33	1.26	2.59	0.00	0.00	0.00
12/4/2003	M1	2	26.1	6.17	6.68	12.85	0.00	0.00	0.00
12/4/2003	J6	2	1.8	0.00	0.00	0.00	0.00	0.00	0.00
12/4/2003	TB-5	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
12/4/2003	J3	2	143.3	0.75	0.00	0.75	0.00	0.00	0.00
12/4/2003	G1	6	28.0	0.16	0.55	0.71	0.00	0.00	0.00
12/4/2003	I5	2	13.1	0.00	0.00	0.00	0.00	0.00	0.00
12/4/2003	H2	2	10.6	0.15	0.34	0.49	0.00	0.00	0.00
12/4/2003	I2	2	17.8	8.83	8.79	17.62	0.01	0.01	0.02
12/4/2003	I3	2	14.2	0.11	0.49	0.60	0.00	0.00	0.00
12/4/2003	TB-6	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
12/4/2003	H1	2	5.3	0.00	0.00	0.00	0.00	0.00	0.00
12/4/2003	J5	8	8.6	8.38	3.58	11.96	0.03	0.01	0.05
12/4/2003	INF	512	7.7	2.89	3.03	5.92	0.74	0.76	1.50
12/4/2003	MID	512	4.2	15.31	0.00	15.31	3.91	0.00	3.91
12/4/2003	EFF	512	0.6	0.00	0.00	0.00	0.00	0.00	0.00
12/4/2003	TB-7	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
12/4/2003	PB-2	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00

Note: Flows of less than 5 CFM were recorded as 2.

TABLE 4
TARGET CONTAMINANT YIELD
VESTAL AREA 4

SAMPLE DATE	SAMPLE NUMBER	WELL NUMBER	1,1,1 TCA (lbs/day)	TCE (lbs/day)	TOTAL TARGET VOCs (lbs/day)
6/23/2003	VS-SS-INFL-062303-0	INF	9.58	7.18	16.76
6/23/2003	VS-SS-INFL-062303-1	INF	6.37	4.85	11.22
	INFLUENT AVG PER DAY FOR PERIOD		7.98	6.02	13.99
	TOTAL YIELD (lbs) FOR PERIOD (6/23-6/23)				0.56
6/23/2003	VS-SS-INFL-062303-1	INF	6.37	4.85	11.22
6/23/2003	VS-SS-INFL-062303-4	INF	5.23	5.42	10.66
	INFLUENT AVG PER DAY FOR PERIOD		5.80	5.14	10.94
	TOTAL YIELD (lbs) FOR PERIOD (6/23-6/23)				1.42
6/23/2003	VS-SS-INFL-062303-4	INF	5.23	5.42	10.66
6/23/2003	VS-SS-INFL-062303-8	INF	4.10	4.33	8.43
	INFLUENT AVG PER DAY FOR PERIOD		4.67	4.88	9.55
	TOTAL YIELD (lbs) FOR PERIOD (6/23-6/23)				1.62
6/23/2003	VS-SS-INFL-062303-8	INF	4.10	4.33	8.43
6/24/2003	VS-SS-INF-062403	INF	4.52	6.18	10.70
	INFLUENT AVG PER DAY FOR PERIOD		4.31	5.26	9.57
	TOTAL YIELD (lbs) FOR PERIOD (6/23-6/24)				11.19
6/24/2003	VS-SS-INF-062403	INF	4.52	6.18	10.70
6/25/2003	VS-SS-INF-062503	INF	2.28	2.21	4.48
	INFLUENT AVG PER DAY FOR PERIOD		3.40	4.20	7.59
	TOTAL YIELD (lbs) FOR PERIOD (6/24-6/25)				4.40
6/25/2003	VS-SS-INF-062503	INF	2.28	2.21	4.48
6/27/2003	VS-SVE-INF-062703	INF	3.28	3.26	6.53
	INFLUENT AVG PER DAY FOR PERIOD		2.78	2.74	5.51
	TOTAL YIELD (lbs) FOR PERIOD (6/25-6/27)				10.79
6/27/2003	VS-SVE-INF-062703	INF	3.28	3.26	6.53
7/7/2003	VS-SVE-INF-070703-0001	INF	6.87	5.04	11.91
	INFLUENT AVG PER DAY FOR PERIOD		5.08	4.15	9.22
	TOTAL YIELD (lbs) FOR PERIOD (7/27-7/7)				92.57
7/7/2003	VS-SVE-INF-070703-0001	INF	6.87	5.04	11.91
7/9/2003	VS-SVE-INF-070903-0006	INF	19.45	17.96	36.92
	INFLUENT AVG PER DAY FOR PERIOD		13.16	11.50	24.42
	TOTAL YIELD (lbs) FOR PERIOD (7/7-7/9)				47.85
7/9/2003	VS-SVE-INF-070903-0006	INF	19.45	17.96	36.92
7/17/2003	VS-SVE-INF-071703-0011	INF	8.60	5.65	14.25
	INFLUENT AVG PER DAY FOR PERIOD		14.03	11.81	25.59
	TOTAL YIELD (lbs) FOR PERIOD (7/9-7/17)				114.11

7/17/2003	VS-SVE-INF-071703-0011	INF	8.60	5.65	14.25
7/29/2003	VS-SVE-INF-072903-0016	INF	2.70	1.88	4.67
	INFLUENT AVG PER DAY FOR PERIOD		5.65	3.77	9.46
	TOTAL YIELD (lbs) FOR PERIOD (7/17-7/29)				76.91
7/29/2003	VS-SVE-INF-072903-0016	INF	2.70	1.88	4.67
8/12/2003	VS-SVE-INF-081203-0026	INF	4.07	2.34	6.40
	INFLUENT AVG. PER DAY FOR PERIOD		3.39	2.11	5.54
	TOTAL YIELD (lbs) FOR PERIOD (7/29-8/12)				30.33
8/12/2003	VS-SVE-INF-081203-0026	INF	4.07	2.34	6.40
8/25/2003	VS-SVE-INF-082503-0031	INF	6.23	5.06	11.28
	INFLUENT AVG. PER DAY FOR PERIOD		5.15	3.70	8.84
	TOTAL YIELD (lbs) FOR PERIOD (8/12-8/25)				90.08
8/25/2003	VS-SVE-INF-082503-0031	INF	6.23	5.06	11.28
9/3/2003	VS-SVE-INF-090303-0036	INF	8.45	4.01	12.46
	INFLUENT AVG. PER DAY FOR PERIOD		7.34	4.54	11.87
	TOTAL YIELD (lbs) FOR PERIOD (8/25-9/3)				103.74
9/3/2003	VS-SVE-INF-090303-0036	INF	8.45	4.01	12.46
9/8/2003	VS-SVE-INF-090803-0041	INF	4.23	2.46	6.70
	INFLUENT AVG. PER DAY FOR PERIOD		6.34	3.24	9.58
	TOTAL YIELD (lbs) FOR PERIOD (9/3-9/8)				38.51
9/8/2003	VS-SVE-INF-090803-0041	INF	4.23	2.46	6.70
9/24/2003	VS-SVE-INF-092403-0099	INF	2.74	1.30	4.04
	INFLUENT AVG. PER DAY FOR PERIOD		3.48	1.88	5.37
	TOTAL YIELD (lbs) FOR PERIOD (9/8-9/24)				72.89
9/24/2003	VS-SVE-INF-092403-0099	INF	2.74	1.30	4.04
10/9/2003	VS-SVE-INF-100903-0109	INF	1.91	1.51	3.42
	INFLUENT AVG. PER DAY FOR PERIOD		2.32	1.40	3.73
	TOTAL YIELD (lbs) FOR PERIOD (9/24-10/9)				55.77
10/9/2003	VS-SVE-INF-100903-0109	INF	1.91	1.51	3.42
10/15/2003	VS-SVE-INF-101503-0114	INF	2.82	2.26	5.08
	INFLUENT AVG. PER DAY FOR PERIOD		2.37	1.89	4.25
	TOTAL YIELD (lbs) FOR PERIOD (10/9-10/15)				25.50
10/15/2003	VS-SVE-INF-101503-0114	INF	2.82	2.26	5.08
10/28/2003	VS-SVE-INF-102803-0119	INF	2.65	2.21	4.86
	INFLUENT AVG. PER DAY FOR PERIOD		2.74	2.24	4.97
	TOTAL YIELD (lbs) FOR PERIOD (10/15-10/28)				64.91
10/28/2003	VS-SVE-INF-102803-0119	INF	2.65	2.21	4.86
11/11/2003	VS-SVE-INF-111103-0124	INF	0.99	1.46	2.45
	INFLUENT AVG. PER DAY FOR PERIOD		1.82	1.84	3.66
	TOTAL YIELD (lbs) FOR PERIOD (10/28-11/11)				25.11

11/11/2003	VS-SVE-INF-111103-0124	INF	0.99	1.46	2.45
11/19/2003	VS-SVE-INF-111903-0129	INF	1.27	1.39	2.65
	INFLUENT AVG. PER DAY FOR PERIOD		1.13	1.43	2.55
	TOTAL YIELD (lbs) FOR PERIOD (11/11-11/19)				19.74
11/19/2003	VS-SVE-INF-111103-0124	INF	1.27	1.39	2.65
12/4/2003	VS-SVE-INF-111903-0129	INF	0.74	0.76	1.50
	INFLUENT AVG. PER DAY FOR PERIOD		1.01	1.08	2.08
	TOTAL YIELD (lbs) FOR PERIOD (11/19-12/4)				32.56
TOTAL YIELD TO REPORTED DATE					920.57

Note 1: Beginning and ending period influent yields are averaged and then multiplied by the number of operational days during the reporting period.

Note 2: 1,1,1 TCA= 1,1,1-Trichloroethane
TCE= Trichloroethene

Note 3: INF= Influent

TABLE 5
TOTAL TARGET CONTAMINANT YIELD TO DATE
VESTAL AREA 4

SAMPLE DATE	1,1,1 TCA (lbs)	TCE (lbs)	TOTAL TARGET VOCs (lbs)
6/23/2003	0.00	0.00	0.00
6/23/2003	0.33	0.25	0.58
6/23/2003	1.06	0.89	1.95
6/23/2003	1.84	1.71	3.54
6/24/2003	6.87	7.83	14.70
6/25/2003	8.85	10.28	19.13
6/27/2003	14.28	15.63	29.92
7/7/2003	65.21	57.31	122.52
7/9/2003	90.98	79.35	170.33
7/17/2003	153.51	130.86	284.38
7/29/2003	199.85	161.45	361.30
8/12/2003	218.64	172.99	391.63
8/25/2003	271.09	210.67	481.76
9/3/2003	335.21	250.27	585.48
9/8/2003	360.71	263.28	623.99
9/24/2003	408.05	288.83	696.88
10/9/2003	442.85	309.83	752.68
10/15/2003	457.04	321.14	778.18
10/28/2003	492.69	350.33	843.02
11/11/2003	505.20	362.94	868.14
11/19/2003	513.95	373.96	887.91
12/4/2003	529.68	390.80	920.48

NOTE 1: 1,1,1 TCA= 1,1,1-Trichloroethane
TCE= Trichloroethene

TABLE 6
SVE WELL PROPOSED CHANGES
VESTAL AREA 4

CURRENT STATUS				PROPOSED CHANGES	
SVE WELL #	VAC WELL	INJ WELL	FLOW STATUS	PROPOSED FLOW CHANGES	REASON
INFLUENT					
MIDDLE					
EFFLUENT					
A1	X		TBD	Injection	Alter air flow patterns within soils and assist in drying the treatment zone
A2	X		TBD	Injection	Alter air flow patterns within soils and assist in drying the treatment zone
A3	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
B1	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
B2		X	TBD	Vacuum	Alter vacuum rates within the soils creating alternate flow paths assisting in contaminant removal and drying of the treatment area.
B3	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
C1	X		TBD	Injection	Alter air flow patterns within soils and assist in drying the treatment zone
C2		X	TBD	Vacuum	Alter vacuum rates within the soils creating alternate flow paths assisting in contaminant removal and drying of the treatment area.
C3	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
D1	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
D2		X	TBD	Vacuum	Alter vacuum rates within the soils creating alternate flow paths assisting in contaminant removal and drying of the treatment area.
D3	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
D4	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
E1	X		TBD	Injection	Alter air flow patterns within soils and assist in drying the treatment zone
E2		X	TBD	Vacuum	Alter vacuum rates within the soils creating alternate flow paths assisting in contaminant removal and drying of the treatment area.
E3	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
E4	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
E5	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.

TABLE 6
SVE WELL PROPOSED CHANGES
VESTAL AREA 4

CURRENT STATUS				PROPOSED CHANGES	
SVE WELL #	VAC WELL	INJ WELL	FLOW STATUS	PROPOSED FLOW CHANGES	REASON
F1	X		TBD	Injection	Alter air flow patterns within soils and assist in drying the treatment zone
F2	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
F3	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
F4	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
F5	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
F6	X		TBD	Off	Well produces a limited amount of contaminant yield. Due to low flow rate or low contaminant levels within the airstreams. Closing of well allows additional air flow to be redirected to areas of the site that currently produce or have the potential to produce
G1	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
G2	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
H1	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
H2	X		TBD	Off	Well produces a limited amount of contaminant yield. Due to low flow rate or low contaminant levels within the airstreams. Closing of well allows additional air flow to be redirected to areas of the site that currently produce or have the potential to produce
I1	X		TBD	Off	Well produces a limited amount of contaminant yield. Due to low flow rate or low contaminant levels within the airstreams. Closing of well allows additional air flow to be redirected to areas of the site that currently produce or have the potential to produce
I2	X		TBD	Off	Well produces a limited amount of contaminant yield. Due to low flow rate or low contaminant levels within the airstreams. Closing of well allows additional air flow to be redirected to areas of the site that currently produce or have the potential to produce
I3	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.

TABLE 6
SVE WELL PROPOSED CHANGES
VESTAL AREA 4

CURRENT STATUS				PROPOSED CHANGES	
SVE WELL #	VAC WELL	INJ WELL	FLOW STATUS	PROPOSED FLOW CHANGES	REASON
I4		X	TBD	Off	Well produces a limited amount of contaminant yield. Due to low flow rate or low contaminant levels within the airstreams. Closing of well allows additional air flow to be redirected to areas of the site that currently produce or have the potential to produce
I5	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
J1	X		TBD	Off	Well produces a limited amount of contaminant yield. Due to low flow rate or low contaminant levels within the airstreams. Closing of well allows additional air flow to be redirected to areas of the site that currently produce or have the potential to produce
J2		X	TBD	Vacuum	Alter vacuum rates within the soils creating alternate flow paths assisting in contaminant removal and drying of the treatment area.
J3	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
J4		X	TBD	Vacuum	Alter vacuum rates within the soils creating alternate flow paths assisting in contaminant removal and drying of the treatment area.
J5	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
J6	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
K1	X		TBD	Injection	Alter air flow patterns within soils and assist in drying the treatment zone
K2		X	TBD	Vacuum	Alter vacuum rates within the soils creating alternate flow paths assisting in contaminant removal and drying of the treatment area.
K3	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
K4		X	TBD	Vacuum	Alter vacuum rates within the soils creating alternate flow paths assisting in contaminant removal and drying of the treatment area.
K5	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
L1	X		TBD	Injection	Alter air flow patterns within soils and assist in drying the treatment zone
L2	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
L3		X	TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.

TABLE 6
SVE WELL PROPOSED CHANGES
VESTAL AREA 4

CURRENT STATUS				PROPOSED CHANGES	
SVE WELL #	VAC WELL	INJ WELL	FLOW STATUS	PROPOSED FLOW CHANGES	REASON
L4	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
M1	X		TBD	Off	Well produces a limited amount of contaminant yield. Due to low flow rate or low contaminant levels within the airstreams. Closing of well allows additional air flow to be redirected to areas of the site that currently produce or have the potential to produce
M2	X		TBD		Historic data show a sustained contaminant yield. Leave in the current configuration.
M3		X	TBD	Vacuum	Alter vacuum rates within the soils creating alternate flow paths assisting in contaminant removal and drying of the treatment area.
M4	X		TBD	Off	Well produces a limited amount of contaminant yield. Due to low flow rate or low contaminant levels within the airstreams. Closing of well allows additional air flow to be redirected to areas of the site that currently produce or have the potential to produce
N1	X		TBD	Off	Well produces a limited amount of contaminant yield. Due to low flow rate or low contaminant levels within the airstreams. Closing of well allows additional air flow to be redirected to areas of the site that currently produce or have the potential to produce
N2	X		TBD	Off	Well produces a limited amount of contaminant yield. Due to low flow rate or low contaminant levels within the airstreams. Closing of well allows additional air flow to be redirected to areas of the site that currently produce or have the potential to produce
N3	X		TBD	Off	Well produces a limited amount of contaminant yield. Due to low flow rate or low contaminant levels within the airstreams. Closing of well allows additional air flow to be redirected to areas of the site that currently produce or have the potential to produce

APPENDIX A

Operation and Maintenance Data

(Including Daily O&M Records, Routine Maintenance and
Inspection Forms, and Field Notes)

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

DATE: 10/9/03 ARRIVAL TIME: 0830 FAULT LIGHTS ON (list): "NONE"

REASON FOR VISIT: MONTHLY QUARTERLY OTHER

OTHER (define): CARBON BED 06 Sampling, CHANGE CARBON BED Hook-4P

TASK PERFORMED: CHANGED OVER TO SPARE CARBON BED. #1 BROKE THROUGH. #2 BECAME #1 AND SPARE BECAME #2. PULLED A ROUND OF 06 SAMPLES FROM THE CARBON BEDS, WIPED RINS. PUMPED OUT THE KO TANK WHILE ISVE SYSTEM WAS SHUT DOWN. (200/300 GALS) RE-STARTED THE ISVE SYSTEM AND TOOK READINGS AND SAMPLES.

MAIN EQUIPMENT BUILDING

MAIN CONTROL PANEL ☒ CONTROL BOX LOCKED ☒ CONTROL DOOR LOCKED
HOUR METER: SVE UNIT

SVE PUMPING UNIT

INJECTION BLOWER TEMP: 120 F
INJECTION BLOWER TEMP SETTING: 220 F
PRESSURE AFTER INJECTION BLOWER 30 "H2O KPa

VACUUM BLOWER TEMP: 160 F
VACUUM BLOWER TEMP SETTING: 220 F
VACUUM AFTER FILTER 21 "H2O KPa
PRESSURE AFTER VACUUM BLOWER: 18 "H2O KPa Low VAC = 9

GREASE SEALS CHECKED: ☒ DATE OF LAST GREASE: 9-23-03

OIL LEVEL CHECKED: ☒ DATE OF LAST OIL CHANGE: 8-5-03

BELTS CHECKED FOR WEAR: ☒ BELT GUARD IN PLACE: ☒

PAGE #2

CARBON BED SYSTEM: —

PRESS. BEFORE GAC UNIT 1 = 40 - H₂O
TEMP. " " " = 80° - F

PRESS. BETWEEN GAC UNITS H₂O = 30 - H₂O

PRESS AFTER GAC UNIT 2 = 14 - H₂O
TEMP AFTER GAC UNIT 2 = 74° - F.

WATER STORAGE UNIT, -

VOLUME OF WATER IN TANK - 200 GALS

WATER IN CONTAIN. VESSEL NO ✓

INF. 14.2
M.D. - 2.2
1.2

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

PAGE 3

CELL 1 DISTRIBUTION CENTER

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONENTS FOR CRACKS OR LEAKS AND ADEQUACY OF SEALS.

CONTROL BOX DISCONNECT ON: ☒ 240-VOLT DISCONNECT ON ☒

SELECTOR SWITCH: MANUAL ☐ OFF ☐ AUTO ☒

VACUUM STATUS LIGHT: ON ☒ OFF ☐

CONTROL BOX LOCKED ☒

ELECTRICAL HEAT BREAKER: ON ☒ OFF ☐

ELECTRICAL HEATER THERMOSTAT SETTING: 55 F

PRESSURE AT INJECTION MANIFOLD: 36 "H₂O

TEMP AT INJECTION MANIFOLD: 58 F

VACUUM AT VACUUM MANIFOLD: 76 "H₂O

TEMP AT VACUUM MANIFOLD: 62 F

VACUUM AT KNOCKOUT TANK: N/A "Hg

WATER PUMP PRESSURE RELIEF SETTING: N/A psi

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

PAGE 4

CELL 2 DISTRIBUTION CENTER

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONENTS FOR CRACKS OR LEAKS AND ADEQUACY OF SEALS.

CONTROL BOX DISCONNECT ON: ☒ 240-VOLT DISCONNECT ON ☒

SELECTOR SWITCH: MANUAL ☐ OFF ☐ AUTO ☒

VACUUM STATUS LIGHT: ON ☒ OFF ☐

CONTROL BOX LOCKED ☒

ELECTRICAL HEAT BREAKER: ON ☒ OFF ☐

ELECTRICAL HEATER THERMOSTAT SETTING: 55 F

PRESSURE AT INJECTION MANIFOLD: 35 "H₂O

TEMP AT INJECTION MANIFOLD: 56 F

VACUUM AT VACUUM MANIFOLD: 76 "H₂O

TEMP AT VACUUM MANIFOLD: 60 F

VACUUM AT KNOCKOUT TANK: N/A "Hg

WATER PUMP PRESSURE RELIEF SETTING: N/A psi

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

GENERAL SITE OBSERVATIONS

PAGE 5

CHECK AND NOTE CONDITION OF SITE: SITE IS IN GOOD SHAPE

FIELD ACTIVITY CHECKLIST

SVE WELLHEAD AIR FLOWS MEASURED: ☐ YES ☐ NO

SVE WELLS SAMPLED: ☐ YES ☐ NO

CARBON CHANGEOUT PERFORMED: ☐

WATER REMOVAL PERFORMED: ☐

EXTERIOR OF MAIN AND CELL BUILDINGS INSPECTED: ☒

INSPECT MAIN POWER AND TELEPHONE LINE: ☐

SUMMARY OF PROCESS AIR SAMPLING: PULLED 06 SAMPLES FROM INFLUENT /
AND CARBON / AND EFFLUENT TOOK PID REGS. DURING SAMPLING.
AIR MONITORING WAS CONSTANT AT 0.3 / 0.4 PPM.

SUMMARY OF OTHER ACTIVITIES: PICKED UP AROUND SITE AND BLDG.
TURNOED THERMOSTATS UP TO 55 IN MAIN SVE BLDG. + CELL 2-1+2

COMMENTS: SYSTEM OPERATING GOOD. SITE LOOKS GOOD. FULL

SIGNATURE OF OPERATIONS TECHNICIAN(S): M.P. McYune

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

DATE: 10/15/03 ARRIVAL TIME: 0830 FAULT LIGHTS ON (list): "NONE"

REASON FOR VISIT: MONTHLY QUARTERLY OTHER

OTHER (define): CARBON BED 06 SAMPLING (Re-Sample From 10/9/03)

TASK PERFORMED: Pulled Samples From Influent Mid-CARBON -
AND EFFLUENT (AGAIN) PTD Reqs. = INF. 13.7, MID CARB. 2.4 ppm
EFFLUENT - 0.4 ppm.

MAIN EQUIPMENT BUILDING

MAIN CONTROL PANEL ☒ CONTROL BOX LOCKED ☒ CONTROL DOOR LOCKED

HOUR METER: SVE UNIT 2198.6 hrs

SVE PUMPING UNIT

INJECTION BLOWER TEMP: 125 F
INJECTION BLOWER TEMP SETTING: 220 F
PRESSURE AFTER INJECTION BLOWER 38 "H₂O

VACUUM BLOWER TEMP: 170 F
VACUUM BLOWER TEMP SETTING: 220 F
VACUUM AFTER FILTER 27 "H₂O
PRESSURE AFTER VACUUM BLOWER: 21 "H₂O

GREASE SEALS CHECKED: ☒ DATE OF LAST GREASE: 10-9-03

OIL LEVEL CHECKED: ☒ DATE OF LAST OIL CHANGE: 8-5-03

BELTS CHECKED FOR WEAR: ☒ BELT GUARD IN PLACE: ☒

	PRESS	-	TEMP.
INFLUENT -	35"	-	78°
MID CARBON -	26"	-	
AFTER CARBON -	13"	-	74°

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

PAGE 3

CELL 1 DISTRIBUTION CENTER

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONETS FOR CRACKS OR LEAKS AND ADIQUCY OF SEALS.

CONTROL BOX DISCONNECT ON: _____ 240-VOLT DISCONNECT ON _____

SELECTOR SWITCH: MANUAL _____ OFF _____ AUTO _____

VACUUM STATUS LIGHT: ON _____ OFF _____

CONTROL BOX LOCKED _____

ELECTRICAL HEAT BREAKER: ON _____ OFF _____

ELECTRICAL HEATER THERMOSTAT SETTING: _____ F

PRESSURE AT INJECTION MANIFOLD: _____ "H2O

TEMP AT INJECTION MANIFOLD: _____ F

VACUUM AT VACUUM MANIFOLD: _____ "H2O

TEMP AT VACUUM MANIFOLD: _____ F

VACUUM AT KNOCKOUT TANK: _____ "Hg

WATER PUMP PRESSURE RELIEF SETTING: _____ psi

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

PAGE 4

CELL 2 DISTRIBUTION CENTER

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONETS FOR CRACKS OR LEAKS AND ADIQUCY OF SEALS.

CONTROL BOX DISCONNECT ON: ____ 240-VOLT DISCONNECT ON ____

SELECTOR SWITCH: MANUAL ____ OFF ____ AUTO ____

VACUUM STATUS LIGHT: ON ____ OFF ____

CONTROL BOX LOCKED ____

ELECTRICAL HEAT BREAKER: ON ____ OFF ____

ELECTRICAL HEATER THERMOSTAT SETTING: ____ F

PRESSURE AT INJECTION MANIFOLD: ____ "H₂O

TEMP AT INJECTION MANIFOLD: ____ F

VACUUM AT VACUUM MANIFOLD: ____ "H₂O

TEMP AT VACUUM MANIFOLD: ____ F

VACUUM AT KNOCKOUT TANK: ____ "Hg

WATER PUMP PRESSURE RELIEF SETTING: ____ psi

GENERAL SITE OBSERVATIONS

PAGE 5

CHECK AND NOTE CONDITION OF SITE: Site Looks Good.

FIELD ACTIVITY CHECKLIST

SVE WELLHEAD AIR FLOWS MEASURED: YES ☒ NO

SVE WELLS SAMPLED: YES ☒ NO

CARBON CHANGEOUT PERFORMED: NO

WATER REMOVAL PERFORMED: NO

EXTERIOR OF MAIN AND CELL BUILDINGS INSPECTED: ☒

INSPECT MAIN POWER AND TELEPHONE LINE: NO

SUMMARY OF PROCESS AIR SAMPLING: Pulled 06 Samples From Influent, Mid Carbon AND Effluent.

SUMMARY OF OTHER ACTIVITIES: Took Pids & Temps at Blower and Carbon Bed.
600 gals water in storage tank.

COMMENTS: PID Rds. are a little higher than last weeks.
(Not significantly higher) Double checked bags / connections, etc.
Before sampling was done. Everything is correct!
Samples and PID Rds. taken in order.

SIGNATURE OF OPERATIONS TECHNICIAN(S): L. P. McYune

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

DATE: 10/28/03 ARRIVAL TIME: 0830 FAULT LIGHTS ON (list): "None"

REASON FOR VISIT: MONTHLY QUARTERLY OTHER

OTHER (define): Bi-Likly Carbon Bed of Sampling

TASK PERFORMED: Turned off Samples From Effluent, Influent, and Middle Carbon.

MAIN EQUIPMENT BUILDING

MAIN CONTROL PANEL ☒ CONTROL BOX LOCKED ☒ CONTROL DOOR LOCKED

HOURLY METER: SVE UNIT 2512.0 hrs.

SVE PUMPING UNIT

INJECTION BLOWER TEMP: 100° F
INJECTION BLOWER TEMP SETTING: 220° F
PRESSURE AFTER INJECTION BLOWER 29 "H2O"

VACUUM BLOWER TEMP: 155° F
VACUUM BLOWER TEMP SETTING: 220° F
VACUUM AFTER FILTER 19 "H2O"
PRESSURE AFTER VACUUM BLOWER: 19 "H2O"

GREASE SEALS CHECKED: ☒ DATE OF LAST GREASE: 10-15-03

OIL LEVEL CHECKED: ☒ DATE OF LAST OIL CHANGE: 8-5-03

BELTS CHECKED FOR WEAR: ☒ BELT GUARD IN PLACE: ☒

CARBON BED SYSTEM

INFLUENT - 72° - 38" #20

MID CARBON - - - 78" #20

EFFLUENT - 64° - 14" #20

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

PAGE 3

CELL 1 DISTRIBUTION CENTER

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONENTS FOR CRACKS OR LEAKS AND ADEQUACY OF SEALS.

CONTROL BOX DISCONNECT ON: ☒ 240-VOLT DISCONNECT ON ☒

SELECTOR SWITCH: MANUAL ☐ OFF ☐ AUTO ☒

VACUUM STATUS LIGHT: ON ☒ OFF ☐

CONTROL BOX LOCKED ☒

ELECTRICAL HEAT BREAKER: ON ☒ OFF ☐

ELECTRICAL HEATER THERMOSTAT SETTING: 50 F

PRESSURE AT INJECTION MANIFOLD: 34 "H₂O

TEMP AT INJECTION MANIFOLD: 56 F

VACUUM AT VACUUM MANIFOLD: 86 "H₂O

TEMP AT VACUUM MANIFOLD: 56 F

VACUUM AT KNOCKOUT TANK: ☒ "Hg

WATER PUMP PRESSURE RELIEF SETTING: ☒ psi

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

PAGE 4

CELL 2 DISTRIBUTION CENTER

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONETS FOR CRACKS OR LEAKS AND ADIQUCY OF SEALS.

CONTROL BOX DISCONNECT ON: 240-VOLT DISCONNECT ON

SELECTOR SWITCH: MANUAL OFF AUTO

VACUUM STATUS LIGHT: ON OFF

CONTROL BOX LOCKED

ELECTRICAL HEAT BREAKER: ON OFF

ELECTRICAL HEATER THERMOSTAT SETTING: 50 F

PRESSURE AT INJECTION MANIFOLD: 34 "H2O

TEMP AT INJECTION MANIFOLD: 52 F

VACUUM AT VACUUM MANIFOLD: 70 "H2O (FLUCTUATION)

TEMP AT VACUUM MANIFOLD: 54 F

VACUUM AT KNOCKOUT TANK: "Hg

WATER PUMP PRESSURE RELIEF SETTING: psi

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

GENERAL SITE OBSERVATIONS

PAGE 5

CHECK AND NOTE CONDITION OF SITE: Looks Good

FIELD ACTIVITY CHECKLIST

SVE WELLHEAD AIR FLOWS MEASURED: YES / NO

SVE WELLS SAMPLED: YES / NO

CARBON CHANGEOUT PERFORMED: NO

WATER REMOVAL PERFORMED: NO

EXTERIOR OF MAIN AND CELL BUILDINGS INSPECTED: /

INSPECT MAIN POWER AND TELEPHONE LINE:

SUMMARY OF PROCESS AIR SAMPLING: PAVED AS SAMPLED FROM
INFLUENT, MID-CARBON, EFFLUENT

SUMMARY OF OTHER ACTIVITIES:

COMMENTS: REPORTERS FROM SUN-BULLETIN CAME ON SITE
TALKED WITH US AND TOOK SOME PICTURED OF THE AREA.
TOLD THEM THEY COULDN'T COME INTO THE BLDGS. AND WEREN'T SUPPOSED
TO BE ON SITE. REFERRED THEM TO P. CAULFIELD.

SIGNATURE OF OPERATIONS TECHNICIAN(S): Mike McQuinn

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

DATE: 11/19/03 ARRIVAL TIME: 0830 FAULT LIGHTS ON (list): NONE

REASON FOR VISIT: MONTHLY QUARTERLY OTHER

OTHER (define): CHANGE CONFIG. OF GARDEN BEDS #1 - BROKEN TAP

TASK PERFORMED: TOOK BED #2 OFF LINE (INFLUENT) MADE #3 INFLUENT AND #1 MID-GARDEN. CHANGED OIL IN BLOWER MOTORS. PULLED SAMPLES FROM INFLUENT / MID GARDEN / EFFLUENT. CHECKED OVER THE SITE AND CALLS. TOOK PIDS. - TOOK 2 PID RDS. DURING SAMPLING.

MAIN EQUIPMENT BUILDING

MAIN CONTROL PANEL ☒ CONTROL BOX LOCKED ☒ CONTROL DOOR LOCKED
HOUR METER: SVE UNIT

2862.7 HRS.

SVE PUMPING UNIT

INJECTION BLOWER TEMP: 135° F
INJECTION BLOWER TEMP SETTING: 220 F
PRESSURE AFTER INJECTION BLOWER 3.2 "H2O

VACUUM BLOWER TEMP: 120° F
VACUUM BLOWER TEMP SETTING: 220 F
VACUUM AFTER FILTER 28 "H2O
PRESSURE AFTER VACUUM BLOWER: 28 "H2O

GREASE SEALS CHECKED: ☒ DATE OF LAST GREASE: 11-13-03

OIL LEVEL CHECKED: ☒ DATE OF LAST OIL CHANGE: 8/5/03 - 11/19/03

BELTS CHECKED FOR WEAR: ☒ BELT GUARD IN PLACE: ☒

CARBON BED SYSTEM

INFLUENT -	"H ₂ O 38"	-	TEMP. 82°
MID-CARBON -	28"	-	—
EFFLUENT -	15"	-	80°

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

PAGE 3

CELL 1 DISTRIBUTION CENTER

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONENTS FOR CRACKS OR LEAKS AND ADEQUACY OF SEALS.

CONTROL BOX DISCONNECT ON: ☒ 240-VOLT DISCONNECT ON ☒

SELECTOR SWITCH: MANUAL ☐ OFF ☐ AUTO ☒

VACUUM STATUS LIGHT: ON ☒ OFF ☐

CONTROL BOX LOCKED ☒

ELECTRICAL HEAT BREAKER: ON ☒ OFF ☒

ELECTRICAL HEATER THERMOSTAT SETTING: 55° F

PRESSURE AT INJECTION MANIFOLD: 34 "H₂O

TEMP AT INJECTION MANIFOLD: 57° F

VACUUM AT VACUUM MANIFOLD: 70 "H₂O

TEMP AT VACUUM MANIFOLD: 58° F

VACUUM AT KNOCKOUT TANK: N/A "Hg

WATER PUMP PRESSURE RELIEF SETTING: N/A psi

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

PAGE 4

CELL 2 DISTRIBUTION CENTER

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONENTS FOR CRACKS OR LEAKS AND ADEQUACY OF SEALS.

CONTROL BOX DISCONNECT ON: ☒ 240-VOLT DISCONNECT ON ☒

SELECTOR SWITCH: MANUAL ☐ OFF ☐ AUTO ☒

VACUUM STATUS LIGHT: ON ☒ OFF ☐

CONTROL BOX LOCKED ☒

ELECTRICAL HEAT BREAKER: ON ☒ OFF ☐

ELECTRICAL HEATER THERMOSTAT SETTING: 55°F

PRESSURE AT INJECTION MANIFOLD: 34 "H₂O

TEMP AT INJECTION MANIFOLD: 52°F

VACUUM AT VACUUM MANIFOLD: 60 "H₂O

TEMP AT VACUUM MANIFOLD: 54°F

VACUUM AT KNOCKOUT TANK: N/A "Hg

WATER PUMP PRESSURE RELIEF SETTING: N/A psi

GENERAL SITE OBSERVATIONS

PAGE 5

CHECK AND NOTE CONDITION OF SITE: SITE LOOKS GOOD

FIELD ACTIVITY CHECKLIST

SVE WELLHEAD AIR FLOWS MEASURED: YES NO

SVE WELLS SAMPLED: YES NO

CARBON CHANGEOUT PERFORMED:

WATER REMOVAL PERFORMED:

EXTERIOR OF MAIN AND CELL BUILDINGS INSPECTED: ✓

INSPECT MAIN POWER AND TELEPHONE LINE:

SUMMARY OF PROCESS AIR SAMPLING: PULLED 06 SAMPLES FROM INFLUENT, MID-CARBON AND EFFLUENT. (AFTER CHANGING BED CONFIG)

SUMMARY OF OTHER ACTIVITIES: CHANGED OIL IN BLOWER MOTORS SAE-10W30 NON-DETERG. APP 16-18OZ PER BLOWER.

COMMENTS: APPROX. 60 GALS WATER IN STORAGE TANK. SILICONE IS BLACKTOPPING THE PAVEMENT CUTS IN THE WELL FIELD

SIGNATURE OF OPERATIONS TECHNICIAN(S): M. J. McQuinn

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

DATE: 11/25/03 ARRIVAL TIME: 0900 FAULT LIGHTS ON (list): "SHUT DOWN"

REASON FOR VISIT: MONTHLY QUARTERLY OTHER

OTHER (define): Auto-Dialer Called AT 0915 HRS.

TASK PERFORMED: Water Storage Tank is Full. Pumped And. 500GAL. INTO
RESERVE TANK OUTSIDE. EMPTIED TO TANK AND RESTARTED ISEK
SYSTEM AT 1100 HRS.

MAIN EQUIPMENT BUILDING

MAIN CONTROL PANEL ☐ CONTROL BOX LOCKED ☐ CONTROL DOOR LOCKED
HOUR METER: SVE UNIT 2999.7 HRS.

SVE PUMPING UNIT

INJECTION BLOWER TEMP: 120° F
INJECTION BLOWER TEMP SETTING: 220 F
PRESSURE AFTER INJECTION BLOWER "H2O

VACUUM BLOWER TEMP: 175° F
VACUUM BLOWER TEMP SETTING: 220 F
VACUUM AFTER FILTER "H2O
PRESSURE AFTER VACUUM BLOWER: "H2O

GREASE SEALS CHECKED: ☒ DATE OF LAST GREASE: 11-19-03

OIL LEVEL CHECKED: ☒ DATE OF LAST OIL CHANGE: 11-19-03

BELTS CHECKED FOR WEAR: ☒ BELT GUARD IN PLACE: ☒

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

PAGE 3

CELL 1 DISTRIBUTION CENTER

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONENTS FOR CRACKS OR LEAKS AND ADEQUACY OF SEALS.

CONTROL BOX DISCONNECT ON: _____ 240-VOLT DISCONNECT ON _____

SELECTOR SWITCH: MANUAL _____ OFF _____ AUTO _____

VACUUM STATUS LIGHT: ON _____ OFF _____

CONTROL BOX LOCKED _____

ELECTRICAL HEAT BREAKER: ON _____ OFF _____

ELECTRICAL HEATER THERMOSTAT SETTING: _____ F

PRESSURE AT INJECTION MANIFOLD: _____ "H₂O

TEMP AT INJECTION MANIFOLD: _____ F

VACUUM AT VACUUM MANIFOLD: _____ "H₂O

TEMP AT VACUUM MANIFOLD: _____ F

VACUUM AT KNOCKOUT TANK: _____ "Hg

WATER PUMP PRESSURE RELIEF SETTING: _____ psi

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

PAGE 4

CELL 2 DISTRIBUTION CENTER

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONETS FOR CRACKS OR LEAKS AND ADIQUCY OF SEALS.

CONTROL BOX DISCONNECT ON: ____ 240-VOLT DISCONNECT ON ____

SELECTOR SWITCH: MANUAL ____ OFF ____ AUTO ____

VACUUM STATUS LIGHT: ON ____ OFF ____

CONTROL BOX LOCKED ____

ELECTRICAL HEAT BREAKER: ON ____ OFF ____

ELECTRICAL HEATER THERMOSTAT SETTING: ____ F

PRESSURE AT INJECTION MANIFOLD: ____ "H2O

TEMP AT INJECTION MANIFOLD: ____ F

VACUUM AT VACUUM MANIFOLD: ____ "H2O

TEMP AT VACUUM MANIFOLD: ____ F

VACUUM AT KNOCKOUT TANK: ____ "Hg

WATER PUMP PRESSURE RELIEF SETTING: ____ psi

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

GENERAL SITE OBSERVATIONS

PAGE 5

CHECK AND NOTE CONDITION OF SITE: _____

FIELD ACTIVITY CHECKLIST

SVE WELLHEAD AIR FLOWS MEASURED: ____ YES ____ NO

SVE WELLS SAMPLED: ____ YES ____ NO

CARBON CHANGEOUT PERFORMED: ____

WATER REMOVAL PERFORMED: ____

EXTERIOR OF MAIN AND CELL BUILDINGS INSPECTED: ____

INSPECT MAIN POWER AND TELEPHONE LINE: ____

SUMMARY OF PROCESS AIR SAMPLING: _____

SUMMARY OF OTHER ACTIVITIES: _____

COMMENTS: _____

SIGNATURE OF OPERATIONS TECHNICIAN(S): _____

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

DATE: 12/2/03 ARRIVAL TIME: 0800 FAULT LIGHTS ON (list): "NONE"

REASON FOR VISIT: MONTHLY QUARTERLY OTHER

OTHER (define): _____

TASK PERFORMED: _____

MAIN EQUIPMENT BUILDING

MAIN CONTROL PANEL _____ CONTROL BOX LOCKED _____ CONTROL DOOR LOCKED
HOUR METER: SVE UNIT

SVE PUMPING UNIT

INJECTION BLOWER TEMP: 130° F
INJECTION BLOWER TEMP SETTING: 220 F
PRESSURE AFTER INJECTION BLOWER _____ "H2O

VACUUM BLOWER TEMP: 160 F
VACUUM BLOWER TEMP SETTING: 220 F
VACUUM AFTER FILTER 13 "H2O
PRESSURE AFTER VACUUM BLOWER: 10 "H2O

GREASE SEALS CHECKED: ✓ DATE OF LAST GREASE: _____

OIL LEVEL CHECKED: ✓ DATE OF LAST OIL CHANGE: 11-19-03

BELTS CHECKED FOR WEAR: ✓ BELT GUARD IN PLACE: ✓

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

DATE: / /

PAGE 2

CARBON BED SYSTEM

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONENTS FOR CRACKS OR LEAKS; CHECK CARBON BEDS CONNECTIONS AND ASSOCIATED INSTRUMENTATION.

PRESSURE BEFORE GAC UNIT 1
TEMPERATURE BEFORE GAC 1

42 "H2O
136° F

PRESSURE BETWEEN GAC UNIT 1 AND 2

32 "H2O

PRESSURE AFTER GAC UNIT 2
TEMPERATURE AFTER GAC 2

17 "H2O
110° F

WATER STORAGE UNIT

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONENTS FOR CRACKS OR LEAKS; CHECK CARBON BEDS CONNECTIONS AND ASSOCIATED INSTRUMENTATION.

VOLUME OF WATER IN STORAGE TANK: 150 GALLONS
WATER IN CONTAINMENT VESSEL: YES NO ✓ AMOUNT: INCHES

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

PAGE 3

CELL 1 DISTRIBUTION CENTER

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONENTS FOR CRACKS OR LEAKS AND ADEQUACY OF SEALS.

CONTROL BOX DISCONNECT ON: _____ 240-VOLT DISCONNECT ON _____

SELECTOR SWITCH: MANUAL _____ OFF _____ AUTO _____

VACUUM STATUS LIGHT: ON _____ OFF _____

CONTROL BOX LOCKED _____

ELECTRICAL HEAT BREAKER: ON _____ OFF _____

ELECTRICAL HEATER THERMOSTAT SETTING: _____ F

PRESSURE AT INJECTION MANIFOLD: 40 "H₂O

TEMP AT INJECTION MANIFOLD: 54 F

VACUUM AT VACUUM MANIFOLD: 85 "H₂O

TEMP AT VACUUM MANIFOLD: 55 F

VACUUM AT KNOCKOUT TANK: _____ "Hg

WATER PUMP PRESSURE RELIEF SETTING: _____ psi

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

PAGE 4

CELL 2 DISTRIBUTION CENTER

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONENTS FOR CRACKS OR LEAKS AND ADEQUACY OF SEALS.

CONTROL BOX DISCONNECT ON: _____ 240-VOLT DISCONNECT ON _____

SELECTOR SWITCH: MANUAL _____ OFF _____ AUTO _____

VACUUM STATUS LIGHT: ON _____ OFF _____

CONTROL BOX LOCKED _____

ELECTRICAL HEAT BREAKER: ON _____ OFF _____

ELECTRICAL HEATER THERMOSTAT SETTING: _____ F

PRESSURE AT INJECTION MANIFOLD: 40 "H₂O

TEMP AT INJECTION MANIFOLD: 50 F

VACUUM AT VACUUM MANIFOLD: 86 "H₂O

TEMP AT VACUUM MANIFOLD: 49 F

VACUUM AT KNOCKOUT TANK: _____ "Hg

WATER PUMP PRESSURE RELIEF SETTING: _____ psi

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

GENERAL SITE OBSERVATIONS

PAGE 5

CHECK AND NOTE CONDITION OF SITE: _____

FIELD ACTIVITY CHECKLIST

SVE WELLHEAD AIR FLOWS MEASURED: _____ YES _____ NO

SVE WELLS SAMPLED: _____ YES _____ NO

CARBON CHANGEOUT PERFORMED: _____

WATER REMOVAL PERFORMED: _____

EXTERIOR OF MAIN AND CELL BUILDINGS INSPECTED: _____

INSPECT MAIN POWER AND TELEPHONE LINE: _____

SUMMARY OF PROCESS AIR SAMPLING: _____

SUMMARY OF OTHER ACTIVITIES: _____

COMMENTS: _____

SIGNATURE OF OPERATIONS TECHNICIAN(S): _____

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

DATE: 12/14/03 ARRIVAL TIME: 0900 FAULT LIGHTS ON (list): "None"

REASON FOR VISIT: MONTHLY QUARTERLY OTHER

OTHER (define): Major Sampling Event - Sample Balance of VAC Wells.
IN CELL #1 & #2

TASK PERFORMED: _____

MAIN EQUIPMENT BUILDING

MAIN CONTROL PANEL ☒ CONTROL BOX LOCKED ☒ CONTROL DOOR LOCKED
HOUR METER: SVE UNIT 3167.2 HRS.

SVE PUMPING UNIT

INJECTION BLOWER TEMP: 130° F
INJECTION BLOWER TEMP SETTING: 220 F
PRESSURE AFTER INJECTION BLOWER 11" H₂O H6

VACUUM BLOWER TEMP: 160 F
VACUUM BLOWER TEMP SETTING: 220 F
VACUUM AFTER FILTER 12" H₂O H6
PRESSURE AFTER VACUUM BLOWER: 9" H₂O H6

GREASE SEALS CHECKED: ☒ DATE OF LAST GREASE: _____

OIL LEVEL CHECKED: ☒ DATE OF LAST OIL CHANGE: 11-19-03

BELTS CHECKED FOR WEAR: ☒ BELT GUARD IN PLACE: ☒

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

DATE: 12/4/03

PAGE 2

CARBON BED SYSTEM

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONENTS FOR CRACKS OR LEAKS; CHECK CARBON BEDS CONNECTIONS AND ASSOCIATED INSTRUMENTATION. _____

PRESSURE BEFORE GAC UNIT 1
TEMPERATURE BEFORE GAC 1

42 "H2O
135° F

PRESSURE BETWEEN GAC UNIT 1 AND 2

32 "H2O

PRESSURE AFTER GAC UNIT 2
TEMPERATURE AFTER GAC 2

16 "H2O
110° F

WATER STORAGE UNIT

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONENTS FOR CRACKS OR LEAKS; CHECK CARBON BEDS CONNECTIONS AND ASSOCIATED INSTRUMENTATION. _____

VOLUME OF WATER IN STORAGE TANK: 150 GALLONS
WATER IN CONTAINMENT VESSEL: YES NO ✓ AMOUNT: INCHES

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

PAGE 3

CELL 1 DISTRIBUTION CENTER

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONETS FOR CRACKS OR LEAKS AND ADIQUY OF SEALS.

CONTROL BOX DISCONNECT ON: _____ 240-VOLT DISCONNECT ON _____

SELECTOR SWITCH: MANUAL _____ OFF _____ AUTO _____

VACUUM STATUS LIGHT: ON _____ OFF _____

CONTROL BOX LOCKED _____

ELECTRICAL HEAT BREAKER: ON _____ OFF _____

ELECTRICAL HEATER THERMOSTAT SETTING: _____ F

PRESSURE AT INJECTION MANIFOLD: 40 "H2O

TEMP AT INJECTION MANIFOLD: 52 F

VACUUM AT VACUUM MANIFOLD: 84 "H2O

TEMP AT VACUUM MANIFOLD: 54 F

VACUUM AT KNOCKOUT TANK: N/A "Hg

WATER PUMP PRESSURE RELIEF SETTING: N/A psi

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

PAGE 4

CELL 2 DISTRIBUTION CENTER

CHECK ALL ABOVE-GROUND PIPING, VALVES, FITTINGS AND OTHER COMPONENTS FOR CRACKS OR LEAKS AND ADEQUACY OF SEALS.

CONTROL BOX DISCONNECT ON: _____ 240-VOLT DISCONNECT ON _____

SELECTOR SWITCH: MANUAL _____ OFF _____ AUTO _____

VACUUM STATUS LIGHT: ON _____ OFF _____

CONTROL BOX LOCKED _____

ELECTRICAL HEAT BREAKER: ON _____ OFF _____

ELECTRICAL HEATER THERMOSTAT SETTING: _____ F

PRESSURE AT INJECTION MANIFOLD: 40 "H₂O

TEMP AT INJECTION MANIFOLD: 48 F

VACUUM AT VACUUM MANIFOLD: 86 "H₂O

TEMP AT VACUUM MANIFOLD: 48 F

VACUUM AT KNOCKOUT TANK: _____ "Hg

WATER PUMP PRESSURE RELIEF SETTING: _____ psi

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

GENERAL SITE OBSERVATIONS

PAGE 5

CHECK AND NOTE CONDITION OF SITE: _____

FIELD ACTIVITY CHECKLIST

SVE WELLHEAD AIR FLOWS MEASURED: _____ YES _____ NO

SVE WELLS SAMPLED: _____ YES _____ NO

CARBON CHANGEOUT PERFORMED: _____

WATER REMOVAL PERFORMED: _____

EXTERIOR OF MAIN AND CELL BUILDINGS INSPECTED: _____

INSPECT MAIN POWER AND TELEPHONE LINE: _____

SUMMERY OF PROCESS AIR SAMPLING: _____

SUMMARY OF OTHER ACTIVITIES: _____

COMMENTS: _____

SIGNATURE OF OPERATIONS TECHNICIAN(S): _____

APPENDIX B

Sampling and Analytical Data — Process Air Data

(Including QC Data, Laboratory Data Summary Sheets, Chain of
Custody Forms, Field Sample Log Book Notes)

Shaw E & I Lab Analytical Results

*Client: Severson/USACE
Analysis Date: 10/10/2003
Detection Limit: See below
Analyst: YL*

*Client Code: 681086
Sample Date: 10/9/03
Units: ppmv
Project Manager: D. Callahan*

<i>SAMPLE ID</i>	<i>1,1,1-TCA</i>	<i>TCE</i>	<i>DL</i>
VS-SVE-INF-100903-0109	7.49	6.01	0.05
VS-SVE-MID-100903-0110	0.00	0.00	0.05
VS-SVE-EFF-100903-0111	2.04	0.00	0.05
VS-SVE-SP-100903-0112	0.00	0.00	0.05
VS-SVE-TB-100903-0113	0.00	0.00	0.05

Notes:

- [1] TVOC: estimated value. TVOC was calculated by the average response factor of the known contaminants.*
- [2] 0.00 indicates BELOW DETECTION LIMIT. (For TVOC, the Detection Limit is 1.0 ppmv.)*
- [3] DL = Detection Limit.*

CHAIN - OF - CUSTODY for AIR SAMPLES

Hour Meter: 2054.6 Client: SEVENSON/USACE Client Code: #191086
 Flow Meter- Type: _____ Range (cfm): _____ Pressure: _____
 Withdrawl blower - Vacuum: _____ Pressure: _____
 Injection blower - Vacuum: _____ Pressure: _____
 Project Manager: D. Callahan
 System Status: "OPERATIONAL"

Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm) Ppd	Analysis Requested	Notes
1555VE-0109	10-9-03	0930		12.9 ppm	T-014, A	INFLUENT
1555VE-0110		0945		2.0 ppm		MID-CARBON
1555VE-0111		1010		0.3 ppm		EFFLUENT
1555VE-0112		0915		0.3 ppm		SAMPLE PUMP
1555VE-0113		TRAP BLANK		0.3 ppm		TRAP BLANK
6						
7						
8						
9						
10						
11						
12						

Collected By: MSBwire / Callahan Date: 10-9-03 Time: 0915 **Envirogen, Inc.**

Delivered By: U.P.S. Date: 10-10-03 Time: _____ New Solutions to Hazardous Waste Problems

Received By: MR. Li Date: 10-10-03 Time: 10:10 5126 West Grand River, Lansing, Michigan. 48906

Remarks: _____ Phone #: (517) 886-5600 Fax #: (517) 886-5700

Shaw E & I Lab Analytical Results

*Client: Severson/USACE
Analysis Date: 10/16/2003
Detection Limit: See below
Analyst: YL*

*Client Code: 681086
Sample Date: 10/15/03
Units: ppmv
Project Manager: D. Callahan*

<i>SAMPLE ID</i>	<i>1,1,1-TCA</i>	<i>TCE</i>	<i>DL</i>
VS-SVE-INF-101503-0114	11.02	8.98	0.05
VS-SVE-MID-DUP-101503-0115	11.73	0.00	0.05
VS-SVE-MID-101503-0115	12.36	0.00	0.05
VS-SVE-EFF-101503-0116	0.00	0.00	0.05
VS-SVE-SP-101503-0117	0.00	0.00	0.05
VS-SVE-TB-101503-0118	0.00	0.00	0.05
INSTRUMENT BLANK	0.00	0.00	0.05

Notes:

[1] TVOC: estimated value. TVOC was calculated by the average response factor of the known contaminants.

[2] 0.00 indicates BELOW DETECTION LIMIT. (For TVOC, the Detection Limit is 1.0 ppmv.)

[3] DL = Detection Limit.

CHAIN - OF - CUSTODY for AIR SAMPLES

Hour Meter: 2198.6 hrs

Client: SEMPSON / USAF Client Code: 681086

Flow Meter- Type: Range (cfm): Pressure:

Site Address: 210 Stage B, West, NY 13950

Withdrawal blower - Vacuum: Pressure:

Project Manager: D. C. CARRAN

Injection blower - Vacuum: Pressure:

System Status: "Operational"

Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide P2D (ppm) P2D	Analysis Requested	Notes
15-SVE-0114	10-15-03	0950		13.7 ppm	TOTAL	INFLUENT
15-SVE-0115		1005		2.4 ppm		MID CARBON
15-SVE-0116		1030		0.4 ppm		EFFLUENT
15-SVE-0117		0930		0.3 ppm		PUMP BLANK
15-SVE-0118		TRIP BLANK		0.3 ppm		TRIP BLANK
6						
7						
8						
9						
10						
11						
12						

Collected By: McGuire / Colasacco Date: 10-15-03 Time: 0930 **Envirogen, Inc.**

Delivered By: Date: Time: New Solutions to Hazardous Waste Problems

Received By: JP Date: 10/16/03 Time: 9:30 5126 West Grand River, Lansing, Michigan. 48906

Remarks: Phone #: (517) 886-5600 Fax #: (517) 886-5700

Shaw E & I Lab Analytical Results

***Client: Severson/USACE
Analysis Date: 10/29/2003
Detection Limit: See below
Analyst: YL***

***Client Code: 681086
Sample Date: 10/28/03
Units: ppmv
Project Manager: D. Callahan***

<i>SAMPLE ID</i>	<i>1,1,1-TCA</i>	<i>TCE</i>	<i>DL</i>
VS-SVE-INF-102803-0119	10.36	8.80	0.05
VS-SVE-MID-102803-0120	17.75	8.58	0.05
VS-SVE-EFF-102803-0121	12.32	0.00	0.05
VS-SVE-SP-102803-0122	0.00	0.00	0.05
VS-SVE-TB-102803-0123	0.00	0.00	0.05

Notes:

- [1] TVOC: estimated value. TVOC was calculated by the average response factor of the known contaminants.
[2] 0.00 indicates BELOW DETECTION LIMIT. (For TVOC, the Detection Limit is 1.0 ppmv.)
[3] DL = Detection Limit.***

CHAIN - OF - CUSTODY for AIR SAMPLES

Hour Meter: 2517.0 Client: Sevenson/USACE Client Code: 681006
 Flow Meter- Type: Range (cfm): Pressure:
 Withdrawal blower - Vacuum: Pressure:
 Injection blower - Vacuum: Pressure:
 Site Address: 210 SAGEB - VESTAL, NY 13070
 Project Manager: D. CAULFIELD
 System Status: "Operational"

Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm) PID	Analysis Requested	Notes
1 VS-SVE-0119	10-28-03	1000		16.2 ppm	T.O.D. A	INFLUENT
2 VS-SVE-0120		1015		14.6 ppm		MID Carbon
3 VS-SVE-0121		1035		3.0 ppm		EFFLUENT
4 VS-SVE-0122		0940		0.4 ppm		Pump Blank
5 VS-SVE-0123		Trap Blank		0.4 ppm		Trap Blank
6						
7						
8						
9						
10						
11						
12						

Collected By: CAULFIELD/McBride Date: 10-28-03 Time: 0940 **Envirogen, Inc.**

Delivered By: Date: Time: New Solutions to Hazardous Waste Problems

Received By: AP Date: 10/29/03 Time: 9:30 5126 West Grand River, Lansing, Michigan. 48906

Remarks: Phone #: (517) 886-5600 Fax #: (517) 886-5700

Shaw E & I Lab Analytical Results

*Client: Severson/USACE
Analysis Date: 11/12/2003
Detection Limit: See below
Analyst: YL*

*Client Code: 681086
Sample Date: 11/11/2003
Units: ppmv
Project Manager: D. Callahan*

<i>SAMPLE ID</i>	<i>1,1,1-TCA</i>	<i>TCE</i>	<i>TVOC</i>	<i>DL</i>
VS-SVE-INF-111103-0124	3.89	5.81	11.13	0.05
VS-SVE-MID-111103-0125	14.77	0.00	17.31	0.05
VS-SVE-EFF-111103-0126	0.00	0.00	0.00	0.05
VS-SVE-SP-111103-0127	0.00	0.00	0.00	0.05
VS-SVE-TB-111103-0128	0.00	0.00	0.00	0.05

Notes:

[1] TVOC: estimated value. TVOC was calculated by the average response factor of the known contaminants.

[2] 0.00 indicates BELOW DETECTION LIMIT. (For TVOC, the Detection Limit is 1.0 ppmv.)

CHAIN-OF-CUSTODY for AIR SAMPLES

Hour Meter: 2676.9

Flow Meter- Type: _____ Range (cfm): _____

Withdrawl blower - Vacuum: _____ Pressure: _____

Injection blower - Vacuum: _____ Pressure: _____

Client: SEVENSON/USACE Client Code: #691086

Site Address: 210 STATE RD - WEST TOW, NY 13858

Project Manager: D. Cusumano

System Status: "Operational"

[illegible]

Envirogen, Inc.

New Solutions to Hazardous Waste Problems

5126 West Grand River, Lansing, Michigan. 48906

Phone #: (517) 886-5600 Fax #: (517) 886-5700

Collected By: McGuire / Chas. S. D. Date: 11-17-03 Time: 1:00

Delivered By: _____ Date: _____ Time: _____

Received By:  Date: 11/12/03 Time: 9:30

Remarks:

White copy = Laboratory Yellow copy = Technical Analyst Pink copy = Operation Technicians

Shaw E & I Lab Analytical Results

*Client: Severson/USACE
Analysis Date: 11/20/2003
Detection Limit: See below
Analyst: YL*

*Client Code: 681086
Sample Date: 11/19/03
Units: ppmv
Project Manager: D. Callahan*

<i>SAMPLE ID</i>	<i>1,1,1-TCA</i>	<i>TCE</i>	<i>TVOC</i>	<i>DL</i>
VS-SVE-INF-111903-0129	4.96	5.51	12.36	0.05
VS-SVE-MID-111903-0130	0.00	0.00	0.00	0.05
VS-SVE-EFF-111903-0131	0.00	0.00	0.00	0.05
VS-SVE-SP-111903-0132	0.00	0.00	0.00	0.05
VS-SVE-TB-111903-0133	0.00	0.00	0.00	0.05

Notes:

[1] TVOC: estimated value. TVOC was calculated by the average response factor of the known contaminants.

[2] 0.00 indicates BELOW DETECTION LIMIT. (For TVOC, the Detection Limit is 1.0 ppmv.)

[3] DL = Detection Limit.

CHAIN-OF-CUSTODY for AIR SAMPLES

750169

Site Address: 210 STAGE B. VESTAC, NU

Project Manager: D. Cai

System Status: "Operational"

[illegible]

Time: 1000

New Solutions to Hazardous Waste Problems

5126 West Grand River, Lansing, Michigan. 48906

Phone #: (517) 886-5600 **Fax #:** (517) 886-5700

Pink copy = Operation Technicians

Shaw E & I Lab Analytical Results

*Client: Severson/USACE
Analysis Date: 12/3/2003
Detection Limit: See below
Analyst: YL*

*Client Code: 681086
Sample Date: 12/2/03
Units: ppmv
Project Manager: D. Callahan*

<i>SAMPLE ID</i>	<i>1,1,1-TCA</i>	<i>TCE</i>	<i>TVOC</i>	<i>DL</i>
VS-SVE-A1-120203-0134	0.64	0.00	2.94	0.05
VS-SVE-E1-120203-0135	5.23	8.65	14.96	0.05
VS-SVE-D1-120203-0136	48.39	63.46	118.24	0.12
VS-SVE-F1-120203-0138	0.00	0.00	1.13	0.05
VS-SVE-E4-120203-0140	8.64	5.04	15.27	0.05
VS-SVE-E4-D-120203-0141	8.58	4.63	14.29	0.05
VS-SVE-TB-1-120203-0142	0.00	0.00	0.00	0.05
VS-SVE-F4-120203-0143	41.38	72.39	118.79	0.12
VS-SVE-C1-120203-0147	0.85	0.00	2.79	0.05
VS-SVE-C3-120203-0148	62.51	122.46	222.14	0.25
VS-SVE-B3-120203-0149	41.12	79.95	126.51	0.12
VS-SVE-TB-2-120203-0150	0.00	0.00	0.00	0.05
VS-SVE-A2-120203-0152	0.17	0.00	1.44	0.05
VS-SVE-B1-120203-0153	0.00	0.00	1.02	0.05
VS-SVE-D4-120203-0156	2.19	2.85	6.33	0.05
VS-SVE-TB-3-120203-0157	0.00	0.00	0.00	0.05
VS-SVE-PB-1-120203-0158	0.00	0.00	0.00	0.05

Notes:

[1] TVOC: estimated value. TVOC was calculated by the average response factor of the known contaminants.

[2] 0.00 indicates BELOW DETECTION LIMIT. (For TVOC, the Detection Limit is 1.0 ppmv.)

[3] DL = Detection Limit.

Shaw E & I Lab Analytical Results

*Client: Severson/USACE
Analysis Date: 12/5/2003
Detection Limit: See below
Analyst: YL*

*Client Code: 681086
Sample Date: 12/4/03
Units: ppmv
Project Manager: D. Callahan*

<i>SAMPLE ID</i>	<i>1,1,1-TCA</i>	<i>TCE</i>	<i>TVOC</i>	<i>DL</i>
VS-SVE-K1-120403-0159	8.39	5.68	24.39	0.05
VS-SVE-J1-120403-0160	8.79	6.57	27.71	0.05
VS-SVE-K5-120403-0163	0.00	0.00	0.00	0.05
VS-SVE-L4-120403-0164	0.18	0.66	4.66	0.05
VS-SVE-L1-120403-0165	6.87	7.85	27.89	0.05
VS-SVE-TB-4-120403-0166	0.00	0.00	0.00	0.05
VS-SVE-K3-120403-0167	41.32	0.00	53.40	0.12
VS-SVE-K3-D-120403-0168	42.32	0.00	56.55	0.12
VS-SVE-N1-120403-0169	0.23	0.45	2.38	0.05
VS-SVE-N2-120403-0170	2.30	1.74	12.03	0.05
VS-SVE-M2-120403-0171	3.79	3.28	20.68	0.05
VS-SVE-N3-120403-0172	1.33	1.26	15.87	0.05
VS-SVE-M1-120403-0173	6.17	6.68	22.71	0.05
VS-SVE-J6-120403-0174	0.00	0.00	0.00	0.05
VS-SVE-TB-5-120403-0175	0.00	0.00	0.00	0.05
VS-SVE-J3-120403-0176	0.75	0.00	21.36	0.05
VS-SVE-G1-120403-0177	0.16	0.55	2.26	0.05
VS-SVE-I5-120403-0178	0.00	0.00	0.00	0.05
VS-SVE-H2-120403-0179	0.15	0.34	1.77	0.05
VS-SVE-I2-120403-0180	8.83	8.79	29.53	0.05
VS-SVE-I3-120403-0182	0.11	0.49	5.96	0.05
VS-SVE-TB-6-120403-0183	0.00	0.00	0.00	0.05

Shaw E & I Lab Analytical Results

*Client: Severson/USACE
Analysis Date: 12/5/2003
Detection Limit: See below
Analyst: YL*

*Client Code: 681086
Sample Date: 12/4/03
Units: ppmv
Project Manager: D. Callahan*

<i>SAMPLE ID</i>	<i>1,1,1-TCA</i>	<i>TCE</i>	<i>TVOC</i>	<i>DL</i>
VS-SVE-H1-120403-0184	0.00	0.00	0.00	0.05
VS-SVE-J5-120403-0185	8.38	3.58	15.17	0.05
VS-SVE-INF-120403-0187	2.89	3.03	7.12	0.05
VS-SVE-MID-120403-0188	15.31	0.00	19.54	0.05
VS-SVE-EFF-120403-0189	0.00	0.00	0.00	0.05
VS-SVE-TB-7-120403-0190	0.00	0.00	0.00	0.05
VS-SVE-PB-2-120403-0191	0.00	0.00	0.00	0.05

Notes:

[1] TVOC: estimated value. TVOC was calculated by the average response factor of the known contaminants.

[2] 0.00 indicates BELOW DETECTION LIMIT. (For TVOC, the Detection Limit is 1.0 ppmv.)

[3] DL = Detection Limit.

[4] VS-SVE-L2-120403-0162 was not analyzed due to the excess water in the bag.

White copy = Laboratory Yellow copy = Technical Analyst Pink copy = Operation Technicians

CHAIN - OF - CUSTODY for AIR SAMPLES

Hour Meter: 3142.3 Client: ENVIRON/USACE Client Code: 48906
 Flow Meter - Type: Dwyer Range (cfm): 0-25 cfm Site Address: 210 STAGE RD. - WEST, NY 13850
 Withdrawal blower - Vacuum: _____ Pressure: _____ Project Manager: D. CACCIATON
 Injection blower - Vacuum: _____ Pressure: _____ System Status: "OPERATION"

Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm) (PFD)	Analysis Requested	Notes
1 VS-SVE 0151	12-2-03	N/S WATER	LESS-5	N/S-WATER	TOTAL A	A-3 (H2O)
2 VS-SVE 0152		1135	15	2.1		A-2
3 VS-SVE 0153		1142	15	1.0		B-1
4 VS-SVE 0154		N/S-WATER	8	N/S-WATER		E-5 (H2O)
5 VS-SVE 0155		N/S-WATER	LESS-5	N/S-WATER		D-3 (H2O)
6 VS-SVE 0156		1150	LESS-5	4.3		D-4
7 VS-SVE 0157						Trip Blank #3
8 VS-SVE 0158						Runp Blank #1
9						
10						
11						
12						

Collected By: CHAGNARD / MCGUIRE Date: 12-2-03 Time: 1130
 Delivered By: UPS Date: _____ Time: _____
 Received By: MR. Li Date: 12/3/03 Time: 9:00
 Remarks: _____

Envirogen, Inc.
 SHAW E&I/EMCON/OWT INC.
 New Solutions to Hazardous Waste Problems
 103 CALLERE AVE, SE
 5126 West Grand River, Lansing, Michigan 48906
 GRAND RAPIDS, MI 49503
 Phone # (517) 886-5600 Fax # (517) 886-5700
 1-816-774-3522

White copy = Laboratory Yellow copy = Technical Analyst Pink copy = Operation Technicians

Copy #5

CHAIN - OF - CUSTODY for AIR SAMPLES

Hour Meter: 3167.2 Client: SEVENSON/USACE Client Code: 881288
Flow Meter- Type: Dwyer Range (cfm): 0-25 CFM Site Address: 210 SAGEB, WESTAL, NY 13850
Withdrawal blower - Vacuum: _____ Pressure: _____ Project Manager: D. Callahan
Injection blower - Vacuum: _____ Pressure: _____ System Status: "OPERATIONAL"

Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm)	Analysis Requested	Notes
1 VS-SVE 0167	12-4-03	1050	LEES-5	40.3	TOX, A	K-3
2 VS-SVE 0168		1054	LEES-5	40.3		K-3-Dupe
3 VS-SVE 0169		1059	LEES-5	11.6		N-1
4 VS-SVE 0170		1104	LEES-5	23.0		N-2
5 VS-SVE 0171		1108	LEES-5	5.0		M-2
6 VS-SVE 0172		1113	LEES-5	7.3		N-3
7 VS-SVE 0173		1117	LEES-5	26.1		M-1
8 VS-SVE 0174		1121	LEES-5	1.8		J-6
9 VS-SVE 0175						TRIP BLANK #5
10						
11						
12						

Collected By: Callahan/D Date: 12-4-03 Time: 1450 **Envirogen, Inc.**
Delivered By: _____ Date: _____ Time: _____ New Solutions to Hazardous Waste Problems
Received By: MR Date: 12/5/03 Time: 9:00 5126 West Grand River, Lansing, Michigan. 48906
Remarks: _____ Phone #: (517) 886-5600 Fax #: (517) 886-5700

White copy = Laboratory Yellow copy = Technical Analyst Pink copy = Operation Technicians

Chapman #6

CHAIN - OF - CUSTODY for AIR SAMPLES

Hour Meter: 3167.2 Client: SEVENSON/USACE Client Code: #891486
Flow Meter- Type: DAUER Range (cfm): 0-2594 Site Address: 210 SAGE B. VESTAL, NY 1390
Withdrawal blower - Vacuum: _____ Pressure: _____ Project Manager: D. CALLAHAN
Injection blower - Vacuum: _____ Pressure: _____ System Status: "OPERATIONAL"

Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm)	Analysis Requested	Notes
15-SVE 0176	12-4-03	1130	685-5	143.3	TO14, A	J-3
15-SVE 0177		1135	6	28.0		G-1
15-SVE 0178		1139	685-5	13.1		I-5
15-SVE 0179		1143	685-5	10.6		H-2
15-SVE 0180		1148	685-5	117.8		I-2
15-SVE 0181		1154	10	Water/NIS		G-2 (H2O)
15-SVE 0182		1202	685-5	14.2		I-3
15-SVE 0183						TRAP BLANK #6
9						
10						
11						
12						

Collected By: Calaguedo/McBride Date: 12-4-03 Time: 1130 **Envirogen, Inc.**
Delivered By: YPS Date: _____ Time: _____ New Solutions to Hazardous Waste Problems
Received By: MR. Li Date: 12/5/03 Time: 9:00 5126 West Grand River, Lansing, Michigan. 48906
Remarks: _____ Phone #: (517) 886-5600 Fax #: (517) 886-5700

White copy = Laboratory Yellow copy = Technical Analyst Pink copy = Operation Technicians

Change #7

CHAIN-OF-CUSTODY for AIR SAMPLES

Hour Meter: 3167.2 Client: SEVENSON/WACE Client Code: 580008
Flow Meter- Type: Dwyer Range (cfm): 0-25 cfm Site Address: 210 SAGE RD, WEST, NY 13050
Withdrawal blower - Vacuum: _____ Pressure: _____ Project Manager: D. CAUGHAN
Injection blower - Vacuum: _____ Pressure: _____ System Status: "OPERATIONAL"

Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm)	Analysis Requested	Notes
1 VS-SVE 0104	12-4-03	1210	1685-5	5.3	TOTAL A	HA
2 VS-SVE 0105		1215	8	8.6		J-5
3 VS-SVE 0106		1219	1685-5	N/S - WATER		I-1 (H2O)
4 VS-SVE 0107		1223	---	7.7 ppm		EFFLUENT
5 VS-SVE 0108		1227	---	4.2 ppm		MID GROUND
6 VS-SVE 0109		1232	---	0.6 ppm		EFFLUENT
7 VS-SVE 0190		---	---	---		TOP BLANK #7
8 VS-SVE 0191		---	---	---		PUMP BLANK #2
9						
10						
11						
12						

Collected By: CHASADO/KREGG Date: 12-4-03 Time: 12:20 **Envirogen, Inc.**

Delivered By: _____ Date: _____ Time: _____ New Solutions to Hazardous Waste Problems

Received By: VR Date: 12/5/03 Time: 9:00 5126 West Grand River, Lansing, Michigan. 48906

Remarks: _____ Phone #: (517) 886-5600 Fax #: (517) 886-5700

White copy = Laboratory Yellow copy = Technical Analyst Pink copy = Operation Technicians

QA/QC Report for Vestal Samples
(Sample Date: 10/9/03 - 10/28/03)

1. Sample Receipt

The samples arrived at the lab carefully packed in coolers and the custody seals on the cooler were intact. All of the sample bags in the cooler arrived intact and the labels on the bags were found to be complete. The information on the sample labels agreed with the information on the chain-of-custody form placed inside the shipping cooler.

2. Sample Holding Times

The required holding times were met according to the lab SOP.

3. Instrument Blank Analysis

The instrument blank analysis indicated the instruments did not contain any target compounds.

4. Lab Duplicate Analysis

1) VS-SVE-MID-101503-0115 (1,1,1-TCA)

Vestal Duplicate Sample Analysis Report					
Sample Date	Data1	Data2	Avg	RPD (%)	RPD Acceptable?
10/15/03	11.73	12.36	12.045	5.2	YES

2) VS-SVE-MID-102803-0120

Vestal Duplicate Sample Analysis Report						
Sample Date		Data1	Data2	Avg	RPD (%)	RPD Acceptable?
10/28/03	TCE	11.718	11.007	11.3625	6.3	YES
10/28/03	1,1,1-TCA	24.654	23.315	23.9845	5.6	YES

5. GC Calibrations

The instruments performed target compound standards calibration check each analysis day, or re-run the standards. The results met the requirement in the lab SOP.

6. Lab Authentication Statement

I certify, to the best of my knowledge, that the information in this QA/QC report is true, accurate and complete.



Yixin Li
Chemist
Shaw E & I
14155 Farmington Rd.
Livonia, MI 48154

QA/QC Report for Vestal Samples
(Sample Date: 11/11/03 - 11/19/03)

1. Sample Receipt

The samples arrived at the lab were carefully packed in coolers. All of the sample bags in the coolers arrived intact and the labels on the bags were found to be complete. The information on the sample labels agreed with the information on the chain-of-custody forms placed inside the shipping coolers.

2. Sample Holding Times

The required holding times were met according to the lab SOP.

3. Instrument Blank Analysis

The instrument blank analysis indicated the instruments did not contain any target compounds.

4. Lab Duplicate Analysis

Vestal Duplicate Sample RPD Report					
Sample ID: VS-SVE-MID-111103-0125					
Sample Date	Analytes	Data1	Data2	RPD (%)	RPD Acceptable?
11/11/03	1,1,1-TCA	20.446	20.517	0.3	YES

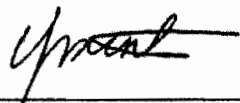
Vestal Duplicate Sample RPD Report					
Sample ID: VS-SVE-INF-111903-0129					
Sample Date	Analytes	Data1	Data2	RPD (%)	RPD Acceptable?
11/19/03	TCE	3.199	3.369	5.2	YES
11/19/03	1,1,1-TCA	3.078	3.012	2.2	YES

5. GC Calibrations

The instruments performed target compound standards calibration check each analysis day, or re-run the standards. The results met the requirement in the lab SOP.

6. Lab Authentication Statement

I certify, to the best of my knowledge, that the information in this QA/QC report is true, accurate and complete.



Yixin Li
Chemist
Shaw E & I
14155 Farmington Rd.
Livonia, MI 48154

QA/QC Report for Vestal Samples
(Sample Date: 12/2/03 - 12/4/03)

1. Sample Receipt

The samples arrived at the lab were carefully packed in coolers. All of the sample bags in the coolers arrived intact and in good condition, except the following sample: VS-SVE-L2-120403-0162. (See below for details). The labels on the bags were found to be complete. The information on the sample labels agreed with the information on the chain-of-custody forms placed inside the shipping coolers.

VS-SVE-L2-120403-0162 was not analyzed due to the excess water in the bag.

2. Sample Holding Times

The required holding times were met according to the lab SOP.

3. Instrument Blank Analysis

The instrument blank analysis indicated the instruments did not contain any target compounds.

4. Lab Duplicate Analysis

Vestal Duplicate Sample RPD Report					
Sample ID: VS-SVE-E4-D-120203-0141					
Sample Date	Analytes	Data1	Data2	RPD (%)	RPD Acceptable?
12/2/03	TCE	5.986	6.331	5.6	YES
12/2/03	1,1,1-TCA	11.309	11.912	5.2	YES

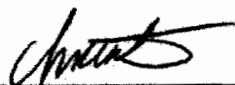
Vestal Duplicate Sample RPD Report					
Sample ID: VS-SVE-MID-120403-0188					
Sample Date	Analytes	Data1	Data2	RPD (%)	RPD Acceptable?
12/4/03	1,1,1-TCA	20.472	21.269	3.8	YES

5. GC Calibrations

The instruments performed target compound standards calibration check each analysis day, or re-run the standards. The results met the requirement in the lab SOP.

6. Lab Authentication Statement

I certify, to the best of my knowledge, that the information in this QA/QC report is true, accurate and complete.



Yixin Li
Chemist
Shaw E & I
14155 Farmington Rd.
Livonia, MI 48154

APPENDIX C

Summary of Operation Data/Contaminant Yield Calculation

Appendix C

Summary of Operation Data

Vestal, Area 4

SAMPLE DATE	SAMPLE ID	REPORT SAMPLE ID	FLOW (CFM)	1,1,1-TCA (ppmv)	TCE (ppmv)	TOTAL TARGETED CONTAMINANTS (ppmv)	LBS OF 1,1,1-TCA per day	LBS OF TCE per day	LBS OF TOTAL TARGETED CONTAMINANTS PER DAY	OPERATION DAYS	STATION HOUR METER	NUMBER OF DAYS IN PERIOD
6/27/03	INF	VS-SVE-INF-062703	517	12.70	12.83	25.53	3.28	3.26	6.53	4.04	97.0	1.96
7/7/2003	INF	VS-SVE-INF-070703-0001	517	26.62	19.87	46.49	6.87	5.04	11.91	14.08	338	10.04
7/9/2003	INF	VS-SVE-INF-070903-0006	517	75.42	68.79	144.21	19.45	17.46	36.92	16.04	385	1.96
7/17/2003	INF	VS-SVE-INF-071703-0011	517	33.34	22.24	55.58	8.60	5.65	14.25	20.50	492	4.46
7/29/2003	INF	VS-SVE-INF-072903-0016	517	10.83	7.39	18.22	2.79	1.88	4.67	28.63	687.2	8.13
8/12/2003	INF	VS-SVE-INF-081203-0026	517	15.77	9.20	24.97	4.07	2.34	6.40	34.11	818.7	5.48
8/25/2003	INF	VS-SVE-INF-082503-0031	512	24.37	20.12	44.49	6.23	5.06	11.28	44.30	1063.3	10.19
9/3/2003	INF	VS-SVE-INF-090303-0036	512	33.08	15.94	49.02	8.45	4.01	12.46	53.0	1273	8.74
9/8/2003	INF	VS-SVE-INF-090803-0041	512	16.57	9.80	26.37	4.23	2.46	6.70	57.1	1369.5	4.02
9/24/2003	INF	VS-SVE-INF-092403-0099	512	10.72	5.16	15.88	2.74	1.30	4.04	70.6	1695.5	13.58
10/15/2003	INF	VS-SVE-INF-101503-0114	512	11.02	8.98	20.00	2.8150038	2.26	5.07	91.6	2,198.6	20.96
10/15/2003	INF	VS-SVE-INF-101503-0114	512	11.02	8.98	20.00	2.82	2.26	5.07	91.6	2198.6	0.00
10/28/2003	INF	VS-SVE-INF-102803-0119	512	10.36	8.80	19.16	2.65	2.21	4.86	104.7	2512.0	13.06
11/11/2003	INF	VS-SVE-INF-111103-0124	512	3.89	5.81	9.70	0.99	1.46	2.45	111.5	2,676.9	6.87
11/19/2003	INF	VS-SVE-INF-111903-0129	512	4.96	5.51	10.47	1.27	1.39	2.65	119.3	2,862.7	7.74
12/4/2003	INF	VS-SVE-INF-120403-0187	512	2.89	3.03	5.92	0.74	0.76	1.50	132.0	3167.2	15.69

Appendix C

Example Calculations

Vestal, Area 4

Example: 8/25/03
1,1,1 TCA (ppm) to 1,1,1 TCA (lbs/day)
 $0.00000374(\text{conversion constant}) * 24.37(\text{ppm}) * 512(\text{flow}) * 133.4(\text{molecular weight}) = 6.23 \text{ lbs}$

Example: 8/12/03 to 8/25/03 'Total Target VOCs'
$$\frac{[6.40 (8/12) + 11.28 (8/25)]}{2} = 8.84 \text{ avg. lbs per day for the period}$$
$$8.84 (\text{lbs per day}) * 10.19 (\text{days}) = 90.08 \text{ pounds per reporting period}$$

Calculated Flow Rate:
Vacuum Pressure (inches Hg) = 6
Blower Speed (RPM) = 2000
Temperature (degrees F) = 72
Elevation = 1200 feet
Based on proprietary Roots, Inc flow rate software for Roots 68 blower, the
CFM for these parameters is 512 on 8/25/03

Appendix C

Influent Sample Parameters

Vestal, Area 4

SAMPLE DATE	SAMPLE ID	VACUUM PRESURE (inches Hg)	RPM	TEMPERATURE (degrees F)	FLOW (cfm)	PID	OPERATION DAYS	STATION HOUR METER
6/27/03	VS-SVE-INF-062703	6	2000	68	517	34.0	4.0	97.0
7/7/2003	VS-SVE-INF-070703-0001	6	2000	72	517	153.4	14.1	338
7/9/2003	VS-SVE-INF-070903-0006	6	2000	75	517	87.0	16.0	385
7/17/2003	VS-SVE-INF-071703-0011	6	2000	80	517	79.5	20.5	492
7/29/2003	VS-SVE-INF-072903-0016	6	2000	75	517	20.3	28.6	687.2
8/12/2003	VS-SVE-INF-081203-0026	6	2000	73	517	45.6	34.1	818.7
8/25/2003	VS-SVE-INF-082503-0031	6	2000	72	512	27.5	44.3	1063.3
9/3/2003	VS-SVE-INF-090303-0036	6	2000	70	512	21.3	53.0	1273.0
9/8/2003	VS-SVE-INF-090803-0041	6	2000	70	512	22.8	57.1	1369.5
9/24/2003	VS-SVE-INF-092403-0099	6	2000	70	512	12.6	70.6	1695.5
10/15/2003	VS-SVE-INF-101503-0114	6	2000	62	512	14.2	91.6	2,198.6
10/15/2003	VS-SVE-INF-101503-0114	6	2000	68	512	13.7	91.6	2198.6
10/28/2003	VS-SVE-INF-102803-0119	6	2000	65	512	16.4	104.7	2512.0
11/11/2003	VS-SVE-INF-111103-0124	6	2000	54	512	7.9	111.5	2676.9
11/19/2003	VS-SVE-INF-111903-0129	6	2000	50	512	12.1	119.3	2862.7
12/4/2003	VS-SVE-INF-120403-0187	6	2000	48	512	7.7	132.0	3167.2

‘

‘

‘