



December 19, 2005

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

Attention: Mr. Raymond Schembri, P.E./Mr. Lawrence Danner, P.E.

RE: Quarterly Progress Report No. 9  
Contract # DACW41-01-D-001-0006  
Vestal Wellfield 1-1, Area 4, Vestal, New York

Sirs:

Enclosed is Quarterly Progress Report No. 9 for the referenced contract. This report covers system operations during August (16 days only), September, October, and November 2005. O&M activities for the period as well as sampling activities are summarized in this report. Copies of the analytical data are included. Note also that the Quarterly sampling was performed in December for this report as noted in our last conference call. This was pushed back to allow the system and site soils to stabilize for two weeks after system configuration.

Please email me at [cmarshall@sevensonphilly.com](mailto: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)

<b>TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE</b> (Read Instructions on the reverse side prior to initiating this form)	DATE 12/19/05	<input checked="" type="checkbox"/> New Submittal <input type="checkbox"/> Resubmittal
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------	-------------------------------------------------------------------------------------------

**Section I REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS (This section will be initiated by the contractor)**


<b>TO:</b> USACE West Point Area Office New York District Building 667A 3rd Floor West Point, New York 10996	<b>FROM:</b> Severson Environmental Services Inc. 2749 Lockport Rd. Niagara Falls, N.Y. 14302	<b>CONTRACT NO.</b> DACW-41-01-D-0001 <b>T.O.#</b> 0006	<b>TRANSMITTAL NO.</b> 47  <b>PREVIOUS TRANS. NO.</b> (If Any)
--------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------	------------------------------------------------------------	----------------------------------------------------------------------------

<b>SPECIFICATION SEC. NO.</b> (Cover only one section with each transmittal)	<b>PROJECT TITLE AND LOCATION:</b> Vestal Well 1-1 Superfund Site, Area 2 Soil Vapor Extraction System, Broome County, New York
------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------

ITEM NO.  <i>a.</i>	DESCRIPTION OF ITEMS SUBMITTED (Type, size, model number, etc.)  <i>b.</i>	MFG. OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. (See instruction No. 8)  <i>c.</i>	NO. OF COPIES  <i>d.</i>	CONTRACT REFERENCE DOCUMENT		VARIATIONS (See instruction No. 6)  <i>g.</i>	FOR C E USE CODE  <i>h.</i>
				SPEC. PARA. NO.  <i>e.</i>	DRAWING SHEET NO.  <i>f.</i>		
1.	Quarterly Report No. 9		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.

  
 NAME AND SIGNATURE OF CONTRACTOR  
 (Severson Environmental Services)

**Section II APPROVAL ACTION**

<b>INCLOSURES RETURNED</b> (List by Item No.)	<b>NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY</b>	<b>DATE</b>

2005

**QUARTERLY PROGRESS REPORT NO. 9**  
**(August 15 through December 7, 2005)**

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

Prepared by:

Envirogen/Shaw, Inc.  
103 College Ave SE  
Grand Rapids, MI 49503

Sevenson Environmental Services, Inc.  
2749 Lockport Road  
Niagara Falls, New York 14305

December 19, 2005

---

**TABLE OF CONTENTS**

1.0 INTRODUCTION ..... 1

2.0 SUMMARY OF ACTIVITIES CONDUCTED DURING THE REPORTING PERIOD ..... 2

3.0 SVE SYSTEM MONITORING AND ADJUSTMENTS ..... 3

    3.1 Pressure/Vacuum Readings ..... 3

        3.1.1 Vacuum Blowers..... 3

        3.1.2 Carbon Units ..... 4

        3.1.3 Well Field..... 4

    3.2 Temperatures ..... 4

    3.3 Process Air Flows..... 5

        3.3.1 Total System Process Air Flow .....5

        3.3.2 SVE Well Process Air Flow ..... 5

    3.4 Process Air VOC Concentrations..... 5

        3.4.1 SVE Withdrawal Wells..... 6

        3.4.2 Carbon Process Air Control Samples ..... 6

        3.4.3 QA/QC Process Air Samples..... 6

4.0 VOC YIELD ..... 7

    4.1 SVE Withdrawal Well VOC Yields..... 7

    4.2 Total System VOC Yield ..... 8

5.0 QUARTERLY REPORT No. 9 ANALYSIS OF MONITORING DATA..... 9

    5.1 Total System..... 9

6.0 PROBLEMS ENCOUNTERED DURING THE REPORTING PERIOD AND RESPECTIVE CORRECTIVE MEASURES ..... 9

7.0 ANTICIPATED ACTIVITIES..... 10

8.0 AUTHOR IDENTIFICATION ..... 11

---

## LIST OF FIGURES

- 1 SVE System Layout
- 2 Total Target VOC Concentration, December 6 & 7, 2005
- 3 1,1,1--TCA Concentration (ppm), December 6 & 7, 2005
- 4 TCE Concentration (ppm), December 6 & 7, 2005
- 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 6 & 7, 2005
- 8 1,1,1--TCA Yield (lbs/day), December 6 & 7, 2005
- 9 TCE Yield (lbs/day), December 6 & 7, 2005
- 10 Total Target Contaminant Yield Start-Up to Date (lbs.) Vs. Time, Total System Sample, Vestal Area 4

## LIST OF TABLES

- |         |                                                                                          |
|---------|------------------------------------------------------------------------------------------|
| Table 1 | SVE Well Status, Vestal Area 4, August 31, September 28, October 6, and November 9, 2005 |
| Table 2 | Analytical Results of Concentrations Of Target Compounds, Vestal Area 4                  |
| Table 3 | Contaminant Concentrations and Yields, December 6 & 7, 2005, 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 Infrastructure (SHAW), formerly Envirogen, Inc. of Lansing, Michigan), has prepared this Quarterly Report No. 9 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 DACW41-01-D-0001-0006. Sevenson's remedial action work is under supervision of the USEPA and USACE. The ninth Quarterly Progress Report is provided and prepared in accordance with the approved Workplan. This report discusses the System operation based on data collected during August, September, October, November, and December 2005, and also discusses System operation and maintenance during these months.

Two notes about the data collection for this report: one, we included the 16 days in August following startup in order to keep the reporting period from the 1<sup>st</sup> to the last day of the reporting quarter. Second, we did perform the Quarterly sampling in early December. The system was reconfigured in accordance with our Interim Sampling Report No. 2 and conference call on 21 November 2005. As we agreed in the call, we would give the soils air flow 2 weeks to destabilize before taking the Quarterly samples. That timeframe pushed the sampling to early December. This report covers system operation and performance from restart on 15 August 2005 until 30 November 2005.

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 August and November 2005. 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 August 31, September 28, October 6, November 9 and December 6 & 7, 2005. Air flow and Photo Ionic Detector (PID) readings were measured throughout the System on August 31, September 28, October 6, November 9 and December 6 & 7, 2005. A full round of process air samples was collected from withdrawal wells on December 6 & 7, 2005.

Samples of process air through the carbon treatment system were collected on August 31, September 28, October 6, November 9 and December 7, 2005.

The SVE System at the Vestal Area 4 Site ran approximately 16 days without incident during the period 8/15/05 to 8/31/05. The August data is included in this quarterly report because it was a 'short' month. The System was re-started on August 15, 2005.

The SVE System at the Vestal Area 4 Site ran approximately 30 days without incident during the period 9/1/05 to 9/30/05.

Shaw personnel and Severson oversight were on-site during the week of September 5, 2005, to investigate the collapsed "mystery well" and to conduct Interim Soil Sampling Event #2 -- collecting soil samples from ISB-5, ISB-6, ISB-7, and ISB-8. Once it was opened, the "mystery well" was discovered to be an old pressure monitoring point. This was closed and the road was repaired. Extensive well closure was not needed. The soil samples were collected to a depth of 20 feet. Deeper samples were not possible due to a gravel layer that collapsed as it was encountered. A temporary well was successfully installed, as planned, at ISB-5. The deeper samples were collected in October when the drill rig could be scheduled.

Shaw personnel were on-site on September 21, 2005 to collect a water sample from the TMW-1, from the temporary monitoring well installed during the week of September 5, 2005, at the ISB-5 location.

The SVE System at the Vestal Area 4 Site ran approximately 31 days without incident during the period 10/1/05 to 10/31/05.

Shaw and Severson personnel -- along with a drill rig -- were on-site on October 11, 2005, to collect the deep soil samples from ISB-6 and ISB-8. Samples were successfully collected and sent for analysis. The temporary monitoring well (TMA-1) was decommissioned at that time and filled with grout. An Interim Soil and Groundwater Sampling Report was completed, submitted and approved detailing the sampling activities and results as well as system optimization recommendations.

The SVE System at the Vestal Area 4 Site ran approximately 30 days without incident during the period 11/1/05 to 11/30/05. The System was reconfigured, per the Interim Soil

Geoprobe Sampling Summary Report 2, dated November 3, 2005, on November 23. SVE wells D3 and E2 were converted from injection to vacuum and wells C3 and E1 were converted from vacuum to injection. Quarterly sampling took place on Monday December 5. Quarterly sampling was delayed two weeks after reconfiguration to allow air flow patterns to stabilize.

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 August through November 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 16 days in August, 30 days in September, 31 days in October, and 30 days during November 2005 bringing the total operational time to approximately 706 days since the June 23, 2003, start-up.

Health and Safety (H&S) monitoring was conducted as outlined in the Site-Specific Safety & Health Plan (SSSHP). 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 August 31, September 28, October 6, November 9 and December 6 & 7, 2005.

##### **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 5 and 22 inches of water (H<sub>2</sub>O).



### **3.1.2 Carbon Units**

The total pressure drop across the two carbon units averaged 15 inches of H<sub>2</sub>O 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 August 31, September 28, October 6, November 9 and December 6 & 7, 2005, are listed in Table 1. On August 31 vacuum flow rates at the cell distribution buildings ranged from less than 5 to 20 standard cubic feet per minute (scfm) for Cell 1 and less than 5 to 10 scfm for Cell 2. Injection flow rates ranged from 6 to 10 scfm for Cell 1 from 5 to 6 in Cell 2.

On September 28, 2005 vacuum flow rates at the cell distribution buildings ranged from less than 5 to 18 scfm for Cell 1 and 5 to 11 scfm for Cell 2. Injection flow rates ranged from 4 to 10 scfm for Cell 1 and ranged from 5 to 6 scfm in Cell 2.

On October 6 vacuum flow rates at the cell distribution buildings ranged from less than 5 to 22 standard cubic feet per minute (scfm) for Cell 1 and less than 5 to 13 scfm for Cell 2. Injection flow rates ranged from 5 to 13 scfm for Cell 1 from 5 to 6 in Cell 2.

On November 9 vacuum flow rates at the cell distribution buildings ranged from less than 5 to 20 standard cubic feet per minute (scfm) for Cell 1 and less than 5 to 10 scfm for Cell 2. Injection flow rates ranged from 7 to 13 scfm for Cell 1 from 6 to 7 in Cell 2.

On December 7, 2005 (the quarterly monitoring event) vacuum pressures at the cell distribution buildings manifolds measured 70 inches of H<sub>2</sub>O for Cell 1 and Cell 2. Injection pressure measured 78 inches of H<sub>2</sub>O for 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 190°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 180°F, and the temperature at the discharge of the injection blower was measured at an average of 175°F. Temperature at the vacuum header within the Cell distribution buildings ranged from 56°F to 72°F, and ranged between 54°F and 74°F at the

injection header. The carbon treatment system influent air stream temperatures ranged from 98°F to 120°F.

### **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 airflow measurements are provided in Table 1 for August 31, September 28, October 6, November 9 and December 6 & 7, 2005.

#### **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 airflow through the entire System between August and December 2005 averaged 512 scfm. The bypass airflow for August 31, September 28, October 6, November 9 and December 6 & 7, 2005 was 210 scfm (Table 1). The entire system flow is a culmination of the bypass flow and the individual flow rates. Estimated wellfield airflow was 524 scfm.

#### **3.3.2 SVE Well Process Air Flow**

Individual SVE withdrawal and injection well process airflow measurements were recorded on August 31, September 28, October 6, November 9 and December 6 & 7, 2005. This data is contained in Table 1.

Total SVE well air flow on the withdrawal side of the System was 512 scfm August 31, September 28, October 6, November 9 and December 6 & 7, 2005.

### **3.4 Process Air VOC Concentrations**

Process air samples were collected during the reporting period on August 31, September 28, October 6, November 9 and December 7, 2005. 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 2. 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 6 & 7, 2005. Concentrations of total targeted VOCs at individual wells ranged from non-measurable in wells A3; B3; C2; D1 and D4; E2; G1 and G2; H1; I1, I3, and I5; J2, J3, J5, and J6; K2, K4, and K5, to 14.12 ppm<sub>v</sub> in well J4 (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 area of cell 2 at well J4.

### 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 on August 31, September 28, October 6, November 9 and December 6 & 7, 2005. The total targeted influent VOC concentration averaged 8.20 ppm<sub>v</sub> 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<sub>v</sub>). 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 6 and 7, 2005 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 0.04 lbs/day (well J4). Wells A3, C2, and D1 had a non-measurable yield because of only low VOC concentration (PID reading less than 10 ppm), and wells G1, G2, H1, J6, and K4 had a non-measurable yield due to only very low air flow (5 scfm or lower). Wells B3; I1, I3, and I5; J2, J3, and J5; and K2 and K5 had a non-measurable yield due to a low VOC concentration and low flow. The table below (see below) summarizes the wells with non-measurable VOC yield rates.

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. All of the withdrawal wells in the treatment area indicate a yield of 0.00 lbs/day total targeted VOC, except well J4, which has a yield rate of 0.04 lbs/day.

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
A3	6	7.0		X	Low	None	See paragraph below.
B3	5	5.0	X	X	Low	None	See paragraph below.
C2	9	9.0		X	Medium	None	See paragraph below.
D1	6	2.0		X	Low	None	See paragraph below.
G1	5	11.5	X		Low	None	See paragraph below.
G2	5	12.4	X		Low	None	See paragraph below.
H1	5	10.2	X		Low	None	See paragraph below.
I1	5	6.5	X	X	Low	None	See paragraph below.
I3	5	5.2	X	X	Medium	None	See paragraph below.
I5	5	8.5	X	X	High	None	See paragraph below.
J2	5	4.6	X	X	Medium	None	See paragraph below.
J3	5	9.4	X	X	High	None	See paragraph below.
J5	5	8.1	X	X	High	None	See paragraph below.
J6	5	15.3	X		High	None	See paragraph below.
K2	5	4.9	X	X	Low	None	See paragraph below.
K4	5	16.3	X		Medium	None	See paragraph below.
K5	5	9.2	X	X	High	None	See paragraph below.
L2	5	13.1	X		High	None	See paragraph below.
M2	5	1.1	X	X	Low	None	See paragraph below.
M3	5	4.8	X	X	Low	None	See paragraph below.

There are no proposed actions to improve the System (Table 6). The new configuration (as of November 23, 2005) of the System focuses on Cell 1. There have been elevated sustained contaminant concentrations and yields for the majority of 'hot spots' in Cell 1. We will continue to monitor the individual wells and recommend action if the concentrations and yields drop substantially for an extended period of time.

#### 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 2,289 pounds of VOCs through the

December 7, 2005 sampling event (Table 5). Therefore, the average yield rate of the System between June 23, 2003 and December 7, 2005, is 3.24 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. 9 ANALYSIS OF MONITORING DATA**

This section provides additional analysis of operational data collected between August and December 7, 2005. 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 Contaminant Yield start-up to December 7, 2005.

### **5.1 Total System**

Table 2 summarizes the total System VOC concentrations and Table 4 summarizes the total contaminant yield per day of each VOC within the process air stream. Figure 6 illustrates concentration and daily yield rates of targeted contaminant vs. time, and Figure 10 illustrates total targeted contaminant yield from start-up to December 7, 2005. As expected, the yield rate and concentration trends closely match.

There is a decrease of the average contaminant yield rate from quarter 8 through quarter 9 (0.00 lbs/day and 2.09 lbs/day, respectively).

After reconfiguration of the SVE well polarity and subsequent reduction of flow rates/vacuum pressure to treatment area number 2 the yield ratio of TCE to 1-,1-,1,--TCA from individual wells has significantly increased (Figures 8 and 9 ). This is due to the ability of 1-,1-,1,--TCA to be released from inter-soil pore spaces at a faster rate than TCE.

The total System air flow continues at a stable rate (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**

With the exceptions of problems discussed in Section 2.0 and in this section the System operated well throughout the seventh quarter.

During this reporting period, some wells were recorded with limited 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**

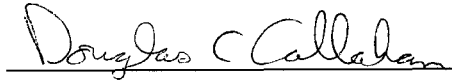
The following activities are anticipated for the next reporting period.

- Review of all system specific data regarding flow rates, contaminant concentrations and weather conditions at the site, make adjustments as deemed necessary;
- Continue operations and maintenance of the SVE system;
- The next quarterly sampling event is scheduled for February 2006; and
- A carbon change out is anticipated during the next quarter.

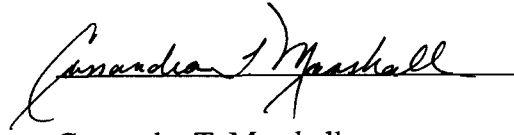
---

**8.0 AUTHOR IDENTIFICATION**

This report was prepared and checked by:



Douglas C. Callahan  
Project Manager  
Shaw E&I/Envirogen



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



# FIGURES

DATE	ISSUED FOR	ISSUED BY
4-28-05	ISSUED FOR CLIENT REVIEW	DC
	ISSUED FOR	

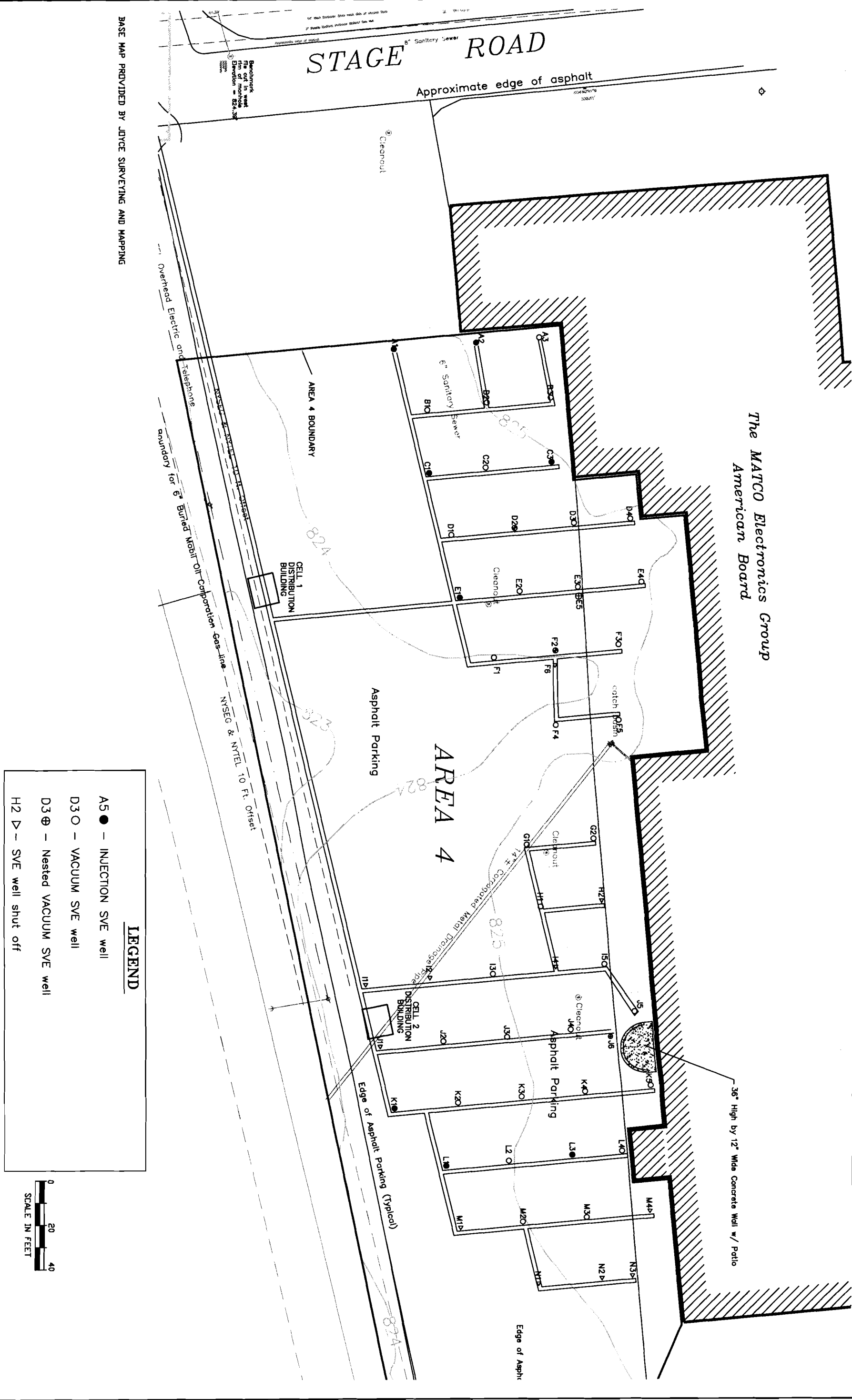
**Sevenson Environmental Services Inc.**  
 2700 LEBLANC BLVD  
 WILMINGTON, MA 01897

**ENVIROGEN**  
 Shaw E&I Engineering  
 of New York, P.C.  
 100 COLLIER AVE #2  
 GRAND HAVEN, WILMINGTON 4803

**US Army Corps of Engineers**  
 Kansas City District  
 CONTRACT NO. DACW41-01-D-0001

STANDARD HOURS SHOWN	DATE
	12/7/05

SCALE	AS SHOWN
REVISION	
PROJECT NUMBER	081086
ISSUING NUMBER	VES A4 - 1
SHEET	1 OF 10



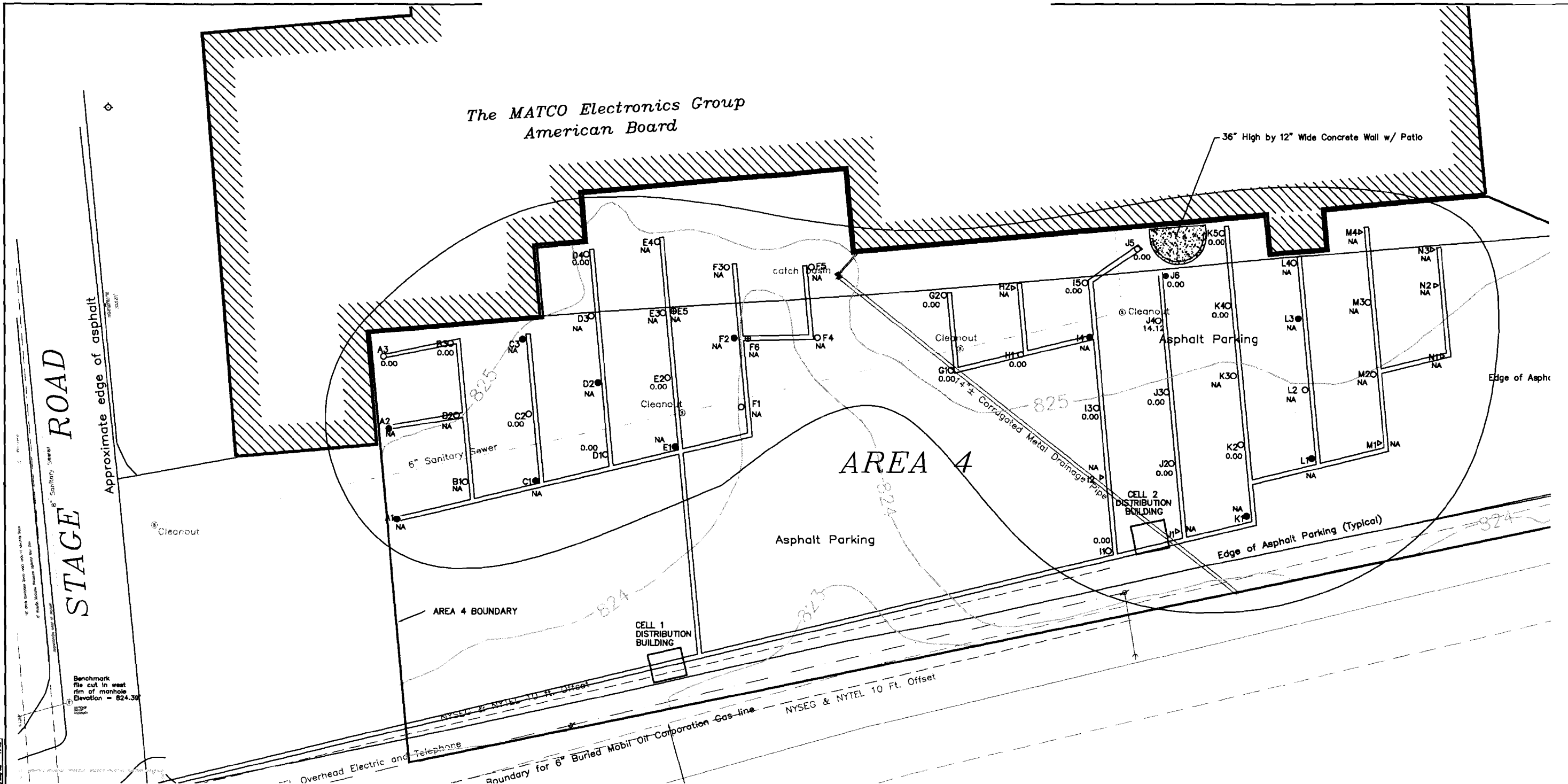
BASE MAP PROVIDED BY JOYCE SURVEYING AND MAPPING

The MATCO Electronics Group  
 American Board

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

The MATCO Electronics Group  
American Board

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



STAGE ROAD

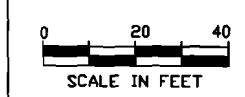
AREA 4

Benchmark  
file cut in west  
rim of manhole  
Elevation = 824.39

BASE MAP PROVIDED BY JOYCE SURVEYING AND MAPPING

**LEGEND**

A5 @ - INJECTION SVE well	1.27 - TTC Concentration (ppmv)
D3 O - VACUUM SVE well	NA - Not Available
D3 @ - Nested VACUUM SVE well	0-50 (ppmv) TTC Concentration
D3 > - SVE well shut off	50-100 (ppmv) TTC Concentration
- - - Utility pole and overhead line	100-1,000 (ppmv) TTC Concentration
- - - Water main	> 1,000 (ppmv) TTC Concentration
- - - Sanitary sewer line/manhole	
- - - Natural gas or petroleum line	
- - - Elevation Contour Line	



NO.	DATE	ISSUED FOR	BY
1	4-28-02	ISSUED FOR CLDIT REVIEW	DC

**S** Severson Environmental Services Inc.  
2749 LEXINGTON ROAD  
WILKES BARRE, PA 18702

**ENVIROGEN**  
Shaw E&I Engineering of New York, P.C.  
103 COLLEGE AVE SE  
GRAND RAPIDS, MICHIGAN 49503

**US Army Corps of Engineers**  
Kansas City District  
CONTRACT No. DACW41-01-D-0001

STEWART HARRIS ABBAS  
DRAWN BY: BL  
CHECKED BY: DC  
DESIGN ENGINEER: DC  
APPROVED BY: SA  
DATE: 12-7-05

SITE: VESTAL AREA 4  
TOWN OF VESTAL, BROOME COUNTY, NEW YORK  
TITLE: TOTAL TARGET VOC CONCENTRATION  
DECEMBER 6 & 7, 2005

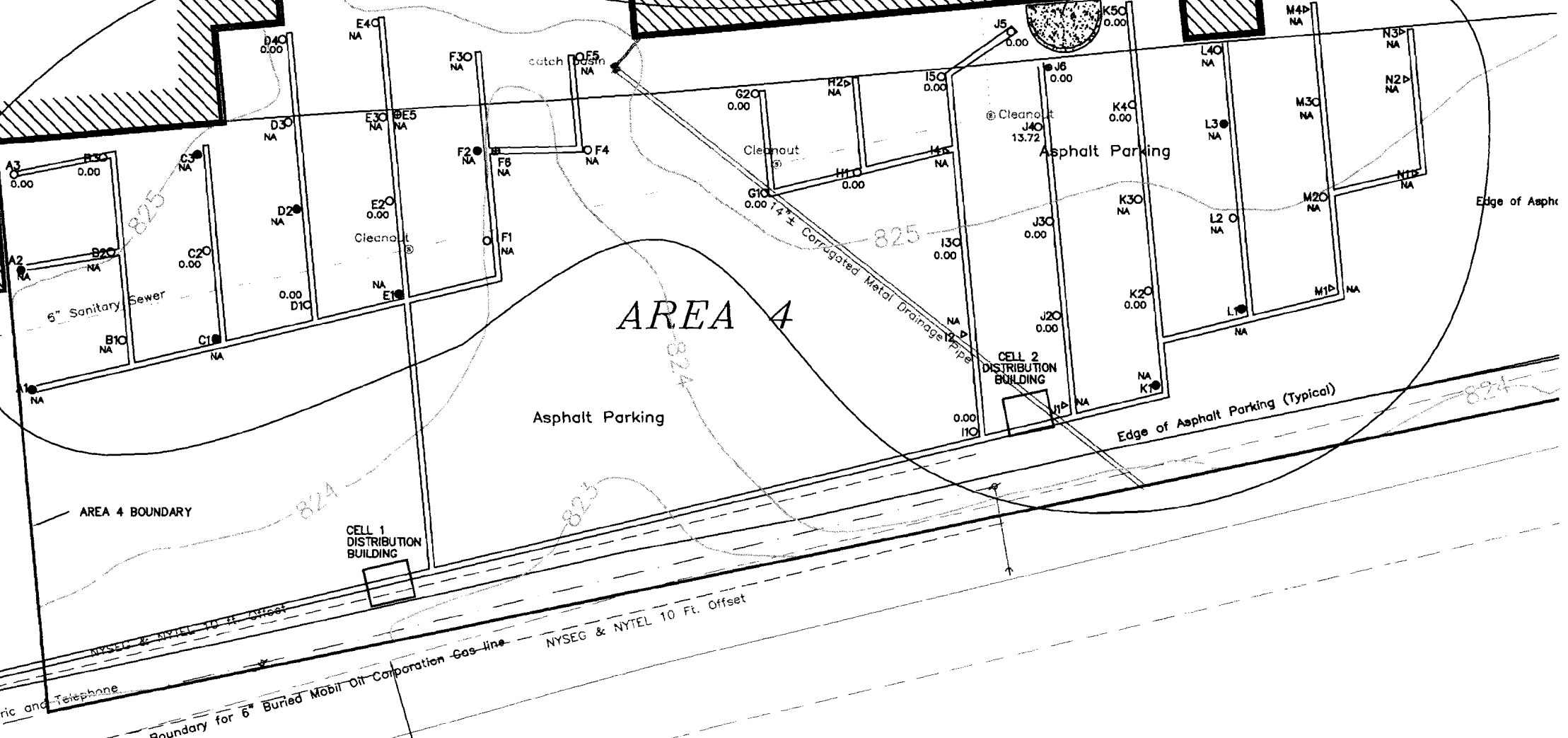
SCALE: AS SHOWN  
REVISION:  
PROJECT NUMBER: 681086  
DRAWING NUMBER: VES A4-2  
SHEET 2 OF 10

The MATCO Electronics Group  
American Board

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

STAGE ROAD

Approximate edge of asphalt



AREA 4

Asphalt Parking

CELL 2 DISTRIBUTION BUILDING

CELL 1 DISTRIBUTION BUILDING

AREA 4 BOUNDARY

6" Sanitary Sewer

Cleanout

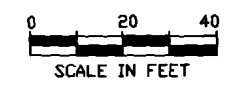
Benchmark  
file cut in west  
rim of manhole  
Elevation = 824.35

Overhead Electric and Telephone  
Boundary for 6" Buried Mobil Oil Corporation Gas-line  
NYSEG & NYTEL 10 Ft. Offset

BASE MAP PROVIDED BY JOYCE SURVEYING AND MAPPING

**LEGEND**

AS ● - INJECTION SVE well	1.27 - 1,1,1 TCA Concentration (ppmv)
D3 ○ - VACUUM SVE well	NA - Not Available
D3 ● - Heated VACUUM SVE well	□ - 0-50 (ppmv) 1,1,1 TCA Concentration
D3 ▷ - SVE well shut off	□ - 50-100 (ppmv) 1,1,1 TCA Concentration
--- Utility pole and overhead line	□ - 100-1,000 (ppmv) 1,1,1 TCA Concentration
--- Water main	■ - >1,000 (ppmv) 1,1,1 TCA Concentration
--- Sanitary sewer line/manhole	
--- Natural gas or petroleum line	
--- Elevation Contour Line	



<p>Sevenson Environmental Services Inc. 8749 LOCKPORT ROAD HENRIETTA FALLS, NEW YORK</p>	<p>ENVIROGEN Shaw E&amp;I Engineering of New York, P.C. 103 COLLEGE AVE SE GRAND RAPIDS, MICHIGAN 49503</p>	<p>US Army Corps of Engineers Kansas City District CONTRACT No. DACW41-01-D-0001</p>	<p>STEWART HARRIS ARMBRUS DRAWN: BL CHECKED BY: DC DESIGN ENGR: DC APPROVED BY: SA DATE: 12/7/05</p>	<p>SITE: VESTAL AREA 4 TOWN OF VESTAL, BROOME COUNTY, NEW YORK TITLE: 1,1,1 TCA CONCENTRATION (ppmv) DECEMBER 6 &amp; 7, 2005</p>	<p>SCALE: AS SHOWN</p>
					<p>REVISION:</p> <p>PROJECT NUMBER: 881086</p> <p>DRAWING NUMBER: VES A4- 3</p> <p>SHEET 3 OF 10</p>

NO.	DATE	ISSUED FOR CLIENT REVIEW	ISSUED FOR
1	4-28-05	ISSUED FOR CLIENT REVIEW	ISSUED FOR

**S** Severson Environmental Services Inc.  
 1000 PARKWAY DRIVE  
 NEW YORK, NY 10001

**ENVIROGEN**  
 Shaw E&I Engineering of New York, P.C.  
 103 OUTLINE AVE SE  
 GRAND RAPIDS, MICHIGAN 49503

**US Army Corps of Engineers**  
 Kansas City District  
 CONTRACT NO. DACW41-01-D-0001

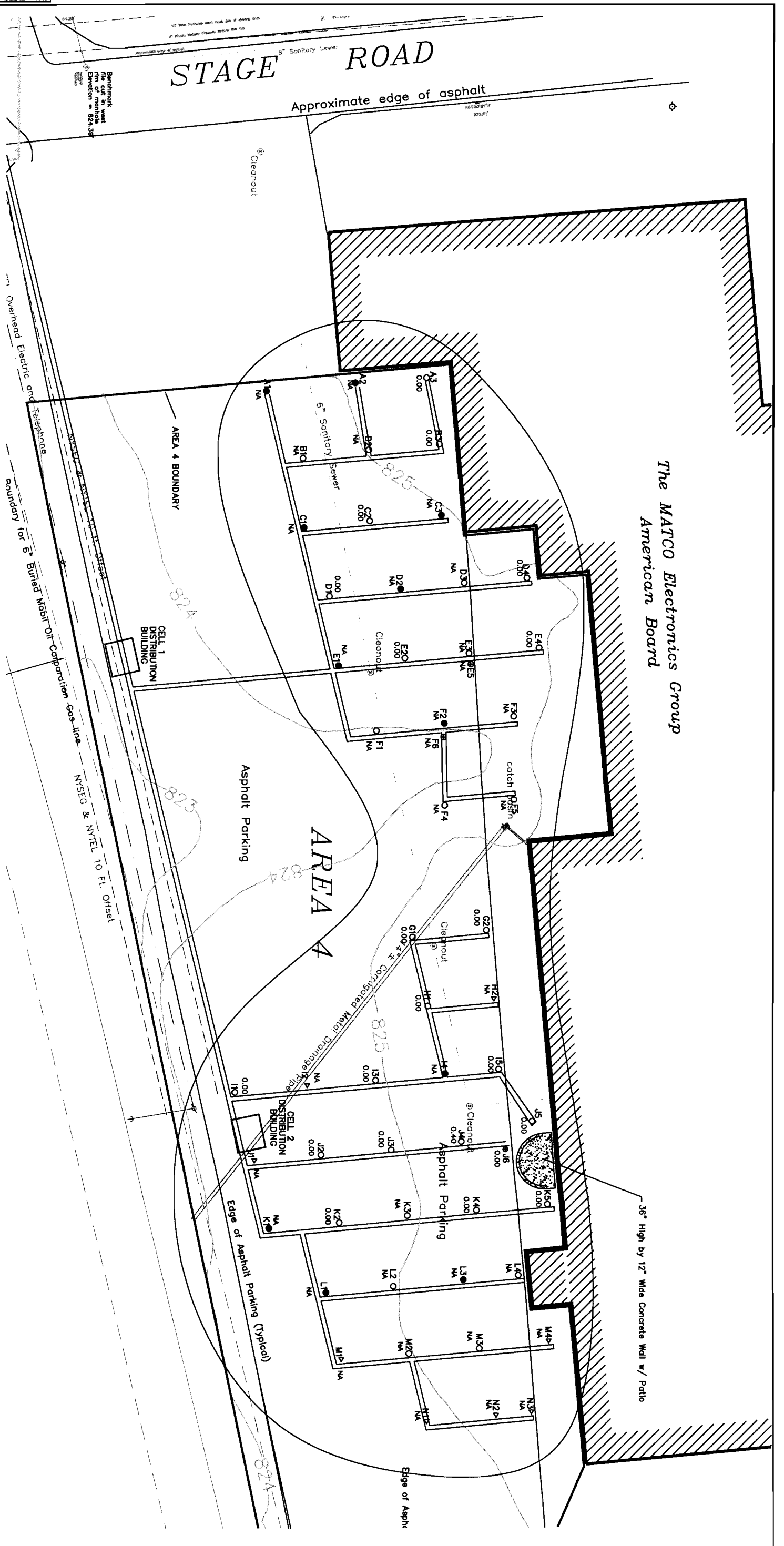
STEWART HANDELS ADDRESS	BROWN	BL	SITE
CREATED BY: DC	DC	DC	TOWN OF VESTAL, BROOME COUNTY, NEW YORK
TESTED BY: DC	DC	SA	TITLE: TCE CONCENTRATION (ppmv)
APPROVED BY: SA	SA	SA	DATE: 12-7-05

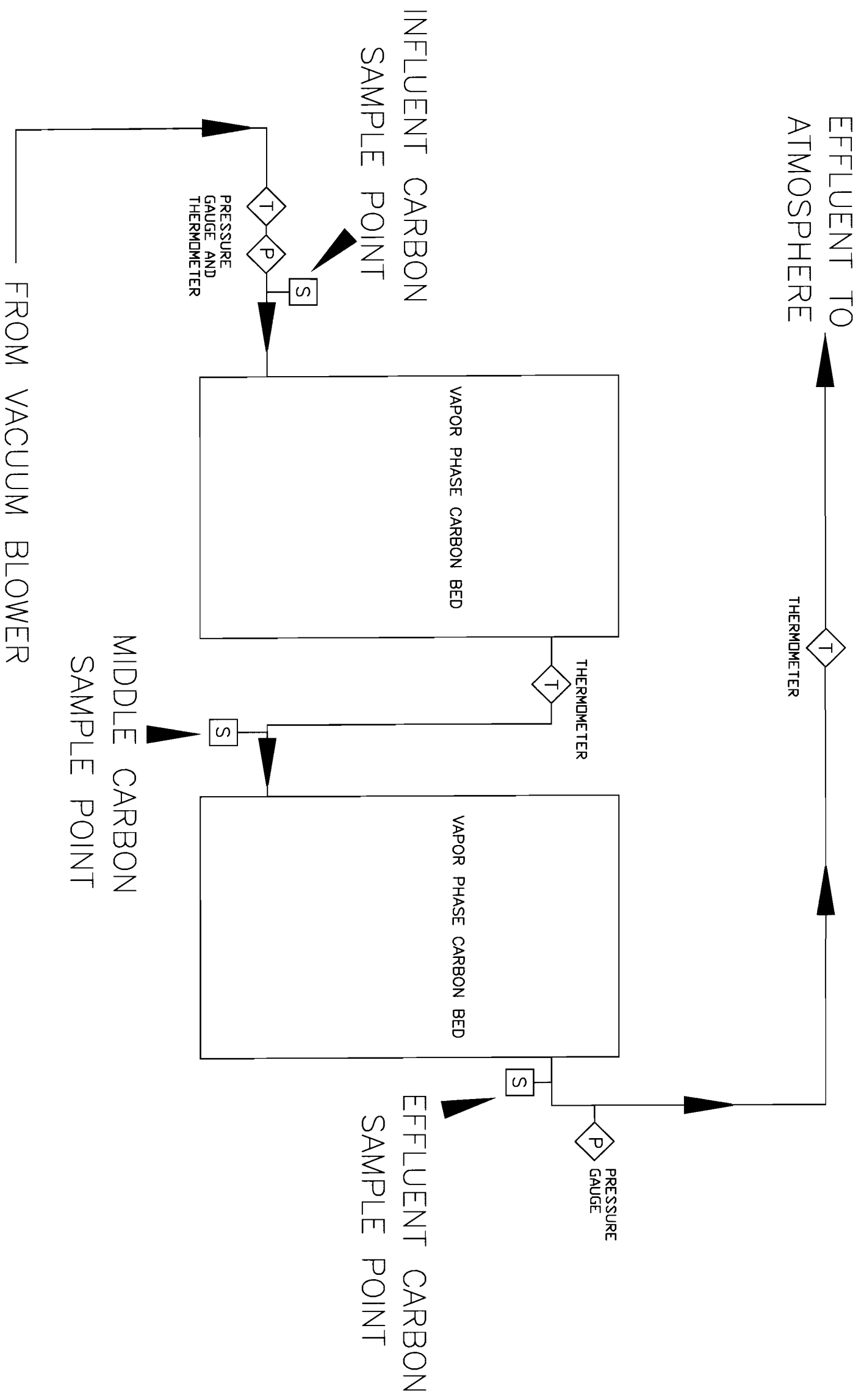
SCALE: AS SHOWN	REVISION	PROJECT NUMBER	DRAWING NUMBER	SHEET
		68106	VES A4-4	4 OF 10

BASE MAP PROVIDED BY JOYCE SURVEYING AND MAPPING

**LEGEND**

- AS - ASBESTOS SFC and
- D30 - VIOLET SFC and
- D33 - RED VIOLET SFC and
- D37 - SFC and red off
- Utility poles and overhead line
- Water main
- Sanitary sewer line/structure
- Natural gas or petroleum line
- Expansion Control Line
- 1.27 - TCE Concentration (ppmv)
- NA - Not Available
- 0-50 (ppmv) TCE Concentration
- 50-100 (ppmv) TCE Concentration
- 100-1,000 (ppmv) TCE Concentration
- >1,000 (ppmv) TCE Concentration





NO.	DATE	ISSUED FOR	ISSUED FOR
1	4-28-05	ISSUED FOR CLIENT REVIEW	ISSUED FOR
2			
3			
4			
5			
6			
7			
8			
9			
10			

**S** Severson Environmental Services, Inc.  
 670 LICHTENHEIM ROAD  
 HUNTER TOWN, NY 10801

**ENVIROGEN**  
 Show E&I Engineering of  
 New York, P.C.  
 100 COLLIER AVE SE  
 ATLANTA, GA 30303

**US Army Corps of Engineers**  
 Kansas City District  
 CONTRACT NO. DACW41-01-D-0001

STEWART HARRIS ARNONE  
 NEW YORK PROFESSIONAL ENGINEER  
 LICENSE NUMBER 070003

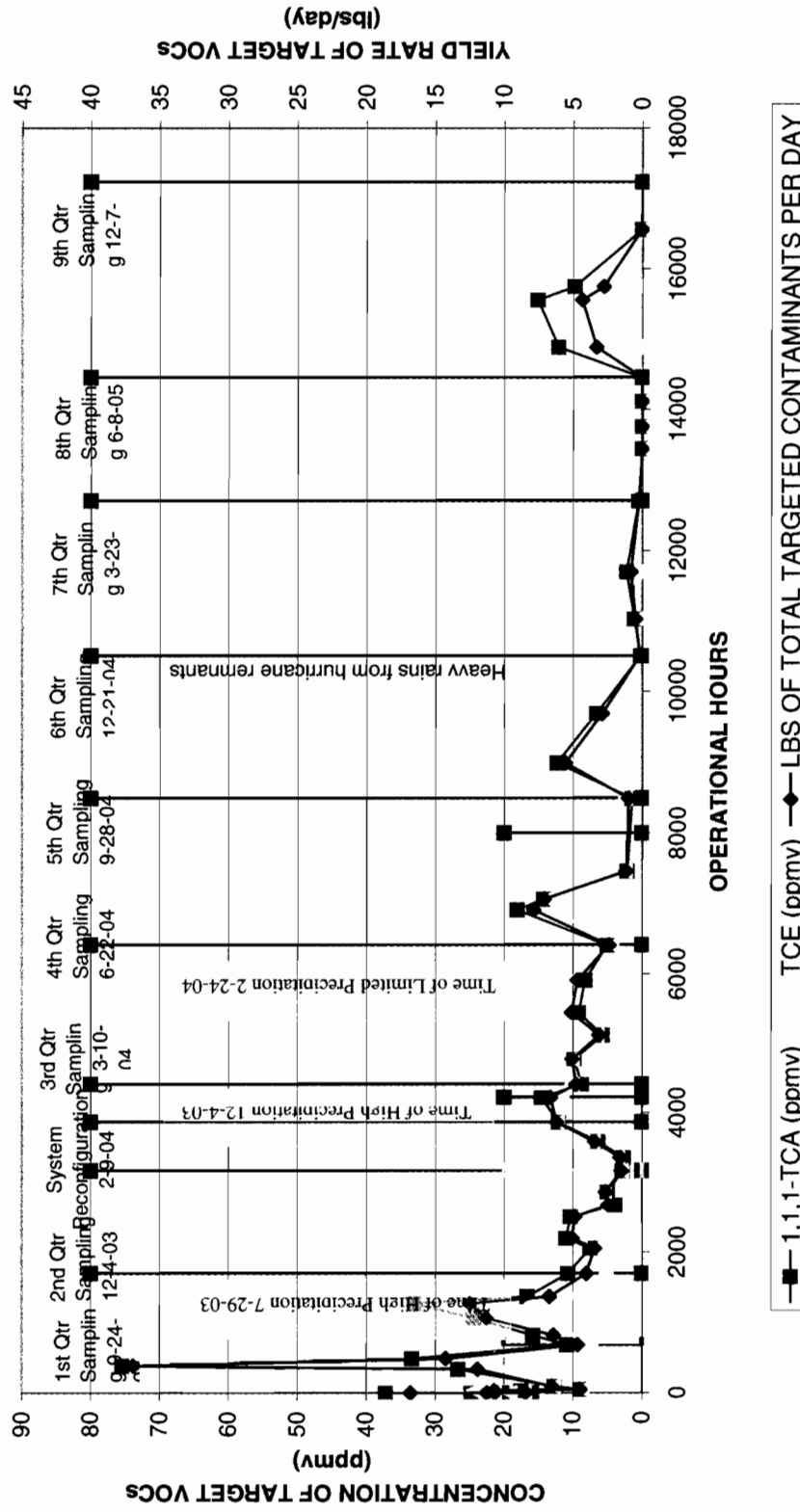
DESIGNED BY	BL
CHECKED BY	DC
DESIGN DATE	DC
APPROVED BY	SA
DATE	12/7/05

SITE: VESTAL AREA 4  
 TOWN OF VESTAL, BROOME COUNTY, NEW YORK

TITLE: CARBON SYSTEM SAMPLING DIAGRAM

SCALE	AS SHOWN
REVISION AS BUILT	
PROJECT NUMBER	001096
DRAWING NUMBER	VES A4-5
SHEET	5 OF 10

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



DATE	4-23-05	ISSUED FOR CLIENT REVIEW	ISSUED FOR
BY	BT		

**S** Severson Environmental Services, Inc.  
 6795 LEXINGTON ROAD  
 WILSON, VA 24187

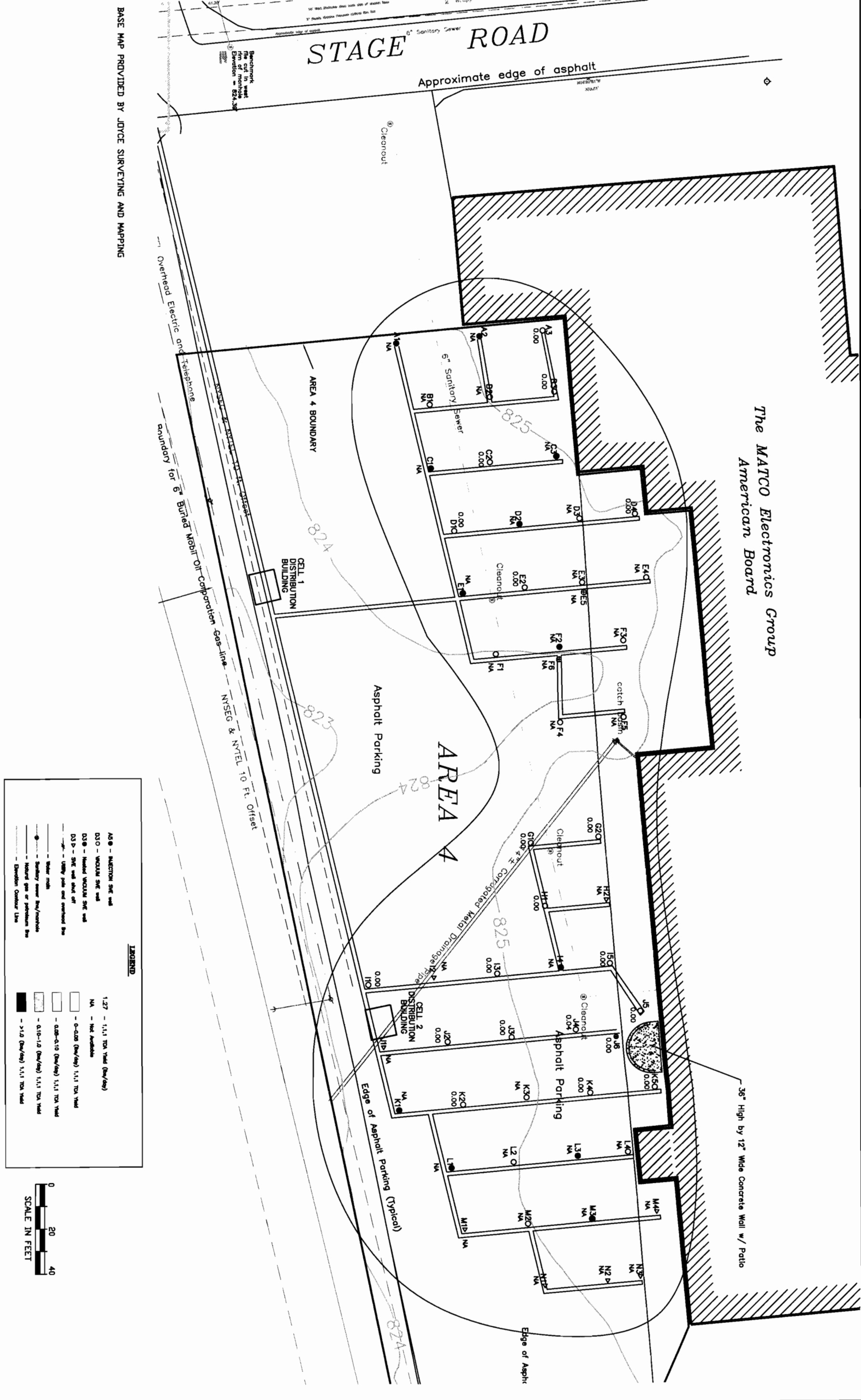
**ENVIROGEN**  
 Shaw E&I Engineering of New York, P.C.  
 100 COLLIER AVE SE  
 GRAND RAPIDS, MICHIGAN 49503

**US Army Corps of Engineers**  
 Kansas City District  
 CONTRACT NO. DACW41-01-D-0001

STEWART HARVEY ADAMS	DESIGNER	BL	SITE
GEORGE SMITH	DESIGNER	DC	TOWN OF VESTAL, BROOKS COUNTY, NEW YORK
APPROVED BY	SA		TOTAL TARGET VOC YIELD (lbs/day)
DATE	12-7-05		DECEMBER 6 & 7, 2005

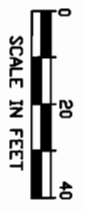
REVISION	AS SHOWN
PROJECT NUMBER	681085
DRAWING NUMBER	VES A4-7
SHEET	7 OF 10

BASE MAP PROVIDED BY JOYCE SURVEYING AND MAPPING



**LEGEND**

AS @ - SECTION SWE wall	1.27 - 1,11 TON YIELD (lbw/day)
D3O - WOODEN SWE wall	NA - Not Available
D3@ - Hatched WOODEN SWE wall	- 0-0.02 (lbw/day) 1,11 TON YIELD
D3D - SWE wall short off	- 0.02-0.10 (lbw/day) 1,11 TON YIELD
-@- Utility poles and overhead lines	- 0.10-1.0 (lbw/day) 1,11 TON YIELD
-@- Water main	- 1.0-10 (lbw/day) 1,11 TON YIELD
-@- Sanitary sewer line/ventilation	- 10-100 (lbw/day) 1,11 TON YIELD
-@- Natural gas or petroleum line	- 100-1000 (lbw/day) 1,11 TON YIELD
-@- Elevation Contour Line	





The MATCO Electronics Group  
American Board

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

STAGE ROAD

AREA 4

Asphalt Parking

Asphalt Parking

CELL 2 DISTRIBUTION BUILDING

CELL 1 DISTRIBUTION BUILDING

AREA 4 BOUNDARY

6" Sanitary Sewer

Corrugated Metal Drainage Pipe

Overhead Electric and Telephone  
Boundary for 6" Buried Mobil Oil Corporation Gas-line  
NYSEG & NYTEL 10 Ft. Offset

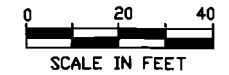
Approximate edge of asphalt

Edge of Asphr

Benchmark  
Pie cut in west  
rim of manhole  
Elevation = 824.38

BASE MAP PROVIDED BY JOYCE SURVEYING AND MAPPING

LEGEND	
AS ● - INJECTION SVE well	1.27 - 1,1,1 TCA Yield (lbs/day)
D3 O - VACUUM SVE well	NA - Not Available
D3 ● - Heated VACUUM SVE well	□ - 0-0.05 (lbs/day) 1,1,1 TCA Yield
D3 ▽ - SVE well shut off	□ - 0.05-0.10 (lbs/day) 1,1,1 TCA Yield
— Utility pole and overhead line	▨ - 0.10-1.0 (lbs/day) 1,1,1 TCA Yield
— Water main	■ - >1.0 (lbs/day) 1,1,1 TCA Yield
— Sanitary sewer line/manhole	
— Natural gas or petroleum line	
— Elevation Contour Line	



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

**S** Severson Environmental Services Inc.  
8749 LINDSEY ROAD  
HARRISVILLE, NY 12083

**ENVIROGEN**  
Shaw E&I Engineering of New York, P.C.  
103 COLLEGE AVE SE  
GRAND RAPIDS, MICHIGAN 49503

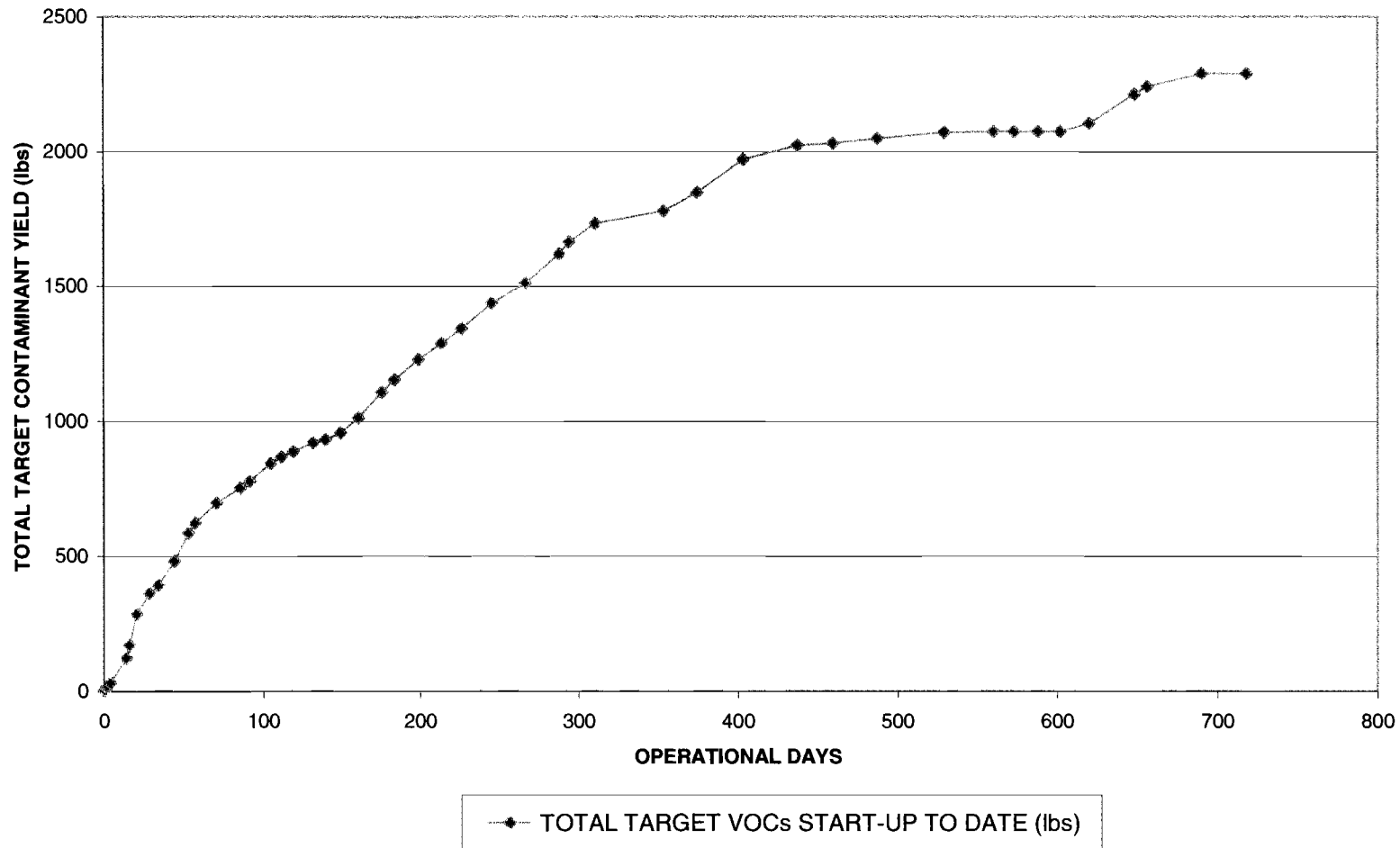
**US Army Corps of Engineers**  
Kansas City District  
CONTRACT No. DACW41-01-D-0001

STEWART HARRIS ADAMS  
DRAWN: BL  
CHECKED BY: DC  
DESIGN ENGR: DC  
APPROVED BY: SA  
DATE: 12-7-05  
NEW YORK PROFESSIONAL ENGINEER LICENSE NUMBER 079933

SITE: VESTAL AREA 4  
TOWN OF VESTAL, BROOME COUNTY, NEW YORK  
TITLE: TCE YIELD (lbs/day)  
DECEMBER 6 & 7, 2005

SCALE: AS SHOWN  
REVISION:  
PROJECT NUMBER: 881088  
DRAWING NUMBER: VES A4- 9  
SHEET 9 OF 10

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



# TABLES

**TABLE 1**  
**SVE WELL STATUS**  
**VESTAL AREA 4**  
**August 31, 2005**

SVE WELL #	VAC WELL	INJ WELL	FLOW RATE	STATUS	PID READINGS	SOIL CONCENTRATION
Bypass Flow Rate			210			
INFLUENT			512		4.3	
MIDDLE			512		1.5	
EFFLUENT			512		0.6	
A1		X	8	OPEN	NA	LOW
A2		X	8	OPEN	NA	LOW
A3	X		6	OPEN	4.5	LOW
B1	X		NA	WATER	NA	LOW
B2	X		6	OPEN	4.3	LOW
B3	X		5	OPEN	8.8	LOW
C1		X	8	OPEN	NA	LOW
C2	X		5	OPEN	3.6	MEDIUM
C3	X		6	OPEN	4.4	MEDIUM
D1	X		5	OPEN	9.1	LOW
D2		X	7	OPEN	NA	MEDIUM
D3		X	9	OPEN	NA	HIGH
D4	X		NA	WATER	NA	HIGH
E1	X		20	OPEN	1.8	LOW
E2		X	10	OPEN	NA	MEDIUM
E3	X		5	OPEN	10.8	HIGH
E4	X		20	OPEN	5.5	HIGH
E5	X		NA	WATER	NA	HIGH
F1	X		7	OPEN	4.4	LOW
F2		X	6	OPEN	NA	MEDIUM
F3	X		7	OPEN	6.3	MEDIUM
F4	X		5	OPEN	3.9	LOW
F5	X		<5	OPEN	3	LOW
F6	X		16	OPEN	6.8	LOW
G1	X		10	OPEN	7.5	LOW
G2	X		6	OPEN	10.4	LOW
H1	X		5	OPEN	6.5	LOW
H2			NA	OFF	NA	LOW
I1	X		5	OPEN	6.0	LOW
I2			NA	OFF	NA	LOW
I3	X		5	OPEN	4.2	MEDIUM
I4			NA	OFF	NA	MEDIUM
I5	X		5	OPEN	12.6	HIGH
J1			NA	OFF	NA	LOW
J2	X		5	OPEN	3.5	MEDIUM
J3	X		5	OPEN	8.6	HIGH
J4	X		5	OPEN	10.2	HIGH

**TABLE 1**  
**SVE WELL STATUS**  
**VESTAL AREA 4**  
**August 31, 2005**

SVE WELL #	VAC WELL	INJ WELL	FLOW RATE	STATUS	PID READINGS	SOIL CONCENTRATION
J5	X		6	OPEN	4.4	HIGH
J6	X		NA	WATER	NA	HIGH
K1		X	6	OPEN	NA	LOW
K2	X		6	OPEN	8.0	LOW
K3	X		5	OPEN	16.4	MEDIUM
K4	X		5	OPEN	11.1	MEDIUM
K5	X		5	OPEN	13.5	HIGH
L1		X	5	OPEN	NA	LOW
L2	X		5	OPEN	12.8	HIGH
L3		X	5	OPEN	NA	LOW
L4	X		5	OPEN	3.1	LOW
M1			NA	OFF	NA	LOW
M2	X		5	OPEN	2.2	LOW
M3	X		5	OPEN	4.1	LOW
M4			NA	OFF	NA	LOW
N1			NA	OFF	NA	LOW
N2			NA	OFF	NA	LOW
N3			NA	OFF	NA	LOW

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

LF= limited airflow

**TABLE 1**  
**SVE WELL STATUS**  
**VESTAL AREA 4**  
**September 28, 2005**

SVE WELL #	VAC WELL	INJ WELL	FLOW RATE	STATUS	PID READINGS	SOIL CONCENTRATION
Bypass Flow Rate			210			
INFLUENT			512		5.1	
MIDDLE			512		1.3	
EFFLUENT			512		1.0	
A1		X	7	OPEN	NA	LOW
A2		X	5	OPEN	NA	LOW
A3	X		5	OPEN	3.8	LOW
B1	X		NA	WATER	NA	LOW
B2	X		8	OPEN	10.3	LOW
B3	X		6	OPEN	8.4	LOW
C1		X	5	OPEN	NA	LOW
C2	X		10	OPEN	2.8	MEDIUM
C3	X		5	OPEN	4.6	MEDIUM
D1	X		7	OPEN	7.7	LOW
D2		X	9	OPEN	NA	MEDIUM
D3		X	9	OPEN	NA	HIGH
D4	X		15	OPEN	4.3	HIGH
E1	X		15	OPEN	2.0	LOW
E2		X	10	OPEN	NA	MEDIUM
E3	X		6	OPEN	13.5	HIGH
E4	X		18	OPEN	5.4	HIGH
E5	X		15	OPEN	6.2	HIGH
F1	X		5	OPEN	1.8	LOW
F2		X	4	OPEN	NA	MEDIUM
F3	X		9	OPEN	4.6	MEDIUM
F4	X		5	OPEN	6.5	LOW
F5	X		5	OPEN	2.6	LOW
F6	X		12	OPEN	5.5	LOW
G1	X		11	OPEN	7.5	LOW
G2	X		8	OPEN	15.6	LOW
H1	X		6	OPEN	11.2	LOW
H2			NA	OFF	NA	LOW
I1	X		5	OPEN	6.5	LOW
I2			NA	OFF	NA	LOW
I3	X		6	OPEN	5.4	MEDIUM
I4			NA	OFF	NA	MEDIUM
I5	X		6	OPEN	3.2	HIGH
J1			NA	OFF	NA	LOW
J2	X		5	OPEN	2.6	MEDIUM
J3	X		6	OPEN	6.5	HIGH
J4	X		6	OPEN	4.3	HIGH

**TABLE 1**  
**SVE WELL STATUS**  
**VESTAL AREA 4**  
**September 28, 2005**

SVE WELL #	VAC WELL	INJ WELL	FLOW RATE	STATUS	PID READINGS	SOIL CONCENTRATION
J5	X		5	OPEN	12.6	HIGH
J6	X		6	OPEN	9.4	HIGH
K1		X	5	OPEN	NA	LOW
K2	X		5	OPEN	2.6	LOW
K3	X		6	OPEN	16.4	MEDIUM
K4	X		6	OPEN	15.3	MEDIUM
K5	X		6	OPEN	10.3	HIGH
L1		X	6	OPEN	NA	LOW
L2	X		6	OPEN	9.4	HIGH
L3		X	5	OPEN	NA	LOW
L4	X		5	OPEN	5.9	LOW
M1			NA	OFF	NA	LOW
M2	X		5	OPEN	4.3	LOW
M3	X		5	OPEN	3.5	LOW
M4			NA	OFF	NA	LOW
N1			NA	OFF	NA	LOW
N2			NA	OFF	NA	LOW
N3			NA	OFF	NA	LOW

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

LF= limited airflow

**TABLE 1**  
**SVE WELL STATUS**  
**VESTAL AREA 4**  
**October 6, 2005**

SVE WELL #	VAC WELL	INJ WELL	FLOW RATE	STATUS	PID READINGS	SOIL CONCENTRATION
Bypass Flow Rate			210			
INFLUENT			512		5.1	
MIDDLE			512		1.3	
EFFLUENT			512		1.0	
A1		X	8	OPEN	NA	LOW
A2		X	5	OPEN	NA	LOW
A3	X		6	OPEN	4.0	LOW
B1	X		NA	WATER	NA	LOW
B2	X		7	OPEN	6.2	LOW
B3	X		5	OPEN	7.6	LOW
C1		X	6	OPEN	NA	LOW
C2	X		9	OPEN	3.0	MEDIUM
C3	X		<5	OPEN	5.2	MEDIUM
D1	X		6	OPEN	8.6	LOW
D2		X	8	OPEN	NA	MEDIUM
D3		X	10	OPEN	NA	HIGH
D4	X		12	OPEN	4.3	HIGH
E1	X		15	OPEN	2.0	LOW
E2		X	13	OPEN	NA	MEDIUM
E3	X		6	OPEN	12.6	HIGH
E4	X		22	OPEN	6.3	HIGH
E5	X		NA	WATER	NA	HIGH
F1	X		6	OPEN	2.2	LOW
F2		X	8	OPEN	NA	MEDIUM
F3	X		5	OPEN	6.1	MEDIUM
F4	X		5	OPEN	4.1	LOW
F5	X		5	OPEN	1.5	LOW
F6	X		15	OPEN	4.9	LOW
G1	X		13	OPEN	7.4	LOW
G2	X		9	OPEN	14.6	LOW
H1	X		6	OPEN	10.2	LOW
H2			NA	OFF	NA	LOW
I1	X		6	OPEN	6.5	LOW
I2			NA	OFF	NA	LOW
I3	X		5	OPEN	6.7	MEDIUM
I4			NA	OFF	NA	MEDIUM
I5	X		5	OPEN	13.5	HIGH
J1			NA	OFF	NA	LOW
J2	X		6	OPEN	4.6	MEDIUM
J3	X		5	OPEN	8.4	HIGH
J4	X		6	OPEN	7.6	HIGH



**TABLE 1**  
**SVE WELL STATUS**  
**VESTAL AREA 4**  
**October 6, 2005**

SVE WELL #	VAC WELL	INJ WELL	FLOW RATE	STATUS	PID READINGS	SOIL CONCENTRATION
J5	X		5	OPEN	8.1	HIGH
J6	X		7	OPEN	10.2	HIGH
K1		X	6	OPEN	NA	LOW
K2	X		7	OPEN	4.9	LOW
K3	X		5	OPEN	11.5	MEDIUM
K4	X		6	OPEN	13.4	MEDIUM
K5	X		5	OPEN	9.2	HIGH
L1		X	6	OPEN	NA	LOW
L2	X		5	OPEN	11.1	HIGH
L3		X	5	OPEN	NA	LOW
L4	X		5	OPEN	6.7	LOW
M1			NA	OFF	NA	LOW
M2	X		<5	OPEN	3.5	LOW
M3	X		5	OPEN	2.8	LOW
M4			NA	OFF	NA	LOW
N1			NA	OFF	NA	LOW
N2			NA	OFF	NA	LOW
N3			NA	OFF	NA	LOW

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

LF= limited airflow

**TABLE 1**  
**SVE WELL STATUS**  
**VESTAL AREA 4**  
**November 9, 2005**

SVE WELL #	VAC WELL	INJ WELL	FLOW RATE	STATUS	PID READINGS	SOIL CONCENTRATION
Bypass Flow Rate			210			
INFLUENT			512		3.6	
MIDDLE			512		1.0	
EFFLUENT			512		0.6	
A1		X	9	OPEN	NA	LOW
A2		X	8	OPEN	NA	LOW
A3	X		7	OPEN	3.7	LOW
B1	X		NA	WATER	NA	LOW
B2	X		6	OPEN	5.9	LOW
B3	X		5	OPEN	9.5	LOW
C1		X	7	OPEN	NA	LOW
C2	X		9	OPEN	3.0	MEDIUM
C3	X		5	OPEN	6.1	MEDIUM
D1	X		<5	OPEN	8.6	LOW
D2		X	9	OPEN	NA	MEDIUM
D3		X	11	OPEN	NA	HIGH
D4	X		12	OPEN	7.4	HIGH
E1	X		15	OPEN	1.5	LOW
E2		X	13	OPEN	NA	MEDIUM
E3	X		6	OPEN	9.5	HIGH
E4	X		20	OPEN	6.3	HIGH
E5	X		NA	WATER	NA	HIGH
F1	X		5	OPEN	2.2	LOW
F2		X	7	OPEN	NA	MEDIUM
F3	X		5	OPEN	5.3	MEDIUM
F4	X		6	OPEN	4.9	LOW
F5	X		5	OPEN	1.5	LOW
F6	X		13	OPEN	4.9	LOW
G1	X		10	OPEN	11.5	LOW
G2	X		9	OPEN	12.4	LOW
H1	X		6	OPEN	10.2	LOW
H2			NA	OFF	NA	LOW
I1	X		5	OPEN	6.5	LOW
I2			NA	OFF	NA	LOW
I3	X		5	OPEN	5.2	MEDIUM
I4			NA	OFF	NA	MEDIUM
I5	X		5	OPEN	8.5	HIGH
J1			NA	OFF	NA	LOW
J2	X		6	OPEN	4.6	MEDIUM
J3	X		5	OPEN	9.4	HIGH
J4	X		6	OPEN	13.7	HIGH

**TABLE 1**  
**SVE WELL STATUS**  
**VESTAL AREA 4**  
**November 9, 2005**

SVE WELL #	VAC WELL	INJ WELL	FLOW RATE	STATUS	PID READINGS	SOIL CONCENTRATION
J5	X		5	OPEN	8.1	HIGH
J6	X		7	OPEN	15.3	HIGH
K1		X	7	OPEN	NA	LOW
K2	X		7	OPEN	4.9	LOW
K3	X		6	OPEN	11.4	MEDIUM
K4	X		6	OPEN	16.3	MEDIUM
K5	X		5	OPEN	9.2	HIGH
L1		X	6	OPEN	NA	LOW
L2	X		5	OPEN	11.1	HIGH
L3		X	6	OPEN	NA	LOW
L4	X		5	OPEN	6.7	LOW
M1			NA	OFF	NA	LOW
M2	X		<5	OPEN	3.5	LOW
M3	X		5	OPEN	4.2	LOW
M4			NA	OFF	NA	LOW
N1			NA	OFF	NA	LOW
N2			NA	OFF	NA	LOW
N3			NA	OFF	NA	LOW

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

LF= limited airflow

**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)
8/31/05	VS-SVE-INF-083105-0621	INF	512	4.3	12.13	0.85	12.98
8/31/05	VS-SVE-MID-083105-0622	MID	512	1.5	0.25	0.00	0.25
8/31/05	VS-SVE-EFF-083105-0623	EFF	512	0.6	0.00	0.00	0.00
8/31/05	VS-SVE-TB-083105-0625	TB	NA	0.6	0.00	0.00	0.00
9/28/05	VS-SVE-INF-092805-0626	INF	512	5.1	15.13	1.90	17.03
9/28/05	VS-SVE-MID-092805-0627	MID	512	1.3	1.71	0.00	1.71
9/28/05	VS-SVE-EFF-092805-0628	EFF	512	1.0	0.62	0.00	0.62
9/28/05	VS-SVE-TB-092805-0630	TB	NA	0.6	0.00	0.00	0.00
10/6/05	VS-SVE-INF-100605-0631	INF	512	5.1	9.76	1.18	10.94
10/6/05	VS-SVE-MID-100605-0632	MID	512	1.3	15.16	0.00	15.16
10/6/05	VS-SVE-EFF-100605-0633	EFF	512	1.0	2.36	0.00	2.36
10/6/05	VS-SVE-TB-100605-0635	TB	NA	0.6	0.00	0.00	0.00
11/9/05	VS-SVE-INF-110905-0636	INF	512	3.6	0.00	0.09	0.09
11/9/05	VS-SVE-MID-110905-0637	MID	512	1.0	1.27	0.08	1.35
11/9/05	VS-SVE-EFF-110905-0638	EFF	512	0.6	6.00	0.00	6.00
11/9/05	VS-SVE-TB-110905-0640	TB	NA	0.6	0.00	0.00	0.00
12/7/05	VS-SVE-INF-120705-0684	INF	512	2.0	0.00	0.00	0.00
12/7/05	VS-SVE-MID-120705-0685	MID	512	2.5	0.64	0.00	0.64
12/7/05	VS-SVE-EFF-120705-0686	EFF	512	2.9	1.57	0.00	1.57
12/7/05	VS-SVE-TB-6-120705-0688	TB	NA	1.0	0.00	0.00	0.00

NOTE 1: 1,1,1 TCA= 1,1,1-Trichloroethane  
 TCE= Trichloroethene  
 NA = Not Applicable

NOTE 2: INF= influent  
 MID= Middle Carbon  
 EFF= Effluent  
 TB= Trip Blank

**TABLE 3**  
**CONTAMINANT CONCENTRATIONS AND YIELDS**  
**DECEMBER 6 & 7, 2005**  
**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
12/6/05	C2	9	9.0	0.00	0.00	0.00	0.00	0.00	0.00
12/6/05	D4	12	12.0	0.00	0.00	0.00	0.00	0.00	0.00
12/6/05	TB-1	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
12/6/05	D1	6	2.0	0.00	0.00	0.00	0.00	0.00	0.00
12/6/05	TB-2	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
12/6/05	E2	13	13.0	0.00	0.00	0.00	0.00	0.00	0.00
12/6/05	B3	5	5.0	0.00	0.00	0.00	0.00	0.00	0.00
12/6/05	A3	6	7.0	0.00	0.00	0.00	0.00	0.00	0.00
12/6/05	RB-3	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
12/6/05	PB-1	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	J4	5	13.7	13.72	0.40	14.12	0.03	0.00	0.04
12/7/05	J2	5	4.6	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	K5	5	9.2	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	K4	5	16.3	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	K2	5	4.9	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	TB-4	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	J6	5	15.3	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	J3	5	9.4	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	G1	5	11.5	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	I5	5	8.5	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	G2	5	12.4	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	I3	5	5.2	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	H1	5	10.2	0.00	0.00	0.00	0.00	0.00	0.00

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
12/7/05	TB-5	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	J5	5	8.1	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	I1	5	6.5	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	INF	512	2.0	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	MID	512	2.5	0.64	0.00	0.64	0.16	0.00	0.16
12/7/05	EFF	512	2.9	1.57	0.00	1.57	0.40	0.00	0.40
12/7/05	PB-2	NA	NA	0.00	0.00	0.00	0.00	0.00	0.00
12/7/05	TB-6	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

**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)
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



**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)
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
12/4/2003	VS-SVE-INF-111903-0129	INF	0.74	0.76	1.50
1/14/2004	VS-SVE-INF-011404-0197	INF	0.69	0.90	1.59
	INFLUENT AVG. PER DAY FOR PERIOD		0.72	0.83	1.55
	TOTAL YIELD (lbs) FOR PERIOD (12/4-1/14)				12.13
1/14/2004	VS-SVE-INF-011404-0197	INF	0.69	0.90	1.59
1/26/2004	VS-SVE-INF-012604-0202	INF	1.63	1.79	3.42
	INFLUENT AVG. PER DAY FOR PERIOD		1.16	1.35	2.51
	TOTAL YIELD (lbs) FOR PERIOD (1/14-1/26)				24.17
1/26/2004	VS-SVE-INF-012604-0202	INF	1.63	1.79	3.42
2/9/2004	VS-SVE-INF-020904-0207	INF	3.09	3.10	6.20
	INFLUENT AVG. PER DAY FOR PERIOD		2.36	2.45	4.81
	TOTAL YIELD (lbs) FOR PERIOD (1/26-2/9)				55.27
2/9/2004	VS-SVE-INF-020904-0207	INF	3.09	3.10	6.20
2/24/2004	VS-SVE-INF-022404-0212	INF	3.72	2.91	6.63
	INFLUENT AVG. PER DAY FOR PERIOD		3.41	3.01	6.42
	TOTAL YIELD (lbs) FOR PERIOD (2/9-2/24)				95.58
2/24/2004	VS-SVE-INF-022404-0212	INF	3.72	2.91	6.63
3/10/2004	VS-SVE-INF-031004-0262	INF	2.23	2.54	4.78
	INFLUENT AVG. PER DAY FOR PERIOD		2.98	2.73	5.71
	TOTAL YIELD (lbs) FOR PERIOD (2/24-3/10)				45.58
3/10/2004	VS-SVE-INF-031004-0262	INF	2.23	2.54	4.78
4/5/2004	VS-SVE-INF-040504-0267	INF	2.51	2.56	5.07
	INFLUENT AVG. PER DAY FOR PERIOD		2.37	2.55	4.93
	TOTAL YIELD (lbs) FOR PERIOD (3/10-4/5)				75.11
4/5/2004	VS-SVE-INF-040504-0267	INF	2.51	2.56	5.07
4/27/2004	VS-SVE-INF-042704-0272	INF	1.47	1.64	3.11
	INFLUENT AVG. PER DAY FOR PERIOD		1.99	2.10	4.09
	TOTAL YIELD (lbs) FOR PERIOD (4/5-4/27)				60.45
4/27/2004	VS-SVE-INF-042704-0272	INF	1.47	1.64	3.11
5/11/2004	VS-SVE-INF-051104-0277	INF	2.35	2.77	5.12
	INFLUENT AVG. PER DAY FOR PERIOD		1.91	2.21	4.12
	TOTAL YIELD (lbs) FOR PERIOD (4/27-5/11)				54.36
5/11/2004	VS-SVE-INF-051104-0277	INF	2.35	2.77	5.12
6/1/2004	VS-SVE-INF-060104-0282	INF	2.10	2.59	4.69
	INFLUENT AVG. PER DAY FOR PERIOD		2.23	2.68	4.91
	TOTAL YIELD (lbs) FOR PERIOD (5/11-6/1)				94.18

**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)
6/1/2004	VS-SVE-INF-060104-0282	INF	2.10	2.59	4.69
6/22/2004	VS-SVE-INF-062204-0332	INF	1.30	1.11	2.40
	INFLUENT AVG. PER DAY FOR PERIOD		1.70	1.85	3.55
	TOTAL YIELD (lbs) FOR PERIOD (6/1-6/22)				73.91
6/22/2004	VS-SVE-INF-062204-0332	INF	1.30	1.11	2.40
7/13/2004	VS-SVE-INF-071304-0337	INF	4.61	3.23	7.84
	INFLUENT AVG. PER DAY FOR PERIOD		2.96	2.17	5.12
	TOTAL YIELD (lbs) FOR PERIOD (6/22-7/13)				107.37
7/13/2004	VS-SVE-INF-071304-0337	INF	4.61	3.23	7.84
7/22/2004	VS-SVE-INF-072204-0342	INF	3.63	3.46	7.09
	INFLUENT AVG. PER DAY FOR PERIOD		4.12	3.35	7.47
	TOTAL YIELD (lbs) FOR PERIOD (7/13-7/22)				46.95
7/22/2004	VS-SVE-INF-072204-0342	INF	3.63	3.46	7.09
8/16/2004	VS-SVE-INF-081604-0347	INF	0.54	0.63	1.17
	INFLUENT AVG. PER DAY FOR PERIOD		2.09	2.05	4.13
	TOTAL YIELD (lbs) FOR PERIOD (7/22-8/16)				68.02
8/16/2004	VS-SVE-INF-081604-0347	INF	0.54	0.63	1.17
9/28/2004	VS-SVE-INF-092804-0423	INF	0.37	0.62	0.98
	INFLUENT AVG. PER DAY FOR PERIOD		0.46	0.63	1.08
	TOTAL YIELD (lbs) FOR PERIOD (8/16-9/28)				46.06
9/28/2004	VS-SVE-INF-092804-0423	INF	0.37	0.62	0.98
10/19/2004	VS-SVE-INF-101904-0428	INF	3.15	2.40	5.56
	INFLUENT AVG. PER DAY FOR PERIOD		1.76	1.51	3.27
	TOTAL YIELD (lbs) FOR PERIOD (9/28-10/19)				68.67
10/19/2004	VS-SVE-INF-101904-0428	INF	3.15	2.40	5.56
11/17/2004	VS-SVE-INF-111704-0433	INF	1.69	1.20	2.89
	INFLUENT AVG. PER DAY FOR PERIOD		2.42	1.80	4.23
	TOTAL YIELD (lbs) FOR PERIOD (10/19-11/17)				122.53
11/17/2004	VS-SVE-INF-111704-0433	INF	1.69	1.20	2.89
12/21/2004	VS-SVE-INF-122104-0493	INF	0.07	0.12	0.19
	INFLUENT AVG. PER DAY FOR PERIOD		0.88	0.66	1.54
	TOTAL YIELD (lbs) FOR PERIOD (11/17-12/21)				52.22
12/21/2004	VS-SVE-INF-122104-0493	INF	0.07	0.12	0.19
1/12/2005	VS-SVE-INF-011205-0498	INF	0.29	0.20	0.49
	INFLUENT AVG. PER DAY FOR PERIOD		0.18	0.16	0.34
	TOTAL YIELD (lbs) FOR PERIOD (12/21-1/12)				7.49
1/12/2005	VS-SVE-INF-011205-0498	INF	0.29	0.20	0.49
2/9/2005	VS-SVE-INF-020905-0503	INF	0.58	0.24	0.82
	INFLUENT AVG. PER DAY FOR PERIOD		0.44	0.22	0.66
	TOTAL YIELD (lbs) FOR PERIOD (1/12-2/9)				18.29

**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)
2/9/2005	VS-SVE-INF-020905-0503	INF	0.58	0.24	0.82
3/23/2005	VS-SVE-INF-032305-0551	INF	0.14	0.12	0.25
	INFLUENT AVG. PER DAY FOR PERIOD		0.36	0.18	0.54
	TOTAL YIELD (lbs) FOR PERIOD (2/9-3/23)				22.46
3/23/2005	VS-SVE-INF-032305-0551	INF	0.14	0.12	0.25
4/27/2005	VS-SVE-INF-042705-0556	INF	0.00	0.00	0.00
	INFLUENT AVG. PER DAY FOR PERIOD		0.07	0.06	0.13
	TOTAL YIELD (lbs) FOR PERIOD (3/23-4/27)				3.86
4/27/2005	VS-SVE-INF-042705-0556	INF	0.00	0.00	0.00
5/10/2005	VS-SVE-INF-051005-0563	INF	0.00	0.00	0.00
	INFLUENT AVG. PER DAY FOR PERIOD		0.00	0.00	0.00
	TOTAL YIELD (lbs) FOR PERIOD (4/27-5/10)				0.00
5/10/2005	VS-SVE-INF-051005-0563	INF	0.00	0.00	0.00
5/25/2005	VS-SVE-INF-052505-0568	INF	0.00	0.00	0.00
	INFLUENT AVG. PER DAY FOR PERIOD		0.00	0.00	0.00
	TOTAL YIELD (lbs) FOR PERIOD (5/10-5/25)				0.00
5/25/2005	VS-SVE-INF-052505-0568	INF	0.00	0.00	0.00
6/8/2005	VS-SVE-INF-060805-0616	INF	0.00	0.00	0.00
	INFLUENT AVG. PER DAY FOR PERIOD		0.00	0.00	0.00
	TOTAL YIELD (lbs) FOR PERIOD (5/25-6/8)				0.00
6/8/2005	VS-SVE-INF-060805-0616	INF	0.00	0.00	0.00
8/31/2005	VS-SVE-INF-083105-0621	INF	3.10	0.21	3.31
	INFLUENT AVG. PER DAY FOR PERIOD		1.55	0.11	1.66
	TOTAL YIELD (lbs) FOR PERIOD (6/8-8/31)				29.79
8/31/2005	VS-SVE-INF-083105-0621	INF	3.10	0.21	3.31
9/28/2005	VS-SVE-INF-092805-0626	INF	3.87	0.48	4.34
	INFLUENT AVG. PER DAY FOR PERIOD		3.49	0.35	3.83
	TOTAL YIELD (lbs) FOR PERIOD (8/31-9/28)				107.21
9/28/2005	VS-SVE-INF-092805-0626	INF	3.87	0.48	4.34
10/6/2005	VS-SVE-INF-100605-0631	INF	2.49	0.30	2.79
	INFLUENT AVG. PER DAY FOR PERIOD		3.18	0.39	3.57
	TOTAL YIELD (lbs) FOR PERIOD (9/28-10/6)				28.52
10/6/2005	VS-SVE-INF-100605-0631	INF	2.49	0.30	2.79
11/9/2005	VS-SVE-INF-110905-0636	INF	0.00	0.02	0.02
	INFLUENT AVG. PER DAY FOR PERIOD		1.25	0.16	1.41
	TOTAL YIELD (lbs) FOR PERIOD (10/6-11/9)				47.70
11/9/2005	VS-SVE-INF-110905-0636	INF	0.00	0.02	0.02
12/7/2005	VS-SVE-INF-120705-0684	INF	0.00	0.00	0.00
	INFLUENT AVG. PER DAY FOR PERIOD		0.00	0.01	0.01
	TOTAL YIELD (lbs) FOR PERIOD (11/9-12/7)				0.28
<b>TOTAL YIELD TO REPORTED DATE</b>					<b>2288.74</b>

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
1/14/2004	535.30	397.32	932.62
1/26/2004	546.51	410.29	956.80
2/9/2004	573.66	438.42	1012.08
2/24/2004	624.45	483.19	1107.65
3/10/2004	648.24	504.97	1153.22
4/5/2004	684.38	543.87	1228.25
4/27/2004	713.77	574.92	1288.69
5/11/2004	739.02	604.07	1343.09
6/1/2004	781.81	655.48	1437.29
6/22/2004	817.27	693.97	1511.24
7/13/2004	879.24	739.47	1618.71
7/22/2004	905.17	760.52	1665.69
8/16/2004	939.55	794.17	1733.72
9/28/2004	959.14	820.79	1779.93
10/19/2004	996.13	852.47	1848.60
11/17/2004	1066.51	904.73	1971.24
12/21/2004	1096.44	927.00	2023.44
1/12/2005	1100.43	930.44	2030.87
2/9/2005	1112.63	936.50	2049.13
3/23/2005	1127.81	943.89	2071.71

<b>SAMPLE DATE</b>	<b>1,1,1 TCA (lbs)</b>	<b>TCE (lbs)</b>	<b>TOTAL TARGET VOCs (lbs)</b>
4/27/2005	1129.95	945.69	2075.64
5/10/2005	1129.95	945.69	2075.64
5/25/2005	1129.95	945.69	2075.64
6/8/2005	1129.95	945.69	2075.64
8/31/2005	1157.80	947.60	2105.40
9/28/05	1255.41	957.29	2212.71
10/6/05	1280.85	960.39	2241.24
11/9/05	1323.19	965.81	2289.00
12/7/05	1323.19	966.13	2289.32

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	OFF	FLOW STATUS	PROPOSED FLOW CHANGES	REASON
INFLUENT						
MIDDLE						
EFFLUENT						
A1		X		OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
A2		X		OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
A3	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
B1	X			WATER	None	Leave in the current configuration to focus on the area in Cell 1.
B2	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
B3	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
C1		X		OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
C2	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
C3		X		OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
D1	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
D2		X		OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
D3	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
D4	X			WATER	None	Leave in the current configuration to focus on the area in Cell 1.
E1		X		OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
E2	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
E3	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
E4	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
E5	X			WATER	None	Leave in the current configuration to focus on the area in Cell 1.

**TABLE 6**  
**SVE WELL PROPOSED CHANGES**  
**VESTAL AREA 4**

CURRENT STATUS					PROPOSED CHANGES	
SVE WELL #	VAC WELL	INJ WELL	OFF	FLOW STATUS	PROPOSED FLOW CHANGES	REASON
F1	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
F2		X		OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
F3	X			WATER	None	Leave in the current configuration to focus on the area in Cell 1.
F4	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
F5	X			LF	None	Leave in the current configuration to focus on the area in Cell 1.
F6	X			WATER	None	Leave in the current configuration to focus on the area in Cell 1.
G1	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
G2	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
H1	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
H2			X	OFF	None	Leave in the current configuration to focus on the area in Cell 1.
I1	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
I2			X	OFF	None	Leave in the current configuration to focus on the area in Cell 1.
I3	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
I4			X	OFF	None	Leave in the current configuration to focus on the area in Cell 1.
I5	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
J1			X	OFF	None	Leave in the current configuration to focus on the area in Cell 1.
J2	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
J3	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
J4	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
J5	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.

**TABLE 6**  
**SVE WELL PROPOSED CHANGES**  
**VESTAL AREA 4**

CURRENT STATUS					PROPOSED CHANGES	
SVE WELL #	VAC WELL	INJ WELL	OFF	FLOW STATUS	PROPOSED FLOW CHANGES	REASON
J6	X			WATER	None	Leave in the current configuration to focus on the area in Cell 1.
K1		X		OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
K2	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
K3	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
K4	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
K5	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
L1		X		OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
L2	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
L3		X		OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
L4	X			WATER	None	Leave in the current configuration to focus on the area in Cell 1.
M1			X	OFF	None	Leave in the current configuration to focus on the area in Cell 1.
M2	X			OPEN	None	Leave in the current configuration to focus on the area in Cell 1.
M3	X			WATER	None	Leave in the current configuration to focus on the area in Cell 1.
M4			X	OFF	None	Leave in the current configuration to focus on the area in Cell 1.
N1			X	OFF	None	Leave in the current configuration to focus on the area in Cell 1.
N2			X	OFF	None	Leave in the current configuration to focus on the area in Cell 1.
N3			X	OFF	None	Leave in the current configuration to focus on the area in Cell 1.



**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: 8/15/05 ARRIVAL TIME: 0845 FAULT LIGHTS ON (list): "None"

REASON FOR VISIT: MONTHLY QUARTERLY OTHER

OTHER (define): RE-START SVE SYSTEM PER D. CALLAHAN

TASK PERFORMED: SVE SYSTEM HAS BEEN SHUT DOWN SINCE JUNE 10, '05  
POWER WAS SET UP, BUT WE MANAGED TO FREE THEM UP AND RE-START  
THE SYSTEM AT APPROX 1030hrs.

MAIN EQUIPMENT BUILDING

MAIN CONTROL PANEL  CONTROL BOX LOCKED  CONTROL DOOR LOCKED

HOUR METER: SVE UNIT 14504.7 hrs.

SVE PUMPING UNIT

INJECTION BLOWER TEMP: 160° F  
INJECTION BLOWER TEMP SETTING: 230° F  
PRESSURE AFTER INJECTION BLOWER 9" "H2O ~~46~~

VACUUM BLOWER TEMP: 160° F  
VACUUM BLOWER TEMP SETTING: 230° F  
VACUUM AFTER FILTER 6" "H2O ~~46~~  
PRESSURE AFTER VACUUM BLOWER: 4" "H2O ~~46~~

GREASE SEALS CHECKED:  DATE OF LAST GREASE: 6-10-05

OIL LEVEL CHECKED:  DATE OF LAST OIL CHANGE: 5-10-05

BELTS CHECKED FOR WEAR:  BELT GUARD IN PLACE:

VESTAL AREA 4 SITE INSPECTION AND OPERATION/MAINTANCE LOG

DATE: 8/15/25

PAGE 2

**CARBON BED SYSTEM**

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

PRESSURE BEFORE GAC UNIT 1  
TEMPERATURE BEFORE GAC 1

27 "H2O  
100°F

PRESSURE BETWEEN GAC UNIT 1 AND 2

18 "H2O

PRESSURE AFTER GAC UNIT 2  
TEMPERATURE AFTER GAC 2

7 "H2O  
90°F

**WATER STORAGE UNIT**

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

VOLUME OF WATER IN STORAGE TANK: 0 GALLONS  
WATER IN CONTAINMENT VESSEL: YES     NO ✓ AMOUNT: 0 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 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: 88 "H2O

TEMP AT INJECTION MANIFOLD: 74°F

VACUUM AT VACUUM MANIFOLD: 60 "H2O

TEMP AT VACUUM MANIFOLD: 76°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 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: 80 "H2O  
TEMP AT INJECTION MANIFOLD: 70° F  
VACUUM AT VACUUM MANIFOLD: 62 "H2O  
TEMP AT VACUUM MANIFOLD: 76° 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 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: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SUMMARY OF OTHER ACTIVITIES: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

COMMENTS: CELL #2 - A TRUCK MUST HAVE BACKED INTO OR RUMBLER UP AGAINST THE DOORS OF CELL #2. DOORS WERE PUSHED IN AND THE LOCK WAS BENT. NO MAJOR DAMAGE THOUGH.

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

\_\_\_\_\_

# **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)

QA/QC Report for Vestal Samples  
(Sample Date: 8/31/05)

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

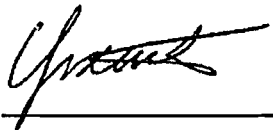
Vestal Duplicate Sample RPD Report					
Sample ID: VS-SVE-MID-083105-0622					
Sample Date	Analytes	Data1	Data2	RPD (%)	RPD Acceptable?
8/31/2005	1,1,1-TCA	0.344	0.36	4.5	YES

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: 10/6/05)

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 samples were four days old before analyzing.

3. Instrument Blank Analysis

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

4. Lab Duplicate Analysis

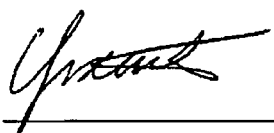
Vestal Duplicate Sample RPD Report					
Sample ID: VS-SVE-MID-100605-0632					
Sample Date	Analytes	Data1	Data2	RPD (%)	RPD Acceptable?
10/6/2005	1,1,1-TCA	21.049	19.845	5.9	YES

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: 9/28/05)

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

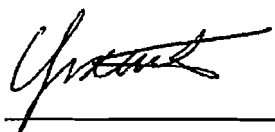
Vestal Duplicate Sample RPD Report					
Sample ID: VS-SVE-MID-092805-0627					
Sample Date	Analytes	Data1	Data2	RPD (%)	RPD Acceptable?
9/28/2005	1,1,1-TCA	2.374	2.246	5.5	YES

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: 11/9/05)

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

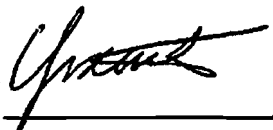
Vestal Duplicate Sample RPD Report					
Sample ID: VS-SVE-EFF-110905-0638					
Sample Date	Analytes	Data1	Data2	RPD (%)	RPD Acceptable?
11/9/2005	1,1,1-TCA	8.333	8.131	2.5	YES

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

<b>SAMPLE DATE</b>	<b>SAMPLE ID</b>	<b>1,1,1-TCA (ppm)</b>	<b>TCE (ppm)</b>	<b>Detection Limits (ppm)</b>
8/31/05	INSTRUMENT BLANK	0.00	0.00	0.05
8/31/05	VS-SVE-TB-083105-0625	0.00	0.00	0.05
9/28/05	INSTRUMENT BLANK	0.00	0.00	0.05
9/28/05	VS-SVE-TB-092805-0630	0.00	0.00	0.05
10/6/05	INSTRUMENT BLANK	0.00	0.00	0.05
10/6/05	VS-SVE-TB-100605-0635	0.00	0.00	0.05
11/9/05	INSTRUMENT BLANK	0.00	0.00	0.05
11/9/05	VS-SVE-TB-110905-0640	0.00	0.00	0.05
12/6/05	VS-SVE-TB-1-120605-0646	0.00	0.00	0.05
12/6/05	VS-SVE-TB-2-120605-0654	0.00	0.00	0.05
12/6/05	VS-SVE-TB-3-120605-0661	0.00	0.00	0.05
12/6/05	INSTRUMENT BLANK	0.00	0.00	0.05
12/7/05	VS-SVE-TB-4-120705-0671	0.00	0.00	0.05
12/7/05	VS-SVE-TB-5-120705-0680	0.00	0.00	0.05
12/7/05	INSTRUMENT BLANK	0.00	0.00	0.05
12/7/05	VS-SVE-TB-6-120705-0688	0.00	0.00	0.05

Notes: 0.00 indicates below detection limit.

# Shaw E & I Lab Analytical Results

*Client: Severson/USACE*  
*Analysis Date: 9/1/2005*  
*Detection Limit: See below*  
*Analyst: YL*

*Client Code: 681086*  
*Sample Date: 8/31/2005*  
*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-083105-0621	12.13	0.85	0.05
VS-SVE-MID-083105-0622	0.25	0.00	0.05
VS-SVE-EFF-083105-0623	0.00	0.00	0.05
VS-SVE-SP-083105-0624	0.00	0.00	0.05
VS-SVE-TB-083105-0625	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: 14899.0 hrs.  
 Flow Meter- Type: \_\_\_\_\_ Range (cfm): \_\_\_\_\_  
 Withdrawl blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_  
 Injection blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_

Client: SEVENSON /USACE Client Code: #681086  
 Site Address: 210 STAGE RD, VESTAL, NY  
 Project Manager: D. CALLAHAN  
 System Status: "OPERATING"

Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm)	Analysis Requested	Notes
1 USSE-0621	8-31-'05	1015			TO14, A ↓	INFLUENT
2 USSE-0622	↓	1026				MID CARBON
3 USSE-0623		1042				EFFLUENT
4 USSE-0624		1005				SAMPLE PUMP
5 USSE-0625		—				TRIP BLANK
6						
7						
8						
9						
10						
11						
12						

Collected By: Colasurdo / McGuire Date: 8-31-05 Time: 1000  
 Delivered By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Received By: WR Date: 9/1/05 Time: 9:30  
 Remarks: \_\_\_\_\_

**Envirogen, Inc.**  
 SHAW ENVIRONMENTAL  
 New Solutions to Hazardous Waste Problems  
 123 COLLEGE AVE., SE  
 5126 West Grand Pkwy, Lansing, Michigan 48906  
 GRAND RAPIDS, MI 49503  
 Phone #: (517) 886-5600 Fax #: (517) 886-5700  
 616-774-3522

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

# Shaw E & I Lab Analytical Results

*Client: Severson/USACE*  
*Analysis Date: 9/29/2005*  
*Detection Limit: See below*  
*Analyst: YL*

*Client Code: 681086*  
*Sample Date: 9/28/2005*  
*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-092805-0626	15.13	1.90	0.05
VS-SVE-MID-092805-0627	1.71	0.00	0.05
VS-SVE-EFF-092805-0628	0.62	0.00	0.05
VS-SVE-SP-092805-0629	0.00	0.00	0.05
VS-SVE-TB-092805-0630	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: 15560.8 HRS  
 Flow Meter- Type : \_\_\_\_\_ Range (cfm): \_\_\_\_\_  
 Withdrawl blower - Vacuum : \_\_\_\_\_ Pressure: \_\_\_\_\_  
 Injection blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_

Client: SEVENSON / USACE Client Code: #681086  
 Site Address: 210 STAGE RD., VESTAL, NY  
 Project Manager: D. CALLAHAN  
 System Status : " OPERATING "

Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm)	Analysis Requested	Notes
1 US-SVE-0626	9-28-05	1055			T014, A	INFLUENT
2 US-SVE-0627	↓	1115			↓	MID CARBON
3 US-SVE-0628		1140				EFFLUENT
4 US-SVE-0629		1230				SAMPLE PUMP
5 US-SVE-0630		TRIP BLANK				TRIP BLANK
6						
7						
8						
9						
10						
11						
12						

Collected By: BLASCO / MCGUIRE Date: 9-28-05 Time: 1030 **Envirogen, Inc.**  
 Delivered By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ New Solutions to Hazardous Waste Problems  
 Received By: AR Date: 9/29/05 Time: 9:45 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



## *Shaw E & I Lab Analytical Results*

*Client: Severson/USACE  
Analysis Date: 10/10/2005  
Detection Limit: See below  
Analyst: YL*

*Client Code: 681086  
Sample Date: 10/6/2005  
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-100605-0631	9.76	1.18	0.05
VS-SVE-MID-100605-0632	15.16	0.00	0.05
VS-SVE-EFF-100605-0633	2.36	0.00	0.05
VS-SVE-SP-100605-0634	0.00	0.00	0.05
VS-SVE-TB-100605-0635	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] Samples were four days old.*

# CHAIN - OF - CUSTODY for AIR SAMPLES

Hour Meter: 15752.8408 Client Code: 88906  
 Flow Meter- Type: \_\_\_\_\_ Range (cfm): \_\_\_\_\_ Pressure: \_\_\_\_\_  
 Withdrawal blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_  
 Injection blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_  
 Project Manager: D. Gallahan  
 System Status: "OPERATING"  
 Site Address: 210 STATE B. VESPALE, N.Y.

Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm)	Analysis Requested	Notes
1 VSE-0631	10-6-05	1120			TO14, A	INFLUENT
2 VSE-0632		1136			}	MID-CARBON
3 VSE-0633		1157				EFFLUENT
4 VSE-0634		1105			}	SAMPLE PUMP
5 VSE-0635		TRIP BLANK				TRIP BLANK
6						
7						
8						
9						
10						
11						
12						

Collected By: CASARDO / HEBERLE Date: 10-6-05 Time: 1030  
 Delivered By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Received By: [Signature] Date: 10/10/05 Time: 9:25  
 Remarks: \_\_\_\_\_

**Envirogen, Inc.**  
 New Solutions to Hazardous Waste Problems  
 5126 West Grand River, Lansing, Michigan. 48906  
 Phone #: (517) 886-5600 Fax #: (517) 886-5700

# *Shaw E & I Lab Analytical Results*

*Client: Severson/USACE  
Analysis Date: 11/10/2005  
Detection Limit: See below  
Analyst: YL*

*Client Code: 681086  
Sample Date: 11/9/2005  
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-110905-0636	0.00	0.09	0.05
VS-SVE-MID-110905-0637	1.27	0.08	0.05
VS-SVE-EFF-110905-0638	6.00	0.00	0.05
VS-SVE-SP-110905-0639	0.00	0.00	0.05
VS-SVE-TB-110905-0640	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: 16567.7 hrs

Client: SEVENSON/USACE Client Code: #681086

Flow Meter- Type : \_\_\_\_\_ Range (cfm): \_\_\_\_\_

Site Address: 210 STAGE B, VESTAL, NY

Withdrawl blower - Vacuum : \_\_\_\_\_ Pressure: \_\_\_\_\_

Project Manager: D. Callahan

Injection blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_

System Status : "OPERATING"

Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm)	Analysis Requested	Notes
1	11-9-05 ↓	1025			TO 14, A ↓	INFLUENT
2		1042				MID CARBON
3		1053				EFFLUENT
4		1000				SAMPLE PUMP
5		TRIP BLANK				TRIP BLANK
6						
7						
8						
9						
10						
11						
12						

Collected By: Colquhoun/McGuire Date: 11-9-05 Time: 1000

Delivered By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Received By: [Signature] Date: 11/10/05 Time: 9:30

Remarks: \_\_\_\_\_

**Envirogen, Inc.**  
**SHAW EMCON/CST, INC.**  
 New Solutions to Hazardous Waste Problems  
 103 COLLEGE AVE., SE  
 5126 West Grand River, Lansing, Michigan 48906  
 GRAND RAPIDS, MI 49503  
 Phone #: (517) 886-5600 Fax #: (517) 886-5700  
 616-774-3522

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

# Shaw E & I Lab Analytical Results

**Client:** Severson/USACE  
**Analysis Date:** 12/7/2005  
**Detection Limit:** See below  
**Analyst:** YL

**Client Code:** 681086  
**Sample Date:** 12/6/2005  
**Units:** ppmv  
**Project Manager:** D. Callahan

<i>SAMPLE ID</i>	<i>1,1,1-TCA</i>	<i>TCE</i>	<i>DL</i>
VS-SVE-C2-120605-0642	0.00	0.00	0.05
VS-SVE-D4-120605-0645	0.00	0.00	0.05
VS-SVE-TB-1-120605-0646	0.00	0.00	0.05
VS-SVE-D1-120605-0647	0.00	0.00	0.05
VS-SVE-TB-2-120605-0654	0.00	0.00	0.05
VS-SVE-E2-120605-0655	0.00	0.00	0.05
VS-SVE-B3-120605-0656	0.00	0.00	0.05
VS-SVE-A3-120605-0657	0.00	0.00	0.05
VS-SVE-TB-3-120605-0661	0.00	0.00	0.05
VS-SVE-PB-1-120605-0662	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: 12/8/2005*  
*Detection Limit: See below*  
*Analyst: YL*

*Client Code: 681086*  
*Sample Date: 12/7/2005*  
*Units: ppmv*  
*Project Manager: D. Callahan*

<i>SAMPLE ID</i>	<i>1,1,1-TCA</i>	<i>TCE</i>	<i>DL</i>
VS-SVE-J4-120705-0663	13.72	0.40	0.05
VS-SVE-J2-120705-0664	0.00	0.00	0.05
VS-SVE-K5-120705-0666	0.00	0.00	0.05
VS-SVE-K4-120705-0667	0.00	0.00	0.05
VS-SVE-K2-120705-0668	0.00	0.00	0.05
VS-SVE-TB-4-120705-0671	0.00	0.00	0.05
VS-SVE-J6-120705-0673	0.00	0.00	0.05
VS-SVE-J3-120705-0674	0.00	0.00	0.05
VS-SVE-G1-120705-0675	0.00	0.00	0.05
VS-SVE-I5-120705-0676	0.00	0.00	0.05
VS-SVE-G2-120705-0677	0.00	0.00	0.05
VS-SVE-I3-120705-0678	0.00	0.00	0.05
VS-SVE-H1-120705-0679	0.00	0.00	0.05
VS-SVE-TB-5-120705-0680	0.00	0.00	0.05
VS-SVE-J5-120705-0681	0.00	0.00	0.05
VS-SVE-I1-120705-0682	0.00	0.00	0.05
VS-SVE-INF-120705-0684	0.00	0.00	0.05
VS-SVE-MID-120705-0685	0.64	0.00	0.05
VS-SVE-EFF-120705-0686	1.57	0.00	0.05
VS-SVE-PB-2-120705-0687	0.00	0.00	0.05
VS-SVE-TB-6-120705-0688	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.*

Collected # 1

# CHAIN - OF - CUSTODY for AIR SAMPLES

Hour Meter: \_\_\_\_\_  
 Flow Meter - Type: \_\_\_\_\_ Range (cfm): \_\_\_\_\_  
 Withdrawal blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_  
 Injection blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_  
 Client: Swain / USACE Client Code: 681086  
 Site Address: 210 STATE RD, WESTBURY, NY  
 Project Manager: D. Ballaman  
 System Status: "OPERATIONAL"

Sample ID	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm)	Analysis Requested	Notes
US5VE-06A1	12-6-05	0930	N/S Hz		To 14, A	D-3 (NEW VIAL 11-30-05)
US5VE-06A2	12-6-05	0930	N/S Hz	8		D-2
US5VE-06A3			N/S Hz	8		F-1
US5VE-06A4			N/S Hz	-5		B-2
US5VE-06A5			0937	0/5		D-4
US5VE-06A6						TB #1

H2O  
H2O  
H2O

Collected By: Chasward / M'Squires Date: 12-6-05 Time: 0900  
 Delivered By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Received By: \_\_\_\_\_ Date: 12/7/05 Time: 9:30  
 Remarks: \_\_\_\_\_  
~~EMMERTON, INC.~~  
SWAIN EMERSON / CLT, INC.  
103 COLLEGE AVE. SE  
5120 WEST GRIFFIN BLVD., LANSING, MICHIGAN, 48906  
GRAND RAPIDS, MI 49503  
 Phone #: ~~(517) 886-5000~~ Fax #: ~~(517) 886-5700~~  
616-774-3522

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

Order # 2

# CHAIN - OF - CUSTODY for AIR SAMPLES

Hour Meter: 17216.7 hrs  
 Flow Meter - Type: \_\_\_\_\_ Range (cfm): \_\_\_\_\_  
 Withdrawal blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_  
 Injection blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_  
 System Status: "OPERATING"  
 Client: SEVENSON / USACE Client Code: "681086"  
 Site Address: 210 STATE RO. WESTAL, NY  
 Project Manager: D. CARROLL

Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm)	Analysis Requested	Notes
US51E-0647	12-6-05	0940	-5		T014, A	
US51E-0648	12-6-05	H2O	-5 H2O		E-3	H2O
US51E-0649		H2O	25 H2O		E-4	H2O
US51E-0650					E-4-D	H2O
US51E-0651		H2O	-5		F-4	H2O
US51E-0652		H2O	-5		F-5	H2O
US51E-0653		H2O	-5		F-6	H2O
US51E-0654					TR#2	

Collected By: Garwood / MSBUIE Date: 12/6/05 Time: 0900  
 Delivered By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Received By: MA Date: 12/7/05 Time: 9:30  
 Remarks: \_\_\_\_\_

~~XXXXXXXXXX INC.~~  
SEVENSON / USACE  
 New Solutions to Hazardous Waste Problems  
103 COLLEGE AVE. SE  
4126 WEST GRAND RIVER, LANSING, MICHIGAN 48906  
Phone #: (517) 886-5600 FAX #: (517) 886-5700  
616-774-5522  
616-774-5522

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



Cooler #3

# CHAIN - OF - CUSTODY for AIR SAMPLES

Hour Meter: 17216.74RS.

Client: SEVENSON / USACE Client Code: #681086

Flow Meter- Type: \_\_\_\_\_ Range (cfm): \_\_\_\_\_

Site Address: 210 STAGE RD. VESTAL, NY

Withdrawl blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_

Project Manager: D. CALLAHAN

Injection blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_

System Status: "OPERATING"

Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm)	Analysis Requested	Notes
1 US-SVE-0655	12-5-05	1036	0/5		TOX, A	E-2 <del>3</del> (NEW VIAL 11-30-05)
2 US-SVE-0656		1042	-5			B-3
3 US-SVE-0657		1047	-5			A-3
4 US-SVE-0658		H2O	-5			B-1
5 US-SVE-0659		H2O	-5			E-5
6 US-SVE-0660		H2O	-5			F-3
7 US-SVE-0661		—				TB-#3
8 US-SVE-0662		—				SAMPLE PUMP
9						
10						
11						
12						

Collected By: CLAURO / USGURE Date: 12-5-05 Time: 0900

Delivered By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Received By: MD Date: 12/7/05 Time: 9:30

Remarks: \_\_\_\_\_

~~ENVIRONMENTAL~~  
**SHOW ENCON / CWT, INC.**  
 New Solutions to Hazardous Waste Problems  
 103 COLLEGE AVE, SE  
 5126 West Grand River, Lansing, Michigan 48906  
 GRAND RAPIDS, MI 49503  
 Phone #: (517) 886-5600 Fax #: (517) 886-5700  
 616-774-5522

H2O  
H2O  
H2O

Cooler #4

# CHAIN - OF - CUSTODY for AIR SAMPLES

Hour Meter: 17240.0 hrs Client: SEWSON/USACE Client Code: #681086  
 Flow Meter - Type: \_\_\_\_\_ Range (cfm): \_\_\_\_\_ Site Address: 210 STATE RD., WESTAL, N.Y.  
 Withdrawal blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_ Project Manager: D. COLLIER  
 Injection blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_ System Status: "Operations"

Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm)	Analysis Requested	Notes
1	12-7-05	1000	-5		TO14, A	J-4
2		1006	-5			J-2
3		N/S H2O	8			L-2 H2O
4		1004	-5			K-5
5		1018	-5			K-4
6		1022	-5			K-2
7		N/S H2O	-5			K-3
8						K-3-D
9						TB #4
10						
11						
12						

Collected By: Colasurdo/REBURE Date: 12-7-05 Time: 0930  
 Delivered By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Received By: UPA Date: 12/8/05 Time: 10:00  
 Remarks: \_\_\_\_\_

*Emmitt Sewson/CWT, Inc.*  
 New Solutions to Hazardous Waste Problems  
 5126 Westwood River Lansing, Michigan 48906  
 103 COLLEGE RD SE  
 GRAND RAPIDS, MI 49503  
 Phone #: (517) 886-5700 (517) 886-5700  
 616-774-3522

COOLER #5

# CHAIN - OF - CUSTODY for AIR SAMPLES

Hour Meter: 17240.0429

Client: SEVENSON/USACE Client Code: 681086

Flow Meter- Type: \_\_\_\_\_ Range (cfm): \_\_\_\_\_

Site Address: 210 STAGE RD, WESTAL, NY

Withdrawal blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_

Project Manager: D. CALLAHAN

Injection blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_

System Status: "OPERATING"

Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm)	Analysis Requested	Notes
1 VSSVE-0672	12-6-05	N/S H2O	-5		T, O, A, A	H-2 H2O
2 VSSVE-0673		1035	-5			J-6 H2O
3 VSSVE-0674		1040	-5			J-3
4 VSSVE-0675		1046	-5			G-1 H2O
5 VSSVE-0676		1050	-5			I-5
6 VSSVE-0677		1055	-5			G-2
7 VSSVE-0678		1059	-5			I-3
8 VSSVE-0679		1104	-5			H-1
9 VSSVE-0680						
10						
11						
12						

Collected By: CLARIBO/McGOWAN Date: 12-7-05 Time: 0930

Delivered By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Received By: [Signature] Date: 12/8/05 Time: 10:00

Remarks: \_\_\_\_\_

~~ENVIRONMENTAL, INC.~~  
**SPAWN ENCON RWT, INC.**  
 New Solutions to Hazardous Waste Problems  
 103 COLLEGE AVE, SE  
 5126 West Grand River, Lansing, Michigan, 48906  
 GRAND RAPIDS, MI 49503  
 Phone #: (517) 886-5600 Fax #: (517) 886-5700  
 616-774-3522

COLLECTOR #6

# CHAIN - OF - CUSTODY for AIR SAMPLES

Hour Meter: 17240.0 HRS

Client: SWANSON / USACE Client Code: #681086

Flow Meter- Type : \_\_\_\_\_ Range (cfm): \_\_\_\_\_

Site Address: 210 STAGE RD, VESTAL, NY

Withdrawal blower - Vacuum : \_\_\_\_\_ Pressure: \_\_\_\_\_

Project Manager: D. CALABURO

Injection blower - Vacuum: \_\_\_\_\_ Pressure: \_\_\_\_\_

System Status : "OPERATING"

Sample ID.	Date	Time	Indicated Flow (cfm)	Carbon Dioxide (ppm)	Analysis Requested	Notes
1 USVE-0681	12-7-05	1112	-5		TO H,A	J-5
2 USVE-0682	}	1125	-5		}	I-1
3 USVE-0683		N/S-H2O	-5			M-3 H2O
4 USVE-0684		1135				IN FLUENT
5 USVE-0685		1147				MID CANAL
6 USVE-0686		1155				EFFLUENT
7 USVE-0687		_____				Sample Pump
8 USVE-0688		_____				TB#6
9						
10						
11						
12						

Collected By: COLABURO / MCGUIRE Date: 12-7-05 Time: 0930  
 Delivered By: \_\_\_\_\_ Date: 12-7-05 Time: \_\_\_\_\_  
 Received By: JR Date: 12/8/05 Time: 10:00  
 Remarks: \_\_\_\_\_

**Envirogen, Inc.**  
~~SWANSON / CWT, INC.~~  
 New Solutions to Hazardous Waste Problems  
 103 COLLEGE AVE, SE  
 5126 West Grand River, Lansing, Michigan 48906  
 GRAND RAPIDS, MI 49503  
 Phone #: (517) 886-5600 Fax #: (517) 886-5700  
 616-774-3522

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

**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	2.82	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
1/14/2004	INF	VS-SVE-INF-011404-0197	512	2.71	3.57	6.28	0.69	0.90	1.59	139.8	3,355.7	7.85
1/26/2004	INF	VS-SVE-INF-012604-0202	512	6.39	7.13	13.52	1.63	1.79	3.42	149.5	3,587.2	9.65
2/9/2004	INF	VS-SVE-INF-020904-0207	512	12.11	12.34	24.45	3.09	3.10	6.20	161.0	3,863.0	11.49
2/24/2004	INF	VS-SVE-INF-022404-0212	512	14.57	11.56	26.13	3.72	2.91	6.63	175.9	4,220.7	14.90
3/10/2004	INF	VS-SVE-INF-031004-0262	512	8.74	10.12	18.86	2.23	2.54	4.78	183.9	4,412.5	7.99
4/5/2004	INF	VS-SVE-INF-040504-0267	512	9.82	10.18	19.99	2.51	2.56	5.07	199.1	4,778.4	15.25
4/27/2004	INF	VS-SVE-INF-042704-0272	512	5.76	6.54	12.30	1.47	1.64	3.11	213.9	5133	14.78
5/11/2004	INF	VS-SVE-INF-051104-0277	512	9.21	11.02	20.23	2.35	2.77	5.12	227.1	5,450.0	13.21
6/1/2004	INF	VS-SVE-INF-060104-0282	512	8.24	10.29	18.53	2.10	2.59	4.69	246.3	5,910.7	19.20
6/22/2004	INF	VS-SVE-INF-062204-0332	512	5.08	4.40	9.48	1.30	1.11	2.40	267.1	6,411.0	20.85
7/13/2004	INF	VS-SVE-INF-071304-0337	512	18.05	12.86	30.91	4.61	3.23	7.84	288.1	6,914.3	20.97
7/22/2004	INF	VS-SVE-INF-072204-0342	512	14.22	13.76	27.98	3.63	3.46	7.09	294.4	7,065.3	6.29
8/16/2004	INF	VS-SVE-INF-081604-0347	512	2.13	2.49	4.63	0.54	0.63	1.17	310.9	7,460.5	16.47
9/28/2004	INF	VS-SVE-INF-092804-0423	512	1.45	2.45	3.89	0.37	0.62	0.98	353.7	8,489.0	42.85
10/19/2004	INF	VS-SVE-INF-101904-0428	512	12.35	9.55	21.90	3.15	2.40	5.56	374.7	8,993.0	21.00
11/17/2004	INF	VS-SVE-INF-111704-0433	512	6.63	4.76	11.39	1.69	1.20	2.89	403.8	9,690.0	29.04
12/21/2004	INF	VS-SVE-INF-122104-0493	512	0.29	0.46	0.74	0.07	0.12	0.19	437.7	10,503.8	33.91

**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
1/12/2005	INF	VS-SVE-INF-011205-0498	512	1.13	0.79	1.92	0.29	0.20	0.49	459.7	11,032.5	22.03
2/9/2005	INF	VS-SVE-INF-020905-0503	512	2.29	0.94	3.23	0.58	0.24	0.82	487.6	11,702.8	27.93
3/23/2005	INF	VS-SVE-INF-032305-0551	512	0.54	0.46	1.00	0.14	0.12	0.25	529.6	12,710.4	41.98
4/27/2005	INF	VS-SVE-INF-042705-0556	512	0.00	0.00	0.00	0.00	0.00	0.00	560.50	13,452.1	30.90
5/10/2005	INF	VS-SVE-INF-051005-0563	512	0.00	0.00	0.00	0.00	0.00	0.00	573.43	13,762.3	12.93
5/25/2005	INF	VS-SVE-INF-052505-0568	512	0.00	0.00	0.00	0.00	0.00	0.00	588.39	14,121.3	14.96
6/8/2005	INF	VS-SVE-INF-060805-0616	512	0.00	0.00	0.00	0.00	0.00	0.00	602.36	14,456.6	13.97
8/31/05	INF	VS-SVE-INF-083105-0621	512	12.13	0.85	12.98	3.10	0.21	3.31	620.33	14,888.0	17.98
9/28/05	INF	VS-SVE-INF-092805-0626	512	15.13	1.90	17.03	3.87	0.48	4.34	648.37	15,560.8	28.03
10/6/05	INF	VS-SVE-INF-100605-0631	512	9.76	1.18	10.94	2.49	0.30	2.79	656.37	15,752.8	8.00
11/9/05	INF	VS-SVE-INF-110905-0636	512	0.00	0.09	0.09	0.00	0.02	0.02	690.32	16,567.7	33.95
12/7/05	INF	VS-SVE-INF-120705-0684	512	0.00	0.00	0.00	0.00	0.00	0.00	718.33	17,240.0	28.01

## 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'

$[6.40 (8/12) + 11.28 (8/25)] / 2 = 8.84 \text{ avg. lbs per day for the period}$   
 $8.84 (\text{lbs per day}) * 10.19 (\text{days}) = 90.08 \text{ pounds per reporting period}$

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
1/14/2004	VS-SVE-INF-011404-0197	6	2000	50	512	7.7	139.8	3,355.7
1/26/2004	VS-SVE-INF-012604-0202	6	2000	50	512	12.9	149.5	3,587.2
2/9/2004	VS-SVE-INF-020904-0207	6	2000	40	512	21.3	161.0	3,863.0
2/24/2004	VS-SVE-INF-022404-0212	6	2000	45	512	19.5	175.9	4,220.7
3/10/2004	VS-SVE-INF-031004-0262	6	2000	48	512	10.3	183.9	4,412.5
4/5/2004	VS-SVE-INF-040504-0267	6	2000	66	512	11.9	199.1	4,778.4
4/27/2004	VS-SVE-INF-042704-0272	6	2000	68	512	5.0	213.9	5133
5/11/2004	VS-SVE-INF-051104-0277	6	2000	64	512	13.4	227.1	5,450.0
6/1/2004	VS-SVE-INF-060104-0282	6	2000	62	512	14.8	246.3	5,910.7
6/22/2004	VS-SVE-INF-062204-0332	6	2000	68	512	7.7	267.1	6,411.0
7/13/2004	VS-SVE-INF-071304-0337	6	2000	76	512	15.4	288.1	6,914.3
7/22/2004	VS-SVE-INF-072204-0342	6	2000	80	512	16.1	294.4	7,065.3
8/16/2004	VS-SVE-INF-081604-0347	6	2000	75	512	5.4	310.9	7,460.5
9/28/2004	VS-SVE-INF-092804-0423	6	2000	60	512	17.4	353.7	8,489.0
10/19/2004	VS-SVE-INF-101904-0428	6	2000	50	512	66.9	374.7	8,993.0
11/17/2004	VS-SVE-INF-111704-0433	6	2000	51	512	47.9	403.75	9,690.0
12/21/2004	VS-SVE-INF-122104-0493	6	2000	54	512	9.9	437.7	10,503.8

**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
1/12/2005	VS-SVE-INF-011205-0498	6	2000	50	512	10.9	459.7	11,032.5
2/9/2005	VS-SVE-INF-020905-0503	6	2000	52	512	12.3	487.6	11,702.8
3/23/2005	VS-SVE-INF-032305-0551	6	2000	60	512	9.6	529.6	12,710.4
4/27/2005	VS-SVE-INF-042705-0556	6	2000	62	512	2.6	560.50	13,452.1
5/10/2005	VS-SVE-INF-051005-0563	6	2000	65	512	1.5	573.43	13,762.3
5/25/2005	VS-SVE-INF-052505-0568	6	2000	70	512	1.0	588.39	14,121.3
6/8/2005	VS-SVE-INF-060805-0616	6	2000	75	512	1.1	602.36	14,456.6
8/31/2005	VS-SVE-INF-083105-0621	6	2000	74	512	4.3	620.33	14,888.0
9/28/05	VS-SVE-INF-092805-0626	6	2000	65	512	3.3	648.37	15,560.8
10/6/05	VS-SVE-INF-100605-0631	6	2000	60	512	5.1	656.37	15,752.8
11/9/05	VS-SVE-INF-110905-0636	6	2000	50	512	3.6	690.32	16,567.7
12/7/05	VS-SVE-INF-120705-0684	6	2000	47	512	2.0	718.33	17,240.0