

**DRAFT**

**REPORT ON THE  
SOIL-VAPOR EXTRACTION SYSTEM  
OCTOBER 31, 2002 TO DECEMBER 31, 2002  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

Prepared For:

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March 2003

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**MAR 27 2003**



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## **DRAFT**

### **REPORT ON THE SOIL-VAPOR EXTRACTION SYSTEM OCTOBER 31, 2002 TO DECEMBER 31, 2002 ROWE INDUSTRIES SITE SAG HARBOR, NEW YORK**

#### **EXECUTIVE SUMMARY**

Two soil-vapor extraction (SVE) systems were originally constructed at the Rowe Industries Superfund Site. Both systems were constructed in the summer of 1998 as part of a United States Environmental Protection Agency (USEPA)-approved Soil Remedial Action. One system utilized a 20-hp (horsepower) regenerative blower to extract volatile organic compounds (VOCs) from impacted soils beneath the former drum storage area (FDOSA) and the parking lot. The second system, decommissioned in September 1999, used a 3-hp regenerative blower to extract VOCs from impacted soils stored in an engineered ex-situ soil impoundment (SI). The SI was filled with soil from a remedial excavation completed to remove VOC-impacted surficial soils from the FDOSA. Effluent piping from the two blowers were combined into a single manifold. The combined effluent was treated prior to discharge to the atmosphere using two activated carbon units placed in series. The SI SVE was shut down in July 1999.

The objective of operating the FDOSA system was to remove a continuing source of ground-water contamination by extracting VOCs from the unsaturated soils, resulting in concentrations that are below New York State Department of Environmental Conservation (NYSDEC) clean-up objectives. The FDOSA system was initially operated between December 2, 1998 and March 14, 2000. In October 2000, LBG Engineering Services, P.C. (LBGES) completed soil-sampling activities to support the closure of the FDOSA. A complete description of the closure sampling activities is discussed in a letter to Ms. Pamela Tames, of the USEPA, dated January 18, 2001. The results of the sampling activities indicated that the SVE system was an effective means of remediating soil in the FDOSA, but that contamination continued to be present in an approximately 300-square foot area in the southern portion of the FDOSA. Of the 38 samples collected during that investigation, 7 samples exceeded the clean-up criteria established by the Consent Order and the

NYSDEC. In order to address the contamination, a new soil-vapor extraction operation plan was developed utilizing SVE-11, which is located approximately in the center of the sampling locations where clean-up criteria were exceeded.

The SVE system was re-started on December 15, 2000 and utilized the 20 hp blower. On January 25, 2001 the system was reconfigured to utilize the 3 hp regenerative blower originally used to extract VOCs from the ex-situ soil impoundment. Operation summaries for the time period between January 25, 2001 and October 31, 2002 are presented in SVE reports previously submitted to the USEPA. This report covers the system's operation from October 31, 2002 to December 31, 2002. During this reporting period, the system utilized extraction well SVE-7. This change in operating well was requested by the USEPA in order to determine if higher VOC concentrations could be recovered by using an extraction well other than SVE-11. Between October 31, 2002 and November 14, 2002, the system was not operated. The system began operating with SVE-7 on November 14, 2002. The SVE system operation was pulsed using a cycle of two weeks of operation followed by one week of shutdown. The shutdown period provides the opportunity for VOC concentrations in the soil vapor to re-establish an equilibrium condition with VOCs contained on the soil matrix. The system was not operated between December 19 and December 31, 2002.

Calculated carbon loading rates for tetrachloroethylene (PCE), the predominant VOC in the soil, and total VOCs at the pre-carbon sampling location and cumulative carbon loading for this reporting period have been compiled and are included in this report.

The total VOC contaminant removal was estimated to be 1 pound based on results from laboratory analysis of recovered vapor samples. The carbon units have been effective in removing VOCs from the air stream prior to discharge to the atmosphere. The average carbon loading rate for this reporting period was 0.002 lbs/hr. The average removal efficiency of the carbon units was approximately 96 percent. The operation of the system during this reporting period has also been compared to past performance.

## INTRODUCTION

The Rowe Industries Site, located in Sag Harbor, New York, is listed on the National Priorities List (NPL) under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or “Superfund”. Past activities at the subject site resulted in the release of VOCs to the Site soil and ground water. The three most prevalent VOCs identified in the soil and ground water were PCE, trichloroethylene (TCE) and trichloroethane (TCA).

In order to remediate the impacted soils, two SVE systems were constructed in 1998. The first SVE system, which was initially operated between December 2, 1998 and March 14, 2000, consists of 10 SVE wells located in the FDOSA and 5 SVE wells located in the eastern parking lot. During the soil sampling activities conducted in October 2000 to determine if the soil remedial objectives had been achieved, contamination exceeding the remedial criteria was found in an approximately 300-square foot area in the southern portion of the FDOSA. To address the remaining contamination, the SVE system was re-started on December 15, 2000 using SVE-11 in a pulsed operation scenario. The second SVE system, shut down in July 1999 and decommissioned in September 1999, consisted of horizontal extraction pipes in an ex-situ soil impoundment. The SI was constructed to reduce the concentrations of VOCs in soils excavated from the FDOSA as part of the remedial action. Both of the SVE systems were constructed and operated according to the design documents and operational plans reviewed and approved by the USEPA.

This report presents the results for weeks 160 through 169 (October 31, 2002 through December 31, 2002) of the operation of the FDOSA SVE system. The attached tables, graphs and figures present operating conditions and air-quality measurements collected during the reporting period between October 31, 2002 and December 31, 2002. During this reporting period, the system utilized extraction well SVE-7. A brief summary of O&M activities completed during those weeks is also included.

## DESCRIPTION OF SYSTEM

Fifteen (15) SVE wells, which are manifolded into five separate groups (Manifolds A through E), were constructed and the SVE blower package was installed in the rear of the Sag Harbor

Industries building. The SVE wells in the FDSA (Manifolds A, B, and C) were constructed to remediate the contaminated soil within this area. The SVE wells in the eastern parking lot (Manifolds D and E) were constructed to collect vapors that have migrated to the area beneath the eastern parking lot. Figure 1 shows the locations of the vapor extraction points, vacuum monitoring points, and monitor wells on and offsite. Figure 2 shows the below-grade manifold piping for the SVE wells. The SVE extraction and treatment systems are contained in a treatment shed and an adjacent fenced-in area, located on the eastern side of the Sag Harbor Industries building. Figure 3 shows the layout of the treatment system.

As shown on Figure 3, the extraction wells were plumbed together after the blower units, prior to the vapor conditioning and treatment units. The combined vapor streams flow through a heat exchanger, which reduces the temperature of the vapor stream, and then flows through two vapor-phase activated carbon absorption units, each containing 1,250 pounds of carbon. After being treated by the carbon absorption units, the vapor stream is discharged to the atmosphere.

A description of the construction details for the SVE wells, equipment, gages, instrumentation and controls is presented in the report entitled, "SVE Operations and Maintenance Plan - DRAFT", prepared and submitted by LBG Engineering Services, P.C. (LBGES) in February 1999.

## **BACKGROUND SUMMARY**

### **Summary of Tasks Completed During Reporting Period**

#### **October 31, 2002 to December 31, 2002 (Week 160 to Week 169)**

- During this reporting period, the system operation cycled between two weeks on followed by one week off. The system was not operated between October 31, 2002 and November 14, 2002 and December 20 to December 31, 2002 (weeks 168 and 169).
- During this reporting period, four routine site visits were made.
- Total VOC removal, based on laboratory data from vapor samples collected during weeks 160 - 169 was approximately 1 pound.



## SYSTEM STATUS SUMMARY

As previously noted, the attached tables, figures and graphs present the data collected during SVE O&M activities for the site. At the end of most tables, highlights from the data are presented. Highlights are provided to facilitate a general understanding of the operational conditions observed during the reporting period. The following sections of this report include some of those same highlights, and also include additional observations about the data presented in the tables and graphs.

### System Operation

- Week 160 of the SVE pulsed operation scenario started 10/31/2002
- Week 167 of the SVE pulsed operation scenario ended 12/26/2002
- 50 days were in the reporting period (50 d x 24 hr/d = 1,200 hrs)
- The pulsed operation scenario consisted of two weeks of operation followed by one week of shutdown which allowed the subsurface vapor concentrations to re-equilibrate. As a result, the system was operated for approximately 623 hours.

### Soil-Vapor Recovery

#### Sampling Schedule

To evaluate the progress of remediation, vapor samples were collected from Manifold A, pre-carbon, mid-carbon and post-carbon sampling locations according to the following schedule.

| Operating Period<br>(week) | 30 min<br>from startup | 2 hr<br>from startup | Shutdown<br>Samples |
|----------------------------|------------------------|----------------------|---------------------|
| 160                        |                        |                      |                     |
| 161                        | X                      | X                    |                     |
| 162                        |                        |                      |                     |
| 163                        |                        |                      | X                   |
| 164                        |                        |                      |                     |
| 165                        | X                      | X                    |                     |
| 166                        |                        |                      |                     |
| 167                        |                        |                      | X                   |
| 168, 169                   |                        |                      |                     |

- Samples collected at the end of Weeks 163 and 167 were collected a few minutes before the system was shut down.
- EPA Method TO-1/TO-2 laboratory analyses were completed on all of the vapor samples.

### **VOC Removal Estimates**

- An estimate of total VOCs removed from the subsurface by the SVE system during this reporting period is 1 pound.
- VOC removal rates from the subsurface are approximately equal to the calculated VOC loading rate to the carbon units. The VOC carbon loading rates were calculated and are presented in the attached table titled, "PCE, TCE, TCA and total VOC loading estimates Using Laboratory Data". The average calculated removal rate was 0.002 lb total VOCs per hour. A removal rate of 0.002 lb/hr, multiplied by 623 hours of operation, provides a second estimate of 1.25 lbs of total VOCs removed.
- A comparison of calculated loading rates over the history of operation of the SVE system is presented below:

|                                                                 | 10<br>&<br>M | 1 <sup>st</sup><br>Qtr.<br>1999 | 2 <sup>nd</sup><br>Qtr.<br>1999 | 3 <sup>rd</sup><br>Qtr.<br>1999 | 4 <sup>th</sup><br>Qtr.<br>1999 | 1 <sup>st</sup><br>Qtr.<br>2000 | 1 <sup>st</sup><br>Qtr.<br>2001 | 2 <sup>nd</sup><br>Qtr.<br>2001 | 3 <sup>rd</sup><br>Qtr.<br>2001 | 4 <sup>th</sup><br>Qtr.<br>2001 | 1 <sup>st</sup><br>Qtr.<br>2002 | 2 <sup>nd</sup><br>Qtr.<br>2002 | 3 <sup>rd</sup><br>Qtr.<br>2002 | 4 <sup>th</sup><br>Qtr.<br>2002 |
|-----------------------------------------------------------------|--------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Average Pre-carbon PCE<br>Loading Rates (lbs/hr)10 <sup>2</sup> | 770          | 2.0                             | 2.8                             | 2.0                             | 1.8                             | 1.1                             | 2.9                             | 0.19                            | 0.91                            | 1.4                             | 0.47                            | 0.29                            | 0.61                            | 0.20                            |

As shown above, the average loading rates continue to be very low, at least three orders of magnitude less than the loading rate at the start of the system. While the average rates increased slightly from the second quarter of 2002 to the third quarter of 2002, the concentrations declined from the third quarter 2002 to the fourth quarter 2002.

### **Influent Air Quality**

- During this reporting period, pre-carbon VOC concentrations ranged from 1.1 mg/m<sup>3</sup> (December 19, 2002 sample event) to 6.6 mg/m<sup>3</sup> (December 5, 2002 – 2 hour sample event).

### **Soil-Vapor Treatment**

- To evaluate the effectiveness of the soil-vapor treatment units, vapor samples were collected from the pre-, mid- and post-carbon sampling locations according to the schedule presented in the Soil-Vapor Recovery section of this report.
- EPA Methods TO-1/TO-2 laboratory analyses were completed on all of the vapor samples.

### **VOC/Carbon Adsorption Data**

- Based on pre-carbon loading calculations using results from laboratory analysis of vapor samples, total VOC loading to Carbon Unit No. 1 was 1 lb. and Carbon Unit No. 2 was 0.02 lb.
- Based on laboratory analytical results and calculated vapor flow, total VOC loading to the carbon units varied over the reporting period from 0.0008 lb/hr to 0.0046 lb/hr.
- No exceedances of the NYSDEC criterion of 0.022 lb/hr for permissible total VOC emissions were detected.
- VOC removal efficiencies for both the carbon units ranged from 90 percent to 99 percent with an average of 96 percent.

### **Operational Parameters**

#### **Measurement Schedule**

- Measurements were made for operating pressures, vacuums, temperature and air flows during each sampling event.
- Well-head vacuum in the FDSA and water levels were not measured during this reporting period.

#### **Pressure and Vacuum**

- Vacuum readings at the 3 hp blower inlet pipe ranged from 22.5 to 34 inches of water (in. H<sub>2</sub>O).
- Pressure at the pre-carbon pipe ranged from 1.5 to 1.8 in. H<sub>2</sub>O.

- Pressure at the mid-carbon pipe was consistently 1.5 in. H<sub>2</sub>O.
  - Vacuum in SVE 7 ranged from 21.5 to 27.5 in. H<sub>2</sub>O.
- Temperature**
- Ambient daytime temperatures ranged from 28 to 67 degrees Fahrenheit (°F).
  - Subsurface soil-vapor temperatures ranged from 42 to 54 °F.
  - Vapor stream temperatures were effectively reduced by the heat exchanger from between 40 to 94 °F to between 34 to 53 °F.

**Vapor Flow**

- Vapor flow from Manifold B with only SVE Well 7 active ranged from 143 to 153 actual cubic feet per minute (acfm).
- Pre-Carbon vapor flow ranged from 160 acfm to 165 acfm.
- Dilution air was consistently 0 acfm.

**Water Levels**

- Water levels were measured for monitoring the current focused pump and treat system in the FDSEA using pressure transducers. The results are present in a letter report to the USEPA dated March 24, 2003.

**System Maintenance**

- Normal system maintenance was completed during this reporting period. No moisture has accumulated in the moisture separator and the carbon in both units did not need to be changed.

**Alarm Summary**

- No alarm shutdowns occurred during this reporting period.

## CONCLUSIONS

1. The SVE system has been effective in remediating VOCs from impacted soils at the site. Contaminant removal estimates for October 31, 2002 to December 31, 2002 (Weeks 160 - 169) range from 1 to 1.2 pounds of total VOCs.
2. Since the start of the Soil Remedial Action using SVE, approximately 700 pounds of VOCs have been removed from the subsurface in the FDSA.

| Reporting Period | Total VOCs removed, lbs |
|------------------|-------------------------|
| IO&M             | ± 350                   |
| Weeks 1-15       | 29 - 73                 |
| Weeks 16-28      | 57 - 72                 |
| Weeks 29-37      | 19 - 71                 |
| Weeks 38-49      | 19 - 28                 |
| Weeks 50-59      | 10 - 17                 |
| Weeks 60-110     | 22-69                   |
| Weeks 142-138    | 4 - 9                   |
| Weeks 142-159    | 9 - 10                  |
| Weeks 160-169    | 1 - 1.2                 |
| Total            | 520-700                 |

3. Following the interim O&M period, the mass of VOCs removed from the subsurface and the corresponding carbon loading rates have declined steadily. In some instances, carbon loading rates have increased following periods when the system was not operated.
4. The carbon units are effective in removing VOCs from the vapor stream prior to discharge to the atmosphere.

Over time, there has been a significant decrease in the VOC concentrations detected at the pre-carbon sampling location. LBG conducted a third round of confirmation soil sampling in the FDSA on January 23, 2003, in order to determine the effectiveness and possible termination of the Soil Remedial Action in this area. The results of the confirmation sampling showed a substantial decrease in VOC concentrations. However, two small isolated areas around SVE-13 and SVE-14 have concentrations of VOCs in the soil that remain over the clean-up criteria. The results of the closure sampling have been discussed with Ms. Pamela Tames of the USEPA. As per the request of USEPA, the system has been restarted in an attempt to further decrease VOC concentrations in the area and the operation scenario has returned to utilizing only SVE-11 which is located in between these two areas. Once VOC concentrations in the soil have been reduced below the clean-up criteria, the Remedial Action in the FDSA can be closed.

Very truly yours, .

LBG ENGINEERING SERVICES, P.C.

Meredith Honan  
Environmental Engineer

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Associate

Reviewed by:

William K. Beckman, P.E.  
Principal

MH:ng  
Enclosures  
cc: T. Gerrish, CH2M Hill  
M. Lucas, CH2M Hill  
P. McAndrew, Kraft  
J. Trad, NYSDEC

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**TABLE**

TABLE 1

**SOIL REMEDIAL ACTION  
SVE OPERATIONS AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

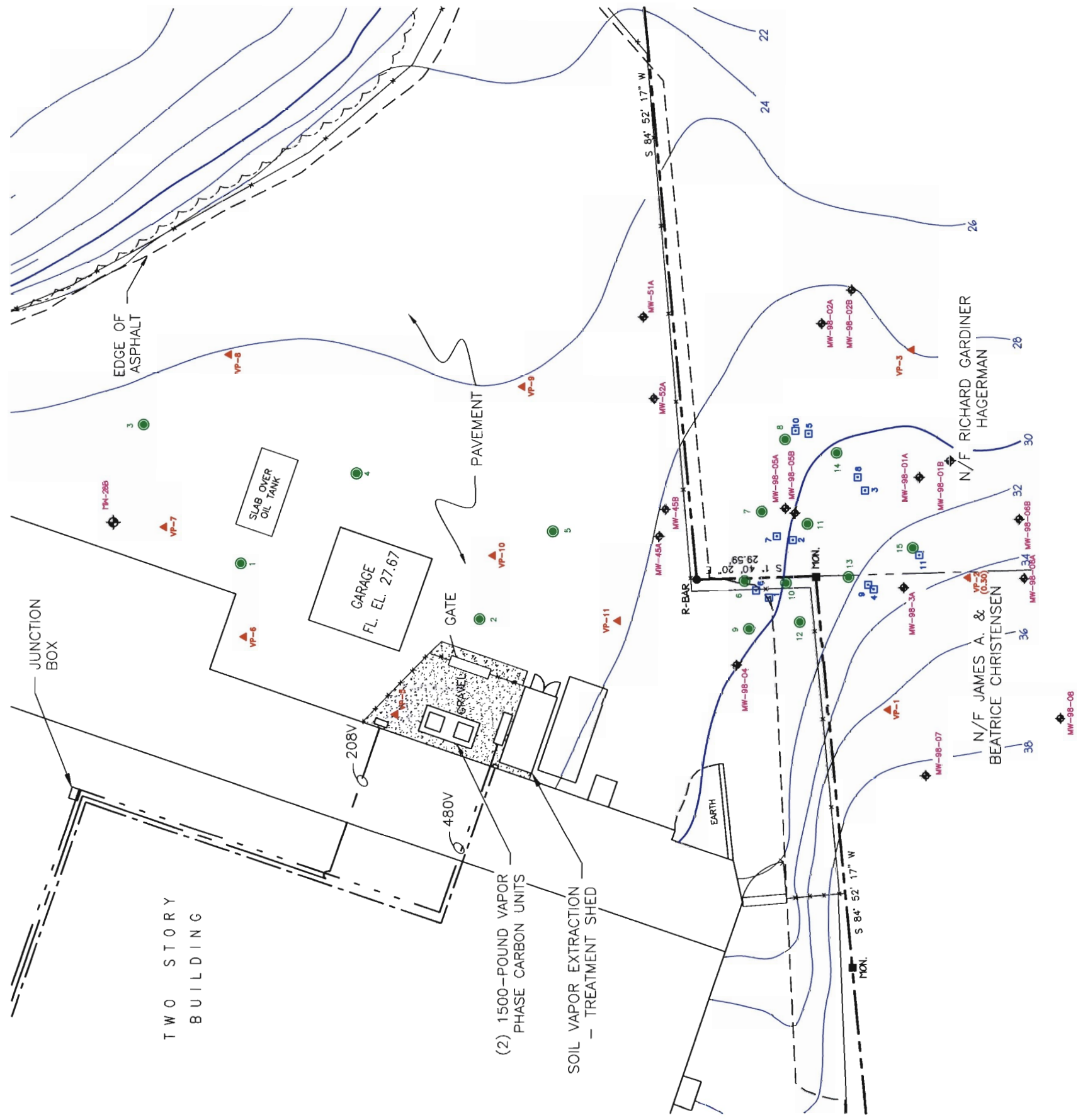
**SVE Well and Manifold Details**

| Source                   | Manifold | SVE Well | Screened Interval (ft bg) |
|--------------------------|----------|----------|---------------------------|
| Former Drum Storage Area | A        | 11       | 5 - 15                    |
|                          |          | 13       | 6.5 - 16.5                |
|                          |          | 15       | 7 - 17                    |
|                          | B        | 6        | 4 - 14                    |
|                          |          | 9        | 4.5 - 14.5                |
|                          |          | 12       | 6 - 16                    |
| Eastern Parking Lot      | C        | 7        | 4 - 14                    |
|                          |          | 8        | 4 - 14                    |
|                          |          | 10       | 5 - 15                    |
|                          |          | 14       | 5 - 15                    |
|                          | D        | 3        | 4.5 - 14.5                |
|                          |          | 4        | 4 - 14                    |
|                          | E        | 5        | 4.5 - 14.5                |
|                          |          | 1        | 5 - 15                    |
|                          |          | 2        | 6 - 16                    |

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## FIGURES



SOIL REMEDIATION ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK

SITE PLAN

| DATE   | REVISED | PREPARED BY:                                                     |
|--------|---------|------------------------------------------------------------------|
|        |         | LBG Engineering Services, P.C.                                   |
|        |         | Professional Ground-Water and Environmental Engineering Services |
|        |         | 126 Monroe Turnpike                                              |
|        |         | Trumbull, CT 06611                                               |
|        |         | (203) 452-3100                                                   |
| DRAWN: | TLC     | CHECKED: PJ                                                      |
|        |         | DATE: 11/17/99                                                   |
|        |         | FIGURE: 1                                                        |

LEGEND

PROPERTY BOUNDARY

CHAIN LINK FENCE

UNDERGROUND TELEPHONE

ABOVEGROUND TELEPHONE

208V ELECTRICAL CONDUIT

480V ELECTRICAL CONDUIT

SVE PIPING

SVE WELL

| MANIFOLD | WELLS        |
|----------|--------------|
| A        | 11, 13, 15   |
| B        | 6, 9, 12     |
| C        | 7, 8, 10, 14 |
| D        | 3, 4, 5      |
| E        | 1, 2         |



SOIL REMEDIATION ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK

SVE PIPING - AS-BUILT

DATE

REVISED

PREPARED BY:

LBG Engineering Services, P.C.  
Professional Ground-Water and Environmental Engineering Services  
126 Monroe Turnpike  
Trumbull, CT 06611  
(203) 452-3100

DRAWN:

TLC

CHECKED:

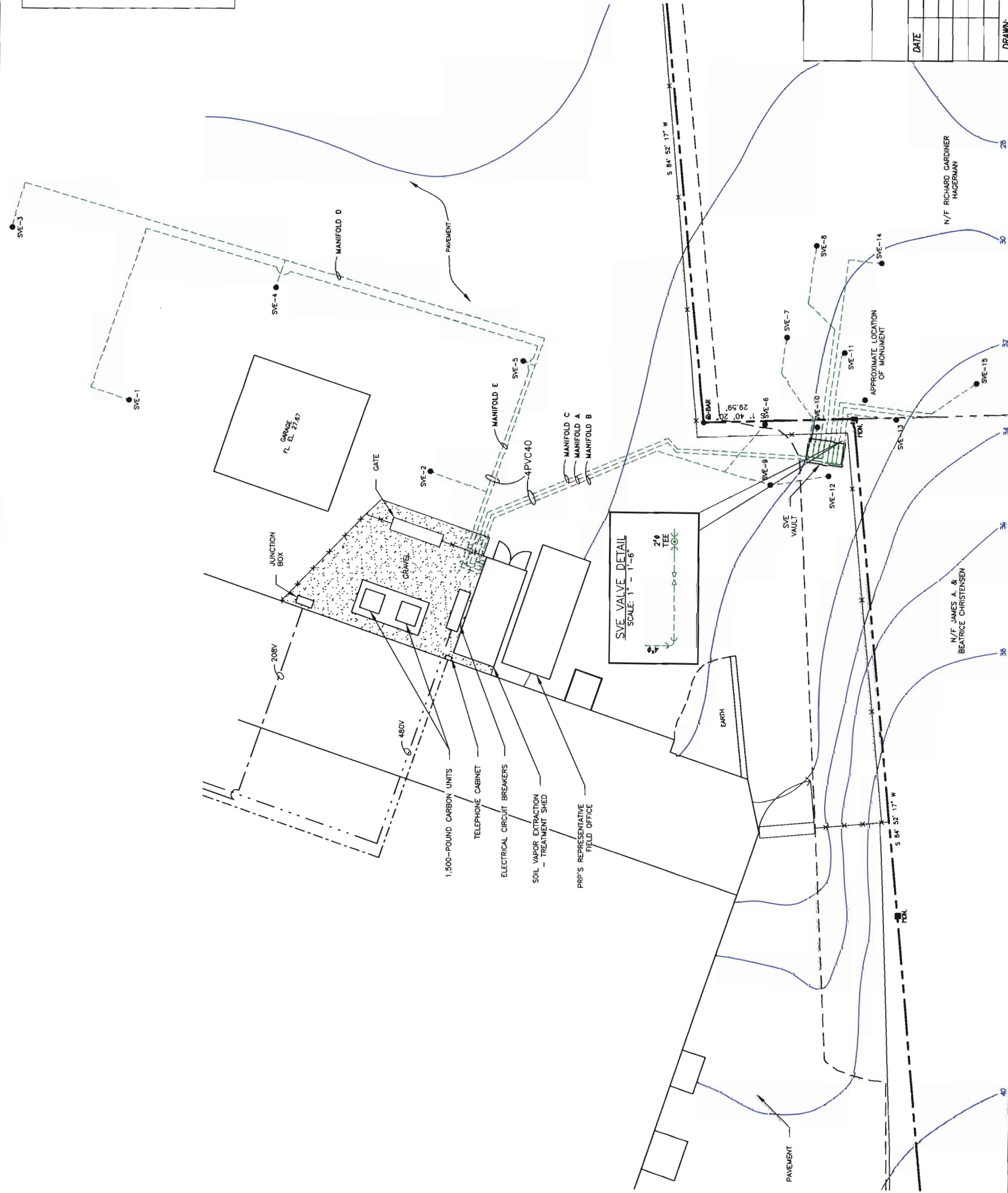
PJ

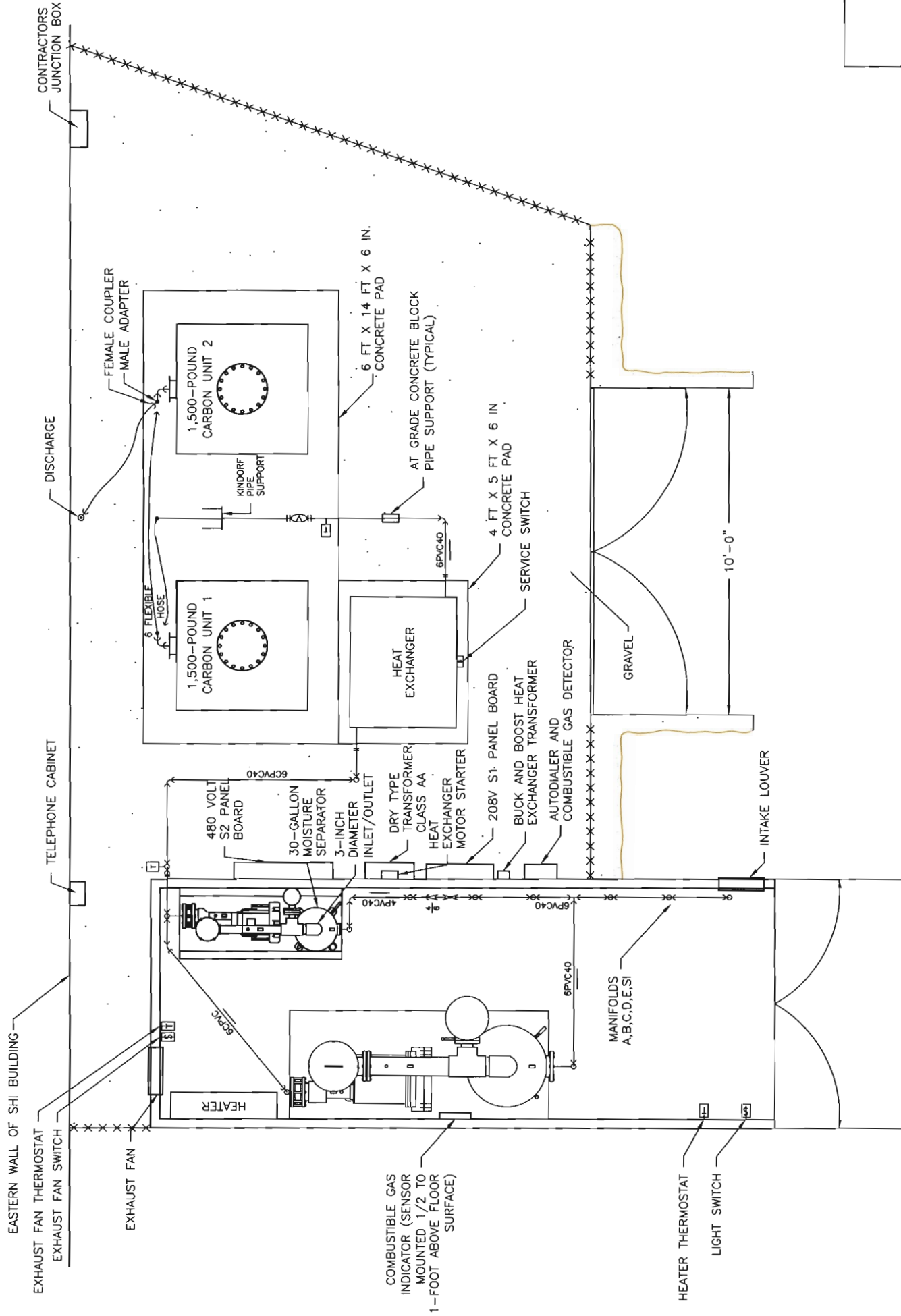
DATE:

11/17/99

FIGURE:

2





LEGEND

- FLANGED FLOW METER
- GLUED 90 DEGREE ELBOW
- TEMPERATURE GAUGE
- GLUED ELBOW (TURNED DOWN)
- GLUED TEE (OUTLET DOWN)
- GLUED 45 DEGREE ELBOW
- GLUED BALL VALVE
- GLUED REDUCER (CONCENTRIC)

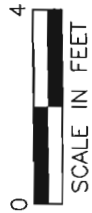
SOIL REMEDIATION ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK

TREATMENT SHED AND CARBON UNITS - PLAN VIEW

| DATE | REVISED | PREPARED BY:                                                     |
|------|---------|------------------------------------------------------------------|
|      |         | LBG Engineering Services, P.C.                                   |
|      |         | Professional Ground-Water and Environmental Engineering Services |
|      |         | 126 Monroe Turnpike                                              |
|      |         | Trumbull, CT 06611                                               |
|      |         | (203) 452-3100                                                   |



| DRAWN: | MRV | CHECKED: | PJ | DATE:   | FIGURE: |
|--------|-----|----------|----|---------|---------|
|        |     |          |    | 6/23/99 | 3       |



## GRAPHS

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**WEEKS 160 - 169 SUMMARY  
(10/31/2002 - 12/31/2002)**

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Graph 2 - Summary of Total VOCs From Active Manifold and to Vapor Treatment Units

**SOIL-VAPOR TREATMENT**

Graph 3 - PCE Concentrations from Pre-Carbon Air Stream

Graph 4 - PCE Concentrations from Mid-Carbon Air Stream

Graph 5 - Carbon Loading Summary For Weeks 160 - 169

**REMEDIATION MONITORING**

*Temperature*

Graph 6 - Temperature Measured at Sample Event

*Airflow*

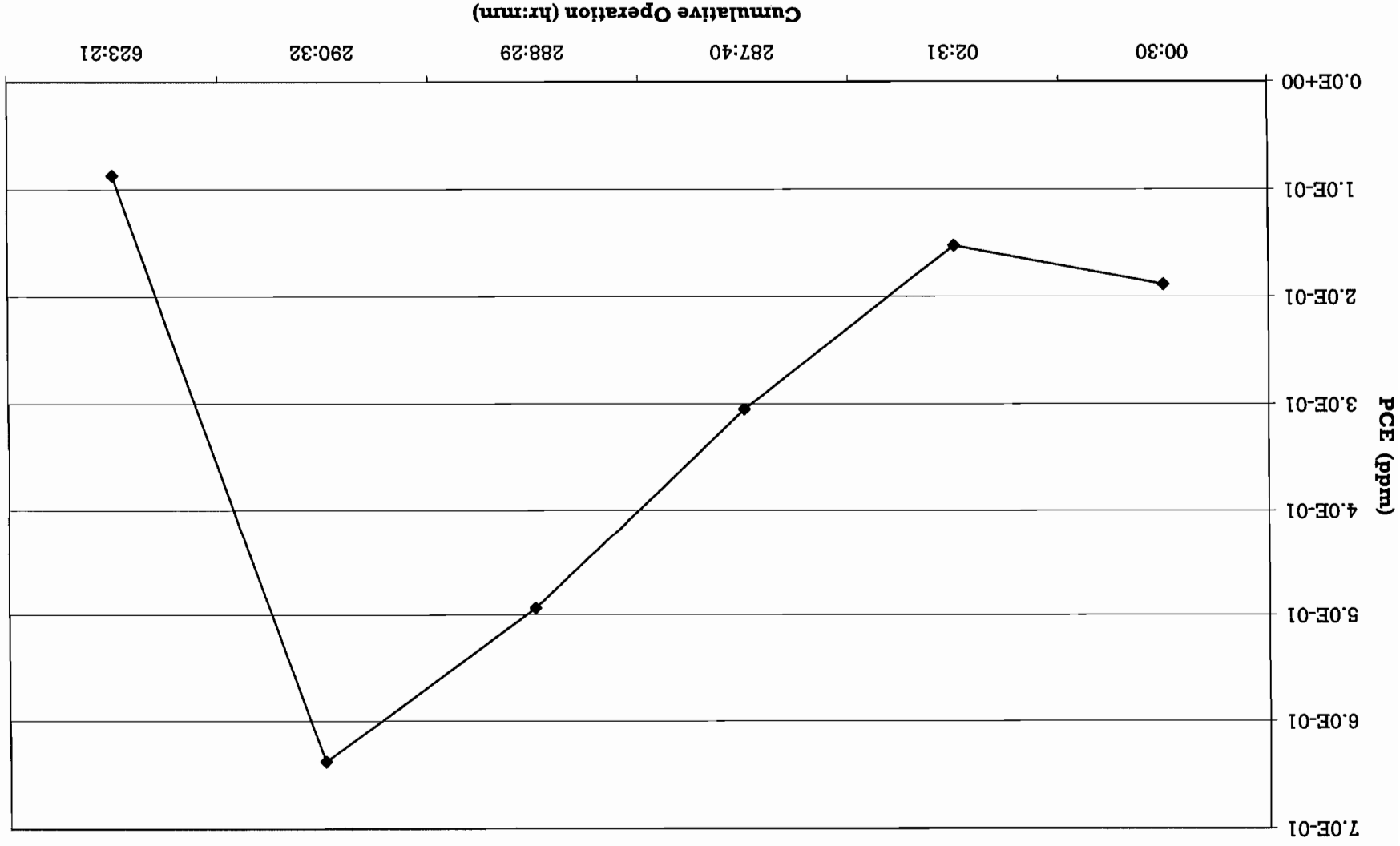
Graph 7 - Airflow Calculated Airflows of Sample Events

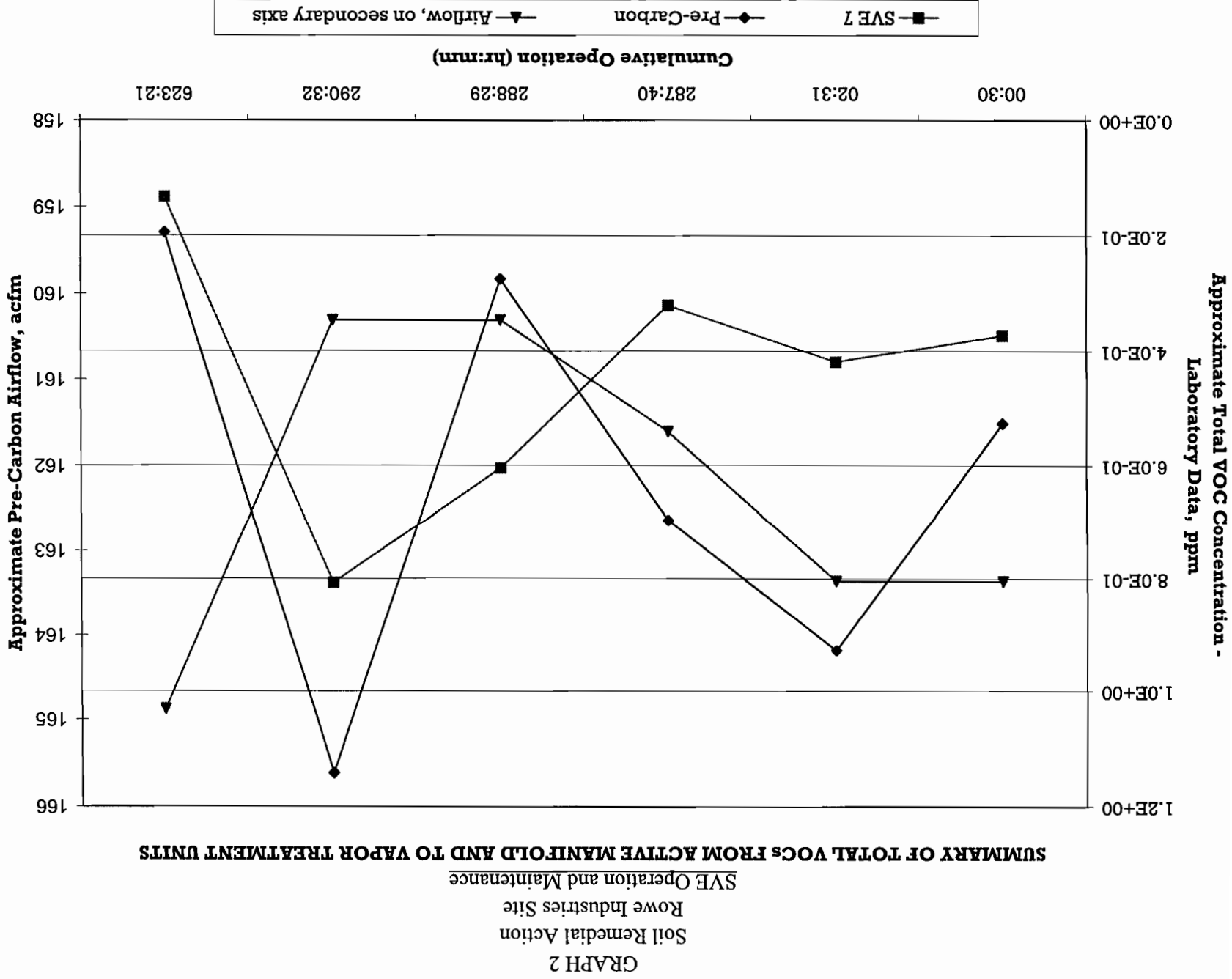
**LONG TERM SOIL-VAPOR TREATMENT MONITORING**

Graph 8 - Cumulative Mass of PCE/VOCs Recovered

Graph 9 - Carbon Loading Rates Since Interim O&M

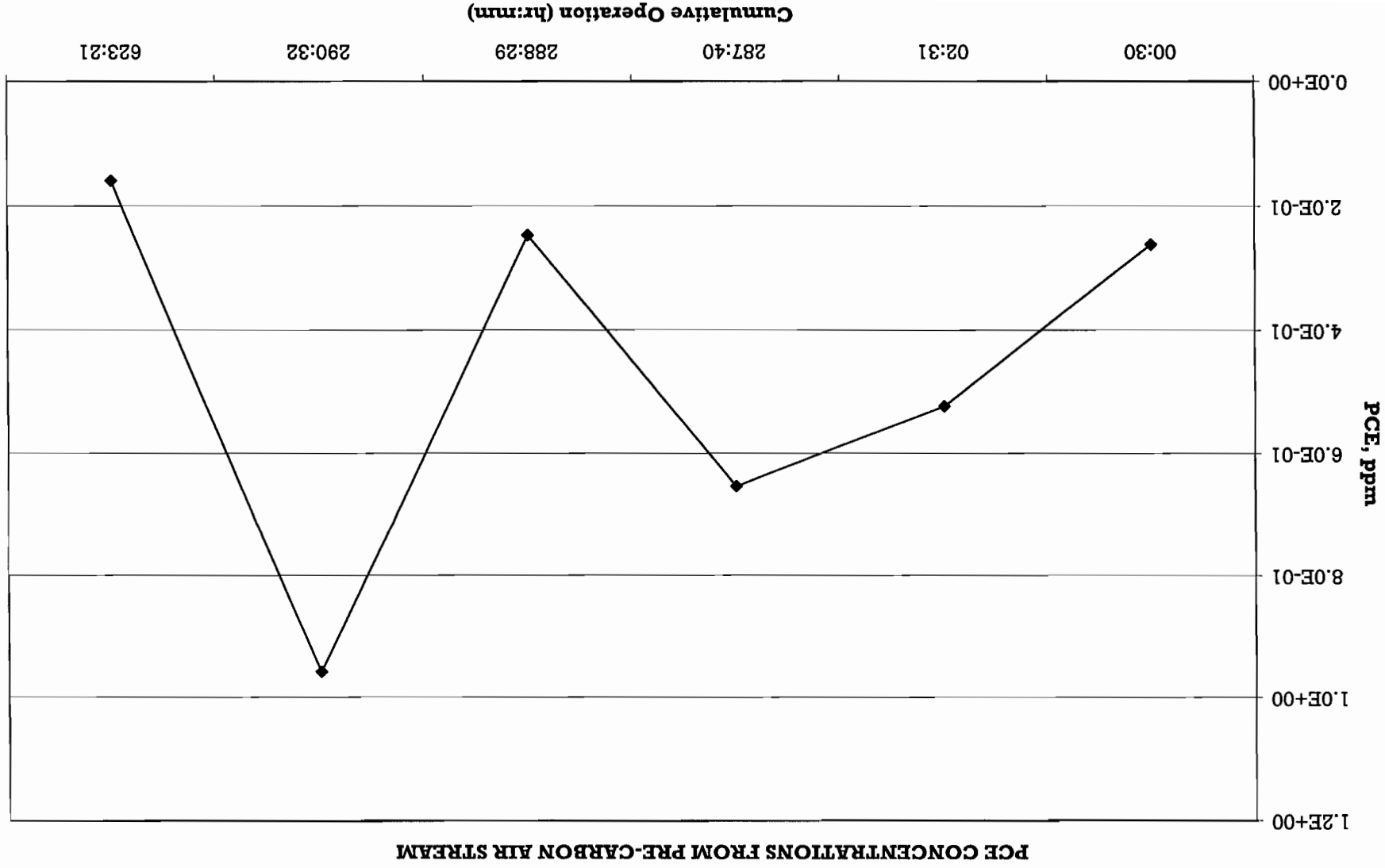
GRAPH 1  
Soil Remedial Action  
Rowe Industries Site  
SVE Operation and Maintenance  
PCE CONCENTRATIONS FROM SVE 7



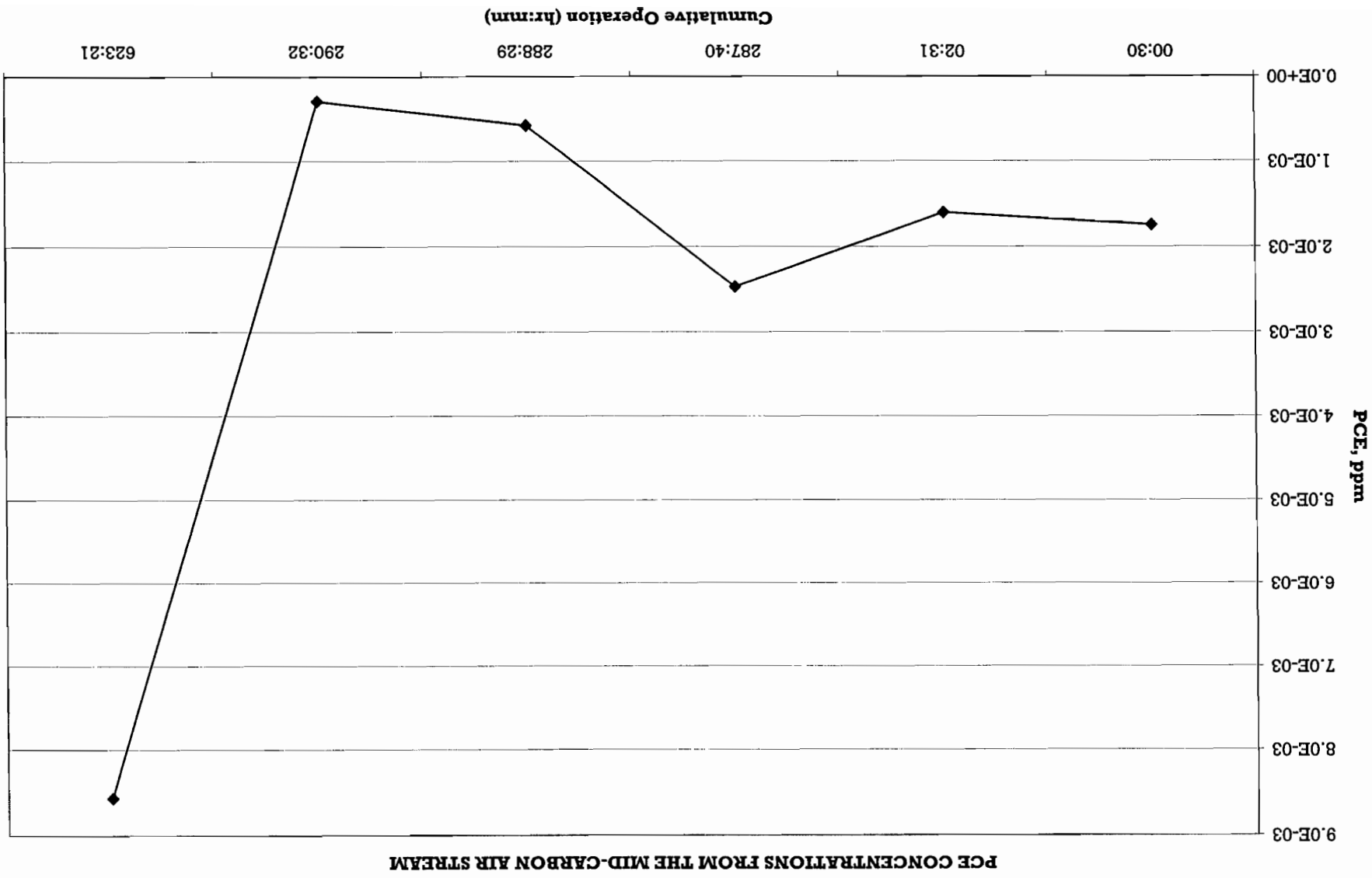




GRAPH 3  
Soil Remedial Action  
Rowe Industries Site  
SVE Operation and Maintenance

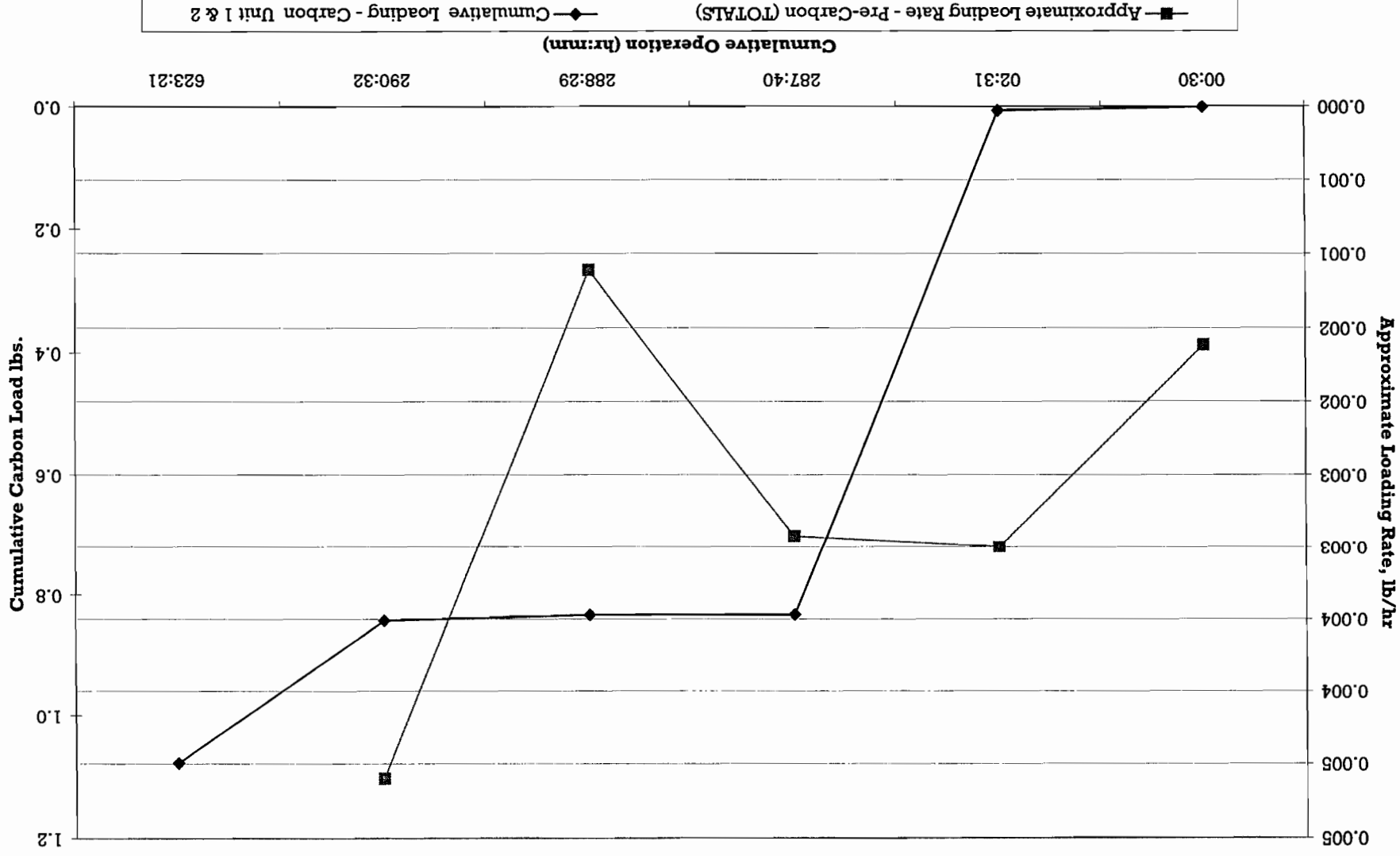


GRAPH 4  
 Soil Remedial Action  
 Rowe Industries Site  
 SVE Operation and Maintenance

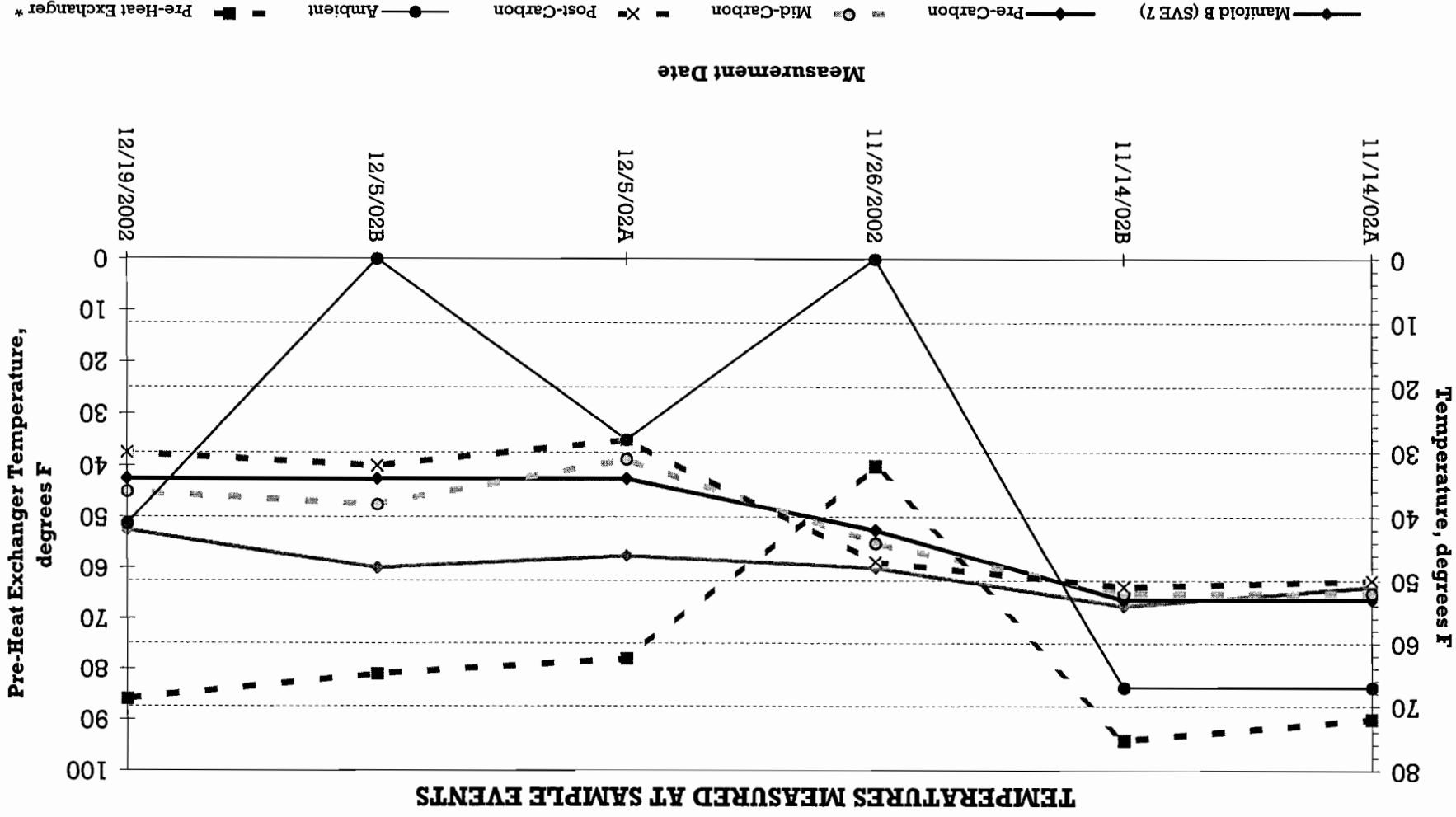


GRAPH 5  
Soil Remedial Action  
Rowe Industries Site  
SVE Operation and Maintenance

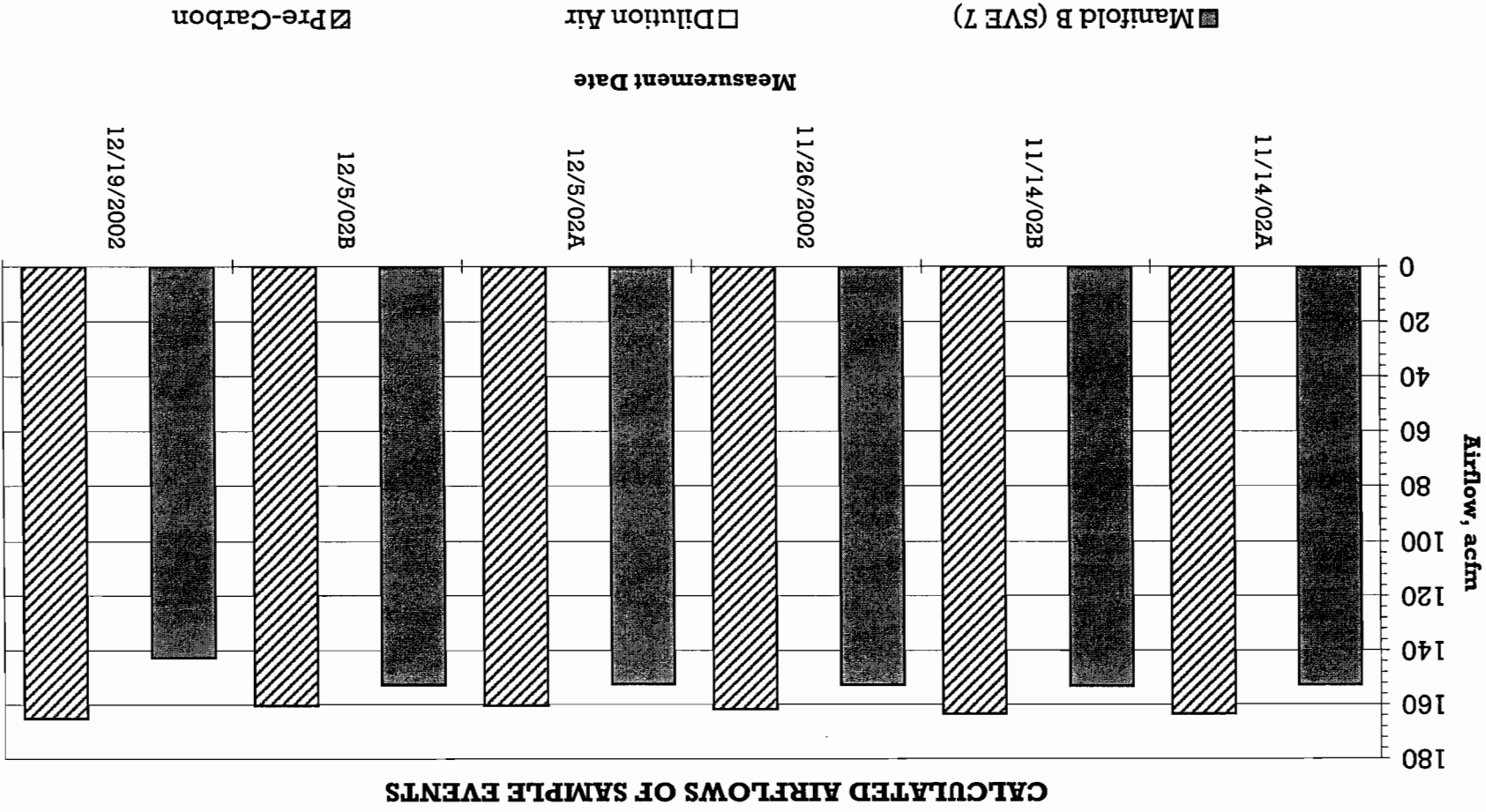
CARBON LOADING SUMMARY FOR WEEKS 160 - 167



GRAPH 6  
Soil Remedial Action  
Rowe Industries Site  
SVE Operation and Maintenance



GRAPH 7  
Soil Remedial Action  
Rowe Industries Site  
SVE Operation and Maintenance



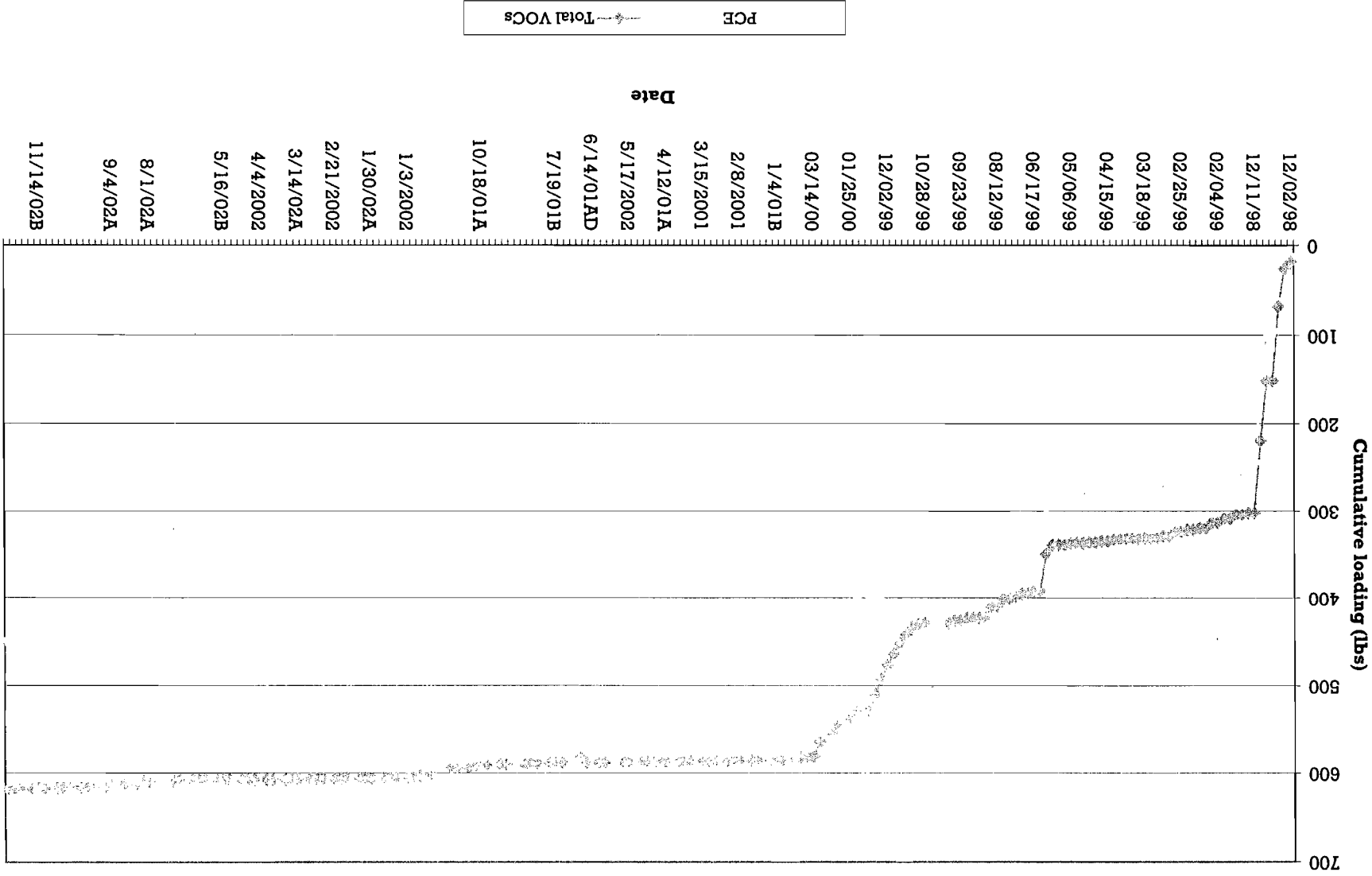
3/21/2003

Graph 8 - Airflow Summary

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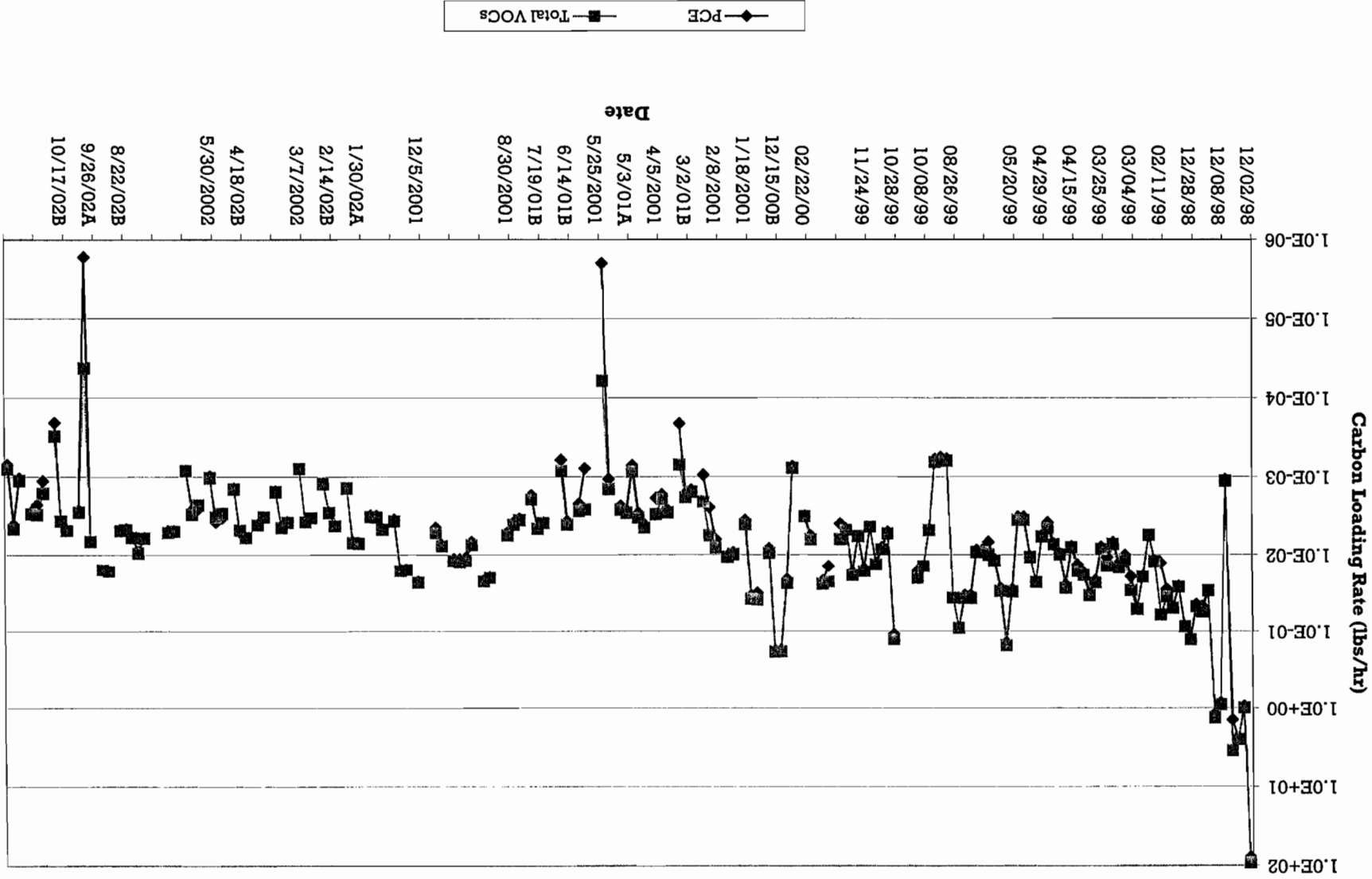
GRAPH 9  
Soil Remedial Action  
Rowe Industries Site  
SVE Operation and Maintenance

CUMULATIVE MASS OF PCE AND TOTAL VOCs REMOVED SINCE INTERIM O&M



GRAPH 9  
Soil Remedial Action  
Rowe Industries Site  
SVE Operation and Maintenance

CARBON LOADING RATE SINCE INTERIM O&M



**APPENDIX I**

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**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**WEEKS 160 - 169 SUMMARY  
(10/31/2002 - 12/31/2002)**

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**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**SUMMARY OF O&M ACTIVITIES FOR REPORTING PERIOD**

**Table Purpose:** *To present a summary of maintenance activities completed on the SVE system.*

| <b>Date</b> | <b>O&amp;M Activity</b>                            | <b>Comments</b>   |
|-------------|----------------------------------------------------|-------------------|
| 11/14/2002  | Start SVE System                                   | Switched to SVE 7 |
| 11/26/2002  | O&M Sampling and Monitoring<br>Shutdown SVE System |                   |
| 12/5/2002   | O&M Sampling and Monitoring<br>Start SVE System    |                   |
| 12/19/2002  | O&M Sampling and Monitoring<br>Shutdown SVE System |                   |
| 12/20/2002  | O&M Sampling and Monitoring<br>System Remained off |                   |
| 12/31/2002  | System Remained off                                |                   |

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**SVE SYSTEM OPERATION, MONITORING AND SAMPLING SCHEDULE**

*Table Purpose: To present sampling and measurement schedules for activities completed on the SVE system during Weeks 160-169*

| Event      |       | Time Interval (hh:mm) |        | Cum. Time in Reporting Period (hh:mm) |        | O&M Event           | Operating Conditions |
|------------|-------|-----------------------|--------|---------------------------------------|--------|---------------------|----------------------|
| Date       | Time  |                       |        |                                       |        |                     |                      |
| 11/14/2002 | 9:45  | -                     | -      | -                                     | -      | System Restart      | SVE 7                |
| 11/14/2002 | 10:15 | 00:30                 | 00:30  | 00:30                                 | 00:30  | 30 min Sample       |                      |
| 11/14/2002 | 12:16 | 02:01                 | 02:31  | 02:31                                 | 02:31  | 2 hr Sample         |                      |
| 11/26/2002 | 9:25  | 285:09                | 287:40 | 287:40                                | 287:40 | Shutdown Sample     |                      |
| 11/26/2002 | 9:40  | 00:15                 | 287:55 | 287:55                                | 287:55 | Shutdown System     |                      |
| 12/5/2002  | 8:00  | -                     | -      | -                                     | -      | System Restart      |                      |
| 12/5/2002  | 8:34  | 00:34                 | 288:29 | 288:29                                | 288:29 | 30 min Sample       |                      |
| 12/5/2002  | 10:37 | 02:03                 | 290:32 | 290:32                                | 290:32 | 2 hr Sample         |                      |
| 12/19/2002 | 7:26  | 332:49                | 623:21 | 623:21                                | 623:21 | Shutdown Sample     |                      |
| 12/19/2002 | 7:35  | 00:09                 | 623:30 | 623:30                                | 623:30 | Shutdown System     |                      |
| 12/20/2002 | -     | -                     | -      | -                                     | -      | System Remained Off |                      |
| 12/31/2002 | -     | -                     | -      | -                                     | -      | System Remained Off |                      |

SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK

SUMMARY OF ALARM CONDITIONS TRIGGERED DURING OPERATION

Table Purpose: To present a summary of alarm conditions triggered and corrective actions taken as a result, if any.

| Date                                                      | Alarm Acknowledged | Alarm Condition | Action | Cause of Alarm | System Restart Time |
|-----------------------------------------------------------|--------------------|-----------------|--------|----------------|---------------------|
| No alarm conditions occurred during this reporting period |                    |                 |        |                |                     |

| Alarm Conditions | Alarm Description                         | Alarm Trigger Setting           |
|------------------|-------------------------------------------|---------------------------------|
| 1                | High high moisture level, 20 HP separator | 13.5 " on sight glass           |
| 2                | High vacuum switch, 20 HP blower          | 85" of W.C. at blower inlet     |
| 3                | Thermal overload, 20 HP blower            | 18" of W.C. at blower outlet    |
| 4                | Low pressure switch, 20 HP blower         | 80 inches of W.C. at Pre-Carbon |
| 5                | High carbon back-pressure                 | 18%<br>13.5 " on sight glass    |
| 6                | Combustible gas indicator                 | 69" of W.C. at blower inlet     |
| 7                | High high moisture level, 3 HP separator  | 2.5" of W.C. at blower outlet   |
| 8                | High vacuum switch, 3 HP blower           | Zero seconds                    |
| 9                | Thermal overload, 3 HP blower             |                                 |
| 10               | Low pressure switch, 3 HP blower          |                                 |
| 11               | Power to system interrupted               |                                 |

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**AIR QUALITY DATA - MANIFOLD C (SMP 3) (mg/m<sup>3</sup>)**  
**Table Purpose: To present laboratory results of air samples collected at the Manifold C sample location.**

| Week | Sample Date | Sample Time | PCE<br>(mg/m <sup>3</sup> ) | DCE<br>(mg/m <sup>3</sup> ) | CHLM<br>(mg/m <sup>3</sup> ) | MC<br>(mg/m <sup>3</sup> ) | TCA<br>(mg/m <sup>3</sup> ) | TCE<br>(mg/m <sup>3</sup> ) | Benzene<br>(mg/m <sup>3</sup> ) | Toluene<br>(mg/m <sup>3</sup> ) | mcp-Xylene<br>(mg/m <sup>3</sup> ) | o-Xylene<br>(mg/m <sup>3</sup> ) | TOTAL VOCs<br>(mg/m <sup>3</sup> ) |
|------|-------------|-------------|-----------------------------|-----------------------------|------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|------------------------------------|----------------------------------|------------------------------------|
| 161  | 11/14/02A   | 10:15       | 1.3E+00                     | 3.0E-02                     | 2.6E-01                      | ND                         | 1.4E-01                     | 1.4E-01                     | ND                              | 3.0E-02                         | ND                                 | ND                               | 1.9E+00                            |
| 163  | 11/26/2002  | 9:25        | 2.1E+00                     | ND                          | ND                           | ND                         | 8.0E-02                     | ND                          | ND                              | ND                              | ND                                 | ND                               | 2.2E+00                            |
| 166  | 12/6/02A    | 8:34        | 3.4E+00                     | ND                          | ND                           | 2.0E-02                    | 2.3E-01                     | 1.2E-01                     | 5.0E-02                         | 8.0E-02                         | 2.0E-02                            | ND                               | 3.9E+00                            |
| 167  | 12/19/2002  | 7:26        | 6.0E-01                     | ND                          | ND                           | 2.0E-02                    | 4.4E-02                     | 4.4E-02                     | 1.2E-02                         | 4.0E-02                         | 2.4E-02                            | 1.2E-02                          | 8.0E-01                            |

1ppm = X mg/m<sup>3</sup> (NIOSH)

|                                        |      |                                   |      |
|----------------------------------------|------|-----------------------------------|------|
| PCE- TETRACHLOROETHYLENE               | 6.89 | TCA - 1,1,1-TRICHLOROETHANE       | 5.55 |
| CHLM - CHLOROMETHANE                   | 2.07 | BENZENE                           | 3.19 |
| MC - METHYLENE CHLORIDE                | 3.53 | TOLUENE                           | 3.77 |
| CD - CARBON DISULFIDE                  | 3.11 | EB - ETHYLBENZENE                 | 4.41 |
| DCE - 1,1-DICHLOROETHENE               | 4.03 | XYLENES                           | 4.34 |
| DCA - 1,1-DICHLOROETHANE               | 4.05 | STYRENE                           | 4.26 |
| 1,2-DCA - 1,2-DICHLOROETHANE           | 4.05 | BM - BROMOMETHANE                 | 3.89 |
| cis-DCE - 1,2-DICHLOROETHENE (cis)     | 3.97 | TCE - TRICHLOROETHENE             | 5.4  |
| 1,1,2,2-TRICHLOROETHANE                | 5.46 | CF - CHLOROFORM                   | 4.88 |
| trans-DCE - 1,2-DICHLOROETHENE (trans) | 3.97 | CT - CARBON TETRACHLORIDE         | 6.29 |
| CB - CHLOROBENZENE                     | 4.61 | TDCEP - trans-1,3-DICHLOROPROPENE | 4.54 |
| 1,1,2,2-TETRACHLOROETHANE              | 6.87 | VC - VINYL CHLORIDE               | 2.56 |
| CE - CHLOROETHANE                      | 2.64 |                                   |      |

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**AIR QUALITY DATA - MANIFOLD C (SMP 3) (ppm)**

*Table Purpose: To present laboratory results of air samples collected at the Manifold C sample location.*

| Week | Sample Date | Sample Time | PCE (ppm) | DCE (ppm) | CHLM (ppm) | MC (ppm) | TCA (ppm) | TCE (ppm) | Benzene (ppm) | Toluene (ppm) | m&tp-Xylene (ppm) | o-Xylene (ppm) | TOTAL VOCs (ppm) |
|------|-------------|-------------|-----------|-----------|------------|----------|-----------|-----------|---------------|---------------|-------------------|----------------|------------------|
| 161  | 11/14/02A   | 10:15       | 1.9E-01   | 1.5E-01   | 1.3E-01    | ND       | 2.4E-02   | 2.6E-02   | ND            | 8.0E-03       | ND                | ND             | 3.7E-01          |
| 161  | 11/14/02B   | 12:16       | 1.5E-01   | 7.4E-03   | 1.3E-01    | 6.5E-02  | 3.6E-02   | 9.3E-03   | 4.7E-03       | 1.3E-02       | ND                | ND             | 4.2E-01          |
| 163  | 11/26/2002  | 9:26        | 3.0E-01   | ND        | ND         | ND       | 1.5E-02   | ND        | ND            | ND            | ND                | ND             | 3.2E-01          |
| 163  | 12/5/02A    | 8:34        | 4.9E-01   | 6.4E-01   | ND         | 5.7E-03  | 4.1E-02   | 2.2E-02   | 1.6E-02       | 2.1E-02       | 4.6E-03           | ND             | 6.0E-01          |
| 165  | 12/5/02B    | 10:37       | ND        | ND        | ND         | 5.7E-03  | 9.4E-02   | 2.2E-02   | 2.5E-02       | 2.1E-02       | ND                | ND             | 8.1E-01          |
| 167  | 12/19/2002  | 7:26        | 8.7E-02   | ND        | ND         | 5.7E-03  | 7.9E-03   | 8.1E-03   | 3.8E-03       | 1.1E-02       | 5.5E-03           | 2.8E-03        | 1.3E-01          |

1ppm = X mg/m<sup>3</sup> (NIOSH)

1ppm = X mg/m<sup>3</sup> (NIOSH)

|                                        |      |                                  |      |
|----------------------------------------|------|----------------------------------|------|
| PCE- TETRACHLOROETHYLENE               | 6.89 | TCA - 1,1,1-TRICHLOROETHANE      | 5.55 |
| CHLM - CHLOROMETHANE                   | 2.07 | BENZENE                          | 3.19 |
| MC - METHYLENE CHLORIDE                | 3.53 | TOLUENE                          | 3.77 |
| CD - CARBON DISULFIDE                  | 3.11 | EB - ETHYLBENZENE                | 4.41 |
| DCE - 1,1-DICHLOROETHENE               | 4.03 | XYLENES                          | 4.34 |
| DCA - 1,1-DICHLOROETHANE               | 4.05 | STYRENE                          | 4.26 |
| 1,2-DCA - 1,2-DICHLOROETHANE           | 4.05 | BM - BROMOMETHANE                | 3.89 |
| cis-DCE - 1,2-DICHLOROETHENE (cis)     | 3.97 | TCE - TRICHLOROETHENE            | 5.4  |
| 1,1,2,2-TRICHLOROETHANE                | 5.46 | CF - CHLOROFORM                  | 4.88 |
| trans-DCE - 1,2-DICHLOROETHENE (trans) | 3.97 | CT - CARBON TETRACHLORIDE        | 6.29 |
| CB - CHLOROBENZENE                     | 4.61 | TDCP - trans-1,3-DICHLOROPROPENE | 4.54 |
| 1,1,2,2-TRICHLOROETHANE                | 6.87 | VC - VINYL CHLORIDE              | 2.56 |
| CE - CHLOROETHANE                      | 2.64 |                                  |      |

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAC HARBOR, NEW YORK**

**AIR QUALITY DATA - PRE-CARBON (SMP 7) (mg/m<sup>3</sup>)**

*Table Purpose: To present laboratory results of air samples collected at the pre-carbon sample location.*

| Week | Sample Date | Sample Time | PCE<br>(mg/m <sup>3</sup> ) | CHLM<br>(mg/m <sup>3</sup> ) | MC<br>(mg/m <sup>3</sup> ) | TCA<br>(mg/m <sup>3</sup> ) | TCE<br>(mg/m <sup>3</sup> ) | Benzene<br>(mg/m <sup>3</sup> ) | Toluene<br>(mg/m <sup>3</sup> ) | mckp-xylenes<br>(mg/m <sup>3</sup> ) | o-xylenes<br>(mg/m <sup>3</sup> ) | TOTAL VOCs<br>(mg/m <sup>3</sup> ) |
|------|-------------|-------------|-----------------------------|------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|--------------------------------------|-----------------------------------|------------------------------------|
| 161  | 11/14/02A   | 10:17       | 1.8E+00                     | 3.9E-01                      | ND                         | 1.7E-01                     | 1.7E-01                     | 3.0E-02                         | 2.0E-02                         | ND                                   | ND                                | 2.6E+00                            |
|      | 11/14/02B   | 12:17       | 3.6E+00                     | 6.2E-01                      | ND                         | 4.6E-01                     | 1.2E-01                     | ND                              | ND                              | ND                                   | ND                                | 4.8E+00                            |
| 163  | 11/26/2002  | 9:28        | 4.5E+00                     | ND                           | ND                         | 1.1E-01                     | 1.2E-01                     | ND                              | ND                              | ND                                   | ND                                | 4.7E+00                            |
|      | 12/5/02A    | 8:34        | 1.7E+00                     | ND                           | ND                         | ND                          | 4.0E-02                     | 4.0E-02                         | 3.0E-02                         | ND                                   | ND                                | 1.8E+00                            |
| 165  | 12/5/02B    | 10:39       | 6.6E+00                     | ND                           | 2.0E-02                    | 5.4E-01                     | 1.8E-01                     | 6.0E-02                         | 6.0E-02                         | ND                                   | ND                                | 7.5E+00                            |
| 167  | 12/19/2002  | 7:27        | 1.1E+00                     | ND                           | ND                         | ND                          | 6.0E-02                     | 3.0E-02                         | ND                              | 4.0E-02                              | 2.0E-02                           | 1.3E+00                            |

1ppm = X mg/m<sup>3</sup> (NIOSH)

1ppm = X mg/m<sup>3</sup> (NIOSH)

PCE- TETRACHLOROETHYLENE  
CHLM - CHLOROMETHANE  
MC - METHYLENE CHLORIDE  
CD - CARBON DISULFIDE  
DCE - 1,1-DICHLOROETHENE  
DCA - 1,1-DICHLOROETHANE  
1,2-DCA - 1,2-DICHLOROETHANE  
cis-DCE - 1,2-DICHLOROETHENE (cis)  
1,1,2-TCF - 1,1,2-TRICHLOROETHANE  
trans-DCE - 1,2-DICHLOROETHENE (trans)  
CB - CHLOROBENZENE  
1,1,2,2-TETRACHLOROETHANE  
CE - CHLOROETHANE

TCA - 1,1,1-TRICHLOROETHANE  
BENZENE  
TOLUENE  
EB - ETHYLBENZENE  
XYLENES  
STYRENE  
BM - BROMOMETHANE  
TCE - TRICHLOROETHENE  
CF - CHLOROFORM  
CT - CARBON TETRACHLORIDE  
TDCP - trans-1,3-DICHLOROPROPENE  
VC - VINYL CHLORIDE

5.55  
3.19  
3.77  
4.41  
4.34  
4.26  
3.89  
5.4  
4.88  
6.29  
4.54  
2.56

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**AIR QUALITY DATA - PRE-CARBON (SMP 7) (ppm)**

**Table Purpose:** To present laboratory results of air samples collected at the pre-carbon sample location converted to units of parts per million.

| Week | Sample Date | Sample Time | PCE<br>(ppm) | CHLM<br>(ppm) | MC<br>(ppm) | TCA<br>(ppm) | TCE<br>(ppm) | Benzene<br>(ppm) | Toluene<br>(ppm) | mckp xylenes<br>(ppm) | o-xylenes<br>(ppm) | TOTAL VOCs<br>(ppm) |
|------|-------------|-------------|--------------|---------------|-------------|--------------|--------------|------------------|------------------|-----------------------|--------------------|---------------------|
| 161  | 11/14/02A   | 10:17       | 2.6E-01      | 1.9E-01       | ND          | 3.1E-02      | 3.1E-02      | 9.4E-03          | 5.3E-03          | ND                    | ND                 | 5.3E-01             |
| 161  | 11/14/02B   | 12:17       | 5.2E-01      | 3.0E-01       | ND          | 8.3E-02      | 2.2E-02      | ND               | ND               | ND                    | ND                 | 9.3E-01             |
| 163  | 11/26/2002  | 9:28        | 6.5E-01      | ND            | ND          | 2.0E-02      | 2.2E-02      | ND               | ND               | ND                    | ND                 | 7.0E-01             |
| 165  | 12/5/02A    | 8:34        | 2.5E-01      | ND            | ND          | 9.7E-03      | 7.4E-03      | 1.3E-02          | 8.0E-03          | ND                    | ND                 | 2.7E-01             |
| 165  | 12/5/02B    | 10:39       | 9.6E-01      | ND            | ND          | 5.7E-03      | 3.3E-02      | 3.1E-02          | 1.6E-02          | ND                    | ND                 | 1.1E+00             |
| 167  | 12/19/2002  | 7:27        | 1.6E-01      | ND            | ND          | ND           | 1.1E-02      | 9.4E-03          | ND               | 9.2E-03               | 4.6E-03            | 1.9E-01             |

1 ppm = X mg/m<sup>3</sup> (NIOSH)

1 ppm = X mg/m<sup>3</sup> (NIOSH)

|                                        |      |                                  |      |
|----------------------------------------|------|----------------------------------|------|
| PCE- TETRACHLOROETHYLENE               | 6.89 | TCA - 1,1,1-TRICHLOROETHANE      | 5.55 |
| CHLM - CHLOROMETHANE                   | 2.07 | BENZENE                          | 3.19 |
| MC - METHYLENE CHLORIDE                | 3.53 | TOLUENE                          | 3.77 |
| CD - CARBON DISULFIDE                  | 3.11 | EB - ETHYLBENZENE                | 4.41 |
| DCE - 1,1-DICHLOROETHENE               | 4.03 | XYLENES                          | 4.34 |
| DCA - 1,1-DICHLOROETHANE               | 4.05 | STYRENE                          | 4.26 |
| 1,2-DCA - 1,2-DICHLOROETHANE           | 4.05 | BM - BROMOMETHANE                | 3.89 |
| cis-DCE - 1,2-DICHLOROETHENE (cis)     | 3.97 | TCE - TRICHLOROETHENE            | 5.4  |
| 112TCA - 1,1,2-TRICHLOROETHANE         | 5.46 | CF - CHLOROFORM                  | 4.88 |
| trans-DCE - 1,2-DICHLOROETHENE (trans) | 3.97 | CT - CARBON TETRACHLORIDE        | 6.29 |
| CB - CHLOROBENZENE                     | 4.61 | TDCE - trans-1,3-DICHLOROPROPENE | 4.54 |
| 1122PCE - 1,1,2,2-TETRACHLOROETHANE    | 6.87 | VC - VINYL CHLORIDE              | 2.56 |
| CE - CHLOROETHANE                      | 2.64 |                                  |      |



**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**AIR QUALITY DATA -MID-CARBON (SMP 8) (mg/m<sup>3</sup>)**

*Table Purpose: To present laboratory results of air samples collected at the mid-carbon sample location.*

| Week | Sample Date | Sample Time | PCE     | MC      | CHLM    | TCA     | TCE     | Benzene | Toluene | m&P-Xylene | TOTAL VOCs |
|------|-------------|-------------|---------|---------|---------|---------|---------|---------|---------|------------|------------|
| 161  | 11/14/02A   | 10:19       | 1.2E-02 | 1.6E-02 | 4.6E-02 | 2.5E-02 | ND      | 3.0E-03 | 1.6E-02 | ND         | 1.2E-01    |
|      | 11/14/02B   | 12:18       | 1.1E-02 | 1.5E-02 | 4.2E-02 | 2.7E-02 | ND      | 4.0E-03 | 2.1E-02 | ND         | 1.2E-01    |
| 163  | 11/26/2002  | 9:31        | 1.7E-02 | 1.4E-02 | ND      | 5.4E-02 | ND      | ND      | 4.0E-02 | ND         | 1.3E-01    |
|      | 12/5/02A    | 8:36        | 4.0E-03 | 1.7E-02 | ND      | 3.5E-02 | ND      | 5.0E-03 | 1.6E-02 | ND         | 7.7E-02    |
| 166  | 12/5/02B    | 10:40       | 2.0E-03 | 5.0E-02 | ND      | 3.3E-02 | ND      | 8.0E-03 | 2.4E-02 | 4.0E-03    | 1.2E-01    |
| 167  | 12/19/2002  | 7:28        | 5.9E-02 | 1.6E-02 | ND      | 3.8E-02 | 1.2E-02 | 4.0E-03 | 3.1E-02 | ND         | 1.6E-01    |

1 ppm = X mg/m<sup>3</sup> (NIOSH)

|                                         |      |                                  |      |
|-----------------------------------------|------|----------------------------------|------|
| PCE- TETRACHLOROETHYLENE                | 6.89 | TCA - 1,1,1-TRICHLOROETHANE      | 5.55 |
| CHLM - CHLOROMETHANE                    | 2.07 | BENZENE                          | 3.19 |
| MC - METHYLENE CHLORIDE                 | 3.53 | TOLUENE                          | 3.77 |
| CD - CARBON DISULFIDE                   | 3.11 | EB - ETHYLBENZENE                | 4.41 |
| DCE - 1,1-DICHLOROETHENE                | 4.03 | XYLENES                          | 4.34 |
| DCA - 1,1-DICHLOROETHANE                | 4.05 | STYRENE                          | 4.26 |
| 1,2-DCA - 1,2-DICHLOROETHANE            | 4.05 | BM - BROMOMETHANE                | 3.89 |
| cis-DCE - 1,2-DICHLOROETHENE (cis)      | 3.97 | TCE - TRICHLOROETHENE            | 5.4  |
| 1,1,2-TCF - 1,1,2-TRICHLOROETHANE       | 5.46 | CF - CHLOROFORM                  | 4.88 |
| trans-DCE - 1,2-DICHLOROETHENE (trans)  | 3.97 | CT - CARBON TETRACHLORIDE        | 6.29 |
| CB - CHLOROBENZENE                      | 4.61 | TDCE - trans-1,3-DICHLOROPROPENE | 4.54 |
| 1,1,2,2-TCF - 1,1,2,2-TETRACHLOROETHANE | 6.87 | VC - VINYL CHLORIDE              | 2.56 |
| CE - CHLOROETHANE                       | 2.64 |                                  |      |

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**AIR QUALITY DATA -MID-CARBON (SMP 8) (ppm)**

**Table Purpose: To present laboratory results of air samples collected at the mid-carbon sample location converted to units of parts per million.**

| Week | Sample Date | Sample Time | PCE (ppm) | MC (ppm) | CHLM (ppm) | TCA (ppm) | TCE (ppm) | Benzene (ppm) | Toluene (ppm) | mCp-Xylene (ppm) | TOTAL VOCs (ppm) |
|------|-------------|-------------|-----------|----------|------------|-----------|-----------|---------------|---------------|------------------|------------------|
| 161  | 11/14/02A   | 10:19       | 1.7E-03   | 4.5E-03  | 2.2E-02    | 4.5E-03   | ND        | 9.4E-04       | 4.2E-03       | ND               | 3.8E-02          |
|      | 11/14/02B   | 12:18       | 1.6E-03   | 4.2E-03  | 2.0E-02    | 4.9E-03   | ND        | 1.3E-03       | 5.6E-03       | ND               | 3.8E-02          |
| 163  | 11/26/2002  | 9:31        | 2.5E-03   | 4.0E-03  | ND         | 9.7E-03   | ND        | ND            | 1.1E-02       | ND               | 2.7E-02          |
|      | 12/6/02A    | 8:36        | 5.8E-04   | 4.8E-03  | ND         | 6.3E-03   | ND        | 1.6E-03       | 4.2E-03       | ND               | 1.8E-02          |
| 165  | 12/6/02B    | 10:40       | 2.9E-04   | 1.4E-02  | ND         | 5.9E-03   | ND        | 2.5E-03       | 6.4E-03       | 9.2E-04          | 3.0E-02          |
| 167  | 12/19/2002  | 7:28        | 8.6E-03   | 4.5E-03  | ND         | 6.8E-03   | 2.2E-03   | 1.3E-03       | 8.2E-03       | ND               | 3.2E-02          |

1 ppm = X mg/m<sup>3</sup> (NIOSH)

1 ppm = X mg/m<sup>3</sup> (NIOSH)

|                                        |      |
|----------------------------------------|------|
| PCE- TETRACHLOROETHYLENE               | 6.89 |
| CHLM - CHLOROMETHANE                   | 2.07 |
| MC - METHYLENE CHLORIDE                | 3.53 |
| CD - CARBON DISULFIDE                  | 3.11 |
| DCE - 1,1-DICHLOROETHENE               | 4.03 |
| DCA - 1,1-DICHLOROETHANE               | 4.05 |
| 1,2-DCA - 1,2-DICHLOROETHANE           | 4.05 |
| cis-DCE - 1,2-DICHLOROETHENE (cis)     | 3.97 |
| 1,1,2-TRICHLOROETHANE                  | 5.46 |
| trans-DCE - 1,2-DICHLOROETHENE (trans) | 3.97 |
| CB - CHLOROBENZENE                     | 4.61 |
| 1,1,2,2-TETRACHLOROETHANE              | 6.87 |
| CE - CHLOROETHANE                      | 2.64 |

|                                  |      |
|----------------------------------|------|
| TCA - 1,1,1-TRICHLOROETHANE      | 5.55 |
| BENZENE                          | 3.19 |
| TOLUENE                          | 3.77 |
| EB - ETHYLBENZENE                | 4.41 |
| XYLENES                          | 4.34 |
| STYRENE                          | 4.26 |
| BM - BROMOMETHANE                | 3.89 |
| TCE - TRICHLOROETHENE            | 5.4  |
| CF - CHLOROFORM                  | 4.88 |
| CT - CARBON TETRACHLORIDE        | 6.29 |
| TDCP - trans-1,3-DICHLOROPROPENE | 4.54 |
| VC - VINYL CHLORIDE              | 2.56 |

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**AIR QUALITY DATA - POST-CARBON (SMP 9) (mg/m<sup>3</sup>)**

*Table Purpose: To present laboratory results of air samples collected at the post-carbon sample location.*

| Week | Sample Date | Sample Time | PCE<br>(mg/m <sup>3</sup> ) | CHLM<br>(mg/m <sup>3</sup> ) | MC<br>(mg/m <sup>3</sup> ) | TCE<br>(mg/m <sup>3</sup> ) | TCA<br>(mg/m <sup>3</sup> ) | Benzene<br>(mg/m <sup>3</sup> ) | Toluene<br>(mg/m <sup>3</sup> ) | EB<br>(mg/m <sup>3</sup> ) | m&p-Xylene<br>(mg/m <sup>3</sup> ) | o-Xylene<br>(mg/m <sup>3</sup> ) | CD<br>(mg/m <sup>3</sup> ) | TOTAL VOCS<br>(mg/m <sup>3</sup> ) |
|------|-------------|-------------|-----------------------------|------------------------------|----------------------------|-----------------------------|-----------------------------|---------------------------------|---------------------------------|----------------------------|------------------------------------|----------------------------------|----------------------------|------------------------------------|
| 161  | 11/14/02A   | 10:20       | ND                          | 5.0E-02                      | 2.0E-02                    | ND                          | ND                          | 6.0E-03                         | 1.5E-02                         | ND                         | 3.0E-03                            | ND                               | ND                         | 9.4E-02                            |
| 163  | 11/26/2002  | 9:33        | ND                          | ND                           | 1.3E-02                    | ND                          | ND                          | 2.6E-02                         | ND                              | ND                         | 5.0E-03                            | ND                               | ND                         | 4.4E-02                            |
| 165  | 12/5/02A    | 8:37        | ND                          | ND                           | 3.3E-02                    | ND                          | ND                          | 6.0E-03                         | 1.7E-02                         | ND                         | 2.0E-03                            | ND                               | 4.0E-03                    | 6.2E-02                            |
| 167  | 12/19/2002  | 7:30        | ND                          | ND                           | 1.5E-02                    | ND                          | ND                          | 4.5E-02                         | ND                              | ND                         | 1.0E-03                            | 4.0E-03                          | ND                         | 1.2E-01                            |
|      | 12/5/02B    | 10:42       | ND                          | ND                           | 2.1E-02                    | ND                          | ND                          | 6.0E-03                         | 2.3E-02                         | ND                         | 3.0E-03                            | ND                               | 4.0E-03                    | 5.7E-02                            |

|                                        |      |                                  |      |
|----------------------------------------|------|----------------------------------|------|
| PCE- TETRACHLOROETHYLENE               | 6.89 | TCA - 1,1,1-TRICHLOROETHANE      | 5.55 |
| CHLM - CHLOROMETHANE                   | 2.07 | BENZENE                          | 3.19 |
| MC - METHYLENE CHLORIDE                | 3.53 | TOLUENE                          | 3.77 |
| CD - CARBON DISULFIDE                  | 3.11 | EB - ETHYLBENZENE                | 4.41 |
| DCE - 1,1-DICHLOROETHENE               | 4.03 | XYLENES                          | 4.34 |
| DCA - 1,1-DICHLOROETHANE               | 4.05 | STYRENE                          | 4.26 |
| 1,2-DCA - 1,2-DICHLOROETHANE           | 4.05 | BM - BROMOMETHANE                | 3.89 |
| cis-DCE - 1,2-DICHLOROETHENE (cis)     | 3.97 | TCE - TRICHLOROETHENE            | 5.4  |
| 1,1,2-TRICHLOROETHANE                  | 5.46 | CF - CHLOROFORM                  | 4.88 |
| trans-DCE - 1,2-DICHLOROETHENE (trans) | 3.97 | CT - CARBON TETRACHLORIDE        | 6.29 |
| CB - CHLOROBENZENE                     | 4.61 | TDGP - trans-1,3-DICHLOROPROPENE | 4.54 |
| 1,1,2,2-TETRACHLOROPETHANE             | 6.87 | VC - VINYL CHLORIDE              | 2.56 |
| CE - CHLOROETHANE                      | 2.64 |                                  |      |

1ppm = X mg/m<sup>3</sup> (NIOSH)

1ppm = X mg/m<sup>3</sup> (NIOSH)

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**AIR QUALITY DATA - POST-CARBON (SMP 9) (ppm)**

*Table Purpose: To present laboratory results of air samples collected at the post-carbon sample location converted to units of parts per million.*

| Week | Sample Date | Sample Time | PCE<br>(ppm) | CHLM<br>(ppm) | MC<br>(ppm) | TCE<br>(ppm) | TCA<br>(ppm) | Benzene<br>(ppm) | Toluene<br>(ppm) | EB<br>(ppm) | mkp-Xylenes<br>(ppm) | o-Xylene<br>(ppm) | CD<br>(ppm) | TOTAL VOCs<br>(ppm) |
|------|-------------|-------------|--------------|---------------|-------------|--------------|--------------|------------------|------------------|-------------|----------------------|-------------------|-------------|---------------------|
| 161  | 11/14/02A   | 10:20       | ND           | 2.4E-02       | 5.7E-03     | ND           | 1.9E-03      | 4.0E-03          | ND               | ND          | ND                   | ND                | ND          | 3.6E-02             |
| 161  | 11/14/02B   | 12:20       | ND           | 2.4E-02       | 3.4E-03     | ND           | 3.6E-03      | 1.9E-03          | 1.0E-02          | ND          | 6.9E-04              | ND                | 4.5E-03     | 4.9E-02             |
| 163  | 11/26/2002  | 9:33        | ND           | ND            | 3.7E-03     | ND           | 6.9E-03      | ND               | ND               | ND          | 1.2E-03              | ND                | ND          | 1.2E-02             |
| 165  | 12/5/02A    | 8:37        | ND           | ND            | 9.3E-03     | ND           | 1.9E-03      | 4.5E-03          | ND               | ND          | 4.6E-04              | ND                | 1.3E-03     | 1.7E-02             |
| 165  | 12/5/02B    | 10:42       | ND           | ND            | 5.9E-03     | ND           | 1.9E-03      | 6.1E-03          | ND               | ND          | 6.9E-04              | ND                | 1.3E-03     | 1.6E-02             |
| 167  | 12/19/2002  | 7:30        | ND           | ND            | 4.2E-03     | ND           | 8.1E-03      | 1.6E-03          | 1.2E-02          | 2.3E-04     | 2.3E-03              | 9.2E-04           | ND          | 2.9E-02             |

|                                         |      |                                  |      |
|-----------------------------------------|------|----------------------------------|------|
| PCE - TETRACHLOROETHYLENE               | 6.89 | TCA - 1,1,1-TRICHLOROETHANE      | 5.55 |
| CHLM - CHLOROMETHANE                    | 2.07 | BENZENE                          | 3.19 |
| MC - METHYLENE CHLORIDE                 | 3.53 | TOLUENE                          | 3.77 |
| CD - CARBON DISULFIDE                   | 3.11 | EB - ETHYLBENZENE                | 4.41 |
| DCE - 1,1-DICHLOROETHENE                | 4.03 | XYLENES                          | 4.34 |
| DCA - 1,1-DICHLOROETHANE                | 4.05 | STYRENE                          | 4.26 |
| 1,2-DCA - 1,2-DICHLOROETHANE            | 4.05 | BM - BROMOMETHANE                | 3.89 |
| cis-DCE - 1,2-DICHLOROETHENE (cis)      | 3.97 | TCE - TRICHLOROETHENE            | 5.4  |
| 1,1,2-TCF - 1,1,2-TRICHLOROETHANE       | 5.46 | CF - CHLOROFORM                  | 4.88 |
| trans-DCE - 1,2-DICHLOROETHENE (trans)  | 3.97 | CT - CARBON TETRACHLORIDE        | 6.29 |
| CB - CHLOROBENZENE                      | 4.61 | TDCP - trans-1,3-DICHLOROPROPENE | 4.54 |
| 1,1,2,2-TCF - 1,1,2,2-TETRACHLOROETHANE | 6.87 | VC - VINYL CHLORIDE              | 2.56 |
| CE - CHLOROETHANE                       | 2.64 |                                  |      |

1ppm = X mg/m<sup>3</sup> (NIOSH)

1ppm = X mg/m<sup>3</sup> (NIOSH)

SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK

AIR QUALITY DATA - SUMMARY OF LABORATORY TOTAL VOCs (mg/m<sup>3</sup>)

*Table Purpose: To present a summary of laboratory results for all sample locations*

| Week | Date       | Manifold C (SMP 3)<br>LAB | Pre-Carbon (SMP 7)<br>LAB | Mid-Carbon (SMP 8)<br>LAB | % of Pre-Carbon<br>VOC at Mid-Carbon | Post-Carbon (SMP 9)<br>LAB |
|------|------------|---------------------------|---------------------------|---------------------------|--------------------------------------|----------------------------|
| 161  | 11/14/02A  | 1.9E+00                   | 2.6E+00                   | 1.2E-01                   | 4.6%                                 | 9.4E-02                    |
|      | 11/14/02B  | 1.9E+00                   | 4.8E+00                   | 1.2E-01                   | 2.5%                                 | 1.4E-01                    |
| 163  | 11/26/2002 | 2.2E+00                   | 4.7E+00                   | 1.3E-01                   | 2.6%                                 | 4.4E-02                    |
| 165  | 12/5/02A   | 3.9E+00                   | 1.8E+00                   | 7.7E-02                   | 4.3%                                 | 6.2E-02                    |
|      | 12/5/02B   | 5.2E+00                   | 7.5E+00                   | 1.2E-01                   | 1.6%                                 | 5.7E-02                    |
| 167  | 12/19/2002 | 8.0E-01                   | 1.3E+00                   | 1.6E-01                   | 12.8%                                | 1.2E-01                    |

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**PCE, TCE, TCA AND TOTAL VOC LOADING ESTIMATES USING LABORATORY DATA**

**Table Purpose: Calculate the loading of PCE, TCE, TCA and Total VOCs on the carbon units based on laboratory data.**

| Week           | Date       | Pre-<br>Carbon<br>Airflow<br>(acfm) | Approx.<br>Carbon<br>Sampling<br>Interval<br>(hr:min) | Cumulative<br>Hours of<br>Operation<br>(hr:min) | PCE                                    |                                        |                           |                          |                          | Carbon<br>Post-<br>Carbon | Carbon<br>Pre-<br>Carbon<br>(lb/hr) | Carbon<br>Mid-<br>Carbon<br>(lb/hr) | Carbon<br>Post-<br>Carbon | Carbon<br>Unit No. 1<br>Loading<br>(lb) | Carbon<br>Unit No. 2<br>Loading |
|----------------|------------|-------------------------------------|-------------------------------------------------------|-------------------------------------------------|----------------------------------------|----------------------------------------|---------------------------|--------------------------|--------------------------|---------------------------|-------------------------------------|-------------------------------------|---------------------------|-----------------------------------------|---------------------------------|
|                |            |                                     |                                                       |                                                 | Pre-<br>Carbon<br>(mg/m <sup>3</sup> ) | Mid-<br>Carbon<br>(mg/m <sup>3</sup> ) | Carbon<br>Post-<br>Carbon | Carbon<br>Pre-<br>Carbon | Carbon<br>Mid-<br>Carbon |                           |                                     |                                     |                           |                                         |                                 |
| 161            | 11/14/02A  | 163                                 | 00:30                                                 | 00:30                                           | 1.8E+00                                | 1.2E-02                                | ND                        | 1.1E-03                  | 7.5E-06                  | 0.0E+00                   | 6.6E-04                             | 3.7E-06                             | 1.4E-05                   | 3.7E-06                                 | 1.4E-05                         |
| 163            | 11/14/02B  | 163                                 | 02:01                                                 | 02:31                                           | 3.6E+00                                | 1.1E-02                                | ND                        | 2.2E-03                  | 6.9E-06                  | 0.0E+00                   | 4.5E-03                             | 1.4E-05                             | 3.0E-03                   | 7.9E-01                                 | 3.0E-03                         |
| 163            | 11/26/2002 | 162                                 | 288:09                                                | 287:40                                          | 4.5E+00                                | 1.7E-02                                | ND                        | 2.8E-03                  | 1.1E-05                  | 0.0E+00                   | 7.9E-01                             | 3.0E-03                             | 1.4E-06                   | 5.9E-04                                 | 1.4E-06                         |
| 165            | 12/6/02A   | 160                                 | 00:34                                                 | 288:29                                          | 1.7E+00                                | 4.0E-03                                | ND                        | 1.0E-03                  | 2.5E-06                  | 0.0E+00                   | 8.3E-03                             | 2.5E-06                             | 2.5E-06                   | 8.3E-03                                 | 2.5E-06                         |
| 167            | 12/19/2002 | 165                                 | 332:49                                                | 623:21                                          | 1.1E+00                                | 5.9E-02                                | ND                        | 6.9E-04                  | 3.7E-05                  | 0.0E+00                   | 2.2E-01                             | 1.2E-02                             | 1.2E-02                   | 2.2E-01                                 | 1.2E-02                         |
| <b>TOTALS:</b> |            |                                     |                                                       |                                                 |                                        |                                        |                           |                          |                          |                           |                                     |                                     |                           |                                         |                                 |
|                |            |                                     |                                                       |                                                 |                                        |                                        |                           |                          |                          |                           | 1.022                               | 0.015                               |                           |                                         |                                 |

**Highlights:**

- Approximately 1.038 lbs of PCE was loaded onto the carbon units during Weeks 160-169.
- Approximately 0.034 lbs of TCE was loaded onto the carbon units during Weeks 160-169.
- Approximately 1.079 lbs of Total VOCs was loaded onto the carbon units during Weeks 160-169.
- Over 96 % of the Total VOCs adsorbed by the carbon units is PCE.
- The NYSDEC discharge emissions criteria of 0.01 lbs/hr for PCE and 0.022 lbs/hr for Total VOCs was not exceeded.

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**PCE, TCE, TCA AND TOTAL VOC LOADING ESTIMATES USING LABORATORY DATA**

**Table Purpose: Calculate the loading of PCE, TCE, TCA and Total VOCs on the carbon units based on laboratory data.**

| Week | Date       | Pre-Carbon Airflow (acfm) | Approx. Sampling Interval (hr:min) | Cumulative Hours of Operation (hr:min) | TCE                             |                                 |             | Pre-Carbon (lb/hr) | Mid-Carbon (lb/hr) | Post-Carbon | Pre-Carbon | Mid-Carbon | Post-Carbon | TOTALS: | 0.032   | 0.003   |
|------|------------|---------------------------|------------------------------------|----------------------------------------|---------------------------------|---------------------------------|-------------|--------------------|--------------------|-------------|------------|------------|-------------|---------|---------|---------|
|      |            |                           |                                    |                                        | Pre-Carbon (mg/m <sup>3</sup> ) | Mid-Carbon (mg/m <sup>3</sup> ) | Post-Carbon |                    |                    |             |            |            |             |         |         |         |
| 161  | 11/14/02A  | 163                       | 00:30                              | 02:31                                  | 1.7E-01                         | ND                              | ND          | 1.1E-04            | 0.0E+00            | 0.0E+00     | 7.5E-05    | 0.0E+00    | 0.0E+00     | 5.3E-05 | 1.5E-04 | 0.0E+00 |
| 163  | 11/26/2002 | 162                       | 285:09                             | 287:40                                 | 1.2E-01                         | ND                              | ND          | 7.4E-05            | 0.0E+00            | 0.0E+00     | 2.1E-02    | 0.0E+00    | 0.0E+00     | 2.3E-04 | 1.4E-05 | 0.0E+00 |
| 165  | 12/5/02A   | 160                       | 00:34                              | 288:29                                 | 4.0E-02                         | ND                              | ND          | 2.5E-05            | 0.0E+00            | 0.0E+00     | 1.1E-04    | 0.0E+00    | 0.0E+00     | 2.3E-04 | 1.4E-05 | 0.0E+00 |
| 167  | 12/19/2002 | 165                       | 332:49                             | 623:21                                 | 6.0E-02                         | 1.2E-02                         | ND          | 3.8E-05            | 7.6E-06            | 0.0E+00     | 1.0E-02    | 0.0E+00    | 0.0E+00     | 2.5E-03 | 0.0E+00 | 0.0E+00 |

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAC HARBOR, NEW YORK**

**PCE, TCE, TCA AND TOTAL VOC LOADING ESTIMATES USING LABORATORY DATA**

*Table Purpose: Calculate the loading of PCE, TCE, TCA and Total VOCs on the carbon units based on laboratory data.*

| Week | Date       | Pre-Carbon Airflow (acfm) | Approx. Sampling Interval (hr:min) | Cumulative Hours of Operation (hr:min) | TCA         |            |            |             |            | TOTALS:     |            |                        |                     |                     |
|------|------------|---------------------------|------------------------------------|----------------------------------------|-------------|------------|------------|-------------|------------|-------------|------------|------------------------|---------------------|---------------------|
|      |            |                           |                                    |                                        | Post-Carbon | Mid-Carbon | Pre-Carbon | Post-Carbon | Mid-Carbon | Post-Carbon | Mid-Carbon | Carbon Loading (lb/hr) | Carbon Loading (lb) | Carbon Loading (lb) |
| 161  | 11/14/02A  | 163                       | 00:30                              | 00:30                                  | ND          | 1.1E-04    | 1.6E-05    | 0.0E+00     | 4.5E-05    | 0.0E+00     | 0.0E+00    | 0.0E+00                | 0.0E+00             | 0.0E+00             |
| 163  | 11/14/02B  | 163                       | 02:01                              | 02:31                                  | 2.7E-02     | 2.9E-04    | 1.7E-05    | 1.2E-05     | 5.5E-04    | 8.8E-06     | 7.8E-06    | 9.5E-03                | 1.2E-05             | 4.1E-05             |
| 163  | 11/26/2002 | 162                       | 285:09                             | 287:40                                 | 1.1E-01     | 6.4E-02    | ND         | 6.8E-05     | 3.3E-05    | 0.0E+00     | 9.9E-03    | 9.5E-03                | 1.2E-05             | 4.1E-05             |
| 166  | 12/5/02A   | 160                       | 00:34                              | 286:29                                 | ND          | 3.5E-02    | ND         | 0.0E+00     | 2.1E-05    | 0.0E+00     | 0.0E+00    | 1.2E-05                | 4.1E-05             | 0.0E+00             |
| 167  | 12/19/2002 | 165                       | 332:49                             | 623:21                                 | ND          | 3.8E-02    | 4.5E-02    | 0.0E+00     | 2.4E-05    | 2.8E-05     | 0.0E+00    | 0.0E+00                | 0.0E+00             | 0.0E+00             |



**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**PCE, TCE, TCA AND TOTAL VOC LOADING ESTIMATES USING LABORATORY DATA**

**Table Purpose: Calculate the loading of PCE, TCE, TCA and Total VOCs on the carbon units based on laboratory data.**

| Week | Date       | Pre-Carbon Airflow (acfm) | Approx. Sampling Interval (hr:min) | Cumulative Hours of Operation (hr:min) | Total VOCs (mg/m <sup>3</sup> ) |            |            |             |                         | Average Loading Rate: |             |            |                              | Average Discharge Rate: |            |            |             | Average Removal Efficiency : |            |             |  |
|------|------------|---------------------------|------------------------------------|----------------------------------------|---------------------------------|------------|------------|-------------|-------------------------|-----------------------|-------------|------------|------------------------------|-------------------------|------------|------------|-------------|------------------------------|------------|-------------|--|
|      |            |                           |                                    |                                        | Pre-Carbon                      | Mid-Carbon | Pre-Carbon | Post-Carbon | Pre-Carbon              | Mid-Carbon            | Post-Carbon | Pre-Carbon | Mid-Carbon                   | Post-Carbon             | Pre-Carbon | Mid-Carbon | Post-Carbon | Pre-Carbon                   | Mid-Carbon | Post-Carbon |  |
| 161  | 11/14/02A  | 163                       | 00:30                              | 00:30                                  | 2.6E+00                         | 1.2E-01    | 9.4E-02    | 1.6E-03     | 7.4E-05                 | 8.9E-05               | 7.7E-04     | 7.5E-06    | 0.0008                       | 0.0000                  | 96.36      |            |             |                              |            |             |  |
|      | 11/14/02B  | 163                       | 02:01                              | 02:31                                  | 4.8E+00                         | 1.2E-01    | 1.4E-01    | 3.0E-03     | 7.5E-05                 | 9.0E-05               | 5.9E-03     | 0.0E+00    | 0.0067                       | 0.0000                  | 97.00      |            |             |                              |            |             |  |
| 163  | 11/26/2002 | 162                       | 285:09                             | 287:40                                 | 4.7E+00                         | 1.3E-01    | 4.4E-02    | 2.9E-03     | 7.7E-05                 | 2.7E-05               | 8.1E-01     | 1.4E-02    | 0.8180                       | 0.0143                  | 99.07      |            |             |                              |            |             |  |
|      | 12/5/02A   | 160                       | 00:34                              | 288:29                                 | 1.8E+00                         | 7.7E-02    | 6.2E-02    | 1.1E-03     | 4.7E-05                 | 3.8E-05               | 6.1E-04     | 5.2E-06    | 0.8186                       | 0.0143                  | 96.57      |            |             |                              |            |             |  |
| 165  | 12/5/02B   | 160                       | 02:03                              | 290:32                                 | 7.5E+00                         | 1.2E-01    | 5.7E-02    | 4.6E-03     | 7.4E-05                 | 3.5E-05               | 9.3E-03     | 8.0E-05    | 0.8278                       | 0.0144                  | 99.24      |            |             |                              |            |             |  |
| 167  | 12/19/2002 | 165                       | 332:49                             | 623:21                                 | 1.3E+00                         | 1.6E-01    | 1.2E-01    | 7.9E-04     | 1.0E-04                 | 7.8E-05               | 2.3E-01     | 7.6E-03    | 1.0665                       | 0.0219                  | 90.08      |            |             |                              |            |             |  |
|      |            |                           |                                    |                                        | Average Loading Rate:           |            |            |             | Average Discharge Rate: |                       |             |            | Average Removal Efficiency : |                         |            |            |             |                              |            |             |  |
|      |            |                           |                                    |                                        | 2.3E-03                         |            |            |             | 5.4E-05                 |                       |             |            | 0.022                        |                         |            |            |             |                              |            |             |  |
|      |            |                           |                                    |                                        | 96.39                           |            |            |             |                         |                       |             |            |                              |                         |            |            |             |                              |            |             |  |

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**AIR QUALITY DATA - SUMMARY OF LABORATORY TOTAL VOCs (ppm)**

*Table Purpose: To present a summary of laboratory results for all sample locations*

| Week | Date       | Manifold C (SMP 3)<br>LAB | Pre-Carbon (SMP 7)<br>LAB | Mid-Carbon (SMP 8)<br>LAB | % of Pre-Carbon<br>VOC at Mid-Carbon | Post-Carbon (SMP 9)<br>LAB |
|------|------------|---------------------------|---------------------------|---------------------------|--------------------------------------|----------------------------|
| 161  | 11/14/02A  | 3.7E-01                   | 5.3E-01                   | 3.8E-02                   | 7.3%                                 | 3.6E-02                    |
|      | 11/14/02B  | 4.2E-01                   | 9.3E-01                   | 3.8E-02                   | 4.1%                                 | 4.9E-02                    |
| 163  | 11/26/2002 | 3.2E-01                   | 7.0E-01                   | 2.7E-02                   | 3.9%                                 | 1.2E-02                    |
| 165  | 12/5/02A   | 6.0E-01                   | 2.7E-01                   | 1.8E-02                   | 6.4%                                 | 1.7E-02                    |
|      | 12/5/02B   | 8.1E-01                   | 1.1E+00                   | 3.0E-02                   | 2.6%                                 | 1.6E-02                    |
| 167  | 12/19/2002 | 1.3E-01                   | 1.9E-01                   | 3.2E-02                   | 16.3%                                | 2.9E-02                    |

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**SUMMARY OF CARBON LOADING RATES AND CUMULATIVE LOADING**

**Table Purpose:** Summarize the PCE and Total VOC carbon loading rates and cumulative loading since the initial testing period.

| Week | Date     | PCE Loading Rate (lbs/hr) | Total VOC Loading Rate (lbs/hr) | Cumulative PCE Loaded onto Carbon (lbs) | Cumulative Total VOC Loaded onto Carbon (lbs) | Active Wells |
|------|----------|---------------------------|---------------------------------|-----------------------------------------|-----------------------------------------------|--------------|
| 10&M | 12/02/98 | 77.805                    | 92.024                          | 15.561                                  | 18.405                                        | SVE 4&10     |
|      | 12/02/98 | 0.936                     | 0.987                           | 22.859                                  | 26.096                                        |              |
|      | 12/03/98 | 2.483                     | 2.483                           | 65.071                                  | 68.292                                        |              |
|      | 12/04/98 | 1.408                     | 3.466                           | 98.857                                  | 151.441                                       |              |
|      | 12/05/98 | 0.001                     | 0.001                           | 98.872                                  | 151.487                                       |              |
|      | 12/08/98 | 0.840                     | 0.892                           | 163.305                                 | 219.214                                       |              |
|      | 12/11/98 | 1.189                     | 1.321                           | 247.951                                 | 302.304                                       |              |
|      | 12/14/98 | 0.029                     | 0.029                           | 250.576                                 | 302.304                                       |              |
|      | 12/17/98 | 0.047                     | 0.056                           | 253.274                                 | 304.202                                       |              |
|      | 12/21/98 | 0.044                     | 0.047                           | 256.743                                 | 304.135                                       |              |
|      | 12/28/98 | 0.122                     | 0.127                           | 261.693                                 | 308.995                                       |              |
| 1    | 01/28/99 | 0.085                     | 0.086                           | 261.702                                 | 309.004                                       | 6,8          |
|      | 02/04/99 | 0.026                     | 0.026                           | 265.918                                 | 313.240                                       |              |
| 2    | 02/04/99 | 0.048                     | 0.049                           | 265.923                                 | 313.245                                       | 9,11         |
|      | 02/11/99 | 0.028                     | 0.035                           | 270.568                                 | 319.060                                       |              |
| 3    | 02/11/99 | 0.013                     | 0.061                           | 270.570                                 | 319.066                                       | 13,14        |
|      | 02/18/99 | 0.012                     | 0.012                           | 272.559                                 | 321.070                                       |              |
| 4    | 02/18/99 | 0.006                     | 0.006                           | 272.562                                 | 321.073                                       | 6,8          |
|      | 02/25/99 | 0.019                     | 0.019                           | 274.840                                 | 323.407                                       |              |
| 5    | 02/25/99 | 0.051                     | 0.051                           | 274.865                                 | 323.433                                       | 9,11         |
|      | 03/04/99 | 0.019                     | 0.029                           | 277.905                                 | 328.193                                       |              |
| 6    | 03/04/99 | 0.010                     | 0.011                           | 277.910                                 | 328.199                                       | 13,14        |
|      | 03/11/99 | 0.013                     | 0.015                           | 280.048                                 | 330.653                                       |              |
| 7    | 03/11/99 | 0.007                     | 0.007                           | 280.051                                 | 330.656                                       |              |
|      | 03/18/99 | 0.011                     | 0.014                           | 280.056                                 | 330.663                                       | 6,8          |
| 8    | 03/25/99 | 0.008                     | 0.008                           | 280.559                                 | 331.191                                       |              |
| 9    | 03/25/99 | 0.022                     | 0.023                           | 280.569                                 | 331.203                                       | 9,11         |
|      | 04/01/99 | 0.032                     | 0.034                           | 280.585                                 | 331.220                                       | 13,14        |
| 10   | 04/08/99 | 0.017                     | 0.018                           | 281.752                                 | 332.446                                       |              |
|      | 04/08/99 | 0.013                     | 0.016                           | 281.759                                 | 332.454                                       |              |
| 11   | 04/15/99 | 0.008                     | 0.008                           | 282.924                                 | 333.805                                       | 6,8          |
|      | 04/15/99 | 0.025                     | 0.027                           | 282.936                                 | 333.818                                       |              |
| 12   | 04/22/99 | 0.010                     | 0.010                           | 284.533                                 | 335.436                                       | 9,11         |
|      | 04/22/99 | 0.007                     | 0.007                           | 284.536                                 | 335.439                                       | 13,14        |
| 13   | 04/29/99 | 0.004                     | 0.005                           | 285.166                                 | 336.151                                       |              |
|      | 04/29/99 | 0.006                     | 0.006                           | 285.168                                 | 336.154                                       | 6,8          |
|      | 05/06/99 | 0.023                     | 0.023                           | 285.180                                 | 336.165                                       |              |
| 15   | 05/13/99 | 0.011                     | 0.011                           | 286.947                                 | 337.940                                       | 9,11         |
|      | 05/13/99 | 0.003                     | 0.004                           | 286.949                                 | 337.942                                       |              |
| 16   | 05/13/99 | 0.003                     | 0.004                           | 287.321                                 | 338.338                                       |              |
|      | 05/20/99 | 0.028                     | 0.030                           | 296.864                                 | 348.472                                       | 13,14        |
| 17   | 05/20/99 | 0.028                     | 0.030                           | 296.864                                 | 348.472                                       |              |
| 19   | 06/02/99 | 0.139                     | 0.152                           | 336.342                                 | 391.554                                       |              |
| 21   | 06/17/99 | 0.027                     | 0.030                           | 336.345                                 | 391.557                                       |              |
| 22   | 07/01/99 | 0.011                     | 0.012                           | 340.102                                 | 395.476                                       |              |

Carbon  
Change-  
out

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**SUMMARY OF CARBON LOADING RATES AND CUMULATIVE LOADING**

**Table Purpose:** Summarize the *PCE* and *Total VOC* carbon loading rates and cumulative loading since the initial testing period.

| Week      | Date       | PCE Loading Rate (lbs/hr) | Total VOC Loading Rate (lbs/hr) | Cumulative PCE Loaded onto Carbon (lbs) | Cumulative Total VOC Loaded onto Carbon (lbs) | Active Wells    |
|-----------|------------|---------------------------|---------------------------------|-----------------------------------------|-----------------------------------------------|-----------------|
| 23        | 07/01/99   | 0.007                     | 0.010                           | 340.105                                 | 395.481                                       | 6,8             |
|           |            | 0.009                     | 0.009                           | 343.009                                 | 398.543                                       |                 |
| 25        | 07/15/99   | 0.009                     | 0.009                           | 345.579                                 | 401.255                                       |                 |
| 27        | 07/29/99   | 0.034                     | 0.037                           | 345.583                                 | 401.258                                       |                 |
| 28        | 08/12/99   | 0.034                     | 0.037                           | 353.561                                 | 409.988                                       | 4,11            |
| 29        | 08/12/99   | 0.089                     | 0.090                           | 353.605                                 | 410.033                                       |                 |
| 31        | 08/26/99   | 0.036                     | 0.037                           | 366.392                                 | 422.932                                       |                 |
| End of 32 | 09/08/99   | 0.001                     | 0.001                           | 366.519                                 | 423.201                                       |                 |
| 33        | 09/08/99   | 0.001                     | 0.001                           | 366.520                                 | 423.201                                       | 10              |
|           | 09/08/99   | 0.001                     | 0.001                           | 366.553                                 | 423.261                                       |                 |
| 35        | 09/23/99   | 0.005                     | 0.005                           | 369.335                                 | 425.929                                       |                 |
| 37        | 10/08/99   | 0.014                     | 0.014                           | 369.336                                 | 425.930                                       |                 |
| End of 37 | 10/14/99   | 0.016                     | 0.020                           | 371.600                                 | 428.751                                       | No Active Wells |
| 38        |            |                           |                                 |                                         |                                               | 2,11            |
| 39        |            |                           |                                 |                                         |                                               |                 |
| 40        | 10/28/99   | 0.109                     | 0.125                           | 371.658                                 | 428.817                                       |                 |
| 41        | 11/04/99   | 0.005                     | 0.005                           | 372.853                                 | 430.123                                       |                 |
| 42        | 11/11/99   | 0.008                     | 0.008                           | 374.230                                 | 432.829                                       | 10              |
| End of 42 | 11/18/99   | 0.013                     | 0.013                           | 380.139                                 | 442.049                                       |                 |
| 43        | 11/18/99   | 0.004                     | 0.004                           | 380.157                                 | 451.287                                       |                 |
| 44        | 11/24/99   | 0.015                     | 0.016                           | 382.473                                 | 463.315                                       |                 |
| 45        | 12/02/99   | 0.006                     | 0.006                           | 383.570                                 | 476.380                                       | 10              |
| 46        | 12/09/99   | 0.017                     | 0.018                           | 398.340                                 | 492.463                                       |                 |
| 48        | 12/22/99   | 0.005                     | 0.005                           | 399.516                                 | 509.705                                       |                 |
| End of 49 | 01/04/00   | 0.004                     | 0.006                           | 400.747                                 | 528.776                                       |                 |
| 50        |            |                           |                                 |                                         |                                               | No Active Wells |
| 51        | 01/11/00   | 0.014                     | 0.023                           | 400.754                                 | 528.787                                       | 2,14            |
| 53        | 01/25/00   | 0.022                     | 0.024                           | 408.373                                 | 537.139                                       |                 |
| 54        |            |                           |                                 |                                         |                                               | No Active Wells |
| 55        | 02/08/00   | 0.006                     | 0.006                           | 408.376                                 | 545.494                                       | 10              |
| End of 56 | 02/22/00   | 0.003                     | 0.003                           | 409.420                                 | 554.892                                       |                 |
| 57        |            |                           |                                 |                                         |                                               | No Active Wells |
| 58        | 02/29/00   | 0.001                     | 0.001                           | 409.421                                 | 564.291                                       | 4,11            |
| End of 59 | 03/14/00   | 0.021                     | 0.024                           | 416.422                                 | 581.505                                       |                 |
| 60        | 12/15/00A  | 0.173                     | 0.182                           | 416.523                                 | 581.610                                       | 11              |
|           | 12/15/00B  | 0.178                     | 0.183                           | 416.810                                 | 581.906                                       |                 |
| 61        | 12/28/2000 | 0.008                     | 0.009                           | 419.313                                 | 584.701                                       | No Active Wells |
| 62        |            |                           |                                 |                                         |                                               |                 |
| 63        | 1/4/01A    | 0.032                     | 0.038                           | 419.335                                 | 584.726                                       | 11              |
|           | 1/4/01B    | 0.034                     | 0.038                           | 419.383                                 | 584.776                                       |                 |
| 64        | 1/18/2001  | 0.004                     | 0.004                           | 420.569                                 | 585.995                                       | No Active Wells |
| 65        |            |                           |                                 |                                         |                                               |                 |
| 66        | 1/25/01A   | 0.009                     | 0.010                           | 420.573                                 | 586.000                                       | 11              |
|           | 1/25/01B   | 0.010                     | 0.011                           | 420.589                                 | 586.016                                       |                 |
| 67        |            |                           |                                 |                                         |                                               | No Active Wells |
| 68        | 2/8/2001   | 0.006                     | 0.008                           | 420.592                                 | 586.019                                       | 11              |
|           | 2/8/2001   | 0.002                     | 0.006                           | 420.596                                 | 586.027                                       |                 |
| 69        | 2/22/2001  | 0.001                     | 0.002                           | 420.907                                 | 586.447                                       |                 |

Carbon  
Change-  
out

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**SUMMARY OF CARBON LOADING RATES AND CUMULATIVE LOADING**

**Table Purpose:** Summarize the *PCE* and *Total VOC* carbon loading rates and cumulative loading since the initial testing period.

| Week         | Date        | PCE Loading Rate (lbs/hr) | Total VOC Loading Rate (lbs/hr) | Cumulative PCE Loaded onto Carbon (lbs) | Cumulative Total VOC Loaded onto Carbon (lbs) | Active Wells    |
|--------------|-------------|---------------------------|---------------------------------|-----------------------------------------|-----------------------------------------------|-----------------|
| 70           |             |                           |                                 |                                         |                                               | No Active Wells |
| 71           | 3/2/01A     | 0.001                     | 0.002                           | 420.907                                 | 586.447                                       | 11              |
|              | 3/2/01B     | 0.002                     | 0.002                           | 420.910                                 | 586.450                                       |                 |
| 72           | 3/15/2001   | 0.000                     | 0.001                           | 420.974                                 | 586.502                                       |                 |
| 73           |             |                           |                                 |                                         |                                               | No Active Wells |
| 74           | 3/22/01A    | 0.003                     | 0.003                           | 420.974                                 | 586.503                                       | 11              |
|              | 3/22/01B    | 0.002                     | 0.002                           | 420.977                                 | 586.506                                       |                 |
| 75           | 4/5/2001    | 0.002                     | 0.003                           | 421.598                                 | 587.067                                       |                 |
| 76           |             |                           |                                 |                                         |                                               | No Active Wells |
| 77           | 4/12/01A    | 0.004                     | 0.004                           | 421.600                                 | 587.069                                       | 11              |
|              | 4/12/01B    | 0.003                     | 0.003                           | 421.606                                 | 587.074                                       |                 |
| 78           | 4/26/2001   | 0.001                     | 0.001                           | 421.841                                 | 587.297                                       |                 |
| 79           | 5/3/01A     | 0.003                     | 0.003                           | 421.842                                 | 587.298                                       | No Active Wells |
|              | 5/3/01B     | 0.002                     | 0.003                           | 421.846                                 | 587.303                                       |                 |
| 80           |             |                           |                                 |                                         |                                               |                 |
| 81           | 5/17/2002   | 0.001                     | 0.001                           | 422.202                                 | 587.640                                       | 11              |
| 82           | 5/24/2001   | 0.000                     | 0.000                           | 422.202                                 | 587.640                                       |                 |
| Start of 83  | 5/25/2001   |                           |                                 |                                         |                                               |                 |
| Middle of 83 | 5/29/2001   |                           |                                 |                                         |                                               | Alarm Shutdown  |
| 84           | 6/7/2001    | 0.001                     | 0.003                           | 422.366                                 | 588.146                                       | 11              |
|              | 6/14/01A    | 0.002                     | 0.003                           | 422.367                                 | 588.147                                       |                 |
| 85           | 6/14/01ADUP |                           |                                 |                                         | 588.147                                       |                 |
|              | 6/14/01B    | 0.004                     | 0.004                           | 422.374                                 | 588.154                                       | No Active Wells |
| 87           | 6/28/2001   | 0.001                     | 0.001                           | 422.573                                 | 582.068                                       |                 |
| 88           |             |                           |                                 |                                         |                                               |                 |
| 89           |             |                           |                                 |                                         |                                               | No Active Wells |
| 90           | 7/19/01A    | 0.004                     | 0.004                           | 422.575                                 | 588.156                                       | 11              |
|              | 7/19/01B    | 0.005                     | 0.005                           | 422.583                                 | 588.165                                       |                 |
| 93           | 8/9/2001    | 0.002                     | 0.002                           | 423.376                                 | 588.878                                       |                 |
| 94           |             |                           |                                 |                                         |                                               | No Active Wells |
| 95           | 8/16/01A    | 0.003                     | 0.004                           | 423.378                                 | 588.880                                       | 11              |
|              | 8/16/01B    | 0.004                     | 0.004                           | 423.385                                 | 588.887                                       |                 |
| 97           | 8/30/2001   | 0.005                     | 0.006                           | 424.765                                 | 590.145                                       |                 |
| 98           |             |                           |                                 |                                         |                                               | No Active Wells |
| 99           |             |                           |                                 |                                         |                                               | No Active Wells |
| 101          | 9/27/01A    | 0.020                     | 0.020                           | 424.775                                 | 590.155                                       | 11              |
|              | 9/27/01B    | 0.022                     | 0.022                           | 424.813                                 | 590.193                                       |                 |
| 102          |             |                           |                                 |                                         |                                               |                 |
| 103          | 10/10/2001  | 0.007                     | 0.007                           | 426.137                                 | 591.508                                       | 11              |
|              | 10/18/01A   | 0.011                     | 0.012                           | 426.141                                 | 591.512                                       |                 |
| 104          | 10/18/01B   | 0.011                     | 0.012                           | 426.159                                 | 591.530                                       |                 |
| 105          | 11/1/2001   | 0.011                     | 0.012                           | 429.381                                 | 594.827                                       | No Active Wells |
| 106          |             |                           |                                 |                                         |                                               |                 |
| 107          | 11/13/01A   | 0.007                     | 0.008                           | 429.383                                 | 594.829                                       |                 |
|              | 11/13/01B   | 0.004                     | 0.005                           | 429.388                                 | 594.834                                       | 11              |
| 108          |             |                           |                                 |                                         |                                               |                 |
| 109          |             |                           |                                 |                                         |                                               |                 |
| 110          | 12/5/2001   | 0.023                     | 0.023                           | 437.896                                 | 603.467                                       |                 |

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**SUMMARY OF CARBON LOADING RATES AND CUMULATIVE LOADING**

**Table Purpose:** Summarize the PCE and Total VOC carbon loading rates and cumulative loading since the initial testing period.

| Week | Date      | PCE Loading Rate (lbs/hr) | Total VOC Loading Rate (lbs/hr) | Cumulative PCE Loaded onto Carbon (lbs) | Cumulative Total VOC Loaded onto Carbon (lbs) | Active Wells    |
|------|-----------|---------------------------|---------------------------------|-----------------------------------------|-----------------------------------------------|-----------------|
| 111  |           |                           |                                 |                                         |                                               | No Active Wells |
| 112  | 12/18/01A | 0.015                     | 0.016                           | 437.903                                 | 603.475                                       | 11              |
|      | 12/18/01B | 0.016                     | 0.016                           | 437.935                                 | 603.507                                       |                 |
| 113  | 1/3/2002  | 0.003                     | 0.004                           | 439.253                                 | 604.881                                       | No Active Wells |
| 114  |           |                           |                                 |                                         |                                               |                 |
| 115  | 1/10/02A  | 0.005                     | 0.005                           | 439.255                                 | 604.884                                       | 11              |
|      | 1/10/02B  | 0.003                     | 0.003                           | 439.263                                 | 604.891                                       |                 |
| 117  | 1/24/2002 | 0.003                     | 0.003                           | 440.292                                 | 605.944                                       | No Active Wells |
| 118  |           |                           |                                 |                                         |                                               |                 |
| 119  | 1/30/02A  | 0.007                     | 0.007                           | 440.296                                 | 605.948                                       | 11              |
|      | 1/30/02B  | 0.007                     | 0.007                           | 440.310                                 | 605.962                                       |                 |
| 120  | 2/7/2002  | 0.001                     | 0.001                           | 440.373                                 | 606.023                                       | No Active Wells |
| 121  |           |                           |                                 |                                         |                                               |                 |
| 122  | 2/14/02A  | 0.004                     | 0.004                           | 440.375                                 | 606.026                                       | 11              |
|      | 2/14/02B  | 0.003                     | 0.003                           | 440.380                                 | 606.031                                       |                 |
| 123  | 2/21/2002 | 0.001                     | 0.001                           | 440.987                                 | 606.624                                       | No Active Wells |
| 124  |           |                           |                                 |                                         |                                               |                 |
| 125  | 2/28/02A  | 0.003                     | 0.003                           | 440.990                                 | 606.626                                       | 11              |
|      | 2/28/02B  | 0.004                     | 0.004                           | 440.997                                 | 606.633                                       |                 |
| 126  | 3/7/2002  | 0.001                     | 0.001                           | 441.300                                 | 606.920                                       | No Active Wells |
| 127  |           |                           |                                 |                                         |                                               |                 |
| 128  | 3/14/02A  | 0.004                     | 0.004                           | 441.301                                 | 606.922                                       | 11              |
|      | 3/14/02B  | 0.004                     | 0.004                           | 441.310                                 | 606.930                                       |                 |
| 129  | 3/21/2002 | 0.002                     | 0.002                           | 441.657                                 | 607.279                                       | No Active Wells |
| 130  |           |                           |                                 |                                         |                                               |                 |
| 131  | 3/28/02A  | 0.003                     | 0.003                           | 441.659                                 | 607.280                                       | 11              |
|      | 3/28/02B  | 0.004                     | 0.004                           | 441.667                                 | 607.288                                       |                 |
| 132  | 4/4/2002  |                           |                                 |                                         |                                               | No Active Wells |
| 133  | 4/18/02A  | 0.006                     | 0.006                           | 441.670                                 | 607.291                                       |                 |
|      | 4/18/02B  | 0.005                     | 0.005                           | 441.679                                 | 607.300                                       | 11              |
| 134  | 4/25/2002 | 0.001                     | 0.001                           | 441.773                                 | 607.392                                       |                 |
| 135  |           |                           |                                 |                                         |                                               | No Active Wells |
| 136  | 5/16/02A  | 0.003                     | 0.003                           | 441.775                                 | 607.393                                       | 11              |
|      | 5/16/02B  | 0.004                     | 0.003                           | 441.781                                 | 607.399                                       |                 |
| 138  | 5/30/2002 | 0.001                     | 0.001                           | 442.021                                 | 607.623                                       | No Active Wells |
| 139  |           |                           |                                 |                                         |                                               |                 |
| 140  | 6/6/02A   | 0.003                     | 0.002                           | 442.023                                 | 607.624                                       | 11              |
|      | 6/6/02B   | 0.003                     | 0.003                           | 442.029                                 | 607.630                                       |                 |
| 141  | 6/20/2002 | 0.001                     | 0.001                           | 442.307                                 | 607.886                                       | No Active Wells |
| 142  |           |                           |                                 |                                         |                                               |                 |
| 143  | 7/11/02A  | 0.005                     | 0.005                           | 442.309                                 | 607.888                                       | 11              |
|      | 7/11/02B  | 0.005                     | 0.005                           | 443.934                                 | 609.576                                       |                 |
| 144  | 7/25/2002 |                           |                                 |                                         |                                               | No Active Wells |
| 145  |           |                           |                                 |                                         |                                               |                 |
| 146  |           |                           |                                 |                                         |                                               | 11              |
| 147  | 8/1/02A   | 0.006                     | 0.006                           | 443.937                                 | 609.579                                       |                 |
|      | 8/1/02B   | 0.009                     | 0.009                           | 443.955                                 | 609.597                                       | 11              |
| 149  | 8/16/2002 | 0.006                     | 0.006                           | 446.046                                 | 611.698                                       |                 |
| 150  | 8/22/02A  | 0.005                     | 0.005                           | 446.048                                 | 611.700                                       | 11              |

Carbon  
Change-  
out

**SOIL REMEDIAL ACTION  
SVE OPERATION AND MAINTENANCE  
ROWE INDUSTRIES SITE  
SAG HARBOR, NEW YORK**

**SUMMARY OF CARBON LOADING RATES AND CUMULATIVE LOADING**

**Table Purpose:** Summarize the PCE and Total VOC carbon loading rates and cumulative loading since the initial testing period.

| Week | Date       | PCE Loading Rate (lbs/hr) | Total VOC Loading Rate (lbs/hr) | Cumulative PCE Loaded onto Carbon (lbs) | Cumulative Total VOC Loaded onto Carbon (lbs) | Active Wells    |
|------|------------|---------------------------|---------------------------------|-----------------------------------------|-----------------------------------------------|-----------------|
| 150  | 8/22/02B   | 0.005                     | 0.005                           | 446.057                                 | 611.710                                       | 11              |
| 151  |            |                           |                                 |                                         |                                               | No Active Wells |
| 152  | 9/4/02A    | 0.016                     | 0.016                           | 446.065                                 | 611.718                                       | 11              |
|      | 9/4/02B    | 0.016                     | 0.016                           | 450.320                                 | 615.963                                       |                 |
| 153  |            |                           |                                 |                                         |                                               | No Active Wells |
| 154  | 9/26/02A   | 0.007                     | 0.007                           | 450.323                                 | 615.965                                       |                 |
|      | 9/26/02B   | 0.000                     | 0.000                           | 450.323                                 | 615.971                                       | 11              |
| 155  | 10/8/2002  | 0.003                     | 0.003                           | 451.142                                 | 616.820                                       |                 |
| 156  |            |                           |                                 |                                         |                                               | No Active Wells |
| 157  | 10/17/02A  | 0.005                     | 0.005                           | 451.144                                 | 616.822                                       |                 |
|      | 10/17/02B  | 0.004                     | 0.004                           | 451.151                                 | 616.829                                       | 11              |
| 159  | 10/30/2002 | 0.0002                    | 0.0003                          | 451.214                                 | 616.915                                       |                 |
| 160  |            |                           |                                 |                                         |                                               | No Active Wells |
| 161  | 11/14/02A  | 0.001                     | 0.002                           | 451.215                                 | 616.915                                       |                 |
|      | 11/14/02B  | 0.002                     | 0.003                           | 451.220                                 | 616.921                                       | 7               |
| 163  | 11/26/2002 | 0.003                     | 0.003                           | 452.012                                 | 617.747                                       |                 |
| 164  |            |                           |                                 |                                         |                                               | No Active Wells |
| 165  | 12/5/02A   | 0.001                     | 0.001                           | 452.013                                 | 617.747                                       |                 |
|      | 12/5/02B   | 0.004                     | 0.005                           | 452.021                                 | 617.757                                       | 7               |
| 167  | 12/19/2002 | 0.001                     | 0.001                           | 452.252                                 | 617.993                                       |                 |

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**SUMMARY OF PRESSURE AND VACUUM GAUGE READINGS, INCHES OF W.C.**

**Table Purpose:** Summarize measured vacuum at blower inlets and pressure at blower outlets and inlets of carbon units.

| Week | Date       | Pre-Carbon Pressure | Mid-Carbon Pressure | 3 HP Blower Inlet Vacuum | 3 HP Blower Outlet Pressure |
|------|------------|---------------------|---------------------|--------------------------|-----------------------------|
| 162  | 11/14/02A  | 1.5                 | 1.5                 | 22.5                     | 26.5                        |
|      | 11/14/02B* | 1.5                 | 1.5                 | 22.5                     | 26.5                        |
| 164  | 11/26/2002 | 1.5                 | 1.5                 | 24.0                     | 25.0                        |
| 166  | 12/5/02A   | 1.5                 | 1.5                 | 24.5                     | NM                          |
|      | 12/5/02B   | 1.5                 | 1.5                 | 24.5                     | NM                          |
| 167  | 12/19/2002 | 1.8                 | 1.5                 | 34.0                     | 28.0                        |

NM - Not Measured



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**TEMPERATURE SUMMARY (degrees F)**

**Table Purpose:** Summarize airstream and ambient temperatures.

| Week | Date       | Manifold A | Pre-Heat Exchanger | Pre-Carbon | Mid-Carbon | Post-Carbon | Ambient |
|------|------------|------------|--------------------|------------|------------|-------------|---------|
| 162  | 11/14/02A  | 51         | 90                 | 53         | 52         | 50          | 67      |
|      | 11/14/02B  | 54         | 94                 | 53         | 52         | 51          | 67      |
| 164  | 11/26/2002 | 48         | 40                 | 42         | 44         | 47          | NM      |
| 166  | 12/5/02A   | 46         | 78                 | 34         | 31         | 28          | 28      |
|      | 12/5/02B   | 48         | 81                 | 34         | 38         | 32          | NM      |
| 167  | 12/19/2002 | 42         | 86                 | 34         | 36         | 30          | 41      |

**NM - Not Measured**

Highlights: Heat exchanger effectively reduced airstream temperature from Pre-Heat Exchanger to Pre-Carbon location from between 40 °F and 94°F to between 34°F and 53 °F.

- Ambient temperature during daytime O&M activities ranged between 28 °F and 67 °F.
- Subsurface air temperature ranged between 42 °F and 54 °F.

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SAG HARBOR, NEW YORK  
AIRFLOW CALCULATIONS**

**Table Purpose:** Calculate airflows in the individual manifolds, blowers, and at the Pre-Carbon location.

| Manifold C (FM 3) |            |                          |                                             |                                        |                                              |                                      |                                    |
|-------------------|------------|--------------------------|---------------------------------------------|----------------------------------------|----------------------------------------------|--------------------------------------|------------------------------------|
| Week              | Date       | Air Temp.,<br>Tf (deg F) | Gage<br>Vacuum/<br>Pressure/<br>(" of W.C.) | Vapor Diff.<br>Pressure<br>(" of W.C.) | Absolute<br>Well Head<br>Vacuum Pf<br>(psia) | Standard<br>Air Flow**,<br>Qs (scfm) | Actual Air<br>Flow**, Qa<br>(acfm) |
| 162               | 11/14/02A  | 51                       | 21.5                                        | 4.0                                    | 13.95                                        | 147                                  | 153                                |
| 164               | 11/14/02B  | 54                       | 21.5                                        | 4.0                                    | 13.95                                        | 147                                  | 153                                |
| 164               | 11/26/2002 | 48                       | 24.0                                        | 4.0                                    | 13.86                                        | 147                                  | 153                                |
| 166               | 12/5/02A   | 46                       | 23.5                                        | 4.0                                    | 13.88                                        | 148                                  | 152                                |
| 167               | 12/5/02B   | 48                       | 23.5                                        | 4.0                                    | 13.88                                        | 147                                  | 153                                |
| 167               | 12/19/2002 | 42                       | 27.5                                        | 3.5                                    | 13.74                                        | 138                                  | 143                                |

Highlights: Manifold A, connected to SVE well 7, airflow ranged from 143 to 153 acfm.  
Pre-Carbon airflow ranged from 160 to 165 acfm.

| SVE SYSTEM        |            |                                |                              |                        |                                 |                                     |                                |                              |     |
|-------------------|------------|--------------------------------|------------------------------|------------------------|---------------------------------|-------------------------------------|--------------------------------|------------------------------|-----|
| Pre-Carbon (FM 1) |            |                                |                              |                        |                                 |                                     |                                |                              |     |
| Week              | Date       | Standard Air Flow**, Qs (scfm) | Actual Air Flow**, Qa (acfm) | Gage Vacuum ("of W.C.) | Vapor Diff. Pressure ("of W.C.) | Absolute Well Head Vacuum Pf (psia) | Standard Air Flow**, Qs (scfm) | Actual Air Flow**, Qa (acfm) |     |
| 162               | 11/14/02A* | 147                            | 153                          | 53                     | 1.5                             | 0.35                                | 14.68                          | 165                          | 163 |
| 162               | 11/14/02B* | 147                            | 153                          | 53                     | 1.5                             | 0.35                                | 14.68                          | 165                          | 163 |
| 164               | 11/26/02*  | 147                            | 153                          | 42                     | 1.5                             | 0.35                                | 14.68                          | 167                          | 162 |
| 166               | 12/5/02A*  | 148                            | 152                          | 34                     | 1.5                             | 0.35                                | 14.68                          | 168                          | 160 |
| 166               | 12/5/02B*  | 147                            | 153                          | 34                     | 1.5                             | 0.35                                | 14.68                          | 168                          | 160 |
| 167               | 12/19/2002 | 138                            | 143                          | 34                     | 1.75                            | 0.37                                | 14.67                          | 173                          | 165 |

\*Indicates that some values were estimated  
\*\* Pre-Carbon air flows include dilution air.

Note:  $P_f = P_{abs} - (0.0361 \times \text{inches W.C.})$

$$Q_s = C_1 \times \text{sqrt}(d_p \times P_f / SC_g(T_f + 460))$$

$$Q_a = Q_s \times [(14.73/P_f) \times ((T_f + 460)/520)]$$

4-inch diameter pipes

$$C_1 = 128.8 \times K \times \text{sq}(D_i) \times F_a$$

$$C_1 = 445.51 \quad (\text{flow constant})$$

$$SC_g = 1 \quad (\text{specific gravity of air at STD})$$

$$K = 0.2134 \quad (\text{flow coefficient of venturi meter})$$

$$F_a = 1 \quad (\text{internal expansion of pipe})$$

$$D_i = 4.026 \quad (\text{inside pipe diameter})$$

6-inch diameter pipes

$$C_1 = 1,648.76 \quad (\text{flow constant})$$

$$SC_g = 1 \quad (\text{specific gravity of air at STD})$$

$$K = 0.3480 \quad (\text{flow coefficient of venturi meter})$$

$$F_a = 1 \quad (\text{internal expansion of pipe})$$

$$D_i = 6.065 \quad (\text{inside pipe diameter})$$

**SOIL REMEDIAL ACTION  
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**AIRFLOW SUMMARY (acfm)**

**Table Purpose:** Summarize airflows calculated from previous tables.

| Week | Date       | Manifold C | Pre-Carbon | Dilution Air |
|------|------------|------------|------------|--------------|
| 161  | 11/14/02A  | 153        | 163        | 0            |
|      | 11/14/02B  | 153        | 163        | 0            |
| 163  | 11/26/2002 | 153        | 162        | 0            |
| 165  | 12/5/02A   | 152        | 160        | 0            |
|      | 12/5/02B   | 153        | 160        | 0            |
| 167  | 12/19/2002 | 143        | 165        | 0            |

Highlights:

- Dilution air is estimated by the Pre-Carbon airflow minus the summation of the Manifold airflows

## **APPENDIX II**

### **LABORATORY REPORTS AND CHAINS OF CUSTODY (AVAILABLE UPON REQUEST)**