# Technical Memorandum

## Operations Summary: January 2005 through June 2005
## National Aeronautics and Space Administration, Jet Propulsion Laboratory, Pasadena, California

*Final* July 11, 2005

The objective of this technical memorandum is to summarize the performance and assess the effectiveness of the soil vapor extraction (SVE) system operation for the period of January through June 2005. The system effectiveness was evaluated based on volatile organic compound (VOC) concentration and mass extraction trends, as well as a comparison of VOC concentrations to the soil vapor screening levels (VSLs) calculated from the Regional Water Quality Control Board (RWQCB) *1996 Interim Site Assessment and Cleanup Guidebook*.

### INTRODUCTION

JPL was placed on the National Priorities List (NPL) in 1992. The Remedial Investigation/Feasibility Study (RI/FS) Work Plan identified the investigative work required to adequately characterize the chemicals in soil, Operable Unit 2 (OU-2). Investigative work identified in the RI/FS Work Plan consisted of installation and sampling of nested soil vapor monitoring wells. The sampling of these wells indicated the presence of VOC vapors, primarily carbon tetrachloride ($CCl_4$), Freon 113, and trichloroethene (TCE).

A SVE pilot study was initiated at VE-01 in April 1998 and was conducted in five phases through June 2001. The SVE system then was operated at vapor extraction well VE-03 from October 2002 through April 2003, at VE-04 from May 2003 through December 2003, and at VE-02 from April 2004 through October 2004.

In February 2005, the *SVE Progress Report and Optimization Evaluation* (National Aeronautics and Space Administration [NASA]) was completed to evaluate the performance of the SVE system during the first operational period at each well and provide recommendations for optimizing future system operations. This Progress Report concluded that VOC concentrations have been significantly reduced since startup of the system, and identified $CCl_4$ and TCE as the remaining chemicals of interest based on a comparison of the last one year of soil vapor monitoring data to the VSLs.

The Optimization Evaluation concluded that VOC mass loadings at two soil vapor monitoring locations within the area of influence of VE-03 could potentially result in leachate concentrations exceeding maximum contaminant levels (MCLs) in groundwater. In addition, VE-01 demonstrated the highest VOC mass extraction rates during the first operational cycle. Therefore, a second round of SVE operation was recommended at both VE-01 and VE-03. The SVE system was operated again at VE-01 from December 2004 through May 2005, and began another round of operation at VE-03 on June 3, 2005.

## SVE System Description

The existing SVE system consists of a skid-mounted extraction vacuum blower (20-hp motor), moisture separator (50-gallon knockout tank with sight glass, level switch, and safety interlock to shut down blower for high water level), four granular activated carbon (GAC) vessels (each containing 2,000 lb of vapor-phase GAC) in a series-parallel arrangement, and a dilution and recirculation air valve to regulate vacuum and flow. Other components include a flow meter for measuring flow, magnehelic gauges and U-tube manometers to measure vacuum and vacuum responses, a field flame ionization detector (FID), and vapor sampling equipment.

Vapors are removed from the soil by the vacuum blower and then pass through the moisture separator, in-line filter, and air mixing valve before entering the GAC vessels for treatment. The treated air/vapor is discharged to the atmosphere. The maximum flowrate of extracted soil vapor and ambient air combined is 500 cubic feet per minute (cfm). A process flow diagram for the SVE system is shown on Figure 1.

VE-01 is located in the vicinity of soil vapor monitoring wells Nos. 25, 26, 27, and 28. VE-01 consists of three discrete screened intervals (i.e. three separate casings in the same borehole) with a bentonite seal between screens. The screens are designated shallowest to deepest as VE-01-A, VE-01-B, and VE-01-C. Each casing is constructed of 2-inch-diameter Schedule 80 polyvinyl chloride (PVC) pipe, and is screened (0.020 inch slots) from 44 to 84 ft below ground surface (bgs), 94 to 134 ft bgs, and 145 to 184 ft bgs, respectively.

VE-03 is located in the vicinity of soil vapor monitoring wells SVW Nos. 20, 22, and 32. VE-03 consists of two discrete screened intervals which are designated shallowest to deepest as VE-03-A and VE-03-B. Each casing is constructed of 2-inch-diameter Schedule 80 PVC pipe, and is screened (0.020 inch slots) from 25 to 85 ft bgs and 99 to 159 ft bgs, respectively. The location of the SVE wells and the soil vapor monitoring wells are shown in Figure 2.

## System Performance Summary

The SVE system was restarted at VE-01 on December 14, 2004, and operated with three screened intervals (VE-01-A, VE-01-B, and VE-01-C) through March 23, 2005. During these first 15 weeks of operation, vapor sampling results indicated that extracted VOC concentrations were highest from Screen VE-01-A; therefore, screens VE-01-B and VE-01-C were shut down on March 24, 2005, and screen VE-01-A continued operating for the final 6 weeks until May 2, 2005 to maximize VOC mass removal from this extraction well.

The SVE system was shut down for one week in April to conduct the quarterly soil vapor sampling event. An average runtime of approximately 95% was achieved during operation at VE-01. A total of 89 site visits were made during the operating period for sample collection, operation and maintenance, and system optimization. During this operating period, the flowrate averaged approximately 350 cfm, at an average applied wellhead vacuum of 70 inches of water.

Following operation at VE-01, the system was moved to SVE well VE-03 and restarted on June 3, 2005. The system operated with two screened intervals (VE-03-A and VE-03-B) through

June 15, 2005. On June 17, 2005 the deeper screened interval was shut down, and the system is currently operating with only VE-03-A to maximize VOC mass removal from this screened interval. Thus far, the SVE system has yielded an average runtime of approximately 99% during operation at VE-03. A total of 21 site visits were made during the operating period for sample collection, operation and maintenance, and system optimization. During this operating period, the flowrate averaged approximately 335 cfm, at an average applied wellhead vacuum of 80 inches of water.

The following SVE system parameters were recorded manually during each site visit: (1) vacuum induced by the extraction blower; (2) water level in the mist eliminator; (3) vacuum at each individual screened interval; (4) vapor flowrate at each individual screened interval and the influent; (5) flame ionization detector (FID) readings at the influent and effluent; and (6) vacuum responses in soil vapor monitoring wells. The SVE system operating parameters monitoring records are included in Appendix A. A summary of extraction well operating parameters, flowrates, and FID readings are shown in Table 1, and vacuum responses in soil vapor monitoring wells in Table 2.

SVE system influent and effluent (stack) vapor samples were collected in accordance with the South Coast Air Quality Management District (SCAQMD) permit conditions. Each sample was analyzed for VOCs using an FID calibrated to hexane, as required by the SCAQMD. In addition, the SVE system influent, effluent, and individual screened interval vapor samples were collected once every two weeks over the duration of the SVE operation for laboratory analyses. In order to evaluate VOC concentrations during startup and to select optimal operating conditions, the SVE system influent, effluent, and individual screened interval vapor samples were collected four times during the first week of system startup at each extraction well for laboratory analyses. The samples were shipped under chain-of-custody via Federal Express to Air Toxics Ltd. (an environmental analytical laboratory in Folsom, California) for analysis. The samples were analyzed for VOCs by United States Environmental Protection Agency (U.S. EPA) Method TO-14. Laboratory data packages are presented as Appendix B. A summary of laboratory analytical results is presented in Table 3.

During operation of VE-01, the influent $CCl_4$ and TCE concentrations ranged from 0.100 to 3.100 µg/L and from 0.026 to 0.300 µg/L, respectively. During the first month of operation at VE-03 (June 2005), the influent $CCl_4$ and TCE concentrations ranged from non-detect to 0.035 µg/L and from 0.018 to 0.034 µg/L, respectively. The influent and effluent emission rate calculations for VE-01 and VE-03 are shown in Tables 4 and 5. The emission rates were within the permit requirements set by the SCAQMD. During operation of VE-01, the SVE system achieved near 100% removal efficiency for TCE. Emission concentrations of $CCl_4$ were higher than the influent in Weeks 6 and 8, but removal efficiencies were greater than 66% in all other monitoring events for VE-01. Emission concentrations of tetrachloroethene (PCE) also were higher than the influent in Week 20, but removal efficiencies were near 100% in all other monitoring events. During operation of VE-03, the SVE system has achieved near 100% removal efficiencies for $CCl_4$, TCE, and PCE.

Using the data collected during the SVE pilot test, the maximum radius of influence (ROI) and effective ROI were calculated. The "maximum" ROI is the maximum distance in the soil from the test well that is affected by the vacuum applied to the well (i.e., where the vacuum

dissipates to zero). During operation of VE-01, vacuum responses were observed in the soil vapor monitoring well (No. 1) as far as 950 ft from the extraction well. During operation of VE-03, vacuum responses were observed in the soil vapor monitoring well (No. 38) as far as 1,250 ft from the extraction well.

The "effective" ROI is the distance from the test well where the vacuum in the soil is equal to a percentage of the vacuum applied to the well (usually assumed to range between 1 and 5 percent). For analysis of this test, a conservative approach was taken, and the effective ROI was calculated at 5% of wellhead vacuum. The average vacuum applied to VE-01 was 70 inches of water; therefore, the effective ROI was 400 ft based on an observed vacuum in the soil of 3.5 inches of water. In VE-03, the average vacuum applied to the well was 80 inches of water; therefore, the effective ROI was 500 ft based on an observed vacuum in the soil of 4.0 inches of water.

## SYSTEM EFFECTIVENESS EVALUATION

The performance objectives outlined in the Record of Decision (ROD) for OU-2 (NASA, 2002) include: (1) VOC concentration reduction; (2) asymptotic mass removal; and (3) cost-effective system operation. Each performance objective is evaluated below for the VE-01 operating period (December 2004 through May 2005), and for the beginning of the VE-03 operating period (June 2005).

### *VOC Concentration Reduction*

Table 6 presents a comparison of the SVE system influent and extraction well screen data to the RWQCB VSLs. In addition, well screen data and VSLs are depicted on Figures 3 through 6. These figures show the overall decrease in influent $CCl_4$ and TCE concentrations with operating time at each extraction well. During operation of VE-01, $CCl_4$ concentrations from Screen A exceeded the VSLs for the first three days of operation; however, concentrations decreased significantly and stayed below the VSLs. None of the extracted TCE vapor concentrations exceeded the VSLs in VE-01. Also, $CCl_4$ or TCE concentrations have not exceeded the VSLs during the first month of operation at VE-03.

### *Asymptotic Mass Removal*

The influent VOC concentrations were combined with flowrate data to calculate mass of VOCs removed from the subsurface per day. Mass extraction rates for the second operational cycles are significantly less than the first operational cycles at both VE-01 and VE-03. During the initial operational cycle for VE-01 (from April 1998 through June 2002), the maximum and average mass extraction rates were 13.21 and 0.76 lb/day for $CCl_4$, and 0.70 and 0.07 lb/day for TCE. During the second operation period at VE-01, maximum and average VOC mass extraction rates dropped to 0.11 and 0.02 lb/day for $CCl_4$, and 0.01 and 0.005 lb/day for TCE. At VE-03, the average and maximum mass extraction rates for $CCl_4$ are 0.0002 and 0.001 lb/day, and are 0.0008 and 0.001 lb/day for TCE, which is an order of magnitude lower than the mass extraction rates achieved during the first operational cycle (average mass extraction rates of 0.004 and 0.006 lb/day of $CCl_4$ and TCE). A graph showing cumulative $CCl_4$ and TCE mass extracted since startup of the SVE system in 1998 is included as Figure 7.

*Cost-Effectiveness*
Due to the decreasing VOC mass removal data, the SVE system is becoming less cost-effective to operate. During the first operational cycle at VE-01, the average cost per pound of VOC removed was approximately $9,000; however, during the current operational period the average cost has increased to approximately $85,000 per pound of VOC removed. In addition, the average cost per pound of VOC removed from VE-03 has increased to approximately $1,000,000 during the current operating period, compared to $100,000 during the previous operating period. Figure 8 shows the average cost per pound of VOC removed by the SVE system since startup in 1998.

## CONCLUSIONS

Overall, VOC concentrations have significantly decreased during the second operation period at both VE-01 and VE-03. During operation of VE-01, $CCl_4$ concentrations in Screen A exceeded the VSLs for the first 3 days of operation; however, no further $CCl_4$ exceedances were identified, and none of the extracted TCE vapor concentrations have exceeded the VSLs. Similarly, no exceedances of either the $CCl_4$ or the TCE VSLs have been identified during operation of VE-03. In addition, $CCl_4$ and TCE mass extraction rates during the recent SVE system operation at VE-01 and VE-03 are more than an order of magnitude less than the mass extraction rates achieved during the first operational cycle at these extraction wells, causing operation of the system to become much less cost-effective.

Screen A is currently the only well screen operating at VE-03. Unless mass extraction rates increase significantly at VE-03, Screen A will only operate for a six-week period, after which system operation will be changed to Screen B for a six-week period. As recommended in the *SVE Progress Report and Optimization Evaluation,* focusing operation on one screened interval at a time will maximize the vacuum applied to each screen, thereby maximizing the potential VOC mass extraction from each screen.

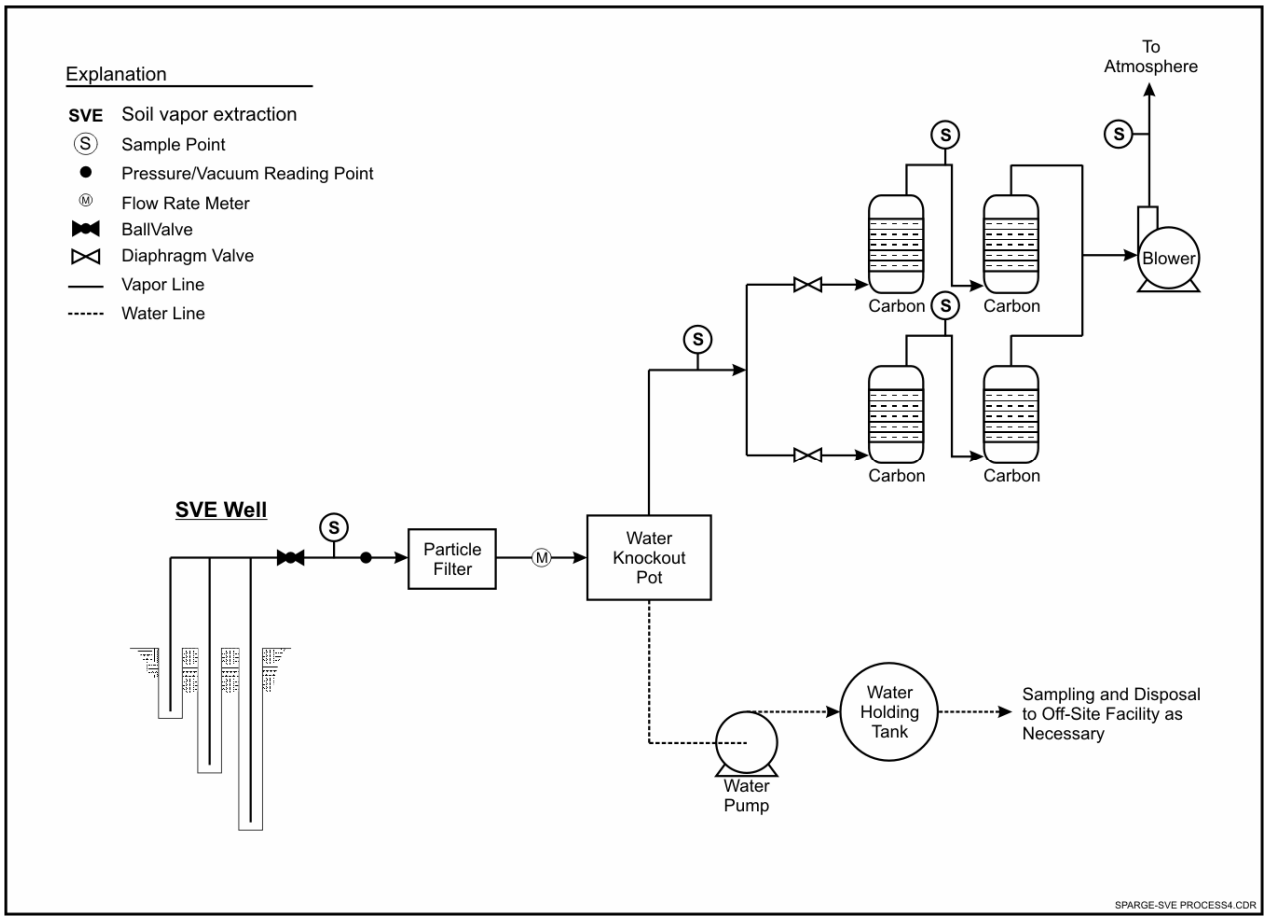


**Figure 1: SVE Process Flow Diagram**

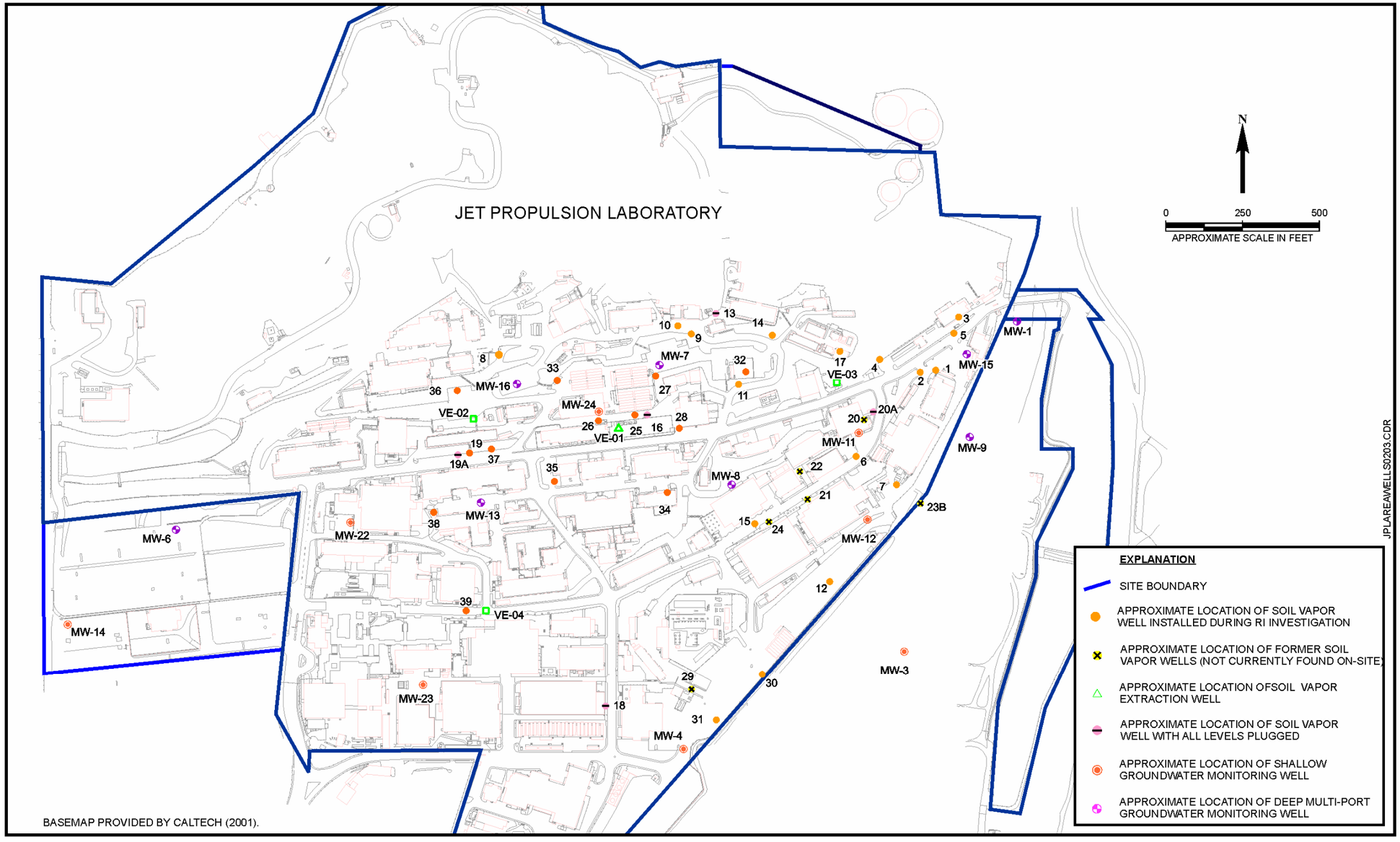


**Figure 2: SVE Well and Soil Vapor Monitoring Well Locations**

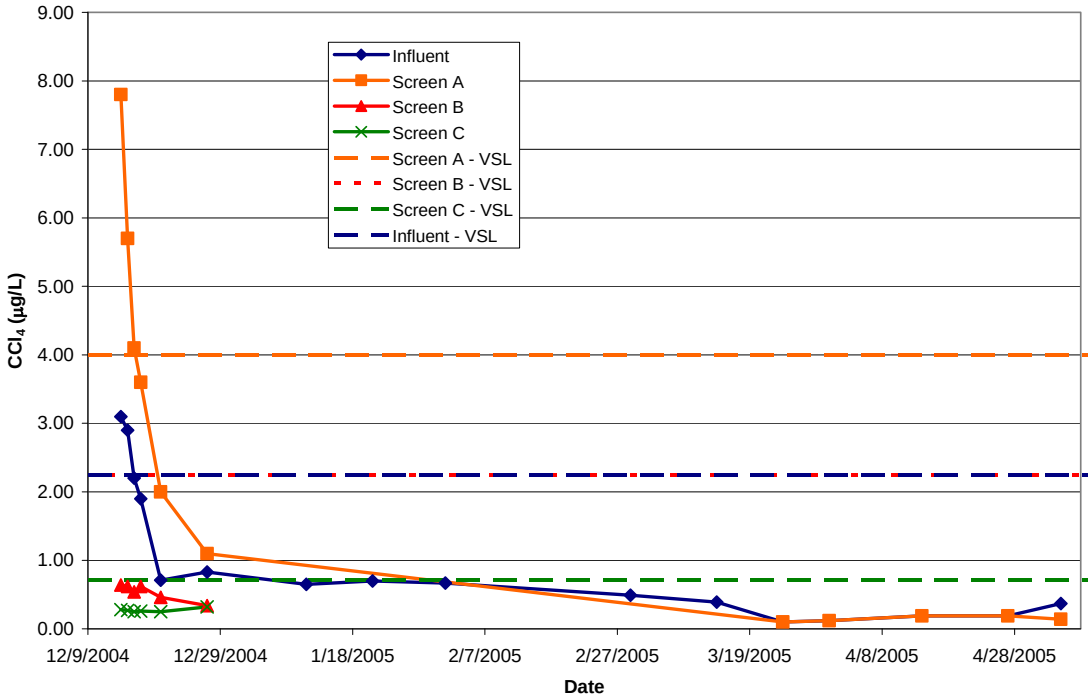


**Figure 3: VE-01 $CCl_4$ Concentrations, December 2004 – May 2005**

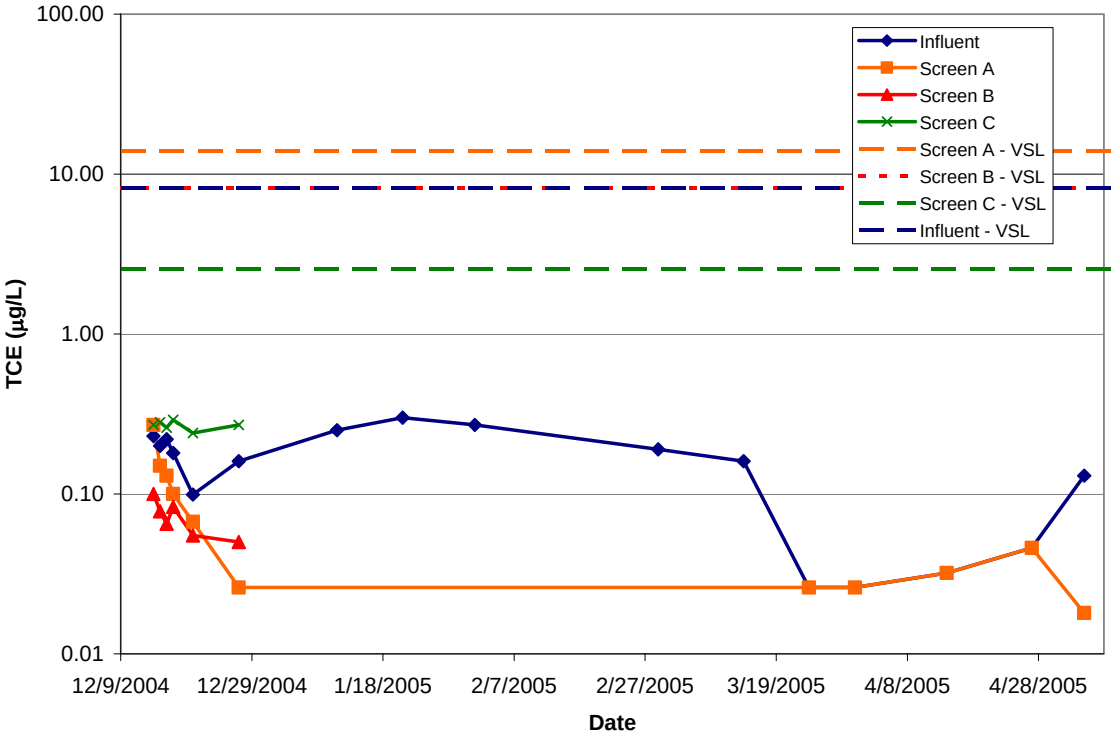


**Figure 4: VE-01 TCE Concentrations, December 2004 – May 2005**

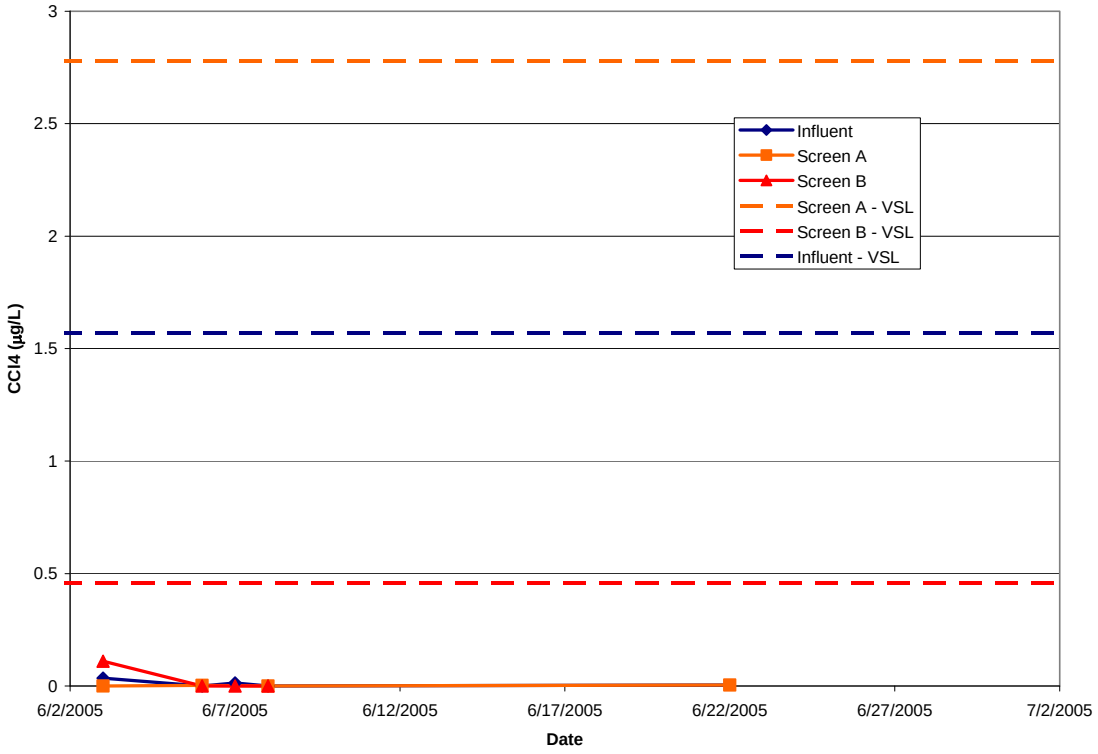


**Figure 5: VE-03 $CCl_4$ Concentrations, June 2005**

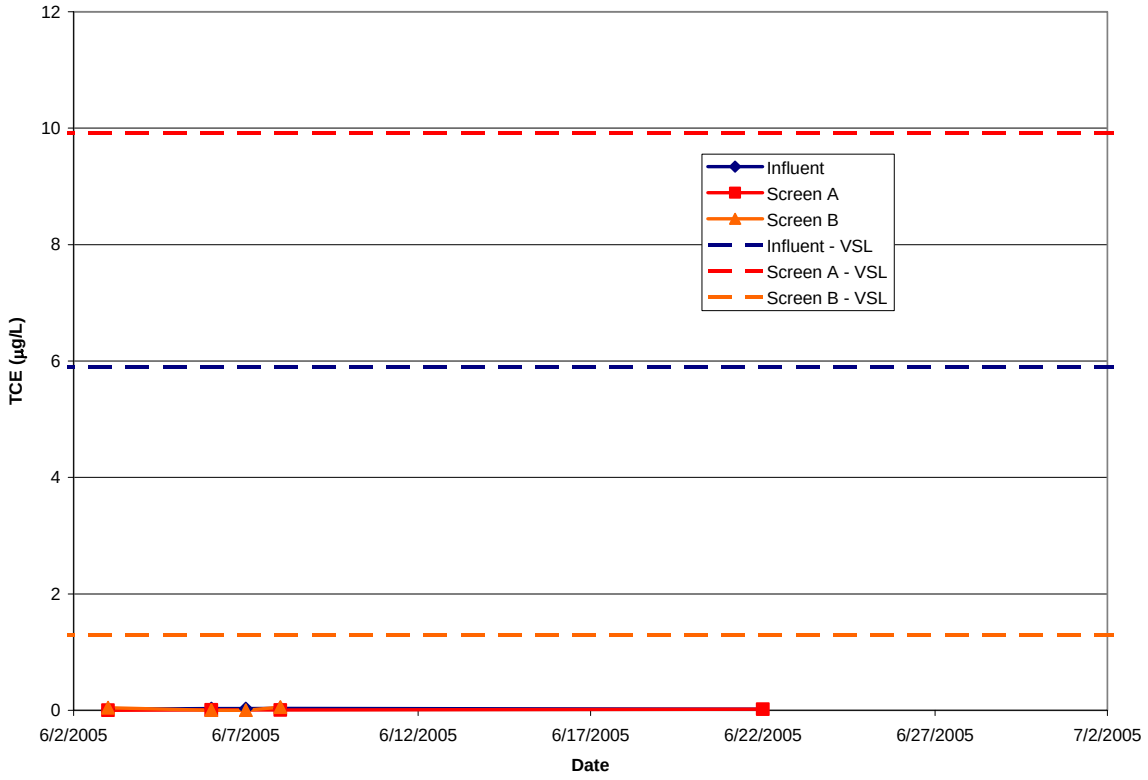


**Figure 6: VE-03 TCE Concentrations, June 2005**

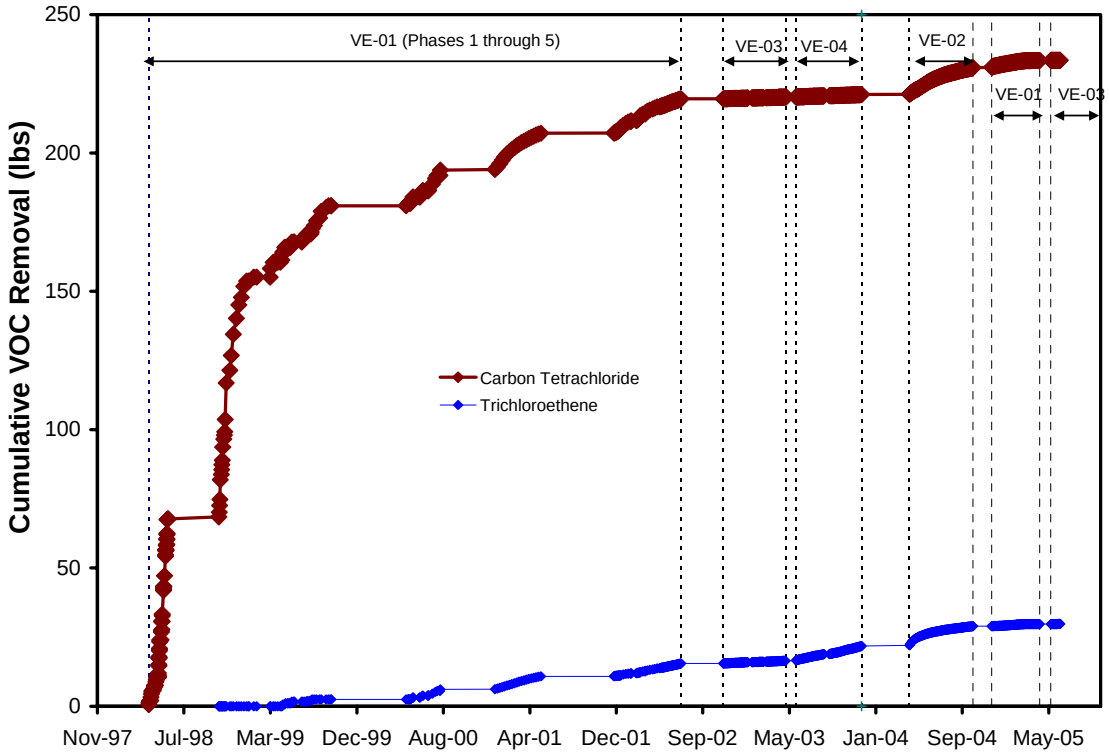


**Figure 7: Cumulative $CCl_4$ and TCE Mass Removal**

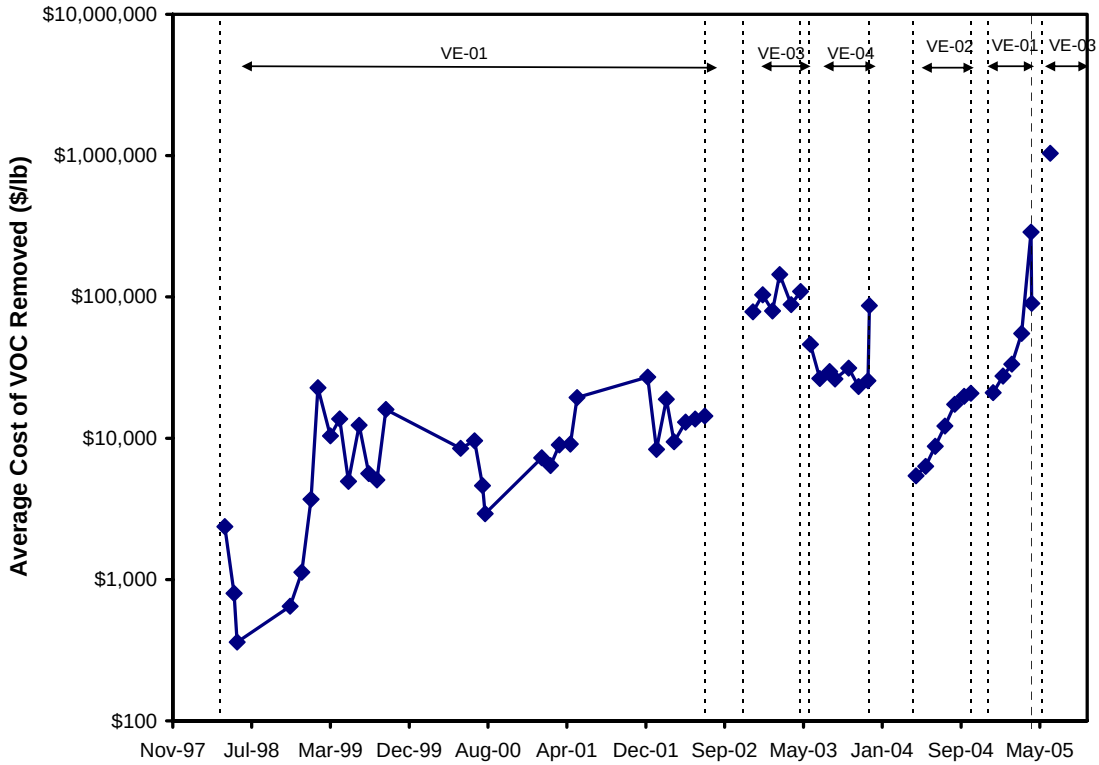


**Figure 8: Average Cost per Pound VOC Removed**

## Table 1: System Monitoring Data (Vacuum, Flowrate and FID Readings)

| | | | | VACUUM | | | | FLOWRATE | | | | | FID READINGS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | ANEMOMETER FLOWRATE | | | | | | | | | |
| WEEK | DATE | TIME *(hours)* | WELL SCREEN | VE-01A *(in. $H_2O$)* | VE-01B *(in. $H_2O$)* | VE-01C *(in. $H_2O$)* | Total Influent *(in. $H_2O$)* | A *(ft/m)* | B *(ft/m)* | C *(ft/m)* | Flowmeter Influent *(scfm)* | LCD Reading Influent *(cfm)* | Influent (A) *(ppm)* | Influent (B) *(ppm)* | Influent (C) *(ppm)* | Influent (Total) *(ppm)* | Effluent (Total) *(ppm)* |
| **VE-01** | | | | | | | | | | | | | | | | | |
| | 12/14/2004 | 1140 | ABC | 40 | 38 | 41 | 60 | 8461 | 6965 | 6463 | 312 | 386 | | | | | |
| | 12/14/2004 | 1300 | ABC | 40 | 38 | 41 | 60 | 8610 | 7100 | 6560 | 312 | 390 | 6 | 5.5 | 7 | 5 | 3.5 |
| | 12/15/2004 | 724 | ABC | 42 | 38 | 42 | 60 | 5330 | 3784 | 3366 | 300 | 389 | | | | | |
| | 12/15/2004 | 1300 | ABC | 41 | 38 | 41 | 60 | 11333 | 9535 | 8534 | 300 | 383 | 3 | 5 | 4.5 | 3.2 | 2.8 |
| | 12/16/2004 | 742 | ABC | 42 | 39 | 42 | 60 | 5335 | 4158 | 3784 | 300 | 397 | | | | | |
| 1 | 12/16/2004 | 946 | ABC | 42 | 39 | 43 | 60 | 10358 | 7867 | 7298 | 300 | 388 | | | | | |
| | 12/16/2004 | 1259 | ABC | 41 | 38 | 42 | 60 | 12908 | 10332 | 9074 | 300 | 383 | 3 | 5 | 4.7 | 3.1 | 3.5 |
| | 12/17/2004 | 734 | ABC | 42 | 39 | 42 | 60 | 4963 | 3844 | 3589 | 300 | 401 | | | | | |
| | 12/17/2004 | 923 | ABC | 42 | 39 | 43 | 60 | 6080 | 4910 | 4782 | 300 | 394 | | | | | |
| | 12/17/2004 | 1202 | ABC | 41 | 38 | 42 | 60 | 8571 | 7210 | 7048 | 300 | 388 | | | | | |
| | 12/17/2004 | 1351 | ABC | 41 | 38 | 42 | 60 | 10269 | 7540 | 7032 | 300 | 395 | 2.9 | 4.4 | 4.2 | 2.8 | 3.1 |
| | 12/20/2004 | 800 | ABC | 42 | 39 | 42 | 60 | 5803 | 4516 | 4075 | 306 | 389 | | | | | |
| | 12/20/2004 | 1427 | ABC | 40 | 38 | 42 | 60 | 9085 | 7187 | 6401 | 300 | 394 | 2.8 | 4.1 | 3.8 | 3 | 3 |
| | 12/21/2004 | 747 | ABC | 42 | 39 | 42 | 60 | 5141 | 4061 | 3545 | 306 | 399 | | | | | |
| | 12/21/2004 | 948 | ABC | 42 | 39 | 43 | 60 | 6345 | 5210 | 4329 | 300 | 395 | | | | | |
| 2 | 12/21/2004 | 1214 | ABC | 41 | 38 | 42 | 60 | 8933 | 6193 | 5931 | 300 | 396 | 2.5 | 4.7 | 5 | 3.3 | 3.6 |
| | 12/22/2004 | 747 | ABC | 42 | 39 | 43 | 60 | 5020 | 3014 | 2847 | 340 | 397 | | | | | |
| | 12/22/2004 | 1429 | ABC | 42 | 39 | 42 | 60 | 7027 | 5389 | 4890 | 300 | 392 | 2.8 | 3.2 | 3.1 | 3 | 3.6 |
| | 12/23/2004 | 724 | ABC | 42 | 40 | 43 | 60 | 5092 | 3710 | 3145 | 372 | 396 | | | | | |
| | 12/23/2004 | 1042 | ABC | 42 | 40 | 43 | 60 | 5817 | 4458 | 4279 | 300 | 386 | 3 | 6 | 4.9 | 3.4 | 4.1 |
| | 12/27/2004 | 744 | ABC | 42 | 39 | 43 | 60 | 5654 | 3511 | 3519 | 306 | 402 | | | | | |
| | 12/27/2004 | 1006 | ABC | 42 | 40 | 43 | 60 | 6103 | 4339 | 3990 | 300 | 390 | | | | | |
| | 12/27/2004 | 1127 | ABC | 42 | 39 | 43 | 60 | 6067 | 4471 | 4154 | 300 | 393 | 2.6 | 2.7 | 2.5 | 2.5 | 3 |
| | 12/27/2004 | 1326 | ABC | 42 | 39 | 42 | 60 | 7171 | 5245 | 4800 | 300 | 391 | | | | | |
| | 12/28/2004 | 745 | ABC | 42 | 39 | 43 | 60 | 5159 | 3700 | 3223 | 264 | 401 | | | | | |
| 3 | 12/28/2004 | 1040 | ABC | 43 | 40 | 43 | 60 | 6004 | 4200 | 3880 | 264 | 377 | 3 | 2.8 | 2.9 | 2.8 | 2.9 |
| | 12/28/2004 | 1307 | ABC | 42 | 40 | 43 | 60 | 6249 | 4670 | 3990 | 264 | 390 | | | | | |
| | 12/29/2004 | 807 | ABC | 43 | 40 | 43 | 60 | 6334 | 4680 | 3992 | 312 | 369 | | | | | |
| | 12/29/2004 | 949 | ABC | 44 | 40 | 44 | 60 | 5483 | 4070 | 3159 | 312 | 369 | 22.9 | 4 | 3.5 | 2.7 | 3 |
| | 12/30/2004 | 720 | ABC | 44 | 40 | 44 | 60 | 7370 | 5108 | 4166 | 320 | 369 | | | | | |
| | 12/30/2004 | 1108 | ABC | 44 | 40 | 44 | 60 | 8718 | 6183 | 5415 | 336 | 369 | | | | | |
| | 12/30/2004 | 1327 | ABC | 43 | 40 | 43 | 60 | 7242 | 5681 | 5143 | 324 | 374 | 3 | 5 | 3.9 | 2.9 | 3.6 |

**Table 1: System Monitoring Data (Vacuum, Flowrate and FID Readings) (Continued)**

| | | | | VACUUM | | | | FLOWRATE | | | | | FID READINGS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | ANEMOMETER FLOWRATE | | | | | | | | | |
| WEEK | DATE | TIME (hours) | WELL SCREEN | VE-01A (in. $H_2O$) | VE-01B (in. $H_2O$) | VE-01C (in. $H_2O$) | Total Influent (in. $H_2O$) | A (ft/m) | B (ft/m) | C (ft/m) | Flowmeter Influent (scfm) | LCD Reading Influent (cfm) | Influent (A) (ppm) | Influent (B) (ppm) | Influent (C) (ppm) | Influent (Total) (ppm) | Effluent (Total) (ppm) |
| 4 | 1/3/2005 | 822 | ABC | 43 | 40 | 43 | 60 | 4972 | 3866 | 3333 | 336 | 360 | | | | | |
| | 1/3/2005 | 1455 | ABC | 42 | 39 | 42 | 60 | 6537 | 4310 | 4505 | | 395 | 3.4 | 5.2 | 4.4 | 3.2 | 3.6 |
| | 1/4/2005 | 834 | ABC | 43 | 40 | 43 | 60 | 5230 | 3009 | 3408 | 324 | 375 | | | | | |
| | 1/4/2005 | 1031 | ABC | 44 | 40 | 44 | 60 | 4941 | 3788 | 3375 | 330 | 385 | | | | | |
| | 1/4/2005 | 1238 | ABC | 43 | 40 | 44 | 60 | 5231 | 3675 | 3426 | 336 | 346 | 3 | 4.1 | 2.8 | 2.8 | 3 |
| | 1/5/2005 | 847 | ABC | 45 | 42 | 45 | 60 | 6336 | 4554 | 4080 | 330 | 372 | | | | | |
| | 1/5/2005 | 1146 | ABC | 44 | 40 | 44 | 60 | 9147 | 5867 | 5695 | 336 | 382 | | | | | |
| | 1/5/2005 | 1350 | ABC | 43 | 40 | 44 | 60 | 6553 | 5415 | 4344 | 336 | 398 | 2.9 | 3 | 2.6 | 2.1 | 2.7 |
| | 1/6/2005 | 742 | ABC | 43 | 40 | 44 | 60 | 2631 | 2984 | 2519 | 336 | 386 | 2.7 | 2.2 | 2.2 | 2.4 | 2.6 |
| | 1/6/2005 | 1330 | ABC | 42 | 39 | 43 | 60 | 7231 | 5428 | 5156 | 336 | 382 | | | | | |
| | 1/7/2005 | 845 | ABC | 43 | 40 | 43 | 60 | 3525 | 3736 | 2764 | 340 | 381 | | | | | |
| | 1/7/2005 | 1515 | ABC | 43 | 40 | 44 | 60 | 4977 | 4795 | 3696 | 336 | 380 | 5.2 | 8 | 5.6 | 4.5 | 5.5 |
| 5 | 1/10/2005 | 811 | ABC | 44 | 41 | 44 | 60 | 4939 | 5681 | 3862 | 336 | 405 | | | | | |
| | 1/10/2005 | 1041 | ABC | 43 | 40 | 44 | 60 | 5387 | 5415 | 3515 | 340 | 404 | | | | | |
| | 1/11/2005 | 830 | ABC | 44 | 40 | 44 | 64 | 6237 | 4939 | 3745 | 330 | 379 | | | | | |
| | 1/11/2005 | 1103 | ABC | 44 | 40 | 44 | 65 | 5862 | 4705 | 4131 | 336 | 380 | | | | | |
| | 1/11/2005 | 1332 | ABC | 43 | 40 | 44 | 62 | 6679 | 5219 | 4358 | 336 | 384 | | | | | |
| | 1/12/2005 | 1238 | ABC | 44 | 41 | 44 | 62 | 6193 | 5110 | 4460 | 340 | 381 | | | | | |
| | 1/12/2005 | 1506 | ABC | 44 | 40 | 44 | 62 | 10935 | 7334 | 6125 | 336 | 376 | 6.1 | 8.4 | 5.4 | 3.1 | 2.9 |
| | 1/13/2005 | 937 | ABC | 45 | 42 | 45 | 62 | 4884 | 4505 | 4031 | 330 | 383 | | | | | |
| | 1/13/2005 | 1331 | ABC | 44 | 40 | 44 | 62 | 7006 | 5674 | 4963 | 336 | 385 | 5.1 | 8.5 | 5.5 | 2.6 | 6.1 |
| | 1/14/2005 | 840 | ABC | 45 | 42 | 45 | 62 | 5194 | 4445 | 3477 | 324 | 391 | | | | | |
| | 1/14/2005 | 1314 | ABC | 44 | 40 | 44 | 62 | 7167 | 5891 | 4984 | 330 | 387 | 4.9 | 8 | 5.4 | 2.4 | 5.5 |
| 6 | 1/17/2005 | 828 | ABC | 46 | 42 | 46 | 62 | 8173 | 6773 | 4510 | 312 | 392 | | | | | |
| | 1/17/2005 | 1004 | ABC | 46 | 42 | 46 | 62 | 9252 | 8247 | 5849 | 324 | 366 | | | | | |
| | 1/17/2005 | 1227 | ABC | 44 | 41 | 45 | 62 | 12252 | 9274 | 8152 | 320 | 380 | | | | | |
| | 1/17/2005 | 1435 | ABC | 44 | 42 | 45 | 63 | 13179 | 10531 | 9186 | 312 | 379 | 4 | 4.3 | 4.5 | 2.3 | 3.8 |
| | 1/18/2005 | 758 | ABC | 46 | 43 | 46 | 65 | 4351 | 4255 | 3221 | 312 | 397 | | | | | |
| | 1/18/2005 | 1035 | ABC | 46 | 42 | 46 | 65 | 12779 | 10328 | 8379 | 336 | 374 | | | | | |
| | 1/18/2005 | 1213 | ABC | 45 | 42 | 46 | 65 | 14835 | 10177 | 7947 | 336 | 380 | NO | NO | NO | NO | NO |
| | 1/19/2005 | 818 | ABC | 46 | 43 | 46 | 62 | 6187 | 5203 | 4018 | 312 | 388 | | | | | |
| | 1/19/2005 | 1007 | ABC | 46 | 43 | 46 | 64 | 11342 | 8615 | 6343 | 330 | 372 | | | | | |
| | 1/19/2005 | 1441 | ABC | 44 | 41 | 45 | 65 | 9985 | 7231 | 5855 | 312 | 381 | 2.6 | 7.1 | 7.1 | 1.4 | 3.9 |
| | 1/20/2005 | 807 | ABC | 46 | 42 | 46 | 62 | 5350 | 4223 | 3110 | 312 | 395 | 2.1 | 5.1 | 4.9 | 1.7 | 6.4 |
| | 1/20/2005 | 1600 | ABC | 45 | 42 | 46 | 61 | 7208 | 5670 | 4563 | 312 | 382 | | | | | |
| | 1/21/2005 | 1158 | ABC | 46 | 43 | 46 | 60 | 7983 | 6553 | 5437 | 312 | 378 | | | | | |
| | 1/21/2005 | 1330 | ABC | 46 | 43 | 46 | 60 | 8621 | 6673 | 5156 | 320 | 374 | NO | NO | NO | NO | NO |

**Table 1: System Monitoring Data (Vacuum, Flowrate and FID Readings) (Continued)**

| | | | | VACUUM | | | | FLOWRATE | | | | | FID READINGS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | ANEMOMETER FLOWRATE | | | | | | | | | |
| WEEK | DATE | TIME *(hours)* | WELL SCREEN | VE-01A *(in. $H_2O$)* | VE-01B *(in. $H_2O$)* | VE-01C *(in. $H_2O$)* | Total Influent *(in. $H_2O$)* | A *(ft/m)* | B *(ft/m)* | C *(ft/m)* | Flowmeter Influent *(scfm)* | LCD Reading Influent *(cfm)* | Influent (A) *(ppm)* | Influent (B) *(ppm)* | Influent (C) *(ppm)* | Influent (Total) *(ppm)* | Effluent (Total) *(ppm)* |
| 7 | 1/24/2005 | 700 | ABC | 48 | 45 | 48 | 62 | 5922 | 5801 | 3787 | 312 | 389 | | | | | |
| | 1/24/2005 | 1630 | ABC | 48 | 45 | 48 | 62 | 8704 | 8127 | 7358 | 312 | 386 | NO | NO | NO | NO | NO |
| | 1/25/2005 | 635 | ABC | 47 | 44 | 47 | 60 | 5672 | 4075 | 2854 | 305 | 391 | | | | | |
| | 1/25/2005 | 1139 | ABC | 46 | 43 | 47 | 60 | 9228 | 7661 | 5860 | 312 | 387 | NO | NO | NO | NO | NO |
| | 1/26/2005 | 657 | ABC | 47 | 44 | 48 | 60 | 6321 | 5101 | 3740 | 312 | 380 | | | | | |
| | 1/26/2005 | 1003 | ABC | 48 | 45 | 48 | 60 | 6749 | 5019 | 3554 | 305 | 385 | | | | | |
| | 1/26/2005 | 1217 | ABC | 47 | 44 | 48 | 65 | 7582 | 5846 | 4267 | 312 | 379 | NO | NO | NO | NO | NO |
| | 1/27/2005 | 345 | ABC | 48 | 46 | 48 | 65 | 5159 | 3589 | 2053 | 312 | 393 | | | | | |
| | 1/27/2005 | 1131 | ABC | 48 | 46 | 49 | 65 | 6145 | 4716 | 3528 | 310 | 379 | 1 | 4 | 4 | 1 | 5 |
| | 1/27/2005 | 1330 | ABC | 48 | 45 | 48 | 65 | 7381 | 5692 | 4075 | 312 | 386 | | | | | |
| | 1/28/2005 | 747 | ABC | 47 | 45 | 48 | 65 | 4723 | 3210 | 2704 | 312 | 389 | | | | | |
| | 1/28/2005 | 1400 | ABC | 48 | 46 | 48 | 65 | 7112 | 5753 | 4953 | 312 | 384 | 2 | 5 | 5 | 2.5 | 5 |
| 8 | 1/31/2005 | 645 | ABC | 50 | 47 | 50 | 65 | 6386 | 4522 | 2236 | 312 | 388 | | | | | |
| | 1/31/2005 | 1409 | ABC | 48 | 46 | 49 | 65 | 11554 | 9118 | 5812 | 312 | 365 | 1 | 4 | 2.2 | 0.8 | 3.2 |
| | 2/1/2005 | 812 | ABC | 50 | 48 | 51 | 65 | 5821 | 4523 | 2723 | 305 | 367 | | | | | |
| | 2/1/2005 | 1308 | ABC | 49 | 46 | 50 | 65 | 7376 | 5717 | 3696 | 312 | 368 | 3 | 12 | 8.1 | 3.5 | 8.6 |
| 9 | 2/7/2005 | 655 | ABC | 50 | 48 | 51 | 65 | 4965 | 3620 | 1719 | 300 | 367 | | | | | |
| | 2/7/2005 | 1735 | ABC | 50 | 47 | 50 | 65 | 5942 | 4273 | 2350 | 305 | 356 | NO | NO | NO | NO | NO |
| | 2/8/2005 | 639 | ABC | 50 | 48 | 51 | 65 | 5421 | 3691 | 1716 | 295 | 360 | | | | | |
| | 2/8/2005 | 1302 | ABC | 50 | 47 | 50 | 65 | 7692 | 6107 | 3778 | 300 | 336 | 4.2 | 9.5 | 8.9 | 5.8 | 10 |
| | 2/9/2005 | 635 | ABC | 50 | 48 | 51 | 65 | 5234 | 3597 | 1828 | 290 | 351 | | | | | |
| | 2/9/2005 | 1242 | ABC | 50 | 48 | 50 | 65 | 9371 | 7671 | 4267 | 300 | 345 | 1 | 10.2 | 6.4 | 1.5 | 7 |
| | 2/10/2005 | 629 | ABC | 50 | 48 | 50 | 65 | 5412 | 3904 | 1768 | 300 | 382 | | | | | |
| | 2/10/2005 | 1304 | ABC | 50 | 48 | 50 | 65 | 9325 | 7258 | 4131 | 310 | 341 | 0.3 | 5.5 | 5.1 | 1.3 | 5.6 |
| 10 | 2/15/2005 | 345 | ABC | 50 | 47 | 50 | 65 | 5715 | 4129 | 1855 | 288 | 365 | | | | | |
| | 2/15/2005 | 1059 | ABC | 50 | 48 | 50 | 65 | 7252 | 5842 | 2825 | 295 | 360 | 1.1 | 9.2 | 5.9 | 1.3 | 4.9 |
| | 2/16/2005 | 650 | ABC | 50 | 47 | 50 | 65 | 5317 | 3874 | 175 | 292 | 366 | | | | | |
| | 2/16/2005 | 1345 | ABC | 49 | 47 | 50 | 65 | 9299 | 7210 | 3709 | 290 | 352 | 2 | 4.1 | 3.4 | 0.5 | 4.8 |
| | 2/17/2005 | 710 | ABC | 50 | 47 | 50 | 65 | 5806 | 4255 | 2192 | 290 | 367 | | | | | |
| | 2/17/2005 | 1312 | ABC | 49 | 47 | 50 | 65 | 7501 | 5803 | 2937 | 300 | 339 | 0.5 | 4 | 3.8 | 1 | 5 |
| | 2/18/2005 | 650 | ABC | 50 | 48 | 51 | 65 | 5426 | 4145 | 1838 | 300 | 357 | 4.2 | 3.1 | 1.5 | 0.5 | 2.7 |
| | 2/18/2005 | 1316 | ABC | 51 | 48 | 51 | 65 | 7732 | 6001 | 2984 | 306 | 341 | | | | | |

**Table 1: System Monitoring Data (Vacuum, Flowrate and FID Readings) (Continued)**

| | | | | VACUUM | | | | FLOWRATE | | | | | FID READINGS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | ANEMOMETER FLOWRATE | | | | | | | | | |
| WEEK | DATE | TIME (hours) | WELL SCREEN | VE-01A (in. $H_2O$) | VE-01B (in. $H_2O$) | VE-01C (in. $H_2O$) | Total Influent (in. $H_2O$) | A (ft/m) | B (ft/m) | C (ft/m) | Flowmeter Influent (scfm) | LCD Reading Influent (cfm) | Influent (A) (ppm) | Influent (B) (ppm) | Influent (C) (ppm) | Influent (Total) (ppm) | Effluent (Total) (ppm) |
| 11 | 2/21/2005 | 847 | ABC | 52 | 49 | 52 | 72 | 5199 | 3769 | 1617 | 300 | 366 | | | | | |
| | 2/21/2005 | 1142 | ABC | 51 | 48 | 52 | 72 | 5652 | 3872 | 1728 | 310 | 371 | | | | | |
| | 2/21/2005 | 1335 | ABC | 51 | 48 | 51 | 72 | 6749 | 4919 | 2110 | 310 | 365 | 4 | 6.5 | 10.4 | 5.2 | 6.8 |
| | 2/22/2005 | 801 | ABC | 52 | 50 | 53 | 70 | 4928 | 3782 | 1309 | 295 | 364 | | | | | |
| | 2/22/2005 | 1059 | ABC | 52 | 50 | 53 | 70 | 7223 | 5815 | 2315 | 306 | 377 | | | | | |
| | 2/22/2005 | 1359 | ABC | 52 | 50 | 53 | 70 | 5362 | 4525 | 1712 | 306 | 369 | 6.1 | 6.9 | 9 | 5.5 | 7.5 |
| | 2/23/2005 | 700 | ABC | 52 | 50 | 53 | 70 | 4889 | 3681 | 1415 | 300 | 361 | 3.6 | 3.5 | 7.2 | 1.5 | 2 |
| | 2/23/2005 | 1208 | ABC | 52 | 50 | 53 | 70 | 7958 | 6109 | 2331 | 306 | 360 | | | | | |
| | 2/23/2005 | 1342 | ABC | 52 | 50 | 53 | 70 | 8814 | 7037 | 3430 | 300 | 374 | | | | | |
| | 2/24/2005 | 1500 | ABC | 52 | 50 | 53 | 70 | 8899 | 7016 | 3296 | 305 | 337 | 6.5 | 12.5 | 8.1 | 1.7 | 5.6 |
| | 2/25/2005 | 828 | ABC | 54 | 52 | 54 | 72 | 5437 | 4267 | 1701 | 288 | 349 | | | | | |
| | 2/25/2005 | 1255 | ABC | 52 | 50 | 53 | 70 | 7247 | 5989 | 2647 | 300 | 339 | 9 | 15 | 12 | 6 | 9.5 |
| 12 | 2/28/2005 | 755 | ABC | 56 | 54 | 57 | 72 | 4673 | 3959 | 1060 | 288 | 360 | | | | | |
| | 2/28/2005 | 1038 | ABC | 55 | 52 | 56 | 73 | 10135 | 7797 | 2382 | 310 | 340 | | | | | |
| | 2/28/2005 | 1343 | ABC | 54 | 52 | 55 | 72 | 7606 | 6080 | 2026 | 312 | 348 | 7.8 | 10 | 9.1 | 6 | 9.9 |
| | 3/1/2005 | 823 | ABC | 56 | 54 | 57 | 72 | 5364 | 4303 | 1035 | 312 | 350 | | | | | |
| | 3/1/2005 | 1340 | ABC | 54 | 52 | 55 | 72 | 9190 | 7298 | 1969 | 300 | 349 | 9.2 | 13 | 11 | 6.6 | 7.9 |
| | 3/2/2005 | 737 | ABC | 57 | 54 | 58 | 74 | 5942 | 4214 | 1147 | 288 | 350 | | | | | |
| | 3/2/2005 | 1215 | ABC | 56 | 53 | 56 | 73 | 10101 | 7972 | 1984 | 300 | 337 | 1.5 | 2.6 | 2.4 | 0.8 | 4.5 |
| | 3/3/2005 | 741 | ABC | 57 | 54 | 57 | 70 | 6107 | 4449 | 1236 | 290 | 358 | | | | | |
| | 3/3/2005 | 1000 | ABC | 57 | 55 | 58 | 75 | 7516 | 5860 | 1690 | 292 | 356 | | | | | |
| | 3/3/2005 | 1205 | ABC | 58 | 54 | 58 | 75 | 12767 | 9802 | 2854 | 312 | 346 | 3.3 | 4.2 | 3.9 | 1.4 | 4.6 |
| | 3/4/2005 | 750 | ABC | 57 | 55 | 57 | 75 | 5849 | 4021 | 1198 | 295 | 355 | | | | | |
| | 3/4/2005 | 950 | ABC | 57 | 55 | 58 | 75 | 8232 | 6992 | 1906 | 290 | 350 | 1.2 | 2.9 | 2.3 | 1.1 | 3.1 |
| | 3/4/2005 | 1200 | ABC | 58 | 55 | 58 | 75 | 10890 | 8771 | 2005 | 290 | 346 | | | | | |
| 13 | 3/7/2005 | 804 | ABC | 59 | 57 | 60 | 76 | 5808 | 4903 | 1286 | 288 | 340 | | | | | |
| | 3/7/2005 | 1006 | ABC | 58 | 56 | 59 | 75 | 14617 | 11705 | 1941 | 300 | 325 | | | | | |
| | 3/7/2005 | 1204 | ABC | 57 | 55 | 58 | 75 | 13285 | 11438 | 1975 | 306 | 319 | | | | | |
| | 3/7/2005 | 1411 | ABC | 57 | 55 | 58 | 75 | 14145 | 11442 | 2382 | 312 | 321 | 5.2 | 14.7 | 9.9 | 4.7 | 9.5 |
| | 3/8/2005 | 843 | ABC | 60 | 57 | 60 | 76 | 7335 | 5565 | 1123 | 288 | 344 | | | | | |
| | 3/8/2005 | 1238 | ABC | 57 | 55 | 58 | 76 | 9523 | 8126 | 2032 | 288 | 329 | | | | | |
| | 3/8/2005 | 1429 | ABC | 57 | 55 | 58 | 76 | 15000 | 13783 | 3102 | 288 | 315 | 8.4 | 11 | 9.3 | 5.9 | 10.1 |
| | 3/9/2005 | 936 | ABC | 59 | 57 | 60 | 75 | 6458 | 6412 | 1429 | 288 | 355 | | | | | |
| | 3/9/2005 | 1020 | ABC | 58 | 56 | 59 | 75 | 10354 | 8082 | 1220 | 300 | 325 | 6.8 | 9.8 | 9.5 | 5 | 8.8 |
| | 3/9/2005 | 1325 | ABC | 57 | 55 | 58 | 76 | 11455 | 9274 | 1200 | 288 | 321 | | | | | |
| | 3/10/2005 | 1006 | ABC | 58 | 50 | 59 | 76 | 9802 | 9647 | 1378 | 288 | 322 | 8.7 | 13 | 11 | 6.3 | 10.2 |
| | 3/10/2005 | 1342 | ABC | 57 | 55 | 58 | 75 | 15000 | 11966 | 1780 | 276 | 320 | | | | | |
| | 3/11/2005 | 846 | ABC | 60 | 58 | 61 | 76 | 9207 | 6721 | 1362 | 280 | 326 | 5.5 | 9.6 | 8.1 | 5.7 | 8 |
| | 3/11/2005 | 1401 | ABC | 60 | 59 | 61 | 76 | 9742 | 8301 | 1212 | 288 | 315 | | | | | |

**Table 1: System Monitoring Data (Vacuum, Flowrate and FID Readings) (Continued)**

| | | | | VACUUM | | | | FLOWRATE | | | | | FID READINGS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | ANEMOMETER FLOWRATE | | | | | | | | | |
| WEEK | DATE | TIME (hours) | WELL SCREEN | VE-01A (in. $H_2O$) | VE-01B (in. $H_2O$) | VE-01C (in. $H_2O$) | Total Influent (in. $H_2O$) | A (ft/m) | B (ft/m) | C (ft/m) | Flowmeter Influent (scfm) | LCD Reading Influent (cfm) | Influent (A) (ppm) | Influent (B) (ppm) | Influent (C) (ppm) | Influent (Total) (ppm) | Effluent (Total) (ppm) |
| 14 | 3/14/2005 | 724 | ABC | 60 | 58 | 60 | 76 | 6170 | 6640 | 1269 | 288 | 333 | | | | | |
| | 3/14/2005 | 1102 | ABC | 58 | 56 | 60 | 76 | 15000+ | 15000+ | 2469 | 288 | 312 | | | | | |
| | 3/14/2005 | 1354 | ABC | 58 | 56 | 60 | 75 | 15000+ | 12805 | 2942 | 288 | 310 | 5.1 | 10.5 | 8.9 | 5.8 | 6.9 |
| | 3/15/2005 | 800 | ABC | 61 | 59 | 62 | 80 | 6740 | 5212 | 1170 | 288 | 319 | | | | | |
| | 3/15/2005 | 1500 | ABC | 58 | 57 | 60 | 77 | 13870 | 12115 | 3110 | 288 | 313 | 6 | 9.5 | 8.5 | 6 | 3.5 |
| | 3/16/2005 | 700 | ABC | 62 | 59 | 62 | 77 | 6350 | 6180 | 1155 | 288 | 320 | | | | | |
| | 3/16/2005 | 900 | ABC | 61 | 59 | 62 | 77 | 7373 | 5882 | 1260 | 288 | 317 | | | | | |
| | 3/16/2005 | 1000 | ABC | 60 | 58 | 61 | 77 | 11975 | 8978 | 2044 | 288 | 315 | 5.5 | 11 | 9 | 6.5 | 3 |
| | 3/17/2005 | 700 | ABC | 62 | 59 | 62 | 77 | 6216 | 6310 | 1029 | 288 | 321 | | | | | |
| | 3/17/2005 | 830 | ABC | 61 | 59 | 62 | 77 | 7075 | 6480 | 1485 | 288 | 318 | | | | | |
| | 3/17/2005 | 1000 | ABC | 60 | 59 | 61 | 77 | 1225 | 1065 | 2130 | 288 | 316 | 4.5 | 12 | 9.5 | 5 | 3.5 |
| | 3/18/2005 | 700 | ABC | 60 | 58 | 61 | 77 | 6220 | 4450 | 975 | 288 | 337 | | | | | |
| | 3/18/2005 | 810 | ABC | 60 | 58 | 61 | 77 | 6416 | 4561 | 1010 | 288 | 335 | | | | | |
| | 3/18/2005 | 1010 | ABC | 60 | 58 | 61 | 77 | 8986 | 7820 | 1268 | 288 | 324 | 5.1 | 10.5 | 8 | 6 | 5 |
| 15 | 3/21/2005 | 742 | ABC | 62 | 60 | 64 | 80 | 6532 | 4149 | 9090 | 288 | 321 | | | | | |
| | 3/21/2005 | 922 | ABC | 61 | 59 | 63 | 80 | 9215 | 7553 | 2246 | 288 | 311 | 4.3 | 9 | 7.1 | 5.3 | 9.2 |
| | 3/21/2005 | 1205 | ABC | 60 | 58 | 62 | 80 | 7972 | 7368 | 1083 | 288 | 308 | | | | | |
| | 3/22/2005 | 751 | ABC | 60 | 59 | 62 | 80 | 7099 | 3575 | 1179 | 288 | 334 | | | | | |
| | 3/22/2005 | 913 | ABC | 60 | 59 | 62 | 80 | 7480 | 5424 | 1406 | 288 | 302 | 5.1 | 10 | 7.4 | 6.1 | 9.9 |
| | 3/22/2005 | 1204 | ABC | 60 | 58 | 61 | 80 | 8070 | 6923 | 2107 | 288 | 342 | | | | | |
| | 3/23/2005 | 741 | ABC | 62 | 60 | 64 | 80 | 6174 | 3271 | 945 | 288 | 339 | | | | | |
| | 3/23/2005 | 914 | ABC | 62 | 60 | 64 | 80 | 5970 | 3303 | 1213 | 288 | 307 | 4.6 | 8.7 | 6.2 | 5.4 | 8.7 |
| | 3/23/2005 | 1130 | ABC | 61 | 59 | 63 | 80 | 6238 | 6332 | 1530 | 288 | 329 | | | | | |
| | 3/24/2005 | 1207 | A | 80+ | | | 140 | 15000+ | | | 264 | 268 | | | | | |
| | 3/24/2005 | 1301 | A | 80+ | | | 140 | 15000+ | | | 264 | 264 | 5.5 | | | 4.4 | 6.2 |
| | 3/25/2005 | 758 | A | 70 | | | 87 | 10027 | | | 168 | 325 | | | | | |
| | 3/25/2005 | 1045 | A | 69 | | | 87 | 10303 | | | 168 | 287 | | | | | |
| | 3/25/2005 | 1355 | A | 68 | | | 87 | 12189 | | | 168 | 286 | 5.7 | | | 3.8 | 8.9 |

**Table 1: System Monitoring Data (Vacuum, Flowrate and FID Readings) (Continued)**

| | | | | VACUUM | | | | FLOWRATE | | | | | FID READINGS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | ANEMOMETER FLOWRATE | | | | | | | | | |
| WEEK | DATE | TIME (hours) | WELL SCREEN | VE-01A (in. $H_2O$) | VE-01B (in. $H_2O$) | VE-01C (in. $H_2O$) | Total Influent (in. $H_2O$) | A (ft/m) | B (ft/m) | C (ft/m) | Flowmeter Influent (scfm) | LCD Reading Influent (cfm) | Influent (A) (ppm) | Influent (B) (ppm) | Influent (C) (ppm) | Influent (Total) (ppm) | Effluent (Total) (ppm) |
| | 3/28/2005 | 821 | A | 68 | | | 80 | 11726 | | | 228 | 318 | | | | | |
| | 3/28/2005 | 1012 | A | 65 | | | 77 | 12296 | | | 168 | 308 | 4.1 | | | 3.9 | 7.5 |
| | 3/28/2005 | 1251 | A | 62 | | | 80 | 9848 | | | 168 | 317 | | | | | |
| | 3/28/2005 | 1439 | A | 62 | | | 80 | 12240 | | | 144 | 311 | | | | | |
| | 3/29/2005 | 823 | A | 64 | | | 80 | 8290 | | | 168 | 313 | | | | | |
| | 3/29/2005 | 943 | A | 63 | | | 80 | 9376 | | | 168 | 288 | 6 | | | 5 | 9.6 |
| | 3/29/2005 | 1136 | A | 62 | | | 80 | 10006 | | | 168 | 317 | | | | | |
| 16 | 3/29/2005 | 1402 | A | 62 | | | 80 | 14327 | | | 168 | 308 | | | | | |
| | 3/30/2005 | 817 | A | 64 | | | 80 | 8384 | | | 168 | 325 | | | | | |
| | 3/30/2005 | 1144 | A | 63 | | | 80 | 8724 | | | 168 | 315 | | | | | |
| | 3/30/2005 | 1342 | A | 62 | | | 80 | 12235 | | | 168 | 304 | 4.8 | | | 5 | 8.9 |
| | 3/31/2005 | 759 | A | 64 | | | 80 | 6943 | | | 168 | 311 | | | | | |
| | 3/31/2005 | 953 | A | 63 | | | 80 | 4480 | | | 168 | 308 | | | | | |
| | 3/31/2005 | 1224 | A | 62 | | | 80 | 15000+ | | | 168 | 300 | 7.8 | | | 4.5 | 6.5 |
| | 4/1/2005 | 1440 | A | 62 | | | 80 | 14289 | | | 168 | 300 | | | | | |
| | 4/1/2005 | 1552 | A | 62 | | | 80 | 13624 | | | 168 | 297 | 4.6 | | | 4.2 | 9.7 |
| | 4/4/2005 | 813 | A | 63 | | | 80 | 10842 | | | 192 | 351 | | | | | |
| | 4/4/2005 | 933 | A | 63 | | | 80 | 11705 | | | 192 | 318 | 4.1 | | | 4.2 | 8.5 |
| | 4/4/2005 | 1433 | A | 62 | | | 80 | 13429 | | | 168 | 313 | | | | | |
| | 4/5/2005 | 819 | A | 66 | | | 80 | 7284 | | | 192 | 331 | | | | | |
| | 4/5/2005 | 1000 | A | 65 | | | 80 | 9501 | | | 240 | 274 | | | | | |
| | 4/5/2005 | 1134 | A | 64 | | | 80 | 15000+ | | | 240 | 296 | 5 | | | 4.6 | 10.2 |
| | 4/5/2005 | 1409 | A | 63 | | | 80 | 14056 | | | 168 | 287 | | | | | |
| | 4/6/2005 | 841 | A | 65 | | | 80 | 7001 | | | 168 | 294 | | | | | |
| 17 | 4/6/2005 | 1209 | A | 64 | | | 80 | 14004 | | | 192 | 287 | 4.3 | | | 4.5 | 10.1 |
| | 4/6/2005 | 1348 | A | 63 | | | 80 | 15000+ | | | 168 | 274 | | | | | |
| | 4/7/2005 | 818 | A | 65 | | | 80 | 4372 | | | 168 | 325 | | | | | |
| | 4/7/2005 | 1026 | A | 63 | | | 80 | 8545 | | | 198 | 293 | 4.1 | | | 4.5 | 9.1 |
| | 4/7/2005 | 1245 | A | 62 | | | 80 | 10608 | | | 168 | 311 | | | | | |
| | 4/7/2005 | 1440 | A | 62 | | | 80 | 12807 | | | 168 | 310 | | | | | |
| | 4/8/2005 | 806 | A | 64 | | | 80 | 9621 | | | 168 | 326 | | | | | |
| | 4/8/2005 | 1000 | A | 64 | | | 80 | 13965 | | | 144 | 310 | 4 | | | 4.2 | 8.7 |
| | 4/8/2005 | 1417 | A | 62 | | | 80 | 15000+ | | | 168 | 297 | | | | | |

## Table 1: System Monitoring Data (Vacuum, Flowrate and FID Readings) (Continued)

| | | | | VACUUM | | | | FLOWRATE | | | | | FID READINGS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | ANEMOMETER FLOWRATE | | | | | | | | | |
| WEEK | DATE | TIME (hours) | WELL SCREEN | VE-01A (in. $H_2O$) | VE-01B (in. $H_2O$) | VE-01C (in. $H_2O$) | Total Influent (in. $H_2O$) | A (ft/m) | B (ft/m) | C (ft/m) | Flowmeter Influent (scfm) | LCD Reading Influent (cfm) | Influent (A) (ppm) | Influent (B) (ppm) | Influent (C) (ppm) | Influent (Total) (ppm) | Effluent (Total) (ppm) |
| 18 | 4/11/2005 | 710 | A | 64 | | | 80 | 5020 | | | 192 | 344 | | | | | |
| | 4/11/2005 | 902 | A | 64 | | | 80 | 7601 | | | 168 | 290 | 4.3 | | | 4.8 | 8.6 |
| | 4/11/2005 | 1238 | A | 62 | | | 80 | 12180 | | | 168 | 291 | | | | | |
| | 4/11/2005 | 1412 | A | 62 | | | 80 | 15000+ | | | 168 | 291 | | | | | |
| | 4/12/2005 | 803 | A | 64 | | | 80 | 10002 | | | 168 | 316 | | | | | |
| | 4/12/2005 | 1012 | A | 64 | | | 80 | 12181 | | | 168 | 313 | 3.5 | | | 4 | 8.9 |
| | 4/12/2005 | 1245 | A | 62 | | | 80 | 15000+ | | | 168 | 286 | | | | | |
| | 4/12/2005 | 1427 | A | 62 | | | 80 | 15000+ | | | 168 | 291 | | | | | |
| | 4/13/2005 | 755 | A | 64 | | | 80 | 9873 | | | 192 | 355 | | | | | |
| | 4/13/2005 | 1100 | A | 63 | | | 80 | 14327 | | | 192 | 311 | 4.3 | | | 4.5 | 9.6 |
| | 4/13/2005 | 1402 | A | 62 | | | 80 | 15000+ | | | 168 | 289 | | | | | |
| | 4/14/2005 | 757 | A | 64 | | | 80 | 9130 | | | 168 | 337 | | | | | |
| | 4/14/2005 | 950 | A | 64 | | | 80 | 12891 | | | 168 | 289 | 3.9 | | | 4 | 6.5 |
| | 4/14/2005 | 1428 | A | 62 | | | 80 | 15000+ | | | 168 | 291 | | | | | |
| | 4/15/2005 | 713 | A | 64 | | | 80 | 4289 | | | 192 | 337 | | | | | |
| | 4/15/2005 | 1057 | A | 63 | | | 80 | 10672 | | | 168 | 291 | NO | | | NO | NO |
| | system shut down for quarterly sampling | | | | | | | | | | | | | | | | |
| 20 | 4/25/2005 | 1409 | A | 64 | | | 80 | 15000+ | | | 0 | 309 | NO | | | NO | NO |
| | 4/26/2005 | 657 | A | 64 | | | 80 | 4780 | | | 168 | 331 | | | | | |
| | 4/26/2005 | 1222 | A | 64 | | | 80 | 15000+ | | | 192 | 301 | 3.7 | | | 4.3 | 10.1 |
| | 4/27/2005 | 644 | A | 65 | | | 80 | 8259 | | | 192 | 340 | | | | | |
| | 4/27/2005 | 1335 | A | 65 | | | 80 | 15000+ | | | 168 | 294 | 4.8 | | | 5 | 9.4 |
| | 4/28/2005 | 628 | A | 65 | | | 80 | 12053 | | | 192 | 323 | | | | | |
| | 4/28/2005 | 1032 | A | 65 | | | 80 | 8450 | | | 168 | 320 | 3.5 | | | 3.9 | 7.2 |
| | 4/29/2005 | 640 | A | 65 | | | 80 | 7650 | | | 192 | 347 | | | | | |
| | 4/29/2005 | 1236 | A | 64 | | | 80 | 15000+ | | | 162 | 314 | 4.1 | | | 4.6 | 4.4 |
| 21 | 5/2/2005 | 628 | A | 66 | | | 80 | 10177 | | | 192 | 326 | | | | | |
| | 5/2/2005 | 1035 | A | 66 | | | 80 | 12042 | | | 192 | 317 | | | | | |
| | 5/2/2005 | 1405 | ABC | 61 | 59 | 62 | 80 | 15000+ | 5597 | 420 | 317 | 290 | 3.6 | 2.3 | 1.5 | 6.3 | 6.9 |
| **VE-03** | | | | | | | | | | | | | | | | | |
| 1 | 6/3/2005 | 1303 | AB | 64 | 63 | | 80 | 15000+ | 5123 | | 288 | 346 | 6.4 | 24 | | 6 | 10 |
| | 6/3/2005 | 1435 | AB | 64 | 63 | | 80 | 15000+ | 6705 | | 288 | 346 | | | | | |

## Table 1: System Monitoring Data (Vacuum, Flowrate and FID Readings) (Continued)

| | | | | VACUUM | | | | FLOWRATE | | | | | FID READINGS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | ANEMOMETER FLOWRATE | | | | | | | | | |
| WEEK | DATE | TIME (hours) | WELL SCREEN | VE-01A (in. $H_2O$) | VE-01B (in. $H_2O$) | VE-01C (in. $H_2O$) | Total Influent (in. $H_2O$) | A (ft/m) | B (ft/m) | C (ft/m) | Flowmeter Influent (scfm) | LCD Reading Influent (cfm) | Influent (A) (ppm) | Influent (B) (ppm) | Influent (C) (ppm) | Influent (Total) (ppm) | Effluent (Total) (ppm) |
| | 6/6/2005 | 626 | AB | 66 | 65 | | 85 | 10680 | 3061 | | 288 | 362 | | | | | |
| | 6/6/2005 | 754 | AB | 67 | 65 | | 85 | 11053 | 3441 | | 288 | 340 | | | | | |
| | 6/6/2005 | 931 | AB | 67 | 66 | | 85 | 12591 | 3809 | | 288 | 352 | | | | | |
| | 6/6/2005 | 1130 | AB | 67 | 66 | | 85 | 13508 | 4491 | | 288 | 334 | | | | | |
| | 6/6/2005 | 1232 | AB | 66 | 65 | | 85 | 15000+ | 4595 | | 288 | 318 | 4 | 15 | | 6 | 5.2 |
| | 6/7/2005 | 618 | AB | 66 | 65 | | 85 | 1477 | 3014 | | 288 | 354 | | | | | |
| | 6/7/2005 | 751 | AB | 67 | 66 | | 85 | 11133 | 3534 | | 288 | 336 | | | | | |
| | 6/7/2005 | 917 | AB | 67 | 66 | | 85 | 11546 | 3335 | | 288 | 322 | 5 | 9 | | 6.2 | 5.5 |
| | 6/7/2005 | 1100 | AB | 67 | 66 | | 85 | 15000+ | 4280 | | 288 | 338 | | | | | |
| 2 | 6/7/2005 | 1235 | AB | 67 | 65 | | 85 | 15000+ | 4930 | | 288 | 306 | | | | | |
| | 6/8/2005 | 622 | AB | 67 | 67 | | 85 | 9810 | 2801 | | 288 | 329 | | | | | |
| | 6/8/2005 | 1243 | AB | 66 | 66 | | 85 | 15000+ | 3968 | | 288 | 308 | 5 | 11 | | 5.6 | 5.2 |
| | 6/8/2005 | 1415 | AB | 66 | 66 | | 85 | 15000+ | 5969 | | 288 | 301 | | | | | |
| | 6/9/2005 | 633 | AB | 68 | 66 | | 85 | 10908 | 301 | | 288 | 368 | | | | | |
| | 6/9/2005 | 757 | AB | 68 | 66 | | 85 | 11320 | 4390 | | 288 | 345 | | | | | |
| | 6/9/2005 | 938 | AB | 68 | 66 | | 85 | 15000+ | 4567 | | 288 | 311 | | | | | |
| | 6/9/2005 | 1107 | AB | 68 | 66 | | 85 | 15000+ | 4232 | | 288 | 309 | | | | | |
| | 6/9/2005 | 1240 | AB | 67 | 66 | | 85 | 14278 | 4579 | | 288 | 308 | 4.2 | 12.5 | | 5.5 | 5 |
| | 6/10/2005 | 715 | AB | 67 | 66 | | 85 | 11463 | 3375 | | 288 | 347 | | | | | |
| | 6/10/2005 | 917 | AB | 67 | 66 | | 85 | 13988 | 3498 | | 288 | 330 | | | | | |
| | 6/10/2005 | 1200 | AB | 67 | 66 | | 85 | 15000+ | 4502 | | 288 | 318 | 4.3 | 14.8 | | 5.5 | 5.2 |
| | 6/13/2005 | 634 | AB | 68 | 66 | | 85 | 1481 | 3271 | | 288 | 358 | | | | | |
| | 6/13/2005 | 803 | AB | 68 | 66 | | 85 | 11912 | 4041 | | 288 | 326 | | | | | |
| | 6/13/2005 | 928 | AB | 68 | 66 | | 90 | 15000+ | 4070 | | 288 | 318 | | | | | |
| | 6/13/2005 | 1140 | AB | 67 | 66 | | 90 | 15000+ | 5980 | | 288 | 321 | 4.2 | 30.2 | | 6.2 | 5.6 |
| | 6/13/2005 | 1307 | AB | 66 | 65 | | 90 | 15000+ | 5214 | | 288 | 336 | | | | | |
| | 6/14/2005 | 923 | AB | 68 | 67 | | 88 | 13662 | 4572 | | 288 | 318 | | | | | |
| | 6/14/2005 | 1130 | AB | 67 | 66 | | 88 | 15000+ | 4908 | | 288 | 329 | | | | | |
| | 6/14/2005 | 1434 | AB | 66 | 65 | | 81 | 15000+ | 8760 | | 288 | 319 | 4.4 | 20 | | 7.2 | 9.1 |
| 3 | 6/15/2005 | 830 | AB | 68 | 67 | | 87 | 12751 | 3262 | | 280 | 340 | 4 | 12 | | 5.5 | 6.5 |
| | 6/15/2005 | 1239 | AB | 67 | 66 | | 86 | 15000+ | 4563 | | 288 | 311 | | | | | |
| | 6/15/2005 | 1415 | AB | 66 | 66 | | 88 | 15000+ | 12900 | | 288 | 321 | | | | | |
| | 6/16/2005 | 830 | AB | 68 | 67 | | 88 | 12382 | 3520 | | 300 | 324 | 4.1 | 18 | | 6.2 | 7 |
| | 6/16/2005 | 1047 | AB | 68 | 67 | | 88 | 14296 | 4698 | | 288 | 337 | | | | | |
| | 6/16/2005 | 1216 | AB | 68 | 67 | | 88 | 14590 | 4563 | | 288 | 314 | | | | | |
| | 6/16/2005 | 1429 | AB | 67 | 66 | | 88 | 15000+ | 7573 | | 288 | 317 | | | | | |
| | 6/17/2005 | 953 | A | 54 | | | 70 | 11654 | | | 270 | 376 | 4.4 | | | 4.6 | 5.1 |
| | 6/17/2005 | 1121 | A | 54 | | | 70 | 11287 | | | 266 | 366 | | | | | |
| | 6/17/2005 | 1429 | A | 54 | | | 70 | 15000+ | | | 240 | 348 | | | | | |

## Table 1: System Monitoring Data (Vacuum, Flowrate and FID Readings) (Continued)

| | | | | VACUUM | | | | FLOWRATE | | | | | FID READINGS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | ANEMOMETER FLOWRATE | | | | | | | | | |
| WEEK | DATE | TIME (hours) | WELL SCREEN | VE-01A (in. $H_2O$) | VE-01B (in. $H_2O$) | VE-01C (in. $H_2O$) | Total Influent (in. $H_2O$) | A (ft/m) | B (ft/m) | C (ft/m) | Flowmeter Influent (scfm) | LCD Reading Influent (cfm) | Influent (A) (ppm) | Influent (B) (ppm) | Influent (C) (ppm) | Influent (Total) (ppm) | Effluent (Total) (ppm) |
| 4 | 6/20/2005 | 815 | A | 54 | | | 70 | 11320 | | | 228 | 357 | 5 | | | 6.3 | 6.2 |
| | 6/20/2005 | 1016 | A | 54 | | | 70 | 12591 | | | 240 | 352 | | | | | |
| | 6/20/2005 | 1221 | A | 54 | | | 70 | 15000+ | | | 240 | 338 | | | | | |
| | 6/20/2005 | 1423 | A | 55 | | | 70 | 15000+ | | | 240 | 349 | | | | | |
| | 6/21/2005 | 806 | A | 54 | | | 70 | 10908 | | | 228 | 356 | 5.2 | | | 7 | 6.4 |
| | 6/21/2005 | 1004 | A | 62 | | | 80 | 13347 | | | 240 | 331 | | | | | |
| | 6/21/2005 | 1158 | A | 60 | | | 80 | 15000+ | | | 240 | 338 | | | | | |
| | 6/21/2005 | 1442 | A | 60 | | | 80 | 15000+ | | | 240 | 342 | | | | | |
| | 6/22/2005 | 848 | A | 60 | | | 80 | 15000+ | | | 228 | 351 | | | | | |
| | 6/22/2005 | 1058 | A | 60 | | | 80 | 15000+ | | | 240 | 342 | 5.4 | | | 6.9 | 5.6 |
| | 6/22/2005 | 1420 | A | 58 | | | 80 | 15000+ | | | 240 | 339 | | | | | |
| | 6/23/2005 | 815 | A | 60 | | | 80 | 11775 | | | 240 | 359 | | | | | |
| | 6/23/2005 | 958 | A | 62 | | | 80 | 12517 | | | 240 | 324 | 5.5 | | | 6.1 | 6.5 |
| | 6/23/2005 | 1236 | A | 60 | | | 80 | 13865 | | | 240 | 315 | | | | | |
| | 6/23/2005 | 1434 | A | 60 | | | 80 | 15000+ | | | 240 | 322 | | | | | |
| | 6/24/2005 | 830 | A | 60 | | | 80 | 1197 | | | 240 | 342 | 5.1 | | | 6.1 | 6.9 |
| | 6/24/2005 | 1041 | A | 60 | | | 80 | 12471 | | | 240 | 335 | | | | | |
| | 6/24/2005 | 1215 | A | 60 | | | 80 | 15000+ | | | 240 | 332 | | | | | |
| | 6/24/2005 | 1423 | A | 59 | | | 80 | 15000+ | | | 240 | 347 | | | | | |
| 5 | 6/27/2005 | 827 | A | 61 | | | 80 | 10786 | | | 260 | 346 | 6 | | | 6.7 | 6.6 |
| | 6/27/2005 | 1020 | A | 61 | | | 80 | 12315 | | | 240 | 324 | | | | | |
| | 6/27/2005 | 1410 | A | 60 | | | 80 | 13254 | | | 252 | 337 | | | | | |
| | 6/28/2005 | 830 | A | 61 | | | 80 | 11342 | | | 260 | 342 | 5.5 | | | 6.2 | 6.5 |
| | 6/28/2005 | 1237 | A | 60 | | | 80 | 13326 | | | 260 | 329 | | | | | |
| | 6/28/2005 | 1437 | A | 60 | | | 80 | 13835 | | | 260 | 330 | | | | | |
| | 6/29/2005 | 902 | A | 61 | | | 80 | 12315 | | | 264 | 337 | 5.9 | | | 6.7 | 7 |
| | 6/29/2005 | 1104 | A | 61 | | | 80 | 13784 | | | 264 | 351 | | | | | |
| | 6/29/2005 | 1321 | A | 60 | | | 80 | 15000+ | | | 264 | 341 | | | | | |
| | 6/30/2005 | 827 | A | 61 | | | 80 | 12257 | | | 240 | 335 | 5.7 | | | 6.6 | 7 |
| | 6/30/2005 | 1052 | A | 61 | | | 80 | 12386 | | | 240 | 324 | | | | | |
| | 6/30/2005 | 1244 | A | 60 | | | 80 | 15000+ | | | 264 | 333 | | | | | |
| | 6/30/2005 | 1425 | A | 60 | | | 80 | 15000+ | | | 264 | 338 | | | | | |
| | 7/1/2005 | 826 | A | 61 | | | 80 | 11450 | | | 264 | 354 | 5.9 | | | 6.6 | 6.7 |
| | 7/1/2005 | 1030 | A | 61 | | | 80 | 12659 | | | 264 | 332 | | | | | |
| | 7/1/2005 | 1238 | A | 60 | | | 80 | 15000+ | | | 264 | 322 | | | | | |

NO - FID Meter Not Operating.

**Table 2: Vacuum Responses in Soil Vapor Monitoring Wells**

| WEEK | DATE | SAMPLE PROBE ID | VACUUM RESPONSES (Magnahelic Gauges) SVW-25 in. $H_2O$ | SVW-26 in. $H_2O$ | SVW-27 in. $H_2O$ | SVW-28 in. $H_2O$ | SVW-32 in. $H_2O$ | SVW-33 in. $H_2O$ | SVW-34 in. $H_2O$ | SVW-35 in. $H_2O$ | SVW-36 in. $H_2O$ | SVW-37 in. $H_2O$ | SVW-38 in. $H_2O$ | SVW-39 in. $H_2O$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *VE-01* | | | | | | | | | | | | | | |
| 1 | 12/14/2005 | | | | | | | | | | | | | |
| 2 | 12/23/2004 | A | 0 | P | 0 | 0 | P | 0 | P | P | 0 | P | P | P |
| | | | 0 | P | 0 | P | 0 | 0 | P | 0 | 0 | 0 | P | P |
| | | | P | P | 0.5 | P | P | 0 | P | P | 0 | P | P | P |
| | | | P | P | 0.9 | 0.8 | P | 0 | P | P | 0 | 0 | 0 | P |
| | | | P | P | 0 | 0.7 | P | 0 | 0.2 | 0 | 0 | 0 | P | P |
| | | F | P | 3.1 | 2 | P | P | 0 | 0 | P | | P | 0.1 | 0 |
| | | | P | 2.4 | 1.9 | P | P | 0.3 | P | P | | P | P | P |
| | B | | P | 3.5 | P | P | P | P | P | P | | 0.6 | P | P |
| | C | I | 4.3 | P | 0 | | 2.1 | P | | P | | 0 | P | 5 |
| | D | J | 0 | P | P | | 0.3 | 0 | | P | | 0 | 0.8 | |
| 3 | 12/30/2004 | A | 0 | P | 0.2 | 0 | P | 0 | P | P | NR | P | P | P |
| | | | 0 | P | 0 | P | 0 | 0 | P | NR | NR | 0 | P | P |
| | G | | P | P | 0.7 | P | P | 0 | P | P | NR | P | P | P |
| | H | | P | P | 1.3 | 0.1 | P | 0 | P | P | NR | 0 | 0 | P |
| | | | P | P | 0.2 | 0.7 | P | 0 | 0 | NR | NR | 0 | P | P |
| | | F | P | 3.1 | 1.3 | P | P | 0 | 0 | P | | P | 3.4 | 1.5 |
| | | G | P | 0.3 | 2.8 | P | P | 0 | P | P | | P | P | P |
| | B | | P | 4.2 | P | P | P | P | P | P | | 1 | P | P |
| | C | I | 4.5 | P | 0 | | 2.4 | P | | P | | 0 | P | 25 |
| | D | J | 0 | P | P | | 0.1 | 0 | | P | | 0 | 0 | |
| 4 | 1/5/2005 | A | 0 | P | 0.1 | 0 | P | 0 | P | P | NR | P | P | P |
| | | | 0 | P | 0 | P | 0 | 0 | P | NR | NR | 0 | P | P |
| | | | P | P | 0.8 | P | P | 0 | P | P | NR | P | P | P |
| | H | | P | P | 1.4 | 0.2 | P | 0 | P | P | NR | 0 | 0 | P |
| | | | P | P | 0 | 0 | P | 0 | 0.2 | NR | NR | 0 | P | P |
| | | F | P | 3.7 | 1.5 | P | P | 0 | 0 | P | | P | 2 | 0.9 |
| | | G | P | 2.1 | 1.5 | P | P | 6 | P | P | | P | P | P |
| | B | | P | 4.6 | P | P | P | P | P | P | | 3.3 | P | P |
| | C | I | 2 | P | 0 | | 2.8 | P | | P | | 0 | P | 1 |
| | D | J | 0 | P | P | | 0 | 0 | | P | | 0 | 2.8 | |
| 5 | 1/13/2005 | A | 0 | P | 0 | 0 | P | 0 | P | P | NR | P | P | P |
| | | | 0 | P | 0 | P | 0 | 0 | P | NR | NR | 0 | P | P |
| | | | P | P | 0.6 | P | P | 0 | P | P | NR | P | P | P |
| | H | | P | P | 1.4 | 0 | P | 0 | P | P | NR | 0 | 0 | P |
| | | | P | P | 0 | 0 | P | 0 | 0.1 | NR | NR | 0 | P | P |
| | | F | P | 3 | 1.8 | P | P | 0 | 0 | P | | P | 0 | 0 |
| | | | P | 1.9 | 2.6 | P | P | 5.2 | P | P | | P | P | P |
| | B | | P | 3.5 | P | P | P | P | P | P | | 0 | P | P |
| | C | I | 0 | P | 0 | | 1.5 | P | | P | | 0 | P | 0 |
| | D | J | 0 | P | P | | 0 | 0 | | P | | 18 | 0.9 | |
| | E | | | | | | | | | | | | | |
| | G | | | | | | | | | | | | | |
| | H | | | | | | | | | | | | | |

**Table 2: Vacuum Responses in Soil Vapor Monitoring Wells (Continued)**

| WEEK | DATE | SAMPLE PROBE ID | VACUUM RESPONSES (*Magnahelic Gauges*) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SVW-25 *in. $H_2O$* | SVW-26 *in. $H_2O$* | SVW-27 *in. $H_2O$* | SVW-28 *in. $H_2O$* | SVW-32 *in. $H_2O$* | SVW-33 *in. $H_2O$* | SVW-34 *in. $H_2O$* | SVW-35 *in. $H_2O$* | SVW-36 *in. $H_2O$* | SVW-37 *in. $H_2O$* | SVW-38 *in. $H_2O$* | SVW-39 *in. $H_2O$* |
| 6 | 1/21/2005 | A | 0 | P | 0 | 0 | P | 0 | P | P | 0 | P | P | P |
| | | B | 0 | P | 0 | P | 0 | 0 | P | 0 | 0.2 | 0 | P | P |
| | | C | P | P | 1.4 | P | P | 0 | P | P | 0.1 | P | P | P |
| | | D | P | P | 0.9 | 0 | P | 0 | P | P | 0.8 | 0 | 0 | P |
| | | E | P | P | 0 | 0 | P | 0 | 0 | 0 | 0 | 0 | P | P |
| | | F | P | 3.1 | 2.4 | P | P | 0 | 0 | P | | P | 0 | 0 |
| | | G | | 2.9 | 0.6 | P | P | 0.7 | P | P | | P | P | P |
| | | H | P | 3.5 | P | P | P | P | P | P | | 0 | P | P |
| | | I | 4.3 | P | 0 | | 0 | P | | P | | 0 | P | 0 |
| | | J | 0 | P | P | | 0 | 0 | | P | | 0 | 0.5 | |
| 7 | 1/26/2005 | A | NR | P | 0 | NR | P | 0 | P | P | 0 | P | P | P |
| | | B | NR | P | 0 | P | NR | 0 | P | NR | 0 | NR | P | P |
| | | C | P | P | 1.3 | P | P | 0 | P | P | 0 | P | P | P |
| | | D | P | P | 1.7 | NR | P | 0 | P | P | 0 | NR | 0 | P |
| | | E | P | P | 0 | NR | P | 0 | NR | NR | 0 | NR | P | P |
| | | F | P | 3.3 | 2 | P | P | 0 | NR | P | | P | 0.1 | NR |
| | | G | | 3.8 | 3.8 | P | P | 0.7 | P | P | | P | P | P |
| | | H | P | 4.3 | P | P | P | P | P | P | | | P | P |
| | | I | NR | P | 0 | | NR | P | | P | | NR | P | 0 |
| | | J | NR | P | P | | NR | 0 | | P | | NR | 0 | |
| 8 | 2/1/2005 | A | NR | P | 0 | NR | P | 0 | P | P | 0 | P | P | P |
| | | B | NR | P | 0 | P | NR | 0 | P | NR | 0 | NR | P | P |
| | | C | P | P | 1.6 | P | P | 0 | P | P | 0 | P | P | P |
| | | D | P | P | 1.7 | NR | P | 0 | P | P | 0 | NR | 0 | P |
| | | E | P | P | 0 | NR | P | 0 | NR | NR | 0 | NR | P | P |
| | | F | P | 4.5 | 3.3 | P | P | 0 | NR | P | | P | 0 | NR |
| | | G | | 4.3 | 3.8 | P | P | 1.8 | P | P | | P | P | P |
| | | H | P | 4.5 | P | P | P | P | P | P | | | P | P |
| | | I | NR | P | 0 | | NR | P | | P | | NR | P | 0 |
| | | J | NR | P | P | | NR | 0 | | P | | NR | 1 | |
| 9 | 2/9/2005 | A | NR | P | 0 | NR | P | 0 | P | P | 0 | P | P | P |
| | | B | NR | P | 1.1 | P | NR | 0 | P | NR | 0 | NR | P | P |
| | | C | P | P | 1.5 | P | P | 0 | P | P | 0 | P | P | P |
| | | D | P | P | 0 | NR | P | 0 | P | P | 0.1 | NR | 0 | P |
| | | E | P | P | 2.8 | NR | P | 0 | NR | NR | 0.1 | NR | P | P |
| | | F | P | 4.2 | 2.7 | P | P | 0 | NR | P | | P | 0.2 | NR |
| | | G | P | 2.9 | P | P | P | 3.2 | P | P | | P | P | P |
| | | H | P | 3 | 0 | P | P | P | P | P | | NR | P | P |
| | | I | NR | P | P | | NR | P | | P | | NR | P | 0 |
| | | J | NR | P | | | NR | 0 | | | | NR | 1 | |

**Table 2: Vacuum Responses in Soil Vapor Monitoring Wells (Continued)**

| WEEK | DATE | SAMPLE PROBE ID | VACUUM RESPONSES (*Magnahelic Gauges*) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SVW-25 *in. $H_2O$* | SVW-26 *in. $H_2O$* | SVW-27 *in. $H_2O$* | SVW-28 *in. $H_2O$* | SVW-32 *in. $H_2O$* | SVW-33 *in. $H_2O$* | SVW-34 *in. $H_2O$* | SVW-35 *in. $H_2O$* | SVW-36 *in. $H_2O$* | SVW-37 *in. $H_2O$* | SVW-38 *in. $H_2O$* | SVW-39 *in. $H_2O$* |
| 10 | 2/17/2005 | A | 0 | P | 0 | 0.2 | P | 0 | P | P | 0 | P | P | P |
| | | B | 0 | P | 0 | P | 0 | 0 | P | 0 | 0 | 0 | P | P |
| | | C | P | P | 1.3 | P | P | 0 | P | P | 0 | P | P | P |
| | | D | P | P | 1.2 | 0.6 | P | 0 | P | P | 1 | 0 | 0 | P |
| | | E | P | P | 0 | 0 | P | 0 | 0 | 0 | 0 | 0 | P | P |
| | | F | P | 0 | 0 | P | P | 0 | 0 | P | | P | 0 | 0.7 |
| | | G | | 3.9 | 2.6 | P | P | 0.3 | P | P | | P | P | P |
| | | H | P | 4.2 | P | P | P | P | P | P | | 0.6 | P | P |
| | | I | 0 | P | 0 | | 0 | P | | P | | 0 | P | 0 |
| | | J | 0 | P | P | | 0 | 0 | | P | | 0 | 0 | |
| 11 | 2/23/2005 | A | NR | P | 0 | 0 | P | 0 | P | P | 0 | P | P | 0 |
| | | B | NR | P | 0 | P | NR | 0 | P | NR | 0 | 0 | P | P |
| | | C | P | P | 1.5 | P | P | 0 | P | P | 0 | P | P | P |
| | | D | P | P | 1.8 | 1 | P | 0 | P | P | 0 | 0 | NR | P |
| | | E | P | P | 0 | 0 | P | 0 | NR | NR | 0 | 0 | P | P |
| | | F | P | 0 | 2 | P | P | 0 | NR | P | | P | NR | 0 |
| | | G | | 4.7 | 1.7 | P | P | 0.4 | P | P | | P | P | 0 |
| | | H | P | 3.9 | P | P | NR | P | P | P | | 1 | P | P |
| | | I | NR | P | 0 | | NR | P | | P | | 0 | P | 4 |
| | | J | NR | P | P | | NR | 0 | | P | | 0 | NR | |
| 12 | 3/3/2005 | A | NR | P | 0 | 0 | P | 0 | P | P | 0 | P | P | 0 |
| | | B | NR | P | 0 | P | NR | 0 | P | NR | 0 | 0 | P | P |
| | | C | P | P | 1.3 | P | P | 0 | P | P | 0 | P | P | P |
| | | D | P | P | 2 | 1 | P | 0 | P | P | 0 | 0 | NR | P |
| | | E | P | P | 0 | 0 | P | 0 | NR | NR | 0 | 0 | P | 0 |
| | | F | P | 0 | 2.1 | P | P | 0 | NR | P | | P | NR | 0 |
| | | G | P | 4 | 3 | P | P | 0 | P | P | | P | P | 0 |
| | | H | P | 4.5 | P | P | NR | P | P | P | | 0 | P | P |
| | | I | NR | P | 0 | | NR | P | | P | | 0 | P | 0 |
| | | J | NR | P | P | | NR | 0 | | P | | 0 | NR | |
| 13 | 3/10/2005 | A | NR | P | 0 | 0 | P | 0 | P | P | 0 | P | P | 0 |
| | | B | NR | P | 0 | P | NR | 0 | P | NR | 0 | 0 | P | P |
| | | C | P | P | 1.7 | P | P | 0 | P | P | 0 | P | P | P |
| | | D | P | P | 1.3 | 0.9 | P | 0 | P | P | 0 | 0 | NR | P |
| | | E | P | P | 0 | 0 | P | 0 | NR | NR | 0 | 0 | P | 0 |
| | | F | P | 0 | 0 | P | P | 0 | NR | P | | P | NR | 0 |
| | | G | | 3.2 | 1.9 | P | P | 2.1 | P | P | | P | P | 0 |
| | | H | P | 3.8 | P | P | NR | P | P | P | | 0 | P | P |
| | | I | NR | P | 0 | | NR | P | | P | | 0 | P | 1.8 |
| | | J | NR | P | P | | NR | 0 | | P | | 0 | NR | |
| 14 | 3/14/2005 | | | | | | | | | | | | | |

P

**Table 2: Vacuum Responses in Soil Vapor Monitoring Wells (Continued)**

| WEEK | DATE | SAMPLE PROBE ID | VACUUM RESPONSES (*Magnahelic Gauges*) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SVW-25 *in. $H_2O$* | SVW-26 *in. $H_2O$* | SVW-27 *in. $H_2O$* | SVW-28 *in. $H_2O$* | SVW-32 *in. $H_2O$* | SVW-33 *in. $H_2O$* | SVW-34 *in. $H_2O$* | SVW-35 *in. $H_2O$* | SVW-36 *in. $H_2O$* | SVW-37 *in. $H_2O$* | SVW-38 *in. $H_2O$* | SVW-39 *in. $H_2O$* |
| 15 | 3/24/2005 | A | 0 | P | 0 | 0.1 | P | 0 | P | P | 0 | P | P | 0 |
| | | B | 0 | P | 0 | P | 0 | 0 | P | 0 | 0 | 0 | P | P |
| | | C | P | P | 1.2 | P | P | 0 | P | P | 0 | P | P | P |
| | | D | P | P | 1.3 | 0.9 | P | 0 | P | P | 0 | 0 | 0 | P |
| | | E | P | P | 0 | 0 | P | 0 | 0.9 | 0 | 0 | 0 | P | 0 |
| | | F | P | 0 | 0.4 | P | P | 0 | 0 | P | | P | 0 | 0 |
| | | G | P | 0.7 | 0.3 | P | P | 0.6 | P | P | | P | P | 0 |
| | | H | P | 0.6 | P | P | 0 | P | P | P | | 0 | P | P |
| | | I | 0 | P | 0 | | 0 | P | | P | | 0 | P | 0 |
| | | J | 0 | P | P | | 0 | 0 | | P | | 0 | 0 | |
| 16 | 3/30/2005 | A | NR | P | 0 | 0 | P | 0 | P | P | NR | P | P | NR |
| | | B | NR | P | 0 | P | NR | 0 | P | NR | NR | NR | P | P |
| | | C | P | P | 1.4 | P | P | 0 | P | P | NR | P | P | P |
| | | D | P | P | 1.5 | 0.6 | P | 0 | P | P | NR | NR | NR | P |
| | | E | P | P | 0 | 0 | P | 0 | 1.2 | NR | NR | NR | P | NR |
| | | F | P | 0 | 0 | P | P | 0 | 0 | P | | P | NR | NR |
| | | G | P | 0.4 | 0.6 | P | P | 0 | P | P | | P | P | NR |
| | | H | P | 0.3 | P | P | NR | P | P | P | | | P | P |
| | | I | NR | P | 0 | | NR | P | | P | | NR | P | NR |
| | | J | NR | P | P | | NR | 0 | | P | | NR | NR | |
| 17 | 4/6/2005 | A | NR | P | 0 | 0 | P | 0 | P | P | NR | P | P | NR |
| | | B | NR | P | 0 | P | NR | 0 | P | NR | NR | NR | P | P |
| | | C | P | P | 1.4 | P | P | 0 | P | P | NR | P | P | P |
| | | D | P | P | 1 | 0.5 | P | 0 | P | P | NR | NR | NR | P |
| | | E | P | P | 0 | 0 | P | 0 | 0 | NR | NR | NR | P | NR |
| | | F | P | 0 | 0 | P | P | 0 | 0 | P | | P | NR | NR |
| | | G | P | 0 | 0 | P | P | 0 | P | P | | P | P | NR |
| | | H | P | 0 | P | P | NR | P | P | P | | | P | P |
| | | I | NR | P | 0 | | NR | P | | P | | NR | P | NR |
| | | J | NR | P | P | | NR | 0 | | P | | NR | NR | |
| 18 | 4/13/2005 | A | NR | P | 0 | 0 | P | 0 | P | P | NR | P | P | NR |
| | | B | NR | P | 0 | P | NR | 0 | P | NR | NR | NR | P | P |
| | | C | P | P | 1.4 | P | P | 0 | P | P | NR | P | P | P |
| | | D | P | P | 1.4 | 0.5 | P | 0 | P | P | NR | NR | NR | P |
| | | E | P | P | 0 | 0 | P | 0 | 0 | NR | NR | NR | P | NR |
| | | F | P | 0 | 0 | P | P | 0 | 0 | P | | P | NR | NR |
| | | G | P | 0 | 0 | P | P | 0 | P | P | | P | P | NR |
| | | H | P | 0 | P | P | NR | P | P | P | | | P | P |
| | | I | NR | P | 0 | | NR | P | | P | | NR | P | NR |
| | | J | NR | P | P | | NR | 0 | | P | | NR | NR | |
| 19 | 4/18/2005 | A | | | | | | | | | | | | |

NR

**Table 2: Vacuum Responses in Soil Vapor Monitoring Wells (Continued)**

| WEEK | DATE | SAMPLE PROBE ID | VACUUM RESPONSES (*Magnahelic Gauges*) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SVW-25 *in. $H_2O$* | SVW-26 *in. $H_2O$* | SVW-27 *in. $H_2O$* | SVW-28 *in. $H_2O$* | SVW-32 *in. $H_2O$* | SVW-33 *in. $H_2O$* | SVW-34 *in. $H_2O$* | SVW-35 *in. $H_2O$* | SVW-36 *in. $H_2O$* | SVW-37 *in. $H_2O$* | SVW-38 *in. $H_2O$* | SVW-39 *in. $H_2O$* |
| 20 | 4/28/2005 | A | 0 | P | 0 | 0 | P | 0 | P | P | 0 | P | P | 0 |
| | | B | 0 | P | 0 | P | 0 | 0 | P | 0 | 0 | 0 | P | P |
| | | C | P | P | 1.2 | P | P | 0 | P | P | 0 | P | P | P |
| | | D | P | P | 1.4 | 0 | P | 0 | P | P | 0 | 0 | 0 | P |
| | | E | P | P | 0 | 0 | P | 0 | 0 | 0 | 0 | 0 | P | 0 |
| | | F | P | 0 | 0.7 | P | P | 0 | 0 | P | | P | 0 | 0 |
| | | G | P | 0 | 0 | P | P | 0 | P | P | | P | P | 0 |
| | | H | P | 0 | P | P | 0 | P | P | P | | 0 | P | P |
| | | I | 0 | P | 0 | | 0 | P | | P | | 0 | P | 3.5 |
| | | J | 0 | P | P | | 0 | 0 | | P | | 0 | 0 | |
| ***VE-03*** | | | | | | | | | | | | | | |
| 1 | 6/3/2005 | | | | | | | | | | | | | |
| 2 | 6/10/2005 | A | 0 | P | 0 | 0.1 | P | 0 | P | P | 0 | P | P | 0 |
| | | B | 0 | P | 0 | P | 0 | 0 | P | 0 | 0 | 0 | P | P |
| | | C | P | P | 0 | P | P | 0 | P | P | 0 | P | P | P |
| | | D | P | P | 0 | 0 | P | 0 | P | P | 0 | 0 | 0.2 | P |
| | | E | P | P | 0 | 0 | P | 0 | 0 | 0 | 0 | 0 | P | 0 |
| | | F | P | 0 | 0 | P | P | 0 | 0 | P | | P | 0.2 | 0 |
| | | G | P | 0 | 0 | P | P | 0 | P | P | | P | P | 0 |
| | | H | P | 0 | P | P | 0 | P | P | P | | 0 | P | P |
| | | I | 0 | P | 0 | | 0 | P | | P | | 0 | P | 0 |
| | | J | 0 | P | P | | 0 | 0 | | P | | 0 | 0 | |
| 3 | 6/17/2005 | A | NR | P | NR | NR | P | NR | P | P | NR | P | P | 0 |
| | | B | NR | P | NR | P | NR | NR | P | NR | NR | NR | P | P |
| | | C | P | P | NR | P | P | NR | P | P | NR | P | P | P |
| | | D | P | P | NR | NR | P | NR | P | P | NR | NR | 0 | P |
| | | E | P | P | NR | NR | P | NR | NR | | NR | NR | P | NR |
| | | F | | NR | NR | P | P | NR | NR | P | | P | 0 | NR |
| | | G | | NR | NR | P | P | NR | P | P | | P | P | NR |
| | | H | P | NR | P | P | NR | P | P | P | | | P | P |
| | | I | NR | P | NR | | NR | P | NR | P | | NR | P | NR |
| | | J | NR | P | P | | NR | NR | | P | | NR | 0 | |
| 4 | 6/22/2005 | A | NR | P | NR | 0 | P | NR | P | P | NR | P | P | 0 |
| | | B | NR | P | NR | P | NR | NR | P | NR | NR | NR | P | P |
| | | C | P | P | NR | P | P | NR | P | P | NR | P | P | P |
| | | D | P | P | NR | 0 | P | NR | P | P | NR | NR | 0 | P |
| | | E | P | P | NR | 0 | P | NR | NR | NR | NR | NR | P | NR |
| | | F | | NR | NR | P | P | NR | NR | P | | P | 0 | NR |
| | | G | | NR | NR | P | P | NR | P | P | | P | P | NR |
| | | H | P | NR | P | P | NR | P | P | P | | | P | P |
| | | I | NR | P | NR | | NR | P | | P | | NR | P | NR |
| | | J | NR | P | P | | NR | NR | | P | | NR | 0 | |

P
P

NR

**Table 2: Vacuum Responses in Soil Vapor Monitoring Wells (Continued)**

| WEEK | DATE | SAMPLE PROBE ID | VACUUM RESPONSES (*Magnahelic Gauges*) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | SVW-25 *in. $H_2O$* | SVW-26 *in. $H_2O$* | SVW-27 *in. $H_2O$* | SVW-28 *in. $H_2O$* | SVW-32 *in. $H_2O$* | SVW-33 *in. $H_2O$* | SVW-34 *in. $H_2O$* | SVW-35 *in. $H_2O$* | SVW-36 *in. $H_2O$* | SVW-37 *in. $H_2O$* | SVW-38 *in. $H_2O$* | SVW-39 *in. $H_2O$* |
| 5 | 6/29/2005 | A | NR | P | NR | 0 | P | NR | P | P | NR | P | P | 0 |
| | | B | NR | P | NR | P | NR | NR | P | NR | NR | NR | P | P |
| | | C | P | P | NR | P | P | NR | P | P | NR | P | P | P |
| | | D | P | P | NR | 0 | P | NR | P | P | NR | NR | 0 | P |
| | | E | P | P | NR | 0 | P | NR | NR | NR | NR | NR | P | NR |
| | | F | | NR | NR | P | P | NR | NR | P | | P | 0 | NR |
| | | G | | NR | NR | P | P | NR | P | P | | P | P | NR |
| | | H | P | NR | P | P | NR | P | P | P | | | P | P |
| | | I | NR | P | NR | | NR | P | | P | | NR | P | NR |
| | | J | NR | P | P | | NR | NR | | P | | NR | 0 | |

NR - No Reading
P - Plugged

P
P

NR

## Table 3: Summary of Laboratory Analytical Results

| Week | Sample ID | Sample Location | Sample Matrix | Date Sampled | VOCs Using TO-14 (mg/L) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Dichlorodi-fluoromethane | Chloroethane | Freon 11 | 1,1-DCE | Freon 113 | Chloroform | 1,1,1-TCA | $CCl_4$ | TCE | Toluene | PCE | p&m-Xylene | Total VOCs |
| **VE-01** | | | | | | | | | | | | | | | | | |
| 1 | VE01-A-001-001 | Screen A | Air | 12/14/2004 | ND | ND | ND | 0.061 | 0.042 | 0.810 | ND | 7.800 | 0.270 | ND | 0.065 | ND | 11.415 |
| | VE01-B-001-002 | Screen B | Air | 12/14/2004 | ND | 0.029 | 0.150 | ND | ND | 0.280 | ND | 0.640 | 0.100 | ND | ND | ND | 8.369 |
| | VE01-C-001-003 | Screen C | Air | 12/14/2004 | 0.003 | ND | 1.800 | 0.002 | 0.020 | 0.260 | 0.007 | 0.290 | 0.270 | 0.007 | 0.022 | 0.007 | 3.288 |
| | VE01-INN-001-004 | Influent | Air | 12/14/2004 | ND | 0.005 | 0.530 | 0.024 | 0.027 | 0.460 | ND | 3.100 | 0.230 | ND | 0.045 | ND | 5.504 |
| | VE01-EFF-001-005 | Effluent | Air | 12/14/2004 | 0.038 | 0.018 | ND | ND | ND | ND | ND | ND | ND | 0.011 | ND | 0.009 | 3.054 |
| | VE01-A-001-006 | Screen A | Air | 12/15/2004 | ND | ND | ND | 0.032 | 0.036 | 1.200 | 0.017 | 5.700 | 0.150 | ND | 0.048 | ND | 8.516 |
| | VE01-B-001-007 | Screen B | Air | 12/15/2004 | ND | 0.043 | 0.160 | ND | ND | 0.250 | ND | 0.620 | 0.078 | ND | ND | ND | 11.269 |
| | VE01-C-001-008 | Screen C | Air | 12/15/2004 | 0.006 | 0.035 | 1.300 | 0.010 | 0.022 | 0.240 | 0.007 | 0.260 | 0.270 | 0.005 | 0.022 | 0.006 | 8.048 |
| | VE01-INN-001-009 | Influent | Air | 12/15/2004 | ND | 0.003 | 0.430 | 0.020 | 0.029 | 0.780 | 0.013 | 2.900 | 0.210 | ND | 0.048 | ND | 5.230 |
| | VE01-EFF-001-010 | Effluent | Air | 12/15/2004 | ND | 0.039 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 4.791 |
| | VE01-A-001-011 | Screen A | Air | 12/16/2004 | ND | 0.009 | ND | 0.029 | 0.031 | 1.500 | 0.014 | 4.100 | 0.130 | 0.006 | 0.037 | 0.005 | 7.680 |
| | VE01-B-001-012 | Screen B | Air | 12/16/2004 | ND | ND | 0.410 | ND | ND | 0.230 | ND | 0.540 | ND | ND | ND | ND | 20.120 |
| | VE01-C-001-013 | Screen C | Air | 12/16/2004 | ND | 0.310 | 0.960 | ND | ND | 0.240 | ND | 0.250 | 0.260 | ND | ND | ND | 17.103 |
| | VE01-INN-001-014 | Influent | Air | 12/16/2004 | ND | 0.005 | 0.360 | 0.019 | 0.026 | 0.910 | 0.013 | 2.200 | 0.220 | ND | 0.046 | ND | 4.778 |
| | VE01-EFF-001-015 | Effluent | Air | 12/16/2004 | ND | 0.068 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 6.637 |
| | VE01-A-001-016 | Screen A | Air | 12/17/2004 | ND | ND | ND | 0.026 | 0.027 | 1.600 | ND | 3.600 | 0.100 | ND | 0.028 | ND | 5.980 |
| | VE01-B-001-017 | Screen B | Air | 12/17/2004 | ND | 0.026 | 0.210 | ND | ND | 0.240 | ND | 0.620 | 0.083 | ND | ND | ND | 8.340 |
| | VE01-C-001-018 | Screen C | Air | 12/17/2004 | ND | 0.013 | 0.850 | ND | ND | 0.250 | ND | 0.260 | 0.290 | ND | ND | ND | 7.313 |
| | VE01-INN-001-019 | Influent | Air | 12/17/2004 | 0.005 | 0.005 | 0.300 | 0.017 | 0.024 | 0.890 | 0.011 | 1.900 | 0.190 | 0.003 | 0.039 | 0.003 | 4.554 |
| | VE01-EFF-001-020 | Effluent | Air | 12/17/2004 | ND | 0.092 | 0.032 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 6.927 |

## Table 3: Summary of Laboratory Analytical Results (continued)

| Week | Sample ID | Sample Location | Sample Matrix | Date Sampled | VOCs Using TO-14 (mg/L) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Dichlorodi-fluoromethane | Chloroethane | Freon 11 | 1,1-DCE | Freon 113 | Chloroform | 1,1,1-TCA | $CCl_4$ | TCE | Toluene | PCE | p&m-Xylene | Total VOCs |
| 2 | VE01-A-002-021 | Screen A | Air | 12/20/2004 | 0.005 | ND | ND | 0.023 | 0.021 | 1.500 | 0.009 | 2.000 | 0.067 | 0.005 | 0.022 | 0.005 | 4.305 |
| | VE01-B-002-022 | Screen B | Air | 12/20/2004 | ND | 0.210 | 0.220 | ND | ND | 0.220 | ND | 0.460 | ND | ND | ND | ND | 15.300 |
| | VE01-C-002-023 | Screen C | Air | 12/20/2004 | ND | 0.170 | 0.550 | ND | ND | 0.230 | ND | 0.250 | 0.240 | 0.091 | ND | ND | 13.681 |
| | VE01-INN-002-024 | Influent | Air | 12/20/2004 | 0.005 | 0.007 | 0.150 | 0.010 | 0.016 | 0.560 | 0.006 | 0.710 | 0.099 | 0.005 | 0.020 | 0.006 | 2.820 |
| | VE01-EFF-002-025 | Effluent | Air | 12/20/2004 | 0.009 | 0.012 | 0.310 | ND | 0.120 | ND | ND | ND | ND | ND | ND | 0.005 | 3.089 |
| 3 | VE01-A-003-026 | Screen A | Air | 12/27/2004 | 0.009 | 0.004 | ND | 0.018 | 0.016 | 0.990 | 0.008 | 1.100 | 0.026 | ND | 0.013 | ND | 2.548 |
| | VE01-B-003-027 | Screen B | Air | 12/27/2004 | ND | 0.024 | 0.170 | 0.010 | 0.047 | 0.170 | ND | 0.340 | 0.050 | ND | ND | ND | 4.197 |
| | VE01-C-003-028 | Screen C | Air | 12/27/2004 | ND | 0.071 | 0.460 | ND | 0.071 | 0.240 | ND | 0.320 | 0.270 | ND | ND | ND | 7.059 |
| | VE01-INN-003-029 | Influent | Air | 12/27/2004 | 0.012 | 0.009 | 0.220 | 0.020 | 0.051 | 0.710 | 0.010 | 0.830 | 0.160 | ND | 0.036 | ND | 2.816 |
| | VE01-EFF-003-030 | Effluent | Air | 12/27/2004 | ND | 0.033 | 0.250 | ND | 0.150 | ND | ND | ND | ND | 0.025 | ND | 0.021 | 3.903 |
| 5 | VE01-INN-005-034 | Influent | Air | 1/11/2005 | 0.020 | 0.014 | 0.240 | 0.040 | 0.120 | 0.570 | 0.011 | 0.650 | 0.250 | ND | 0.075 | 0.002 | 2.743 |
| | VE01-EFF-005-035 | Effluent | Air | 1/11/2005 | ND | 0.140 | 0.320 | 0.100 | 0.160 | 0.320 | ND | 0.220 | ND | ND | ND | ND | 10.013 |
| | VE01-EFF-005-035-DUP | Effluent | Air | 1/11/2005 | ND | 0.150 | 0.330 | 0.100 | 0.160 | 0.330 | ND | 0.230 | ND | ND | ND | ND | 10.199 |
| 6 | VE01-INN-006-036 | Influent | Air | 1/21/2005 | 0.024 | 0.002 | 0.210 | 0.052 | 0.150 | 0.480 | 0.010 | 0.700 | 0.300 | 0.004 | 0.097 | 0.003 | 2.319 |
| | VE01-EFF-006-037 | Effluent | Air | 1/21/2005 | 0.024 J | 0.240 | 0.280 | 0.130 | 0.170 | 0.950 | ND | 0.840 | ND | ND | ND | ND | 14.843 |
| 8 | VE01-INN-008-038 | Influent | Air | 2/1/2005 | 0.029 | 0.004 | 0.160 | 0.059 | 0.120 | 0.430 | 0.009 | 0.670 | 0.270 | 0.003 | 0.120 | 0.003 | 2.516 |
| | VE01-EFF-008-039 | Effluent | Air | 2/1/2005 | 0.042 | 0.028 | 0.270 | 0.100 | 0.230 | 1.000 | ND | 1.100 | ND | ND | ND | ND | 6.270 |
| | VE01-EFF-008-039-DUP | Effluent | Air | 2/1/2005 | 0.044 | 0.026 | 0.260 | 0.100 | 0.230 | 1.000 | ND | 1.100 | ND | ND | ND | ND | 6.148 |
| 10 | VE01-INN-010-040 | Influent | Air | 2/15/2005 | 0.033 | 0.005 | 0.110 | 0.063 | 0.120 | 0.410 | 0.009 | 0.660 | 0.230 | 0.002 | 0.130 | 0.003 | 2.171 |
| | VE01-EFF-010-041 | Effluent | Air | 2/15/2005 | ND | 0.017 | 0.012 | ND | ND | 0.010 | ND | ND | ND | ND | ND | ND | 2.272 |
| | VE01-EFF-010-041-Dup | Effluent | Air | 2/15/2005 | ND | 0.018 | 0.013 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.409 |
| 12 | VE01-INN-012-042 | Influent | Air | 3/1/2005 | 0.037 | 0.021 | 0.072 | 0.063 | 0.120 | 0.410 | 0.008 | 0.490 | 0.190 | 0.004 | 0.098 | 0.003 | 3.169 |
| | VE01-EFF-012-043 | Effluent | Air | 3/1/2005 | 0.100 | 0.210 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 9.354 |

## Table 3: Summary of Laboratory Analytical Results (continued)

| Week | Sample ID | Sample Location | Sample Matrix | Date Sampled | VOCs Using TO-14 (mg/L) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Dichlorodi-fluoromethane | Chloroethane | Freon 11 | 1,1-DCE | Freon 113 | Chloroform | 1,1,1-TCA | $CCl_4$ | TCE | Toluene | PCE | p&m-Xylene | Total VOCs |
| 14 | VE01-INN-014-044 | Influent | Air | 3/14/2005 | 0.052 | ND | 0.065 | 0.057 | 0.110 | 0.360 | ND | 0.390 | 0.160 | ND | 0.073 | ND | 2.627 |
| | VE01-INN-014-044-DUP | Influent | Air | 3/14/2005 | 0.046 | 0.026 | 0.062 | 0.054 | 0.110 | 0.340 | 0.007 | 0.390 | 0.150 | ND | 0.070 | ND | 2.772 |
| | VE01-EFF-014-045 | Effluent | Air | 3/14/2005 | 0.071 | 0.200 | 0.130 | ND | 0.100 | ND | ND | ND | ND | ND | ND | ND | 9.887 |
| 15 | VE01-INN-015-046 | Influent | Air | 3/24/2005 | 0.024 | ND | 0.012 | 0.013 | 0.014 | 0.230 | 0.004 | 0.100 | 0.026 | 0.004 | 0.010 | 0.003 | 0.676 |
| | VE01-EFF-015-047 | Effluent | Air | 3/24/2005 | 0.038 | 0.042 | 0.110 | ND | 0.160 | ND | ND | ND | ND | ND | ND | ND | 4.470 |
| 16 | VE01-INN-016-048 | Influent | Air | 3/31/2005 | 0.031 | 0.070 | 0.023 | 0.018 | 0.023 | 0.250 | ND | 0.120 | 0.026 | ND | 0.010 | ND | 3.148 |
| | VE01-EFF-016-049 | Effluent | Air | 3/31/2005 | ND | 0.500 | ND | ND | 0.150 | ND | ND | ND | ND | ND | ND | ND | 12.420 |
| | VE01-EFF-016-049-DUP | Effluent | Air | 3/31/2005 | ND | 0.550 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 16.710 |
| 18 | VE01-INN-018-050 | Influent | Air | 4/14/2005 | 0.045 | 0.085 | 0.030 | 0.033 | 0.084 | 0.250 | ND | 0.190 | 0.032 | ND | ND | ND | 2.936 |
| | VE01-EFF-018-051 | Effluent | Air | 4/14/2005 | ND | 0.360 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 8.320 |
| 20 | VE01-INN-020-052 | Influent | Air | 4/27/2005 | 0.032 | 0.009 | 0.035 | 0.042 | 0.085 | 0.250 | 0.004 | 0.190 | 0.046 | 0.003 | 0.013 | 0.003 | 1.537 |
| | VE01-EFF-020-053 | Effluent | Air | 4/27/2005 | 0.036 | 0.130 | ND | ND | 0.054 | ND | ND | ND | ND | ND | 0.180 | 0.026 | 6.413 |
| 21 | VE01-A-021-054 | Screen A | Air | 5/5/2005 | 0.032 | 0.004 | 0.043 | 0.024 | 0.050 | 0.120 | ND | 0.140 | 0.018 | 0.003 | 0.004 | ND | 0.709 |
| | VE01-B-021-055 | Screen B | Air | 5/5/2005 | ND | 0.840 | 0.160 | 0.093 | ND | 0.360 | ND | 0.610 | 0.200 | ND | ND | ND | 29.502 |
| | VE01-C-021-056 | Screen C | Air | 5/5/2005 | ND | 1.000 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 24.874 |
| | VE01-INN-021-057 | Influent | Air | 5/5/2005 | 0.044 | 0.140 | 0.097 | 0.054 | 0.110 | 0.250 | ND | 0.370 | 0.130 | ND | 0.055 | ND | 3.675 |
| | VE01-EFF-021-058 | Effluent | Air | 5/5/2005 | 0.064 | 0.310 | 0.066 | ND | 0.098 | ND | ND | ND | ND | ND | ND | ND | 8.591 |
| **VE-03** | | | | | | | | | | | | | | | | | |
| 1 | VE03-A-001-001 | Screen A | Air | 6/3/2005 | ND | 0.055 | 0.012 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 4.944 |
| | VE03-B-001-002 | Screen B | Air | 6/3/2005 | ND | 0.600 | 0.220 | ND | ND | ND | ND | 0.110 | 0.043 | ND | ND | ND | 32.385 |
| | VE03-INN-001-003 | Influent | Air | 6/3/2005 | ND | 0.140 | 0.067 | ND | ND | ND | ND | 0.035 | 0.018 | ND | ND | ND | 4.136 |
| | VE03-EFF-001-004 | Effluent | Air | 6/3/2005 | 0.055 | 0.320 | 0.049 | ND | 0.070 | ND | ND | ND | ND | ND | ND | ND | 13.924 |

## Table 3: Summary of Laboratory Analytical Results (continued)

| Week | Sample ID | Sample Location | Sample Matrix | Date Sampled | VOCs Using TO-14 (mg/L) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Dichlorodi-fluoromethane | Chloroethane | Freon 11 | 1,1-DCE | Freon 113 | Chloroform | 1,1,1-TCA | $CCl_4$ | TCE | Toluene | PCE | p&m-Xylene | Total VOCs |
| 2 | VE03-A-002-005 | Screen A | Air | 6/6/2005 | 0.003 | 0.018 | 0.025 | ND | ND | 0.004 | ND | 0.003 | 0.007 | 0.004 | 0.005 | ND | 1.074 |
| | VE03-A-002-005-Dup | Screen A | Air | 6/6/2005 | ND | 0.018 | 0.025 | ND | ND | 0.005 | ND | ND | 0.006 | 0.004 | 0.005 | ND | 1.123 |
| | VE03-B-002-006 | Screen B | Air | 6/6/2005 | ND | 0.390 | 0.680 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 20.325 |
| | VE03-INN-002-007 | Influent | Air | 6/6/2005 | ND | 0.110 | 0.260 | ND | ND | 0.015 | ND | ND | 0.030 | ND | ND | ND | 3.771 |
| | VE03-EFF-002-008 | Effluent | Air | 6/6/2005 | ND | 0.120 | 0.063 | ND | 0.070 | ND | ND | ND | ND | ND | ND | ND | 9.110 |
| | VE03-B-002-010 | Screen B | Air | 6/7/2005 | ND | 0.310 | 0.920 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 16.739 |
| | VE03-INN-002-011 | Influent | Air | 6/7/2005 | ND | 0.059 | 0.270 | ND | ND | 0.016 | ND | 0.014 | 0.028 | ND | 0.010 | ND | 2.220 |
| | VE03-EFF-002-012 | Effluent | Air | 6/7/2005 | ND | 0.072 | 0.027 | ND | 0.033 | ND | ND | ND | ND | ND | ND | ND | 4.434 |
| | VE03-A-002-013 | Screen A | Air | 6/8/2005 | 0.003 | 0.017 | 0.024 | ND | ND | 0.005 | ND | ND | 0.005 | 0.005 | 0.004 | 0.003 | 1.075 |
| | VE03-B-002-014 | Screen B | Air | 6/8/2005 | ND | 0.590 | 0.710 | ND | ND | 0.052 | ND | ND | 0.056 | ND | ND | ND | 30.588 |
| | VE03-INN-002-015 | Influent | Air | 6/8/2005 | ND | 0.210 | 0.290 | ND | ND | 0.026 | ND | ND | 0.034 | ND | ND | ND | 6.161 |
| | VE03-EFF-002-016 | Effluent | Air | 6/8/2005 | ND | 0.220 | 0.071 | ND | 0.130 | ND | ND | ND | ND | ND | ND | ND | 12.956 |
| 4 | VE03-A-004-017 | Influent | Air | 6/22/2005 | 0.003 | 0.018 | 0.099 | ND | ND | 0.013 | ND | 0.005 | 0.020 | 0.006 | 0.004 | 0.004 | 0.921 |
| | VE03-EFF-004-018 | Effluent | Air | 6/22/2005 | ND | 0.053 | 0.055 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.990 |

ND - Non-detect

## Table 4: Influent and Effluent Emission Rates - VE-01

| | VE-01 INFLUENT | | | VE-01 EFFLUENT | | | |
|---|---|---|---|---|---|---|---|
| | Concen-tration (mg/L) | Flow Rate (cfm) | Removal Rate (lb/day) | Concentration (mg/L) | Flow Rate (cfm) | Removal Rate (lb/day) | Destruction Efficiency (%) |
| **12/14/04 (Week 1)** | | | | | | | |
| Freon 113 | 0.53 | 388 | 0.0185 | 0 | 388 | 0.0000 | 100% |
| CCl4 | 3.1 | 388 | 0.1080 | 0 | 388 | 0.0000 | 100% |
| TCE | 0.23 | 388 | 0.0080 | 0 | 388 | 0.0000 | 100% |
| PCE | 0.045 | 388 | 0.0016 | 0 | 388 | 0.0000 | 100% |
| Total VOCs | 5.504 | 388 | 0.1918 | 3.054 | 388 | 0.1064 | 45% |
| **12/15/04 (Week 1)** | | | | | | | |
| Freon 113 | 0.029 | 386 | 0.0010 | 0 | 386 | 0.0000 | 100% |
| CCl4 | 2.9 | 386 | 0.1006 | 0 | 386 | 0.0000 | 100% |
| TCE | 0.21 | 386 | 0.0073 | 0 | 386 | 0.0000 | 100% |
| PCE | 0.048 | 386 | 0.0017 | 0 | 386 | 0.0000 | 100% |
| Total VOCs | 5.23 | 386 | 0.1813 | 4.791 | 386 | 0.1661 | 8% |
| **12/16/04 (Week 1)** | | | | | | | |
| Freon 113 | 0.026 | 390 | 0.0009 | 0 | 390 | 0.0000 | 100% |
| CCl4 | 2.2 | 390 | 0.0771 | 0 | 390 | 0.0000 | 100% |
| TCE | 0.22 | 390 | 0.0077 | 0 | 390 | 0.0000 | 100% |
| PCE | 0.046 | 390 | 0.0016 | 0 | 390 | 0.0000 | 100% |
| Total VOCs | 4.778 | 390 | 0.1674 | 6.637 | 390 | 0.2325 | -39% |
| **12/17/04 (Week 1)** | | | | | | | |
| Freon 113 | 0.024 | 395 | 0.0009 | 0 | 395 | 0.0000 | 100% |
| CCl4 | 1.9 | 395 | 0.0674 | 0 | 395 | 0.0000 | 100% |
| TCE | 0.19 | 395 | 0.0067 | 0 | 395 | 0.0000 | 100% |
| PCE | 0.039 | 395 | 0.0014 | 0 | 395 | 0.0000 | 100% |
| Total VOCs | 4.554 | 395 | 0.1616 | 6.927 | 395 | 0.2458 | -52% |
| **12/20/04 (Week 2)** | | | | | | | |
| Freon 113 | 0.016 | 392 | 0.0006 | 0.12 | 392 | 0.0042 | -650% |
| CCl4 | 0.71 | 392 | 0.0250 | 0 | 392 | 0.0000 | 100% |
| TCE | 0.099 | 392 | 0.0035 | 0 | 392 | 0.0000 | 100% |
| PCE | 0.02 | 392 | 0.0007 | 0 | 392 | 0.0000 | 100% |
| Total VOCs | 2.82 | 392 | 0.0993 | 3.089 | 392 | 0.1088 | -10% |
| **12/27/04 (Week 3)** | | | | | | | |
| Freon 113 | 0.051 | 395 | 0.0018 | 0.15 | 395 | 0.0053 | -194% |
| CCl4 | 0.83 | 395 | 0.0294 | 0 | 395 | 0.0000 | 100% |
| TCE | 0.16 | 395 | 0.0057 | 0 | 395 | 0.0000 | 100% |
| PCE | 0.036 | 395 | 0.0013 | 0 | 395 | 0.0000 | 100% |
| Total VOCs | 2.816 | 395 | 0.0999 | 3.903 | 395 | 0.1385 | -39% |
| **1/11/05 (Week 5)** | | | | | | | |
| Freon 113 | 0.12 | 380 | 0.0041 | 0.16 | 380 | 0.0055 | -33% |
| CCl4 | 0.65 | 380 | 0.0222 | 0.22 | 380 | 0.0075 | 66% |
| TCE | 0.25 | 380 | 0.0085 | 0 | 380 | 0.0000 | 100% |
| PCE | 0.075 | 380 | 0.0026 | 0 | 380 | 0.0000 | 100% |
| Total VOCs | 2.743 | 380 | 0.0936 | 10.013 | 380 | 0.3418 | -265% |
| **1/21/05 (Week 6)** | | | | | | | |
| Freon 113 | 0.15 | 376 | 0.0051 | 0.17 | 376 | 0.0057 | -13% |
| CCl4 | 0.7 | 376 | 0.0236 | 0.84 | 376 | 0.0284 | -20% |
| TCE | 0.3 | 376 | 0.0101 | 0 | 376 | 0.0000 | 100% |
| PCE | 0.097 | 376 | 0.0033 | 0 | 376 | 0.0000 | 100% |
| Total VOCs | 2.319 | 376 | 0.0783 | 14.843 | 376 | 0.5013 | -540% |

## Table 4: Influent and Effluent Emission Rates - VE-01 (continued)

| | VE-01 INFLUENT | | | VE-01 EFFLUENT | | | |
|---|---|---|---|---|---|---|---|
| | Concen-tration (mg/L) | Flow Rate (cfm) | Removal Rate (lb/day) | Concentration (mg/L) | Flow Rate (cfm) | Removal Rate (lb/day) | Destruction Efficiency (%) |
| **2/1/05 (Week 8)** | | | | | | | |
| Freon 113 | 0.12 | 368 | 0.0040 | 0.23 | 368 | 0.0076 | -92% |
| CCl4 | 0.67 | 368 | 0.0221 | 1.1 | 368 | 0.0364 | -64% |
| TCE | 0.27 | 368 | 0.0089 | 0 | 368 | 0.0000 | 100% |
| PCE | 0.12 | 368 | 0.0040 | 0 | 368 | 0.0000 | 100% |
| Total VOCs | 2.516 | 368 | 0.0832 | 6.148 | 368 | 0.2032 | -144% |
| **2/15/05 (Week 10)** | | | | | | | |
| Freon 113 | 0.11 | 350 | 0.0035 | 0.012 | 350 | 0.0004 | 89% |
| CCl4 | 0.66 | 350 | 0.0207 | 0 | 350 | 0.0000 | 100% |
| TCE | 0.23 | 350 | 0.0072 | 0 | 350 | 0.0000 | 100% |
| PCE | 0.13 | 350 | 0.0041 | 0 | 350 | 0.0000 | 100% |
| Total VOCs | 2.171 | 350 | 0.0683 | 2.272 | 350 | 0.0714 | -5% |
| **3/1/05 (Week 12)** | | | | | | | |
| Freon 113 | 0.12 | 350 | 0.0038 | 0 | 350 | 0.0000 | 100% |
| CCl4 | 0.49 | 350 | 0.0154 | 0 | 350 | 0.0000 | 100% |
| TCE | 0.19 | 350 | 0.0060 | 0 | 350 | 0.0000 | 100% |
| PCE | 0.098 | 350 | 0.0031 | 0 | 350 | 0.0000 | 100% |
| Total VOCs | 3.169 | 350 | 0.0996 | 9.354 | 350 | 0.2941 | -195% |
| **3/14/05 (Week 14)** | | | | | | | |
| Freon 113 | 0.11 | 320 | 0.0032 | 0.1 | 320 | 0.0029 | 9% |
| CCl4 | 0.39 | 320 | 0.0112 | 0 | 320 | 0.0000 | 100% |
| TCE | 0.16 | 320 | 0.0046 | 0 | 320 | 0.0000 | 100% |
| PCE | 0.073 | 320 | 0.0021 | 0 | 320 | 0.0000 | 100% |
| Total VOCs | 2.627 | 320 | 0.0755 | 9.887 | 320 | 0.2842 | -276% |
| **3/24/05 (Week 15)** | | | | | | | |
| Freon 113 | 0.014 | 300 | 0.0004 | 0.16 | 300 | 0.0043 | -1043% |
| CCl4 | 0.1 | 300 | 0.0027 | 0 | 300 | 0.0000 | 100% |
| TCE | 0.026 | 300 | 0.0007 | 0 | 300 | 0.0000 | 100% |
| PCE | 0.01 | 300 | 0.0003 | 0 | 300 | 0.0000 | 100% |
| Total VOCs | 0.676 | 300 | 0.0182 | 4.47 | 300 | 0.1205 | -561% |
| **3/31/05 (Week 16)** | | | | | | | |
| Freon 113 | 0.023 | 300 | 0.0006 | 0 | 300 | 0.0000 | 100% |
| CCl4 | 0.12 | 300 | 0.0032 | 0 | 300 | 0.0000 | 100% |
| TCE | 0.026 | 300 | 0.0007 | 0 | 300 | 0.0000 | 100% |
| PCE | 0.01 | 300 | 0.0003 | 0 | 300 | 0.0000 | 100% |
| Total VOCs | 3.148 | 300 | 0.0848 | 16.71 | 300 | 0.4503 | -431% |
| **4/14/05 (Week 18)** | | | | | | | |
| Freon 113 | 0.084 | 310 | 0.0023 | 0 | 310 | 0.0000 | 100% |
| CCl4 | 0.19 | 310 | 0.0053 | 0 | 310 | 0.0000 | 100% |
| TCE | 0.032 | 310 | 0.0009 | 0 | 310 | 0.0000 | 100% |
| PCE | 0 | 310 | 0.0000 | 0 | 310 | 0.0000 | 100% |
| Total VOCs | 2.936 | 310 | 0.0818 | 8.32 | 310 | 0.2317 | -183% |
| **4/27/05 (Week 20)** | | | | | | | |
| Freon 113 | 0.085 | 330 | 0.0025 | 0.054 | 330 | 0.0016 | 36% |
| CCl4 | 0.19 | 330 | 0.0056 | 0 | 330 | 0.0000 | 100% |
| TCE | 0.046 | 330 | 0.0014 | 0 | 330 | 0.0000 | 100% |
| PCE | 0.013 | 330 | 0.0004 | 0.18 | 330 | 0.0053 | -1285% |
| Total VOCs | 1.537 | 330 | 0.0456 | 6.413 | 330 | 0.1901 | -317% |

## Table 4: Influent and Effluent Emission Rates - VE-01 (continued)

| | VE-01 INFLUENT | | | VE-01 EFFLUENT | | | |
|---|---|---|---|---|---|---|---|
| | Concen-tration (mg/L) | Flow Rate (cfm) | Removal Rate (lb/day) | Concentration (mg/L) | Flow Rate (cfm) | Removal Rate (lb/day) | Destruction Efficiency (%) |
| **5/5/05 (Week 21)** | | | | | | | |
| Freon 113 | 0.11 | 310 | 0.0031 | 0.098 | 310 | 0.0027 | 11% |
| CCl4 | 0.37 | 310 | 0.0103 | 0 | 310 | 0.0000 | 100% |
| TCE | 0.13 | 310 | 0.0036 | 0 | 310 | 0.0000 | 100% |
| PCE | 0.055 | 310 | 0.0015 | 0 | 310 | 0.0000 | 100% |
| Total VOCs | 3.675 | 310 | 0.1023 | 8.591 | 310 | 0.2392 | -134% |

## Table 5: Influent and Effluent Emission Rates - VE-03

| VE-03 INFLUENT | | | | VE-03 EFFLUENT | | | | |
|---|---|---|---|---|---|---|---|---|
| | Concen-tration (mg/L) | Flow Rate (cfm) | Removal Rate (lb/day) | | Concen-tration (mg/L) | Flow Rate (cfm) | Removal Rate (lb/day) | Destruc-tion Efficiency (%) |
| **6/3/05 (Week 1)** | | | | **6/3/05 (Week 1)** | | | | |
| Freon 113 | 0 | 346 | 0.0000 | Freon 113 | 0.07 | 346 | 0.0022 | -100% |
| CCl4 | 0.035 | 346 | 0.0011 | CCl4 | 0 | 346 | 0.0000 | 100% |
| TCE | 0.019 | 346 | 0.0006 | TCE | 0 | 346 | 0.0000 | 100% |
| PCE | 0 | 346 | 0.0000 | PCE | 0 | 346 | 0.0000 | 100% |
| Total VOCs | 4.136 | 346 | 0.1285 | Total VOCs | 13.924 | 346 | 0.4328 | -237% |
| **6/6/05 (Week 2)** | | | | **6/6/05 (Week 2)** | | | | |
| Freon 113 | 0 | 340 | 0.0000 | Freon 113 | 0.07 | 340 | 0.0021 | -100% |
| CCl4 | 0 | 340 | 0.0000 | CCl4 | 0 | 340 | 0.0000 | 100% |
| TCE | 0.03 | 340 | 0.0009 | TCE | 0 | 340 | 0.0000 | 100% |
| PCE | 0 | 340 | 0.0000 | PCE | 0 | 340 | 0.0000 | 100% |
| Total VOCs | 3.771 | 340 | 0.1152 | Total VOCs | 9.11 | 340 | 0.2782 | -142% |
| **6/7/05 (Week 2)** | | | | **6/7/05 (Week 2)** | | | | |
| Freon 113 | 0 | 330 | 0.0000 | Freon 113 | 0.033 | 330 | 0.0010 | -100% |
| CCl4 | 0.016 | 330 | 0.0005 | CCl4 | 0 | 330 | 0.0000 | 100% |
| TCE | 0.028 | 330 | 0.0008 | TCE | 0 | 330 | 0.0000 | 100% |
| PCE | 0.01 | 330 | 0.0003 | PCE | 0 | 330 | 0.0000 | 100% |
| Total VOCs | 2.22 | 330 | 0.0658 | Total VOCs | 4.434 | 330 | 0.1314 | -100% |
| **6/8/05 (Week 2)** | | | | **6/8/05 (Week 2)** | | | | |
| Freon 113 | 0 | 312 | 0.0000 | Freon 113 | 0.13 | 312 | 0.0036 | -100% |
| CCl4 | 0 | 312 | 0.0000 | CCl4 | 0 | 312 | 0.0000 | 100% |
| TCE | 0.034 | 312 | 0.0010 | TCE | 0 | 312 | 0.0000 | 100% |
| PCE | 0 | 312 | 0.0000 | PCE | 0 | 312 | 0.0000 | 100% |
| Total VOCs | 6.161 | 312 | 0.1727 | Total VOCs | 12.956 | 312 | 0.3631 | -110% |
| **6/22/05 (Week 4)** | | | | **6/22/05 (Week 4)** | | | | |
| Freon 113 | 0 | 341 | 0.0000 | Freon 113 | 0 | 341 | 0.0000 | 100% |
| CCl4 | 0.0047 | 341 | 0.0001 | CCl4 | 0 | 341 | 0.0000 | 100% |
| TCE | 0.02 | 341 | 0.0006 | TCE | 0 | 341 | 0.0000 | 100% |
| PCE | 0.0043 | 341 | 0.0001 | PCE | 0 | 341 | 0.0000 | 100% |
| Total VOCs | 0.921 | 341 | 0.0282 | Total VOCs | 3.99 | 341 | 0.1222 | -333% |

## Table 6: Comparison of Laboratory Data to VSLs

| Sample Location | Depth[1] (ft bgs) | Date | Concentration (µg/L) | Estimated DTW (ft bgs) | Leaching Depth (ft) | VSL (µg/L) | C/VSL |
|---|---|---|---|---|---|---|---|
| **VE-01 - Carbon Tetrachloride** | | | | | | | |
| Screen A | 84 | 12/14/2004 | 7.80 | 235.4 | 151.4 | 4 | **1.950** |
| Screen B | 134 | 12/14/2004 | 0.64 | 235.4 | 101.4 | 2.25 | 0.284 |
| Screen C | 185 | 12/14/2004 | 0.28 | 235.4 | 50.4 | 0.71 | 0.394 |
| Influent | 134 | 12/14/2004 | 3.10 | 235.4 | 101.1 | 2.24 | **1.384** |
| Screen A | 84 | 12/15/2004 | 5.70 | 235.4 | 151.4 | 4 | **1.425** |
| Screen B | 134 | 12/15/2004 | 0.62 | 235.4 | 101.4 | 2.25 | 0.276 |
| Screen C | 185 | 12/15/2004 | 0.27 | 235.4 | 50.4 | 0.71 | 0.380 |
| Influent | 134 | 12/15/2004 | 2.90 | 235.4 | 101.1 | 2.24 | **1.295** |
| Screen A | 84 | 12/16/2004 | 4.10 | 235.4 | 151.4 | 4 | **1.025** |
| Screen B | 134 | 12/16/2004 | 0.54 | 235.4 | 101.4 | 2.25 | 0.240 |
| Screen C | 185 | 12/16/2004 | 0.25 | 235.4 | 50.4 | 0.71 | 0.352 |
| Influent | 134 | 12/16/2004 | 2.20 | 235.4 | 101.1 | 2.24 | 0.982 |
| Screen A | 84 | 12/17/2004 | 3.60 | 235.4 | 151.4 | 4 | 0.900 |
| Screen B | 134 | 12/17/2004 | 0.62 | 235.4 | 101.4 | 2.25 | 0.276 |
| Screen C | 185 | 12/17/2004 | 0.26 | 235.4 | 50.4 | 0.71 | 0.366 |
| Influent | 134 | 12/17/2004 | 1.90 | 235.4 | 101.1 | 2.24 | 0.848 |
| Screen A | 84 | 12/20/2004 | 2.00 | 235.4 | 151.4 | 4 | 0.500 |
| Screen B | 134 | 12/20/2004 | 0.46 | 235.4 | 101.4 | 2.25 | 0.204 |
| Screen C | 185 | 12/20/2004 | 0.25 | 235.4 | 50.4 | 0.71 | 0.352 |
| Influent | 134 | 12/20/2004 | 0.71 | 235.4 | 101.1 | 2.24 | 0.317 |
| Screen A | 84 | 12/27/2004 | 1.10 | 235.4 | 151.4 | 4 | 0.275 |
| Screen B | 134 | 12/27/2004 | 0.34 | 235.4 | 101.4 | 2.25 | 0.151 |
| Screen C | 185 | 12/27/2004 | 0.32 | 235.4 | 50.4 | 0.71 | 0.451 |
| Influent | 134 | 12/27/2004 | 0.83 | 235.4 | 101.1 | 2.24 | 0.371 |
| Influent | 134 | 1/11/2005 | 0.65 | 235.4 | 101.1 | 2.24 | 0.290 |
| Influent | 134 | 1/21/2005 | 0.70 | 235.4 | 101.1 | 2.24 | 0.313 |
| Influent | 134 | 2/1/2005 | 0.67 | 235.4 | 101.1 | 2.24 | 0.299 |
| Influent | 134 | 3/1/2005 | 0.49 | 235.4 | 101.1 | 2.24 | 0.219 |
| Influent | 134 | 3/14/2005 | 0.39 | 235.4 | 101.4 | 2.24 | 0.174 |
| Influent/Screen A | 84 | 3/24/2005 | 0.10 | 235.4 | 151.4 | 4 | 0.025 |
| Influent/Screen A | 84 | 3/31/2005 | 0.12 | 235.4 | 151.4 | 4 | 0.030 |
| Influent/ScreenA | 84 | 4/14/2005 | 0.12 | 235.4 | 151.4 | 4 | 0.030 |
| Influent/ScreenA | 84 | 4/27/2005 | 0.19 | 235.4 | 151.4 | 4 | 0.048 |
| Screen A | 84 | 5/2/2005 | 0.14 | 235.4 | 151.4 | 4 | 0.036 |
| Screen B | 134 | 5/2/2005 | 0.61 | 235.4 | 101.4 | 2.25 | 0.271 |
| Screen C | 185 | 5/2/2005 | ND | 235.4 | 50.4 | 0.71 | 0.000 |
| Influent | 134 | 5/2/2005 | 0.37 | 235.4 | 101.1 | 2.24 | 0.165 |
| **VE-01 - Trichloroethene** | | | | | | | |
| Screen A | 84 | 12/14/2004 | 0.27 | 235.4 | 151.4 | 14 | 0.019 |
| Screen B | 134 | 12/14/2004 | 0.10 | 235.4 | 101.4 | 8.17 | 0.012 |
| Screen C | 185 | 12/14/2004 | 0.27 | 235.4 | 50.4 | 2.56 | 0.105 |
| Influent | 134 | 12/14/2004 | 0.23 | 235.4 | 101.1 | 8.13 | 0.028 |
| Screen A | 84 | 12/15/2004 | 0.15 | 235.4 | 151.4 | 14 | 0.011 |
| Screen B | 134 | 12/15/2004 | 0.08 | 235.4 | 101.4 | 8.17 | 0.010 |
| Screen C | 185 | 12/15/2004 | 0.28 | 235.4 | 50.4 | 2.56 | 0.109 |
| Influent | 134 | 12/15/2004 | 0.20 | 235.4 | 101.1 | 8.13 | 0.025 |
| Screen A | 84 | 12/16/2004 | 0.13 | 235.4 | 151.4 | 14 | 0.009 |
| Screen B | 134 | 12/16/2004 | ND | 235.4 | 101.4 | 8.17 | 0.000 |
| Screen C | 185 | 12/16/2004 | 0.26 | 235.4 | 50.4 | 2.56 | 0.102 |
| Influent | 134 | 12/16/2004 | 0.22 | 235.4 | 101.1 | 8.13 | 0.027 |
| Screen A | 84 | 12/17/2004 | 0.10 | 235.4 | 151.4 | 14 | 0.007 |
| Screen B | 134 | 12/17/2004 | 0.08 | 235.4 | 101.4 | 8.17 | 0.010 |
| Screen C | 185 | 12/17/2004 | 0.29 | 235.4 | 50.4 | 2.56 | 0.113 |

## Table 6: Comparison of Laboratory Data to VSLs (continued)

| Sample Location | Depth[1] (ft bgs) | Date | Concentration (µg/L) | Estimated DTW (ft bgs) | Leaching Depth (ft) | VSL (µg/L) | C/VSL |
|---|---|---|---|---|---|---|---|
| **VE-01 – Trichloroethene (continued)** | | | | | | | |
| Influent | 134 | 12/17/2004 | 0.18 | 235.4 | 101.1 | 8.13 | 0.022 |
| Screen A | 84 | 12/20/2004 | 0.07 | 235.4 | 151.4 | 14 | 0.005 |
| Screen B | 134 | 12/20/2004 | ND | 235.4 | 101.4 | 8.17 | 0.000 |
| Screen C | 185 | 12/20/2004 | 0.24 | 235.4 | 50.4 | 2.56 | 0.094 |
| Influent | 134 | 12/20/2004 | 0.10 | 235.4 | 101.1 | 8.13 | 0.012 |
| Screen A | 84 | 12/27/2004 | 0.03 | 235.4 | 151.4 | 14 | 0.002 |
| Screen B | 134 | 12/27/2004 | 0.05 | 235.4 | 101.4 | 8.17 | 0.006 |
| Screen C | 185 | 12/27/2004 | 0.27 | 235.4 | 50.4 | 2.56 | 0.105 |
| Influent | 134 | 12/27/2004 | 0.16 | 235.4 | 101.1 | 8.13 | 0.020 |
| Influent | 134 | 1/11/2005 | 0.25 | 235.4 | 101.1 | 8.13 | 0.031 |
| Influent | 134 | 1/21/2005 | 0.30 | 235.4 | 101.1 | 8.13 | 0.037 |
| Influent | 134 | 2/1/2005 | 0.27 | 235.4 | 101.1 | 8.13 | 0.033 |
| Influent | 134 | 3/1/2005 | 0.19 | 235.4 | 101.1 | 8.13 | 0.023 |
| Influent | 134 | 3/14/2005 | 0.16 | 235.4 | 101.4 | 8.13 | 0.020 |
| Influent/ScreenA | 84 | 3/24/2005 | 0.03 | 235.4 | 151.4 | 14 | 0.002 |
| Influent/ScreenA | 84 | 3/31/2005 | 0.03 | 235.4 | 151.4 | 14 | 0.002 |
| Influent/ScreenA | 84 | 4/14/2005 | 0.03 | 235.4 | 151.4 | 14 | 0.002 |
| Influent/ScreenA | 84 | 4/27/2005 | 0.05 | 235.4 | 151.4 | 14 | 0.003 |
| Screen A | 84 | 5/2/2005 | 0.02 | 235.4 | 151.4 | 14 | 0.001 |
| Screen B | 134 | 5/2/2005 | 0.20 | 235.4 | 101.4 | 8.17 | 0.024 |
| Screen C | 185 | 5/2/2005 | ND | 235.4 | 50.4 | 2.56 | 0.000 |
| Influent | 134 | 5/2/2005 | 0.13 | 235.4 | 101.1 | 8.13 | 0.016 |
| **VE-03 - Carbon Tetrachloride** | | | | | | | |
| Screen A | 85 | 6/3/2005 | ND | 201 | 116.0 | 2.78 | -- |
| Screen B | 159 | 6/3/2005 | 0.110 | 201 | 42.0 | 0.46 | 0.239 |
| Influent | 122 | 6/3/2005 | 0.035 | 201 | 79.0 | 1.57 | 0.022 |
| Screen A | 84 | 6/6/2005 | 0.003 | 201 | 117.0 | 2.78 | 0.001 |
| Screen B | 134 | 6/6/2005 | ND | 201 | 67.0 | 0.46 | -- |
| Influent | 185 | 6/6/2005 | ND | 201 | 16.0 | 1.57 | -- |
| Screen B | 134 | 6/7/2005 | ND | 201 | 67.0 | 0.46 | -- |
| Influent | 185 | 6/7/2005 | 0.014 | 201 | 16.0 | 1.57 | 0.009 |
| Screen A | 84 | 6/8/2005 | ND | 201 | 117.0 | 2.78 | -- |
| Screen B | 134 | 6/8/2005 | ND | 201 | 67.0 | 0.46 | -- |
| Influent | 185 | 6/8/2005 | ND | 201 | 16.0 | 1.57 | -- |
| **VE-03 - Trichloroethene** | | | | | | | |
| Screen A | 84 | 6/3/2005 | ND | 201 | 117.0 | 9.92 | -- |
| Screen B | 134 | 6/3/2005 | 0.043 | 201 | 67.0 | 1.3 | 0.033 |
| Influent | 185 | 6/3/2005 | 0.018 | 201 | 16.0 | 5.9 | 0.003 |
| Screen A | 84 | 6/6/2005 | 0.007 | 201 | 117.0 | 9.92 | 0.001 |
| Screen B | 134 | 6/6/2005 | ND | 201 | 67.0 | 1.3 | -- |
| Influent | 185 | 6/6/2005 | 0.030 | 201 | 16.0 | 5.9 | 0.005 |
| Screen B | 134 | 6/7/2005 | ND | 201 | 67.0 | 1.3 | -- |
| Influent | 185 | 6/7/2005 | 0.028 | 201 | 16.0 | 5.9 | 0.005 |
| Screen A | 84 | 6/8/2005 | 0.005 | 201 | 117.0 | 9.92 | 0.000 |
| Screen B | 134 | 6/8/2005 | 0.056 | 201 | 67.0 | 1.3 | 0.043 |
| Influent | 185 | 6/8/2005 | 0.034 | 201 | 16.0 | 5.9 | 0.006 |

1) Sample depth assumed to be depth of bottom of screen for individual screen samples, or the average of the screen depths for the combined influent samples.