

**FINAL REPORT
FOR THE
SOIL VAPOR EXTRACTION PILOT TEST
AT
OPERABLE UNIT 2**

**National Aeronautics and Space Administration (NASA)
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, California 91109**

Prepared by:

**Foster Wheeler Environmental Corporation
1940 E. Deere Street, Suite 200
Santa Ana, California 92705**

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ACRONYMS AND ABBREVIATIONS

amsl	Above mean sea level
bgs	Below ground surface
CCl ₄	Carbon tetrachloride
cfm	Cubic feet per minute
1,1-DCA	1,1-Dichloroethane
1,1-DCE	1,1-Dichloroethene
1,2-DCA	1,2-Dichloroethane
DTSC	California Department of Toxic Substances Control
EPA	U.S. Environmental Protection Agency
Freon 113	Trichlorotrifluoroethane
ft	feet
GAC	Granular activated carbon
H ₂ O	Water
in.	Inch or inches
in. H ₂ O	Inches of water
JPL	Jet Propulsion Laboratory
lb	Pound
lbs/hr	Pounds per hour
NASA	National Aeronautics and Space Administration
OU-2	Operable Unit 2 (On-Site Contaminant Source Investigation)
PVC	Polyvinyl chloride
RI/FS	Remedial investigation/feasibility study
ROI	Radius of influence
RORI	Radius of remedial influence
RPM	Remedial Project Manager
RWQCB	California Regional Water Quality Control Board, Los Angeles Region
SVE	Soil vapor extraction
TCE	Trichloroethene
VOC	Volatile organic compound

1.0 INTRODUCTION

Presented in this report are the results of a long-term soil vapor extraction (SVE) pilot test conducted in Operable Unit 2 (OU-2) at National Aeronautics and Space Administration's (NASA's) Jet Propulsion Laboratory (JPL) facilities. These facilities are located at 4800 Oak Grove Drive in Pasadena, California and are referred to as "JPL" throughout the rest of this document. Figures 1-1 and 1-2 are a Site Location Map and Site Facility Map for the site, respectively. This report has been prepared by Foster Wheeler Environmental Corporation (Foster Wheeler) on behalf of JPL, and covers test activities from its beginning in 1998 through October 2000. It serves as an update of the pilot test report presented as Appendix A of the OU-2 Feasibility Study Report (Foster Wheeler, 2000).

The test was conducted in the parking lot located between Buildings 18 and 79 (Figure 1-2). Based on previous investigations at the site, subsurface soils in OU-2 are impacted with volatile organic compound (VOC) vapors, primarily carbon tetrachloride (CCl_4). The Remedial Investigation/Feasibility Study (RI/FS) Work Plan (Ebasco, 1993) and its addenda (Foster Wheeler, 1996a and 1996b) identified the investigative work required to adequately characterize the impacted soil. The investigative work identified in the RI/FS Work Plan consisted of installation and sampling of nested soil vapor monitoring wells¹. The sampling of soil vapor from these wells has indicated the presence of VOC vapors including carbon tetrachloride (CCl_4), chloroform, Freon 113, trichloroethene (TCE), 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethane (1,2-DCA), and 1,1-dichloroethene (1,1-DCE).

Based on available information regarding the soil types and the nature and extent of contamination at JPL (Foster Wheeler, 1999, 2000), in situ SVE appears to be a feasible technology for remediating the VOC impacted soils in OU-2. In situ SVE was one of the in situ technologies identified as a potential remedial technology for OU-2 in the 1993 RI/FS Work Plan, and is designated by the United States Environmental Protection Agency (EPA) as a presumptive remedy for VOC impacted soils (EPA, 1993). During Remedial Project Manager (RPM) meetings (September 4, 1997, and December 3, 1997) attended by representatives from NASA, JPL, Foster Wheeler, EPA, the California Regional Water Quality Control Board, Los Angeles Region (RWQCB), and the California Department of Toxic Substances Control (DTSC), it was agreed that a pilot test would be conducted to confirm the feasibility of using in situ SVE at the site. In addition, the pilot test would also provide design criteria for implementing a full-scale SVE system at the site. The entire test, including setup and demobilization, was initially expected to require approximately 9 weeks to complete. The initial

¹ It is noted here that, in accordance with the California Regional Water Quality Control Board, Los Angeles Region, guidance (RWQCB, 1992 and 1997), soil samples collected during drilling were not analyzed for VOCs because of disturbances to the sample caused by the air percussion drilling technique.

test was to run in two test phases, Test 1 and Test 2, but was later expanded to include a third test.

The initial test (including Tests 1 and 2) was started in April 1998 and conducted through June 1998 in accordance with the SVE pilot test work plan contained in Addendum Number 2 to the Field Sampling and Analysis Plan for Performing a Remedial Investigation at Operable Unit 2 (Foster Wheeler, 1998). Based on the results of the test it was decided to extend the test for an additional 9 months, as discussed during the RPM Meeting on July 16, 1998. During the extended portion of the test, noted as the third test phase (Test 3), the SVE system operated from November 1998 and continued, with exception of a few temporary shutdowns, through September 1999. The SVE system was then placed on standby through March 2000, and was again operated (as part of Test 3) from April through July 2000. The system was subsequently placed on standby, and was restarted in December 2000 by Geofon, under contract to the Navy.

Presented in this report are the scope of the pilot test, equipment used for the test, test procedures, and a summary of the data obtained from the test.

1.1 PILOT TEST OBJECTIVES

The objectives of the SVE pilot test were to:

- Confirm the feasibility of using SVE at JPL.
- Estimate physical design parameters, such as SVE flow rate from the extraction well at different extraction vacuums, radius of influence (ROI) of a single extraction well, and permeability of the soil to air flow.
- Evaluate VOC concentrations in extracted vapor.

1.2 SCOPE OF WORK

To meet the above objectives, one pilot test well (VE-1) with three discrete screened intervals was installed. Twelve existing monitoring points (with multiple sample ports) in the vicinity of this well were used for monitoring purposes. Additional details regarding the test well and the monitoring points are provided in Section 2.0.

The scope of work required to meet the project objectives consisted of three test phases:

1. Test 1 – Short-term tests: three on individual screens, one on all three screens combined.
2. Test 2 – Long-term test on two combinations of screens: one on all three screens combined and one on Screens B and C combined.
3. Test 3 – This was a continuation of Test 2 on Screens B and C combined, and Screen C separately.

In addition, VOC concentrations in soil vapor extracted from individual screens and from nearby soil vapor monitoring points were monitored periodically to provide additional data pertaining to SVE effectiveness.

Test 1 was started on April 13, 1998, and was completed on May 7, 1998. Test 2 was started on May 11, 1998, and was completed on June 10, 1998. Test 3 was started on November 2, 1998, was shut down on September 22, 1999, was resumed on April 20 (blowers restarted actually April 26) and was terminated on August 2, 2000. The carbon (two vessels) was changed out following conclusion of Test 3.

1.3 REPORT ORGANIZATION

The remainder of the Report is organized into the following sections:

- Section 2.0 – Equipment and Materials: describes the equipment and materials used for the test.
- Section 3.0 – Test Procedures: describes the general test procedures performed during Test 1, Test 2, and Test 3.
- Section 4.0 – Results and Data Analysis/Interpretation: describes the results of the data collected and various data analyses to meet the project objectives.
- Section 5.0 – Conclusions: summarizes conclusions of the SVE pilot test.
- Section 6.0 – References: lists the references cited in this report.

2.0 EQUIPMENT AND OPERATION

This section provides descriptions of the extraction well, monitoring wells, and treatment/sampling equipment used in the SVE pilot test.

2.1 WELLS

During the course of the SVE pilot test, two types of wells were used: one SVE well and twelve soil vapor monitoring wells. The locations of these wells are shown in Figure 1-2.

2.1.1 Extraction Well

A single vapor extraction test well (VE-1) was used for the SVE pilot test. The well 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-1A (Screen A), VE-1B (Screen B), and VE-1C (Screen C), respectively. Each casing is constructed of Schedule 80 PVC, and is screened (0.020 inch slots) from 44 to 84 feet below ground surface (bgs), 94 to 134 feet bgs; and 145 to 185 feet bgs as shown in Figure 2-1. Screens A, B, and C each have inside diameters of 2 inches. The annular space between the screens and the borehole is backfilled with Lonestar RMC® No. 3 sand, and the annular space between the blank casing and the borehole is filled with Enviroplug® No. 16 bentonite granules.

Figure 2-2 shows the location of well VE-1 along with the CCl₄ soil-vapor plume (as presented in the OU-2 FS), which encompasses the majority of VOC contamination in the JPL vadose zone. As shown in Figure 2-2, the extraction well is located at the approximate center of the VOC contamination plume as measured during the OU-2 Remedial Investigation.

The design of the extraction well was based on the depth of the impacted vadose zone. The vertical VOC profile (as presented in the OU-2 FS) is shown on Figure 2-3. The impacted vadose zone was assumed to be approximately 150 feet in thickness, extending to the water table. Rather than designing a single extraction screen of 150 feet, three discrete individual well screens were installed, in order to ensure that a reasonably uniform vacuum could be developed throughout the impacted vadose zone. Figure 2-3 also shows four monitoring zones, which were established for data presentation purposes (see Section 4.1.2). These 4 zones are based on the depths of the screened intervals of the extraction well, with Zone 1 corresponding to the blank (unscreened) portion of the extraction well, and Zones 2, 3, and 4 corresponding to extraction screens A, B, and C respectively.

It is noted here that, throughout the project, soil samples were not analyzed for VOCs, and that the RI/FS relied completely on soil vapor data for assessment of VOCs. Because of the numerous large cobbles and boulders in the subsurface soils, dual-wall air percussion drilling methods were planned to be used in order to reach an initial target depth of 100 feet. The RWQCB stated

during scoping meetings for this work that this drilling method is not acceptable for VOC sampling because of its de-gassing effect, and that any VOC analysis results obtained for soil samples would be unacceptable. As noted in the RPM meeting minutes for March 9, 1993, all RPMs agreed that the RI would be based on soil-vapor sampling instead of analyzing soil samples for VOCs. Therefore, all soil borings were converted to nested soil-vapor wells during the RI for OU-2, and VOC analysis of soil samples was not included in the approved RI/FS work plan or the FSAP for OU-2. It is therefore assumed (necessary to assume) for this pilot study, that the envelope of VOC contamination delineated by the soil vapor investigation adequately represents the distribution of VOCs within the vadose zone, and the location of the extraction well was selected accordingly.

2.1.2 Monitoring Wells

Twelve soil vapor monitoring wells (SVW-25, -26, -27, -28, -32, -33, -34, -35, -36, -37, -38, and -39) were used for monitoring (Figure 1-2). Each well contains discrete depth-specific monitoring points. These wells were used to monitor vacuum responses and to collect depth-specific soil vapor samples during the test. In total, there were 110 depth-specific monitoring points available. However, because of the fluctuating water table and other unknown factors, some of the probes were plugged and, therefore, were not continuously monitored. Also, access to some of the soil vapor monitoring wells was not always available.

2.2 EXTRACTION/TREATMENT EQUIPMENT

The following subsections provide a description of the extraction/treatment equipment. Figure 2-4 shows a piping and instrumentation diagram for the pilot test equipment.

2.2.1 Blower Package

Tests 1 and 2

Because of restrictions imposed by the South Coast Air Quality Management District (SCAQMD) Permit to Operate (PTO) (Multiple Locations Permit), extraction blowers operating at the site were limited to a maximum flow rate of 200 cubic feet per minute (cfm) per unit. Hence, two units were used in parallel during the last week of Test 1 and for the entire duration of Test 2. Both extraction systems met the following specifications:

- One trailer mounted, one skid mounted.
- Common 50-gallon knockout tank, level switch, and safety interlock to shut down blower for high water level.
- Vacuum blower, maximum flow 200 cfm, maximum vacuum equivalent to 10 inches of mercury. Blowers 1 and 2 operated at a maximum flow rate of 200 cfm and 100 cfm, respectively.
- Dilution air valve and recirculation air valve to regulate vacuum and flow.

Test 3

For Test 3, the above-mentioned equipment was replaced with a single 20-horsepower positive displacement blower package (skid-mounted) capable of extracting a maximum of approximately 500 cfm and exerting a maximum vacuum of 12 inches mercury. Temporary power connections were provided by JPL.

2.2.2 Treatment System

Tests 1 and 2

The treatment system in Tests 1 and 2 consisted of two 1,000-pound (lb) vapor-phase granular activated carbon (GAC) vessels in series per blower unit (four vessels total). This met the vendor's SCAQMD PTO requirements.

Test 3

The treatment system in Test 3 consisted of two parallel trains of two 2,000-lb vapor-phase GAC vessels in series (four vessels total). In May 1999, the vapor-phase GAC vessels were replaced with vapor-phase GAC vessels fitted with reinforcement boards to withstand higher vacuums.

2.3 SAMPLING/TESTING EQUIPMENT

A range of sampling/testing equipment was used at various times during the testing, as follows:

- Flow Meter – to measure extracted flow rates.
- Flame Ionization Detector (FID) – to analyze extracted soil vapors and treated effluent.
- Tedlar Bags/Summa Canisters – to collect vapor for laboratory analyses.
- Sample Pumps – to collect soil vapor samples.
- Vacuum Gauges – to measure vacuums.
- Vacuum Chamber – to collect vapor samples from the extraction wells and piping while the system was in operation, without contaminating the sample pump.

3.0 TEST PROCEDURES

A general outline of the procedures followed during the performance of Tests 1, 2, and 3 are provided in the following subsections.

3.1 TEST 1 PROCEDURE

Test 1 consisted of applying a vacuum to each of the three-screened intervals of the extraction well individually and all three screens combined (four runs total). During each run, applied vacuum levels were varied on a day-to-day basis. Each vacuum level was applied for an 8-hour day, and each run required 1 week to complete (baseline sampling/monitoring was performed on day 5). Test 1 ran for 4 weeks total. The vacuum application schedule is outlined below.

Week	Screen	Day 1	Day 2	Day 3	Day 4
1	VE-1A	Maximum Vacuum	75 percent Maximum Vacuum	50 percent Maximum Vacuum	25 percent Maximum Vacuum
2	VE-1B	Maximum Vacuum	75 percent Maximum Vacuum	50 percent Maximum Vacuum	25 percent Maximum Vacuum
3	VE-1C	Maximum Vacuum	75 percent Maximum Vacuum	50 percent Maximum Vacuum	25 percent Maximum Vacuum
4	VE-1ABC	Maximum Vacuum	75 percent Maximum Vacuum	50 percent Maximum Vacuum	25 percent Maximum Vacuum

Soil vapors were extracted using a single 200 cfm blower and treated using two 1,100-pound carbon vessels in series. Two blowers (an additional 100 cfm blower was added), each followed by a series of carbon vessels (four 1,100-lb carbon vessels total) were used during Week 4 of testing.

The data collected for Test 1 were divided into three categories: (1) extraction well data, (2) monitoring well data, and (3) laboratory data. Extraction well data (collected at the extraction well) included vacuum pressures, flow rates, and extracted vapor concentrations (measured using an FID) prior to carbon treatment (influent) and after carbon treatment (effluent). Monitoring well data consisted of vacuum response readings at nearby soil vapor monitoring wells SVW-25, -26, and -28. Each monitoring well has a series of depth specific probes where measurements were taken. Finally, influent soil vapor samples were collected at a minimum of twice per day,

and submitted for laboratory analysis. All laboratory samples were analyzed for VOCs by EPA Methods 8010/8020 in accordance with RWQCB protocols. Extraction well data, monitoring well data, and laboratory results are presented in Attachments 1, 2, and 3 respectively. It is noted that these appendices also include Test 2 data, as explained in the following subsection.

3.2 TEST 2 PROCEDURE

Test 2 represented the initial portion of the long-term SVE test. The system was operated continuously for a period of 1 month. Over the first 3 weeks, vacuum pressure of approximately 26 inches of water (in. H₂O) was applied to Screens A, B, and C concurrently, using two blowers. The effluent from each blower was treated by two carbon vessels in series (four 1,100-lb carbon vessels total). During the final week of Test 2, the same vacuum was applied only to Screens B and C concurrently using only one blower². Extracted vapors were treated through a series of two carbon vessels initially and through three carbon vessels during the final days of operation because of potential breakthrough in the primary carbon vessel. Field measurements were essentially identical to those collected during Test 1 and are also presented in Attachments 1, 2, and 3. Toward the end of Test 1, vacuum responses were observed in some of the more distant soil vapor wells that were monitored during the test. Hence, for Test 2, vacuum response measurements were taken at SVW-27, -32, -33, -34, -35, -36, -37, and -38, in addition to SVW-25, -26, and -28, to better define the influence of the vacuum. As can be seen from Figure 1-2, these are at significant distances from VE-1.

3.3 TEST 3 PROCEDURE

Test 3 represents the final (extended) portion of the long-term SVE test. Test 3 was initially conducted from November 2, 1998, to September 22, 1999. Vacuum was initially applied only to Screens B and C combined. This optimal combination was chosen after analyzing VOC removal data (see Section 4.0 for data analysis) and based on relevant literature (Shan et al., 1992). During the later portion of the test, vacuum was applied only to Screen C. As with Tests 1 and 2, data collected during Test 3 were divided into three categories: extraction well data, monitoring well data and laboratory data. These data are presented in Attachments 4, 5, and 6, respectively. The field measurements are very similar to the data collected during Test 2; however, additional vacuum reading and one additional soil vapor monitoring well (SVW-39) was added. Based on the data review of the initial 3 weeks of operation, the field measurement collection frequency was decreased from that in Tests 1 and 2.

The system was shut down on September 22, 1999 and was placed on standby. On April 20, 2000, Test 3 was reinitiated, and on April 24, the system was restarted. At this time, only Screen A was subjected to extraction. However, after 1 week, water had filled the knockout drum, and the system was shut down. The water was believed to be rainwater percolating through in the

² This was necessitated by mechanical problems with one of the blowers.

shallow portion of the vadose zone, and this rendered Screen A inoperable at that time. The system was shut down for several weeks for maintenance, and was restarted on May 9, again extracting from Screen C only.

3.4 VACUUM MEASUREMENTS

As mentioned earlier, a number of soil monitoring wells from the OU-2 RI were used for measurement of vacuums throughout the SVE pilot test. Vacuums were observed in monitoring wells as far as 771 feet away from the extraction well. The vacuums in distant wells were low (in the 0.1 in. H₂O and less range) and were measured using vacuum gages with ranges from 0 to 0.25 in. H₂O. It is recognized that barometric pressure can have an impact on subsurface vacuums, and that soil column breathes on a diurnal basis. The obvious impact of this on SVE pilot testing is that observed vacuums may be due to the natural subsurface vacuum as opposed to the vacuum applied at the extraction well. While it is possible to measure barometric pressure variations during the pilot test and correlate with subsurface vacuums, this correlation is complicated by the lags between variations in barometric pressure and their impact on subsurface vacuums. Instead, long-term testing coupled with vacuum measurements in “background” wells are typically employed to indirectly account for barometric pressure variations.

Both these indirect methods were used during Tests 2 and 3, but vacuum responses in wells as far as 771 feet away distinctly dropped and rose with system shut downs and restarts. Since it can be argued that a portion of vacuum responses in any monitoring well might be due to the natural (background) vacuum, the impact of not considering backgrounds would result in overestimating the radius of influence (ROI) of the extraction well (based on vacuum response). As will be discussed in subsequent sections, the radius of remediation influence (RORI), the distance at which reduction in soil vapor VOC levels is observed, was identified as the critical design parameter, obviating the need for a rigorous ROI calculation based on vacuum.

4.0 DATA ANALYSIS / INTERPRETATION

Presented in this section are the various data collected during the SVE pilot test, and an interpretation of these data. All figures generated for Section 4.0 were produced from data in Attachments 1 through 6.

4.1 TEST 1

The primary objective of Test 1 was to determine the effect of applied vacuum on the extraction well screens. Results generated from the data gathered in Test 1 include: vacuum to flow correlations, vacuum response with respect to distance from the extraction well, soil permeability, and VOC removal rates with respect to applied vacuum.

4.1.1 Vacuum versus Flow

As described earlier, Test 1 consisted of applying vacuums to Screens A, B, and C individually and then to Screens A, B, and C combined for four runs at four 8-hour days per run. On day 1 of each run, the blowers were set at maximum capacity. The blower capacity was reduced by 25 percent on day 2, 50 percent on day 3, and 75 percent on day 4 of each run (see above table, Section 3-1). Test 1 extraction well data indicates that extraction flow rates decreased as applied vacuum decreased. Results are plotted as Figure 4-1 and are discussed in the remainder of this section. Figure 4-1 was generated based on data presented in Attachment 1.

The maximum applied vacuum to Screen A was recorded at 44 in. H₂O, which produced an extraction flow rate of 174 cfm. As the applied vacuum was reduced (25 percent increments), the flow rate also decreased as expected. The maximum applied vacuum to Screen B was recorded at 70 in. H₂O, which produced an extraction flow rate of 167 cfm. Similar to Screen A, as the applied vacuum on Screen B was reduced the flow rate also decreased. The maximum applied vacuum to Screen C was recorded at 80 in. H₂O, which produced an extraction flow rate of 157 cfm. The maximum applied vacuum to Screens A, B, and C combined was recorded at 25 in. H₂O, which produced an extraction flow rate of 277 cfm.

The trends shown on Figure 4-1 are typical for SVE sites. Screen A required the least applied vacuum to produce a given flow rate, while Screen C required the most applied vacuum to produce the same flow rate, implying that soil permeability decreases with increasing depth.

4.1.2 Vacuum Responses

Responses to the applied vacuum at the extraction well were measured at various soil vapor monitoring wells within the vicinity of VE-1. As described in Section 2.1.2, each soil vapor monitoring well contains multiple depth-specific probes. The probes were used to measure vacuum responses at various depths and distances from the extraction well. Four monitoring zones, based on elevation, have been designated for the purpose of data analysis. Figure 4-2

depicts the locations of the soil vapor probes with respect to the monitoring zones (see also Figure 2-3). Zone 1 includes the subsurface areas at an elevation greater than 1,151 feet above mean sea level (amsl); Zone 2 covers the elevation interval of 1,151 feet to 1,101 feet amsl; Zone 3 covers the elevation interval of 1,051 feet to 1,001 feet amsl; and Zone 4 covers the elevation interval of 1,051 feet to 1,001 feet amsl. Elevations for Zones 2, 3 and 4 were designated to correspond to screened interval elevations at Screens A, B, and C [Screen elevations: A (1,146 feet to 1,106 feet.), B (1,096 feet to 1,056 feet), C (1,046 feet to 1,006 feet)], respectively. For a given monitoring well, the responses at the probes (for each zone) were averaged. Thus, for each monitoring well there is one “average” vacuum response for each of the four zones.

Note that, as explained in Section 2.1.1, the elevations of the three screens (A, B, and C) were selected based on the depth of the VOC-impacted zone only, and do not reflect site geology, which is relatively homogeneous. Similarly, Zones 2, 3, and 4 correspond to the same depths as screens A, B, and C, respectively. Zone 1 corresponds to the unscreened portion of the extraction well.

During Test 1, vacuum responses were measured in monitoring wells SVW-25, -26, and -28. The results were plotted with respect to distance from VE-1 for all the extracting scenarios (Figures 4-3 through 4-6). As expected, the figures show that average vacuum responses were generally highest in the zone that corresponds to the extracting well screen and decreased with distance. For example, Figure 4-3 illustrates that while extracting from Screen A, the greatest average vacuum responses were noted in Zone 2. Overall, Zone 1 showed the least average vacuum responses, which is expected since there is no extraction screen at the Zone 1 elevation. To some extent, this indicates that surface leakage is minimal based on the lack of responses in Zone 1 for the two closest soil vapor monitoring wells. This may be attributable to the fact that almost 90 percent of JPL is capped. Furthermore, as discussed later (Sections 4.2.2 and 4.3.2), vacuum responses during Tests 2 and 3 were noted in wells at significant distances from VE-1, which again points to minimal surface leakage.

Based on Figure 4-3, while extracting from Screen A, Zone 2 showed measurable vacuum responses in all three monitoring wells. Vacuum response averages in Zone 2 ranged from 0.7 in. H₂O to 1.8 in. H₂O. In Zones 1, 3, and 4, responses were not as strong, with the exception of Zone 1 at well SVW-26 (response of 1.63 in. H₂O).

Based on Figure 4-4, while extracting from Screen B, the greatest vacuum responses were measured in Zone 3. While extracting from Screen B, vacuum response averages in Zone 3 ranged from 0.38 in. H₂O to 2.05 in. H₂O. Average vacuum responses for the other zones were below 0.85 in. H₂O.

Based on Figure 4-5, while extracting from Screen C, the strongest average vacuum responses were recorded in Zone 4 (monitoring points were not available for Zone 4 in SVW-28). Average vacuum responses in Zone 4 ranged from 1.20 in. H₂O to 2.95 in. H₂O. In addition, Zone 3

showed a significant average vacuum response readings while extracting from Screen C. Average vacuum responses in Zone 3 were recorded as high as 1.37 in. H₂O (SVW-25). Relatively low average vacuum responses were recorded at Zones 1 and 2.

Based on Figure 4-6, while extracting from all three screens combined, the strongest vacuum responses were noted in Zones 2, 3, and 4. Overall, the greater average vacuum responses were recorded in Zone 3 where they ranged from 0.53 in. H₂O to 2.63 in. H₂O. For Zone 2 and Zone 4, average vacuum responses ranged, respectively, from 0.0 in. H₂O to 1.9 in. H₂O and from 0.95 in. H₂O to 2.25 in. H₂O. Vacuum responses in Zone 1 were relatively low (less than 0.01 in. H₂O) with the exception of the response at SVW-26, which showed an average vacuum response of 0.95 in. H₂O.

Based on this test, the ROI appears to exceed 100 feet and, potentially 150 feet for the zone(s) in which extraction is occurring. A large ROI would be consistent with the generally sandy and gravelly subsurface materials present at the site, however, this is greater than most reports in the literature. The ROI was further investigated during Tests 2 and 3, and is discussed in detail in section 4.2 and 4.3 below.

4.1.3 Soil Permeability

Soil permeability is a measure of the ability of soil to allow airflow through its pore spaces. The following mathematical equation can be used to calculate permeability (Johnson et al., 1990):

$$\frac{Q}{H} = \frac{\pi k}{\mu} P_e \frac{[1 - (P_m / P_e)^2]}{\ln(R_e / D_m)} \quad (1)$$

Where:

Q = Flow [cfm, cm³/s]

H = Screen interval [ft, cm]

K = Soil Permeability to air flow [darcy, cm²]

μ = Viscosity of air [centipoise, g/cm-s]

P_e = Extraction well vacuum [in. H₂O, g/cm-s²]

P_m = Monitoring well response [in. H₂O, g/cm-s²]

R_e = Extraction well radius [ft, cm]

D_m = Distance of monitoring well from extraction well [ft, cm]

π = 3.14

ln = Natural logarithm

Based on Equation 1, soil permeability was calculated for the test site. Using representative data collected during Test 1, soil permeabilities were calculated for Zones 2, 3 and 4. Soil

permeability calculations are presented in Table 4-1. Zone 2 calculations were based on vacuum response data collected on April 13, 1998 at 12:15, from the monitoring probes in Zone 2 of monitoring wells SVW-25, -26, and -28. Similarly, calculations for Zones 3 and 4 were based on vacuum response data collected on April 20, 1998 at 10:00 and April 27, 1998 at 14:00, respectively, from the monitoring probes in Zones 3 and 4 of monitoring wells SVW-25, -26, and -28. Results indicate that Zone 2 is the most permeable of the three zones. The estimated soil permeability value for Zone 2 is 12.60 darcy. The estimated soil permeability values for Zones 3 and 4 are 6.83 darcy and 5.72 darcy, respectively.

Based on these soil permeabilities (which are indicative of medium sands), in situ SVE is expected to be a feasible technology for remediation of VOC-impacted soils at OU-2 (Johnson et al., 1990).

4.1.4 VOC Analysis

As discussed previously, the OU-2 RI (Foster Wheeler, 1999) indicated subsurface soils at OU-2 were impacted by VOCs, primarily CCl_4 , Freon 113, TCE, and 1,1-DCE. The majority of the contamination extracted during Test 1 was CCl_4 . Trace amounts of Freon 113 were also extracted. A total of approximately 11 lbs of VOCs (10.7 lbs of CCl_4 and 0.4 lbs of Freon 113) were extracted during Test 1. Extraction rate calculations are presented in Table 4-2 and cumulative VOC removals are plotted on Figure 4-7.

CCl_4 concentrations with respect to applied vacuum are plotted in Figure 4-8. Since CCl_4 was the only VOC present at significant concentrations (Figure 4-7), only CCl_4 concentrations were plotted for the purpose of this analysis. Data presented in Figure 4-8 suggests that VOC concentrations did not vary significantly with vacuum during Test 1.

4.2 TEST 2

The objectives of Test 2 were to verify the vacuum responses observed during Test 1, to estimate the radius of influence (ROI) for SVE at the site, and to further study VOC removal rates trends over longer periods of time.

4.2.1 Vacuum Responses

As with Test 1, vacuum responses due to the applied vacuum at the extraction well were measured at monitoring wells within the vicinity of VE-1. However, because of the high vacuum responses observed at distant soil vapor monitoring wells during Test 1, additional monitoring wells (at further distances) were included for Test 2. Vacuum response measurements were taken at SVW-25, -26, -27, -28, -32, -33, -34, -35, -37, and -38. Since additional monitoring wells were available during Test 2, additional data were collected to confirm that significant responses were present in the monitoring zones (Zones 1 to 4) at much further distances. Vacuum responses were noted as far as 771 feet away (SVW-38). Similar to Test 1, the average vacuum response in each zone with respect to distance from VE-1 was plotted for both extracting scenarios (Figures

4-9 and 4-10). Again, as in Test 1, the plots suggest that average vacuum responses are generally highest in the zones that correspond to the extracting well screens and decreased with distance. For example, Figure 4-9 illustrates that when extracting from the combined Screens A, B, and C, Zones 2, 3, and 4 showed significant average vacuum response, whereas Zone 1 generally showed minimal average vacuum responses. These results, along with the decrease with distance, imply that the observed vacuum responses are indeed due to the operation of the SVE system.

To demonstrate that the observed vacuum responses were truly a function of the applied vacuum to the extraction well, vacuum response tests were performed, which included cycling the SVE system on and off while recording vacuum responses. The results have been plotted with respect to time on Figures 4-11 through 4-20. The on-off cycles are shown in the following table, along with comments (refer to Figures 4-11 through 4-20):

System Shut Down	System Restarted	Comment
5/21/98 (morning)	5/21/98 (afternoon)	System was operating prior to 5/21/98. On this date, vacuum readings were taken in the morning, and the system was then shut down. Two sets of readings were then taken, and the blowers were restarted. Two additional sets of readings were then taken.
5/26/98 (afternoon)	5/28/98 (afternoon)	Numerous vacuum readings show pronounced pressure decreases in most monitoring points following shut down, and subsequent clear pressure increases in response to restarting the system.
6/2/98 (morning)	6/2/98 (morning, one hr later)	Readings taken over time on 6/2 following restarting the system generally show incremental vacuum increases.
6/8/98 (morning)		Readings taken over time on 6/8 following system shutdown generally show incremental vacuum decreases

With reference to the above information, the data in Figures 4-11 through 4-20 clearly show that the vacuum responses were a function of the applied vacuum. It should be noted that in these figures actual vacuum responses were plotted and not the average "zone" vacuum responses. As can be seen in Figures 4-11 through 4-20 when the SVE system was shut down and time was allowed for the subsurface to reach equilibrium, the vacuum responses were generally at a minimum (zero or close to zero). Also, when the SVE system was restarted, vacuum responses immediately (within 1 to 2 hours) started to rebound. Similarly, when the SVE system was shut down, vacuum responses immediately decreased in magnitude. Thus, the results of the vacuum response tests confirm that the applied vacuum at the extraction caused the vacuum responses in the soil vapor monitoring wells. The furthest well in which the above effects were observed is Well SVW-38, which is approximately 771 feet away from VE-1.

4.2.2 ROI Estimation

The ROI is described as a mathematical estimate of the upper limit of distance at which the effects of extraction can be observed. These effects are usually measured as vacuum responses at the monitoring wells. Generally, the ROI is defined as the distance from the extraction well at which the response is 1.0 percent of the applied vacuum (Suthersan, 1997).

To determine ROI at the site, vacuum-response data was normalized and plotted as Figures 4-21 and 4-22. Figure 4-21 indicates that while extracting from Screens A, B, and C combined, the ROIs for Zones 2, 3, and 4 are approximately 665, 950, and 1,000 feet, respectively. Figure 4-22 indicates that while extracting from Screens B and C combined, the ROIs for Zones 2, 3, and 4 are 215, 900, and 900 feet, respectively.

It is recognized that these ROIs are somewhat higher than expected. These ROIs also do not account for background vacuums, as mentioned in Section 3.4. As discussed in Section 4.3.3, a different approach (using actual reduction in VOC concentrations in soil vapor monitoring wells) was also used for estimating/confirming the ROI.

4.2.3 VOC Analysis

The majority of the VOCs extracted during Test 2 consisted of CCl₄. Trace amounts of Freon 113 were also extracted. Results show that a total of approximately 73 lbs of VOCs (68 lbs of CCl₄ and 5 lbs of Freon 113) were extracted during Test 2. Extraction rate calculations are presented in Table 4-3, cumulative mass of VOC removals are plotted on Figure 4-23, and VOC removal rates over time are plotted in Figure 4-24. Generally, the data indicate that the VOC removal rates decreased with time (Figure 4-24). While applying vacuums to Screens A, B, and C combined, the VOC removal rates ranged from 0.23 pounds per hour (lbs/hr) to 0.10 lbs/hr. While applying vacuums to Screens B and C combined, the VOC removal rates ranged from 0.11 lbs/hr to 0.08 lbs/hr.

Removal rates are a function of extracted flow rates and VOC concentration in the extracted vapors. During Test 2, the two primary carbon vessels were prematurely exhausted on two separate occasions. Testing at the carbon vendor's laboratory indicated high VOC loading, although VOC removal based on laboratory analyses of the extracted soil vapor and flow rates did not indicate that carbon capacity had been reached. This indicates that one or more slugs of VOCs may have been extracted. The amount of VOCs extracted during Tests 1 and 2, based on a 44.6 percent loading as reported by the carbon vendor, is 1,784 pounds (44.6 percent of 4,000 pounds – two vessels each with 1,000 pounds, on two occasions). Attachment 7 shows the results of the analyses on the first batch of exhausted carbon. This is only an estimate and actual VOC removal may have been lower since the analysis was based on carbon samples collected from the vessel near the inlet ports. This also includes the 73 pounds based on the laboratory analysis of the vapors. Hence, an estimated 800 pounds (approximately 20 percent loading) of VOCs were probably removed in addition to the 73.7 pounds. This is significant, however, since

this removal could not be substantiated by laboratory results of vapor analyses, it was not included in the removal rate calculations.

4.3 TEST 3

The objectives of Test 3 were to confirm the results of Test 2 (verification of vacuum responses, ROI, and VOC removal trends), determine the radius of remediation influence (RORI), and conduct system optimization tests.

4.3.1 Vacuum Responses

For Test 3, vacuum responses due to the applied vacuum at the extraction well were measured at monitoring wells SVW-25, -26, -27, -28, -32, -33, -34, -35, -36, -37, and -38. As with Test 2, vacuum response tests were conducted to demonstrate that the observed vacuum responses were truly a function of the applied vacuum to the extraction well. Accordingly, the system was shut down and restarted periodically during the test and vacuum readings were taken during periods of operation and non-operation to identify trends in vacuum responses attributable to system operation. As with Test 2, the results have been plotted with respect to time (Figures 4-25 through 4-34) and once again show that the vacuum responses were indeed a function of the applied vacuum.

It is noted that considerable variation in the measured vacuum responses was noted during the tests. This is due, in part, to the fact that some of the functioning probes became plugged during the test, while others became unplugged. In practice, it was sometimes difficult to determine whether probes were plugged or not. In some cases, data clearly suggest that plugging did occur; for example, refer to Figure 4-27c, Probe SVW-27H, which appears to have become plugged shortly after 1/20/99, but may have been unplugged for several subsequent measurements. However, because this could not be accurately verified, all of the data collected has been presented. Nevertheless, close examination of Figures 4-25 through 4-33 show that, in general, increased vacuum responses correlated reasonably well with operation of the system. Finally, as with earlier tests (see Section 4.1.2) the Zone 1 vacuum responses shown in Figures 4-25 through 4-33 are minimal. This is expected, since there is no extraction screen at the Zone 1 elevation, and most of the extraction for Test 3 was conducted through Screens B and C, which are located considerably deeper than Zone 1.

4.3.2 ROI Estimation (Vacuum)

Test 3 included extracting from Screens B and C combined from November 2, 1998, through September 8, 1999. Extensions of Test 3 were conducted from September 8, 1999, through September 22, 1999 (extracting from Screen C only), and from April 26, 2000 through August 2, 2000 (extracting mainly from Screen C). It is noted that attempts to extract from Screen A alone during the last extension of Test 3 were unsuccessful due to the presence of water in the knock out tank.

As in Test 2, the ROI is defined as the distance from the extraction well at which the response is a minimum of 1.0 percent of the applied vacuum. Plots similar to those generated for Test 2 (normalized vacuum response plots) were prepared to confirm the ROI. These are shown in Figures 4-35 and 4-36. Based on Figure 4-35, while extracting from combined Screens B and C, the ROIs for Zones 2, 3, and 4 are estimated at 65, 460, and greater than 1,000 feet, respectively. Based on Figure 4-36, while extracting from Screen C only, ROIs for Zones 2, 3, and 4 were reduced to 25, 350, and 520 feet, respectively. The results of the ROI analysis conducted for Test 2 and Test 3 indicate that the ROI for Zones 3 and 4, while extracting from combined Screens B and C is 460 feet. To be conservative, 460 feet is designated as the effective ROI (based on vacuum) for the site.

The above data also indicate that the ROI in Zones 3 and 4 is greater when extracting from both Screens B and C as opposed to extracting from Screen C alone. Since these 2 zones are more impacted than Zones 1 and 2, operation of Screens B and C is more beneficial than operating Screen C alone. Operation of Screen A is not as critical since the amount of VOCs in the zones affected by Screen A are less than those affected by Screens B and C.

4.3.3 ROI Estimation (Remediation)

The ROI, based on vacuum response, is estimated to be on the order of 460 feet for Zones 3 and 4 while extracting from combined Screens B and C. However, this ROI may not be representative of the actual area that the extraction well is capable of remediating based on literature and previous experience. Hence, an alternate method for estimating the influence of remediation was used. This consists of estimating the "radius of remediation influence" (RORI), which is defined as the distance at which a significant reduction of VOC levels is observed in monitoring wells (as opposed to observed vacuum responses). Since the objective of SVE is to reduce VOC levels in the subsurface, this method is expected to be more realistic than the vacuum response ROI method.

Prior to initiating Test 3 (May 1998) and after the SVE system was placed on standby (October 1999), soil vapor monitoring was conducted to evaluate SVE effectiveness. VOC percent reductions for CCl_4 and Freon 113 concentrations as of October 1999 (compared to May 1998 VOC concentrations) are plotted in Figures 4-37 through 4-42, for Zones 2, 3, and 4. For the purpose of this analysis, it has been assumed that an effective RORI will extend to the point of 50 percent VOC reduction. Based on this assumption, reductions of CCl_4 greater than 50 percent extend beyond 1,000 feet for Zone 2, approximately 675 feet for Zone 3, and approximately 720 feet for Zone 4. Reductions in Freon 113 greater than 50 percent have been estimated to extend beyond 1,000 feet for Zone 2, and to 340 and 380 feet for Zones 3 and 4, respectively. The results indicate that the remedial effectiveness is much greater for CCl_4 than for Freon 113. While these RORIs are lower than the ROIs based on vacuum, they are still fairly high. Hence to be conservative, a 75% reduction in CCl_4 concentrations (CCl_4 is the major COC) was used to estimate the RORI. A 75% reduction in CCl_4 concentrations occurred at approximately 550 feet, 425 feet, and 450 feet away from the extraction well in Zones 2, 3, and 4, respectively.

Therefore, for CCl₄, which is the primary VOC of concern, an assumed RORI (based on 75% reduction in concentrations) of 400 feet would be appropriate.

The continued operation of the SVE system has resulted in a reduction in VOC levels throughout OU-2, as evidenced by soil vapor VOC data. Figures 4-43 through 4-54 show the reduction in VOC levels in Zones 1 through 4 for monitoring wells SVW-25, -26, -27, -28, -32, -33, -34, -35, -36, -37, -38 and -39. As can be seen from these figures, VOC levels have reduced significantly for most of the probes. It is noted here that a few of the probes were plugged during the course of the test, and results for these are not shown. The graphs on these figures were also superimposed on a site map to show the reductions in VOCs for each of the 4 zones. These are shown on Figures 4-55, 4-56, 4-57, and 4-58 for Zones 1, 2, 3, and 4, respectively. As can be seen from Figures 4-55 through 4-58, VOC levels have decreased significantly in all 4 zones for soil vapor monitoring wells within a 400-foot radius around VE-1.

4.3.4 Pore Volume Exchange Rate

Pore volume exchange rate (PVER) is an indirect means of determining the number of SVE wells required at a site. PVER may be defined as the rate at which one complete pore volume of the impacted soil is exchanged. The number of wells required would then be based on an adequate number of pore volumes exchanged within a reasonable time frame.

For VE-1, when extracting from B and C (which corresponds to the majority of the VOC impact), the PVER is estimated as follows:

$$\text{Time for 1 pore volume exchange, days} = \frac{\pi \times \text{RORI}^2 \times n \times H}{Q \times 1440 \text{ min/day}} \quad (2)$$

Where:

RORI = 400 feet (it is assumed that this is the zone within which effective air exchange occurs)

n = Effective soil porosity (air), assumed to be 0.20

H = Height of soil column through which flow occurs

Q = Flow = 393 cfm

Based on the lack of vacuum responses in Zone 1, and the minimal responses in Zone 2, "H" was assumed to be equal to the thickness of Zones 3 and 4 combined, i.e., 100 feet. This translates to 1 pore volume approximately every 18 days. Thus in a given year, approximately 20 pore volumes would be exchanged with a single well extracting at 400 cfm. Assuming that 1 complete year of operation was conducted during the course of Tests 1, 2, and 3, it can be assumed that 20 pore volumes have been extracted from the site as of October 2000. Based on Figures 4-55 through 4-58, it is obvious that this has resulted in a significant reduction in VOC levels at OU-2. While industry practice routinely calls for 500 or more pore volumes to be extracted in order to

cause adequate remediation, data from this test indicate that far fewer pore volumes may be necessary at OU-2.

4.3.5 VOC Analysis and Overall VOC Removal

As with Test 2, the majority of the contamination extracted during Test 3 was CCl₄. Smaller amounts of Freon 113 and TCE were also extracted. A total of approximately 146 lbs of VOCs (126 lbs of CCl₄, 14 lbs of Freon 113, and 6 lbs of TCE) were extracted during Test 3. Extraction rate calculations for Test 3 are presented in Table 4-4, cumulative VOC removals are plotted on Figure 4-59, and VOC removal rates versus time are plotted on Figure 4-60. Test 3 results confirm Test 2 results and indicate that VOC removal rates will decrease over a long period of time (Figure 4-60). During the initial startup of Test 3, the total VOC removal rates were as high as 0.11 lbs/hr and dropped as low as 0.004 lbs/hr (system in operation). These results indicate that VOC concentrations in the extracted vapor were reduced by over 95 percent over the duration of the test.

During the course of the pilot testing, approximately 194 lbs of CCl₄ were removed from OU-2, along with 6 lbs of TCE and 19 lbs of Freon (Table 4-4), as of August 2000. Additionally, as noted in Section 4.2.3, an additional 800 lbs of TCE may have been removed during Tests 1 and 2. Thus the total COCs extracted from OU-2 are at least 219 lbs, and may be as high as 1,019 lbs.

4.3.6 System Optimization

During Test 3, the following operational strategies were explored in order to maximize the efficiency of the SVE system (these methods involved equipment upgrades and changes in how the SVE system was being operated):

- Extracting from only Screen C to effect greater remediation in Zone 4, which is closest to the water table.
- Cycling the treatment system on and off for periods of time and monitor effects on system performance.

4.3.6.1 Screen C Extraction

On September 8, 1999, Screen B was closed off and only Screen C remained open. By closing Screen B, the applied vacuum increased from approximately 73 in. H₂O (for combined Screens B and C) to an applied vacuum of approximately 100 in. H₂O. In order to operate the SVE system at increased vacuum, the existing vapor-phase GAC adsorbers were replaced with vessels retrofitted with two reinforcement bands of the same size and configurations. The system operated for 2 weeks with only Screen C open; thus, more time may be needed to evaluate the true effectiveness under these operating parameters. However, preliminary results indicate that extracting from a single screen may reduce the radius of influence (Section 4.3.1, Figures 4-25 through 4-34) in certain zones.

4.3.6.2 System Cycling

In an effort to increase the system performance, cycling tests were done from May 1999 through September 1999, and from April 2000 through August 2000. The VOC removal rates had decreased by approximately an order of magnitude (0.11 lbs/hr to 0.021 lbs/hr) since start-up of Test 3.

In evaluating the VOC removal rate data from May through September 1999 (Figure 4-61) and April through August, 2000 (Figure 4-62), the following observations can be made:

- The VOC removal rate initially rebounded following start-up of the system but the magnitude of the rebound generally decreased with each subsequent shutdown.
- Within each operation interval, the removal rates declined or remained relatively unchanged before the system was shut down.
- Overall, removal rates remained at least an order of magnitude below the levels of the initial startup of Test 3 and were consistently lower than the last period prior to cycling.

Based on these observations, cycling did not significantly enhance the performance of the SVE system.

5.0 ANALYTICAL MODELING

Analytical modeling was conducted in order to further assess the large radius of influence that was suggested by the field data collect during the SVE test. This assessment considered both the physical movement of subsurface vapor using soil vacuum data and the removal of contaminants in the subsurface using chemical partitioning laws. The following subsections describe analytical modeling procedures and results for airflow and VOC mass removal in the subsurface, and estimate a radius of effective remediation at the site.

5.1 AIRFLOW IN SUBSURFACE

Analytical modeling was conducted to estimate the distribution of airflow in the subsurface during vapor extraction at the site. The modeling approximates a potential scenario of vapor flow distribution based on soil vacuums that have been observed beneath the site. The model enables calculation of particle travel times and time of pore volume exchanges at various points of space at varying soil porosities and moisture contents in a homogeneous medium. Hence, the results are useful in postulating effective radii of influences that are potentially achievable by an SVE system. The methodology for the analytical modeling is outlined in Attachment 8.

Soil vacuums as high as 1"-H₂O were observed at distances up to 800 feet from the vapor extraction well. Based on these data and other soil vacuum data collected in Test 3, analytical modeling produces a vapor flow distribution as shown in Figure 5-1. The plot shows three flow channels through which there is equivalent flow (Q); i.e., 1/3 of the total Q flows through each channel. Particle travel times to the extraction well (time to change one pore volume) along the "average" flow path of each channel are shown at soil porosities of 25, 30, and 35 percent at a flow rate of 400 cfm and moisture contents of 6, 8, 10, and 12%. Travel-time equations and their derivation are shown in Attachment 8.

The particle travel times are sensitive to extraction flow rate, soil porosity, and moisture content. These 3 parameters affect the particle velocity, and hence, travel time. Only the extraction flow rate is an engineered parameter; the other two are properties of the subsurface. The extraction flow rate indicates how much vapor is being moved through the soil. The soil porosity (void space in soil) and moisture content (void space that is filled with water) control how much void space in the soil is available to vapor flow. A sensitivity analysis was conducted since site-specific geophysical soil data were not available. In the analysis, soil porosity and moisture content were varied through an expected range of values to determine their cumulative effect on particle travel time (the extraction flow rate was held constant at 400 cfm, the normal operational extraction rate for the SVE system at the site).

The results of the particle travel-time modeling and associated sensitivity analysis are shown in Table 5-1. The results include time to change one pore volume, and the number of pore volumes achieved in a year as a function of radial distance, soil porosity, and moisture content. The values

in Table 5-1 reflect somewhat longer times required to exchange one pore volume than that reflected in Section 4.3.4 (for a travel distance of 400 feet). The approach used in Section 4.3.4 is a good screening method for a general estimation of the time of pore volume exchange. However, the pore volume modeling calculations presented here employ a more detailed and rigorous method than the approach presented in Section 4.3.4, and most likely provide a more accurate simulate field conditions.

5.2 VOC MASS REMOVAL

Analytical modeling was conducted to estimate the removal efficiency of the SVE system for carbon tetrachloride in the soil. Specifically, based on soil porosity, moisture content, and initial carbon tetrachloride concentration, the model, using an iterative process, which roughly estimates the number of air pore volumes that are required to reduce the carbon tetrachloride concentration to a specified level (~5 µg/L-soil gas). The model assumes the VOC is present in the vadose zone either as vapor or dissolved in pore water (and thus, is mainly applicable to a range of relatively low VOC soil vapor concentrations), and employs Henry's Law to dictate the partitioning of the VOC into those two states. As VOCs are removed from the system, equilibrium partitioning drives VOC transfer from pore water to soil vapor. VOC recharge from the groundwater to the vadose zone is assumed to be negligible. The methodology for this modeling is detailed in Attachment 9. As was done with the travel-time equations, soil geophysical parameters were similarly varied for sensitivity analysis purposes.

The results of the VOC mass removal modeling and associated sensitivity analysis are shown in Table 5-2. The results suggest that the number of pore volumes required to reduce carbon tetrachloride concentrations to approximately 5 µg/L in soil vapor range from 4 to 86, depending on initial concentration, porosity, and soil moisture. Given the physical conditions at JPL (generally sandy soils, minimal rainfall, and relatively low VOC concentrations), the lower portion of this range is likely more realistic.

5.3 ESTIMATION OF EFFECTIVE RADIUS OF INFLUENCE

For purposes of this modeling effort, the effective radius of influence is defined as the distance at which the soil vapor VOC concentration can be reduced to approximately 5 µg/L within 2 years of remediation time. This definition is user-defined and can be modified accordingly. Remediation time-scales are calculated by dividing the results from Section 5.2, pore volumes, by the results from Section 5.1, pore volumes achieved per year. Table 5-3 shows the remediation time-scales as a function of distance from the extraction well, porosity, soil moisture, and initial carbon tetrachloride concentration at a flow rate of 400 cfm.

The results indicate that the effective radius of influence is potentially as high as 400 feet based on a 2-year target remediation time at a flow rate of 400 cfm. This is in close agreement with the radius of vacuum influence of 460 feet as estimated in Section 4.3.2, and the radius of remediation influence of 400 feet as estimated in Section 4.3.3.

As with all environmental modeling efforts, the methodologies employed herein cannot precisely calculate SVE remediation time-scales due to uncertainty in environmental parameters and the use of simplifying governing equations for complex environmental processes. The intent of the methodologies is to provide a general range of SVE performance parameters that are potentially achievable in the field at this site based on the assumed conditions and available data.

6.0 TEST RESULTS AND CONCLUSIONS

The test results indicated that SVE is indeed a feasible technology for remediation of the VOC-impacted soils in OU-2. Following are some of the key results of the pilot test:

- All three screens were able to extract significant quantities of soil vapor with flow-rates ranging from 157 to 174 cfm from each screen at vacuums ranging from 44 to 80 in. H₂O.
- Vacuum responses were noted as far as 771 feet away from the extraction well. Normalized vacuum responses of greater than or equal to 1 percent of the exerted vacuum were observed at least 460 feet away from the extraction well.
- A 75 percent reduction in CCl₄ (the primary constituent of interest) levels was observed approximately 450 feet away from the extraction well in Zone 4 (approximately the bottom 50 feet of the vadose zone). In Zones 2 and 3, 75 percent reductions in CCl₄ levels were observed 550 and 425 feet away from the extraction well, respectively. Hence, the ROI based on VOC reduction was assumed to be 400 feet.
- Analytical modeling confirmed that the 400-foot RORI is reasonable for OU-2. The modeling indicated a reduction in VOC levels to 5 µg/L over a 2-year period, using a single well extracting at 400 cfm.
- VOC concentrations in the extracted vapor decreased by over 95 percent over the duration of the test.
- VOC removal rates of up to 0.10 lbs/hr were noted for CCl₄, with an overall removal of approximately 193 lbs of CCl₄ between May 1998 and August 2000.
- Total VOC removal rates of up to 0.11 lbs/hr were noted, with an overall removal of approximately 219 lbs between May 1998 and August 2000. An additional 800 lbs of VOCs (total) may have been removed on two separate occasions, for a total of 1,019 lbs.

It should be noted that while an RORI of 400 feet is valid based on the SVE test data obtained to date, a more conservative RORI may be warranted for selecting the number of wells for the full-scale system.

The following recommendations are made:

1. Continue extracting from Screens B and C. While the VOC concentrations in extracted vapor are expected to be low, the location of VE-1 in the center of the highest contamination, coupled with the 400-foot RORI would result in significant benefits.
2. Evaluate the need for additional wells based on results of ongoing soil vapor sampling. A comparison of VOC levels to the cleanup levels specified by the RWQCB (Interim Site Assessment Guidance, 1996) would help determine the need for, and number of, additional wells. A more conservative RORI than 400 feet should be considered when estimating the number of new wells required.

7.0 REFERENCES

- Ebasco (Ebasco Environmental Corporation). 1993. *Final Work Plan for Performing a Remedial Investigation/Feasibility Study, NASA - Jet Propulsion Laboratory*. December.
- EPA (U.S. Environmental Protection Agency). 1993. *Presumptive Remedies: Site Characterization and Technology Selection for CERCLA Sites with Volatile Organic Compounds in Soils. Quick Reference Fact Sheet*. OSWER Directive 9355.0-48FS. EPA 540-F-93-048. PB 93-963346. Washington, D.C.
- Foster Wheeler (Foster Wheeler Environmental Corporation). 1996a. *Draft-Final "Part A" Addendum to the Work Plan for Performing a Remedial Investigation/Feasibility Study*. September.
- Foster Wheeler (Foster Wheeler Environmental Corporation). 1996b. *Draft-Final "Part B" Addendum to the Work Plan for Performing a Remedial Investigation/Feasibility Study*. September.
- Foster Wheeler (Foster Wheeler Environmental Corporation) 1998. *Addendum Number 2 to the Field Sampling and Analysis Plan (FSAP) for Performing a Remedial Investigation at Operable Unit 2: Potential On-Site Contaminant Source Areas, NASA-Jet Propulsion Laboratory*. May.
- Foster Wheeler (Foster Wheeler Environmental Corporation) 1999. *Final Remedial Investigation Report for Operable Unit 2, Potential On-Site Contaminant Source Areas, NASA-Jet Propulsion Laboratory, Volumes I and II*. September.
- Foster Wheeler (Foster Wheeler Environmental Corporation) 2000. *Final Feasibility Report for Operable Unit 2, Potential On-Site Contaminant Source Areas, NASA-Jet Propulsion Laboratory, July*.
- Johnson, P. C., C. C. Stanley, M. N. Kemblowski, D. L. Byers and J. D. Colthart. 1990. *A Practical Approach to the Design, Operation, and Monitoring of In-Situ Soil-Venting System*. Groundwater Monitoring Review. Spring.
- RWQCB (California Regional Water Quality Control Board, Los Angeles Region). 1992. *Work Plan Requirements for Active Soil Gas Investigation, Well Installation Program (WIP)*. November.
- RWQCB (California Regional Water Quality Control Board, Los Angeles Region). 1996. *Interim Site Assessment and Cleanup Guidebook*. May.

RWQCB (California Regional Water Quality Control Board, Los Angeles Region). 1997.
Interim Guidance for Active Soil Gas Investigation). February 25.

Shan, C., R. W. Falta, and I. Javandel. 1992. *Analytical Solutions for Steady State Gas Flow to a Soil Vapor Extraction Well*. Water Resources Research, Vol. 28, No. 4, pp. 1105-1120. April.

Suthersan, Suthan S. 1997. *Remediation Engineering Design Concepts*. CRC Press, Inc.

TABLES

TABLE 4-1
SOIL PERMEABILITY CALCULATIONS

Extraction Well/Screen = VE-1A				
Monitoring Well Data - Zone 2, 4/13/99 12:15				
Extraction Well Radius (R_e)	inch	1		
	cm	2.54		
Air viscosity (μ)	g/cm-s	0.00018		
		SVW-25	SVW-26	SVW-28
Distance	ft	53.8	101.4	167.4
Distance (D_m)	cm	1639.8	3090.7	5102.4
Screen Interval	ft	40	40	40
Screen Interval	cm	1219.2	1219.2	1219.2
Extraction Flow Rate	cfm	179	179	179
Extraction Flow Rate (Q)	cm ³ /s	84479.1	84479.1	84479.1
Extraction Vacuum (gage)	inches H ₂ O	44	44	44
Extraction Vacuum (abs)	g/cm-s ²	900757.72	900757.72	900757.72
Measured Vacuum (gage)	inches H ₂ O	1.8	1.25	0.7
Measured Vacuum (abs)	g/cm-s ²	1005502.8	1006867.9	1008233.1
ln[R _e /D _m]		-6.47	-7.10	-7.61
[1-(P _m /P _e) ²]		-0.25	-0.25	-0.25
Permeability	cm ²	1.159E-07	1.256E-07	1.326E-07
	darcy	11.71	12.68	13.40
Average Permeability	cm ²			1.25E-07
	darcy			12.60

TABLE 4-1
SOIL PERMEABILITY CALCULATIONS

Extraction Well/Screen = VE-1B				
Monitoring Well Data- Zone 3, 4/20/99 10:00				
Extraction Well Radius (R_e)	inch	1		
	cm	2.54		
Air viscosity (μ)	g/cm-s	0.00018		
		SVW-25	SVW-26	SVW-28
Distance	ft	53.8	101.4	167.4
Distance (D_m)	cm	1639.8	3090.7	5102.4
Screen Interval	ft	40	40	40
Screen Interval	cm	1219.2	1219.2	1219.2
Extraction Flow Rate	cfm	162	162	162
Extraction Flow Rate (Q)	cm ³ /s	76455.9	76455.9	76455.9
Extraction Vacuum (gage)	inches H ₂ O	70	70	70
Extraction Vacuum (abs)	g/cm-s ²	836222.86	836222.86	836222.86
Measured Vacuum (gage)	inches H ₂ O	2.03	2.05	0.25
Measured Vacuum (abs)	g/cm-s ²	1004931.9	1004882.2	1009350
$\ln[R_e/D_m]$		-6.47	-7.10	-7.61
$[1-(P_m/P_e)^2]$		-0.44	-0.44	-0.46
Permeability	cm ²	6.262E-08	6.877E-08	7.155E-08
	darcy	6.32	6.95	7.23
Average Permeability	cm ²			6.76E-08
	darcy			6.83

TABLE 4-1
SOIL PERMEABILITY CALCULATIONS

Extraction Well/Screen = VE-1C			
Monitoring Well Data- Zone 4, 4/27/99 14:00			
Extraction Well Radius (R_e)	inch	1	
	cm	2.54	
Air viscosity (μ)	g/cm-s	0.00018	
		SVW-25	SVW-26
Distance	ft	53.8	101.4
Distance (D_m)	cm	1639.8	3090.7
Screen Interval	ft	40	40
Screen Interval	cm	1219.2	1219.2
Extraction Flow Rate	cfm	163	163
Extraction Flow Rate (Q)	cm ³ /s	76927.9	76927.9
Extraction Vacuum (gage)	inches H ₂ O	80	80
Extraction Vacuum (abs)	g/cm-s ²	811401.76	811401.76
Measured Vacuum (gage)	inches H ₂ O	2.95	1.2
Measured Vacuum (abs)	g/cm-s ²	1002648.3	1006992
$\ln[R_e/D_m]$		-6.47	-7.10
$[1-(P_m/P_e)^2]$		-0.53	-0.54
Permeability	cm ²	5.473E-08	5.862E-08
	darcy	5.53	5.92
Average Permeability	cm ²	5.67E-08	
	darcy	5.72	

TABLE: 4-2
TEST 1: VOC ANALYSIS

Week	Day	Date / Time	Operating Hours hr	Average Vacuum in. H ₂ O	Average Flowrate cfm	CCl ₄ Average Concentration mg/m ³	CCl ₄ Removal Rate lb/hr	CCl ₄ Removed lb	Cumulative CCl ₄ Removed lb	Freon 113 Average Concentration mg/m ³	Freon 113 Removal Rate lb/hr	Freon 113 Removed lb	Cumulative Freon 113 Removed lb	Total VOCs Removed lb
1	1	4/13/98 10:00	6	44	174	157	0.102	0.61	0.61	0.000	0.00	0.00	0.00	0.61
1	2	4/14/98 10:00	8	32	139	153	0.080	0.64	1.25	11	0.006	0.05	0.05	1.30
1	3	4/15/98 10:00	8	20	102	170	0.065	0.52	1.77	13	0.005	0.04	0.09	1.86
1	4	4/16/98 10:00	8	10	58	170	0.037	0.3	2.07	0	0.000	0.00	0.09	2.16
		4/19/98 10:00	0	0	0		0.000	0	2.07		0.000	0.00	0.09	2.16
2	1	4/20/98 10:00	8	70	167	253	0.158	1.27	3.34	0	0.000	0.00	0.09	3.43
2	2	4/21/98 10:00	8	52	143	260	0.139	1.11	4.45	0	0.000	0.00	0.09	4.54
2	3	4/22/98 10:00	8	34	109	237	0.097	0.77	5.22	0	0.000	0.00	0.09	5.31
2	4	4/23/98 10:00	8	17	60	263	0.059	0.47	5.69	17	0.004	0.03	0.12	5.81
		4/26/98 10:00	0	0	0		0.000	0	5.69		0.000	0.00	0.12	5.81
3	1	4/27/98 10:00	8	80	157	123	0.072	0.58	6.27	0	0.000	0.00	0.12	6.39
3	2	4/29/98 10:00	8	59	136	150	0.076	0.61	6.88	11	0.006	0.04	0.16	7.04
3	3	4/30/98 8:00	8	40	101	140	0.053	0.42	7.3	0	0.000	0.00	0.16	7.46
3	4	4/30/98 16:00	8	20	62	163	0.038	0.3	7.6	3	0.001	0.01	0.17	7.77
		5/3/98 10:00	0	0	0		0.000	0	7.6		0.000	0.00	0.17	7.77
4	1	5/4/98 10:00	8	25	277	151	0.157	1.25	8.85	10	0.010	0.08	0.25	9.10
4	2	5/5/98 10:00	5	19	229	173	0.148	0.74	9.59	13	0.011	0.06	0.31	9.90
4	3	5/6/98 10:00	7	13	166	167	0.104	0.73	10.32	13	0.008	0.06	0.37	10.69
4	4	5/7/98 10:00	7	6	103	167	0.064	0.45	10.77	13	0.005	0.04	0.41	11.18

TABLE 4-3
TEST 2: VOC ANALYSIS

Week	Day	Date/Time	Anemometer Flowrate		CCl4 Average Concentration	CCl4 Removal Rate	CCl4 Removed	Cumulative CCl4 Removed	Freon 113 Average Concentration	Freon 113 Removal Rate	Freon 113 Removed	Cumulative Freon 113 Removed	Total VOCs Removed
			ABC cfm	BC cfm									
		5/11/98 6:59	0		0	0.000		10.485	0	0.000		0.367	10.852
1	1	5/11/98 7:00	275	--	205	0.211	0.002	10.487	17	0.018	0.000	0.367	10.854
1	1	5/11/98 8:00	274	--	205	0.210	0.211	10.697	17	0.017	0.017	0.385	11.082
1	1	5/11/98 9:00	275	--	205	0.211	0.211	10.908	17	0.018	0.017	0.402	11.310
1	1	5/11/98 11:00	281	--	205	0.216	0.427	11.335	17	0.018	0.035	0.437	11.772
1	1	5/11/98 14:00	273	--	205	0.210	0.638	11.973	17	0.017	0.053	0.490	12.463
1	2	5/12/98 7:00	272	--	100	0.102	2.647	14.619	0	0.000	0.148	0.638	15.257
1	2	5/12/98 9:00	278	--	100	0.104	0.206	14.825	0	0.000	0.000	0.638	15.463
1	2	5/12/98 12:00	274	--	100	0.103	0.310	15.135	0	0.000	0.000	0.638	15.773
1	3	5/13/98 8:00	276	--	120	0.124	2.266	17.401	5	0.005	0.052	0.690	18.091
1	3	5/13/98 10:00	274	--	120	0.123	0.001	17.403	5	0.005	0.000	0.690	18.093
1	3	5/13/98 12:00	282	--	120	0.127	0.250	17.653	5	0.005	0.010	0.700	18.353
1	3	5/13/98 14:00	268	--	120	0.120	0.247	17.900	5	0.005	0.010	0.711	18.611
1	4	5/14/98 7:00	286	--	120	0.128	2.116	20.016	5	0.005	0.088	0.799	20.814
1	4	5/14/98 11:00	285	--	120	0.128	0.513	20.529	5	0.005	0.021	0.820	21.349
1	4	5/14/98 14:00	287	--	120	0.129	0.385	20.914	5	0.005	0.016	0.836	21.750
1	5	5/15/98 9:00	276	--	120	0.124	2.403	23.317	5	0.005	0.100	0.936	24.253
1	5	5/15/98 11:30	278	--	120	0.125	0.311	23.628	5	0.005	0.013	0.949	24.578
1	5	5/15/98 14:30	278	--	120	0.125	0.375	24.003	5	0.005	0.016	0.965	24.968
2	1	5/19/98 14:00	270	--	160	0.162	0.001	24.005	13	0.013	0.000	0.965	24.970
2	2	5/20/98 8:00	253	--	160	0.152	2.820	26.825	15	0.014	0.246	1.211	28.036
2	2	5/20/98 11:00	257	--	160	0.154	0.458	27.283	15	0.014	0.043	1.254	28.537
2	2	5/20/98 14:00	267	--	160	0.160	0.471	27.754	15	0.015	0.044	1.298	29.052
2	3	5/21/98 8:00	264	--	150	0.148	2.774	30.528	0	0.000	0.135	1.433	31.961
2	3	5/21/98 9:29	264		150	0.148	0.220	30.748	0	0.000	0.000	1.433	32.181
2	3	5/21/98 14:45	267		150	0.150	0.001	30.751	0	0.000	0.000	1.433	32.184
2	3	5/21/98 15:00	267	--	150	0.150	0.037	30.788	0	0.000	0.000	1.433	32.221
2	4	5/22/98 7:00	255	--	92	0.088	1.902	32.690	8.2	0.008	0.063	1.496	34.186
2	4	5/22/98 14:00	275	--	92	0.095	0.639	33.329	8.2	0.008	0.057	1.553	34.882
3	1	5/26/98 8:00	252	--	100	0.094	8.508	41.837	10	0.009	0.804	2.357	44.195
3	1	5/26/98 12:00	288	--	100	0.108	0.404	42.242	10	0.011	0.040	2.398	44.639
3	1	5/26/98 14:00	259	--	100	0.097	0.205	42.447	10	0.010	0.020	2.418	44.865
3	1	5/26/98 16:00	265	--	100	0.099	0.196	42.643	10	0.010	0.020	2.438	45.081
3	1	5/26/98 23:00	268	--	100	0.100	0.698	43.341	10	0.010	0.070	2.508	45.849

TABLE 4-3
TEST 2: VOC ANALYSIS

Week	Day	Date/Time	Anemometer Flowrate		CCl4 Average Concentration	CCl4 Removal Rate	CCl4 Removed	Cumulative CCl4 Removed	Freon 113 Average Concentration	Freon 113 Removal Rate	Freon 113 Removed	Cumulative Freon 113 Removed	Total VOCs Removed
			ABC cfm	BC cfm									
3	2	5/27/98 16:01	--	160	160	0.096	0.001	43.343	16	0.010	0.000	2.508	45.851
3	4	5/29/98 7:50	--	160	160	0.096	3.816	47.159	16	0.010	0.382	2.889	50.049
4	1	6/1/98 8:00	--	166	160	0.099	7.047	54.206	15	0.009	0.682	3.572	57.777
4	1	6/1/98 13:30	--	155	160	0.093	0.529	54.735	15	0.009	0.050	3.621	58.356
4	2	6/2/98 6:14	--	155	160	0.093	1.554	56.288	15	0.009	0.146	3.767	60.055
4	2	6/2/98 8:00	--	157	140	0.082	0.001	56.290	15	0.009	0.000	3.767	60.057
4	2	6/2/98 8:30	--	157	140	0.082	0.041	56.331	15	0.009	0.004	3.771	60.102
4	2	6/2/98 11:00	--	158	140	0.083	0.206	56.537	15	0.009	0.022	3.794	60.331
4	2	6/2/98 13:00	--	156	140	0.082	0.165	56.702	15	0.009	0.018	3.811	60.513
4	3	6/3/98 7:00	--	152	140	0.080	1.453	58.155	14	0.008	0.151	3.962	62.117
4	3	6/3/98 10:30	--	158	140	0.083	0.284	58.439	14	0.008	0.028	3.990	62.429
4	3	6/3/98 11:15	--	159	140	0.083	0.062	58.501	14	0.008	0.006	3.996	62.498
4	4	6/4/98 10:15	--	155	120	0.070	1.759	60.261	13	0.008	0.183	4.179	64.440
4	4	6/4/98 12:00	--	158	120	0.071	0.123	60.384	13	0.008	0.013	4.192	64.576
4	4	6/4/98 15:00	--	161	120	0.072	0.215	60.599	13	0.008	0.023	4.216	64.814
4	5	6/5/98 9:30	--	165	140	0.086	1.469	62.068	15	0.009	0.158	4.374	66.442
4	5	6/5/98 12:00	--	162	140	0.085	0.214	62.282	15	0.009	0.023	4.397	66.679
4	5	6/5/98 14:00	--	159	140	0.083	0.168	62.450	15	0.009	0.018	4.415	66.865
5	1	6/8/98 7:10	--	158	120	0.071	5.029	67.479	13	0.008	0.542	4.956	72.435
5	1	6/8/98 10:05	--	159	120	0.071	0.208	67.687	13	0.008	0.023	4.979	72.665
5	1	6/8/98 10:44	--	159	120	0.071	0.046	67.733	13	0.008	0.005	4.984	72.717
5	1	6/8/98 10:45	--	0	0	0.000	0.001	67.734	0	0.000	0.000	4.984	72.718

TABLE: 4-4
TEST 3: VOC ANALYSIS

Date	Time	Date/Time	Time Of Operation	Flowrate ABC	CCl4 Average Concentration	CCl4 Removal Rate	CCl4 Removed	Cumulative CCl4 Removed	Freon 113 Average Concentration	Freon 113 Removal Rate	Freon 113 Removed	Cumulative Freon 113 Removed	TCE Average Concentration	TCE Removal Rate	Ave. TCE Removed	Cumulative TCE Removed	Total VOCs	Normalized Removal Rate	Total VOCs Removed	
	hours		min	cfm	mg/m3	lb/hr	lb	mg/m3	lb/hr	lb	mg/m3	lb	mg/m3	lb/h	lb	lb/h	lb/h/cfm	lb		
11/2/98	10:50	11/2/98 10:50		1330	242	35	0.032	0.70	68.43	0	0.00	0.00	4.98	0	0	0	0.032	0.000131	73.41	
11/3/98	9:00	11/3/98 9:00		1380	242	82	0.074	1.71	70.14	0	0.00	0.00	4.98	0	0	0	0.074	0.000307	75.12	
11/4/98	8:00	11/4/98 8:00		1470	242	110	0.100	2.44	72.59	11	0.010	0.24	5.22	0	0	0	0.110	0.000453	77.81	
11/5/98	8:30	11/5/98 8:30		1410	228	110	0.094	2.21	74.79	13	0.011	0.26	5.49	0	0	0	0.105	0.000461	80.28	
11/6/98	8:00	11/6/98 8:00		4410	256	100	0.096	7.05	81.84	12	0.012	0.85	6.33	0	0	0	0.107	0.000420	88.17	
11/9/98	9:30	11/9/98 9:30		1410	260	85	0.083	1.95	83.79	0	0.000	0.00	6.33	0	0	0	0.083	0.000318	90.12	
11/10/98	9:00	11/10/98 9:00		1440	257	76	0.073	1.76	85.54	10	0.010	0.23	6.56	0	0	0	0.083	0.000322	92.11	
11/11/98	9:00	11/11/98 9:00		1440	253	76	0.072	1.73	87.27	9.8	0.009	0.22	6.79	0	0	0	0.081	0.000321	94.06	
11/12/98	9:00	11/12/98 9:00		1440	258	73	0.071	1.69	88.97	0	0.000	0.00	6.79	0	0	0	0.071	0.000273	95.75	
11/13/98	9:00	11/13/98 9:00		4320	258	67	0.065	4.66	93.63	8.7	0.008	0.61	7.39	0	0	0	0.073	0.000284	101.02	
11/16/98	9:00	11/16/98 9:00		2880	258	64	0.062	2.97	96.60	8.9	0.009	0.41	7.80	0	0	0	0.070	0.000273	104.40	
11/18/98	9:00	11/18/98 9:00		1440	262	60	0.059	1.41	98.01	8.2	0.008	0.19	8.00	0	0	0	0.067	0.000255	106.01	
11/19/98	9:00	11/19/98 9:00		1440	260	54	0.053	1.26	99.27	7	0.007	0.16	8.16	0	0	0	0.059	0.000229	107.43	
11/20/98	9:00	11/20/98 9:00		4320	240	68	0.061	4.40	103.68	7.9	0.007	0.51	8.67	0	0	0	0.068	0.000284	112.35	
11/23/98	9:00	11/23/98 9:00		15840	262	51	0.050	13.21	116.89	6.7	0.007	1.74	10.41	0	0	0	0.057	0.000216	127.30	
12/4/98	9:00	12/4/98 9:00		5760	262	48	0.047	4.52	121.41	8.6	0.008	0.81	11.22	0	0	0	0.056	0.000212	132.63	
12/8/98	9:00	12/8/98 9:00		8700	262	38	0.037	5.41	126.82	6.1	0.006	0.87	12.09	0	0	0	0.043	0.000165	138.91	
12/14/98	10:00	12/14/98 10:00		12960	262	36	0.035	7.63	134.45	6.1	0.006	1.29	13.38	0	0	0	0.041	0.000158	147.83	
12/23/98	10:00	12/23/98 10:00		10080	262	35	0.034	5.77	140.22	5.3	0.005	0.87	14.25	0	0	0	0.040	0.000151	154.48	
12/30/98	10:00	12/30/98 10:00		9990	262	30	0.029	4.90	145.13	5	0.005	0.82	15.07	0	0	0	0.034	0.000131	160.20	
1/6/99	8:30	1/6/99 8:30		10230	262	16	0.016	2.68	147.81	0	0.000	0.00	15.07	0	0	0	0.016	0.000060	162.88	
1/13/99	11:00	1/13/99 11:00		11520	262	21	0.021	3.96	151.76	0	0.000	0.00	15.07	0	0	0	0.021	0.000079	166.83	
1/21/99	11:00	1/21/99 11:00		5040	262	24	0.024	1.98	153.74	0	0.000	0.00	15.07	0	0	0	0.024	0.000090	168.81	
1/26/99	11:00	1/26/99 11:00		0	0	0	0.000	0.00	153.74	0	0.000	0.00	15.07	0	0	0	0.000	0.000000	168.81	
1/28/99	11:00	1/28/99 11:00		20190	131	0	0.000	0.00	153.74	0	0.000	0.00	15.07	0	0	0	0.000	0.000000	168.81	
2/11/99	11:30	2/11/99 11:30		11430	131	15	0.007	1.40	155.14	0	0.000	0.00	15.07	0	0	0	0.007	0.000056	170.21	
2/19/99	10:00	2/19/99 10:00		0	0	0	0.000	0.00	155.14	0	0.000	0.00	15.07	0	0	0	0.000	0	170.21	
3/30/99	12:00	2/19/99 10:00		0	0	0	0.000	0.00	155.14	0	0.000	0.00	15.07	0	0	0	0.000	0	170.21	
3/31/99	15:00	3/31/99 15:00		11370	332	13	0.016	3.06	158.21	0	0.000	0.00	15.07	0	0	0	0.016	0.000049	173.28	
4/8/99	12:30	4/8/99 12:30		8610	332	13	0.016	2.32	160.53	0	0.000	0.00	15.07	0	0	0	0.016	0.000049	175.60	
4/14/99	12:00	4/14/99 12:00		9840	262	0	0.000	0.00	160.53	0	0.000	0.00	15.07	0	0	0	0.000	0	175.60	
4/21/99	11:00	4/21/99 11:00		11340	370	0	0.000	0.00	160.53	0	0.000	0.00	15.07	0	0	0	0.000	0	175.60	
4/29/99	8:00	4/29/99 8:00		120	369	0	0.000	0.00	160.53	0	0.000	0.00	15.07	0	0	0	0.000	0	175.60	
5/3/99	12:00	5/3/99 12:00		0	0	0	0.000	0.00	160.53	0	0.000	0.00	15.07	0	0	0	0.000	0	175.60	
5/4/99	1:30	5/4/99 1:30		3450	370	9.8	0.014	0.78	161.31	1.4	0.002	0.11	15.18	2.7	0.0037	0.215	0.21	0.019	0.000052	176.71
5/6/99	11:00	5/6/99 11:00		7200	374	12	0.017	2.02	163.33	3.2	0.004	0.54	15.72	2.7	0.0038	0.454	0.67	0.025	0.000067	179.71
5/11/99	11:00	5/11/99 11:00		4350	373</															

TABLE: 4-4
TEST 3: VOC ANALYSIS

Date	Time	Date/Time	Time Of Operation	Flowrate ABC	CCl4 Average Concentration	CCl4 Removal Rate	CCl4 Removed	Cumulative CCl4 Removed	Freon 113 Average Concentration	Freon 113 Removal Rate	Freon 113 Removed	Cumulative Freon 113 Removed	TCE Average Concentration	TCE Removal Rate	Ave. TCE Removed	Cumulative TCE Removed	Total VOCs Removed	Normalized Removal Rate	Total VOCs Removed
	hours		min	cfm	mg/m ³	lb/hr	lb	lb	mg/m ³	lb/hr	lb	lb	mg/m ³	lb/h	lb	lb/h	lb/h/cfm	lb	
8/11/99	9:30	8/11/99 9:30	12930	371	5.9	0.008	1.77	175.50	0	0.000	0.00	16.16	0	0	0.0	2.54	0.008	0.000022	194.21
8/20/99	9:00	8/20/99 9:00	7260	373	5.8	0.008	0.98	176.48	0	0.000	0.00	16.16	0	0	0.0	2.54	0.008	0.000022	195.19
8/25/99	10:00	8/25/99 10:00	20100	376	5.2	0.007	2.45	178.94	0	0.000	0.00	16.16	0	0	0.0	2.54	0.007	0.000019	197.64
9/8/99	9:00	9/8/99 9:00	10080	373	5.5	0.008	1.29	180.23	0	0.000	0.00	16.16	0	0	0.0	2.54	0.008	0.000021	198.93
9/15/99	9:00	9/15/99 9:00	10080	370	2.9	0.004	0.68	180.90	0	0.000	0.00	16.16	0	0	0.0	2.54	0.004	0.000011	199.61
9/22/99	9:00	9/22/99 9:00	180	373	4.0	0.006	0.02	180.92	0	0.000	0.00	16.16	0	0	0.0	2.54	0.006	0.000015	199.62
9/23/99	10:00	9/23/99 10:00	0	0	0.0	0.000	0.00	180.92	0	0	0	16.16	0	0	0.0	2.54	0	0	199.62
4/26/00	15:00	4/26/00 15:00	0	366	0.0	0	0	180.92	0	0	0	16.16	0	0	0.0	2.54	0	0	199.62
5/2/00	21:00	5/2/00 21:00	9000	366	4.0	0.005	0.82	181.74	0	0	0	16.16	0	0	0.0	2.54	0.005	0.000015	200.45
5/3/00	13:30	5/3/00 13:30	0	365	0	0	0	181.74	0	0	0	16.16	0	0	0.0	2.54	0.000	0	200.45
5/4/00	13:00	5/4/00 13:00	1410	365	4.0	0.005	0.13	181.87	0	0	0	16.16	0	0	0.0	2.54	0.005	0.000015	200.57
5/5/00	0:00	5/5/00 0:00	0	0	0	0	0	181.87	0	0	0	16.16	0	0	0.0	2.54	0	0	200.57
5/8/00	0:00	5/8/00 0:00	0	0	0	0	0	181.87	0	0	0	16.16	0	0	0.0	2.54	0	0	200.57
5/9/00	10:00	5/9/00 10:00	0	369	0	0	0	181.87	0	0	0	16.16	0	0	0.0	2.54	0	0	200.57
5/16/00	11:30	5/16/00 11:30	10170	369	9.41	0.013	2.20	184.08	1.63	0.0023	0.38	16.55	2.67	0.0037	0.6	3.16	0.019	0.000051	203.79
5/17/00	0:00	5/17/00 0:00	0	0	0	0	0	184.08	0	0	0	16.55	0	0	0.0	3.16	0	0	203.79
6/4/00	0:00	6/4/00 0:00	0	0	0	0	0	184.08	0	0	0	16.55	0	0	0.0	3.16	0	0	203.79
6/5/00	12:00	6/5/00 12:00	0	371	6.082	0.008	0	184.08	1.356	0.0019	0	16.55	1.80	0.0025	0	3.16	0.013	0.000035	203.79
6/13/00	11:30	6/13/00 11:30	11490	370	8.638	0.012	2.29	186.37	1.879	0.0026	0.50	17.05	2.602	0.0036	0.7	3.85	0.018	0.000049	207.27
6/14/00	0:00	6/14/00 0:00	0	0	0	0	0	186.37	0	0	0	17.05	0	0	0.0	3.85	0.000	0	207.27
6/28/00	0:00	6/28/00 0:00	0	0	0	0	0	186.37	0	0	0	17.05	0	0	0.0	3.85	0.000	0	207.27
6/29/00	11:30	6/29/00 11:30	60	375	0.211	0	0	186.37	0.015	0.00002	0.00002	17.05	0.115	0.0002	0.0002	3.85	0.0005	0.000013	207.27
6/29/00	14:30	6/29/00 14:30	180	375	2.527	0.004	0.01	186.38	0.413	0.0006	0.0017	17.05	0.891	0.0013	0.0038	3.86	0.005	0.000014	207.28
6/30/00	9:30	6/30/00 9:30	1140	372	8.381	0.012	0.22	186.60	1.715	0.0024	0.05	17.09	2.668	0.0037	0.1	3.93	0.018	0.000048	207.62
7/11/00	14:00	7/11/00 14:00	16110	371	5.68	0.008	2.12	188.72	1.38	0.0019	0.51	17.61	1.651	0.0023	0.6	4.54	0.012	0.000033	210.87
7/20/00	16:00	7/20/00 16:00	13080	372	6.91	0.010	2.10	190.82	1.676	0.0023	0.51	18.12	2.241	0.0031	0.7	5.22	0.015	0.000041	214.16
7/25/00	7:30	7/25/00 7:30	6690	372	6.91	0.010	1.07	191.89	1.676	0.0023	0.26	18.38	2.241	0.0031	0.3	5.57	0.015	0.000041	215.84
8/2/00	16:30	8/2/00 16:30	12060	0	0	0	0	191.89	0	0	0	18.38	0	0	0.0	5.57	0	0	215.84
8/3/00	9:30	8/3/00 9:30	12060	373	6.91	0.010	1.94	193.83	1.676	0.0023	0.47	18.85	2.241	0.0031	0.6	6.20	0.015	0.000041	218.88

TABLE 5-1
PARTICLE TRAVEL TIME MODELING RESULTS

Q = 400 cfm n = 0.3 w = 10%		travel distance from extraction well in Zone C														
		50 feet		100 feet		150 feet		200 feet		300 feet		400 feet		500 feet		
t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	
Channel I	0.1	3718	0.4	930	0.9	413	1.9	188	16.2	22.5	58.0	6.3	140	2.6	274	1.3
Channel II	0.2	2231	0.9	398	2.7	138	6.7	54.1								
Channel III	0.3	1062	2.2	164												

Q = 400 cfm n = 0.35 w = 10%		travel distance from extraction well in Zone C														
		50 feet		100 feet		150 feet		200 feet		300 feet		400 feet		500 feet		
t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	
Channel I	0.1	2479	0.6	620	1.3	275	2.9	125	24.3	15	87.0	4.2	210	1.7	411	0.9
Channel II	0.2	1487	1.4	266	4.0	91.8	10.1	36.1								
Channel III	0.5	708	3.3	109												

Q = 400 cfm n = 0.25 w = 10%		travel distance from extraction well in Zone C														
		50 feet		100 feet		150 feet		200 feet		300 feet		400 feet		500 feet		
t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	
Channel I	<0.1	8923	0.2	2231	0.4	991	0.8	450	6.8	54	24.2	15.1	58.2	6.3	114	3.2
Channel II	0.1	5354	0.4	956	1.1	330	2.8	130								
Channel III	0.1	2549	0.9	394												

Q = 400 cfm n = 0.3 w = 8%		travel distance from extraction well in Zone C														
		50 feet		100 feet		150 feet		200 feet		300 feet		400 feet		500 feet		
t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	
Channel I	0.1	2974	0.5	744	1.1	330	2.4	150	20.3	18	72.5	5.0	175	2.1	343	1.1
Channel II	0.2	1785	1.1	319	3.3	110	8.4	43.3								
Channel III	0.4	850	2.8	131												

Q = 400 cfm n = 0.3 w = 12%		travel distance from extraction well in Zone C														
		50 feet		100 feet		150 feet		200 feet		300 feet		400 feet		500 feet		
t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	
Channel I	0.1	5577	0.3	1394	0.6	620	1.3	281	10.8	33.8	38.6	9.4	93.2	3.9	183	2
Channel II	0.1	3346	0.6	598	1.8	206	4.5	81.1								
Channel III	0.2	1593	1.5	246												

Q = 400 cfm n = 0.25 w = 8%		travel distance from extraction well in Zone C														
		50 feet		100 feet		150 feet		200 feet		300 feet		400 feet		500 feet		
t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year	
Channel I	0.1	4957	0.3	1239	0.7	551	1.5	250	12.2	30	43.5	8.4	105	3.5	206	1.8
Channel II	0.1	2974	0.7	531	2	184	5.1	72.1								
Channel III	0.3	1416	1.7	219												

TABLE 5-1
PARTICLE TRAVEL TIME MODELING RESULTS

1 operation time (years)

travel distance from extraction well in Zone C																	
50 feet		100 feet		150 feet		200 feet		300 feet		400 feet		500 feet		600 feet			
Q = 400 cfm	n = 0.35	w = 8%	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year											
Channel I		0.2	2124	0.7	531	1.5	236	3.4	107	28.4	12.9	102.0	3.6	245	1.5	480	0.8
Channel II		0.3	1275	1.6	228	4.6	78.7	11.8	30.9								
Channel III		0.6	607	3.9	93.7												
Q = 400 cfm	n = 0.35	w = 12%	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year											
Channel I		0.1	2974	0.5	744	1.1	330	2.4	150	20.3	18	72.5	5.0	175	2.1	343	1.1
Channel II		0.2	1785	1.1	319	3.3	110	8.4	43.3								
Channel III		0.4	850	2.8	131												
Q = 400 cfm	n = 0.35	w = 6%	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year											
Channel I		0.2	1785	0.8	446	1.8	198	4.1	90	33.8	10.8	121.0	3.0	291	1.3	571	0.6
Channel II		0.3	1071	1.9	191	5.5	66	14.1	26								
Channel III		0.7	510	4.6	78.7												
Q = 400 cfm	n = 0.3	w = 6%	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year											
Channel I		0.2	2348	0.6	587	1.4	261	3.1	118	25.7	14.2	91.8	4.0	221	1.6	434	0.8
Channel II		0.3	1409	1.5	252	4.2	87	10.7	34.2								
Channel III		0.5	671	3.5	104												
Q = 400 cfm	n = 0.25	w = 6%	t _{pv} (days)	pv/year	t _{pv} (days)	pv/year											
Channel I		0.1	3432	0.4	858	1	381	2.1	173	17.6	20.8	62.8	5.8	151	2.4	297	1.2
Channel II		0.2	2059	1	368	2.9	127	7.3	50								
Channel III		0.4	980	2.4	151												

Notes

Q: Flow rate, cubic feet per minute

n: Soil porosity

w: Soil moisture content

t_{pv}: time to exchange 1 pore volume

pv/year: Number of pore volumes exchanged in one year

TABLE 5-2
VOC MASS REMOVAL MODELING RESULTS

Carbon Tetrachloride

n = 0.3

Initial conc ($\mu\text{g/L}$)	# of air changes to reduce to ~5 $\mu\text{g/L}$ in soil gas				
	@ m = 6%	@ m = 8%	@ m = 9%	@ m = 10%	@ m = 12%
1500	7	9	11	13	19
1000	6	8	10	12	18
700	6	8	9	11	17
500	6	7	9	10	16
400	6	7	8	10	15
300	5	7	8	9	14

n = 0.25

Initial conc ($\mu\text{g/L}$)	# of air changes to reduce to ~5 $\mu\text{g/L}$ in soil gas				
	@ m = 6%	@ m = 8%	@ m = 9%	@ m = 10%	@ m = 12%
1500	9	13	17	24	86
1000	8	13	16	22	80
700	8	12	15	21	75
500	7	11	14	20	70
400	7	11	14	19	66
300	7	10	13	18	62

n = 0.35

Initial conc ($\mu\text{g/L}$)	# of air changes to reduce to ~5 $\mu\text{g/L}$ in soil gas				
	@ m = 6%	@ m = 8%	@ m = 9%	@ m = 10%	@ m = 12%
1500	6	7	8	9	12
1000	5	7	8	9	11
700	5	6	7	8	10
500	5	6	7	8	10
400	5	6	7	7	9
300	4	5	6	7	9

Notes

n: Soil porosity

m: Soil moisture content

TABLE 5-3
**ESTIMATED REMEDIATION TIMESCALES REQUIRED TO REDUCE SOIL VAPOR
 CARBON TETRACHLORIDE LEVELS TO 5 µg/L AS A FUNCTION OF DISTANCE FROM
 EXTRACTION WELL**

n = 0.3								
Initial conc. (µg/L)	estimated remediation time (time to reduce to ~5 µg/L in soil gas)							
	@ m = 6%		@ m = 8%		@ m = 10%		@ m = 12%	
1500	300	0.5	300	0.5	300	0.6	300	0.6
	400	1.8	400	1.8	400	2.1	400	2.0
	500	4.4	500	4.3	500	5.0	500	4.9
700	300	0.4	300	0.4	300	0.5	300	0.5
	400	1.5	400	1.6	400	1.7	400	1.8
	500	3.8	500	3.8	500	4.2	500	4.4
300	300	0.4	300	0.4	300	0.4	300	0.4
	400	1.3	400	1.4	400	1.4	400	1.5
	500	3.1	500	3.3	500	3.5	500	3.6

n = 0.35								
Initial conc. (µg/L)	estimated remediation time (time to reduce to ~5 µg/L in soil gas)							
	@ m = 6%		@ m = 8%		@ m = 10%		@ m = 12%	
1500	300	0.6	300	0.5	300	0.6	300	0.7
	400	2.0	400	1.9	400	2.1	400	2.4
	500	4.6	500	4.7	500	5.3	500	5.7
700	300	0.5	300	0.5	300	0.5	300	0.6
	400	1.7	400	1.7	400	1.9	400	2.0
	500	3.8	500	4.0	500	4.7	500	4.8
300	300	0.4	300	0.4	300	0.5	300	0.5
	400	1.3	400	1.4	400	1.7	400	1.8
	500	3.1	500	3.3	500	4.1	500	4.3

n = 0.25						
Initial conc. (µg/L)	estimated remediation time (time to reduce to ~5 µg/L in soil gas)					
	@ m = 6%		@ m = 8%		@ m = 10%	
1500	300	0.4	300	0.4	300	0.4
	400	1.6	400	1.5	400	1.6
	500	3.8	500	3.7	500	3.8
700	300	0.4	300	0.4	300	0.4
	400	1.4	400	1.4	400	1.4
	500	3.3	500	3.4	500	3.3
300	300	0.3	300	0.3	300	0.3
	400	1.2	400	1.2	400	1.2
	500	2.9	500	2.9	500	2.9

Notes

n: Soil porosity

m: Soil moisture content



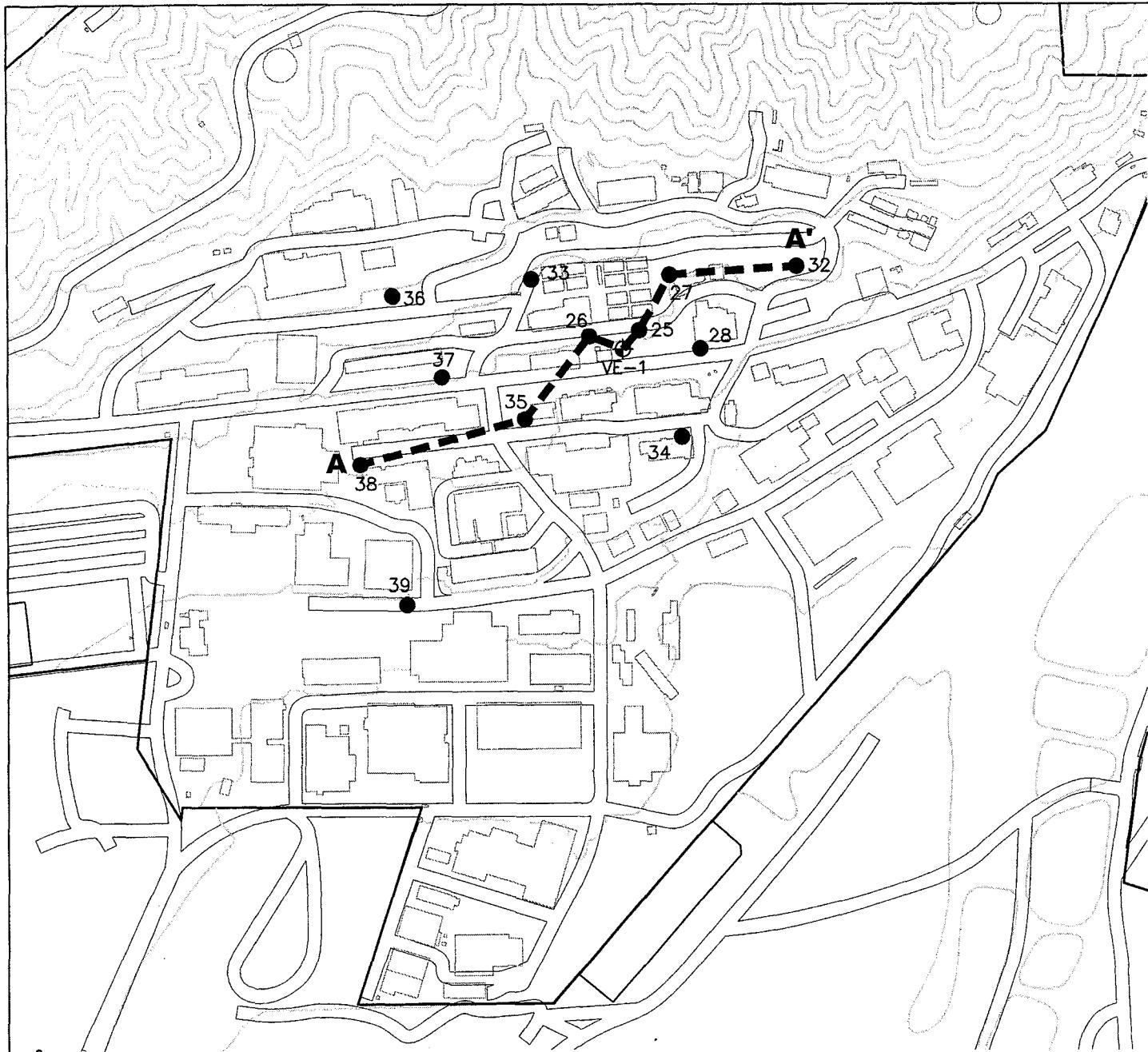
FIGURE 1-1

SITE LOCATION MAP
JET PROPULSION LABORATORY

Jet Propulsion Laboratory
Pasadena, California



FOSTER WHEELER ENVIRONMENTAL
CORPORATION



Explanation

- 39 Soil Vapor Wells
- ◆ VE-1 Vapor Extraction Well
- Location of Cross-Section
(See Figure 2-3 for
Cross-Section A-A')



400 200 0 400
SCALE IN FEET

Source: USGS, 7.5 Minute Topographic Map
Pasadena, CA 1966, Revised 1980, 1994.

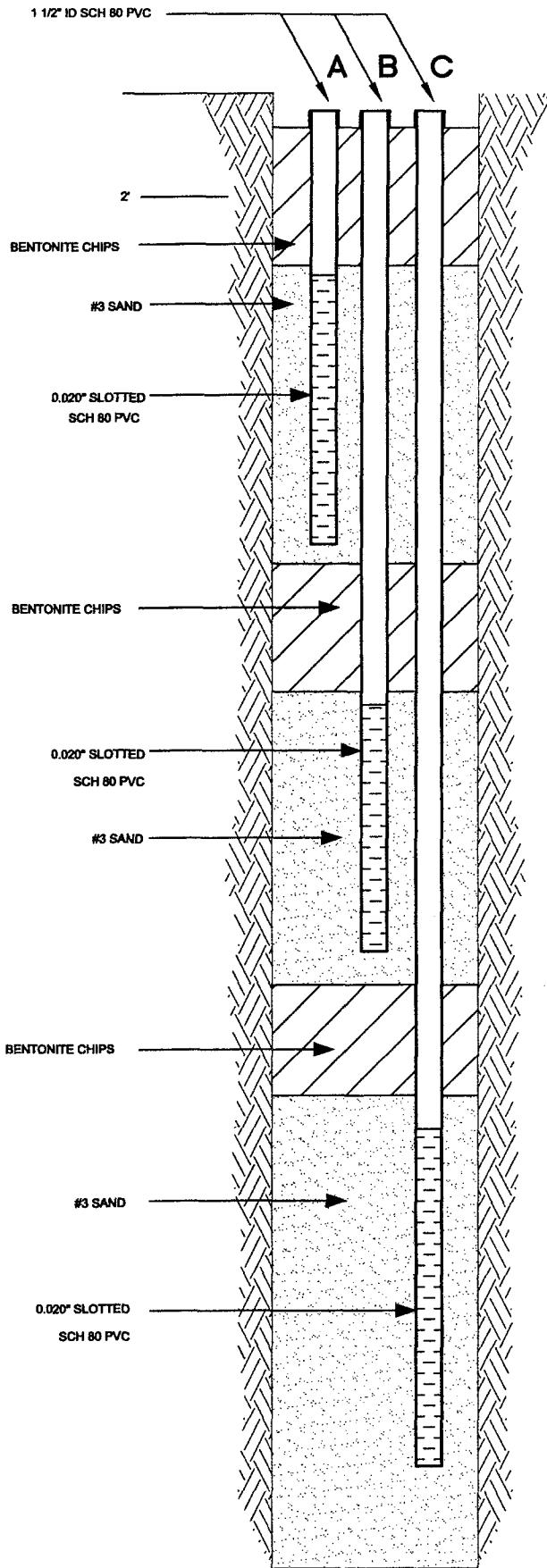
FIGURE 1-2

SOIL VAPOR WELL LOCATIONS

Jet Propulsion Laboratory
Pasadena, California

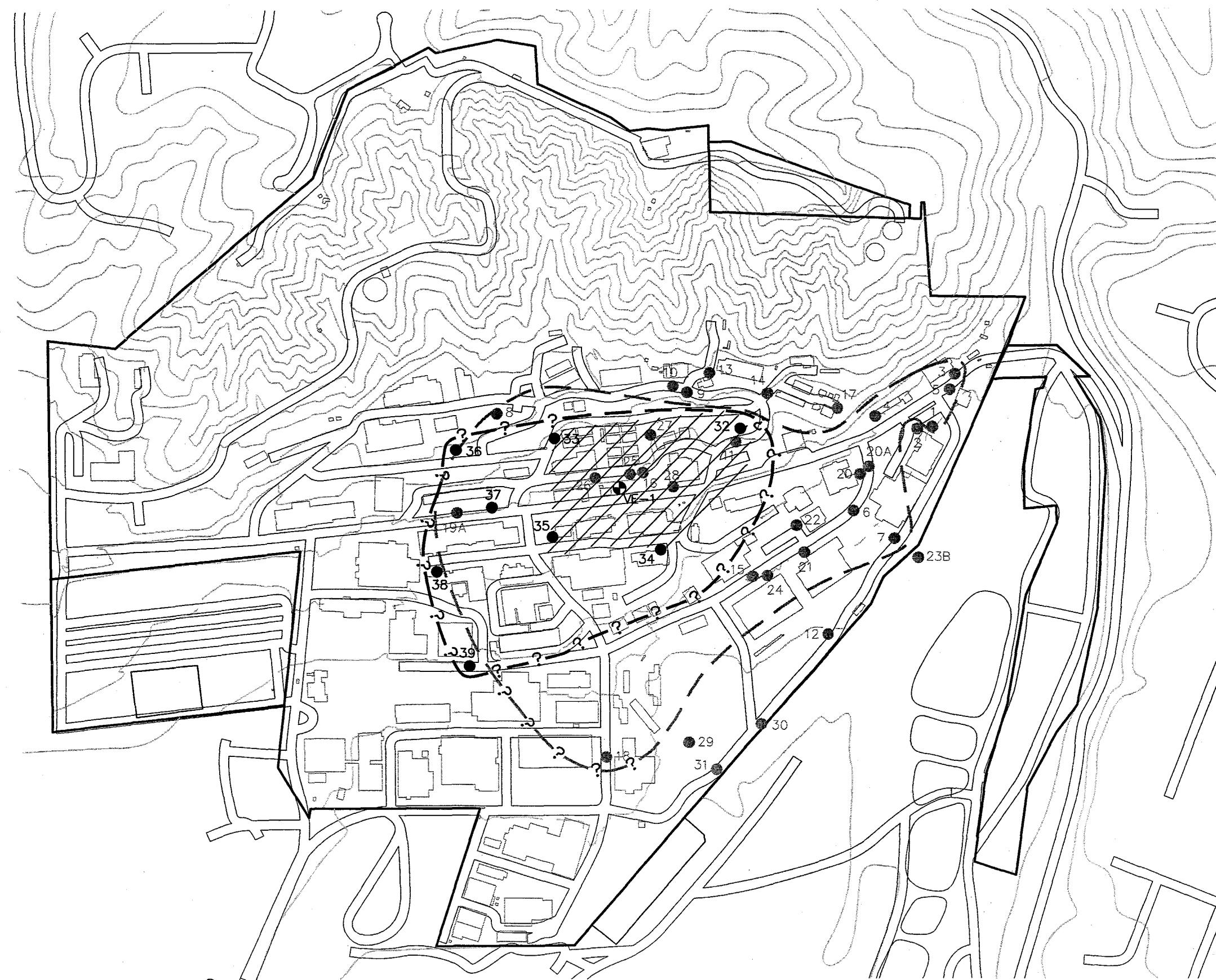


FOSTER WHEELER ENVIRONMENTAL
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SCREEN A: 44' TO 84' BGS
SCREEN B: 94' TO 134' BGS
SCREEN C: 145' TO 185' BGS

FIGURE 2-1	
VAPOR EXTRACTION WELL	
VE-1	
Jet Propulsion Laboratory Pasadena, California	
	FOSTER WHEELER ENVIRONMENTAL CORPORATION



Explanation

- 39 Soil Vapor Wells Sampled During Event 7
- 31 Soil Vapor Wells Not Sampled During Event 7
- Vapor Extraction Well VE-1

Countours:

1. Represent minimum known areal distribution based on sampling event.
2. Not queried where some horizontal control exists.

— Carbon Tetrachloride (CCl_4) Detected During Event 7

/ / / Concentrations of Carbon Tetrachloride (CCl_4) Exceeding 100 $\mu g/L$ -Vapor at an Individual Sample Point

— Carbon Tetrachloride (CCl_4) Detected During Events 2 and 3



400 200 0 400

SCALE IN FEET

Source: USGS, 7.5 Minute Topographic Map
Pasadena, CA 1966, Revised 1988, 1994.

FIGURE 2-2
LOCATION OF EXTRACTION WELL VE-1 WITH
RESPECT TO THE CARBON TETRACHLORIDE
SOIL VAPOR PLUME
JUNE, 1998
Jet Propulsion Laboratory
Pasadena, California
 FOSTER WHEELER ENVIRONMENTAL
CORPORATION

Explanation

- 25 → Soil Vapor Sample Point and Depth
- 139 Concentrations of Total VOCs ($\mu\text{g}/\text{L}$ -Vapor)
- ND Non-Detect @ Laboratory Detection Limit of 1.0 $\mu\text{g}/\text{L}$ -Vapor
- P Sample Port Plugged; No Sample Collected
- W Sample Port Waterlogged; No Sample Collected

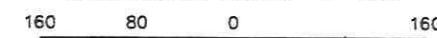
Contours:

1. Intervals in 100 $\mu\text{g}/\text{L}$ -Vapor.
2. Queried where spatial control is lacking.

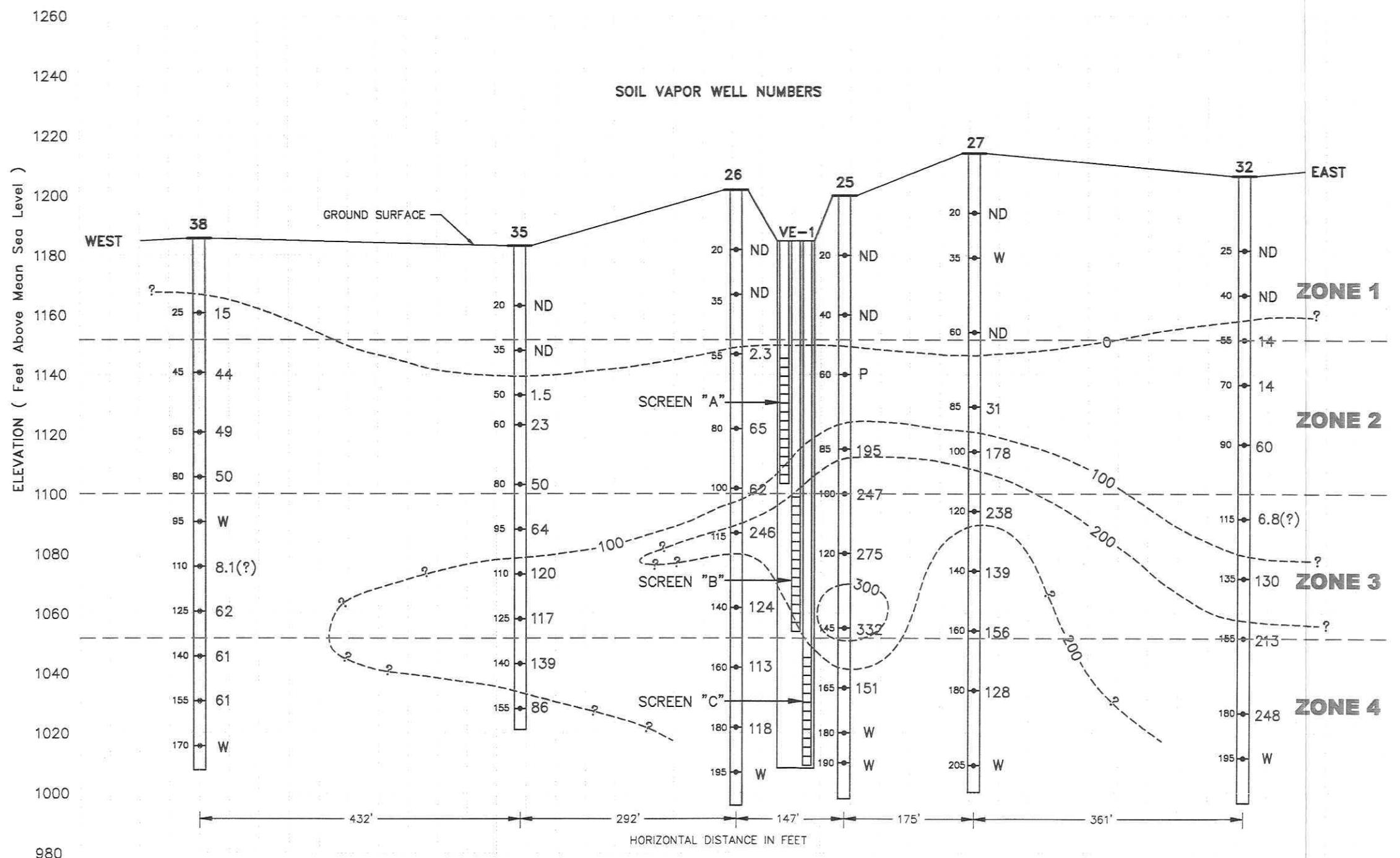
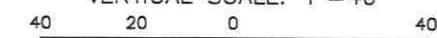
Note:

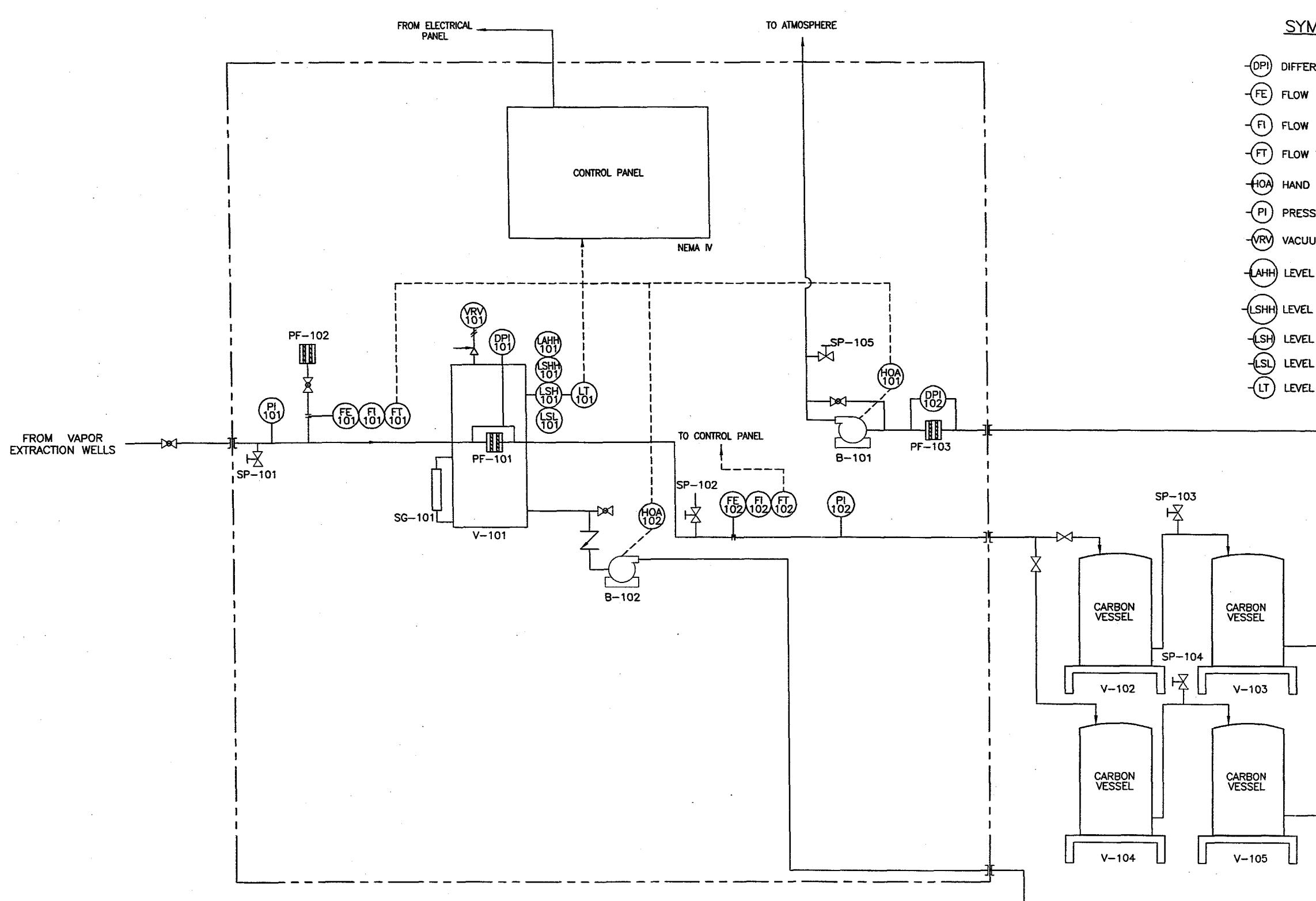
Location of cross-section is shown on Figure 1-2.

HORIZONTAL SCALE: 1"=160'



VERTICAL SCALE: 1"=40'



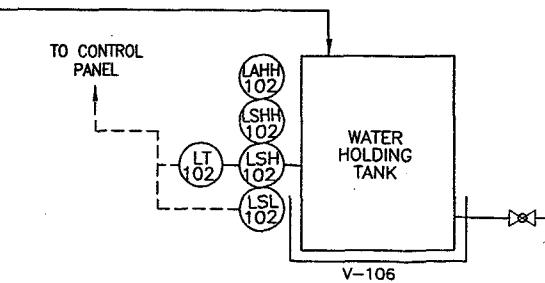


INSTRUMENTATION

NAME	DESCRIPTION	RANGE
DPI-101	MAGNEHELIC, PRESSURE INDICATOR	0-10 "H ₂ O
DPI-102	MAGNEHELIC PRESSURE INDICATOR	0-10 "H ₂ O
FE, FI, FT-101	PITOT TUBE, INDICATOR, TRANSMITTER	0-600 scfm
FE, FI, FT-102	PITOT TUBE, INDICATOR, TRANSMITTER	0-600 scfm
PI-101	MAGNEHELIC, VACUUM INDICATOR	0-150 "Hg
PI-102	MAGNEHELIC, VACUUM INDICATOR	0-150 "Hg
VRV-101	VACUUM RELIEF	10 "Hg

CONTROLS

- SHUT DOWN B-101 FOR ALARM HIGHS IN V-101 AND V-106. PROVIDE TWO INDICATING LIGHTS FOR EACH ALARM IN CONTROL PANEL.
- RECORD FLOWS FROM FT-101, AND 102 ON RECORDER IN CONTROL PANEL.
- ALL MOTOR STARTERS FOR B-101 AND B-102 SHALL BE INSTALLED IN CONTROL PANEL AND EQUIPPED WITH HOA SWITCHES.
- LSH-101 TURNS ON PUMP B-102.
- LSHH-101 SHOULD SHUT DOWN B-101 UNTIL RESOLVED.
- LSHH-102 SHOULD SHUT DOWN B-101 UNTIL RESOLVED.



SYMBOLS AND IDENTIFICATION LETTERS

(DPI)	DIFFERENTIAL PRESSURE INDICATOR	1	INTERLOCK LOGIC
(FE)	FLOW ELEMENT	2	BALL VALVE
(FI)	FLOW INDICATOR	3	SAMPLE PORT
(FT)	FLOW TRANSMITTER	4	RELIEF VALVE
(HOA)	HAND OFF AUTOMATIC	5	FLOW LINES (LIQUID/VAPOR)
(PI)	PRESSURE INDICATOR	6	SIGNAL LINE
(VRV)	VACUUM RELIEF VALVE	7	PARTICULATE FILTER
(LAHH)	LEVEL ALARM HIGH HIGH	8	SG SIGHT GLASS
(LSHH)	LEVEL SWITCH HIGH HIGH	9	CHECK VALVE
(LSH)	LEVEL SWITCH HIGH		
(LSL)	LEVEL SWITCH LOW		
(LT)	LEVEL TRANSMITTER		

FIGURE 2-4

PIPING AND INSTRUMENTATION DIAGRAM—PILOT TEST

Jet Propulsion Laboratory
Pasadena, California

FOSTER WHEELER ENVIRONMENTAL CORPORATION

FIGURE 4-1
TEST 1: VACUUM VS FLOW RATE

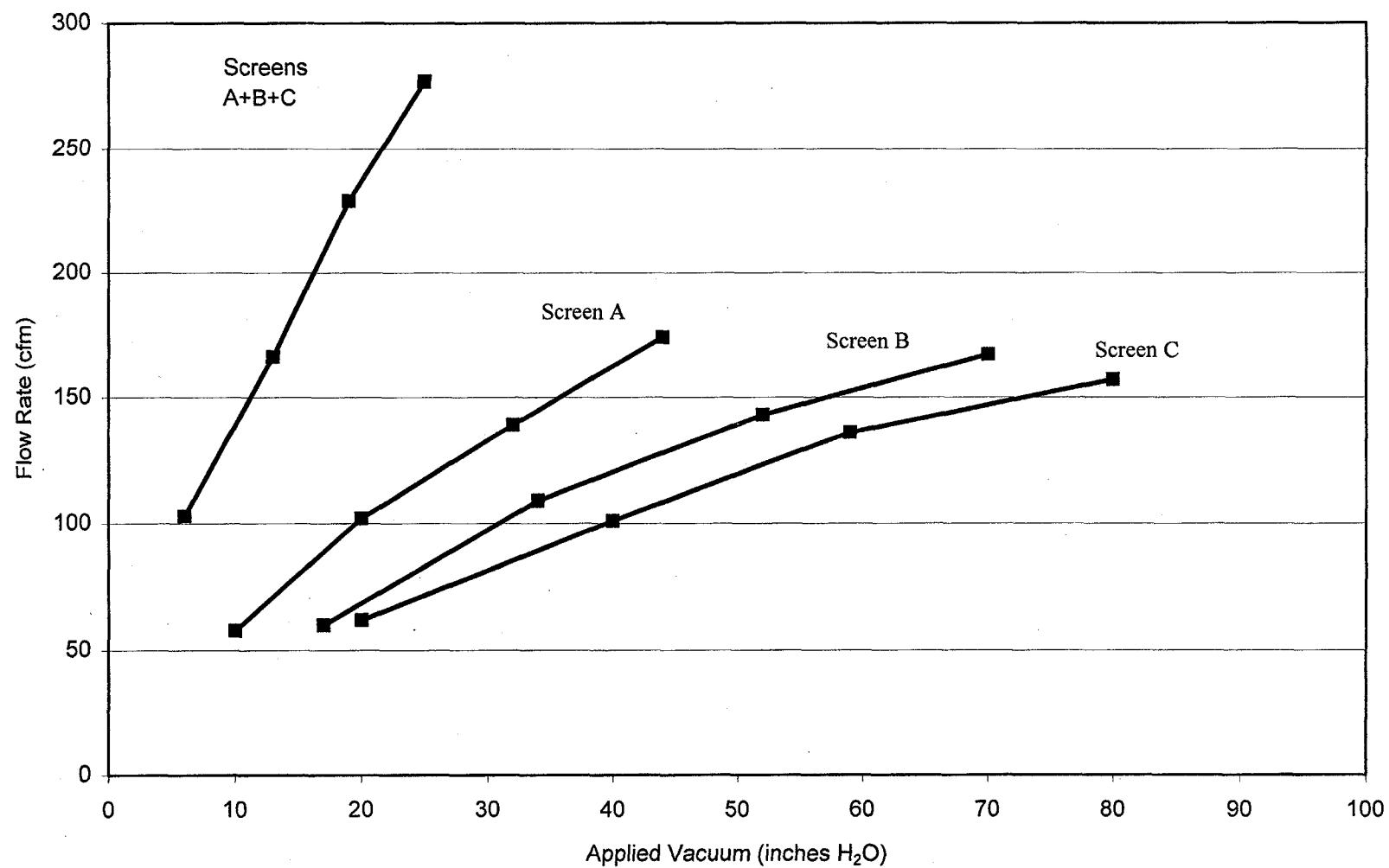


FIGURE 4-2
JPL MONITORING WELL LOCATIONS AND DEPTHS

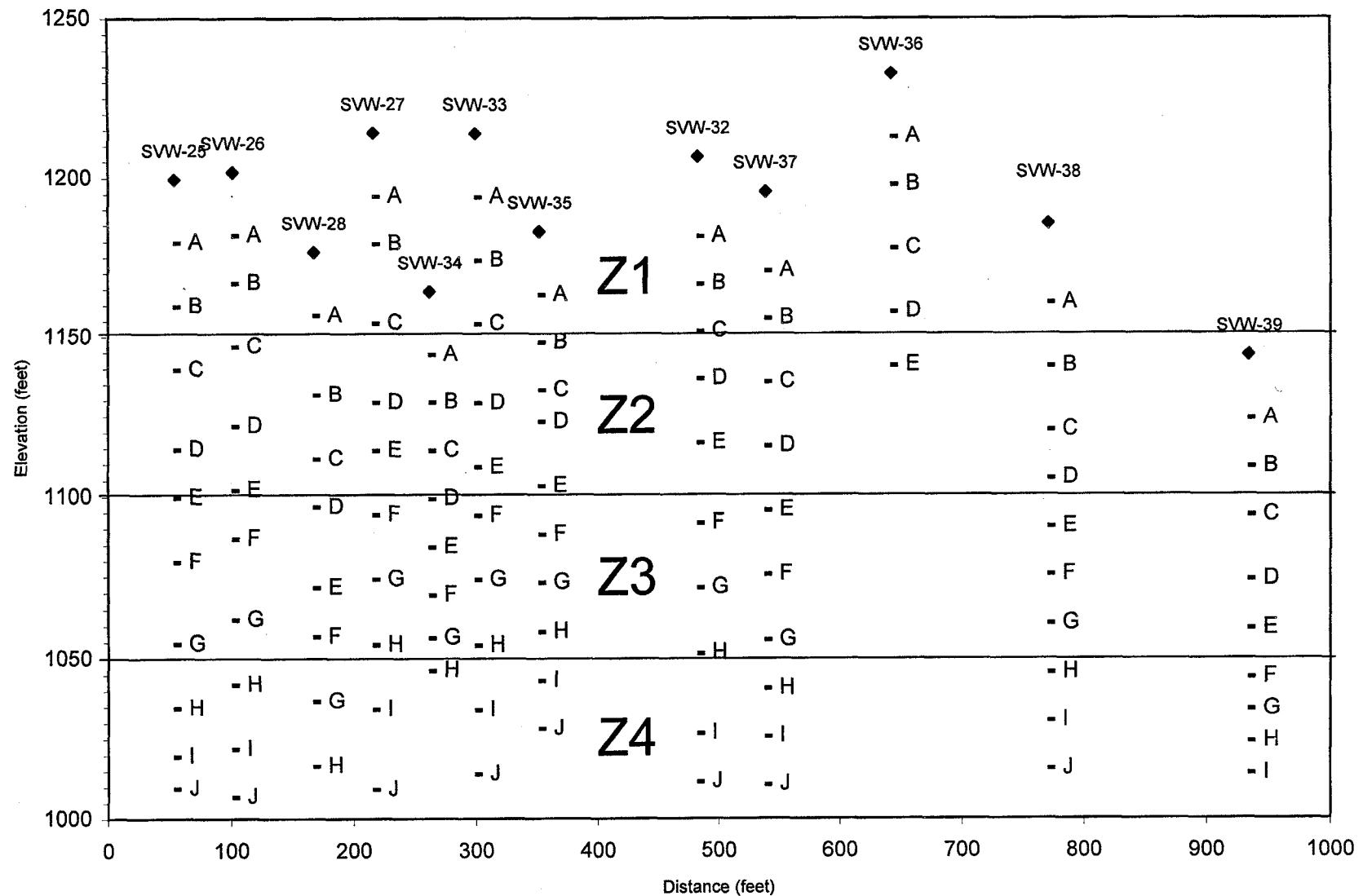


FIGURE 4-3
TEST 1: ZONE VACUUM RESPONSE
Screen A (100% Vacuum)

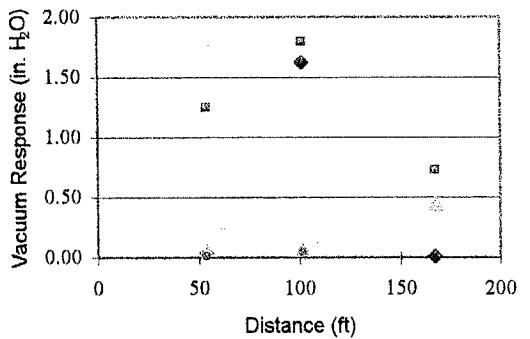


FIGURE 4-4
TEST 1: ZONE VACUUM RESPONSE
Screen B (100% Vacuum)

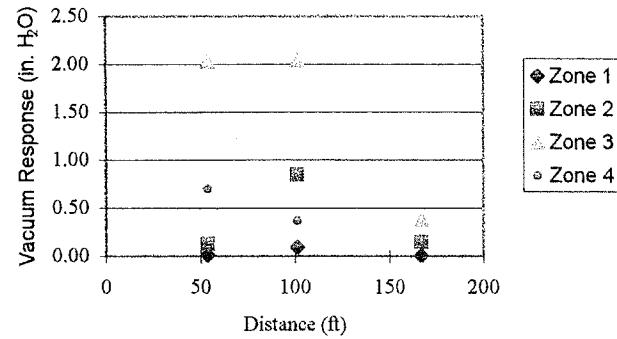


FIGURE 4-5
TEST 1: ZONE VACUUM RESPONSE
Screen C (100% Vacuum)

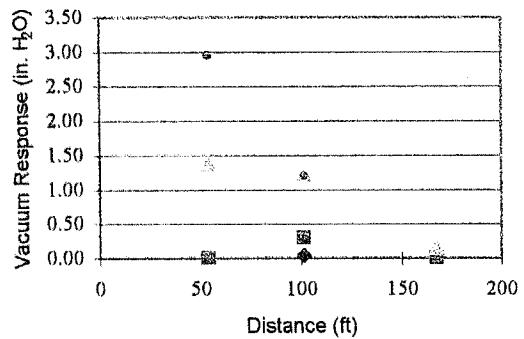


FIGURE 4-6
TEST 1: ZONE VACUUM RESPONSE
Screens ABC (100% Vacuum)

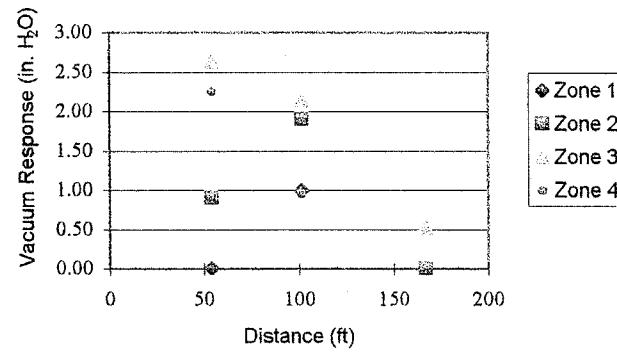


FIGURE 4-7
TEST 1: DAILY AVERAGE CUMULATIVE VOCs REMOVED

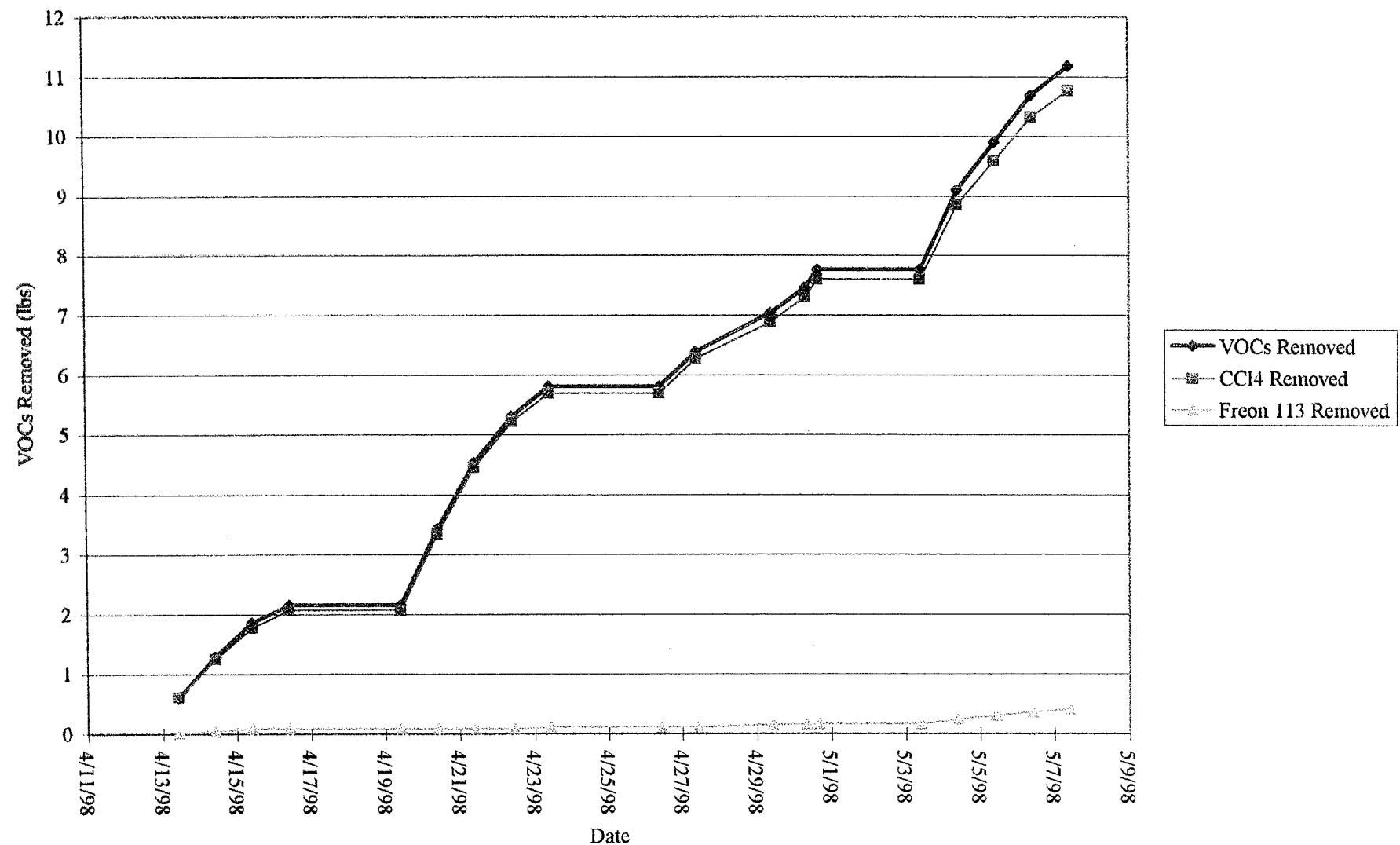


FIGURE 4-8
TEST 1: CCl₄ CONCENTRATION VS VACUUM

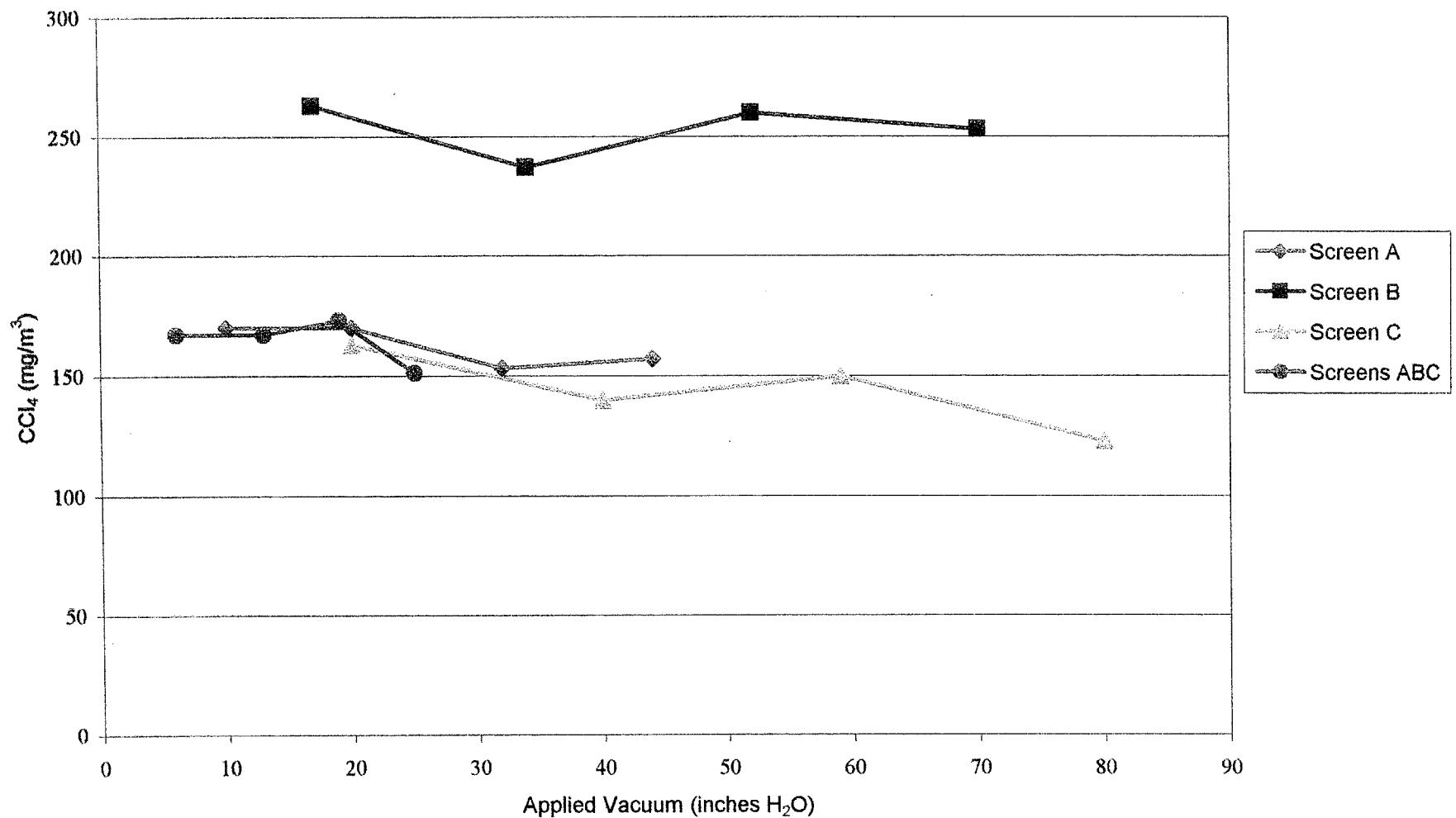


FIGURE 4-9
TEST 2: ZONE VACUUM RESPONSE
Screens ABC Extracting (100% Vacuum)

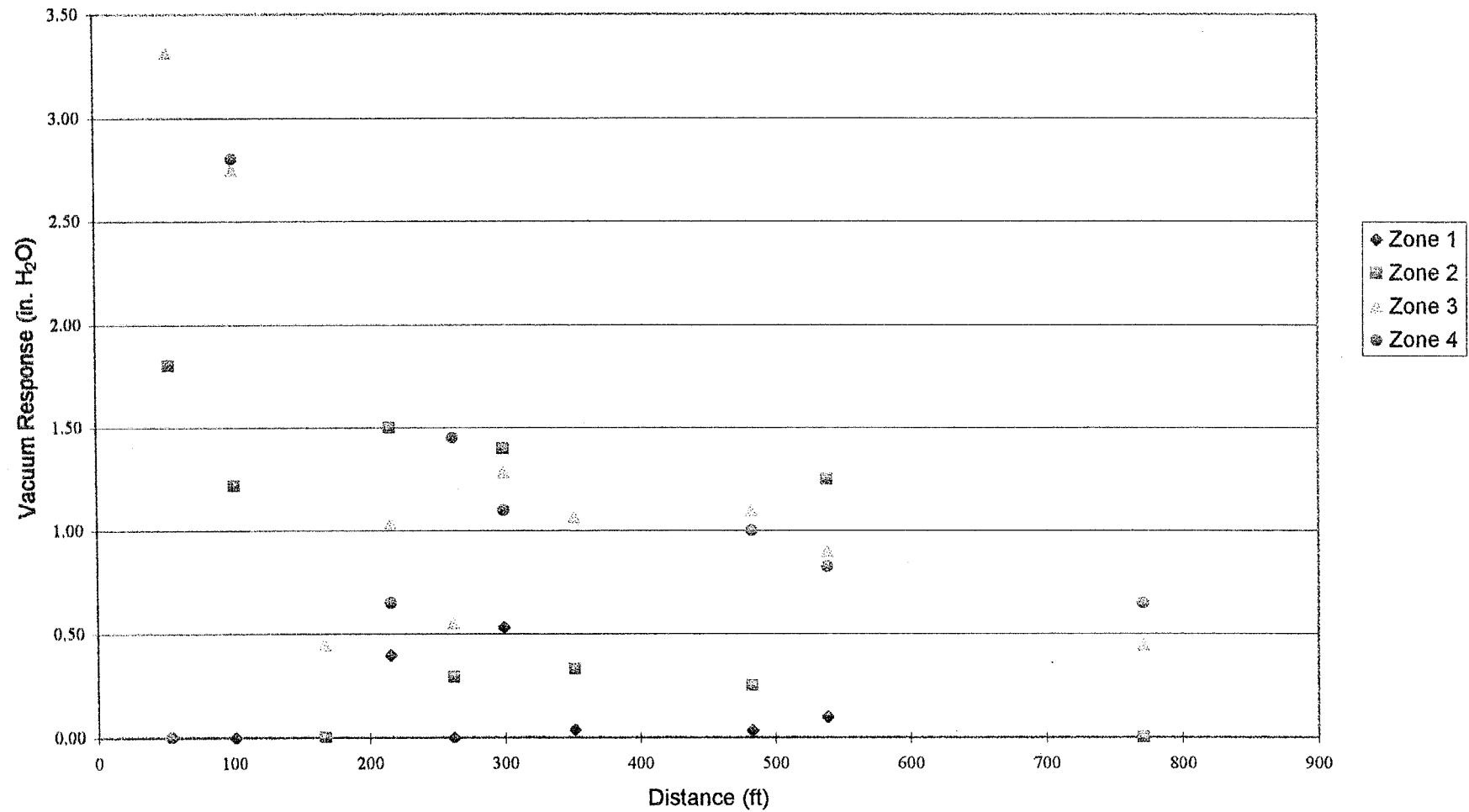


FIGURE 4-10
TEST 2: ZONE VACUUM RESPONSE
Screens BC Extracting (100% Vacuum)

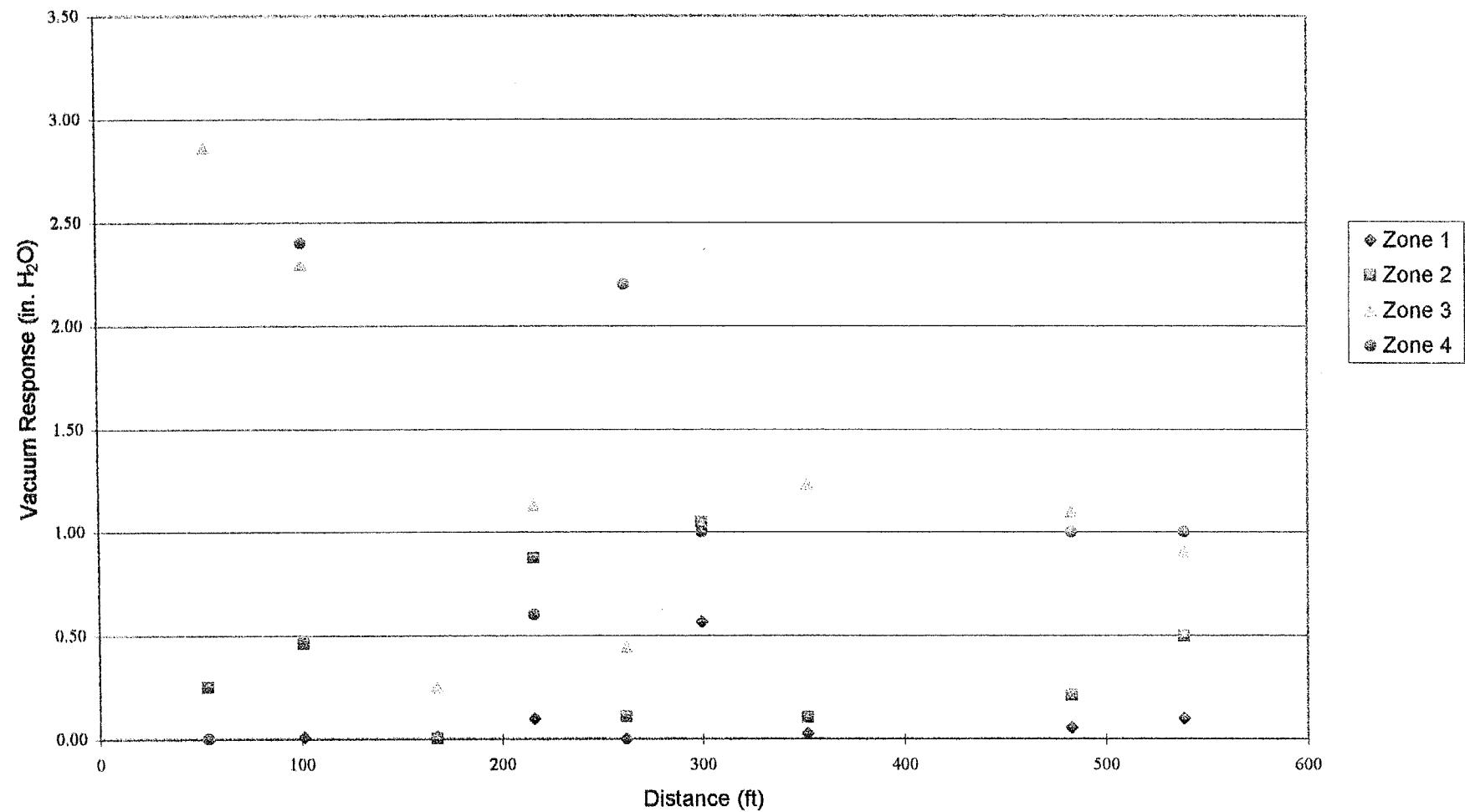


FIGURE 4-11
TEST 2: SVW-25 VACUUM RESPONSES

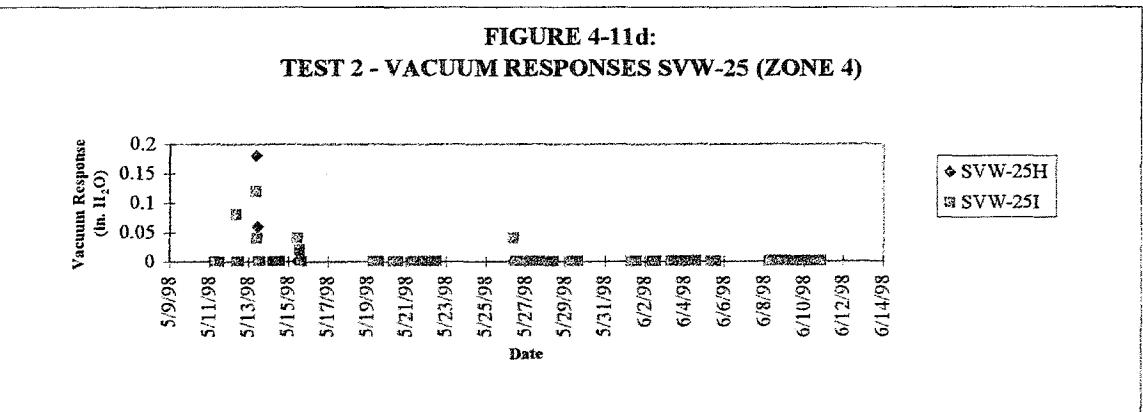
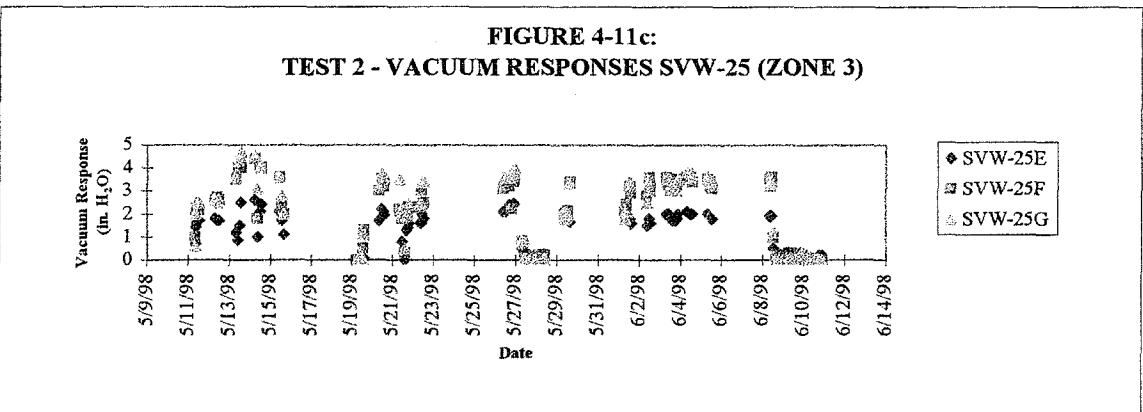
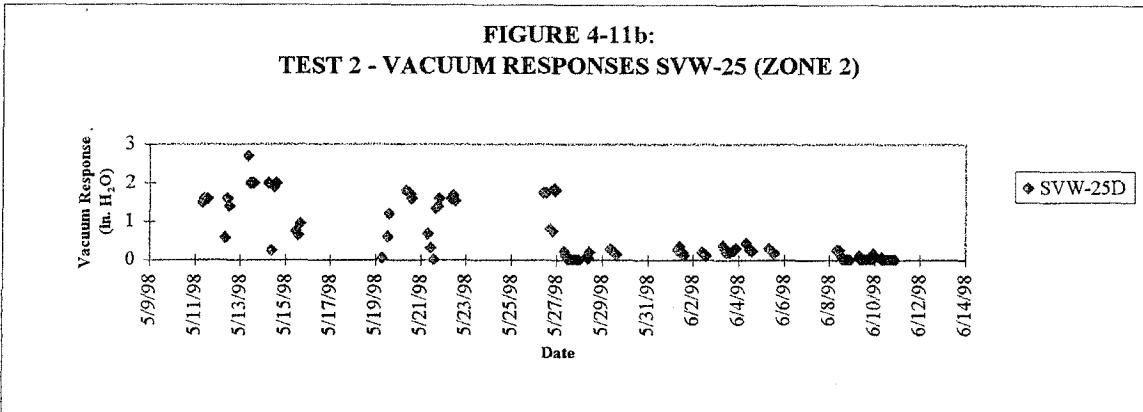
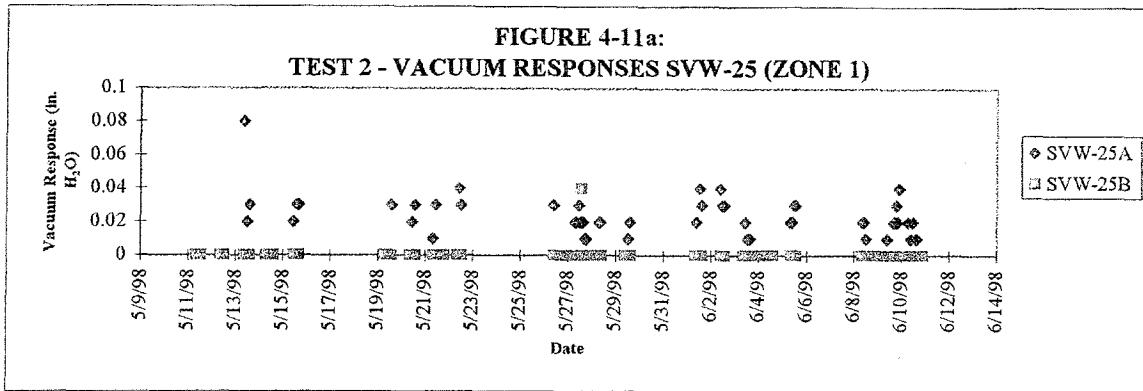


FIGURE 4-12
TEST 2: SVW-26 VACUUM RESPONSES

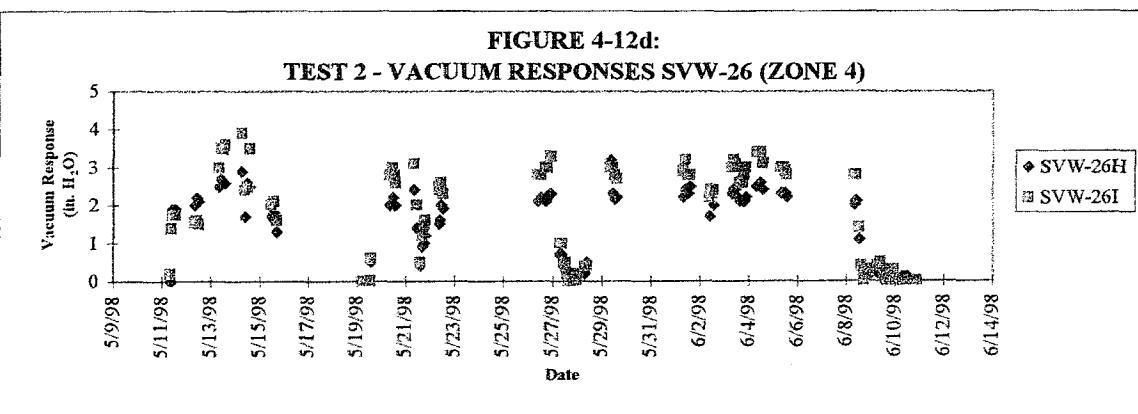
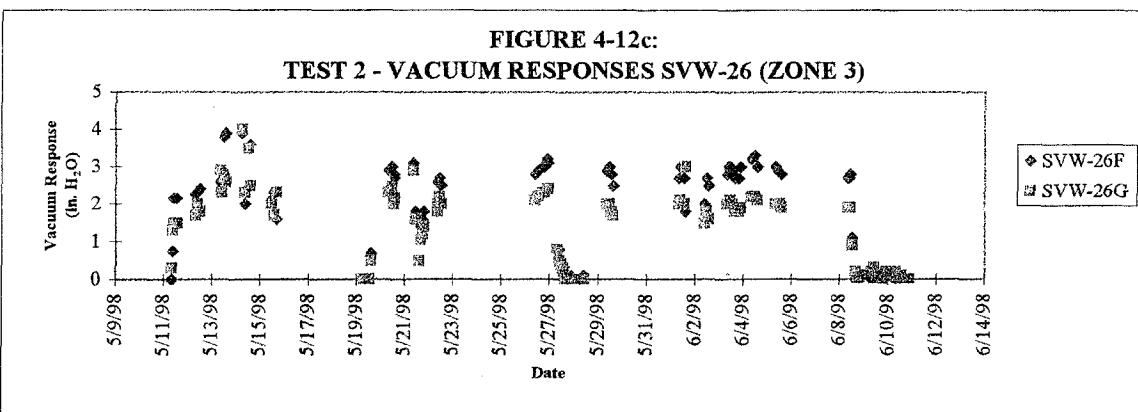
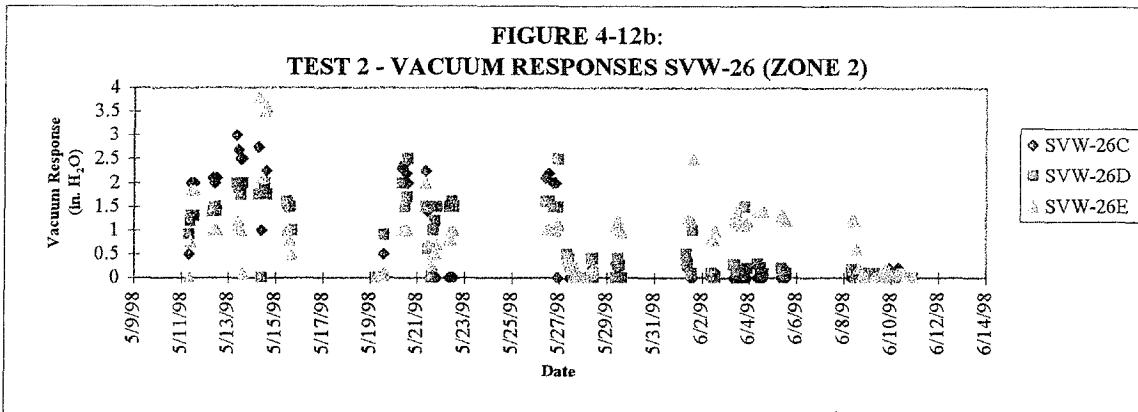
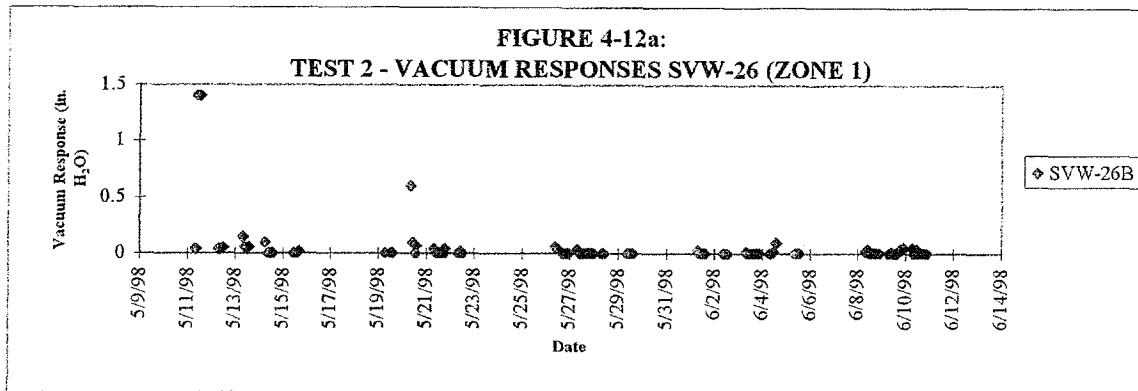


FIGURE 4-13
TEST 2: SVW-27 VACUUM RESPONSES

FIGURE 4-13a:
TEST 2 - VACUUM RESPONSES SVW-27 (ZONE 1)

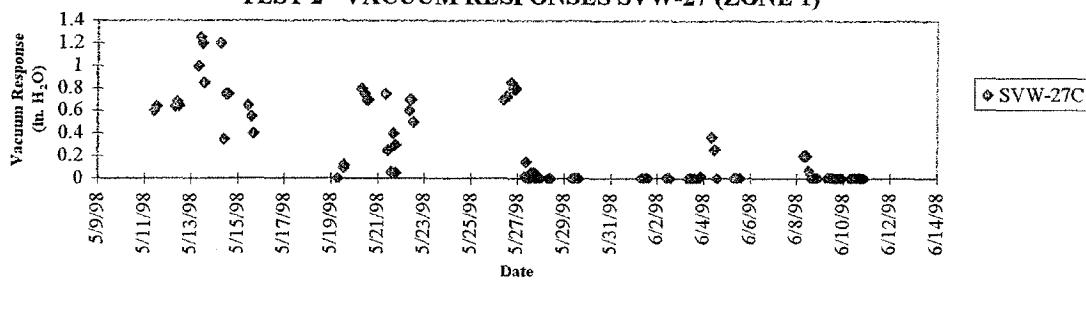


FIGURE 4-13b:
TEST 2 - VACUUM RESPONSES SVW-27 (ZONE 2)

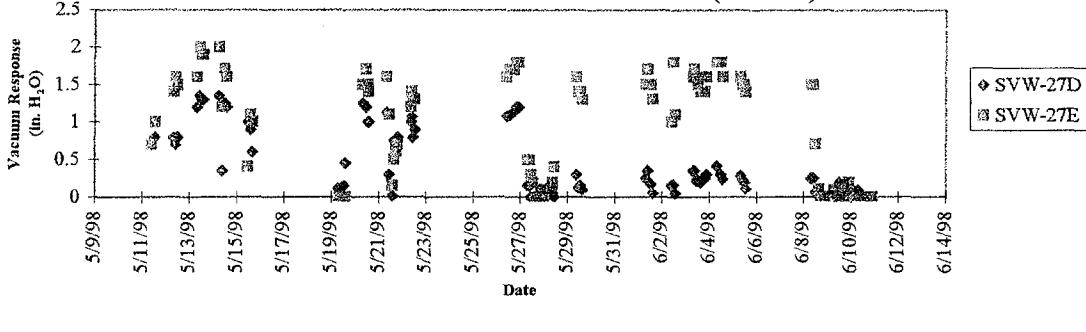


FIGURE 4-13c:
TEST 2 - VACUUM RESPONSES SVW-27 (ZONE 3)

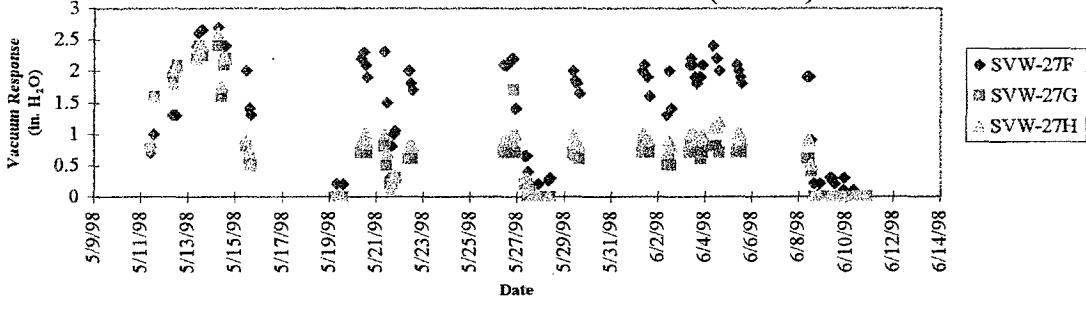


FIGURE 4-13d:
TEST 2 - VACUUM RESPONSES SVW-27 (ZONE 4)

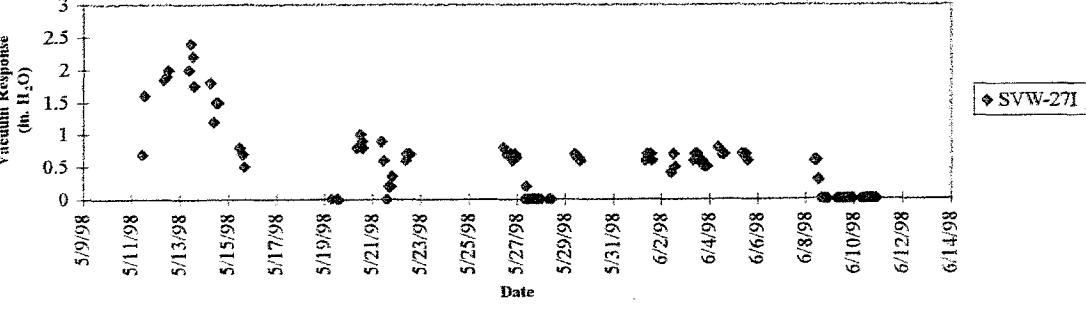


FIGURE 4-14
TEST 2: SVW-28 VACUUM RESPONSES

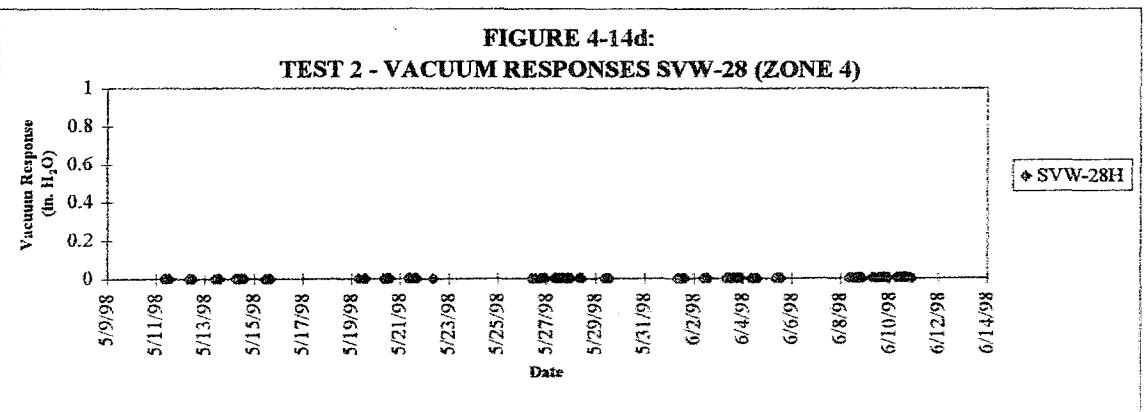
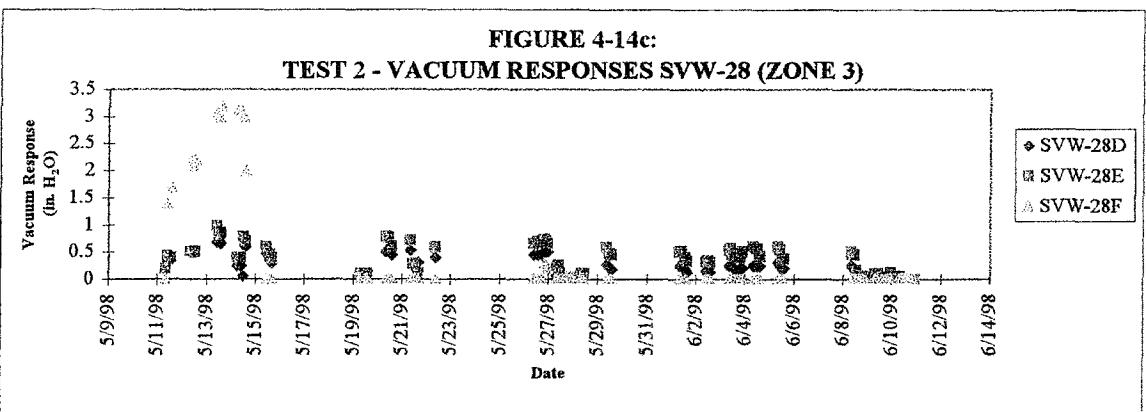
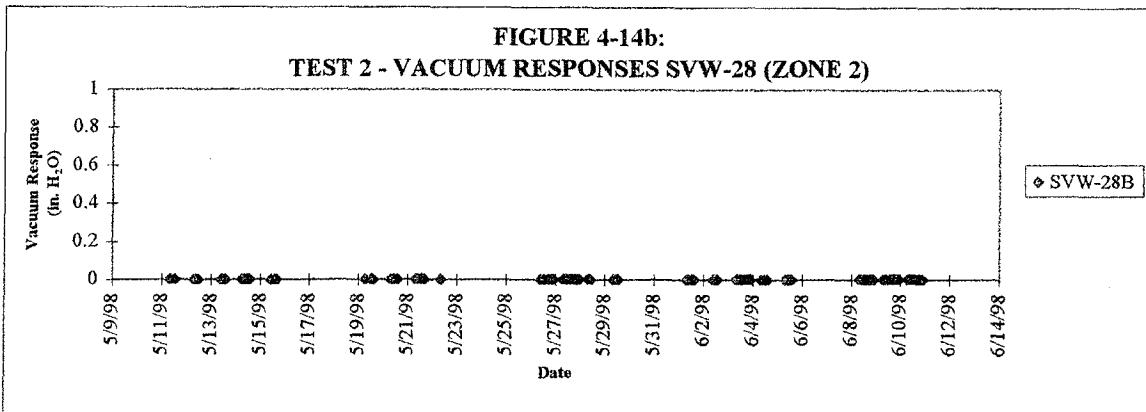
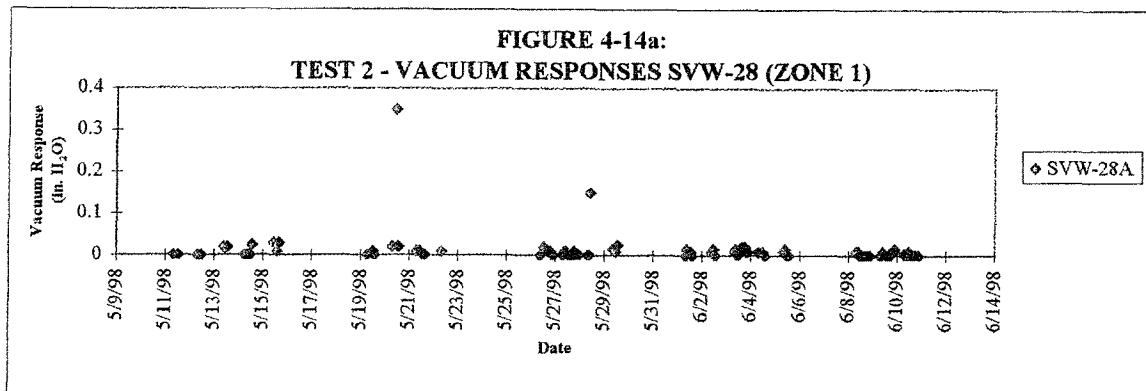


FIGURE 4-15
TEST 2: SVW-32 VACUUM RESPONSES

FIGURE 4-15a:
TEST 2 - VACUUM RESPONSES SVW-32 (ZONE 1)

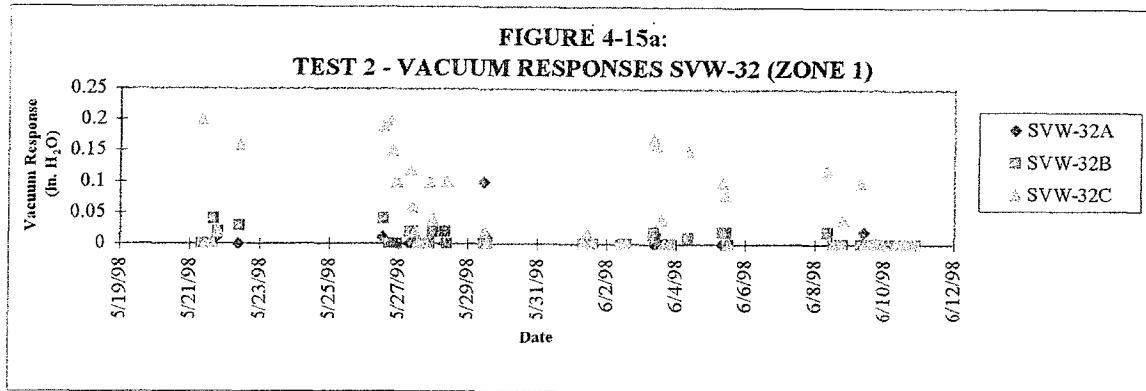


FIGURE 4-15b:
TEST 2 - VACUUM RESPONSES SVW-32 (ZONE 2)

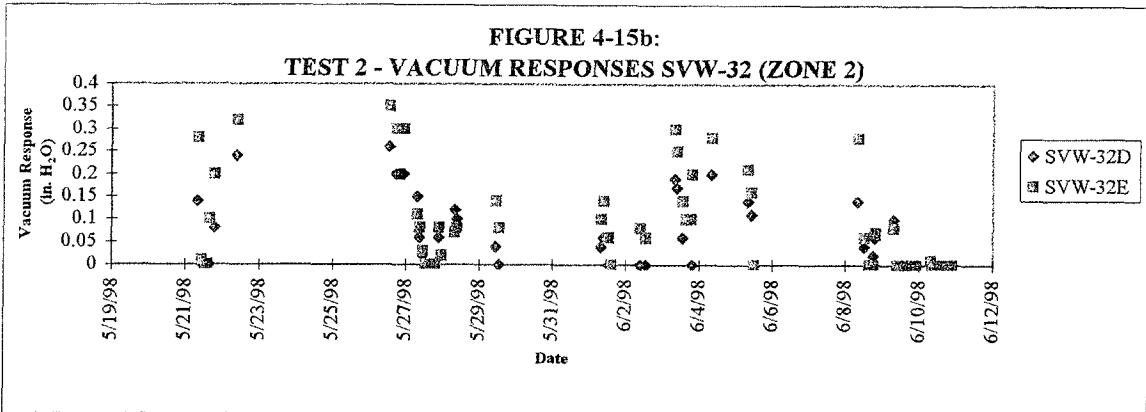


FIGURE 4-15c:
TEST 2 - VACUUM RESPONSES SVW-32 (ZONE 3)

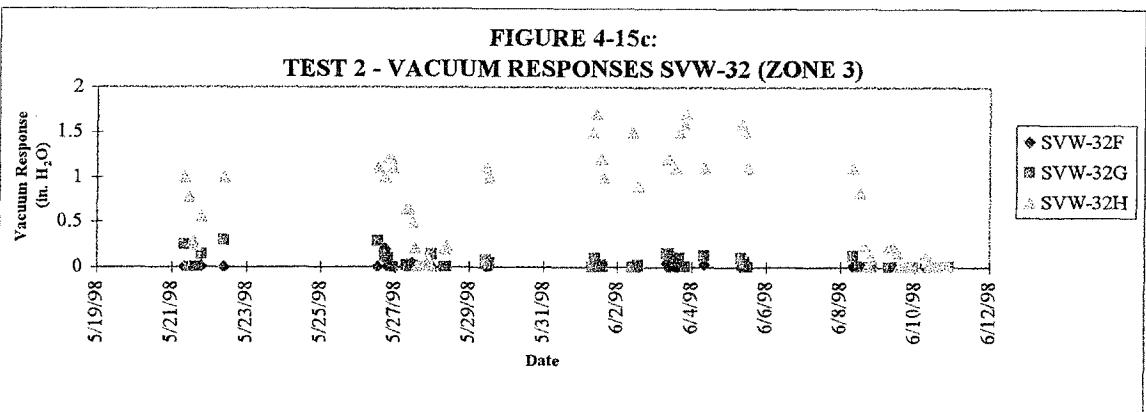


FIGURE 4-15d:
TEST 2 - VACUUM RESPONSES SVW-32 (ZONE 4)

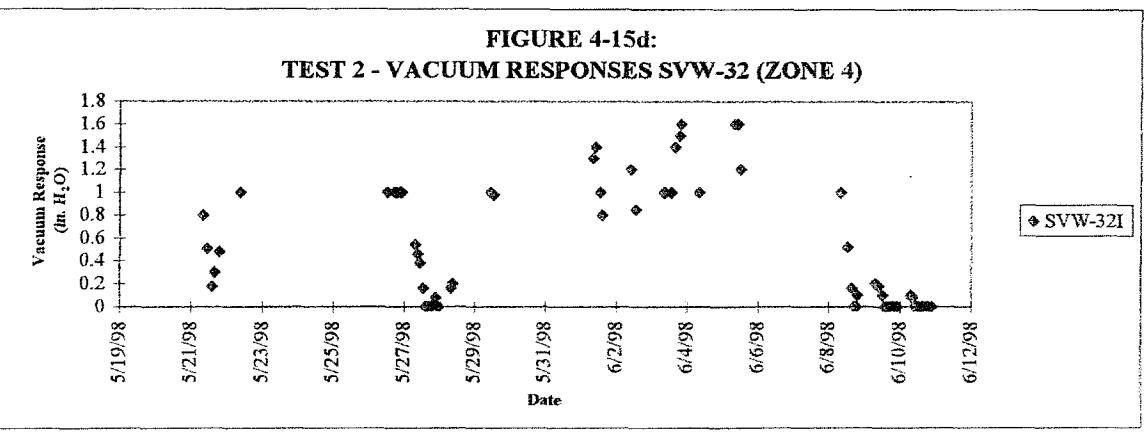


FIGURE 4-16
TEST 2: SVW-33 VACUUM RESPONSES

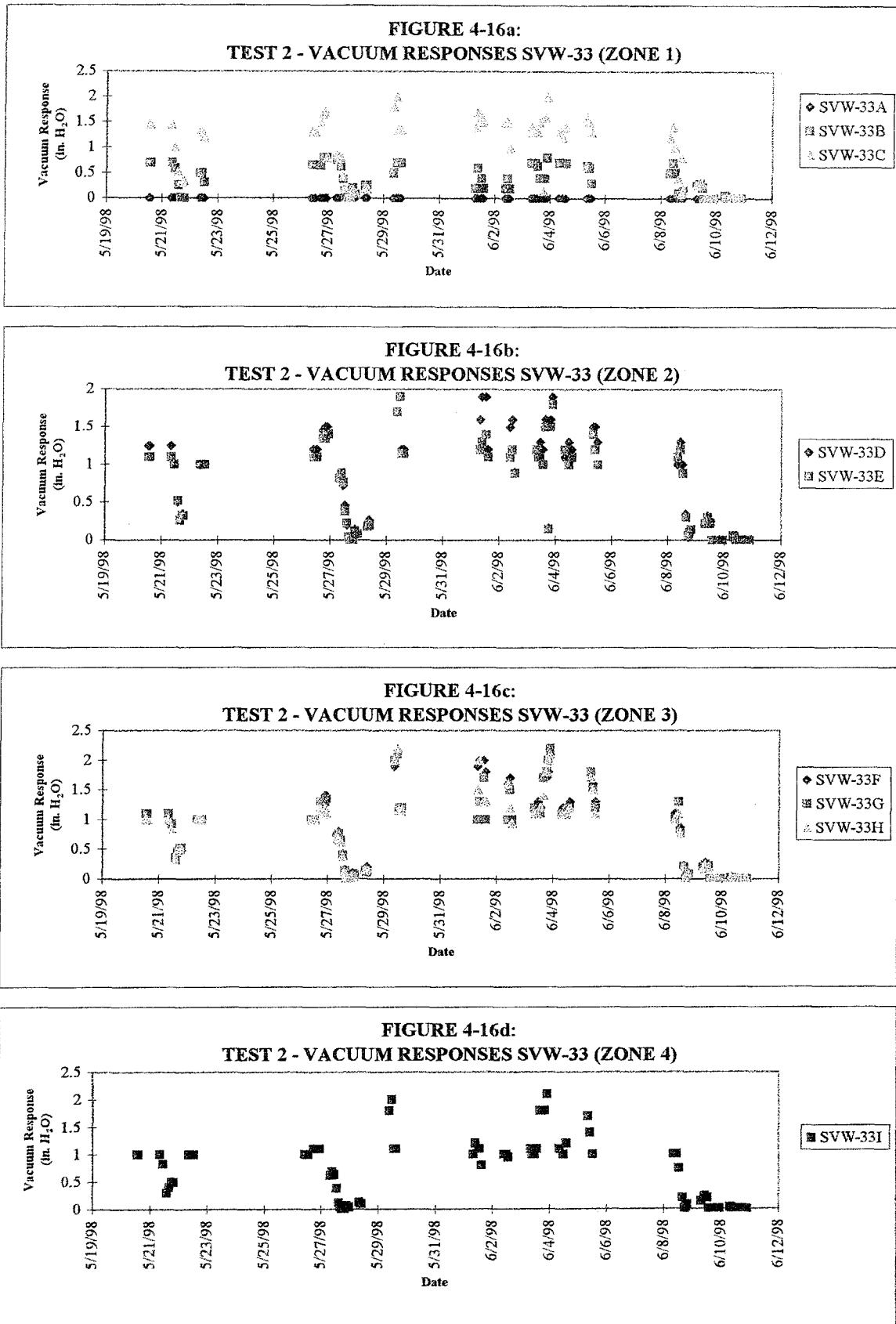


FIGURE 4-17
TEST 2: SVW-34 VACUUM RESPONSES

FIGURE 4-17a:
TEST 2 - VACUUM RESPONSES SVW-34 (ZONE 2)

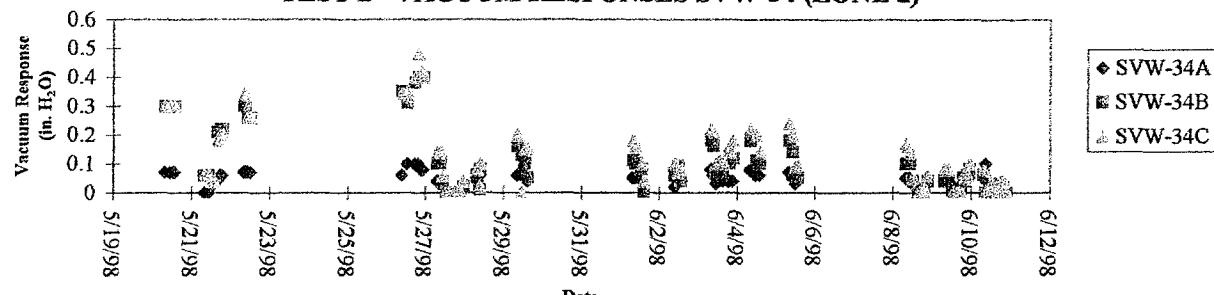


FIGURE 4-17b:
TEST 2 - VACUUM RESPONSES SVW-34 (ZONE 3)

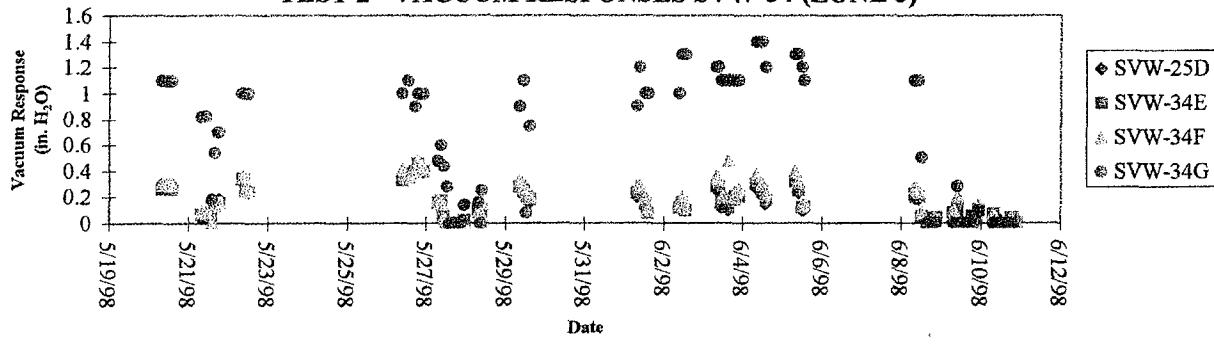


FIGURE 4-17c:
TEST 2 - VACUUM RESPONSES SVW-34 (ZONE 4)

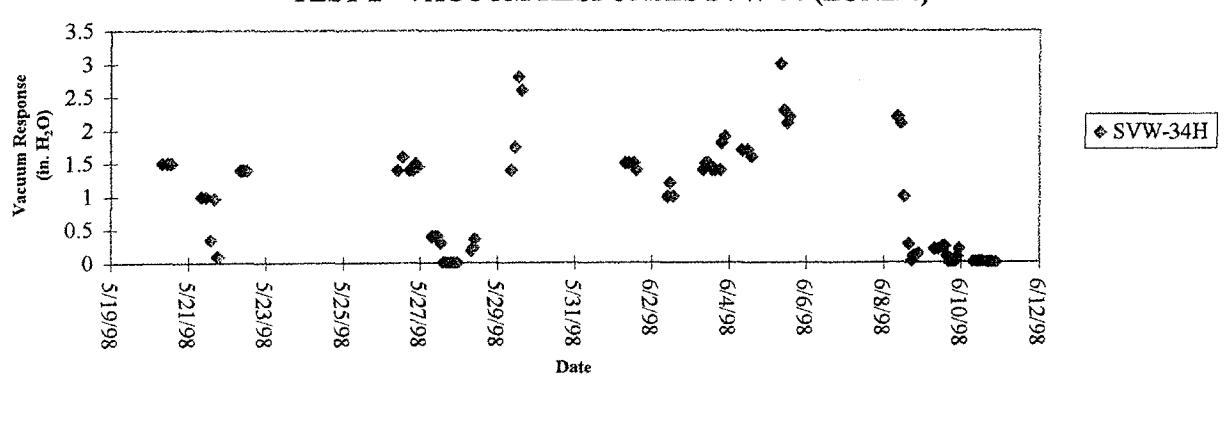


FIGURE 4-18
TEST 2: SVW-35 VACUUM RESPONSES

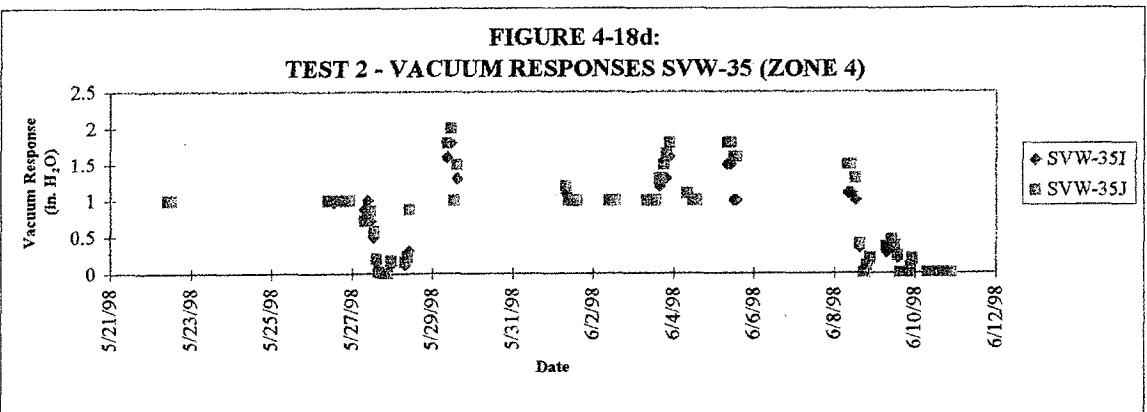
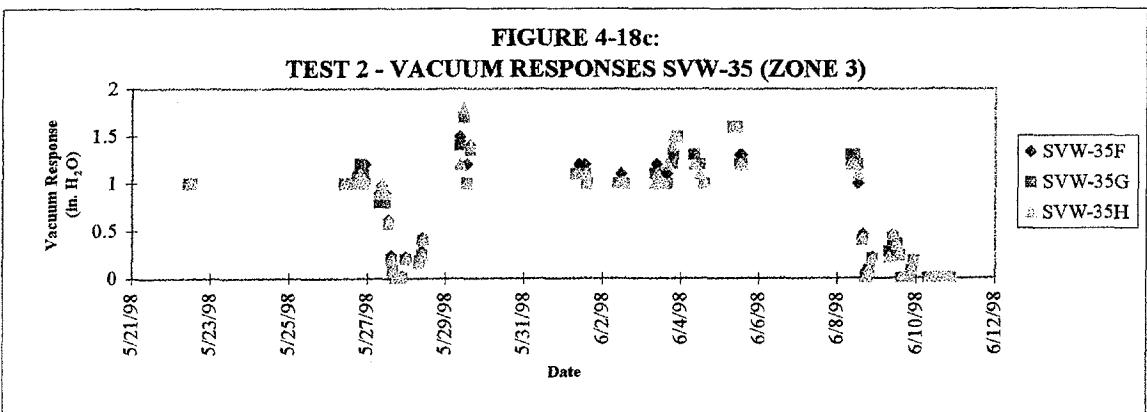
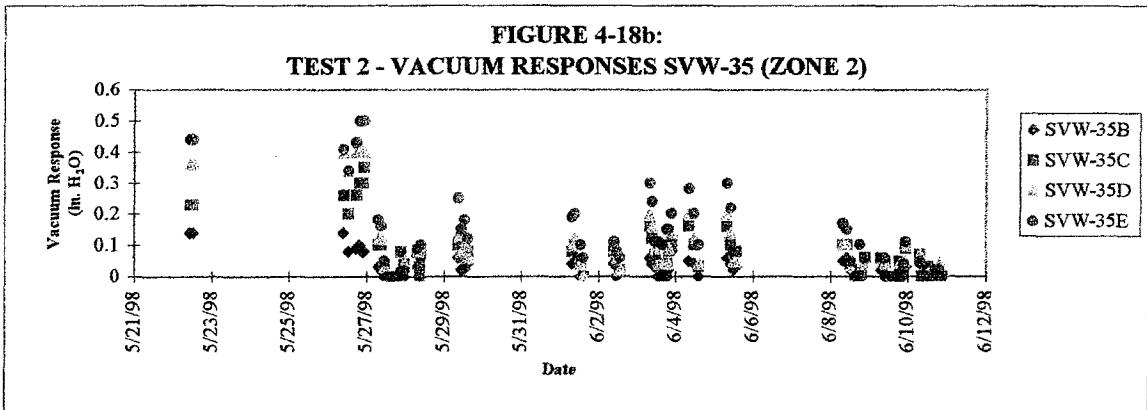
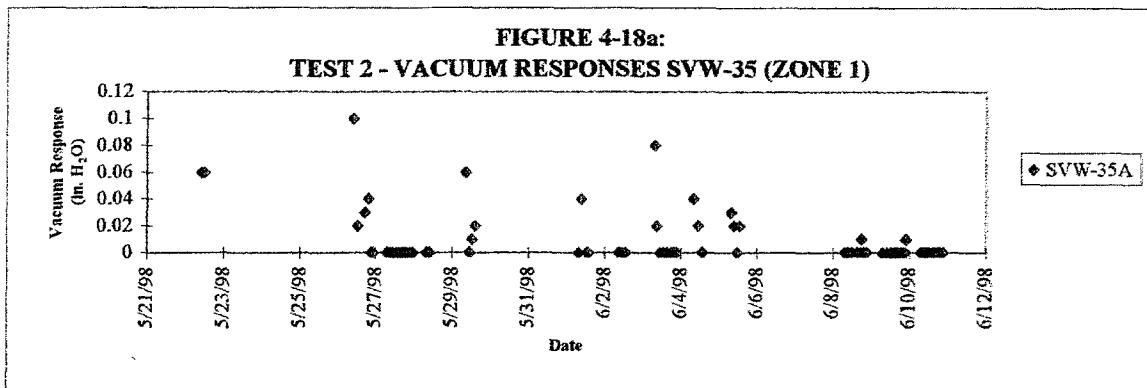


FIGURE 4-19
TEST 2: SVW-37 VACUUM RESPONSES

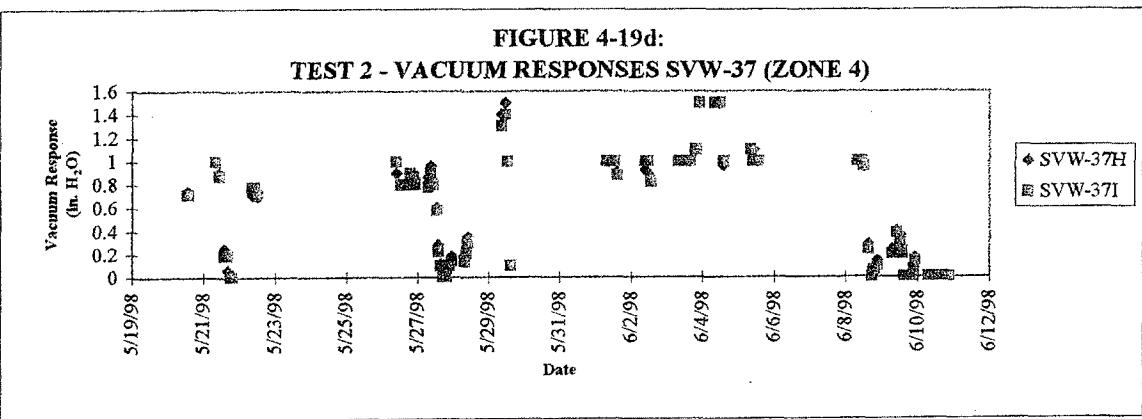
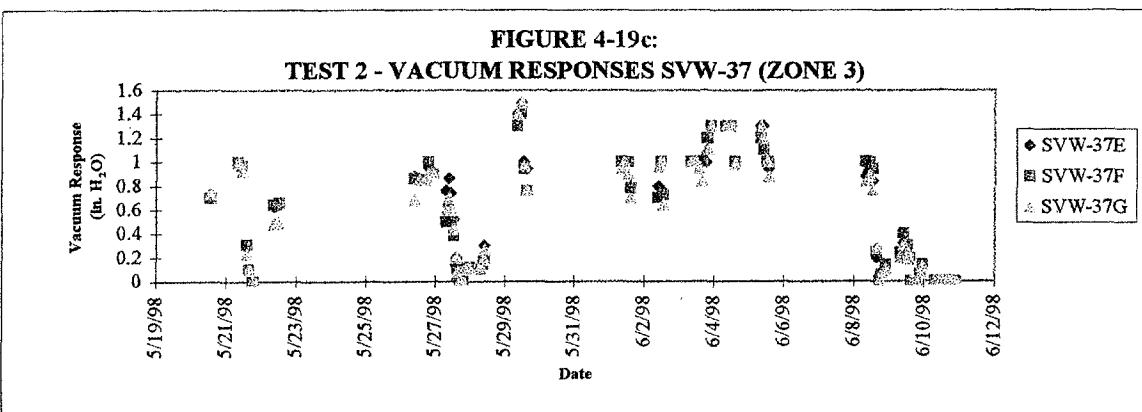
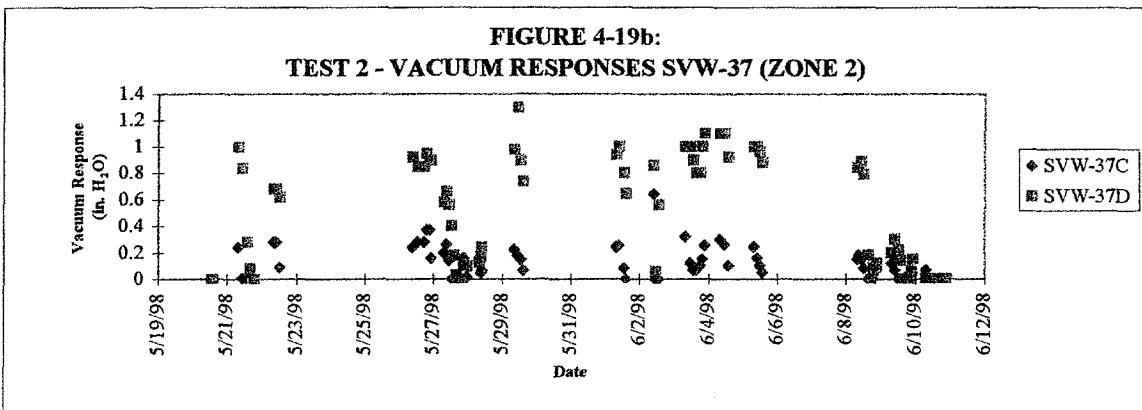
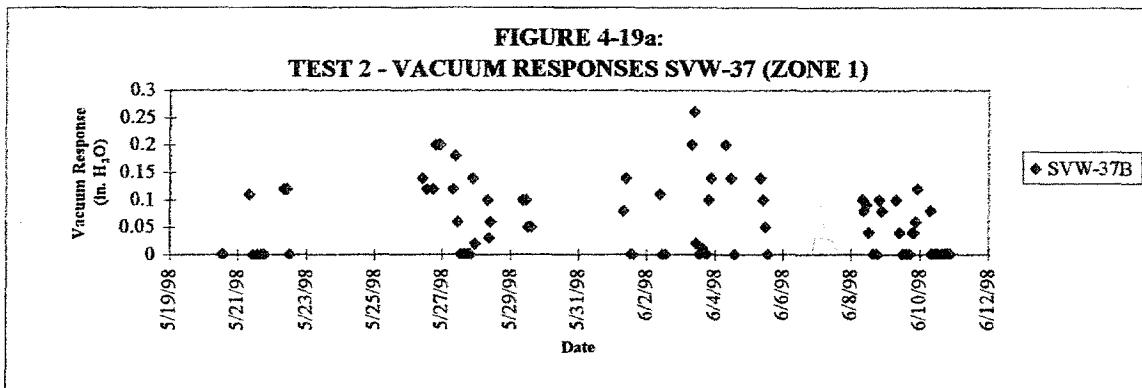


FIGURE 4-20
TEST 2: SVW-38 VACUUM RESPONSES

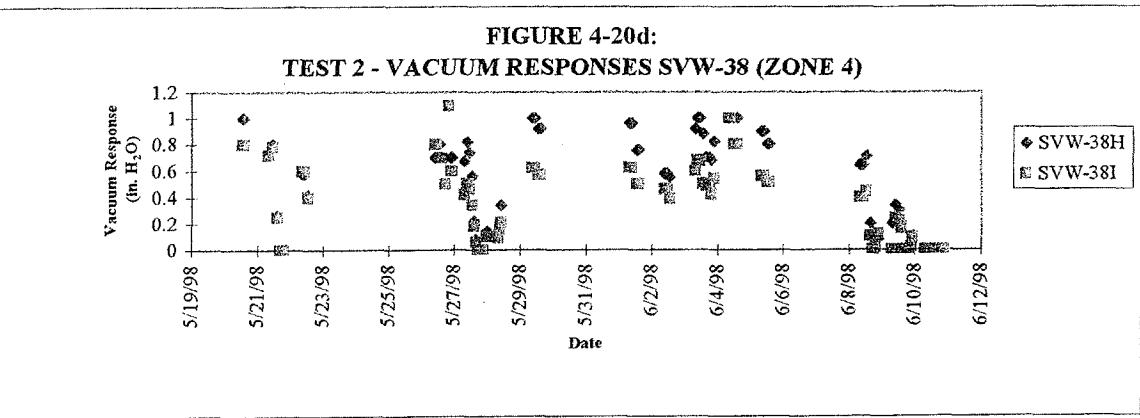
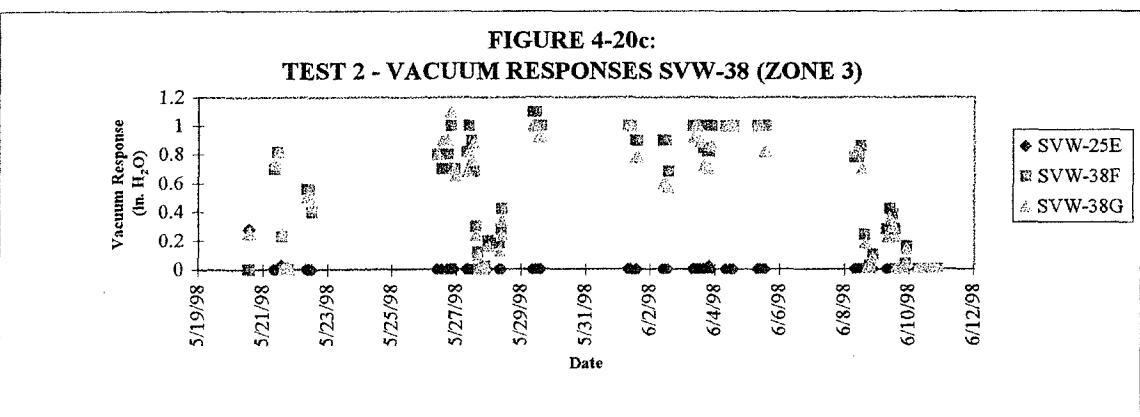
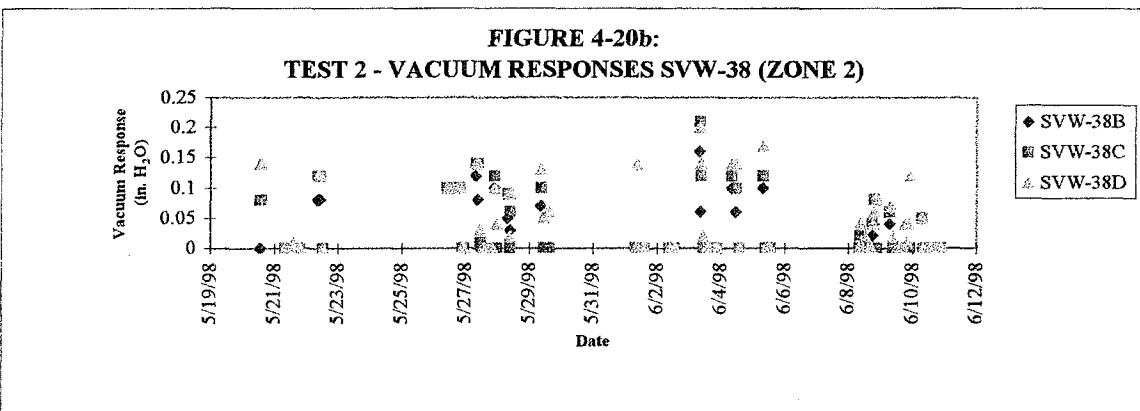
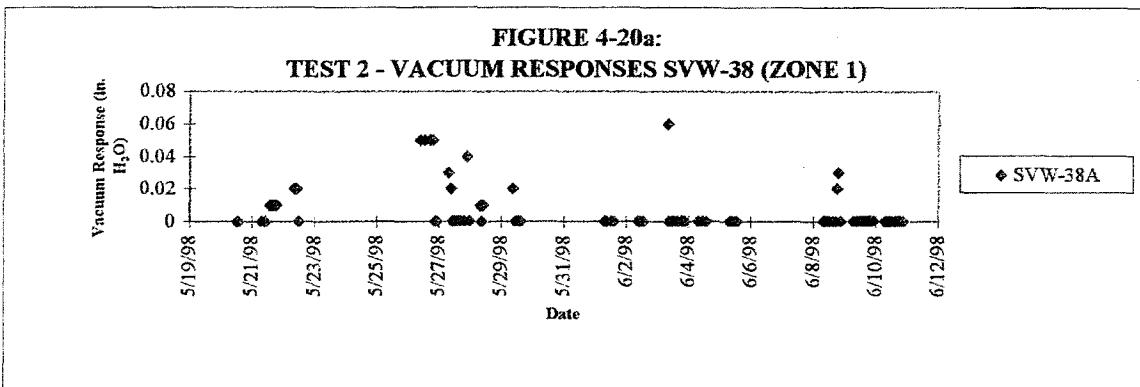


FIGURE 4-21
TEST 2: NORMALIZED VACUUM RESPONSE
SCREENS ABC EXTRACTING (5/22/98)

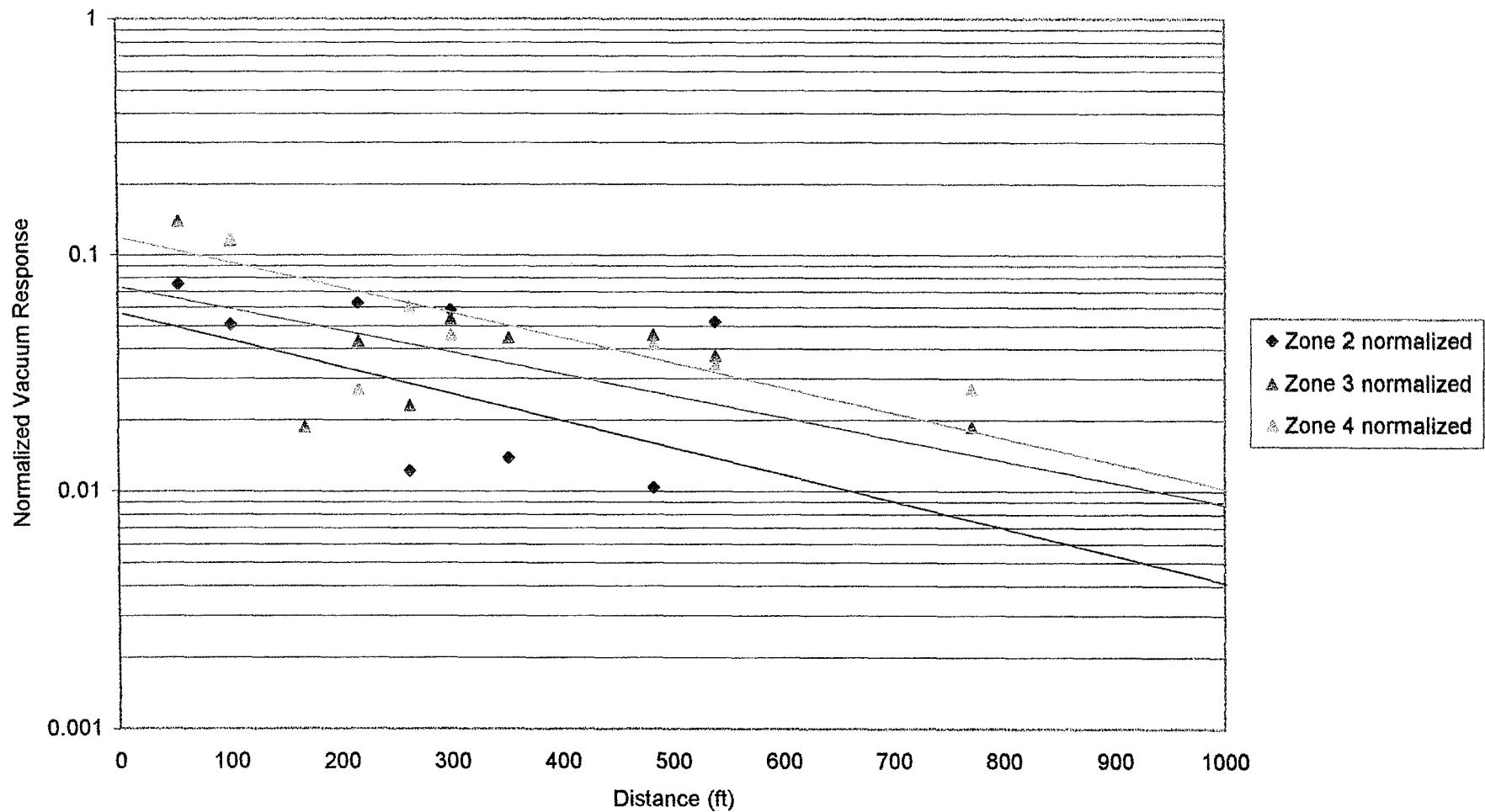


FIGURE 4-22
TEST 2: NORMALIZED VACUUM RESPONSE
SCREENS BC EXTRACTING (6/8/98)

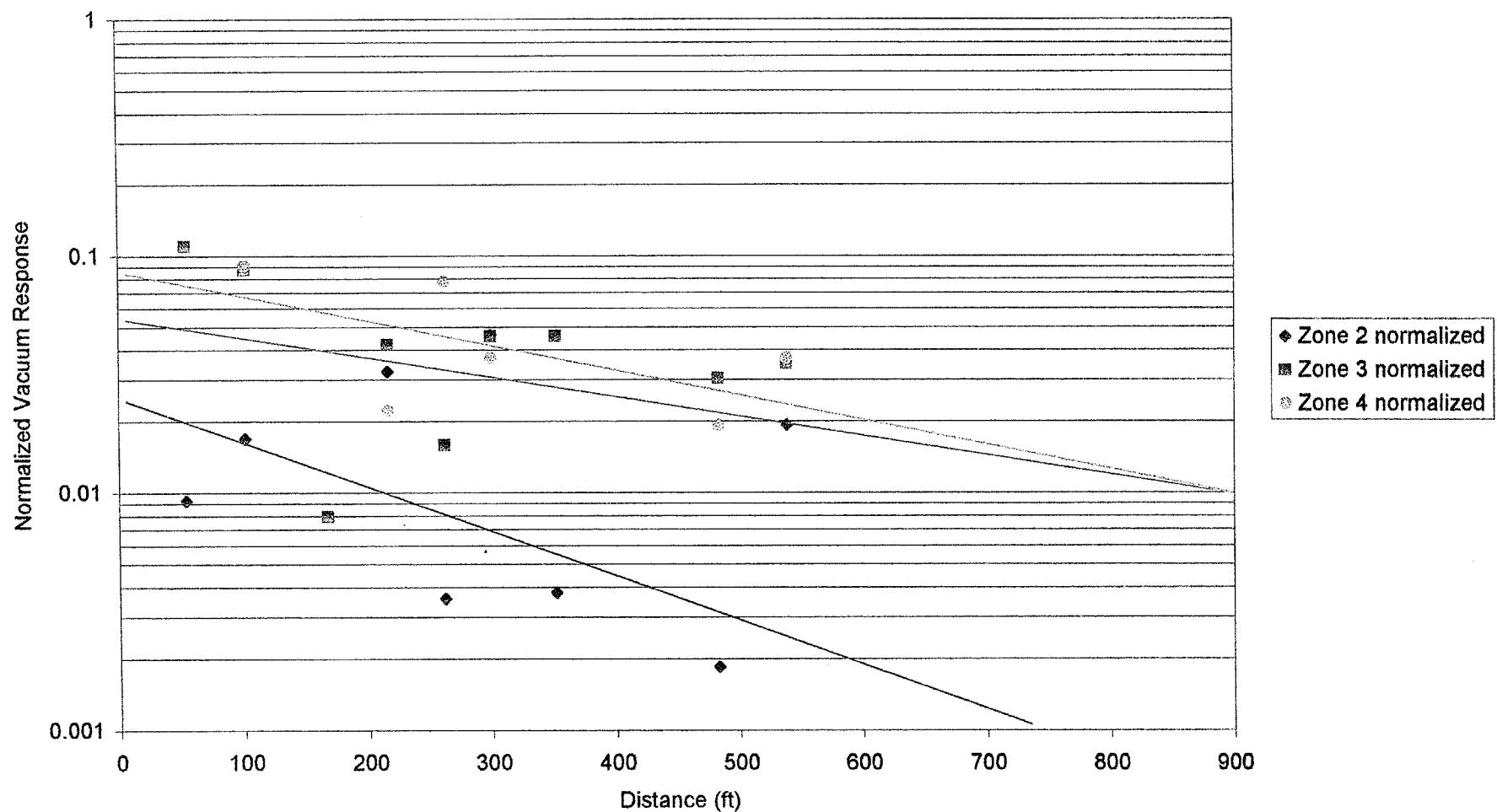


FIGURE 4-23
TEST 2: DAILY AVERAGE CUMULATIVE VOCs REMOVED

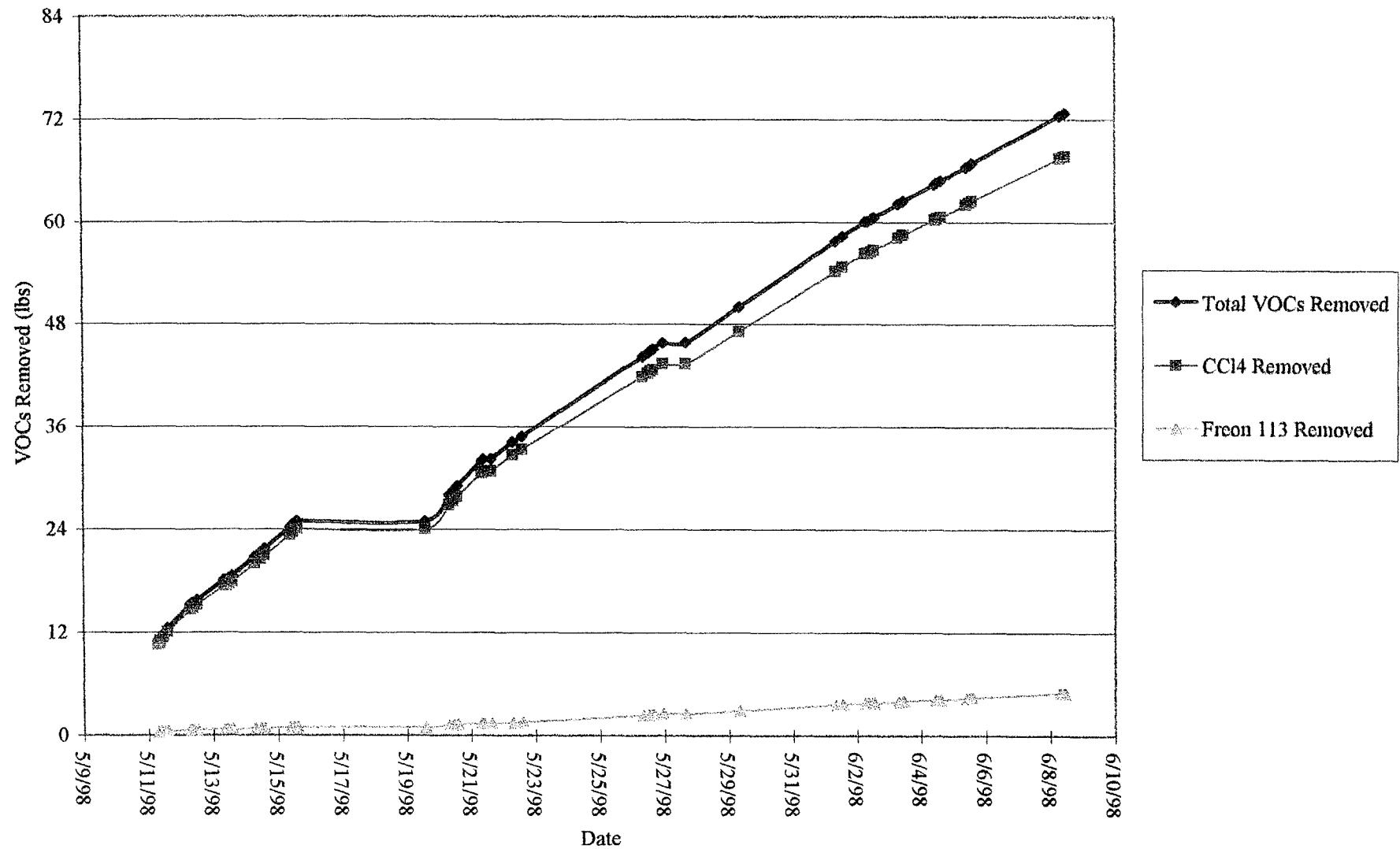


FIGURE 4-24
TEST 2: VOC REMOVAL RATE

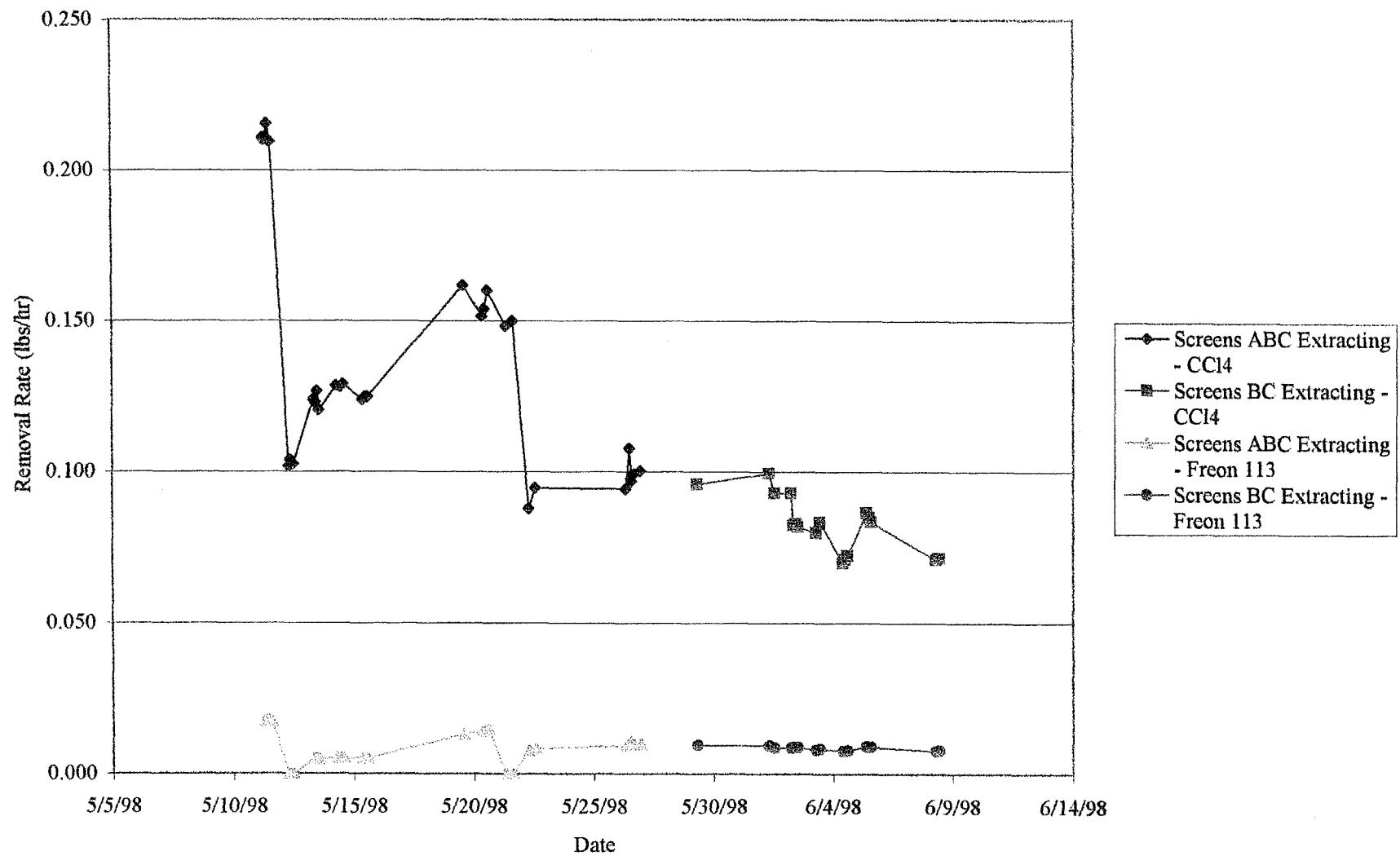


FIGURE 4-25
TEST 3: SVW-25 VACUUM RESPONSES

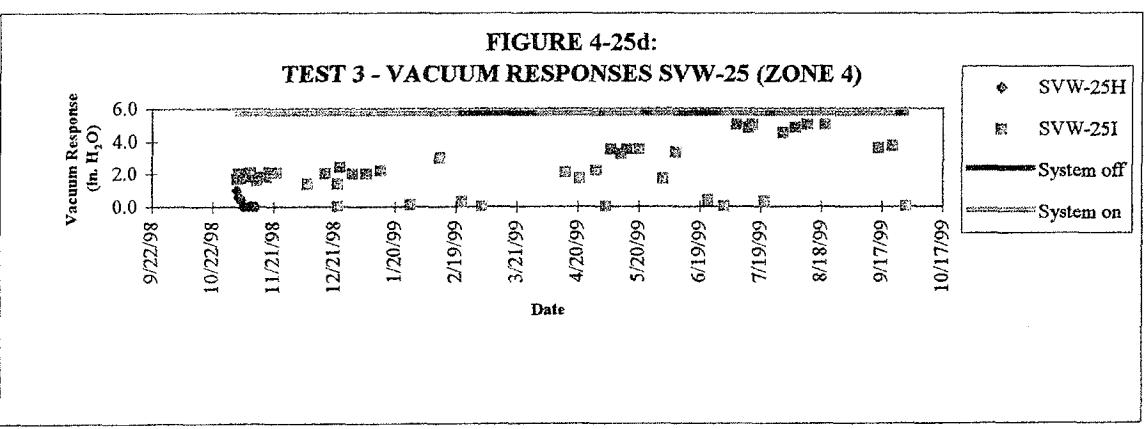
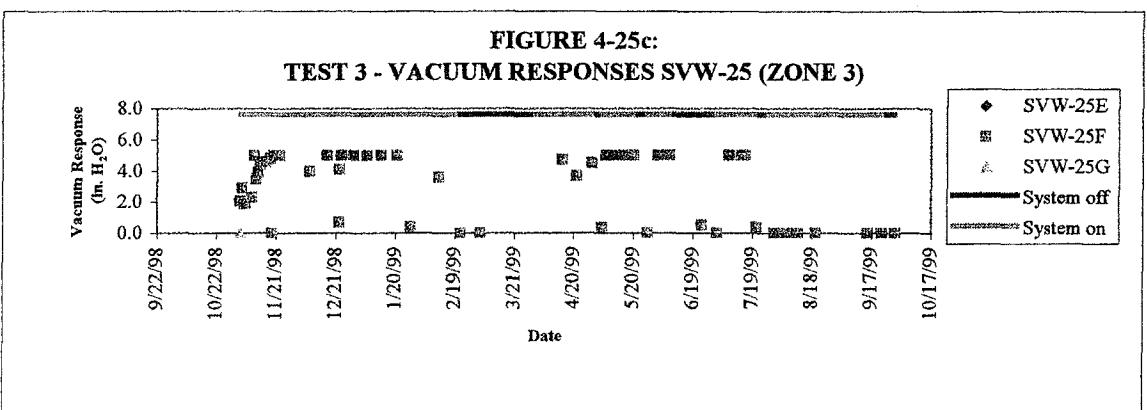
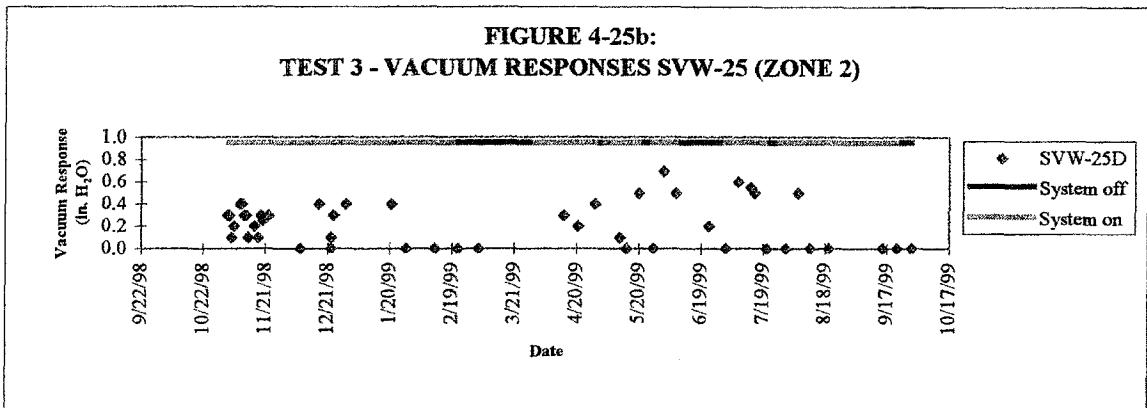
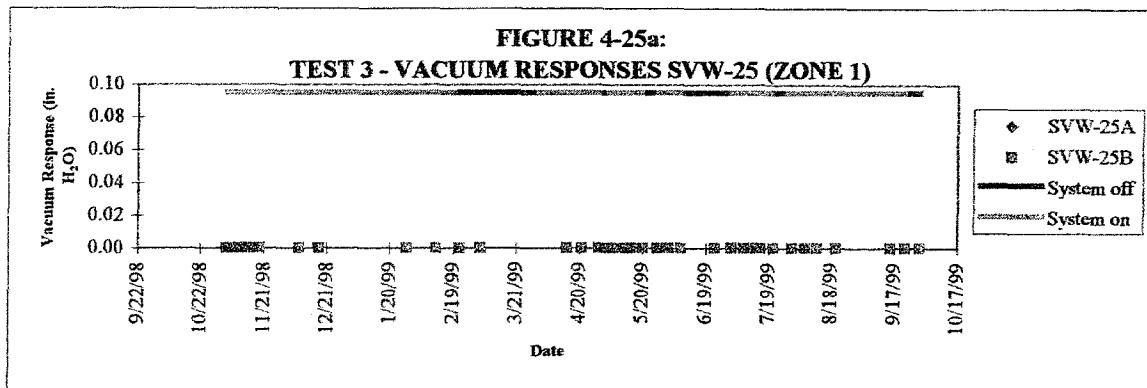


FIGURE 4-26
TEST 3: SVW-26 VACUUM RESPONSES

FIGURE 4-26a:
TEST 3 - VACUUM RESPONSES SVW-26 (ZONE 1)

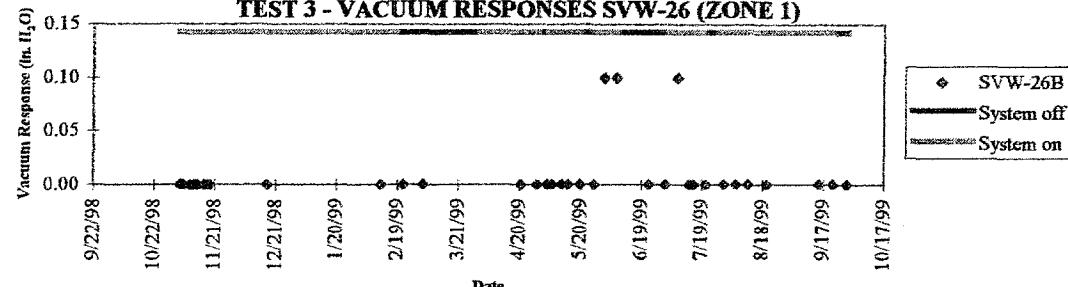


FIGURE 4-26b:
TEST 3 - VACUUM RESPONSES SVW-26 (ZONE 2)

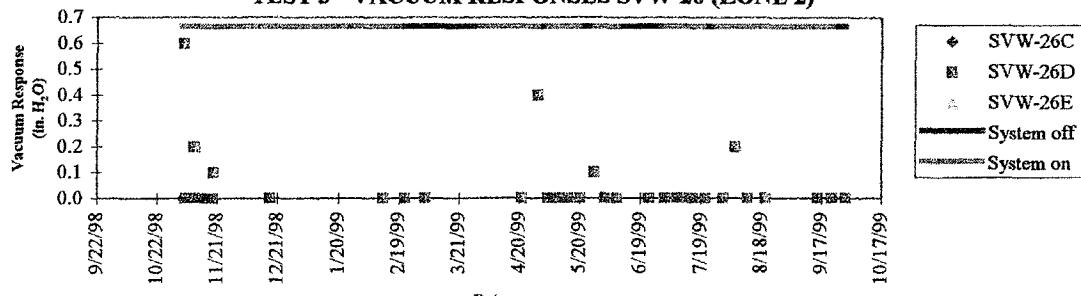


FIGURE 4-26c:
TEST 3 - VACUUM RESPONSES SVW-26 (ZONE 3)

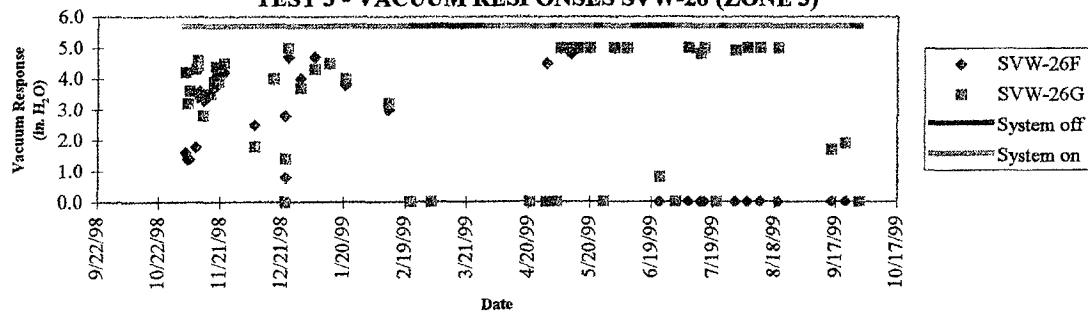


FIGURE 4-26d:
TEST 3 - VACUUM RESPONSES SVW-26 (ZONE 4)

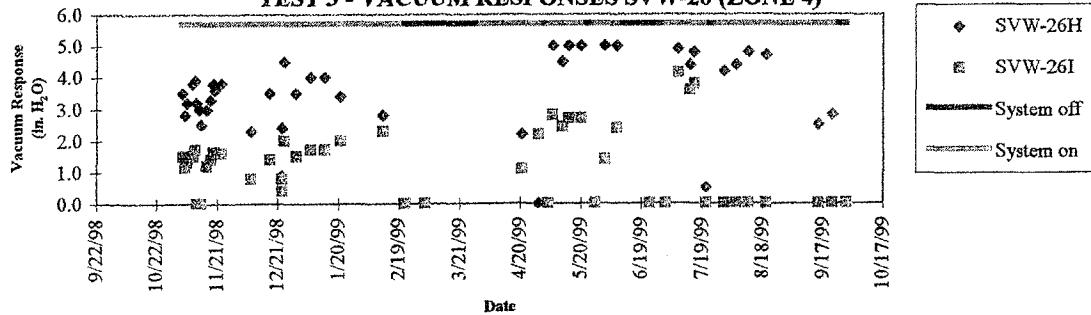


FIGURE 4-27
TEST 3: SVW-27 VACUUM RESPONSES

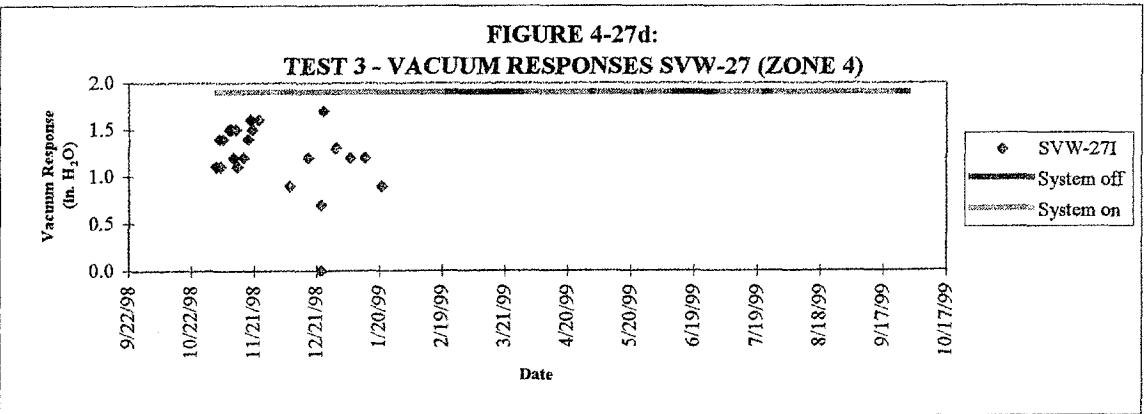
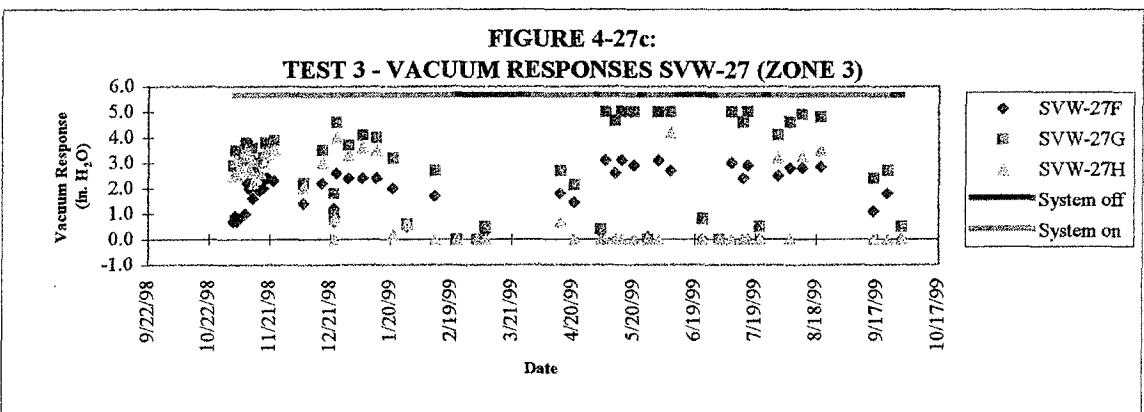
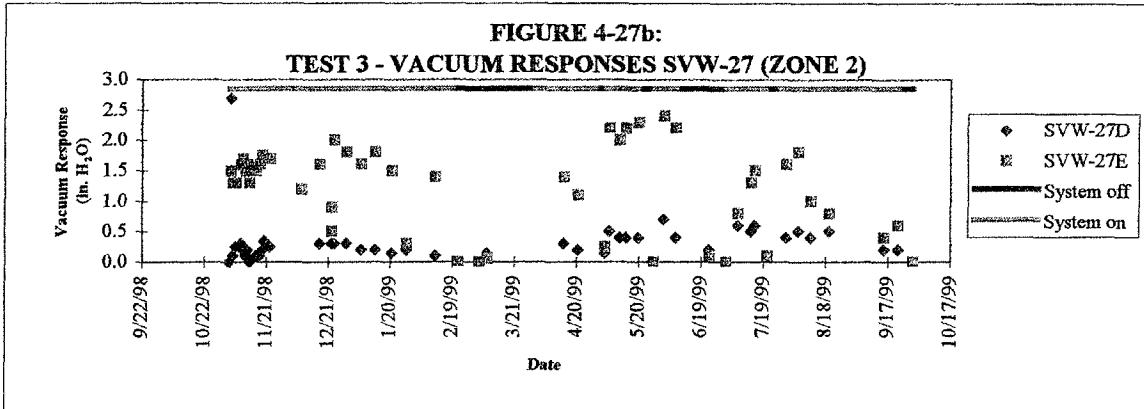
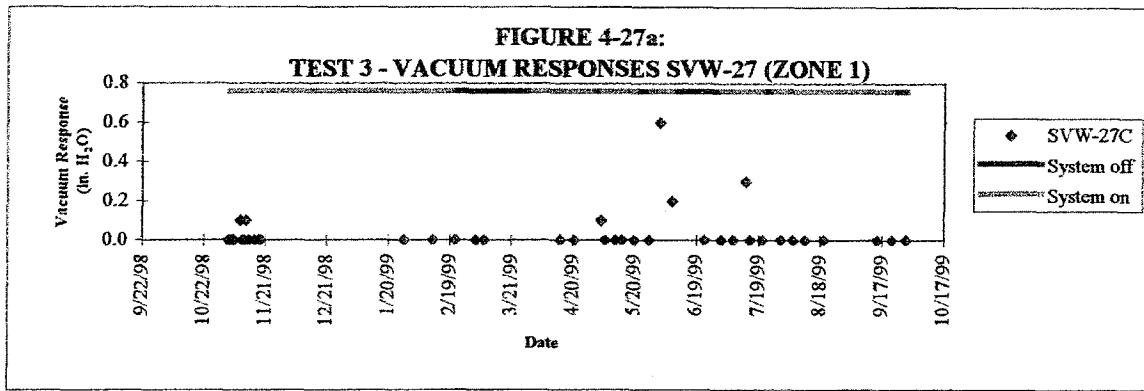


FIGURE 4-28
TEST 3: SVW-28 VACUUM RESPONSES

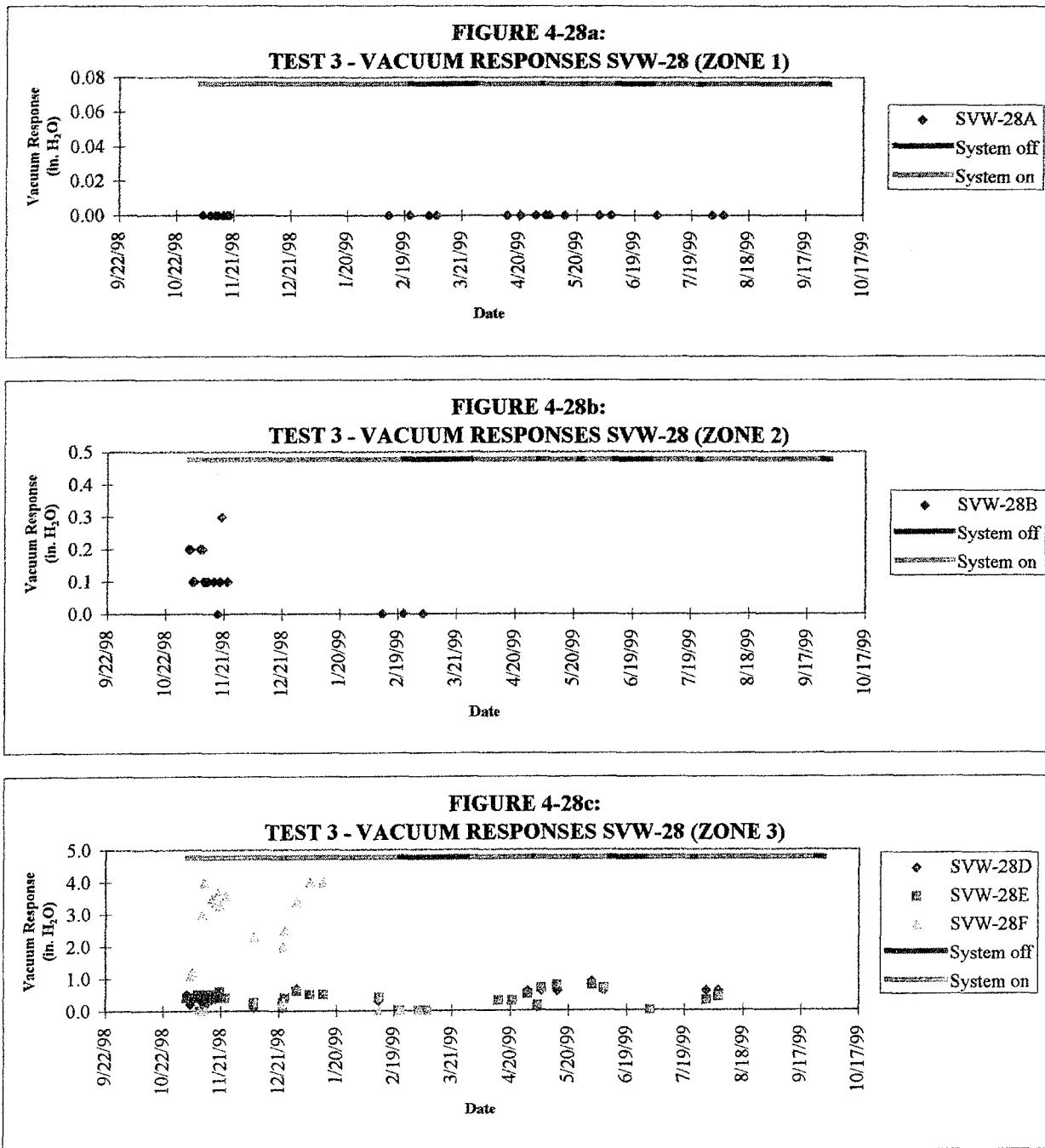


FIGURE 4-29
TEST 3: SVW-32 VACUUM RESPONSES

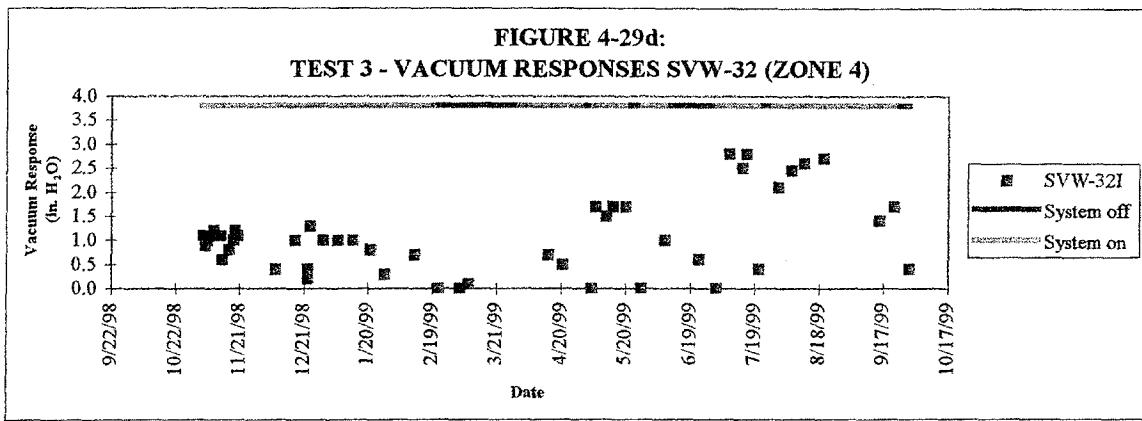
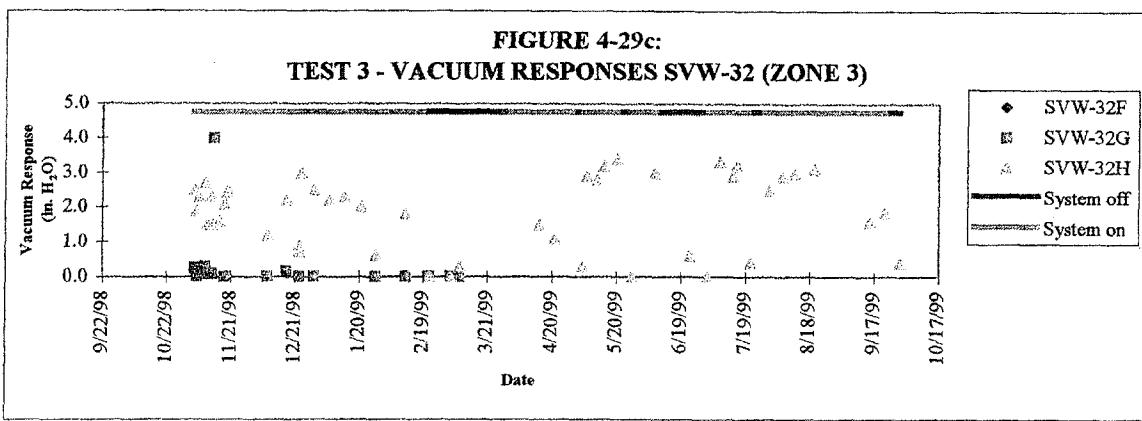
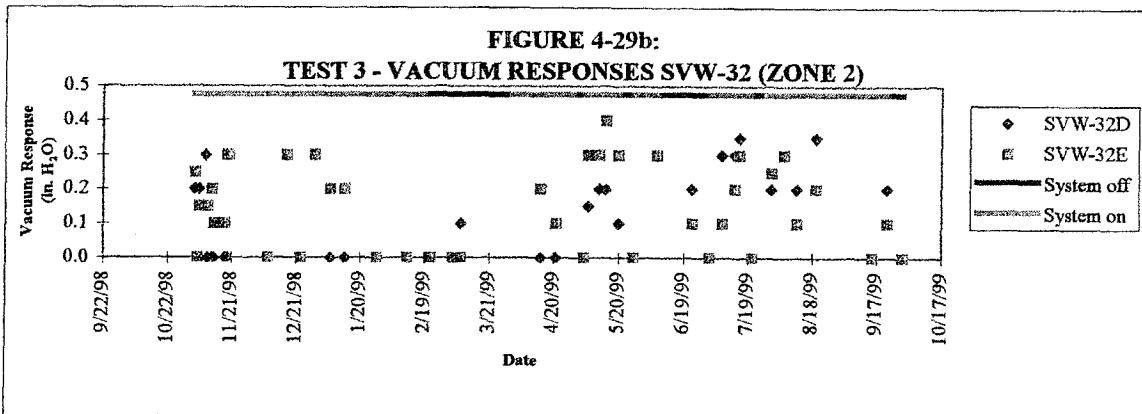
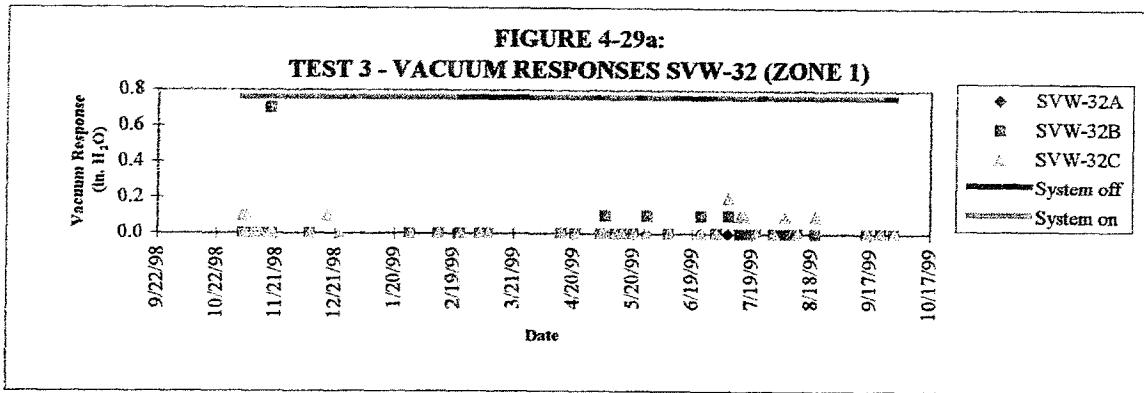


FIGURE 4-30
TEST 3: SVW-33 VACUUM RESPONSES

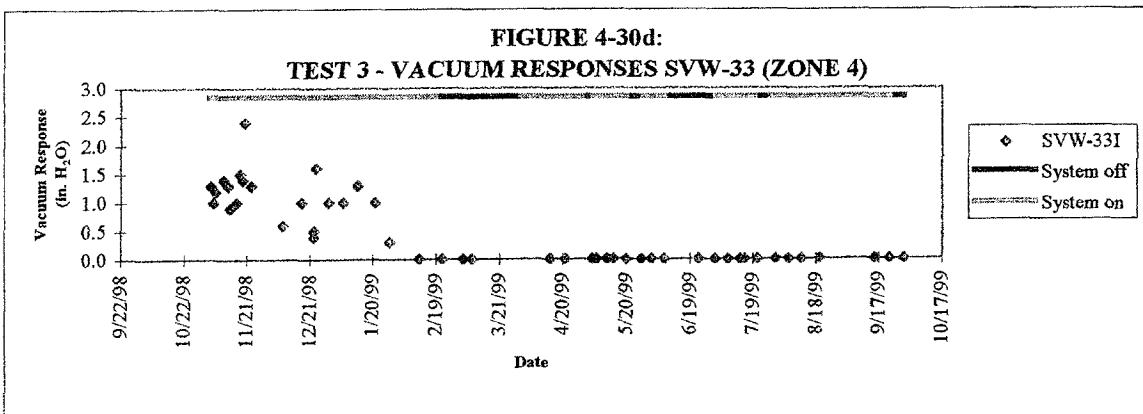
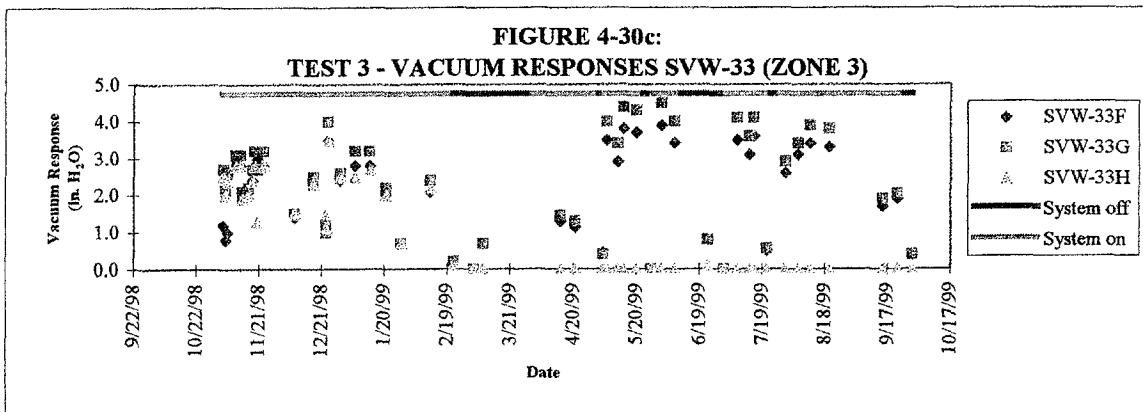
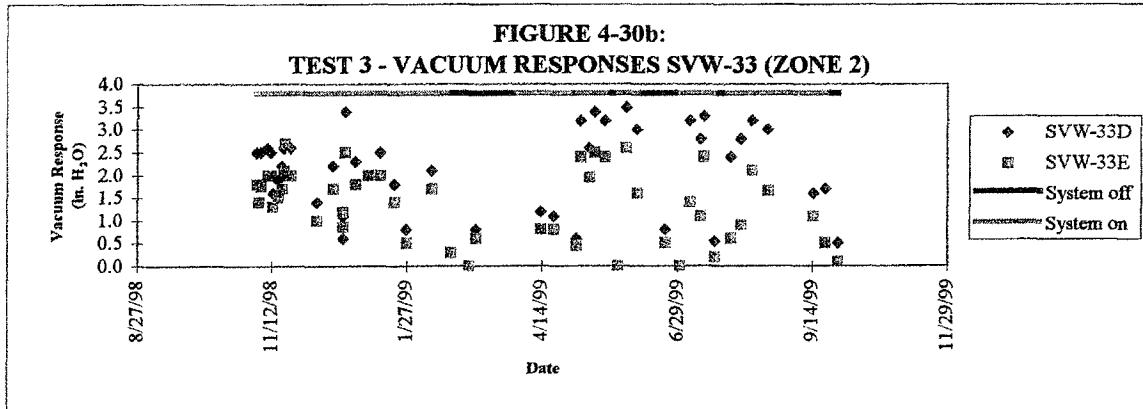
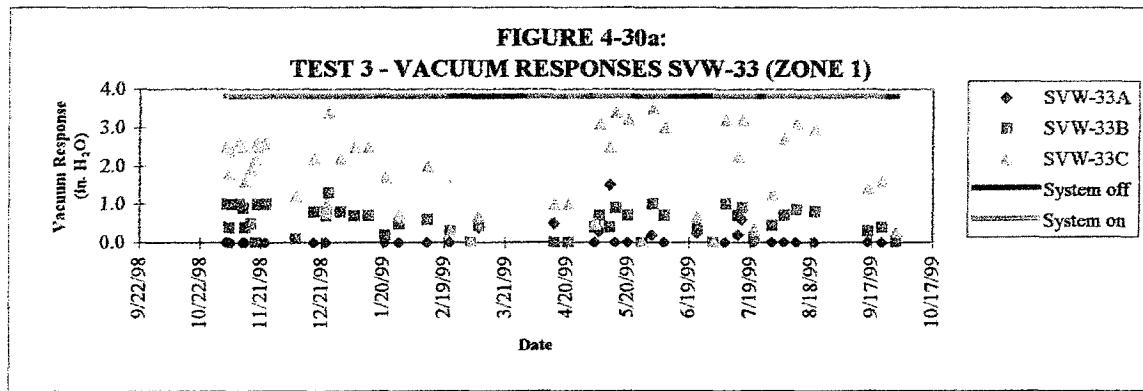


FIGURE 4-31
TEST 3: SVW-34 VACUUM RESPONSES

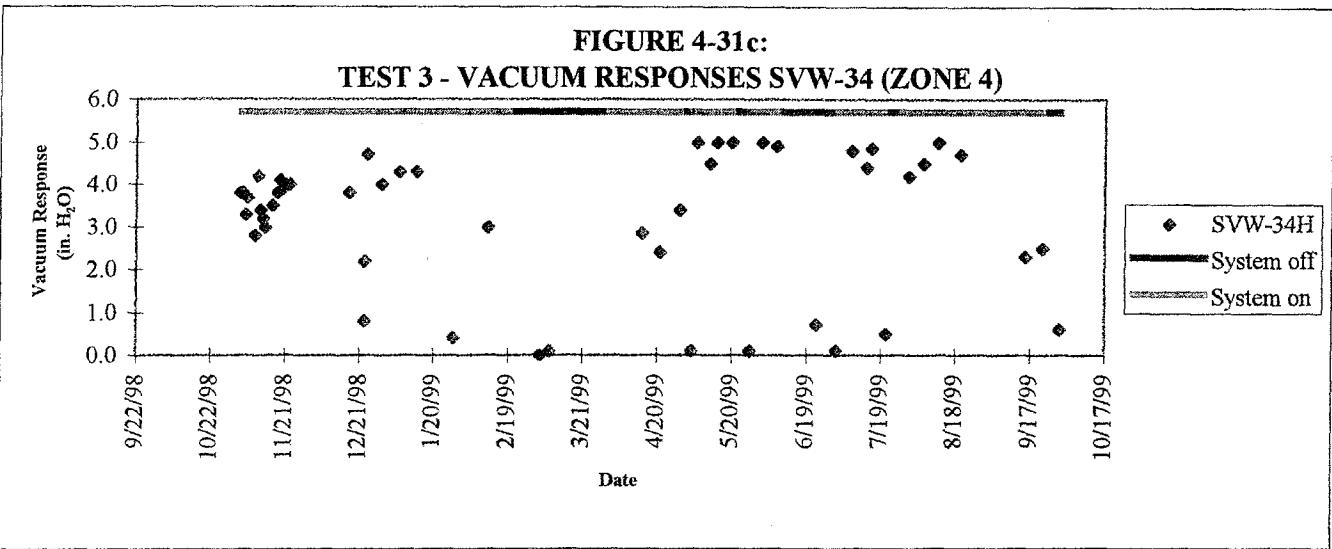
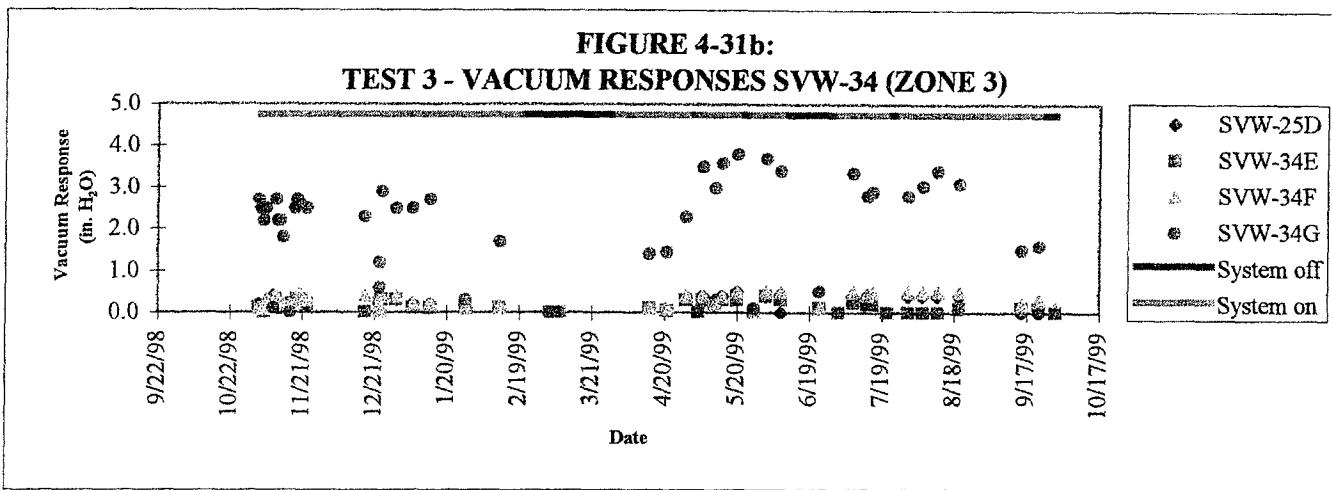
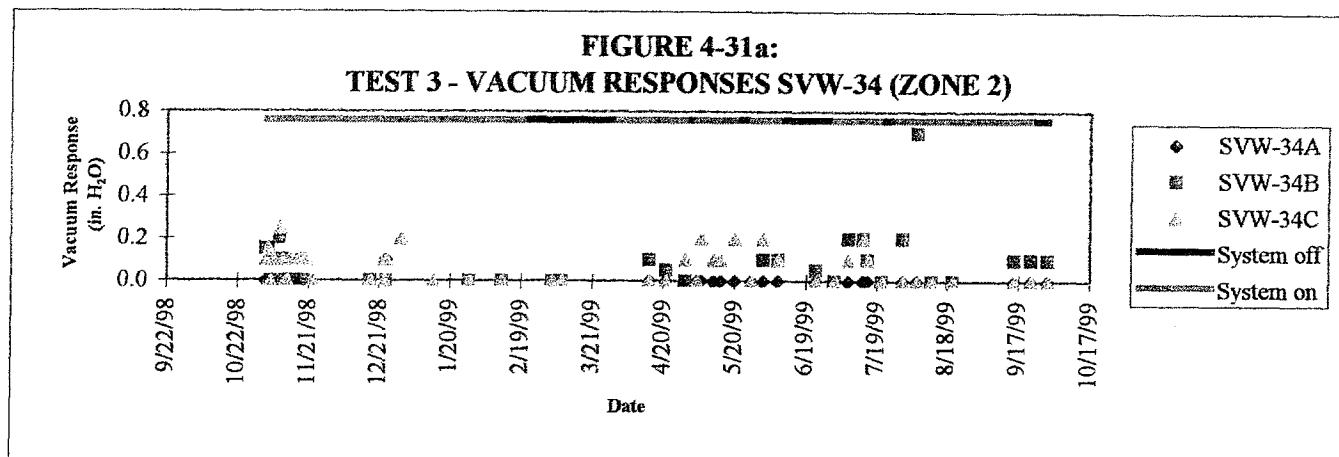


FIGURE 4-32
TEST 3: SVW-35 VACUUM RESPONSES

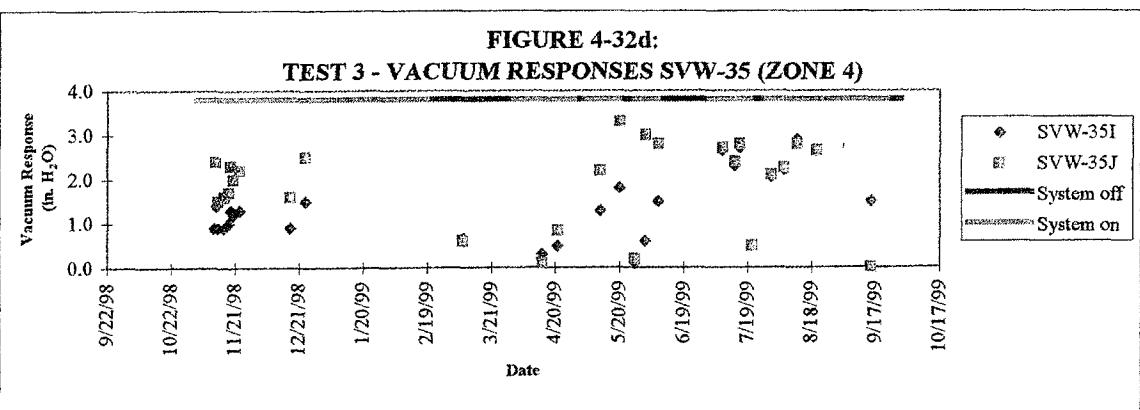
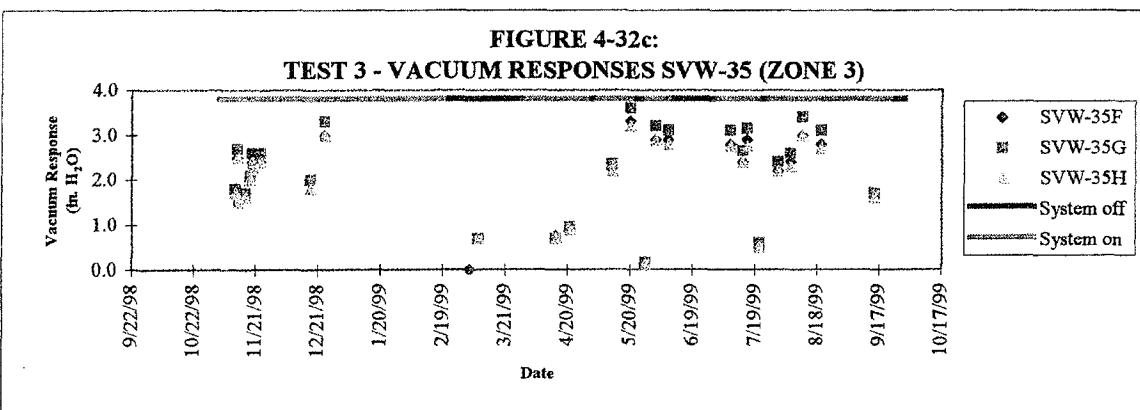
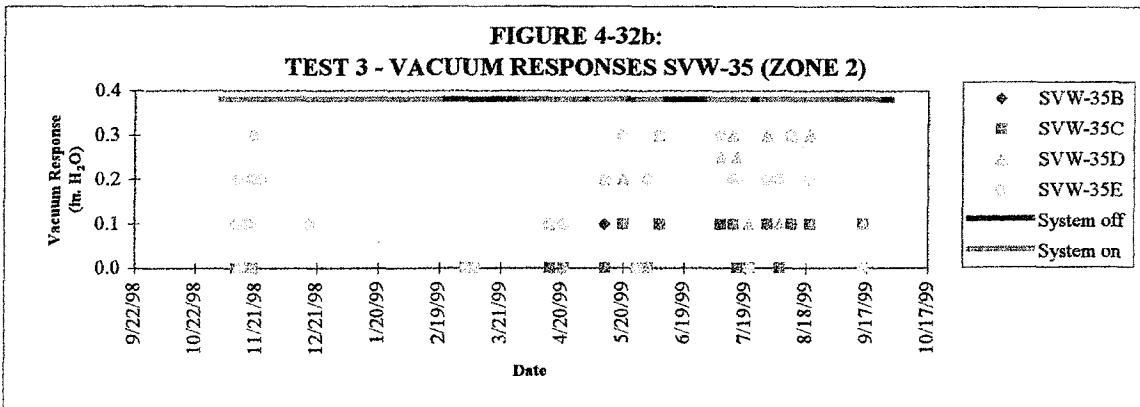
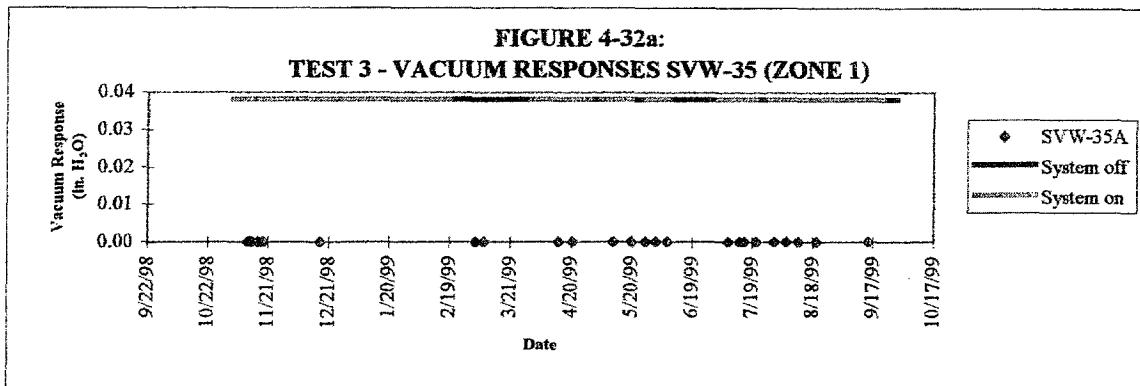


FIGURE 4-33
TEST 3: SVW-37 VACUUM RESPONSES

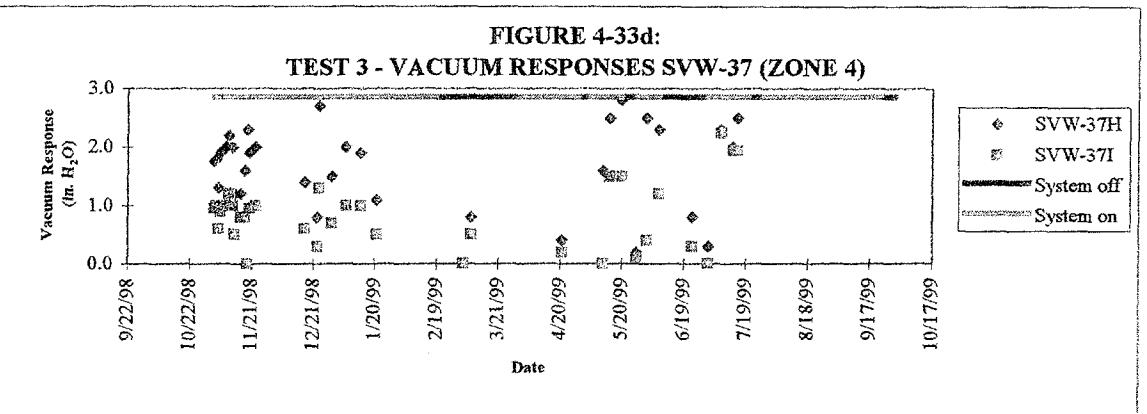
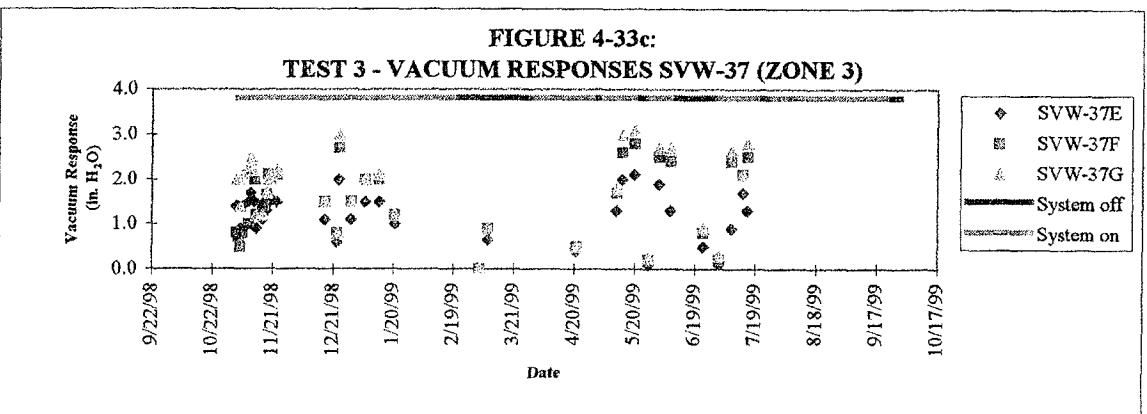
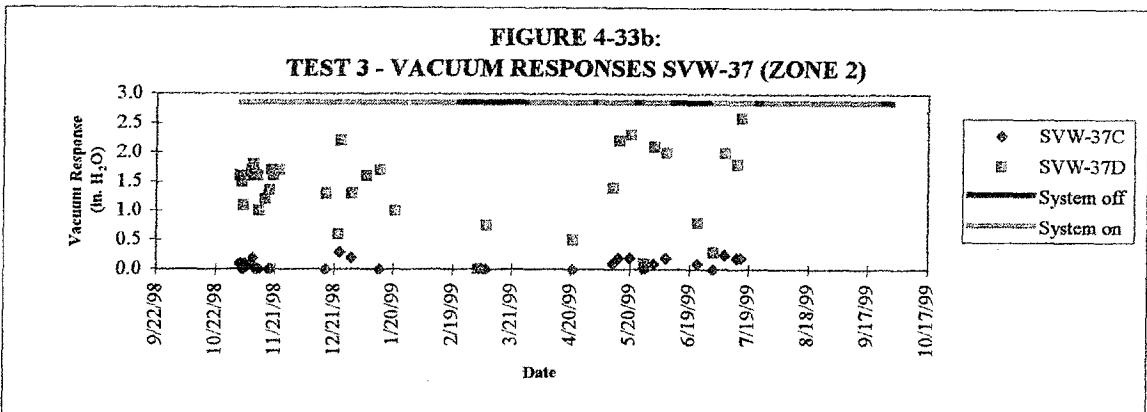
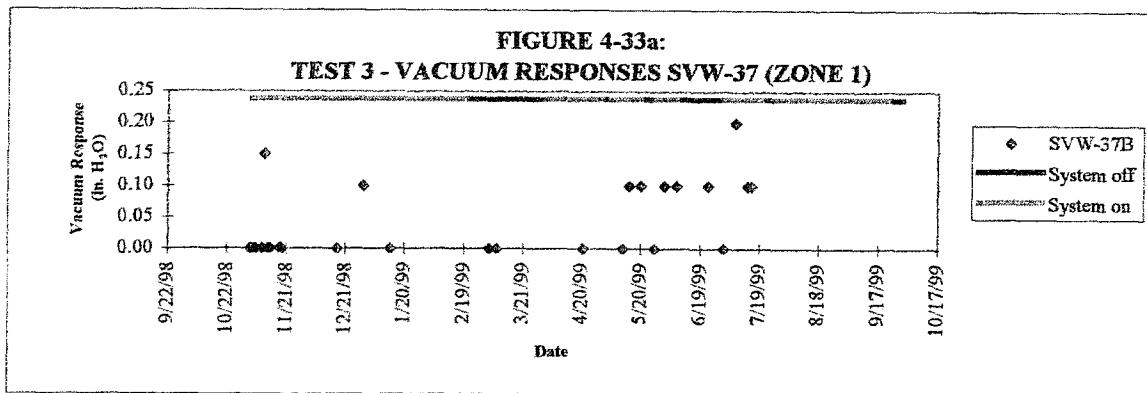


FIGURE 4-34
TEST 3: SVW-38 VACUUM RESPONSES

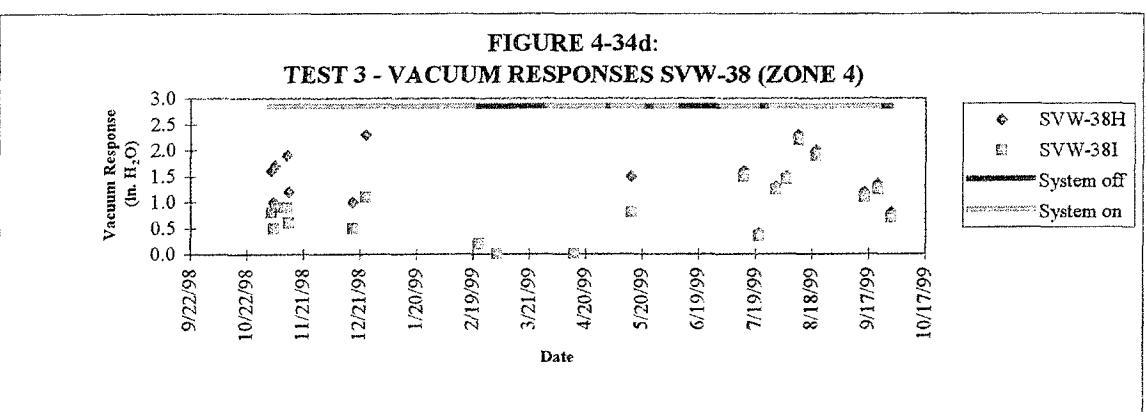
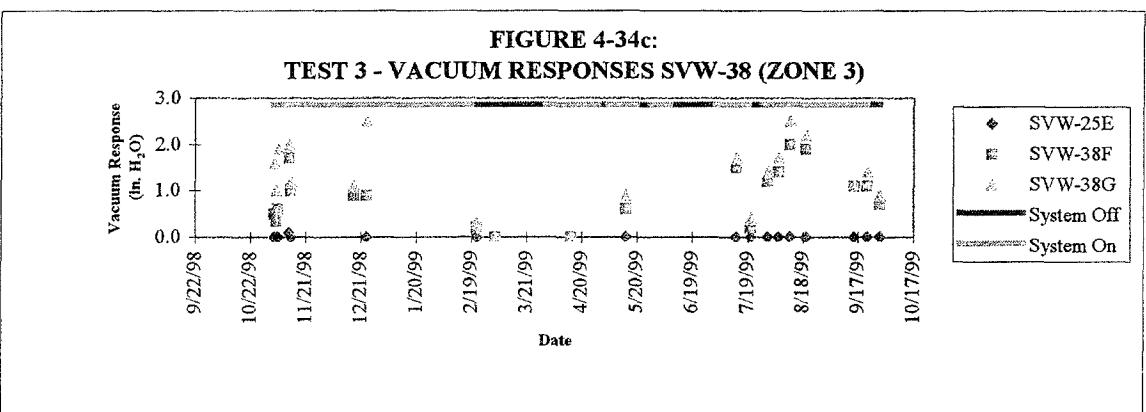
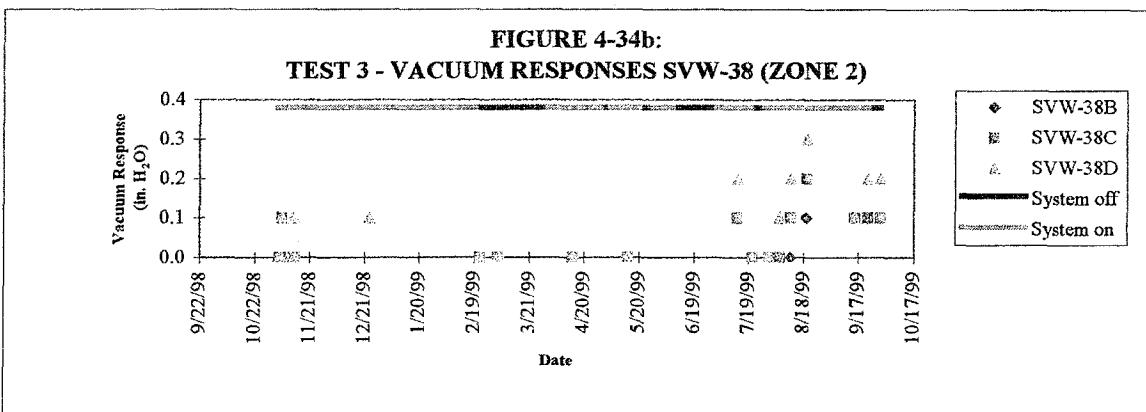
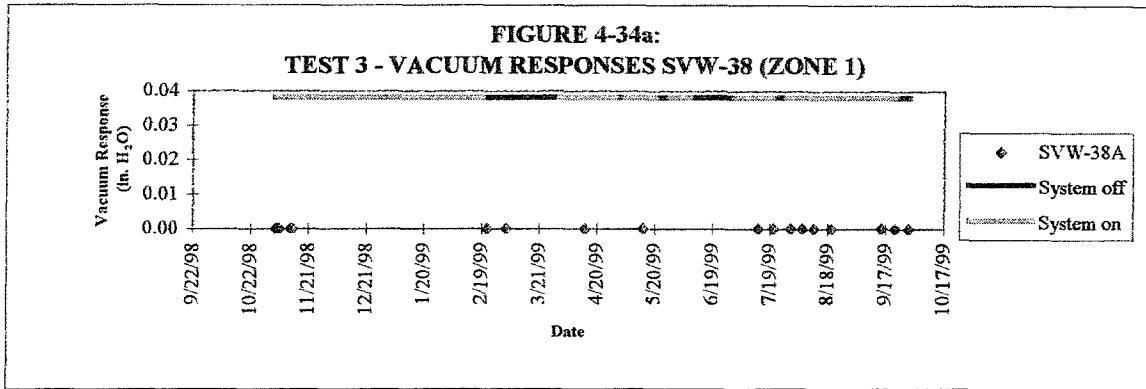


FIGURE 4-35
TEST 3: NORMALIZED VACUUM RESPONSE
SCREEN BC EXTRACTING (8/20/99)

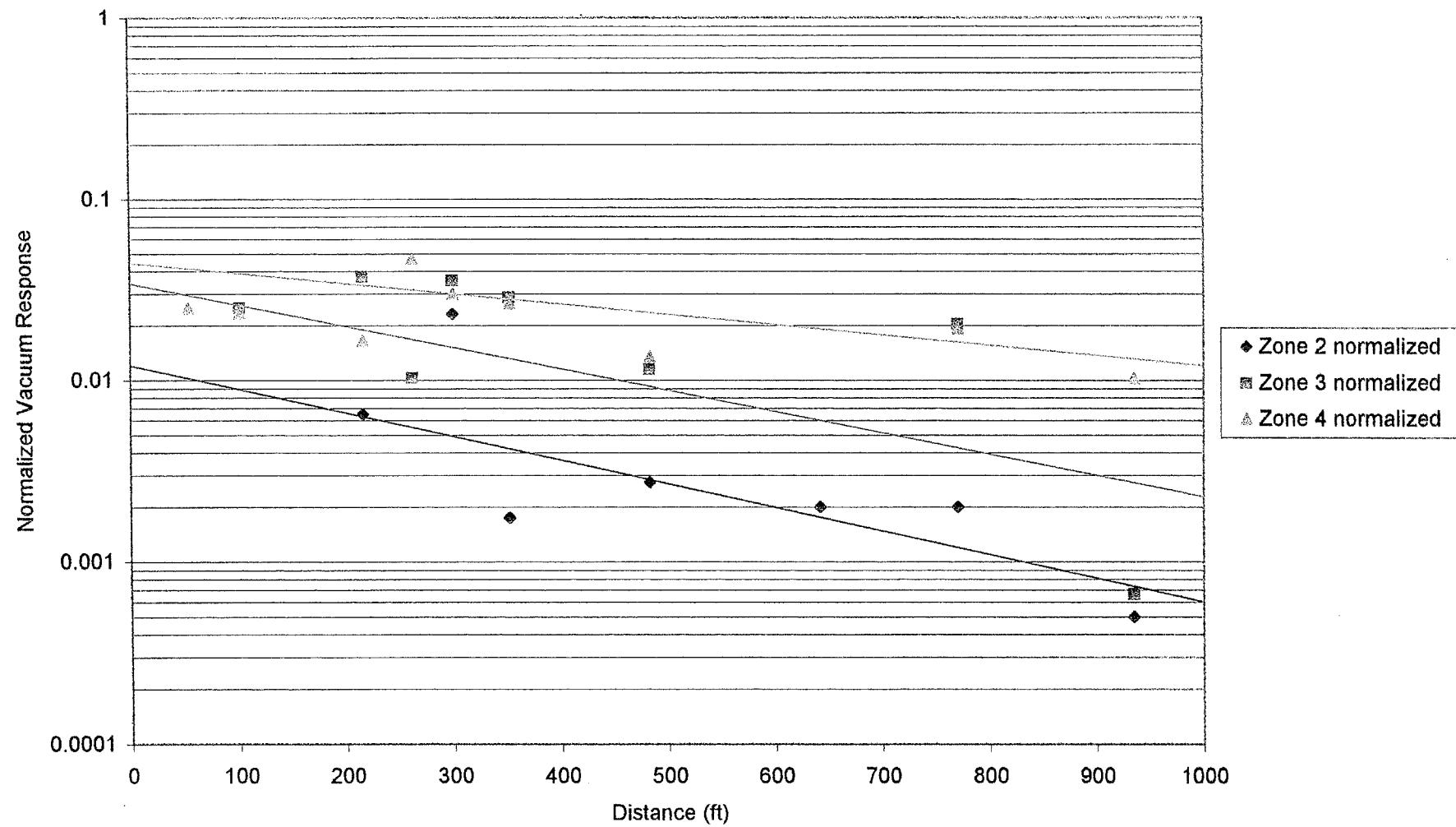


FIGURE 4-36
TEST 3: NORMALIZED VACUUM RESPONSE
SCREEN C EXTRACTING (9/15/99)

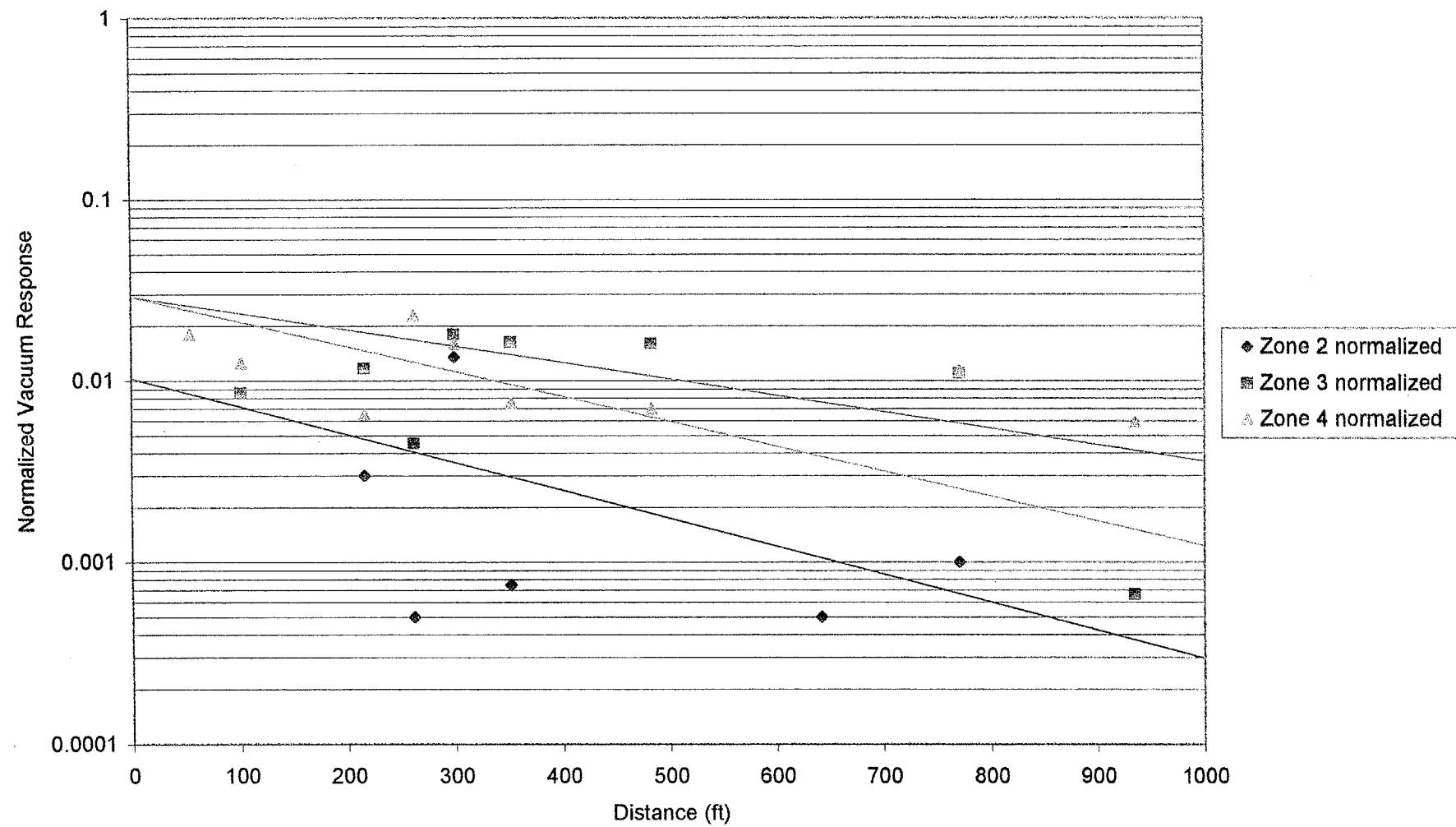


FIGURE 4-37
TEST 3: CCl₄ % REDUCTION (ZONE 2)

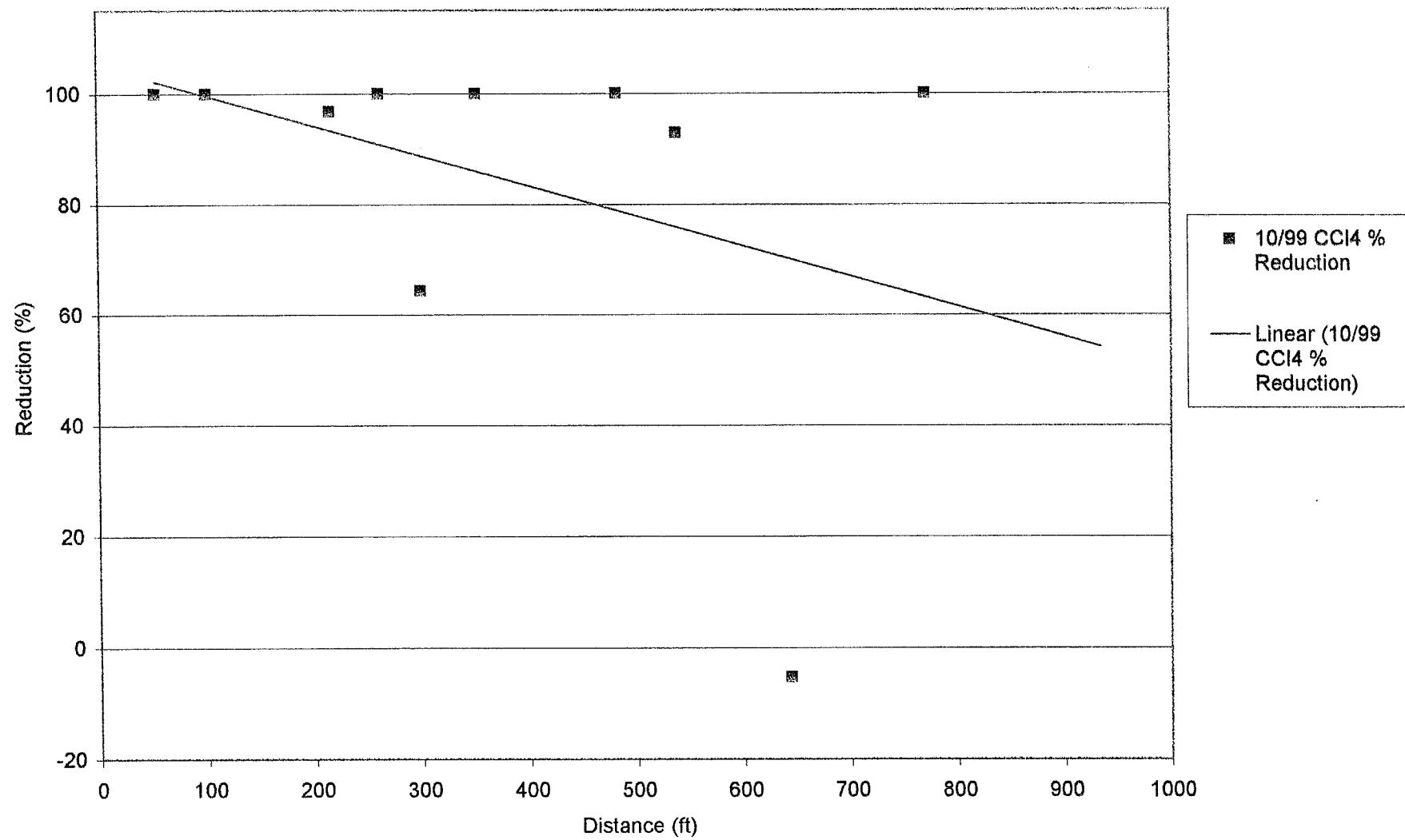


FIGURE 4-38
TEST 3: CCl₄ % REDUCTION (ZONE 3)

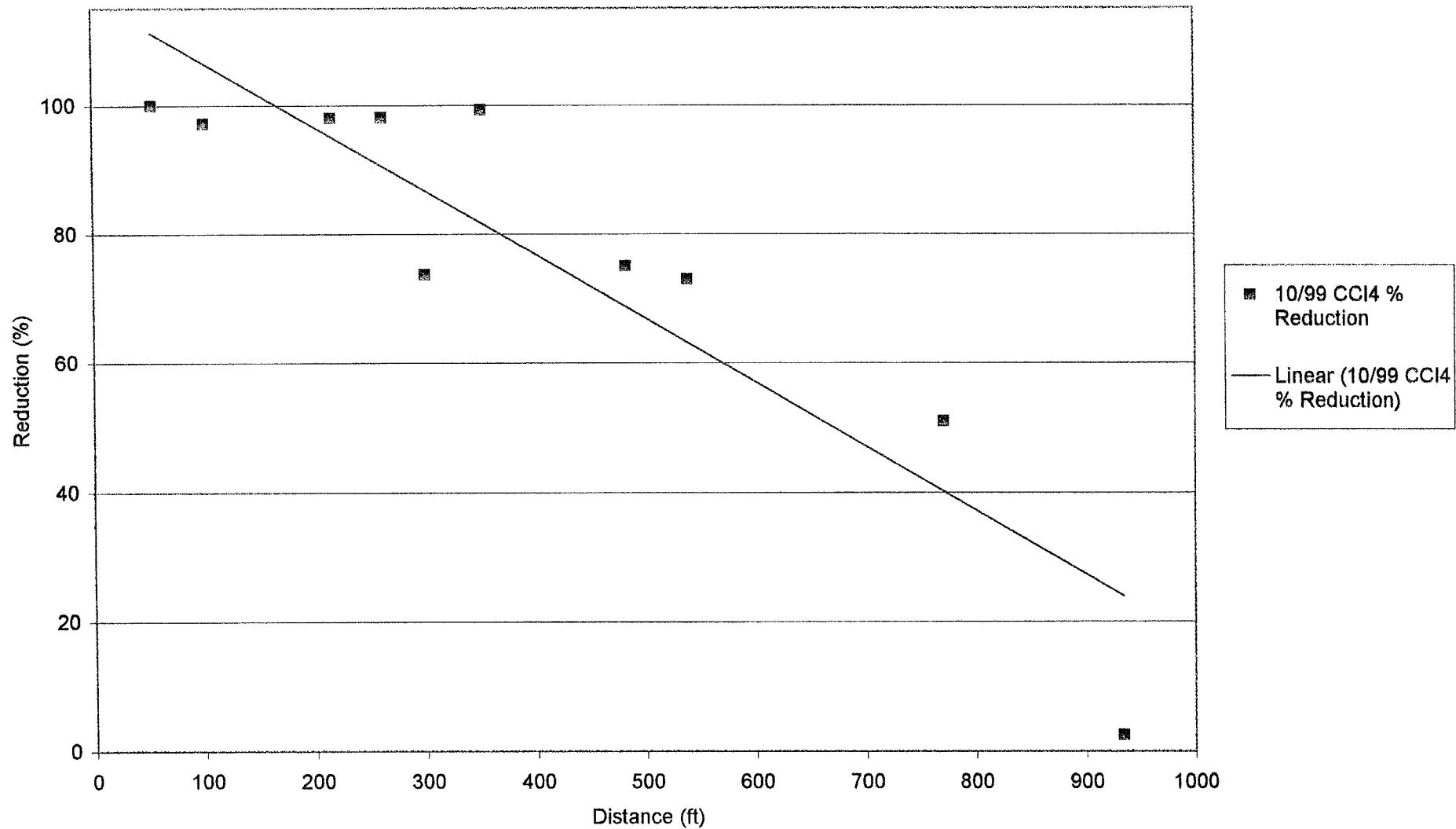


FIGURE 4-39
TEST 3: CCl₄ % REDUCTION (ZONE 4)

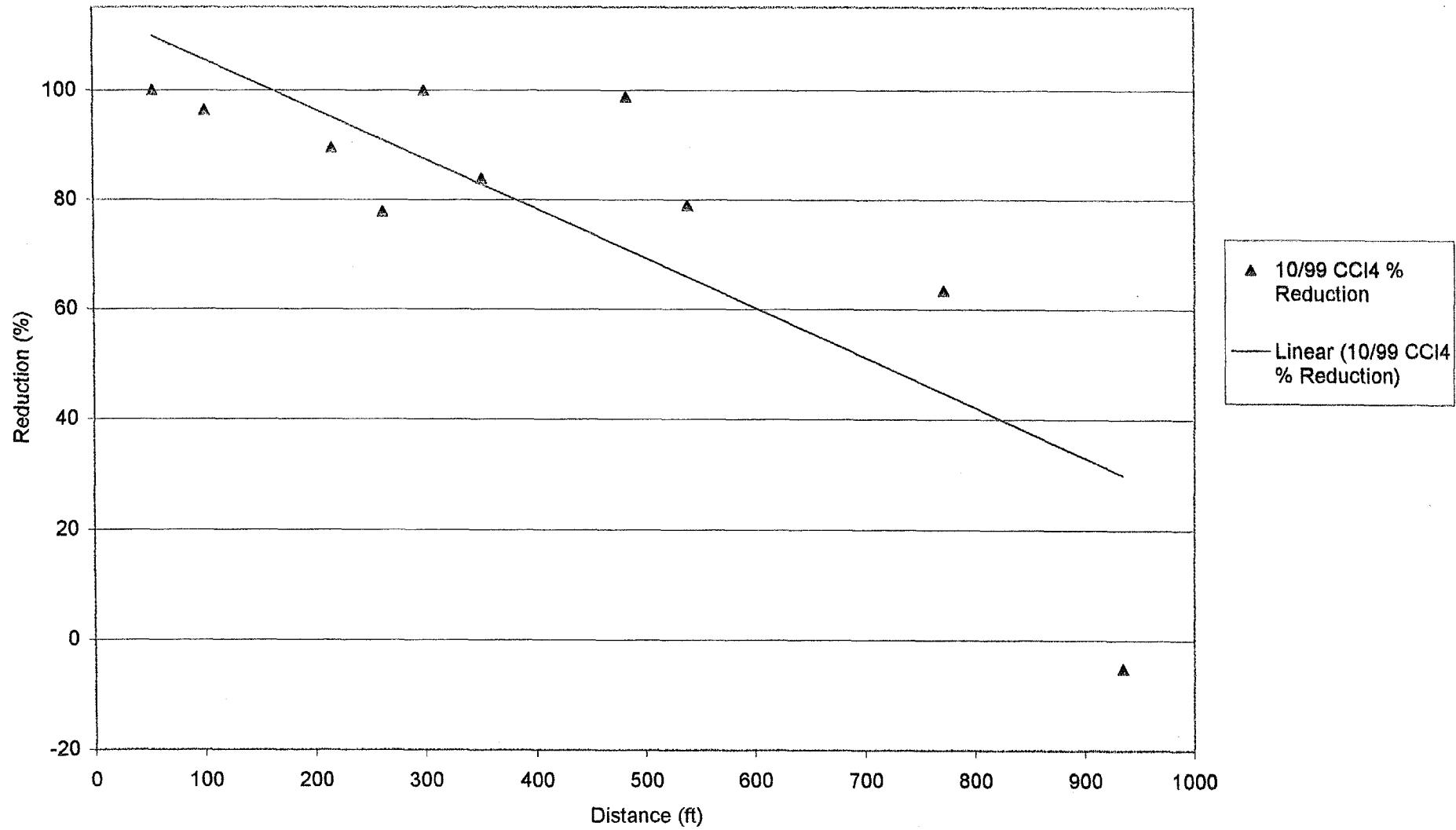


FIGURE 4-40
TEST 3: FREON 113 % REDUCTION (ZONE 2)

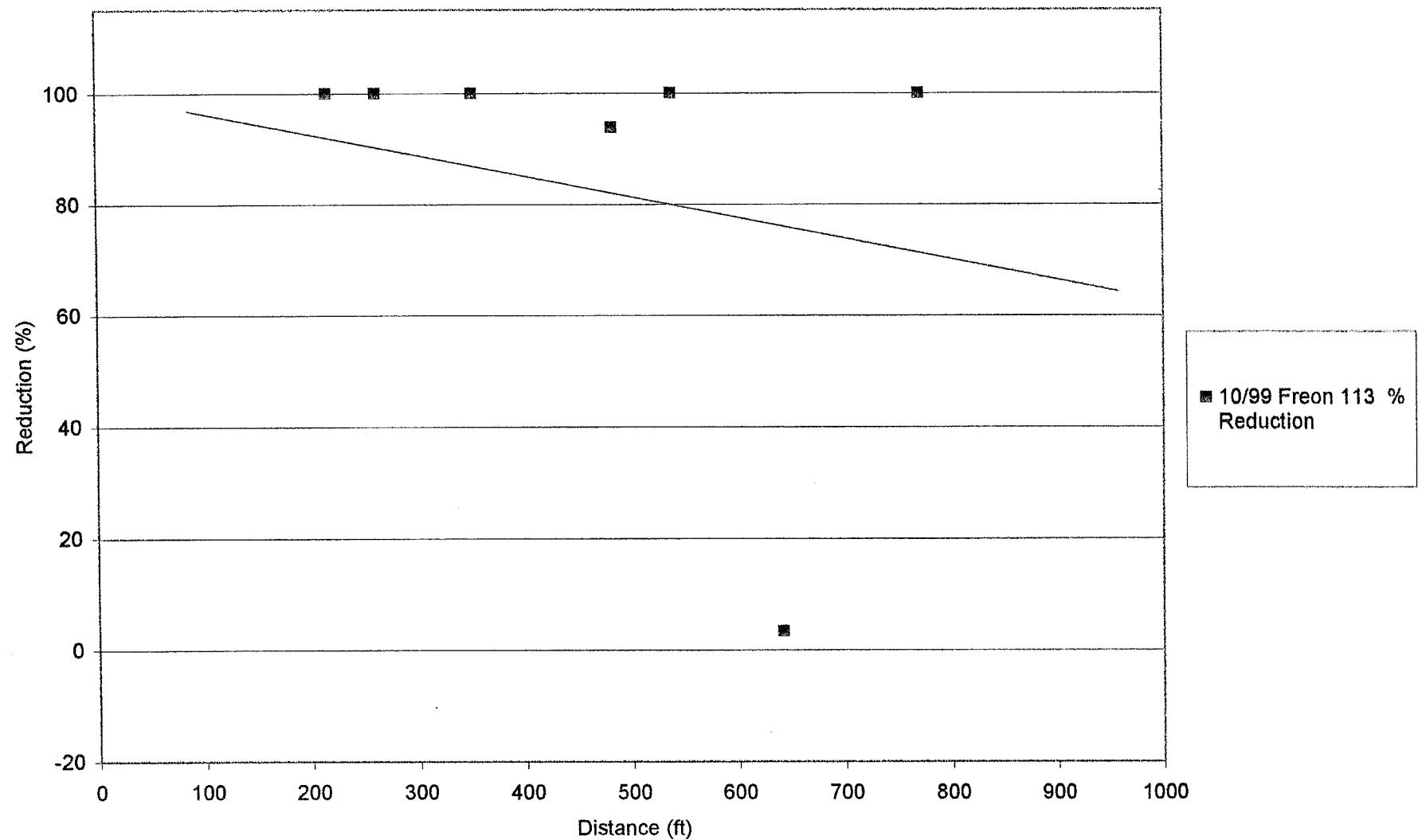


FIGURE 4-41
TEST 3: FREON 113 % REDUCTION (ZONE 3)

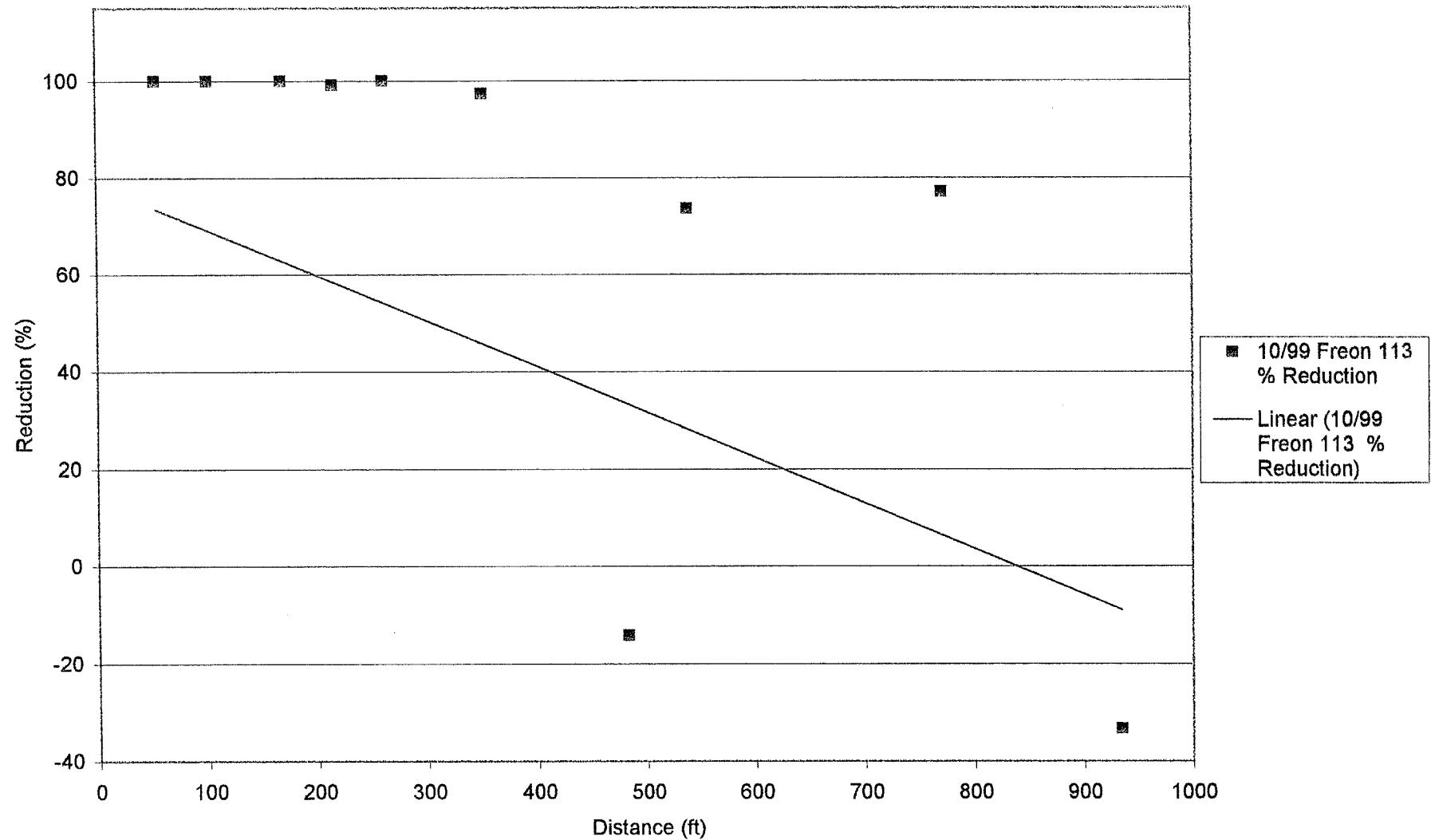


FIGURE 4-42
TEST 3: FREON 113 % REDUCTION (ZONE 4)

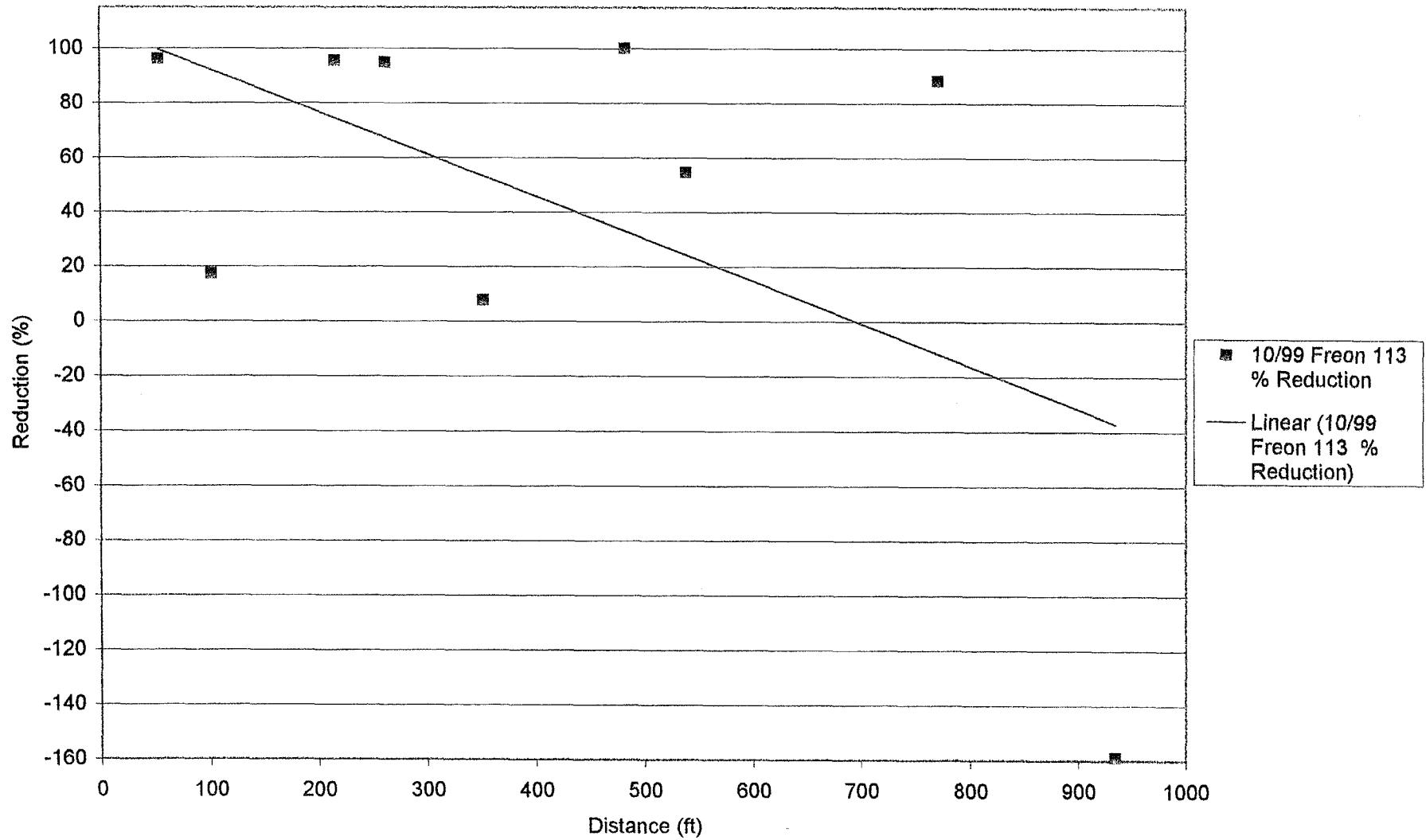


FIGURE 4-43
TEST 3: SVW-25 SOIL VAPOR (CCl_4) RESULTS

FIGURE 4-43a:
TEST 3 - ZONE 1

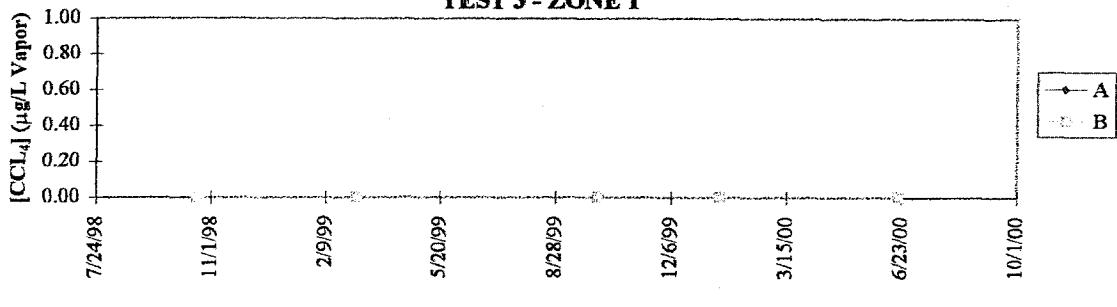


FIGURE 4-43b:
TEST 3 - ZONE 2

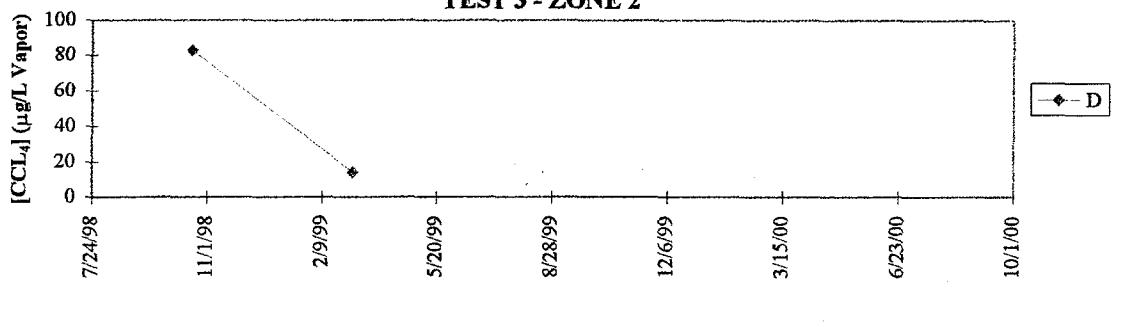


FIGURE 4-43c:
TEST 3 - ZONE 3

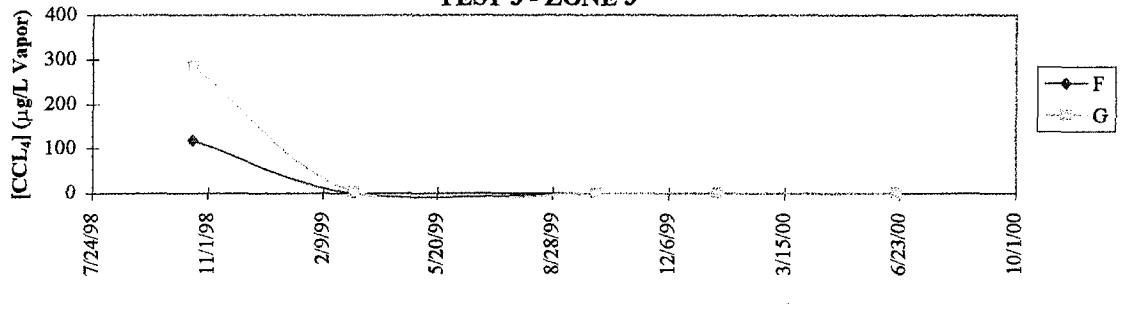
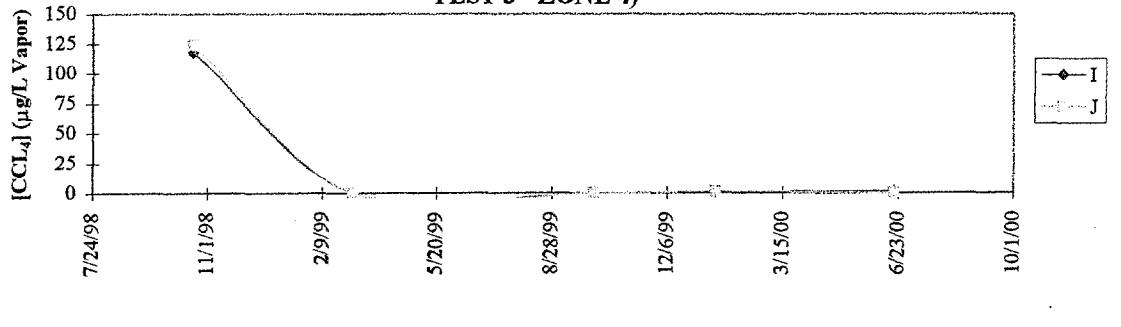
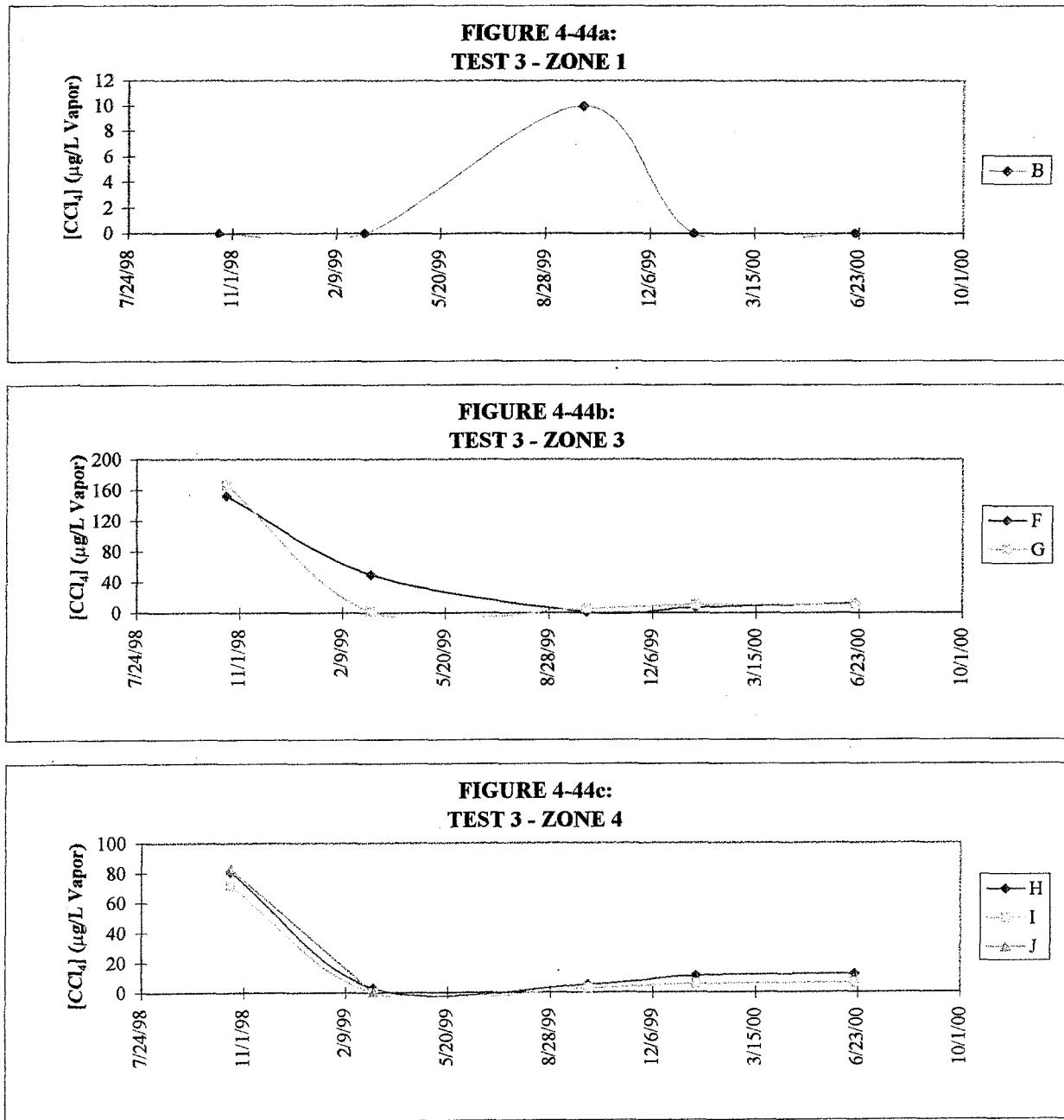


FIGURE 4-43d:
TEST 3 - ZONE 4)



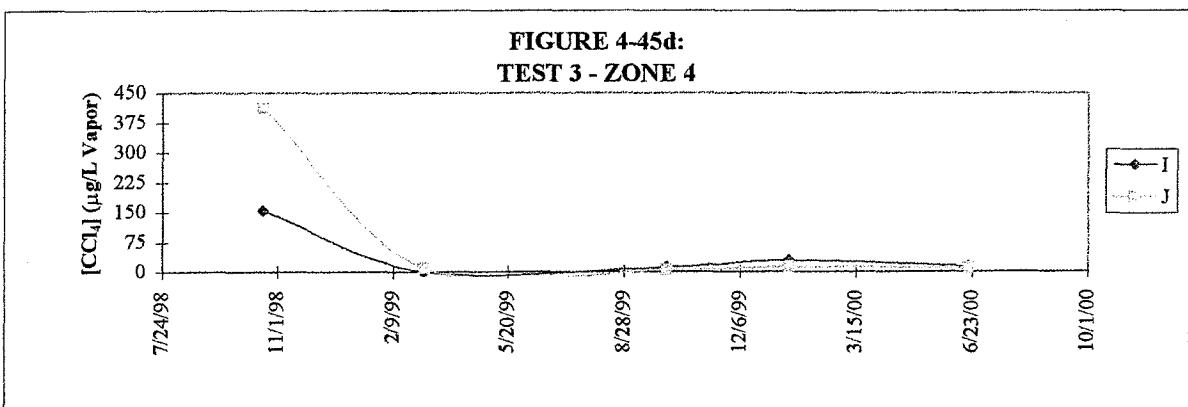
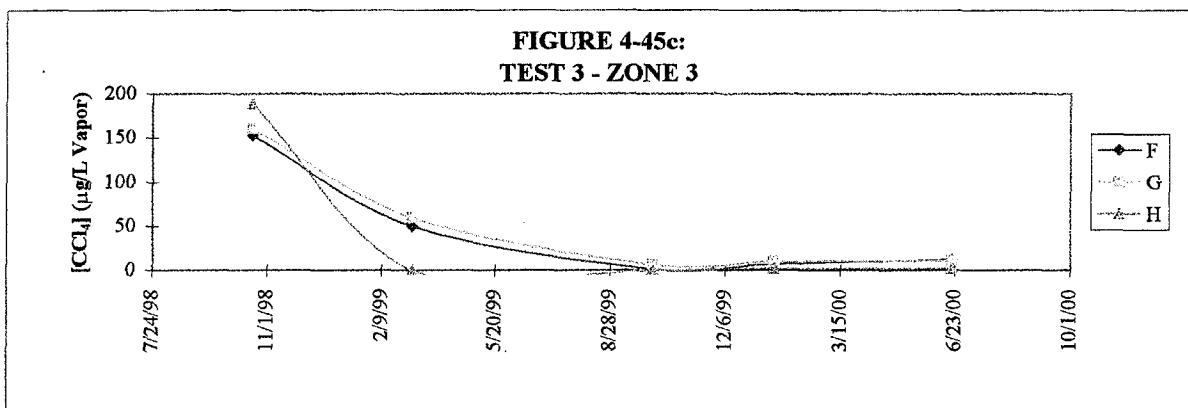
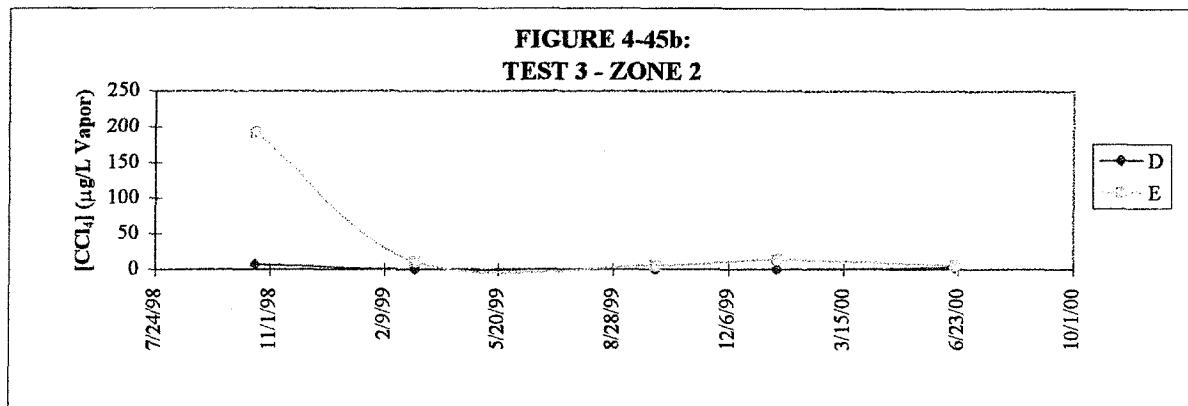
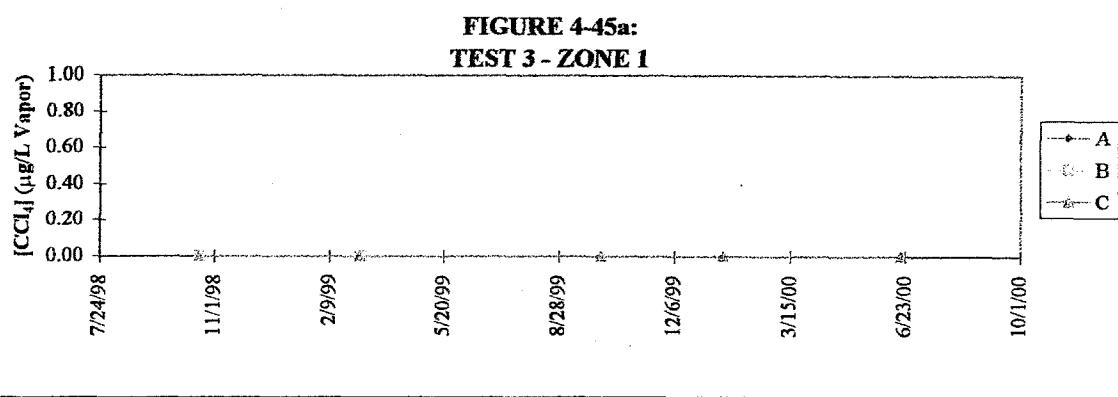
Note: Screens with significant plugging are not included in the graphs.

FIGURE 4-44
TEST 3: SVW-26 SOIL VAPOR (CCl_4) RESULTS



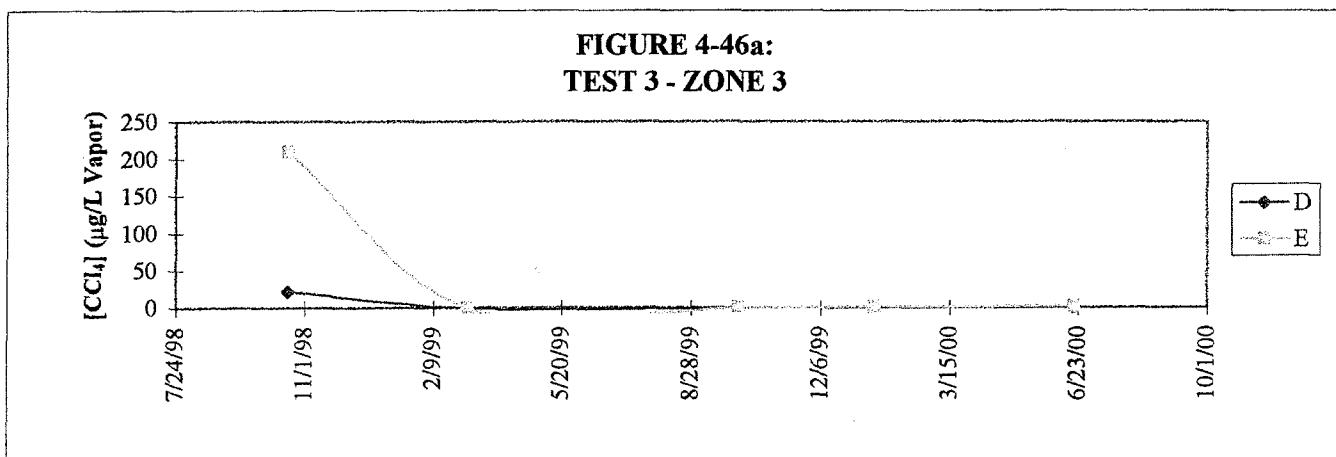
Note: Screens with significant plugging are not included in the graphs.

FIGURE 4-45
TEST 3: SVW-27 SOIL VAPOR (CCl_4) RESULTS



Note: Screens with significant plugging are not included in the graphs.

FIGURE 4-46
TEST 3: SVW-28 SOIL VAPOR (CCl_4) RESULTS



Note: Screens with significant plugging are not included in the graphs.

FIGURE 4-47
TEST 3: SVW-32 SOIL VAPOR (CCl_4) RESULTS

FIGURE 4-47a:
TEST 3 - ZONE 1

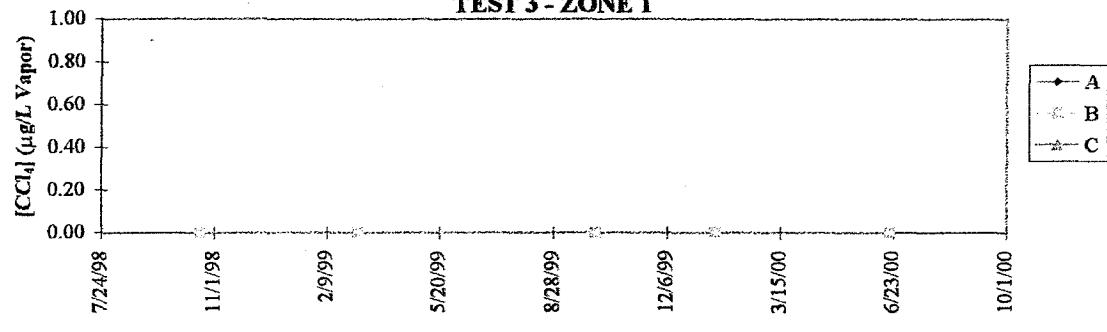


FIGURE 4-47b:
TEST 3 - ZONE 2

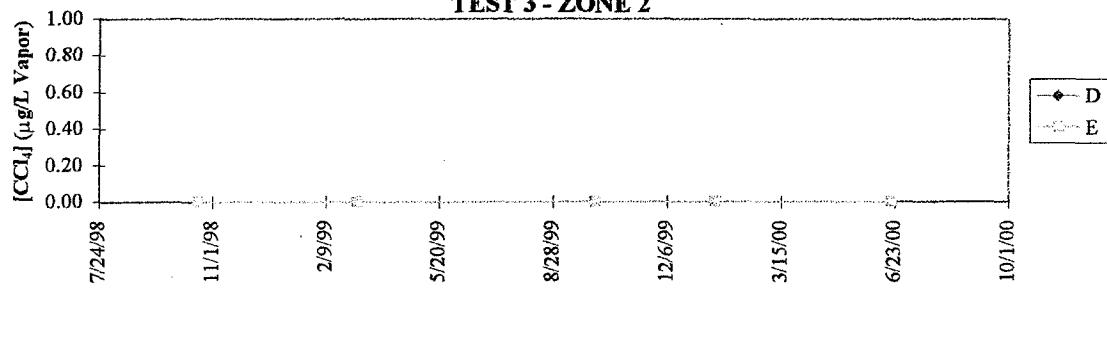


FIGURE 4-47c:
TEST 3 - ZONE 3

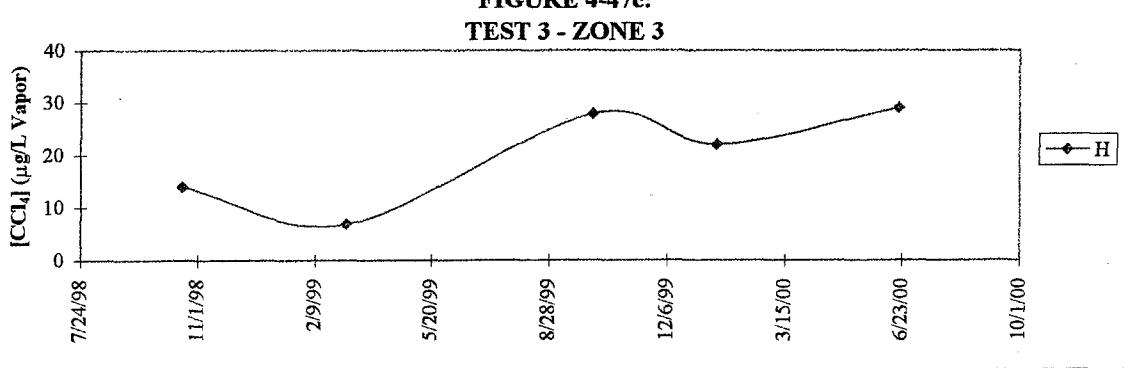
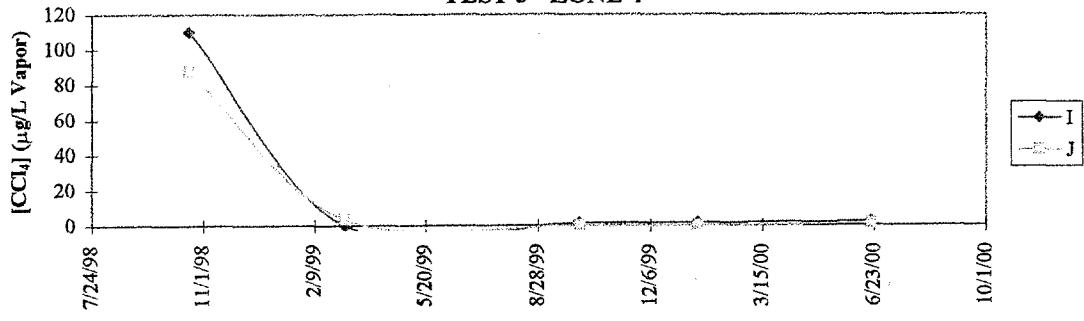


FIGURE 4-47d:
TEST 3 - ZONE 4



Note: Screens with significant plugging are not included in the graphs.

FIGURE 4-48
TEST 3: SVW-33 SOIL VAPOR (CCl_4) RESULTS

FIGURE 4-48a:
TEST 3 - ZONE 1

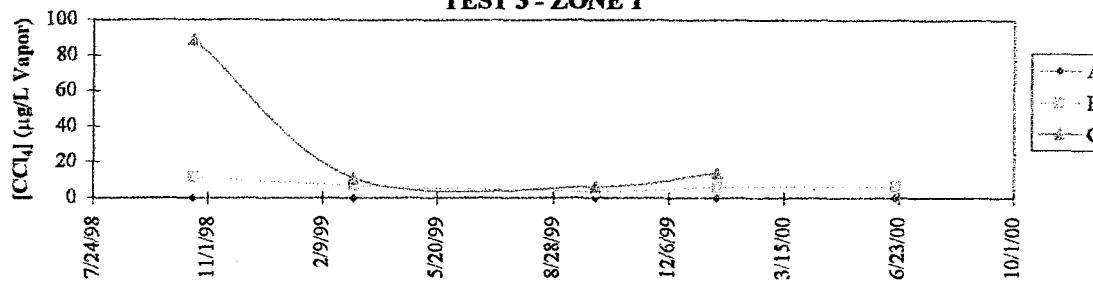


FIGURE 4-48b:
TEST 3 - ZONE 2

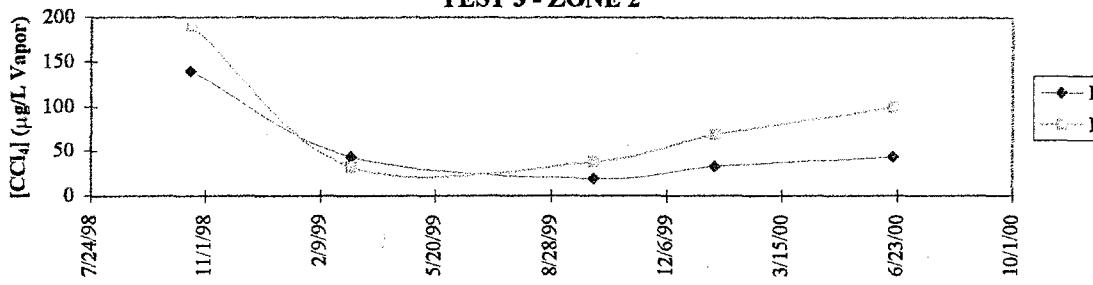


FIGURE 4-48c:
TEST 3 - ZONE 3

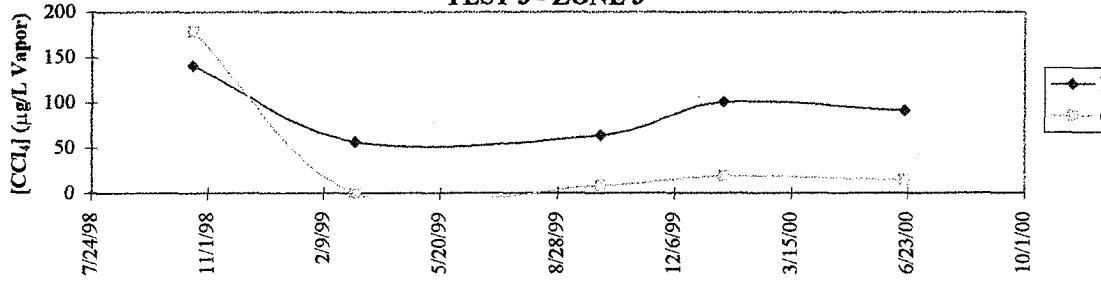
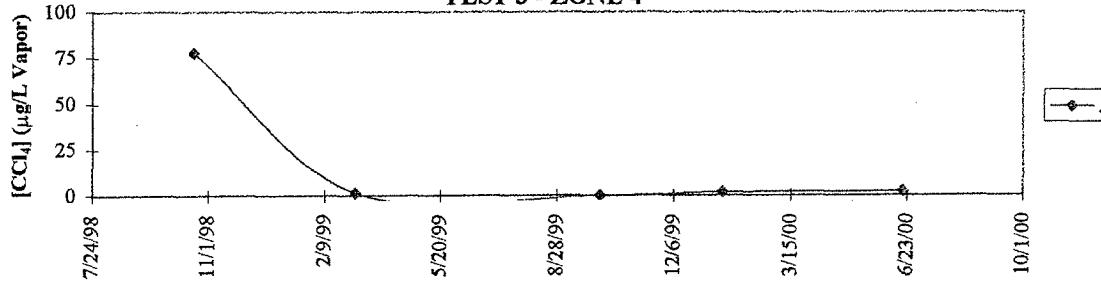
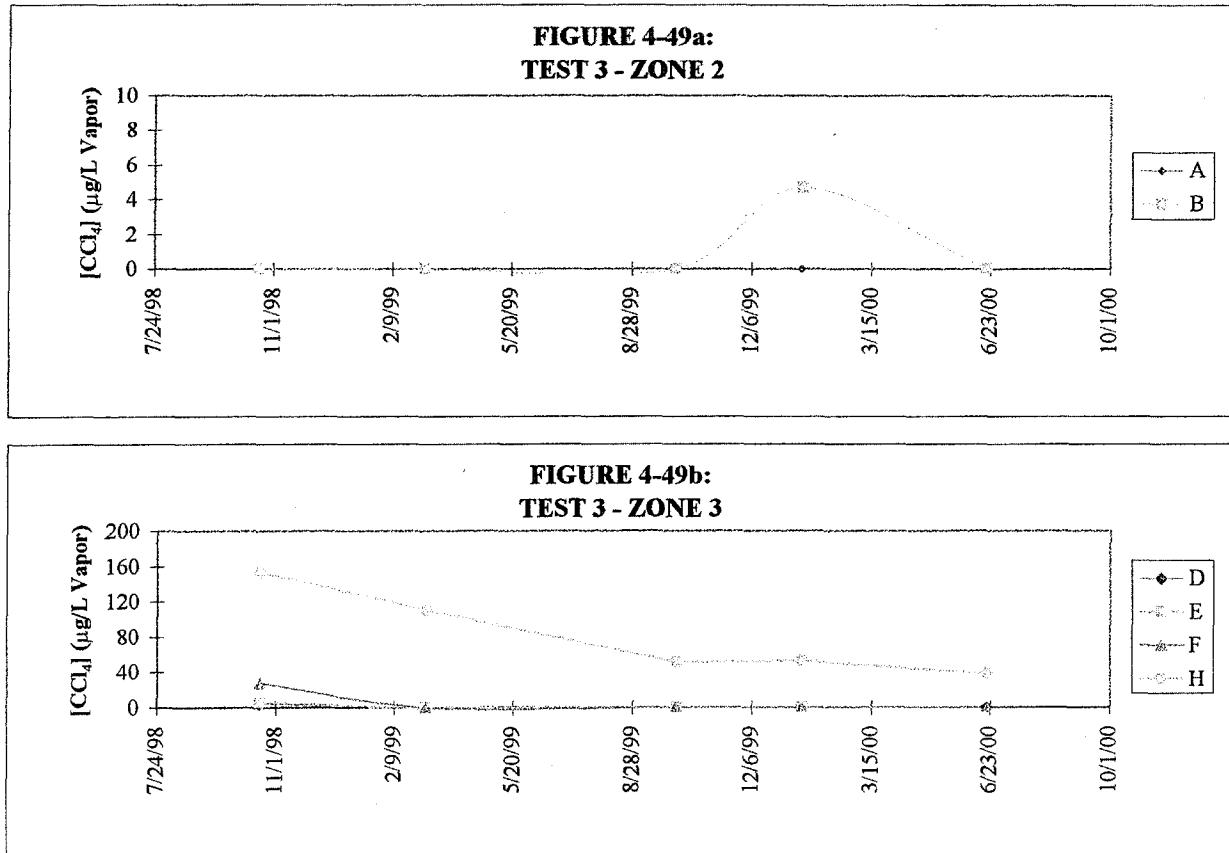


FIGURE 4-48d:
TEST 3 - ZONE 4



Note: Screens with significant plugging are not included in the graphs.

FIGURE 4-49
TEST 3: SVW-34 SOIL VAPOR (CCl_4) RESULTS



Note: Screens with significant plugging are not included in the graphs.

FIGURE 4-50
TEST 3: SVW-35 SOIL VAPOR (CCl_4) RESULTS

FIGURE 4-50a:
TEST 3 - ZONE 1

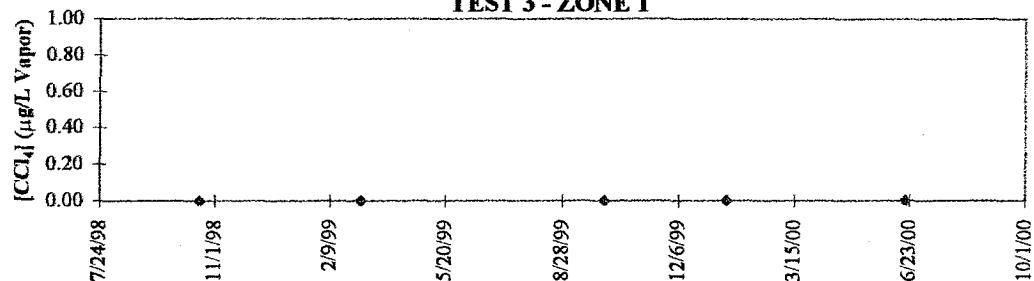


FIGURE 4-50b:
TEST 3 - ZONE 2

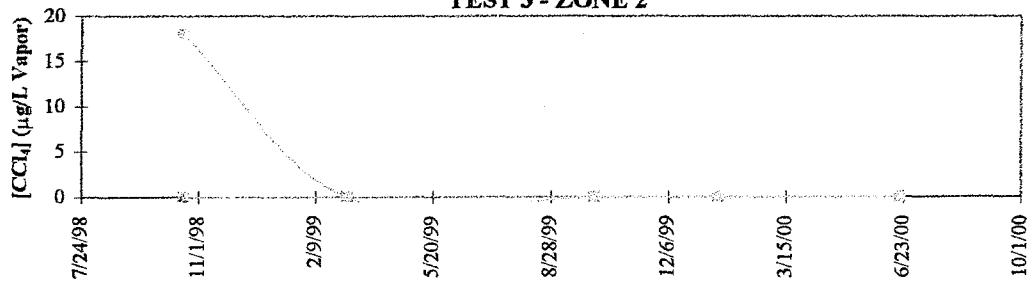


FIGURE 4-50c:
TEST 3 - ZONE 3

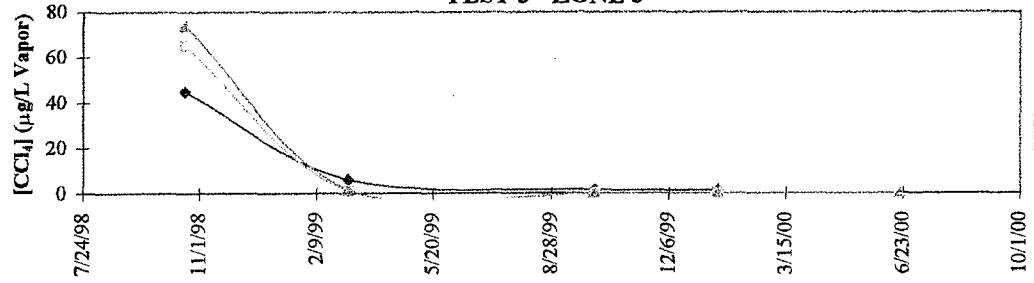
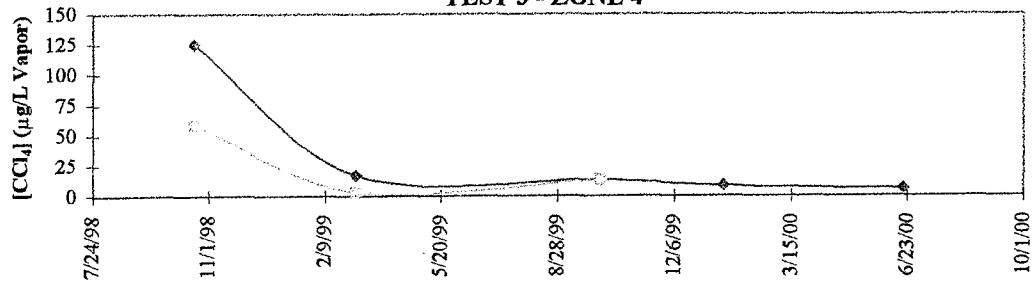
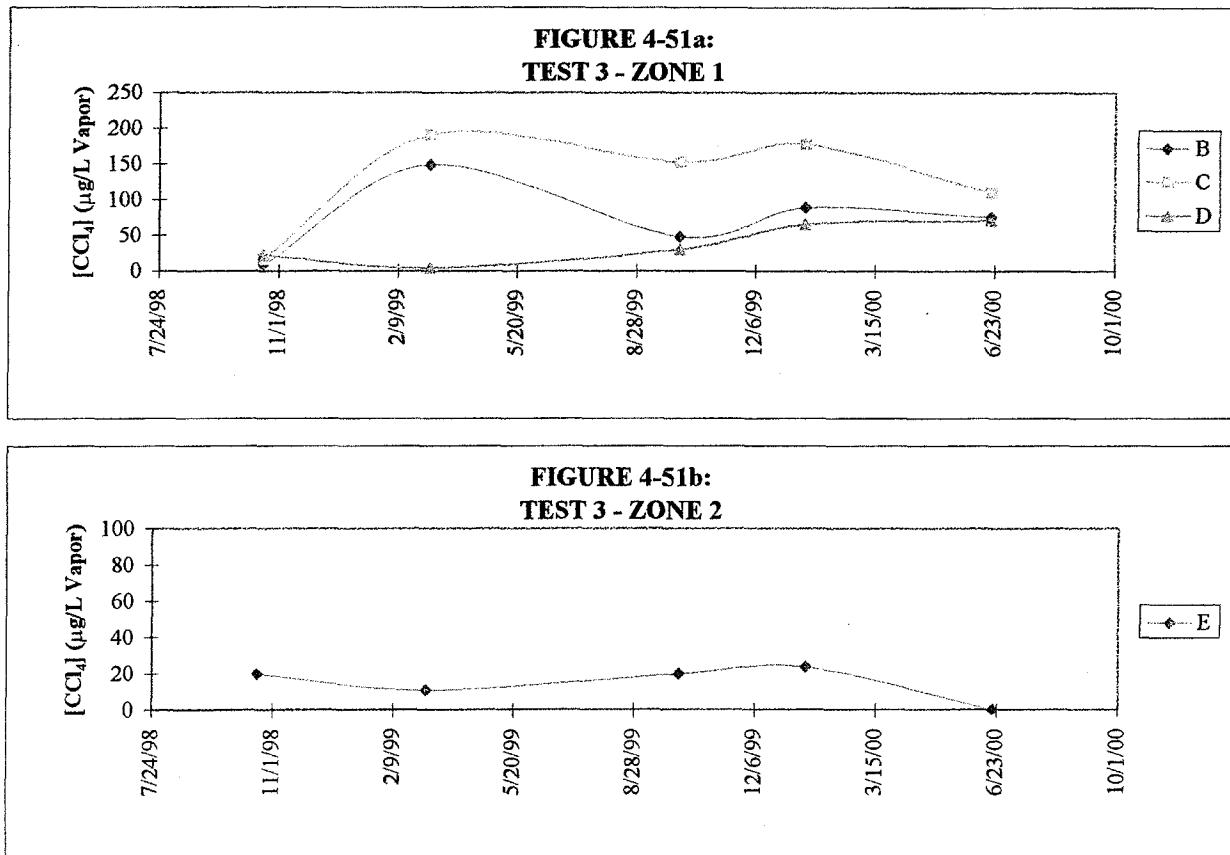


FIGURE 4-50d:
TEST 3 - ZONE 4



Note: Screens with significant plugging are not included in the graphs.

**FIGURE 4-51
TEST 3: SVW-36 SOIL VAPOR (CCl_4) RESULTS**



Note: Screens with significant plugging are not included in the graphs.

FIGURE 4-52
TEST 3: SVW-37 SOIL VAPOR (CCl_4) RESULTS

FIGURE 4-52a:
TEST 3 - ZONE 1

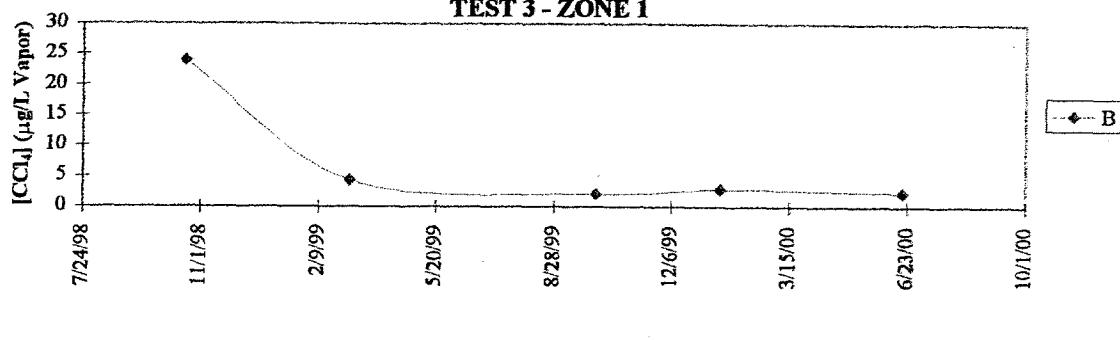


FIGURE 4-52b:
TEST 3 - ZONE 2

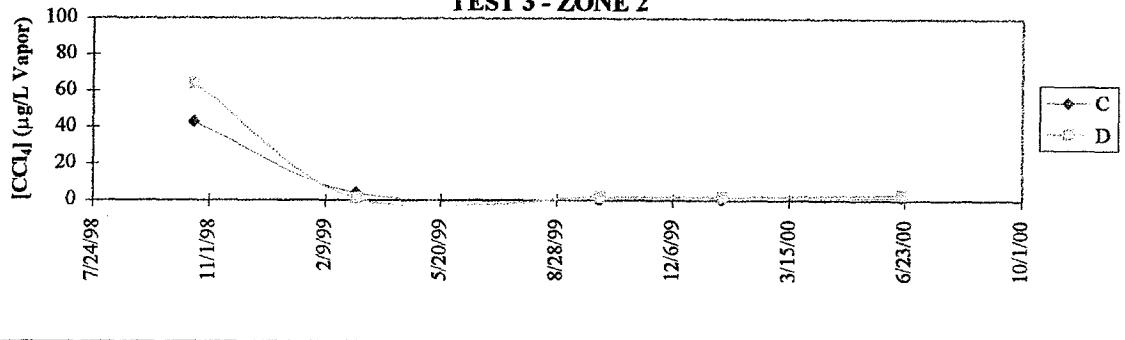


FIGURE 4-52c:
TEST 3 - ZONE 3

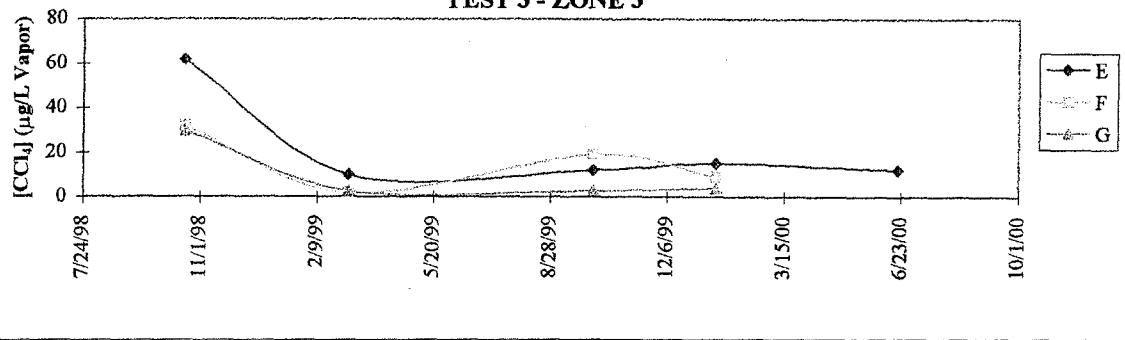
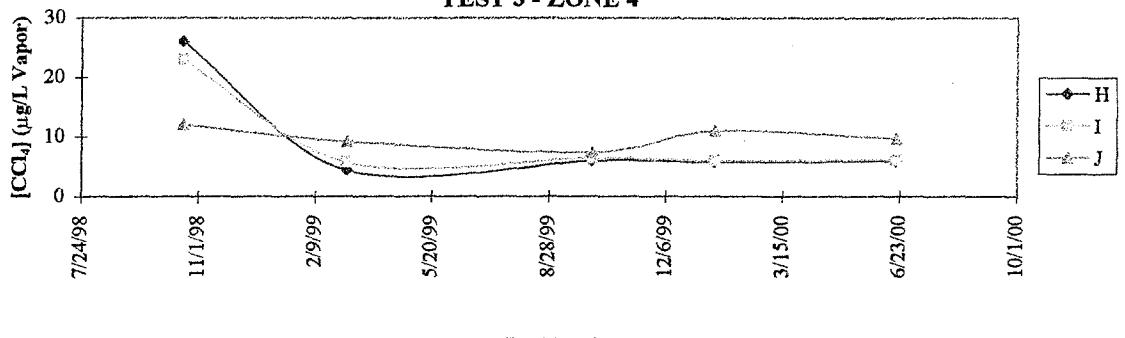
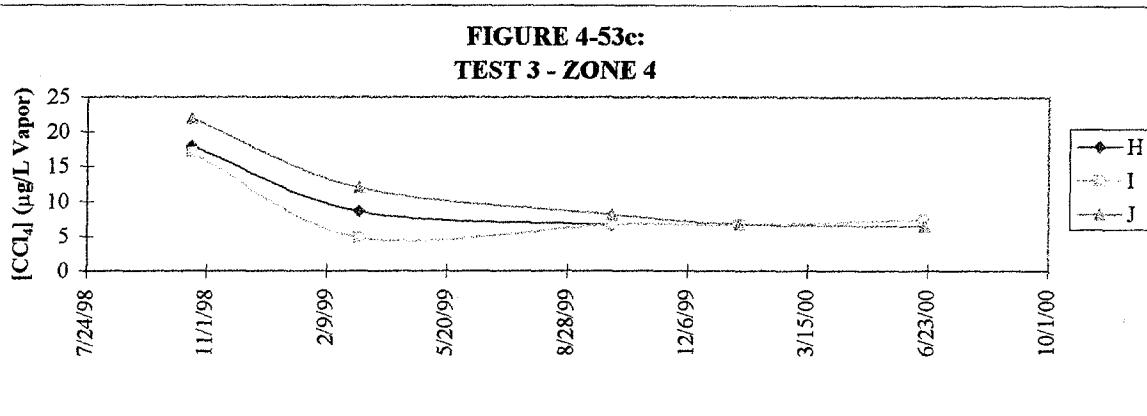
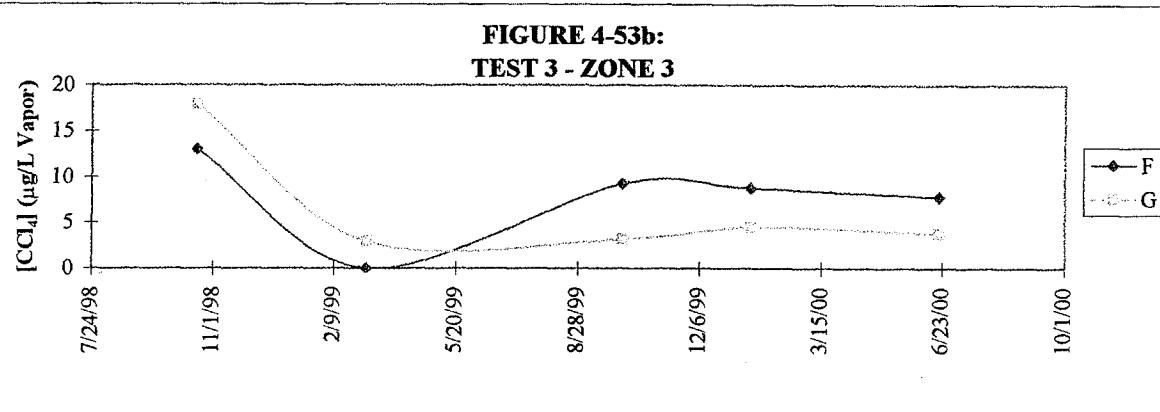
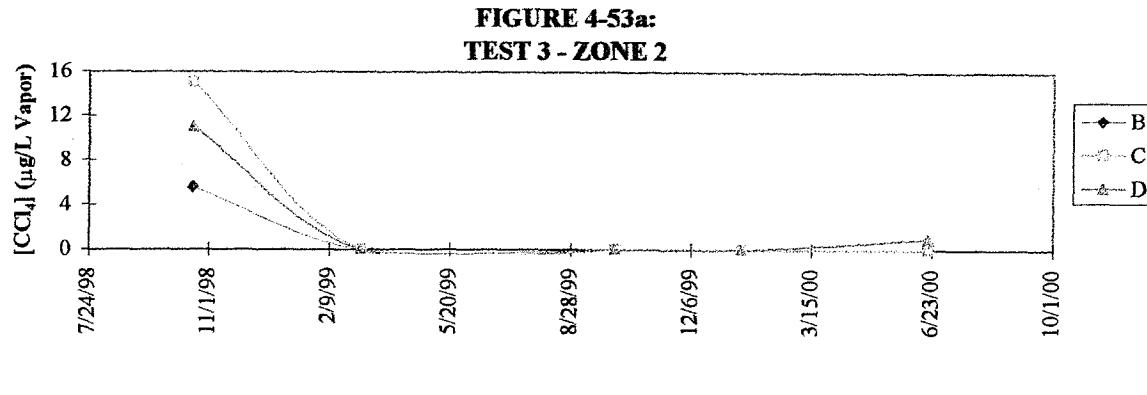


FIGURE 4-52d:
TEST 3 - ZONE 4



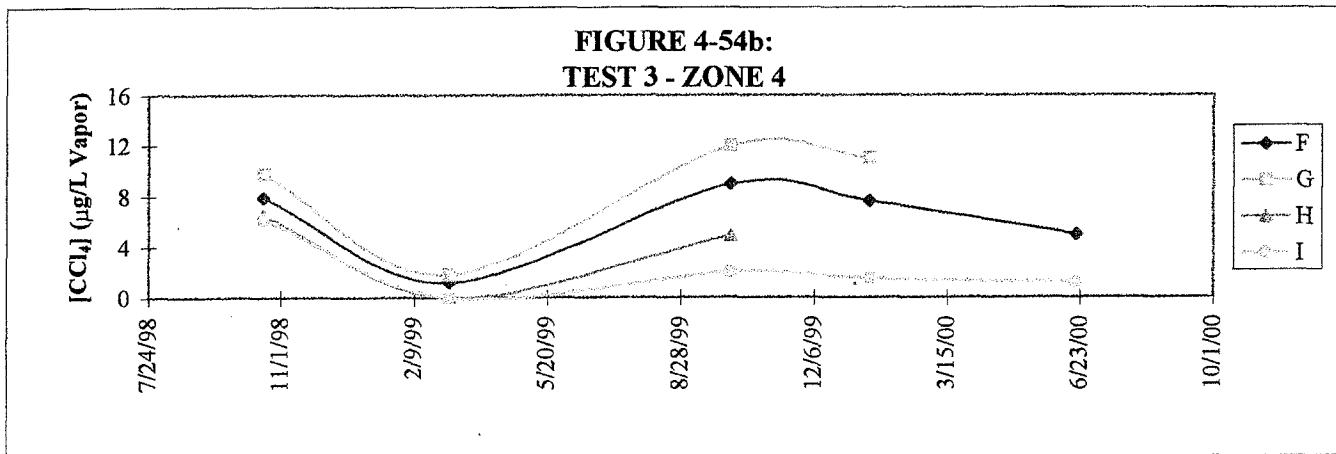
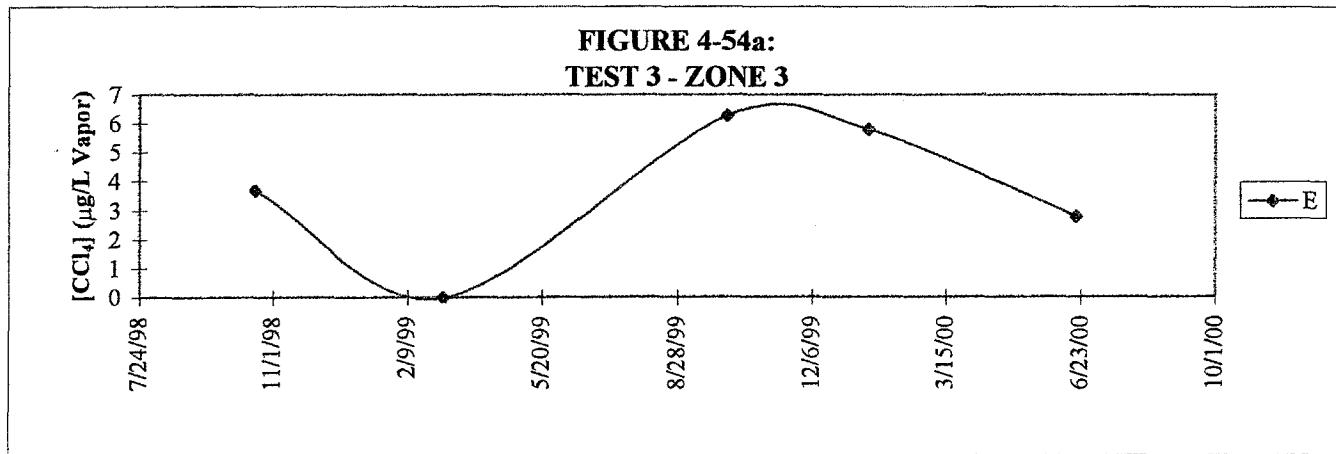
Note: Screens with significant plugging are not included in the graphs.

FIGURE 4-53
TEST 3: SVW-38 SOIL VAPOR (CCl_4) RESULTS

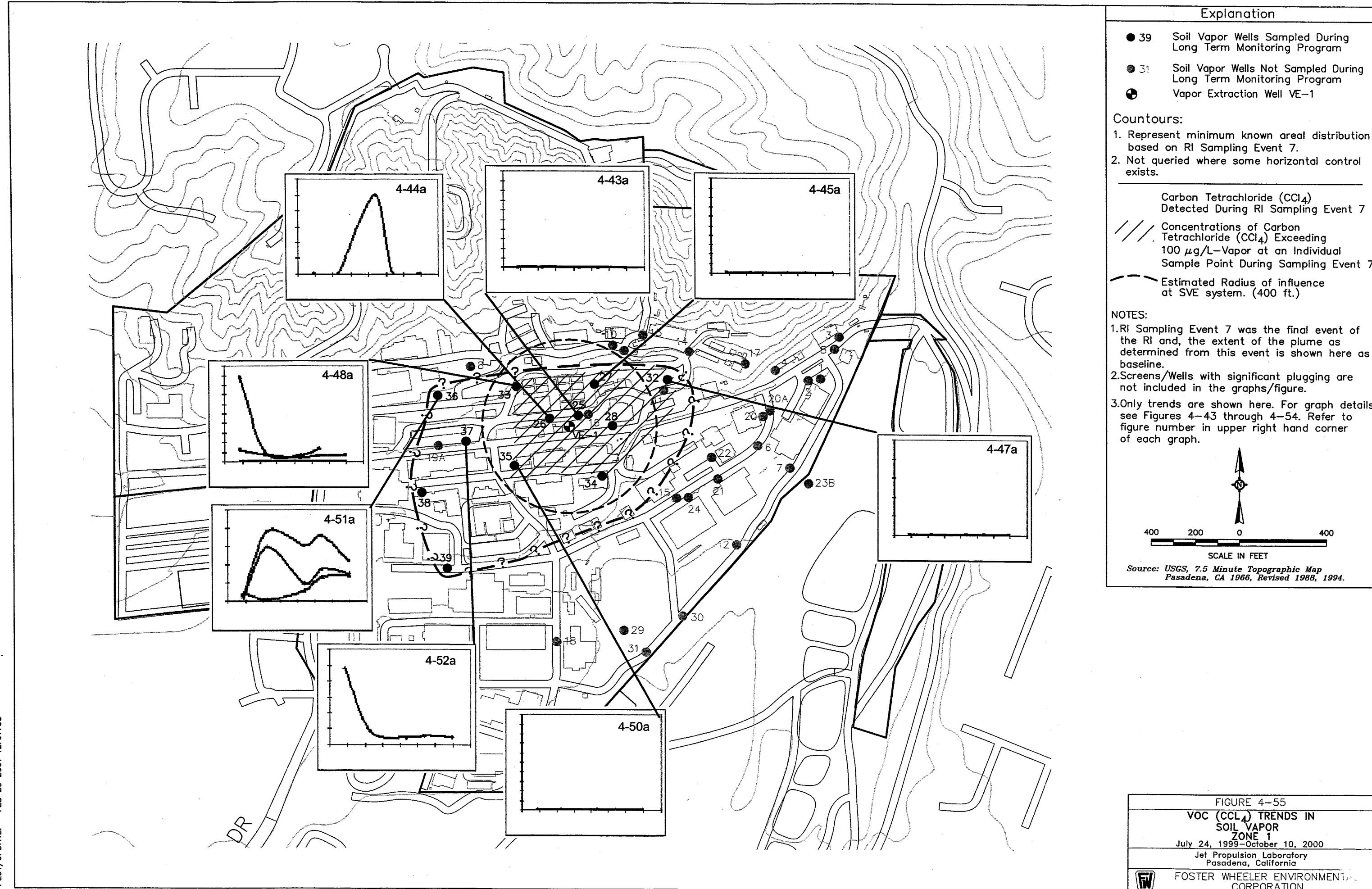


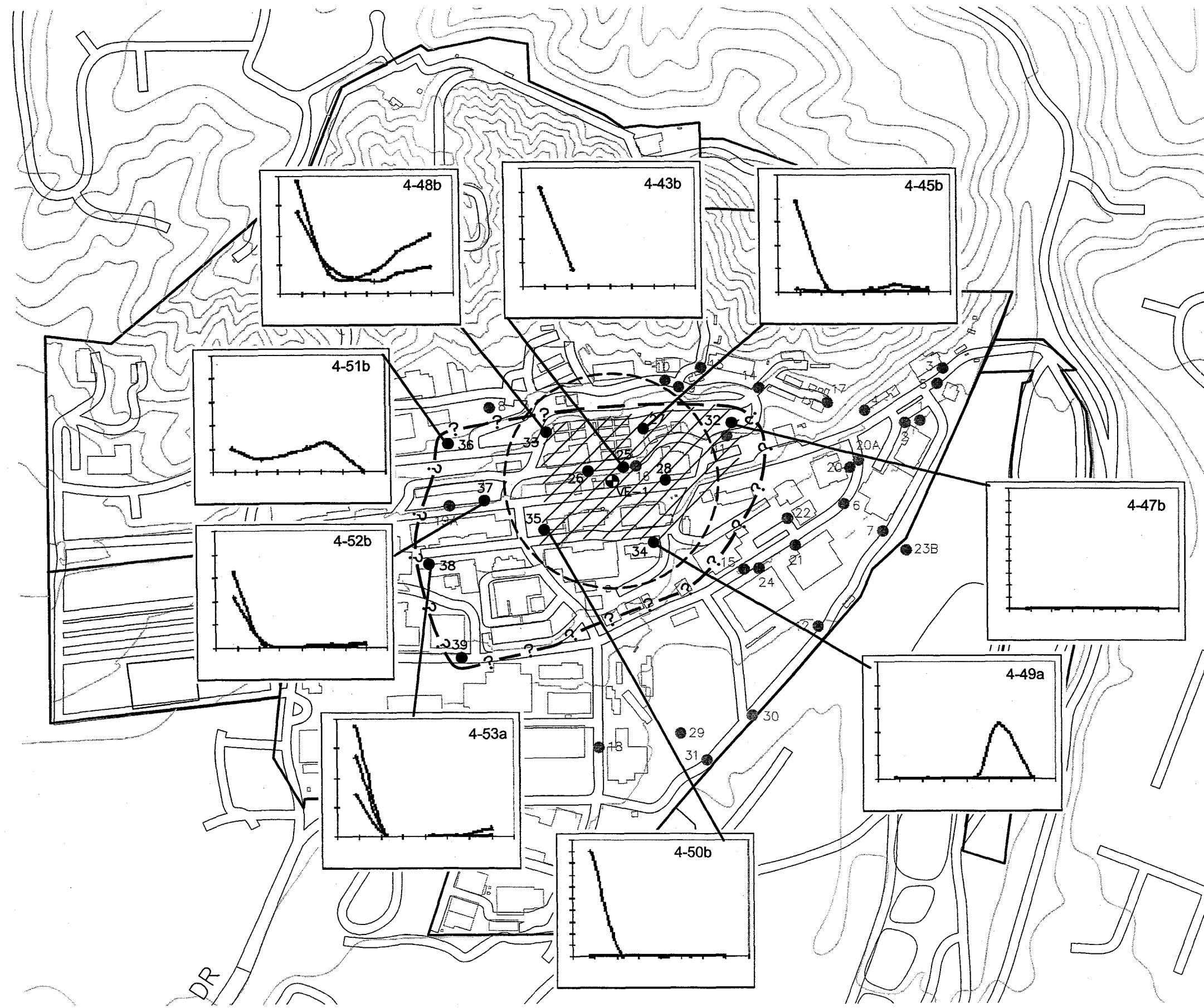
Note: Screens with significant plugging are not included in the graphs.

FIGURE 4-54
TEST 3: SVW-39 SOIL VAPOR (CCl_4) RESULTS



Note: Screens with significant plugging are not included in the graphs.





Explanation

- 39 Soil Vapor Wells Sampled During Long Term Monitoring Program
- 31 Soil Vapor Wells Not Sampled During Long Term Monitoring Program
- Vapor Extraction Well VE-1

Contours:

1. Represent minimum known areal distribution based on RI Sampling Event 7.
2. Not queried where some horizontal control exists.

Carbon Tetrachloride (CCl_4) Detected During RI Sampling Event 7

Concentrations of Carbon Tetrachloride (CCl_4) Exceeding $100 \mu\text{g/L}$ -Vapor at an Individual Sample Point During Sampling Event 7

Estimated Radius of influence at SVE system. (400 ft.)

NOTES:

1. RI Sampling Event 7 was the final event of the RI and, the extent of the plume as determined from this event is shown here as baseline.
2. Screens/Wells with significant plugging are not included in the graphs/figure.
3. Only trends are shown here. For graph details see Figures 4-43 through 4-54. Refer to figure number in upper right hand corner of each graph.



400 200 0 400
SCALE IN FEET
Source: USGS, 7.5 Minute Topographic Map
Pasadena, CA 1966, Revised 1988, 1994.

FIGURE 4-56

VOC (CCl_4) TRENDS IN SOIL VAPOR ZONE 2

July 24, 1999–October 10, 2000
Jet Propulsion Laboratory
Pasadena, California



FOSTER WHEELER ENVIRONMENTAL CORPORATION

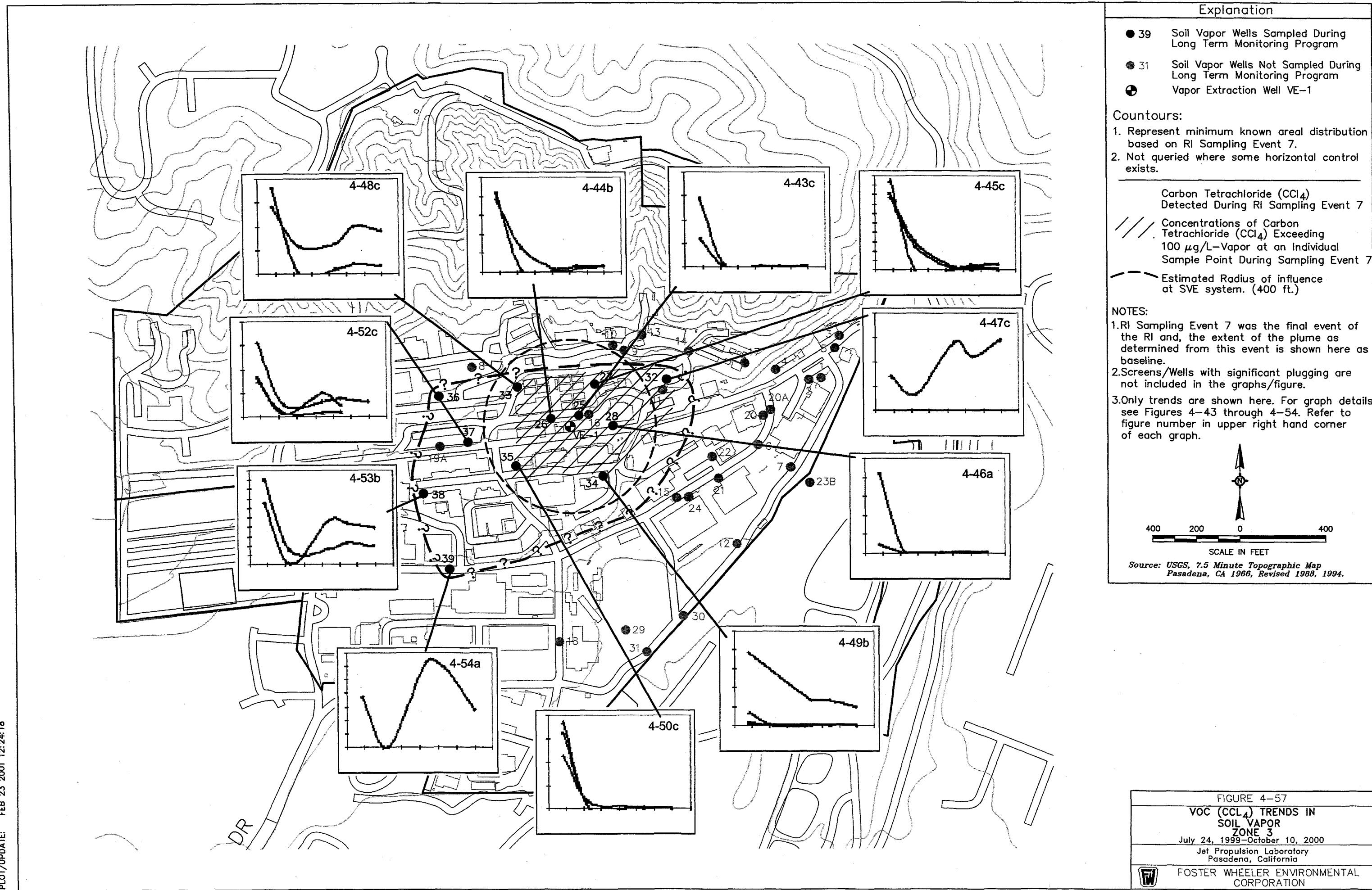




FIGURE 4-59
TEST 3: DAILY AVERAGE CUMULATIVE VOCs REMOVED

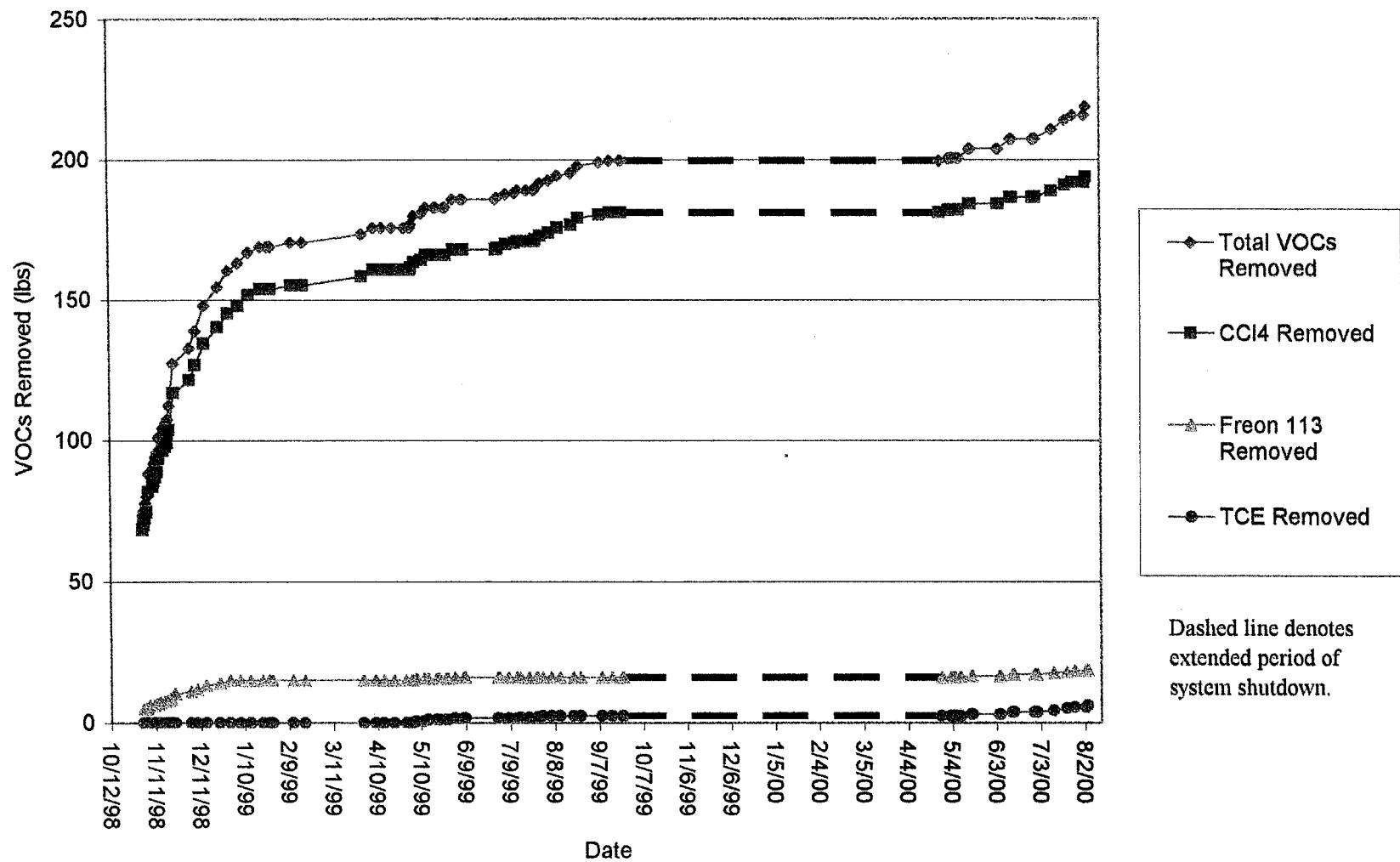


FIGURE 4-60
TEST 3: REMOVAL RATE VS TIME

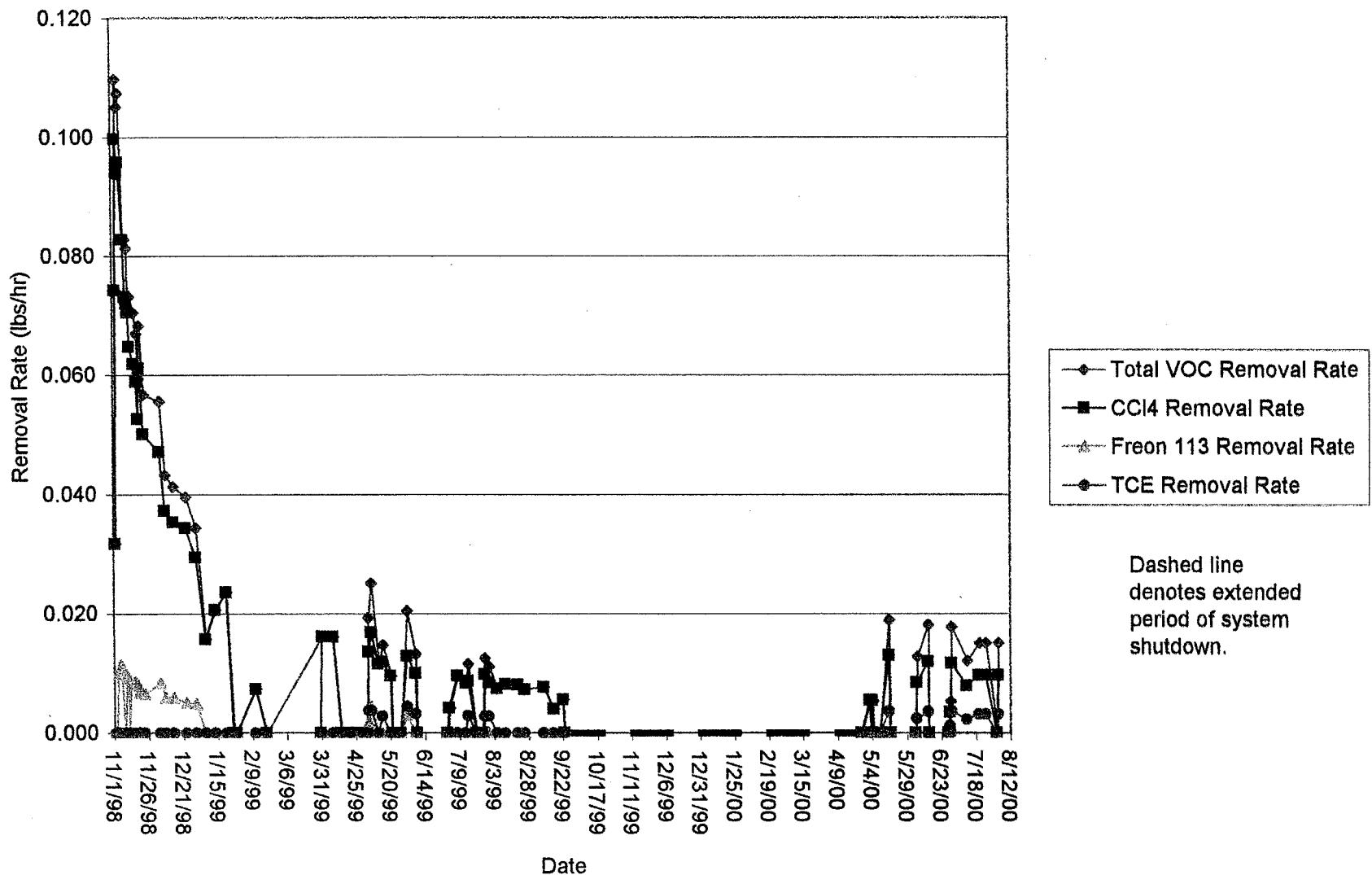


FIGURE 4-61
TEST 3: VOC REMOVAL RATES FOR FIRST SVE CYCLING PERIOD

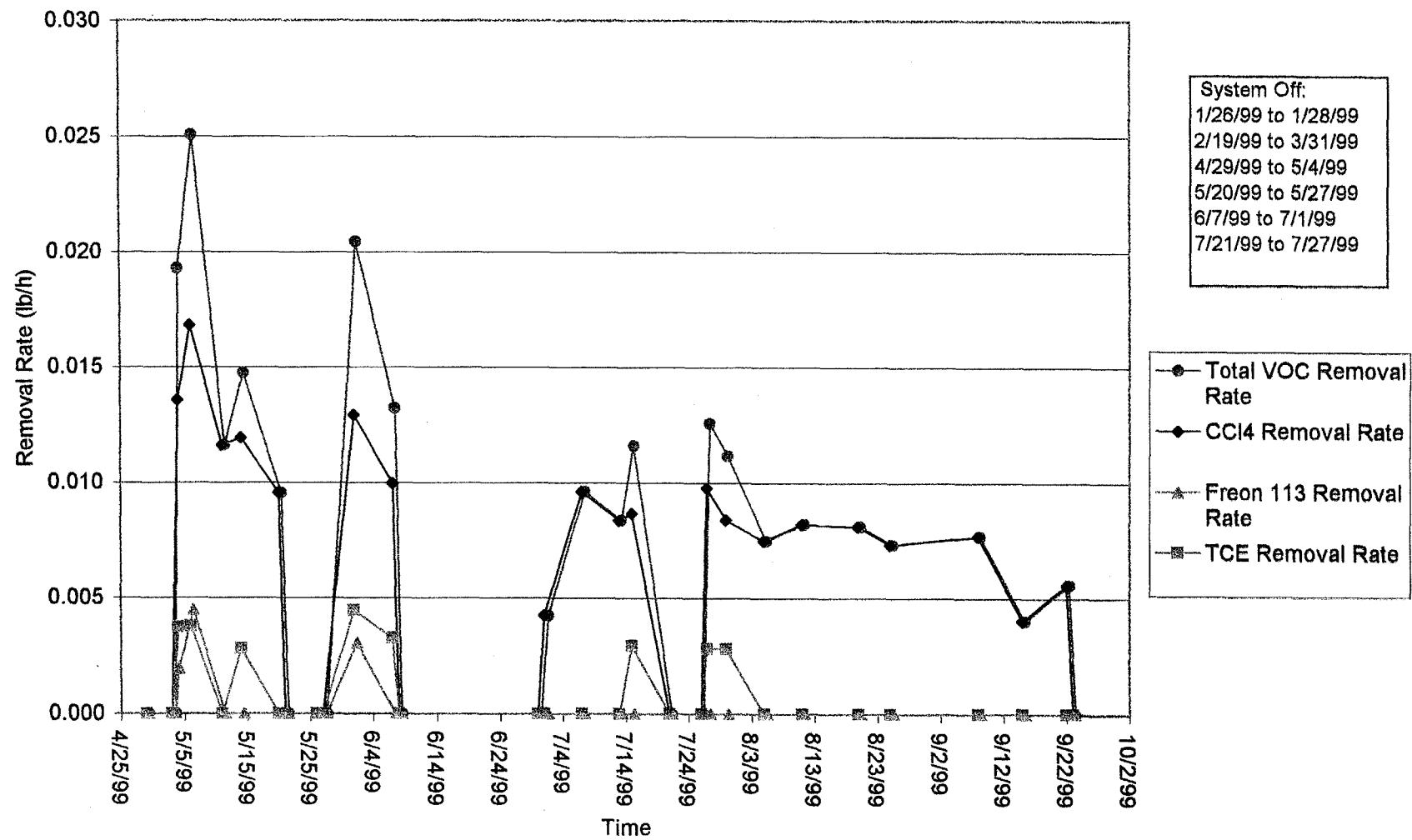
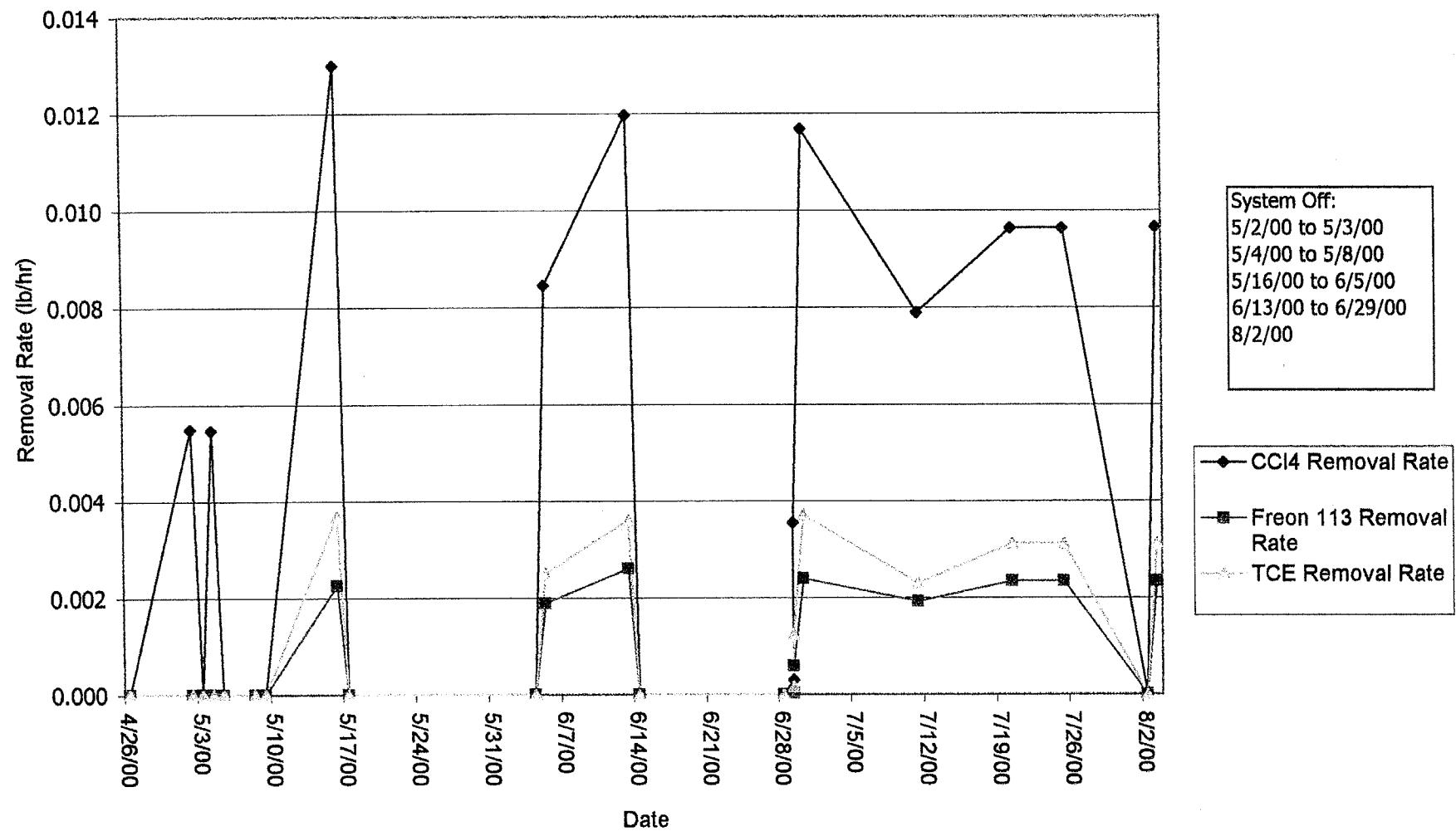


FIGURE 4-62
TEST 3: VOC REMOVAL RATES FOR SECOND SVE CYCLING PERIOD



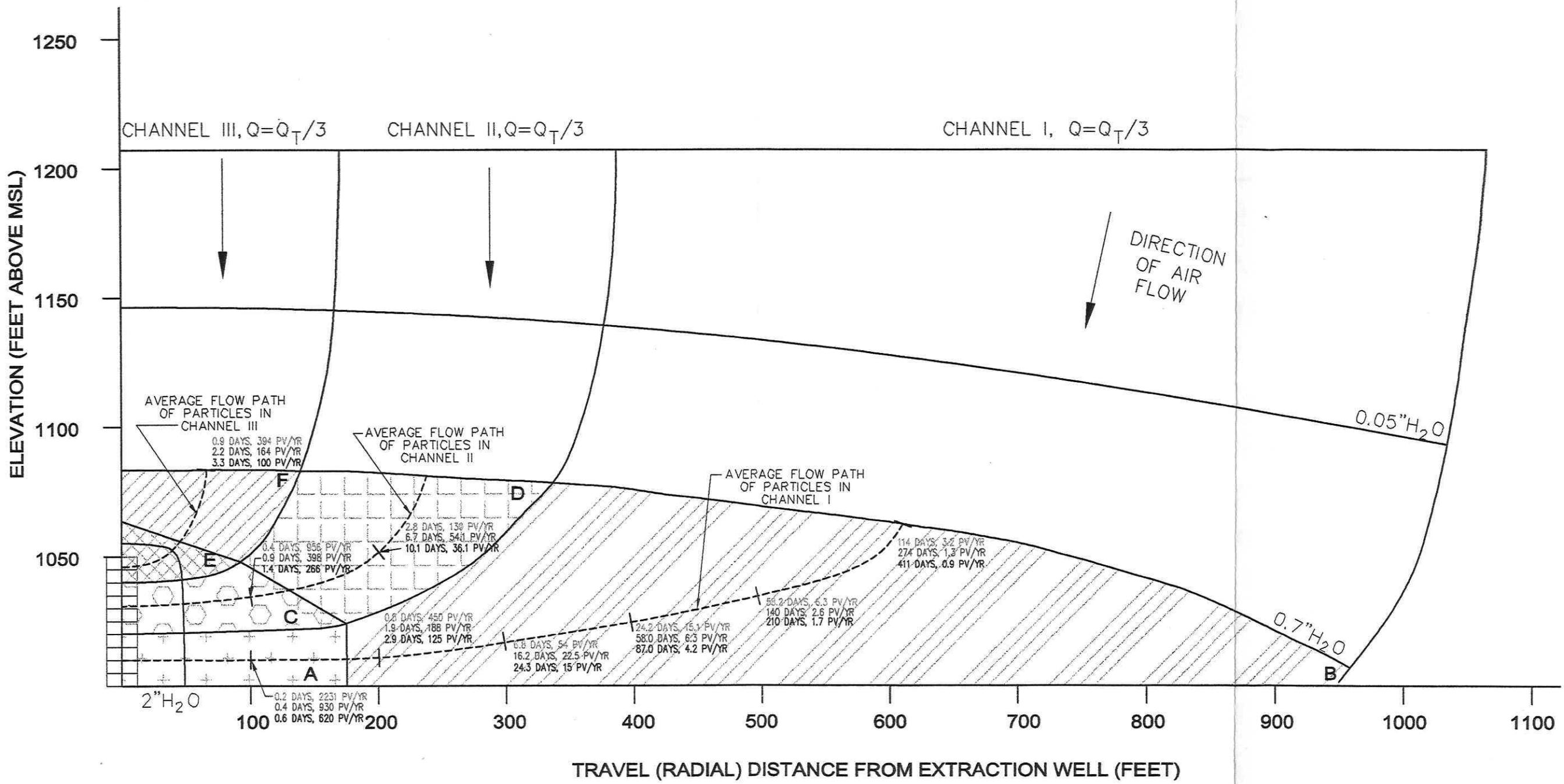


Figure 5-1
SUBSURFACE AIR FLOW

JPL

FOSTER  WHEELER
ENVIRONMENTAL CORPORATION

ATTACHMENT 1

TESTS 1 AND 2: EXTRACTION WELL DATA

TEST 1 AND 2: EXTRACTION WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME	WELL SCREEN hours	VACUUM			FLOWRATE					FID READINGS					
						VE1-A	VE1-B	VE1-C	ANEMOMETER FLOWRATE					DFRNTL. PRESS. in. H2O	INFLUENT ppm	BLOWER 1		BLOWER 2	
									A cfm	B cfm	C cfm	ABC cfm	BC cfm			EFFLUENT 1 ppm	EFFLUENT 2 ppm	EFFLUENT 3 ppm	EFFLUENT 4 ppm
1	1	1	4/13/98	7:15	VE1-A	44	0	0	170	--	--	--	--	9	5	--	--	--	--
1	1	1	4/13/98	8:15	VE1-A	44	0	0	169	--	--	--	--	9	5.5	--	--	--	--
1	1	1	4/13/98	9:15	VE1-A	44	0	0	175	--	--	--	--	9	5.3	--	--	--	--
1	1	1	4/13/98	10:15	VE1-A	44	0	0	171	--	--	--	--	9	5.1	--	--	--	--
1	1	1	4/13/98	11:15	VE1-A	44	0	0	175	--	--	--	--	9	5	--	--	--	--
1	1	1	4/13/98	12:15	VE1-A	44	0	0	179	--	--	--	--	9	4.7	--	--	--	--
1	1	1	4/13/98	13:15	VE1-A	44	0	0	177	--	--	--	--	9	4.5	--	--	--	--
1	1	2	4/14/98	6:00	VE1-A	32	0	0	135	--	--	--	--	4.5	3.3	--	--	--	--
1	1	2	4/14/98	7:00	VE1-A	32	0	0	137	--	--	--	--	4.5	4.7	--	--	--	--
1	1	2	4/14/98	8:00	VE1-A	32	0	0	140	--	--	--	--	4.5	4.9	--	--	--	--
1	1	2	4/14/98	9:00	VE1-A	32	0	0	137	--	--	--	--	4.5	4.3	0	--	--	--
1	1	2	4/14/98	10:00	VE1-A	32	0	0	140	--	--	--	--	4.5	5	--	--	--	--
1	1	2	4/14/98	11:00	VE1-A	32	0	0	139	--	--	--	--	4.5	4.9	--	--	--	--
1	1	2	4/14/98	12:00	VE1-A	32	0	0	140	--	--	--	--	4.5	4.4	--	--	--	--
1	1	2	4/14/98	13:00	VE1-A	32	0	0	141	--	--	--	--	4.5	4.2	0	--	--	--
1	1	2	4/14/98	14:00	VE1-A	32	0	0	141	--	--	--	--	4.5	3.6	--	--	--	--
1	1	3	4/15/98	6:00	VE1-A	20	0	0	102	--	--	--	--	2.5	3.3	--	--	--	--
1	1	3	4/15/98	7:00	VE1-A	20	0	0	101	--	--	--	--	2.5	8	--	--	--	--
1	1	3	4/15/98	8:00	VE1-A	20	0	0	100	--	--	--	--	2.5	11.2	--	--	--	--
1	1	3	4/15/98	9:00	VE1-A	20	0	0	101	--	--	--	--	2.5	9.7	--	--	--	--
1	1	3	4/15/98	10:00	VE1-A	20	0	0	101	--	--	--	--	2.5	12.1	--	--	--	--
1	1	3	4/15/98	11:00	VE1-A	20	0	0	102	--	--	--	--	2.5	11.7	--	--	--	--
1	1	3	4/15/98	12:00	VE1-A	20	0	0	101	--	--	--	--	2.5	9.7	--	--	--	--
1	1	3	4/15/98	13:00	VE1-A	20	0	0	106	--	--	--	--	2.5	10.1	0	--	--	--
1	1	3	4/15/98	14:00	VE1-A	20	0	0	102	--	--	--	--	2.5	9.1	--	--	--	--
1	1	4	4/16/98	6:00	VE1-A	10	0	0	55	--	--	--	--	0.75	9.6	--	--	--	--
1	1	4	4/16/98	7:00	VE1-A	10	0	0	59	--	--	--	--	0.75	10	--	--	--	--
1	1	4	4/16/98	8:00	VE1-A	10	0	0	58	--	--	--	--	0.75	8	--	--	--	--
1	1	4	4/16/98	9:00	VE1-A	10	0	0	56	--	--	--	--	0.75	11.9	--	--	--	--
1	1	4	4/16/98	10:00	VE1-A	10	0	0	58	--	--	--	--	0.75	11.8	0	--	--	--
1	1	4	4/16/98	11:00	VE1-A	10	0	0	58	--	--	--	--	0.75	9.5	--	--	--	--
1	1	4	4/16/98	12:00	VE1-A	10	0	0	57	--	--	--	--	0.75	9.6	--	--	--	--
1	1	4	4/16/98	13:00	VE1-A	10	0	0	57.5	--	--	--	--	0.75	9.5	--	--	--	--
1	1	4	4/16/98	14:00	VE1-A	10	0	0	59	--	--	--	--	0.75	9.1	--	--	--	--
1	2	1	4/20/98	6:00	VE1-B	0	70	0	--	164	--	--	--	8	--	--	--	--	--
1	2	1	4/20/98	7:00	VE1-B	0	70	0	--	162	--	--	--	8	5.1	--	--	--	--
1	2	1	4/20/98	8:00	VE1-B	0	70	0	--	163	--	--	--	8	4.8	0	--	--	--
1	2	1	4/20/98	9:00	VE1-B	0	70	0	--	162	--	--	--	7.75	8	--	--	--	--
1	2	1	4/20/98	10:00	VE1-B	0	70	0	--	162	--	--	--	7.75	7.6	--	--	--	--
1	2	1	4/20/98	11:00	VE1-B	0	70	0	--	170	--	--	--	7	7.7	--	--	--	--
1	2	1	4/20/98	12:00	VE1-B	0	70	0	--	175	--	--	--	7	6	0	--	--	--
1	2	1	4/20/98	13:00	VE1-B	0	70	0	--	168	--	--	--	7	8.2	--	--	--	--
1	2	1	4/20/98	14:00	VE1-B	0	70	0	--	180	--	--	--	6.5	--	--	--	--	--
1	2	2	4/21/98	6:00	VE1-B	0	52	0	--	141	--	--	--	5.25	6.7	--	--	--	--
1	2	2	4/21/98	7:00	VE1-B	0	52	0	--	139	--	--	--	5.25	8.3	--	--	--	--
1	2	2	4/21/98	8:00	VE1-B	0	52	0	--	139	--	--	--	5.25	8.1	0	--	--	--

TEST 1 AND 2: EXTRACTION WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	WELL SCREEN	VACUUM			FLOWRATE					FID READINGS						
						VE1-A in. H2O	VE1-B in. H2O	VE1-C in. H2O	ANEMOMETER FLOWRATE					DFRNTL. PRESS. in. H2O	INFLUENT ppm	BLOWER 1		BLOWER 2		
									A cfm	B cfm	C cfm	ABC cfm	BC cfm			EFFLUENT 1 ppm	EFFLUENT 2 ppm	EFFLUENT 3 ppm	EFFLUENT 4 ppm	
1	2	2	4/21/98	9:00	VE1-B	0	52	0	--	140	--	--	--	--	5.25	7.5	--	--	--	--
1	2	2	4/21/98	10:00	VE1-B	0	52	0	--	146	--	--	--	--	5.25	8.5	--	--	--	--
1	2	2	4/21/98	11:00	VE1-B	0	52	0	--	145	--	--	--	--	5	5.5	--	--	--	--
1	2	2	4/21/98	12:00	VE1-B	0	52	0	--	139	--	--	--	--	4.75	6.2	--	--	--	--
1	2	2	4/21/98	13:00	VE1-B	0	52	0	--	148	--	--	--	--	5	7.2	0	--	--	--
1	2	2	4/21/98	14:00	VE1-B	0	52	0	--	150	--	--	--	--	5	8	--	--	--	--
1	2	3	4/22/98	6:00	VE1-B	0	34	0	--	109	--	--	--	--	3	2.3	--	--	--	--
1	2	3	4/22/98	7:00	VE1-B	0	34	0	--	106	--	--	--	--	3	8.4	--	--	--	--
1	2	3	4/22/98	8:00	VE1-B	0	34	0	--	108	--	--	--	--	3	8.1	--	--	--	--
1	2	3	4/22/98	9:00	VE1-B	0	34	0	--	109	--	--	--	--	3	7.9	--	--	--	--
1	2	3	4/22/98	10:00	VE1-B	0	34	0	--	107	--	--	--	--	3	7.9	--	--	--	--
1	2	3	4/22/98	11:00	VE1-B	0	34	0	--	107	--	--	--	--	3	8	0	--	--	--
1	2	3	4/22/98	12:00	VE1-B	0	34	0	--	110	--	--	--	--	3	7.8	--	--	--	--
1	2	3	4/22/98	13:00	VE1-B	0	34	0	--	117	--	--	--	--	3	4.4	--	--	--	--
1	2	3	4/22/98	14:00	VE1-B	0	34	0	--	112	--	--	--	--	3	7.2	--	--	--	--
1	2	4	4/23/98	6:00	VE1-B	0	20	0	--	74	--	--	--	--	1	4.6	--	--	--	--
1	2	4	4/23/98	7:00	VE1-B	0	17	0	--	57	--	--	--	--	0.75	7.8	--	--	--	--
1	2	4	4/23/98	8:00	VE1-B	0	17	0	--	58	--	--	--	--	0.5	8.3	--	--	--	--
1	2	4	4/23/98	9:00	VE1-B	0	17	0	--	59.5	--	--	--	--	0.5	8.1	--	--	--	--
1	2	4	4/23/98	10:00	VE1-B	0	17	0	--	59	--	--	--	--	0.5	7.4	--	--	--	--
1	2	4	4/23/98	11:00	VE1-B	0	17	0	--	58	--	--	--	--	0.5	8	0	--	--	--
1	2	4	4/23/98	12:00	VE1-B	0	17	0	--	57.5	--	--	--	--	0.5	5.6	--	--	--	--
1	2	4	4/23/98	13:00	VE1-B	0	17	0	--	56.5	--	--	--	--	0.5	7	--	--	--	--
1	2	4	4/23/98	14:00	VE1-B	0	17	0	--	60.5	--	--	--	--	0.5	7.8	--	--	--	--
1	3	1	4/27/98	6:00	VE1-C	0	3	80	--	154	--	--	--	--	7	5	--	--	--	--
1	3	1	4/27/98	7:00	VE1-C	0	3	80	--	157	--	--	--	--	7	5.2	--	--	--	--
1	3	1	4/27/98	8:00	VE1-C	0	3	80	--	156	--	--	--	--	7	5.3	--	--	--	--
1	3	1	4/27/98	9:00	VE1-C	0	3	80	--	157	--	--	--	--	7	5	--	--	--	--
1	3	1	4/27/98	10:00	VE1-C	0	3	80	--	157	--	--	--	--	7	5	0	--	--	--
1	3	1	4/27/98	11:00	VE1-C	0	3	80	--	155	--	--	--	--	7	5.2	--	--	--	--
1	3	1	4/27/98	12:00	VE1-C	0	3	80	--	157	--	--	--	--	7	5	--	--	--	--
1	3	1	4/27/98	13:00	VE1-C	0	3	80	--	159	--	--	--	--	7	5.1	--	--	--	--
1	3	1	4/27/98	14:00	VE1-C	0	3	80	--	163	--	--	--	--	7	4.6	--	--	--	--
1	3	2	4/29/98	11:00	VE1-C	0	0	60	--	140	--	--	--	--	4	5.7	--	--	--	--
1	3	2	4/29/98	12:00	VE1-C	0	0	60	--	141	--	--	--	--	4	5.6	--	--	--	--
1	3	2	4/29/98	13:00	VE1-C	0	0	60	--	140	--	--	--	--	4	4.6	0	--	--	--
1	3	2	4/29/98	14:00	VE1-C	0	0	60	--	133	--	--	--	--	4	5	--	--	--	--
1	3	2	4/29/98	15:00	VE1-C	0	0	58	--	132	--	--	--	--	3.75	4.3	--	--	--	--
1	3	2	4/29/98	16:00	VE1-C	0	0	58	--	138	--	--	--	--	4	5.3	--	--	--	--
1	3	2	4/29/98	17:00	VE1-C	0	0	58	--	136	--	--	--	--	4	5.4	--	--	--	--
1	3	2	4/29/98	18:00	VE1-C	0	0	58	--	131	--	--	--	--	4	5.1	--	--	--	--
1	3	2	4/29/98	19:00	VE1-C	0	0	58	--	130	--	--	--	--	4	4.9	--	--	--	--
1	3	3	4/30/98	6:00	VE1-C	0	0	40	--	98	--	--	--	--	2	3.8	--	--	--	--
1	3	3	4/30/98	7:00	VE1-C	0	0	40	--	97.5	--	--	--	--	2	7.3	--	--	--	--
1	3	3	4/30/98	8:00	VE1-C	0	0	40	--	98.5	--	--	--	--	2	7.5	--	--	--	--
1	3	3	4/30/98	9:00	VE1-C	0	0	40	--	99	--	--	--	--	2	7.5	0	--	--	--
1	3	3	4/30/98	10:0																

TEST 1 AND 2: EXTRACTION WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	WELL SCREEN	VACUUM			FLOWRATE					DFRNTL. PRESS. in. H2O	INFLUENT ppm	FID READINGS						
									ANEMOMETER FLOWRATE								BLOWER 1		BLOWER 2			
						VE1-A in. H2O	VE1-B in. H2O	VE1-C in. H2O	BLOWER 1		BLOWER 2						EFFLUENT 1 ppm	EFFLUENT 2 ppm	EFFLUENT 3 ppm	EFFLUENT 4 ppm		
1	3	3	4/30/98	11:00	VE1-C	0	0	40	--	--	102	--	--	2	7.5	--	--	--	--			
1	3	3	4/30/98	12:00	VE1-C	0	0	40	--	--	104	--	--	2	7.4	--	--	--	--			
1	3	3	4/30/98	13:00	VE1-C	0	0	40	--	--	105	--	--	2	7.3	--	--	--	--			
1	3	3	4/30/98	14:00	VE1-C	0	0	40	--	--	104	--	--	2	7.2	0	--	--	--			
1	3	4	4/30/98	15:00	VE1-C	0	0	20	--	--	62	--	--	0.5	7.2	--	--	--	--			
1	3	4	4/30/98	16:00	VE1-C	0	0	20	--	--	60	--	--	0.5	7.6	--	--	--	--			
1	3	4	4/30/98	17:00	VE1-C	0	0	20	--	--	66	--	--	0.5	6.9	--	--	--	--			
1	3	4	4/30/98	18:00	VE1-C	0	0	20	--	--	67	--	--	0.5	6.5	--	--	--	--			
1	3	4	4/30/98	19:00	VE1-C	0	0	20	--	--	62	--	--	0.5	5.6	--	--	--	--			
1	3	4	4/30/98	20:00	VE1-C	0	0	20	--	--	61	--	--	0.5	7.9	--	--	--	--			
1	3	4	4/30/98	21:00	VE1-C	0	0	20	--	--	62	--	--	0.5	8.4	--	--	--	--			
1	3	4	4/30/98	22:00	VE1-C	0	0	20	--	--	61	--	--	0.5	7.6	--	--	--	--			
1	3	4	4/30/98	23:00	VE1-C	0	0	20	--	--	60	--	--	0.5	6	--	--	--	--			
1	4	1	5/4/98	7:00	VE1-ABC	24	26	113	85	72	278	--	--	5.9	--	--	--	--	--			
1	4	1	5/4/98	8:00	VE1-ABC	24	26	115	84	74	280	--	18.5	7.2	--	--	--	--	--			
1	4	1	5/4/98	9:00	VE1-ABC	24	26	113	88	71	276	--	19.5	7.3	--	--	--	--	--			
1	4	1	5/4/98	10:00	VE1-ABC	24	26	115	83	67	277	--	20	9.2	0	--	--	--	--			
1	4	1	5/4/98	11:00	VE1-ABC	24	26	110	83.5	70	274	--	20	10.1	--	--	--	--	--			
1	4	1	5/4/98	13:00	VE1-ABC	24	26	112	84	72	276	--	20	5.2	--	--	--	--	--			
1	4	1	5/4/98	14:00	VE1-ABC	24	26	--	--	--	--	--	--	9.9	0	--	--	--	--			
1	4	2	5/5/98	7:00	VE1-ABC	18	19	19	--	--	223	--	--	--	--	--	--	--	--			
1	4	2	5/5/98	8:00	VE1-ABC	18	19	19	100	70	62.5	223	--	--	0	--	--	--	--			
1	4	2	5/5/98	10:00	VE1-ABC	18	19	19	95	67	62.5	242	--	16	--	--	--	--	--			
1	4	3	5/6/98	7:00	VE1-ABC	12	13	13	71	49	47	170	--	6.5	6	--	--	--	--			
1	4	3	5/6/98	8:00	VE1-ABC	12	13	13	71.5	49	45	165	--	7	9	--	--	--	--			
1	4	3	5/6/98	9:00	VE1-ABC	12	13	13	70	49	45	166	--	7	8.6	--	--	--	--			
1	4	3	5/6/98	10:00	VE1-ABC	12	13	13	71	48	45	167	--	7	9	0	--	--	--			
1	4	3	5/6/98	12:00	VE1-ABC	12	13	13	72	46	43.5	164	--	11	9.4	--	--	--	--			
1	4	3	5/6/98	14:00	VE1-ABC	12	13	13	67	46	42	161	--	12.5	8.4	--	--	--	--			
1	4	4	5/7/98	7:00	VE1-ABC	6	7	6	40.5	28.2	28	107	--	6.5	6.9	--	--	--	--			
1	4	4	5/7/98	8:00	VE1-ABC	6	7	6	40.5	28	27.6	106	--	6	7.9	--	--	--	--			
1	4	4	5/7/98	9:00	VE1-ABC	6	7	6	18.3	11.6	11.7	43	--	2	7.7	--	--	--	--			
1	4	4	5/7/98	10:00	VE1-ABC	6	7	6	37	26	25	--	--	5	7.9	--	--	--	--			
1	4	4	5/7/98	11:00	VE1-ABC	6	7	6	42.2	27.2	26.2	102	--	5	8.5	--	--	--	--			
1	4	4	5/7/98	12:00	VE1-ABC	6	7	6	39	26.5	26	88.5	--	5	8.4	--	--	--	--			
1	4	4	5/7/98	13:00	VE1-ABC	6	7	6	45	31.5	29.2	104	--	6	8.3	--	--	--	--			
1	4	4	5/7/98	14:00	VE1-ABC	6	7	6	44.5	30.5	29.4	109	--	6.5	7	--	--	--	--			
2	1	1	5/11/98	7:00	VE1-ABC	22	26	26	114	83	77	275	--	20+	7.6	--	--	--	--			
2	1	1	5/11/98	8:00	VE1-ABC	22	26	26	112	82	75	274	--	20+	8.1	--	--	--	--			
2	1	1	5/11/98	9:00	VE1-ABC	22	26	26	110	83	75	275	--	20+	8.2	--	--	--	--			
2	1	1	5/11/98	10:00	VE1-ABC	22	26	--	--	--	--	--	--	33	--	--	--	--	--			
2	1	1	5/11/98	11:00	VE1-ABC	22	26	26	111	85	79	281	--	33	8.2	--	--	--	--			
2	1	1	5/11/98	14:00	VE1-ABC	22	26	26	112	80	73	270	--	32	8.7	2.21	1	--	--			
2	1	2	5/12/98	7:00	VE1-ABC	22	26	26	108	80	70	272	--	32	7.2	--	--	--	--			
2	1	2	5/12/98	9:00	VE1-ABC	22	26	26	103	83	75	278	--	32	7.6	--	--	--	--			
2	1	2	5/12/98	12:00	VE1-ABC	22	26	26	110	81	70	274	--	32	7.8	--	--	--	--			
2	1</td																					

TEST 1 AND 2: EXTRACTION WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	WELL SCREEN	VACUUM			FLOWRATE					DFRNTL. PRESS. in. H2O	INFLUENT	FID READINGS						
									ANEMOMETER FLOWRATE							ppm	BLOWER 1		BLOWER 2			
						VE1-A in. H2O	VE1-B in. H2O	VE1-C in. H2O	A cfm	B cfm	C cfm	ABC cfm	BC cfm				EFFLUENT 1 ppm	EFFLUENT 2 ppm	EFFLUENT 3 ppm	EFFLUENT 4 ppm		
2	1	3	5/13/98	10:00	VE1-ABC	25	27	27	114	83	74	274	--	34	6.4	--	--	--	--			
2	1	3	5/13/98	12:00	VE1-ABC	25	27	27	115	83	75	282	--	34	6.2	11.4	0	--	--			
2	1	3	5/13/98	14:00	VE1-ABC	25	27	27	112	86	74	268	--	34	6.6	11.2	--	--	--			
2	1	4	5/14/98	7:00	VE1-ABC	24	28	28	123	85	76	286	--	36	7.8	7.7	--	--	--			
2	1	4	5/14/98	11:00	VE1-ABC	24	28	28	118	86	77	285	--	35	7	--	--	--	--			
2	1	4	5/14/98	14:00	VE1-ABC	24	28	28	121	88	81	287	--	34	6.2	--	--	--	--			
2	1	5	5/15/98	9:00	VE1-ABC	24	28	28	117	84	75	276	--	34	6.7	7.1	9.2	--	--			
2	1	5	5/15/98	11:30	VE1-ABC	24	28	28	112	80	75	278	--	34	6.4	5.4	9.7	--	--			
2	1	5	5/15/98	14:30	VE1-ABC	24	28	28	--	--	--	--	--	34	6.7	11.6	4.1	92.2	3.4			
2	2	1	5/19/98	14:00	VE1-ABC	21	22	22	118	80	70	270	--	--	7.2	--	--	--	--			
2	2	2	5/20/98	8:00	VE1-ABC	21	22	22	106	77	68	253	--	30	4.6	0	--	0	--			
2	2	2	5/20/98	11:00	VE1-ABC	21	22	22	109	80	66	257	--	30	4.3	0	--	0	--			
2	2	2	5/20/98	14:00	VE1-ABC	21	22	22	112	85	72	267	--	30	4.7	0	--	0	--			
2	2	3	5/21/98	8:00	VE1-ABC	21	24	24	107	76	66	264	--	30	8	0	--	0.1	--			
2	2	3	5/21/98	15:00	VE1-ABC	21	24	24	107	81	70	267	--	30	6	0	--	0	--			
2	2	4	5/22/98	7:00	VE1-ABC	21	24	24	108	77	65	255	--	30	4.4	0	--	0	--			
2	2	4	5/22/98	14:00	VE1-ABC	21	24	24	117	87	75	275	--	30	8	0	--	0.6	--			
2	3	1	5/26/98	8:00	VE1-ABC	22	24	24	105	76	68	252	--	30	4.3	2.8	--	0	--			
2	3	1	5/26/98	12:00	VE1-ABC	22	24	24	122	89	73	288	--	30	1.6	--	--	--	--			
2	3	1	5/26/98	14:00	VE1-ABC	22	24	24	110	78	72	259	--	30	2.4	2.1	--	1.6	--			
2	3	1	5/26/98	16:00	VE1-ABC	23	25	25	108	78	68	265	--	30	4.2	--	--	--	--			
2	3	1	5/26/98	23:00	VE1-ABC	22	24	24	110	78	70	268	--	30	6.1	--	--	--	--			
2	3	2	5/27/98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
2	3	3	5/28/98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
2	3	4	5/29/98	7:50	VE1-BC	--	26	26	--	--	--	--	160	--	8.8	--	0.4	0.4	--			
2	4	1	6/1/98	8:00	VE1-BC	--	26	26	--	82	74	--	166	30	7.9	--	0.7	0	--			
2	4	1	6/1/98	13:30	VE1-BC	--	26	26	--	83	77	--	155	30	8.6	--	3.7	0.2	--			
2	4	2	6/2/98	8:30	VE1-BC	--	24	24	--	84	75	--	157	28	6	--	0.8	0	--			
2	4	2	6/2/98	11:00	VE1-BC	--	24	24	--	86	78	--	158	28	7.8	--	1.3	0.2	--			
2	4	2	6/2/98	13:00	VE1-BC	--	24	24	--	88	73	--	156	28	8.6	--	0.7	0.2	--			
2	4	3	6/3/98	7:00	VE1-BC	--	26	26	--	81	69	--	152	28	7.1	--	0.6	0	--			
2	4	3	6/3/98	10:30	VE1-BC	--	26	26	--	84	72	--	158	28	8.2	--	1.1	0.4	--			
2	4	3	6/3/98	11:15	VE1-BC	--	25	25	--	--	--	--	159	--	--	--	--	--	--			
2	4	3	6/3/98	14:00	VE1-BC	--	--	--	--	--	--	--	--	7.1	--	--	1.1	--	--			
2	4	4	6/4/98	10:15	VE1-BC	--	28	28	--	81	72	--	155	30	6.8	--	--	1.9	--			
2	4	4	6/4/98	12:00	VE1-BC	--	28	28	--	83	71	--	158	30	7.7	--	--	1.7	--			
2	4	4	6/4/98	15:00	VE1-BC	--	28	28	--	--	--	--	161	30	7.4	--	--	1.4	--			
2	4	5	6/5/98	9:30	VE1-BC	--	28	28	--	89	80	--	165	--	--	--	--	--	--			
2	4	5	6/5/98	12:00	VE1-BC	--	28	28	--	87	69	--	162	30	--	--	--	--	--			
2	4	5	6/5/98	14:00	VE1-BC	--	26	26	--	85	72	--	159	30	--	--	--	--	--			
2	5	1	6/8/98	7:10	VE1-BC	--	27	27	--	80	70	--	158	28	6.8	--	3	0	--			
2	5	1	6/8/98	10:05	VE1-BC	--	27	27	--	82	73	--	159	28	7.5	--	4.2	0	--			
2	5	2	6/9/98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
2	5	3	6/10/98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			

ATTACHMENT 2

TESTS 1 AND 2: MONITORING WELL DATA

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)																	
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O							
1	1	1	4/13/98	8:15	A	0.02	--	--	--	--	--	--	--	--	--	--							
					B	0.04	0.02	--	--	--	--	--	--	--	--	--							
					C	--	2.35	--	--	--	--	--	--	--	--	--							
					D	0.26	1.9	--	--	--	--	--	--	--	--	--							
					E	0	0.12	--	--	--	--	--	--	--	--	--							
					F	0.03	0	--	--	--	--	--	--	--	--	--							
					G	0.01	0	--	--	--	--	--	--	--	--	--							
					H	0	0	--	--	--	--	--	--	--	--	--							
					I	0.01	0	--	--	--	--	--	--	--	--	--							
					J	--	--	--	--	--	--	--	--	--	--	--							
1	1	1	4/13/98	9:15	A	0.02	--	--	0	--	--	--	--	--	--	--	--						
					B	0	0.04	--	0.7	--	--	--	--	--	--	--	--						
					C	--	2.8	--	--	--	--	--	--	--	--	--	--						
					D	2.5	2	--	0.45	--	--	--	--	--	--	--	--						
					E	0	0.1	--	0.32	--	--	--	--	--	--	--	--						
					F	0	0	--	--	--	--	--	--	--	--	--	--						
					G	0.04	0	--	--	--	--	--	--	--	--	--	--						
					H	0	0	--	--	--	--	--	--	--	--	--	--						
					I	0	0	--	--	--	--	--	--	--	--	--	--						
					J	--	--	--	--	--	--	--	--	--	--	--	--						
1	1	1	4/13/98	10:15	A	0.045	--	--	0.01	--	--	--	--	--	--	--	--	--					
					B	0.03	0.06	--	0.73	--	--	--	--	--	--	--	--	--					
					C	--	3.2	--	--	--	--	--	--	--	--	--	--	--					
					D	2.5	2	--	0.5	--	--	--	--	--	--	--	--	--					
					E	0	0.2	--	0.39	--	--	--	--	--	--	--	--	--					
					F	0.02	0.02	--	--	--	--	--	--	--	--	--	--	--					
					G	0.17	0.11	--	--	--	--	--	--	--	--	--	--	--					
					H	0.025	0.04	--	--	--	--	--	--	--	--	--	--	--					
					I	0.02	0.04	--	--	--	--	--	--	--	--	--	--	--					
					J	--	--	--	--	--	--	--	--	--	--	--	--	--					
1	1	1	4/13/98	11:15	A	0.02	--	--	0.005	--	--	--	--	--	--	--	--	--	--				
					B	0	0.04	--	0.69	--	--	--	--	--	--	--	--	--	--				
					C	--	3.35	--	--	--	--	--	--	--	--	--	--	--	--				
					D	2.5	2	--	0.45	--	--	--	--	--	--	--	--	--	--				
					E	0	0.18	--	0.33	--	--	--	--	--	--	--	--	--	--				
					F	0.02	0.03	--	--	--	--	--	--	--	--	--	--	--	--				
					G	0.04	0.09	--	--	--	--	--	--	--	--	--	--	--	--				
					H	0.01	0.02	--	--	--	--	--	--	--	--	--	--	--	--				
					I	0	0.04	--	--	--	--	--	--	--	--	--	--	--	--				
					J	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
1	1	1	4/13/98	12:15	A	0	--	--	0	--	--	--	--	--	--	--	--	--	--	--			
					B	0	0.04	--	0.65	--	--	--	--	--	--	--	--	--	--	--			
					C	--	3.3	--	--	--	--	--	--	--	--	--	--	--	--	--			
					D	2.5	2	--	0.4	--	--	--	--	--	--	--	--	--	--	--			
					E	0	0.1	--	0.26	--	--	--	--	--	--	--	--	--	--	--			
					F	0.02	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--			
					G	0.04	0	--	--	--	--	--	--	--	--	--	--	--	--	--			
					H	0.01	0.04	--	--	--	--	--	--	--	--	--	--	--	--	--			
					I	0.01	+	--	--	--	--	--	--	--	--	--	--	--	--	--			
					J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
1	1	1	4/13/98	13:15	A	0.01	--	--	0	--	--	--	--	--	--	--	--	--	--	--	--		
					B	0	0.02	--	0.6	--	--	--	--	--	--	--	--	--	--	--	--		
					C	--	3.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					D	2.5	1.9	--	0.32	--	--	--	--	--	--	--	--	--	--	--	--		
					E	0	0	--	0.2	--	--	--	--	--	--	--	--	--	--	--	--		
					F	0.02	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					G	0.05	+	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					H	0.01	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					I	0.01	+	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
1	1	1	4/13/98	14:15	A	0.02	--	--	0	--	--	--	--	--	--	--	--	--	--	--	--	--	
					B	0	0.06	--	0.6	--	--	--	--	--	--	--	--	--	--	--	--		
					C	--	3.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					D	2.5	2	--	0.35	--	--	--	--	--	--	--	--	--	--	--	--		
					E	0	+	--	0.22	--	--	--	--	--	--	--	--	--	--	--	--		
					F	0	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					G	0.03	+	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					H	0.1	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					I	0	+	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1	1	1	4/13/98	14:45	A	0.02	--	--	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					B	0	0.02	--	0.73	--	--	--	--	--	--	--	--	--	--	--	--	--	
					C	--	3.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					D	2.5	1.9	--	0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	
					E	0	+	--	0.19	--	--	--	--	--	--	--	--	--	--	--	--	--	
					F	0	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					G	0.04	+	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					H	+	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					I	+	+	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)																	
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O							
1	1	2	4/14/98	6:00	A	0	--	--	0	--	--	--	--	--	--	--							
					B	+	0.04	--	0.4	--	--	--	--	--	--	--							
					C	--	0.8	--	--	--	--	--	--	--	--	--							
					D	1.5	1.3	--	0.15	--	--	--	--	--	--	--							
					E	0	+	--	0	--	--	--	--	--	--	--							
					F	0.2	0	--	--	--	--	--	--	--	--	--							
					G	0.02	+	--	--	--	--	--	--	--	--	--							
					H	0.03	0	--	--	--	--	--	--	--	--	--							
					I	+	+	--	--	--	--	--	--	--	--	--							
					J	--	--	--	--	--	--	--	--	--	--	--							
1	1	2	4/14/98	7:00	A	0	--	--	0	--	--	--	--	--	--	--	--						
					B	0	0.02	--	0.45	--	--	--	--	--	--	--	--						
					C	--	1.2	--	--	--	--	--	--	--	--	--	--						
					D	1.6	1.3	--	0.25	--	--	--	--	--	--	--	--						
					E	0	+	--	0.1	--	--	--	--	--	--	--	--						
					F	0.02	0	--	--	--	--	--	--	--	--	--	--						
					G	0.02	+	--	--	--	--	--	--	--	--	--	--						
					H	0.03	0	--	--	--	--	--	--	--	--	--	--						
					I	+	+	--	--	--	--	--	--	--	--	--	--						
					J	--	--	--	--	--	--	--	--	--	--	--	--						
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TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)																	
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O							
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TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)																	
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O							
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					G	0	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
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1	1	4	4/16/98	11:00	A	0.025	--	--	+	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)																		
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O								
1	1	4	4/16/98	12:00	A	0.01	--	--	0	--	--	--	--	--	--	--								
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1	2	1	4/20/98	7:00	A	0.01	--	--	0	--	--	--	--	--	--	--	--	--	--	--				
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					D	0.18	0.1	--	0.2	--	--	--	--	--	--	--	--	--	--	--				
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1	2	1	4/20/98	9:00	A	0.02	--	--	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--		
					B	0	0.02	--	0.1	--	--	--	--	--	--	--	--	--	--	--	--	--		
					C	--	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					D	0.2	0.14	--	0.27	--	--	--	--	--	--	--	--	--	--	--	--	--		
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1	2	1	4/20/98	10:00	A	0.02	--	--	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					B	0	0.04	--	0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					C	--	0.12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					D	0.22	0.15	--	0.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					E	+	2	--	0.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					F	3.6	2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					G	2.2	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					H	0.52	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					I	0.64	0.55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
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TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)																	
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O							
1	2	1	4/20/98	11:00	A	0.03	--	--	0.01	--	--	--	--	--	--	--							
					B	0	0.04	--	0.15	--	--	--	--	--	--	--							
					C	--	0.15	--	--	--	--	--	--	--	--	--							
					D	0.26	0.19	--	0.32	--	--	--	--	--	--	--							
					E	+	2.2	--	0.44	--	--	--	--	--	--	--							
					F	3.8	2.7	--	--	--	--	--	--	--	--	--							
					G	2.3	1.4	--	--	--	--	--	--	--	--	--							
					H	0.62	0.02	--	--	--	--	--	--	--	--	--							
					I	0.78	0.72	--	--	--	--	--	--	--	--	--							
					J	--	--	--	--	--	--	--	--	--	--	--							
1	2	1	4/20/98	12:00	A	0.03	--	--	0.01	--	--	--	--	--	--	--	--						
					B	0	0	--	0	--	--	--	--	--	--	--	--						
					C	--	0.05	--	--	--	--	--	--	--	--	--	--						
					D	0.2	0.13	--	0.25	--	--	--	--	--	--	--	--						
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					F	3.7	2.8	--	--	--	--	--	--	--	--	--	--						
					G	2.3	2.3	--	--	--	--	--	--	--	--	--	--						
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					I	0.78	0.7	--	--	--	--	--	--	--	--	--	--						
1	2	1	4/20/98	13:00	A	0.03	--	--	0.02	--	--	--	--	--	--	--	--	--					
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1	2	1	4/20/98	14:00	A	0.05	--	--	0.02	--	--	--	--	--	--	--	--	--	--				
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					D	0.18	0.1	--	0.25	--	--	--	--	--	--	--	--	--	--				
					E	+	2	--	0.38	--	--	--	--	--	--	--	--	--	--				
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1	2	2	4/21/98	6:00	A	0.03	--	--	0	--	--	--	--	--	--	--	--	--	--	--			
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1	2	2	4/21/98	9:00	A	0.05	--	--	0.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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					I	0.4	0.34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)																				
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O										
1	2	2	4/21/98	10:00	A	0.05	--	--	0.01	--	--	--	--	--	--	--										
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					D	0.16	0.08	--	0.2	--	--	--	--	--	--	--	--									
					E	+	1.9	--	0.3	--	--	--	--	--	--	--	--									
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					G	2.1	1.2	--	--	--	--	--	--	--	--	--	--									
					H	0.54	0.02	--	--	--	--	--	--	--	--	--	--									
					I	0.66	0.62	--	--	--	--	--	--	--	--	--	--									
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1	2	2	4/21/98	12:00	A	0.05	--	--	0	--	--	--	--	--	--	--	--	--								
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					D	0.14	0.07	--	0.17	--	--	--	--	--	--	--	--	--								
					E	+	1.9	--	0.28	--	--	--	--	--	--	--	--	--								
					F	3.1	2.3	--	--	--	--	--	--	--	--	--	--	--								
					G	2.1	1.2	--	--	--	--	--	--	--	--	--	--	--								
					H	0.52	0.04	--	--	--	--	--	--	--	--	--	--	--								
					I	0.64	0.6	--	--	--	--	--	--	--	--	--	--	--								
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1	2	2	4/21/98	13:00	A	0.05	--	--	0	--	--	--	--	--	--	--	--	--	--							
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					C	--	+	--	--	--	--	--	--	--	--	--	--	--	--							
					D	0.12	0.05	--	0.15	--	--	--	--	--	--	--	--	--	--							
					E	+	1.8	--	0.29	--	--	--	--	--	--	--	--	--	--							
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1	2	2	4/21/98	14:00	A	0.05	--	--	0	--	--	--	--	--	--	--	--	--	--	--						
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					D	0.13	0.06	--	0.15	--	--	--	--	--	--	--	--	--	--	--						
					E	+	1.9	--	0.26	--	--	--	--	--	--	--	--	--	--	--						
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					H	0.47	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--						
					I	0.56	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--						
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1	2	3	4/22/98	6:00	A	0.02	--	--	+	--	--	--	--	--	--	--	--	--	--	--	--					
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					C	--	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--					
					D	0.04	0.05	--	0	--	--	--	--	--	--	--	--	--	--	--	--					
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1	2	3	4/22/98	7:00	A	0.03	--	--	+	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
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1	2	3	4/22/98	8:00	A	0.04	--	--	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					B	0	0.04	--	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					C	--	0.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
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TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)											
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O	
1	2	3	4/22/98	9:00	A	0.05	--	--	0	--	--	--	--	--	--	--	--
					B	0	0	--	0.05	--	--	--	--	--	--	--	--
					C	--	0.17	--	--	--	--	--	--	--	--	--	--
					D	0.18	0.13	--	0.2	--	--	--	--	--	--	--	--
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					F	2.3	1.6	--	--	--	--	--	--	--	--	--	--
					G	1.3	0.8	--	--	--	--	--	--	--	--	--	--
					H	0.32	0	--	--	--	--	--	--	--	--	--	--
					I	0.36	+	--	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--	--
1	2	3	4/22/98	10:00	A	0.5	--	--	0	--	--	--	--	--	--	--	--
					B	0	0	--	0.05	--	--	--	--	--	--	--	--
					C	--	0.2	--	--	--	--	--	--	--	--	--	--
					D	0.2	0.16	--	0.25	--	--	--	--	--	--	--	--
					E	+	1.2	--	0.3	--	--	--	--	--	--	--	--
					F	2.5	1.8	--	--	--	--	--	--	--	--	--	--
					G	1.5	1	--	--	--	--	--	--	--	--	--	--
					H	0.4	0	--	--	--	--	--	--	--	--	--	--
					I	0.5	0.58	--	--	--	--	--	--	--	--	--	--
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1	2	3	4/22/98	11:00	A	0.05	--	--	0.01	--	--	--	--	--	--	--	--
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					C	--	0.28	--	--	--	--	--	--	--	--	--	--
					D	0.24	0.2	--	0.29	--	--	--	--	--	--	--	--
					E	+	0	--	0.39	--	--	--	--	--	--	--	--
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					H	0.52	0	--	--	--	--	--	--	--	--	--	--
					I	0.62	0.6	--	--	--	--	--	--	--	--	--	--
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1	2	3	4/22/98	12:00	A	0.05	--	--	0	--	--	--	--	--	--	--	--
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					C	--	0.1	--	--	--	--	--	--	--	--	--	--
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					E	+	2.4	--	0.28	--	--	--	--	--	--	--	--
					F	2.5	1.8	--	--	--	--	--	--	--	--	--	--
					G	2.6	1	--	--	--	--	--	--	--	--	--	--
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1	2	3	4/22/98	13:00	A	0.05	--	--	0	--	--	--	--	--	--	--	--
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					C	--	0.05	--	--	--	--	--	--	--	--	--	--
					D	0.14	0.09	--	0.17	--	--	--	--	--	--	--	--
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					H	0.5	0	--	--	--	--	--	--	--	--	--	--
					I	0.56	0.58	--	--	--	--	--	--	--	--	--	--
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1	2	3	4/22/98	14:00	A	0.05	--	--	0	--	--	--	--	--	--	--	--
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					C	--	0.02	--	--	--	--	--	--	--	--	--	--
					D	0.14	0.07	--	0.2	--	--	--	--	--	--	--	--
					E	+	1.6	--	0.26	--	--	--	--	--	--	--	--
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					I	0.56	0.6	--	--	--	--	--	--	--	--	--	--
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1	2	3	4/23/98	6:00	A	0.02	--	--	+	--	--	--	--	--	--	--	--
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1	2	3	4/23/98	7:00	A	0.02	--	--	0	--	--	--	--	--	--	--	--
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					C	--	0.13	--	--	--	--	--	--	--	--	--	--
					D	0.03	0.05	--	0.05	--	--	--	--	--	--	--	--
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TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)																	
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O							
1	2	4	4/23/98	8:00	A	0.04	--	--	0	--	--	--	--	--	--	--							
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					D	0.1	0.08	--	0.17	--	--	--	--	--	--	--	--	--	--	--			
					E	+	0.8	--	0.18	--	--	--	--	--	--	--	--	--	--	--			
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1	2	4	4/23/98	14:00	A	0.04	--	--	0	--	--	--	--	--	--	--	--	--	--	--	--	--	
					B	0	0.02	--	0.05	--	--	--	--	--	--	--	--	--	--	--	--	--	
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					D	0.1	0.07	--	0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	
					E	+	0.8	--	0.15	--	--	--	--	--	--	--	--	--	--	--	--	--	
					F	1.5	1.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					G	1	0.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					H	0.28	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					I	0.3	0.34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
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1	3	1	4/27/98	8:00	A	0	--	--	+	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					C	--	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					D	0	0.05	--	0.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					E	0.3	0.4	--	0.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					F	0.7	0.75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					G	2.1	0.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)																	
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O							
1	3	1	4/27/98	9:00	A	0.01	--	--	+	--	--	--	--	--	--	--							
					B	0	0	--	0	--	--	--	--	--	--	--							
					C	--	0.1	--	--	--	--	--	--	--	--	--							
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					E	0.4	0.6	--	0.1	--	--	--	--	--	--	--							
					F	0.84	1	--	--	--	--	--	--	--	--	--							
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1	3	1	4/27/98	10:00	A	0.01	--	--	0	--	--	--	--	--	--	--	--						
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					E	0.46	0.7	--	0.2	--	--	--	--	--	--	--	--						
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					E	0.44	0.8	--	0.12	--	--	--	--	--	--	--	--	--					
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1	3	1	4/27/98	12:00	A	0	--	--	+	--	--	--	--	--	--	--	--	--	--				
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1	3	1	4/27/98	13:00	A	0	--	--	+	--	--	--	--	--	--	--	--	--	--	--			
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					E	0.34	0.42	--	0	--	--	--	--	--	--	--	--	--	--	--			
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1	3	1	4/27/98	14:00	A	0	--	--	+	--	--	--	--	--	--	--	--	--	--	--	--		
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1	3	1	4/27/98	15:00	A	0	--	--	+	--	--	--	--	--	--	--	--	--	--	--	--	--	
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					E	0.3	0.16	--	0	--	--	--	--	--	--	--	--	--	--	--	--	--	
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					J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
1	3	2	4/29/98	11:00	A	0.02	--	--	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					B	0.02	0.02	--	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					C	--	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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					F	0.02	+	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					G	0.7	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
					H	1.4	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)																		
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O								
1	3	2	4/29/98	12:00	A	0.03	--	--	+	--	--	--	--	--	--	--	--							
					B	0.02	0.02	--	0	--	--	--	--	--	--	--	--							
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					D	0.04	0	--	0	--	--	--	--	--	--	--	--							
					E	+	0.04	--	0	--	--	--	--	--	--	--	--							
					F	0.02	0.2	--	--	--	--	--	--	--	--	--	--							
					G	1.5	0.5	--	--	--	--	--	--	--	--	--	--							
					H	1.9	0.04	--	--	--	--	--	--	--	--	--	--							
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1	3	2	4/29/98	13:00	A	0.04	--	--	0	--	--	--	--	--	--	--	--	--						
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					F	0.5	0.25	--	--	--	--	--	--	--	--	--	--	--						
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1	3	2	4/29/98	14:00	A	0.03	--	--	0	--	--	--	--	--	--	--	--	--	--					
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					E	0.2	0.36	--	0	--	--	--	--	--	--	--	--	--	--					
					F	0.58	0.62	--	--	--	--	--	--	--	--	--	--	--	--					
					G	1.7	0.7	--	--	--	--	--	--	--	--	--	--	--	--					
					H	2.3	0.06	--	--	--	--	--	--	--	--	--	--	--	--					
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1	3	2	4/29/98	15:00	A	0.05	--	--	0	--	--	--	--	--	--	--	--	--	--	--				
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					D	0.02	0	--	0	--	--	--	--	--	--	--	--	--	--	--				
					E	0.24	0.38	--	0	--	--	--	--	--	--	--	--	--	--	--				
					F	0.6	0.68	--	--	--	--	--	--	--	--	--	--	--	--	--				
					G	1.8	0.7	--	--	--	--	--	--	--	--	--	--	--	--	--				
					H	2.3	0.04	--	--	--	--	--	--	--	--	--	--	--	--	--				
					I	1.8	1.4	--	--	--	--	--	--	--	--	--	--	--	--	--				
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1	3	2	4/29/98	16:00	A	0.03	--	--	0	--	--	--	--	--	--	--	--	--	--	--	--			
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					D	0.02	+	--	0.03	--	--	--	--	--	--	--	--	--	--	--	--			
					E	0.22	0.04	--	0.08	--	--	--	--	--	--	--	--	--	--	--	--			
					F	0.6	0.65	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
					G	1.8	0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
					H	2.4	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
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					E	0.38	0.5	--	0.12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
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1	3	2	4/29/98	19:00	A	0.04	--	--	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)										
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O
1	3	3	4/30/98	6:00	A	0.04	--	--	0	--	--	--	--	--	--	--
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1	3	3	4/30/98	7:00	A	0	--	--	+	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--
					C	--	0.12	--	--	--	--	--	--	--	--	--
					D	0	0.05	--	0.07	--	--	--	--	--	--	--
					E	0.1	0.02	--	0.08	--	--	--	--	--	--	--
					F	0.26	0	--	--	--	--	--	--	--	--	--
					G	1	0.3	--	--	--	--	--	--	--	--	--
					H	1.5	0	--	--	--	--	--	--	--	--	--
					I	1	0.8	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--
1	3	3	4/30/98	8:00	A	0.03	--	--	0	--	--	--	--	--	--	--
					B	0	0.02	--	0	--	--	--	--	--	--	--
					C	--	0.25	--	--	--	--	--	--	--	--	--
					D	0	0.14	--	0.15	--	--	--	--	--	--	--
					E	0.3	0.38	--	0.16	--	--	--	--	--	--	--
					F	0.58	0.7	--	--	--	--	--	--	--	--	--
					G	1.6	0.7	--	--	--	--	--	--	--	--	--
					H	2	0	--	--	--	--	--	--	--	--	--
					I	1.4	1.4	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--
1	3	3	4/30/98	9:00	A	0.02	--	--	0	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--
					C	--	0.32	--	--	--	--	--	--	--	--	--
					D	0	0.14	--	0.18	--	--	--	--	--	--	--
					E	0.4	0.6	--	0.2	--	--	--	--	--	--	--
					F	0.8	1.1	--	--	--	--	--	--	--	--	--
					G	2	1	--	--	--	--	--	--	--	--	--
					H	2.5	0	--	--	--	--	--	--	--	--	--
					I	1.8	1.8	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--
1	3	3	4/30/98	10:00	A	0.03	--	--	0	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--
					C	--	0.11	--	--	--	--	--	--	--	--	--
					D	0	0.05	--	0.05	--	--	--	--	--	--	--
					E	0.36	0.6	--	0.1	--	--	--	--	--	--	--
					F	0.8	1.1	--	--	--	--	--	--	--	--	--
					G	2.1	1	--	--	--	--	--	--	--	--	--
					H	2.5	0	--	--	--	--	--	--	--	--	--
					I	1.8	1.8	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--
1	3	3	4/30/98	12:00	A	0	--	--	0	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--
					C	--	+	--	--	--	--	--	--	--	--	--
					D	0	+	--	0	--	--	--	--	--	--	--
					E	0.28	0.52	--	0	--	--	--	--	--	--	--
					F	0.72	0.6	--	--	--	--	--	--	--	--	--
					G	2.1	0.9	--	--	--	--	--	--	--	--	--
					H	2.4	0	--	--	--	--	--	--	--	--	--
					I	1.8	1.6	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--
1	3	3	4/30/98	13:00	A	0	--	--	+	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--
					C	--	+	--	--	--	--	--	--	--	--	--
					D	0.02	+	--	+	--	--	--	--	--	--	--
					E	0.2	0.42	--	+	--	--	--	--	--	--	--
					F	0.6	0.73	--	--	--	--	--	--	--	--	--
					G	2	0.75	--	--	--	--	--	--	--	--	--
					H	2	0	--	--	--	--	--	--	--	--	--
					I	1.6	1.4	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)												
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O		
1	3	3	4/30/98	14:00	A	0.06	--	--	0.01	--	--	--	--	--	--	--	--	
					B	0.04	0.06	--	0	--	--	--	--	--	--	--	--	
					C	--	+	--	--	--	--	--	--	--	--	--	--	
					D	0.02	0.1	--	0.18	--	--	--	--	--	--	--	--	
					E	0.36	0.5	--	0.2	--	--	--	--	--	--	--	--	
					F	0.7	0.9	--	--	--	--	--	--	--	--	--	--	
					G	2	0.9	--	--	--	--	--	--	--	--	--	--	
					H	2.3	0.02	--	--	--	--	--	--	--	--	--	--	
					I	1.5	1.5	--	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	--	
1	3	4	4/30/98	15:00	A	0.05	--	--	0	--	--	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--	--	--
					C	--	0.1	--	--	--	--	--	--	--	--	--	--	
					D	0	0.07	--	0.05	--	--	--	--	--	--	--	--	
					E	0.26	0.4	--	0.1	--	--	--	--	--	--	--	--	
					F	0.5	0.65	--	--	--	--	--	--	--	--	--	--	
					G	1.2	0.5	--	--	--	--	--	--	--	--	--	--	
					H	1.5	0	--	--	--	--	--	--	--	--	--	--	
					I	0.8	1.2	--	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	--	
1	3	4	4/30/98	16:00	A	0	--	--	0	--	--	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--	--	--
					C	--	0.6	--	--	--	--	--	--	--	--	--	--	
					D	0	0.05	--	0.05	--	--	--	--	--	--	--	--	
					E	0.26	0.4	--	0.1	--	--	--	--	--	--	--	--	
					F	0.5	0.75	--	--	--	--	--	--	--	--	--	--	
					G	1.3	0.5	--	--	--	--	--	--	--	--	--	--	
					H	1.5	0	--	--	--	--	--	--	--	--	--	--	
					I	1	1.1	--	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	--	
1	3	4	4/30/98	17:00	A	0	--	--	+	--	--	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--	--	--
					C	--	+	--	--	--	--	--	--	--	--	--	--	
					D	0	+	--	0	--	--	--	--	--	--	--	--	
					E	0.2	0.36	--	0.02	--	--	--	--	--	--	--	--	
					F	0.48	0.6	--	--	--	--	--	--	--	--	--	--	
					G	1.4	0.5	--	--	--	--	--	--	--	--	--	--	
					H	1.5	0	--	--	--	--	--	--	--	--	--	--	
					I	1	1	--	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	--	
1	3	4	4/30/98	18:00	A	0	--	--	+	--	--	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--	--	--
					C	--	+	--	--	--	--	--	--	--	--	--	--	
					D	0	0	--	0	--	--	--	--	--	--	--	--	
					E	0.2	0.34	--	0.06	--	--	--	--	--	--	--	--	
					F	0.48	0.5	--	--	--	--	--	--	--	--	--	--	
					G	--	0.5	--	--	--	--	--	--	--	--	--	--	
					H	1.5	0	--	--	--	--	--	--	--	--	--	--	
					I	1	1	--	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	--	
1	3	4	4/30/98	19:00	A	0.02	--	--	0	--	--	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--	--	--
					C	--	0.07	--	--	--	--	--	--	--	--	--	--	
					D	0	0.06	--	0.05	--	--	--	--	--	--	--	--	
					E	0.26	0.4	--	0.1	--	--	--	--	--	--	--	--	
					F	0.5	0.75	--	--	--	--	--	--	--	--	--	--	
					G	1.3	0.5	--	--	--	--	--	--	--	--	--	--	
					H	1.5	0	--	--	--	--	--	--	--	--	--	--	
					I	1	1.1	--	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	--	
1	3	4	4/30/98	20:00	A	0.02	--	--	+	--	--	--	--	--	--	--	--	--
					B	0	0.04	--	0	--	--	--	--	--	--	--	--	--
					C	--	0.25	--	--	--	--	--	--	--	--	--	--	
					D	0	0.16	--	0.15	--	--	--	--	--	--	--	--	
					E	0.4	0.5	--	0.2	--	--	--	--	--	--	--	--	
					F	0.08	1	--	--	--	--	--	--	--	--	--	--	
					G	1.5	0.7	--	--	--	--	--	--	--	--	--	--	
					H	1.6	0	--	--	--	--	--	--	--	--	--	--	
					I	1.2	0.5	--	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	--	
1	3	4	4/30/98	21:00	A	0	--	--	+	--	--	--	--	--	--	--	--	--
					B	0	0.05	--	0	--	--	--	--	--	--	--	--	--
					C	--	0.28	--	--	--	--	--	--	--	--	--	--	
					D	0	0.15	--	0.15	--	--	--	--	--	--	--	--	
					E	0.4	0.52	--	0.2	--	--	--	--	--	--	--	--	
					F	0.7	1	--	--	--	--	--	--	--	--	--	--	
					G	1.6	0.8	--	--	--	--	--	--	--	--	--	--	
					H	1.8	0	--	--	--	--	--	--	--	--	--	--	
					I	1.2	1.4	--	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	--	

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)												
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O		
1	3	4	4/30/98	22:00	A	0	--	--	+	--	--	--	--	--	--	--	--	
					B	0	0.02	--	0	--	--	--	--	--	--	--	--	
					C	--	0.27	--	--	--	--	--	--	--	--	--	--	
					D	0	0.13	--	0.15	--	--	--	--	--	--	--	--	
					E	0.4	1	--	0.2	--	--	--	--	--	--	--	--	
					F	0.62	0.58	--	--	--	--	--	--	--	--	--	--	
					G	1.6	0.8	--	--	--	--	--	--	--	--	--	--	
					H	1.8	0	--	--	--	--	--	--	--	--	--	--	
					I	1.2	1.5	--	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	--	
1	3	4	4/30/98	23:00	A	0	--	--	+	--	--	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--	--	--
					C	--	0.05	--	--	--	--	--	--	--	--	--	--	--
					D	0	+	--	0	--	--	--	--	--	--	--	--	--
					E	0.28	0.48	--	0.02	--	--	--	--	--	--	--	--	--
					F	0.62	0.85	--	--	--	--	--	--	--	--	--	--	--
					G	1.7	1.8	--	--	--	--	--	--	--	--	--	--	--
					H	2.7	0	--	--	--	--	--	--	--	--	--	--	--
					I	1	1.4	--	--	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--	--	--
1	4	1	5/4/98	8:00	A	0	--	--	0	--	--	--	--	--	--	--	--	--
					B	0.02	0.02	--	0	--	--	--	--	--	--	--	--	--
					C	--	>0.5	--	--	--	--	--	--	--	--	--	--	--
					D	>1	>0.5	--	0.45	--	--	--	--	--	--	--	--	--
					E	>1	>1	--	0.48	--	--	--	--	--	--	--	--	--
					F	>1	0.55	--	--	--	--	--	--	--	--	--	--	--
					G	2.3	1.4	--	--	--	--	--	--	--	--	--	--	--
					H	1.9	-	--	--	--	--	--	--	--	--	--	--	--
					I	1.6	1.3	--	--	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--	--	--
1	4	1	5/4/98	9:00	A	0	--	--	0	--	--	--	--	--	--	--	--	--
					B	0.02	0.02	--	0	--	--	--	--	--	--	--	--	--
					C	--	>0.5	--	--	--	--	--	--	--	--	--	--	--
					D	>1	>0.5	--	0.45	--	--	--	--	--	--	--	--	--
					E	>1	>2	--	0.48	--	--	--	--	--	--	--	--	--
					F	>1	1.9	--	--	--	--	--	--	--	--	--	--	--
					G	2.5	1.7	--	--	--	--	--	--	--	--	--	--	--
					H	2.3	0	--	--	--	--	--	--	--	--	--	--	--
					I	1.9	0.6	--	--	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--	--	--
1	4	1	5/4/98	10:00	A	0	--	--	0	--	--	--	--	--	--	--	--	--
					B	0.02	0	--	0	--	--	--	--	--	--	--	--	--
					C	--	2	--	--	--	--	--	--	--	--	--	--	--
					D	1.8	1.5	--	0.5	--	--	--	--	--	--	--	--	--
					E	1.8	2.2	--	0.56	--	--	--	--	--	--	--	--	--
					F	3.1	2.3	--	--	--	--	--	--	--	--	--	--	--
					G	3	2	--	--	--	--	--	--	--	--	--	--	--
					H	2.5	-	--	--	--	--	--	--	--	--	--	--	--
					I	2	1.9	--	--	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--	--	--
1	4	1	5/4/98	11:00	A	0	--	--	+	--	--	--	--	--	--	--	--	--
					B	0.02	0	--	0	--	--	--	--	--	--	--	--	--
					C	--	1.7	--	--	--	--	--	--	--	--	--	--	--
					D	1.4	1.1	--	0.5	--	--	--	--	--	--	--	--	--
					E	1.6	1.85	--	0.52	--	--	--	--	--	--	--	--	--
					F	3.2	2.3	--	--	--	--	--	--	--	--	--	--	--
					G	2.7	2.2	--	--	--	--	--	--	--	--	--	--	--
					H	2.7	-	--	--	--	--	--	--	--	--	--	--	--
					I	2.2	2.1	--	--	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--	--	--
1	4	1	5/4/98	13:00	A	0.02	--	--	+	--	--	--	--	--	--	--	--	--
					B	0.04	0	--	0	--	--	--	--	--	--	--	--	--
					C	--	1.7	--	--	--	--	--	--	--	--	--	--	--
					D	1.6	1.2	--	0.45	--	--	--	--	--	--	--	--	--
					E	1.6	2	--	0.48	--	--	--	--	--	--	--	--	--
					F	3	2.2	--	--	--	--	--	--	--	--	--	--	--
					G	2.7	2.2	--	--	--	--	--	--	--	--	--	--	--
					H	2.7	-	--	--	--	--	--	--	--	--	--	--	--
					I	2.1	2.1	--	--	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--	--	--
1	4	1	5/4/98	14:00	A	0.04	--	--	+	--	--	--	--	--	--	--	--	--
					B	0.04	0	--	0	--	--	--	--	--	--	--	--	--
					C	--	1.6	--	--	--	--	--	--	--	--	--	--	--
					D	1.6	1.2	--	0.42	--	--	--	--	--	--	--	--	--
					E	1.6	2.2	--	0.46	--	--	--	--	--	--	--	--	--
					F	3	2.1	--	--	--	--	--	--	--	--	--	--	--
					G	2.8	2.1	--	--	--	--	--	--	--	--	--	--	--
					H	2.8	-	--	--	--	--	--	--	--	--	--	--	--
					I	2	2.1	--	--	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--	--	--

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)										
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O
1	4	2	5/5/98	8:00	A	2	--	--	0	--	--	--	--	--	--	--
					B	3	0.1	--	0	--	--	--	--	--	--	--
					C	--	1.1	--	--	--	--	--	--	--	--	--
					D	6	1.1	--	0.5	--	--	--	--	--	--	--
					E	3.5	1	--	0.5	--	--	--	--	--	--	--
					F	7	1	--	--	--	--	--	--	--	--	--
					G	2	0.8	--	--	--	--	--	--	--	--	--
					H	3	--	--	--	--	--	--	--	--	--	--
					I	7.5	0.6	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--
1	4	3	5/6/98	9:00	A	0.03	--	--	0	--	--	--	--	--	--	--
					B	0.08	0.04	--	0	--	--	--	--	--	--	--
					C	--	0.9	--	--	--	--	--	--	--	--	--
					D	0	0.88	--	0.3	--	--	--	--	--	--	--
					E	0.6	0.5	--	0.36	--	--	--	--	--	--	--
					F	1.2	1.15	--	--	--	--	--	--	--	--	--
					G	0	1	--	--	--	--	--	--	--	--	--
					H	>5	0	--	--	--	--	--	--	--	--	--
					I	0	1	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--
1	4	3	5/6/98	10:00	A	0.03	--	--	0	--	--	--	--	--	--	--
					B	0.01	0.1	--	0	--	--	--	--	--	--	--
					C	--	0.98	--	--	--	--	--	--	--	--	--
					D	0	0.88	--	0.3	--	--	--	--	--	--	--
					E	1	0.6	--	0.3	--	--	--	--	--	--	--
					F	1.4	1.35	--	--	--	--	--	--	--	--	--
					G	0	1.2	--	--	--	--	--	--	--	--	--
					H	>5	0	--	--	--	--	--	--	--	--	--
					I	0	1.2	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--
1	4	3	5/6/98	12:00	A	0	--	--	0.01	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--
					C	--	1	--	--	--	--	--	--	--	--	--
					D	1	0.8	--	0.3	--	--	--	--	--	--	--
					E	1	0.65	--	0.3	--	--	--	--	--	--	--
					F	1.4	1.5	--	--	--	--	--	--	--	--	--
					G	1	1.4	--	--	--	--	--	--	--	--	--
					H	0.2	0	--	--	--	--	--	--	--	--	--
					I	0	1.4	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--
1	4	3	5/6/98	13:00	A	0.02	--	--	0	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--
					C	--	0.9	--	--	--	--	--	--	--	--	--
					D	0.96	0.8	--	0.25	--	--	--	--	--	--	--
					E	0.78	0.5	--	0.28	--	--	--	--	--	--	--
					F	1.4	1.5	--	--	--	--	--	--	--	--	--
					G	1.7	1.2	--	--	--	--	--	--	--	--	--
					H	0.6	0	--	--	--	--	--	--	--	--	--
					I	0	1.3	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--
1	4	3	5/6/98	14:00	A	0	--	--	0	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--
					C	--	0.8	--	--	--	--	--	--	--	--	--
					D	0.9	0.74	--	0.2	--	--	--	--	--	--	--
					E	0.72	0.5	--	0.2	--	--	--	--	--	--	--
					F	1.4	1.35	--	--	--	--	--	--	--	--	--
					G	1.5	1.2	--	--	--	--	--	--	--	--	--
					H	0	0	--	--	--	--	--	--	--	--	--
					I	0	1.2	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--
1	4	4	5/7/98	7:00	A	0	--	--	0	--	--	--	--	--	--	--
					B	0	0.04	--	0	--	--	--	--	--	--	--
					C	--	0	--	--	--	--	--	--	--	--	--
					D	0.4	0.24	--	0	--	--	--	--	--	--	--
					E	0	0	--	0	--	--	--	--	--	--	--
					F	0	+	--	--	--	--	--	--	--	--	--
					G	0	0	--	--	--	--	--	--	--	--	--
					H	+	--	--	--	--	--	--	--	--	--	--
					I	0.01	+	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--
1	4	4	5/7/98	8:00	A	0	--	--	0	--	--	--	--	--	--	--
					B	0	0.04	--	0	--	--	--	--	--	--	--
					C	--	0.4	--	--	--	--	--	--	--	--	--
					D	0.6	0.48	--	0.15	--	--	--	--	--	--	--
					E	0.32	0.2	--	0.12	--	--	--	--	--	--	--
					F	0.5	0.35	--	--	--	--	--	--	--	--	--
					G	0.3	0.4	--	--	--	--	--	--	--	--	--
					H	+	-	--	--	--	--	--	--	--	--	--
					I	0	0.3	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)																						
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O												
1	4	4	5/7/98	9:00	A	0	--	--	0	--	--	--	--	--	--	--												
					B	0	0.06	--	0	--	--	--	--	--	--	--												
					C	--	0.5	--	--	--	--	--	--	--	--	--												
					D	0.4	0.36	--	0.16	--	--	--	--	--	--	--												
					E	0.3	0.3	--	0.18	--	--	--	--	--	--	--												
					F	0.5	0.45	--	--	--	--	--	--	--	--	--												
					G	0.4	0.5	--	--	--	--	--	--	--	--	--												
					H	+	--	--	--	--	--	--	--	--	--	--												
					I	0.04	0.4	--	--	--	--	--	--	--	--	--												
					J	--	--	--	--	--	--	--	--	--	--	--												
1	4	4	5/7/98	10:00	A	0.03	--	--	0	--	--	--	--	--	--	--	--											
					B	0	0	--	0	--	--	--	--	--	--	--	--											
					C	--	0.46	--	--	--	--	--	--	--	--	--	--											
					D	0.44	0.36	--	0.13	--	--	--	--	--	--	--	--											
					E	0.3	0.3	--	0.12	--	--	--	--	--	--	--	--											
					F	0.6	0.5	--	--	--	--	--	--	--	--	--	--											
					G	0.5	0.5	--	--	--	--	--	--	--	--	--	--											
					H	0.3	--	--	--	--	--	--	--	--	--	--	--											
					I	0.02	0.5	--	--	--	--	--	--	--	--	--	--											
					J	--	--	--	--	--	--	--	--	--	--	--	--											
1	4	4	5/7/98	11:00	A	0	--	--	+	--	--	--	--	--	--	--	--	--										
					B	0	0	--	0	--	--	--	--	--	--	--	--	--										
					C	--	0.26	--	--	--	--	--	--	--	--	--	--	--										
					D	0.2	0.14	--	0	--	--	--	--	--	--	--	--	--										
					E	0	0.18	--	0	--	--	--	--	--	--	--	--	--										
					F	0	0.25	--	--	--	--	--	--	--	--	--	--	--										
					G	0.4	0.4	--	--	--	--	--	--	--	--	--	--	--										
					H	0	--	--	--	--	--	--	--	--	--	--	--	--										
					I	0	0.3	--	--	--	--	--	--	--	--	--	--	--										
					J	--	--	--	--	--	--	--	--	--	--	--	--	--										
1	4	4	5/7/98	12:00	A	0.08	--	--	0	--	--	--	--	--	--	--	--	--	--									
					B	0	0	--	0	--	--	--	--	--	--	--	--	--	--									
					C	--	0.28	--	--	--	--	--	--	--	--	--	--	--	--									
					D	0.3	0.23	--	0.05	--	--	--	--	--	--	--	--	--	--									
					E	0.08	0.05	--	0.06	--	--	--	--	--	--	--	--	--	--									
					F	0.02	0.35	--	--	--	--	--	--	--	--	--	--	--	--									
					G	0.5	0.4	--	--	--	--	--	--	--	--	--	--	--	--									
					H	0.1	0	--	--	--	--	--	--	--	--	--	--	--	--									
					I	0	0.3	--	--	--	--	--	--	--	--	--	--	--	--									
					J	--	--	--	--	--	--	--	--	--	--	--	--	--	--									
1	4	4	5/7/98	13:00	A	0.02	--	--	0	--	--	--	--	--	--	--	--	--	--	--								
					B	0	0	--	0	--	--	--	--	--	--	--	--	--	--	--								
					C	--	0.18	--	--	--	--	--	--	--	--	--	--	--	--	--								
					D	0.48	0.32	--	0	--	--	--	--	--	--	--	--	--	--	--								
					E	0	0.05	--	0	--	--	--	--	--	--	--	--	--	--	--								
					F	0	0.25	--	--	--	--	--	--	--	--	--	--	--	--	--								
					G	0.3	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--								
					H	0	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
					I	0	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
					J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
1	4	4	5/7/98	14:00	A	0	--	--	+	--	--	--	--	--	--	--	--	--	--	--	--							
					B	0	0	--	0	--	--	--	--	--	--	--	--	--	--	--	--							
					C	--	0.18	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
					D	0.48	0.32	--	0	--	--	--	--	--	--	--	--	--	--	--	--							
					E	0.12	0	--	0	--	--	--	--	--	--	--	--	--	--	--	--							
					F	0.5	0.25	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
					G	0.3	0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--							
					H	0	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--						
					I	0	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--						
					J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--						
2	1	1	5/11/98	8:00	A	0	--	--	+	--	--	--	--	--	--	--	--	--	--	--	--	--						
					B	0	0.04	--	0	--	--	--	--	--	--	--	--	--	--	--	--	--						
					C	--	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--						
					D	>1	0.92	--	0.18	--	--	--	--	--	--	--	--	--	--	--	--	--						
					E	0.7	0	--	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--						
					F	1	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--					
					G	0.6	0.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--					
					H	0	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
					I	0	0.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
					J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
2	1	1	5/11/98	9:00	A	0	--	--	+	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					B	0	0.04	--	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					C	--	>1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					D	1.6	>1	--	0.35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					E	1.45	0.75	--	0.43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					F	2	0.75	--	1.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					G	2	1.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					H	0	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					I	0	1.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)											
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O	
2	1	1	5/11/98	10:00	A	0	--	0	--	--	--	--	--	--	--	--	
					B	0	1.4	0	--	--	--	--	--	--	--	--	
					C	--	2	0.6	--	--	--	--	--	--	--	--	
					D	1.6	1.3	0.7	--	--	--	--	--	--	--	--	
					E	1.6	1.85	0.7	--	--	--	--	--	--	--	--	
					F	2.25	2.15	0.7	--	--	--	--	--	--	--	--	
					G	2.5	1.5	0.76	--	--	--	--	--	--	--	--	
					H	0	1.9	0.82	--	--	--	--	--	--	--	--	
					I	0	1.75	0.7	--	--	--	--	--	--	--	--	
					J	--	--	0	--	--	--	--	--	--	--	--	
2	1	1	5/11/98	13:00	A	0	--	0	0	--	--	--	--	--	--	--	
					B	0	1.4	0	0	--	--	--	--	--	--	--	
					C	--	2	0.64	--	--	--	--	--	--	--	--	
					D	1.6	1.3	0.8	0.35	--	--	--	--	--	--	--	
					E	1.7	1.85	1	0.4	--	--	--	--	--	--	--	
					F	2.15	2.15	1	1.7	--	--	--	--	--	--	--	
					G	2.5	1.5	1.6	--	--	--	--	--	--	--	--	
					H	0	1.9	1.6	--	--	--	--	--	--	--	--	
					I	0	1.75	1.6	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	
2	1	2	5/12/98	8:00	A	0	--	--	0	--	--	--	--	--	--	--	
					B	0	0.04	--	0	--	--	--	--	--	--	--	
					C	--	2.1	0.64	--	--	--	--	--	--	--	--	
					D	0.58	1.4	0.8	0.5	--	--	--	--	--	--	--	
					E	1.8	1	1.4	0.52	--	--	--	--	--	--	--	
					F	2.6	2.25	1.3	2.2	--	--	--	--	--	--	--	
					G	2.6	1.7	1.9	--	--	--	--	--	--	--	--	
					H	0	2	1.8	--	--	--	--	--	--	--	--	
					I	0.08	1.55	1.85	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	
2	1	2	5/12/98	10:00	A	0	--	--	0	--	--	--	--	--	--	--	
					B	0	0.04	--	0	--	--	--	--	--	--	--	
					C	--	2	0.68	--	--	--	--	--	--	--	--	
					D	1.6	1.5	0.7	0.5	--	--	--	--	--	--	--	
					E	1.7	1	1.6	0.52	--	--	--	--	--	--	--	
					F	2.7	2.3	1.3	2.1	--	--	--	--	--	--	--	
					G	2.5	2	2	--	--	--	--	--	--	--	--	
					H	0	2.2	2	--	--	--	--	--	--	--	--	
					I	0	1.6	1.9	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	
2	1	2	5/12/98	12:00	A	0	--	--	0	--	--	--	--	--	--	--	
					B	0	0.05	--	0	--	--	--	--	--	--	--	
					C	--	2.1	0.65	--	--	--	--	--	--	--	--	
					D	1.4	1.4	0.8	0.5	--	--	--	--	--	--	--	
					E	1.7	1	1.5	0.5	--	--	--	--	--	--	--	
					F	2.6	2.4	1.3	2.2	--	--	--	--	--	--	--	
					G	2.6	1.8	2.1	--	--	--	--	--	--	--	--	
					H	0	2.1	2.1	--	--	--	--	--	--	--	--	
					I	0	1.5	2	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	
2	1	3	5/13/98	8:00	A	0.08	--	--	--	--	--	--	--	--	--	--	
					B	0	0.15	--	--	--	--	--	--	--	--	--	
					C	--	3	--	--	--	--	--	--	--	--	--	
					D	2.7	2	--	--	--	--	--	--	--	--	--	
					E	1.2	>1	--	--	--	--	--	--	--	--	--	
					F	3.5	>1	--	--	--	--	--	--	--	--	--	
					G	3.6	2.9	--	--	--	--	--	--	--	--	--	
					H	0.18	>1	--	--	--	--	--	--	--	--	--	
					I	0.12	--	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	
2	1	3	5/13/98	10:00	A	+	--	--	0.02	--	--	--	--	--	--	--	
					B	+	0.06	--	0	--	--	--	--	--	--	--	
					C	--	2.7	1.25	--	--	--	--	--	--	--	--	
					D	2	1.9	1.35	0.68	--	--	--	--	--	--	--	
					E	0.85	1.2	2	0.98	--	--	--	--	--	--	--	
					F	4	2.9	2.6	>3	--	--	--	--	--	--	--	
					G	4.3	2.3	2.4	--	--	--	--	--	--	--	--	
					H	0.06	2.7	2.4	--	--	--	--	--	--	--	--	
					I	0.04	3.5	2.4	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	
2	1	3	5/13/98	12:00	A	0.02	--	--	0	0.015	--	--	--	--	--	--	--
					B	0	0.04	--	0	--	--	--	--	--	--	--	
					C	--	2.5	1.2	--	--	--	--	--	--	--	--	
					D	2	1.75	1.3	0.7	--	--	--	--	--	--	--	
					E	1.5	1	1.9	0.82	--	--	--	--	--	--	--	
					F	4	3.8	2.65	3	--	--	--	--	--	--	--	
					G	4.5	2.7	2.25	--	--	--	--	--	--	--	--	
					H	0	2.6	2.3	--	--	--	--	--	--	--	--	
					I	0	3.5	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)												
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O		
2	1	3	5/13/98	14:00	A	0.03	--	--	0.02	--	--	--	--	--	--	--	--	
					B	0	0.06	--	0	--	--	--	--	--	--	--	--	
					C	--	2.5	0.85	0	--	--	--	--	--	--	--	--	
					D	2	2	1.3	0.65	--	--	--	--	--	--	--	--	
					E	2.5	0.09	1.9	0.86	--	--	--	--	--	--	--	--	
					F	4	3.9	2.65	>3.0	--	--	--	--	--	--	--	--	
					G	4.7	2.6	2.25	--	--	--	--	--	--	--	--	--	
					H	0	2.6	2.4	--	--	--	--	--	--	--	--	--	
					I	0	3.6	1.75	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	--	
2	1	4	5/14/98	6:00	A	0	--	--	0	--	--	--	--	--	--	--	--	--
					B	+	0.1	--	0	--	--	--	--	--	--	--	--	--
					C	--	2.75	1.2	--	--	--	--	--	--	--	--	--	
					D	2	1.75	1.35	0.25	--	--	--	--	--	--	--	--	
					E	2.6	3.8	2	0.4	--	--	--	--	--	--	--	--	
					F	4.4	3.9	2.7	>3	--	--	--	--	--	--	--	--	
					G	4.5	4	2.4	--	--	--	--	--	--	--	--	--	
					H	0	2.9	2.6	--	--	--	--	--	--	--	--	--	
					I	0	3.9	1.8	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	--	
2	1	4	5/14/98	9:15	A	0	--	--	0	--	--	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--	--	--
					C	--	1	0.35	--	--	--	--	--	--	--	--	--	
					D	0.25	0	0.35	0.25	--	--	--	--	--	--	--	--	
					E	1	2.1	1.2	0.4	--	--	--	--	--	--	--	--	
					F	1.8	2	1.7	>3	--	--	--	--	--	--	--	--	
					G	3.1	2.3	1.6	--	--	--	--	--	--	--	--	--	
					H	0	1.7	1.75	--	--	--	--	--	--	--	--	--	
					I	0	2.4	1.2	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	--	
2	1	4	5/14/98	12:00	A	0	--	--	0	--	--	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--	--	--
					C	--	2	0.75	--	--	--	--	--	--	--	--	--	
					D	1.9	2	1.25	0.06	--	--	--	--	--	--	--	--	
					E	2.1	3.5	1.7	0.78	--	--	--	--	--	--	--	--	
					F	4	3.5	2.4	>3	--	--	--	--	--	--	--	--	
					G	4	3.5	2.1	--	--	--	--	--	--	--	--	--	
					H	0	2.6	2.2	--	--	--	--	--	--	--	--	--	
					I	0	2.5	1.5	--	--	--	--	--	--	--	--	--	
					J	--	3.5	--	--	--	--	--	--	--	--	--	--	
2	1	4	5/14/98	14:00	A	0	--	--	0.025	--	--	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--	--	--
					C	--	2.25	0.75	--	--	--	--	--	--	--	--	--	
					D	2	1.75	1.2	0.6	--	--	--	--	--	--	--	--	
					E	2.4	3.6	--	0.7	--	--	--	--	--	--	--	--	
					F	4	3.6	2.4	2	--	--	--	--	--	--	--	--	
					G	4	2.5	--	--	--	--	--	--	--	--	--	--	
					H	+	2.5	--	--	--	--	--	--	--	--	--	--	
					I	+	3.5	--	--	--	--	--	--	--	--	--	--	
					J	--	--	--	--	--	--	--	--	--	--	--	--	
2	1	5	5/15/98	11:00	A	0.02	--	0	0.03	--	--	--	--	--	--	--	--	--
					B	0	--	0	0	--	--	--	--	--	--	--	--	--
					C	--	--	0.65	--	--	--	--	--	--	--	--	--	--
					D	0.75	--	1	0.47	--	--	--	--	--	--	--	--	--
					E	2.1	--	0.4	0.6	--	--	--	--	--	--	--	--	--
					F	3.6	--	2	+	--	--	--	--	--	--	--	--	--
					G	3.6	--	0.8	--	--	--	--	--	--	--	--	--	--
					H	0	--	0.9	--	--	--	--	--	--	--	--	--	--
					I	0.04	--	0.8	--	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--	--	--
2	1	5	5/15/98	14:00	A	0.03	--	--	0.01	--	--	--	--	--	--	--	--	--
					B	0	0	--	0	--	--	--	--	--	--	--	--	--
					C	--	1.5	0.55	--	--	--	--	--	--	--	--	--	--
					D	0.65	1.5	0.9	0.35	--	--	--	--	--	--	--	--	--
					E	1.7	0.8	1.1	0.46	--	--	--	--	--	--	--	--	--
					F	2.4	2.3	1.4	0	--	--	--	--	--	--	--	--	--
					G	2.8	1.7	0.6	--	--	--	--	--	--	--	--	--	--
					H	0	1.8	0.7	--	--	--	--	--	--	--	--	--	--
					I	0.02	2.1	0.7	--	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--	--	--
2	1	5	5/15/98	16:00	A	0.03	--	--	0.03	--	--	--	--	--	--	--	--	--
					B	0	0.02	--	0	--	--	--	--	--	--	--	--	--
					C	0	1	0.4	--	--	--	--	--	--	--	--	--	--
					D	0.95	1	0.6	0.3	--	--	--	--	--	--	--	--	--
					E	1.1	0.5	1	0.4	--	--	--	--	--	--	--	--	--
					F	2	1.6	1.3	--	--	--	--	--	--	--	--	--	--
					G	2	2.3	0.5	--	--	--	--	--	--	--	--	--	--
					H	0	1.3	0.5	--	--	--	--	--	--	--	--	--	--
					I	0	1.6	0.5	--	--	--	--	--	--	--	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--	--	--

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)																			
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O									
2	2	1	5/19/98	7:00	A	0	--	--	0	--	--	--	--	--	--	--	--								
					B	0	0	--	0	--	--	--	--	--	--	--	--								
					C	--	0	0	--	--	--	--	--	--	--	--	--								
					D	0.05	0	0.12	0.07	--	--	--	--	--	--	--	--								
					E	0	0	0	0.1	--	--	--	--	--	--	--	--								
					F	0	0	0.2	0	--	--	--	--	--	--	--	--								
					G	0	0	0	--	--	--	--	--	--	--	--	--								
					H	0	0	0	--	--	--	--	--	--	--	--	--								
					I	0	0	0	--	--	--	--	--	--	--	--	--								
					J	--	--	--	--	--	--	--	--	--	--	--	--								
2	2	1	5/19/98	13:00	A	0	--	--	0.01	--	--	--	--	--	--	--	--	--							
					B	0	0	--	0	--	--	--	--	--	--	--	--	--							
					C	--	0	0.1	--	--	--	--	--	--	--	--	--	--							
					D	0.6	0	0.15	0.07	--	--	--	--	--	--	--	--	--							
					E	0	0	0	0.1	--	--	--	--	--	--	--	--	--							
					F	0.5	0	0	0	--	--	--	--	--	--	--	--	--							
					G	0	0	0	--	--	--	--	--	--	--	--	--	--							
					H	0	0	0	--	--	--	--	--	--	--	--	--	--							
					I	0	0.01	0.01	--	--	--	--	--	--	--	--	--	--							
					J	--	--	--	--	--	--	--	--	--	--	--	--	--							
2	2	1	5/19/98	14:00	A	0.03	--	--	0	--	--	--	--	--	--	--	--	--	--						
					B	0	0	--	0	--	--	--	--	--	--	--	--	--	--						
					C	--	0.5	0.12	--	--	--	--	--	--	--	--	--	--	--						
					D	1.2	0.9	0.45	0.07	--	--	--	--	--	--	--	--	--	--						
					E	0.09	0.1	--	0.06	--	--	--	--	--	--	--	--	--	--						
					F	1.3	0.7	0.2	0	--	--	--	--	--	--	--	--	--	--						
					G	1.1	0.5	0	--	--	--	--	--	--	--	--	--	--	--						
					H	0	0.5	0	--	--	--	--	--	--	--	--	--	--	--						
					I	0	0.6	0	--	--	--	--	--	--	--	--	--	--	--						
					J	--	--	--	--	--	--	--	--	--	--	--	--	--	--						
2	2	2	5/20/98	8:00	A	0	--	--	0.02	--	--	0.07	--	--	--	--	--	--	--	--					
					B	0	0.6	--	0	--	--	0.3	--	--	--	--	--	--	--	--					
					C	--	2.3	0.8	--	--	--	0.3	--	--	--	--	--	--	--	--					
					D	1.8	2	1.25	0.5	--	--	0.3	--	--	--	--	--	--	--	--					
					E	--	1	1.5	0.78	--	--	0.26	--	--	--	--	--	--	--	--					
					F	--	2.9	2.2	+	--	--	0.3	--	--	--	--	--	--	--	--					
					G	--	2.3	0.7	--	--	--	>1	--	--	--	--	--	--	--	--					
					H	--	2	0.9	--	--	--	1.5	--	--	--	--	--	--	--	--					
					I	--	2.8	0.8	--	--	--	--	--	--	--	--	--	--	--	--					
					J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--					
2	2	2	5/20/98	11:00	A	0.02	--	--	0.35	--	--	--	--	--	--	--	--	--	--	--	--				
					B	--	0.1	--	0	--	--	--	--	--	--	--	--	--	--	--	--				
					C	--	2.4	0.75	--	--	--	--	--	--	--	--	--	--	--	--	--				
					D	1.75	1.5	1.2	0.5	--	--	--	--	--	--	--	--	--	--	--	--				
					E	2.2	1	1.7	0.76	--	--	--	--	--	--	--	--	--	--	--	--				
					F	3.5	3	2.3	0	--	--	--	--	--	--	--	--	--	--	--	--				
					G	3.75	2.45	0.8	--	--	--	--	--	--	--	--	--	--	--	--	--				
					H	0	2.2	1	--	--	--	--	--	--	--	--	--	--	--	--	--				
					I	0	3	1	--	--	--	--	--	--	--	--	--	--	--	--	--				
					J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
2	2	2	5/20/98	13:00	A	--	--	--	--	+	--	--	0	0	0	--	--	--	--	--	--	--			
					B	--	--	--	--	0.7	--	--	0.06	0	0	--	--	--	--	--	--	--			
					C	--	--	--	--	1.45	--	--	0.14	0	0.08	--	--	--	--	--	--	--			
					D	--	--	--	--	1.25	--	--	0.13	0	0.14	--	--	--	--	--	--	--			
					E	--	--	--	--	1.1	--	--	0.1	0	0.28	--	--	--	--	--	--	--			
					F	--	--	--	--	1.1	--	--	--	--	0.7	0	--	0.74	0.25	--	--	--			
					G	--	--	--	--	1.1	--	--	--	--	0.74	1	--	--	--	--	--	--			
					H	--	--	--	--	1	--	--	--	--	0.74	1	--	--	--	--	--	--			
					I	--	--	--	--	1	--	--	--	--	0.72	0.8	--	--	--	--	--	--			
					J	--	--	--	--	0	--	--	--	--	0	0	0	--	--	--	--	--			
2	2	2	5/20/98	14:00	A	0.03	--	--	0.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					B	0	0.07	--	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					C	--	2	0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					D	1.6	2.5	1	0.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					E	1.95	1	1.4	0.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					F	3.2	2.7	1.9	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					G	3.6	2.15	0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					H	0	2	0.85	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					I	0	2.6	8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
					J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
2	2	3	5/21/98	8:00	A	0.01	--	--	0.01	0	+	--	--	0	0	0	0	0	0	0	0	0	0	0	
					B	0	0.04	--	0	0	0.7	--	--	0.06	0.11	0	--	--	--	--	--	--	--	--	--
					C	--	2.25	0.75	--	0.8	1.45	--	--	0.14	0.24	0	--	--	--	--	--	--	--	--	
					D	0.68	1.5	1.12	0.53	0.14	1.25	--	--	0.13	1	0	--	--	--	--	--	--	--	--	
					E	2	2	1.6	0.71	0.28	1.1	--	--	1	1	0	--	--	--	--	--	--	--	--	
					F	2.2	3.1	2.31	0	0	1.1	--	--	--	--	1	0.7	--	--	--	--	--	--	--	
					G	3.5	2.9	0.8	--	0.25	1.1	--	--	--	--	1	0.74	--	--	--	--	--	--	--	
					H	3.85	2.4	1	--	1	1	--	--	--	--	1	0.74	--	--	--	--	--	--	--	
					I	0	3.1	0.9	--	0.8	1	--	--	--	--	1	0.72	--	--	--	--	--	--	--	
					J	0	--	--	--	0	0	--	--	--	0	0	0	--	--	--	--	--	--	--	

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)												
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O		
2	2	3	5/21/98	10:45	A	0.03	--	--	0.01	0	+	0	--	--	0	0	0	
					B	0	0	--	0	0	0.59	0.06	--	0.02	0	0	0	
					C	--	1.4	0.25		0	1	0.06	--	0.08	0.01	0		
					D	0.32	0.6	0.3	0.25	0	1	0.04	--	0.06	0.84	0		
					E	0.8	0.7	1.1	0.28	0.01	1	0.07	--	0.07	0.95	0		
					F	1.8	1.8	1.5	0	0	0.95	0.09	--	--	0.97	0.82		
					G	2.2	1.6	0.5	--	0	0.92	0.82	--	--	0.92	0.82		
					H	0	1.4	0.7	--	0.78	0.85	1	--	--	0.9	0.8		
					I	0	2	0.6	--	0.51	0.83	--	--	--	0.87	0.78		
					J	--	--	--	--	0	0	--	--	--	0	0		
2	2	3	5/21/98	14:00	A	0	0	--	0	+	+	0.03	--	0	+	0.01		
					B	0	0	--	0	+	0.26	0.04	--	+	+	0		
					C	--	0	0.06	--	+	0.53	0.04	--	+	+	0		
					D	0.01	0	0.02	0	+	0.5	0.06	--	+	0.28	0.01		
					E	0.01	0.25	0.15	0	0	0.52	0.06	--	+	0.29	0.03		
					F	0.3	0.5	0.3	0	0	0.37	0	--	--	0.31	0.23		
					G	0.5	0.5	0.2	--	+	0.36	0.18	--	--	0.23	0.25		
					H	0	0.4	0.1	--	0.28	0.33	0.35	--	--	0.25	0.26		
					I	0	0.5	0	--	0.18	0.3	--	--	--	0.19	0.25		
					J	--	--	--	--	0	0	--	--	--	0	--		
2	2	4	5/21/98	16:00	A	0	--	0	0	0	+	0.04	--	0	0	0.01		
					B	0	0	0	0	0.04	0.01	0.21	--	+	0	0		
					C	--	0	0.4	0.2	+	0.32	0.18	--	+	0	0		
					D	1.35	1	0.75	0.3	0	0.28	0.14	--	+	0.08	0		
					E	1.3	0.5	0.5	0.1	0.1	0.26	0.14	--	+	0.1	0.01		
					F	2	1.4	0.8	--	0	0.42	0.14	--	+	0.1	0		
					G	1.9	1.05	0.2	--	0	0.45	0.54	--	--	0.1	0.01		
					H	0	0.9	0.2	--	0.24	0.46	0.97	--	--	0.06	0		
					I	0	1.2	0.2	--	0.3	0.4	--	--	--	0	0		
					J	--	--	--	--	0	0	--	--	--	--	--		
2	2	4	5/21/98	18:00	A	--	--	--	--	+	0.06	0	--	--	--	--		
					B	--	--	--	--	+	0.22	0.06	--	--	--	--		
					C	--	--	--	--	0.34	0.2	0.1	--	0	--			
					D	--	--	--	--	0.34	0.18	0.18	--	0	--			
					E	--	--	--	--	0.32	0.16	0.16	--	0	--			
					F	--	--	--	--	0.48	0.16	0.28	--	0	--			
					G	--	--	--	--	0.52	0.7	0.28	--	0	--			
					H	--	--	--	--	0.5	0.1	0.28	--	0	--			
					I	--	--	--	--	0.5	--	0.28	--	0	--			
					J	--	--	--	--	--	--	--	--	--	--	--		
2	2	4	5/21/98	19:00	A	0	--	--	--	0.01	--	--	--	--	--	--		
					B	0	0.04	--	--	0.02	--	--	--	--	--	--		
					C	--	0	0.05	--	0.02	--	--	--	--	--	--		
					D	1.6	1.5	0.8	--	0.08	--	--	--	--	--	--		
					E	1.6	0.7	0.7	--	0.2	--	--	--	--	--	--		
					F	2.3	1.8	1.05	--	0.01	--	--	--	--	--	--		
					G	2.4	1.4	0.3	--	0.14	--	--	--	--	--	--		
					H	0	1.2	0.35	--	0.56	--	--	--	--	--	--		
					I	0	1.6	0.35	--	0.48	--	--	--	--	--	--		
					J	--	--	--	--	--	--	--	--	--	--	--		
2	2	5	5/22/98	8:30	A	--	--	--	--	0.01	--	0.07	--	0	--	--		
					B	--	--	--	--	0	--	0.3	--	0.16	0.12	--		
					C	--	--	--	--	0.4	--	0.34	--	0.26	0.28	--		
					D	--	--	--	--	0.6	--	0.34	--	0.23	0.68	--		
					E	--	--	--	--	0	--	0.36	--	0.22	0.63	--		
					F	--	--	--	--	0	--	1	--	0.48	--			
					G	--	--	--	--	0	--	1.4	--	0.72	--			
					H	--	--	--	--	0	--	0	--	0.78	--			
					I	--	--	--	--	0	--	0	--	0	--			
					J	--	--	--	--	0	--	0	--	--	--	--		
2	2	5	5/22/98	9:30	A	--	--	--	--	0	+	--	--	--	--	0.02		
					B	--	--	--	--	0.03	0.5	--	--	--	--	0.08		
					C	--	0.7	--	--	0.16	1.3	--	--	--	0.12	--		
					D	--	1.07	--	--	0.24	1	--	--	--	0.12	--		
					E	--	1.4	--	--	0.32	1	--	--	--	0	--		
					F	--	2	--	--	0	1	--	--	--	0.56	--		
					G	--	0.6	--	--	0.3	1	--	--	--	0.5	--		
					H	--	0.8	--	--	1	1	--	--	--	0.58	--		
					I	--	0.7	--	--	1	1	--	--	--	0.6	--		
					J	--	--	--	--	0	0	--	--	--	0	--		
2	2	5	5/22/98	10:30	A	0.04	--	--	--	--	+	--	--	0.06	--	--	--	
					B	0	0.02	--	--	0	--	--	--	0.14	--	--		
					C	--	0	--	--	0	--	--	--	0.23	--	--		
					D	1.68	1.6	--	--	0	--	--	--	0.36	--	--		
					E	2	1	--	--	0	--	--	--	0.44	--	--		
					F	3	2.7	--	--	0	--	--	--	1	--	--		
					G	3.4	2.2	--	--	0	--	--	--	1	--	--		
					H	0	2	--	--	0	--	--	--	1	--	--		
					I	0	2.6	--	--	0	--	--	--	1	--	--		
					J	--	--	--	--	0	--	--	--	1	--	--		

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)										
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O
2	2	5	5/22/98	12:30	A	0.03	--	--	--	+ 0.32	0.26	--	--	--	0	0
					B	0	0	--	--	0.32	0.26	--	--	--	0	0
					C	--	0	0.5	--	--	1.2	0.26	--	--	0.09	0
					D	1.55	1.5	0.9	--	--	1	0.24	--	--	0.62	0
					E	1.8	1	1.3	--	--	1	0.24	--	--	0.64	0
					F	2.5	2.5	1.7	--	--	1	0.25	--	--	0.66	0.4
					G	3.4	2	0.6	--	--	1	1	--	--	0.5	0.44
					H	0	1.9	0.8	--	--	1	1.4	--	--	0.7	0.42
					I	0	2.3	0.7	--	--	1	--	--	--	0.72	0.4
					J	--	--	--	--	0	--	--	--	--	0	0
2	3	1	5/26/98	9:45	A	0.03	--	--	0	--	+ 0.06	0.1	--	0.05	--	
					B	0	0.06	--	0	--	0.66	0.35	0.14	--	0.14	--
					C	--	2.1	0.7	--	--	0.3	0.34	0.26	--	0.24	--
					D	1.75	1.6	1.08	0.44	--	1.2	0.36	0.4	--	0.92	--
					E	2.1	1	1.6	0.66	--	1.1	0.33	0.41	--	0.88	--
					F	3.1	2.8	2.1	+	--	1	0.42	1	--	0.86	--
					G	3.6	2.1	0.7	--	--	1	--	1	--	0.68	--
					H	0	2.1	0.9	--	--	1	--	1	--	0.9	--
					I	0.04	2.8	0.8	--	--	1	--	1	--	1	--
					J	--	--	--	--	--	--	--	1	--	0	--
2	3	1	5/26/98	13:00	A	0	--	--	0.02	0.01	--	0.1	0.02	--	--	--
					B	0	0.04	--	0	0.04	--	0.31	0.08	--	--	--
					C	--	2.2	0.73	--	0.19	--	0.35	0.2	--	--	--
					D	1.75	1.6	1.1	0.45	0.26	--	0.38	0.34	--	--	--
					E	2.1	1	1.7	0.7	0.35	--	0.37	0.34	--	--	--
					F	3.2	2.9	2.1	+	0	--	0.36	1	--	--	--
					G	3.6	2.2	0.7	--	0.28	--	1.1	1	--	--	--
					H	0	2.2	0.9	--	1.1	--	1.6	1	--	--	--
					I	0	2.8	0.7	--	1	--	--	0.98	--	--	--
					J	--	--	--	0	--	--	1	--	--	--	--
2	3	2	5/26/98	17:30	A	0	--	--	0.01	0	+ 0.1	0.03	--	0	--	--
					B	0	0	--	0	0	0.65	0.38	0.09	--	0.12	--
					C	--	2	0.85	--	0.2	1.5	0.4	0.26	--	0.28	--
					D	0.8	1.5	1.15	0.45	0.2	1.45	0.39	0.4	--	0.85	--
					E	2.4	1	1.7	0.68	0.3	1.35	0.4	0.43	--	0.85	--
					F	3.2	3	2.2	0	0.2	1.3	0.4	1.1	--	0.85	--
					G	3.6	2.3	0.7	--	1.2	1.3	0.9	1.05	--	0.85	--
					H	0	2.1	1	--	1	1.2	1.4	1	--	0.8	--
					I	0	3	0.7	--	--	1.1	--	1	--	0.8	--
					J	--	--	--	--	--	--	--	1	--	--	--
2	3	2	5/26/98	19:30	A	0	--	--	0.01	0	+ 0.1	0.04	--	0	0.05	--
					B	0	0	--	0	0	0.8	0.4	0.1	--	0.2	0.1
					C	--	2	0.8	--	0.15	1.65	0.48	0.3	--	0.37	0.1
					D	0.75	1.5	1.2	0.5	0.2	1.5	0.43	0.43	--	0.95	0.1
					E	2.3	1	1.8	0.74	0.3	1.35	0.46	0.5	--	0.95	0
					F	2.2	3	2.2	0.3	0	1.3	0.48	1.2	--	1	>1
					G	3.8	2.3	1.7	--	0.1	1.3	1	1.2	--	0.9	>1
					H	0	2.2	0.9	--	1.2	1.15	1.4	1.1	--	0.9	>1
					I	0	3	0.6	--	1	1.1	--	1	--	0.9	>1
					J	--	--	--	--	--	--	--	1	--	--	--
2	3	2	5/26/98	21:30	A	0	--	--	0	0	+ 0.8	0	--	0	0	0
					B	0	0	--	0	0	0.8	0.4	0.08	--	0.2	0
					C	--	2.5	0.8	--	0.1	1.7	0.42	0.3	--	0.37	0
					D	1.85	1.5	1.2	0.5	0.2	1.5	0.4	0.4	--	0.9	0
					E	2.4	1.1	1.8	0.7	0.3	1.4	0.4	0.5	--	0.9	0
					F	3.4	3.2	1.4	0.2	0	14	0.42	1.2	--	0.9	0.7
					G	4	2.4	0.7	--	0	1.3	1	1.1	--	0.9	0.7
					H	0	2.3	1	--	1.2	1.2	1.5	1	--	0.9	0.7
					I	0	3.3	0.7	--	1	1.1	--	1	--	0.8	0.6
					J	--	--	--	--	--	--	--	1	--	--	--
2	3	2	5/26/98	22:30	A	0	--	--	0	0	+ 0.8	0	--	0	0	0
					B	0	0	0	0	0	0.8	0.4	0.08	--	0.2	0
					C	--	0	0.8	--	0.1	0.8	0.4	0.35	--	1.6	0
					D	1.8	2.5	1.2	0.5	0.2	1.4	0.4	0.4	--	0.9	0
					E	2.45	1.15	1.8	0.65	0.3	1.4	0.4	0.5	--	0.9	0
					F	3.5	3.1	1.4	0.2	--	1.4	0.42	1.2	--	0.9	0.7
					G	4	2.4	0.7	--	--	1.35	1	1	--	0.9	0.65
					H	0	2.3	1	--	1.1	1.1	1.45	1	--	0.85	0.7
					I	0	3.3	0.65	--	1	1.1	--	1	--	0.8	0.6
					J	--	--	--	--	--	--	--	1	--	--	--
2	3	3	5/27/98	7:30	A	0.02	--	--	0	0	+ 0.04	0	--	0	0	0.03
					B	0	0.04	--	0	0.02	0.76	0.1	0.03	--	0.12	0.12
					C	--	0.5	0.02	--	0.12	0.86	0.14	0.1	--	0.2	0.14
					D	0.22	0.5	0.16	0.07	0.15	0.84	0.14	0.12	--	0.58	0.14
					E	0.5	0.4	0.5	0.2	0.11	0.82	0.16	0.18	--	0.76	0
					F	0.8	0.8	0.65	0	0	0.76	0.18	0.9	--	0.5	0.82
					G	0.8	0.8	0.2	--	0.02	0.68	0.48	0.8	--	0.6	0.68
					H	0	0.7	0.3	--	0.64	0.7	0.4	0.9	--	0.86	0.67
					I	0	1	0	--	0.54	0.62	--	0.88	--	0.78	0.42
					J	--</td										

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)											
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O	
2	3	3	5/27/98	9:15	A	0.02	--	--	0.01	0	+	0.04	0	--	0	0.02	
					B	0	0.01	--	0	0.02	0.78	0.1	0.02	--	0.18	0.08	
					C	--	0.3	0.15	--	0.06	0.84	0.14	0.1	--	0.26	0.14	
					D	0.13	0.4	0.15	0.15	0.06	0.82	0.16	0.12	--	0.66	0.14	
					E	0.4	0.35	0.5	0.26	0.08	0.89	0.17	0.16	--	0.86	0	
					F	0.7	0.8	0.65	0	0	0.8	0.16	0.98	--	0.6	1	
					G	0.9	0.5	0.2	0.9	0	0.76	0.6	0.9	--	0.7	0.82	
					H	--	0.7	0.3	--	0.64	0.66	0.4	1	--	0.96	0.82	
					I	--	1	0.2	--	0.46	0.68	--	1	--	0.9	0.5	
					J	--	--	--	--	--	--	--	0.8	--	--	--	
2	3	3	5/27/98	11:00	A	0.03	--	--	0.01	--	+	0.02	0	--	0	0	
					B	0	--	--	0	0	0.63	0.04	0	--	0.06	0	
					C	--	--	--	--	0.02	0.8	0.06	0.04	--	0.14	0.01	
					D	0.1	--	--	0	0.02	0.72	0.05	0.03	--	0.56	0.03	
					E	0.4	--	--	0.1	0.03	0.76	0.05	0.05	--	0.74	--	
					F	0.06	--	--	0	0.04	0.64	0.04	0.9	--	0.5	0.9	
					G	--	--	--	--	0.01	0.66	0.44	0.8	--	0.6	0.76	
					H	--	--	--	--	0.5	0.62	0.4	0.9	--	0.84	0.74	
					I	--	--	--	--	0.38	0.63	--	0.72	--	0.8	0.46	
					J	--	--	--	--	--	--	--	0.86	--	--	--	
2	3	3	5/27/98	13:00	A	0.02	--	--	0	0	+	0	0	--	0	0	
					B	0.04	0	--	0	0	0.38	0	0	--	0	0	
					C	--	0	0	--	0	0.44	0	0	--	0	0	
					D	0	0.2	0	0	0	0.46	0	0	--	0.4	0	
					E	0	0.2	0.2	0	0	0.38	0	0	--	0.52	--	
					F	0	0.3	0.2	0	0	0.42	0	0.62	--	0.38	0.68	
					G	0	0.3	0.1	--	0	0.4	0.28	0.58	--	0.44	0.88	
					H	--	0.3	0.1	--	0.21	0.38	0.3	0.6	--	0.6	0.56	
					I	--	0.5	0	--	0.16	0.38	--	0.5	--	0.58	0.34	
					J	--	--	--	--	--	--	--	0.58	--	--	--	
2	3	3	5/27/98	14:30	A	0.02	--	--	0	--	--	0	+	--	0	0	
					B	0	0	--	0	--	0.14	+	0	--	0	0	
					C	--	0	0.05	--	+	0.2	+	0	--	0	0	
					D	0	0	+	0	--	0.2	+	+	--	0.18	+	
					E	0	0	0	0	--	0.22	+	+	--	0.2	--	
					F	0	0	0	0	--	0.16	0	0.24	--	0.16	0.3	
					G	0	0.2	0	--	--	0.14	0	0.2	--	0.2	0.24	
					H	--	0.2	0	--	0	0.12	0	0.2	--	0.28	0.22	
					I	--	0.2	0	--	0	0.12	--	0.16	--	0.22	0.18	
					J	--	--	--	--	--	--	--	0.2	--	--	--	
2	3	4	5/27/98	15:45	A	0.02	--	--	0	--	+	0	0	--	0	0	
					B	0	0	--	0	--	0	0	0	--	0	--	
					C	--	0	0.05	--	--	0	+	0	--	+	--	
					D	+	0	+	0	--	0	+	+	--	0.03	0	
					E	0	0.2	0	+	--	0.04	+	+	--	0.06	--	
					F	0	0	0	0	--	0	0	0.1	--	0.06	0.12	
					G	0	0	0	--	--	0	+	0.08	--	0.08	0.1	
					H	--	0.1	0	--	--	0.05	0	0.08	--	0.11	0.08	
					I	--	0	0	--	--	0.05	--	0.02	--	0.1	0.06	
					J	--	--	--	--	--	--	--	0.03	--	--	--	
2	3	4	5/27/98	17:15	A	0.01	--	--	0	0	+	0	0	--	0	0	
					B	0	0	--	0	0	+	0	0	--	+	--	
					C	--	0	0.05	--	+	+	+	0	--	+	--	
					D	+	0	+	+	+	+	+	+	--	+	+	
					E	0.1	0.1	0	+	+	+	+	+	--	+	--	
					F	+	+	+	0	0	+	0	+	--	+	+	
					G	0	0	0	--	0	+	+	+	--	+	+	
					H	--	0	0	--	+	+	0	+	--	+	+	
					I	--	0	0	--	+	+	--	+	--	+	+	
					J	--	--	--	--	--	--	--	+	--	--	--	
2	3	4	5/27/98	19:00	A	0.01	--	--	0.01	0	+	0	+	--	0	0	
					B	0	0	--	0	0	+	0	0	--	+	0	
					C	--	0	0	--	0	+	0	0	--	+	0	
					D	+	0	+	+	+	+	+	0	--	+	+	
					E	0.1	0.05	+	+	0	+	+	+	--	+	0	
					F	+	+	+	0	0	+	+	+	--	+	+	
					G	0.02	0.05	0	--	0	+	+	+	--	+	+	
					H	--	+	0	--	+	+	+	+	--	+	+	
					I	--	+	+	--	+	+	--	+	--	+	+	
					J	--	--	--	--	--	--	--	+	--	--	--	
2	3	4	5/27/98	19:45	A	0	--	--	0	--	+	0	+	--	0	0	
					B	0	0	--	0	--	+	0	0	--	0	0	
					C	--	0	0	--	--	+	0	0	--	+	0	
					D	+	0	+	+	--	+	0	0	--	+	0	
					E	0	0	+	+	--	+	0	0	--	+	+	
					F	+	+	+	0	0.05	--	+	0	--	+	+	
					G	0	0	+	--	--	+	+	+	--	+	+	
					H	--	+	0	--	--	+	+	+	--	+	+	
					I	--	+	+	--	--	+	--	+	--	+	+	
					J	--	--	--	--	--	--	--	+	--	--	--	

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)												
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O		
						A	B	C	D	E	F	G	H	I	J	K		
2	3	4	5/27/98	21:30	A	0	--	--	0	0	+	0	+	--	0	0.04		
					B	0	0	--	+	0	0.2	0	0.02	--	0.14	0.1		
					C	--	0	0	--	0.1	0.16	0	0.08	--	0.16	0.12		
					D	0	0	0.1	+	0.06	0.14	0	0.08	--	0.1	0.1		
					E	0.2	0	0.1	+	0.08	0.12	0	0.08	--	0.08	0.02		
					F	0.14	0.1	0.2	0	0	0.1	0	0.02	--	0.1	0.02		
					G	0	0	0	--	0	0.08	+	0	--	0.1	0.02		
					H	--	0	0	--	0.1	0.06	+	0	--	0.12	0		
					I	--	0.2	0	--	0.08	0.06	--	+	--	0.1	0		
					J	--	--	--	--	--	--	--	+	--	--	--		
2	3	4	5/27/98	23:30	A	0	--	--	0	0.02	+	0.02	+	--	0	0		
					B	0	0	--	0	0.02	0.08	0.02	0	--	0.02	0		
					C	--	0	0	--	0.04	0.1	0.04	0.04	--	0.02	0		
					D	+	0	+	0	0.02	0.08	0.02	0.04	--	0.1	0.04		
					E	0	0	0	0.04	0.02	0.08	0.02	0.02	--	0.12	0		
					F	0	0	0	0.05	0	0.06	0	0.22	--	0.12	0.2		
					G	0	0	0	--	0.14	0.06	0.14	0.2	--	0.12	0.16		
					H	--	0	0	--	0	0.04	0	0.2	--	0.18	0.14		
					I	--	0.05	0	--	--	0.04	--	0.12	--	0.14	0.1		
					J	--	--	--	--	--	--	--	0.18	--	--	--		
2	3	5	5/28/98	8:00	A	0.02	--	--	0	0	+	0.04	0	--	0	0.01		
					B	0	0	--	0	0.02	0.24	0.06	0.03	--	0.1	0.05		
					C	--	0.4	0	--	0.1	0.2	0.08	0.08	--	0.12	0.09		
					D	0.1	0.4	0.12	0	0.12	0.22	0.09	0.08	--	0.13	0.09		
					E	0.2	0.1	0.15	0.1	0.07	0.18	0.09	0.09	--	0.13	0		
					F	0.22	0	0.25	0	0	0.18	0.08	0.2	--	0.1	0.18		
					G	0	0	0	--	0	0.14	0.16	0.18	--	0.12	0.13		
					H	--	0.2	0	--	0.2	0.15	0.18	0.16	--	0.19	0.12		
					I	--	0.4	0	--	0.16	0.13	--	0.12	--	0.13	0.09		
					J	--	--	--	--	--	--	--	0.16	--	--	--		
2	3	5	5/28/98	9:15	A	0.02	--	--	0	0	+	0.02	0	--	0	--		
					B	0	0	--	0	0	0.26	0.01	0	--	0.03	--		
					C	--	0.2	0	--	0.1	0.18	0.02	0.03	--	0.05	--		
					D	0.05	0.4	0.05	0	0.1	0.26	0.01	0	--	0.17	0.02		
					E	0.2	0.2	0.2	0.06	0.08	0.2	0.01	0	--	0.2	--		
					F	0.22	0	0.3	0	0	0.2	0.16	0.28	--	0.14	0.28		
					G	0.04	0	0	--	0	0.12	0	0.24	--	0.18	0.24		
					H	--	0.3	0	--	0.24	0.16	0.23	0.25	--	0.26	0.21		
					I	--	0.4	0	--	0.2	0.1	--	0.18	--	0.2	0.15		
					J	--	--	--	--	--	--	--	0.24	--	--	0		
2	3	5	5/28/98	10:00	A	--	--	0.15	--	--	0.06	0	--	0	--	0.01		
					B	--	--	0	--	--	0.08	0.06	--	0.06	--	0.03		
					C	--	--	--	--	--	0.1	0.08	--	0.07	--	0.06		
					D	--	--	--	0	--	--	0.1	0.1	--	0.24	0.09		
					E	--	--	--	0.1	--	--	0.1	0.1	--	0.3	0		
					F	--	--	--	0	--	--	0.06	0.42	--	0.18	0.42		
					G	--	--	--	--	--	0.25	0.4	--	0.26	--	0.34		
					H	--	--	--	--	--	0.36	0.4	--	0.35	--	0.34		
					I	--	--	--	--	--	--	0.31	--	0.31	--	0.21		
					J	--	--	--	--	--	--	0.88	--	--	--	--		
2	3	6	5/29/98	8:45	A	0	--	--	0.015	--	+	0.06	0.06	--	0	--	0.02	
					B	0	--	--	0	--	0.5	0.16	0.06	--	0.1	--	0.07	
					C	--	0.3	0	--	--	>1	0.2	0.1	--	0.22	--	0.1	
					D	0.29	0	0.3	0.27	--	>1	0.26	0.13	--	0.98	--	0.13	
					E	1.9	1.1	1.6	0.58	--	>1	0.28	0.25	--	>1	--	0	
					F	>1	2.9	2	0	--	>1	0.33	>1	--	>1	--	>1	
					G	>1	2	0.7	--	--	>1	0.9	>1	--	>1	--	1	
					H	--	3.2	1	--	--	>1	1.4	>1	--	>1	--	1	
					I	--	3	0.7	--	--	>1	--	>1	--	>1	--	0.62	
					J	--	--	--	--	--	--	--	>1	--	--	--	0	
2	3	6	5/29/98	11:00	A	0	--	--	0.01	0.1	+	0.07	0	--	--	--	--	
					B	0	0	--	0	0	0.7	0.13	0.02	--	0.1	--	--	
					C	--	0.2	0	--	0.02	2	--	0.06	--	0.18	--	--	
					D	0.25	0.4	0.13	0.22	0.04	1.9	0.21	0.08	--	1.3	--	0.05	
					E	1.9	1.2	1.4	0.48	0.14	1.9	0.25	0.15	--	1.5	--	--	
					F	2.1	3	1.85	0	0	2.1	0.28	1.7	--	1.4	--	1.1	
					G	--	2	0.65	--	0.08	2.1	1.1	1.7	--	1.5	--	1	
					H	--	2.3	0.85	--	1.1	2.2	1.75	1.8	--	1.5	--	1	
					I	--	3	0.65	--	1	2	--	1.8	--	1.4	--	0.62	
					J	--	--	--	--	--	--	--	2	--	--	--	--	
2	3	6	5/29/98	13:00	A	0.01	--	--	0.025	0.01	+	0.05	0.01	--	--	--	--	--
					B	0	0	--	0	+	0.7	0.1	0.025	--	0.05	--	--	
					C	--	0	0	--	+	1.35	0.15	0.09	--	0.15	--	--	
					D	0.2	0.25	0.15	0.18	0	1.2	0.18	0.1	--	0.9	--	0.06	
					E	1.75	1	1.4	0.44	0.08	1.15	0.2	0.18	--	1	--	--	
					F	2.15	2.8	1.8	0	0	1.2	0.24	1.2	--	0.94	--	1	
					G	1.95	1.8	0.65	--	0.04	1.2	0.0						

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)										
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O
2	3	6	5/29/98	15:00	A	0.02	--	--	--	--	--	0.04	0.02	--	--	--
					B	0	0	--	--	--	--	0.05	0.04	--	0.05	--
					C	--	0	0	--	--	--	0.15	0.08	--	0.07	--
					D	0.15	0	0.1	--	--	--	0.16	0.06	--	0.74	--
					E	1.65	0.95	1.3	--	--	--	0.18	0.12	--	0.94	--
					F	3.4	2.5	1.65	--	--	--	0.2	1.4	--	0.76	--
					G	3.35	1.7	0.6	--	--	--	0.75	1.35	--	0.76	--
					H	--	--	0.8	--	--	--	2.6	1.4	--	0.1	--
					I	--	--	0.6	--	--	--	--	1.3	--	0.1	--
					J	--	--	--	--	--	--	--	1.5	--	--	--
2	4	1	6/1/98	7:45	A	0	--	--	0	0	+	0.05	0	--	--	--
					B	0	0.03	--	0	0	0.2	0.11	0.04	--	0.08	--
					C	--	0.3	0	--	0	1.4	0.18	0.08	--	0.24	--
					D	0.27	0.5	0.25	0.25	0.04	1.6	0.2	0.1	--	0.94	--
					E	1.9	1.2	1.5	0.5	0.1	1.2	0.23	0.19	--	>1	--
					F	>1	2.7	2	--	0	1.9	0.28	>1	--	1	--
					G	>1	2	0.7	--	0	1	0.9	>1	--	0.94	--
					H	--	2.2	1	--	1.5	1.5	1.5	>1	--	>1	--
					I	--	2.9	0.6	--	1.3	1	--	>1	--	>1	--
					J	--	--	--	--	--	--	--	>1	--	--	--
2	4	1	6/1/98	9:30	A	0.02	--	--	0.015	0	+	0.05	0.04	--	--	--
					B	0	0	--	0	0	0.6	0.1	0.05	--	0.14	--
					C	--	0.2	0	--	0.02	1.7	0.16	0.1	--	0.25	--
					D	0.35	0.3	0.35	0.25	0.06	1.9	0.2	0.12	--	1	0.14
					E	2	1.2	1.7	0.52	0.14	1.3	0.22	0.2	--	1	--
					F	2.4	3	2.1	--	0	2	0.28	1.2	--	1	1
					G	2.1	2.1	0.8	--	0.1	1.3	1.2	1.1	--	1	1
					H	--	2.4	1	--	1.7	2	1.5	1.1	--	1	0.96
					I	--	3.2	0.7	--	1.4	1.2	1	1	--	1	0.62
					J	--	--	--	--	--	--	--	1	--	--	--
2	4	1	6/1/98	13:00	A	0.04	--	--	0.01	0	+	0.04	0	--	0	--
					B	0	0	--	0	0	0.4	0.08	0	--	0	--
					C	--	0	0	--	0	1.6	0.1	0.04	--	0.08	--
					D	0.2	0.1	0.17	0.18	0	1.9	0.12	0.04	--	0.8	0
					E	1.8	1.2	1.5	0.4	0.06	1.4	0.15	0.1	--	1	--
					F	3.2	2.7	1.9	--	0	2	0.2	1.2	--	1	0.9
					G	3.4	2	0.7	--	0.02	1.7	1	1.1	--	0.9	0.78
					H	--	2.3	0.9	--	1.2	1.3	1.5	1.1	--	1	0.76
					I	--	2.8	0.7	--	1	1.1	--	1	--	1	0.5
					J	--	--	--	--	--	--	--	1	--	--	--
2	4	1	6/1/98	14:30	A	0.03	0	--	0	0	+	0.02	0	--	--	--
					B	0	0	--	0	0	0	0	0	--	+	--
					C	--	0	0	--	0	1.5	0.04	0	--	+	--
					D	0.12	1	0.05	0.12	0	1.2	0.08	0	--	0.64	--
					E	1.6	2.5	1.3	0.34	0	1.1	0.08	0.06	--	0.8	--
					F	2.9	1.8	1.6	--	0	1.8	0.1	1	--	0.78	--
					G	3.2	3	0.7	--	0	1	1	1	--	0.7	--
					H	--	2.5	0.9	--	1	1.3	1.4	1	--	0.9	--
					I	--	--	0.6	--	0.8	0.8	--	1	--	0.88	--
					J	--	--	--	--	--	--	--	1	--	--	--
2	4	2	6/2/98	9:30	A	0.04	--	--	0.01	0	+	0.02	0	--	0.08	--
					B	0	0	--	0	0	0.2	0.06	0.04	--	0.11	--
					C	--	0	0	--	0	1.5	0.1	0.08	--	0.64	--
					D	0.2	0.1	0.15	0.15	0	1.5	0.12	0.09	--	0.86	--
					E	1.5	0.8	1	0.32	0.08	1.1	0.12	0.11	--	0.8	--
					F	2.8	2	1.3	--	0	1.6	0.14	1	--	0.7	--
					G	2.5	1.5	0.5	--	0	1	1	1	--	0.96	--
					H	--	1.7	0.7	--	1.5	1.6	1	1	--	0.92	--
					I	--	2.2	0.4	--	1.2	1	--	1	--	--	--
					J	--	--	--	--	--	--	--	--	--	--	--
2	4	2	6/2/98	11:15	A	1.03	--	--	0.015	--	+	0.04	0	--	0	--
					B	0	0	--	0	--	0.4	0.09	0	--	0	--
					C	--	0	0	--	--	1.5	0.07	0.04	--	0	--
					D	0.16	0.06	0.16	0.2	--	1.6	0.14	0.06	--	0.06	--
					E	1.8	0.8	1.8	0.34	--	1.2	0.16	0.08	--	1	--
					F	3.6	2.7	2	--	--	1.7	0.2	1.1	--	1	0.9
					G	3.4	1.8	0.6	--	--	1.5	1.3	1	--	1	0.6
					H	--	2.2	0.9	--	1.1	1.2	1.2	1	--	1	0.58
					I	--	2.4	0.7	--	1	1	--	1	--	1	0.46
					J	--	--	--	--	--	--	--	1	--	--	--
2	4	2	6/2/98	13:15	A	0.03	--	--	0	0	+	0.04	0	--	0	0
					B	0	0	--	0	0	0.02	0.04	0.02	--	0	0
					C	--	0	0	--	0	1	0.08	0.02	--	0	0
					D	0.12	0.03	0.05	0.13	0	0.9	0.1	0.02	--	0.56	0
					E	1.6	1	1.1	0.32	0.06	0.89	0.1	0.06	--	0.76	0
					F	3.1	2.5	1.4	--	0	0.94	0.12	1	--	0.72	0.68
					G	3	1.6	0.5	--	0.02	1	1.3	1	--	0.64	0.57
					H	--	2	0.8	--	0.9	0.94	1	1	--	0.86	0.55
					I	--	2.4	0.5	--	0.85	0.95	--	1	--	0.82	0.39
					J	--	--	--	--	--	--	--	1	--	--	--

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahetic Gauges</i>)										
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O
2	4	3	6/3/98	8:00	A	0	--	--	0.01	0.01	+	0.08	0.08	--	0	0.06
					B	0	0.02	--	0	0.02	0.7	0.18	0.06	--	0.2	0.16
					C	--	0	0	--	0.17	1.4	0.22	0.16	--	0.32	0.21
					D	0.37	0.28	0.35	0.25	0.19	1.2	0.28	0.2	--	1	0.2
					E	2	1.2	1.6	0.53	0.3	1.2	0.28	0.3	--	1	0
					F	3.6	2.8	2.1	--	0.04	1.2	0.36	1.1	--	1	1
					G	3.5	2	0.7	--	0.15	1.2	1.2	1.1	--	1	0.92
					H	--	2.3	1	--	1.2	1.1	1.4	1	--	1	0.92
					I	--	3	0.6	--	1	1.1	--	1	--	1	0.6
					J	--	--	--	--	--	--	--	1	--	--	--
2	4	3	6/3/98	9:15	A	0	--	--	0.015	0	+	0.06	0.02	--	0.4	--
					B	0	0	--	0	0.01	0.7	0.16	0.04	--	0.26	0.06
					C	--	0	0	--	0.16	1.3	0.21	0.12	--	1	0.12
					D	0.32	0.28	0.35	0.26	0.17	1.2	0.24	0.16	--	1	0.14
					E	2	1.3	1.7	0.56	0.25	1.1	0.28	0.24	--	1	--
					F	3.4	3	2.2	--	0	1.2	0.33	1.2	--	1	1
					G	3.5	2	0.8	--	0.15	1.1	1.2	1.1	--	1	1
					H	--	2.4	1	--	1.2	1.1	1.5	1.1	--	1	1
					I	--	3.2	0.7	--	1	1	--	1	--	0.68	
					J	--	--	--	--	--	--	--	1	--	--	
2	4	3	6/3/98	11:00	A	0.02	--	--	0	--	+	0.03	0	--	--	--
					B	0	0	--	0	--	0.7	0.07	0.03	--	0.02	--
					C	--	0	0	--	--	1.3	0.1	0.07	--	0.12	--
					D	0.2	0.13	0.22	0.23	--	1.3	0.12	0.09	--	1	0.02
					E	2	1.4	1.6	0.44	--	1.1	0.16	0.11	--	1	--
					F	3.3	3	2.1	--	--	1.3	0.2	1	--	1	1
					G	3.5	2.1	0.8	--	--	1.2	1.1	1	--	1	1
					H	--	2.4	1	--	1.2	1.1	1.5	1	--	1	1
					I	--	3.1	0.7	--	1.1	1	--	1	--	1	0.67
					J	--	--	--	--	--	--	--	1	--	--	
2	4	3	6/3/98	13:15	A	0.01	--	--	0.01	--	+	0.04	0	--	--	--
					B	0	0	--	0	--	0.64	0.07	0	--	0	--
					C	--	0	0	--	0.04	1.3	0.11	0.03	--	0.07	--
					D	0.22	0.14	0.22	0.2	0.06	1.2	0.14	0.04	--	0.9	0
					E	1.9	1.2	1.5	0.42	0.14	1	0.16	0.11	--	1	--
					F	3	2.9	1.9	--	--	1.2	0.2	1	--	1	1
					G	3.2	2	0.7	--	0.08	1.1	1.1	1	--	0.94	0.89
					H	--	2.2	1	--	1.1	1.2	1.4	1	--	1	0.88
					I	--	3	0.6	--	1	1.1	--	1	--	1	0.5
					J	--	--	--	--	--	--	--	1	--	--	
2	4	4	6/3/98	15:30	A	0.01	--	--	0.02	0	+	0.04	0	--	--	0
					B	0	0	--	0	0	0.4	0.06	0	--	0.01	0
					C	--	0	0	--	0	1.5	0.1	0.04	--	0.07	0
					D	0.2	0.1	0.2	0.15	0.1	1.6	0.1	0.04	--	0.8	0
					E	1.7	1.1	1.4	0.4	0.1	1.5	0.12	0.1	--	1	0
					F	3.5	2.7	1.8	--	0	1.7	0.48	>1	--	1	0.84
					G	3.2	1.8	0.7	--	0.1	1.7	1.1	>1	--	0.84	0.72
					H	--	2.1	0.9	--	1.5	1.4	1.4	>1	--	1	0.7
					I	--	2.6	0.6	--	1.4	1.8	--	>1	--	1	0.48
					J	--	--	--	--	0	--	--	>1	--	--	
2	4	4	6/3/98	18:30	A	0	--	--	0.02	0	+	0.04	0	--	--	0
					B	0	0	--	0	0	0.04	0.1	0	--	--	0
					C	--	0	0	--	0	0.15	0.14	0.04	--	0.1	0
					D	0.25	1.5	0.25	0.15	0.1	0.16	0.18	0.04	--	0.8	0
					E	1.7	1.1	1.4	0.4	0.1	0.15	0.18	0.15	--	1	0
					F	3.5	2.7	1.9	--	0	1.7	0.2	0.2	--	1.2	0.82
					G	3.1	1.8	0.7	--	0	1.8	1.1	1.2	--	1.1	0.7
					H	--	2.1	0.9	--	1.6	1.8	1.4	1.4	--	1.1	0.7
					I	--	2.6	0.5	--	1.5	1.8	--	1.3	--	1.1	0.48
					J	--	--	--	--	--	--	--	1.5	--	--	
2	4	4	6/3/98	19:30	A	0	--	--	0.01	0	0	0.04	0	--	--	0
					B	0	0	--	0	0	0.4	0.1	0.02	--	0.1	0
					C	--	0	0	--	0	1.6	0.16	0.8	--	0.15	0
					D	0.25	0.16	0.25	0.2	0	1.6	0.18	0.9	--	1	0
					E	1.8	1.1	1.4	0.46	0.2	1.5	0.2	0.15	--	1.2	0.02
					F	3.25	2.7	1.9	--	0	1.8	0.24	1.3	--	1.2	0.82
					G	3	1.8	0.6	--	0	2	1.1	1.3	--	1.1	0.7
					H	--	2.1	0.9	--	1.7	2	1.8	1.5	--	1.1	0.68
					I	--	2.8	0.5	--	1.6	1.8	--	1.3	--	1.1	0.42
					J	--	--	--	--	0	--	--	1.65	--	--	
2	4	4	6/3/98	21:30	A	0	--	--	0.01	--	0	0.04	0	--	--	0
					B	0	0	--	0	--	0.8	0.12	0.08	--	0.14	0
					C	--	0	0.02	--	--	2	0.18	0.1	--	0.25	0
					D	0.3	0.2	0.3	0.2	--	1.9	0.2	0.14	--	1.1	0
					E	2	1.2	1.6	0.5	--	1.8	0.2	0.2	--	1.3	0
					F	3.5	3	2.1	--	--	2.1	0.26	1.5	--	1.3	1
					G	3.5	1.9	0.7	--	--	2.2	1.1	1.5	--	1.3	0.86
					H	--	2.2	1	--	--	2.1	1.9	1.5	--	1.5	0.82
					I	--	3	0.5	--	--	2.1	--	1.6	--	1.5	0.54
					J	--	--	--	--	--	--	--	1.8	--	--	

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)										
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O
2	4	5	6/4/98	8:00	A	0	0.02	--	0.01	0.01	+	0.08	0.04	--	--	--
					B	0	0	--	0	0.01	0.7	0.18	0.05	--	0.2	0.1
					C	--	0	0.37	--	0.15	1.3	0.22	0.16	--	0.3	0.12
					D	0.43	0.3	0.41	0.25	0.2	1.1	0.27	0.2	--	> 1	0.14
					E	2.1	1.4	1.8	0.6	0.28	1.2	0.3	0.28	--	> 1	--
					F	3.6	3.2	2.4	--	0.03	1.2	0.37	1.3	--	> 1	1
					G	3.8	2.2	0.8	--	0.13	1.1	1.4	1.3	--	> 1	1
					H	--	2.5	1.1	--	1.1	1.1	1.7	1.2	--	> 1	1
					I	--	3.4	0.8	--	1	1.1	--	1.1	--	> 1	1
					J	--	--	--	--	--	--	--	1.1	--	--	--
2	4	5	6/4/98	11:30	A	0	--	--	0.01	--	+	0.06	0.02	--	--	--
					B	0	0.02	--	0	--	0.7	0.11	0.04	--	0.14	0.06
					C	--	0	0.26	--	--	1.2	0.2	0.1	--	0.26	0.1
					D	0.27	0.22	0.3	0.25	--	1.3	0.21	0.12	--	> 1	0.14
					E	2	1.4	1.8	0.56	--	1	0.24	0.2	--	> 1	--
					F	3.6	3.3	2.2	--	--	1.2	0.3	1.2	--	> 1	1
					G	3.8	2.2	0.8	--	--	1.2	1.4	1.2	--	> 1	1
					H	--	2.6	1.1	--	1.2	1.1	1.7	1.1	--	> 1	1
					I	--	3.4	0.7	--	1.1	1	--	1	--	> 1	0.8
					J	--	--	--	--	--	--	1	--	--	--	
2	4	5	6/4/98	14:00	A	0	--	--	0	--	+	0.06	0	--	--	--
					B	0	0.1	--	0	--	0.7	0.1	0	--	0	--
					C	--	--	0	--	--	1.4	0.14	0.03	--	0.1	--
					D	0.23	0.1	0.24	0.25	--	1.2	0.15	0.04	--	0.92	--
					E	2	1.4	1.6	0.42	--	1.1	0.17	0.1	--	1	--
					F	3.4	3	2	--	--	1.3	0.22	1	--	1	--
					G	3.6	2.1	0.7	--	--	1.2	1.2	1	--	0.98	--
					H	--	2.4	1.2	--	1.1	1.2	1.6	1	--	0.96	--
					I	--	3.1	0.7	--	1	1.2	--	1	--	1	--
					J	--	--	--	--	--	--	--	1	--	--	
2	4	6	6/5/98	8:00	A	0.02	--	--	0.01	--	+	0.07	0.03	--	--	--
					B	0	0	--	0	0.02	0.64	0.18	0.06	--	0.14	0.1
					C	--	0	0	--	0.1	1.6	0.24	0.16	--	0.24	0.12
					D	0.3	0.2	0.28	0.3	0.14	1.5	0.3	0.2	--	1	0.17
					E	2	1.3	1.6	0.6	0.21	1.4	0.32	0.3	--	1.3	--
					F	3.5	3	2.1	--	0	1.8	0.4	1.6	--	1.2	1
					G	3.6	2	0.7	--	0.1	1.8	1.3	1.6	--	1.3	1
					H	--	2.3	1	--	1.6	1.7	3	1.6	--	1.1	0.9
					I	--	3	0.7	--	1.6	1.7	--	1.5	--	1.1	0.56
					J	--	--	--	--	--	--	--	1.8	--	--	
2	4	6	6/5/98	10:00	A	0.02	--	--	0.015	--	+	0.05	0.02	--	--	--
					B	0	0	--	0	0.02	0.6	0.14	0.04	--	0.1	--
					C	--	0	0	--	0.08	1.5	0.2	0.1	--	0.16	--
					D	0.25	0.14	0.23	0.25	0.11	1.5	0.23	0.14	--	1	--
					E	1.9	1.3	1.5	0.54	0.16	1.2	0.25	0.22	--	1.3	--
					F	3.4	2.9	2	--	--	1.6	0.32	1.6	--	1.1	--
					G	3.5	2	0.75	--	0.06	1.5	1.3	1.6	--	1.2	--
					H	--	2.3	1	--	1.5	1.5	2.3	1.6	--	1.1	--
					I	--	3	0.7	--	1.6	1.4	--	1.5	--	1	--
					J	--	--	--	--	--	--	--	1.8	--	--	
2	4	6	6/5/98	12:00	A	0.03	--	--	0	--	+	0.03	0	--	--	--
					B	0	0	--	0	--	0.3	0.05	0.02	--	0.05	--
					C	--	0	0	--	--	1.3	0.09	0.05	--	0.1	--
					D	0.22	0.11	0.2	0.18	--	1.3	0.1	0.05	--	0.96	0
					E	1.8	1.2	1.5	0.38	--	1	0.12	0.08	--	1	--
					F	3.2	1.9	1.9	--	--	1.3	0.14	1.3	--	1	1
					G	3.5	2	0.7	--	--	1.2	1.2	1.2	--	1	0.82
					H	--	2.3	1	--	1.1	1.1	2.1	1.2	--	1	0.8
					I	--	2.9	0.7	--	1.2	1	--	1	--	1	0.51
					J	--	--	--	--	--	--	--	1.6	--	--	
2	4	6	6/5/98	13:30	A	0.03	--	--	0	--	--	0.05	0.02	--	--	--
					B	0	0	--	0	--	--	0.03	0.03	--	0	--
					C	--	0	0	--	--	--	0.09	0.08	--	0.05	--
					D	0.17	0.08	0.11	0.2	--	--	0.1	0.05	--	0.88	--
					E	1.8	1.2	1.4	0.37	--	--	0.12	0.08	--	0.94	--
					F	3.1	2.8	1.8	--	--	--	0.15	--	--	1	--
					G	3.3	1.9	0.7	--	--	--	1.1	--	--	0.88	--
					H	--	2.2	0.9	--	--	--	--	--	--	1	--
					I	--	2.8	0.6	--	--	--	--	--	--	1	--
					J	--	--	--	--	--	--	--	--	--	--	
2	5	1	6/8/98	8:00	A	0	--	--	0.01	0.02	+	0.05	0	--	--	--
					B	0	0.02	--	0	0.02	0.5	0.1	0.05	--	0.1	--
					C	--	0	0.2	--	0.12	1.2	0.17	0.1	--	0.15	--
					D	0.25	0.18	0.25	0.25	0.14	1	0.19	0.1	--	0.84	--
					E	1.9	1.2	1.5	0.5	0.28	1.1	0.22	0.17	--	0.88	--
					F	3.5	2.7	1.9	--	0.01	1.1	0.28	1.2	--	1	--
					G	3.2	1.9	0.6	--	0.12	1	1.1	1.3	--	0.84	--
					H	--	2	0.9	--	1.1	1	2.2	1.2	--	1	--
					I	--	2.8	0.6	--	1	1	--	1.1	--	1	--
					J	--	--	--	--	--	--	--	1.5	--	--	

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)										
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O
2	5	1	6/8/98	9:00	A	0.02	--	--	0.01	--	--	0.05	0	--	--	--
					B	0	0.02	--	0	--	--	0.1	0.05	--	0.08	--
					C	--	0	0.2	--	--	--	0.16	0.1	--	0.18	0.02
					D	0.25	0.16	0.25	0.22	--	--	0.19	0.1	--	0.84	0.04
					E	1.9	1.2	1.5	0.46	--	--	0.2	0.16	--	0.91	--
					F	3.5	2.7	1.9	--	--	--	0.26	1.2	--	1	0.78
					G	3.3	1.9	0.6	--	--	--	1.1	1.2	--	0.85	0.82
					H	--	2.1	0.9	--	--	--	2.2	1.2	--	1	0.64
					I	--	2.8	0.6	--	--	--	--	1.1	--	1	0.4
					J	--	--	--	--	--	--	--	1.5	--	--	--
2	5	1	6/8/98	10:30	A	0.02	--	--	0.01	--	+	0.05	0	--	--	--
					B	0	0.04	--	0	--	0.7	0.1	0.06	--	0.09	--
					C	--	0	0.2	--	--	1.4	0.14	0.1	--	0.15	--
					D	0.25	0.17	0.25	0.19	--	1.3	0.18	0.1	--	0.89	--
					E	1.9	1.2	1.5	0.45	--	1.2	0.2	0.15	--	0.95	--
					F	3.6	2.8	1.9	--	--	1.3	0.24	1.2	--	1	--
					G	3.4	1.9	0.6	--	--	1.3	1.1	1.3	--	0.89	--
					H	--	2.1	0.9	--	1.3	1.1	2.1	1.2	--	1	--
					I	--	2.8	0.6	--	1.2	1	--	1.1	--	1	--
					J	--	--	--	--	--	--	--	1.5	--	--	--
2	5	1	6/8/98	12:30	A	0.01	--	--	0	0	+	0.03	0	--	--	--
					B	0	0	--	0	0	0.5	0.04	0.02	--	0.04	--
					C	--	0	0.07	--	0	1	0.05	0.04	--	0.08	--
					D	0.1	0.02	0.07	0.1	0.04	1	0.05	0.03	--	0.79	0.02
					E	0.5	0.6	0.7	0.16	0.06	0.88	0.05	0.05	--	0.84	--
					F	0.96	1.1	0.9	--	0	0.86	0.08	1	--	0.94	0.86
					G	1.2	0.9	0.4	--	0	0.78	0.5	1.2	--	0.76	0.7
					H	--	1.1	0.5	--	0.82	0.77	1	1.1	--	0.95	0.71
					I	--	1.4	0.3	--	0.52	0.74	--	1	--	0.96	0.44
					J	--	--	--	--	--	--	--	1.3	--	--	--
2	5	2	6/8/98	15:30	A	0	--	--	0	0	+	0.02	0	--	--	+
					B	0	0	--	0	0	0.1	0	0	--	+	+
					C	--	0	0	--	+	0.38	+	0	--	+	+
					D	0	+	0	0	+	0.34	+	+	--	0.18	0
					E	0	0.2	0.1	+	0	0.3	+	+	--	0.2	0
					F	0.22	0	0.2	--	0	0.22	+	0.46	--	0.24	0.24
					G	0	0.2	0	--	0	0.2	0	0.4	--	0.28	0.18
					H	--	0.3	0	--	0.24	0.2	0.28	0.42	--	0.28	0.2
					I	--	0.4	0	--	0.16	0.2	--	0.34	--	0.24	0.1
					J	--	--	--	--	--	--	--	0.4	--	--	--
2	5	2	6/8/98	17:30	A	0	--	--	0	+	+	0	0	--	--	0
					B	0	0	--	0	+	0	0	0.02	--	0	0
					C	--	0	0	--	+	0.8	0	0	--	+	0
					D	0	0	0	0	+	0.04	+	0	--	+	0
					E	0	0	0	+	0	0.06	+	+	--	+	0
					F	0	0	0	--	0	0	+	0.06	--	+	+
					G	0	0	0	--	0	0	0	0	--	+	+
					H	--	0	0	--	0	0	0.03	0	--	+	+
					I	--	0	0	--	--	0	--	0	--	+	+
					J	--	--	--	--	--	--	--	0	--	--	--
2	5	2	6/8/98	18:30	A	0	--	--	0	0	+	0	0.01	--	--	0.02
					B	0	0	--	0	0	0.1	0	0.01	--	0	0.02
					C	--	0	0	--	0	0.1	0.02	0	--	0	0.04
					D	0	0.02	0	0	0.02	0.1	0.02	0	--	0.08	0.04
					E	0	0	0	0.02	0	0.1	0.04	0.1	--	0.06	0
					F	0.08	0	0	--	0	0.06	0.02	0.08	--	0.04	0
					G	0	0	0	--	0	0.08	0	0	--	0.04	0
					H	--	0	0	--	0	0.08	0.1	0	--	0.02	0
					I	--	0.1	0	--	--	0.04	--	0	--	0.04	0
					J	--	--	--	--	--	--	--	0	--	--	--
2	5	2	6/8/98	19:30	A	0	--	--	0	0	+	0	0	--	--	0.03
					B	0	0	--	0	0	0.14	0	0.01	--	0.1	0.04
					C	--	0	0	--	0.04	0.16	0	0.02	--	0.1	0.08
					D	0	0.02	0	0	0.06	0.14	0.04	0.04	--	0.08	0.06
					E	0	0	0	0.06	0.07	0.14	0.04	0	--	0.06	0
					F	0.12	0	0.02	--	0	0.1	0.04	0.1	--	0.06	0.02
					G	0	0.1	0	--	0	0.08	0	0.08	--	0.06	0.02
					H	--	0.1	0	--	0.1	0.08	0.1	0.08	--	0.08	0.02
					I	--	0.2	0	--	0.1	0.08	--	0.06	--	0.06	0.02
					J	--	--	--	--	--	--	--	0.1	--	--	--
2	5	2	6/8/98	21:30	A	0	--	--	0	--	--	0.04	0	--	--	--
					B	0	0	--	0	--	--	0.04	0.06	--	0.08	--
					C	--	0	0	--	--	--	0.06	0.06	--	0.07	--
					D	0	0.1	0	0	--	--	0.04	0.06	--	0.12	0.08
					E	0	0	0	0.04	--	--	0.04	0.06	--	0.12	--
					F	0.2	0	0.2	--	--	--	0.04	0.22	--	0.14	0.1
					G	0	0.1	0	--	--	--	0	0.2	--	0.1	0.08
					H	--	0.1	0	--	--	--	0.14	0.2	--	0.14	0.08
					I	--	0.3	0	--	--	--	--	0.15	--	0.1	0.12
					J	--	--	--	--	--	--	--	0.2	--	--	--

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)										
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O
2	5	3	6/9/98	7:30	A	0	--	--	0	0	+	0.04	0	--	--	0
					B	0	0	--	0	0	0.26	0.04	0.02	--	0.1	0.04
					C	--	0	0	--	0.1	0.27	0.08	0.06	--	0.12	0.06
					D	0.1	0.08	0.1	0	0.1	0.24	0.08	0.06	--	0.2	0.07
					E	0.1	0	0.1	0.1	0.08	0.22	0.08	0.06	--	0.2	0
					F	0.27	0	0.3	--	0	0.18	0.1	0.3	--	0.24	0.28
					G	0	0.2	0	--	0	0.2	0	0.28	--	0.2	0.22
					H	--	0.2	0	--	0.22	0.18	0.2	0.22	--	0.24	0.2
					I	--	0.4	0	--	0.2	0.14	--	0.28	--	0.2	--
					J	--	--	--	--	--	--	--	--	--	--	--
2	5	3	6/9/98	10:00	A	0.01	--	--	0.01	0.02	+	0.04	0	--	--	0
					B	0	0.02	--	0	0	0.3	0.04	0	--	0.04	0
					C	--	0	--	--	0	0.34	0.08	0.04	--	0.07	0
					D	0	0.04	0	0	0	0.32	0.08	0.04	--	0.3	0.02
					E	0.1	0	0.1	0.1	0	0.3	0.1	0.06	--	0.32	0
					F	0.3	0	0.3	--	0	0.28	0.2	0.46	--	0.4	0.42
					G	0	0.3	0	--	0	0.24	0.28	0.42	--	0.3	0.36
					H	--	0.3	0	--	0.22	0.24	--	0.46	--	0.4	0.34
					I	--	0.5	0	--	0.18	0.24	--	0.38	--	0.38	0.24
					J	--	--	--	--	--	--	0.46	--	--	--	
2	5	3	6/9/98	12:30	A	0	--	--	--	+	0	0.02	0	--	--	0
					B	0	0	--	--	0	0.22	0	0	--	0	0
					C	--	0	0	--	0	0.3	0	0	--	0	0
					D	0	+	0.2	--	0	0.26	0	0	--	0.22	0
					E	0	0	0	--	0	0.22	0	0	--	0.26	0
					F	0.18	0	0.2	--	0	0.22	0	0.38	--	0.3	0.38
					G	0	0.1	0	--	0	0.22	0	0.36	--	0.24	0.3
					H	--	0.2	0	--	0.16	0.2	0.24	0.36	--	0.36	0.3
					I	--	0.3	0	--	0.1	0.2	--	0.3	--	0.3	0.22
					J	--	--	--	--	--	--	0.38	--	--	--	
2	5	3	6/9/98	13:45	A	0	--	--	0	--	--	0.02	0	--	--	--
					B	0	0	--	0	--	--	0	0	--	0	--
					C	--	0	--	--	--	--	0	0	--	0	--
					D	0	0	--	0	--	--	0	0	--	0.14	0
					E	0	0	--	0	--	--	0	+	--	0.18	--
					F	0.14	0	--	--	--	--	0.28	--	0.2	0.28	
					G	0	0.1	--	--	--	--	0	0.24	--	0.18	0.22
					H	--	0.2	--	--	--	--	0.26	--	0.26	0.2	
					I	--	0.2	--	--	--	--	0.2	--	0.2	0.16	
					J	--	--	--	--	--	--	0.24	--	--	--	
2	5	4	6/9/98	15:00	A	0	--	--	0	--	0	0	0	--	--	--
					B	0	0	--	0	--	+	+	0	--	+	--
					C	--	0	0	--	+	+	+	0	--	+	--
					D	+	+	+	0	--	+	+	+	--	+	0
					E	0	0	0	+	--	+	+	+	--	+	--
					F	+	0	0	--	--	+	+	0	--	+	0
					G	0	0	0	--	--	+	0	0	--	+	0
					H	--	0	0	--	+	+	0.1	0	--	0	0
					I	--	0	0	--	+	0	--	0	--	0	0
					J	--	--	--	--	--	--	0	--	--	--	
2	5	4	6/9/98	16:30	A	0.02	--	--	0	--	--	0.01	0	--	--	--
					B	0	0.02	--	0	--	+	0	0	--	0	--
					C	--	0	0	--	--	+	0	0	--	+	--
					D	+	+	+	0	--	+	+	+	--	+	+
					E	0.2	0.1	0	+	--	+	+	+	--	+	--
					F	+	0.1	+	--	--	+	+	+	--	+	+
					G	0	0	0	--	--	+	+	+	--	+	+
					H	--	0.1	0	--	--	0	+	+	--	+	+
					I	--	0	0	--	--	+	+	+	--	+	+
					J	--	--	--	--	--	+	+	+	--	--	
2	5	4	6/9/98	17:30	A	0.02	--	--	0	--	--	0.02	0	--	--	--
					B	0	0.03	0	0	--	0	0	0	--	+	--
					C	--	0	--	--	--	0	0	0	--	+	--
					D	+	+	+	0	--	+	+	+	--	+	+
					E	0.2	0.2	+	+	--	+	+	+	--	+	--
					F	+	0.1	+	--	--	+	+	+	--	+	+
					G	0	0	0	--	--	+	+	+	--	+	+
					H	--	0.2	0	--	--	0	+	+	--	+	+
					I	--	+	+	--	--	+	+	+	--	+	+
					J	--	--	--	--	--	+	+	+	--	--	
2	5	4	6/9/98	19:00	A	0.03	--	--	0.01	--	0	0.05	0	--	--	--
					B	0	0.04	--	0	--	+	0.05	0.02	--	0.04	--
					C	--	0	0	--	--	+	0.06	0.05	--	0.03	--
					D	0.02	0.05	0.03	0	--	+	0.05	0.04	--	+	0.04
					E	0.2	0.1	0	0	--	+	0.05	0.01	--	+	-
					F	+	0	0	--	--	+	0.02	+	--	+	+
					G	0	0	0	--	--	+	0	+	--	+	+
					H	--	0.1	0	--	+	+	+	+	--	+	+
					I	--	+	0	--	+	+	--	+	--	+	+
					J	--	--	--	--	--	+	--	--	--	--	

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)										
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O
2	5	4	6/9/98	20:00	A	0.02	--	--	0.01	--	--	0.05	0	--	--	--
					B	0	0.04	--	0	--	--	0.04	0	--	0.04	--
					C	--	0	0	--	--	--	0.05	0.03	--	0	--
					D	0	0	0.02	0	--	--	0.02	0	--	+	0.01
					E	0.3	0.2	0	0	--	--	0	0	--	+	--
					F	+	0	0	--	--	--	0	+	--	+	+
					G	0	0	0	--	--	--	0	+	--	+	+
					H	--	0.2	0	--	--	--	+	+	--	+	+
					I	--	0	0	--	--	--	--	+	--	+	+
					J	--	--	--	--	--	--	--	+	--	--	--
2	5	4	6/9/98	21:30	A	0.04	--	--	0.01	--	--	0.05	0	--	--	--
					B	0	0.04	--	0	--	--	0.06	0	--	0.06	--
					C	--	0.1	0	--	--	--	0.06	0.02	--	0.05	--
					D	0	0.06	0.08	0.02	--	--	0.04	0.05	--	0.06	0.04
					E	0.3	0.1	0.1	0.04	--	--	0.04	0.04	--	0.05	--
					F	0.1	0	0.1	--	--	--	0.08	0.06	--	0.06	0.04
					G	0.1	0.1	0	--	--	--	0.06	0.08	--	0.05	0.04
					H	--	0.2	0	--	--	--	0.08	0.1	--	0.07	0.02
					I	--	0.1	0	--	--	--	--	0.06	--	0.06	0.02
					J	--	--	--	--	--	--	0.08	--	--	--	--
2	5	4	6/9/98	22:30	A	0.04	--	--	0.015	--	--	0.05	0.01	--	--	--
					B	0	0.06	--	0	--	--	0.08	0.03	--	0.12	--
					C	--	0.2	0	--	--	--	0.1	0.09	--	0.15	--
					D	0.15	0.12	0.15	0.04	--	--	0.1	0.1	--	0.15	0.12
					E	0.3	0.1	0.2	0.12	--	--	0.1	0.11	--	0.12	--
					F	0.2	0	0.3	--	--	--	0.14	0.2	--	0.14	0.16
					G	0.3	0.2	0	--	--	--	0.1	0.18	--	0.12	0.14
					H	--	0.2	0	--	--	--	0.2	0.2	--	0.16	0.1
					I	--	0.3	0	--	--	--	--	0.14	--	0.14	0.09
					J	--	--	--	--	--	--	0.19	--	--	--	--
2	5	5	6/10/98	7:30	A	0.02	--	--	0.005	0	0	0.05	0	--	--	--
					B	0	0.05	--	0	0	0	0.06	0.04	--	0.08	--
					C	--	0.2	0	--	0	0.04	0.08	0.07	--	0.07	0.05
					D	0.07	0.08	0.09	0	0.01	0.04	0.06	0.07	--	0	0.05
					E	0	0.1	0	0.05	0.01	0.06	0.07	0.05	--	+	--
					F	0.06	0	0.1	--	0	0.04	0.07	0	--	+	0
					G	0.2	0.2	0	--	0.04	0.02	0	0	--	+	0
					H	--	0.1	0	--	0.11	0.04	0	0	--	+	0
					I	--	0	0	--	0.1	0.03	--	0	--	+	0
					J	--	--	--	--	--	--	0	--	--	--	--
2	5	5	6/10/98	8:30	A	0	--	+	0	0	0.1	+	--	--	--	--
					B	+	+	--	0	0	0.04	+	--	+	--	
					C	--	0	0	--	0	0.04	+	--	+	--	
					D	0	+	0	0	0	0.02	+	--	+	--	
					E	0	0.1	0	+	0	0.04	+	--	+	--	
					F	0	0	0.05	--	0	0.02	+	--	+	--	
					G	0	0.1	0	--	0	0.01	0	+	--	+	--
					H	--	0.1	0	--	0.08	0.01	+	+	--	+	--
					I	--	0	0	--	0.08	0.02	--	+	--	+	--
					J	--	--	--	--	--	--	+	--	--	--	--
2	5	5	6/10/98	10:00	A	0.01	--	--	0	--	0	0.02	+	--	--	--
					B	0	0.03	--	0	--	+	+	+	--	+	--
					C	--	0	0	--	--	0	+	+	--	+	--
					D	+	+	0	0	--	+	+	+	--	+	--
					E	0	0.1	0	+	--	+	+	+	--	+	--
					F	+	0.1	+	--	--	0	+	+	--	+	--
					G	0	0.1	0	--	--	+	0	+	--	+	--
					H	--	0.1	0	--	0.01	0	+	+	--	+	--
					I	--	0	0	--	0	0	--	+	--	+	--
					J	--	--	--	--	--	--	+	--	--	--	--
2	5	5	6/10/98	11:00	A	0	--	--	0	--	--	0.02	0	--	--	--
					B	0	0.03	--	0	--	0.01	0	--	0	--	--
					C	--	0	0	--	--	0.01	0	--	+	--	
					D	0	0	0	0	--	0	+	--	+	--	
					E	0	0.1	0	0	--	0	+	--	+	--	
					F	+	0	0	--	--	0	+	--	+	--	
					G	0	0.1	0	--	--	0	+	--	+	--	
					H	--	0	0	--	--	0	+	--	+	--	
					I	--	0	0	--	--	--	+	--	+	--	
					J	--	--	--	--	--	--	+	--	--	--	--
2	5	5	6/10/98	12:00	A	0.02	--	--	0.01	--	0	0.04	0	--	--	--
					B	0	0.04	--	0	--	+	0.03	0.01	--	0	--
					C	--	0	0	--	--	+	0.04	0.03	--	+	--
					D	0	0	0	0	--	+	0.02	0.01	--	+	0
					E	0	0.1	0	0	--	+	0	0	--	+	--
					F	+	0	0	--	--	+	0	+	--	+	--
					G	0	0.1	0	--	--	+	0	+	--	+	--
					H	--	0.1	0	--	--	+	0	+	--	+	--
					I	--	0	0	--	--	+	+	--	+	--	
					J	--	--	--	--	--	--	+	--	--	--	--

TEST 1 AND 2: MONITORING WELL DATA

TEST EVENT	WEEK	DAY	DATE	TIME hours	PROBE	VACUUM RESPONSES (<i>Magnahelic Gauges</i>)										
						SVW-25 in. H ₂ O	SVW-26 in. H ₂ O	SVW-27 in. H ₂ O	SVW-28 in. H ₂ O	SVW-32 in. H ₂ O	SVW-33 in. H ₂ O	SVW-34 in. H ₂ O	SVW-35 in. H ₂ O	SVW-36 in. H ₂ O	SVW-37 in. H ₂ O	SVW-38 in. H ₂ O
2	5	5	6/10/98	13:00	A	0	--	--	0.005	--	--	0	0	--	--	--
					B	+	0	--	0	--	--	+	0	--	+	--
					C	--	0	0	--	--	--	+	0	--	+	--
					D	+	+	+	+	--	--	+	+	--	+	+
					E	0	0.1	0	+	--	--	+	+	--	+	--
					F	+	0	+	--	--	--	+	+	--	+	+
					G	0	0.1	0	--	--	--	+	+	--	+	+
					H	--	0.1	0	--	--	--	+	+	--	+	+
					I	--	+	0	--	--	--	+	--	+	+	+
					J	--	--	--	--	--	--	+	--	--	--	--
2	5	4	6/10/98	15:00	A	0	--	--	0	0	+	0	+	--	--	+
					B	0	0	--	0	+	+	+	+	--	+	+
					C	--	0	0	--	+	+	+	+	--	+	+
					D	+	+	+	0	+	+	+	+	--	+	+
					E	+	0	+	+	+	+	+	+	--	+	+
					F	+	0	+	--	+	+	+	+	--	+	+
					G	0	+	+	--	+	+	+	+	--	+	+
					H	--	+	0	--	+	+	+	+	--	+	+
					I	--	+	+	--	+	+	+	--	+	+	+
					J	--	--	--	--	--	--	+	--	+	--	+
2	5	4	6/10/98	16:00	A	0.01	--	--	0	0	+	0	+	--	--	+
					B	0	0	--	0	+	+	+	+	--	+	+
					C	--	0	0	--	+	+	+	+	--	+	+
					D	+	0	+	+	+	+	+	+	--	+	+
					E	0	0	+	+	+	+	+	+	--	+	+
					F	+	0	+	--	0	+	+	+	--	+	+
					G	0	+	+	--	0	+	+	+	--	+	+
					H	--	0	0	--	+	+	+	+	--	+	+
					I	--	+	+	--	+	+	+	--	+	+	+
					J	--	--	--	--	+	--	--	+	--	--	--
2	5	4	6/10/98	17:30	A	0	--	--	0	0	+	0	+	--	--	+
					B	0	0	--	0	0	+	0	+	--	+	+
					C	--	0	0	--	0	+	+	+	--	+	+
					D	0	+	+	+	0	+	+	+	--	+	+
					E	0.2	0	+	+	+	+	+	+	--	+	+
					F	+	0	+	--	0	+	+	+	--	+	+
					G	0	+	+	--	0	+	+	+	--	+	+
					H	--	0	0	--	+	+	+	+	--	+	+
					I	--	+	+	--	+	+	+	--	+	+	+
					J	--	--	--	--	0	+	--	+	--	--	--
2	5	4	6/10/98	18:30	A	0	--	--	0	0	0	0.02	0	--	0	0
					B	0	0	--	0	0	+	0.02	0	--	+	0
					C	--	0	0	--	0	+	0.04	0.02	--	+	0
					D	+	+	0	0	+	+	0.04	0.02	--	+	0
					E	0.2	0	+	0	0	+	0.04	0.02	--	+	0
					F	+	0	+	--	0	+	0.04	+	--	+	+
					G	0	0	+	--	0	+	0	+	--	+	+
					H	--	0	0	--	+	+	+	+	--	+	+
					I	--	+	+	--	+	+	+	--	+	+	+
					J	--	--	--	--	--	--	--	+	--	--	--
2	5	4	6/10/98	19:30	A	0	--	--	0	0	0	0.02	0	--	0	0
					B	0	0	--	0	0	+	0.02	0	--	0	0
					C	--	0	0	--	0	+	0.04	0.02	--	+	0
					D	+	+	0	0	+	+	0.04	0.04	--	+	0
					E	0.2	0	+	0	0	+	0.04	0.02	--	+	0
					F	+	0	+	--	0	+	0	+	--	+	+
					G	0	0	+	--	0	+	0	+	--	+	+
					H	--	0	0	--	+	+	--	+	--	+	+
					I	--	+	+	--	+	+	--	+	--	+	+
					J	--	--	--	--	--	--	--	+	--	--	--
2	5	4	6/10/98	21:30	A	0	--	--	0	0	0	0	0	--	--	0
					B	0	0	--	0	0	+	0	+	--	+	0
					C	--	+	0	--	+	+	+	+	--	+	+
					D	+	+	0	+	+	+	+	+	--	+	0
					E	0.2	0	+	+	+	+	+	+	--	+	+
					F	+	+	+	--	+	+	+	+	--	+	+
					G	+	0	+	--	+	+	+	+	--	+	+
					H	--	+	+	--	+	+	+	--	+	--	+
					I	--	0	+	--	+	+	+	--	+	--	+
					J	--	--	--	--	--	--	--	--	--	--	--

ATTACHMENT 3

TESTS 1 AND 2: LABORATORY RESULTS

TEST 1 AND 2: LABORATORY RESULTS

DATE SAMPLED	TIME	LABORATORY SAMPLES - EPA 8010 + FREON 113 / EPA 8020																					
		WELL SCREEN(S)								Blower 1								Blower 2					
		A				B				C		ABC		BC		Primary 1		Secondary 1		Primary 2		Secondary 2	
DATE SAMPLED	TIME	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³	1,1 DCE mg/m ³	TCE mg/m ³	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³	1,1 DCE mg/m ³	TCE	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³
4/9/98	10:00	240	ND	ND	ND	280	ND	ND	ND	100	ND	ND	--	--	--	--	--	--	--	--	--	--	--
4/13/98	8:15	150	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11:15	160	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14:15	160	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/14/98	7:00	150	11	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10:00	150	11	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14:00	160	10	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/15/98	7:00	160	11	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	7:30	170	13	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10:00	150	12	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11:00	150	11	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14:00	200	16	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14:00	150	11	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/16/98	7:00	180	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10:00	160	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14:00	170	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/17/98	8:30	57	ND	ND	ND	240	11	ND	ND	140	ND	--	--	--	--	--	--	--	--	--	--	--	--
4/20/98	7:00	--	--	ND	ND	220	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10:00	--	--	ND	ND	260	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14:00	--	--	ND	ND	280	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/21/98	8:00	--	--	ND	ND	290	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10:00	--	--	ND	ND	250	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14:00	--	--	ND	ND	240	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/22/98	7:00	--	--	ND	ND	250	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10:00	--	--	ND	ND	210	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10:15	--	--	ND	ND	230	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	13:30	--	--	ND	ND	250	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/23/98	7:00	--	--	ND	ND	270	17	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10:00	--	--	ND	ND	250	17	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	13:30	--	--	ND	ND	270	16	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/24/98	8:00	270	ND	17	ND	250	ND	16	ND	280	ND	ND	--	--	--	--	--	--	--	--	--	--	--
4/27/98	8:00	--	--	--	--	--	--	--	--	110	ND	ND	--	--	--	--	--	--	--	--	--	--	--
	10:00	--	--	--	--	--	--	--	--	130	ND	ND	--	--	--	--	--	--	--	--	--	--	--
	13:30	--	--	--	--	--	--	--	--	130	ND	ND	--	--	--	--	--	--	--	--	--	--	--
4/29/98	12:00	--	--	--	--	--	--	--	--	160	12	ND	--	--	--	--	--	--	--	--	--	--	--
	15:00	--	--	--	--	--	--	--	--	140	10	ND	--	--	--	--	--	--	--	--	--	--	--
	15:00	--	--	--	--	--	--	--	--	150	11	ND	--	--	--	--	--	--	--	--	--	--	--
	19:00	--	--	--	--	--	--	--	--	150	11	ND	--	--	--	--	--	--	--	--	--	--	--
4/30/98	7:00	--	--	--	--	--	--	--	--	170	ND	ND	--	--	--	--	--	--	--	--	--	--	--
	10:00	--	--	--	--	--	--	--	--	150	ND	ND	--	--	--	--	--	--	--	--	--	--	--
	13:00	--	--	--	--	--	--	--	--	100	ND	ND	--	--	--	--	--	--	--	--	--	--	--
	16:00	--	--	--	--	--	--	--	--	160	ND	ND	--	--	--	--	--	--	--	--	--	--	--
	20:00	--	--	--	--	--	--	--	--	160	ND	ND	--	--	--	--	--	--	--	--	--	--	--
	23:00	--	--	--	--	--	--	--	--	170	10	ND	--	--	--	--	--	--	--	--	--	--	--
5/1/98	7:30	59	ND	ND	ND	14	ND	ND	ND	110	7.6	ND	--	--	--	--							

TEST 1 AND 2: LABORATORY RESULTS

DATE SAMPLED	TIME	LABORATORY SAMPLES - EPA 8010 + FREON 113 / EPA 8020																								
		WELL SCREEN(S)								Blower 1																
		A				B				C				ABC		BC		Primary 1		Secondary 1		Primary 2		Secondary 2		
DATE SAMPLED	TIME	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³	1,1 DCE mg/m ³	TCE mg/m ³	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³	1,1 DCE mg/m ³	TCE	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³	TCE	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³	Carbon Tetrachloride mg/m ³	Freon 113 mg/m ³		
5/20/98	9:30	-	-	-	-	--	-	-	-	-	160	15	-	-	ND	ND	-	-	ND	ND	--	--				
5/21/98	8:30	73	ND	ND	ND	260	17	ND	ND	140	14	ND	150	ND	-	--	ND	ND	--	--	ND	ND	--	--		
5/22/98	8:00	-	-	-	-	--	-	-	-	-	92	8.2	-	-	-	ND	ND	-	-	ND	ND	--	--			
5/26/98	10:00	35	ND	ND	ND	210	16	ND	ND	110	14	-	100	10	-	-	78	8	-	-	ND	ND	--	--		
5/29/98	12:00	-	-	-	-	--	-	-	-	-	-	-	160	16	-	-	-	-	ND	ND	--	--				
6/1/98	9:00	-	-	-	-	--	-	-	-	-	-	-	160	15	-	-	-	-	ND	ND	--	--				
6/2/98	10:00	-	-	-	-	170	14	ND	ND	91	14	ND	-	-	140	13	-	--	16	13	ND	ND	--	--		
6/3/98	9:45	-	-	-	-	--	-	-	-	-	-	-	150	15	-	-	-	16	ND	ND	--	--	--	--		
	9:50	-	-	-	-	--	-	-	-	-	-	-	130	13	-	-	-	-	-	-	-	-	-	-	-	
6/4/98	10:00	-	-	-	-	--	-	-	-	-	-	-	120	13	-	-	-	-	ND	20	-	-	-	-	-	-
6/5/98	10:00	-	-	-	-	--	-	-	-	-	-	-	140	15	-	-	-	-	ND	24	-	-	-	-	-	-
6/8/98	9:30	-	-	-	-	150	13	ND	ND	81	14	ND	-	-	120	13	-	-	-	-	53	26	ND	ND	-	-
6/9/98	10:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	
6/16/98	10:00	49	ND	ND	ND	130	12	ND	ND	55	8.2	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	
6/23/98	9:30	39	ND	ND	ND	120	11	ND	ND	48	7.4	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	

ATTACHMENT 4

TEST 3: EXTRACTION WELL DATA

TEST 3: EXTRACTION WELL DATA

DATE	TIME	VACUUM						FLOWRATE						FID READINGS								
		VE1-A			VE1-B			VE1-C			CARBON				ANEMOMETER FLOWRATE				INFLUENT			
		Primary 1 (Eff) in. H ₂ O	Secondary 1 (Eff) in. H ₂ O	Primary 2 (Eff) in. H ₂ O	Secondary 2 (Eff) in. H ₂ O	Screen A cfm=fpm*0.0218	Screen B cfm=fpm*0.0873	Screen C	Screen BC cfm=fpm*0.0873	A ppm	B ppm	C ppm	ABC ppm	Primary 1 ppm	Secondary 1 ppm	Primary 2 ppm	Secondary 2 ppm	Final ppm				
hours	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O	in. H ₂ O		
11/2/98	11:00	0	46	46	65	73	68	73	-	-	-	-	-	-	-	-	-	-	-	-	-	
11/2/98	14:00	0	44	44	63	71	64	70	-	-	-	-	-	-	-	-	-	-	-	-	-	
11/3/98	7:30	0	46	46	67	74	66	72	0	128	110	242	NA	4	6	5	0	0	0	0	0	
11/3/98	13:30	0	45	45	64	72	65	72	0	138	125	270	-	-	-	-	-	-	-	-	-	
11/4/98	9:00	0	-	-	66	74	66	72	0	126	114	242	NA	7	7.6	7.6	0.4	0	0	0	0	
11/5/98	9:30	0	46	46	65	74	66	72	0	125	114	228	NA	4.3	5.6	5.4	0	0	0	0	0	
11/5/98	12:00	0	45	45	64	72	65	70	0	127	117	247	-	-	-	-	-	-	-	-	-	
11/6/98	8:40	0	44	44	62	70	64	70	0	127	114	256	NA	7.8	7.4	8	0.8	0	0	0	0	
11/9/98	9:00	0	46	46	66	76	68	72	0	131	115	260	NA	5.8	5.5	5.6	0	0	0	0	0	
11/10/98	9:00	0	46	46	68	76	67	72	0	128	115	257	NA	4.9	4.8	5.7	0.2	0	0	0	0	
11/11/98	9:30	0	47	47	67	76	67	72	0	130	120	253	NA	3.8	4.6	4	0	0	0	0	0	
11/12/98	10:30	0	47	47	67	76	68	74	0	131	120	258	NA	4.4	3.8	3.8	0	0	0	0	0	
11/13/98	8:00	0	49	50	70	80	70	77	0	130	115	258	NA	4.8	5.4	4.6	0	0	0	0	0	
11/16/98	10:00	0	50	50	70	80	70	78	0	130	120	258	NA	5	5.6	4.8	0	0	0	0	0	
11/18/98	10:00	0	51	51	71	80	73	79	0	<131	131	262	NA	4.9	5.2	5	0	0	0	0	0	
11/19/98	10:30	0	51	50	71	80	73	79	0	<131	131	260	NA	4.8	5	5	0	0	0	0	0	
11/20/98	8:30	0	50	50	71	81	73	80	0	<131	129	240	NA	3.4	4	3.7	0	0	0	0	0	
11/23/98	10:00	0	50	50	72	82	74	81	0	131	129	262	NA	2.6	3.8	2.4	0	0	0	0	0	
12/4/98	17:00	0	51	51	73	83	75	80	0	131	129	260	-	-	-	-	0.2	-	1	-	-	
12/8/98	9:30	-	51	50	74	84	76	72	0	131	126	279	NA	3.6	4.2	3.4	2	0	3	0	0	
12/17/98	8:00	-	50	50	73	83	75	82	0	131	126	279	-	-	-	-	-	-	-	-	-	
12/30/98	11:00	-	60	60	80	82	79	84	0	131	131	279	-	-	-	-	-	-	-	-	-	
1/6/99	10:00	-	61	60	81	86	80	86	0	131	131	279	-	-	-	-	-	-	-	-	-	
1/13/99	16:00	-	61	61	82	85	79	85	0	171	165	278	NA	1.3	3.3	1.4	2.3	0	3	0.2	0	
1/21/99	15:30	-	63	62	82	86	80	87	0	166	152	253	NA	1.7	3.9	1.7	2.2	0.6	3.2	1.4	0.8	
1/28/99	11:00	-	31	31	85	70	-	-	0	109	81	131	-	-	-	-	-	-	-	-	-	
2/11/99	9:15	-	31	32	54	73	-	-	0	92	87	157	-	-	-	-	-	-	-	-	-	
3/31/99	15:00	-	57	56	78	78	78	82	0	130	130	332	-	-	-	-	-	-	-	-	-	
4/8/99	10:55	-	60	60	80	90	84	88	0	175	155	332	-	-	-	-	-	-	-	-	-	
4/8/99	13:00	-	64	63	92	100	92	100	-	-	-	332	-	-	-	-	-	-	-	-	-	
4/15/99	10:45	-	64	62	93	100	93	100	0	130	130	262	-	-	-	-	-	-	-	-	-	
4/20/99	14:00	-	32	32	52	60	51	54	0	213	-	375	-	-	-	-	-	-	-	-	-	
4/21/99	16:00	-	36	36	55	64	56	59	0	131	131	196	-	-	-	-	-	-	-	-	-	
4/29/99	8:00	-	36	37	57	65	58	60	-	-	-	-	-	-	-	-	-	-	-	-	-	
5/4/99	15:00	-	72	72	92	100	93	99	-	-	-	-	-	-	-	-	-	-	-	-	-	
5/6/99	10:45	-	72	72	94	100	94	99	-	-	-	-	-	-	-	-	-	-	-	-	-	
5/11/99	11:00	-	74	74	95	100	96	100	-	-	-	-	-	-	-	-	-	-	-	-	-	
5/11/99	17:30	-	72	72	94	100	94	100	-	-	-	-	-	-	-	-	-	-	-	-	-	
5/14/99	12:00	-	74	74	95	100	96	100	-	249	207	445	-	-	-	-	-	-	-	-	-	
5/14/99	17:45	-	73</td																			

TEST 3: EXTRACTION WELL DATA

DATE	TIME	VACUUM						FLOWRATE				FID READINGS													
		VE1-A			VE1-B			VE1-C		CARBON				ANEMOMETER FLOWRATE				INFLUENT				EFFLUENT			
		hours	in. H ₂ O	Primary 1 (Eff) in. H ₂ O	Secondary 1 (Eff) in. H ₂ O	Primary 2 (Eff) in. H ₂ O	Secondary 2 (Eff) in. H ₂ O	Screen A cfm=fpm*0.0218	Screen B cfm=fpm*0.0218	Screen C cfm=fpm*0.0218	Screen BC cfm=fpm*0.0873	A ppm	B ppm	C ppm	ABC ppm	Primary 1 ppm	Secondary 1 ppm	Primary 2 ppm	Secondary 2 ppm	FINAL ppm					
5/20/99	9:45	-	74	74	96	100	97	100	-	196	179	262*	-	-	-	-	-	-	-	-	-	-	-	-	-
6/1/99	9:30	-	72	72	94	-	-	-	-	233	203	323	-	-	-	-	-	-	-	-	-	-	-	-	-
6/7/99	15:45	-	72	72	94	100	93	105	-	263	272	306	-	-	-	-	-	-	-	-	-	-	-	-	-
7/1/99	15:00	-	67	67	85	90	90	90	-	167	249	393	-	-	-	-	-	-	-	-	-	-	-	-	-
7/7/99	8:45	-	72	72	92	97	100	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7/7/99	12:00	-	70	70	90	95	98	95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7/13/99	8:00	-	72	72	92	96	100	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7/15/99	8:45	-	73	73	94	98	100	98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7/15/99	12:25	-	71	71	92	96	100	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7/21/99	10:00	-	0	0	0	0	0	0	-	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
7/27/99	11:00	-	-	-	84	88	90	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7/27/99	1:00	-	-	-	88	93	95	92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7/30/99	9:00	-	72	72	93	97	100	98	-	266	238	393	-	-	-	-	-	-	-	-	-	-	-	-	-
7/30/99	13:45	-	70	70	90	97	98	95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/5/99	9:00	-	72	72	93	98	100	98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/5/99	1:00	-	70	71	82	96	100	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/11/99	9:20	-	73	74	95	99	102	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/11/99	12:45	-	71	71	93	97	97	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/20/99	9:00	-	73	73	94	99	101	99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/20/99	12:25	-	71	71	92	97	100	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/24/99	10:00	-	72	72	93	97	101	98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/25/99	9:00	-	72	72	93	97	100	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9/8/99	9:00	-	73	73	95	100	102	100	-	251	244	375	-	-	-	-	-	-	-	-	-	-	-	-	-
9/15/99	8:35	-	-	100	126	130	134	130	-	-	244	314	-	-	-	-	-	-	-	-	-	-	-	-	-
9/22/99	8:45	-	-	100	128	130	135	131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9/29/99	10:00	-	-	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ATTACHMENT 5
TEST 3: MONITORING WELL DATA

TEST 3: MONITORING WELL DATA

ES (MAGNAHELIC GAUGES)											
DATE	WELL	PROBE									
		A	B	C	D	E	F	G	H	I	J
		in. H ₂ O									
11/3/98	SVW-25	0.0	0.0	P	0.3	P	2.1	0.0	1.0	1.7	2.8
11/4/98	SVW-25	0.0	0.0	P	0.3	P	2.9	0.0	0.6	2.0	0.0
11/5/98	SVW-25	0.0	0.0	P	0.1	P	1.9	0.0	0.4	1.7	0.0
11/6/98	SVW-25	0.0	0.0	P	0.2	P	1.9	0.0	0.0	1.8	0.0
11/9/98	SVW-25	0	0	P	0.4	P	2.3	0	0	2	0
11/10/98	SVW-25	0.0	0.0	P	0.4	P	5.0	0.0	0.0	2.1	0.0
11/11/98	SVW-25	0.0	0.0	P	0.3	P	3.5	0.0	0.0	1.8	0.0
11/12/98	SVW-25	0.0	0.0	P	0.3	P	3.9	0.0	0.0	1.8	-
11/13/98	SVW-25	0.0	0.0	P	0.1	P	4.4	-	-	1.6	-
11/16/98	SVW-25	0.0	0.0	P	0.2	P	4.6	-	-	1.8	-
11/18/98	SVW-25	0.0	0.0	P	0.1	P	4.8	0.0	0.0	1.8	0.0
11/19/98	SVW-25	0.0	0.0	P	0.3	P	<5	0.0	0.0	2.1	0.0
11/20/98	SVW-25	-	-	P	0.3	P	5.0	-	-	2.1	-
11/23/98	SVW-25	-	-	P	0.3	P	5.0	-	-	2.1	-
12/8/98	SVW-25	0.0	0.0	P	0.0	P	4.0	0.0	0.0	1.4	0.0
12/17/98	SVW-25	0.0	0.0	P	0.4	P	5.0	0.0	0.0	2.0	0.0
12/23/98	SVW-25	-	-	P	0.1	P	0.7	-	-	0.0	-
12/23/98	SVW-25	-	-	P	0.0	P	4.1	-	-	1.4	-
12/24/98	SVW-25	-	-	P	0.3	P	5.0	-	-	2.4	-
12/30/98	SVW-25	-	-	P	0.4	P	5.0	-	-	2.0	-
1/6/99	SVW-25	-	-	P	-	P	5.0	-	-	2.0	-
1/13/99	SVW-25	-	-	P	-	P	5.0	-	-	2.2	-
1/21/99	SVW-25	-	-	P	0.4	P	5.0	-	2.0	-	-
1/28/99	SVW-25	0.0	0.0	P	0.0	P	0.4	0.0	0.0	0.1	0.0
2/11/99	SVW-25	0.0	0.0	P	0.0	P	3.6	0.0	0.0	3.0	0.0
2/22/99	SVW-25	0.0	0.0	P	0.0	P	0.0	0.0	0.3	0.3	0.0
3/4/99	SVW-25	0.0	0.0	P	0.0	P	0.0	0.0	0.0	0.0	0.0
3/8/99	SVW-25	-	-	P	-	P	-	-	-	-	-
4/14/99	SVW-25	0.0	0.0	P	0.3	0.0	4.7	0.0	0.0	2.1	0.0
4/21/99	SVW-25	0.0	0.0	P	0.2	0.1	3.7	0.0	0.0	1.7	0.0
4/29/99	SVW-25	0.0	0.0	P	0.4	0.0	4.5	0.0	0.0	2.2	0.0
5/4/99	SVW-25	0.0	0.0	P	-	0.1	0.4	-	-	0.0	0.0
5/6/99	SVW-25	0.0	0.0	P	-	0.1	5.0	-	-	3.5	-
5/11/99	SVW-25	0.0	0.0	P	0.1	0.1	5.0	-	-	3.3	0.0
5/14/99	SVW-25	0.0	0.0	P	0.0	0.0	5.0	-	-	3.5	0.0
5/20/99	SVW-25	0.0	0.0	P	0.5	0.0	5.0	0.0	0.0	3.5	0.0
5/27/99	SVW-25	0.0	0.0	P	0.0	0.1	0.0	0.0	0.0	-	0.0
6/1/99	SVW-25	0.0	0.0	P	0.7	0.0	5.0	0.0	0.0	1.7	0.0
6/7/99	SVW-25	0.0	0.0	P	0.5	0.1	5.0	0.0	0.0	3.3	0.0
6/23/99	SVW-25	0.0	0.0	P	0.2	0.1	0.6	0.0	0.0	0.4	0.0
7/1/99	SVW-25	0.0	0.0	P	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7/7/99	SVW-25	0.0	0.0	P	0.6	0.0	5.0	0.0	0.0	5.0	0.0
7/13/99	SVW-25	0.0	0.0	P	0.6	0.0	5.0	0.0	0.0	4.8	0.0
7/15/99	SVW-25	0.0	0.0	P	0.5	0.0	5.0	0.0	0.0	5.0	0.0
7/21/99	SVW-25	0.0	0.0	P	0.0	0.0	0.4	0.0	0.0	0.3	0.0
7/30/99	SVW-25	0.0	0.0	P	0.0	0.0	0.0	0.0	0.0	4.5	0.0
8/5/99	SVW-25	0.0	0.0	P	0.5	0.0	0.0	0.0	0.0	4.8	0.0
8/11/99	SVW-25	0.0	0.0	P	0.0	0.0	0.0	0.0	0.0	5.0	0.0
8/20/99	SVW-25	0.0	0.0	P	0.0	0.0	0.0	0.0	0.0	5.0	0.0
9/15/99	SVW-25	0.0	0.0	P	0.0	0.0	0.0	0.0	0.0	3.6	0.0
9/22/99	SVW-25	0.0	0.0	P	0.0	0.0	0.0	0.0	0.0	3.7	0.0
9/29/99	SVW-25	0.0	0.0	P	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4/20/00	SVW-25	-	-	P	P	P	P	P	P	-	-
4/25/00	SVW-25	0	0	P	P	P	P	0	P	0.28	0.1
4/26/00	SVW-25	0	0	P	P	P	P	0	P	0.42	0.14
4/26/00	SVW-25	0	0	P	P	P	P	0	P	0	1.0
5/9/00	SVW-25	0.06	0.02	P	P	P	P	0	P	0.5	0
5/9/00	SVW-25	0	0	P	P	P	P	0	P	0	0
5/16/00	SVW-25	0	0	P	P	P	P	0	P	2.7	1.5
6/2/00	SVW-25	0	0	P	P	P	P	0.0	P	1.0	0
6/5/00	SVW-25	0	0	P	P	P	P	0	P	3.0	0
6/13/00	SVW-25	0	0	P	P	P	P	0	P	4.45	1.85

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DATE	WELL	PROBE									
		A	B	C	D	E	F	G	H	I	J
6/13/00	SVW-25	0	0	P	P	P	P	0	P	0.78	0
6/29/00	SVW-25	0	0	P	P	P	P	0	P	0	0
6/29/00	SVW-25	0	0	P	P	P	P	0	P	3.35	0
7/25/00	SVW-25	0	0	P	P	P	P	0	P	4.3	0.5
11/4/98	SVW-26	P	0.0	0.0	0.6	P	1.6	4.2	3.5	1.5	1.9
11/5/98	SVW-26	P	0.0	0.0	0.0	P	1.4	3.2	2.8	1.15	1.75
11/6/98	SVW-26	P	0.0	0.0	0.0	P	1.4	3.6	3.2	1.3	2.0
11/9/98	SVW-26	P	0	0	0.2	P	1.8	4.3	3.8	1.5	2.5
11/10/98	SVW-26	P	-	-	0.2	P	4.3	4.6	3.9	1.7	2.8
11/11/98	SVW-26	P	0.0	0.0	0.0	P	3.6	3.5	3.2	0.0	2.0
11/12/98	SVW-26	P	0.0	0.0	0.0	P	3.5	3.4	3.0	0.0	2.0
11/13/98	SVW-26	P	0.0	0.0	0.0	P	3.3	2.8	2.5	0.0	1.7
11/16/98	SVW-26	P	0.0	0.0	0.0	P	3.5	3.5	3.0	1.2	2.0
11/18/98	SVW-26	P	0.0	0.0	0.0	P	3.7	3.9	3.3	1.4	2.2
11/19/98	SVW-26	P	0.0	0.0	0.1	P	4.1	4.4	3.8	1.65	2.6
11/20/98	SVW-26	P	-	-	-	P	4.0	3.9	3.6	1.6	1.55
11/23/98	SVW-26	P	-	-	-	P	4.2	4.5	3.8	1.6	2.6
12/8/98	SVW-26	P	-	-	-	P	2.5	1.8	2.3	0.8	1.0
12/17/98	SVW-26	P	0.0	0.0	0.0	P	4.0	4.0	3.5	1.4	2.3
12/23/98	SVW-26	P	-	-	-	P	0.8	0.0	0.9	0.4	0.9
12/23/98	SVW-26	P	-	-	-	P	2.8	1.4	2.4	0.8	1.2
12/24/98	SVW-26	P	-	-	-	P	4.7	5.0	4.5	2.0	3.1
12/30/98	SVW-26	P	-	-	-	P	4.0	3.7	3.5	1.5	2.1
1/6/99	SVW-26	P	-	-	-	P	4.7	4.3	4.0	1.7	2.4
1/13/99	SVW-26	P	-	-	-	P	4.5	4.5	4.0	1.7	2.7
1/21/99	SVW-26	P	-	-	-	P	3.8	4.0	3.4	2.0	1.3
1/28/99	SVW-26	P	-	-	-	P	-	-	-	-	-
2/11/99	SVW-26	P	0.0	0.0	0.0	P	3.0	3.2	2.8	2.3	2.0
2/22/99	SVW-26	P	0.0	0.0	0.0	P	0.0	0.0	0.0	0.0	0.0
3/4/99	SVW-26	P	0.0	0.0	0.0	P	0.0	0.0	0.0	0.0	0.0
3/8/99	SVW-26	P		P	-	P	-	-	-	-	-
4/14/99	SVW-26	P	-	P	-	P	-	-	-	-	-
4/21/99	SVW-26	P	0.0	P	0.0	P	0.0	0.0	2.2	1.1	0.0
4/29/99	SVW-26	P	0.0	P	0.4	P	4.5	0.0	0.0	2.2	0.0
5/4/99	SVW-26	P	0.0	P	0.0	P	0.0	0.0	0.0	0.0	0.0
5/6/99	SVW-26	P	0.0	P	0.0	P	5.0	5.0	5.0	2.8	-
5/11/99	SVW-26	P	0.0	P	0.0	P	4.8	5.0	4.5	2.5	-
5/14/99	SVW-26	P	0.0	P	0.0	P	5.0	5.0	5.0	2.7	-
5/20/99	SVW-26	P	0.0	P	0.0	P	5.0	5.0	5.0	2.7	0.0
5/27/99	SVW-26	P	0.0	P	0.1	P	0.0	0.0	0.0	0.0	0.0
6/1/99	SVW-26	P	0.1	P	0.0	P	5.0	5.0	5.0	1.4	0.0
6/7/99	SVW-26	P	0.1	P	0.0	P	5.0	5.0	5.0	2.4	0.0
6/23/99	SVW-26	P	0.0	P	0.0	P	0.0	0.8	0.0	0.0	0.0
7/1/99	SVW-26	P	0.0	P	0.0	P	0.0	0.0	0.0	0.0	0.0
7/7/99	SVW-26	P	0.1	P	0.0	P	0.0	5.0	4.9	4.2	0.0
7/13/99	SVW-26	P	0.0	P	0.0	P	0.0	4.8	4.4	3.6	0.0
7/15/99	SVW-26	P	0.0	P	0.0	P	0.0	5.0	4.8	3.8	0.0
7/21/99	SVW-26	P	0.0	P	0.0	P	0.0	0.0	0.5	0.0	0.0
7/30/99	SVW-26	P	0.0	P	0.0	P	0.0	4.9	4.2	0.0	0.0
8/5/99	SVW-26	P	0.0	P	0.2	P	0.0	5.0	4.4	0.0	0.0
8/11/99	SVW-26	P	0.0	P	0.0	P	0.0	5.0	4.8	0.0	0.0
8/20/99	SVW-26	P	0.0	P	0.0	P	0.0	5.0	4.7	0.0	0.0
9/15/99	SVW-26	P	0.0	P	0.0	P	0.0	1.7	2.5	0.0	0.0
9/22/99	SVW-26	P	0.0	P	0.0	P	0.0	1.9	2.8	0.0	0.0
9/29/99	SVW-26	P	0.0	P	0.0	P	0.0	0.0	0.0	0.0	0.0
4/20/00	SVW-26	P	0	P	P	P	0	0	0	0	P
4/25/00	SVW-26	P	0	P	P	P	0	0	0	0	P
4/26/00	SVW-26	P	0	P	P	P	0	0	0	0	P
4/26/00	SVW-26	P	0	P	P	P	0	0	0	0	P
5/9/00	SVW-26	P	0	P	P	P	0	0	0	0	P
5/9/00	SVW-26	P	0	P	P	P	0	0	0	0	P
5/16/00	SVW-26	P	0	P	P	P	0	0	0	0	P
6/2/00	SVW-26	P	0	P	P	P	0	0	0	0	P
6/5/00	SVW-26	P	0	P	P	P	0	0	0	0	P

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DATE	WELL	PROBE									
		A	B	C	D	E	F	G	H	I	J
6/13/00	SVW-26	P	0	P	P	P	0	0	0	0	P
6/13/00	SVW-26	P	0	P	P	P	0	0	0	0	P
6/29/00	SVW-26	P	0	P	P	P	0	0	0	0.58	0
6/29/00	SVW-26	P	0	P	P	P	1.3	0	1.95	1.90	P
7/25/00	SVW-26	P	0	P	P	P	2.30	0	2.95	2.80	P
11/3/98	SVW-27	0.0	0.0	0.0	0.0	-	0.7	2.9	2.5	1.1	2.0
11/4/98	SVW-27	0.0	0.0	0.0	2.7	1.5	0.9	3.5	3.1	1.4	2.1
11/5/98	SVW-27	0.0	0.0	0.0	0.1	1.3	0.7	2.8	2.5	1.1	2.0
11/6/98	SVW-27	0.0	0.0	0.0	0.25	1.3	0.8	3.2	2.8	1.4	2.4
11/9/98	SVW-27	0	0.1	0.1	0.3	1.6	1	3.8	3.5	1.5	2.8
11/10/98	SVW-27	0.0	0.0	0.0	0.2	1.7	2.2	3.7	3.3	1.5	2.6
11/11/98	SVW-27	0.0	0.0	0.0	0.1	1.5	2.0	3.1	2.7	1.2	2.1
11/12/98	SVW-27	0.0	0.0	0.1	0.2	1.6	2.2	3.6	3.1	1.5	2.5
11/13/98	SVW-27	0.0	0.0	0.0	0.0	1.3	1.6	2.7	2.2	1.1	1.9
11/16/98	SVW-27	0.0	0.0	0.0	0.1	1.5	1.9	3.0	2.6	1.2	2.1
11/18/98	SVW-27	0.0	0.1	0.0	0.1	1.6	2.0	3.2	3.0	1.4	2.2
11/19/98	SVW-27	0.0	0.0	0.0	0.2	1.8	2.4	3.8	3.4	1.6	2.7
11/20/98	SVW-27	-	-	-	0.4	1.7	2.4	3.8	3.4	1.5	2.8
11/23/98	SVW-27	-	-	-	0.25	1.7	2.3	3.9	3.5	1.6	2.8
12/8/98	SVW-27	-	-	-	-	1.2	1.4	2.2	2.0	0.9	1.5
12/17/98	SVW-27	-	-	-	0.3	1.6	2.2	3.5	3.0	1.2	2.3
12/23/98	SVW-27	-	-	-	0.3	0.5	0.7	1.0	0.0	0.0	0.7
12/23/98	SVW-27	-	-	-	0.9	0.9	1.2	1.8	0.8	0.7	1.0
12/24/98	SVW-27	-	-	-	0.3	2.0	2.6	4.6	4.0	1.7	3.0
12/30/98	SVW-27	-	-	-	0.3	1.8	2.4	3.7	3.3	1.3	2.4
1/6/99	SVW-27	-	-	-	0.2	1.6	2.4	4.1	3.6	1.2	2.6
1/13/99	SVW-27	-	-	-	0.2	1.8	2.4	4.0	3.5	1.2	2.7
1/21/99	SVW-27	-	-	-	0.2	1.5	2.0	3.2	0.2	0.9	2.25
1/28/99	SVW-27	0.0	0.0	0.0	0.2	0.3	0.5	0.6	0.6	P	0.5
2/11/99	SVW-27	0.0	0.0	0.0	0.1	1.4	1.7	2.7	0.0	P	2.0
2/22/99	SVW-27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	P	0.0
3/4/99	SVW-27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	P	0.0
3/8/99	SVW-27	0.0	0.0	0.0	0.15	0.05	0.3	0.5	0.0	P	0.15
4/14/99	SVW-27	0.0	0.0	0.0	0.3	1.4	1.8	2.7	0.7	P	1.9
4/21/99	SVW-27	0.0	0.0	0.0	0.2	1.1	1.5	2.2	0.0	P	0.0
4/29/99	SVW-27	-	-	-	-	-	-	-	-	P	-
5/4/99	SVW-27	0.0	0.0	0.1	0.2	0.3	0.3	0.4	0.0	P	0.0
5/6/99	SVW-27	0.0	0.0	0.0	0.5	2.2	3.1	5.0	0.0	P	0.0
5/11/99	SVW-27	0.0	0.0	0.0	0.4	2.0	2.6	4.7	0.0	P	0.0
5/14/99	SVW-27	0.0	0.0	0.0	0.4	2.2	3.1	5.0	0.0	P	0.1
5/20/99	SVW-27	0.0	0.0	0.0	0.4	2.3	2.9	5.0	0.0	P	0.0
5/27/99	SVW-27	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	P	0.1
6/1/99	SVW-27	0.0	0.1	0.6	0.7	2.4	3.1	5.0	0.0	P	0.0
6/7/99	SVW-27	0.0	0.0	0.2	0.4	2.2	2.7	5.0	4.2	P	0.0
6/23/99	SVW-27	0.0	0.0	0.0	0.2	0.1	0.0	0.8	0.0	P	0.5
7/1/99	SVW-27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	P	0.0
7/7/99	SVW-27	0.0	0.0	0.0	0.6	0.8	3.0	5.0	0.0	P	3.6
7/13/99	SVW-27	0.0	0.0	0.3	0.5	1.3	2.4	4.6	0.0	P	3.3
7/15/99	SVW-27	0.0	0.0	0.0	0.6	1.5	2.9	5.0	0.0	P	3.6
7/21/99	SVW-27	0.0	0.0	0.0	0.1	0.1	0.0	0.5	0.0	P	0.3
7/30/99	SVW-27	0.0	0.0	0.0	0.4	1.6	2.5	4.1	3.2	P	2.8
8/5/99	SVW-27	0.0	0.0	0.0	0.5	1.8	2.8	4.6	0.0	P	3.3
8/11/99	SVW-27	0.0	0.0	0.0	0.4	1.0	2.8	4.9	3.3	P	3.4
8/20/99	SVW-27	0.0	0.0	0.0	0.5	0.8	2.9	4.8	3.5	P	3.3
9/15/99	SVW-27	0.0	0.0	0.0	0.2	0.4	1.1	2.4	0.0	P	1.3
9/22/99	SVW-27	0.0	0.0	0.0	0.2	0.6	1.8	2.7	0.0	P	2.0
9/29/99	SVW-27	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	P	2.4
4/20/00	SVW-27	0	0	0	0	0	0	0	0	0	0
4/25/00	SVW-27	0	0	0	0	0	0.18	0	0	0	P
4/26/00	SVW-27	0	0	0	0	0	0	0	0	0	0.34
4/26/00	SVW-27	0	0	1.3	2.0	0	0	0	0	0	0.34
5/9/00	SVW-27	0	0	0.14	0	0	0	0	P	0	0
5/9/00	SVW-27	0	0	0	0	0	0	1.0	0	0	0.64
5/16/00	SVW-27	0	0	0.2	0	0	1.2	1.6	0	1.7	0.8

TEST 3: MONITORING WELL DATA

DATE	WELL	PROBE									
		A	B	C	D	E	F	G	H	I	J
6/2/00	SVW-27	0	0	0	0	0	0.22	0	0	0	0
6/5/00	SVW-27	0	0	0	0.01	0	0	1.5	0	0	4.35
6/13/00	SVW-27	0	0	0	0	0	1.8	3.2	0	0	4.4*
6/13/00	SVW-27	0	0	0	0	0	0.7	1.4	0	0	0
6/29/00	SVW-27	0	0	0	0	0	0	0	0	0	0
6/29/00	SVW-27	0	0	0	0	0	0.85	1.3	0	0.06	0.7
7/25/00	SVW-27	0	0	0	0	0	1.50	2.40	2.1	0	>5.0
11/3/98	SVW-28	-	0.2	P	0.5	0.4	-	P	P	-	-
11/4/98	SVW-28	-	0.2	P	0.4	0.4	-	P	P	-	-
11/5/98	SVW-28	0.0	0.1	P	0.2	0.4	1.1	P	P	-	-
11/6/98	SVW-28	-	0.1	P	0.4	0.4	1.2	P	P	-	-
11/9/98	SVW-28	0	0.2	P	0.5	0.5	-	P	P	-	-
11/10/98	SVW-28	-	0.2	P	0.5	0.0	0.0	P	P	-	-
11/11/98	SVW-28	-	0.1	P	0.3	0.4	3.0	P	P	-	-
11/12/98	SVW-28	0.0	0.1	P	0.3	0.5	4.0	P	P	-	-
11/13/98	SVW-28	0.0	0.1	P	0.2	0.3	0.0	P	P	-	-
11/16/98	SVW-28	0.0	0.1	P	0.35	0.5	3.5	P	P	-	-
11/18/98	SVW-28	0.0	0.0	P	0.4	0.4	3.4	P	P	-	-
11/19/98	SVW-28	0.0	0.1	P	0.4	0.5	3.7	P	P	-	-
11/20/98	SVW-28	-	0.3	P	0.5	0.6	3.3	P	P	-	-
11/23/98	SVW-28	-	0.1	P	0.4	0.4	3.6	P	P	-	-
12/8/98	SVW-28	-	-	P	0.1	0.3	2.3	P	P	-	-
12/17/98	SVW-28	-	-	P	-	-	-	P	P	-	-
12/23/98	SVW-28	-	-	P	0.2	0.15	0.25	P	P	-	-
12/23/98	SVW-28	-	-	P	0.1	0.3	2.0	P	P	-	-
12/24/98	SVW-28	-	-	P	0.3	0.4	2.5	P	P	-	-
12/30/98	SVW-28	-	-	P	0.7	0.6	3.4	P	P	-	-
1/6/99	SVW-28	-	-	P	0.5	0.5	4.0	P	P	-	-
1/13/99	SVW-28	-	-	P	0.5	0.5	4.0	P	P	-	-
1/21/99	SVW-28	-	-	P	-	-	-	P	P	-	-
1/28/99	SVW-28	No Access	-	P	-	-	-	P	P	-	-
2/11/99	SVW-28	0.0	0.0	P	0.3	0.4	0.0	P	P	-	-
2/22/99	SVW-28	0.0	0.0	P	0.0	0.0	0.0	P	P	-	-
3/4/99	SVW-28	0.0	0.0	P	0.0	0.0	0.0	P	P	-	-
3/8/99	SVW-28	0.0	P	P	0.0	0.0	P	P	P	-	-
4/14/99	SVW-28	0.0	P	P	-	0.3	P	P	P	-	-
4/21/99	SVW-28	0.0	P	P	0.3	0.3	P	P	P	-	-
4/29/99	SVW-28	0.0	P	P	0.6	0.5	P	P	P	-	-
5/4/99	SVW-28	0.0	P	P	0.1	0.2	P	P	P	-	-
5/6/99	SVW-28	0.0	P	P	0.6	0.7	P	P	P	-	-
5/11/99	SVW-28	-	P	P	-	-	P	P	P	-	-
5/14/99	SVW-28	0.0	P	P	0.6	0.8	P	P	P	-	-
5/20/99	SVW-28	-	P	P	-	-	P	P	P	-	-
5/27/99	SVW-28	-	P	P	-	-	P	P	P	-	-
6/1/99	SVW-28	0.0	P	P	0.9	0.8	P	P	P	-	-
6/7/99	SVW-28	0.0	P	P	0.6	0.7	P	P	P	-	-
6/23/99	SVW-28	-	P	P	-	-	P	P	P	-	-
7/1/99	SVW-28	0.0	P	P	0.0	0.0	P	P	P	-	-
7/7/99	SVW-28	-	P	P	-	-	P	P	P	-	-
7/13/99	SVW-28	-	P	P	-	-	P	P	P	-	-
7/15/99	SVW-28	-	P	P	-	-	P	P	P	-	-
7/21/99	SVW-28	-	P	P	-	-	P	P	P	-	-
7/30/99	SVW-28	0.0	P	P	0.6	0.3	P	P	P	-	-
8/5/99	SVW-28	0.0	P	P	0.6	0.4	P	P	P	-	-
8/11/99	SVW-28	-	P	P	-	-	P	P	P	-	-
8/20/99	SVW-28	-	P	P	-	-	P	P	P	-	-
9/15/99	SVW-28	-	P	P	-	-	P	P	P	-	-
9/22/99	SVW-28	-	P	P	-	-	P	P	P	-	-
9/29/99	SVW-28	-	P	P	-	-	P	P	P	-	-
4/20/00	SVW-28	0	P	P	0	0	P	P	P	-	-
4/25/00	SVW-28	0	P	P	0	0	P	P	P	-	-
4/26/00	SVW-28	0	P	P	0	0	P	P	P	-	-
4/26/00	SVW-28	0.04	P	P	0.40	0.38	P	P	P	-	-
5/9/00	SVW-28	0	P	P	0	0	P	P	P	-	-

TEST 3: MONITORING WELL DATA

DATE	WELL	PROBE									
		A	B	C	D	E	F	G	H	I	J
5/9/00	SVW-28	0	P	P	0	0.08	P	P	P	-	-
5/16/00	SVW-28	0	P	P	0	0.42	P	P	P	-	-
6/2/00	SVW-28	0	P	P	0	0	P	P	P	-	-
6/5/00	SVW-28	0	P	P	0	0	P	P	P	-	-
6/13/00	SVW-28	0	P	P	0	0.38	P	P	P	-	-
6/13/00	SVW-28	0	P	P	0	0.16	P	P	P	-	-
6/29/00	SVW-28	0	P	P	0	0	P	P	P	-	-
6/29/00	SVW-28	0	P	P	0	0.12	P	P	P	-	-
7/25/00	SVW-28	0	P	P	0	0.37	P	P	P	-	-
11/3/98	SVW-32	-	-	-	-	-	P	-	-	-	-
11/4/98	SVW-32	0.0	0.0	0.1	0.2	0.25	P	0.3	2.5	1.1	0.0
11/5/98	SVW-32	0.0	0.0	0.0	0.0	0.0	P	0.0	1.9	0.9	0.0
11/6/98	SVW-32	0.0	0.0	0.1	0.2	0.15	P	0.2	2.3	1.0	
11/9/98	SVW-32	0	0	0	0.3	1.5	P	0.3	2.7	1.2	0
11/10/98	SVW-32	0.0	0.0	0.0	0.0	0.2	P	0.1	1.5	1.1	0.0
11/11/98	SVW-32	-	-	-	-	-	P	-	-	-	-
11/12/98	SVW-32	0.0	0.0	0.0	0.0	0.2	P	0.1	2.3	1.1	0.0
11/13/98	SVW-32	0.0	0.0	0.0	0.0	0.1	P	4.0	1.5	0.6	0.0
11/16/98	SVW-32	-	-	-	-	0.1	P	-	1.6	0.8	-
11/18/98	SVW-32	0.0	0.7	0.0	0.0	0.1	P	0.0	2.1	1.0	0.0
11/19/98	SVW-32	0.0	0.0	0.0	0.0	0.3	P	0.0	2.4	1.2	0.0
11/20/98	SVW-32	-	-	-	-	0.3	P	-	2.5	1.1	-
11/23/98	SVW-32	-	-	-	-	-	P	-	-	-	-
12/8/98	SVW-32	0.0	0.0	0.0	0.0	0.0	P	0.0	1.2	0.4	-
12/17/98	SVW-32		0.1	0.3	0.3	P	0.15	2.2	1.0	0.0	
12/23/98	SVW-32	-	-	-	-	-	P	0.0	0.9	0.4	-
12/23/98	SVW-32	-	-	0.0	0.0	0.0	P	0.0	0.7	0.2	0.0
12/24/98	SVW-32	-	-	-	-	-	P	-	3.0	1.3	-
12/30/98	SVW-32	-	-	-	0.3	0.3	P	0.0	2.5	1.0	0.0
1/6/99	SVW-32	-	-	-	0.0	0.2	P	-	2.2	1.0	-
1/13/99	SVW-32	-	-	-	0.0	0.2	P	-	2.3	1.0	-
1/21/99	SVW-32	-	-	-	-	-	P	-	2.0	0.8	-
1/28/99	SVW-32	0.0	0.0	0.0	0.0	0.0	P	0.0	0.6	0.3	0.0
2/11/99	SVW-32	0.0	0.0	0.0	0.0	0.0	P	0.0	1.8	0.7	0.0
2/22/99	SVW-32	0.0	0.0	0.0	0.0	0.0	P	0.0	0.0	0.0	0.0
3/4/99	SVW-32	0.0	0.0	0.0	0.0	0.0	P	0.0	0.0	0.0	0.0
3/8/99	SVW-32	0.0	0.0	0.0	0.1	0.0	P	0.0	0.3	0.1	0.0
4/14/99	SVW-32	0.0	0.0	0.0	0.0	0.2	P	P	1.5	0.7	0.0
4/21/99	SVW-32	0.0	0.0	0.0	0.0	0.1	P	P	1.1	0.5	0.0
4/29/99	SVW-32	-	-	-	-	-	P	P	-	-	-
5/4/99	SVW-32	0.0	0.0	0.0	0.0	0.0	P	P	0.3	0.0	0.0
5/6/99	SVW-32	0.0	0.1	0.0	0.2	0.3	P	P	2.9	1.7	0.2
5/11/99	SVW-32	0.0	0.0	0.0	0.2	0.3	P	P	2.8	1.5	0.1
5/14/99	SVW-32	0.0	0.0	0.0	0.2	0.4	P	P	3.2	1.7	0.1
5/20/99	SVW-32	0.0	0.0	0.0	0.1	0.3	P	P	3.4	1.7	0.0
5/27/99	SVW-32	0.0	0.1	0.0	0.0	0.0	P	P	0.0	0.0	0.1
6/1/99	SVW-32	-	-	-	-	-	P	P	-	-	-
6/7/99	SVW-32	0.0	0.0	0.0	0.3	0.3	P	P	3.0	1.0	0.1
6/23/99	SVW-32	0.0	0.1	0.0	0.2	0.1	P	P	0.6	0.6	0.1
7/1/99	SVW-32	0.0	0.0	0.0	0.0	0.0	P	P	0.0	0.0	0.0
7/7/99	SVW-32	0.0	0.1	0.2	0.3	0.1	P	P	3.3	2.8	0.0
7/13/99	SVW-32	0.0	0.0	0.1	0.3	0.2	P	P	2.9	2.5	0.0
7/15/99	SVW-32	0.0	0.0	0.1	0.4	0.3	P	P	3.2	2.8	0.0
7/21/99	SVW-32	0.0	0.0	0.0	0.0	0.0	P	P	0.4	0.4	0.0
7/30/99	SVW-32	0.0	0.0	0.0	0.2	0.3	P	P	2.5	2.1	0.0
8/5/99	SVW-32	0.0	0.0	0.1	0.3	0.3	P	P	2.9	2.5	0.0
8/11/99	SVW-32	0.0	0.0	0.0	0.2	0.1	P	P	3.0	2.6	0.0
8/20/99	SVW-32	0.0	0.0	0.1	0.4	0.2	P	P	3.1	2.7	0.0
9/15/99	SVW-32	0.0	0.0	0.0	0.0	0.0	P	P	1.6	1.4	0.0
9/22/99	SVW-32	0.0	0.0	0.0	0.2	0.1	P	P	1.9	1.7	0.1
9/29/99	SVW-32	0.0	0.0	0.0	0.0	0.0	P	P	0.4	0.4	0.0
4/20/00	SVW-32	0	0	0	0	0	P	P	0	0	0
4/25/00	SVW-32	0	0	0	0	0	P	P	0	0	0
4/26/00	SVW-32	0	0	0	0	0	P	P	0	0	0

TEST 3: MONITORING WELL DATA

DATE	WELL	PROBE									
		A	B	C	D	E	F	G	H	I	J
4/26/00	SVW-32	0	0.05	0.1	0.14	0.36	P	P	0	0	0
5/9/00	SVW-32	0.14	0.04	0.08	0.10	0	P	P	0	0	0
5/9/00	SVW-32	0	0	0	0	0	P	P	0.58	0.66	0
5/16/00	SVW-32	0	0	0.1	0.1	0.24	P	P	1.50	1.30	-
6/2/00	SVW-32	0	0	0	0	0	P	P	0	0	0
6/5/00	SVW-32	0	0	0	0	0	P	P	0.66	0.62	0
6/13/00	SVW-32	0.05	0.06	0.1	0.2	0.28	P	P	2.15	2.25	0
6/13/00	SVW-32	0	0	0	0	0.1	P	P	1.50	1.20	0
6/29/00	SVW-32	0	0	0	0	0	P	P	0.25	0.31	0
6/29/00	SVW-32	0	0	0	0	0	P	P	0.85	1.05	0
7/25/00	SVW-32	0	0	0.06	0.09	0.16	P	P	1.9	2.0	0
11/3/98	SVW-33	-	-	-	-	-	-	-	-	-	-
11/4/98	SVW-33	0.0	1.0	2.5	2.5	1.8	1.2	2.7	2.5	1.3	2.35
11/5/98	SVW-33	0.0	0.4	1.8	1.8	1.4	0.8	2.2	2.0	1.0	1.7
11/6/98	SVW-33	0.0	1.0	2.4	2.5	1.75	1.0	2.6	2.4	1.2	2.1
11/9/98	SVW-33	-	-	-	-	-	-	-	-	-	-
11/10/98	SVW-33	-	1.0	2.6	2.6	2.0	2.85	3.1	2.8	1.4	2.5
11/11/98	SVW-33	-	-	-	-	-	-	-	-	-	-
11/12/98	SVW-33	0.0	0.9	2.5	2.5	2.0	2.8	3.1	2.8	1.3	2.5
11/13/98	SVW-33	0.0	0.4	1.6	1.6	1.3	1.9	2.1	1.9	0.9	1.6
11/16/98	SVW-33	-	0.5	1.9	1.9	1.5	2.1	2.2	2.0	1.0	1.7
11/18/98	SVW-33	0.0	0.0	2.2	2.2	1.7	2.4	2.7	2.4	1.5	2.1
11/19/98	SVW-33	0.0	1.0	2.6	2.6	2.1	2.8	3.2	2.8	1.4	2.5
11/20/98	SVW-33	1.0	2.5	2.5	2.0	2.7	3.0	2.7	1.3	2.4	-
11/23/98	SVW-33	0.0	1.0	2.6	2.6	2.0	2.8	3.2	2.8	1.3	2.5
12/8/98	SVW-33	-	0.1	1.2	1.4	1.0	1.4	1.5	1.5	0.6	1.1
12/17/98	SVW-33	0.0	0.8	2.2	2.2	1.7	2.3	2.5	2.3	1.0	1.9
12/23/98	SVW-33	-	0.8	1.0	1.1	1	1.0	1.0	1.1	0.4	0.9
12/23/98	SVW-33	0.0	0.7	0.8	0.6	1.2	1.1	1.2	1.5	0.5	1.0
12/24/98	SVW-33	-	1.3	3.4	3.4	2.5	3.5	4.0	3.5	1.6	3.0
12/30/98	SVW-33	-	0.8	2.2	2.3	1.8	2.4	2.6	2.5	1.0	2.0
1/6/99	SVW-33	-	0.7	2.5	2.0	2.0	2.8	3.2	2.5	1.0	2.5
1/13/99	SVW-33	-	0.7	2.5	2.5	2.0	2.8	3.2	2.7	1.3	2.5
1/21/99	SVW-33	0.0	0.2	1.7	1.8	1.4	2.0	2.2	2.0	1.0	1.7
1/28/99	SVW-33	0.0	0.5	0.7	0.8	0.5	0.7	0.7	0.7	0.3	0.6
2/11/99	SVW-33	0.0	0.6	2.0	2.1	1.7	2.1	2.4	2.2	0.0	2.0
2/22/99	SVW-33	0.0	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.0	0.0
3/4/99	SVW-33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/8/99	SVW-33	0.4	0.5	0.7	0.8	0.6	0.7	0.7	0.0	0.0	0.6
4/14/99	SVW-33	0.5	0.0	1.0	1.2	0.8	1.3	1.5	0.0	0.0	1.2
4/21/99	SVW-33	0.0	0.0	1.0	1.1	0.8	1.2	1.3	0.0	0.0	0.8
4/29/99	SVW-33	-	-	-	-	-	-	-	-	-	-
5/4/99	SVW-33	0.0	0.4	0.5	0.6	0.5	0.5	0.4	0.0	0.0	0.4
5/6/99	SVW-33	0.3	0.7	3.1	3.2	2.4	3.5	4.0	0.0	0.0	3.4
5/11/99	SVW-33	1.5	0.4	2.5	2.6	2.0	2.9	3.4	0.0	0.0	0.0
5/14/99	SVW-33	0.0	0.9	3.4	3.4	2.5	3.8	4.4	0.0	0.0	0.0
5/20/99	SVW-33	0.0	0.7	3.2	3.2	2.4	3.7	4.3	0.0	0.0	3.5
5/27/99	SVW-33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6/1/99	SVW-33	0.2	1.0	3.5	3.5	2.6	3.9	4.5	0.0	0.0	3.7
6/7/99	SVW-33	0.0	0.7	3.0	3.0	1.6	3.4	4.0	0.0	0.0	3.2
6/23/99	SVW-33	0.3	0.4	0.7	0.8	0.5	0.8	0.8	0.1	0.0	0.7
7/1/99	SVW-33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7/7/99	SVW-33	0.0	1.0	3.2	3.2	1.4	3.5	4.1	0.0	0.0	3.2
7/13/99	SVW-33	0.2	0.7	2.3	2.8	1.1	3.1	3.6	0.0	0.0	2.9
7/15/99	SVW-33	0.6	0.9	3.2	3.3	2.4	3.6	4.1	0.0	0.0	3.2
7/21/99	SVW-33	0.0	0.1	0.4	0.6	0.2	0.5	0.6	0.0	0.0	0.5
7/30/99	SVW-33	0.0	0.5	1.3	2.4	0.6	2.6	2.9	0.0	0.0	2.2
8/5/99	SVW-33	0.0	0.7	2.7	2.8	0.9	3.1	3.4	0.0	0.0	2.7
8/11/99	SVW-33	0.0	0.9	3.1	3.2	2.1	3.4	3.9	0.0	0.0	3.0
8/20/99	SVW-33	0.0	0.8	3.0	3.0	1.7	3.3	3.8	0.0	0.0	3.0
9/15/99	SVW-33	0.0	0.3	1.4	1.6	1.1	1.7	1.9	0.0	0.0	1.6
9/22/99	SVW-33	0.0	0.4	1.6	1.7	0.5	1.9	2.1	0.0	0.0	1.8
9/29/99	SVW-33	0.0	0.0	0.3	0.5	0.1	0.4	0.4	0.0	0.0	0.4
4/20/00	SVW-33	0	0	P	0	0	0	0	P	P	0

TEST 3: MONITORING WELL DATA

DATE	WELL	PROBE									
		A	B	C	D	E	F	G	H	I	J
4/25/00	SVW-33	0	0	P	0	0	0	0	P	P	0
4/26/00	SVW-33	0	0	P	0	0	0.12	0	P	P	0
4/26/00	SVW-33	0	0	P	0	0	0	0	P	P	0
5/9/00	SVW-33	0	0	P	0	0	0	0.12	P	P	0
5/9/00	SVW-33	0	0	P	0	0.2	0	0.68	P	P	0.6
5/16/00	SVW-33	0	1.0	P	1.8	1.7	0	1.7	P	P	1.4
6/2/00	SVW-33	0	0	P	0	0	0	0.38	P	P	0.28
6/5/00	SVW-33	0	0	P	0	0.3	0	0.82	P	P	0.81
6/13/00	SVW-33	0	0	P	2.0	1.3	0	2.4	P	P	2.1
6/13/00	SVW-33	0	0	P	1.2	0.9	0	1.1	P	P	0.9
6/29/00	SVW-33	0	0	P	0	0	0	0.31	P	P	0.28
6/29/00	SVW-33	0	0	P	0	0	0	0	P	P	0
7/25/00	SVW-33	0	0	P	1.65	1.65	0	2.25	P	P	1.85
11/3/98	SVW-34	0.0	0.2	0.1	0.2	0.1	0.1	2.7	3.8	-	-
11/4/98	SVW-34	0.0	0.2	0.2	0.2	0.2	0.1	2.5	3.8	-	-
11/5/98	SVW-34	0.0	0.0	0.0	0.2	0.0	0.1	2.2	3.3		
11/6/98	SVW-34	0.0	0.1	0.1	0.2	0.15	0.3	2.5	3.7	-	-
11/9/98	SVW-34	0	0.2	0.25	0.4	0.2	0.2	0.1	2.8	4.2	
11/10/98	SVW-34	0.0	0.1	0.1	0.3	0.3	0.4	2.7	4.2	-	-
11/11/98	SVW-34	0.0	0.0	0.0	0.1	0.15	0.2	2.2	3.4	-	-
11/12/98	SVW-34	0.0	0.0	0.0	0.1	0.2	0.2	2.2	3.2	-	-
11/13/98	SVW-34	0.0	0.0	0.1	0.2	0.2	0.2	1.8	3.0	-	-
11/16/98	SVW-34	0.0	0.0	0.1	0.2	0.2	0.2	0.0	3.5	-	-
11/18/98	SVW-34	0.0	0.0	0.1	0.15	0.15	0.2	2.5	3.8	0.0	0.0
11/19/98	SVW-34	0.0	0.0	0.1	0.3	0.3	0.35	2.7	4.1	0.0	0.0
11/20/98	SVW-34	-	-	0.1	0.2	0.3	0.5	2.6	3.9	-	-
11/23/98	SVW-34	-	-	0.0	0.2	0.2	0.3	2.5	4.0	-	-
12/8/98	SVW-34	-	-	-	-	-	-	-	-	-	-
12/17/98	SVW-34	0.0	0.0	0.0	0.0	0.0	0.4	2.3	3.8		
12/23/98	SVW-34	-	-	0.1	0.3	0.2	0.2	0.6	0.8	-	-
12/23/98	SVW-34	-	-	0.0	0.0	0.0	0.0	1.2	2.2	-	-
12/24/98	SVW-34	0.1	0.0	0.1	0.3	0.3	0.4	2.9	4.7	-	-
12/30/98	SVW-34	-	-	0.2	0.3	0.3	0.4	2.5	4.0	-	-
1/6/99	SVW-34	-	-	-	0.2	0.1	0.2	2.5	4.3	-	-
1/13/99	SVW-34	-	-	0.0	0.2	0.1	0.2	2.7	4.3	-	-
1/21/99	SVW-34	-	-	-	-	-	-	-	-	-	-
1/28/99	SVW-34	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.4	-	-
2/11/99	SVW-34	0.0	0.0	0.0	0.1	0.1	0.1	1.7	3.0	-	-
2/22/99	SVW-34	-	-	-	-	-	-	-	-	-	-
3/4/99	SVW-34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-
3/8/99	SVW-34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	-	-
4/14/99	SVW-34	0.0	0.1	0.0	0.1	0.1	0.1	1.4	2.9	-	-
4/21/99	SVW-34	0.0	0.1	0.0	0.1	0.1	0.1	1.5	2.4	-	-
4/29/99	SVW-34	0.0	0.0	0.1	0.4	0.3	0.4	2.3	3.4	-	-
5/4/99	SVW-34	0.0	-	0.0	0.0	0.0	0.0	0.0	0.1	-	-
5/6/99	SVW-34	0.0	-	0.2	0.4	0.3	0.4	3.5	5.0	-	-
5/11/99	SVW-34	0.0	-	0.1	0.3	0.2	0.2	3.0	4.5	-	-
5/14/99	SVW-34	0.0	-	0.1	0.4	0.3	0.4	3.6	5.0	-	-
5/20/99	SVW-34	0.0	-	0.2	0.5	0.3	0.5	3.8	5.0	-	-
5/27/99	SVW-34	0.0	-	0.0	0.0	0.0	0.0	0.1	0.1	-	-
6/1/99	SVW-34	0.0	0.1	0.2	0.4	0.4	0.5	3.7	5.0	-	-
6/7/99	SVW-34	0.0	0.1	0.1	0.0	0.3	0.5	3.4	4.9	-	-
6/23/99	SVW-34	0.0	0.1	0.0	0.1	0.1	0.1	0.5	0.7	-	-
7/1/99	SVW-34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	-	-
7/7/99	SVW-34	0.0	0.2	0.1	0.4	0.3	0.5	3.4	4.8	-	-
7/13/99	SVW-34	0.0	0.2	0.2	0.4	0.2	0.5	2.8	4.4	-	-
7/15/99	SVW-34	0.0	0.1	0.1	0.4	0.2	0.5	2.9	4.9	-	-
7/21/99	SVW-34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	-	-
7/30/99	SVW-34	0.0	0.2	0.0	0.4	0.0	0.5	2.8	4.2	-	-
8/5/99	SVW-34	0.0	0.7	0.0	0.4	0.0	0.5	3.1	4.5	-	-
8/11/99	SVW-34	0.0	0.0	0.0	0.4	0.0	0.5	3.4	5.0	-	-
8/20/99	SVW-34	0.0	0.0	0.0	0.4	0.1	0.5	3.1	4.7	-	-
9/15/99	SVW-34	0.0	0.1	0.0	0.0	0.1	0.2	1.5	2.3	-	-
9/22/99	SVW-34	0.0	0.1	0.0	0.0	0.1	0.3	1.6	2.5	-	-

TEST 3: MONITORING WELL DATA

DATE	WELL	PROBE									
		A	B	C	D	E	F	G	H	I	J
9/29/99	SVW-34	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.6	-	-
4/20/00	SVW-34	0	0	P	0	P	0	P	0	-	-
4/25/00	SVW-34	0	0	P	0	P	0	P	0	-	-
4/26/00	SVW-34	0	0	P	0	P	0	P	0.12	-	-
4/26/00	SVW-34	0	0.58	P	0	0	0	P	0	-	-
5/9/00	SVW-34	0	0	P	0	P	0	P	0	-	-
5/9/00	SVW-34	0	0	P	0	P	0	P	1.0	-	-
5/16/00	SVW-34	0	0	P	0	P	0	P	2.2	-	-
6/2/00	SVW-34	0	0	P	0	P	0	P	0	-	-
6/5/00	SVW-34	0	0	P	0	P	0	P	1.0	-	-
6/13/00	SVW-34	0	0	P	0	P	0	P	2.8	-	-
6/13/00	SVW-34	0	0	P	0	P	0	P	1.5	-	-
6/29/00	SVW-34	0	0	P	0	P	0	P	0	-	-
6/29/00	SVW-34	0	0	P	0	P	0	P	1.5	-	-
7/25/00	SVW-34	0	0	P	0	P	0	P	2.60	-	-
11/3/98	SVW-35	-	-	-	-	-	-	-	-	-	-
11/4/98	SVW-35	-	-	-	-	-	-	-	-	-	-
11/5/98	SVW-35	-	-	-	-	-	-	-	-	-	-
11/6/98	SVW-35	-	-	-	-	-	-	-	-	-	-
11/9/98	SVW-35	-	-	-	-	-	-	-	-	-	-
11/10/98	SVW-35	-	-	-	-	-	-	-	-	-	-
11/11/98	SVW-35	0.0	0.0	0.0	0.0	0.1	1.8	1.8	1.7	0.9	-
11/12/98	SVW-35	0.0	0.0	0.0	0.0	0.2	2.5	2.7	2.5	1.4	2.4
11/13/98	SVW-35	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	0.9	1.5
11/16/98	SVW-35	0.0	0.0	0.0	0.0	0.1	1.7	1.7	1.6	0.9	1.6
11/18/98	SVW-35	0.0	0.0	0.0	0.0	0.1	2.0	2.1	2.0	1.0	1.7
11/19/98	SVW-35	0.0	0.0	0.0	0.0	0.2	2.4	2.6	2.4	1.3	2.3
11/20/98	SVW-35	-	-	-	-	0.3	2.3	2.45	2.25	1.2	2.0
11/23/98	SVW-35	-	-	-	-	0.2	2.4	2.6	2.4	1.3	2.2
12/8/98	SVW-35	-	-	-	-	-	-	-	-	-	-
12/17/98	SVW-35	0.0	-	-	-	0.1	2.0	2.0	1.8	0.9	1.6
12/23/98	SVW-35	-	-	-	-	-	-	-	-	-	-
12/23/98	SVW-35	-	-	-	-	-	-	-	-	-	-
12/24/98	SVW-35	-	-	-	-	-	3.0	3.3	3.0	1.5	2.5
12/30/98	SVW-35	-	-	-	-	-	-	-	-	-	-
1/6/99	SVW-35	-	-	-	-	-	-	-	-	-	-
1/13/99	SVW-35	-	-	-	-	-	-	-	-	-	-
1/21/99	SVW-35	-	-	-	-	-	-	-	-	-	-
1/28/99	SVW-35	-	-	-	-	-	-	-	-	-	-
2/11/99	SVW-35	No Access	-	-	-	-	-	-	-	-	-
2/22/99	SVW-35	-	-	-	-	-	-	-	-	-	-
3/4/99	SVW-35	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-
3/8/99	SVW-35	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7	0.6
4/14/99	SVW-35	0.0	0.0	0.0	0.1	0.1	0.8	0.7	0.7	0.3	0.1
4/21/99	SVW-35	0.0	0.0	0.0	0.0	0.1	0.9	1.0	0.9	0.5	0.9
4/29/99	SVW-35	-	-	-	-	-	-	-	-	-	-
5/4/99	SVW-35	-	-	-	-	-	-	-	-	-	-
5/6/99	SVW-35	-	-	-	-	-	-	-	-	-	-
5/11/99	SVW-35	0.0	0.1	0.0	0.2	0.2	2.3	2.4	2.2	1.3	2.2
5/14/99	SVW-35	-	-	-	-	-	-	-	-	-	-
5/20/99	SVW-35	0.0	0.1	0.1	0.2	0.3	3.3	3.6	3.2	1.8	3.3
5/27/99	SVW-35	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.2
6/1/99	SVW-35	0.0	0.0	0.0	0.0	0.2	2.9	3.2	2.9	0.6	3.0
6/7/99	SVW-35	0.0	0.1	0.1	0.3	0.3	2.9	3.1	2.8	1.5	2.8
6/23/99	SVW-35	-	-	-	-	-	-	-	-	-	-
7/1/99	SVW-35	-	-	-	-	-	-	-	-	-	-
7/7/99	SVW-35	0.0	0.1	0.1	0.3	0.3	2.8	3.1	2.8	2.7	2.7
7/13/99	SVW-35	0.0	0.1	0.1	0.3	0.2	2.4	2.7	2.4	2.3	2.4
7/15/99	SVW-35	0.0	0.0	0.0	0.3	0.2	2.9	3.2	2.8	2.7	2.8
7/21/99	SVW-35	0.0	0.0	0.0	0.1	0.0	0.5	0.6	0.5	0.5	0.5
7/30/99	SVW-35	0.0	0.1	0.1	0.3	0.2	2.2	2.4	2.2	2.1	2.1
8/5/99	SVW-35	0.0	0.0	0.0	0.1	0.2	2.4	2.6	2.3	2.2	2.3
8/11/99	SVW-35	0.0	0.1	0.1	0.3	0.3	3.0	3.4	3.0	2.9	2.8
8/20/99	SVW-35	0.0	0.1	0.1	0.3	0.2	2.8	3.1	2.7	2.7	2.7

TEST 3: MONITORING WELL DATA

DATE	WELL	PROBE									
		A	B	C	D	E	F	G	H	I	J
9/15/99	SVW-35	0.0	0.1	0.1	0.1	0.0	1.6	1.7	1.6	1.5	0.0
9/22/99	SVW-35	-	-	-	-	-	-	-	-	-	-
9/29/99	SVW-35	-	-	-	-	-	-	-	-	-	-
4/20/00	SVW-35	0	P	P	0	0	P	P	0	0	P
4/25/00	SVW-35	0	P	P	0	0	P	P	0	0	P
4/26/00	SVW-35	0	P	P	0	0	0	P	0	0	P
4/26/00	SVW-35	0.08	P	P	0.7	0.6	P	P	0	0	P
5/9/00	SVW-35	0	P	P	0	0	P	P	0	0.04	P
5/9/00	SVW-35	0	P	P	0	0	P	P	0.3	0	P
5/16/00	SVW-35	0.04	P	P	0.12	0.22	P	P	1.5	1.6	P
6/2/00	SVW-35	0	P	P	0	0	P	P	0.32	0	P
6/5/00	SVW-35	0	P	P	0	0	P	P	0.45	0	P
6/13/00	SVW-35	0	P	P	0.09	0.24	P	P	1.9	0	P
6/13/00	SVW-35	0	P	P	0	0	P	P	0.8	0	P
6/29/00	SVW-35	0	P	P	0	0.08	P	P	0.37	0	P
6/29/00	SVW-35	0	P	P	0	0	P	P	0.7	0	P
7/25/00	SVW-35	0	P	P	0.05	0.12	P	P	1.65	0	P
11/3/98	SVW-36	-	-	-	-	-	-	-	-	-	-
11/4/98	SVW-36	-	-	-	-	-	-	-	-	-	-
11/5/98	SVW-36	-	-	-	-	-	-	-	-	-	-
11/6/98	SVW-36	-	-	-	-	-	-	-	-	-	-
11/9/98	SVW-36	-	-	-	-	-	-	-	-	-	-
11/10/98	SVW-36	-	-	-	-	-	-	-	-	-	-
11/11/98	SVW-36	-	-	-	-	-	-	-	-	-	-
11/12/98	SVW-36	-	-	-	-	-	-	-	-	-	-
11/13/98	SVW-36	-	-	-	-	-	-	-	-	-	-
11/16/98	SVW-36	-	-	-	-	-	-	-	-	-	-
11/18/98	SVW-36	-	-	-	-	-	-	-	-	-	-
11/19/98	SVW-36	-	-	-	-	-	-	-	-	1.0	-
11/20/98	SVW-36	-	-	-	-	-	-	-	-	-	-
11/23/98	SVW-36	-	-	-	-	-	-	-	-	-	-
12/8/99	SVW-36	-	-	-	-	-	-	-	-	-	-
12/17/99	SVW-36	-	-	-	-	-	-	-	-	-	-
12/23/98	SVW-36	-	-	-	0.8	0.8	1.0	1.0	1.0	0.5	0.9
12/23/98	SVW-36	-	-	-	-	-	-	-	-	-	-
12/24/98	SVW-36	-	-	-	-	-	-	-	-	-	-
12/30/98	SVW-36	-	-	-	-	-	-	-	-	-	-
1/6/99	SVW-36	-	-	-	-	-	-	-	-	-	-
1/13/99	SVW-36	-	-	-	-	-	-	-	-	-	-
1/21/99	SVW-36	-	-	-	-	-	-	-	-	-	-
1/28/99	SVW-36	-	-	-	-	-	-	-	-	-	-
2/11/99	SVW-36	P	0.0	0.0	0.0	0.0	1.3	1.4	1.5	0.5	1.2
2/22/99	SVW-36	P	-	-	-	-	-	-	-	-	-
3/4/99	SVW-36	P	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/8/99	SVW-36	P	0.0	0.0	0.0	0.0	-	-	-	-	-
4/14/99	SVW-36	P	0.0	0.0	0.0	0.0	-	-	-	-	-
4/21/99	SVW-36	P	0.0	0.0	0.0	0.0	-	-	-	-	-
4/29/99	SVW-36	P	-	-	-	-	-	-	-	-	-
5/4/99	SVW-36	P	0.1	0.2	0.3	0.2	-	-	-	-	-
5/6/99	SVW-36	P	0.1	0.2	0.3	0.3	-	-	-	-	-
5/11/99	SVW-36	P	-	-	-	-	-	-	-	-	-
5/14/99	SVW-36	P	0.0	0.0	0.2	0.2	-	-	-	-	-
5/20/99	SVW-36	P	0.0	0.0	0.2	0.1	-	-	-	-	-
5/27/99	SVW-36	P	0.0	0.0	0.0	0.0	-	-	-	-	-
6/1/99	SVW-36	P	-	-	-	-	-	-	-	-	-
6/7/99	SVW-36	P	0.0	0.2	0.2	0.2	-	-	-	-	-
6/23/99	SVW-36	P	0.1	0.1	0.3	0.2	-	-	-	-	-
7/1/99	SVW-36	P	0.0	0.0	0.0	0.0	-	-	-	-	-
7/7/99	SVW-36	P	0.3	0.5	0.7	0.2	-	-	-	-	-
7/13/99	SVW-36	P	0.2	0.3	0.5	0.2	-	-	-	-	-
7/15/99	SVW-36	P	0.3	0.5	0.7	0.5	-	-	-	-	-
7/21/99	SVW-36	P	0.0	0.0	0.0	0.0	-	-	-	-	-
7/30/99	SVW-36	P	0.0	0.1	0.1	0.1	-	-	-	-	-
8/5/99	SVW-36	P	0.1	0.3	0.4	0.1	-	-	-	-	-

TEST 3: MONITORING WELL DATA

DATE	WELL	PROBE									
		A	B	C	D	E	F	G	H	I	J
8/11/99	SVW-36	P	0.2	0.3	0.4	0.0	-	-	-	-	-
8/20/99	SVW-36	P	0.2	0.3	0.5	0.2	-	-	-	-	-
9/15/99	SVW-36	P	0.0	0.1	0.1	0.1	-	-	-	-	-
9/22/99	SVW-36	P	0.0	0.1	0.2	0.1	-	-	-	-	-
9/29/99	SVW-36	P	0.0	0.0	0.0	0.0	-	-	-	-	-
4/20/00	SVW-36	P	0	0	0	0	-	-	-	-	-
4/25/00	SVW-36	P	0	0	0	0.13	-	-	-	-	-
4/26/00	SVW-36	P	0	0	0	0.36	-	-	-	-	-
4/26/00	SVW-36	P	0	0	0	0	-	-	-	-	-
5/9/00	SVW-36	P	0	0	0	0	-	-	-	-	-
5/9/00	SVW-36	P	0	0	0	0	-	-	-	-	-
5/16/00	SVW-36	P	0.28	0.36	0.44	0.10	-	-	-	-	-
6/2/00	SVW-36	P	0	0	0	0	-	-	-	-	-
6/5/00	SVW-36	P	0	0	0	0	-	-	-	-	-
6/13/00	SVW-36	P	0.14	0.25	0.31	0.00	-	-	-	-	-
6/13/00	SVW-36	P	0	0	0	0	-	-	-	-	-
6/29/00	SVW-36	P	0	0.05	0.06	0	-	-	-	-	-
6/29/00	SVW-36	P	0.00	0	0	0	-	-	-	-	-
7/25/00	SVW-36	P	0.2	0.16	0.32	0	-	-	-	-	-
11/3/98	SVW-37	0.0	0.0	0.1	1.6	1.4	0.8	2.0	1.75	0.95	1.75
11/4/98	SVW-37	0.0	0.0	0.1	1.5	1.4	0.7	2.0	1.8	1.0	1.7
11/5/98	SVW-37	0.0	0.0	0.0	1.1	0.9	0.5	1.4	1.3	0.6	1.1
11/6/98	SVW-37	0.0	0.0	0.1	1.6	1.4	0.8	2.1	1.9	0.9	1.7
11/9/98	SVW-37	0	0	0.1	1.7	1.5	1	2.3	2	1	2
11/10/98	SVW-37	0.0	0.2	0.2	1.8	1.7	2.2	2.5	2.2	1.2	2.1
11/11/98	SVW-37	-	-	-	-	-	-	-	-	-	-
11/12/98	SVW-37	0.0	0.0	0.0	1.6	1.5	2.0	2.2	2.0	1.0	1.9
11/13/98	SVW-37	0.0	0.0	0.0	1.0	0.9	1.2	1.2	1.2	0.5	1.0
11/16/98	SVW-37	-	-	-	1.2	1.1	1.4	1.2	1.2	0.8	1.4
11/18/98	SVW-37	0.0	0.0	0.0	1.35	1.3	1.65	1.7	1.6	0.8	1.4
11/19/98	SVW-37	0.0	0.0	0.0	1.7	1.6	2.1	2.0	2.3	0.0	2.0
11/20/98	SVW-37	-	-	-	1.6	1.5	2.0	2.1	1.9	0.95	1.8
11/23/98	SVW-37	-	-	-	1.7	1.5	2.1	2.2	2.0	1.0	1.8
12/8/98	SVW-37	-	-	-	-	-	-	-	-	-	-
12/17/98	SVW-37	0.0	0.0	0.0	1.3	1.1	1.5	1.5	1.4	0.6	1.2
12/23/98	SVW-37	-	-	-	-	-	-	-	-	-	-
12/23/98	SVW-37	-	-	-	0.6	0.6	0.8	0.8	0.8	0.3	0.6
12/24/98	SVW-37	-	-	0.3	2.2	2.0	2.7	3.0	2.7	1.3	2.4
12/30/98	SVW-37	-	0.1	0.2	1.3	1.1	1.5	1.5	1.5	0.7	1.1
1/6/99	SVW-37	-	-	-	1.6	1.5	2.0	2.0	2.0	1.0	1.0
1/13/99	SVW-37	-	0.0	0.0	1.7	1.5	2.0	2.1	1.9	1.0	1.8
1/21/99	SVW-37	-	-	-	1.0	1.0	1.2	1.2	1.1	0.5	0.9
1/28/99	SVW-37	-	-	-	-	-	-	-	-	-	-
2/11/99	SVW-37	-	-	-	-	-	-	-	-	-	-
2/22/99	SVW-37	-	-	-	-	-	-	-	-	-	-
3/4/99	SVW-37	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/8/99	SVW-37	0.0	0.0	0.0	0.75	0.65	0.9	0.9	0.8	0.5	0.6
4/14/99	SVW-37	-	-	-	-	-	-	-	-	-	-
4/21/99	SVW-37	0.0	0.0	0.0	0.5	0.4	0.5	0.5	0.4	0.2	0.0
4/29/99	SVW-37	-	-	-	-	-	-	-	-	-	-
5/4/99	SVW-37	-	-	-	-	-	-	-	-	-	-
5/6/99	SVW-37	-	-	-	-	-	-	-	-	-	-
5/11/99	SVW-37	0.0	0.0	0.1	1.4	1.3	1.7	1.8	1.6	0.0	0.0
5/14/99	SVW-37	0.0	0.1	0.2	2.2	2.0	2.6	3.0	2.5	1.5	0.0
5/20/99	SVW-37	0.0	0.1	0.2	2.3	2.1	2.8	3.1	2.8	1.5	0.0
5/27/99	SVW-37	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.2	0.1	0.0
6/1/99	SVW-37	0.0	0.1	0.1	2.1	1.9	2.5	2.7	2.5	0.4	2.3
6/7/99	SVW-37	0.0	0.1	0.2	2.0	1.3	2.4	2.7	2.3	1.2	2.2
6/23/99	SVW-37	0.0	0.1	0.1	0.8	0.5	0.8	0.9	0.8	0.3	0.9
7/1/99	SVW-37	0.0	0.0	0.0	0.3	0.1	0.2	0.3	0.3	0.0	0.0
7/7/99	SVW-37	0.0	0.2	0.3	2.0	0.9	2.4	2.7	2.3	2.3	2.2
7/13/99	SVW-37	0.0	0.1	0.2	1.8	1.7	2.1	2.1	2.0	2.0	2.0
7/15/99	SVW-37	0.0	0.1	0.2	2.6	1.3	2.5	2.8	2.5	2.0	2.3
7/21/99	SVW-37	-	-	-	-	-	-	-	-	-	-

TEST 3: MONITORING WELL DATA

DATE	WELL	PROBE									
		A	B	C	D	E	F	G	H	I	J
7/30/99	SVW-37	-	-	-	-	-	-	-	-	-	-
8/5/99	SVW-37	-	-	-	-	-	-	-	-	-	-
8/11/99	SVW-37	-	-	-	-	-	-	-	-	-	-
8/20/99	SVW-37	-	-	-	-	-	-	-	-	-	-
9/15/99	SVW-37	-	-	-	-	-	-	-	-	-	-
9/22/99	SVW-37	-	-	-	-	-	-	-	-	-	-
9/29/99	SVW-37	-	-	-	-	-	-	-	-	-	-
4/20/00	SVW-37	0	0	0	0	0	P	P	0	0	0
4/25/00	SVW-37	0	0	0	0	0	P	P	0	0	0
4/26/00	SVW-37	0	0	0	0	0	P	P	0	0	0.08
4/26/00	SVW-37	0	0	0.13	0	0	P	P	0	0	0
5/9/00	SVW-37	0	0.06	0.04	0	0	P	P	0	0.0	0.04
5/9/00	SVW-37	0	0	0	0.04	0.06	P	P	0.06	0.06	0
5/16/00	SVW-37	0	0.14	0	1.4	1.4	P	P	1.1	1.1	1.1
6/2/00	SVW-37	0	0	0	0.32	0.40	P	P	0.35	0.3	0
6/5/00	SVW-37	0	0	0	0.14	0.18	P	P	0.16	0.18	0
6/13/00	SVW-37	0	0.05	0	1.7	1.0	P	P	1.6	1.7	1.5
6/13/00	SVW-37	0	0	0	0.7	0.8	P	P	0.78	0.78	0
6/29/00	SVW-37	0	0	0	0.35	0.43	P	P	0.37	0.46	0.0
6/29/00	SVW-37	0	0	0	0.7	0.4	P	P	0.6	0.58	0.6
7/25/00	SVW-37	0	0.04	0.10	1.50	1.0	P	P	1.40	1.55	0.40
11/3/98	SVW-38	-	-	-	-	-	-	-	-	-	-
11/4/98	SVW-38	0.0	0.0	0.0	0.0	0.0	0.5	1.6	1.6	0.8	1.4
11/5/98	SVW-38	0.0	0.0	0.0	0.0	0.0	0.4	1.0	1.0	0.5	0.9
11/6/98	SVW-38	0.0	0.0	0.1	0.1	0.0	0.6	1.9	1.7	0.9	1.5
11/9/98	SVW-38	-	-	-	-	-	-	-	-	-	-
11/10/98	SVW-38	-	-	-	-	-	-	-	-	-	-
11/11/98	SVW-38	-	-	-	-	-	-	-	-	-	-
11/12/98	SVW-38	0.0	0.0	0.0	0.1	0.1	1.7	2.0	1.9	0.9	1.5
11/13/98	SVW-38	0.0	0.0	0.0	0.0	0.0	1.0	1.2	1.2	0.6	1.0
11/16/98	SVW-38	-	-	-	-	-	-	-	-	-	-
11/18/98	SVW-38	-	-	-	-	-	-	-	-	-	-
11/19/98	SVW-38	-	-	-	-	-	-	-	-	-	-
11/20/98	SVW-38	-	-	-	-	-	-	-	-	-	-
11/23/98	SVW-38	-	-	-	-	-	-	-	-	-	-
12/8/98	SVW-38	-	-	-	-	-	-	-	-	-	-
12/17/98	SVW-38	-	-	-	-	-	0.9	1.1	1.0	0.5	0.8
12/23/98	SVW-38	-	-	-	-	-	-	-	-	-	-
12/23/98	SVW-38	-	-	-	-	-	-	-	-	-	-
12/24/98	SVW-38	-	-	-	0.1	0.0	0.9	2.5	2.3	1.1	1.8
12/30/98	SVW-38	-	-	-	-	-	-	-	-	-	-
1/6/99	SVW-38	-	-	-	-	-	-	-	-	-	-
1/13/99	SVW-38	-	-	-	-	-	-	-	-	-	-
1/21/99	SVW-38	-	-	-	-	-	-	-	-	-	-
1/28/99	SVW-38	-	-	-	-	-	-	-	-	-	-
2/11/99	SVW-38	-	-	-	-	-	-	-	-	-	-
2/22/99	SVW-38	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.2	0.1
3/4/99	SVW-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3/8/99	SVW-38	-	-	-	-	-	-	-	-	-	-
4/14/99	SVW-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4/21/99	SVW-38	-	-	-	-	-	-	-	-	-	-
4/29/99	SVW-38	-	-	-	-	-	-	-	-	-	-
5/4/99	SVW-38	-	-	-	-	-	-	-	-	-	-
5/6/99	SVW-38	-	-	-	-	-	-	-	-	-	-
5/11/99	SVW-38	-	-	-	-	-	-	-	-	-	-
5/14/99	SVW-38	0.0	0.0	0.0	0.0	0.0	0.6	0.9	1.5	0.8	1.3
5/20/99	SVW-38	-	-	-	-	-	-	-	-	-	-
5/27/99	SVW-38	-	-	-	-	-	-	-	-	-	-
6/1/99	SVW-38	-	-	-	-	-	-	-	-	-	-
6/7/99	SVW-38	-	-	-	-	-	-	-	-	-	-
6/23/99	SVW-38	-	-	-	-	-	-	-	-	-	-
7/1/99	SVW-38	-	-	-	-	-	-	-	-	-	-
7/7/99	SVW-38	-	-	-	-	-	-	-	-	-	-
7/13/99	SVW-38	0.0	0.1	0.1	0.2	0.0	1.5	1.7	1.6	1.5	1.5

TEST 3: MONITORING WELL DATA

DATE	WELL	PROBE									
		A	B	C	D	E	F	G	H	I	J
7/15/99	SVW-38	-	-	-	-	-	-	-	-	-	-
7/21/99	SVW-38	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.4	0.4	0.4
7/30/99	SVW-38	0.0	0.0	0.0	0.0	0.0	1.2	1.4	1.3	1.3	1.2
8/5/99	SVW-38	0.0	0.0	0.0	0.1	0.0	1.4	1.7	1.5	1.5	1.4
8/11/99	SVW-38	0.0	0.0	0.1	0.2	0.0	2.0	2.5	2.3	2.2	2.2
8/20/99	SVW-38	0.0	0.1	0.2	0.3	0.0	1.9	2.2	2.0	1.9	1.9
9/15/99	SVW-38	0.0	0.1	0.1	0.1	0.0	1.1	1.1	1.2	1.1	1.1
9/22/99	SVW-38	0.0	0.1	0.1	0.2	0.0	1.1	1.4	1.4	1.3	1.2
9/29/99	SVW-38	0.0	0.1	0.1	0.2	0.0	0.7	0.9	0.8	0.7	0.8
4/20/00	SVW-38	0	0	0	0	P	P	0	P	0	0
4/25/00	SVW-38	0	0	0	0	P	0	0	P	0	0
4/26/00	SVW-38	0	0	0	0	P	0	0	P	0	0
4/26/00	SVW-38	0	0	0.10	0.09	P	0	0	P	0	0
5/9/00	SVW-38	0.02	0.02	0.02	0.04	P	0	0	P	0	0
5/9/00	SVW-38	0	0	0	0	P	0	0	P	0	0
5/16/00	SVW-38	0.04	0.12	0.14	0.14	P		1.3	P	1.0	1.0
6/2/00	SVW-38	0	0	0	0	P	0	0	P	0.36	0
6/5/00	SVW-38	0	0	0	0	P	0	0	P	0	0
6/13/00	SVW-38	0	0	0.05	0.06	P	0	1.4	P	1.3	1.2
6/13/00	SVW-38	0	0	0	0	P	0	0.48	P	0.5	0.44
6/29/00	SVW-38	0	0	0	0	P	0.42	0.5	P	0.0	0.4
6/29/00	SVW-38	0	0	0	0	P	0.4	0.5	P	0.49	0.4
7/25/00	SVW-38	0	0	0	0	P	1.0	1.2	P	0.75	1.0
5/14/99	SVW-39	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	1.3	-
5/20/99	SVW-39	0.0	0.1	0.0	0.1	0.0	0.9	0.0	2.1	1.2	-
5/27/99	SVW-39	0.0	0.0	0.0	0.0	0.1	0.0	0.9*	0.0	0.1	-
6/1/99	SVW-39	-	-	-	-	-	-	-	-	-	-
6/7/99	SVW-39	-	-	-	-	-	-	-	-	-	-
6/23/99	SVW-39	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.5	-
7/1/99	SVW-39	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.7	0.6	-
7/7/99	SVW-39	0.0	0.0	0.0	0.2	0.0	0.7	1.8	0.0	1.7	-
7/13/99	SVW-39	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	1.3	-
7/15/99	SVW-39	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	1.8	0.0
7/21/99	SVW-39	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.3	-
7/30/99	SVW-39	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	1.1	-
8/5/99	SVW-39	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	1.3	-
8/11/99	SVW-39	0.0	0.0	0.0	0.1	0.0	1.4	2.0	0.1	2.0	-
8/20/99	SVW-39	0.0	0.1	0.0	0.2	0.0	1.3	1.1	0.0	1.7	-
9/15/99	SVW-39	0.0	0.0	0.0	0.2	0.0	0.9	0.4	0.0	1.1	-
9/22/99	SVW-39	0.0	0.0	0.0	0.0	0.1	1.0	0.4	0.0	1.1	-
9/29/99	SVW-39	0.0	0.0	0.0	0.1	0.0	0.6	0.4	0.0	0.7	-
4/20/00	SVW-39	0	P	0	0	0	0	0	P	0	-
4/25/00	SVW-39	0	P	0	0	0	0	0	P	0	-
4/26/00	SVW-39	0	P	0	0	0.07	0	0	P	0	-
4/26/00	SVW-39	0	P	0	0	0	0	0	P	0	-
5/9/00	SVW-39	0	0	0	0	0	0	0	P	0.0	-
5/9/00	SVW-39	0	0	0	0	0	0	0	P	0	-
5/16/00	SVW-39	0	0	0	0	0.85	0.85	0	P	1.0	-
6/2/00	SVW-39	0	0	0	0	0	0	0	P	0.22	-
6/5/00	SVW-39	0	0	0	0	0	0	0	P	0	-
6/13/00	SVW-39	0	P	0	0	0.75	0.14	0	P	1.15	-
6/13/00	SVW-39	0	0	0	0	0.14	0	0	P	0	-
6/29/00	SVW-39	0	0	0	0	0.29	0	0	P	0.41	-
6/29/00	SVW-39	0	0	0	0	0	0	0	P	0.35	-
7/25/00	SVW-39	0	0	0	0	0.5	0	0	P	1.0	-

* average of readings taken over 5 minute period

ATTACHMENT 6

TEST 3: LABORATORY RESULTS

TEST 3: LABORATORY RESULTS

DATE SAMPLED	TIME	LABORATORY SAMPLES - EPA 8010 + FREON 113 / EPA 8020														
		WELL SCREEN(S) ^b									CARBON VESSEL EFFLUENT					
		B			C			BC			Primary 1		Primary 2		Secondary ^c	
		Carbon Tetrachloride	Freon 113	TCE ^d	Carbon Tetrachloride	Freon 113	TCE ^d	Carbon Tetrachloride	Freon 113	TCE ^d	Carbon Tetrachloride	Freon 113 ^d	Carbon Tetrachloride	Freon 113 ^d	Carbon Tetrachloride	Freon 113 ^d
		mg/m ³	mg/m ³	mg/m ³	mg/m ³	mg/m ³	mg/m ³	mg/m ³	mg/m ³	mg/m ³	mg/m ³	mg/m ³	mg/m ³	mg/m ³	mg/m ³	
11/2/98	10:50	-	-	-	-	-	-	41	0	0	-	-	-	-	-	-
11/3/98	9:00	100	0	0	86	0	0	61	0	0	-	-	-	-	-	-
11/4/98	8:00	-	-	-	-	-	-	110	11	0	-	-	-	-	-	-
11/5/98	8:30	-	-	-	-	-	-	120	13	0	-	-	-	-	-	-
11/5/98 ^a	8:30	-	-	-	-	-	-	100	12	0	-	-	-	-	-	-
11/6/99	8:00	-	-	-	-	-	-	100	12	0	-	-	-	-	-	-
11/9/98	9:30	95	0	0	70	0	0	91	0	0	-	-	-	-	-	-
11/10/98	9:00	-	-	-	-	-	-	76	10	0	-	-	-	-	-	-
11/11/98	9:00	-	-	-	-	-	-	76	9.8	0	-	-	-	-	-	-
11/12/98	9:00	-	-	-	-	-	-	73	0	0	-	-	-	-	-	-
11/13/98	9:00	-	-	-	-	-	-	75	9.2	0	-	-	-	-	-	-
11/13/98 ^a	9:00	-	-	-	-	-	-	59	8.1	0	-	-	-	-	-	-
11/16/98	9:00	70	9.5	0	56	8.5	0	67	8.9	0	-	-	-	-	-	-
11/18/98	9:00	-	-	-	-	-	-	60	8.2	0	-	-	-	-	-	-
11/19/98	10:00	-	-	-	-	-	-	55	7.2	0	-	-	-	-	-	-
11/19/98 ^a	10:00	-	-	-	-	-	-	53	6.8	0	-	-	-	-	-	-
11/20/98	8:30	-	-	-	-	-	-	68	7.9	0	-	-	-	-	-	-
11/23/98	9:00	-	-	-	-	-	-	51	6.7	0	0	0	0	0	0	-
12/4/98	7:00	-	-	-	-	-	-	48	8.6	0	0	0	0	0	6.1	-
12/8/98	7:30	41	6.9	0	30	5.9	5.1	32	5.6	0	0	11	0	11	-	-
12/14/98	11:30	-	-	-	-	-	-	36	6.1	0	-	-	-	-	-	-
12/23/98	13:00	-	-	-	-	-	-	35	5.3	0	-	-	-	-	-	-
12/30/98	13:00	-	-	-	-	-	-	30	5	0	-	-	-	-	-	-
12/30/98 ^a	13:00	-	-	-	-	-	-	31	0	0	-	-	-	-	-	-
1/6/99	9:30	-	-	-	-	-	-	16	0	0	-	-	-	-	-	-
1/13/99	11:00	-	-	-	-	-	-	22	0	0	-	-	-	-	-	-
1/13/99 ^a	11:00	-	-	-	-	-	-	19	0	0	-	-	-	-	-	-
1/13/99	4:00	-	-	-	-	-	-	-	-	-	0	10	0	15	-	-
1/21/99	11:00	-	-	-	-	-	-	24	0	0	0	10	7.6	12	0	0
2/11/99	11:30	-	-	-	-	-	-	15	0	0	-	-	-	-	0	8.7
3/31/99	13:45	20	0	0	8.6	0	0	-	-	-	-	-	-	-	-	-
4/8/99	12:30	-	-	-	-	-	-	13	-	-	0	0	0	0	-	-
4/14/99	12:00	-	-	-	-	-	-	0	0	0	0	0	0	0	-	-
4/29/99	8:25	-	-	-	-	-	-	0	0	0	-	-	-	-	-	-
5/4/99	13:25	-	-	-	-	-	-	7.6	0	0	-	-	-	-	-	-
5/4/99 ^a	14:50	-	-	-	-	-	-	12	2.7	2.7	-	-	-	-	-	-
5/6/99	11:00	-	-	-	-	-	-	12	3.2	2.7	-	-	-	-	-	-
5/11/99	11:05	-	-	-	-	-	-	8.3	0	0	-	-	-	-	-	-
5/14/99	11:25	-	-	-	-	-	-	8.5	0	2	0	3.1	0	3.1	-	-
5/20/99	10:25	-	-	-	-	-	-	6.8	0	0	0	0	0	0	-	-

TEST 3: LABORATORY RESULTS

DATE SAMPLED	TIME	WELL SCREEN(S) ^b							CARBON VESSEL EFFLUENT						
		B			C			BC			Primary 1		Primary 2		Secondary ^c
		Carbon Tetrachloride	Freon 113	TCE ^d	Carbon Tetrachloride	Freon 113	TCE ^d	Carbon Tetrachloride	Freon 113	TCE ^d	Carbon Tetrachloride	Freon 113 ^d	Carbon Tetrachloride	Freon 113 ^d	Carbon Tetrachloride
5/27/99	15:00	-	-	-	-	-	-	0	0	0	0	0	0	-	-
5/27/99	16:45	-	-	-	-	-	-	0	0	0	0	0	0	-	-
6/1/99	9:50	-	-	-	-	-	-	9.3	2.2	3.2	3.7	4.2	3.4	3.3	-
6/7/99	10:50	-	-	-	-	-	-	6.7	0	2.2	6.2	2.4	4.5	2	-
7/1/99	13:35	-	-	-	-	-	-	0	0	0	0	0	0	-	-
7/1/99	15:55	-	-	-	-	-	-	3	0	0	-	-	-	-	-
7/1/99	16:04	-	-	-	-	-	-	-	-	-	0	0	0	0	-
7/7/99	11:45	-	-	-	-	-	-	6.8	0	0	0	0	0	0	-
7/7/99 ^a	11:50	-	-	-	-	-	-	6.9	0	0	-	-	-	-	-
7/13/99	8:30	-	-	-	-	-	-	6	0	0	0	0	0	0	-
7/15/99	9:10	-	-	-	-	-	-	6.2	0	2.1	0	0	0	0	-
7/27/99	11:00	-	-	-	-	-	-	8.7	0	2	-	-	-	-	-
7/27/99	13:00	-	-	-	-	-	-	7	0	0	-	-	-	-	-
7/30/99	9:25	-	-	-	-	-	-	6	0	2	0	0	0	0	-
8/5/99	9:12	-	-	-	-	-	-	5.4	0	0	0	0	0	0	-
8/5/99 ^a	9:14	-	-	-	-	-	-	5.5	0	0	-	-	-	-	-
8/11/99	9:10	-	-	-	-	-	-	5.9	0	0	0	3	0	0	-
8/20/99	9:13	-	-	-	-	-	-	5.8	0	0	0	0	0	0	-
8/25/99	9:15	5.9	0	0	4.2	0	2.3	5.2	0	0	0	0	0	0	-
9/8/99	9:05	-	-	-	3.5	0	0	5.5	0	0	-	-	-	-	-
9/15/99	8:50	-	-	-	2.9	0	0	-	-	-	-	-	-	-	-
9/15/99	9:20	-	-	-	3.2	0	0	-	-	-	-	-	-	-	-
9/22/99	9:10	-	-	-	4	0	0	-	-	-	-	-	-	-	-
5/16/00	11:45	-	-	-	9.406	1.63	2.67	-	-	-	-	-	-	-	-
6/5/00	13:20	-	-	-	6.082	1.356	1.8	-	-	-	-	-	-	-	-
6/13/00	8:20	-	-	-	8.638	1.879	2.602	-	-	-	-	-	-	-	-
6/29/00	11:20	-	-	-	0.211	0.015	0.115	-	-	-	-	-	-	-	-
6/29/00	14:35	-	-	-	2.527	0.413	0.891	-	-	-	-	-	-	-	-
6/30/00	9:20	-	-	-	8.381	1.715	2.668	-	-	-	-	-	-	-	-
7/11/00	14:10	-	-	-	5.68	1.38	1.651	-	-	-	0.563	0.288	0.563	0.257	-
7/20/00	15:55	-	-	-	6.91	1.676	2.241	-	-	-	-	-	-	-	-

Notes:

- a. Duplicate samples
- b. Only well screens B, C and BC were in operation during Test 3
- c. There is only one secondary effluent stream which is the final effluent stream of the SVE system
- d. Lab results for TCE and 1,1-DCE are assumed to be non-detect unless otherwise stated

- Denotes no reading

ATTACHMENT 7
CARBON ANALYSES RESULTS

U.S. FILTER**FAX**

UNITED STATES FILTER CORPORATION

U.S. FILTER/WESTATES
 5375 S. Boyle Avenue
 Los Angeles, CA 90058

TELEPHONE 213.277.4163
 FACSIMILE 213.277.4184

TO: Viththal HosangadiCC: Foster WheelerFAX: 714-444-5560TEL: 714-444-5537FROM: Debbie RingoDATE: 9-14-98 PAGE 1 OF 2PROJECT: J.P.L. - Pasadena

We have ran a VM on your spent carbon sampled on 8/19/98, see attached report.

The VM - Volatile Matter is Wt % loading on an as received basis and indicates to you and us if this is a "normal" loading capacity.

The XM - Xylene Moisture is Wt % loading on an as received basis of Moisture adsorbed on the carbon. If the XM % loading is high on Vapor Phase Carbon, this is an indicator that will affect higher loading of organics on the carbon. (In the majority of vapor phase applications, we recommend the influent R/H be below 50%. This does not include most impregnated carbon or other specialty applications. Please call your representative.)

Your test indicates:

VM: 44.6 wt% loading -- g VM/100 g GAC

() Fair
 () Good
 () Excellent

XM: 0.40 wt% loading - as received basis

() Fair
 () Good
 () Excellent
 () Too High

() If checked, please call me regarding this report to further discuss your application.

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US FILTER WESTATES

P. 2

U.S. FILTER

U. S. UNITED STATES
5375 SOUTH BOYLE AVENUE
LOS ANGELES CA 90058

TELEPHONE 213-277-1500
FACSIMILE 213-277-4184

ANALYTICAL REPORT

LAB No.:	8203	ORDER No.:	4926-0A
CUSTOMER:	JPL 4000 Oak Grove Dr. Pasadena, CA	DATE SAMPLED:	8/19/98
		DATE RECEIVED:	8/20/98
		DATE ANALYZED:	9/10/98
CONTACT:	Debbie Ringo	DATE REPORTED:	9/11/98
TELEPHONE:	323-277-4163	SITE:	
SAMPLED BY:	Juan Lopez	CONTACT:	
SUBMITTED BY:	Juan Lopez	TELEPHONE:	

סְבִירָה

RECORDED SEARCHED
S.C. SUPERVISOR

E.C. SUPERVISOR

DATE

ATTACHMENT 8

METHODOLOGY FOR THE FLOW MODELING

ATTACHMENT 8

METHODOLOGY FOR THE FLOW MODELING

Task 1 Flow Channel Construction

1. Draw equipotential lines based on observed vacuum data.
2. Draw flow channels to approximate equivalent flow through each of the channels by applying rules of flow-net construction (Toy, 1997).

Task 2 Travel-time Calculation

1. Subdivide flow channels into polygons to approximate flow channel curvature (polygons will be of 2 types: 1) rectangles; and 2) irregular quadrangles).
2. Derive general time-travel formulas for both types of polygons as follows:

$Q = VA$ where Q is flow; V is velocity; and A is cross-sectional area.

$D = Vt$ where D is distance and t is travel time.

$$t = DA/Q$$

Because the cross-sectional area varies as the particle moves through a channel:

$$t = m/Q \int A dx$$

for a rectangle, $A = 2\pi x h n$

where x is the radius; h is height of flow channel; n is effective porosity, m is the number of channels.

Substituting and integrating from x_1 to x_2

$$t = mn\pi h/Q(x_2^2 - x_1^2) \text{ for rectangle-type polygon} = \text{time to travel from } x_1 \text{ to } x_2.$$

For a general quadrangle, $A = 2\pi x nh(x)$ where h is denoted as a function of x

therefore,

$$t = 1/Q \int x h(x) dx \quad \text{where } h(x) = Mx + b, \text{ a linear relationship between } x \text{ and } h$$

substituting and integrating from x_1 to x_2

$$t = 2\pi nm/Q |M/3x^3 + b/2x^2| \text{ from } x_1 \text{ to } x_2 = \text{time to travel from } x_1 \text{ to } x_2$$

Area	Type	Equation for travel time, t	x limits	
			x1	x2
A	Rectangle	$mn\pi h/Q(175^2)$	0	175
B	Quadrangle	$2\pi nm/Q 1.6/3x^3 - 260/2x^2 $ from x_1 to x_2	175	600
C	Quadrangle	$2\pi nm/Q 0.4/3x^3 + 20/2x^2 $ from x_1 to x_2	0	150
D	Quadrangle	$2\pi nm/Q 1.5/3x^3 - 145/2x^2 $ from x_1 to x_2	150	230
E	Quadrangle	$2\pi nm/Q 1.8/3x^3 + 10/2x^2 $ from x_1 to x_2	0	50
F	Quadrangle	$2\pi nm/Q 1/3x^3 + 50/2x^2 $ from x_1 to x_2	50	100

Reference

Toy, Michael S. 1997. *Methodology for Analyzing Soil Vacuum Data at VOC-Contaminated Sites*. ASCE Journal of Environmental Engineering. Vol. 123, No. 7, July 1997, pp. 683-690.

ATTACHMENT 9

CHEMICAL PARTITIONING/MASS REMOVAL METHODOLOGY

ATTACHMENT 9

CHEMICAL PARTITIONING/MASS REMOVAL METHODOLOGY

Objective: to estimate the number of air changes (pore volumes) that are required to reduce the contaminant concentration of vadose-soils from an initial concentration of contaminant, C_i , to a final concentration of contaminant, C_f

Conceptual Model

The model is a 1-cm³ control volume of vadose-zone soil consisting of three media (compartments): soil particles, air, and water. The air compartment represents the air-filled fraction of pore space through which soil vapor flow can occur; the water compartment represents the water-filled fraction of pore space (soil moisture). The contaminant is partitioned into 2 compartments - soil and water. The contaminant is assumed to exist in soil vapor or dissolved in pore-space water; no free-phase form of the contaminant is assumed. Hence, the partitioning is controlled by Henry's Law.

Input Parameters

Input constants

ρ_{soil}	density of soil particles = 2.6 g/cm ³
ρ_{water}	density of water = 1 g/cm ³
H^*	dimensionless Henry's constant for contaminant = 1 for carbon tetrachloride
V_{CV}	control volume of vadose-zone soil = 1 cm ³

Input variables

n	porosity
m	moisture content of soil (g water/g soil)
$C_{\text{isoi}}l$	initial concentration of contaminant in soil (mg contaminant/kg soil)

Calculated Parameters

V_{soil}	volume of soil particles (cm ³) = $(1 - n) * V_{\text{CV}}$
V_{water}	volume of water (cm ³) = $m * \rho_{\text{soil}} * \rho_{\text{water}} * V_{\text{CV}} * (1 - n)$
V_{air}	volume of air (cm ³) = $V_{\text{CV}} - V_{\text{soil}} - V_{\text{water}}$
M_t	total mass of contaminant in control volume = $C_{\text{isoi}}l * (V_{\text{soil}} * \rho_{\text{soil}} + V_{\text{water}} * \rho_{\text{water}}) * V_{\text{CV}}$
C_{water}	concentration of contaminant in water = $M_t / (V_{\text{water}} + V_{\text{air}} * H^*)$
C_{air}	concentration of contaminant in air = $C_{\text{water}} * H^*$
C_{soil}	concentration of contaminant in soil = $M_t / (V_{\text{soil}} * \rho_{\text{soil}} + V_{\text{water}} * \rho_{\text{water}})$

Algorithm

Initially, M_t , V_{soil} , V_{air} , and V_{water} are calculated based on the input parameter values

An iterative approach is then utilized:

1. C_{water} , C_{soil} , and C_{air} are calculated
2. The mass removed in one air change is calculated as $C_{\text{air}} * V_{\text{air}}$
3. The mass removed is subtracted from the total mass in the control volume, M_t
4. Step 1 is repeated using the new value of M_t

Each iteration represents one air change (pore volume). The iterative process is repeated until the user-specified concentration in air or soil is achieved. A spreadsheet is attached.