A MEMBER OF THE ENVIRONMENTAL RESOURCES MANAGEMENT GROUP

FINAL ENGINEERING REPORT AIR SPARGE / SOIL VAPOR EXTRACTION SYSTEM

150 Fulton Avenue
Garden City Park, NY
(Garden City Park Industrial Area
Site Code #130073)

December 1998

Prepared for:

Genesco, Inc.
Genesco Park
1415 Murfreesboro Road
P.O. Box 731
Nashville, Tennessee 37217

Prepared By:

ENVIRONMENTAL RESOURCES MANAGEMENT
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31 December 1998

Mr. Joseph Yavonditte, P.E.
Bureau of Construction Services
Division of Environmental Remediation
NYSDEC
50 Wolf Road
Albany, New York 12233-7010

Re: Final Engineering Report
150 Fulton Avenue
Garden City Park, New York
(Garden City Park Industrial Area; Site Code 130073)

Dear Mr. Yavonditte:

Enclosed are two copies of the "Final Engineering Report Air Sparge / Soil Vapor Extraction System", which has been prepared as a supplement to the "Engineering Design Air Sparge / Soil Vapor Extraction System" (July 1998). This report describes the activities taken to implement the Interim Remedial Measure (IRM) for the 150 Fulton Avenue site, and includes the following information:

- Description of dry well closure activities
- Construction methods and "as-built" drawings
- Results of startup testing
- Operations Plan, which includes monitoring requirements, and
- Shutdown criteria.

If you have any comments or questions, please feel free to contact me. Otherwise, we will continue to operate in accordance with the Operations Plan.

Very truly yours,

Russell Sirabian /jm

Russell Sirabian, P.E.
Engineering Group Leader

cc: John Swartwout, P.E., NYSDEC
Kevin Willis, USEPA
G. Anders Carlson, Ph.D., NYSDOH
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Certification Statement

The Interim Remedial Measure (IRM), consisting of an air sparge / soil vapor extraction system, was implemented in accordance with the approved "Engineering Design Air Sparge / Soil Vapor Extraction System", dated July 1998, except as indicated in this Final Engineering Report.

All activities associated with the implementation of the IRM were witnessed by Russell R. Sirabian, a New York State Licensed Professional Engineer, or by a person under his direct supervision.

Certified by:

Russell R. Sirabian, P.E.
NYS P.E. License No. 067994

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1.0 INTRODUCTION

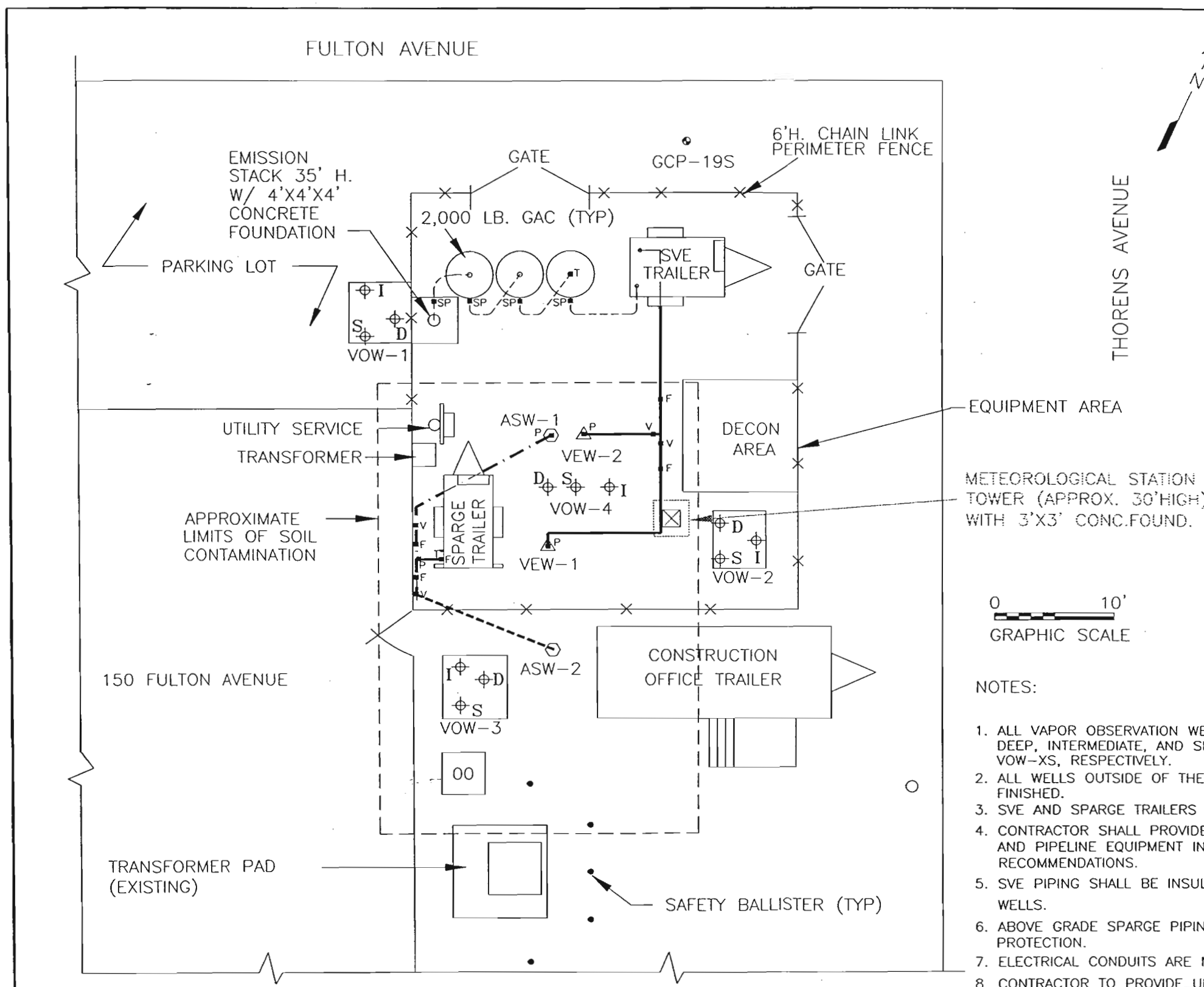
1.1 BACKGROUND

This document presents the final design report for the soil vapor extraction and air sparge interim remediation measure ("IRM") at 150 Fulton Avenue, Garden City Park, NY ("Site"). This location is listed on the New York State *"Inactive Hazardous Waste Disposal Site List"*, designated Site Code #130073.

The description of the IRM system in Sections 2.0 and 3.0 of this document explains the purpose of its various components. The system has been implemented generally as presented in the report entitled, "Engineering Design Air Sparge/Soil Vapor Extraction System", dated July 1998 (hereafter referred to as Engineering Report). In instances where the approach differs from the design report, an explanation for the modification is provided.

1.2 PROJECT GOALS

The overall goal of the IRM is to effectively remove a suspected source of certain volatile organic compounds ("VOCs") from a dry well, adjacent unsaturated soil and shallow ground water at the Site. The primary VOC identified in dry well sediments, adjacent soil and shallow ground water beneath the dry well is tetrachloroethene ("PCE"). The identified remedial technologies to remove PCE and associated VOCs represent a combination of sediment removal (dry well closure), air sparging and soil venting.



LEGEND

VEW-1	△	LOCATION OF VAPOR EXTRACTION WELL
ASW-2	⬡	LOCATION OF AIR SPARGE WELL
VOW-1	⊕	LOCATION OF SHALLOW, INTERMEDIATE AND DEEP VAPOR OBSERVATION WELLS
	S	SHALLOW
	I	INTERMEDIATE
	D	DEEP
GCP-19S	⊙	GROUND WATER MONITORING WELL LOCATION
	■	MONITORING/CONTROL POINT LOCATIONS
	SP	SAMPLE
	F	FLOW
	P	PRESSURE
	T	TEMPERATURE
	V	VALVE
	———	SVE PIPING (ABOVE GROUND)
	—·—·—	SPARGE PIPING (ABOVE GROUND)
	- - - -	SPARGE PIPING (UNDERGROUND)
	———	EMISSION PIPING (ABOVE GROUND)
GCP-4	⊙	

0 10'
GRAPHIC SCALE

NOTES:

1. ALL VAPOR OBSERVATION WELL CLUSTERS WILL CONSIST OF THREE SEPARATE BORINGS: DEEP, INTERMEDIATE, AND SHALLOW. THEY WILL BE IDENTIFIED AS VOW-XD, VOW-XI, AND VOW-XS, RESPECTIVELY.
2. ALL WELLS OUTSIDE OF THE PERIMETER FENCING SHALL BE FLUSH MOUNT FINISHED.
3. SVE AND SPARGE TRAILERS SHALL HAVE ACOUSTICAL/WEATHER PROTECTION.
4. CONTRACTOR SHALL PROVIDE PIPING SUPPORTS FOR ABOVE GROUND PIPING AND PIPELINE EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. SVE PIPING SHALL BE INSULATED AND PITCHED TOWARDS VAPOR EXTRACTION WELLS.
6. ABOVE GRADE SPARGE PIPING SHALL BE INSULATED FOR PERSONNEL PROTECTION.
7. ELECTRICAL CONDUITS ARE NOT SHOWN.
8. CONTRACTOR TO PROVIDE UNIONS TO ALLOW FOR THE MOVEMENT OF EQUIPMENT TRAILERS FOR SAMPLING.

NO.	DATE	APPR.	REVISION
2	12/1/98	R.S.	ADD AS-BUILT INFORMATION

GENESCO

AS/SVE SYSTEM - GARDEN CITY, N.Y.

ERM-Northeast
Environmental Resources Management

SITE PLAN/EQUIPMENT ARANGEMENT

DRAWN BY: M.M./Y.S./G.G.	DATE: DEC.1, 1998	REVISION DATE: DEC. 15, 1998	DRAWING NO. 1-1
SCALE: GRAPHIC	JOB NO. 1370.001.1	FILE NAME 13700035	REV. NO. 2

STATE OF NEW YORK
RUSSELL R. SIRABIAN
No. 067934
LICENSED PROFESSIONAL ENGINEER

1.2.1 *Performance Criteria*

The performance criteria refer to the ability of the components of the system, including mechanical devices, to function as designed. The effectiveness of the system in meeting remedial objectives is discussed in Section 1.1.2.

The performance objectives of the air sparge/soil vapor extraction (AS/SVE) system are as follows: to achieve sparge flow in the saturated zone and soil vapor flow in the unsaturated zone throughout the entire area of contamination as depicted in Figure 1-1; and to meet the substantive requirements for air emission criteria as required in Title 6 of the New York Code of Rules and Regulations and Air Guide-1. The specific criteria for each of these objectives are discussed below.

To demonstrate that sparge flow in the saturated zone is achieved in the area of contamination, a measurable increase in dissolved oxygen level should be achieved in each of the four deep vapor observation wells, and/or a measurable increase in VOC concentration in the unsaturated zone in VOW-3 and VOW-4. To demonstrate that soil vapor flow in the unsaturated zone is achieved in the area of contamination, a vacuum level of at least 0.1 inches water column should be achieved in each of the four vapor observation wells.

To demonstrate that the aforementioned air emissions criteria are met, the following will be performed: samples of the inlet and outlet of the carbon adsorption system will be collected in Tedlar bags and analyzed for VOCs per EPA method TO-14; the total soil vapor flow rate will be measured and recorded; and based on the analytical results, the mass emission limits shown in Table 1-1. Table 1-1 is a summary of two (2) runs of an Air

Table 1-1
Maximum Allowable Emissions for SVE Off-Gas

Contaminant	Maximum Allowable Annual Emissions[1] (lb/yr)	Concentration at Effluent of GAC That Would Cause Exceedance of Annual Emission Limit[2] (ppmv)
Tetrachloroethene	375	6.54
Trichloroethene	2247	49.46
total-1,2-Dichloroethene	9495840	283282
1,1-Dichloroethene	99	2.95
Vinyl Chloride	99	4.58

Contaminant	Maximum Allowable Hourly Emissions[1] (lb/hr)	Concentration at Effluent of GAC That Would Cause Exceedance of Hourly Emission Limit[3] (ppmv)
Tetrachloroethene	712	108771
Trichloroethene	290	55919
total-1,2-Dichloroethene	1670	436382
1,1-Dichloroethene	18	4592
Vinyl Chloride	18	7122

Notes:

(1) See Appendix for calculation of these values.
(2) Assuming a flow of 250 scfm, this is the concentration at the effluent of the GAC that would cause an exceedance of the annual emission limit, ***if the SVE system is operating continuously for a year.***
(3) Assuming a flow of 250 scfm, this is the concentration at the effluent of the GAC that would cause an exceedance of the hourly emission limit.

Guide - 1 risk screening model (see Appendix A). The first run calculates the maximum allowable annual emissions; the second run calculates the maximum allowable hourly emissions. The contaminants of concern include:

- tetrachloroethene (PCE),
- trichloroethene (TCE),
- total 1,2 Dichloroethene (1,2 DCE),
- 1,1 Dichloroethene (1,1 DCE),
- and vinyl chloride.

The hourly mass emission rate of each of these contaminants should be less that that indicated in Table 1-1. The overall annual emissions of these contaminants must also be less than the values presented in Table 1-1.

1.2.2 *Effectiveness Criteria*

The goal of the project is to reduce the concentrations of the contaminants of concern to levels meeting the TAGM HWR-94-4046 levels listed below:

Contaminant	*TAGM (mg/kg)*
tetrachloroethene (PCE)	1.4
trichloroethene (TCE)	0.7
total 1,2 Dichloroethene (1,2 DCE)	0.3 (Applies to Trans)
1,1 Dichloroethene (1,1 DCE)	0.4
vinyl chloride	0.2

To verify achievement of the above goals, a total of 12 soil samples (four borings with three samples per boring) will be obtained and analyzed in accordance with the QA/QC plan, Section 2.11. The analytical results of the samples collected will be compiled and a statistical analysis will be performed for each of the above listed contaminants. If, for each of the above listed contaminants, the 95% confidence limit is less than the above listed standards, the project goals will be met.

1.2.3 *System Shutdown Criteria*

Operation of the AS/SVE system will be discontinued and the system will be dismantled if any of the following four (4) conditions occur:

1. the effectiveness criteria discussed above are met;
2. the AS/SVE system has been operating for a period of at least 12 months, asymptotic conditions as defined below have occurred, and a risk assessment demonstrates that the levels of remaining contaminants do not pose an unacceptable risk;
3. the AS/SVE system has been operating for a period of at least 36 months and a risk assessment demonstrates that the levels of remaining contaminants do not pose an unacceptable risk; or
4. a final remedy is implemented that addresses the remaining contaminants.

In the Engineering Design Report, an asymptotic condition was defined as follows: the monthly mass of total VOCs removed during three consecutive months of operation is less than 10% of the maximum mass of total VOCs removed in any prior one month period. This criteria was presented because this type of reduction in VOC mass removal is indicative of a significant decline in effectiveness of the system and the operation of the system has reached a point of diminishing returns. However, because of the higher than anticipated VOC concentration in the soil vapor, the initial VOC mass removal rate is also much greater than that anticipated. The initial PCE concentration was found to be approximately 10,000 PPMv and in the month of November, 1998, the total of 6,600 pounds of PCE was removed. A reduction to 10% of this mass removal rate would still be productive remediation and is therefore not recommended as a shutdown criteria. It is proposed that the 10% of maximum mass removal criteria be replaced with 2.5%, which would correspond to a PCE concentration in the extracted soil vapor of 35 PPMv,

if the SVE system is operating at full capacity. A PCE concentration of 35 PPMv is 0.32% of the initial PCE concentration of 11,000 PPMv. Furthermore, in order to demonstrate asymptotic conditions, it must also be demonstrated that a good faith effort has been made to maximize the VOC mass removal efficiency. Efforts should include: ensuring proper distribution of sparge flow to each sparge well and adjusting flow from each extraction well to maintain pneumatic control over sparge flow while maximizing the mass removal rate.

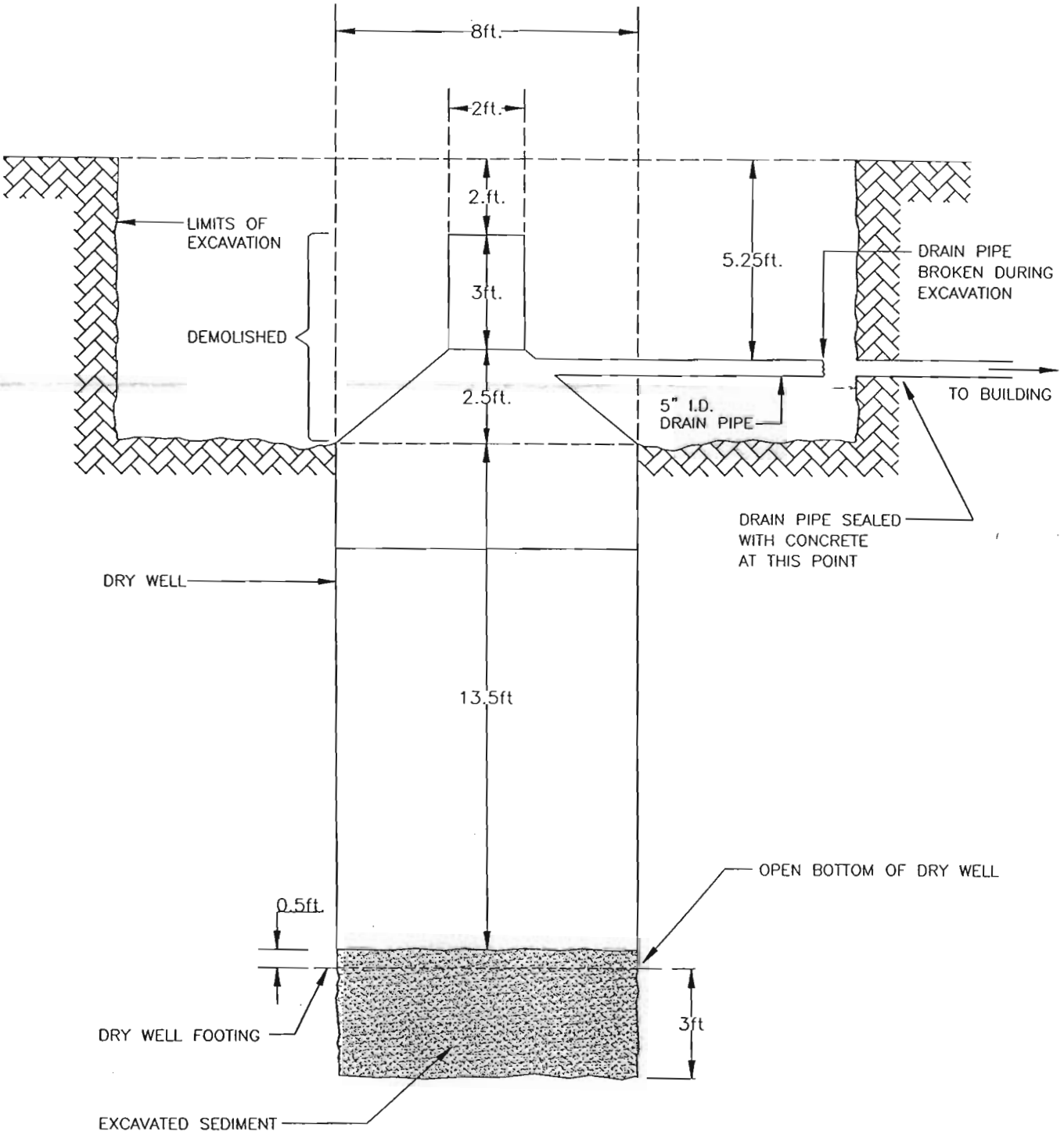
2.0 *CONTRUCTION ACTIVITIES*

2.1 *DRY WELL CLOSURE*

The procedures for closure of the dry well presented in the Engineering Report were followed. Site work began at this site in August 1998. The following is a highlight summary of activities performed during August 1998:

Removal of dry well sediments from the dry well was performed on 13-14 August 1998. The dry well was unearthed with a backhoe and found to be very close (about 2 feet away) to the estimated location shown in the Design Report. The center of the eight-foot diameter dry well is located 15.3 feet east, and 3.2 feet south of the northeast corner of the building (i.e., 150 Fulton Avenue).

The top of the dry well was found to be covered with a two-foot diameter concrete cover. After the cover was exposed, additional soil was excavated down to a depth of 7.5 feet below grade to reveal a two-foot diameter concrete manway and a concrete top cone. The dimensions of the entire dry well are presented in Figure 2-1. A single five-inch inside diameter pipe, that originated from beneath the building, ran into the top cone of the dry well, at a depth of 63 inches. Based on this direction of the pipe, it is estimated that the pipe would intersect the building's outer wall at a point 2.6 feet south of the northeast building corner. The pipe is angled towards the center of the building. During the excavation, a section of this pipe that extended about eight (8) feet from the dry well was broken. This piece was demolished. No other pipes entered the dry well.



NOTES:

1. SIDES OF DRY WELL ARE PERFORATED.
2. ASPHALT IS 2" THICK WITH A 2" THICK SUB-BASE OF 2" BLUESTONE.
3. MANWAY, TOP CONE, AND DRAIN PIPE WERE DEMOLISHED.

TITLE

SCHEMATIC OF DRY WELL EXCAVATION

PREPARED FOR

GENESCO, INC. GARDEN CITY PARK, NEW YORK

ERM-Northeast
Environmental Resources Management

ERM

SCALE	FIGURE
1"=4'-0"	2-1

DRAWN:	JOB NO.:	FILE NAME:	DATE
G.G.	1370.001.2	137000036	12/17/98

Before the dry well was accessed, the lid was quickly replaced with a drum vacuum. The vacuum was used to extract vapors from the dry well and to convey the vapors through an activated carbon vessel. A photoionization detector (PID) was used to measure the level of VOCs in the extracted vapor. Prior to the carbon vessel, the VOC concentration was in the range of 100 to 500 parts per million (PPMv); after the carbon vessel, the VOC concentration was 0.0 PPMv. Once the VOC concentration of the extracted vapors dropped to about five (5) PPMv, extraction of the dry well vapors was ceased. At this time, the manway and top cone of the dry well were removed and demolished. This demolition revealed wire reinforcement in these items.

Once the top cone was removed, the construction of the dry well could be observed. The dry well consists of three (3) concrete rings seated on top of each other, with no bottom. As presented in Figure 2-1, the top of the dry well rings was 7.5 feet below grade; the open bottom of the lower ring was 21.5 feet below grade. The rings were perforated with narrow horizontal slots, about two (2) inches by six (6) inches, located about six (6) inches apart. Therefore, liquids could leach out of the dry well from the sides and the bottom.

Approximately six (6) inches of dry, sandy sediment were found in the bottom of the dry well. This sediment, plus an additional three (3) feet of soil below the dry well placed in a lined 30 cubic yard roll-off, and sealed with a tarp. As the soil below the dry well was removed, no additional soil from the sides of the excavation wall collapsed into the hole.

The initial six (6) inches of dry well sediment and the three (3) feet of excavated soil from below the dry well bottom appeared to be the same material. Both materials were a medium to coarse sandy soil with a strong solvent odor. The lack of any organic deposits and the lack of any

septic odor indicates that this dry well was not used for domestic wastewater disposal.

Samples of the dry well soils were collected in order of increasing depth and screened with a PID. The PID screening results are as follows:

Sample Number	PID (PPMv)	Sample Number	PID (PPMv)
1	> 2000	4	1505
2	> 2000	5	1114
3	1877	6	> 2000

Sample Numbers 1,2, and 6 were sent for laboratory analysis and a summary of the results are presented in Table 2-1. The validated analytical data and chain of custody forms are presented in Appendix B.

One building drain is suspected to be the point of discharge of the waste solvent. This drain is suspected to be connected to the pipe that empties into the dry well. Six (6) gallons of water were poured down this drain. However, none of the water reached the dry well. Possible explanations for this include:

- a clog or leak in the piping;
- a low point in the piping, which would allow water to collect within the piping; and
- an insufficient amount of water poured in to the drain.

A search of the building was conducted in an attempt to find other drains. Other drains were found, which appear to be part of the original roof drain system. However, these had all been sealed with concrete.

Based upon the observed characteristics of the soil removed from the dry well, and the direction of the single pipe leading to the dry well, it was concluded that the dry well is a significant contamination source. It was

Table 2-1
Dry Well Soil Sampling Results

Sample ID No.	PID Screen (PPMv)	PCE Analytical Results, mg/kg
DW-1	>2000	120
DW-2	>2000	130
DW-3	1877	DNA
DW-4	1505	DNA
DW-5	1114	DNA
DW-6	>2000	25
Average	NA	92

DNA - Data Not Available

also concluded that the pipe entering the dry well conveyed the contaminated material into the dry well. For these reasons, no further action was deemed necessary regarding determination of the origin of the drain. Following this investigation, the section of the drain pipe that originated from beneath the building was sealed with concrete at the point shown in Figure 2-1.

Immediately following the removal of dry well soils, the dry well was backfilled with a sandy fill. The material was packed with a plate tamper, and covered with two (2) inches of gravel. Upon completion of the AS/SVE system installation, this area was paved with asphalt.

During the dry well activities, photographs were taken. These are presented in Appendix C.

2.2 *WELL CONTRUCTION AND SOIL SAMPLING*

Well installation for the IRM was conducted from 17-26 August 1998 in accordance with the Engineering Report. Installed wells include ASW-1, ASW-2, VEW-1, VEW-2, VOW-1, VOW-2, VOW-3, and VOW-4. As described in the Design Report, the vapor observation wells (VOWs) were installed as clusters of three wells of varying depths in separate boreholes. The location of each well is shown on Figure 1-1. A summary of well depths and screen intervals is presented in Table 2-2, and the construction details and boring logs are presented in Appendix D.

During the installation of the air sparge and SVE wells, soil samples were collected and screened with a PID for VOCs at five (5)-foot intervals. At each location, the samples with the three (3) highest PID readings were sent for laboratory analysis. The PID screening results and the laboratory analytical results are summarized in Table 2-3. The data validation report and laboratory analytical reports are included in Appendix B. The PCE

Table 2-2
Well Construction Summary

Well Number	Distance from VEW-1 (Feet)	Distance from VEW-2 (Feet)	Distance from ASW-1 (Feet)	Distance from ASW-2 (Feet)	Screen Interval (Feet) (1)	Approx. Depth to Water (Feet) (1)	Available Unsaturated Screen (Feet)	Available Saturated Screen (Feet)	Well Diameter (inches)	Screen Slot Size (inches)	Sand Pack Type
VEW-1	0.0	DNA	DNA	DNA	20-55	49	29	6	4	0.04	Morie #4
VEW-2	DNA	0.0	DNA	DNA	20-55	49	29	6	4	0.04	Morie #4
ASW-1	DNA	DNA	0.0	DNA	65 - 70	49	0	5	2	0.02	Morie #2
ASW-2	DNA	DNA	DNA	0.0	65 - 70	49	0	5	2	0.02	Morie #2
NMW-1S	24.1	20.3	31.0	DNA	8-10	NA	2	0	1	0.02	Morie #2
NMW-1I	27.0	22.0	33.6	DNA	26-28	NA	2	0	1	0.02	Morie #2
NMW-1D	23.8	18.8	30.8	DNA	45-55	49	4	6	2	0.02	Morie #2
NMW-2S	14.1	16.0	16.2	DNA	8-10	NA	2	0	1	0.02	Morie #2
NMW-2I	18.0	17.0	19.5	DNA	26-28	NA	2	0	1	0.02	Morie #2
NMW-2D	15.1	13.7	17.5	DNA	45-55	49	4	6	2	0.02	Morie #2
NMW-3S	15.5	25.7	9.5	DNA	8-10	NA	2	0	1	0.02	Morie #2
NMW-3I	12.8	22.6	8.0	DNA	26-28	NA	2	0	1	0.02	Morie #2
NMW-3D	13.2	23.4	6.8	DNA	45-55	49	4	6	2	0.02	Morie #2
NMW-4S	5.9	5.0	14.0	DNA	8-10	NA	2	0	1	0.02	Morie #2
NMW-4I	7.5	5.3	14.8	DNA	26-28	NA	2	0	1	0.02	Morie #2
NMW-4D	5.4	6.0	14.2	DNA	45-55	49	4	6	2	0.02	Morie #2

Notes:
1. Measured as depth below ground surface, which is approximately 100.5 above mean sea level.
2. All well screens are constructed of 304 stainless steel.
3. Screens two inches diameter and above are wire wrapped.
4. Two-inch diameter risers and above are constructed of schedule 40 black steel.
5. One-inch diameter risers are constructed of schedule 40 galvanized steel.

concentration in the soil samples analyzed ranged from 0.71 to 8000 mg/kg, with an arithmetic average of 2416 mg/kg. This exceeds the soil cleanup standard of 1.8 mg/kg by a factor of 1342, and in order to meet the soil cleanup standard, a removal efficiency of 99.92% is needed. Other than PCE, the only other compound found above the quantifiable detection level was TCE. The maximum TCE concentration was 0.18 mg/kg, which is below the TAGM of 0.7 mg/kg.

As shown on Table 2-3, it appears that soil is most heavily contaminated in the range of 30 feet to 60 feet below grade. Depth to water in the area near the dry well is approximately 50 feet below grade. For this reason, the SVE wells are screens from 25 feet to 55 feet, to ensure that the screen intersects the water table. The sparge wells are constructed with a screen interval of 66 to 71 feet for ASW-1 and 65 to 70 feet for ASW-2. Therefore, the sparge air will enter the formation below and will rise through the most highly contaminated area.

2.3 *CONSTRUCTION OF AIR SPARGE/SVE SYSTEM*

Construction of the Air Sparge/Soil Vapor Extraction (SVE) System for the Interim Remedial Measure (IRM) was done in August and September 1998. Most of the mechanical work, including: installation of the weather station tower, utility pole, piping, and mobilization setting sparge and soil vapor extraction (SVE) trailers was done in August. Because of delays in obtaining electrical service from the power authority, the installation could not be competed until the end of September.

The equipment layout is generally the same as presented in the design report. However, because of certain physical factors, such as the location of overhead electrical lines and the additional space required for monitoring well clusters rather than nested wells, certain the layout was slightly modified. The layout presented in Figure 1-1 presents an as-built

Table 2-3
Summary of Baseline Soil Sampling Results

Well No. VEW-1						Well No. VEW-2					
Sample Date	Sample Depth, ft.	PID Screen (PPMv)	Lab Results, mg/kg			Sample Date	Sample Depth, ft.	PID Screen (PPMv)	Lab Results, mg/kg		
			PCE	TCE	RDL (1)				PCE	TCE	RDL (1)
8/17/98	25	0.6	DNA	DNA	DNA	8/17/98	25	477	DNA	DNA	DNA
8/17/98	30	DNA	DNA	DNA	DNA	8/17/98	30	1365	470	<0.011	0.011
8/17/98	35	DNA	DNA	DNA	DNA	8/17/98	35	>2000	DNA	DNA	DNA
8/18/98	40	>2000	4,100	0.059	0.010	8/17/98	40	>2000	6,000	0.083	0.012
8/18/98	45	>2000	DNA	DNA	DNA	8/17/98	45	>2000	DNA	DNA	DNA
8/18/98	50	>2000	8,000	0.180	0.012	8/17/98	50	>2000	630	<0.012	0.012
8/18/98	55	>2000	DNA	DNA	DNA	8/17/98	55	1430	DNA	DNA	DNA
8/18/98	60	>2000	3,400	0.063	0.011	8/17/98	60	>2000	DNA	DNA	DNA
Average	NA	NA	5,167	0.101	NA	Average	NA	NA	2,367	<0.035	NA

Well No. ASW-1						Well No. ASW-2						Avg PCE Lab Results
Sample Date	Sample Depth, ft.	PID Screen (PPMv)	Lab Results, mg/kg			Sample Date	Sample Depth, ft.	PID Screen (PPMv)	Lab Results, mg/kg			
			PCE	TCE	RDL (1)				PCE	TCE	RDL (1)	mg/kg
8/19/98	2	0	DNA	DNA	DNA	8/18/98	5	0	DNA	DNA	DNA	
8/19/98	7	0	DNA	DNA	DNA	8/18/98	10	6.5	DNA	DNA	DNA	
8/19/98	12	764	DNA	DNA	DNA	8/18/98	15	6.8	DNA	DNA	DNA	
8/19/98	17	182	DNA	DNA	DNA	8/18/98	20	0	DNA	DNA	DNA	
8/19/98	22	DNA	DNA	DNA	DNA	8/18/98	25	71.7	DNA	DNA	DNA	
8/19/98	27	DNA	DNA	DNA	DNA	8/18/98	30	327	DNA	DNA	DNA	
8/19/98	32	>2000	2100	<320	320	8/18/98	35	>2000	0.71	<0.010	0.010	
8/19/98	37	>2000	DNA	DNA	DNA	8/18/98	40	>2000	DNA	DNA	DNA	
8/19/98	42	>2000	DNA	DNA	DNA	8/18/98	45	>2000	940	0.019	0.010	
8/19/98	47	>2000	3200	<7.2	7.2	8/18/98	50	>2000	DNA	DNA	DNA	
8/19/98	52	1115	DNA	DNA	DNA	8/18/98	55	>2000	68	<0.011	0.011	
8/19/98	57	1076	DNA	DNA	DNA	8/18/98	60	646	DNA	DNA	DNA	
8/19/98	62	1345	DNA	DNA	DNA	8/18/98	65	23.4	DNA	DNA	DNA	
8/19/98	67	1254	23	<7.2	7.2	8/18/98	70	65.9	DNA	DNA	DNA	
8/19/98	69	>2000	130	<7.5	7.5							
8/19/98	71	>2000	87	<7.5	7.5							
Average	NA	NA	1793	NA	NA	Average	NA	NA	336.24	<0.013	NA	2416

Notes:
(1) RDL - reportable detection limit. PCE and TCE were the only compounds whose concentrations were above the RDL.
NA - Not applicable
DNA - Data not available

representation of the equipment arrangement. This drawing shows the actual locations of equipment, piping runs, flow control valves, sample ports, flow measuring devices and pressure gauges.

The Process and Instrumentation Diagrams for the sparge system and SVE system are presented in Figures 2-2 and 2-3 and 2-4. For the sparge system, the only changes made from the Engineering Report are the addition of a temperature gauge and the relocation of a temperature gauge (TG200 and TG201). For the SVE system, the only changes are the addition of two (2) temperature gauges (TG303 and TG304), and the addition of a flow sensor on the dilution air inlet. The revised arrangement of the temperature gauges for the sparge system provides information about the temperature of the blower discharge, which is useful if troubleshooting is necessary, as well as providing the temperature at close proximity of the flow sensors, which is useful for proper calibration of this instrument. For the SVE system, a temperature gauge was added to the exhaust of the primary carbon vessel to determine whether the heat of absorption results in a significant temperature rise. This was added because of the high VOC concentration observed during the performance test. The Flow Sensor and temperature gauge on the dilution air inlet were added to allow more accurate calculation of dilution factors for estimating the VOC concentration from the extraction wells.

2.4 *AIR MONITORING*

During all intrusive soil activities (i.e., dry well cleanout, trenching, and well installation), air monitoring for particulates and VOCs was performed at the downwind perimeter of the work zone. The results of the monitoring is presented in Tables 2-4 and 2-5. As shown in these tables, other than for brief periods, the particulate levels were less than the

LEGEND

Symbol	Description
TG	TEMPERATURE GAUGE
PG	PRESSURE GAUGE
VG	VACUUM GAUGE
DPG	DIFFERENTIAL PRESSURE GAUGE
TSH	TEMPERATURE SWITCH HIGH
DPSH	DIFFERENTIAL PRESSURE SWITCH HIGH
LSH	LEVEL SWITCH HIGH
FSL	FLOW SWITCH LOW
TAH	TEMPERATURE ALARM HIGH
DPAH	DIFFERENTIAL PRESSURE ALARM HIGH
LAH	LEVEL ALARM HIGH
FAL	FLOW ALARM LOW
VRV	VACUUM RELIEF VALVE
PRV	PRESSURE RELIEF VALVE

M ELECTRIC MOTOR

I ELECTRIC INTERLOCK

AIR RELEASE VALVE

REGENERATIVE BLOWER

POSITIVE DISPLACEMENT BLOWER

INLET FILTER

INLINE FILTER SILENCER

FILTER SILENCER

FAN

BALL VALVE (MANUAL)

BUTTERFLY VALVE (MANUAL)

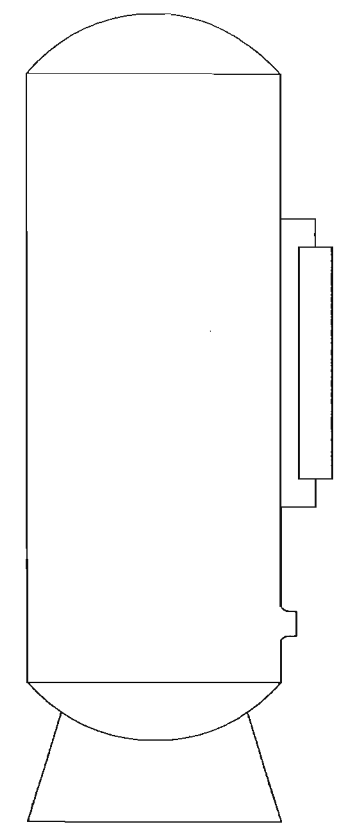
CHECK VALVE

FLOW ELEMENT

REDUCTION/EXPANSION

PIPE CONNECTION

EXPANSION JOINT



MOISTURE SEPARATOR WITH SIGHT GAUGE

ABBREVIATIONS

GAC	GRANULAR ACTIVATED CARBON
MS	MOISTURE SEPARATOR
AF	AIR FILTER
B	BLOWER
VS	VENT SILENCER
VV	VENT VALVE
IV	ISOLATION VALVE
DV	DILUTION VALVE
CV	CHECK VALVE
SP	SAMPLE PORT
VGP	VACUUM GAUGE PORT
PGP	PRESSURE GAUGE PORT
E	ENCLOSURE
FE	FLOW ELEMENT
ASW	AIR SPARGING WELL
VEW	VAPOR EXTRACTION WELL
S/D	SHUT DOWN
FCV	FLOW CONTROL VALVE
EJ	EXPANSION JOINT

LINE TYPE IDENTIFICATION

— — — — — ELECTRICAL

—·—·— ENCLOSURE

NO.	DATE	APPR.	REVISION	NO.	DATE	APPR.	REVISION

GENESCO

AS/SVE SYSTEM – GARDEN CITY, NY

ERM–Northeast
Environmental Resources Management
ERM

STATE OF NEW YORK · RUSSELL R. SIRABIAN · LICENSED PROFESSIONAL ENGINEER

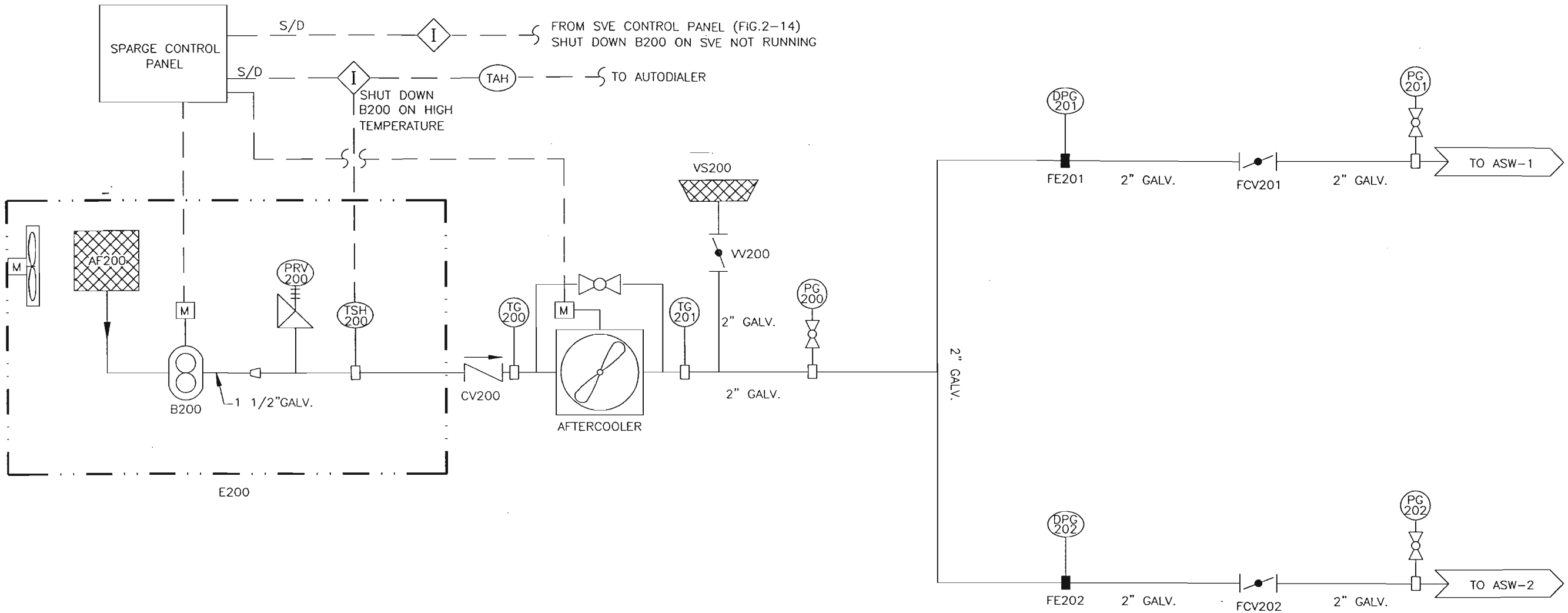
SYMBOLS & LEGEND
P & I DIAGRAM

Y.S. | DATE 1/8/98 | REVISION DATE:
NONE | JOB NO. 1370.002 | FILE NAME: 13700031

DRAWING NO. 2–2

REV. NO.

SHEET OF



NO.	DATE	APPR.	REVISION
1	11/25/98	R.S.	ADD AS-BUILT INFORMATION

GENESCO

AS/SVE SYSTEM - GARDEN CITY, NY

ERM-Northeast
Environmental Resources Management

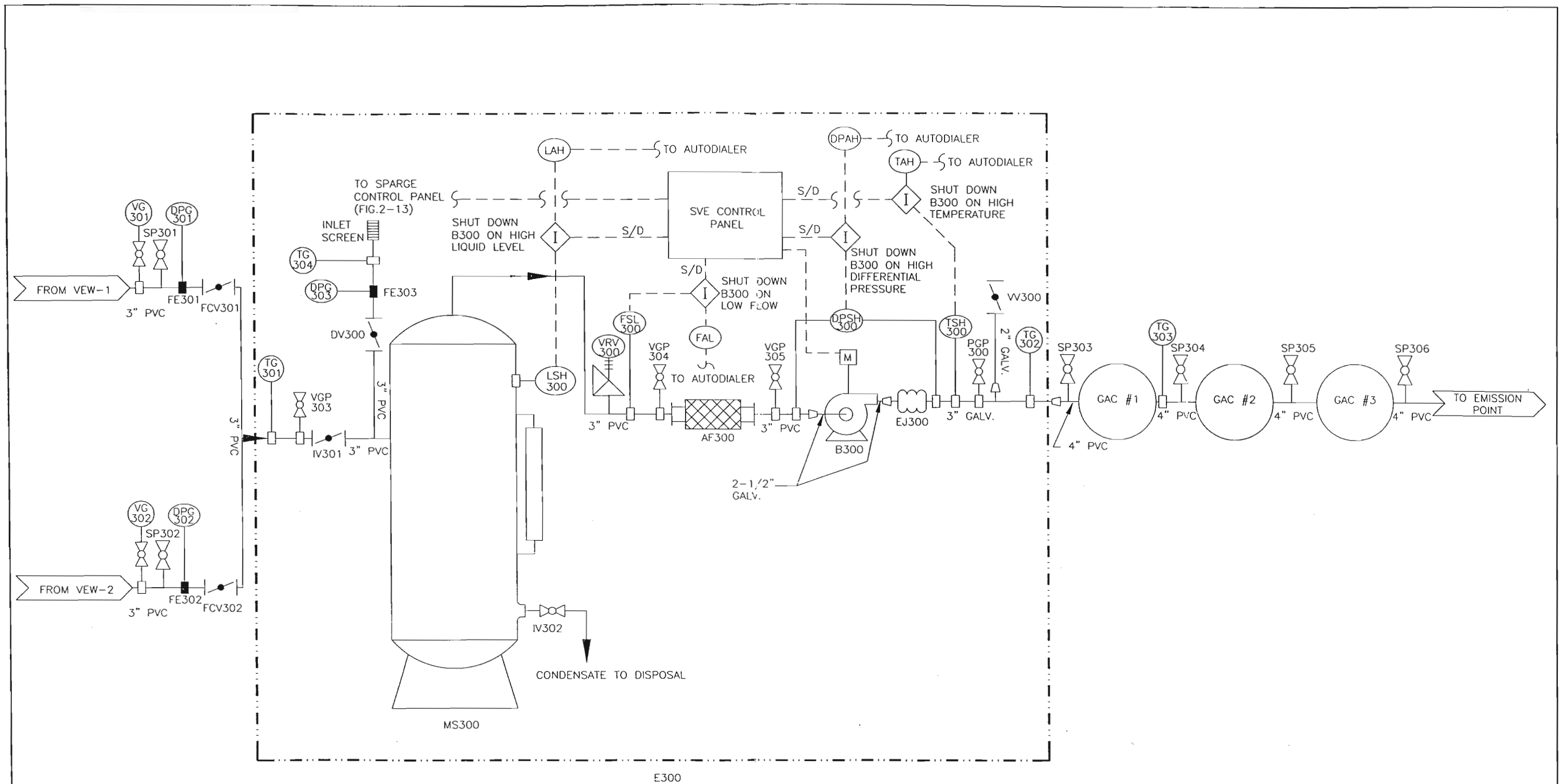
ERM

STATE OF NEW YORK
RUSSELL R. SIRABIAN
No. 067[illegible]
LICENSED PROFESSIONAL ENGINEER

AIR SPARGING P & I DIAGRAM

DESIGNED		DATE	
DESIGN ENGINEER			
PROJECT ENGINEER			
PROJECT MANAGER			
APPROVED			
NUMBER			
DRAWN	Y.S.	DATE	1/8/98
SCALE	NONE	JOB NO.	1370.002
		REVISION DATE:	NOV. 25, 1998
		FILE NAME:	13700033

DRAWING NO. 2-3
REV. NO. 1
SHEET OF



NO.	DATE	APPR.	REVISION
1	12/1/98	R.S.	ADD AS-BUILT INFORMATION

GENESCO

AS/SVE SYSTEM - GARDEN CITY, NY

ERM--Northeast
Environmental Resources Management

ERM

STATE OF NEW YORK
RUSSELL R. SMABIAN
LICENSED PROFESSIONAL ENGINEER
No. 067994

SVE P & I DIAGRAM

DRAWING NO. 2-4

REV. NO. 1

Y.S.	DATE 1/8/98	REVISION DATE: DEC. 1, 1998	
NONE	JOB NO. 1370.002	FILE NAME: 13700032	SHEET OF

TABLE 2-4
Air Monitoring During Dry Well Cleanout and
IRM Construction
150 Fulton Avenue Site, Garden City Park, New York

8/13/98				8/14/98				8/24/98				8/25/98			
Particulates		VOC		Particulates		VOC		Particulates		VOC		Particulates		VOC	
Time	(mg/m^3)	Time	(ppmv)	Time	(mg/m^3)	Time	(ppmv)	Time	(mg/m^3)	Time	(ppmv)	Time	(mg/m^3)	Time	(ppmv)
9:10	0.02	9:15	0.00	8:30	0.07	8:30	0.00	8:00	0.01	8:00	0.00	8:00	0.00	8:00	0.00
9:25	0.02	10:05	0.00	8:45	0.05	10:10	0.00	8:15	0.04	9:40	0.00	8:15	0.00	10:00	0.00
9:40	0.05	11:00	0.00	9:00	0.03	11:05	0.00	8:30	0.04	11:30	0.00	8:30	0.05	12:00	0.00
9:55	0.05	12:20	0.00	9:15	0.07			8:45	0.06	13:25	0.00	8:45	0.01	14:00	0.00
10:10	0.05	13:40	0.00	9:30	0.07			9:00	0.00			9:00	0.04	15:20	0.00
10:25	0.07	13:55	0.00	9:45	0.09			9:15	0.06			9:15	0.03		
10:40	0.05			10:00	0.09			9:30	0.04			9:30	0.05		
10:55	0.03			10:15	0.03			9:45	0.04			9:45	0.03		
11:10	0.05			10:30	0.05			10:00	0.07			10:00	0.03		
11:25	0.05			10:45	0.05			10:15	0.00			10:15	0.03		
11:40	0.03			11:00	0.22			10:30	0.06			10:30	0.03		
11:55	0.03			11:15	0.14			10:45	0.00			10:45	0.00		
12:10	0.05			11:30	0.05			11:00	0.02			11:00	0.00		
12:25	0.03			11:45	0.07			11:15	0.02			11:15	0.00		
12:40	0.05			12:00	0.05			11:30	0.02			11:30	0.01		
13:15	0.07			12:15	0.05			11:45	0.00			11:45	0.03		
13:30	0.05							12:00	0.02			12:00	0.00		
13:55	0.11							12:15	0.00			12:15	0.01		
14:10	0.07							12:30	0.06			12:30	0.03		
								12:45	0.06			12:45	0.01		
								13:00	0.00			13:00	0.01		
								13:15	0.04			13:15	0.01		
								13:30	0.02			13:30	0.01		
								13:45	0.04			13:45	0.03		
												14:00	0.01		
												14:15	0.01		
												14:30	0.03		
												14:45	0.03		
												15:00	0.03		
												15:15	0.03		
												15:30	0.01		
												15:45	0.01		
												16:00	0.00		
												16:15	0.01		
												16:30	0.01		
												16:45	0.01		

Notes:
1) Action levels are 0.15 mg/m^3 for particulates and 5 ppmv for VOCs.
2) All readings were collected at the downwind perimeter of the Work Zone.
3) Elevated particulate level on 8/14 at 11:00 AM is due to sweeping of clean fill material. Upwind concentration at this time is 0.10 mg/m^3.

TABLE 2-5

Air Monitoring During Installation of SVE Wells, Sparge Wells and Monitoring Wells for Soil IRM
150 Fulton Avenue Site, Garden City Park, New York

8/17/98			8/18/98			8/20/98			8/21/98		
	Particulates			Particulates			Particulates	VOC		Particulates	VOC
Time	(mg/m^3)	(ppmv)	Time	(mg/m^3)	(ppmv)	Time	(mg/m^3)	(ppmv)	Time	(mg/m^3)	(ppmv)
9:30	0.09	0.0	8:30	0.11	0.0	7:30	0.22	0.0	7:30	0.11	0.0
9:45	0.07	0.0	8:45	0.14	0.0	7:45	0.22	0.0	7:45	0.16	0.0
10:00	No Ops	No Ops	9:00	0.09	0.0	8:00	0.16	0.0	8:00	0.16	0.0
10:15	No Ops	No Ops	9:15	0.04	0.0	8:15	0.14	0.0	8:15	0.16	0.0
10:30	No Ops	No Ops	9:30	0.03	0.0	8:30	0.09	0.0	8:30	0.16	0.0
10:45	No Ops	No Ops	9:45	0.14	0.0	8:45	0.04	0.0	8:45	0.04	0.0
11:00	0.11	0.0	10:00	0.11	0.0	9:00	0.11	0.0	9:00	0.09	0.0
11:15	No Ops	No Ops	10:15	0.09	0.0	9:15	0.11	0.0	9:15	0.09	0.0
11:30	No Ops	No Ops	10:30	0.11	0.0	9:30	0.14	0.0	9:30	0.11	0.0
11:45	0.14	0.0	10:45	0.04	0.0	9:45	0.16	0.0	9:45	0.14	0.0
12:00	0.09	0.0	11:00	0.03	0.0	10:00	0.09	0.0	10:00	0.14	0.0
12:15	0.14	0.0	11:15	0.09	0.0	10:15	0.04	0.0	10:15	0.11	0.0
12:30	0.05	0.0	11:30	0.09	0.0	10:30	0.04	0.0	10:30	0.14	0.0
12:45	0.03	0.0	11:45	0.11	0.0	10:45	0.07	0.0	10:45	0.11	0.0
13:00	0.03	0.0	12:00	No Ops	No Ops	11:00	0.16	0.0	11:00	0.11	0.0
13:15	0.05	0.0	12:15	No Ops	No Ops	11:15	0.16	0.0	11:15	0.14	0.0
13:30	0.07	0.0	12:30	No Ops	No Ops	11:30	0.16	0.0	11:30	0.14	0.0
13:45	0.03	0.0	12:45	0.14	0.0	11:45	0.14	0.0	11:45	0.14	0.0
14:00	0.03	0.0	13:00	0.14	0.0	12:00	0.22	0.0	12:00	0.14	0.0
14:15	0.03	0.0	13:15	0.14	0.0	12:15	0.22	0.0	12:15	0.16	0.0
14:30	0.01	0.0	13:30	0.09	0.0	12:30	0.16	0.0	12:30	0.16	0.0
			13:45	0.11	0.0	12:45	No Ops	No Ops	12:45	0.11	0.0
			14:00	0.11	0.0	13:00	No Ops	No Ops	13:00	0.04	0.0
			14:15	0.09	0.0	13:15	No Ops	No Ops	13:15	0.16	0.0
			14:30	0.07	0.0	13:30	0.09		13:30	0.11	
			14:45	0.09	0.0	13:45	0.04		13:45	0.16	
			15:00	0.09	0.0	14:00	0.04		14:00	0.14	
			15:15	0.09	0.0	14:15	0.04		14:15	0.16	
			15:30	0.03	0.0	14:30	0.01		14:30	0.16	
			15:45	0.09	0.0	14:45	0.01		14:45	0.16	
			16:00	0.03	0.0	15:00	0.01		15:00	0.16	
			16:15	0.03	0.0	15:15	0.01				
			16:30	0.03	0.0	15:30	0.09				
			16:45	0.11	0.0	15:45	0.04				
			17:00	0.09	0.0	16:00	0.09				
						16:15	0.11				
						16:30	0.11				
						16:45	0.09				
						17:00	0.11				
						17:15	0.09				
						17:30	0.09				
						17:45	0.11				
						18:00	0.11				

Notes:
1) Action levels are 0.15 mg/m^3 for particulates and 5 ppmv for VOCs.
2) All readings were collected at the downwind perimeter of the Work Zone.

action level presented in the Health and Safety Plan of 0.15 mg/m^3. The maximum particulate concentration detected was 0.22 mg/cubic meter but these levels dropped to below 0.15 mg/cubic meter in a fairly short period and work continued. As shown in Table 2-5, the perimeter VOC readings, as measured with the PID, were always at 0.0 PPM.

2.5 *GROUND WATER SAMPLING AND RESULTS*

Deep observation wells, OW-1D, OW-2D, OW-3D and OW-4D were developed and then sampled on 8 September 1998, following all protocols presented in the QA/QC Plan. The laboratory analytical results are summarized in Table 2-6. The validated analytical data and chain of custody forms are included in Appendix B.

Table 2-6
Ground Water Sampling Results

Compound	Sample Location				
	VOW-1D	VOW-2D	VOW-3D	VOW-4D	VOW-5D (1)
Tetrachloroethene (µg/L)	7,500	4,700	23,000	45,000	5,200
Trichloroethene (µg/L)	11	6	61	83	6
Chloroform (µg/L)	< 1	< 1	1	< 1	< 1
1,1,1-Trichloroethane (µg/L)	< 1	< 1	1	1	< 1
Reportable Detection Limit (µg/L)	1	1	1	1	1

Notes:
(1) VOW-5D is a blind duplicate of VOW-2D.
(2) The four compounds listed above are the only compounds which were present above the reportable detection limit (RDL).

3.0 STARTUP AND TROUBLESHOOTING/PERFORMANCE TESTING

Startup and troubleshooting/performance testing services was conducted following construction of the IRM. During startup and troubleshooting, the mechanical components of the system were tested and were found to be functioning properly. After startup and troubleshooting, performance testing was initiated.

Performance testing was done over a three-day period, beginning on 29 September 1998. The performance test plan was modified from the original plan presented in the Conceptual Design Report because the VOC concentrations in the soil vapor, as detected by the field PID organic vapor meter, were extremely high. The VOC readings exceeded the instrument's maximum range of 2,000 PPMv and using dilution factors, it was estimated that the VOC concentration from the extraction wells was about 10,000 PPMv. Because of the high loading onto the carbon system, the testing operating period was shortened. Also, the operating time of air sparging was very brief. Although the operating time was reduced, sufficient data were obtained to accomplish the testing objectives.

3.1 SVE PNEUMATIC TESTING

The initial phase of testing included SVE testing only. Initially, each well was operated individually at several flow rates and applied vacuums. Flow rates were adjusted by throttling the dilution air valve. The flow rate versus applied vacuum data and the PID readings, for both VEW-1 and VEW-2 are presented in Table 3-1.

At two (2) operating conditions per well, pneumatic response was determined by monitoring the vacuum at each monitoring probe. This data was used to establish a ROI for each flow rate. The carbon influent, intermediate and effluent were continually monitored using the field

Table 3-1
Flow From VEW-1 and VEW-2 Versus Applied Vacuum

Applied Vacuum (inches WC)	VEW-1 Flow Reading (inches WC)	VEW-1 Flow Rate (scfm)	Dilution Air Flow (scfm)	Total flow to GAC (scfm)	PID Reading, PPMv		
					Carbon Inlet	Carbon Outlet	Estimate from VEW-1
0.8	0.35	68.8	243	312	> 2000	0	> 9064
1.0	0.70	106	252	358	> 2000	0	> 6755
1.4	0.75	126	206	332	> 2000	0	> 5270

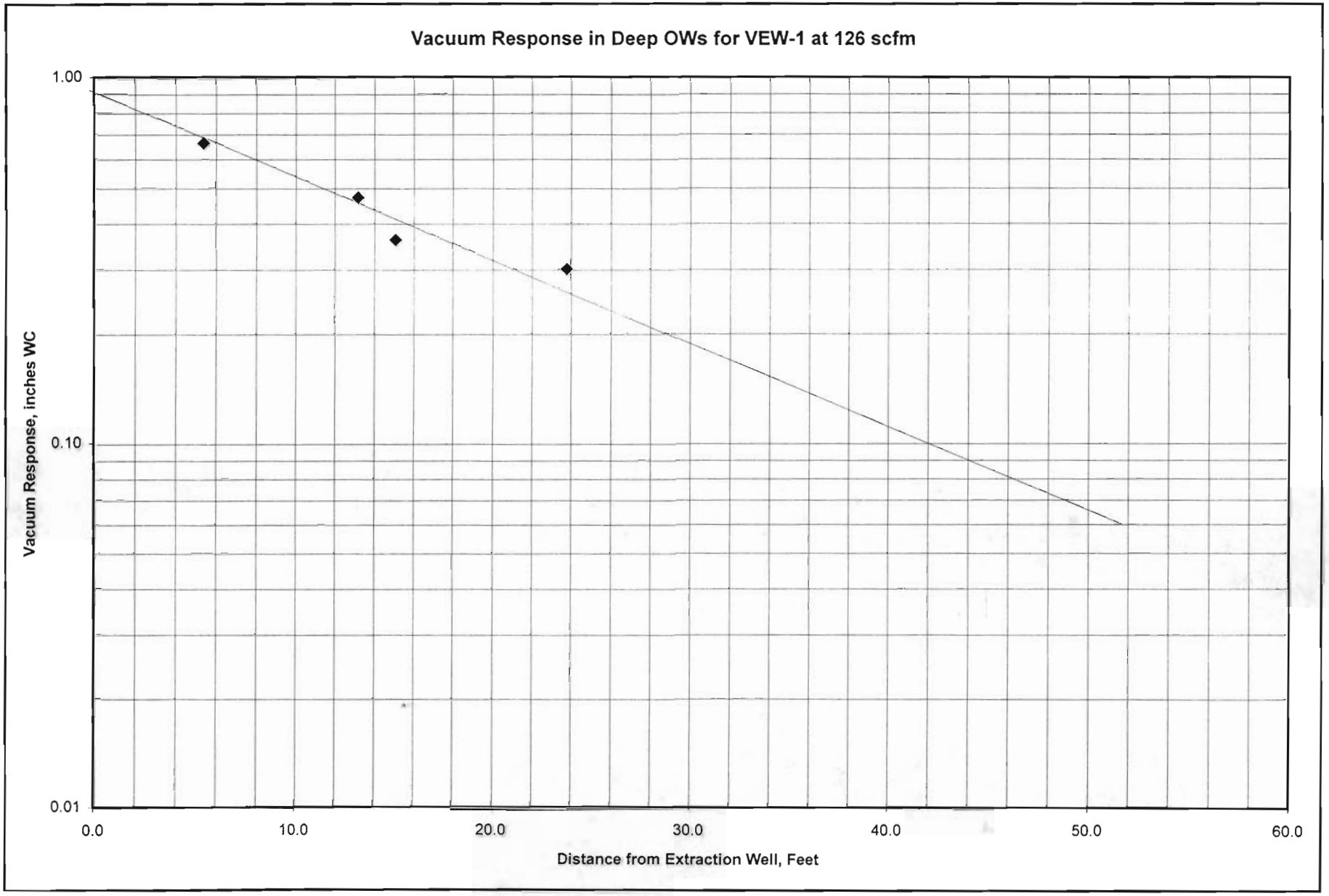
Applied Vacuum (inches WC)	VEW-2 Flow Reading (inches WC)	VEW-2 Flow Rate (scfm)	Dilution Air Flow (scfm)	Total flow to GAC (scfm)	PID Reading, PPMv		
					Carbon Inlet	Carbon Outlet	Estimate from VEW-2
3.0	0.10	59.6	302	362	1937	0	11752
3.9	0.55	128	257	385	> 2000	0	> 6016

organic vapor meter. The flow rate versus pneumatic response data for all conditions tested is presented in Table 3-2. The pneumatic response data for VEW-1 alone operating at a flow rate of 126 scfm is presented graphically for the deep, intermediate and shallow vapor zones in Figures 3-1, 3-2, and 3-3, respectively. These figures indicate the ROI for each condition using a 0.1 inch vacuum response as the criteria for ROI. Figures 3-4, 3-5 and 3-6 present the same data for VEW-1 at a flow rate of 69 scfm. The above analysis is repeated for VEW-2 with the results presented in Figures 3-7, 3-8 and 3-9 for a flow rate of 128 scfm, and Figures 3-10, 3-11 and 3-12 for a flow rate of 60 scfm.

Once individual well testing was done, both vapor extraction wells were operated simultaneously at the full capacity of the blower. The valves to each well were adjusted to achieve even distribution of flow from each well. At this condition the flow rate from VEW-1 and VEW-2 was at the design flow of 125 scfm each, for a design total flow of 250 scfm. The pneumatic results are presented in Figures 3-13, 3-14 and 3-15. To develop Figures 3-13, 3-14 and 3-15, it was necessary establish a distance from the extraction well for each monitoring point. Since the two extraction wells are fairly close to each other, using the average distance to each extraction well can provide a useful result. Figures 3-1 through 3-15 demonstrate several points:

- All monitoring points communicate well with the extraction wells as indicated by measurable and consistent responses at each well.
- All monitoring points exhibit a pneumatic response meeting the criteria of 0.1 inch water column at all conditions, including the low flow rates.
- In general, the deep monitoring points exhibit the strongest pneumatic response and the shallow monitoring points exhibit the weakest.
- The monitoring points show a consistent decrease in response at the distance from the extraction well increases. This allows the data to be extrapolated.

FIGURE 3-1



EROI VEW1, 126 Chart 1

11/17/98

FIGURE 3-2

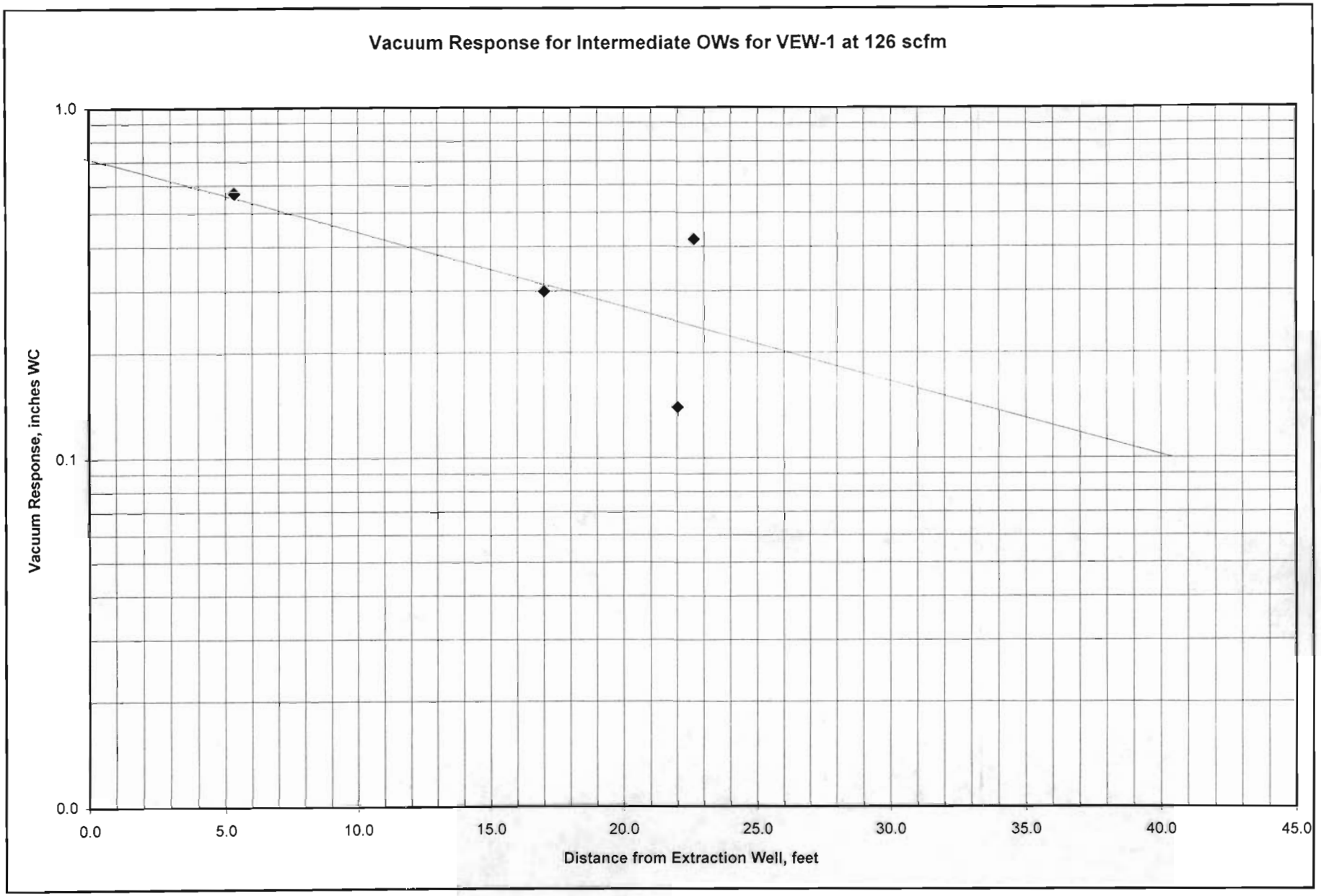

Vacuum Response for Intermediate OWs for VEW-1 at 126 scfm
Vacuum Response, inches WC
1.0
0.1
0.0
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
Distance from Extraction Well, feet

FIGURE 3-3

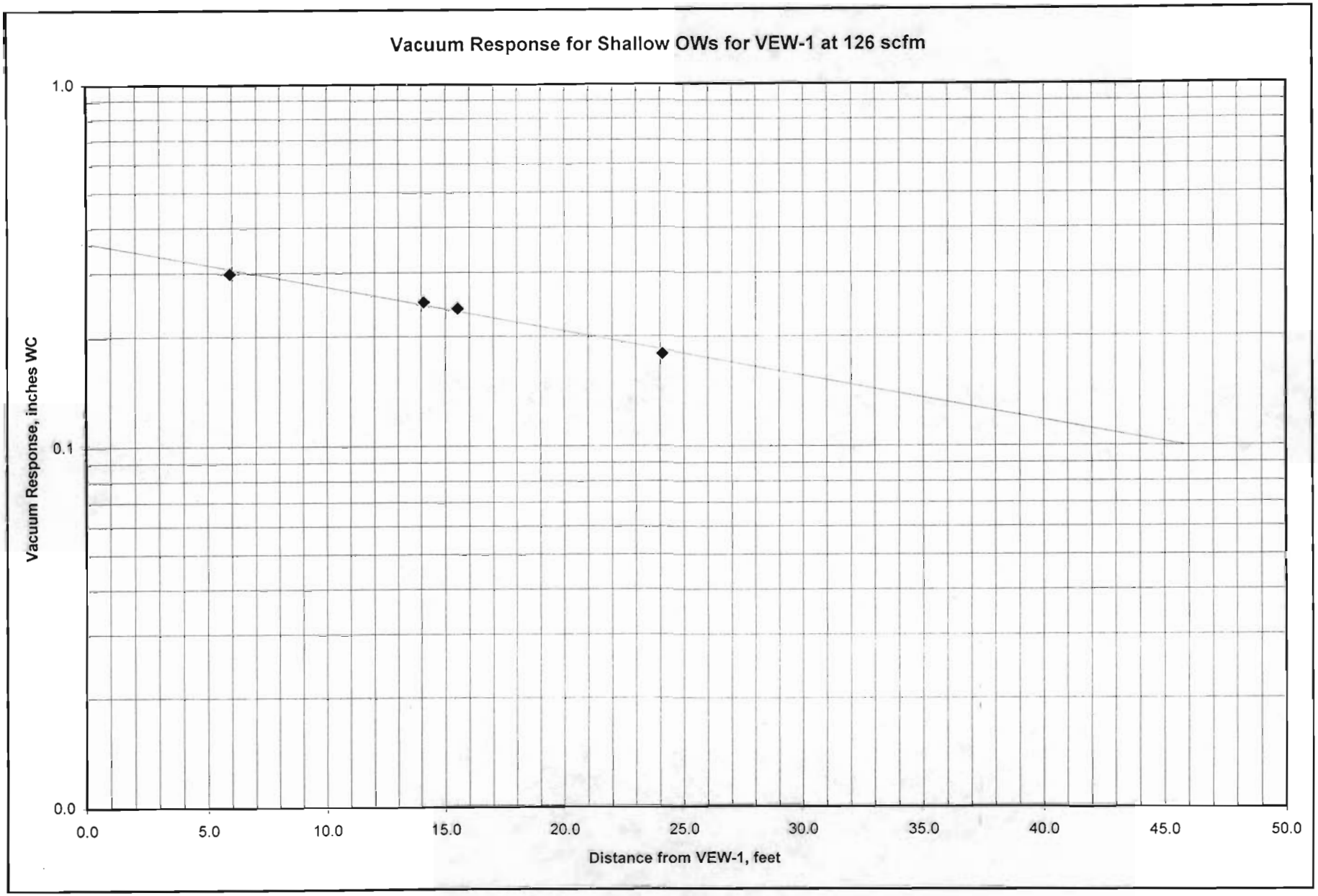

Vacuum Response for Shallow OWs for VEW-1 at 126 scfm
Vacuum Response, inches WC
1.0
0.1
0.0
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
Distance from VEW-1, feet

FIGURE 3-4

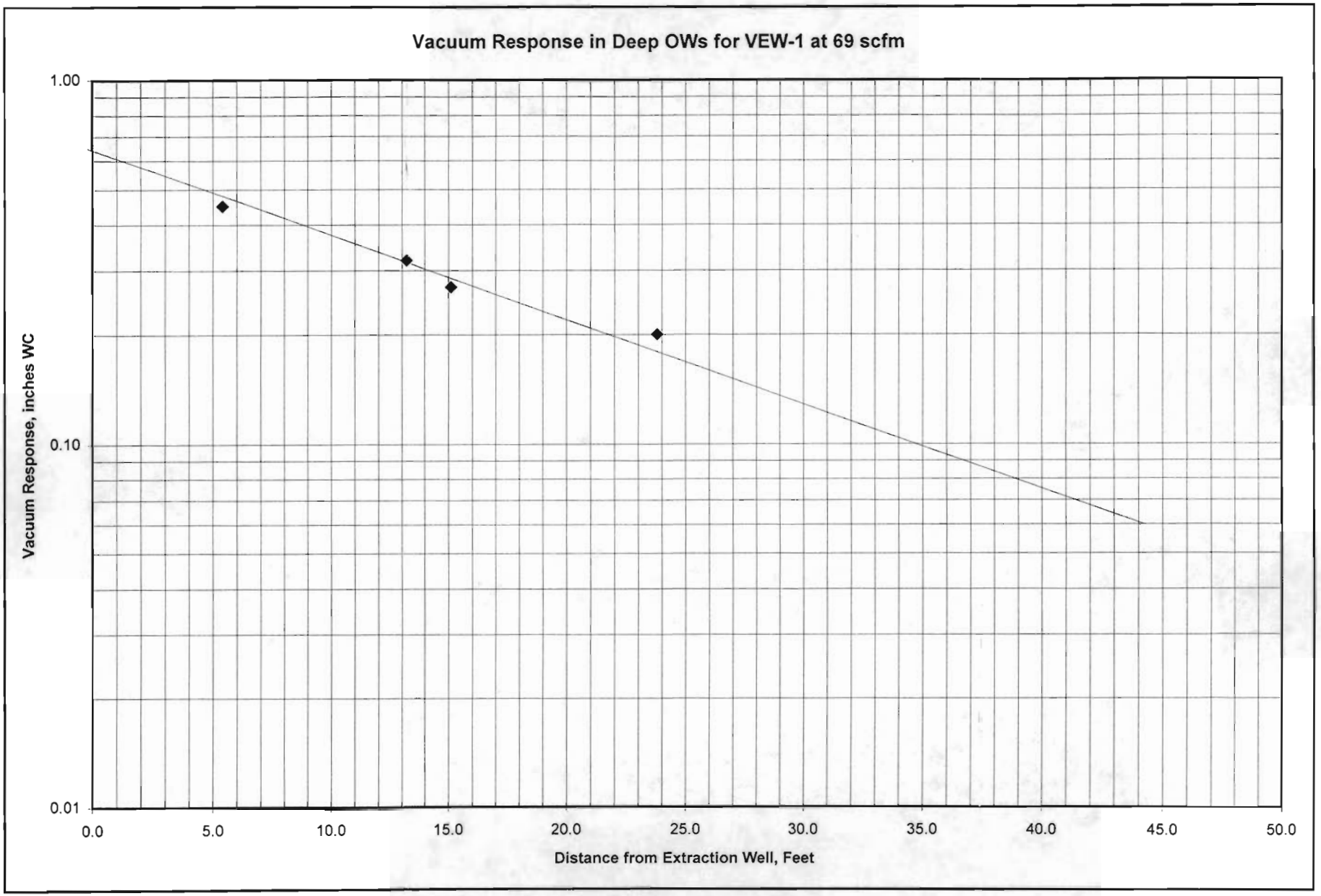

Vacuum Response in Deep OWs for VEW-1 at 69 scfm
Vacuum Response, inches WC
1.00
0.10
0.01
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
50.0
Distance from Extraction Well, Feet

FIGURE 3-5

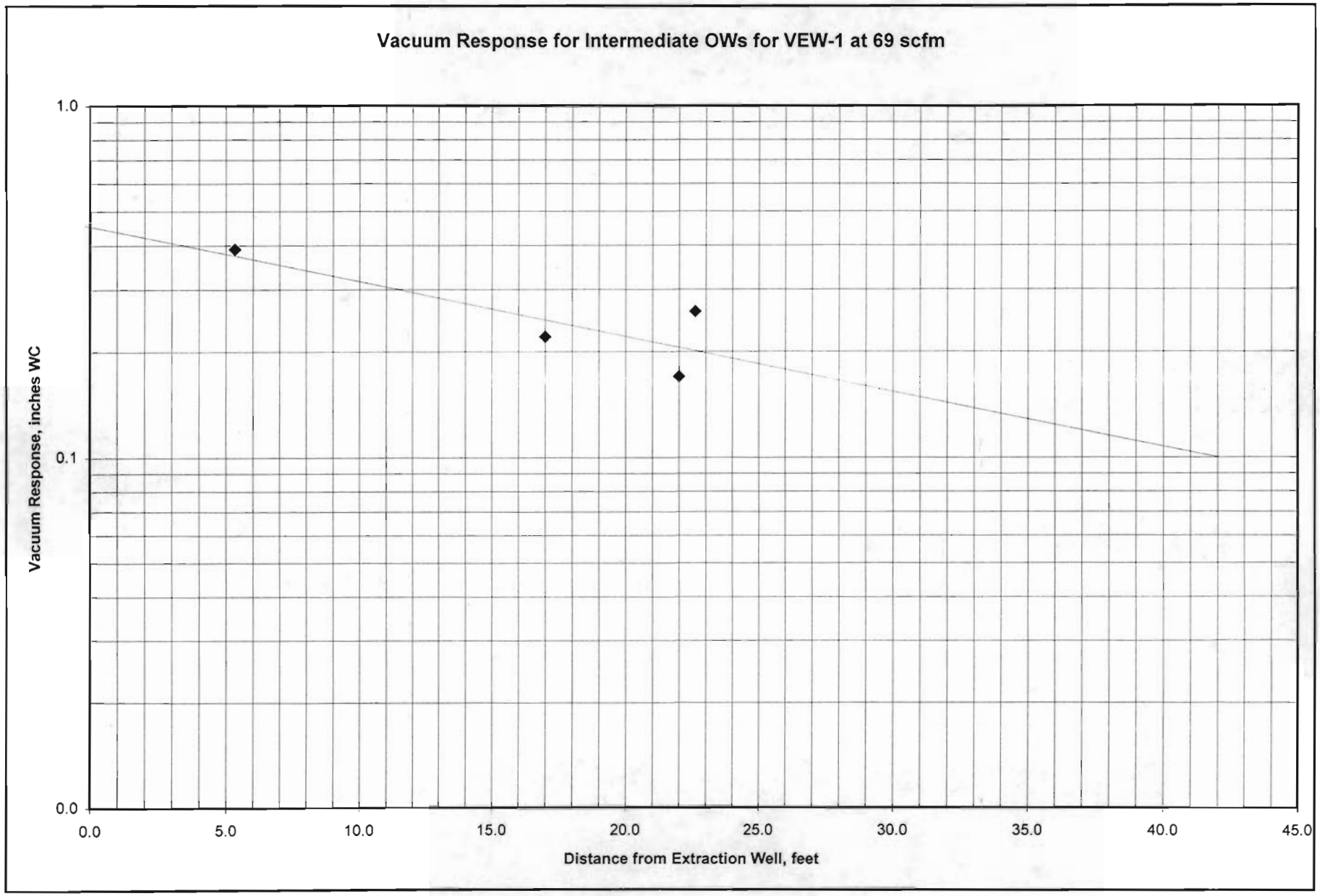

Vacuum Response for Intermediate OWs for VEW-1 at 69 scfm
Vacuum Response, inches WC
1.0
0.1
0.0
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
Distance from Extraction Well, feet

FIGURE 3-6

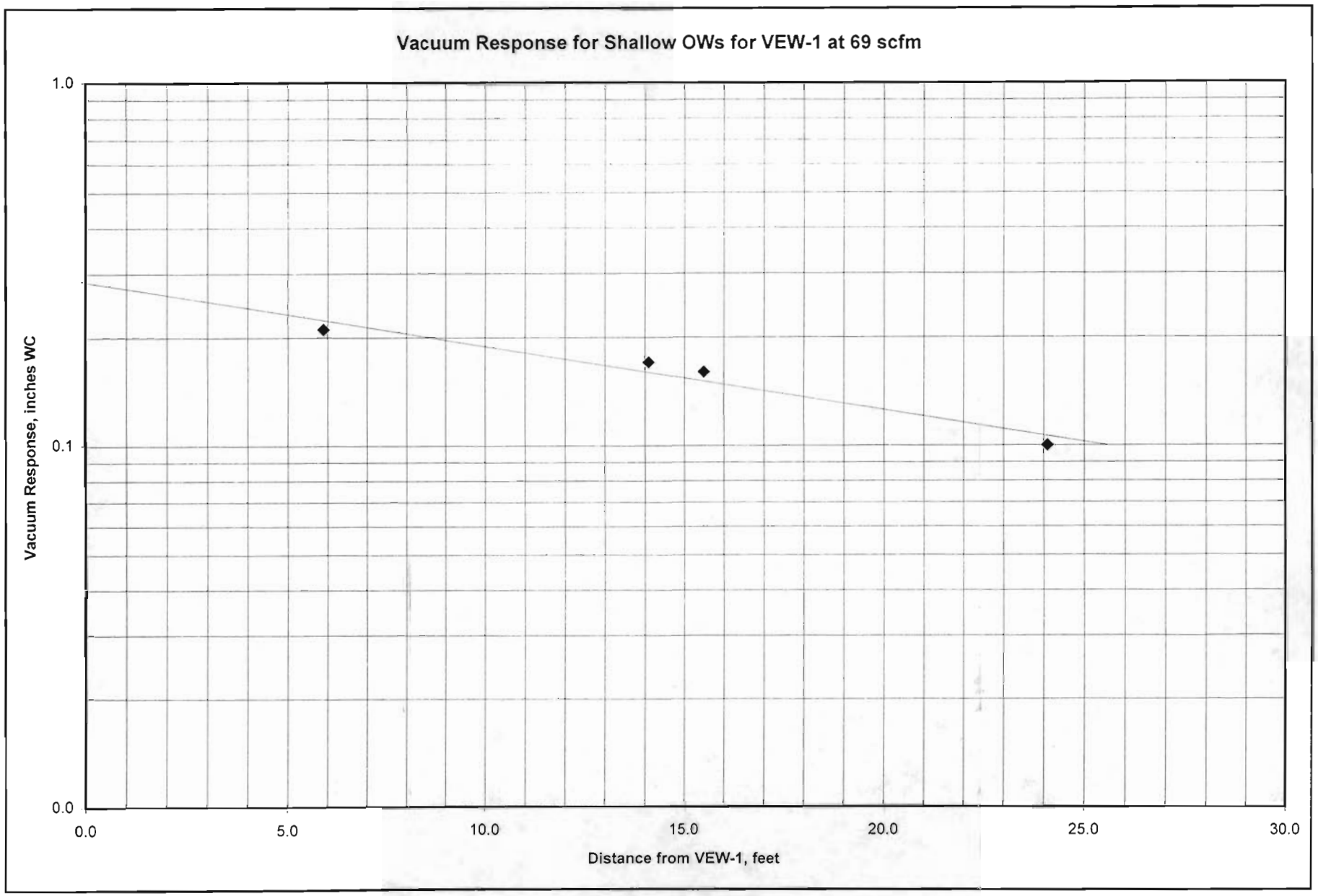

Vacuum Response for Shallow OWs for VEW-1 at 69 scfm
Vacuum Response, inches WC
1.0
0.1
0.0
0.0
5.0
10.0
15.0
20.0
25.0
30.0
Distance from VEW-1, feet

FIGURE 3-7

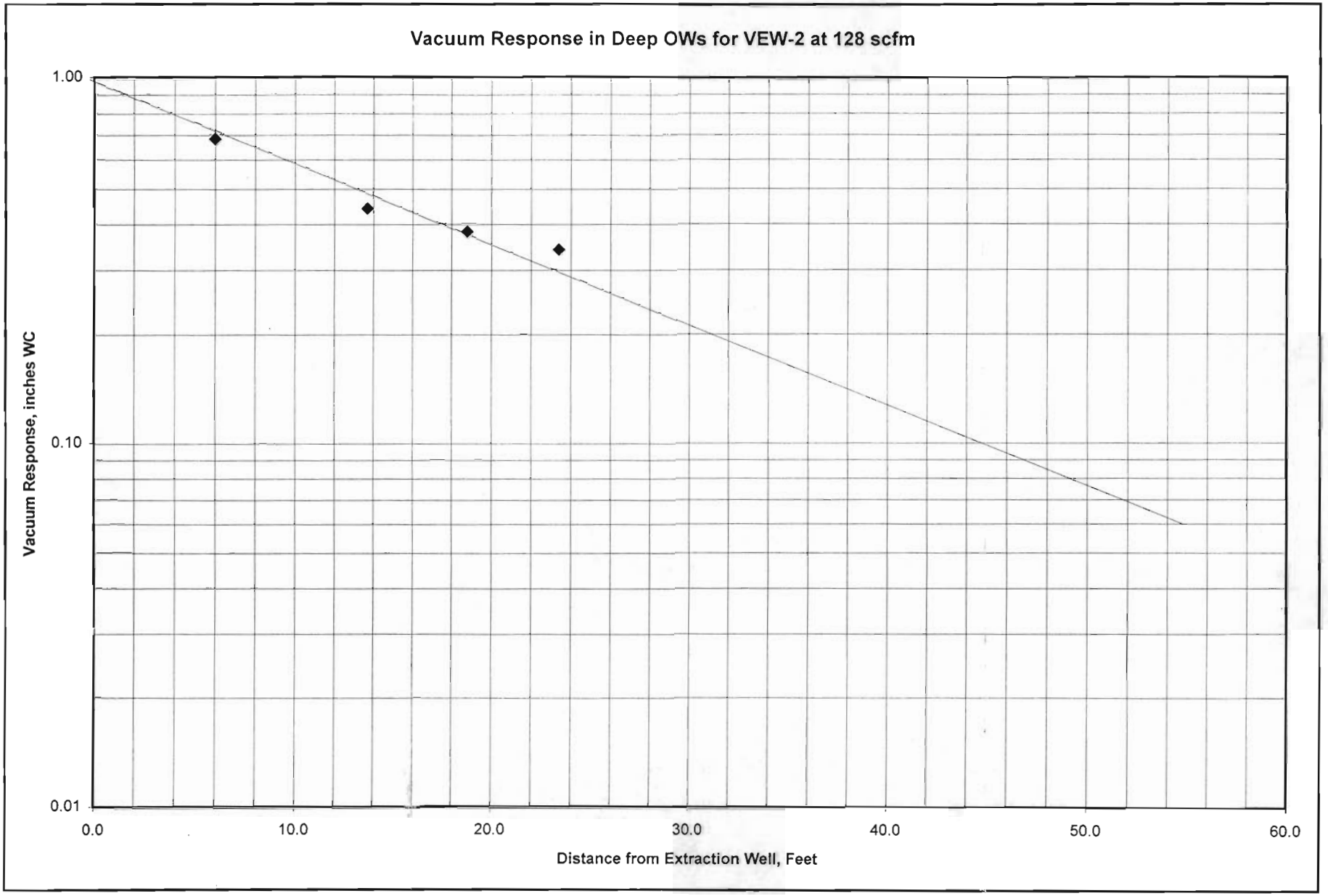

Vacuum Response in Deep OWs for VEW-2 at 128 scfm
Vacuum Response, inches WC
1.00
0.10
0.01
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Distance from Extraction Well, Feet

FIGURE 3-8

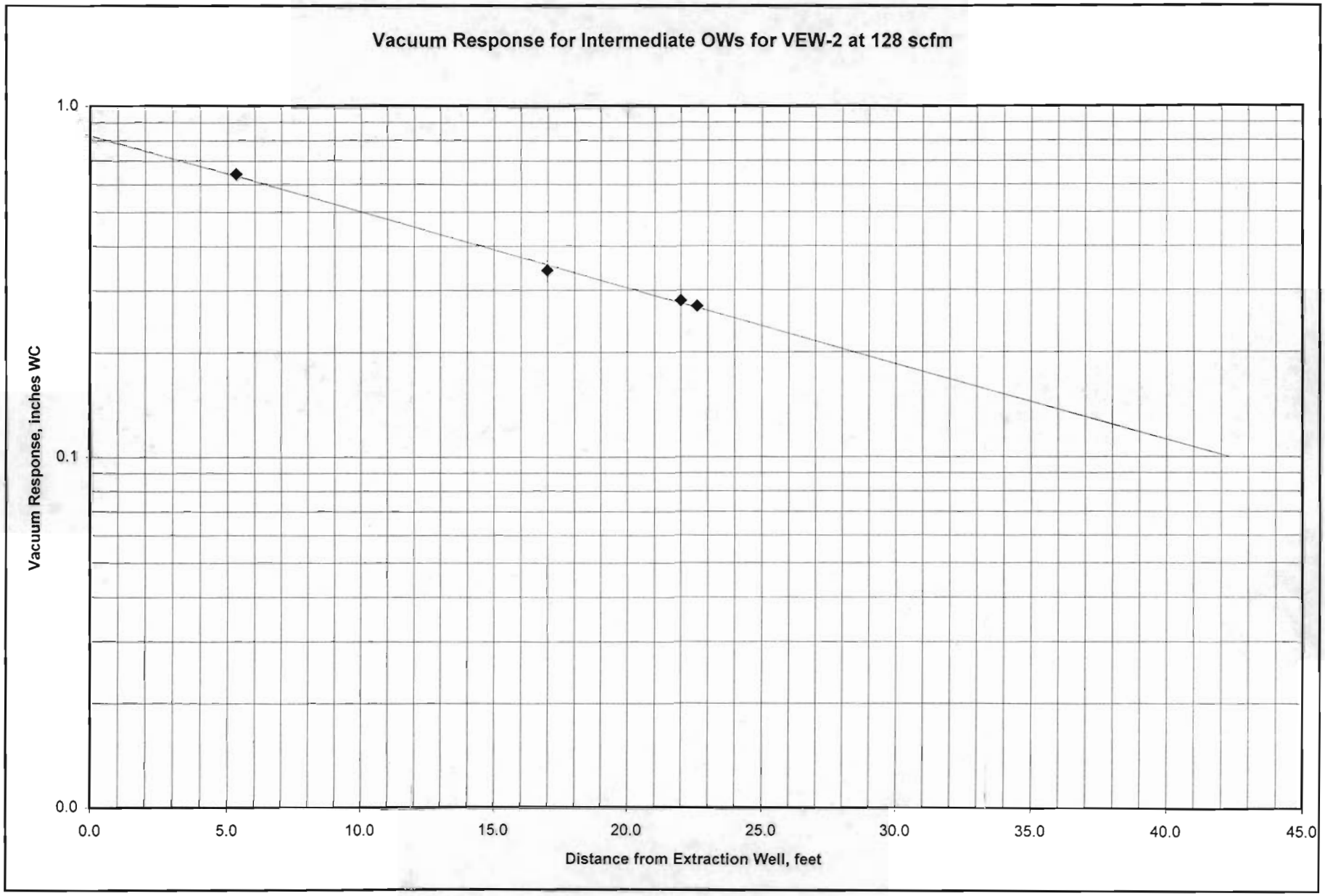

Vacuum Response for Intermediate OWs for VEW-2 at 128 scfm
Vacuum Response, inches WC
1.0
0.1
0.0
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
Distance from Extraction Well, feet

FIGURE 3-9

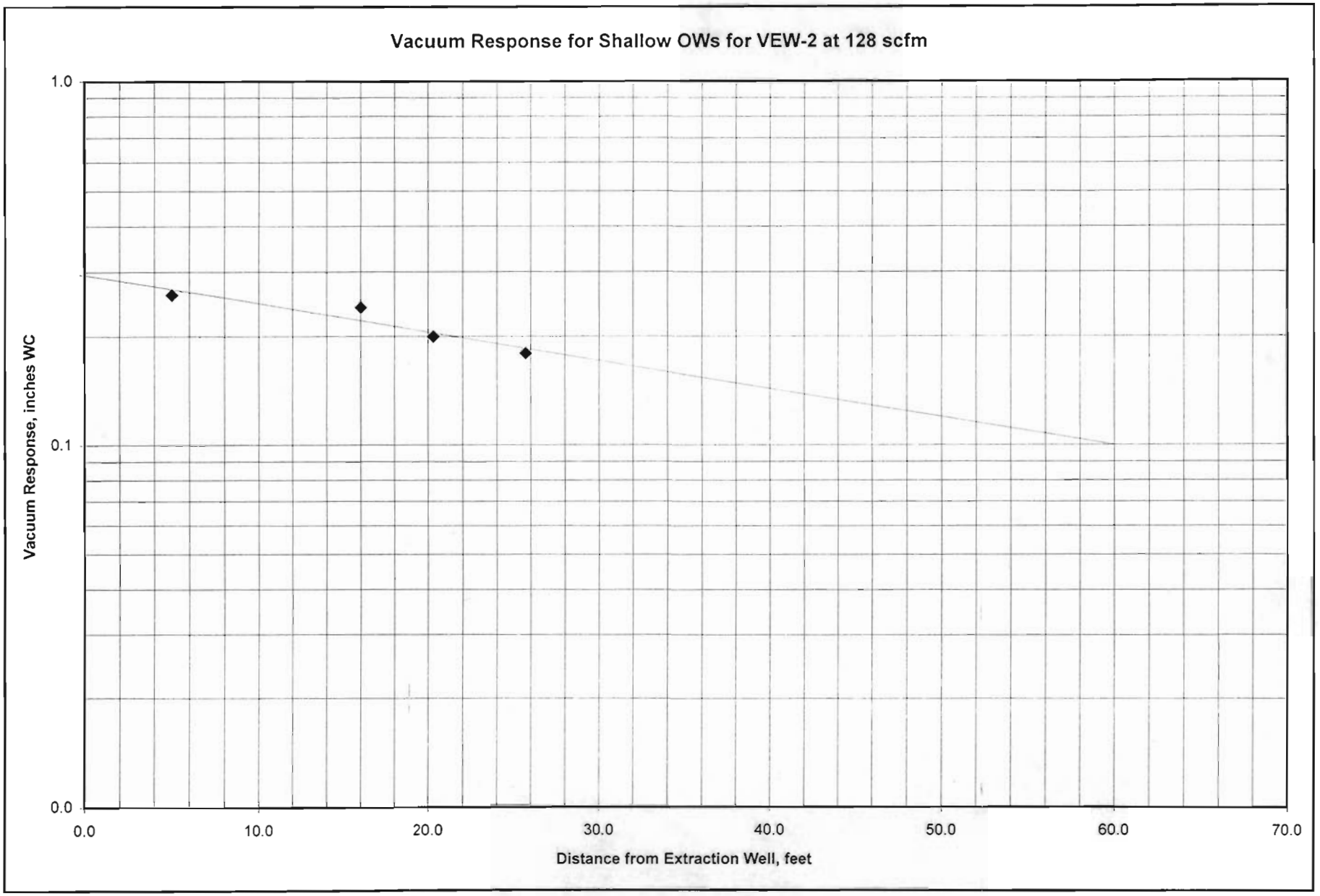
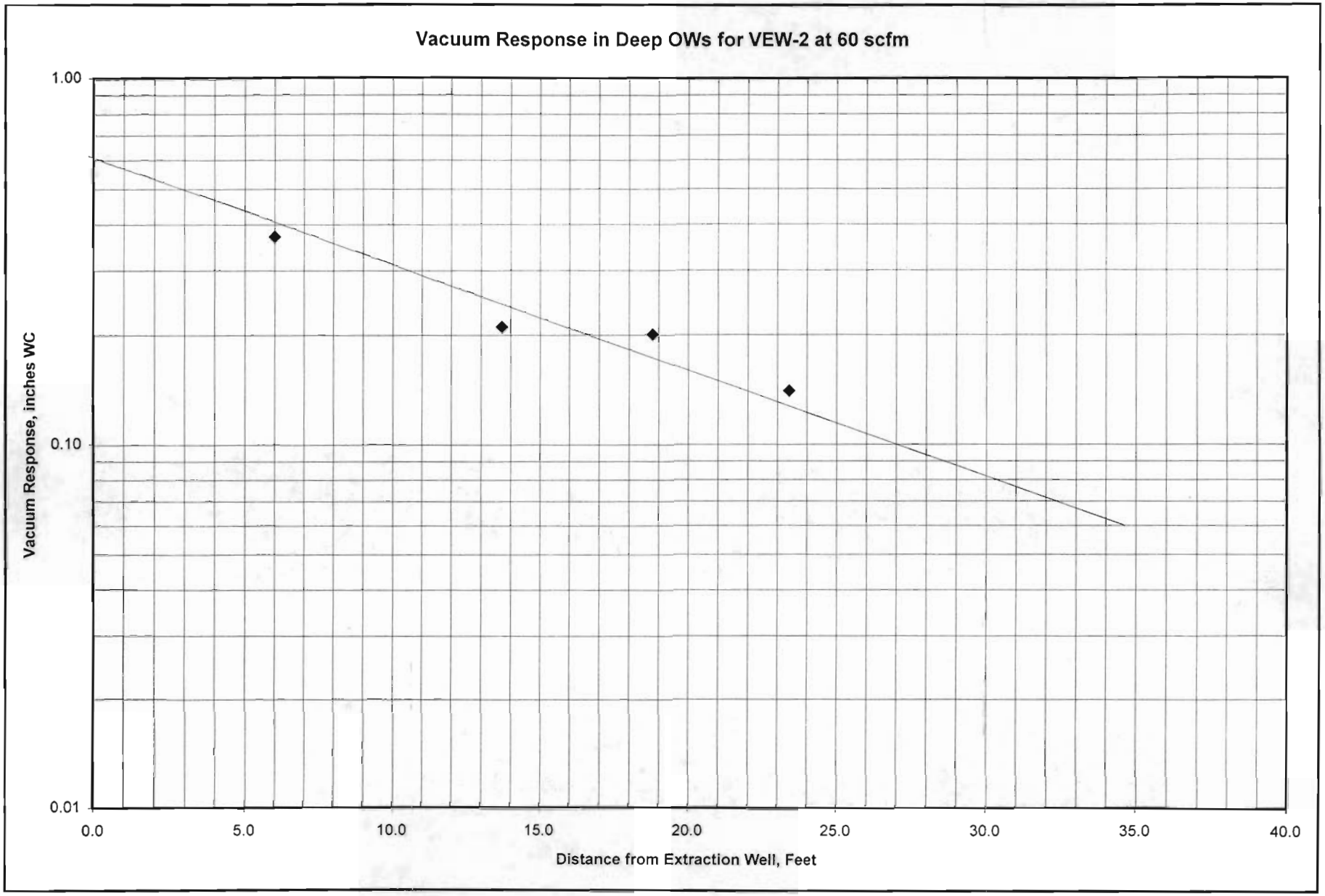

Vacuum Response for Shallow OWs for VEW-2 at 128 scfm
Vacuum Response, inches WC
1.0
0.1
0.0
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Distance from Extraction Well, feet

FIGURE 3-10



EROI VEW-2, 60 Chart 1

11/17/98

FIGURE 3-11

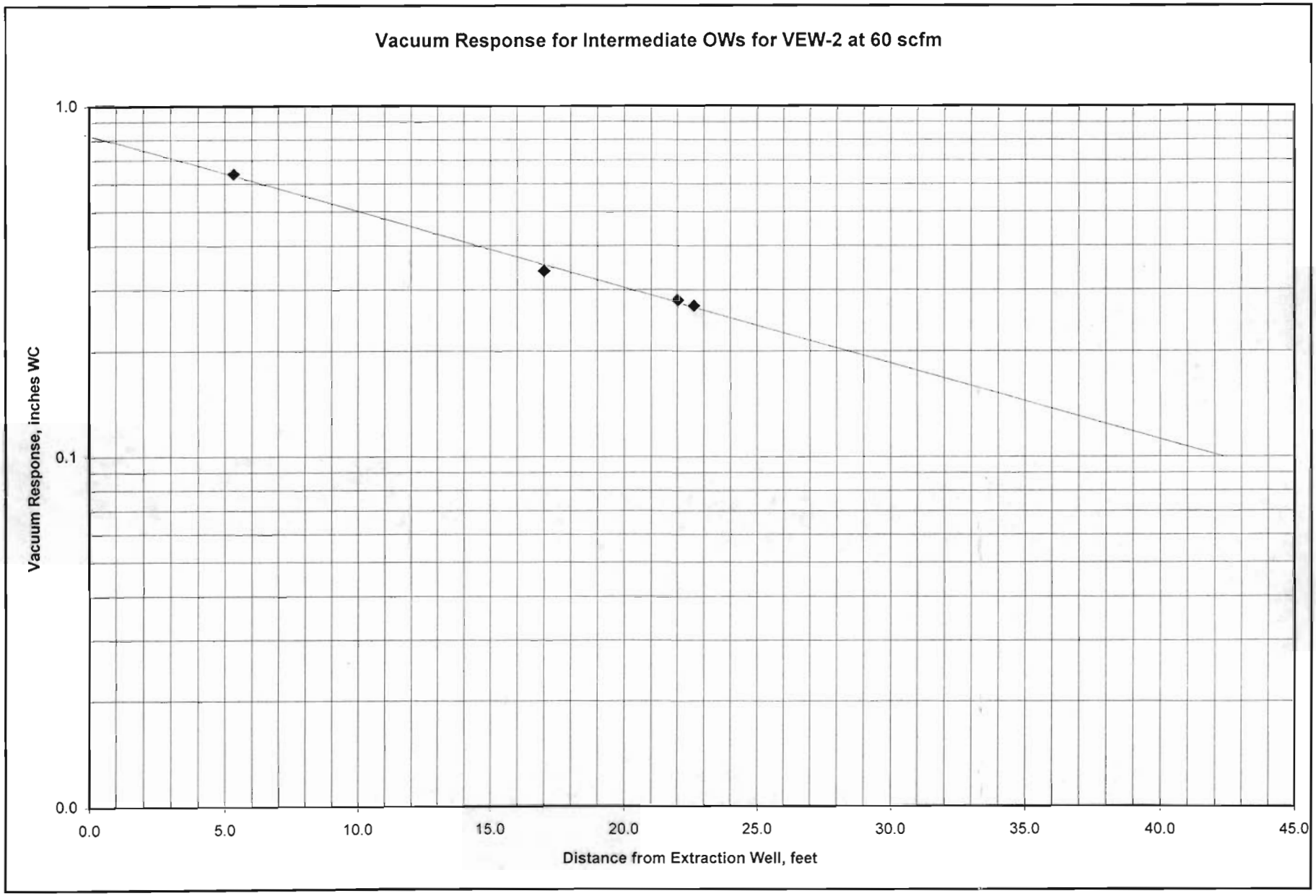

Vacuum Response for Intermediate OWs for VEW-2 at 60 scfm
Vacuum Response, inches WC
1.0
0.1
0.0
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
Distance from Extraction Well, feet

FIGURE 3-12

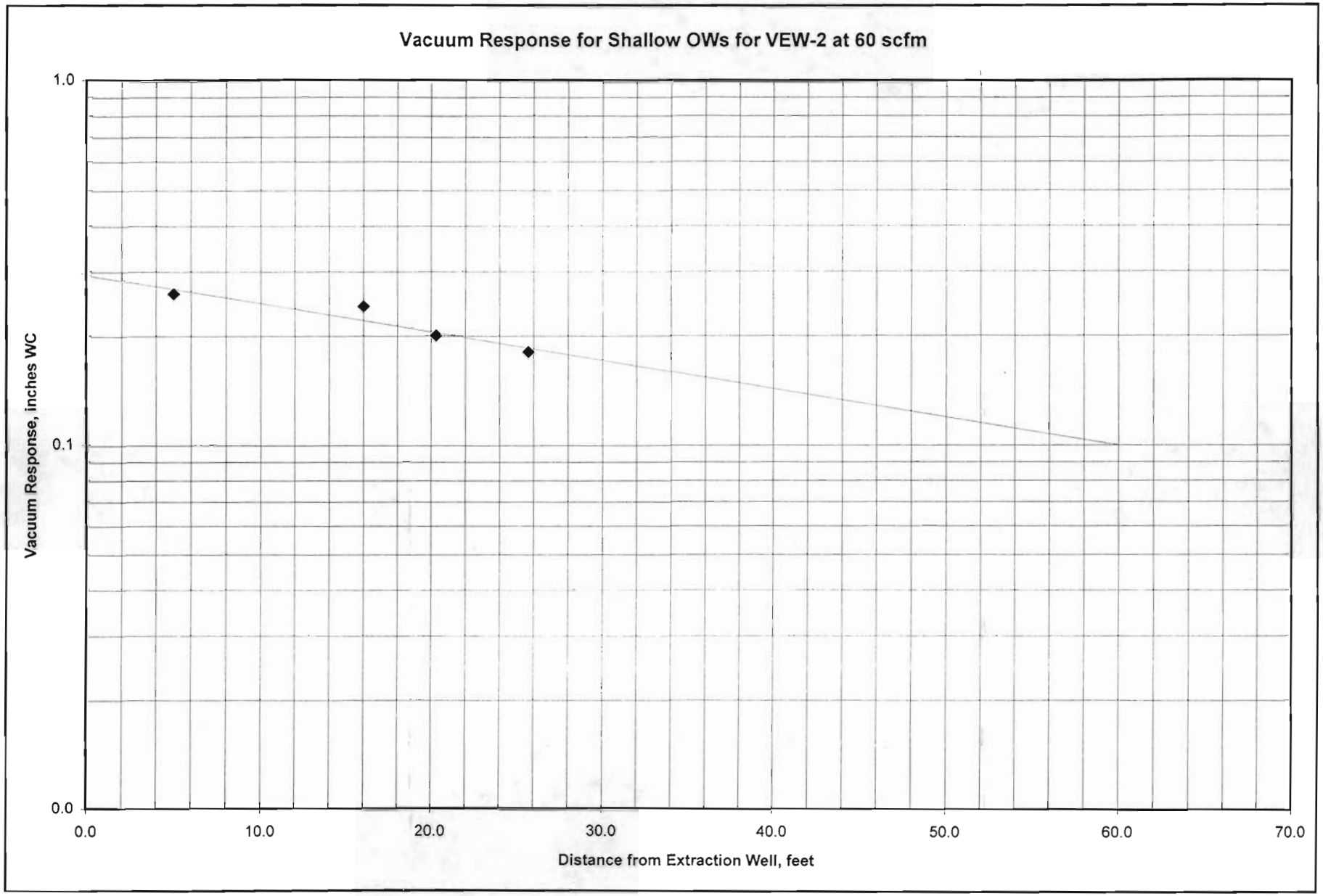
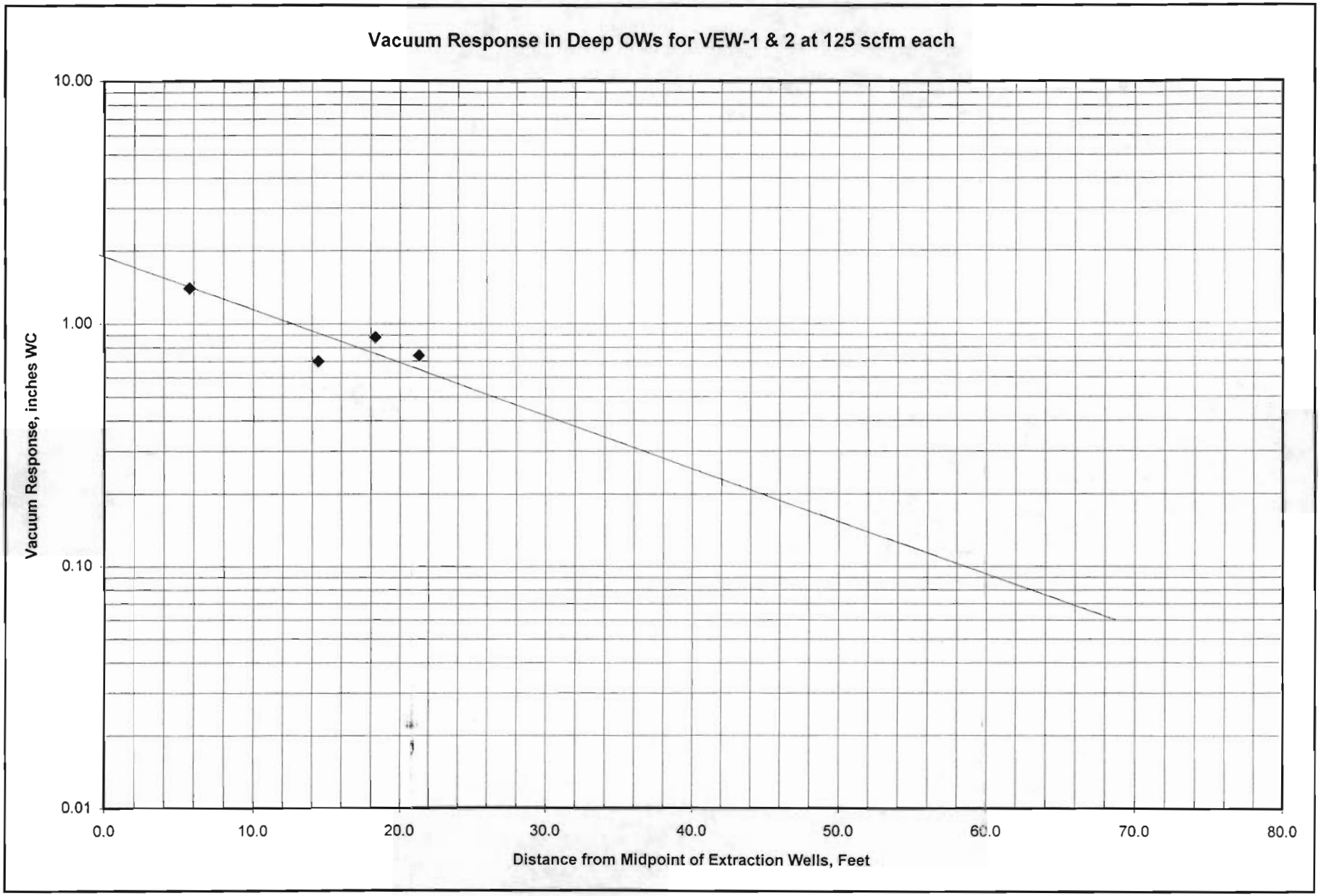

Vacuum Response for Shallow OWs for VEW-2 at 60 scfm
Vacuum Response, inches WC
1.0
0.1
0.0
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
Distance from Extraction Well, feet

FIGURE 3-13



EROI VEW-1 & 2 Chart 1

11/17/98

FIGURE 3-14

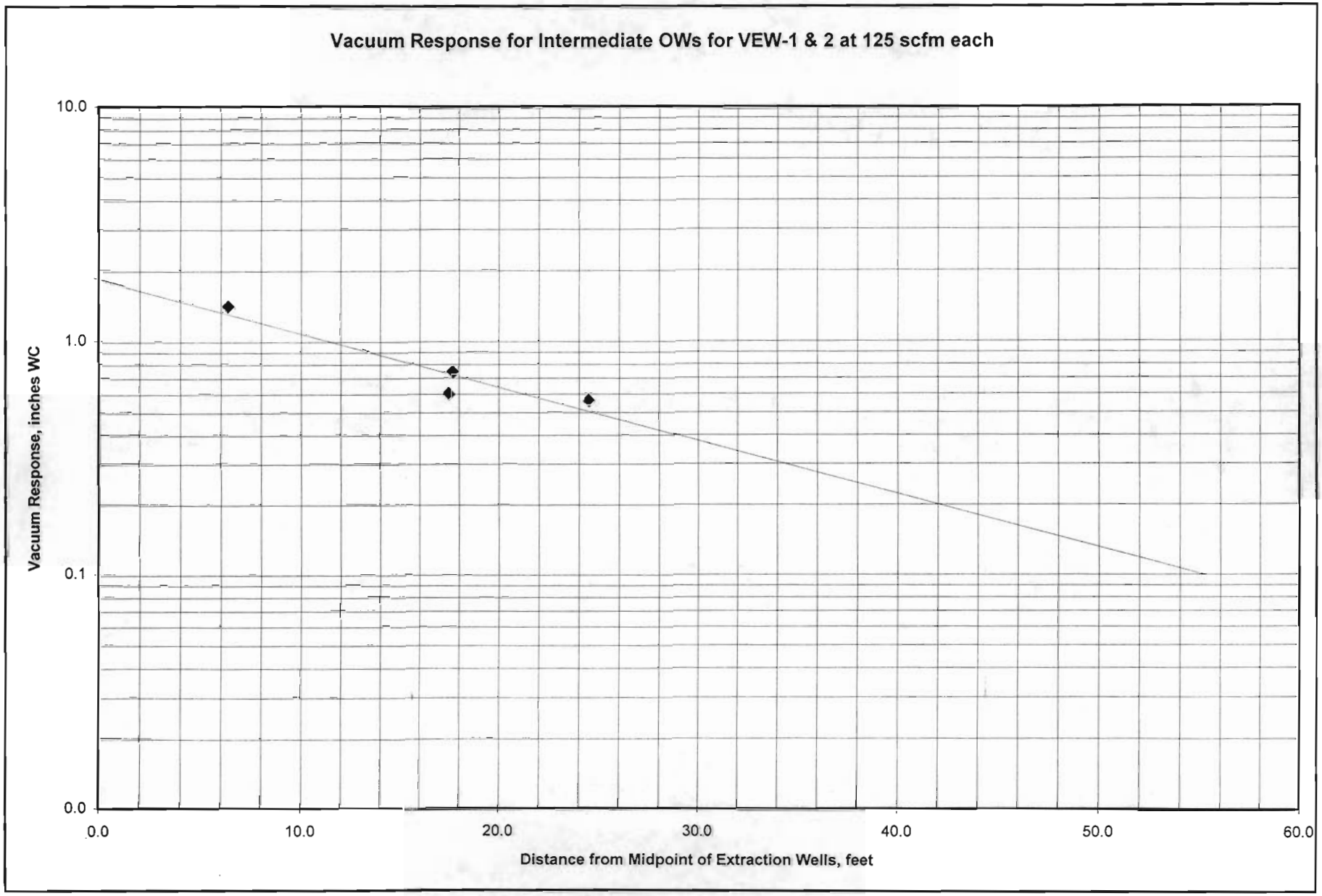

Vacuum Response for Intermediate OWs for VEW-1 & 2 at 125 scfm each
Vacuum Response, inches WC
10.0
1.0
0.1
0.0
0.0
10.0
20.0
30.0
40.0
50.0
60.0
Distance from Midpoint of Extraction Wells, feet

FIGURE 3-15

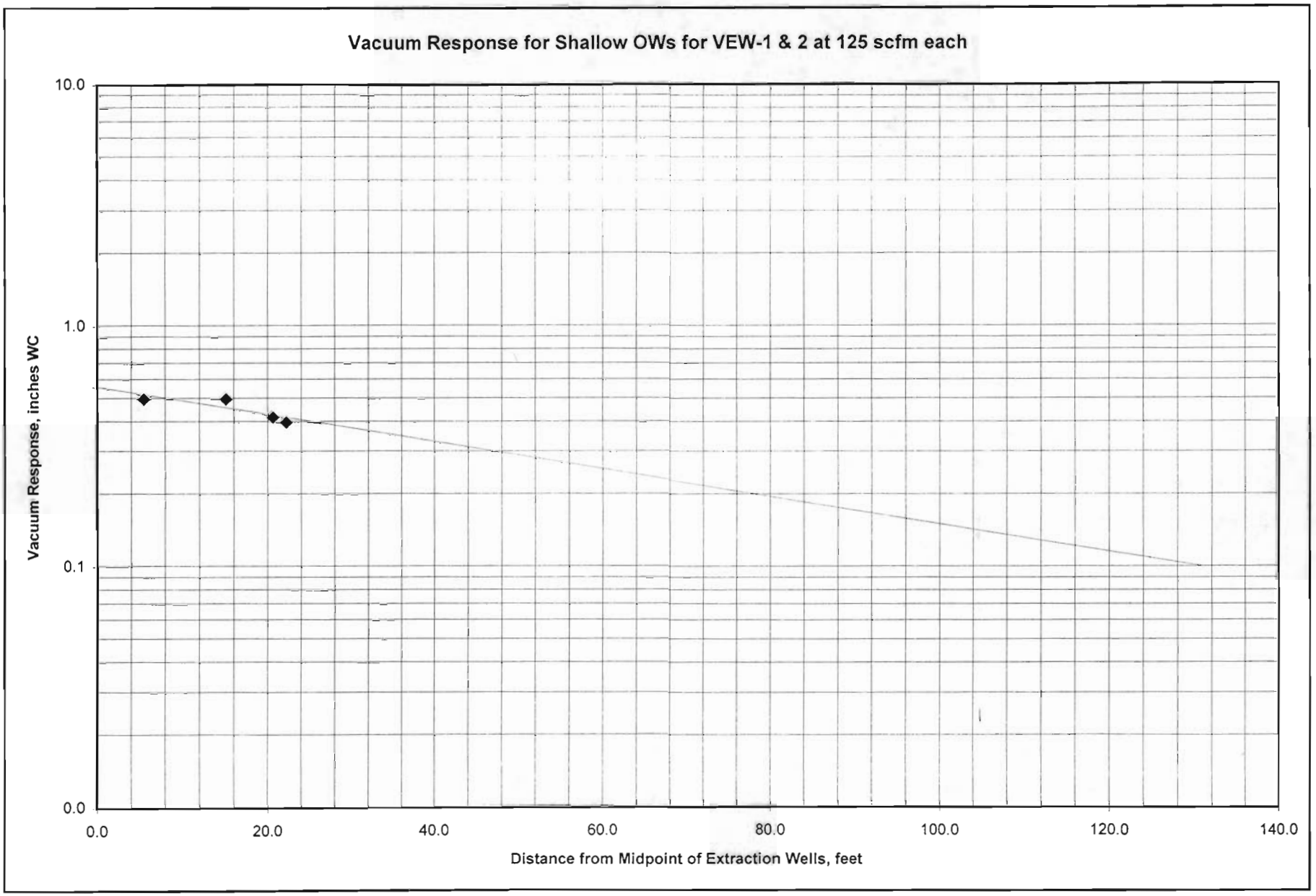

Vacuum Response for Shallow OWs for VEW-1 & 2 at 125 scfm each
Vacuum Response, inches WC
10.0
1.0
0.1
0.0
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
Distance from Midpoint of Extraction Wells, feet

Table 3-2
Pnuematic Response Data

Testing Purposes	SVE Testing for EROI						Sparge Testing		Sparge Testing	
Condition	Background	VEW-1 Only	VEW-1 Only	VEW-2 Only	VEW-2 Only	VEW-1 &2	VEW-1 only	VEW-1, ASW-2	VEW-1 &2	All Wells
Flow Rate, scfm:										
VEW-1	0	126	69	0	0	118	161	161	125	109
VEW-2	0	0	0	128	60	100	0	0	125	129
ASW-1	0	0	0	0	0	0	0	20	0	10
ASW-2	0	0	0	0	0	0	0	0	0	10
Applied Vaccum/Pressure:										
VEW-1 (Vac, " WC)	Off line	1.4	0.8	Off line	Off line	1.9	2.6	2.6	3.2	3
VEW-2 (Vac., " WC)	Off line	Off line	Off line	3.9	3.0	4.5	Off line	Off line	5	5
ASW-1 (Press., psig)	Off line	Off line	Off line	Off line	Off line	Off line	Off line	7	Off line	7.6
ASW-2 (Press., psig)	Off line	Off line	Off line	Off line	Off line	Off line	Off line	Off line	Off line	6.8
Vacuum, Inches WC:										
OW-1 Shallow	0	0.18	0.10	0.20	0.10	0.40	0.22	0.16	0.48	0.43
OW-1 Intermediate	0	0.14	0.17	0.28	0.16	0.56	0.31	0.23	0.64	0.60
OW-1 Deep	0	0.30	0.20	0.38	0.20	0.74	0.37	0.25	0.88	0.72
OW-2 Shallow	0	0.25	0.17	0.24	0.10	0.50	0.32	0.25	0.62	0.56
OW-2 Intermediate	0	0.30	0.22	0.34	0.16	0.60	0.37	0.31	0.78	0.72
OW-2 Deep	0	0.36	0.27	0.44	0.21	0.70	0.43	0.26	1.00	0.88
OW-3 Shallow	0	0.24	0.16	0.18	0.08	0.42	0.28	0.22	0.48	0.46
OW-3 Intermediate	0	0.42	0.26	0.27	0.10	0.74	0.45	0.39	0.82	0.73
OW-3 Deep	0	0.47	0.32	0.34	0.14	0.88	0.53	0.33	0.96	0.85
OW-4 Shallow	0	0.30	0.21	0.26	0.13	0.50	0.33	0.3	0.60	0.61
OW-4 Intermediate	0	0.57	0.39	0.64	0.34	1.40	0.65	0.56	1.30	1.40
OW-4 Deep	0	0.66	0.45	0.68	0.37	1.40	0.75	0.56	1.50	1.80

Based on the extrapolation of each curve to the 0.1 inch water column criteria, the ROI for each condition was determined and is summarized in Table 3-3. From this table, it appears that the use of the deep and intermediate points result in a more consistent determination of the ROI than the shallow monitoring wells. This is likely a result of the fact that the shallow wells are screened at a different interval than the extraction wells. Based on the deep and intermediate points, the ROI is concluded to be as follows:

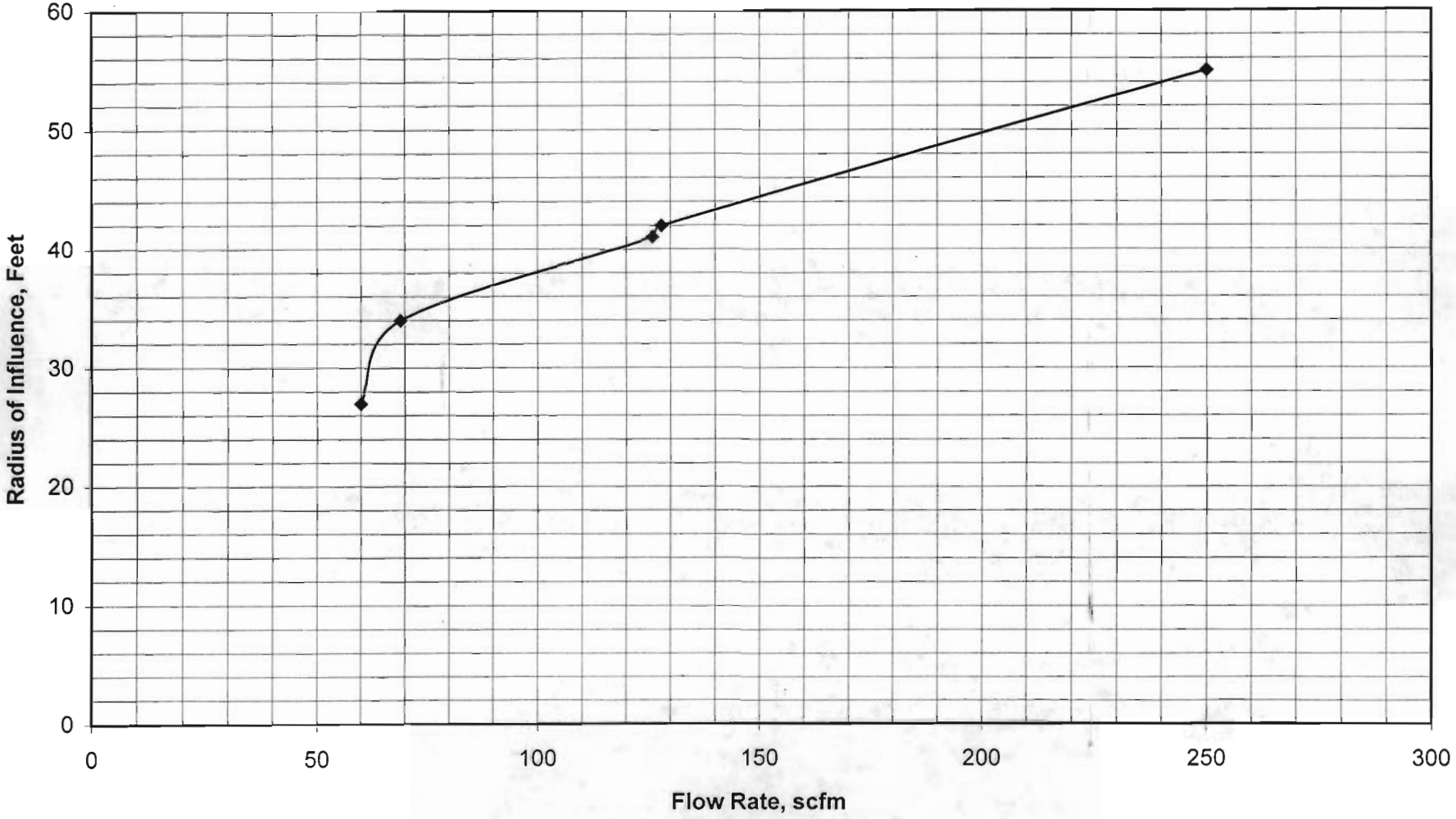
- 27 feet at 60 scfm
- 35 feet at 69 scfm
- 42 feet at 125 scfm, and
- 55 feet at 250 scfm.

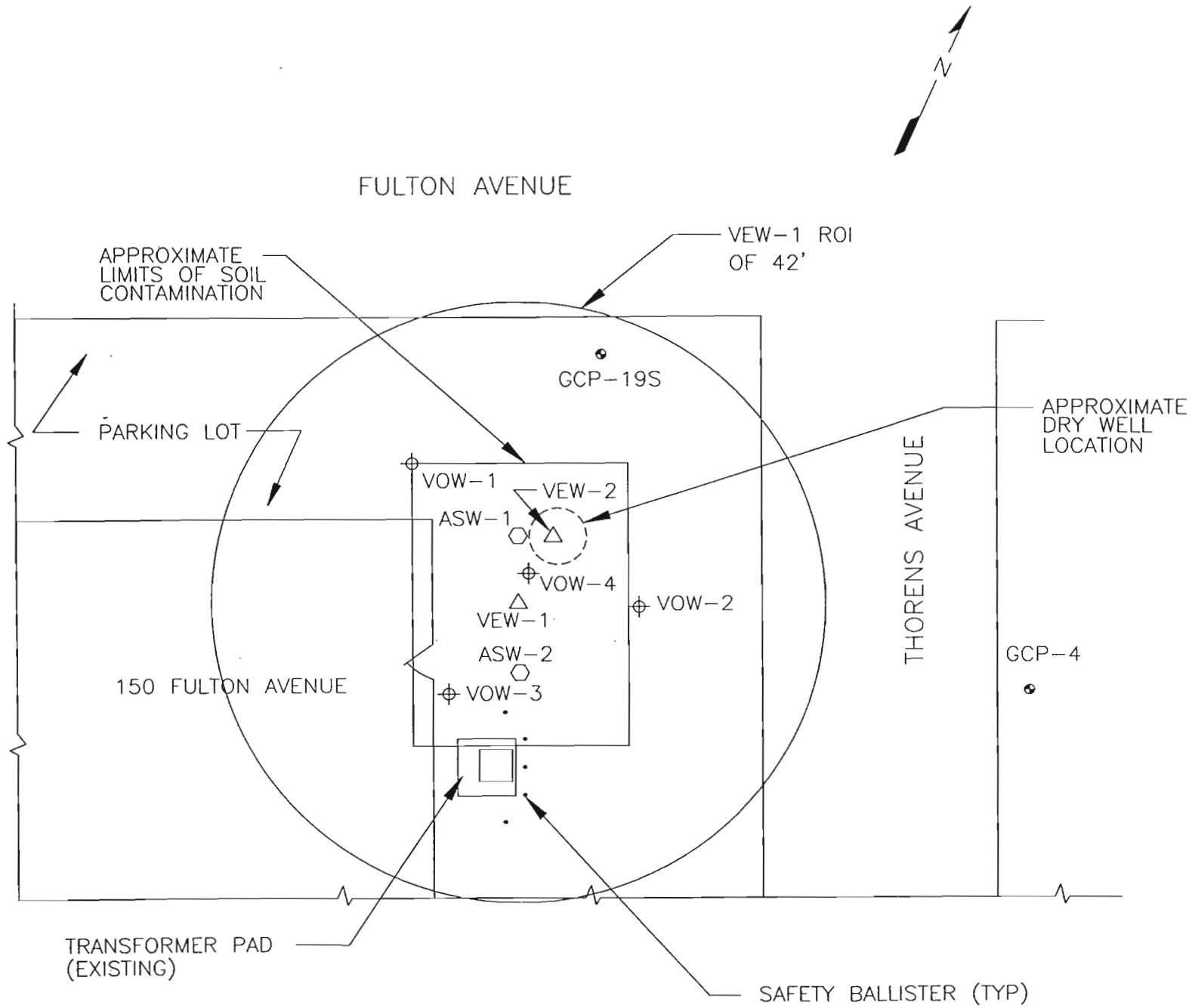
This ROI versus flow rate data is presented graphically in Figure 3-16. When operating at the design flow rate, the ROI exceeds the required 50-foot criteria for safe operation of the air sparge wells. Figure 3-17 presents the 42-foot ROI for operating VEW-1 at 125 scfm. As shown on this figure, the 42-foot ROI is also sufficient for complete coverage of the delineated contamination area and would therefore allow safe operation of the air sparge system.

3.2 *AIR SPARGE TESTING*

Following the confirmation that the pneumatic response is sufficient for safe operation of the air sparge wells, the sparge system was started and ASW-2 was put on-line at a flow rate of 20 scfm. The flow rate was adjusted by throttling the air bleed-off valve. A second condition was then tested with both ASW-1 and ASW-2 operating at 10 scfm each. While the blower is capable of providing 75 scfm, it was decided to bleed off most of this flow because of the high VOC concentrations in the soil

FIGURE 3-16
Flow Rate Versus ROI





LEGEND

VEW-1	△	PROPOSED LOCATION OF VAPOR EXTRACTION WELL
ASW-2	⬡	PROPOSED LOCATION OF AIR SPARGE WELL
VOW-1	⊕	PROPOSED LOCATION OF VAPOR OBSERVATION WELL CLUSTER
GCP-19S	●	GROUND WATER MONITORING WELL LOCATION

ROI RADIUS OF INFLUENCE

NO.	DATE	APPR.	REVISION
NO.	DATE	APPR.	REVISION

GENESCO

AS/SVE SYSTEM-GARDEN CITY,NY

ERM-Northeast
Environmental Resources Management
ERM

STATE OF NEW YORK RUSSELL R. SABIAN LICENSED PROFESSIONAL ENGINEER No. 067[illegible]

SITE PLAN WITH 42-FOOT SVE ROI

FIG.3-17

DRAWN	J.S./G.G.	DATE	12/17/98
CHECKED		JOB NO.	1370.001.1
APPROVED		FILE NAME	13700034
GRAPHIC		REVISION DATE	
		SHEET	OF

Table 3-3
Radius of Influence Summary

Flow Rate, scfm	Radius of Influence, Feet			
	Deep	Intermediate	Shallow	Selected
126	42	41	46	41
69	34	42	26	34
128	44	42	60	42
60	27	42	60	27
250	58	55	130	55

vapor. At both of these operating condition, and at background (prior to sparging), VOC concentrations were monitored via a field meter from each extraction well and the following data was obtained at each monitoring point:

- vacuum/pressure;
- liquid level;
- dissolved oxygen level; and
- VOC concentration via field meter.

The results are presented in Table 3-4. Verification of the air sparge ROI is determined by monitoring the DO levels at the monitoring points. An increase in DO (from background levels) will provide evidence that the air sparge system is achieving the design ROI. As presented in Table 3-4, each monitoring point showed an increase in the D.O. levels.

The only reading where a significant increase in D.O. was not observed was at OW-3 (DO increased from 0.89 mg/L to 1.14 mg/L) when ASW-2 was operating at 20 scfm. This was a curious reading because OW-3 is the closest monitoring point to ASW-2. At the lower flow rate of 10 scfm from each well, the D.O. at OW-3 increased significantly to 3.21 mg/l. This may be the result of the higher flow rate causing the sparge air to spread out beyond OW-3 at a deeper elevation than the screen interval (and therefore below the contaminated zone). At the lower flow, the sparge air would rise through the contaminated zone and, therefore, be more effective.

During the operation of both SVE and air sparge wells, a vacuum was maintained at all OWs, at all three (3) depths. This further confirms that the SVE system is capable of capturing all vapors liberated by air sparging.

Table 3-4 (Page 1 of 2)
Conditions Before and After Sparging

TEST NO. 1

Air Sparge Location:	ASW-2
Air Sparge Pressure (psi):	6.7
Air Sparge Flow (scfm):	20
SVE Well Operating	VEW-1
Flow Rate (scfm)	161

Monitoring Point	Distance From ASW-2 (ft)	Depth to Water (ft)			Dissolved Oxygen (mg/L)		
		Background	After Sparging	Water Table Rise	Background	After Sparging	Increase
OW-1S	31.0	-	-	-	-	-	-
OW-1I	33.6	-	-	-	-	-	-
OW-1D	30.8	48.80	48.60	0.20	3.96	8.56	4.6
OW-2S	16.2	-	-	-	-	-	-
OW-2I	19.5	-	-	-	-	-	-
OW-2D	17.5	49.94	49.74	0.20	0.93	8.90	7.97
OW-3S	9.5	-	-	-	-	-	-
OW-3I	8.0	-	-	-	-	-	-
OW-3D	6.8	48.53	48.50	0.03	0.89	1.14	0.25
OW-4S	14.0	-	-	-	-	-	-
OW-4I	14.8	-	-	-	-	-	-
OW-4D	14.2	49.75	49.38	0.37	0.61	2.25	1.64

Monitoring Point	Distance From ASW-2 (ft)	Pressure (inches w.c.)			VOC (ppmv)		
		Background	After Sparging	Increase	Background	After Sparging	Increase
OW-1S	31.0	-0.22	-0.16	0.06	108	87	-21
OW-1I	33.6	-0.31	-0.23	0.08	800	1150	350
OW-1D	30.8	-0.37	-0.25	0.12	> 2000	> 2000	-
OW-2S	16.2	-0.32	-0.25	0.07	990	640	-350
OW-2I	19.5	-0.37	-0.31	0.06	> 2000	> 2000	-
OW-2D	17.5	-0.43	-0.26	0.17	> 2000	1350	-
OW-3S	9.5	-0.28	-0.22	0.06	748	490	-258
OW-3I	8.0	-0.45	-0.39	0.06	1940	1520	-420
OW-3D	6.8	-0.53	-0.33	0.20	> 2000	> 2000	-
OW-4S	14.0	-0.33	-0.30	0.03	860	770	-90
OW-4I	14.8	-0.65	-0.56	0.09	> 2000	> 2000	-
OW-4D	14.2	-0.75	-0.56	0.19	> 2000	> 2000	-

Table 3-4 (Page 2 of 2)
Conditions Before and After Sparging

TEST NO. 2

ASW-1 Flow (scfm)	10
ASW-1 Pressure (psig)	7.6
ASW-2 Flow (scfm)	10
ASW-2 Pressure (psig)	6.8
VEW-1 Flow (scfm)	137
VEW-2 Flow (scfm)	161

Monitoring Point	Distance From ASW-1 (ft)	Distance From ASW-2 (ft)	Depth to Water (ft)			Dissolved Oxygen (mg/L)		
			Background	After Sparging	Water Table Rise	Background	After Sparging	Increase
OW-1S	5.0	31.0	-	-	-	-	-	-
OW-1I	6.5	33.6	-	-	-	-	-	-
OW-1D	4.5	30.8	48.80	48.88	-0.08	3.96	8.68	4.72
OW-2S	18.0	16.2	-	-	-	-	-	-
OW-2I	19.5	19.5	-	-	-	-	-	-
OW-2D	16.0	17.5	49.94	50.01	-0.07	0.93	9.20	8.27
OW-3S	24.5	9.5	-	-	-	-	-	-
OW-3I	21.5	8.0	-	-	-	-	-	-
OW-3D	22.0	6.8	48.53	48.47	0.06	0.89	3.21	2.32
OW-4S	18.0	14.0	-	-	-	-	-	-
OW-4I	20.5	14.8	-	-	-	-	-	-
OW-4D	16.5	14.2	49.75	49.66	0.09	0.61	3.42	2.81

Monitoring Point	Distance From ASW-1 (ft)	Distance From ASW-2 (ft)	Pressure (inches w.c.)			VOC (ppmv)		
			Background	After Sparging	Increase	Background	After Sparging	Increase
OW-1S		31.0	No reading	-0.43	-	108	No reading	-
OW-1I		33.6	No reading	-0.60	-	800	No reading	-
OW-1D		30.8	No reading	-0.72	-	> 2000	No reading	-
OW-2S		16.2	No reading	-0.56	-	990	No reading	-
OW-2I		19.5	No reading	-0.72	-	> 2000	No reading	-
OW-2D		17.5	No reading	-0.88	-	> 2000	No reading	-
OW-3S		9.5	No reading	-0.46	-	748	No reading	-
OW-3I		8.0	No reading	-0.73	-	1940	No reading	-
OW-3D		6.8	No reading	-0.85	-	> 2000	No reading	-
OW-4S		14.0	No reading	-0.61	-	860	No reading	-
OW-4I		14.8	No reading	-1.40	-	> 2000	No reading	-
OW-4D		14.2	No reading	-1.80	-	> 2000	No reading	-

It appears that the sparge system can effectively influence the entire contaminated area. Because of the high VOC concentrations without air sparging, it is not practical, or necessary, to perform this type of remediation at this time. Therefore, the sparge system can effectively influence the contaminated area but that operation of the sparge system should be delayed until the VOC concentration during SVE alone significantly decrease.

3.3 *VOC MONITORING*

In addition to analyzing several samples with a field organic vapor meter, six (6) samples from each well were sent to a laboratory for analysis via EPA method TO-14. The operating conditions, field organic vapor meter readings, and the analytical results are presented in Table 3-5. One (1) sample of the soil vapor was collected from VEW-1 and VEW-2 during SVE operation only. A sample of the soil vapor was collected from the influent and the effluent of the carbon vessels during air sparging for a few hours. Finally, a sample was collected from the influent and effluent of the carbon vessels after an extended period of SVE.

The VOC data was evaluated to estimate carbon usage rate. Both the field monitoring results and the laboratory data indicate that carbon adsorption was effective in removing VOCs. While the field readings indicated that breakthough of the primary vessel did occur during the testing period, the outlet of the secondary and tertiary vessels always read 0.0 PPMv. The laboratory data indicated that vinyl chloride was below detection limits in all vapor samples. The maximum concentration of each parameter (and the detection limit for vinyl chloride) was used in the evaluation of air emissions, which is presented in Table 3-6. This table provides the results of the NYSDEC risk-screening model. As shown in Table 3-6, the emissions from the carbon adsorption system were well within acceptable

Table 3-5 (Page 1 of 2)
Summary of Field and Laboratory Analyses of VOCs

Date	9/29/98	9/29/98	9/29/98	9/29/98	9/29/98	9/29/98
Time	10:35 AM	10:45 AM	10:55 AM	1:00 PM	1:30 PM	2:30 PM
Condition						
ASW-1 Flow (scfm)	Off	Off	Off	Off	Off	Off
ASW-1 Pressure (psig)	Off	Off	Off	Off	Off	Off
ASW-2 Flow (scfm)	Off	Off	Off	Off	Off	Off
ASW-2 Pressure (psig)	Off	Off	Off	Off	Off	Off
VEW-1 Flow (scfm)	106	126	69	Off	Off	161
VEW-2 Flow (scfm)	Off	Off	Off	60	128	114
Dilution Flow (scfm)	252	206	243	302	257	0
PID (ppmv) at:						
VEW-1	> 6755	> 5270	> 9064	-	-	> 3416
VEW-2	-	-	-	11752	> 6016	> 4828
GAC Inlet	> 2000	> 2000	> 2000	1937	> 2000	> 2000
Outlet of First GAC	0	0	0	0	23	0
Outlet of Second GAC	0	0	0	0	0	0
Effluent	0	0	0	0	0	0
Laboratory Analyses at:						
VEW-1						
Tetrachloroethene (ppmv)	-	-	-	-	-	9200
Trichloroethene (ppmv)	-	-	-	-	-	< 10
total-1,2-Dichloroethene (ppmv)	-	-	-	-	-	< 10
1,1-Dichloroethene (ppmv)	-	-	-	-	-	< 10
Vinyl chloride (ppmv)	-	-	-	-	-	< 10
Chloromethane (ppmv)	-	-	-	-	-	< 10
VEW-2						
Tetrachloroethene (ppmv)	-	-	-	-	-	11000
Trichloroethene (ppmv)	-	-	-	-	-	< 10
total-1,2-Dichloroethene (ppmv)	-	-	-	-	-	< 10
1,1-Dichloroethene (ppmv)	-	-	-	-	-	< 10
Vinyl chloride (ppmv)	-	-	-	-	-	< 10
Chloromethane (ppmv)	-	-	-	-	-	< 10
GAC Inlet						
Tetrachloroethene (ppmv)	-	-	-	-	-	-
Trichloroethene (ppmv)	-	-	-	-	-	-
total-1,2-Dichloroethene (ppmv)	-	-	-	-	-	-
1,1-Dichloroethene (ppmv)	-	-	-	-	-	-
Vinyl chloride (ppmv)	-	-	-	-	-	-
Chloromethane (ppmv)	-	-	-	-	-	-
Effluent						
Tetrachloroethene (ppmv)	-	-	-	-	-	-
Trichloroethene (ppmv)	-	-	-	-	-	-
total-1,2-Dichloroethene (ppmv)	-	-	-	-	-	-
1,1-Dichloroethene (ppmv)	-	-	-	-	-	-
Vinyl chloride (ppmv)	-	-	-	-	-	-
Chloromethane (ppmv)	-	-	-	-	-	-

Notes:
1) Shaded cells indicate estimated values.
2) Analytical samples from 10/1/98 were collected at 11:52 AM.

Table 3-5 (Page 2 of 2)
Summary of Field and Laboratory Analyses of VOCs

Date	9/30/98	9/30/98	9/30/98	10/1/98	10/1/98	10/1/98
Time	9:50 AM	11:30 AM	3:30 PM	10:15 AM	11:15 AM	11:45 AM
Condition						
ASW-1 Flow (scfm)	Off	Off	10	Off	Off	Off
ASW-1 Pressure (psig)	Off	Off	7.6	Off	Off	Off
ASW-2 Flow (scfm)	Off	20	10	Off	Off	Off
ASW-2 Pressure (psig)	Off	7	6.8	Off	Off	Off
VEW-1 Flow (scfm)	67	161	137	125	125	125
VEW-2 Flow (scfm)	Off	Off	161	125	125	125
Dilution Flow (scfm)	289	220	0	0	0	0
PID (ppmv) at:						
VEW-1	10478	> 4742	> 4350	-	-	-
VEW-2	Off	Off	> 3702	-	-	-
GAC Inlet	1960	> 2000	> 2000	9800	6000	7300
Outlet of First GAC	0	0	0	0	0	430
Outlet of Second GAC	0	0	0	0	0	0
Effluent	0	0	0	0	0	0
Laboratory Analyses at:						
VEW-1						
Tetrachloroethene (ppmv)	-	-	-	-	-	-
Trichloroethene (ppmv)	-	-	-	-	-	-
total-1,2-Dichloroethene (ppmv)	-	-	-	-	-	-
1,1-Dichloroethene (ppmv)	-	-	-	-	-	-
Vinyl chloride (ppmv)	-	-	-	-	-	-
Chloromethane (ppmv)	-	-	-	-	-	-
VEW-2						
Tetrachloroethene (ppmv)	-	-	-	-	-	-
Trichloroethene (ppmv)	-	-	-	-	-	-
total-1,2-Dichloroethene (ppmv)	-	-	-	-	-	-
1,1-Dichloroethene (ppmv)	-	-	-	-	-	-
Vinyl chloride (ppmv)	-	-	-	-	-	-
Chloromethane (ppmv)	-	-	-	-	-	-
GAC Inlet						
Tetrachloroethene (ppmv)	-	-	9200	-	-	11000
Trichloroethene (ppmv)	-	-	< 20	-	-	< 20
total-1,2-Dichloroethene (ppmv)	-	-	< 20	-	-	< 20
1,1-Dichloroethene (ppmv)	-	-	< 20	-	-	< 20
Vinyl chloride (ppmv)	-	-	< 20	-	-	< 20
Chloromethane (ppmv)	-	-	< 20	-	-	< 20
Effluent						
Tetrachloroethene (ppmv)	-	-	0.004	-	-	0.200
Trichloroethene (ppmv)	-	-	< 0.001	-	-	< 0.001
total-1,2-Dichloroethene (ppmv)	-	-	< 0.001	-	-	< 0.001
1,1-Dichloroethene (ppmv)	-	-	< 0.001	-	-	< 0.001
Vinyl chloride (ppmv)	-	-	< 0.001	-	-	< 0.001
Chloromethane (ppmv)	-	-	0.022	-	-	0.009

Notes:
1) Shaded cells indicate estimated values.
2) Analytical samples from 10/1/98 were collected at 11:52 AM.

Table 3-6
Air Emissions Evaluation for SVE Off-Gas Based on Field Data
NYSDEC Air Guide-1 Basis

Parameter		CAS No.	MW	Max. Conc. in GAC inlet ppm	ERP lb./hr.	Control Efficiency %	Max. Conc. in GAC outlet ppm	Actual Emiss. lb./hr.	Maximum Annual Impact			Maximum Short-Term Impact		
									Conc. ug/m3	Standard ug/m3	Exceedance (Y or N)	Conc. ug/m3	Standard ug/m3	Exceedance (Y or N)
Air flow rate, scfm	300													
Annual hours of operation	8760													
Emission Stack Height, ft.	35													
VOCs:														
Tetrachloroethene		00127-18-4	165.83	11,000	8.64E+01	99.998%	0.200	1.57E-03	2.77E-02	7.50E-02	N	1.80E+00	8.10E+04	N
Chloromethane		00074-87-3	50.49	0.022	5.26E-05	0.000%	0.022	5.26E-05	9.28E-04	7.70E+02	N	6.03E-02	2.20E+04	N
Vinyl Chloride		00075-01-4	62.5	0.001	2.96E-06	0.000%	0.001	2.96E-06	5.22E-05	2.00E-02	N	3.39E-03	1300	N
Total VOCs					8.64E+01		0.22	1.63E-03						

Notes:
As per New York State Air Guide-1:
Maximum annual concentration calculated as follows: C = (52,500) * (Mass (lbs./hr.))/(Stack Height (ft.)^2.25)
Maximum short-term concentration calculated as follows: C = (65) * (maximum annual concentration)
Standards for maximum annual and maximum short-term concentrations are from Air Guide-1
Vinyl chloride was not detected but for evaluation purposes, the detection level was used as the carbon inlet and outlet concentration.
For chloromethane, it was assumed that the carbon inlet concentration is the same as the carbon outlet concentration.

limits. It is therefore concluded that carbon is an appropriate air emission control technology for this application.

The calculated mass rate of VOCs into the carbon vessels is also included in Table 3-6. As indicated in this table, the average mass rate into the carbon vessel is 86 pounds per hour at design flow conditions. At the concentrations at the carbon influent, the estimated loading efficiency is 70%, and the carbon usage rate is 123 pounds per hour. At this usage rate, one (1) 140-pound canister can operate for 1.14 hours. During this pilot testing, a total of three (3) carbon canisters, containing 140 pounds each, were fully loaded. It is estimated that the total mass of PCE adsorbed is, therefore, as high as 290 pounds.

To reduce the carbon change-out frequency during routine operations, larger vessels will be used during routine operations. This is discussed is Section 4.3.

4.0 *OPERATIONS PLAN*

As discussed in Section 3, the VOC concentration in the extracted soil vapor during the startup testing has been found to be about 10,000 PPMv. Because of the high VOC concentration, the system will initially be operated with SVE only. Operation will continue in this mode until the VOC concentration in each of the two extraction wells is below 500 PPMv. At this time, the air sparge system may be started. During combined SVE/air sparging, the SVE system will be operated with no dilution air to achieve the design condition of 250 scfm, combined from both extraction wells. As demonstrated in the startup testing, this will provide pneumatic control of the sparge vapors. Should sparging cause the VOC concentration in the extracted vapors to exceed 1,000 PPMv, the sparge flow rate will be decreased. Performance monitoring will be done as described below to ensure that the system is operated in a safe manner while striving to optimize the remedial effectiveness.

4.1 *PERFORMANCE MONITORING*

The system will be monitored on at least a weekly basis by an operator familiar with the operation and monitoring requirements of air sparge/soil vapor extraction systems. On a weekly basis, the following data will be obtained:

- flow rate to each sparge well
- pressure to each sparge well
- flow rate from each extraction well
- vacuum from each extraction well
- VOC concentration via field meter from each extraction well and at the carbon inlet, intermediate and outlet

For each sparge and extraction well, the flow rate is measured by the use permanently installed flow averaging annubars and differential pressure

gauges, and the pressure or vacuum is measured by permanently installed gauges.

VOC concentration will be measured by the use of a PID portable organic vapor meter. For the carbon inlet, intermediate and outlet, the vapor stream is under a slight pressure and therefore, the PID can be inserted in the sample valve to obtain a reading. For the SVE wells, a sample pump will be use to fill a tedlar bag and the PID will then be inserted in the tedlar bag port. In some cases, such as when the VOC concentration from the extraction wells exceed the range of the PID, then an estimate will be obtained by isolating one well at a time and introducing dilution air until the blower outlet can be measured with the PID. Flow measurements of soil vapor and dilution air would then be used to calculate the dilution factor and estimate the dilution factor, which is then used to estimate the concentration from the extraction wells.

Vapor sampling of the carbon inlet and outlet with analysis per EPA method TO-14 will supplement the VOC monitoring discussed above. Sampling in this manner will always be accompanied by field PID measurements of the carbon inlet and outlet, as well as for each extraction well. This will allow the laboratory results to be correlated to the PID reading, which will allow an estimate of the VOC concentration from each extraction well. Sampling with laboratory analysis will be collected monthly for the first quarter and then quarterly thereafter.

On at least a quarterly basis during combined air sparge/SVE, the following will be measured at each observation well: pneumatic response, liquid level, dissolved oxygen level, and VOC concentration via field PID readings.

Ground water samples will also be collected from the four deep observation wells and will be analyzed by a laboratory for VOC's via

Method 601. This will be done on a quarterly basis for at least the first two quarters, and semi-annually for the remainder of the air sparge/SVE operation.

The operator will make the appropriate adjustments to the system to optimize performance and will schedule carbon replacement based on VOC monitoring data. The operator will be on-site to supervise carbon change-outs and will ensure proper management of condensate and discussed in the following sections.

4.2 *CONDENSATE MANAGEMENT*

Condensate is expected to be generated during the winter months at a rate of 0 to 3 gallons per day. By sloping the pipes towards the wells and insulating the piping prior to the blower, the volume would be minimized. During the weekly visits, if significant amounts of condensate has accumulated in the moisture separator, it will be transferred to a 55-gallon drum and stored on-site. Once a drum has been filled, it will be characterized for disposal and then shipped off-site for disposal in accordance with all federal, state and local regulations

4.3 *CARBON ABSORPTION OPERATION AND CHANGE-OUT*

Because of the high initial VOC concentration, the carbon adsoption system consists of three 2,000-pound vessels connected in series. When the primary vessel becomes saturated with VOCs, breakthrough occurs, which allows VOCs to pass through the primary vessel. The system can continue to operate with the secondary and tertiary vessel preventing VOCs from being emitted at levels above permit limits. Once breakthrough of the primary vessel is detected, as determined by the use of a portable organic vapor meter, arrangements will be made to replace

the spent carbon. The vessel with the fresh carbon will always serve as the last in-series vessel.

The spent carbon will be sent to EnviroTrol, Inc., in Darlington, Pennsylvania, for regeneration. The entire vessel containing spent carbon will be shipped to the EnviroTrol Facility, where the carbon will be removed from the vessels, regenerated, and placed back into the vessels. The vessels containing the regenerated carbon will be shipped back to the site for reuse. The material will be handled in accordance with local, state and federal regulations.

Once the VOC concentration from each of the two extraction wells has decreased to 1,000 PPMv or less, the system will be allowed to operate with two 2000-pound vessels in-series. If the system is operating with three in-series, operation may continue until breakthrough of the second vessel in-series occurs. This still provides a backup 2000-pound vessel.

APPENDIX A

Model Results for Air Emissions Risk Screening

Section IV - Point Source Method - For Stacks Less Than GEP

Use this method only if the stack height to building height ratio is less than 2.5, but is equal to or greater than 1.5 (plume rise takes into account the effects of momentum).

Emission Point

h_b - building height (ft)	20	
h_s - stack height (ft)	35	
h_s / h_b	1.75	
V - exit velocity (ft/sec)	1273.2	V = Zero for horizontally released, capped or goosenecked stacks.
R - stack outlet radius (ft)	0.25	
T - stack exit temperature (R)	520	R = °F + 460
F_m - momentum flux (ft^4/sec^2) =	99372.70	
h_e - effective stack height	85.95	

Contaminant	CAS Number	Q (lb/hr)	Q_a (lb/yr)	C_a (µg/m³)	C_p (µg/m³)	C_{st} (µg/m³)	Reduced C_a (µg/m³)	Reduced C_p (µg/m³)	Reduced C_{st} (µg/m³)	AGC (µg/m³)	SGC (µg/m³)
Tetrachloroethene	00127-18-4	0.0428	375	0.10	0.10	6.49	0.08	0.0749	4.87	0.0750	81,000
Trichloroethene	00079-01-6	0.2565	2247	0.60	0.60	38.91	0.45	0.449	29.19	0.45	33,000
total-1,2-Dichloroethene	00540-59-0	1084	9495840	2532.95	2530.05	164453.50	1899.71	1897.540	123340.12	1,900	190,000
1,1-Dichloroethene	00075-35-4	0.0113	98.988	0.03	0.03	1.71	0.02	0.020	1.29	0.020	2,000
Vinyl Chloride	00075-01-4	0.0113	98.988	0.03	0.03	1.71	0.02	0.020	1.29	0.020	1,300

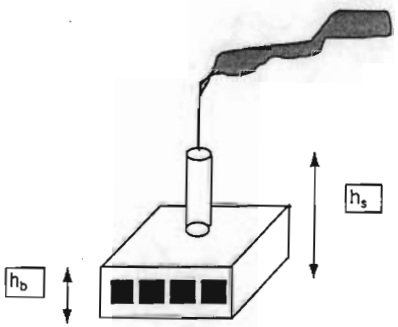
Note: Input values only into gray cells. *Compare AGC and SGC values to reduced parameters only.*

Equations Used For Airguide-1 Calculations

Momentum Flux
$F_m (ft^4/sec^2) = (T_a/T) (V^2) (R^2)$
where T_a is ambient temperature (510R)

Effective Stack Height
$h_e (ft) = h_s + (1.1) (F_m)^{1/3}$

Maximum Actual Annual Impact
$C_a (\mu g/m^3) = (6.0 * Q_a)/(h_e^{2.25})$
where Q_a is in lbs/yr and h_e is in feet



Maximum Potential Annual Impact
$C_p (\mu g/m^3) = (52500 * Q)/(h_e^{2.25})$
where Q is lbs/hr and h_e is in feet

Maximum Short Term Impact
$C_{st} (\mu g/m^3) = C_p * 65$

A reduction by a factor of 0.75 is given if (h_s/h_b) is greater than 1.5, but less than 2.5.

Section IV - Point Source Method - For Stacks Less Than GEP

Use this method only if the stack height to building height ratio is less than 2.5, but is equal to or greater than 1.5 (plume rise takes into account the effects of momentum).

Emission Point

h_b - building height (ft)	20	
h_s - stack height (ft)	35	
h_s / h_b	1.75	
V - exit velocity (ft/sec)	1273.2	V = Zero for horizontally released, capped or goosenecked stacks.
R - stack outlet radius (ft)	0.25	
T - stack exit temperature (R)	520	R = °F + 460
F_m - momentum flux (ft^4/sec^2) =	99372.70	
h_e - effective stack height	85.95	

Contaminant	CAS Number	Q (lb/hr)	Q_a (lb/yr)	C_a (µg/m³)	C_p (µg/m³)	C_{st} (µg/m³)	Reduced C_a (µg/m³)	Reduced C_p (µg/m³)	Reduced C_{st} (µg/m³)	AGC (µg/m³)	SGC (µg/m³)
Tetrachloroethene	00127-18-4	711.88	6236069	1663.43	1661.53	107999.22	1247.57	1246.1449	80999.42	0.0750	81,000
Trichloroethene	00079-01-6	290.02	2540575.2	677.68	676.91	43998.90	508.26	507.680	32999.17	0.45	33,000
total-1,2-Dichloroethene	00540-59-0	1669.85	14627886	3901.88	3897.43	253332.73	2926.41	2923.070	189999.54	1,900	190,000
1,1-Dichloroethene	00075-35-4	17.57	153913.2	41.06	41.01	2665.54	30.79	30.756	1999.16	0.020	2,000
Vinyl Chloride	00075-01-4	17.57	153913.2	41.06	41.01	2665.54	30.79	30.756	1999.16	0.020	1,300

Note: Input values only into gray cells. *Compare AGC and SGC values to reduced parameters only.*

Equations Used For Airguide-1 Calculations

Momentum Flux

$F_m (ft^4/sec^2) = (T_a/T) (V^2) (R^2)$

where T_a is ambient temperature (510R)

Effective Stack Height

$h_e (ft) = h_s + (1.1) (F_m)^{1/3}$

Maximum Actual Annual Impact

$C_a (\mu g/m^3) = (6.0 * Q_a)/(h_e^{2.25})$

where Q_a is in lbs/yr and h_e is in feet

Maximum Potential Annual Impact

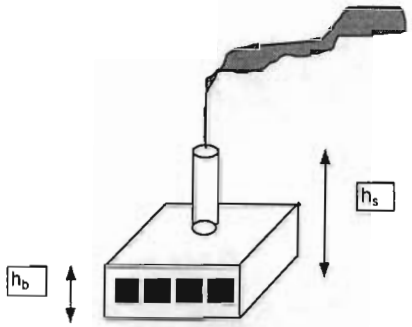
$C_p (\mu g/m^3) = (52500 * Q)/(h_e^{2.25})$

where Q is lbs/hr and h_e is in feet

Maximum Short Term Impact

$C_{st} (\mu g/m^3) = C_p * 65$

A reduction by a factor of 0.75 is given if (h_s/h_b) is greater than 1.5, but less than 2.5.



APPENDIX B

Analytical Data Validation Reports

DATA VALIDATION REVIEW
GROUND WATER SAMPLE ANALYSIS
GENESCO INC.
GARDEN CITY PARK, NEW YORK
ENVIRONMENTAL RESOURCES MANAGEMENT (ERM)
PROJECT NUMBER 1370.003.001
H2M LABORATORIES, INC. SDG NUMBER ERM004

Deliverables:

The above referenced sample data package for five ground water samples, one field blank and one trip blank contains all required deliverables as stipulated under the 1995 New York State Analytical Services Protocols (ASP) Category A deliverables for Volatile Organic Compounds (VOC), analyses performed by United States Environmental Protection Agency (USEPA) Method 601 (purgeable halocarbons). The data have been validated to the extent possible given the reduced deliverables, according to the protocols and QC requirements of the ASP, the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (February 1994) and the reviewer's professional judgment.

This validation report pertains to the following samples:

Samples	*QC Samples*
VOW-1D	FIELD BLANK
VOW-2D	TB
VOW-3D	
VOW-4D	
VOW-5D	

The following items/criteria were reviewed:

- Quantitation/detection limits
- Holding times
- Field and trip blank data
- Case narrative and deliverables compliance

The items listed above were in compliance with USEPA CLP and NYSDEC ASP protocols with exceptions discussed in the text below based on the review of the limited amount of QC information supplied in a Category A data package. The laboratory's case narrative has been relied upon for information pertinent to the quality of the data that could not otherwise be obtained. The data have been validated according to the procedures outlined above and qualified accordingly.

- Samples VOW-1D, VOW-2D, VOW-3D, VOW-4D and VOW-5D were reanalyzed at dilutions due to the concentration of Tetrachloroethene exceeding the calibration range of the instrument. The initial analyses of these samples should be used for all target compound results except Tetrachloroethene. The diluted analysis results should be used for Tetrachloroethene only.

Package Summary:

All data are valid and usable with qualifications as noted in this review.

Signed: _____ Dated: 4 December 1998
Andrew J. Coenen
Environmental Chemist

Reviewed: _____ Dated: 12/4/98
Douglas A. Wolf, P.G.
Manager, Data Quality Assurance

H2M LABS, INC.

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

№ 10460

EXTERNAL CHAIN OF CUSTODY

CLIENT: ERM

H2M SDG NO: 004

PROJECT NAME/NUMBER: E Fulton Ave

SAMPLERS: (signature)/Client: Gregory W Dunn

DELIVERABLES: B5-10

TURNAROUND TIME: 21 DAY Pkg

NOTES: GW
601
Requested Batch Run MS/MSD
Per Raven Cavanaugh ~~H2M~~ CWI

Project Contact: Chris Wenczel

Phone Number: 516 921-4300

DATE	TIME	MATRIX	FIELD I.D.	Total No. of Containers	Sample Container Description	ANALYSIS REQUESTED: ORGANIC VOA	ORGANIC BNA	ORGANIC Pest/PCB	INORG. Metal	INORG. CN	LAB I.D. NO.	REMARKS:
~~9/8/98~~		H_2O		4	40ml vial	4						MS/MSD CWI
	1402		VOW-1D	2		2					9829106	601
	1237		VOW-2D								107	
	1148		VOW-3D								108	
	1523		VOW-4D								109	
	1307		VOW-5D								110	
	1513		Field Blank								111	
			TB								112	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	9/8/98	9:30	Gregory W Dunn	9/8/98	8:30
Gregory W Dunn	9/8/98	17:50			
			[signature]	9/8/98	18:50

8000

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or N
Explain:

Samples were:
1. Shipped ___ or Hand Delivered ✓ Airbill# _____
2. Ambient ~~or chilled~~ 6.6°C
3. Received in good condition: Y or N
4. Properly preserved: Y or N
5. Samples returned to lab ___ Hrs from collection.

COC Tape was:
1. Present on outer package: Y or N
2. Unbroken on outer package: Y or N
3. COC record present & complete upon sample receipt: Y or N

WHITE COPY - ORIGINAL YELLOW COPY - CLIENT PINK COPY - LABORATORY

VOLATILE ORGANICS ANALYSIS DATA SHEET

H2M LABS, INC.

SAMPLE NO. VOW-1D

CONTRACT:_____ LAB CODE:_____ CASE NO:_____

SAS NO:_____ SDG NO: ERM 004 LAB SAMPLE ID: 9829106

LAB FILE ID: 747 MATRIX: WATER COLUMN ID:(CAP) Rtx 502.2

SAMPLE VOL: 5ml DILUTION FACTOR: 1

DATE RECEIVED: 9/8/98 DATE ANALYZED: 9/16/98

CAS. NO.	COMPOUND	CONC. UNITS (ug/L)	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-69-4	Fluorotrichloromethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
79-01-6	Trichloroethene	11	
78-87-5	1,2-Dichloropropane	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1000	E
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
541-73-1	m-Dichlorobenzene	1	U
106-46-7	p-Dichlorobenzene	1	U
95-50-1	o-Dichlorobenzene	1	U

use result from diluted analysis for this compound.

VOLATILE ORGANICS ANALYSIS DATA SHEET

H2M LABS, INC.

SAMPLE NO. VOW-1D/DL

CONTRACT:_____ LAB CODE:_____ CASE NO:_____

SAS NO:_____ SDG NO: ERM 004 LAB SAMPLE ID: 9829106/DL

LAB FILE ID: 763 MATRIX: WATER COLUMN ID:(CAP) Rtx 502.2

SAMPLE VOL: 5ml DILUTION FACTOR: 100

DATE RECEIVED: 9/8/98 DATE ANALYZED: 9/18/98

CAS. NO.	COMPOUND	CONC. UNITS (ug/L)	Q
75-71-8	Dichlorodifluoromethane	100	U
74-87-3	Chloromethane	100	U
75-01-4	Vinyl Chloride	100	U
74-83-9	Bromomethane	100	U
75-00-3	Chloroethane	100	U
75-69-4	Fluorotrichloromethane	100	U
75-35-4	1,1-Dichloroethene	100	U
75-09-2	Methylene Chloride	100	U
156-60-5	trans-1,2-Dichloroethene	100	U
75-34-3	1,1-Dichloroethane	100	U
67-66-3	Chloroform	100	U
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	100	U
107-06-2	1,2-Dichloroethane	100	U
79-01-6	Trichloroethene	100	U
78-87-5	1,2-Dichloropropane	100	U
75-27-4	Bromodichloromethane	100	U
10061-01-5	cis-1,3-Dichloropropene	100	U
10061-02-6	trans-1,3-Dichloropropene	100	U
79-00-5	1,1,2-Trichloroethane	100	U
127-18-4	Tetrachloroethene	7500	D
124-48-1	Dibromochloromethane	100	U
108-90-7	Chlorobenzene	100	U
75-25-2	Bromoform	100	U
79-34-5	1,1,2,2-Tetrachloroethane	100	U
541-73-1	m-Dichlorobenzene	100	U
106-46-7	p-Dichlorobenzene	100	U
95-50-1	o-Dichlorobenzene	100	U

use this result only.

A

VOLATILE ORGANICS ANALYSIS DATA SHEET

H2M LABS, INC.

SAMPLE NO. VOW-2D

CONTRACT:_____ LAB CODE:_____ CASE NO:_____

SAS NO:_____ SDG NO: ERM 004 LAB SAMPLE ID: 9829107

LAB FILE ID: 748 MATRIX: WATER COLUMN ID:(CAP) Rtx 502.2

SAMPLE VOL: 5ml DILUTION FACTOR: 1

DATE RECEIVED: 9/8/98 DATE ANALYZED: 9/16/98

CAS. NO.	COMPOUND	CONC. UNITS (ug/L)	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-69-4	Fluorotrichloromethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
79-01-6	Trichloroethene	6	
78-87-5	1,2-Dichloropropane	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1000	E
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
541-73-1	m-Dichlorobenzene	1	U
106-46-7	p-Dichlorobenzene	1	U
95-50-1	o-Dichlorobenzene	1	U

Use result from diluted analysis for this compound

VOLATILE ORGANICS ANALYSIS DATA SHEET

H2M LABS, INC.

SAMPLE NO. VOW-2D/DL

CONTRACT:_____ LAB CODE:_____ CASE NO:_____

SAS NO:_____ SDG NO: ERM 004 LAB SAMPLE ID: 9829107/DL

LAB FILE ID: 764 MATRIX: WATER COLUMN ID:(CAP) Rtx 502.2

SAMPLE VOL: 5ml DILUTION FACTOR: 100

DATE RECEIVED: 9/8/98 DATE ANALYZED: 9/18/98

CAS. NO.	COMPOUND	CONC. UNITS (ug/L)	Q
75-71-8	Dichlorodifluoromethane	100	U
74-87-3	Chloromethane	100	U
75-01-4	Vinyl Chloride	100	U
74-83-9	Bromomethane	100	U
75-00-3	Chloroethane	100	U
75-69-4	Fluorotrichloromethane	100	U
75-35-4	1,1-Dichloroethene	100	U
75-09-2	Methylene Chloride	100	U
156-60-5	trans-1,2-Dichloroethene	100	U
75-34-3	1,1-Dichloroethane	100	U
67-66-3	Chloroform	100	U
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	100	U
107-06-2	1,2-Dichloroethane	100	U
79-01-6	Trichloroethene	100	U
78-87-5	1,2-Dichloropropane	100	U
75-27-4	Bromodichloromethane	100	U
10061-01-5	cis-1,3-Dichloropropene	100	U
10061-02-6	trans-1,3-Dichloropropene	100	U
79-00-5	1,1,2-Trichloroethane	100	U
127-18-4	Tetrachloroethene	4700	D
124-48-1	Dibromochloromethane	100	U
108-90-7	Chlorobenzene	100	U
75-25-2	Bromoform	100	U
79-34-5	1,1,2,2-Tetrachloroethane	100	U
541-73-1	m-Dichlorobenzene	100	U
106-46-7	p-Dichlorobenzene	100	U
95-50-1	o-Dichlorobenzene	100	U

use this result only

A 0017

VOLATILE ORGANICS ANALYSIS DATA SHEET

H2M LABS, INC.

SAMPLE NO. VOW-3D

CONTRACT:_____ LAB CODE:_____ CASE NO:_____

SAS NO:_____ SDG NO: ERM 004 LAB SAMPLE ID: 9829108

LAB FILE ID: 749 MATRIX: WATER COLUMN ID:(CAP) Rtx 502.2

SAMPLE VOL: 5ml DILUTION FACTOR: 1

DATE RECEIVED: 9/8/98 DATE ANALYZED: 9/16/98

CAS. NO.	COMPOUND	CONC. UNITS (ug/L)	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-69-4	Fluorotrichloromethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	
71-55-6	1,1,1-Trichloroethane	1	
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
79-01-6	Trichloroethene	61	
78-87-5	1,2-Dichloropropane	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1000	E
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
541-73-1	m-Dichlorobenzene	1	U
106-46-7	p-Dichlorobenzene	1	U
95-50-1	o-Dichlorobenzene	1	U

use result from diluted analysis for this compound.

A 0018

VOLATILE ORGANICS ANALYSIS DATA SHEET

H2M LABS, INC.

SAMPLE NO. VOW-3D/DL

CONTRACT:_____ LAB CODE:_____ CASE NO:_____

SAS NO:_____ SDG NO: ERM 004 LAB SAMPLE ID: 9829108/DL

LAB FILE ID: 765 MATRIX: WATER COLUMN ID:(CAP) Rtx 502.2

SAMPLE VOL: 5ml DILUTION FACTOR: 200

DATE RECEIVED: 9/8/98 DATE ANALYZED: 9/18/98

CAS. NO.	COMPOUND	CONC. UNITS (ug/L)	Q
75-71-8	Dichlorodifluoromethane	200	U
74-87-3	Chloromethane	200	U
75-01-4	Vinyl Chloride	200	U
74-83-9	Bromomethane	200	U
75-00-3	Chloroethane	200	U
75-69-4	Fluorotrichloromethane	200	U
75-35-4	1,1-Dichloroethene	200	U
75-09-2	Methylene Chloride	200	U
156-60-5	trans-1,2-Dichloroethene	200	U
75-34-3	1,1-Dichloroethane	200	U
67-66-3	Chloroform	200	U
71-55-6	1,1,1-Trichloroethane	200	U
56-23-5	Carbon Tetrachloride	200	U
107-06-2	1,2-Dichloroethane	200	U
79-01-6	Trichloroethene	200	U
78-87-5	1,2-Dichloropropane	200	U
75-27-4	Bromodichloromethane	200	U
10061-01-5	cis-1,3-Dichloropropene	200	U
10061-02-6	trans-1,3-Dichloropropene	200	U
79-00-5	1,1,2-Trichloroethane	200	U
127-18-4	Tetrachloroethene	23000	D
124-48-1	Dibromochloromethane	200	U
108-90-7	Chlorobenzene	200	U
75-25-2	Bromoform	200	U
79-34-5	1,1,2,2-Tetrachloroethane	200	U
541-73-1	m-Dichlorobenzene	200	U
106-46-7	p-Dichlorobenzene	200	U
95-50-1	o-Dichlorobenzene	200	U

use this result only

A 0019

VOLATILE ORGANICS ANALYSIS DATA SHEET

H2M LABS, INC.

SAMPLE NO. VOW-4D

CONTRACT:_____ LAB CODE:_____ CASE NO:_____

SAS NO:_____ SDG NO: ERM 004 LAB SAMPLE ID: 9829109

LAB FILE ID: 751 MATRIX: WATER COLUMN ID:(CAP) Rtx 502.2

SAMPLE VOL: 5ml DILUTION FACTOR: 1

DATE RECEIVED: 9/8/98 DATE ANALYZED: 9/16/98

CAS. NO.	COMPOUND	CONC. UNITS (ug/L)	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-69-4	Fluorotrichloromethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
79-01-6	Trichloroethene	83	
78-87-5	1,2-Dichloropropane	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1000	E
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
541-73-1	m-Dichlorobenzene	1	U
106-46-7	p-Dichlorobenzene	1	U
95-50-1	o-Dichlorobenzene	1	U

use result from diluted analysis for this compound.

A 0020

VOLATILE ORGANICS ANALYSIS DATA SHEET

H2M LABS, INC.

SAMPLE NO. VOW-4D/DL

CONTRACT:_____ LAB CODE:_____ CASE NO:_____

SAS NO:_____ SDG NO: ERM 004 LAB SAMPLE ID: 9829109/DL

LAB FILE ID: 766 MATRIX: WATER COLUMN ID:(CAP) Rtx 502.2

SAMPLE VOL: 5ml DILUTION FACTOR: 200

DATE RECEIVED: 9/8/98 DATE ANALYZED: 9/18/98

CAS. NO.	COMPOUND	CONC. UNITS (ug/L)	Q
75-71-8	Dichlorodifluoromethane	200	U
74-87-3	Chloromethane	200	U
75-01-4	Vinyl Chloride	200	U
74-83-9	Bromomethane	200	U
75-00-3	Chloroethane	200	U
75-69-4	Fluorotrichloromethane	200	U
75-35-4	1,1-Dichloroethene	200	U
75-09-2	Methylene Chloride	200	U
156-60-5	trans-1,2-Dichloroethene	200	U
75-34-3	1,1-Dichloroethane	200	U
67-66-3	Chloroform	200	U
71-55-6	1,1,1-Trichloroethane	200	U
56-23-5	Carbon Tetrachloride	200	U
107-06-2	1,2-Dichloroethane	200	U
79-01-6	Trichloroethene	200	U
78-87-5	1,2-Dichloropropane	200	U
75-27-4	Bromodichloromethane	200	U
10061-01-5	cis-1,3-Dichloropropene	200	U
10061-02-6	trans-1,3-Dichloropropene	200	U
79-00-5	1,1,2-Trichloroethane	200	U
127-18-4	Tetrachloroethene	45000	D
124-48-1	Dibromochloromethane	200	U
108-90-7	Chlorobenzene	200	U
75-25-2	Bromoform	200	U
79-34-5	1,1,2,2-Tetrachloroethane	200	U
541-73-1	m-Dichlorobenzene	200	U
106-46-7	p-Dichlorobenzene	200	U
95-50-1	o-Dichlorobenzene	200	U

Use this result only

A 0021

VOLATILE ORGANICS ANALYSIS DATA SHEET

H2M LABS, INC.

SAMPLE NO. VOW-5D

CONTRACT:_____ LAB CODE:_____ CASE NO:_____

SAS NO:_____ SDG NO: ERM 004 LAB SAMPLE ID: 9829110

LAB FILE ID: 752 MATRIX: WATER COLUMN ID:(CAP) Rtx 502.2

SAMPLE VOL: 5ml DILUTION FACTOR: 1

DATE RECEIVED: 9/8/98 DATE ANALYZED: 9/16/98

CAS. NO.	COMPOUND	CONC. UNITS (ug/L)	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-69-4	Fluorotrichloromethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
79-01-6	Trichloroethene	6	
78-87-5	1,2-Dichloropropane	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1000	E
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
541-73-1	m-Dichlorobenzene	1	U
106-46-7	p-Dichlorobenzene	1	U
95-50-1	o-Dichlorobenzene	1	U

use result from diluted analysis only.

A 0022

VOLATILE ORGANICS ANALYSIS DATA SHEET

H2M LABS, INC.

SAMPLE NO. VOW-5D/DL

CONTRACT:_____ LAB CODE:_____ CASE NO:_____

SAS NO:_____ SDG NO: ERM 004 LAB SAMPLE ID: 9829110/DL

LAB FILE ID: 767 MATRIX: WATER COLUMN ID:(CAP) Rtx 502.2

SAMPLE VOL: 5ml DILUTION FACTOR: 100

DATE RECEIVED: 9/8/98 DATE ANALYZED: 9/18/98

CAS. NO.	COMPOUND	CONC. UNITS (ug/L)	Q
75-71-8	Dichlorodifluoromethane	100	U
74-87-3	Chloromethane	100	U
75-01-4	Vinyl Chloride	100	U
74-83-9	Bromomethane	100	U
75-00-3	Chloroethane	100	U
75-69-4	Fluorotrichloromethane	100	U
75-35-4	1,1-Dichloroethene	100	U
75-09-2	Methylene Chloride	100	U
156-60-5	trans-1,2-Dichloroethene	100	U
75-34-3	1,1-Dichloroethane	100	U
67-66-3	Chloroform	100	U
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	100	U
107-06-2	1,2-Dichloroethane	100	U
79-01-6	Trichloroethene	100	U
78-87-5	1,2-Dichloropropane	100	U
75-27-4	Bromodichloromethane	100	U
10061-01-5	cis-1,3-Dichloropropene	100	U
10061-02-6	trans-1,3-Dichloropropene	100	U
79-00-5	1,1,2-Trichloroethane	100	U
127-18-4	Tetrachloroethene	5200	D
124-48-1	Dibromochloromethane	100	U
108-90-7	Chlorobenzene	100	U
75-25-2	Bromoform	100	U
79-34-5	1,1,2,2-Tetrachloroethane	100	U
541-73-1	m-Dichlorobenzene	100	U
106-46-7	p-Dichlorobenzene	100	U
95-50-1	o-Dichlorobenzene	100	U

use this result only

A 0023

VOLATILE ORGANICS ANALYSIS DATA SHEET

H2M LABS, INC.

SAMPLE NO. FIELD BLANK

CONTRACT:_____ LAB CODE:_____ CASE NO:_____

SAS NO:_____ SDG NO: ERM 004 LAB SAMPLE ID: 9829111

LAB FILE ID: 768 MATRIX: WATER COLUMN ID:(CAP) Rtx 502.2

SAMPLE VOL: 5ml DILUTION FACTOR: 1

DATE RECEIVED: 9/8/98 DATE ANALYZED: 9/18/98

CAS. NO.	COMPOUND	CONC. UNITS (ug/L)	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-69-4	Fluorotrichloromethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
79-01-6	Trichloroethene	1	U
78-87-5	1,2-Dichloropropane	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
541-73-1	m-Dichlorobenzene	1	U
106-46-7	p-Dichlorobenzene	1	U
95-50-1	o-Dichlorobenzene	1	U

A 0024

VOLATILE ORGANICS ANALYSIS DATA SHEET

H2M LABS, INC.

SAMPLE NO. TRIP BLANK

CONTRACT:_____ LAB CODE:_____ CASE NO:_____

SAS NO:_____ SDG NO: ERM 004 LAB SAMPLE ID: 9829112

LAB FILE ID: 769 MATRIX: WATER COLUMN ID:(CAP) Rtx 502.2

SAMPLE VOL: 5ml DILUTION FACTOR: 1

DATE RECEIVED: 9/8/98 DATE ANALYZED: 9/18/98

CAS. NO.	COMPOUND	CONC. UNITS (ug/L)	Q
75-71-8	Dichlorodifluoromethane	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-69-4	Fluorotrichloromethane	1	U
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	1	U
156-60-5	trans-1,2-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
79-01-6	Trichloroethene	1	U
78-87-5	1,2-Dichloropropane	1	U
75-27-4	Bromodichloromethane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
541-73-1	m-Dichlorobenzene	1	U
106-46-7	p-Dichlorobenzene	1	U
95-50-1	o-Dichlorobenzene	1	U

A 0025

DATA VALIDATION REVIEW
SOIL SAMPLE ANALYSIS
GENESCO INC.
GARDEN CITY PARK, NEW YORK
ENVIRONMENTAL RESOURCES MANAGEMENT (ERM)
PROJECT NO. 1370.001.02
H2M LABORATORIES, INC. SDG NO. ERM003

Deliverables:

The above referenced data summary package and sample data package for eighteen soil samples and three field blanks contains all required deliverables as stipulated under the 1995 New York State Analytical Services Protocol (ASP) Superfund category for Target Compound List (TCL) Volatile Organic Compounds (VOC) performed by NYSDEC ASP Method 95-1. The data have been validated in accordance with the QC requirements of the ASP, the USEPA National Functional Guidelines for Organic Data Review (February 1994) and the validator's professional judgment.

This validation report pertains to the following samples:

Samples		*QC Samples*
DW-1	1370-ASW-2-SS-35	1370-VEW-2-SS-50 MS/MSD
DW-2	1370-ASW-2-SS-45	1370-FB817
DW-6	1370-ASW-2-SS-55	1370-FB818
1370-VEW-1-SS-40	1370-ASW-1-SS-32	1370-FB819
1370-VEW-1-SS-50	1370-ASW-1-SS-47	
1370-VEW-1-SS-60	1370-ASW-1-SS-67	
1370-VEW-2-SS-30	1370-ASW-1-SS-69	
1370-VEW-2-SS-40	1370-ASW-1-SS-71	
1370-VEW-2-SS-50		
1370-VEW-2-SS-60		

The following items/criteria were reviewed:

- Quantitation / detection limits
- Holding times and sample preservation (including pH and Temperature)
- GC/MS tuning and performance
- Initial and continuing calibration summaries and data
- Method blank summaries and data
- Field and trip blank data
- System monitoring compound recoveries, summary and data
- Matrix spike/matrix spike duplicate (MS/MSD) results recoveries, summary and data
- Matrix Spike Blank (MSB) recoveries, summary and data
- Organic analysis data sheets (Form I)

- GC/MS chromatograms mass spectra and quantitation reports
- Internal standard areas, retention times, summary and data
- Qualitative and quantitative compound identification
- Case narrative and deliverables compliance

The items listed above were in compliance with the analytical methods and with NYSDEC ASP criteria with the exceptions discussed in the text below. The data have been validated according to the procedures outlined above and qualified accordingly.

- The percent recovery (%R) of the system monitoring compound toluene-d8 was slightly above the QC limit of 84-138% in samples 1370-VEW-1-SS-60 (144%) and 1370-VEW-2-SS-50MSD (141%). All other recoveries were within QC limits for 1370-VEW-1-SS-60 and in the medium level analysis of this sample (1370-VEW-1-SS-60DL). All other recoveries for 1370-VEW-2-SS-50MSD and all recoveries in samples 1370-VEW-2-SS-50 and 1370-VEW-2-SS-50MS were within QC limits. All positive results for sample 1370-VEW-1-SS-60 eluting near toluene-d8 have been qualified as estimated based on a high bias and flagged "J". All non-detects are not qualified.

- The following table lists blanks, blank contaminants with concentrations, and the samples associated with the blanks. Any of the compounds listed below are negated in a sample if the sample concentration is less than or equal to ten times the highest associated blank concentration.

Blank ID	Contaminant (conc. in ug/kg)	Associated Samples
VBLK21 (Low Level)	Methylene Chloride (4J) Acetone (14)	1370-ASW-2-SS-35, 1370-ASW-2-SS-45 1370-ASW-2-SS-55, 1370-VEW-1-SS-40 1370-VEW-1-SS-50, 1370-VEW-1-SS-60 1370-VEW-2-SS-30, 1370-VEW-2-SS-40 1370-VEW-2-SS-50, 1370-VEW-2-SS-50 MS/MSD
VBLK24 (Medium Level)	Methylene Chloride (320J)	1370- ASW-2-SS-55DL
VBLK26 (Medium Level)	Methylene Chloride (300J) Acetone (160J)	1370-VEW-1-SS-50DL

- The tentatively identified compounds (TICs) eluting at 15.70 minutes in sample DW-2 and 15.26 minutes in sample 1370-VEW-2-SS-30 have been identified as siloxanes. These compounds are laboratory artifacts will therefore be rejected and flagged "R" as sample contaminants.

- The following table lists compounds that exceeded 30% percent relative standard deviation (%RSD) for response factors (RF) in the initial calibration (ICAL) or 25% percent difference (%D) between the initial calibration average response factor and the continuing calibration verification (CCV) response factor. Associated field samples are also listed. Positive results for these compounds in associated samples are considered estimated and flagged "J." All non-detect results for the compound of interest in the appropriate sample are flagged "UJ."

Calibration	Compound	Deficiency	Associated Samples
ICAL 08/18/98 17:15 - 19:44	Acetone	%RSD=109. 7	1370-ASW-2-SS-35 1370-ASW-2-SS-45 1370-ASW-2-SS-55 1370-VEW-1-SS-40 1370-VEW-1-SS-50 1370-VEW-1-SS-60 1370-VEW-2-SS-30 1370-VEW-2-SS-40 1370-VEW-2-SS-50 1370-VEW-2-SS-50 MS/MSD
CCV 08/21/98 @ 12:53	Acetone	%D=50.9	1370-ASW-2-SS-35 1370-ASW-2-SS-45 1370-ASW-2-SS-55 1370-VEW-1-SS-40 1370-VEW-1-SS-50 1370-VEW-1-SS-60 1370-VEW-2-SS-30 1370-VEW-2-SS-40 1370-VEW-2-SS-50 1370-VEW-2-SS-50 MS/MSD
CCV 08/24/98 @ 14:23	Chloromethane Acetone 2-Butanone 1,2-Dichloropropane 4-Methyl-2-pentanone 2-Hexanone 1,1,2,2-Tetrachloroethane	%D=26.5 %D=43.1 %D=44.1 %D=30.6 %D=50.0 %D=49.0 %D=29.9	1370-ASW-2-SS-55DL
CCV 08/25/98 @ 13:50	Acetone 2-Butanone 1,2-Dichloropropane 4-Methyl-2-pentanone 2-Hexanone 1,1,2,2-Tetrachloroethane	%D=27.0 %D=31.2 %D=26.6 %D=44.0 %D=37.2 %D=29.4	1370-ASW-2-SS-35DL 1370-ASW-2-SS-45DL 1370-VEW-1-SS-40DL 1370-VEW-1-SS-60DL 1370-VEW-2-SS-30DL 1370-VEW-2-SS-40DL 1370-VEW-2-SS-50DL 1370-VEW-2-SS-50DL MS/MSD

Calibration	Compound	Deficiency	Associated Samples
CCV	Acetone	%D=31.8	1370-VEW-1-SS-50DL
08/26/98	2-Butanone	%D=35.6	
@ 12:56	1,2-Dichloropropane	%D=28.2	
	4-Methyl-2-pentanone	%D=47.5	
	2-Hexanone	%D=43.6	
	1,1,2,2-Tetrachloroethane	%D=38.2	
CCV	Acetone	%D=31.7	DW-1, DW-2, DW-6, DW-1DL,
08/21/98	2-Butanone	%D=34.2	DW-2DL, 1370-FB817, 1370-
@ 11:06			FB818
CCV	Acetone	%D=28.9	1370-FB819
08/28/98	2-Butanone	%D=37.5	1370-ASW-1-SS-32
@ 10:20	2-Hexanone	%D=80.5	1370-ASW-1-SS-47DL
			1370-ASW-1-SS-67
			1370-ASW-1-SS-69
			1370-ASW-1-SS-71
			1370-ASW-1-SS-47

- The recovery of benzene was slightly below QC limits for the low-level MS analysis of sample 1370-VEW-2-SS-50 (62%; QC limit 66-142%). All five relative percent difference (RPD) values were above the advisory QC limits. Qualification of data is not performed based on MS/MSD results alone. Results for benzene in the unspiked aliquot of this sample only, will be qualified as estimated possibly biased low and flagged "J".

- The following table lists samples that were re-analyzed at dilutions due to target compounds concentrations exceeding the linear calibration range of the instrument in the initial analysis. The laboratory has indicated those compounds with an "E" qualifier on the initial analysis Form I. The diluted analysis results should be used only for those compounds flagged with an "E" qualifier on the initial analysis Form I. All other compound results should be used from the initial analyses. Due to the sample matrix, certain samples were initially analyzed at a medium level.

Sample	Dilution Factor
1370-ASW-1-SS-47DL	31250x (medium level 1:250)
1370-ASW-2-SS-35DL	125x (medium level 1:1)
1370-ASW-2-SS-45DL	6250x (medium level 1:50)
1370-ASW-2-SS-55DL	1250x (medium level 1:10)
DW-1DL	1250x (medium level 1:10)
DW-2DL	1250x (medium level 1:10)
1370-VEW-1-SS-40DL	31250x (medium level 1:250)
1370-VEW-1-SS-50DL	62500x (medium level 1:500)
1370-VEW-1-SS-60DL	25000x (medium level 1:200)
1370-VEW-2-SS-30DL	6250x (medium level 1:50)
1370-VEW-2-SS-40DL	62500x (medium level 1:500)
1370-VEW-2-SS-50DL	6250x (medium level 1:50)

Package Summary:

All data are valid and usable with qualifications as noted in this review.

Signed: _____ Dated: 4 December 1998

Andrew J. Coenen
Environmental Chemist

Reviewed: _____ Dated: 12/4/98

Douglas A. Wolf, P.G.
Manager, Data Quality Assurance

H2M LABS, INC.

575 Broad Hollow Rd, Melville, NY 11747-5076
Tel: (516) 694-3040 Fax: (516) 420-8436

Nº 9872

EXTERNAL CHAIN OF CUSTODY

CLIENT: ERM

H2M SDG NO: 003

PROJECT NAME/NUMBER: Genesco, Inc. / 1370.001.2

SAMPLERS: (signature)/Client: John Mohlin ERM

DELIVERABLES: CLP/ELAP

TURNAROUND TIME: Standard

NOTES: VOC's by 8260

Project Contact: Russell Sirabian

Phone Number: 516-921-4300

DATE	TIME	MATRIX	FIELD I.D.	Total No. of Containers	Sample Container Description	ANALYSIS REQUESTED: ORGANIC VOA	ORGANIC BNA	ORGANIC Pest/PCB	INORG. Metal	INORG. CN	LAB I.D. NO.	REMARKS:
8/13/98	1300	Soil	DW-1	2	2oz. jar	2					9825924	Headspace PID > 2000 ppmv
8/13/98	1340	Soil	DW-2								925	Headspace PID > 2000 ppmv
8/13/98	1450	Soil	DW-6								926	Headspace PID > 2000 ppmv

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nicole Reilly	8/11/98	15:00	John Mohlin	8/12/98	10 AM
John Mohlin	8/13/98	4458m	Kristen Adams	8/13/98	1645
Kristen Adams	8/13/98	17:30	Nicole Reilly	8/13/98	1730

LABORATORY USE ONLY

Discrepancies Between Sample Labels and COC Record? Y or (N)
Explain:

Samples were:
1. Shipped ___ or Hand Delivered X Airbill# _____
2. Ambient or (chilled) 4°C
3. Received in good condition: (Y) or N
4. Properly preserved (Y) or N
5. Samples returned to lab ___ Hrs from collection.

COC Tape was:
1. Present on outer package: Y or (N)
2. Unbroken on outer package: Y or (N)
3. COC record present & complete upon sample receipt: (Y) or N

A 0011

WHITE COPY - ORIGINAL YELLOW COPY - CLIENT PINK COPY - LABORATORY

ERM–Northeast
Environmental Resources Management
ERM
175 Froehlich Farm Boulevard • Woodbury, New York 11797 • (516) 921-4300 • Telefax (516) 921-6679 • (516) 921-5637

ERM–Northeast
Chain of Custody

Project Name / No. Fulton Av. Soil IRM/1370.001.001
Project Coordinator / Contact Chris Wentzel
Sampler(s) David Mutter
Bottles Supplied By H2M Laboratories
Sheet No. 1 of 1

Date	Time	Comp.	Grab	Sample Identification	Soil	Water	Total No. of Containers	Type and No. of Containers: 4oz. amber glass jar	Type and No. of Containers: 40ml. amber glass vial	NYSDEC Analysis Requested
8-17-98	1016		X	1370-VEW-2-SS-30 7	X		1	1		ASP 95-1 CLP Deliv.
	1026		X	1370-VEW-2-SS-40 8	X		1	1		
	1208		X	1370-VEW-2-SS-50/MS/MSD 9	X		3	3		
8-18-98	0836		X	1370-VEW-1-SS-40 4	X		1	1		
	0849		X	1370-VEW-1-SS-50 5	X		1	1		
	0906		X	1370-VEW-1-SS-60 6	X		1	1		
	1136		X	1370-~~VEW-2~~ ASW-3 -SS-35 1	X		1	1		
	1147		X	1370-~~VEW-2~~ ASW-2 -SS-45 2	X		1	1		
	1243		X	1370-~~VEW-1~~ ASW-2 -SS-55 3	X		1	1		
8-17-98	1300		X	1370-FB817		X	2		2	
8-18-98	1400		X	1370-FB818		X	2		2	

Relinquished By (Signature)	Date/Time	Received By (Signature)	Date/Time	Reason for Transfer
David Mutter	2000/8-18-98		2000/8-18-98	Transfer
	1240/8-19-98		8/19/98 2:40	Lab Receipt

A 0014

146021

ERM–Northeast
Environmental Resources Management
ERM
175 Froehlich Farm Boulevard • Woodbury, New York 11797 • (516) 921-4300 • Telefax (516) 921-5679 • (516) 921-5637

ERM–Northeast
Chain of Custody

Project Name / No. Fulton Av. Soil IRM / 1370001.001
Project Coordinator / Contact Chris Wenczel
Sampler(s) David Mutter
Bottles Supplied By H2M Laboratories
Sheet No. 1 of 1

Date	Time	Comp.	Grab	Sample Identification	Soil	Water	Total No. of Containers	Type and No. of Containers: 40z. amber glass jar	40ml amber glass vial	Analysis Requested
8-19-98	1012		X	1370-ASW-1-SS-32	X		1	1		NYSDEC ASP 95-1 CLP Deliv. 9826974
8-19-98	1038		X	1370-ASW-1-SS-47	X					975
8-19-98	1202		X	1370-ASW1-SS-67	X					976
8-19-98	1209		X	1370-ASW-1-SS-69	X					977
8-19-98	1214		X	1370-ASW-1-SS-71	X					978
8-19-98	1500		X	1370-FB819		X	2	2		979

SAMPLES WERE:
Shipped X or Hand Delivered ____ Airbill # 801692222
Ambient ____ or Chilled X 4°C 556030
Received in good condition Y X N ____
Properly preserved Y X N ____
Discrepancies between sample labels & COC Record Y ____ N X
CUSTODY TAPE WAS:
Present on outer package Y X N ____
Unbroken on outer package Y X N ____
COC record present & complete on receipt Y X N

Relinquished By (Signature)	Date/Time	Received By (Signature)	Date/Time	Reason for Transfer
[signature] - ERM	8-19-98/1900	Nicole Reilly	8-21-98/1000	

A 0017

146521

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

1370-ASW-1-SS-3

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826974

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19748.D

Level: (low/med) MED Date Received: 08/21/98

% Moisture: not dec. 3.1 Date Analyzed: 08/28/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 250.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	320000	U
74-83-9	Bromomethane	320000	U
75-01-4	Vinyl Chloride	320000	U
75-00-3	Chloroethane	320000	U
75-09-2	Methylene Chloride	320000	UJ
67-64-1	Acetone	320000	U
75-15-0	Carbon Disulfide	320000	U
75-35-4	1,1-Dichloroethene	320000	U
75-34-4	1,1-Dichloroethane	320000	U
540-59-0	1,2-Dichloroethene (total)	320000	U
78-93-3	2-Butanone	320000	UJ
67-66-3	Chloroform	320000	U
107-06-2	1,2-Dichloroethane	320000	U
71-55-6	1,1,1-Trichloroethane	320000	U
56-23-5	Carbon Tetrachloride	320000	U
75-27-4	Bromodichloromethane	320000	U
78-87-5	1,2-Dichloropropane	320000	U
10061-01-5	cis-1,3-Dichloropropene	320000	U
79-01-6	Trichloroethene	320000	U
71-43-2	Benzene	320000	U
124-48-1	Dibromochloromethane	320000	U
10061-02-6	trans-1,3-Dichloropropene	320000	U
79-00-5	1,1,2-Trichloroethane	320000	U
75-25-2	Bromoform	320000	U
108-10-1	4-Methyl-2-Pentanone	320000	U
591-78-6	2-Hexanone	320000	UJ
127-18-4	Tetrachloroethene	2100000	D
79-34-5	1,1,2,2-Tetrachloroethane	320000	U
108-88-3	Toluene	320000	U
108-90-7	Chlorobenzene	320000	U
100-41-4	Ethylbenzene	320000	U
100-42-5	Styrene	320000	U
1330-20-7	Xylene (total)	320000	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

370-ASW-1-SS-3

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826974

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19748.D

Level: (low/med) MED Date Received: 08/21/98

% Moisture: not dec. 3.1 Date Analyzed: 08/28/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 250.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1370-ASW-1-SS-4

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826975

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19749.D

Level: (low/med) MED Date Received: 08/21/98

% Moisture: not dec. 13.6 Date Analyzed: 08/28/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

qmk 9/29/98

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	7200	U
74-83-9	Bromomethane	7200	U
75-01-4	Vinyl Chloride	7200	U
75-00-3	Chloroethane	7200	U
75-09-2	Methylene Chloride	7200	U
67-64-1	Acetone	7200	UJ
75-15-0	Carbon Disulfide	7200	U
75-35-4	1,1-Dichloroethene	7200	U
75-34-4	1,1-Dichloroethane	7200	U
540-59-0	1,2-Dichloroethene (total)	7200	U
78-93-3	2-Butanone	6800	JD
67-66-3	Chloroform	7200	U
107-06-2	1,2-Dichloroethane	7200	U
71-55-6	1,1,1-Trichloroethane	7200	U
56-23-5	Carbon Tetrachloride	7200	U
75-27-4	Bromodichloromethane	7200	U
78-87-5	1,2-Dichloropropane	7200	U
10061-01-5	cis-1,3-Dichloropropene	7200	U
79-01-6	Trichloroethene	7200	U
71-43-2	Benzene	7200	U
124-48-1	Dibromochloromethane	7200	U
10061-02-6	trans-1,3-Dichloropropene	7200	U
79-00-5	1,1,2-Trichloroethane	7200	U
75-25-2	Bromoform	7200	U
108-10-1	4-Methyl-2-Pentanone	7200	U
591-78-6	2-Hexanone	7200	UJ
127-18-4	Tetrachloroethene	2100000	ED
79-34-5	1,1,2,2-Tetrachloroethane	7200	U
108-88-3	Toluene	7200	U
108-90-7	Chlorobenzene	7200	U
100-41-4	Ethylbenzene	7200	U
100-42-5	Styrene	7200	U
1330-20-7	Xylene (total)	7200	U

use result from diluted analysis for this compound

V 0046

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
1370-ASW-1-SS-4

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826975

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19749.D

Level: (low/med) MED Date Received: 08/21/98

% Moisture: not dec. 13.6 Date Analyzed: 08/28/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

V 0047

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

70-ASW-1-SS47D L

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826975DL

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19743.D

Level: (low/med) MED Date Received: 08/21/98

% Moisture: not dec. 13.6 Date Analyzed: 08/28/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 250.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	360000	U
74-83-9	Bromomethane	360000	U
75-01-4	Vinyl Chloride	360000	U
75-00-3	Chloroethane	360000	U
75-09-2	Methylene Chloride	360000	U
67-64-1	Acetone	360000	UJ
75-15-0	Carbon Disulfide	360000	U
75-35-4	1,1-Dichloroethene	360000	U
75-34-4	1,1-Dichloroethane	360000	U
540-59-0	1,2-Dichloroethene (total)	360000	U
78-93-3	2-Butanone	360000	UJ
67-66-3	Chloroform	360000	U
107-06-2	1,2-Dichloroethane	360000	U
71-55-6	1,1,1-Trichloroethane	360000	U
56-23-5	Carbon Tetrachloride	360000	U
75-27-4	Bromodichloromethane	360000	U
78-87-5	1,2-Dichloropropane	360000	U
10061-01-5	cis-1,3-Dichloropropene	360000	U
79-01-6	Trichloroethene	360000	U
71-43-2	Benzene	360000	U
124-48-1	Dibromochloromethane	360000	U
10061-02-6	trans-1,3-Dichloropropene	360000	U
79-00-5	1,1,2-Trichloroethane	360000	U
75-25-2	Bromoform	360000	U
108-10-1	4-Methyl-2-Pentanone	360000	U
591-78-6	2-Hexanone	360000	UJ
127-18-4	Tetrachloroethene	3200000	D
79-34-5	1,1,2,2-Tetrachloroethane	360000	U
108-88-3	Toluene	360000	U
108-90-7	Chlorobenzene	360000	U
100-41-4	Ethylbenzene	360000	U
100-42-5	Styrene	360000	U
1330-20-7	Xylene (total)	360000	U

use this result only

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

13 70-ASW-1-SS47 DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826975DL

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19743.D

Level: (low/med) MED Date Received: 08/21/98

% Moisture: not dec. 13.6 Date Analyzed: 08/28/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 250.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

V 0954

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

/370-ASW-1-SS-7/

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826978

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19746.D

Level: (low/med) MED Date Received: 08/21/98

% Moisture: not dec. 16.4 Date Analyzed: 08/28/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

gme 9/29/98

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	7500	U
74-83-9	Bromomethane	7500	U
75-01-4	Vinyl Chloride	7500	U
75-00-3	Chloroethane	7500	U
75-09-2	Methylene Chloride	7500	U
67-64-1	Acetone	7500	UJ
75-15-0	Carbon Disulfide	7500	U
75-35-4	1,1-Dichloroethene	7500	U
75-34-4	1,1-Dichloroethane	7500	U
540-59-0	1,2-Dichloroethene (total)	7500	U
78-93-3	2-Butanone	7100	JD
67-66-3	Chloroform	7500	U
107-06-2	1,2-Dichloroethane	7500	U
71-55-6	1,1,1-Trichloroethane	7500	U
56-23-5	Carbon Tetrachloride	7500	U
75-27-4	Bromodichloromethane	7500	U
78-87-5	1,2-Dichloropropane	7500	U
10061-01-5	cis-1,3-Dichloropropene	7500	U
79-01-6	Trichloroethene	7500	U
71-43-2	Benzene	7500	U
124-48-1	Dibromochloromethane	7500	U
10061-02-6	trans-1,3-Dichloropropene	7500	U
79-00-5	1,1,2-Trichloroethane	7500	U
75-25-2	Bromoform	7500	U
108-10-1	4-Methyl-2-Pentanone	7500	U
591-78-6	2-Hexanone	7500	UJ
127-18-4	Tetrachloroethene	87000	D
79-34-5	1,1,2,2-Tetrachloroethane	7500	U
108-88-3	Toluene	7500	U
108-90-7	Chlorobenzene	7500	U
100-41-4	Ethylbenzene	7500	U
100-42-5	Styrene	7500	U
1330-20-7	Xylene (total)	7500	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
370-ASW-1-SS-7

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826978

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19746.D

Level: (low/med) MED Date Received: 08/21/98

% Moisture: not dec. 16.4 Date Analyzed: 08/28/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

V 0061

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1370-ASW-1-SS-67

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826976

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19744.D

Level: (low/med) MED Date Received: 08/21/98

% Moisture: not dec. 13.5 Date Analyzed: 08/28/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

gmd 9/29/98

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	7200	U
74-83-9	Bromomethane	7200	U
75-01-4	Vinyl Chloride	7200	U
75-00-3	Chloroethane	7200	U
75-09-2	Methylene Chloride	7200	U
67-64-1	Acetone	7200	U J
75-15-0	Carbon Disulfide	7200	U
75-35-4	1,1-Dichloroethene	7200	U
75-34-4	1,1-Dichloroethane	7200	U
540-59-0	1,2-Dichloroethene (total)	7200	U
78-93-3	2-Butanone	6200	J
67-66-3	Chloroform	7200	U
107-06-2	1,2-Dichloroethane	7200	U
71-55-6	1,1,1-Trichloroethane	7200	U
56-23-5	Carbon Tetrachloride	7200	U
75-27-4	Bromodichloromethane	7200	U
78-87-5	1,2-Dichloropropane	7200	U
10061-01-5	cis-1,3-Dichloropropene	7200	U
79-01-6	Trichloroethene	7200	U
71-43-2	Benzene	7200	U
124-48-1	Dibromochloromethane	7200	U
10061-02-6	trans-1,3-Dichloropropene	7200	U
79-00-5	1,1,2-Trichloroethane	7200	U
75-25-2	Bromoform	7200	U
108-10-1	4-Methyl-2-Pentanone	7200	U
591-78-6	2-Hexanone	7200	U J
127-18-4	Tetrachloroethene	23000	D
79-34-5	1,1,2,2-Tetrachloroethane	7200	U
108-88-3	Toluene	7200	U
108-90-7	Chlorobenzene	7200	U
100-41-4	Ethylbenzene	7200	U
100-42-5	Styrene	7200	U
1330-20-7	Xylene (total)	7200	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
370-ASW-1-SS-6

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826976

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19744.D

Level: (low/med) MED Date Received: 08/21/98

% Moisture: not dec. 13.5 Date Analyzed: 08/28/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

9/29/98

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

/370-ASW-1-SS-6

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826977

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19745.D

Level: (low/med) MED Date Received: 08/21/98

% Moisture: not dec. 16.3 Date Analyzed: 08/28/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	7500	U
74-83-9	Bromomethane	7500	U
75-01-4	Vinyl Chloride	7500	U
75-00-3	Chloroethane	7500	U
75-09-2	Methylene Chloride	7500	U
67-64-1	Acetone	7500	UJ
75-15-0	Carbon Disulfide	7500	U
75-35-4	1,1-Dichloroethene	7500	U
75-34-4	1,1-Dichloroethane	7500	U
540-59-0	1,2-Dichloroethene (total)	7500	U
78-93-3	2-Butanone	6500	JD
67-66-3	Chloroform	7500	U
107-06-2	1,2-Dichloroethane	7500	U
71-55-6	1,1,1-Trichloroethane	7500	U
56-23-5	Carbon Tetrachloride	7500	U
75-27-4	Bromodichloromethane	7500	U
78-87-5	1,2-Dichloropropane	7500	U
10061-01-5	cis-1,3-Dichloropropene	7500	U
79-01-6	Trichloroethene	7500	U
71-43-2	Benzene	7500	U
124-48-1	Dibromochloromethane	7500	U
10061-02-6	trans-1,3-Dichloropropene	7500	U
79-00-5	1,1,2-Trichloroethane	7500	U
75-25-2	Bromoform	7500	U
108-10-1	4-Methyl-2-Pentanone	7500	U
591-78-6	2-Hexanone	7500	UJ
127-18-4	Tetrachloroethene	130000	D
79-34-5	1,1,2,2-Tetrachloroethane	7500	U
108-88-3	Toluene	7500	U
108-90-7	Chlorobenzene	7500	U
100-41-4	Ethylbenzene	7500	U
100-42-5	Styrene	7500	U
1330-20-7	Xylene (total)	7500	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
/370-ASW-1-SS-69

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826977

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19745.D

Level: (low/med) MED Date Received: 08/21/98

% Moisture: not dec. 16.3 Date Analyzed: 08/28/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

1370ASW2SS35

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826695

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10189.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 1.3 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG		Q
74-87-3	Chloromethane	10		U
74-83-9	Bromomethane	10		U
75-01-4	Vinyl Chloride	10		U
75-00-3	Chloroethane	10		U
75-09-2	Methylene Chloride	10	~~JB~~	U
67-64-1	Acetone	10	~~B~~	UJ
75-15-0	Carbon Disulfide	10		U
75-35-4	1,1-Dichloroethene	10		U
75-34-4	1,1-Dichloroethane	10		U
540-59-0	1,2-Dichloroethene (total)	10		U
78-93-3	2-Butanone	10		U
67-66-3	Chloroform	10		U
107-06-2	1,2-Dichloroethane	10		U
71-55-6	1,1,1-Trichloroethane	10		U
56-23-5	Carbon Tetrachloride	10		U
75-27-4	Bromodichloromethane	10		U
78-87-5	1,2-Dichloropropane	10		U
10061-01-5	cis-1,3-Dichloropropene	10		U
79-01-6	Trichloroethene	10		U
71-43-2	Benzene	10		U
124-48-1	Dibromochloromethane	10		U
10061-02-6	trans-1,3-Dichloropropene	10		U
79-00-5	1,1,2-Trichloroethane	10		U
75-25-2	Bromoform	10		U
108-10-1	4-Methyl-2-Pentanone	10		U
591-78-6	2-Hexanone	10		U
127-18-4	Tetrachloroethene	1400	E	use result from diluted analysis for this compound
79-34-5	1,1,2,2-Tetrachloroethane	10		U
108-88-3	Toluene	10		U
108-90-7	Chlorobenzene	10		U
100-41-4	Ethylbenzene	10		U
100-42-5	Styrene	10		U
1330-20-7	Xylene (total)	10		U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
1370ASW2SS35

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826695

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10189.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 1.3 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume 1 (uL) Soil Aliquot Volume: 1 (uL)

pmt 9/29/98

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 6

CAS NO.	COMPOUND	RT	EST. CONC.	Q
1.	unknown hydrocarbon	16.52	13	J
2.	unknown hydrocarbon	17.00	19	J
3.	unknown hydrocarbon	17.38	36	J
4.	unknown hydrocarbon	17.68	10	J
5.	unknown hydrocarbon	17.90	6	J
6.	unknown hydrocarbon	19.01	12	J

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

1370ASW2SS35 pL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826695 JV 10/27/98

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4652.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 1.3 Date Analyzed: 08/25/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1300	U
74-83-9	Bromomethane	1300	U
75-01-4	Vinyl Chloride	1300	U
75-00-3	Chloroethane	1300	U
75-09-2	Methylene Chloride	1500	D
67-64-1	Acetone	1100	JD
75-15-0	Carbon Disulfide	1300	U
75-35-4	1,1-Dichloroethene	1300	U
75-34-4	1,1-Dichloroethane	1300	U
540-59-0	1,2-Dichloroethene (total)	1300	U
67-66-3	Chloroform	1300	U
107-06-2	1,2-Dichloroethane	1300	U
78-93-3	2-Butanone	8500	DJ
71-55-6	1,1,1-Trichloroethane	1300	U
56-23-5	Carbon Tetrachloride	1300	U
75-27-4	Bromodichloromethane	1300	U
78-87-5	1,2-Dichloropropane	1300	UJ
10061-01-5	cis-1,3-Dichloropropene	1300	U
79-01-6	Trichloroethene	1300	U
71-43-2	Benzene	1300	U
124-48-1	Dibromochloromethane	1300	U
10061-02-6	trans-1,3-Dichloropropene	1300	U
79-00-5	1,1,2-Trichloroethane	1300	U
75-25-2	Bromoform	1300	U
108-10-1	4-Methyl-2-Pentanone	1300	UJ
591-78-6	2-Hexanone	1300	UJ
127-18-4	Tetrachloroethene	710	JD
79-34-5	1,1,2,2-Tetrachloroethane	1300	UJ
108-88-3	Toluene	1300	U
108-90-7	Chlorobenzene	1300	U
100-41-4	Ethylbenzene	1300	U
100-42-5	Styrene	1300	U
1330-20-7	Xylene (total)	1300	U

use this result ONLY

gmt 10/28/98

V0095

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370ASW2SS35 BL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

9/29/98

Matrix: (soil/water) SOIL Lab Sample ID: 9826695

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4652.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 1.3 Date Analyzed: 08/25/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

1370ASW2SS45

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826696

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10190.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 4.4 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

CAS NO.	COMPOUND	UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10 ~~2~~	~~JB~~ U
67-64-1	Acetone	10 ~~13~~	~~B~~ UJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-4	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	19	
71-43-2	Benzene	10	U
124-48-1	Dibromochloromethane	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	3700	E
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

use result from diluted analysis for this compound

A

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370ASW2SS45

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826696

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10190.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 4.4 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume 1 (uL) Soil Aliquot Volume: 1 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

gms 9/29/98

Number TICs found: 5

CAS NO.	COMPOUND	RT	EST. CONC.	Q
1.	unknown hydrocarbon	15.54	9	J
2.	unknown hydrocarbon	16.51	7	J
3.	unknown hydrocarbon	16.99	8	J
4.	unknown hydrocarbon	17.35	16	J
5.	unknown hydrocarbon	17.88	10	J

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

1370ASW2SS45 DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003 JV 10/28/98

Matrix: (soil/water) SOIL Lab Sample ID: 9826696

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4653.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 4.4 Date Analyzed: 08/25/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 50.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	65000	U
74-83-9	Bromomethane	65000	U
75-01-4	Vinyl Chloride	65000	U
75-00-3	Chloroethane	65000	U
75-09-2	Methylene Chloride	9200	JD
67-64-1	Acetone	65000	UJ
75-15-0	Carbon Disulfide	65000	U
75-35-4	1,1-Dichloroethene	65000	U
75-34-4	1,1-Dichloroethane	65000	U
540-59-0	1,2-Dichloroethene (total)	65000	U
67-66-3	Chloroform	65000	U
107-06-2	1,2-Dichloroethane	65000	U
78-93-3	2-Butanone	65000	UJ
71-55-6	1,1,1-Trichloroethane	65000	U
56-23-5	Carbon Tetrachloride	65000	U
75-27-4	Bromodichloromethane	65000	U
78-87-5	1,2-Dichloropropane	65000	UJ
10061-01-5	cis-1,3-Dichloropropene	65000	U
79-01-6	Trichloroethene	65000	U
71-43-2	Benzene	65000	U
124-48-1	Dibromochloromethane	65000	U
10061-02-6	trans-1,3-Dichloropropene	65000	U
79-00-5	1,1,2-Trichloroethane	65000	U
75-25-2	Bromoform	65000	U
108-10-1	4-Methyl-2-Pentanone	65000	UJ
591-78-6	2-Hexanone	65000	UJ
127-18-4	Tetrachloroethene	940000	D
79-34-5	1,1,2,2-Tetrachloroethane	65000	UJ
108-88-3	Toluene	65000	U
108-90-7	Chlorobenzene	65000	U
100-41-4	Ethylbenzene	65000	U
100-42-5	Styrene	65000	U
1330-20-7	Xylene (total)	65000	U

use this result only

JV 10/28/98

V0116

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370ASW2SS45 DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826696

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4653.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 4.4 Date Analyzed: 08/25/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 50.0

Soil Extract Volume 10000 (uL) Soil Aliquot Volume: 100 (uL)

gmd 9/29/98

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

1370ASW2SS55

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826697

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10191.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 8.4 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q	
74-87-3	Chloromethane	11	U	
74-83-9	Bromomethane	11	U	
75-01-4	Vinyl Chloride	11	U	
75-00-3	Chloroethane	11	U	
75-09-2	Methylene Chloride	11 ~~2~~	~~JB~~	U
67-64-1	Acetone	11 ~~10~~	~~JB~~	UJ
75-15-0	Carbon Disulfide	11	U	
75-35-4	1,1-Dichloroethene	11	U	
75-34-4	1,1-Dichloroethane	11	U	
540-59-0	1,2-Dichloroethene (total)	11	U	
78-93-3	2-Butanone	11	U	
67-66-3	Chloroform	11	U	
107-06-2	1,2-Dichloroethane	11	U	
71-55-6	1,1,1-Trichloroethane	11	U	
56-23-5	Carbon Tetrachloride	11	U	
75-27-4	Bromodichloromethane	11	U	
78-87-5	1,2-Dichloropropane	11	U	
10061-01-5	cis-1,3-Dichloropropene	11	U	
79-01-6	Trichloroethene	11	U	
71-43-2	Benzene	11	U	
124-48-1	Dibromochloromethane	11	U	
10061-02-6	trans-1,3-Dichloropropene	11	U	
79-00-5	1,1,2-Trichloroethane	11	U	
75-25-2	Bromoform	11	U	
108-10-1	4-Methyl-2-Pentanone	11	U	
591-78-6	2-Hexanone	11	U	
127-18-4	Tetrachloroethene	2000	E	use result from diluted analysis for this compound
79-34-5	1,1,2,2-Tetrachloroethane	11	U	
108-88-3	Toluene	11	U	
108-90-7	Chlorobenzene	11	U	
100-41-4	Ethylbenzene	11	U	
100-42-5	Styrene	11	U	
1330-20-7	Xylene (total)	11	U	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
1370ASW2SS55

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826697

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10191.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 8.4 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume X (uL) Soil Aliquot Volume: X (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

gmk 9/29/98

Number TICs found: 8

CAS NO.	COMPOUND	RT	EST. CONC.	Q
1.	unknown hydrocarbon	16.50	220	J
2.	unknown hydrocarbon	16.73	74	J
3.	unknown hydrocarbon	16.99	320	J
4.	unknown hydrocarbon	17.15	110	J
5.	unknown hydrocarbon	17.36	620	J
6.	unknown hydrocarbon	17.67	210	J
7.	unknown	17.82	270	J
8.	unknown hydrocarbon	18.22	56	J

V 0124

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1370ASW2SS55 DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003 SV 10/28/98

Matrix: (soil/water) SOIL Lab Sample ID: 9826697

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4638.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 8.4 Date Analyzed: 08/24/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	14000	UJ
74-83-9	Bromomethane	14000	U
75-01-4	Vinyl Chloride	14000	U
75-00-3	Chloroethane	14000	U
75-09-2	Methylene Chloride	~~14000~~ 2900	~~JBD~~ U
67-64-1	Acetone	14000	UJ
75-15-0	Carbon Disulfide	14000	U
75-35-4	1,1-Dichloroethene	14000	U
75-34-4	1,1-Dichloroethane	14000	U
540-59-0	1,2-Dichloroethene (total)	14000	U
67-66-3	Chloroform	14000	U
107-06-2	1,2-Dichloroethane	14000	U
78-93-3	2-Butanone	7200	JD
71-55-6	1,1,1-Trichloroethane	14000	U
56-23-5	Carbon Tetrachloride	14000	U
75-27-4	Bromodichloromethane	14000	U
78-87-5	1,2-Dichloropropane	14000	UJ
10061-01-5	cis-1,3-Dichloropropene	14000	U
79-01-6	Trichloroethene	14000	U
71-43-2	Benzene	14000	U
124-48-1	Dibromochloromethane	14000	U
10061-02-6	trans-1,3-Dichloropropene	14000	U
79-00-5	1,1,2-Trichloroethane	14000	U
75-25-2	Bromoform	14000	U
108-10-1	4-Methyl-2-Pentanone	14000	UJ
591-78-6	2-Hexanone	14000	UJ
127-18-4	Tetrachloroethene	68000	D
79-34-5	1,1,2,2-Tetrachloroethane	14000	UJ
108-88-3	Toluene	14000	U
108-90-7	Chlorobenzene	14000	U
100-41-4	Ethylbenzene	14000	U
100-42-5	Styrene	14000	U
1330-20-7	Xylene (total)	14000	U

U

use this result ONLY

gms 10/28/98

V0139

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370ASW2SS55 DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

gms 9/29/98

Matrix: (soil/water) SOIL Lab Sample ID: 9826697

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4638.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 8.4 Date Analyzed: 08/24/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DW-1

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9825924

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19584.D

Level: (low/med) MED Date Received: 08/13/98

% Moisture: not dec. 3.2 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q	
74-87-3	Chloromethane	1300	U	
74-83-9	Bromomethane	1300	U	
75-01-4	Vinyl Chloride	1300	U	
75-00-3	Chloroethane	1300	U	
75-09-2	Methylene Chloride	1300	U	
67-64-1	Acetone	1300	UJ	
75-15-0	Carbon Disulfide	1300	U	
75-35-4	1,1-Dichloroethene	1300	U	
75-34-4	1,1-Dichloroethane	1300	U	
540-59-0	1,2-Dichloroethene (total)	1300	U	
78-93-3	2-Butanone	1300	UJ	
67-66-3	Chloroform	1300	U	
107-06-2	1,2-Dichloroethane	1300	U	
71-55-6	1,1,1-Trichloroethane	1300	U	
56-23-5	Carbon Tetrachloride	1300	U	
75-27-4	Bromodichloromethane	1300	U	
78-87-5	1,2-Dichloropropane	1300	U	
10061-01-5	cis-1,3-Dichloropropene	1300	U	
79-01-6	Trichloroethene	1300	U	
71-43-2	Benzene	1300	U	
124-48-1	Dibromochloromethane	1300	U	
10061-02-6	trans-1,3-Dichloropropene	1300	U	
79-00-5	1,1,2-Trichloroethane	1300	U	
75-25-2	Bromoform	1300	U	
108-10-1	4-Methyl-2-Pentanone	1300	U	
591-78-6	2-Hexanone	1300	U	
127-18-4	Tetrachloroethene	27000	E	use result from diluted analysis for this compound
79-34-5	1,1,2,2-Tetrachloroethane	1300	U	
108-88-3	Toluene	1300	U	
108-90-7	Chlorobenzene	1300	U	
100-41-4	Ethylbenzene	1300	U	
100-42-5	Styrene	1300	U	
1330-20-7	Xylene (total)	1300	U	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DW-1

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9825924

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19584.D

Level: (low/med) MED Date Received: 08/13/98

% Moisture: not dec. 3.2 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DW-1DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9825924DL

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19588.D

Level: (low/med) MED Date Received: 08/13/98

% Moisture: not dec. 3.2 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13000	U
74-83-9	Bromomethane	13000	U
75-01-4	Vinyl Chloride	13000	U
75-00-3	Chloroethane	13000	U
75-09-2	Methylene Chloride	13000	U
67-64-1	Acetone	13000	U J
75-15-0	Carbon Disulfide	13000	U
75-35-4	1,1-Dichloroethene	13000	U
75-34-4	1,1-Dichloroethane	13000	U
540-59-0	1,2-Dichloroethene (total)	13000	U
78-93-3	2-Butanone	13000	U J
67-66-3	Chloroform	13000	U
107-06-2	1,2-Dichloroethane	13000	U
71-55-6	1,1,1-Trichloroethane	13000	U
56-23-5	Carbon Tetrachloride	13000	U
75-27-4	Bromodichloromethane	13000	U
78-87-5	1,2-Dichloropropane	13000	U
10061-01-5	cis-1,3-Dichloropropene	13000	U
79-01-6	Trichloroethene	13000	U
71-43-2	Benzene	13000	U
124-48-1	Dibromochloromethane	13000	U
10061-02-6	trans-1,3-Dichloropropene	13000	U
79-00-5	1,1,2-Trichloroethane	13000	U
75-25-2	Bromoform	13000	U
108-10-1	4-Methyl-2-Pentanone	13000	U
591-78-6	2-Hexanone	13000	U
127-18-4	Tetrachloroethene	120000	D
79-34-5	1,1,2,2-Tetrachloroethane	13000	U
108-88-3	Toluene	13000	U
108-90-7	Chlorobenzene	13000	U
100-41-4	Ethylbenzene	13000	U
100-42-5	Styrene	13000	U
1330-20-7	Xylene (total)	13000	U

use this result ONLY

V 0154

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DW-1DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9825924DL

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19588.D

Level: (low/med) MED Date Received: 08/13/98

% Moisture: not dec. 3.2 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

DW-2

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9825925

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19585.D

Level: (low/med) MED Date Received: 08/13/98

% Moisture: not dec. 3.6 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1300	U
74-83-9	Bromomethane	1300	U
75-01-4	Vinyl Chloride	1300	U
75-00-3	Chloroethane	1300	U
75-09-2	Methylene Chloride	1300	U
67-64-1	Acetone	1300	UJ
75-15-0	Carbon Disulfide	1300	U
75-35-4	1,1-Dichloroethene	1300	U
75-34-4	1,1-Dichloroethane	1300	U
540-59-0	1,2-Dichloroethene (total)	1300	U
78-93-3	2-Butanone	1300	UJ
67-66-3	Chloroform	1300	U
107-06-2	1,2-Dichloroethane	1300	U
71-55-6	1,1,1-Trichloroethane	1300	U
56-23-5	Carbon Tetrachloride	1300	U
75-27-4	Bromodichloromethane	1300	U
78-87-5	1,2-Dichloropropane	1300	U
10061-01-5	cis-1,3-Dichloropropene	1300	U
79-01-6	Trichloroethene	1300	U
71-43-2	Benzene	1300	U
124-48-1	Dibromochloromethane	1300	U
10061-02-6	trans-1,3-Dichloropropene	1300	U
79-00-5	1,1,2-Trichloroethane	1300	U
75-25-2	Bromoform	1300	U
108-10-1	4-Methyl-2-Pentanone	1300	U
591-78-6	2-Hexanone	1300	U
127-18-4	Tetrachloroethene	29000	E
79-34-5	1,1,2,2-Tetrachloroethane	1300	U
108-88-3	Toluene	1300	U
108-90-7	Chlorobenzene	1300	U
100-41-4	Ethylbenzene	1300	U
100-42-5	Styrene	1300	U
1330-20-7	Xylene (total)	1300	U

use result from diluted analysis for this compound

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DW-2

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9825925

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19585.D

Level: (low/med) MED Date Received: 08/13/98

% Moisture: not dec. 3.6 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 1

CAS NO.	COMPOUND	RT	EST. CONC.	Q
~~1. 000556-67-2~~	~~Cyclotetrasiloxane, octamethyl-~~	~~15.70~~	~~650~~	~~JN~~

R

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DW-2DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9825925DL

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19589.D

Level: (low/med) MED Date Received: 08/13/98

% Moisture: not dec. 3.6 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q	
74-87-3	Chloromethane	13000	U	
74-83-9	Bromomethane	13000	U	
75-01-4	Vinyl Chloride	13000	U	
75-00-3	Chloroethane	13000	U	
75-09-2	Methylene Chloride	13000	U	
67-64-1	Acetone	13000	UJ	
75-15-0	Carbon Disulfide	13000	U	
75-35-4	1,1-Dichloroethene	13000	U	
75-34-4	1,1-Dichloroethane	13000	U	
540-59-0	1,2-Dichloroethene (total)	13000	U	
78-93-3	2-Butanone	13000	UJ	
67-66-3	Chloroform	13000	U	
107-06-2	1,2-Dichloroethane	13000	U	
71-55-6	1,1,1-Trichloroethane	13000	U	
56-23-5	Carbon Tetrachloride	13000	U	
75-27-4	Bromodichloromethane	13000	U	
78-87-5	1,2-Dichloropropane	13000	U	
10061-01-5	cis-1,3-Dichloropropene	13000	U	
79-01-6	Trichloroethene	13000	U	
71-43-2	Benzene	13000	U	
124-48-1	Dibromochloromethane	13000	U	
10061-02-6	trans-1,3-Dichloropropene	13000	U	
79-00-5	1,1,2-Trichloroethane	13000	U	
75-25-2	Bromoform	13000	U	
108-10-1	4-Methyl-2-Pentanone	13000	U	
591-78-6	2-Hexanone	13000	U	
127-18-4	Tetrachloroethene	130000	D	use this result ONLY
79-34-5	1,1,2,2-Tetrachloroethane	13000	U	
108-88-3	Toluene	13000	U	
108-90-7	Chlorobenzene	13000	U	
100-41-4	Ethylbenzene	13000	U	
100-42-5	Styrene	13000	U	
1330-20-7	Xylene (total)	13000	U	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DW-2DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9825925DL

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19589.D

Level: (low/med) MED Date Received: 08/13/98

% Moisture: not dec. 3.6 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

DW-6

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9825926

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19586.D

Level: (low/med) MED Date Received: 08/13/98

% Moisture: not dec. 2.8 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1300	U
74-83-9	Bromomethane	1300	U
75-01-4	Vinyl Chloride	1300	U
75-00-3	Chloroethane	1300	U
75-09-2	Methylene Chloride	1300	U
67-64-1	Acetone	1300	U J
75-15-0	Carbon Disulfide	1300	U
75-35-4	1,1-Dichloroethene	1300	U
75-34-4	1,1-Dichloroethane	1300	U
540-59-0	1,2-Dichloroethene (total)	1300	U
78-93-3	2-Butanone	1300	U J
67-66-3	Chloroform	1300	U
107-06-2	1,2-Dichloroethane	1300	U
71-55-6	1,1,1-Trichloroethane	1300	U
56-23-5	Carbon Tetrachloride	1300	U
75-27-4	Bromodichloromethane	1300	U
78-87-5	1,2-Dichloropropane	1300	U
10061-01-5	cis-1,3-Dichloropropene	1300	U
79-01-6	Trichloroethene	1300	U
71-43-2	Benzene	1300	U
124-48-1	Dibromochloromethane	1300	U
10061-02-6	trans-1,3-Dichloropropene	1300	U
79-00-5	1,1,2-Trichloroethane	1300	U
75-25-2	Bromoform	1300	U
108-10-1	4-Methyl-2-Pentanone	1300	U
591-78-6	2-Hexanone	1300	U
127-18-4	Tetrachloroethene	25000	
79-34-5	1,1,2,2-Tetrachloroethane	1300	U
108-88-3	Toluene	1300	U
108-90-7	Chlorobenzene	1300	U
100-41-4	Ethylbenzene	1300	U
100-42-5	Styrene	1300	U
1330-20-7	Xylene (total)	1300	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DW-6

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9825926

Sample wt/vol: 4.0 (g/ml) G Lab File ID: A19586.D

Level: (low/med) MED Date Received: 08/13/98

% Moisture: not dec. 2.8 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1370-FB817

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) WATER Lab Sample ID: 9826704

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: A19595.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-4	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
78-93-3	2-Butanone	10	UJ
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
71-43-2	Benzene	10	U
124-48-1	Dibromochloromethane	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370-FB817

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) WATER Lab Sample ID: 9826704

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: A19595.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

1370-FB818

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) WATER Lab Sample ID: 9826705

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: A19596.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U J
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-4	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
78-93-3	2-Butanone	10	U J
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
71-43-2	Benzene	10	U
124-48-1	Dibromochloromethane	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370-FB818

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) WATER Lab Sample ID: 9826705

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: A19596.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

V 0189

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

1370-FB819

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) WATER Lab Sample ID: 9826979

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: A19742.D

Level: (low/med) LOW Date Received: 08/21/98

% Moisture: not dec. Date Analyzed: 08/28/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-4	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
78-93-3	2-Butanone	10	UJ
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
71-43-2	Benzene	10	U
124-48-1	Dibromochloromethane	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	UJ
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370-FB819

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) WATER Lab Sample ID: 9826979

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: A19742.D

Level: (low/med) LOW Date Received: 08/21/98

% Moisture: not dec. Date Analyzed: 08/28/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1370VEW1SS40

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826698

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10192.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 4.2 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10 ~~2~~	~~JB~~	U
67-64-1	Acetone	10 ~~17~~	~~B~~	UJ
75-15-0	Carbon Disulfide	10	U	
75-35-4	1,1-Dichloroethene	10	U	
75-34-4	1,1-Dichloroethane	10	U	
540-59-0	1,2-Dichloroethene (total)	10	U	
78-93-3	2-Butanone	10	U	
67-66-3	Chloroform	10	U	
107-06-2	1,2-Dichloroethane	10	U	
71-55-6	1,1,1-Trichloroethane	10	U	
56-23-5	Carbon Tetrachloride	10	U	
75-27-4	Bromodichloromethane	10	U	
78-87-5	1,2-Dichloropropane	10	U	
10061-01-5	cis-1,3-Dichloropropene	10	U	
79-01-6	Trichloroethene	59		
71-43-2	Benzene	10	U	
124-48-1	Dibromochloromethane	10	U	
10061-02-6	trans-1,3-Dichloropropene	10	U	
79-00-5	1,1,2-Trichloroethane	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	7700	E	use result from diluted analysis for this compound.
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-88-3	Toluene	10	U	
108-90-7	Chlorobenzene	10	U	
100-41-4	Ethylbenzene	10	U	
100-42-5	Styrene	10	U	
1330-20-7	Xylene (total)	10	U	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
1370VEW1SS40

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826698

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10192.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 4.2 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume X (uL) Soil Aliquot Volume: X (uL)

CONCENTRATION UNITS: gma 9/27/98
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

V 0201

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

1370VEW1SS40 DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003 SR 10/28/98

Matrix: (soil/water) SOIL Lab Sample ID: 9826698

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4654.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 4.2 Date Analyzed: 08/25/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 250.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	330000	U
74-83-9	Bromomethane	330000	U
75-01-4	Vinyl Chloride	330000	U
75-00-3	Chloroethane	330000	U
75-09-2	Methylene Chloride	110000	JD
67-64-1	Acetone	330000	UJ
75-15-0	Carbon Disulfide	330000	U
75-35-4	1,1-Dichloroethene	330000	U
75-34-4	1,1-Dichloroethane	330000	U
540-59-0	1,2-Dichloroethene (total)	330000	U
67-66-3	Chloroform	330000	U
107-06-2	1,2-Dichloroethane	330000	U
78-93-3	2-Butanone	330000	UJ
71-55-6	1,1,1-Trichloroethane	330000	U
56-23-5	Carbon Tetrachloride	330000	U
75-27-4	Bromodichloromethane	330000	U
78-87-5	1,2-Dichloropropane	330000	UJ
10061-01-5	cis-1,3-Dichloropropene	330000	U
79-01-6	Trichloroethene	330000	U
71-43-2	Benzene	330000	U
124-48-1	Dibromochloromethane	330000	U
10061-02-6	trans-1,3-Dichloropropene	330000	U
79-00-5	1,1,2-Trichloroethane	330000	U
75-25-2	Bromoform	330000	U
108-10-1	4-Methyl-2-Pentanone	330000	UJ
591-78-6	2-Hexanone	330000	UJ
127-18-4	Tetrachloroethene	4100000	D
79-34-5	1,1,2,2-Tetrachloroethane	330000	UJ
108-88-3	Toluene	~~330000~~ 44000	~~JD~~ U
108-90-7	Chlorobenzene	330000	U
100-41-4	Ethylbenzene	330000	U
100-42-5	Styrene	330000	U
1330-20-7	Xylene (total)	330000	U

use this result ONLY

gms 10/28/98

V0208

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370VEW1SS40 DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826698

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4654.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 4.2 Date Analyzed: 08/25/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 250.0

Soil Extract Volume 10000 (uL) Soil Aliquot Volume: 100 (uL)

9/29/98

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

V 0203

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

1370VEW1SS50

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826699

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10193.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 13.4 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q	
74-87-3	Chloromethane	12	U	
74-83-9	Bromomethane	12	U	
75-01-4	Vinyl Chloride	12	U	
75-00-3	Chloroethane	12	U	
75-09-2	Methylene Chloride	12 ~~8~~	~~JB~~ U	
67-64-1	Acetone	12 ~~25~~	~~B~~ UJ	
75-15-0	Carbon Disulfide	12	U	
75-35-4	1,1-Dichloroethene	12	U	
75-34-4	1,1-Dichloroethane	12	U	
540-59-0	1,2-Dichloroethene (total)	12	U	
78-93-3	2-Butanone	12	U	
67-66-3	Chloroform	12	U	
107-06-2	1,2-Dichloroethane	12	U	
71-55-6	1,1,1-Trichloroethane	12	U	
56-23-5	Carbon Tetrachloride	12	U	
75-27-4	Bromodichloromethane	12	U	
78-87-5	1,2-Dichloropropane	12	U	
10061-01-5	cis-1,3-Dichloropropene	12	U	
79-01-6	Trichloroethene	180		
71-43-2	Benzene	12	U	
124-48-1	Dibromochloromethane	12	U	
10061-02-6	trans-1,3-Dichloropropene	12	U	
79-00-5	1,1,2-Trichloroethane	12	U	
75-25-2	Bromoform	12	U	
108-10-1	4-Methyl-2-Pentanone	12	U	
591-78-6	2-Hexanone	12	U	
127-18-4	Tetrachloroethene	12000	E	use result from diluted analysis for this compound
79-34-5	1,1,2,2-Tetrachloroethane	12	U	
108-88-3	Toluene	12	U	
108-90-7	Chlorobenzene	12	U	
100-41-4	Ethylbenzene	12	U	
100-42-5	Styrene	12	U	
1330-20-7	Xylene (total)	12	U	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370VEW1SS50

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826699

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10193.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 13.4 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume 1 (uL) Soil Aliquot Volume: 1 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 1

CAS NO.	COMPOUND	RT	EST. CONC.	Q
1.	unknown hydrocarbon	17.39	8	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1370VEW1SS50

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826699

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4669.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 13.4 Date Analyzed: 08/26/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 500.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	720000	U
74-83-9	Bromomethane	720000	U
75-01-4	Vinyl Chloride	720000	U
75-00-3	Chloroethane	720000	U
75-09-2	Methylene Chloride	720000 ~~110000~~	~~JBD~~ U
67-64-1	Acetone	720000	U J
75-15-0	Carbon Disulfide	720000	U
75-35-4	1,1-Dichloroethene	720000	U
75-34-4	1,1-Dichloroethane	720000	U
540-59-0	1,2-Dichloroethene (total)	720000	U
67-66-3	Chloroform	720000	U
107-06-2	1,2-Dichloroethane	720000	U
78-93-3	2-Butanone	720000	U J
71-55-6	1,1,1-Trichloroethane	720000	U
56-23-5	Carbon Tetrachloride	720000	U
75-27-4	Bromodichloromethane	720000	U
78-87-5	1,2-Dichloropropane	720000	U J
10061-01-5	cis-1,3-Dichloropropene	720000	U
79-01-6	Trichloroethene	720000	U
71-43-2	Benzene	720000	U
124-48-1	Dibromochloromethane	720000	U
10061-02-6	trans-1,3-Dichloropropene	720000	U
79-00-5	1,1,2-Trichloroethane	720000	U
75-25-2	Bromoform	720000	U
108-10-1	4-Methyl-2-Pentanone	720000	U J
591-78-6	2-Hexanone	720000	U J
127-18-4	Tetrachloroethene	8000000	D
79-34-5	1,1,2,2-Tetrachloroethane	720000	U J
108-88-3	Toluene	720000	U
108-90-7	Chlorobenzene	720000	U
100-41-4	Ethylbenzene	720000	U
100-42-5	Styrene	720000	U
1330-20-7	Xylene (total)	720000	U

Use this result ONLY

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370VEW1SS50 DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

James 9/29/98

Matrix: (soil/water) SOIL Lab Sample ID: 9826699

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4669.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 13.4 Date Analyzed: 08/26/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 500.0

Soil Extract Volume 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

1370VEW1SS60

Lab Name: H2M LABS INC. Contract: _____

Lab Code: 10478 Case No.: ERM SAS No.: _____ SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826700

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10194.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 9.1 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	~~11~~ 12	~~B~~ UJ
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-4	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
78-93-3	2-Butanone	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	63	J
71-43-2	Benzene	11	U
124-48-1	Dibromochloromethane	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
79-00-5	1,1,2-Trichloroethane	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	8300	E
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

use result from diluted analysis for this compound

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
1370VEW1SS60

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826700

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10194.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 9.1 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume 1 (uL) Soil Aliquot Volume: 1 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

9/29/98

Number TICs found: 5

CAS NO.	COMPOUND	RT	EST. CONC.	Q
1.	unknown hydrocarbon	16.51	37	J
2.	unknown hydrocarbon	17.00	57	J
3.	unknown hydrocarbon	17.38	95	J
4.	unknown hydrocarbon	17.67	28	J
5.	unknown hydrocarbon	17.83	33	J

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

1370VEW1SS60 DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826700

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4656.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 9.1 Date Analyzed: 08/25/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 200.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	280000	U
74-83-9	Bromomethane	280000	U
75-01-4	Vinyl Chloride	280000	U
75-00-3	Chloroethane	280000	U
75-09-2	Methylene Chloride	88000	JD
67-64-1	Acetone	280000	UJ
75-15-0	Carbon Disulfide	280000	U
75-35-4	1,1-Dichloroethene	280000	U
75-34-4	1,1-Dichloroethane	280000	U
540-59-0	1,2-Dichloroethene (total)	280000	U
67-66-3	Chloroform	280000	U
107-06-2	1,2-Dichloroethane	280000	U
78-93-3	2-Butanone	280000	UJ
71-55-6	1,1,1-Trichloroethane	280000	U
56-23-5	Carbon Tetrachloride	280000	U
75-27-4	Bromodichloromethane	280000	U
78-87-5	1,2-Dichloropropane	280000	UJ
10061-01-5	cis-1,3-Dichloropropene	280000	U
79-01-6	Trichloroethene	280000	U
71-43-2	Benzene	280000	U
124-48-1	Dibromochloromethane	280000	U
10061-02-6	trans-1,3-Dichloropropene	280000	U
79-00-5	1,1,2-Trichloroethane	280000	U
75-25-2	Bromoform	280000	U
108-10-1	4-Methyl-2-Pentanone	280000	UJ
591-78-6	2-Hexanone	280000	UJ
127-18-4	Tetrachloroethene	3400000	D
79-34-5	1,1,2,2-Tetrachloroethane	280000	UJ
108-88-3	Toluene	280000	U
108-90-7	Chlorobenzene	280000	U
100-41-4	Ethylbenzene	280000	U
100-42-5	Styrene	280000	U
1330-20-7	Xylene (total)	280000	U

use this result only

A

gms 10/28/98

V0245

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370VEW1SS60 DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826700

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4656.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 9.1 Date Analyzed: 08/25/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 200.0

Soil Extract Volume 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1370VEW2SS30

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826701

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10195.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 7.4 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG		Q
74-87-3	Chloromethane	11		U
74-83-9	Bromomethane	11		U
75-01-4	Vinyl Chloride	11		U
75-00-3	Chloroethane	11		U
75-09-2	Methylene Chloride	11		U
67-64-1	Acetone	11 ~~13~~	~~B~~	UJ
75-15-0	Carbon Disulfide	11		U
75-35-4	1,1-Dichloroethene	11		U
75-34-4	1,1-Dichloroethane	11		U
540-59-0	1,2-Dichloroethene (total)	11		U
78-93-3	2-Butanone	11		U
67-66-3	Chloroform	11		U
107-06-2	1,2-Dichloroethane	11		U
71-55-6	1,1,1-Trichloroethane	11		U
56-23-5	Carbon Tetrachloride	11		U
75-27-4	Bromodichloromethane	11		U
78-87-5	1,2-Dichloropropane	11		U
10061-01-5	cis-1,3-Dichloropropene	11		U
79-01-6	Trichloroethene	6		J
71-43-2	Benzene	11		U
124-48-1	Dibromochloromethane	11		U
10061-02-6	trans-1,3-Dichloropropene	11		U
79-00-5	1,1,2-Trichloroethane	11		U
75-25-2	Bromoform	11		U
108-10-1	4-Methyl-2-Pentanone	11		U
591-78-6	2-Hexanone	11		U
127-18-4	Tetrachloroethene	6600	E	use result from diluted analysis for this compound
79-34-5	1,1,2,2-Tetrachloroethane	11		U
108-88-3	Toluene	11		U
108-90-7	Chlorobenzene	11		U
100-41-4	Ethylbenzene	11		U
100-42-5	Styrene	11		U
1330-20-7	Xylene (total)	11		U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370VEW2SS30

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826701

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10195.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 7.4 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume 1 (uL) Soil Aliquot Volume: 1 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Rmd 9/29/98

Number TICs found: 5

CAS NO.	COMPOUND	RT	EST. CONC.	Q
~~1. 000556-67-2~~	~~Cyclotetrasiloxane, octamethyl-~~	~~15.26~~	~~37~~	~~JN~~ R
2.	unknown hydrocarbon	16.51	10	J
3.	unknown hydrocarbon	16.99	12	J
4.	unknown hydrocarbon	17.37	24	J
5.	unknown hydrocarbon	17.89	12	J

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

1370VEW2SS30 DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003 JV, 10/28/98

Matrix: (soil/water) SOIL Lab Sample ID: 9826701

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4657.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 7.4 Date Analyzed: 08/25/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 50.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	67000	U
74-83-9	Bromomethane	67000	U
75-01-4	Vinyl Chloride	67000	U
75-00-3	Chloroethane	67000	U
75-09-2	Methylene Chloride	23000	JD
67-64-1	Acetone	67000	UJ
75-15-0	Carbon Disulfide	67000	U
75-35-4	1,1-Dichloroethene	67000	U
75-34-4	1,1-Dichloroethane	67000	U
540-59-0	1,2-Dichloroethene (total)	67000	U
67-66-3	Chloroform	67000	U
107-06-2	1,2-Dichloroethane	67000	U
78-93-3	2-Butanone	67000	UJ
71-55-6	1,1,1-Trichloroethane	67000	U
56-23-5	Carbon Tetrachloride	67000	U
75-27-4	Bromodichloromethane	67000	U
78-87-5	1,2-Dichloropropane	67000	UJ
10061-01-5	cis-1,3-Dichloropropene	67000	U
79-01-6	Trichloroethene	67000	U
71-43-2	Benzene	67000	U
124-48-1	Dibromochloromethane	67000	U
10061-02-6	trans-1,3-Dichloropropene	67000	U
79-00-5	1,1,2-Trichloroethane	67000	U
75-25-2	Bromoform	67000	U
108-10-1	4-Methyl-2-Pentanone	67000	UJ
591-78-6	2-Hexanone	67000	UJ
127-18-4	Tetrachloroethene	470000	D
79-34-5	1,1,2,2-Tetrachloroethane	67000	UJ
108-88-3	Toluene	67000	U
108-90-7	Chlorobenzene	67000	U
100-41-4	Ethylbenzene	67000	U
100-42-5	Styrene	67000	U
1330-20-7	Xylene (total)	67000	U

Use this result only

gmo 10/28/98

V0265

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370VEW2SS30 DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826701

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4657.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 7.4 Date Analyzed: 08/25/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 50.0

Soil Extract Volume 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1370VEW2SS40

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826702

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10196.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 16.2 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12	U
67-64-1	Acetone	12 ~~31~~	~~B~~ UJ
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-4	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
78-93-3	2-Butanone	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	83	
71-43-2	Benzene	12	U
124-48-1	Dibromochloromethane	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
79-00-5	1,1,2-Trichloroethane	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	11000	E
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

use result from diluted analysis for this compound

A

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370VEW2SS40

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826702

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10196.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 16.2 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume 1 (uL) Soil Aliquot Volume: 1 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 4

CAS NO.	COMPOUND	RT	EST. CONC.	Q
1.	unknown ketone	15.12	60	J
2.	unknown ketone	16.22	7	J
3.	unknown hydrocarbon	16.51	7	J
4.	unknown hydrocarbon	17.36	13	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1370VEW2SS40 DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826702

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4658.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 16.2 Date Analyzed: 08/25/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 500.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

JV 10/28/98

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	750000	U
74-83-9	Bromomethane	750000	U
75-01-4	Vinyl Chloride	750000	U
75-00-3	Chloroethane	750000	U
75-09-2	Methylene Chloride	270000	JD
67-64-1	Acetone	750000	UJ
75-15-0	Carbon Disulfide	750000	U
75-35-4	1,1-Dichloroethene	750000	U
75-34-4	1,1-Dichloroethane	750000	U
540-59-0	1,2-Dichloroethene (total)	750000	U
67-66-3	Chloroform	750000	U
107-06-2	1,2-Dichloroethane	750000	U
78-93-3	2-Butanone	750000	UJ
71-55-6	1,1,1-Trichloroethane	750000	U
56-23-5	Carbon Tetrachloride	750000	U
75-27-4	Bromodichloromethane	750000	U
78-87-5	1,2-Dichloropropane	750000	UJ
10061-01-5	cis-1,3-Dichloropropene	750000	U
79-01-6	Trichloroethene	750000	U
71-43-2	Benzene	750000	U
124-48-1	Dibromochloromethane	750000	U
10061-02-6	trans-1,3-Dichloropropene	750000	U
79-00-5	1,1,2-Trichloroethane	750000	U
75-25-2	Bromoform	750000	U
108-10-1	4-Methyl-2-Pentanone	750000	UJ
591-78-6	2-Hexanone	750000	UJ
127-18-4	Tetrachloroethene	6000000	D
79-34-5	1,1,2,2-Tetrachloroethane	750000	UJ
108-88-3	Toluene	750000	U
108-90-7	Chlorobenzene	750000	U
100-41-4	Ethylbenzene	750000	U
100-42-5	Styrene	750000	U
1330-20-7	Xylene (total)	750000	U

use this result only

A

JMA 10/28/98

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370VEW2SS40

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826702

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4658.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 16.2 Date Analyzed: 08/25/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 500.0

Soil Extract Volume 10000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

1370VEW2SS50

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826703

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10197.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 17.3 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q	
74-87-3	Chloromethane	12	U	
74-83-9	Bromomethane	12	U	
75-01-4	Vinyl Chloride	12	U	
75-00-3	Chloroethane	12	U	
75-09-2	Methylene Chloride	12	U	
67-64-1	Acetone	12 ~~10~~	~~JB~~	UJ
75-15-0	Carbon Disulfide	12	U	
75-35-4	1,1-Dichloroethene	12	U	
75-34-4	1,1-Dichloroethane	12	U	
540-59-0	1,2-Dichloroethene (total)	12	U	
78-93-3	2-Butanone	12	U	
67-66-3	Chloroform	12	U	
107-06-2	1,2-Dichloroethane	12	U	
71-55-6	1,1,1-Trichloroethane	12	U	
56-23-5	Carbon Tetrachloride	12	U	
75-27-4	Bromodichloromethane	12	U	
78-87-5	1,2-Dichloropropane	12	U	
10061-01-5	cis-1,3-Dichloropropene	12	U	
79-01-6	Trichloroethene	4	J	
71-43-2	Benzene	12	UJ	
124-48-1	Dibromochloromethane	12	U	
10061-02-6	trans-1,3-Dichloropropene	12	U	
79-00-5	1,1,2-Trichloroethane	12	U	
75-25-2	Bromoform	12	U	
108-10-1	4-Methyl-2-Pentanone	12	U	
591-78-6	2-Hexanone	12	U	
127-18-4	Tetrachloroethene	11000	E	use result from diluted analysis for this compound
79-34-5	1,1,2,2-Tetrachloroethane	12	U	
108-88-3	Toluene	12	U	
108-90-7	Chlorobenzene	12	U	
100-41-4	Ethylbenzene	12	U	
100-42-5	Styrene	12	U	
1330-20-7	Xylene (total)	12	U	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370VEW2SS50

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826703

Sample wt/vol: 5.0 (g/ml) G Lab File ID: P10197.D

Level: (low/med) LOW Date Received: 08/19/98

% Moisture: not dec. 17.3 Date Analyzed: 08/21/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume 1 (uL) Soil Aliquot Volume: 1 (uL)

gmd 9/29/98

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 5

CAS NO.	COMPOUND	RT	EST. CONC.	Q
1.	unknown hydrocarbon	16.52	11	J
2.	unknown hydrocarbon	17.00	18	J
3.	unknown hydrocarbon	17.38	30	J
4.	unknown hydrocarbon	17.67	9	J
5.	unknown hydrocarbon	17.95	7	J

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

1370VEW2SS50 DL

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826703 JV 10/28/98

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4659.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 17.3 Date Analyzed: 08/25/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 50.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	76000	U
74-83-9	Bromomethane	76000	U
75-01-4	Vinyl Chloride	76000	U
75-00-3	Chloroethane	76000	U
75-09-2	Methylene Chloride	26000	JD
67-64-1	Acetone	76000	UJ
75-15-0	Carbon Disulfide	76000	U
75-35-4	1,1-Dichloroethene	76000	U
75-34-4	1,1-Dichloroethane	76000	U
540-59-0	1,2-Dichloroethene (total)	76000	U
67-66-3	Chloroform	76000	U
107-06-2	1,2-Dichloroethane	76000	U
78-93-3	2-Butanone	76000	UJ
71-55-6	1,1,1-Trichloroethane	76000	U
56-23-5	Carbon Tetrachloride	76000	U
75-27-4	Bromodichloromethane	76000	U
78-87-5	1,2-Dichloropropane	76000	UJ
10061-01-5	cis-1,3-Dichloropropene	76000	U
79-01-6	Trichloroethene	76000	U
71-43-2	Benzene	76000	U
124-48-1	Dibromochloromethane	76000	U
10061-02-6	trans-1,3-Dichloropropene	76000	U
79-00-5	1,1,2-Trichloroethane	76000	U
75-25-2	Bromoform	76000	U
108-10-1	4-Methyl-2-Pentanone	76000	UJ
591-78-6	2-Hexanone	76000	UJ
127-18-4	Tetrachloroethene	630000	D
79-34-5	1,1,2,2-Tetrachloroethane	76000	UJ
108-88-3	Toluene	76000	U
108-90-7	Chlorobenzene	76000	U
100-41-4	Ethylbenzene	76000	U
100-42-5	Styrene	76000	U
1330-20-7	Xylene (total)	76000	U

use this result ONLY

gms 10/28/98

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

1370VEW2SS50

Lab Name: H2M LABS INC. Contract:

Lab Code: 10478 Case No.: ERM SAS No.: SDG No.: ERM003

Matrix: (soil/water) SOIL Lab Sample ID: 9826703

Sample wt/vol: 4.0 (g/ml) G Lab File ID: V4659.D

Level: (low/med) MED Date Received: 08/19/98

% Moisture: not dec. 17.3 Date Analyzed: 08/25/98

GC Column: RTX502. ID: 0.53 (mm) Dilution Factor: 50.0

Soil Extract Volume 10000 (uL) Soil Aliquot Volume: 100 (uL)

9/29/98

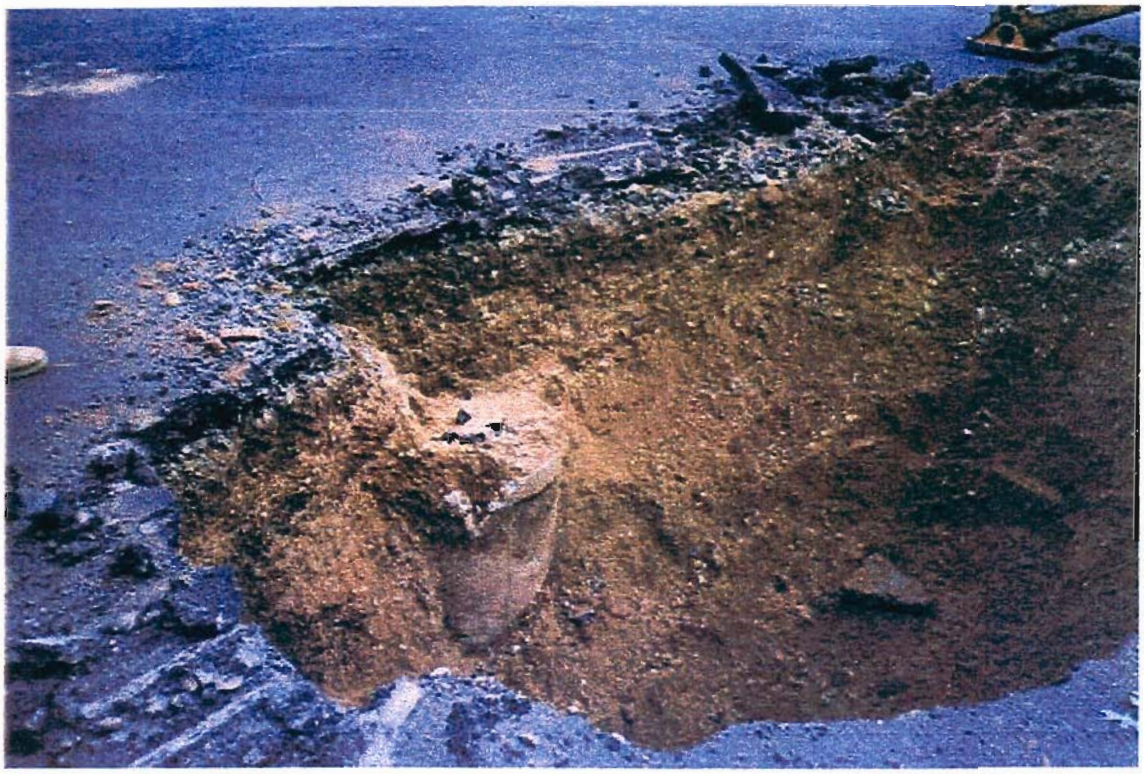
CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND	RT	EST. CONC.	Q

APPENDIX C

Dry Well Photographs



Dry Well Manway

Excavation Of Top Cone

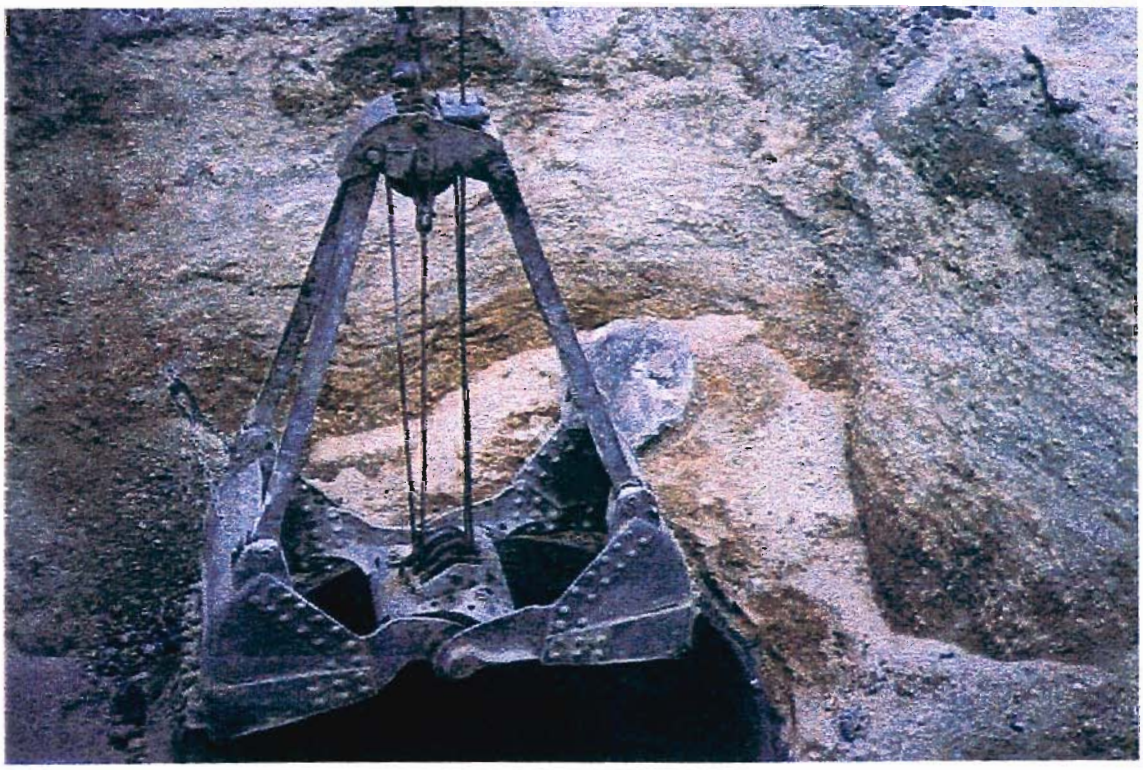
Piece Of The 5" Drain Pipe That Was Connected To Dry Well

Drain Pipe Position Relative To NE Building Corner

Treatment Of Dry Well Vapors Prior To Removal Of Top Cone

Dry Well With Top Cone Removed

Dry Well Sediments



Removal Of Dry Well Sediments With "Clam Shell" Crane

Sealed Drain Pipe And Backfill Of Excavation

Gravel Base And Stake Showing Location Of Dry Well Center

APPENDIX D

Well Construction Details and Boring Logs

ERM

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

Boring Number
ASW-1

BORING LOG

Project Name & Location	Project Number	Date & Time Started:		
Fulton Avenue Soil IRM	1370.001.001	Date & Time Completed:		
Drilling Company	Foreman	Sampler(s)	Sampler Hammer	Drop
Aquifer Drilling & Testing, Inc.		David Mutter	140 lbs.	30"
Drilling Equipment	Method	Elevation & Datum	Completion Depth	Rock Depth
Mobile B-61	Hollow Stem Auger			
Bit Size(s)	Core Barrel(s)	Geologist(s)		
3.25" Hollow Stem Auger	2" I.D. x 24"	David Mutter		

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
	LOCATION:				SURFACE DESCRIPTION: Ground Surface Is Paved.	
0						
1						
2	ASW					
	1		0.0		Light Gray; Medium-Coarse Sand w/ Fine Gravel	
3	SS					
	4					
4						
5						
6						
7	ASW					
	1		0.0		Light Gray; Medium-Coarse Sand w/ Tr. Coarse Gravel	
8	SS					
	9					
9						
10						

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

Boring Number
ASW-1

BORING LOG

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
10						
11						
12	ASW					
	1		764		Brown; Fine-Coarse Sand w/ Tr. Fine Gravel	
13	SS					
	14					
14						
15						
16						
17	ASW					
	1		182		Tan; Fine-Coarse Sand w/ Some Fine Gravel	
18	SS					
	19					
19						
20						

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ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

Boring Number
ASW-1

BORING LOG

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
20						
21						
22	ASW					
	1		N/A		No Recovery	
23	SS					
	24					
24						
25						
26						
27	ASW					
	1				No Recovery	
28	SS					
	29					
29						
30						

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ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

Boring Number
ASW-1

BORING LOG

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
30						
31						
32						
	ASW					Sample 1370-ASW-1-SS-32 sent to
	1		2000+		Tan-Brown; Fine-Coarse Sand w/ Tr. Gravel	laboratory.
33	SS					
	34					
34						
35						
36						
37						
	ASW					
	1		2000+		Brown; Fine-Coarse Sand w/ Fine Gravel	
38	SS					
	39					
39						
40						

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ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

BORING LOG

Boring Number
ASW-1

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
40						
41						
42	ASW					
	1		2000+		Light Brown; Fine-Coarse Sand w/ Tr. Gravel	
43	SS					
	44					
44						
45						
46						
47	ASW					Sample 1370-ASW-1-SS-47 sent to laboratory.
	1		2000+		Tan-Brown; Fine-Coarse Sand w/ Some Fine Gravel	
48	SS					
	49					
49						
50						

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ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

BORING LOG

Boring Number
ASW-1

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
50						
51						
52						
	ASW					
	1		1115		Tan; Fine-Coarse Sand; Saturated	
53	SS					
	54					
54						
55						
56						
57						
	ASW					
	1		1076		Tan; Fine-Coarse Sand w/ Some Coarse Gravel; Saturated	
58	SS					
	59					
59						
60						

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ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

BORING LOG

Boring Number
ASW-1

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
60						
61						
62	ASW					
	1		1345		Tan; Fine-Coarse Sand w/ Tr. Coarse Gravel; Saturated	
63	SS					
	64					
64						
65						
66						
67						
	ASW					Sample 1370-ASW-1-SS-67 sent to
	1		1254		Tan; Fine-Coarse Sand; Saturated	laboratory. Blind duplicate of this sample was 1370-ASW-1-SS-71.
68	SS					
	69					
69	ASW-1		2000+		Tan; Fine-Coarse Sand; Saturated	Sample 1370-ASW-1-SS-69 sent to
	SS-71				End of Soil Boring	laboratory.
70						

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ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

Boring Number
ASW-2

BORING LOG

Project Name & Location	Project Number	Date & Time Started:		
Fulton Avenue Soil IRM	**1370.001.001**	Date & Time Completed:		
Drilling Company	Foreman	Sampler(s)	Sampler Hammer	Drop
Aquifer Drilling & Testing, Inc.		**David Mutter**	**140 lbs.**	**30"**
Drilling Equipment	Method	Elevation & Datum	Completion Depth	Rock Depth
Mobile B-61	**Hollow Stem Auger**			
Bit Size(s)	Core Barrel(s)	Geologist(s)		
3.25" Hollow Stem Auger	**2" I.D. x 24"**	**David Mutter**		

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
	LOCATION:				SURFACE DESCRIPTION: Ground Surface Is Paved.	
0						
1						
2						
3						
4						
5						
	ASW					
6	2		0.0		Tan-Brown; Fine-Coarse Sand w/ Tr. Gravel	
	SS					
7	7					
8						
9						
10						

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175 Froehlich Farm Blvd., Woodbury, New York 11797

ERM

Boring Number
ASW-2

BORING LOG

Project Name & Location	Project Number	Date & Time Started:		
Fulton Avenue Soil IRM	1370.001.001	Date & Time Completed:		
Drilling Company	Foreman	Sampler(s)	Sampler Hammer	Drop
Aquifer Drilling & Testing, Inc.		David Mutter	140 lbs.	30"
Drilling Equipment	Method	Elevation & Datum	Completion Depth	Rock Depth
Mobile B-61	Hollow Stem Auger			
Bit Size(s)	Core Barrel(s)	Geologist(s)		
3.25" Hollow Stem Auger	2" I.D. x 24"	David Mutter		

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
	LOCATION:				SURFACE DESCRIPTION: Ground Surface Is Paved.	
0						
1						
2						
3						
4						
5						
	ASW					
6	2		0.0		Tan-Brown; Fine-Coarse Sand w/ Tr. Gravel	
	SS					
7	7					
8						
9						
10						

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ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

Boring Number
ASW-2

BORING LOG

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
10	ASW					
	2		6.5		Tan-Brown; Fine-Coarse Sand w/ Some Coarse Gravel	
11	SS					
	12					
12						
13						
14						
15	ASW					
	2		6.8		Tan-Brown; Fine-Coarse Sand w/Some Fine Gravel	
16	SS					
	17					
17						
18						
19						
20						

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ERM-Northeast

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BORING LOG

Boring Number
ASW-2

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
20	ASW					
	2		0.0		Light Brown; Fine-Coarse Sand w/ Some Fine Gravel	
21	SS					
	22					
22						
23						
24						
25						
	ASW					
	2		71.7		Light Brown; Fine-Coarse Sand w/ Some Fine Gravel	
26	SS					
	27					
27						
28						
29						
30						

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ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

Boring Number
ASW-2

BORING LOG

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
30	ASW					
	2		327		Tan-Brown; Fine-Coarse Sand	
31	SS					
	32					
32						
33						
34						
35						
	ASW					Sample 1370-ASW-2-SS-35 sent to
	2		2000+		Tan-Brown; Fine-Coarse Sand w/ Tr. Coarse Gravel	laboratory.
36	SS					
	37					
37						
38						
39						
40						

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ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

Boring Number
ASW-2

BORING LOG

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
40						
	ASW					
	2		2000+		Light Brown; Fine-Coarse Sand	
41	SS					
	42					
42						
43						
44						
45						
	ASW					Sample 1370-ASW-2-SS-45 sent to laboratory.
	2			2000+	Light Brown; Fine-Coarse Sand w/Some Coarse Gravel	
46	SS					
	47					
47						
48						
49						
50						

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ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

BORING LOG

Boring Number
ASW-2

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
50	ASW					
	2		2000+		Tan-Brown; Fine-Coarse Sand; Saturated	
51	SS					
	52					
52						
53						
54						
55	ASW					Sample 1370-ASW-2-SS-55 sent to laboratory.
	2		2000+		Tan-Gray; Fine-Coarse Sand; Saturated	
56	SS					
	57					
57						
58						
59						
60						

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ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

BORING LOG

Boring Number
ASW-2

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
60	ASW					
	2		646		Tan-Gray; Fine-Coarse Sand w/ Tr. Gravel; Saturated	
61	SS					
	62					
62						
63						
64						
65	ASW					
	2		23.4		Tan-Brown; Fine-Coarse Sand w/ Tr. Coarse Gravel;	
66	SS				Saturated	
	67					
67						
68						
69						
70						

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175 Froehlich Farm Blvd., Woodbury, New York 11797

BORING LOG

Boring Number
ASW-2

DEPTH (ft below grade)	SAMPLES				SOIL DESCRIPTION	REMARKS
	Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts		
70						
	ASW					
	2		65.9		Tan-Gray; Fine-Medium Sand w/ Tr. Gravel; Saturated	
71						
	SS					
	72					
72					**End of Soil Boring**	
73						
74						
75						
76						
77						
78						
79						
80						

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ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

Boring Number
VEW-1

BORING LOG

Project Name & Location	Project Number	Date & Time Started:		
Fulton Avenue Soil IRM	**1370.001.001**	Date & Time Completed:		
Drilling Company	Foreman	Sampler(s)	Sampler Hammer	Drop
Aquifer Drilling & Testing, Inc.		**David Mutter**	**140 lbs.**	**30"**
Drilling Equipment	Method	Elevation & Datum	Completion Depth	Rock Depth
Mobile B-61	**Hollow Stem Auger**			
Bit Size(s)	Core Barrel(s)	Geologist(s)		
3.25" Hollow Stem Auger	**2" I.D. x 24"**	**David Mutter**		

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
	LOCATION:				SURFACE DESCRIPTION: Ground Surface Is Paved.	
0					Soil sampling commenced at 25 feet below grade.	
21						
22						
23						
24						
25						
	VEW					
26	2		0.6		Brown; Fine-Coarse Sand w/ some Gravel	
	SS					
27	27					
28						
29						
30						

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Boring Number
VEW-1

BORING LOG

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
30	VEW					
	2		23.6		Tan-Brown; Fine-Coarse Sand w/ some Fine Gravel	
31	SS					
	32					
32						
33						
34						
35	VEW					
	2		21.7		Tan-Brown; Fine-Coarse Sand w/Tr. Fine Gravel	
36	SS					
	37					
37						
38						
39						
40						

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BORING LOG

Boring Number
VEW-1

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
40	VEW					Sample 1370-VEW-1-SS-40 sent to laboratory.
	2		2000+		Tan-Brown; Fine-Coarse Sand w/Tr. Fine Gravel	
41	SS					
	42					
42						
43						
44						
45	VEW					
	2		2000+		Tan-Brwon; Fine-Coarse Sand w/Tr. Gravel	
46	SS					
	47					
47						
48						
49						
50						

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BORING LOG

Boring Number
VEW-1

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
50	VEW					Sample 1370-VEW-1-SS-50 sent to laboratory.
	2		2000+		Tan; Fine-Coarse Sand w/Tr. Fine Gravel; Saturated	
51	SS					
	52					
52						
53						
54						
55	VEW					
	2		2000+		Tan; Fine-Coarse Sand w/ Tr. Coarse Gravel; Saturated	
56	SS					
	57					
57						
58						
59						
60						

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BORING LOG

Boring Number
VEW-1

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
60	VEW					Sample 1370-VEW-1-SS-60 sent to laboratory.
	2		2000+		Tan-Gray; Fine-Coarse Sand; Saturated	
61	SS					
	62					
62					**End of Soil Boring**	
63						
64						
65						
66						
67						
68						
69						
70						

Page _____ of _____ Signature: _____ Date: _____

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

Boring Number
VEW-2

BORING LOG

Project Name & Location	Project Number	Date & Time Started:		
Fulton Avenue Soil IRM	**1370.001.001**	Date & Time Completed:		
Drilling Company	Foreman	Sampler(s)	Sampler Hammer	Drop
Aquifer Drilling & Testing, Inc.		**David Mutter**	**140 lbs.**	**30"**
Drilling Equipment	Method	Elevation & Datum	Completion Depth	Rock Depth
Mobile B-61	**Hollow Stem Auger**			
Bit Size(s)	Core Barrel(s)	Geologist(s)		
3.25" Hollow Stem Auger	**2" I.D. x 24"**	**David Mutter**		

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
	LOCATION:				SURFACE DESCRIPTION: Ground Surface Is Paved.	
0					Soil sampling commenced at 25 feet below grade.	
21						
22						
23						
24						
25						
	VEW					
	2		477		Light Brown; Fine-Coarse Sand w/ Tr. Gravel	
26	SS					
	27					
27						
28						
29						
30						

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ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

BORING LOG

Boring Number
VEW-2

ERM

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
30	VEW					Sample 1370-VEW-2-SS-30 sent to laboratory.
	2		1365		Brown; Fine-Coarse Sand w/ Tr. Coarse Gravel	
31	SS					
	32					
32						
33						
34						
35	VEW					
	2		2000+		Brown; Fine-Coarse Sand w/ Fine-Coarse Gravel	
36	SS					
	37					
37						
38						
39						
40						

Page _____ of _____ Signature: _____ Date: _____

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

Boring Number
VEW-2

BORING LOG

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
40	VEW					
	2		2000+		Light Brown; Fine-Coarse Sand w/ Tr. Fine Gravel	Sample 1370-VEW-2-SS-40 sent to laboratory.
41	SS					
	42					
42						
43						
44						
45	VEW					
	2		2000+		Light Brown; Fine-Coarse Sand w/ Tr. Gravel	
46	SS					
	47					
47						
48						
49						
50						

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ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

BORING LOG

Boring Number
VEW-2

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
50	VEW					Sample 1370-VEW-2-SS-50/MS/MSD
	2		2000+		Tan; Fine-Coarse Sand w/ Tr. Fine Gravel; Saturated	sent to laboratory.
51	SS					
	52					
52						
53						
54						
55	VEW					
	2		1430		Tan; Fine-Coarse Sand w. Tr. Fine Gravel; Saturated	
56	SS					
	57					
57						
58						
59						
60						

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ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, New York 11797

Boring Number
VEW-2

BORING LOG

DEPTH (ft below grade)	SAMPLES: Sample Number	Recovery (feet)	FID/ PID (ppm)	Blow Counts	SOIL DESCRIPTION	REMARKS
60						
	VEW					
	2		2000+		Tan-Brown Fine-Coarse Sand w/ Fine- Coarse Gravel;	
61	SS				Saturated	
	62					
62					**End of Soil Boring**	
63						
64						
65						
66						
67						
68						
69						
70						

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ERM-Northeast

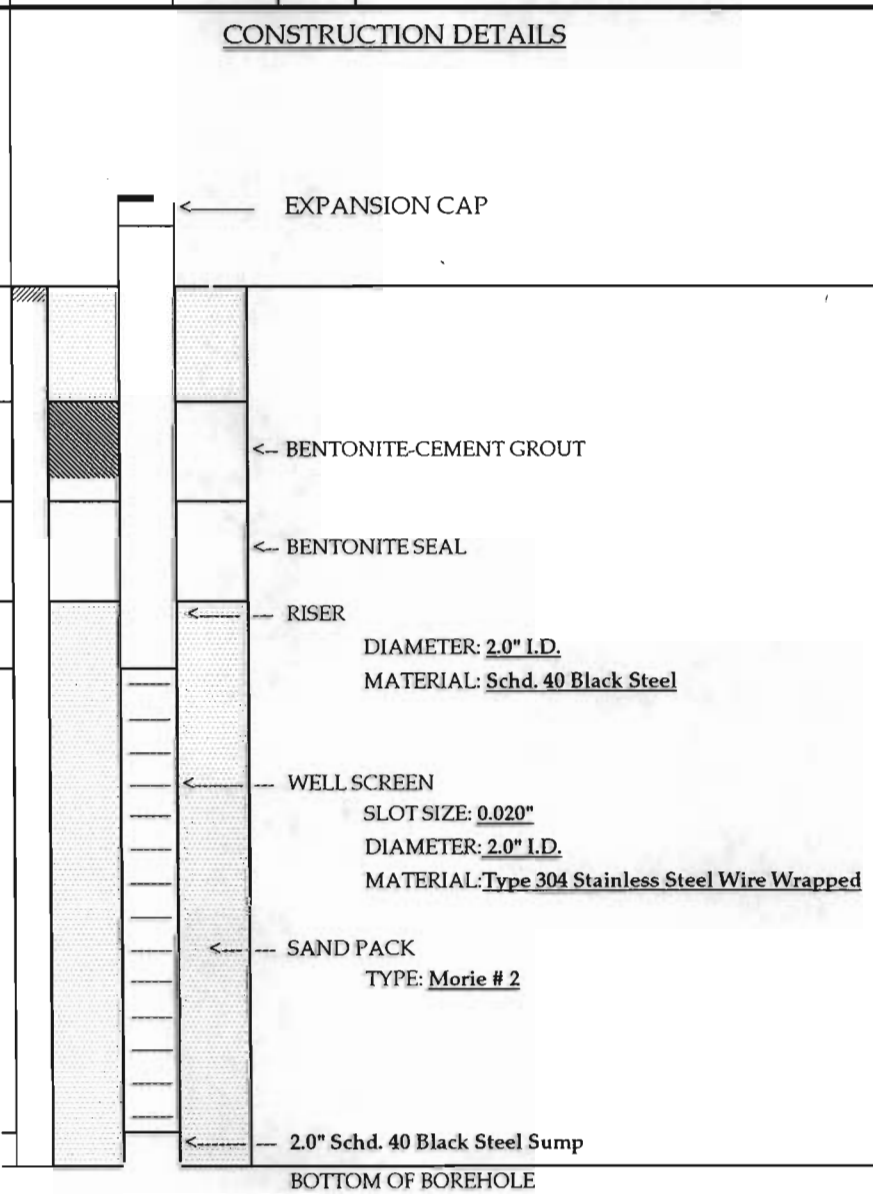
175 Froehlich Farm Blvd., Woodbury, NY 11797

WELL : **ASW-1**

IR SPARGE WELL CONSTRUCTION

Project Name & Location	Project No.	Water Level(s) (ft below top of inner casing)			Site Elevation Datum
Fulton Avenue Soil IRM	**1370.001.001**				
Drilling Company	*Foreman*	Date	Time	Level (feet)	*Ground Elevation*
Aquifer Drilling & Testing, Inc.					~ 100.5
Surveyor		8/21/98	8:00	49.27	*Top of Protective Steel Cap Elevation*
Date and Time of Completion	*Geologist*				*Top of Riser Pipe Elevation*
8/19/98 14:55	**David Mutter**				

Generalized Soil Description	*Elevation	**Depth
	100.5	0.0
	100.0	0.5
	39.0	61.0
Tan/Brown Coarse to Fine Sands and Gravels (Upper Glacial Formation)	37.5	63.0
	35.5	65.0
	30.5	70.0
	28.5	72.0



REMARKS Air Sparge Well

* Elevation (feet) above mean sea level unless noted

** Depth in feet below grade

ERM-Northeast

WELL : **ASW-2**

175 Froehlich Farm Blvd., Woodbury, NY 11797

AIR SPARGE WELL CONSTRUCTION

Project Name & Location **Fulton Avenue Soil IRM**	*Project No.* **1370.001.001**	*Water Level(s) (ft below top of inner casing)*			*Site Elevation Datum (feet)*
Drilling Company **Aquifer Drilling & Testing, Inc.**	*Foreman*	Date	Time	Level (feet)	*Ground Elevation (feet)* ~ 100.5
Surveyor		8/21/98	8:00	48.51	*Top of Protective Steel Cap Elevation (feet)*
Date and Time of Completion **8/19/98 16:30 PM**	*Geologist* **David Mutter**				*Top of Riser Pipe Elevation (feet)*

Generalized Soil Description	*Elevation	**Depth	CONSTRUCTION DETAILS
			PROTECTIVE STEEL CAP FLUSH WITH GROUND
	100.50	0.0	*GROUND SURFACE*
	0.00	100.5	<-- WATER TIGHT CAP WITH LOCK
			<-- PROTECTIVE STEEL CASING CEMENTED IN PLACE
	99.50	1.0	
			<-- BENTONITE-CEMENT GROUT
	40.50	60.0	
			<-- BENTONITE SEAL
	37.50	63.0	
Tan/Brown Coarse to Fine Sands and Gravels (Upper Glacial Formation)	35.50	65.0	<-- RISER DIAMETER: 2.0" I.D. MATERIAL: Schd. 40 Black Steel
			<-- WELL SCREEN SLOT SIZE: 0.020" DIAMETER: 2.0" I.D. MATERIAL: Type 304 Stainless Steel Wire Wrapped
			<-- SAND PACK TYPE: Morie # 2
	30.50	70.0	
	28.50	72.0	<-- 2.0" Schd. 40 Black Steel Sump
			BOTTOM OF BOREHOLE

REMARKS **Air Sparge Well**

*** Elevation (feet) above mean sea level unless noted**

**** Depth in feet below grade**

ERM-Northeast

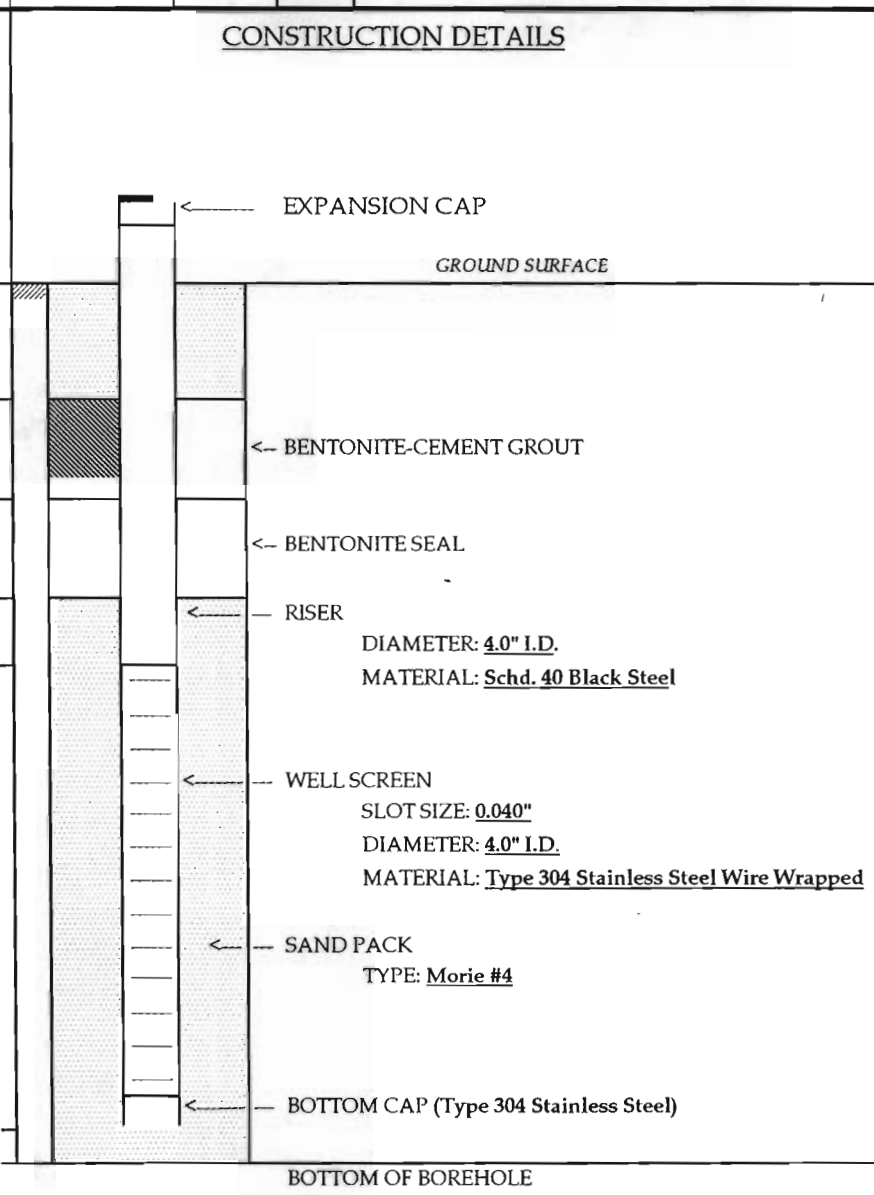
175 Froehlich Farm Blvd., Woodbury, NY 11797

WELL : **SVE-1**

SOIL VAPOR EXTRACTION WELL CONSTRUCTION

Project Name & Location	*Project No.*	*Water Level(s)* (ft below top of inner casing)			*Site Elevation Datum*
Fulton Avenue Soil IRM	**1370.001.001**				
Drilling Company	*Foreman*	Date	Time	Level (feet)	*Ground Elevation*
Aquifer Drilling & Testing, Inc.					~ 100.5
Surveyor					*Top of Protective Steel Cap Elevation*
Date and Time of Completion	*Geologist*				*Top of Riser Pipe Elevation*
8/23/98	**Chris Wenczel**				

Generalized Soil Description	*Elevation	**Depth
	100.5	0.0
	100.0	0.5
	83.0	17.0
Tan/Brown Coarse to Fine Sands and Gravels (Upper Glacial Formation)	81.5	19.0
	80.5	20.0
	45.5	55.0
	44.5	56.0



REMARKS **Soil Vapor Extraction Well**

*** Elevation (feet) above mean sea level unless noted**

**** Depth in feet below grade**

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, NY 11797

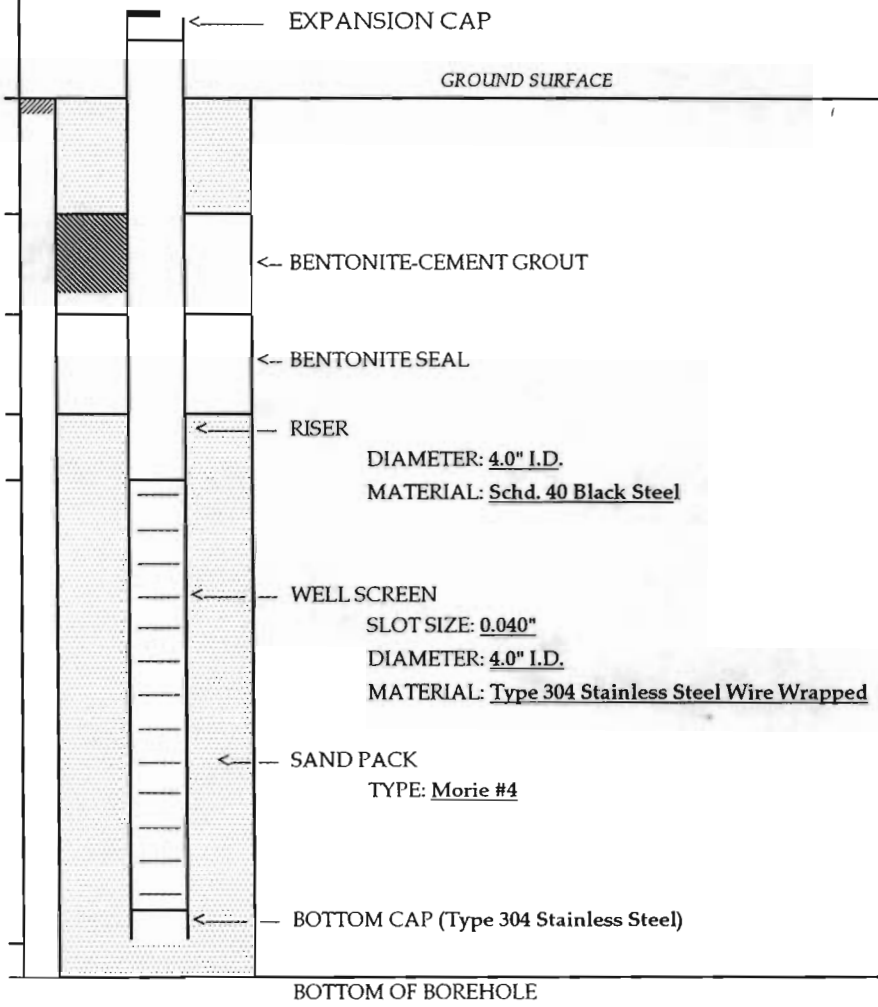
WELL : **SVE-2**

SOIL VAPOR EXTRACTION WELL CONSTRUCTION

Project Name & Location	*Project No.*	*Water Level(s)* (ft below top of inner casing)			*Site Elevation Datum*
Fulton Avenue Soil IRM	**1370.001.001**				
Drilling Company	*Foreman*	Date	Time	Level (feet)	*Ground Elevation*
Aquifer Drilling & Testing, Inc.					~ 100.5
Surveyor					*Top of Protective Steel Cap Elevation*
Date and Time of Completion	*Geologist*				*Top of Riser Pipe Elevation*
8/23/98	Chris Wenczel				

Generalized Soil Description	*Elevation	**Depth
	100.5	0.0
	100.0	0.5
	83.0	17.0
Tan/Brown Coarse to Fine Sands and Gravels (Upper Glacial Formation)	81.5	19.0
	80.5	20.0
	45.5	55.0
	44.5	56.0

CONSTRUCTION DETAILS



REMARKS Soil Vapor Extraction Well

* Elevation (feet) above mean sea level unless noted

** Depth in feet below grade

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, NY 11797

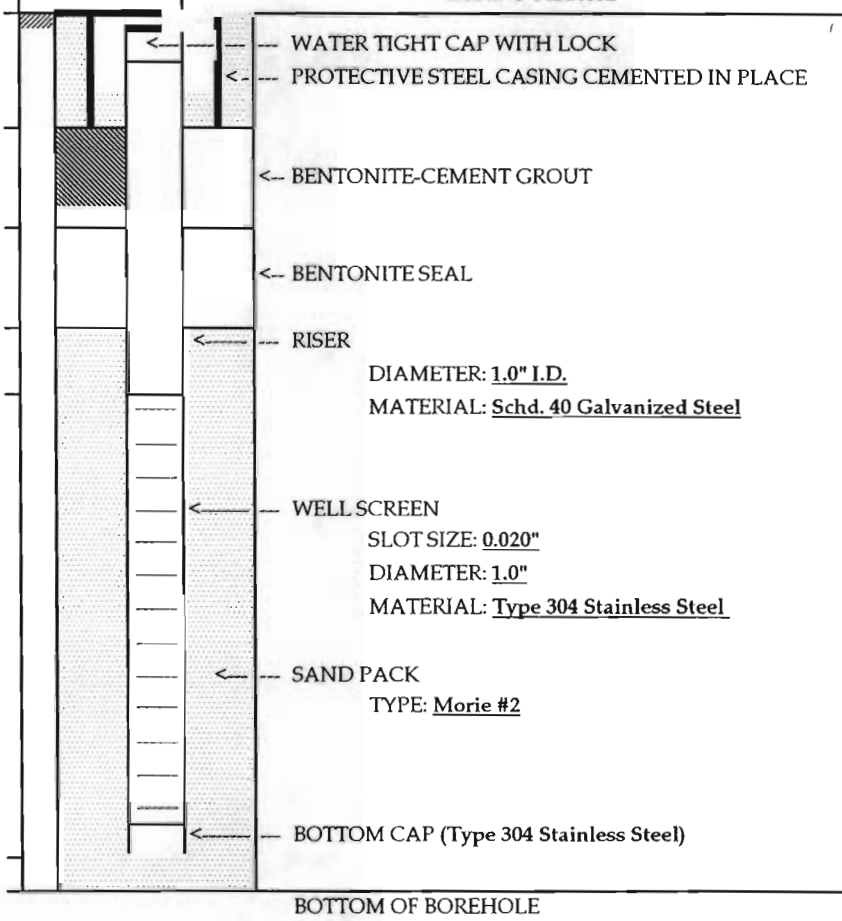
WELL : **VOW-1S**

VAPOR MONITORING WELL CONSTRUCTION

Project Name & Location	Project No.	Water Level(s) (ft below top of inner casing)			Site Elevation Datum
Fulton Avenue Soil IRM	**1370.001.001**				
Drilling Company	*Foreman*	Date	Time	Level (feet)	*Ground Elevation*
Aquifer Drilling & Testing, Inc.					~ 100.5
Surveyor		------	------	----	*Top of Protective Steel Cap Elevation*
Date and Time of Completion	*Geologist*				*Top of Riser Pipe Elevation*
8/19/98	**David Mutter**				

Generalized Soil Description	*Elevation	**Depth
	100.5	0.0
	99.5	1.0
	95.5	4.0
Tan/Brown Coarse to Fine Sands and Gravels (Upper Glacial Formation)	94.5	6.0
	92.5	8.0
	90.5	10.0
	90.0	10.5

CONSTRUCTION DETAILS



REMARKS **Shallow Vapor Monitoring Well**

*** Elevation (feet) above mean sea level unless noted**

**** Depth in feet below grade**

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, NY 11797

WELL : **VOW-1I**

VAPOR MONITORING WELL CONSTRUCTION

Project Name & Location	Project No.	Water Level(s) (ft below top of inner casing)			Site Elevation Datum
Fulton Avenue Soil IRM	**1370.001.001**				
Drilling Company	*Foreman*	Date	Time	Level (feet)	*Ground Elevation*
Aquifer Drilling & Testing, Inc.					~ 100.5
Surveyor		------	------	---	*Top of Protective Steel Cap Elevation*
Date and Time of Completion	*Geologist*				*Top of Riser Pipe Elevation*
	David Mutter				

Generalized Soil Description	*Elevation	**Depth	CONSTRUCTION DETAILS
			PROTECTIVE STEEL CAP FLUSH WITH GROUND
	100.5	0.0	GROUND SURFACE
			<-- WATER TIGHT CAP WITH LOCK
			<-- PROTECTIVE STEEL CASING CEMENTED IN PLACE
	99.5	1.0	
			<-- BENTONITE-CEMENT GROUT
	77.5	22.0	
Tan/Brown Coarse to Fine Sands and Gravels (Upper Glacial Formation)			<-- BENTONITE SEAL
	76.5	24.0	
			<-- RISER
	74.5	26.0	DIAMETER: 1.0" I.D.
			MATERIAL: Schd. 40 Galvanized Steel
			<-- WELL SCREEN
			SLOT SIZE: 0.020"
			DIAMETER: 1.0"
			MATERIAL: Type 304 Stainless Steel
			<-- SAND PACK
			TYPE: Morie #2
	72.5	28.0	<-- BOTTOM CAP (Type 304 Stainless Steel)
	72.0	28.5	BOTTOM OF BOREHOLE

REMARKS **Intermediate Vapor Observation Well**

*** Elevation (feet) above mean sea level unless noted**

**** Depth in feet below grade**

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, NY 11797

WELL : **VOW-1D**

VAPOR/GW MONITORING WELL CONSTRUCTION

Project Name & Location	*Project No.*	*Water Level(s)* (ft below top of inner casing)			*Site Elevation Datum*
Fulton Avenue Soil IRM	**1370.001.001**				
Drilling Company	*Foreman*	Date	Time	Level (feet)	*Ground Elevation*
Aquifer Drilling & Testing, Inc.					~ 100.5
Surveyor					*Top of Protective Steel Cap Elevation*
Date and Time of Completion	*Geologist*				*Top of Riser Pipe Elevation*
	David Mutter				

Generalized Soil Description	*Elevation	**Depth	CONSTRUCTION DETAILS
			PROTECTIVE STEEL CAP FLUSH WITH GROUND
	100.5	0.0	*GROUND SURFACE*
			WATER TIGHT CAP WITH LOCK
	99.5	1.0	PROTECTIVE STEEL CASING CEMENTED IN PLACE
			BENTONITE-CEMENT GROUT
	58.5	41.0	
			BENTONITE SEAL
	57.5	43.0	
			RISER
	55.5	45.0	DIAMETER: 2.0"
			MATERIAL: Schd. 40 Black Steel
			WELL SCREEN
			SLOT SIZE: 0.020"
			DIAMETER: 2.0"
			MATERIAL: Type 304 Stainless Steel Wire Wrapped
			SAND PACK
			TYPE: Morie #2
	45.5	55.0	BOTTOM CAP (Type 304 Stainless Steel)
	44.5	56.0	BOTTOM OF BOREHOLE

REMARKS Deep Vapor/Shallow Ground Water Observation Well

* Elevation (feet) above mean sea level unless noted

** Depth in feet below grade

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, NY 11797

WELL : VOW-2S

VAPOR MONITORING WELL CONSTRUCTION

Project Name & Location	Project No.	Water Level(s) (ft below top of inner casing)			Site Elevation Datum
Fulton Avenue Soil IRM	**1370.001.001**				
Drilling Company	*Foreman*	Date	Time	Level (feet)	*Ground Elevation*
Aquifer Drilling & Testing, Inc.					~ 100.5
Surveyor		------	------	---	*Top of Protective Steel Cap Elevation*
Date and Time of Completion	*Geologist*				*Top of Riser Pipe Elevation*
8/19/98	David Mutter				

Generalized Soil Description	*Elevation	**Depth	CONSTRUCTION DETAILS
			PROTECTIVE CAP
	100.5	0.0	GROUND SURFACE
	100.0	0.5	
	96.0	4.0	BENTONITE-CEMENT GROUT
Tan/Brown Coarse to Fine Sands and Gravels (Upper Glacial Formation)	94.5	6.0	BENTONITE SEAL
	92.5	8.0	RISER DIAMETER: 1.0" I.D. MATERIAL: Schd. 40 Galvanized Steel
			WELL SCREEN SLOT SIZE: 0.020" DIAMETER: 1.0" MATERIAL: Type 304 Stainless Steel
			SAND PACK TYPE: Morie #2
	90.5	10.0	BOTTOM CAP (Type 304 Stainless Steel)
	90.0	10.5	BOTTOM OF BOREHOLE

REMARKS **Shallow Vapor Monitoring Well**

*** Elevation (feet) above mean sea level unless noted**

**** Depth in feet below grade**

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, NY 11797

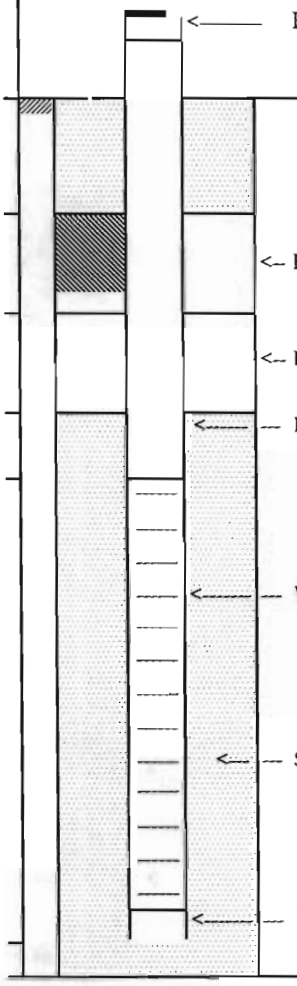
WELL : VOW-2I

VAPOR MONITORING WELL CONSTRUCTION

Project Name & Location	Project No.	Water Level(s) (ft below top of inner casing)			Site Elevation Datum
Fulton Avenue Soil IRM	**1370.001.001**				
Drilling Company	*Foreman*	Date	Time	Level (feet)	*Ground Elevation*
Aquifer Drilling & Testing, Inc.					~ 100.5
Surveyor		———	———	—	*Top of Protective Steel Cap Elevation*
Date and Time of Completion	*Geologist*				*Top of Riser Pipe Elevation*
	David Mutter				

Generalized Soil Description	*Elevation	**Depth
	100.5	0.0
	100.0	0.5
	78.0	22.0
Tan/Brown Coarse to Fine Sands and Gravels (Upper Glacial Formation)	76.5	24.0
	74.5	26.0
	72.5	28.0
	72.0	28.5

CONSTRUCTION DETAILS



- PROTECTIVE CAP
- *GROUND SURFACE*
- BENTONITE-CEMENT GROUT
- BENTONITE SEAL
- RISER
  - DIAMETER: 1.0" I.D.
  - MATERIAL: Schd. 40 Galvanized Steel
- WELL SCREEN
  - SLOT SIZE: 0.020"
  - DIAMETER: 1.0"
  - MATERIAL: Type 304 Stainless Steel
- SAND PACK
  - TYPE: Morie #2
- BOTTOM CAP (Type 304 Stainless Steel)
- BOTTOM OF BOREHOLE

REMARKS **Intermediate Vapor Observation Well**

*** Elevation (feet) above mean sea level unless noted**

**** Depth in feet below grade**

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, NY 11797

WELL : **VOW-2D**

VAPOR/GW MONITORING WELL CONSTRUCTION

Project Name & Location	*Project No.*	*Water Level(s)* (ft below top of inner casing)			*Site Elevation Datum*
Fulton Avenue Soil IRM	**1370.001.001**				
Drilling Company	*Foreman*	Date	Time	Level (feet)	*Ground Elevation*
Aquifer Drilling & Testing, Inc.					~ 100.5
Surveyor					*Top of Protective Steel Cap Elevation*
Date and Time of Completion	*Geologist*				*Top of Riser Pipe Elevation*
	David Mutter				

Generalized Soil Description	*Elevation	**Depth	CONSTRUCTION DETAILS
	100.5	0.0	PROTECTIVE CAP; GROUND SURFACE
	100.0	0.5	
	59.0	41.0	BENTONITE-CEMENT GROUT
	57.5	43.0	BENTONITE SEAL
	55.5	45.0	RISER — DIAMETER: 2.0"; MATERIAL: Schd. 40 Black Steel
			WELL SCREEN — SLOT SIZE: 0.020"; DIAMETER: 2.0"; MATERIAL: Type 304 Stainless Steel Wire Wrapped
			SAND PACK — TYPE: Morie #2
	45.5	55.0	BOTTOM CAP (Type 304 Stainless Steel)
	44.5	56.0	BOTTOM OF BOREHOLE

REMARKS **Deep Vapor/Shallow Ground Water Observation Well**

*** Elevation (feet) above mean sea level unless noted**

**** Depth in feet below grade**

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, NY 11797

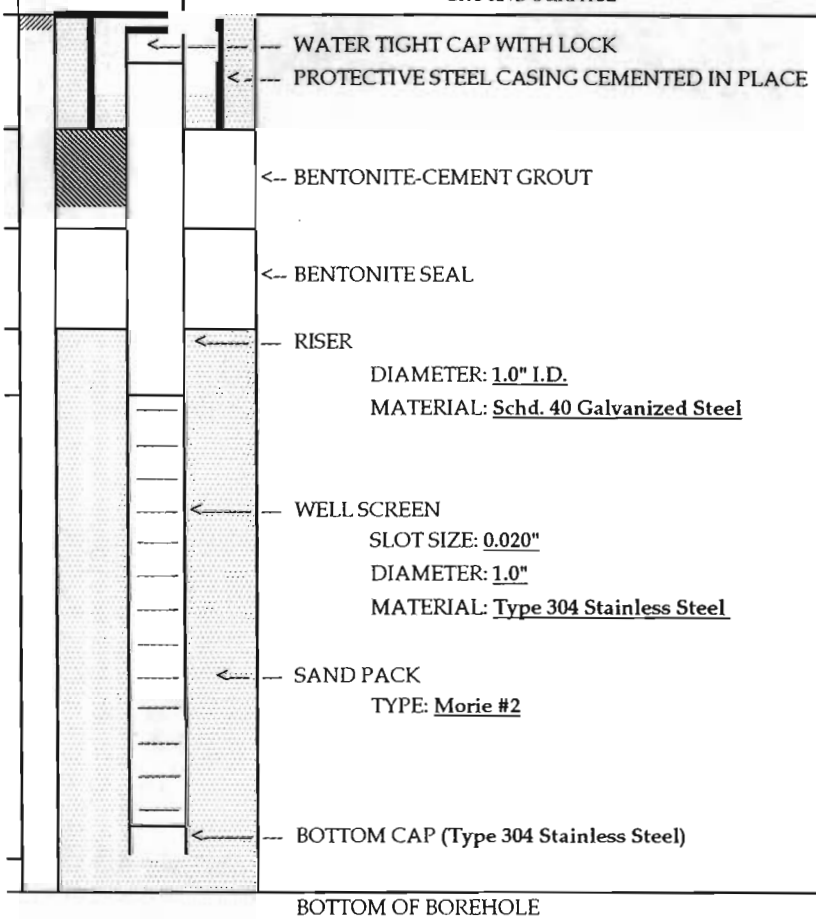
WELL : **VOW-3S**

VAPOR MONITORING WELL CONSTRUCTION

Project Name & Location	*Project No.*	*Water Level(s)* (ft below top of inner casing)			*Site Elevation Datum*
Fulton Avenue Soil IRM	**1370.001.001**				
Drilling Company	*Foreman*	Date	Time	Level (feet)	*Ground Elevation*
Aquifer Drilling & Testing, Inc.					~ 100.5
Surveyor		———	———	———	*Top of Protective Steel Cap Elevation*
Date and Time of Completion	*Geologist*				*Top of Riser Pipe Elevation*
8/19/98	**David Mutter**				

Generalized Soil Description	*Elevation	**Depth
	100.5	0.0
	99.5	1.0
	95.5	4.0
Tan/Brown Coarse to Fine Sands and Gravels (Upper Glacial Formation)	94.5	6.0
	92.5	8.0
	90.5	10.0
	90.0	10.5

CONSTRUCTION DETAILS



REMARKS **Shallow Vapor Monitoring Well**

*** Elevation (feet) above mean sea level unless noted**

**** Depth in feet below grade**

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, NY 11797

WELL : **VOW-3I**

VAPOR MONITORING WELL CONSTRUCTION

Project Name & Location	Project No.	Water Level(s) (ft below top of inner casing)			Site Elevation Datum
Fulton Avenue Soil IRM	**1370.001.001**				
Drilling Company	*Foreman*	Date	Time	Level (feet)	*Ground Elevation*
Aquifer Drilling & Testing, Inc.					~ 100.5
Surveyor		----	----	----	*Top of Protective Steel Cap Elevation*
Date and Time of Completion	*Geologist*				*Top of Riser Pipe Elevation*
8/19/98	**David Mutter**				

Generalized Soil Description	*Elevation	**Depth	CONSTRUCTION DETAILS
			PROTECTIVE STEEL CAP FLUSH WITH GROUND
	100.5	0.0	*GROUND SURFACE*
			<-- WATER TIGHT CAP WITH LOCK
	99.5	1.0	<-- PROTECTIVE STEEL CASING CEMENTED IN PLACE
			<-- BENTONITE-CEMENT GROUT
	77.5	22.0	
Tan/Brown Coarse to Fine Sands and Gravels (Upper Glacial Formation)			<-- BENTONITE SEAL
	76.5	24.0	<-- RISER
			DIAMETER: 1.0" I.D.
	74.5	26.0	MATERIAL: Schd. 40 Galvanized Steel
			<-- WELL SCREEN
			SLOT SIZE: 0.020"
			DIAMETER: 1.0"
			MATERIAL: Type 304 Stainless Steel
			<-- SAND PACK
			TYPE: Morie #2
	72.5	28.0	<-- BOTTOM CAP (Type 304 Stainless Steel)
	72.0	28.5	BOTTOM OF BOREHOLE

REMARKS **Intermediate Vapor Observation Well**

*** Elevation (feet) above mean sea level unless noted**

**** Depth in feet below grade**

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, NY 11797

WELL : **VOW-3D**

VAPOR/GW MONITORING WELL CONSTRUCTION

Project Name & Location	*Project No.*	*Water Level(s)* (ft below top of inner casing)			*Site Elevation Datum*
Fulton Avenue Soil IRM	**1370.001.001**				
Drilling Company	*Foreman*	Date	Time	Level (feet)	*Ground Elevation*
Aquifer Drilling & Testing, Inc.					~ 100.5
Surveyor					*Top of Protective Steel Cap Elevation*
Date and Time of Completion	*Geologist*				*Top of Riser Pipe Elevation*
	David Mutter				

Generalized Soil Description	*Elevation	**Depth	CONSTRUCTION DETAILS
			PROTECTIVE STEEL CAP FLUSH WITH GROUND
	100.5	0.0	*GROUND SURFACE*
			WATER TIGHT CAP WITH LOCK
			PROTECTIVE STEEL CASING CEMENTED IN PLACE
	99.5	1.0	
			BENTONITE-CEMENT GROUT
	58.5	41.0	
			BENTONITE SEAL
	57.5	43.0	
			RISER
	55.5	45.0	DIAMETER: 2.0"
			MATERIAL: Schd. 40 Black Steel
			WELL SCREEN
			SLOT SIZE: 0.020"
			DIAMETER: 2.0"
			MATERIAL: Type 304 Stainless Steel Wire Wrapped
			SAND PACK
			TYPE: Morie #2
	45.5	55.0	BOTTOM CAP (Type 304 Stainless Steel)
	44.5	56.0	BOTTOM OF BOREHOLE

REMARKS **Deep Vapor/Shallow Ground Water Observation Well**

*** Elevation (feet) above mean sea level unless noted**

**** Depth in feet below grade**

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, NY 11797

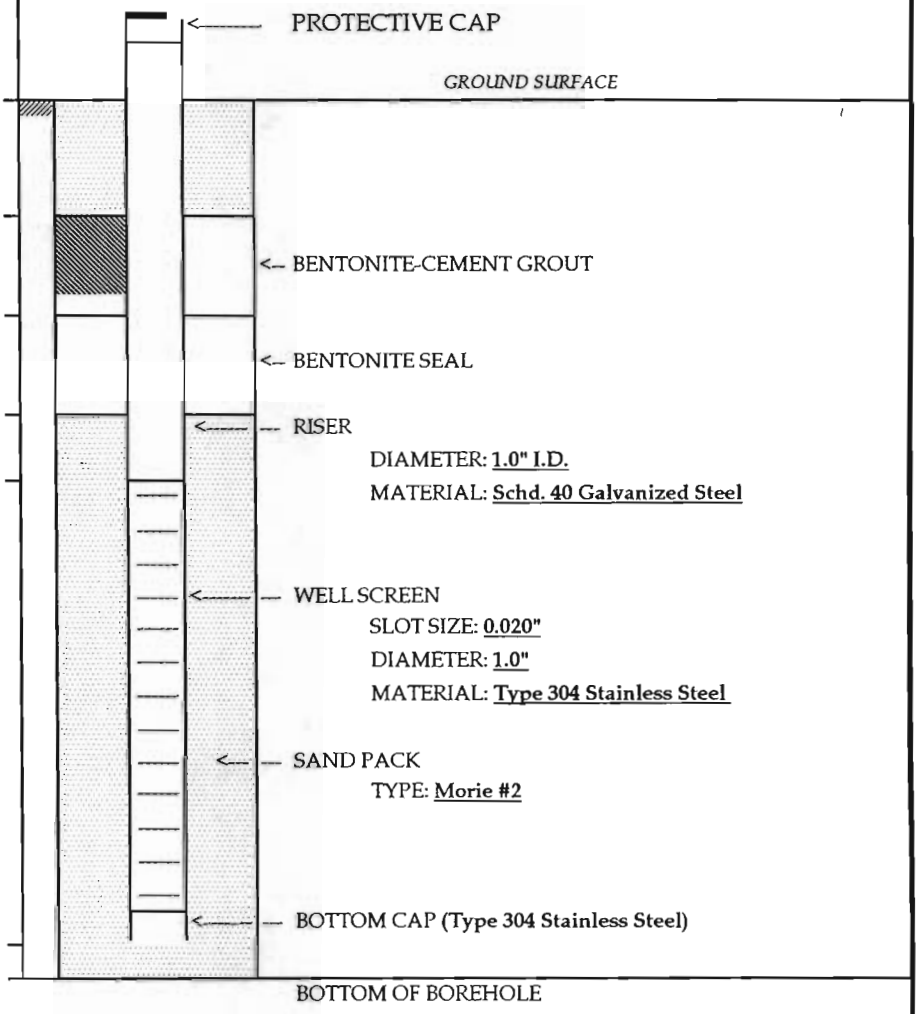
WELL : **VOW-4S**

VAPOR MONITORING WELL CONSTRUCTION

Project Name & Location	*Project No.*	*Water Level(s)* (ft below top of inner casing)			*Site Elevation Datum*
Fulton Avenue Soil IRM	**1370.001.001**				
Drilling Company	*Foreman*	Date	Time	Level (feet)	*Ground Elevation*
Aquifer Drilling & Testing, Inc.					~ 100.5
Surveyor		———	———	—	*Top of Protective Steel Cap Elevation*
Date and Time of Completion	*Geologist*				*Top of Riser Pipe Elevation*
8/19/98	**David Mutter**				

Generalized Soil Description	*Elevation	**Depth
	100.5	0.0
	100.0	0.5
	96.0	4.0
Tan/Brown Coarse to Fine Sands and Gravels (Upper Glacial Formation)	94.5	6.0
	92.5	8.0
	90.5	10.0
	90.0	10.5

CONSTRUCTION DETAILS



REMARKS **Shallow Vapor Monitoring Well**

*** Elevation (feet) above mean sea level unless noted**

**** Depth in feet below grade**

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, NY 11797

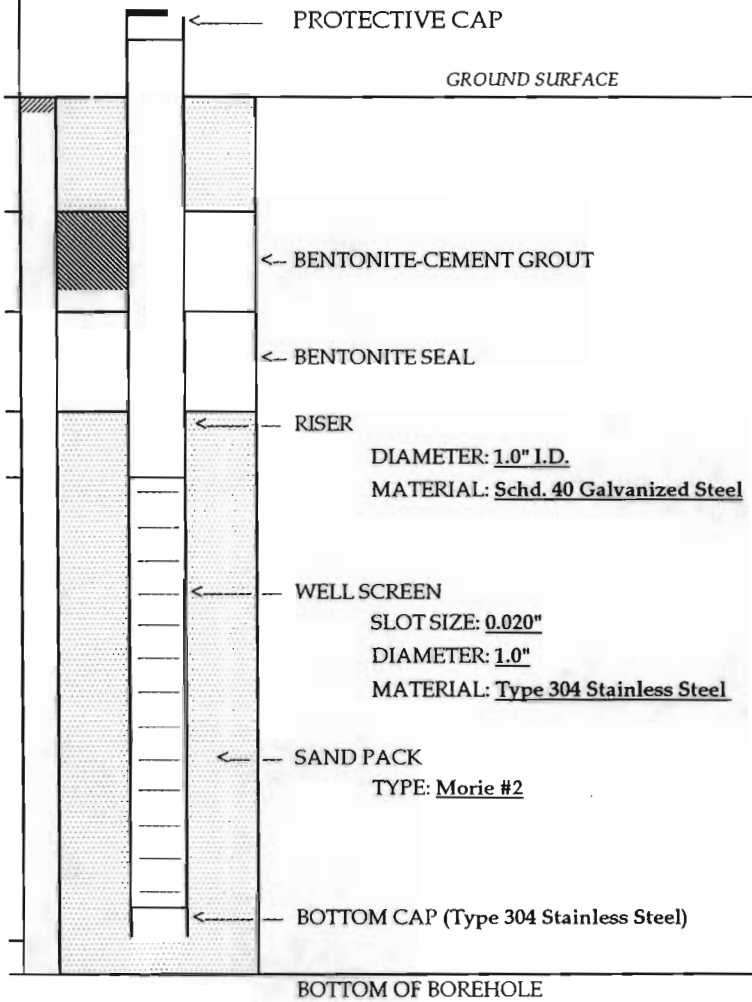
WELL : **VOW-4I**

VAPOR MONITORING WELL CONSTRUCTION

Project Name & Location	*Project No.*	*Water Level(s)* (ft below top of inner casing)			*Site Elevation Datum*
Fulton Avenue Soil IRM	**1370.001.001**				
Drilling Company	*Foreman*	Date	Time	Level (feet)	*Ground Elevation*
Aquifer Drilling & Testing, Inc.					~ 100.5
Surveyor		------	------	---	*Top of Protective Steel Cap Elevation*
Date and Time of Completion	*Geologist*				*Top of Riser Pipe Elevation*
	David Mutter				

Generalized Soil Description	*Elevation	**Depth
	100.5	0.0
	100.0	0.5
	78.0	22.0
Tan/Brown Coarse to Fine Sands and Gravels (Upper Glacial Formation)	76.5	24.0
	74.5	26.0
	72.5	28.0
	72.0	28.5

CONSTRUCTION DETAILS



REMARKS **Intermediate Vapor Observation Well**

*** Elevation (feet) above mean sea level unless noted**

**** Depth in feet below grade**

ERM-Northeast

175 Froehlich Farm Blvd., Woodbury, NY 11797

WELL : VOW-4D

VAPOR/GW MONITORING WELL CONSTRUCTION

Project Name & Location	Project No.	Water Level(s) (ft below top of inner casing)			Site Elevation Datum
Fulton Avenue Soil IRM	**1370.001.001**				
Drilling Company	*Foreman*	Date	Time	Level (feet)	*Ground Elevation*
Aquifer Drilling & Testing, Inc.					~ 100.5
Surveyor					*Top of Protective Steel Cap Elevation*
Date and Time of Completion	*Geologist*				*Top of Riser Pipe Elevation*
	David Mutter				

Generalized Soil Description	*Elevation	**Depth	CONSTRUCTION DETAILS
	100.5	0.0	PROTECTIVE CAP; GROUND SURFACE
	100.0	0.5	
	59.0	41.0	BENTONITE-CEMENT GROUT
	57.5	43.0	BENTONITE SEAL
	55.5	45.0	RISER — DIAMETER: 2.0"; MATERIAL: Schd. 40 Black Steel
			WELL SCREEN — SLOT SIZE: 0.020"; DIAMETER: 2.0"; MATERIAL: Type 304 Stainless Steel Wire Wrapped
			SAND PACK — TYPE: Morie #2
	45.5	55.0	BOTTOM CAP (Type 304 Stainless Steel)
	44.5	56.0	BOTTOM OF BOREHOLE

REMARKS Deep Vapor/Shallow Ground Water Observation Well

* Elevation (feet) above mean sea level unless noted

** Depth in feet below grade