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REPORT OF WELL INSTALLATION AT  
16450 KENT AVENUE,  
SAN LORENZO, ALAMEDA COUNTY, CALIFORNIA

EVAX PROJECT A559-01

Prepared by:  
EVAX TECHNOLOGIES, INC.  
269 Mount Hermon Road, Suite 101  
Scotts Valley, California  
(408)438-7511 Fax (408)438-7515

Samuel J. Hong  
Registered Civil Engineer, RCE 42275

Prepared for:  
Plants Unlimited, Inc.  
16450 Kent Avenue  
San Lorenzo, California 94580

February 17, 1993

## TABLE OF CONTENTS

INTRODUCTION	1
SCOPE OF WORK	1
FILE RESEARCH	1
Regional Setting	1
Geology	2
Site Background	2
WELL INSTALLATION	3
Well Permit	3
Well Drillers	3
Well Placement	3
Soil Sampling	4
Well Construction	4
WELL DEVELOPMENT	5
WELL SURVEY	5
FIRST GROUNDWATER SAMPLING EVENT	5
LABORATORY ANALYSES	6
SOIL CUTTING AND WASTEWATER	6
RESULTS	6
Soil Conditions	6
Analytical Results of Soil Samples	7
Groundwater Flow Direction	7
Analytical Results of Water Samples	7
CONCLUSIONS	8
RECOMMENDATIONS	8

**ATTACHMENTS:**

Figure 1. Extended Site Map

Figure 2. Site Map

Figure 3. Groundwater Surface Elevation Map.

Table 1. Laboratory Analyses Results of  
Soil Samples From Borings

Table 2. Groundwater Sampling Event Data

**APPENDIX A: Well Permit**

**APPENDIX B: Logs of Borings/Wells**

**APPENDIX C: Groundwater Sampling Field Data**

**APPENDIX D: Laboratory Analyses Reports and  
Chain of Custody Records**

## **INTRODUCTION**

EVAX Technologies, Inc. (EVAX) was retained by Mr. John Goldstein of Plants Unlimited to install three groundwater monitoring wells and conduct groundwater monitoring and sampling at the subject site.

The site is the Plant Unlimited Facility at 16450 Kent Avenue in San Lorenzo, Alameda County, California. The general location of the site is presented in the attached Extended Site Map, Figure 1.

The purpose of the project is to comply with a request by the Alameda County Health Care Services, Department of Environmental Health (Alameda County Environmental Health) to evaluate groundwater quality and establish a local groundwater gradient.

In July 1990 two underground storage tanks (USTs) used to store gasoline were excavated and removed from the site. Upon Excavation, the tanks were inspected and resulted in the discovery of a small hole in one of the tanks. This discovery prompted the Alameda County Environmental Health for a groundwater investigation.

## **SCOPE OF WORK**

This report discusses the following tasks: 1) File Research, 2) Well Installation, 3) Well Development, 4) Well Survey, 5) Groundwater Sampling Event, 6) Laboratory Analyses, and 7) Report of Activities. Field activities were conducted in November and December 1992, and January 1993.

## **FILE RESEARCH**

Prior to the installation of the groundwater monitoring wells, EVAX reviewed the public files and records at the California Regional Water Quality Control Board and Alameda County. EVAX also secured approval of a workplan for the project from Alameda County Flood Control And Water Conservation District.

### **Regional Setting**

The site is in an area of low topographic relief, approximately 2.25 miles east of the current shoreline of the San Francisco Bay. Although the regional groundwater flow direction is inferred to the generally westward like surface drainage, the San Lorenzo River may have a local influence on groundwater flow direction. The site is located approximately 0.5 mile north

of the San Lorenzo River and groundwater near the river may be diverted towards the existing or old river course.

According to Regional Water Quality Control Board, the Okada Property is the nearest site to the subject site in the underground storage tank leak files. The Okada Property is at 16109 Ashland Avenue, approximately 0.5 miles northwest of the subject site. A groundwater investigation was conducted in 1989 which included the investigation and sampling of three groundwater monitoring wells. Results of the 1989 investigation indicated depth to groundwater at the Okada Property was at 8 to 9 feet below ground surface and groundwater flow direction was towards the west.

There are no known groundwater monitoring wells in the immediate vicinity of the Plant Unlimited Site. Groundwater flow direction at the subject site is assumed to be west to southwest based on the Okada Property data and relative location of the San Francisco Bay and San Lorenzo River.

### **Geology**

Based on Review of regional geologic maps (U.S. Geological Survey professional Paper 943 "Flatland Deposits - Their Geology and Engineering Properties and Their Importance to Comprehensive Planning" by E.J. Helley and K.R. Lajoie, 1979), the subject site is underlain by Late Pleistocene alluvium (Qpa). The Late Pleistocene alluvium is described as typically consisting of weakly consolidated, poorly sorted, irregular interbedded clay, silt, sand, and gravel, with a reported unknown maximum thickness (but at least 150 feet thick). This alluvium is assumed to overlay deformed older sedimentary deposits and bedrock on the alluvial plain marginal to San Francisco Bay.

### **Site Background**

According to Alameda County Environmental Health, two USTs were excavated and removed from the site in July 1990. The tanks were located in the parking lot area in front of Kent Avenue (Figure 2). A 280-gallon capacity steel tank was used for storage of gasoline and a 1,500-gallon capacity steel tank was used for storage of diesel or heating fuel.

Alameda County Environmental Health reported that a small hole was observed in the 280-gallon capacity gasoline tank. Soil samples were taken at the time from the tank pits and submitted to a laboratory for chemical analyses. A soil sample taken from beneath the gasoline tank reportedly analyzed 2,300 part per million (ppm) total petroleum hydrocarbons as gasoline. Because of shallow nature of groundwater in the area, Alameda County environmental Health requested an investigation to evaluate the possibility that groundwater was impacted by gasoline hydrocarbon products.

## **WELL INSTALLATION**

### **Well Permit**

EVAX secured a well permit from Alameda County Flood Control And Water Conservation District and the permit is presented in Appendix A. Furthermore, EVAX contacted Underground Services Alert to locate and mark underground utility lines. A Site Safety Plan was prepared which described the basic health safety issues in the field work. Field personnel were briefed on the Site Safety Plan.

### **Well Drillers**

EVAX directed the well installation which took place November 11, 1992. Hew Drilling Company, Inc. (Hew Drilling: 604987) of Palo Alto, California was subcontracted by EVAX to install groundwater monitoring wells. A 75 CME truck-mounted drill rig equipped with continuous flight, hollow stem augers of 6-inch inside diameter was used to drill the soil borings and construct the wells.

### **Well Placement**

On November 11, 1992, EVAX completed 3 soil borings, designated B-1 through B-3, and installed 3 groundwater monitoring wells MW-1 through MW-3.

The placement of the three groundwater monitoring wells was selected to have at least one well located in an area assumed to be downgradient to the former USTs. The attached site map, Figure 2, presents the locations of the groundwater monitoring wells.

MW-1 was placed approximately 35 feet west of former USTs system, MW-2 within 10 feet of the former pit of the 250-gallon gasoline UST. MW-3 was placed approximately 100 feet southwest of the former USTs system.

The wells were separated from each other by at least 35 feet with the purpose of 1) establishing a site specific groundwater flow direction, and 2) sampling the shallow (first) groundwater to test for possible impact by gasoline constituents. The boring for MW-1 was advanced to a depth of approximately 20 ft., MW-2 was advanced to a depth of approximately 19.5 ft., and MW-3 was advanced to a depth of approximately 18 ft. below ground surface and the base of MW-1 was set at 19 ft., and MW-2 and MW-3 were set at the bottom of the corresponding boring. The augers were steam cleaned prior to drilling the first boring, and the augers were cleaned of soil cuttings with a brush by hand and the same augers were used for each boring.

### Soil Sampling

Soil samples were taken at approximately 3.0 feet depth intervals and significant lithological transitions. MW-1 was advanced to a depth of approximately 20 feet, MW-2 was advanced to a depth of approximately 19.5 feet and MW-3 was advanced to a depth of approximately 18 feet below ground surface. Samples were taken using a California modified, split-spoon sampler loaded with three pre-cleaned brass sleeves each of 2-inch diameter and 6-inch length. Sampling consisted of advancing the boring to a point just above the sampling depth, sliding the loaded sampler through the hollow stem of augers, and then driving the sampler 18 inches into the soils with a standard 140 pound hammer dropped repeatedly 30 inches. This sampling procedure is designed to sample relatively undisturbed soils below the base of a borehole. The sampler was retrieved from the borehole and soils were examined and sampled. Sampler and other sampling equipment was cleaned between uses with a liquinox solution and water rinse.

Soil samples were described following the Uniform Soil Classification System and field screened with a Heath Tech Porta flame-ionization detector (FID). The portable FID is a gas analyzer that measures, on a quantitative basis, total volatile hydrocarbon/organic (TVH) content in soils. A portion of the soils from each sampling interval was placed in a zip-lock plastic bag. The bag was sealed and, after approximately 10 minutes, the intake probe of the FID was inserted in the head space of the bag to record a TVH reading. Soil cuttings emerging from the churning augers were also examined by the geologist. Field data are summarized in the attached Logs of Borings/Wells, Appendix B.

On January 20, 1993, EVAX subcontracted Exploration Geoservices, Inc. (Exploration Geoservices: C57 484288) of San Jose, California to drill three additional borings within 5 feet of the three monitoring wells MW-1 through MW-3. The purpose of drilling these three borings was to sample three soil samples immediately above the groundwater level, for laboratory analyses. Each of these samples was sealed with aluminum foil, plastic and caps, and tape; and then labelled and placed in an iced storage. Chain of custody protocol was followed during the transport of soil sample from the field to the laboratory.

-why?

### Well Construction

Flush thread jointed, schedule 40 polyvinyl chloride (PVC) casing of 2 inch diameter was placed down the hollow stem of the augers following completion of the boring of each well. The well casing for MW-1 was set at a depth of approximately 19 feet below ground surface and the well casing for MW-2 and MW-3 were set at a depth of approximately 18 feet below ground surface. The lower 10 feet section of well casings were of the 0.01-inch slotted type and the remaining 9 feet and 8 feet sections were solid casing. A locking well cap was fitted on the top of each well casing.

The annular space between the well casing and borehole was completed as follows. Lonestar 2/12 type sand was placed from the base of the well casing to approximately 1 foot above the top of the screened casing. A band of bentonite pellets, approximately 1 foot thick, was placed above the sand pack. The remaining annulus, between ground surface and the bentonite seal, was filled with a neat cement slurry mixed and placed by Hew Drilling. A traffic rated utility box was placed around the wellhead and set in the cement-sand grout even with ground surface. A special wrench is required to open the well box and a key is needed to open the locking wellhead cap. Well construction is summarized in the Logs of Boring/Wells, Appendix B.

### **WELL DEVELOPMENT**

On November 25, 1992, EVAX developed MW-1, MW-2, and MW-3 using a 2 inch diameter bailer and swabber. During development, pH, conductivity, and temperature were monitored at 2 gallon increments. A total of 15 gallons was bailed out of each of MW-1 and MW-3 and a total of 17 gallons was bailed out of MW-2 at which point water parameters appeared to be stabilized.

### **WELL SURVEY**

On December 12, 1992, United Civil & Structural Engineers Co. (UCSE) of Campbell, California surveyed the elevations of the top of the well casing MW-1 through MW-3 and the relative distance between the wells. Wellhead elevations were measured to the nearest 0.01 feet. A representative of EVAX was present and identified the wells for UCSE survey crew. The purpose of the well survey was to establish the relative elevations of the tops of well casings to calculate the groundwater flow direction and gradient. The well survey results are shown in table 1.

### **FIRST GROUNDWATER SAMPLING EVENT**

EVAX conducted the first sampling event on December 1, 1992. Groundwater sampling activities consisted of measurement of depth to static water and total well depth followed by subjective examination of water in each well. Using a Solinst electronic water level sensor, depth to static water and total well depth were measured to the nearest 0.01 ft. and relative to the surveyed top of the well casing. Subjective evaluation consisted of gently lowering a pre-cleaned Teflon bailer approximately half its length past the air-water interface. The bailer was then retrieved from the well and water was examined for the possible presence of floating product or sheen.



Following depth to water and subjective evaluations, EVAX purged the wells using pre-cleaned Teflon bailers. The pH, temperature, and conductivity of the purged water was monitored during the purging of each well. MW-1 was purged of over 9 well volumes, MW-2 was purged of over 13 well volumes and MW-3 was purged of over 8 well volumes until the parameters stabilized.

After the water level recovered to at least 80% of the static level, a pre-cleaned Teflon bailer was gently lowered approximately half its length past the air-water interface. The bailer was then retrieved from the well and water was promptly transferred into 40 ml volatile organic analyses (VOA) glass vials. The vials contained hydrochloric acid preservative. The vials were promptly sealed with Teflon-lined caps, labeled, and transported in an iced storage to the laboratory. A chain of custody record was initiated in the field and followed the samples to the laboratory. Field data are summarized in Appendix C.

#### LABORATORY ANALYSIS

Soil and water samples were submitted to ANAMETRIX, Inc (state license #1234) of San Jose, California. The samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) by Environmental Protection Agency Method 5030, and for benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8020/602. Chain of custody records and laboratory analyses reports are presented in Appendix D.

Not?  
diesel

#### SOIL CUTTINGS AND WASTEWATER

Soil cuttings generated from the drilling of soil borings were placed in enclosures of visqueen and left at the site. Water generated from well installation, development, and sampling activities, and water resulting from cleaning procedures, was placed in 55-gallon capacity steel drums. The drums were sealed and left on site for temporary storage.

#### RESULTS:

##### Soil Conditions:

Based upon our examination of the subsurface materials encountered in the borings B-1 through B-3, the subsurface condition in B-1 consists of a layer of loose, gray and fine to coarse grained poorly graded gravels with trace of fine to coarse grained sands to a depth of approximately 1 foot below ground surface. The subsurface condition in B-2 and B-3 consists of loose, gray and fine to coarse grained clayey gravels with trace of fine to coarse grained

sands to a depth of approximately 1.5 feet in B-2 and 0.5 feet in B-3. These poorly graded gravels in B-1 and clayey gravels in B-2 are underlain by loose, gray and fine to coarse grained poorly graded sands with fine to coarse grained gravels to a depth of approximately 5 feet below ground surface. The clayey gravels in B-3 are underlain by dry, stiff and dark brown silty clay to a depth of approximately 5 feet, and then followed by soft to firm, brown and fine grained clayey sands to a depth of approximately 7 feet below the existing ground surface. These poorly graded sands in B-1 and B-2 and clayey sands in B-3 are underlain by soft to stiff, moist, low plasticity, brown and fine grained sandy clay to silty clay to the maximum depth explored of approximately 20 feet in B-1, 19.5 feet in B-2, and 18 feet in B-3 below the existing ground surface.

There was no evidences in the field, such as hydrocarbon product odor or discoloration, to suggest overt contamination of soils by petroleum hydrocarbon products. Field screening of soils with an FID indicated no overt concentrations of volatile hydrocarbon products. Soil data are summarized in the Log of Borings/Wells, Appendix B.

#### **Analytical Results of Soil Samples**

A total of 3 soil samples were submitted for laboratory analysis. These soil samples were taken at 9.5 feet below the ground surface and about or just above the static groundwater level. No detectable levels of gasoline constituents were found in any of the soil samples. The laboratory results of the soil samples are presented on Table 1.

#### **Groundwater Flow Direction**

Depth to static water measurements were used with surveyed wellhead elevations to calculate the elevation of the groundwater surface at each well. Based on the well data, the apparent groundwater flow direction is inferred to be towards the northwest with a gradient of 0.0025 on December 1, 1992, and 0.0042 on January 20, 1993, vertical per horizontal feet.

#### **Analytical Results of Water Samples**

Laboratory analyses results of water samples are summarized in Table 2. In the water samples taken from MW-1, MW-2, and MW-3, no detectable levels of TPHg, benzene, toluene, ethylbenzene, or total xylenes constituents were found.

## CONCLUSIONS

Results of the investigation are as follows:

- 1 - Groundwater monitoring well data for December 1992, and January 1993, suggest ground water flow direction for the site is toward the northwest. The gradient on December 1992, was 0.0025, and on January 1993, was 0.0042 vertical per horizontal feet.
- 2 - Laboratory analyses results indicate no detectable levels of gasoline or organic lead constituents in either soil samples or groundwater samples taken from MW-1, MW-2 and MW-3.

## RECOMMENDATIONS

- 1 - EVAX recommends the site closure be persued with regulatory agencies.
- 2 - Based upon laboratory results, the soil cuttings from the borings, and water generated from well installation, development and sampling activities are clean and can be spread on any place.

EVAX appreciates the opportunity to work with you on this project. Please call if you have questions.

Sincerely  
EVAX Technologies, Inc.



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Samuel J. Hong  
Engineering Manager, RCE 42275

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**TABLE 1. Laboratory Analyses Results of Soil Samples**  
**Plants Unlimited Inc., San Lorenzo, California**  
 .....

Sample, Date,	Depth Sampled (feet)*	TPHg (ppm)	Benzene (ppm)	Toluene (ppm)	Ehtyl- Benzene (ppm)	Total Xylenes (ppm)
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.....

Soil Borings (January 20, 1993)

MW-1	8.0-9.5	ND	ND	ND	ND	ND
MW-2	8.0-9.5	ND	ND	ND	ND	ND
MW-3	8.0-9.5	ND	ND	ND	ND	ND

.....  
 \* : approximate depth in feet below ground surface  
 TPHg: total petroleum hydrocarbons as gasoline  
 ppm : parts per million = mg/L  
 ND : not detected

Location Designation:  
 MW-3 = Soil Boring of Groundwater Monitoring Well 3  
 .....

**TABLE 2. Groundwater Sampling Event Data, December 1, 1992  
Plants Unlimited Inc., San Lorenzo, California**

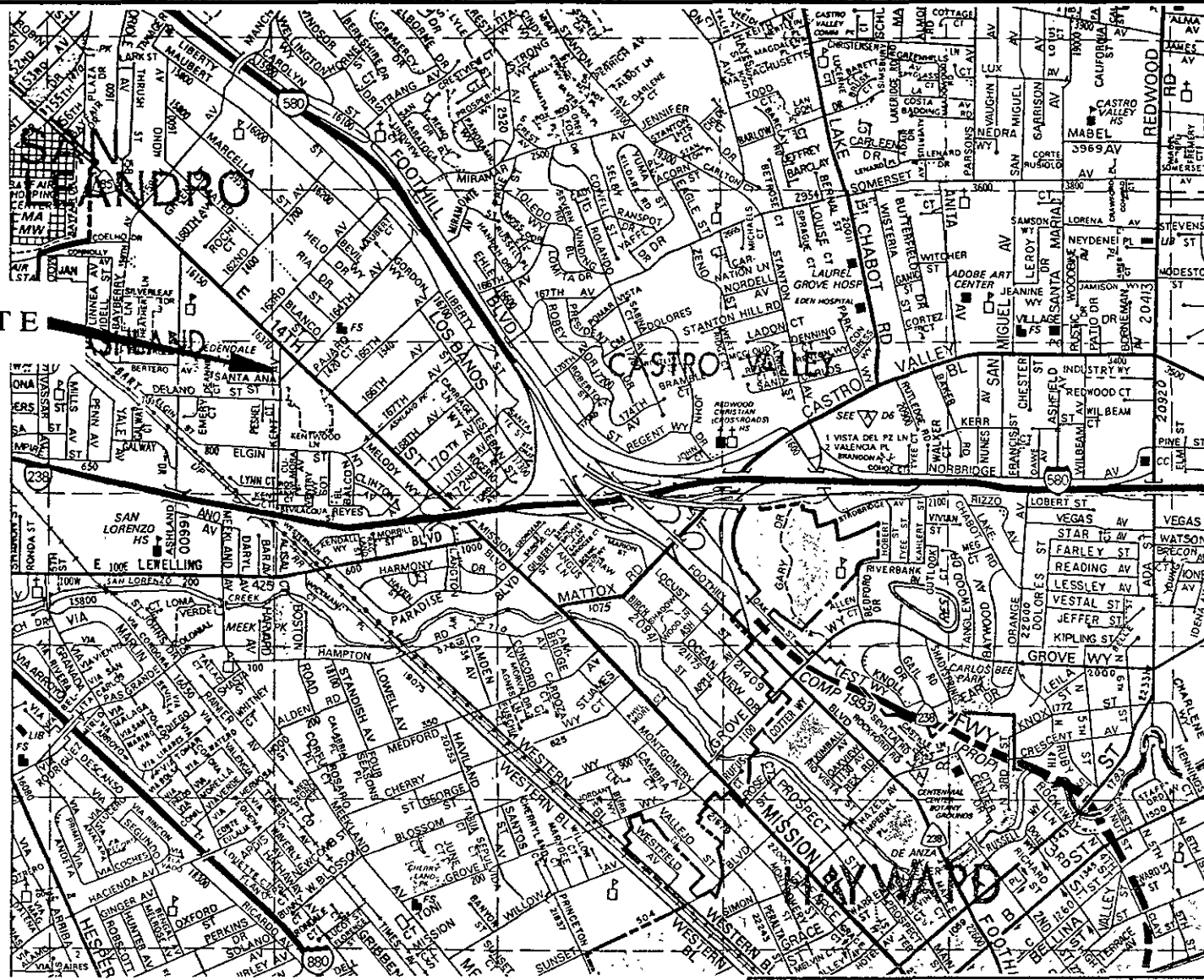
Parameter	Groundwater Monitoring Well		
	MW-1	MW-2	MW-3
Total Depth Of Well (ft)*	19.0	18.0	18.0
Depth-to Static Water (ft)*	15.74	16.08	15.22
Wellhead Elevation (ft)**	100.0	100.4	99.6
Water Surface Elevation (ft)***	84.26	84.33	84.38
Floating Product	None	None	None
Sheen	None	None	None

Laboratory Analysis Results:

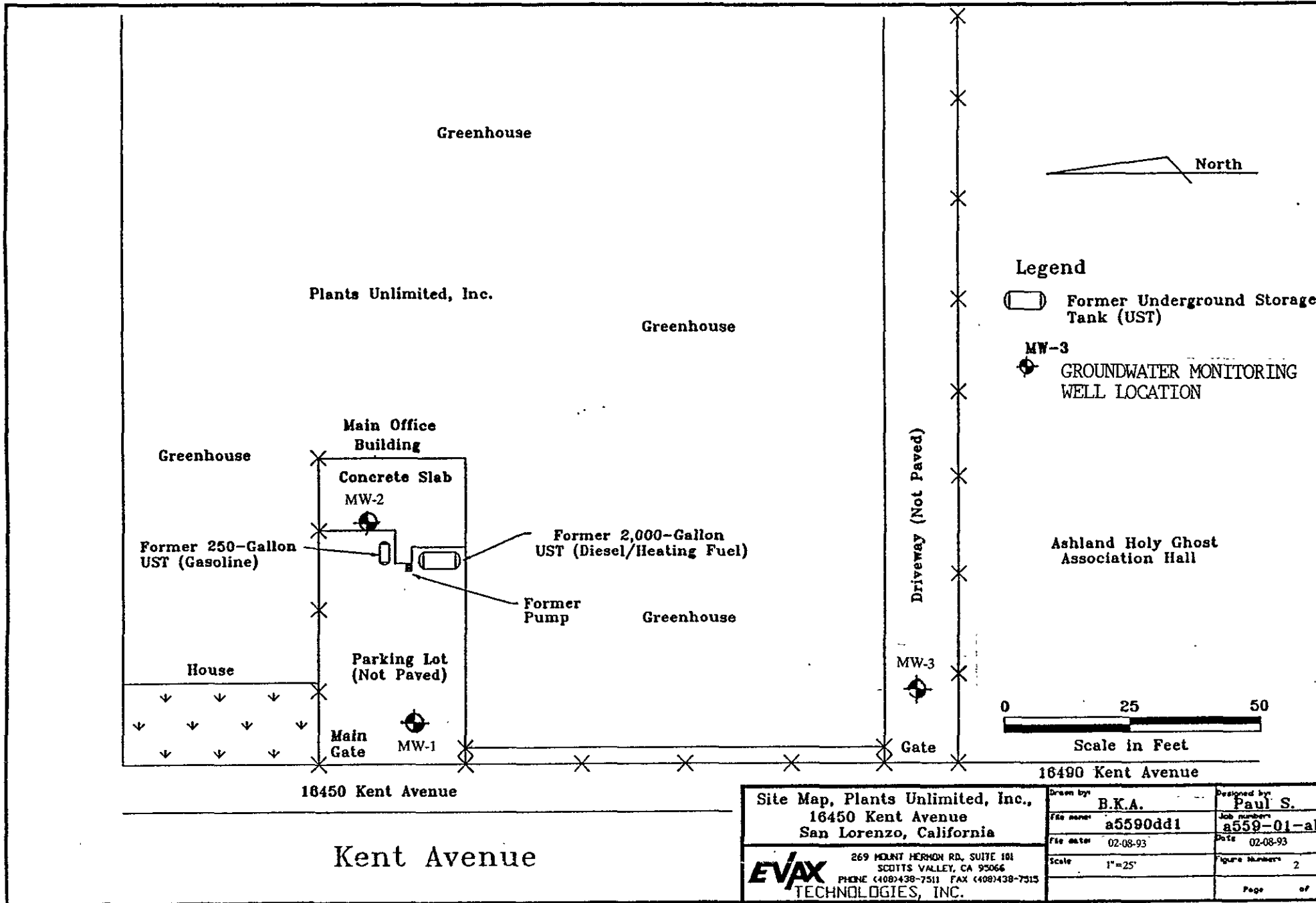
TPHg (ppb)	ND	ND	ND
Benzene (ppb)	ND	ND	ND
Toluene (ppb)	ND	ND	ND
Ethylbenzene (ppb)	ND	ND	ND
Total Xylenes (ppb)	ND	ND	ND

\* : measured in feet below top of well casing  
 \*\* : surveyed elevation of top of well casing in feet above mean sea level  
 \*\*\* : calculated elevation in feet above mean sea level  
 TPHg: total petroleum hydrocarbons as gasoline (lower boiling point hydrocarbons)  
 ppb : parts per billion  
 ND : not detected

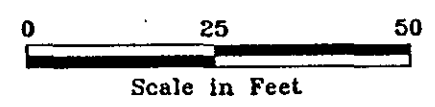
SITE



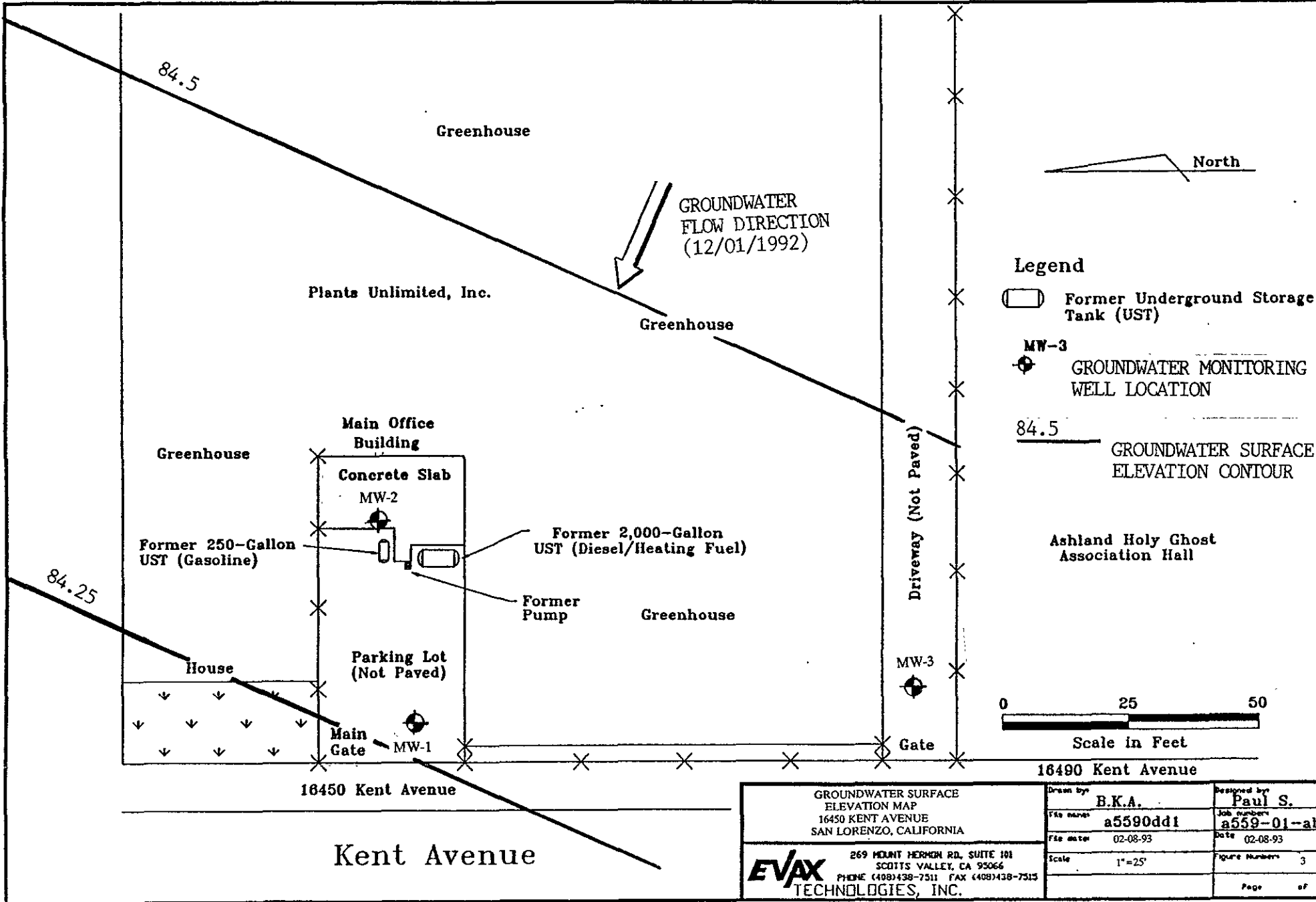
<b>Extended Site Map</b> 16450 KENT AVENUE SAN LORENZO, CALIFORNIA		Drawn by: File name: File date: 02-08-93 Scale:	Designed by: Paul S. Job number: Date: 02-08-93 Figure Number: 1 Sheet 1 of 1
		269 MOUNT HERMON RD., SUITE 101 SCOTT'S VALLEY, CA 95066 PHONE (408)438-7511 FAX (408)438-7515	



- Legend**
- Former Underground Storage Tank (UST)
  - MW-3** GROUNDWATER MONITORING WELL LOCATION



Site Map, Plants Unlimited, Inc., 16450 Kent Avenue San Lorenzo, California		Drawn by:	B.K.A.	Designed by:	Paul S.
		File name:	a5590dd1	Job number:	a559-01-at
<b>EVAX</b> 269 MOUNT HERMON RD., SUITE 101 SCOTT'S VALLEY, CA 95066 PHONE (408)438-7511 FAX (408)438-7515 TECHNOLOGIES, INC.		File date:	02-08-93	Date:	02-08-93
		Scale:	1"=25'	Figure Number:	2
				Page	of



GROUNDWATER SURFACE  
ELEVATION MAP  
16450 KENT AVENUE  
SAN LORENZO, CALIFORNIA

**EVAX** TECHNOLOGIES, INC.  
269 MOUNT HERMON RD, SUITE 101  
SCOTT'S VALLEY, CA 95066  
PHONE (408)438-7511 FAX (408)438-7513

Drawn by	B.K.A.	Designed by	Paul S.
File name	a5590dd1	Job number	a559-01-ab
File date	02-08-93	Date	02-08-93
Scale	1"=25'	Figure Number	3
		Page	of



APPENDIX A



# ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE

PLEASANTON, CALIFORNIA 94588

VOICE (510) 484-2600

FAX (510) 462-3914

## DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

FOR OFFICE USE

LOCATION OF PROJECT PLANTS UNLIMITED,  
16450 KENT AVENUE, SAN LORENZO,  
CA 94580

PERMIT NUMBER 92503

LOCATION NUMBER \_\_\_\_\_

### CLIENT

Name PLANTS UNLIMITED INC.  
Address 16450 KENT AVE. Phone 415-276-2384  
City SAN LORENZO, CA Zip 94580

### PERMIT CONDITIONS

Circled Permit Requirements Apply

### APPLICANT

Name EVAX TECHNOLOGIES, INC.  
269 MOUNT HERMON RD, #101  
Address \_\_\_\_\_ Phone 408-438-7511  
City SCOTT'S VALLEY, CA Zip 95066

### TYPE OF PROJECT

Well Construction	Geotechnical Investigation
Cathodic Protection _____	General _____
Water Supply _____	Contamination _____
Monitoring <input checked="" type="checkbox"/>	Well Destruction _____

### PROPOSED WATER SUPPLY WELL USE

Domestic _____	Industrial _____	Other _____
Municipal _____	Irrigation _____	

### DRILLING METHOD:

Mud Rotary _____	Air Rotary _____	Auger <input checked="" type="checkbox"/>
Cable _____	Other _____	

DRILLER'S LICENSE NO. C57 484288

EXPLORATION GEOSERVICES, INC.

### WELL PROJECTS

Drill Hole Diameter <u>49</u> in.	Maximum
Casing Diameter <u>2</u> in.	Depth <u>30</u> ft.
Surface Seal Depth <u>5-10</u> ft.	Number <u>3 WELLS (MW-1, MW-2, MW-3)</u>

(H<sub>2</sub>O AT ~10-15 FT)

### GEOTECHNICAL PROJECTS

Number of Borings _____	Maximum
Hole Diameter _____ in.	Depth _____ ft.

ESTIMATED STARTING DATE 10/13/92

ESTIMATED COMPLETION DATE 11/15/92

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Pal A Staudt

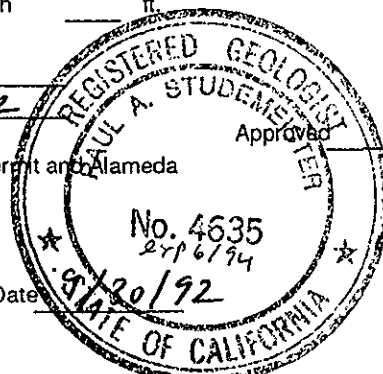
Date

9/20/92

Approved

Wyman Hong  
Wyman Hong

Date 14 Oct 92



APPENDIX B

# UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		LTR	DESCRIPTION	MAJOR DIVISIONS		LTR	DESCRIPTION	
COARSE- GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well-graded gravels or gravel-sand mixtures, little or no fines.	FINE- GRAINED SOILS	SILTS AND CLAYS LL<50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.	
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines.			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.	
		GM	Silty gravels, gravel-sand-silt mixtures.			OL	Organic silts and organic silt-clays of low plasticity.	
		GC	Clayey gravels, gravel-sand-clay mixtures.			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils. Elastic silts.	
	SAND AND SANDY SOILS	SW	Well-graded sands or gravelly sands, little or no fines.		SILTS AND CLAYS LL>50	CH	Inorganic clays of high plasticity, fat clays.	
		SP	Poorly-graded sands or gravelly sands, little or no fines.			OH	Organic clays of medium to high plasticity, organic silts.	
		SM	Silty sands, sand-silt mixtures.			HIGHLY ORGANIC SOILS	PT	Peat and other highly organic soils.
		SC	Clayey sands, sand-clay mixtures.					



Blank PVC



Sand pack



Machine-slotted PVC



Bentonite seal



S-20.0 Soil sampling interval and sample identification with depth



Cement seal



Static water level observed in well



Initial water level observed in boring

Blows are the number of blows of a 140 - pound hammer falling 30 inches to drive the sampler each successive 6 inches of an 18-inch penetration.

Dashed lines separating units on the log represent approximate boundaries. Actual boundaries may be gradational represent subsurface conditions at the boring location at the time of drilling.



269 MOUNT HERMON RD., SUITE 101  
SCOTTS VALLEY, CA 95066

PHONE (408)438-7511  
FAX (408)438-7515

PROJECT NO. A559-01  
 LOGGED BY: P.A.S.  
 DRILLING METHOD: HOLLOW STEM AUGER  
 SAMPLING METHOD: SPLIT SPOON SAMPLER  
 CASING TYPE: SCH. 40 PVC  
 SLOT SIZE: 0.01 IN.  
 GRAVEL PACK: 212 LONSTAR SAND  
 GAS ANALYZER: HEAT TECH PORTABLE FID II

CLIENT: PLANTS UNLIMITED  
 DATE DRILLED: 11/12/92  
 LOCATION: 16450 KENT AVE. SAN LORENZO  
 HOLE DIAMETER: 9 IN. CALIFORNIA  
 HOLE DEPTH: 20 FT.  
 WELL DEPTH: 19 FT.  
 WELL DIAMETER: 2 IN.  
 SCREENED INTERVAL: 9.0 TO 19.0 FT.

MOISTURE CONTENT	VAPOR (PPM) CONCENTRATIONS	BLOWS/6"	DEPTH (FEET)	SAMPLE NO.	USCS CODE	LITHOLOGY/REMARKS	WELL CONSTRUCTION
			0		GP	POORLY GRADED GRAVELS (GP); fine to coarse grained, with trace of fine to coarse grained sands, loose, gray	
			1		SP	POORLY GRADED SANDS (SP); fine to coarse grained, with fine to coarse grained gravels, loose gray	
			2				
			3				
			4				
			5				
	3/6/7		6		CL	SANDY TO SILTY CLAY (CL); fine grained sands, damp, stiff, light brownish green, no petroleum hydrocarbon odor	
			7				
			8			- SANDY CLAY, with silt, moist, firm below 8.0 feet	
	3/3/3		9				
			10				
	2/2/3		11			- with trace of coarse sands and with trace of fine gravels, firm below 11.5 feet	
			12				
			13				
	3/4/5		14				
			15			- SILTY TO SANDY CLAY, plastic, firm to stiff, brown below 14.5 feet	
			16				
			17			- SILTY CLAY, damp, stiff to very stiff below 16.5 feet	
	4/6/10		18				
			19				
			20			END OF HOLE AT 20.0 FEET	



289 MOUNT HERMON RD., SUITE 101  
SCOTT'S VALLEY, CA 95068

PHONE (408)438-7511  
FAX (408)438-7515

WELL/ B-2

MW-2

PAGE 1 of 1

PROJECT NO. A559-01  
LOGGED BY: P.A.S.  
DRILLING METHOD: HOLLOW STEM AUGER  
SAMPLING METHOD: SPLIT SPOON SAMPLER  
CASING TYPE: SCH 40 PVC  
SLOT SIZE: 0.01 IN.  
GRAVEL PACK: 212 LONSTAR SAND  
GAS ANALYZER: HEAT TECH PORTABLE FID II

CLIENT: PLANTS UNLIMITED  
DATE DRILLED: 11/12/92  
LOCATION: 16450 KENT AVE. SAN LORENZO CALIFORNIA  
HOLE DIAMETER: 9 IN.  
HOLE DEPTH: 19.5 FT.  
WELL DEPTH: 18.0 FT.  
WELL DIAMETER: 2 IN.  
SCREENED INTERVAL: 8.0 TO 18.0 FT.

MOISTURE CONTENT	VAPOR (PPM) CONCENTRATIONS	BLOWS/6"	DEPTH (FEET)	SAMPLE NO.	USCS CODE	LITHOLOGY/REMARKS	WELL CONSTRUCTION
			0		GC	CLAYEY GRAVELS (GC); fine to coarse grained, with trace of fine to coarse grained sands, loose, gray	
			1				
			2		SP	POORLY GRADED SANDS (SP); fine to coarse grained, with fine to coarse grained gravels, loose, gray	
			3				
			4				
			5				
		3/4/5	6		CL	SANDY TO SILTY CLAY (CL); fine grained sands, damp to moist, stiff, low plasticity, brown, no petroleum hydrocarbon odor	
			7				
			8				
			9			- more sandy and soft to firm below 9.0 feet	
			10				
		2/2/2	11				
			12				
			13				
			14			- firm to stiff below 14.0 feet	
			15				
		3/4/4	16				
			17			- no sands and stiff below 17.0 feet	
			18				
		3/5/7	19				
			20			END OF HOLE AT 19.5 FEET	



209 MOUNT HERMON RD., SUITE 101  
SCOTT'S VALLEY, CA 95068

PHONE (408)438-7511  
FAX (408)438-7515

PROJECT NO. A559-01  
LOGGED BY: P.A.S.  
DRILLING METHOD: HOLLOW STEM AUGER  
SAMPLING METHOD: SPLIT SPOON SAMPLER  
CASING TYPE: SCH 40 PVC  
SLOT SIZE: 0.01 IN.  
GRAVEL PACK: 212 LONSTAR SAND  
GAS ANALYZER: HEAT TECH PORTABLE FID II

CLIENT: PLANTS UNLIMITED  
DATE DRILLED: 11/12/92  
LOCATION: 16450 KENT AVE., SAN LORENZO CALIFORNIA  
HOLE DIAMETER: 9 IN.  
HOLE DEPTH: 18 FT.  
WELL DEPTH: 18 FT.  
WELL DIAMETER: 2 IN.  
SCREENED INTERVAL: 8.0 TO 18.0 FEET

MOISTURE CONTENT	VAPOR (PPM) CONCENTRATIONS	BLOWS/6"	DEPTH (FEET)	SAMPLE NO.	USCS CODE	LITHOLOGY/REMARKS	WELL CONSTRUCTION
			0				
			1		GC	CLAYEY GRAVELS (GC); fine to coarse grained, with trace of fine to coarse grained sands, loose, gray	
			2		CL	SILTY CLAY (CL); dry, stiff, dark brown, no petroleum hydrocarbon odor	
			3				
			4				
			5				
		3/3/5	6		SC	CLAYEY SAND (SC); fine grained, moist, loose, brown	
			7				
			8		CL	SANDY CLAY (CL); fine grained, soft to firm, brown	
			9				
			10				
		3/2/3	11			SILTY CLAY, with trace of fine sands below 11.0 feet	
			12				
			13				
			14			-stiff and dark brown below 14.0 feet	
			15				
		3/4/6	16				
			17				
			18			END OF HOLE AT 18.0 FEET	
			19				
			20				

APPENDIX C









APPENDIX D



Part of INCHCAPE ENVIRONMENTAL

MR. TIM GLASS  
EVAX TECHNOLOGIES  
269 MT HERMON ROAD, SUITE 101  
SCOTTS VALLEY, CA 95066

Workorder # : 9301211  
Date Received : 01/20/93  
Project ID : A-559-01  
Purchase Order: N/A


The following samples were received at Anamatrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9301211- 1	AB-1
9301211- 2	AB-2
9301211- 3	AB-3

This report consists of 5 pages not including the cover letter, and is organized in sections according to the specific Anamatrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anamatrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anamatrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anamatrix.

  
\_\_\_\_\_  
Sarah Schoen, Ph.D.  
Laboratory Director

01-29-93  
\_\_\_\_\_  
Date

REPORT SUMMARY  
ANAMETRIX, INC. (408)432-8192

MR. TIM GLASS  
EVAX TECHNOLOGIES  
269 MT HERMON ROAD, SUITE 101  
SCOTTS VALLEY, CA 95066

Workorder # : 9301211  
Date Received : 01/20/93  
Project ID : A-559-01  
Purchase Order: N/A  
Department : GC  
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9301211- 1	AB-1	SOIL	01/20/93	TPHg/BTEX
9301211- 2	AB-2	SOIL	01/20/93	TPHg/BTEX
9301211- 3	AB-3	SOIL	01/20/93	TPHg/BTEX

REPORT SUMMARY  
ANAMETRIX, INC. (408)432-8192

MR. TIM GLASS  
EVAX TECHNOLOGIES  
269 MT HERMON ROAD, SUITE 101  
SCOTTS VALLEY, CA 95066

Workorder # : 9301211  
Date Received : 01/20/93  
Project ID : A-559-01  
Purchase Order: N/A  
Department : GC  
Sub-Department: TPH

QA/QC SUMMARY :

- For the matrix spike and matrix spike duplicate of sample AB-3,  
relative percent difference was outside of Anamatrix control limits.

Cheryl Be... 1/29/93  
Department Supervisor Date

Reggie Dawson 1/29/93  
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS  
(GASOLINE WITH BTEX)  
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9301211  
Matrix : SOIL  
Date Sampled : 01/20/93

Project Number : A-559-01  
Date Released : 01/28/93

Reporting Limit	Sample I.D.# AB-1	Sample I.D.# AB-2	Sample I.D.# AB-3	Sample I.D.# BJ2601E3	Sample I.D.# BJ2701E3
COMPOUNDS (mg/Kg)	-01	-02	-03	BLANK	BLANK
Benzene	0.005	ND	ND	ND	ND
Toluene	0.005	ND	ND	ND	ND
Ethylbenzene	0.005	ND	ND	ND	ND
Total Xylenes	0.005	ND	ND	ND	ND
TPH as Gasoline	0.5	ND	ND	ND	ND
% Surrogate Recovery	95%	101%	95%	118%	117%
Instrument I.D.	HP4	HP4	HP4	HP4	HP4
Date Analyzed	01/26/93	01/27/93	01/26/93	01/26/93	01/27/93
RLMF	1	1	1	1	1

- ND - Not detected at or above the practical quantitation limit for the method.
- TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
- BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
- RLMF - Reporting Limit Multiplication Factor.

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Reggie Dawson 1/29/93  
Analyst Date

Alvin Balmer 1/29/93  
Supervisor Date



TOTAL VOLATILE HYDROCARBON MATRIX SPIKE REPORT  
 EPA METHOD 5030 WITH GC/FID  
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : A-559-01 AB-3  
 Matrix : SOIL  
 Date Sampled : 01/20/93  
 Date Analyzed : 01/26/93

Anamatrix I.D. : 9301211-03  
 Analyst : RD  
 Supervisor : *[Signature]*  
 Date Released : 01/29/93  
 Instrument ID : HP4

COMPOUND	SPIKE AMT (mg/Kg)	SAMPLE CONC (mg/Kg)	REC MS (mg/Kg)	% REC MS	REC MD (mg/Kg)	% REC MD	RPD	% REC LIMITS
GASOLINE	1.00	0	1.03	103%	0.61	61%	-51%	48-145
P-BFB				107%		59%		53-147

\* Limits established by Anamatrix, Inc.

TOTAL VOLATILE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT  
 EPA METHOD 5030 WITH GC/FID  
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE  
 Matrix : SOIL  
 Date Sampled : N/A  
 Date Analyzed : 01/26/93

Anamatrix I.D. : LCSS0126  
 Analyst : RD  
 Supervisor :  
 Date Released : 01/26/93  
 Instrument I.D.: HP4

COMPOUND	SPIKE AMT. (mg/Kg)	REC LCS (mg/Kg)	%REC LCS	% REC LIMITS
GASOLINE	0.50	0.54	108%	48-145
SURROGATE			98%	53-147

\* Quality control established by Anamatrix, Inc.



ANALYTICAL

Environmental & Analytical Chemistry  
1961 Concourse Drive, Suite E, San Jose, CA 95131  
(408) 432-8192 • Fax (408) 432-8198

9301211

# CHAIN-OF-CUSTODY RECORD

PROJECT NUMBER		PROJECT NAME				Number of Cntrs	Type of Containers	Type of Analysis					Condition of Samples	Initial
A-559-01		Plants Unlimited						TPH <sub>9</sub>	Benzene	Toluene	Ethylbenzene	Total Xylene		
Send Report Attention of:		Report Due		Verbal Due										
Farrokh Keshavarzi		/ /		/ /										
Sample Number	Date	Time	Comp	Matrix	Station Location									
1 AB-1	1/20/93			Soil		1		✓	✓	✓	✓	✓	X	STD
2 AB-2	"			"		1		✓	✓	✓	✓	✓	X	TAT
3 AB-3	"			"		1		✓	✓	✓	✓	✓	X	
												Samples on hold TAT For Muev notice From SIMON		
Relinquished by: (Signature)		Date/Time		Received by: (Signature)		Date/Time		Remarks: <del>EVAX TECHNOLOGIES, INC.</del>						
Farrokh Keshavarzi		1/20/93 16:10		[Signature]		1/20/93 16:10								
Relinquished by: (Signature)		Date/Time		Received by: (Signature)		Date/Time		COMPANY: EVAX TECHNOLOGIES, INC.						
								ADDRESS: 5299 Scotts Valley Drive Scotts Valley, CA 95066						
Relinquished by: (Signature)		Date/Time		Received by Lab:		Date/Time		PHONE: 408-438-7511 FAX: 408-438-7515						



MR. ROBERT KUNKLE  
EVAX TECHNOLOGIES  
269 MT HERMON ROAD, SUITE 101  
SCOTTS VALLEY, CA 95066

Workorder # : 9212080  
Date Received : 12/03/92  
Project ID : A559-01  
Purchase Order: N/A

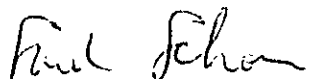
The following samples were received at Anamatrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9212080- 1	MW-1
9212080- 2	MW-2
9212080- 3	MW-3

This report consists of 5 pages not including the cover letter, and is organized in sections according to the specific Anamatrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anamatrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anamatrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anamatrix.

  
\_\_\_\_\_  
Sarah Schoen, Ph.D.  
Laboratory Director

12-10-92  
\_\_\_\_\_  
Date

REPORT SUMMARY  
ANAMETRIX, INC. (408)432-8192

MR. ROBERT KUNKLE  
EVAX TECHNOLOGIES  
269 MT HERMON ROAD, SUITE 101  
SCOTTS VALLEY, CA 95066

Workorder # : 9212080  
Date Received : 12/03/92  
Project ID : A559-01  
Purchase Order: N/A  
Department : GC  
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9212080- 1	MW-1	WATER	12/01/92	TPHg/BTEX
9212080- 2	MW-2	WATER	12/01/92	TPHg/BTEX
9212080- 3	MW-3	WATER	12/01/92	TPHg/BTEX

REPORT SUMMARY  
ANAMETRIX, INC. (408)432-8192

MR. ROBERT KUNKLE  
EVAX TECHNOLOGIES  
269 MT HERMON ROAD, SUITE 101  
SCOTTS VALLEY, CA 95066

Workorder # : 9212080  
Date Received : 12/03/92  
Project ID : A559-01  
Purchase Order: N/A  
Department : GC  
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Cheryl Bealmer 12/9/92  
Department Supervisor Date

Reggie Dawson 12/9/92  
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS  
(GASOLINE WITH BTEX)  
ANAMETRIX, INC. - (408) 432-8192

Anamatrix W.O.: 9212080  
Matrix : WATER  
Date Sampled : 12/01/92

Project Number : A559-01  
Date Released : 12/09/92

Reporting Limit	Sample I.D.# MW-1	Sample I.D.# MW-2	Sample I.D.# MW-3	Sample I.D.# BD0701E2
COMPOUNDS (ug/L)	-01	-02	-03	BLANK
Benzene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND
TPH as Gasoline	50	ND	ND	ND
% Surrogate Recovery	106%	71%	96%	121%
Instrument I.D.	HP21	HP21	HP21	HP21
Date Analyzed	12/07/92	12/07/92	12/07/92	12/07/92
RLMF	1	1	1	1

- ND - Not detected at or above the practical quantitation limit for the method.
- TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GC/FID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
- BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
- RLMF - Reporting Limit Multiplication Factor.

Anamatrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Rebecca Dawson 12/9/92  
Analyst Date

Cheyl Bauman 12/9/92  
Supervisor Date

BTEX LABORATORY CONTROL SAMPLE REPORT  
 EPA METHOD 5030 WITH GC/PID  
 ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anamatrix I.D.:	LCSW1207
Matrix	: WATER	Analyst	: <i>RD</i>
Date Sampled	: N/A	Supervisor	: <i>OA</i>
Date Analyzed	: 12/07/92	Date Released	: 12/09/92
		Instrument ID	: HP21

COMPOUND	SPIKE AMT. (ug/L)	LCS (ug/L)	REC LCS	%REC LIMITS
Benzene	10.0	10.0	100%	49-159
Toluene	10.0	9.7	97%	53-156
Ethylbenzene	10.0	10.0	100%	54-151
TOTAL Xylenes	10.0	9.8	98%	56-157
P-BFB			103%	53-147

\* Limits established by Anamatrix, Inc.



TOTAL VOLATILE HYDROCARBON MATRIX SPIKE REPORT  
 EPA METHOD 5030 WITH GC/FID  
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : A559-01 MW-1  
 Matrix : WATER  
 Date Sampled : 12/01/92  
 Date Analyzed : 12/07/92

Anamatrix I.D. : 9212080-01  
 Analyst : RD  
 Supervisor : OS  
 Date Released : 12/09/92  
 Instrument I.D.: HP21

COMPOUND	SPIKE AMT (ug/L)	SAMPLE CONC (ug/L)	REC MS	%REC MS	REC MD (ug/L)	%REC MD	RPD	%REC LIMITS
BENZENE	10.0	0.0	11.8	118%	10.0	100%	-17%	49-159
TOLUENE	10.0	0.0	11.6	116%	9.7	97%	-18%	53-156
ETHYLBENZENE	10.0	0.0	11.9	119%	9.9	99%	-18%	54-151
TOTAL XYLENES	10.0	0.0	11.8	118%	9.7	97%	-20%	56-157
p-BFB				94%		103%		53-147

\* Quality control established by Anamatrix, Inc.



9212080  
 10/20

# CHAIN-OF-CUSTODY RECORD

PROJECT NUMBER		PROJECT NAME				Number of Cntrs	Type of Containers	Type of Analysis					Condition of Samples	Initial
4559-01		PLANT UNLIMITED FACILITY SAN LORENZO, CA 94580						TPH <sub>g</sub>	Benzene	Toluene	Ethylbenzene	Total xylene		
Send Report Attention of:			Report Due		Verbal Due									
Robert Kunkle			/ /		/ /									
Sample Number	Date	Time	Comp	Matrix	Station Location									
1 MW-1	12/1/92			Water		4		✓	✓	✓	✓	✓		IF TPH <sub>g</sub> Concentration exceed clients Detection Limit  Please perform organic Pb and Total Pb analysis  Using filter sample filter showed highest concentration  Client will call on 12-4 with TPH <sub>g</sub> Detection Limit
2 MW-2	12/1/92			Water		4		✓	✓	✓	✓	✓		
3 MW-3	12/1/92			Water		4		✓	✓	✓	✓	✓		
Relinquished by:(Signature)						Date/Time	Received by: (Signature)						Date/Time	Remarks:  COMPANY: AVAX TECHNOLOGY INC. ADDRESS: 269 Mount Hermon Road, #101 Scotts Valley CA 95066 PHONE : 408-438-7511 FAX : 408-438-7515
Farrokh Keshavarzi						5:16 P.M. 12/3/92	Amin Heceno						12-3-92 17:25	
Relinquished by:(Signature)						Date/Time	Received by: (Signature)						Date/Time	
Relinquished by:(Signature)						Date/Time	Received by Lab:						Date/Time	