FIELD INVESTIGATION OF AN UNDERGROUND STORAGE TANK, FORMER GROW GROUP FACILITY EMERYVILLE, CALIFORNIA

Submitted to:

Grow Group, Inc. Louisville, Kentucky

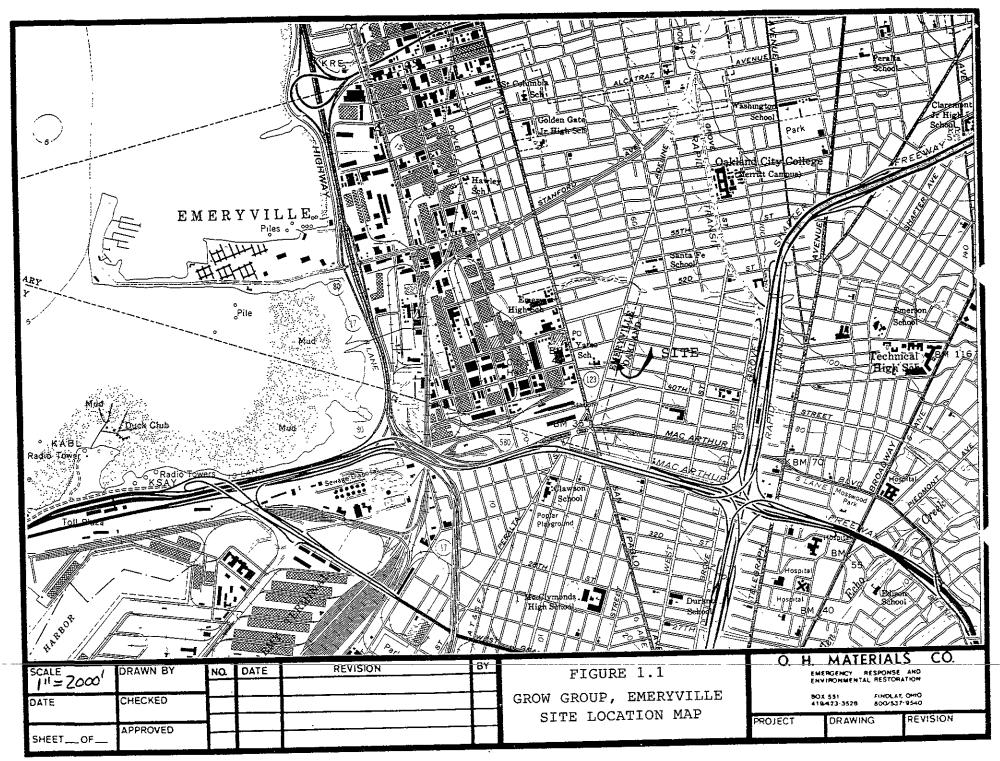
O.H. Materials Corp.

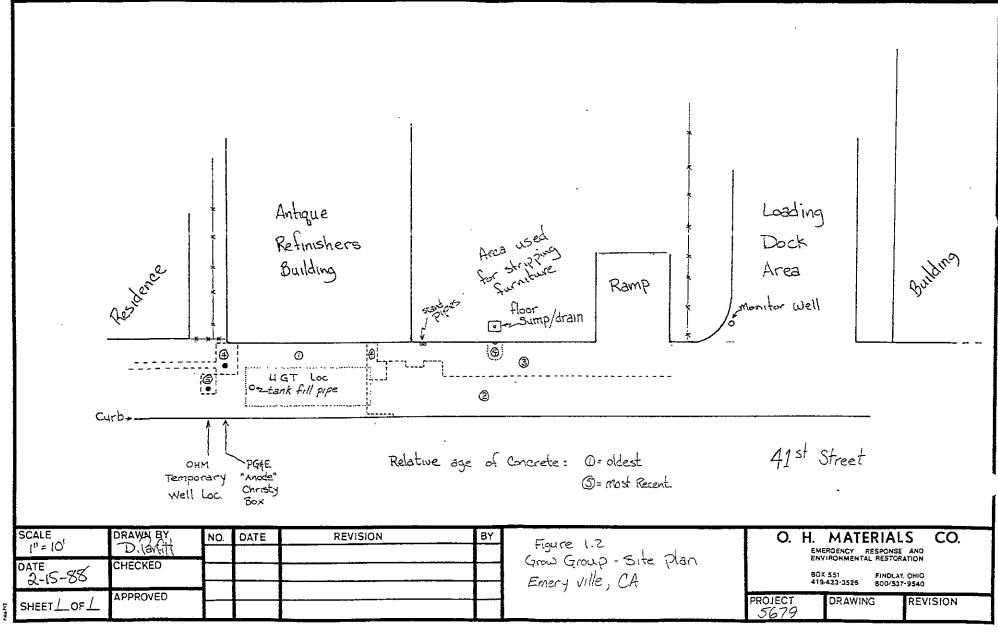
Dennis Parfitt, Senior Mydrogeologist CEG 1223

> March 29, 1988/ Project 5679

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#### 1.0 INTRODUCTION

This report presents the results of a subsurface investigation that was conducted by O.H. Materials Corp. (OHM) at the former Grow Group facility located in Emeryville, California. The purpose of the investigation was to gather ground water and tank content samples for analyses prior to closing the tank in place.

#### 1.1 LOCATION

The former Grow Group facility is located in Emeryville, California on 41st Street between Adeline and Linden Streets (Figure 1.1).

#### 1.2 FACILITY DESCRIPTION

The former Grow Group facility was sold to Oakland National Engravers in 1980. Prior to 1980, Ameritone Paint, a subsidiary of Grow Group, manufactured paint at the facility. The process involved the use of pigments, resins, and mineral spirits.

Currently, a firm involved in the restoration of antique furniture occupies that portion of the former Grow Group facility immediately adjacent to the storage tank location (Figure 1.2). Across 41st from the former Grow Group facility is the Dunne Paint Company which is currently engaged in activities similar to those undertaken by Ameritane Paint at the subject site.

## 2.0 SCOPE OF WORK

The scope of work completed by OHM for this investigation is as follows:

- o Installation of a temporary monitor well at the down gradient end of the underground tank to facilitate collection of a ground water sample for analysis
- o Collection of a sample of the tank contents for analysis
- o Preparation of a report documenting OHM activities and findings

#### 3.0 METHODOLOGY

The specific techniques used by OHM in conducting the investigation are discussed in the following subsections.

# 3.1 TEMPORARY MONITOR WELL INSTALLATION

A Mobil B24 hollow-stem auger rig was used to drill a 6-inch boring to a depth of 20 feet. Soil encountered was logged according to texture, color, and moisture content by a California Certified Engineering Geologist. Upon reaching total depth, 2 inch I.D. schedule 40 PVC factory slotted screen (0.01 slots) and casing were lowered in the bore hole. Two sacks of No. 20 Monterey sand were poured into the boring from ground surface to approximately 2 feet above the top perforations. After obtaining a ground water sample for analysis, the casing was pulled and 2 cubic feet of sand/cement slurry was poured into the boring. Drill cuttings were used to fill the remainder of the boring. Excess drill cuttings were transported off site to a landfill for disposal.

## 3.2 TANK CONTENTS SAMPLING

Prior to obtaining a sample of the tank contents, the teflon bailer used was washed in a dilute soap solution, triple rinsed with distilled water and air dried. The bailer was then lowered into the tank and a sample extracted. The sample was contained in 40 ml vials with teflon septa and then immediately transferred to an ice chest cooled to 4 degrees Celsius.

#### 3.3 GROUND WATER SAMPLING

After the contents of the tank had been sampled, the teflon bailer was again washed in a dilute soap solution, triple rinsed in distilled water and air dried. The temporary monitor well was then bailed of two casing volumes of ground water and allowed 30 minutes to recovery prior to sample collection. The sample withdrawn was contained in 40 ml vials with teflon septa and placed immediately in an ice chest cooled to 4 degrees Celsius.

#### 3.4 LABORATORY ANALYSIS

The same day the ground water and tank content samples were collected, OHM delivered them to a state certified laboratory for EPA Method 624 and total petroleum hydrocarbon (light fraction) analysis. Included with the two samples was a travel blank to document QA/QC. Chain-of-custody reporting accompanied the samples. The chain-of-custody report and lab analytical reports are contained in Appendix A.

#### 4.0 RESULTS

The hydrogeologic, geologic and anthropogenic observations and analytical results obtained from the field investigation are presented in the following sections.

## 4.1 SUBSURFACE GEOLOGY AND HYDROGEOLOGY

The USGS<sup>1</sup> has mapped the area of the former Grow Group site as being underlain by late Pleistocene alluvum consisting of "... weakly consolidated, slightly weathered, poorly sorted, irregular interbedded clay, silt, sand and gravel..." that "... grades progressively from coarse-grained stream deposits in bedrock canyons and at the heads of old alluvial fans into fine-grained alluvial fan and fresh-water marsh deposits." This description is consistent with sediments encountered during the drilling phase of operations. The sediments at the drill site consisted predominantly of fine-grained material (clay and silt) with a small fraction (about 5 percent) of fine-to-medium gravel encountered at the 12 to 14 foot depth. A lithologic log of the boring is contained in Appendix B.

Ground water was encountered in the boring at about 13 feet. Sediments recovered from the 18 to 20 foot depth were not saturated suggesting the ground water at 13 feet is perched ground water. The ground-water flow direction, based on the slope of the land, is in a general westerly direction. Ground-water flow velocities through sediments encountered in the boring can be expected to be extremely low. If one assumes a hydraulic conductivity of 1 x 10 cm/s (conservative estimate) and a gradient of 0.10 ft/ft (relatively high estimate), a flow velocity of 3 cm/year (1.2 inches/year) is realized.

# 4.2 GROUND WATER AND TANK CONTENT CHEMISTRY

EPA Method 624 analyses show the presence of methylene chloride (2,100 ug/l) and xylene (2,400 ug/l) in the storage tank. The ground-water sample showed only the occurrence of methylene chloride (720 ug/l). All other EPA method 624 parameters were not detected in either sample. All parameters were below detection limits in the trip blank.

Total petroleum hydrocarbon analyses showed 610 mg/l in the ground-water sample and 37 mg/l in the tank content. An examination of the chromatograms of the two samples (Appendix A) indicates that while there is some similarity in hydrocarbons within and without the tank, ground water contains hydrocarbons not found in the tank.

<sup>1</sup> USGS Prof. Paper 943, 1979.

## 4.3 PRESENT SITE OPERATIONS

Currently, the facility adjacent to the underground storage tank is being used for the restoration of wooden furniture such as chairs, tables, dressers, and bed frames. The operation involves the stripping of old finish from the furniture and then refinishing it. Substances used in the operation include paint stripper and various wood stains, mineral spirits, and resins.

Observations made during the time of the field work on February 9, 1988 indicate that copious amounts of paint stripper are used in the refinishing operation. It was not readily apparent however, how the spent paint stripper was stored or disposed of. A sump/floor drain in the stripping area (see Figure 1.2) may be used for this purpose. Other floor drains and sinks may be assumed to be present within the facility. These may have been used to dispose of the various products used in facility operations.

The use of paint stripper (which contains methylene chloride) at the refinishing operation raises the possibility that the methylene chloride found in the tank and ground water may have originated from current site activities. In conversations with three former, long-term Grow Group employees who worked at the facility prior to 1981, the tank in question was used only to store mineral spirits. According to these same sources, methylene chloride was never used in any of the Grow Group activities at the facility (personnel communication, Henry Jones, February 23, 1988).

#### 5.0 INTERPRETATIONS

OHM has made the following interpretations based on the data and observations resulting from the investigation at the former Grow Group facility in Emeryville:

- o The difference in hydrocarbon composition between the tank contents and that found in the ground water suggests an external source of all or part of the hydrocarbons detected in ground water.
- o The presence of methylene chloride in the tank contents and ground water suggests that the tank and/or attendant plumbing has allowed the discharge of this chemical to the environment. The origin of the methylene chloride, and xylene in the tank is unknown.
- o Free product is believed to be present on the ground water adjacent to the western end of the tank. The thickness of the product layer or its areal extent is not known.

#### 6.0 RECOMMENDATIONS

OHM recommends the following course of action be taken to begin mitigation of the perceived discharge from the tank and to further define site conditions:

- o Empty the tank of its contents and dispose of same at a licensed disposal site or recycler
- o Install a permanent monitor well near the down gradient (west) end of the tank to provide information on the presence of free product, water quality, and site hydrogeology
- o Disconnect the plumbing entering the east end of the tank and attempt to determine if it is connected to any drain installation currently used in the furniture refinishing operation

320 Tesconi Circle, Suite G Santa Rosa, California 95401 707-544-5570



February 23, 1988

O.H. Materials

Attn: Dennis Parfitt 3900 Industrial Blvd.

West Sacramento, CA 95691

Date Collected: 02-09-88
Date in lab: 02-09-88
Date analyzed: 02-19-88
Collected by: Client
Matrix: Liquid

PROJECT:

EMERYVILLE, GROW GROUP, PROJECT #5679

Sample No.	Client ID	Total Light Hydrocarbons Result, Group B	Detection <u>Limit</u>		
8–0776	TB, Trip Blank	ND	50 ug/L		
8–0777*	TC, Tank Contents	37 mg/L	0.05 mg/L		
8–0778	GWS-1, Groundwater	610 mg/L	0.05 mg/L		

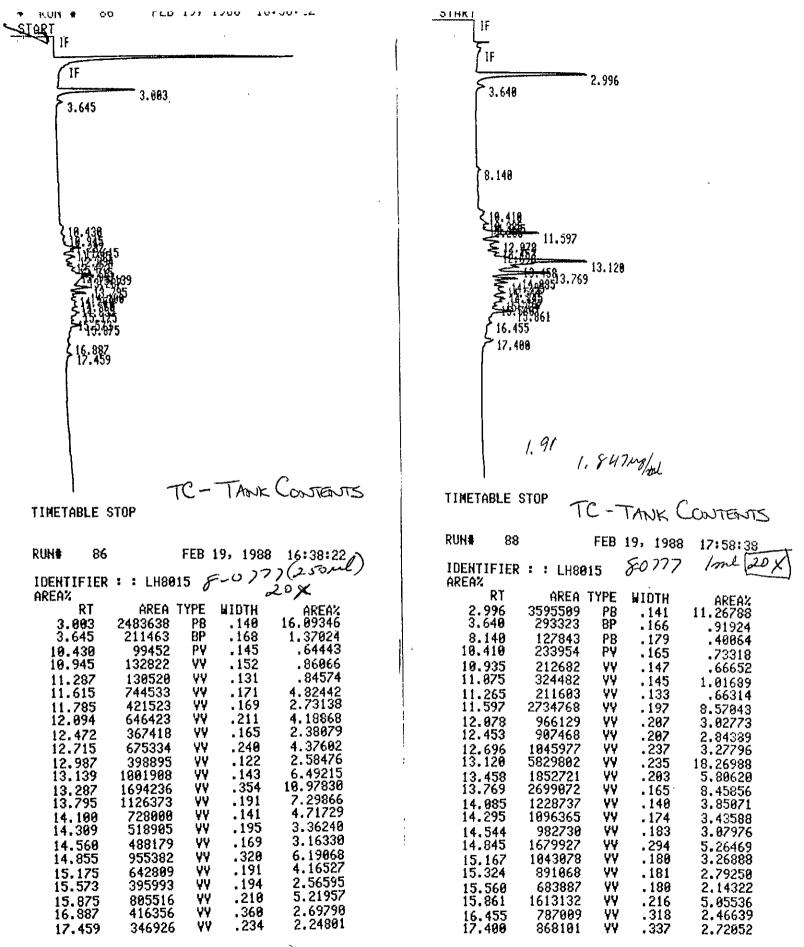
<sup>\*</sup>Sample 8-0777 was non homogeneous as free product was present.

ND = None Detected

NOTE: These total light hydrocarbon analyses were performed using EPA Methods 5030 and 8015 with a modification of the calibration standard as specified by the San Francisco Water Quality Control Board method for addressing underground fuel leaks. These samples were calibrated to gasoline.

Analytical Director

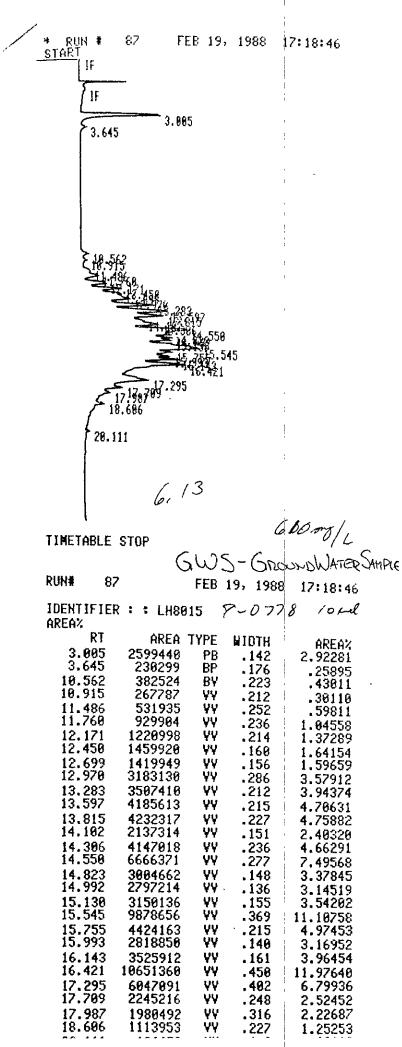
jmt



TOTAL AREA=1.5433E+07

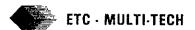
HUL FACTOR=1.0000E+00

TOTAL AREA=3.1909E+07 MUL FACTOR=1.0000E+00



## MULTI - TECH, A Division of **Environmental Testing and Certification Corp.**

320 Tesconi Circle, Suite G Santa Rosa, California 95401 707-544-5570



February 17, 1988

O.H. Materials

Attn: Dennis Parfitt 3900 Industrial Blvd.

West Sacramento, CA 95691

SAMPLE NUMBER:

8-0778

Date collected:

02-09-88

Date in lab:

02-09-88

Collected by:

Dennis Parfitt, OHM

Matrix:

Liquid

CLIENT ID:

#2, GWS-1, GROUND WATER SAMPLE, EMERYVILLE, CA, GROW GROUP, #5679

## EPA Method 624 Purgeable Organics

	Result (ug/L)	Detection Limit (ug/L)
Chloromethane	ND	500
Bromomethane	ND	- 500
Vinyl Chloride	ND	500
Chloroethane	( ND	500
Methylene Chloride	4 720 )	100
Trichlorofluoromethane	ND	100
1,1-Dichloroethene	ND	100
1,1-Dichloroethane	ND	100
trans-1,2-dichloroethene	ND	100
Chloroform	ND	100
1,2-Dichloroethane	ND	100
1,1,1-trichloroethane	ND	100
Carbon Tetrachloride	ND	100
Bromodichloromethane	ND	100
1,2-Dichloropropane	ND	100
trans-1,3-Dichloropropene	· ND	100
Trichloroethene	ND	100
Dibromochloromethane	ND	100
1,1,2-Trichloroethane	ND	100
cis-1,3-dichloropropene	ND	100
2-Chloroethylvinyl ether	ND	100
Bromoform	ND	100
1,1,2,2,-Tetrachloroethane	ND	100
Tetrachloroethene	ND	100
Chlorobenzene	ND	100
1,3-Dichlorobenzene	ND	100
1,2-Dichlorobenzene	ND	100
1,4-Dichlorobenzene	ND	100
Benzene	ND	100
Toluene	ND	100
Ethyl Benzene	ND	100
Xylene	ND	100

These detection limits are 50 times higher than usual due to matrix interferences.

ND = None Detected

Analytical Director

## MULTI - TECH, A Division of Environmental Testing and Certification Corp.

320 Tesconi Circle, Suite G Santa Rosa, California 95401 707-544-5570



February 17, 1988

O.H. Materials

Attn: Dennis Parfitt 3900 Industrial Blvd.

West Sacramento, CA 95691

SAMPLE NUMBER:

8-0776

Date collected:

02-09-88

Date in lab:

02-09-88

Collected by:

Dennis Parfitt, OHM

Matrix:

Liquid

CLIENT ID:

#1, TB, TRIP BLANK, EMERYVILLE, CA, GROW GROUP, #5679

# EPA Method 624 Purgeable Organics

	Result (ug/L)	Detection Limit (ug/L)
Chloromethane	ND	. 10
Bromomethane	ND	10
Vinyl Chloride	ND	10
Chloroethane	ND	10
Methylene Chloride	ND	2.0
Trichlorofluoromethane	ND	2.0
1.1-Dichloroethene	ND	2.0
1,1-Dichloroethane	ND	2.0
trans-1,2-dichloroethene	ND	2.0
Chloroform	ND	2.0
1,2-Dichloroethane	ND	2.0
1,1,1-trichloroethane	ND	2.0
Carbon Tetrachloride	ND	2.0
Bromodichloromethane	ND	2.0
1,2-Dichloropropane	. ND	2.0
trans-1,3-Dichloropropene	ND	2.0
Trichloroethene	ND	2.0
Dibromochloromethane	ND	2.0
1,1,2-Trichloroethane	ND	2.0
cis-1,3-dichloropropene	ND	2.0
2-Chloroethylvinyl ether	ND	2.0
Bromoform	ND	2.0
1,1,2,2,-Tetrachloroethane	ND	2.0
Tetrachloroethene	ND	2.0
Chlorobenzene	ND	2.0
1,3-Dichlorobenzene	ND	2.0
1,2-Dichlorobenzene	ND	2.0
1,4-Dichlorobenzene	ND	2.0
Benzene	ND	2.0
Toluene	ND	2.0
Ethyl Benzene	ND	2.0
Xylene	ND	2.0
ND = None Detected	Burn	Mmith

Analytical Director

jmt

A Subsidiary of Environmental Treatment and Technologies Corp.

The Environmental Services Company

## MULTI - TECH, A Division of **Environmental Testing and Certification Corp.**

320 Tesconi Circle, Suite G Santa Rosa, California 95401 707-544-5570

# ETC - MULTI-TECH

February 17, 1988

O.H. Materials

Attn: Dennis Parfitt 3900 Industrial Blvd.

West Sacramento, CA 95691

SAMPLE NUMBER:

8-0777 02-09-88

Date collected:

Date in lab: Collected by: 02-09-88 Dennis Parfitt, OHM

Matrix:

Liquid

CLIENT ID:

#2, TC, TANK CONTENTS, EMERYVILLE, CA, GROW GROUP, #5679

## EPA Method 624 Purgeable Organics

	Result (ug/L)	Detection Limit (ug/L)
Chloromethane	ND	500
Bromomethane	ND	500
Vinyl Chloride	ND	500
Chloroethane	ND	500
Methylene Chloride	(2100)	100
Trichlorofluoromethane	ND	100
1,1-Dichloroethene	ND	100
1,1-Dichloroethane	ND	100
trans-1,2-dichloroethene	ND	100
Chloroform	ND	100
1,2-Dichloroethane	ND	100
1,1,1-trichloroethane	ND	100
Carbon Tetrachloride	ND	100
Bromodichloromethane	ND	100
1,2-Dichloropropane	ND	100
trans-1,3-Dichloropropene	ND	100
Trichloroethene	ND	100
Dibromochloromethane	·ND	100
1,1,2-Trichloroethane	ND	100
cis-1,3-dichloropropene	ND	100
2-Chloroethylvinyl ether	ND	100
Bromoform	ND	100
1,1,2,2,-Tetrachloroethane	ND	100
Tetrachloroethene	ND	100
Chlorobenzene	. ND	100
1,3-Dichlorobenzene	ND	100
1,2-Dichlorobenzene	ND	100
1,4-Dichlorobenzene	ND	100
Benzene	ND	100
Toluene	ND	100
Ethyl Benzene	ND	100
Xylene	2400	100

These detection limits are 50 times higher than usual due to matrix interferences.

ND = None Detected

Analytical Director

jmt

A Subsidiary of Environmental Treatment and Technologies Corp.

O.H. Materials Corp.
16406 U.S. Route 224 East
Findlay, Ohio 45839-0551
419-423-3526

# CHAIN-OF—CUSTODY RECORD

 $N^{\underline{\alpha}} \quad 32033$ 

1	r LOCATION		NAME OF CLIENT	PROJEC	CT TELEPHONE NO	5679	UMBER
Em	myville CA	(	Front Group				
ITEM NUMBER	SAMPLE NUMBER	NUMBER & SIZE OF CONTAINERS					
1	TB	3-40 ml	Trip Blank	2-9-88 1115	DP	1 430	776
2	TC	2-40ml		its z-9-88 1200	<del>-</del>	uspect free	produc
3	GWS-1	6-40ml	Ground Water	Sample 2-9-38 12	235 DP		-017-5
	,						
Pesson Respo	onsible for sample	Affiliation Date 2/1/8	Time TRANSFER ITEM NUMBER NUMBER	TRANSFERS RELINOUISHED BY	ACCEPTED	DATE 298	3 1600
Purpose o	of analysis (use back of	front sheet if necessary)	2	+ 1/WHII	U / Carc	-   \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
		nt Fraction	3			,	
EF	PA 624		5				
CALL	DENNIS O	G. PARFITT RESULTS	6 7	\			

PART I	Ŀ								PAGE 1 OF	2	
N EOL	<del>).</del>	5679	-					BORE	HOLE NO.	rw-1	Married W. S.
PROJE	CT T	Grow G	roup	I		LOCATION	Emeryville, (	California			
DRILL	ING CONT	RACTOR			· · · · · · · · · · · · · · · · · · ·	DRILLING EQU					<del></del>
TUNNA	SEOLOGI:	ОНМ				DRILLER	Mobildrill B	-24		<u> </u>	
HIDRO	SEOLOGI:		Parfitt			DKILLER	Rod Grenier				
DATE S	DATE START/TIME 02/09/88 0945 DATE FINISH/TIME 02/09/88 1200						VATION	IATOT	DEPTH 20 feet	i	
WELL O	CASING	N/A		SCREEN TYPE	LENGTH		SLOT	SLOT			
GROUND W.			GROUND W	JATER			CASING	CORE	SAMPLER	TUE	3E
	DATE		TIME	DEPTH	WEATHER	TYPE					
Feb	ruary 9		1300	13.2'		DIAMETER				 	
						HAMMER WT.					
						FALL			]		
REMARI	KS										
			1	<del>                                     </del>		BORE HO	OLE LOG			+	
DEPTH	SAMPLE NUMBER		RECOVERY								FAPHIC
		PER 6'				DESCRIPTION			REMARKS	<u>.                                    </u>	LOG
-				Concrete sidewal						' l	
-				CH- Clay, dark plastic, mo	brown (2.5YR N	3/0), moderat	tely				
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2										ŀ	
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4										' 1	
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-				CH- Clay, very with 10% gr	dark grey (7.5Y ey mottles (7.5	R N 3/0) YR N 5/0)	·			1	
6				1 to 2% coa	rse angular san eter, highly pl	d and p-grave	<b>1</b>			,	
				30 2 33,02	, r, r-						
7										<u> </u>	
` <u>-</u>										'	
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8											
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-				CH- Clay, grey moist	(5Y 5/1), 5 to	10% silt, sli	ightly			·	
9				1							
-											
10											
-										:	
-										,	
11											
-											
-											

12--

5679

PAGE 2 OF 2

BORE HOLE NO.

TW-1

PROJECT LOCATION Grow Group Emeryville, California BORE HOLE LOG DEPTH SAMPLE BLOW NUMBER COUNT PER 6 RECOVERY GRAPHIC LITHOLOGIC DESCRIPTION REMARKS LOG As above, olive grey (5Y 5/2), increasing gravel content (5%), gravel to 3 centimeters. Moderate "paint thinner" odor 13---First water 14--15---16--As above, increasing silt content (30%) 17--18---19--CH/MH- Silty clay-clayey silt, olive grey (5Y 5/2), moderate plasticity, moist 20--Total Depth: 20 feet Boring backfilled with: sand 20 to 15.5 feet; Sand/cement slurry 15.5 to 9.6 feet; Cuttings 9.6 to 0.3 feet 21---22--23--24--25--26--27--28--29--