PH

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

November 15, 2000

Michael Poole
The Flecto Co.
1000 – 45th St.
Oakland, CA 94608

REMEDIAL ACTION COMPLETION CERTIFICATION
StId 335
The Flecto Co., 1000 – 45th St., Oakland, CA 94608
Tanks:
T-1: 6,000-gallon (Mineral Spirits),
T-2: 6,000-gallon (Mineral Spirits),
T-3: 8,000-gallon (LinseedOil),
T-4: 4,000-gallon (emergency spill containment)
All were removed on July 30, 1997

Dear Mr. Poole:

This letter confirms the completion of site investigation and remedial action for the underground storage tank formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tank are greatly appreciated.
Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, no further action related to the underground tank release is required.

This notice is issued pursuant to a regulation contained in Title 23, Section 2721(e) of the California Code of Regulations.
Please contact our office if you have any questions regarding this matter.

Sincerely,

Mee Ling Tung, Director

c: Chuck Headlee, RWQCB
Dave Deaner, SWRCB
Leroy Griffin, OFD
File

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November 15, 2000

Michael Poole
The Flecto Co.
1000 – 45th St.
Oakland, CA 94608

Re: TPH as Mineral Spirits Leak Site Case Closure for The Flecto Co., 1000 – 45th St., Oakland, CA 94608
StId 335

Dear Mr. Poole:

This letter transmits the enclosed underground storage tank (UST) case closure letter in accordance with Chapter 6.75 (Article 4, Section 25299.37[h]). The State Water Resources Control Board adopted this letter on February 20, 1997. As of March 1, 1997, the Alameda County Environmental Protection Division is required to use this case closure letter for all UST leak sites. We are also transmitting to you the enclosed case closure summary. These documents confirm the completion of the investigation and cleanup of the reported release at the subject site. The subject fuel leak case is closed.

SITE INVESTIGATION AND CLEANUP SUMMARY

Please be advised that the following conditions exist at the site:

- up to 2,100 ppm TPH as Mineral Spirits exists in soil beneath the site. (sampled March 2, 1999)
- up to 3,400 ug/l TPH as Mineral Spirits exists in groundwater beneath the site. (sampled March 20, 2000)

If you have any questions, please contact me at (510) 567-6746.

Sincerely,

Don Hwang
Hazardous Materials Specialist

Enlosures: 1. Remedial Action Completion Certificate 2. Case Closure Summary
C: Frank Kliewer, City of Oakland, Planning Dept., 1330 Broadway, 2nd Floor, Oakland, CA 94612

RB# 01-2215

CALIFORNIA REGIONAL WATER
SEP 26 2000
QUALITY CONTROL BOARD

CASE CLOSURE SUMMARY

Leaking Underground Fuel Storage Tank Program

I. AGENCY INFORMATION Date: September 13, 2000

Agency name: Alameda County-HazMat Address: 1131 Harbor Bay Pkwy
City/State/Zip: Alameda, CA 94502 Phone: (510) 567-6746
Responsible staff person: Don Hwang Title: Hazardous Materials Spec.

II. CASE INFORMATION

Site facility name: The Flecto Company
Site facility address: 1000 45th St., Oakland, CA 94608
RB LUSTIS Case No: N/A
Local Case No./LOP Case No.: STID #335
URF filing date: 8/1/97 SWEEPS No:N/A

Responsible Parties:
The Flecto Co.
c/o Chemical Coatings, Inc.
Address: 3194 Hickory Blvd., Hudson, NC 28638
Phone Numbers:

Tanks:
T-1: 6,000-gallon (Mineral Spirits),
T-2: 6,000-gallon (Mineral Spirits),
T-3: 8,000-gallon (LinseedOil),
T-4: 4,000-gallon (emergency spill containment)
All were removed on July 30, 1997

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: believed to be from Overfill/spillage at fill ports and/or submersible pump head leakage; groundwater
Site characterization complete? YES
Date approved by oversight agency: June 2, 2000
Monitoring Wells installed? YES Number: 3
Proper screened interval? YES
Highest GW depth below ground surface: 12.24 ft Lowest depth: 14.53 ft
Flow direction: SW
Most sensitive current use: Residential (Future use)
Are drinking water wells affected? NO Aquifer name: NA
Is surface water affected? NO Nearest affected SW name: NA

Off-site beneficial use impacts (addresses/locations): NA
Report(s) on file? YES Where is report(s) filed?
Alameda County Environmental Health, 1131Harbor Bay Pkwy, Alameda, CA 94502
Oakland Fire Dept, 505 - 14th St., Suite 510, Oakland, CA 94612

Treatment and Disposal of Affected Material:

Material: SOIL Amount: 330 cubic yards Disposal: West Contra Costa Sanitary Landfill, Richmond, CA Date: 10/97
Material: SOIL Amount: 560.11 tons Disposal: TPS Technologies, Richmond, CA for Treatment Date: 10/6/97-10/7/97
Material: Tanks Amount: 4 Disposal: Erickson, Inc., Richmond, CA Date: 7/30/97
Barrels Not undertaken yet[10]

Maximum Documented Contaminant Concentrations - - Before and After Cleanup Contaminant

	Soil (ppm)		Water (ug/l)	
	Before	After	Before	After
TPH (as MS)	2,100[1]	2,100[1]	38,000[6]	3,400[9]
Benzene	<5[2]	<0.25[3]	<50[6]	<0.5[10]
Toluene	<5[2]	<0.25[3]	6.2[7]	<0.5[10]
Ethylbenzene	<5[2]	<0.25[3]	<50[6]	<0.5[10]
Xylenes	30[2]	<0.31[4]	16[7]	<0.5[10]
(MTBE)	NA	<2.5[5]	<250[8]	<5[10]

[1] MW-10.5, 3/2/99
[2] T-1-EST, 7/30/97
[3] B3-12.5, 3/13/00; B5-15.5, 3/13/00
[4] B4-15.5, 3/13/00
[5] B5-15.5, 3/13/00
[6] MW-1, 3/29/99
[7] MW-1, 9/15/99
[8] MW-1, 12/27/99
[9] MW-1, 3/20/00
[10] MW-2, MW-3, 3/20/99

Methyl Tertiary-Butyl Ether

Comments (Depth of Remediation, etc.):

Oakland Risk Based Corrective Action analysis utilized See Section VII, Additional Comments, etc...

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? Undetermined

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? Undetermined

Does corrective action protect public health for current land use? YES

Site management requirements: A site safety plan must be prepared for construction workers in the event excavation/trenching is proposed in the vicinity of residual soil and groundwater contamination.

Should corrective action be reviewed if land use changes? NO

Monitoring wells Decommissioned: Not yet

Number Decommissioned: Number Retained:

List enforcement actions taken:

List enforcement actions rescinded:

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Don Hwang Title: Haz Mat Specialist

Signature: Don Hwang

Date: 9/13/00

Reviewed by

Name: Larry Seto Title: Senior Haz Mat Specialist

Signature:

Date: 9-13-00

Name: Thomas Peacock Title: Supervisor

Signature: Thomas Peacock

Date: 9-14-00

VI. RWQCB NOTIFICATION

Date Submitted to RB: 9/19/00 **RB Response:** concur

RWQCB Staff Name: Chuck Headlee Title: EG

Signature: Chuck Headlee

Date: 9/28/00

VII. ADDITIONAL COMMENTS, DATA, ETC.

On July 30, 1997, four Underground Storage Tanks (USTs) and associated underground piping were removed from the site by Henderson Construction (Henderson). The USTs were located in a common excavation in a paved lot east of the building at the site. Two 6,000-gallon USTs stored mineral spirits. One 8,000-gallon UST contained linseed oil, but previously stored mineral spirits. One 4,000-gallon UST was used for emergency spill containment. Hernan Gomez of the Oakland Fire Services Agency and Brian Oliva of the Alameda County Health Care Services Agency (ACHCSA) were on-site to witness the UST removal. Blymyer Engineers, Inc. was on site as the consultant of record. All of the USTs were in very good condition with no evidence of penetrating corrosion. The sand backfill excavated during removal of the USTs did not appear to be significantly impacted by petroleum hydrocarbons; however, the backfill and native soil did appear to be impacted by petroleum hydrocarbons beneath the 6,000-gallon and 8,000-gallon USTs based on visual observations and photoionization detector (PID) readings. A soil sample was collected under each end of each tank for a total of 8 samples, T-1-WST, T-1-EST, T-2-WST, T-2-EST, T-3-WST, T-3-EST, T-4-NTH, and T-4-STH. Groundwater was not observed in the excavation during the UST removal. The source of the contamination is believed to have been a combination of overfill/spillage at the fill ports and leakage of product from the submersible pump heads. Soil samples were analyzed for Total Petroleum Hydrocarbons as Mineral Spirits (TPH as MS) using modified EPA Method 8015, and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8020. No concentrations of TPH as MS or BTEX were found above method detection limits in the soil samples collected beneath the 4,000-gallon UST (T-4-NTH and T-4-STH) and the soil sample collected beneath the east end of the 8,000-gallon UST (T-3-EST). TPH as MS was detected in five of the six soil samples collected beneath the 6,000-gallon and 8,000-gallon USTs at concentrations ranging from 160 to 1,200 milligrams per kilogram (mg/kg). Total xylenes were detected in the same five soil samples at concentrations ranging from 1.3 to 30 mg/kg. Benzene, toluene, and ethylbenzene were not detected in these samples, but the detection limits were elevated from the normal limit of 0.005 mg/kg to a maximum limit of 5 mg/kg due to required sample dilutions.

Based on field indications of soil contamination, Flecto decided to overexcavate contaminated soil beneath the former 6,000-gallon and 8,000-gallon USTs. Contaminated soil was excavated by Henderson on July 31, 1997, and stockpiled on and under heavy plastic sheeting in a fenced lot owned by Flecto, located across 46th Street from the site. Brian Oliva of the ACDEH was notified of the planned overexcavation and visited the site briefly on July 31, 1997. A total of approximately 275 cubic yards of impacted soil was excavated. The overexcavated area

extended vertically from 17 to 20 feet below grade surface (bgs). Soil that appeared to be impacted on the north and west sidewalls could not be accessed for excavation or sampling due to proximity to the sidewalk along 46th Street and the site building. Groundwater was not present in the finished excavation, but the soil appeared to be wet between 18 and 20 feet bgs.

Three soil samples (OEX-1, OEX-2, and OEX-3) were collected from the base of the overexcavated area at depths ranging from 18 to 21 feet bgs. The soil samples were analyzed for TPH as MS and BTEX. No concentrations of TPH as MS or BTEX above detection limits were found in any of the soil samples.

After ACHCSA approval, Blymyer Engineers installed groundwater monitoring well MW-1 within 10 feet of the UST excavation on March 2, 1999. The well was installed to a depth of approximately 30.5 feet bgs. Soil samples were collected at approximately 5-foot intervals in the soil bore. Soil samples were field-screened for organic vapors using a PID and lithologically described using the Unified Soil Classification System. Groundwater was initially encountered in the bore at approximately 19.5 feet bgs but field-stabilized at approximately 15.5 feet bgs on the day of drilling. Indications of free phase product were observed in soil recovered from a depth of 10 to 13 feet bgs, and on groundwater. Soil samples MW1-10.5 and MW1-15.5 were selected for laboratory analysis based upon an elevated PID reading and proximity to the initial soil-water interface, respectively.

Well MW-1 was constructed of threaded, 0.020-inch factory slotted, schedule 40 PVC casing from the bottom of the bore to approximately 4.5 feet above the first encountered groundwater zone. Solid PVC casing was placed through the augers to complete the well from the top of the slotted casing to near the ground surface. The annular space around the casing from the bottom of the bore to 2 feet above the slotted casing was filled with number 2/12 filter pack sand. An approximately 2-foot-thick bentonite seal was placed in the annular space above the filter pack. The annular space from the bentonite seal to the surface was filled with cement grout. A traffic-rated well vault was set in a concrete apron at the surface. The surface seal was raised approximately 1/4 -inch above grade so surface water would drain away from the well. A locking cap was placed on the top of the PVC casing. All casing joints were flush threaded, and no glues or solvents were used in the construction of the well.

The well was developed in accordance with standard operating procedures and was monitored for four quarters for TPH as MS and BTEX/MTBE. In general, contaminant concentrations decreased over the year of monitoring. No Maximum Contaminant Levels (MCLs) were exceeded, although laboratory dilutions were required due to the concentration of TPH as MS in the groundwater samples from MW-1, which resulted in slightly elevated benzene detection limits.

On May 7, 1999, the ACHCSA issued a letter requesting further delineation of the extent of soil and groundwater contamination at the site. A series of communications commenced and the workplan was approved by the ACHCSA on January 21, 2000.

On March 13, 2000, four soil bores, B-2, B-3, B-4, B-5, and two groundwater wells, MW-2, MW-3, were installed at the site to provide the additional delineation requested by the ACHCSA.

As discussed below, the soil and groundwater data collected indicate that the lateral and vertical extent of impacted soil and groundwater at the site have been delineated to relatively low concentrations.

The four soil bores were installed to a depth of approximately 19 feet bgs at the site. The two groundwater monitoring wells were installed inside the basement of the facility. The basement floor is approximately 10.5 to 11 feet bgs. After coring through the concrete basement floor (8 inches thick), the well bores were installed to an approximate depth of 28.5 feet bgs (18 feet below basement floor). Groundwater was initially encountered in each bore at approximately 17 feet bgs but field-stabilized at approximately 11.5 feet bgs on the day of drilling. Soil samples, B-2-15.5, B-3-12.5, B-3-15, B-4-15.5, B-4-16.5, B-5-15.5, MW2-15.5, MW3-16.5, were selected for laboratory analysis based upon elevated PID readings and proximity to the initial soil-water interface.

The wells were constructed of threaded, 0.010-inch factory slotted, schedule 40 PVC casing from the bottom of the bore to approximately 3.5 feet above the first encountered groundwater zone. Solid PVC casing was placed through the augers to complete the well from the top of the slotted casing to 1.5 feet above the basement floor surface in order to allow for future groundwater fluctuations. The annular space around the casing from the bottom of the bore to 1 foot above the slotted casing was filled with number 030 filter pack sand. An approximately 1-foot-thick bentonite seal was placed in the annular space above the filter pack. The annular space from the bentonite seal to the basement surface was filled with concrete at the time an above grade well monument was set in concrete at the basement floor. A slip cap was placed on the top of the PVC casing inside the locking steel well monument. All casing joints were flush threaded, and no glues or solvents were used in the construction of the wells.

The soil and groundwater samples were analyzed for TPH as MS and BTEX/MTBE. Relatively low detectable concentrations of TPH as MS ranging from 6.6 to 190 mg/kg were found in all soil samples submitted for analysis except for soil samples from soil bores B2 and MW-3 which contained no detectable analytes. Trace concentrations of total xylenes were found only in soil samples from two bores (B3 and B4). Benzene, toluene, ethylbenzene, and MTBE were not detected in any of the soil samples.

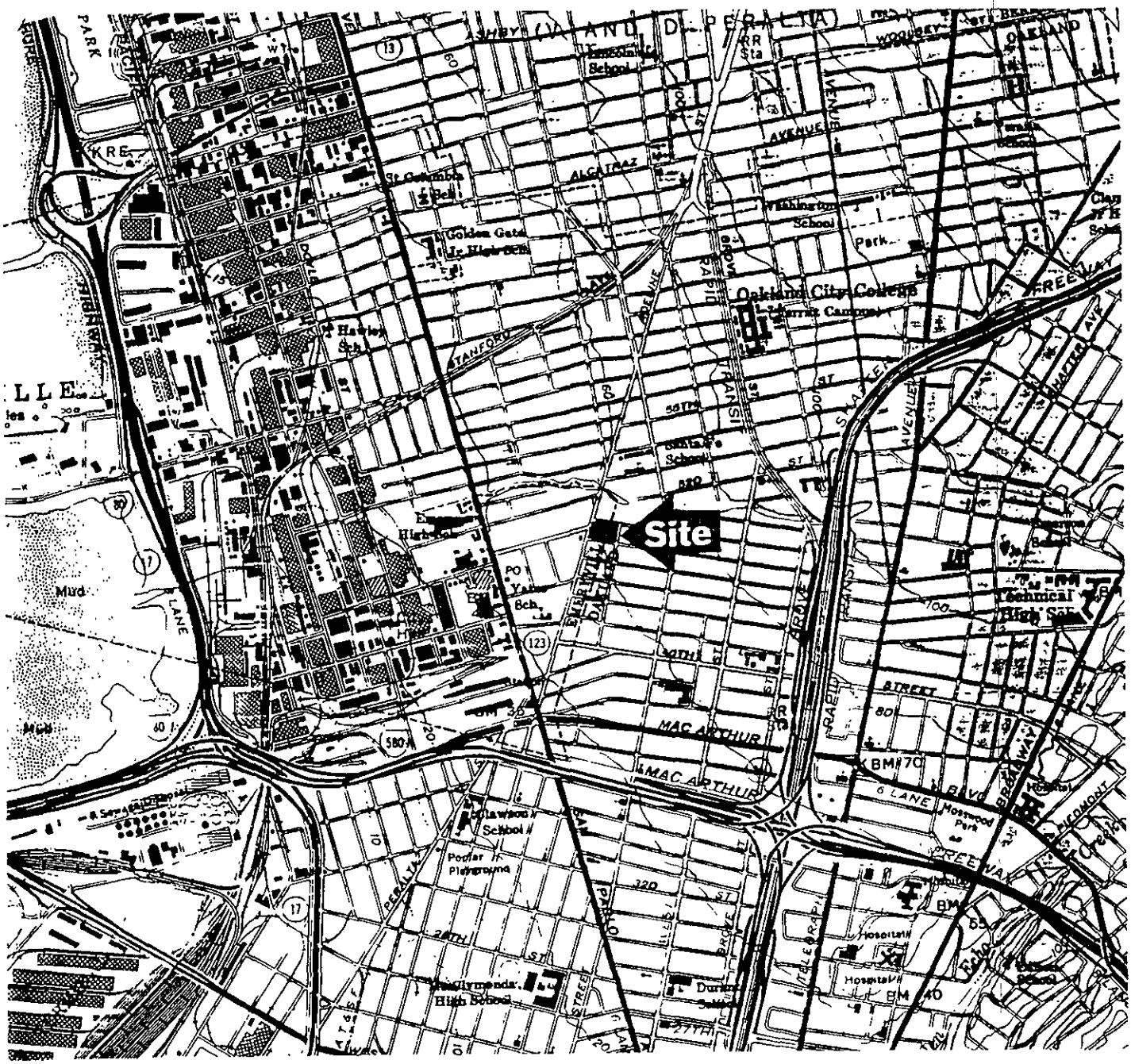
The groundwater samples were collected from each of the 3 wells on March 20, 2000. Detectable levels of TPH as MS were present in groundwater from all three wells, but with lower concentrations in the more downgradient wells. The well closest to the former location of the USTs, MW-1, contained 3,400 ug/l TPH as MS. Downgradient wells, MW-2 and MW-3, contained 170 ug/l and 730 ug/l, respectively. BTEX/MTBE were not present above the detection limits in any of the three wells.

An evaluation of risk using the Oakland Risk-Based Corrective Action Program was undertaken. Comparison to the Oakland Tier 1 Look-Up Table RBSLs indicate that no contaminant values in soil or groundwater exceed the established values for residential use of the site. Comparison to the Oakland Merritt Sand Tier 2 SSTLs also indicate that no contaminant values in soil or groundwater exceed the values for residential use.

In summary, case closure is recommended because:

ALL OF THE BELOW.

- the leak and ongoing sources have been removed;
- the site has been adequately characterized;
- the dissolved plume is not migrating;
- no water wells, surface water, or other sensitive receptors are likely to be impacted; and,
- the site presents no significant risk to human health or the environment.



UNITED STATES GEOLOGICAL SURVEY 7.5' QUAD. 'OAKLAND WEST, CA' ED. 1959 , PHOTOREVISED 1980.

BLYMYER ENGINEERS INC

BEI JOB NO. 97135

DATE 4-12-99

0 1000 2000

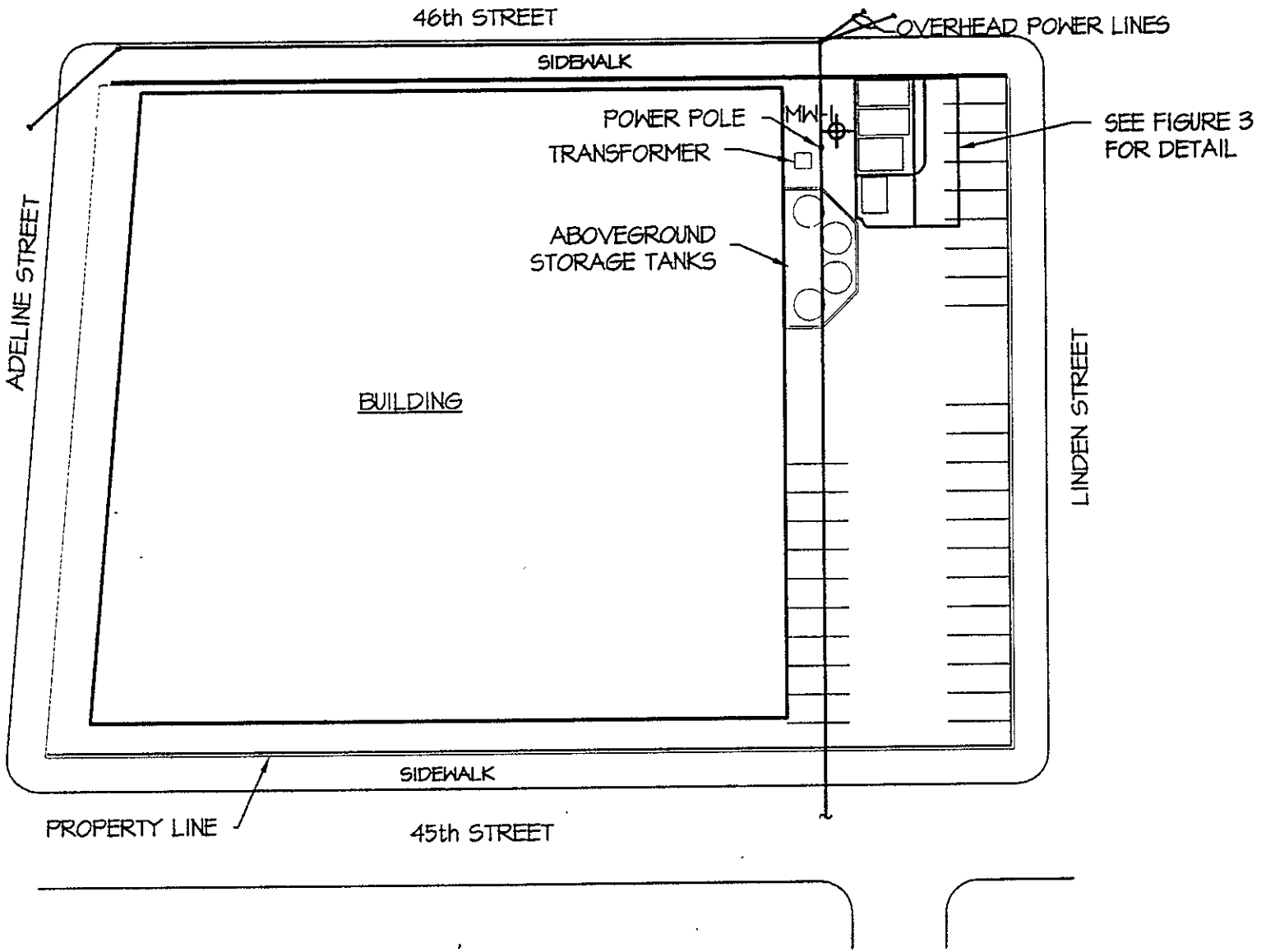
SCALE IN FEET

N

SITE LOCATION MAP

THE FLECTO CO., INC.
1000 45th ST.
OAKLAND, CA

FIGURE 1



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SCALE IN FEET

BLYMYER ENGINEERS, INC.

BEI JOB NO.	DATE
97135	4-12-99

LEGEND

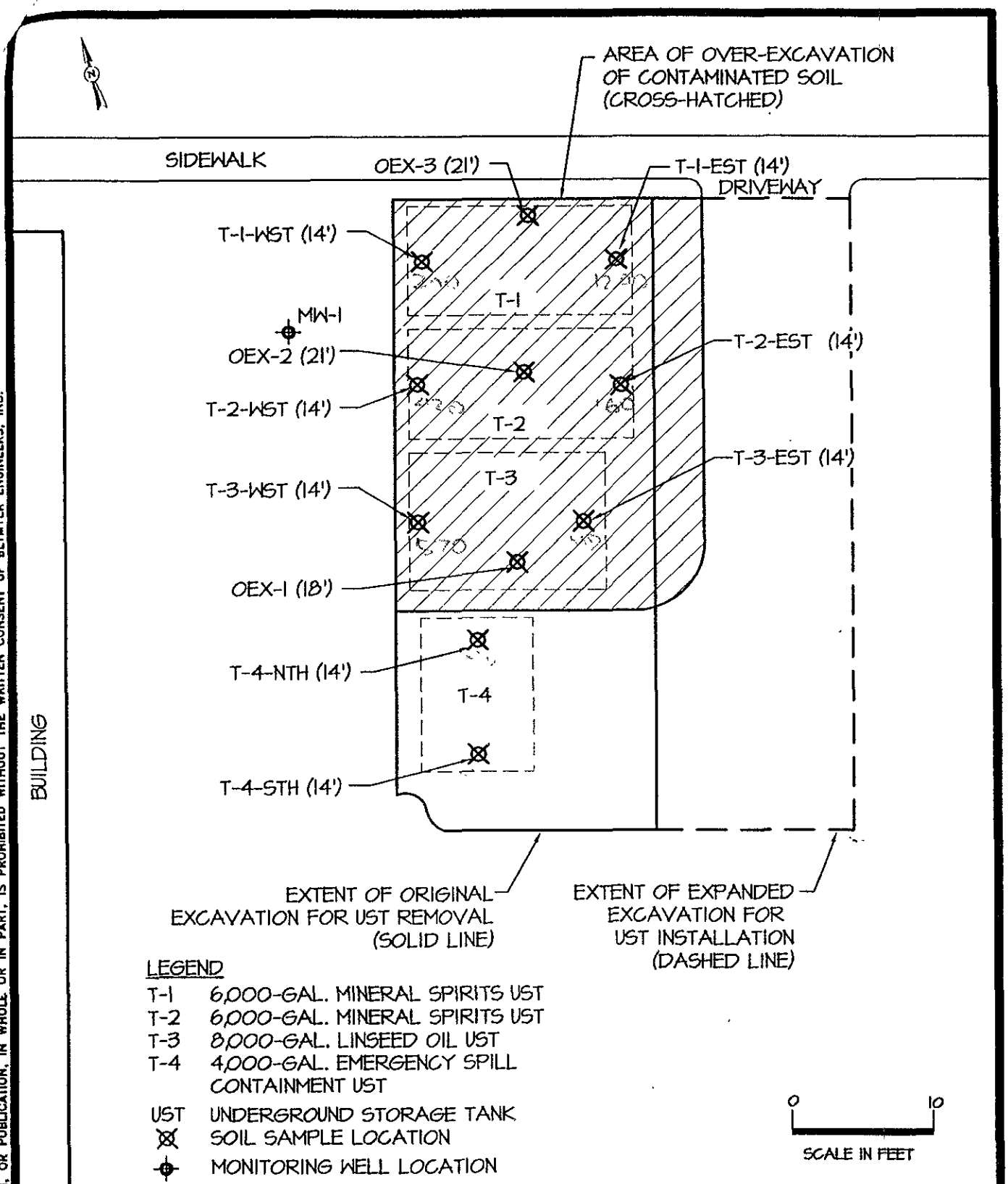
⊕ MONITORING WELL

SITE PLAN

THE FLECTO COMPANY, INC.
1000 45th ST.
OAKLAND, CA

FIGURE 2

4-12-99 ACAD\ 70WG\ 97135\ 971352 1:1PS LW



LEGEND

T-1	6,000-GAL. MINERAL SPIRITS UST
T-2	6,000-GAL. MINERAL SPIRITS UST
T-3	8,000-GAL. LINSEED OIL UST
T-4	4,000-GAL. EMERGENCY SPILL CONTAINMENT UST
UST	UNDERGROUND STORAGE TANK
⊠	SOIL SAMPLE LOCATION
⊕	MONITORING WELL LOCATION

0 10

SCALE IN FEET

BLYMYER ENGINEERS, INC.

BEI JOB NO.	DATE
97135	4-12-99

SOIL SAMPLE LOCATION MAP

THE FLECTO COMPANY, INC.
1000 45th ST.
OAKLAND, CA

FIGURE 3

4-12-99 ACAD\7DWG\97135\971353 1:120 LW

Table I, Summary of Soil Sample Analytical Results
The Flecto Company, Inc.
1000 - 45th Street, Oakland, CA
BEI Job No. 97055

Sample ID	Depth (feet)	Field PID Reading (ppm)	EPA 8015M (mg/kg)	EPA 8020 (mg/kg)			
			TPH-MS	Benzene	Toluene	Ethyl-benzene	Total Xylenes
T-1-WST	14	1706	200	<1	<1	<1	2.6
T-1-EST[1]	14	895	1200	<5	<5	<5	30
T-2-WST	14	2040	420	<2	<2	<2	10
T-2-EST	14	1265	160	<1	<1	<1	1.7
T-3-WST[2]	14	861	570	<1	<1	<1	1.3
T-3-EST	14	442	<1	<0.005	<0.005	<0.005	<0.005
T-4-NTH	14	5	<1	<0.005	<0.005	<0.005	<0.005
T-4-STH	14	5	<1	<0.005	<0.005	<0.005	<0.005
OEX-1	18	123	<1	<0.005	<0.005	<0.005	<0.005
OEX-2	21	51	<1	<0.005	<0.005	<0.005	<0.005
OEX-3	21	32	<1	<0.005	<0.005	<0.005	<0.005

Notes:

ppm	=	parts per million
mg/kg	=	milligrams per kilogram (ppm)
PID	=	Photoionization Detector
TPH-MS	=	Total Petroleum Hydrocarbons as Mineral Spirits
<*x*	=	Analyte not detected above reporting limit *x*

[1] Sample description given as "T-2-EST" in laboratory report; correct sample description is "T-1-EST" based on log numbers shown on chain-of-custody record

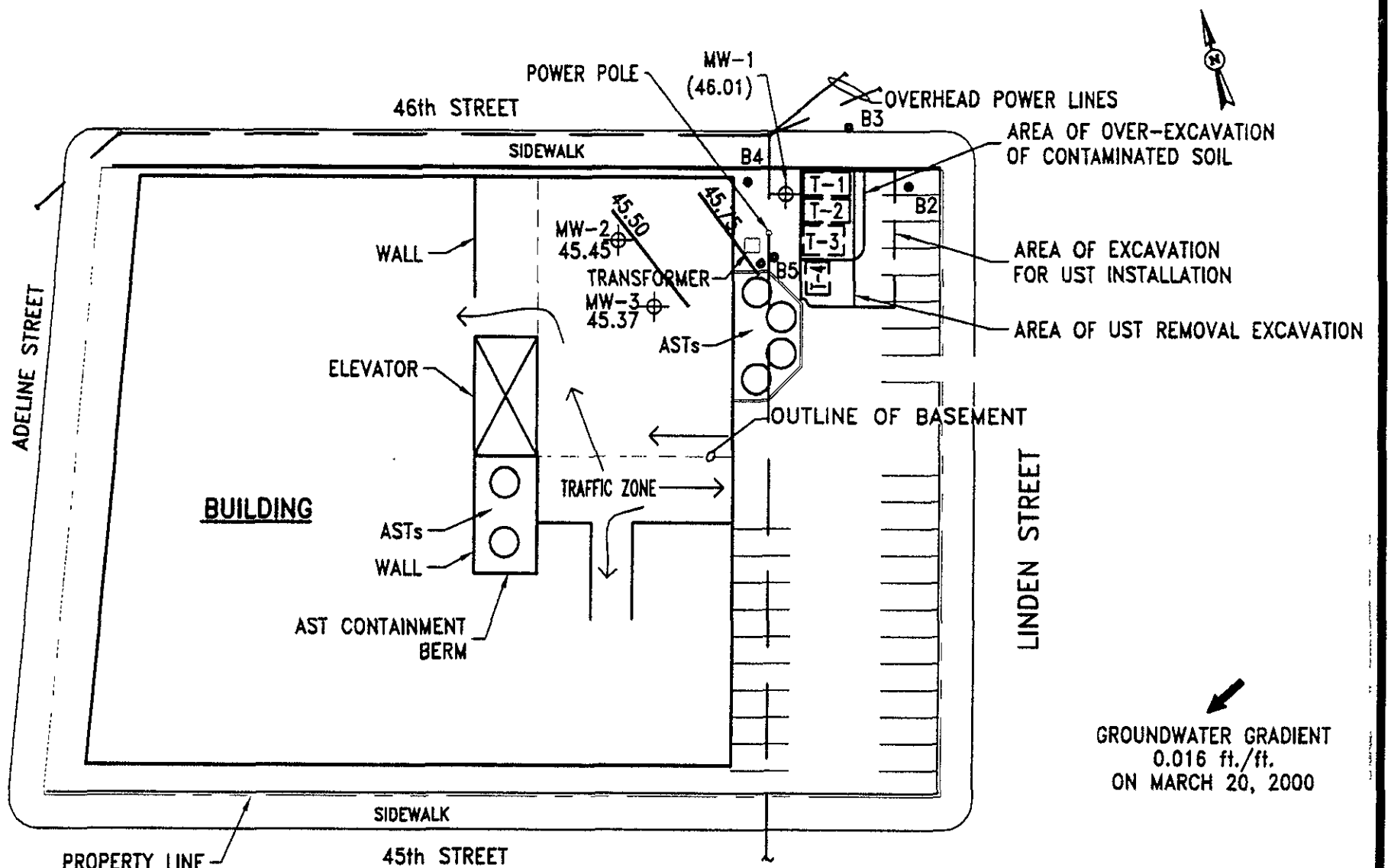
[2] Sample description given as "T-3-WET" in laboratory report

Table II, Summary of Soil Sample Analytical Results
BEI Job No. 97135, The Flecto Company, Inc.
1000 45th Street, Oakland, California

Sample I.D.	Sample Date	Modified EPA Method 8015	Modified EPA Method 8020				
		TPH as Mineral Spirits (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)
MW1-10.5	3/2/99	**2,100**	<0.005	<0.005	<0.005	<0.005	NA
MW1-15.5	3/2/99	**3.0**	<0.005	<0.005	<0.005	<0.005	NA
B2-15.5	3/13/00	<1.0	<0.005	<0.005	<0.005	<0.005	<0.50
B3-12.5	3/13/00	**8.4**	<0.25	<0.25	<0.25	<0.50	<0.250
B3-15	3/13/00	**37**	<0.05	<0.05	<0.05	**0.18**	<0.5
B4-15.5	3/13/00	**65**	<0.05	<0.05	<0.05	**0.31**	<0.5
B4-16.5	3/13/00	**6.6**	<0.05	<0.05	<0.05	<0.05	<0.5
B5-15.5	3/13/00	**190**	<0.25	<0.25	<0.25	<0.25	<2.5
MW2-15.5	3/13/00	**24**	<0.05	<0.05	<0.05	<0.1	<0.5
MW3-16.5	3/13/00	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05

Notes:
EPA = Environmental Protection Agency
TPH = Total Petroleum Hydrocarbons
mg/kg = milligrams per kilogram (parts per million)
<x = Not detected above the listed detection limit
NA = Not analyzed
MW1-10.5 = Soil sample from well MW-1 at a depth of 10.5 feet

Bold results indicate concentrations over the listed method detection limit.



WELL LOCATIONSFROM BASE MAP BY MILANI & ASSOCIATES, DATED MARCH 28, 2000

0 25 50

SCALE IN FEET

BLYMYER ENGINEERS, INC.

BEI JOB NO.	DATE
97135	4-7-00

LEGEND

- MONITORING WELL
- SOIL BORE
- AST ABOVEGROUND STORAGE TANK
- T-4 UST NUMBER
- GROUNDWATER CONTOUR LINE WITH ELEVATION

SITE & GROUNDWTER GRADIENT MAP
(MARCH 20, 2000)
THE FLECTO COMPANY, INC.
1000 45th ST.
OAKLAND, CA

FIGURE 2

Table III, Summary of Groundwater Sample Analytical Results
BEI Job No. 97135, The Flecto Company, Inc.
1000 45th Street, Oakland, California

Sample I.D.	Sample Date	Modified EPA Method 8015	EPA Method 8020				
		TPH as mineral spirits (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)
MW-1	3/29/99	**38**	<50	<50	<50	<50	NA
	6/14/99	**6.2**	<10	<10	<10	<10	<100
	9/15/99	**4.1**	<2.5	**6.2**	<2.5	**16**	<25
	12/27/99	**17.0**	<25	<25	<25	<25	<250
	3/20/00	**3.4**	<5	<5	<5	<5	<50
MW-2	3/20/00	**0.170**	<0.5	<0.5	<0.5	<0.5	<5
MW-3	3/20/00	**0.730**	<0.5	<0.5	<0.5	<0.5	<5
MCL/AL[a]	N/A	N/A	1	150	700	1,750	5 - 40[b]

Notes:
EPA = Environmental Protection Agency
MTBE = Methyl *tert*-butyl ether
µg/L = Micrograms per liter (parts per billion)
N/A = Not applicable
MCL/AL = Maximum Contaminant Level or Action Level (California Drinking Water)
TPH = Total Petroleum Hydrocarbons
mg/L = Milligrams per liter (parts per million)
<x = Not detected above the listed detection limit
NA = Not analyzed
[a] = Information obtained from *Compilation of Federal and State Drinking Water Standards and Criteria*, June 1997, Quality Assurance Technical Document No. 3, State of California Department of Water Resources.
[b] = Information obtained from Cal EPA Memo, dated March 9, 1999; Secondary MCL = 5 µg/L; Public Health Goal = 13 µg/L; Drinking Water Advisory Level = 20 to 40 µg/L

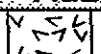
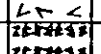
Bold results indicate concentrations over the listed method detection limit.
Shaded results indicate concentrations or detection limits that may exceed the respective MCL or Advisory Level. The text of this report should be consulted for further details.

KEY TO BORE/WELL CONSTRUCTION LOGS

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS					TYPICAL NAMES
COARSE GRAINED SOILS (MORE THAN HALF IS LARGER THAN NO. 200 SIEVE)	GRAVEL (MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO 4 SIEVE SIZE)	CLEAN GRAVEL WITH LESS THAN 5% FINES	GW		WELL GRADED GRAVEL, GRAVEL-SAND MIXTURES
			GP		POORLY GRADED GRAVEL, GRAVEL-SAND MIXTURES
		GRAVEL WITH OVER 12% FINES	GM		SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURES
			GC		CLAYEY GRAVEL, GRAVEL-SAND-CLAY MIXTURES
	SAND (MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO 4 SIEVE SIZE)	CLEAN SAND WITH LESS THAN 5% FINES	SW		WELL GRADED SAND, GRAVELLY SAND
			SP		POORLY GRADED SAND, GRAVELLY SAND
		SAND WITH OVER 12% FINES	SM		SILTY SAND, SAND-SILT MIXTURES
			SC		CLAYEY SAND, SAND-CLAY MIXTURES
FINE GRAINED SOILS (MORE THAN HALF IS SMALLER THAN NO 200 SIEVE)	SILT AND CLAY (LIQUID LIMIT LESS THAN 50)		ML		INORGANIC SILT, ROCK FLOUR, SANDY OR CLAYEY SILT OF LOW PLASTICITY
			CL		INORGANIC CLAY OF LOW TO MEDIUM PLASTICITY, GRAVELLY, SANDY, OR SILTY CLAY (LEAN)
			OL		ORGANIC SILT AND ORGANIC SILTY CLAY OF LOW PLASTICITY
	SILT AND CLAY (LIQUID LIMIT GREATER THAN 50)		MH		INORGANIC SILT, MICACEOUS OR DIATOMACIOUS FINE SANDY OR SILTY SOIL, ELASTIC SILT
			CH		INORGANIC CLAY OF HIGH PLASTICITY, GRAVELLY, SANDY OR SILTY CLAY (FAT)
			OH		ORGANIC CLAY, ORGANIC SILT OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS			PT		PEAT AND OTHER HIGHLY ORGANIC SOILS

FILL MATERIALS

C		CONCRETE
F		FILL
A		ASPHALT

WELL CONSTRUCTION MATERIALS

CEMENT GROUT		
BENTONITE		
FILTER SAND		SEE ABOVE FOR CONCRETE SYMBOL

SOIL CONSISTENCY FROM DRIVE SAMPLER

NON-COHESIVE SOILS*		COHESIVE SOILS*		UNCONFINED COMPRESSIVE STRENGTH
SANDS & GRAVELS	BLOWS PER FOOT	SILTS AND CLAYS	BLOWS PER FOOT	STRENGTH TONS/SQ. FT.
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 1/4
LOOSE	4 - 10	SOFT	2 - 4	1/4 - 1/2
MED. DENSE	10 - 30	MEDIUM STIFF	4 - 8	1/2 - 1
DENSE	30 - 50	STIFF	8 - 16	1 - 2
VERY DENSE	OVER 50	VERY STIFF	16 - 32	2 - 4
		HARD	OVER 32	OVER 4

* = STANDARD PENETRATION RESISTANCE IS THE NUMBER OF BLOWS REQUIRED TO DRIVE A 2-INCH O.D. (1-3/8-INCH I.D.) SPLIT BARREL SAMPLER 12 INCHES USING A 140-POUND HAMMER FALLING FREELY THROUGH 30 INCHES. THE SAMPLER IS DRIVEN 18 INCHES AND THE NUMBER OF BLOWS ARE RECORDED FOR EACH 6-INCH INTERVAL. THE SUMMATION OF THE FINAL TWO INTERVALS IS THE STANDARD PENETRATION RESISTANCE.

SAMPLE INTERVAL SYMBOLS

	CORED/RECOVERED		CORED/RECOVERED/SAMPLED/ANALYZED
	CORED/ NO RECOVERY	N/A	NON APPLICABLE/NOT AVAILABLE
	CORED/RECOVERED/SAMPLED		

H:\PUBLIC\USERS\LWITTSTO\DRAWINGS\BLKEY.REVISED 4/19/95

SOIL BORE & WELL CONSTRUCTION LOG: MW-1

BLYMYER
ENGINEERS, INC.

Job No.: 97135
Client: The Flecto Comapny
Site: 1000 45th Street
Oakland, California
Date Drilled: March 2, 1999
Logged By: M. Detterman

Drilling Company: PC Exploration, Inc.
Driller: Frank B.
Drilling Equipment: Mobil B-83
Sample Method: Hollow-stem Auger
Soil Bore Diameter: 8 inch in.
Total Depth Drilled: 30.5 ft.

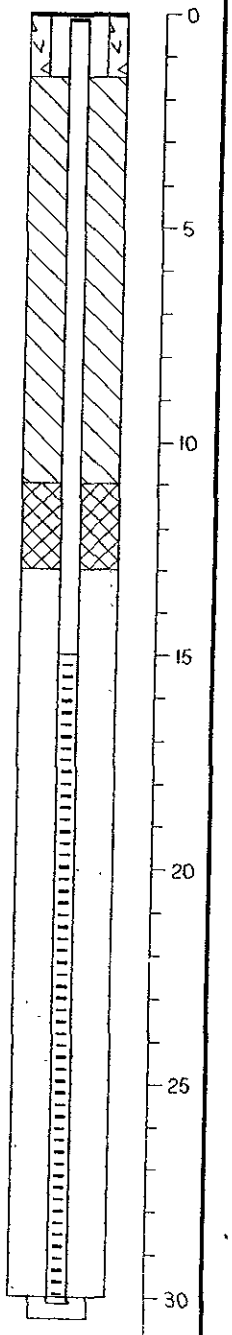
Initial Water Depth: ▽ 19.5 ft.
Stabilized Water Depth: ▼ 15.5 ft.

Well Completion Depth: 30 ft.

Component Size/Type	Depths in feet From	To
Surface Completion: 0.15		
Surface Seal: Concrete	.00	1.50
Annular Seal: Grout	1.50	13.00
Seal: Bentonite	13.00	15.00
Sand Pack: 2/12	15 00	30.50
Bottom Seal:		
Blank Casing: 2-inch	15	15.00
Screened Casing: 2-inch, 0.020-inch slot	15.00	30.00

Depth (ft.)	Blows/6 in.	P.I.D. (ppm)	Sample Intervals	LITHOLOGIC DESCRIPTION	Unified Soil Classification
0				1.5 inches of asphalt underlain by 6 inches of baserock	A
				SILTY CLAY, dark brown, moist, very stiff	
5	14/22/38	0		Grades medium brown, 5% course sand	CL
				SILTY CLAY, orange-brown, 30% course sand to fine gravel, moist	CL
10	18/18/23	3		SILTY CLAY; grades intermixed green-grey and orange-brown, very stiff, faint hydrocarbon odor; isolated blebs of free phase product in greenish-grey portion of soil	CL
				SILTY CLAY, gray-green, 5 - 10% 0.5-inch subangular gravel, very stiff, moist	
15	17/13/17	71			CL
20	12/14/19	0		SILTY CLAY,mottled light brown, light orange-brown, and light grey very stiff, 5% organics, wet, sheen on groundwater	
25	7/9/11	NA		As above	CL
30				As above	
				Boring terminated	

Graphic Log / Water Depth



BLYMYER
ENGINEERS, INC.

SOIL BORE & WELL CONSTRUCTION LOG: B2

Job No.: 97135
Client: The Flecto Comapny
Site: 1000 45th Street
Oakland, California
Date Drilled: March 13, 2000
Logged By: M. Detterman

Drilling Company: Precision Sampling, Inc.
Driller: Fernando Ambriz
Drilling Equipment: XD-3
Sample Method: Geoprobe
Soil Bore Diameter: 2 inch in.
Total Depth Drilled: 19.0 ft.

Well Completion Depth: ft.

Component Size/Type	Depths in feet From	To
Surface Completion:		
Surface Seal: Grout	00	19.00
Annular Seal:		
Seal:		
Sand Pack:		
Bottom Seal:		
Blank Casing:		
Screened Casing:		

Initial Water Depth: ▽ 18.5 ft.
Stabilized Water Depth: ▽ NA ft.

Depth (ft.)	Blows/6 in.	P.I.D. (ppm)	Sample Intervals	LITHOLOGIC DESCRIPTION	Unified Soil Classification	Graphic Log	Water Depth
0				1.5 inches of asphalt underlain by 8 inches of baserock	A		NA'
				SILTY CLAY, dark brown, trace sand, damp			
		0					
				Grades medium brown, 5% fine gravel (1/8-inch)	CL		
5		0					
				SILTY CLAY, orange-brown, trace fine to course gravel, damp	CL		
10		0					
				SILTY CLAY; grades mottled orange-brown & light gray, trace fine sand, damp	CL		
		0		Grades orange-brown			
				Sample B2-12.5			
15		0		SILTY CLAY, light gray, 5% 1/4-inch subangular gravel, moist	CL		
				Very moist			
				Sample B2-15.5			
				SILTY CLAY/CLAYEY SILT, light gray, wet	ML		▽ 16.5'
		0		SILTY CLAY, mottled orange-brown and light gray, 30% angular 1/4 to 3/4-inch gravel, wet	CL		
20				Boring terminated at 19 feet			

REGISTERED GE
MARK E. DETTERMAN
No. 1788
CERTIFIED ENGINEERING GEOLOGIST
STATE OF

SOIL BORE & WELL CONSTRUCTION LOG: B3

BLYMYER ENGINEERS, INC.

Job No.: 97135
Client: The Flecto Comapny
Site: 1000 45th Street
Oakland, California
Date Drilled: March 13, 2000
Logged By: M. Detterman

Drilling Company: Precision Sampling, Inc.
Driller: Fernando Ambriz
Drilling Equipment: XD-3
Sample Method: Geoprobe
Soil Bore Diameter: 2 inch in.
Total Depth Drilled: 19.0 ft.

Well Completion Depth: ft.
Component Size/Type — Depths in feet From — To

Surface Completion:
Surface Seal: Grout — .00 — 19.00
Annular Seal:
Seal:
Sand Pack:
Botton Seal:
Blank Casing:
Screened Casing:

Initial Water Depth: ▽ 16.5 ft.
Stabilized Water Depth: ▼ NA ft.

Depth (ft.)	Blows/6 in.	P.I.D. (ppm)	Sample Intervals	LITHOLOGIC DESCRIPTION	Unified Soil Classification	Graphic Log	Water Depth
0				1.5 inches of asphalt underlain by 8 inches of baserock	A		NA'
				SILTY CLAY, dark brown, 15% fine to course gravel, damp, very poor recovery			
		NA					
				Grades medium brown, trace fine gravel (1/8-inch)	CL		
5							
		0					
				SILTY CLAY, orange-brown, 25% angular medium to course gravel, damp			
		0			CL		
10							
		0		SILTY CLAY; grades light green-gray, damp			
				Sample B3-12.5			
					CL		
15		19.2		Sample B3-15			
				SILTY CLAY, medium orange-brown, very moist/wet			▽ 16.5'
		0			CL		
20				Boring terminated at 19 feet			

REGISTERED GEOLOGIST
MARK E. DETTERMAN
No. 1788
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIF.
6-9-00

SOIL BORE & WELL CONSTRUCTION LOG: B4

BLYMYER
ENGINEERS, INC.

Job No.: 97135
Client: The Flecto Company
Site: 1000 45th Street
Oakland, California
Date Drilled: March 13, 2000
Logged By: M. Detterman

Drilling Company: Precision Sampling, Inc.
Driller: Fernando Ambriz
Drilling Equipment: XD-3
Sample Method: Geoprobe
Soil Bore Diameter: 2 inch in.
Total Depth Drilled: 19.0 ft.

Well Completion Depth: ft.
Component Size/Type — Depths in feet From — To

Surface Completion:
Surface Seal: Grout — 00 — 19 00
Annular Seal.
Seal:
Sand Pack:
Bottom Seal:
Blank Casing:
Screened Casing:

Initial Water Depth: ▽ 18.0 ft.
Stabilized Water Depth: ▽ NA ft.

Depth (ft.)	Blows/6 in.	P.I.D. (ppm)	Sample Intervals	LITHOLOGIC DESCRIPTION	Unified Soil Classification	Graphic Log	Water Depth
0				1.5 inches of asphalt underlain by 8 inches of baserock	A		NA*
				SILTY CLAY, black to dark brown, 5 - 10% fine to course gravel, damp			
		0					
5				Grades medium brown, trace fine gravel (1/8-inch)	CL		
		0					
				SILTY CLAY, medium-brown, 30% angular medium to course gravel, damp wet pockets adjacent to gravel			
10		0			CL		
		33		SILTY CLAY; light blue-green, damp	CL		
				SILTY CLAY; mottled orange-brown and light green, damp	CL		
15		183		SILTY CLAY; medium green, 5 - 10% fine gravel, moist	CL		
				Sample B4-15.5			▽ 16.0*
		175		SILTY CLAY; medium green, 25 - 30% fine to course subangular gravel, very moist Iet	CL		
				Sample B4-18.5			
		34		Gradational contact, mottled light green and orange-brown, wet	CL		
				SILTY CLAY, orange-brown, wet			
20				Boring terminated at 19 feet			

REGISTERED GEOLOGIST
MARK E. DETTERMAN
No. 1788
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

SOIL BORE & WELL CONSTRUCTION LOG: B5

BLYMYER
ENGINEERS, INC.

Job No.: 97135
Client: The Flecto Comapny
Site: 1000 45th Street
Oakland, California
Date Drilled: March 13, 2000
Logged By: M. Detterman

Drilling Company: Precision Sampling, Inc.
Driller: Fernando Ambriz
Drilling Equipment: XD-3
Sample Method: Geoprobe
Soil Bore Diameter: 2 inch in.
Total Depth Drilled: 19.0 ft.

Well Completion Depth: ft.
Component Size/Type — Depths in feet From — To

Surface Completion:
Surface Seal: Grout — 00 — 19.00
Annular Seal:
Seal:
Sand Pack.
Bottom Seal:
Blank Casing:
Screened Casing:

Initial Water Depth: ▼ 16.5 ft.
Stabilized Water Depth: ▼ NA ft.

Depth (ft.)	Blows/6 in.	P.I.D. (ppm)	Sample Intervals	LITHOLOGIC DESCRIPTION	Unified Soil Classification	Graphic Log	Water Depth
0				1.5 inches of asphalt underlain by 6 inches of baserock	A		NA'
				SILTY CLAY, black, trace fine gravel, damp			
		0					
5				Grades dark brown, 10 -15% fine gravel, angular, damp	CL		
		0					
10		2.1		SILTY CLAY, light orange-brown, 20 - 25% subangular fine to course gravel, moist	CL		
				- Grades light brown			
				SILTY CLAY; mottled orange-brown and gray-green, moist	CL		
		2.6		SILTY CLAY; light blue-green, 10 - 15% fine to course gravel, moist	CL		
				SILTY CLAY; mottled orange-brown and gray-green, moist	CL		
15		639		SILTY CLAY; medium green, 10 - 15% fine to course subangular gravel, very moist Sample B5-15.5	CL		
		25		SILTY CLAY; light orange-brown, wet	CL		▽ 16.5'
20				Boring terminated at 19 feet			

REGISTERED GEOLOGIST
MARK E. DETTERMAN
No. 1758
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

SOIL BORE & WELL CONSTRUCTION LOG: MW-2

BLYMYER
ENGINEERS, INC.

Job No.: 97135
Client: The Flecto Comapny
Site: 1000 45th Street
Oakland, California
Date Drilled: March 13, 2000
Logged By: M. Detterman

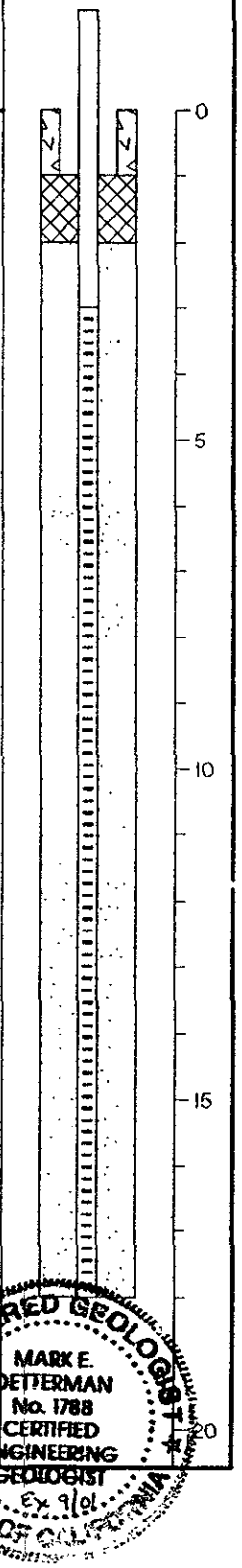
Drilling Company: Precision Sampling, Inc.
Driller: Fernando Ambriz
Drilling Equipment: DA-2
Sample Method: Geoprobe
Soil Bore Diameter: 2 inch in.
Total Depth Drilled: 18.0 ft.

Well Completion Depth: 18.0 ft.

Component Size/Type	Depths in feet From	To
Surface Completion: Abovegrade Steel Stove-Pipe Monument		
Surface Seal: Concrete	00	1.00
Annular Seal.		
Seal. Bentonite	1.00	2.00
Sand Pack: 030	2.00	18 00
Bottom Seal: End cap	18.00	18.20
Blank Casing: 1-inch	-1.50	3 00
Screened Casing: 1-inch, 0.010-inch slot	3.00	18.00

Initial Water Depth: ▽ 8.5 ft.
Stabilized Water Depth: ▼ 0.75 ft.

Depth (ft.)	Blows/6 in.	P.I.D. (ppm)	Sample Intervals	LITHOLOGIC DESCRIPTION	Unified Soil Classification	Graphic Log	Water Depth
0				8 inches concrete	C		▼ 0.75'
				SILTY CLAY, light orange-brown, moist, poor recovery	CL		
		0		SILTY CLAY, mottled orange-brown and green-gray, trace course gravel, moist	CL		
5		36		Sample MW2-15.5 (bsg)			▽ 6.5'
		2		SILTY CLAY; medium orange-brown, <5% fine gravel, moist/wet			
10		3		Gravel increases to 15%	CL		
				Gravel decreases to 5%			
15		2		CLAYEY SILT, medium orange-brown, very moist/wet	ML		
				CLAYEY SAND; medium orange brown, 50% fines, fine grained, moist/wet	SC		
				Sample MW2-25.5 (bsg)			
				GRAVELLY SILT; medium gray-brown, 30% gravel, course grained, with significant clay	ML		
20				Boring terminated at 18 feet (28.5 feet bsg)			



REGISTERED GEOLOGIST
MARK E. DETTERMAN
No. 1788
CERTIFIED ENGINEERING GEOLOGIST
Ex. 9/01
STATE OF CALIFORNIA

SOIL BORE & WELL CONSTRUCTION LOG: MW-3

BLYMYER ENGINEERS, INC.

Job No.: 97135
Client: The Flecto Comapny
Site: 1000 45th Street
Oakland, California
Date Drilled: March 13, 2000
Logged By: M. Detterman

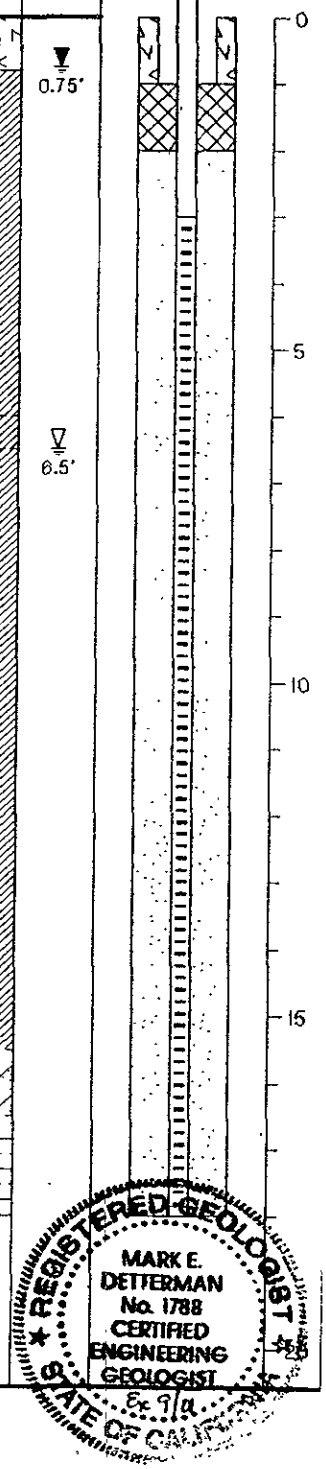
Drilling Company: Precision Sampling, Inc.
Driller: Fernando Ambriz
Drilling Equipment: DA-2
Sample Method: Geoprobe
Soil Bore Diameter: 2 inch In.
Total Depth Drilled: 18.0 ft.

Initial Water Depth: ▽ 8.5 ft.
Stabilized Water Depth: ▼ 0.75 ft.

Well Completion Depth: 18.0 ft.

Component Size/Type	Depths in feet From	To
Surface Completion: Abovegrade Steel Stove Pipe Monument		
Surface Seal: Concrete	.00	1.00
Annular Seal:		
Seal: Bentonite	1.00	2.00
Sand Pack: 030	2.00	18.00
Bottom Seal: End cap	18.00	18.20
Blank Casing: 1-inch	-1.50	3.00
Screened Casing: 1-inch, 0.010-inch slot	3.00	18.00

Depth (ft.)	Blows/6 in.	P.I.D. (ppm)	Sample Intervals	LITHOLOGIC DESCRIPTION	Unified Soil Classification	Graphic Log	Water Depth
0				8 inches concrete	C		▼ 0.75'
		0		SILTY CLAY to CLAYEY GRAVEL, dark-brown gradational to orange-brown, 40 to 80% medium to course gravel, moist, very poor recovery	CL		
5		0					
		10		SILTY CLAY, dark brownish-green, trace 0.5-inch subrounded gravel, moist. Sample MW3-16.5 (bsg)	CL		▽ 8.5'
		5		SILTY CLAY, mottled orange-brown and light gray-brown, with 5 - 10% fine to course gravel, very moist/wet			
10				SILTY CLAY; light orange-brown, 5% fine gravel, very moist/wet	CL		
		0		Sample MW3-25.5 (bsg)			
15				CLAYEY SAND; light orange brown, 40% fines, wet	SC		
				CLAYEY SILT; light orange-brown, 15% medium to course grained rounded gravel, wet	ML		
20				Boring terminated at 18 feet (28.5 feet bsg)			



REGISTERED GEOLOGIST
MARK E. DETTERMAN
No. 1788
CERTIFIED ENGINEERING GEOLOGIST
Exp. 9/a
STATE OF CALIFORNIA

Table IVa, Summary of Oakland Risk-Based Corrective Action Tier 1 RBSLs
BEI Job No. 97135, The Electo Company, Inc.
1000 45th Street, Oakland, California

Medium	Exposure Pathway	Land Use	Type of Risk	Benzene	Toluene	Ethylbenzene	Total Xylenes
Subsurface Soil (mg/Kg)	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	1.9E-01			
			Hazard	7.6E+00	SAT	SAT	SAT
	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	7.8E-02			
			Hazard	2.6E+00	4.1E+02	SAT	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	2.1E-03	8.8E-01	8.0E+00	1.3E+01
			Hazard	2.1E-03	8.8E-01	8.0E+00	1.3E+01
Highest Concentration in Soil				<2.5E-01*	<2.5E-01	<2.5E-01	3.1E-01
Groundwater (mg/L)	Ingestion of Groundwater	Residential	Carcinogenic	1.0E-03	1.5E-01	7.0E-01	1.8E+00
			Hazard	1.0E-03	1.5E-01	7.0E-01	1.8E+00
	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	1.3E-03			
			Hazard	4.2E+00	2.4E+02	>Sol	>Sol
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	5.6E+00			
			Hazard	2.2E+02	>Sol	>Sol	>Sol
Highest Concentration in Groundwater				<5.0E-02*	6.2E-03	<2.5E-02	1.6E-02

Notes: mg/Kg = Milligrams per kilogram (parts per million)
mg/L = Milligrams per liter (parts per million)
>Sol = RBSL exceeds solubility of chemical in water
RBSL = Risk-Based Screening Level
SAT = RBSL exceeds saturated soil concentration of chemical
* = See text

Table IVb, Summary of Oakland Risk-Based Corrective Action Tier 2 SSTLs for Merritt Sands
BEI Job No. 97135, The Flecto Company, Inc.
1000 45th Street, Oakland, California

Medium	Exposure Pathway	Land Use	Type of Risk	Benzene	Toluene	Ethylbenzene	Total Xylenes
Subsurface Soil (mg/Kg)	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	3.9E+00			
			Hazard	1.6E+01	SAT	SAT	SAT
	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	6.8E-01			
			Hazard	2.3E+00	3.5E+02	SAT	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	1.0E-02	4.2E+00	3.8E+01	6.4E+01
			Hazard	1.0E-02	4.2E+00	3.8E+01	6.4E+01
Highest Concentration in Soil				<2.5E-01*	6.2E-03	<2.5E-01	3.1E-01
Groundwater (mg/L)	Ingestion of Groundwater	Residential	Carcinogenic	1.0E-03	1.5E-01	7.0E-01	1.8E+00
			Hazard	1.0E-03	1.5E-01	7.0E-01	1.8E+00
	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	1.4+E00			
			Hazard	4.6E+00	2.8E+02	>Sol	>Sol
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	1.8E+02			
			Hazard	7.2E+02	>Sol	>Sol	>Sol
Highest Concentration in Groundwater				<5.0E-02*	6.2E-03	<2.5E-02	1.6E-02

Notes: mg/Kg = Milligrams per kilogram (parts per million)
mg/L = Milligrams per liter (parts per million)
>Sol = SSTL exceeds solubility of chemical in water
SSTL = Site-Specific Target Level
SAT = SSTL exceeds saturated soil concentration of chemical
* = See text