Sent 12/9/99
Including cc's

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

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

REMEDIAL ACTION COMPLETION CERTIFICATION

December 8,1999

Mr. George Vulkasin
Peerless Coffee
225 Fallon Street
Oakland, CA 94607
STID 3778

RE: 225 Fallon Street, Oakland, CA 94607

Dear Mr. Vulkasin:

This letter confirms the completion of a site investigation and remedial action for the underground storage tanks formerly located at the above describe location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tanks 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 Section 2721(e) of Title 23 of the California Code of Regulations.

Please contact our office if you have any questions regarding this matter.

Sincerely,

Mee Ling Tung
Director of Environmental Health Services

cc: Chief, Hazardous Materials Division - files
Larry Seto, ACDEH
Chuck Headlee,RWQCB
Dave Deaner, SWRCB (w/ Case Closure Summary)
Leroy Griffin, City of Oakland Fire Services, 1603 Martin Luther King, Oakland, CA 94612
Files

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

p01201

ENVIRONMENTAL HEALTH SERVICES
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(510) 567-6700
FAX (510) 337-9335

December 8,1999

Mr. George Vulkasin
Peerless Coffee
225 Fallon Street
Oakland, CA 94607
STID 3778

Re: Peerless Coffee, 225 Fallon Street, Oakland, CA 94607

Dear Mr. Vulkasin:

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:

Groundwater sample from the most recent sampling on 6-18-99 from HP-1 contained up to 89 ppb acenaphthene,6 ppb acenaphtylene, 22 ppb anthracene, 25 ppb benzo(a)anthracene, 39 ppb benzo(b)fluoranthene, 17 ppb benzo(k)fluoranthene, 51 ppb benzo(a)pyrene, 48 Benzo(ghi)perylene, 38 ppb chrysene, 17 ppb dibenzo(a,h)anthracene, 99ppb fluoranthene, 19 ppb fluorene, 38 ppb indeno(1,2,3-cd)pyrene, 350 ppb naphthalene, 130 ppb phenanthrene, and 84 ppb pyrene for a total of 1,072 ppb PNA.

A soil sample collected from soil boring B-13-S6 on 12-2-88 contained 2,300 ppm acenaphthene, 27 ppm acenaphthylene, 810 ppm anthracene, 100 ppm benzo(a)anthracene, 590 ppm benzo(b)fluoranthene, 600 ppm benzo(k)fluoranthene, 730 ppm benzo(ghi)perylene, 960 ppm chrysene, 48 ppm dibenzofuran, 2,700 ppm fluoranthene, 350 ppm fluorene, 670 ppm indeno(1,2,3-cd)pyrene, 3,800 ppm naphthalene, 3,100 ppm phenanthrene, and 3,400 ppm pyrene for a total of 20,185 ppm PNA.

PNA impacted soil was excavated from three areas (~ 1,400 cubic yards) and used as part of the road base for the asphalt parking lot, and under portion of the new building with the approval from the State of California, Department of Toxic Substance Control. Note: No soil was taken offsite for disposal

If you have any questions, please contact me at (510)567-6774. Thank you.

Sincerely,

Larry Seto
Senior Hazardous Materials Specialist

Cc: Chief, Hazardous Materials Division - files
Larry Seto, Environmental Health
Captain Steve McKinley, City of Alameda Fire Department
Chuck Headlee, RWQCB
Dave Deaner, SWRCB (w/case closure summary)
Files

Enclosures:
1. Case Closure Letter
2. Case Closure Summary

RB#01-1146

R01201

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

I. AGENCY INFORMATION

Date: **August 19, 1999**

Agency name: **Alameda County-HazMat**
City/State/Zip: **Alameda, CA 94502**
Responsible staff person: **Larry Seto**

Address: **1131 Harbor Bay Pkwy.**
Phone: **(510) 567-6774**
Title: **Senior HMS**

II. CASE INFORMATION

Site facility name: Peerless Coffee

Site facility address: 225 Fallon Street, Oakland, CA 94607

RB LUSTIS Case No: Local Case No./LOP 3778

URF filing date: 7-6-99 SWEEPS No: **N/A**

Responsible Parties:	**Addresses:**	**Phone Numbers:**
George Vulkasin	260 Oak Street, Oakland, CA 94607	510-763-1763

Tank No	Size in Gallons	Contents:	Closed in-place or Removed?	Date:
1	~1,000	Unleaded Gas	Removed	11-14-89
2	~500	Unleaded Gas	Removed	11-14-89

Leaking Underground Fuel Storage Tank Program

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: Cause of leak not identified in any of the reports. Most likely the leak is from an equipment failure or spill.

Monitoring Wells installed? Yes Number: 3

Site characterization complete? Yes

Date approved by oversight agency:

Proper screened interval? Yes, for the most impacted well, MW-1

Highest GW depth below ground surface: 3.3' Lowest depth: 7.7'

Flow direction: Generally westerly, per Kleinfelder report dated Feb. '89. Site is believed to be tidally influenced and flow directions probably changes in response to tidal ebb and flow.

Most sensitive current use:

Are drinking water wells affected? No Aquifer Name:

Is surface water affected? No Nearest affected SW name: ---

Off-site beneficial use impacts (addresses/locations): Unknown

Report(s) on file? Yes Where is report(s) filed? **Alameda County**
1131 Harbor Bay Pkwy.
Alameda, CA 94502

Oakland Fire Department
505-14th Street, 7th Floor
Oakland, CA 94612

Treatment and Disposal of Affected Material:

Material	Amount (include units)	Action (Treatment or Disposal /destination)	Date
Underground Tank	550 gallons	Disposed by Erickson Inc., Richmond, CA	11/89

Underground Tank	1,000 gallons	Disposed by Erickson, Inc., Richmond, CA	11/89
Soil	1400-1890 Cubic Yards	Removed and used as road base material beneath asphalt/concrete parking lot and new building	1989

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Maximum Documented Contaminant Concentrations - - Before and After Cleanup

Contaminant	Soil (ppm)		Water (ppb)	
	Before[1]	After[3]	Before[2]	After[4]
Acenaphthene	2,300	2,300	240	89
Acenaphthylene	27	27	21	6
Anthracene	810	810	22	22
Benzo(a)anthracene	100	100	ND	25
Benzo(b)fluoranthene	590	590	4.4	39
Benzo(k)fluoranthene	600	600	5.3	17
Benzo(a)pyrene	ND	ND	9.9	51
Benzo(ghi)perylene	730	730	5.2	48
Chrysene	960	960	ND	38
Dibenzo(a,h)anthracene	ND	ND	NA	17[5]
Dibenzofuran	48	48	23	NA
Fluoranthene	2,700	2,700	48	99
Fluorene	350	350	57	19
Indeno(1,2,3-cd)pyrene	670	670	5.9	38
Naphthalene	3,800	3,800	2,000	350
Phenanthrene	3,100	3,100	160	130
Pyrene	3,400	3,400	51	84
Total PNA	20,185	20,185	2,672.7	1,072
TPH(gas)	NA	NA	6,200	78[5]
TPH(diesel)	NA	NA	ND	3,100[6]
Benzene	NA	NA	75	2.5[5]
Toluene	NA	NA	42	ND[5]
Ethylbenzene	NA	NA	75	ND[5]
Xylenes	NA	NA	23	1.7[5]
MTBE	NA	NA		27[5]

NA – Not Analyzed
ND - Non-Detect
1- Soil boring B13-S6 collected on 12-2-88
2- Sample collected on 12-12-88 from KMW-1A
3 – Soil boring B13-S6 collected on 12-2-88 **(NOTE: NO SOIL WAS TAKEN OFFSITE FOR DISPOSAL; EXCAVATED SOIL WAS RELOCATED ON-SITE AND USED AS BASE FOR THE ASPHALT PARKING LOT)**
4 – sample collected on 6-18-99 from HP-1
5 – Sample collected on 6-18-99 from boring(s) HP-1, HP-2 and/or MW-1
6 – Sample collected on 8-13-91 from MW-2

Comments (Depth of Remediation, etc.): See "Additional Comments" section.

IV. CLOSURE

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

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

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

Site management requirements: The integrity of the asphalt/concrete cap over the PNA impacted soils must be maintained. Any excavation/trenching in the area would require a site health & Safety Plan

Should corrective action be reviewed if land use changes? Yes

List enforcement actions taken: The District Attorney's office had to intervene to persuade Mr. Vukasin to remove the underground tank, and to remediate the site.

List enforcement actions rescinded: NA

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Larry Seto
Signature:
Title: Senior HMS
Date: 8-19-99

Reviewed by: Eva Chu
Name:
Signature:
Title: Hazardous Materials Specialist
Date: 8/20/99

Leaking Underground Fuel Storage Tank Program

Name: Thomas Peacock
Signature: Thomas Peacock
Title: Supervising HMS
Date: 8-20-99

VI. RWQCB NOTIFICATION

Date Submitted to RB:

RB Response:

RWQCB Staff Name: Chuck Headlee
Signature Chuck Headlee
Title: Associate Engineering Geologist
Date: 9/15/99

VII. ADDITIONAL COMMENTS, DATA, ETC.

The site was created in the early 1900's by the reclamation of shallow water tidal flats. Southern Pacific Transportation Company purchased the property in 1929 from the Tilden Lumber and Mill Company and retained ownership until 1987. During the time frame of the 1940's and 1950's the property was leased to lumber wholesales who stored lumber awaiting shipment by railroad. Aerial photographs also indicated that from 1959 to 1975 the southwest portion of the site was used for the storage, and possibly treatment of creosoted telephone poles. The photos also indicated that from 1959 to approximately 1980, portions of the site were used as a "railroad team spur" (A team spur is a siding which is used for loading and off-loading rail car freight by private concerns who do not own their own rail siding.) In 1980, Ford Motor Company leased a portion of the property for freight storage.

In 1987, George Vukasin purchased the subject site to develop a business office and warehouse facility for Peerless Coffee.

An initial environmental investigation (Phase I) was performed by Kaldveer Associates in March 1988. Their investigation did not detect any obvious contamination of the subsurface. However, an underground tank was discovered just off the property between the street curb and property line. At the time of field reconnaissance, the tank appeared to be holding water with a slight petroleum odor.

On July 1988, Steffan Robertson and Kirsten (Pacific) Inc. performed a subsurface investigation to investigate the reported existence of wood wastes containing contaminates underlying the site. A total of 26-soil borings (B-1 through B-11 and B-13 through B-27) ranging in depth from a few inches to over 14 feet were completed at the site. In addition, three monitoring wells, (M-1, M-2 and M-3) Figure 2 were drilled to a depth of approximately 14 feet.

Visual and olfactory inspections were used to determine the presence of contamination in the subsurface materials. Of the samples collected four of the soil borings samples were submitted to a certified laboratory to be tested for the presence of volatile and semi-volatile organics. Elevated concentrations of polynuclear aromatic hydrocarbons (PAH) were detected in the soil samples. (Table 1, eg. 1,230 ppm Naphthalene, 389 ppm fluoranthene, 275 ppm, Acenaphthene, 149 ppm, Benzo(a)pyrene, and 8.3 ppm benzene)

hydrocarbons (PAH) were detected in the soil samples. (Table 1, eg. 1,230 ppm Naphthalene, 389 ppm fluoranthene, 275 ppm, Acenaphthene, 149 ppm, Benzo(a)pyrene, and 8.3 ppm benzene)

After installation, the monitoring wells were developed and purged and a water sample was collected from each well and submitted to a certified laboratory to be tested for the presence of volatile and semi-volatile organics. The groundwater samples contained elevated concentrations of PAH and purgeable aromatics, (Table 2, eg. 248 ppb naphthalene, 169 ppb benzo(a)pyrene, and 128 ppb pyrene)

A soil and groundwater sampling program was conducted on November 30th and December 2, 1988 to provide additional information regarding the vertical and horizontal distribution of polynuclear aromatic hydrocarbon within the shallow subsurface (upper 7 feet) at the site. Eighteen exploratory borings (B1 through B18) were advanced and fifty-three samples were collected and analyzed for PNA. One sample was additionally analyzed for dioxin and furan isomers. The analytical results indicate that PNAs are present in the shallow soils (0-7 feet) at the site from non-detectable levels to concentration of up to 20,000 ppm total PNA. Dibenzofuran was detected at concentrations of 48 ppm and 74 ppm. Dioxin and furan isomers were not detected in sample B10-S6 (Table 3). The affected areas appear to be restricted to three distinct areas and depth zones (Figure 4).

Two monitoring wells, KMW-1A and KMW-1B were installed on December 5, 1988. The wells were designed and constructed to monitor two distinct water-bearing zones; an upper zone consisting of relatively permeable sandy fill material and a lower zone comprised of relatively impermeable Bay Mud. A water sample was collected from each of the five monitoring wells and submitted to the laboratory for analysis. Laboratory results indicate that PNAs and petroleum hydrocarbons are present in the groundwater at the northeastern portion of the site. Samples collected from two wells at the southwestern property line did not contain semi-volatile organics in detectable quantities. (Table 4, Figure 2)

The PNA impacted soil was excavated from three areas (a total of ~ 1400 cubic yards) and used as part of the road base for the asphalt parking lot, and under portion of the new building (Figure 5) The rational for this was that PNAs found in the shallow soil were basically the same constituents found in common asphaltic concrete. To gain approval for this approach, representatives of the developer and Mittlehauser Corporation (consultant) convened meeting with both Department of Toxic Substance Control (DTSC) and Regional Water Quality Control Board (RWQCB). In April 1989, three (3) soil samples were collected for fish bioassay (toxicity) analysis. In accordance with the procedures for aquatic toxicity testing and toxicity calculations required by Title 22, Division 4, Chapter 30, Article 11 of the California Code of Regulations, it was demonstrated that the excavated soil at the site would not be considered hazardous waste.

In January 1990, Mr. Dennis Byrne of the Alameda County Health Care Services Department sent a letter to Howard Hatayama of the State of California, Department of Toxic Substance Control challenging the remedial concept. Mr. Byrne allege that the materials excavated and used for the road base were actually hazardous waste under the State of California criteria. Mr. Dwight Hoenig of Mittlehauser Corporation met with Mr. Ed Howell, Chief of HazMat in Alameda County and Mr. Byrne on February 14, 1990.

At that meeting two issues were resolved; First, Dr. Dave Leu of Mittlehauser Corporation, was to calculate the toxicity of the PNA impacted soils which were used in the paving project to verify in fact, the soil constituted a

State of California hazardous waste. Second, Mr. Dwight Hoenig and Mr. Byrne met with staff of the RWQCB to resolve issues that agency might have regarding potential impacts to groundwater.

As a result of that meeting, (and a subsequent meeting held with Mr. Don Cox of DTSC) Dr. Leu recalculated the toxicity of the subject soil and submitted all of his calculations to the DTSC for review. The soils were again determined to be non-hazardous.

Regarding the second issue, in March of 1990, Mr. Hoenig attended a meeting with Mr. Byrne and Mr. Lester Feldman, staff engineer of the RWQCB. At that meeting it was resolved that three monitoring wells should be installed on site.

Two underground tanks were removed in November 1989 from beneath the sidewalk and adjacent to this parcel.

On May 3,1990, three 10 foot deep monitoring wells MWN-1, MWS-2 and MWE-3 (later renamed MW1, MW2 and MW3) were installed. (Figure 3) These wells were installed to replace the previous wells that were destroyed during grading and development of the site. Soil sample results showed Total Petroleum Hydrocarbons as diesel, (TPH-D) detected at levels ranging from 32 to 500 ppm and Polynuclear Aromatic Compounds ranging from non-detectable to 5.7 ppm.

Groundwater sample results did not detect TPH(d), TPH(g) or PNAs in any of the wells except for MW1, which contained 250ppb TPH(g) and PNAs ranging from non-detectable to 420 ppb and naphthalene at 17,000 ppb.

The three monitoring wells were monitored and sampled a total of five times from May 1990 to August 1991. In MW-1, TPH(g) has consistently been detected at increasing concentrations ranging from 250 ppb to 920 ppb and BTEX has consistently been detected at concentrations ranging from 11 to 32 ppb. PNAs have consistently been detected in MW-1 at concentrations ranging from 14 ppb to 44 ppb except for naphthalene which has been detected chronologically at concentrations of 17000, 1800, 3200, 2700 and 3900 ppb. The low concentrations of TPH(d) detected in all of the wells indicates there maybe widespread diesel contamination in the vicinity of the site.

On June 18, 1999 three groundwater samples were collected at the subject property: one groundwater sample from existing monitoring well MW-1, and two hydropunch groundwater samples located downgradient of MW-1. (Figure 3) The samples were analyzed for gasoline and related compounds including MTBE. The groundwater sample collected from HP-1 contained MTBE at a concentration of 27 ppb. The groundwater sample collected from HP-2 contained TPH(g) and benzene at concentrations of 78 and 2.5 ppb respectively. MW-1 groundwater sample contained 1.7 ppb of xylenes. (Table 5)

The presence of TPH(g), BTEX and PNAs in well MW-1 and absence of these compounds in wells MW-2 and MW-3 indicates that these compounds are present in the groundwater in the northeast portion of the site, however their lateral extent does not include the southwest portion of the property.

A Health Risk Assessment Report was prepared for this site. The report concluded there is no significant risk or hazard posed by the polyaromatic hydrocarbons left in place at the site. The low volatility of PNA's preclude them being a problem through the vapor intrusion pathways both from soil and groundwater. Groundwater in this area is not currently used for ingestion. The only applicable exposure pathway is through ingestion/dermal contact/particulate inhalation from surficial soils. This pathway is made inaccessible through complete paving of the property (Table 6).

In summary, this office is recommending that this case be closed for the following reasons:

1) The leak has been stopped and ongoing sources removed
2) The site has been adequately characterized
3) Little groundwater impact currently exits
4) No water wells, deeper drinking water aquifers, surface water or other sensitive receptors are likely to be impacted
5) The site presents no significant risk to human health

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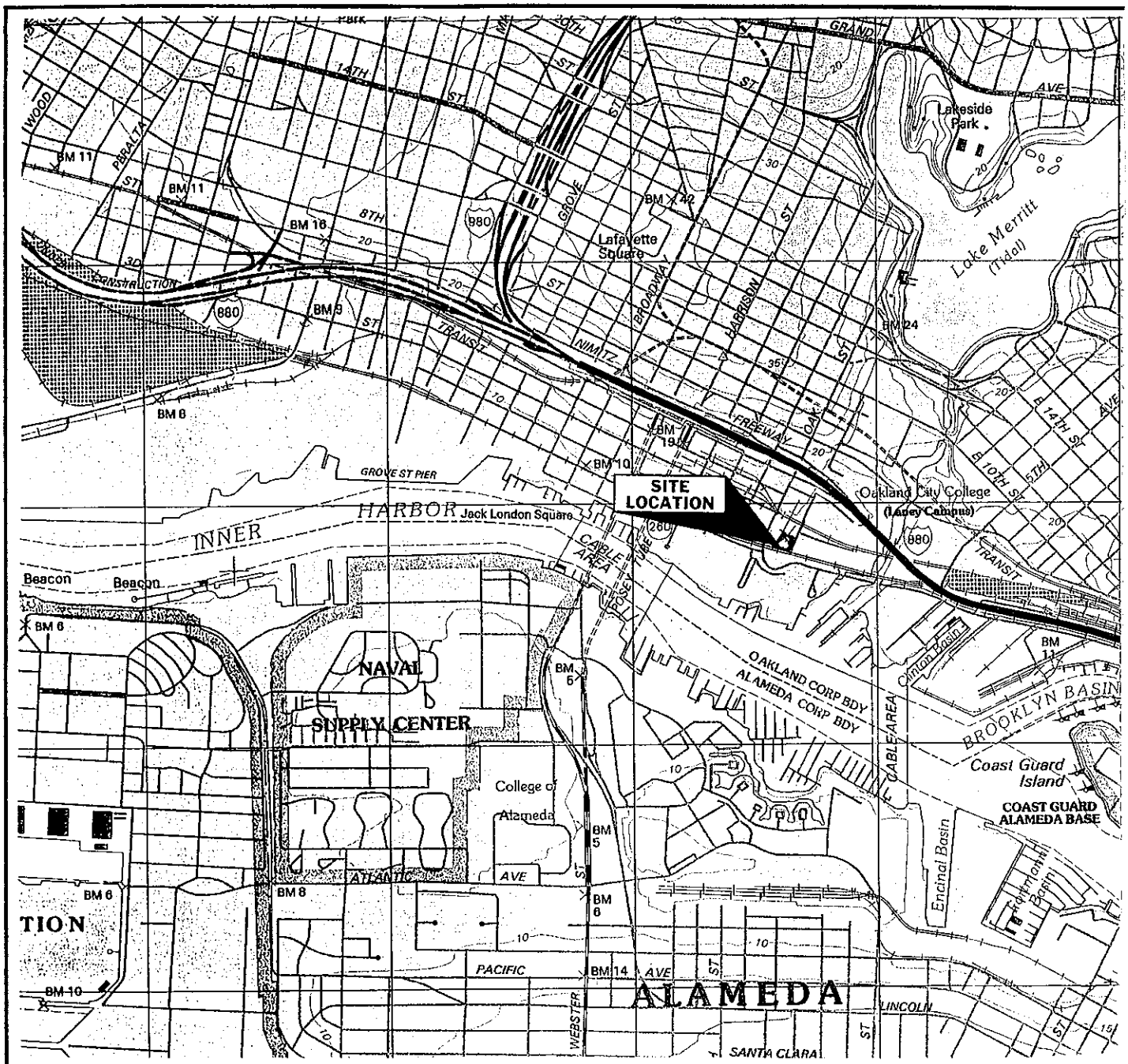
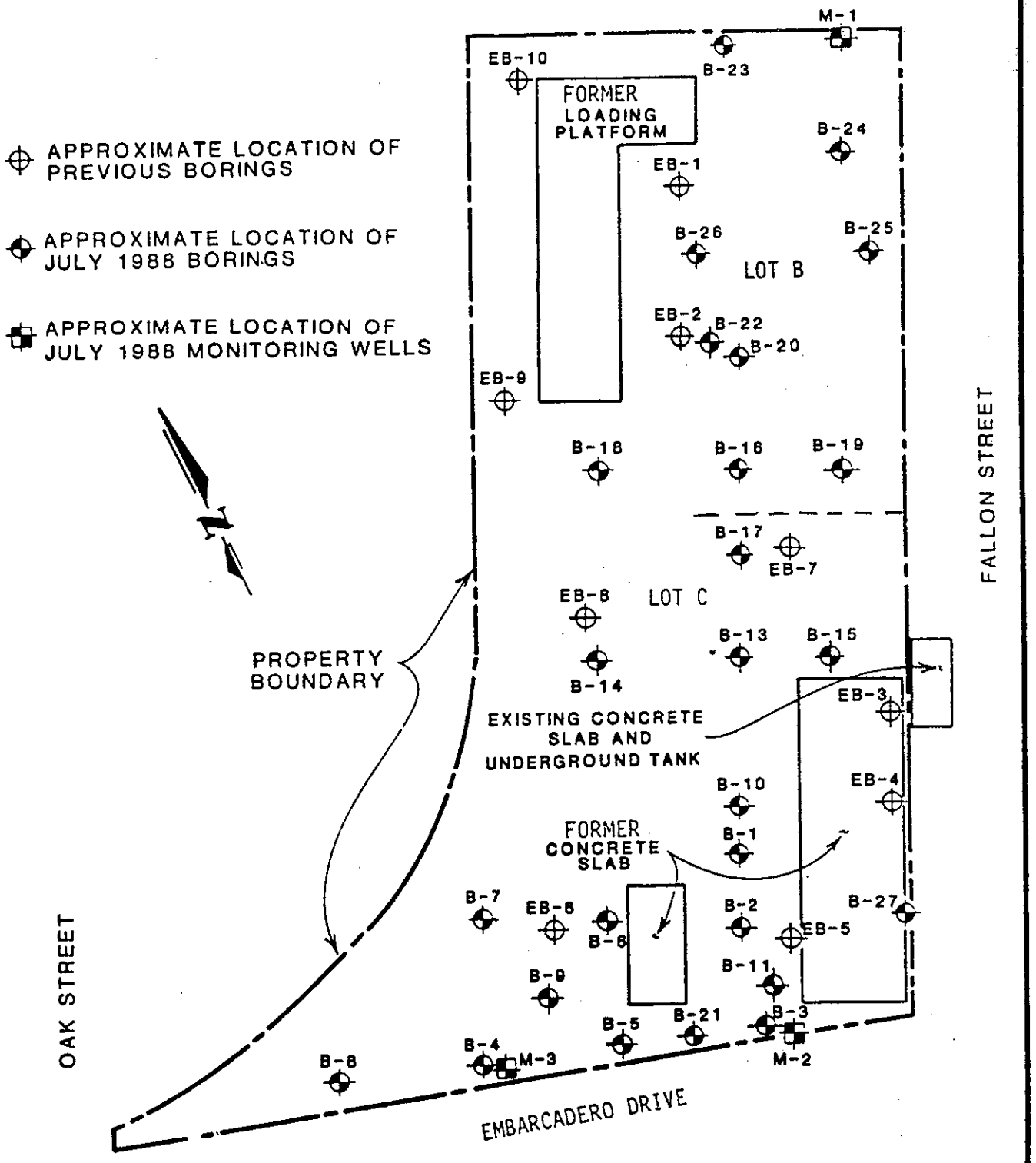


Portion of 7.5-Minute Oakland West, California Quadrangle Map
United States Department of the Interior
Geological Survey
1993

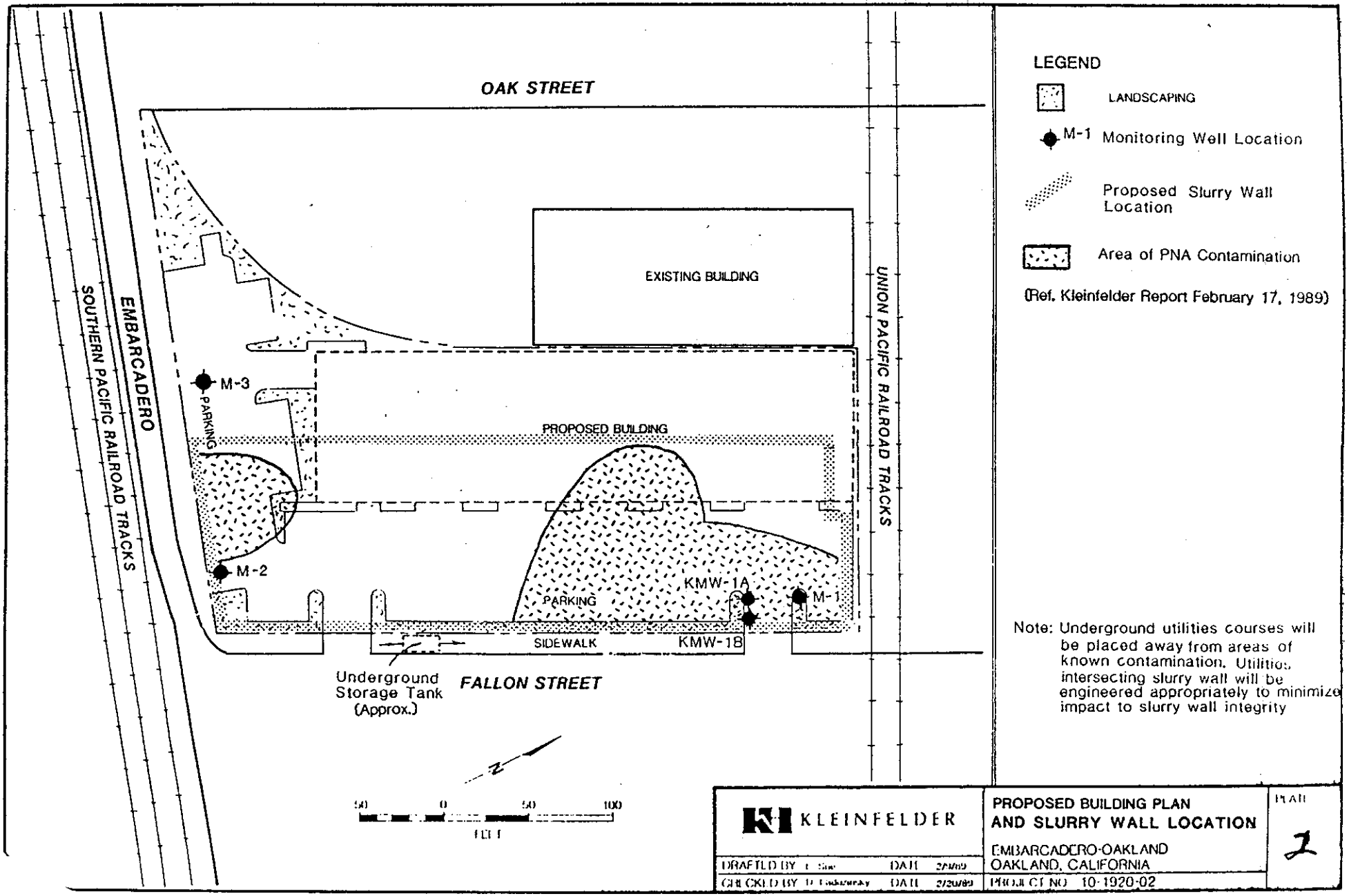
N

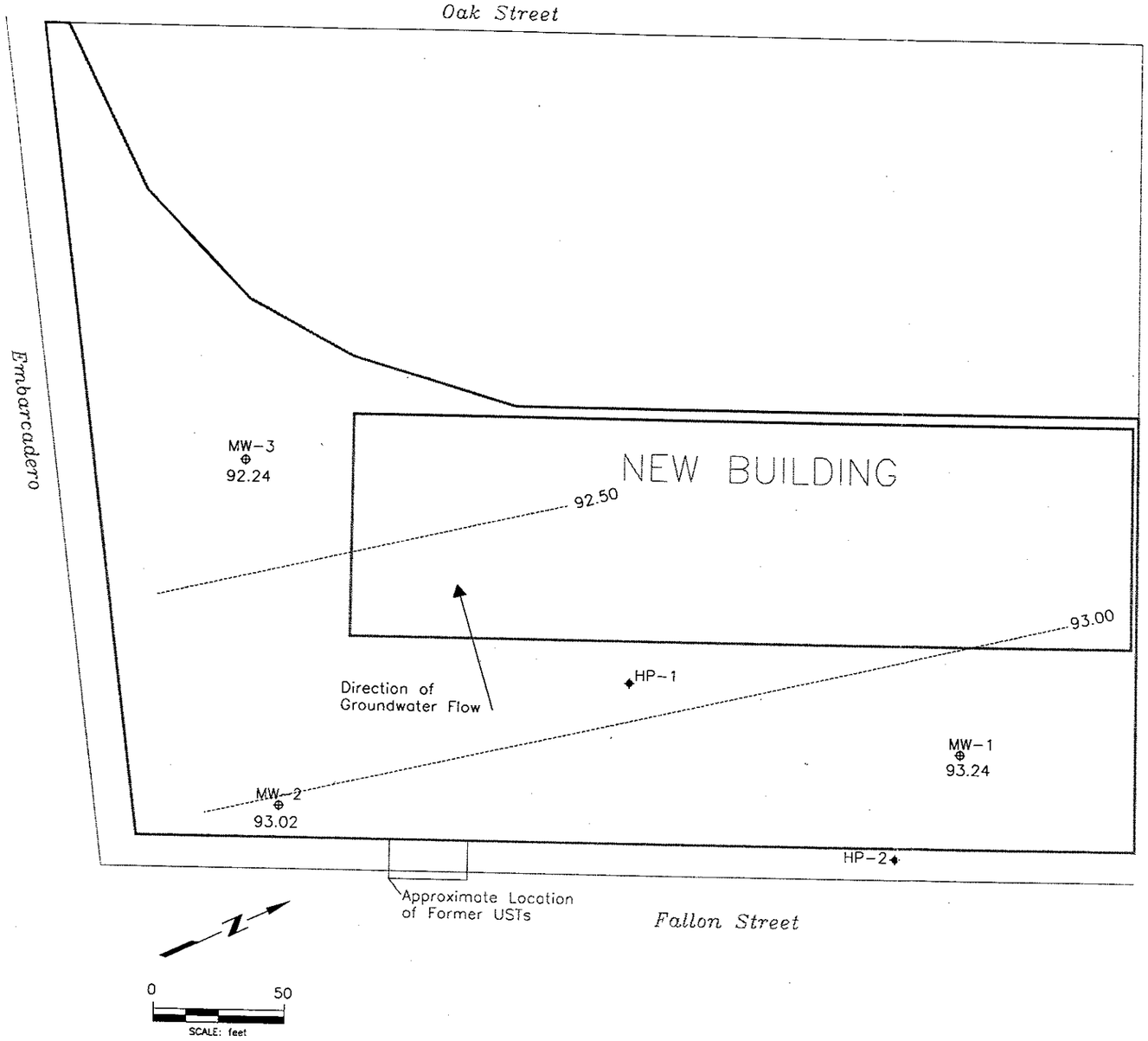
SITE LOCATION MAP 225 Fallon Street Oakland, California Client: Peerless Coffee Clayton Project No. 70-98079.00	Figure 1 98079-70-16	Clayton ENVIRONMENTAL CONSULTANTS



SCALE: 1"=50'

PROJECT No. 71001 DATE 7/88 REVISION 0	STEFFEN ROBERTSON & KIRSTEN Consulting Engineers	FIGURE 1A MONITORING WELL AND BORING LOCATION MAP


OAK STREET
EMBARCADERO
SOUTHERN PACIFIC RAILROAD TRACKS
UNION PACIFIC RAILROAD TRACKS
EXISTING BUILDING
PROPOSED BUILDING
PARKING
PARKING
SIDEWALK
M-1
M-2
M-3
KMW-1A
KMW-1B
Underground Storage Tank (Approx.)
FALLON STREET
N
50 0 50 100
FEET
LEGEND
LANDSCAPING
M-1 Monitoring Well Location
Proposed Slurry Wall Location
Area of PNA Contamination
(Ref. Kleinfelder Report February 17, 1989)
Note: Underground utilities courses will be placed away from areas of known contamination. Utilities intersecting slurry wall will be engineered appropriately to minimize impact to slurry wall integrity
KLEINFELDER
DRAFTED BY
DATE
CHECKED BY
DATE 2/20/89
PROPOSED BUILDING PLAN AND SLURRY WALL LOCATION
EMBARCADERO-OAKLAND
OAKLAND, CALIFORNIA
PROJECT NO. 10-1920-02
PLATE
1



LEGEND

MW-1 ⊕	Monitoring Well Location (by Mittlehauser)
93.24	Groundwater Elevation (Arbitrary)
----------	Groundwater Elevation Contour (Arbitrary)
HP-2 ◆	Hydropunch Groundwater Sample Location

Groundwater Elevation Data (6-18-99)

	TOC	DTW	GWE
MW-1	100.00	6.76	93.24
MW-2	96.90	3.88	93.02
MW-3	97.68	5.44	92.24

TOC	Top Of Casing elevation
DTW	Depth to Water
GWE	Groundwater elevation

All measurements in feet.
Arbitrary datum set at 100 feet.

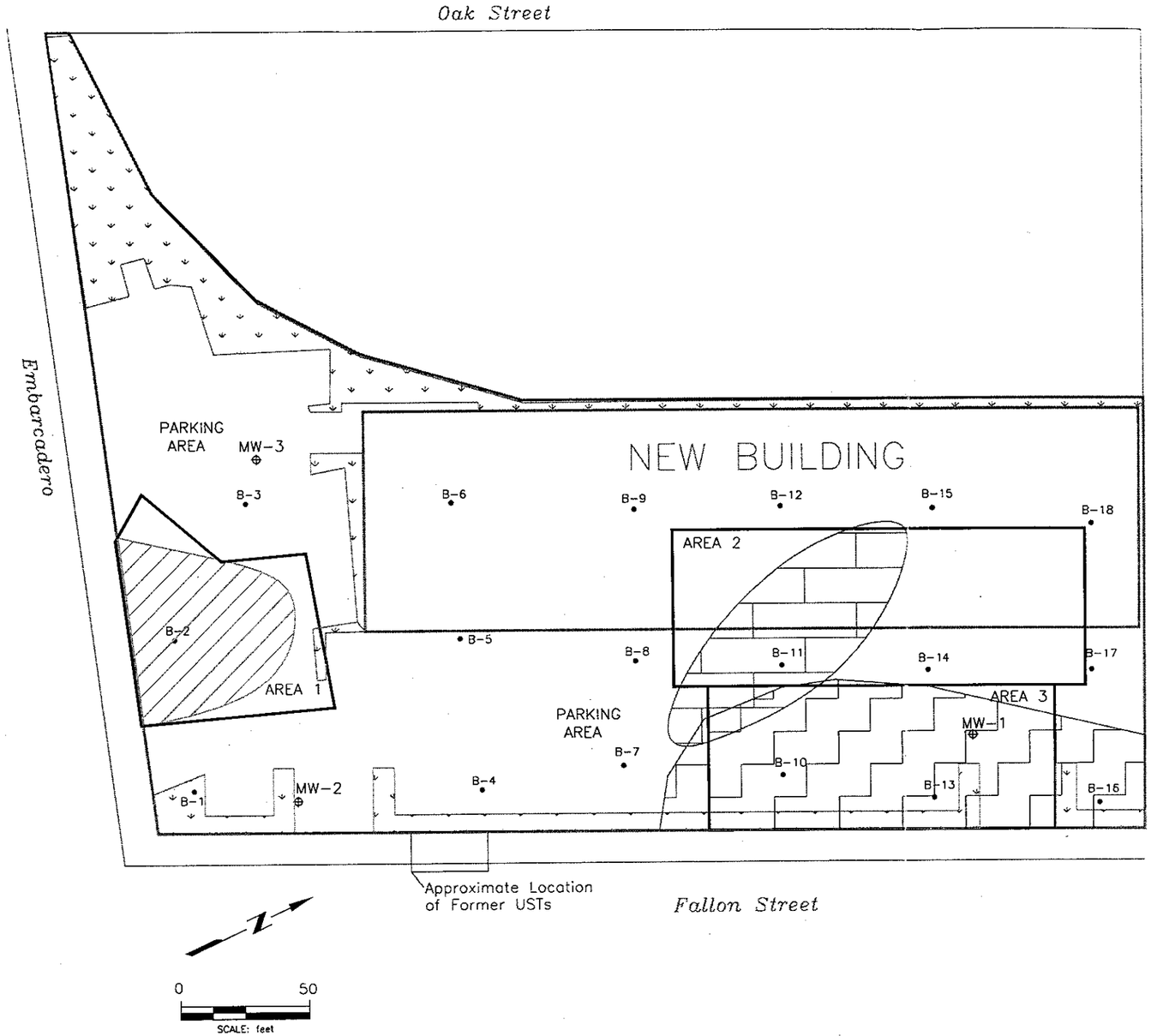
SITE PLAN showing HYDRPUNCH SAMPLING, and Monitoring Wells Locations. Groundwater Elevation Data for 6-18-99.

PEERLESS COFFEE
231-265 Fallon Street
Oakland, California
Clayton Project No. 70-98287.00

Figure 3

6/18/99
HPGW.dwg

Clayton ENVIRONMENTAL CONSULTANTS



LEGEND

B-18 ● Soil Boring Location (by Kleinfelder)

MW-1 ⊕ Monitoring Well Location (by Mittlehauser)

0 – 2.5 feet bgs [PNA]>1,000 ppm in **soil (AREA 1)**

2.5 – 5 feet bgs [PNA]>1,000 ppm in **soil (AREA 2)**

5 – 7 feet bgs [PNA]>1,000 ppm in **soil (AREA 3)**

Excavation limits

Landscaped Area

SITE PLAN showing Monitoring Wells, Soil Boring Locations, Zones of Impacted Soil, and Areas of Excavated Soil

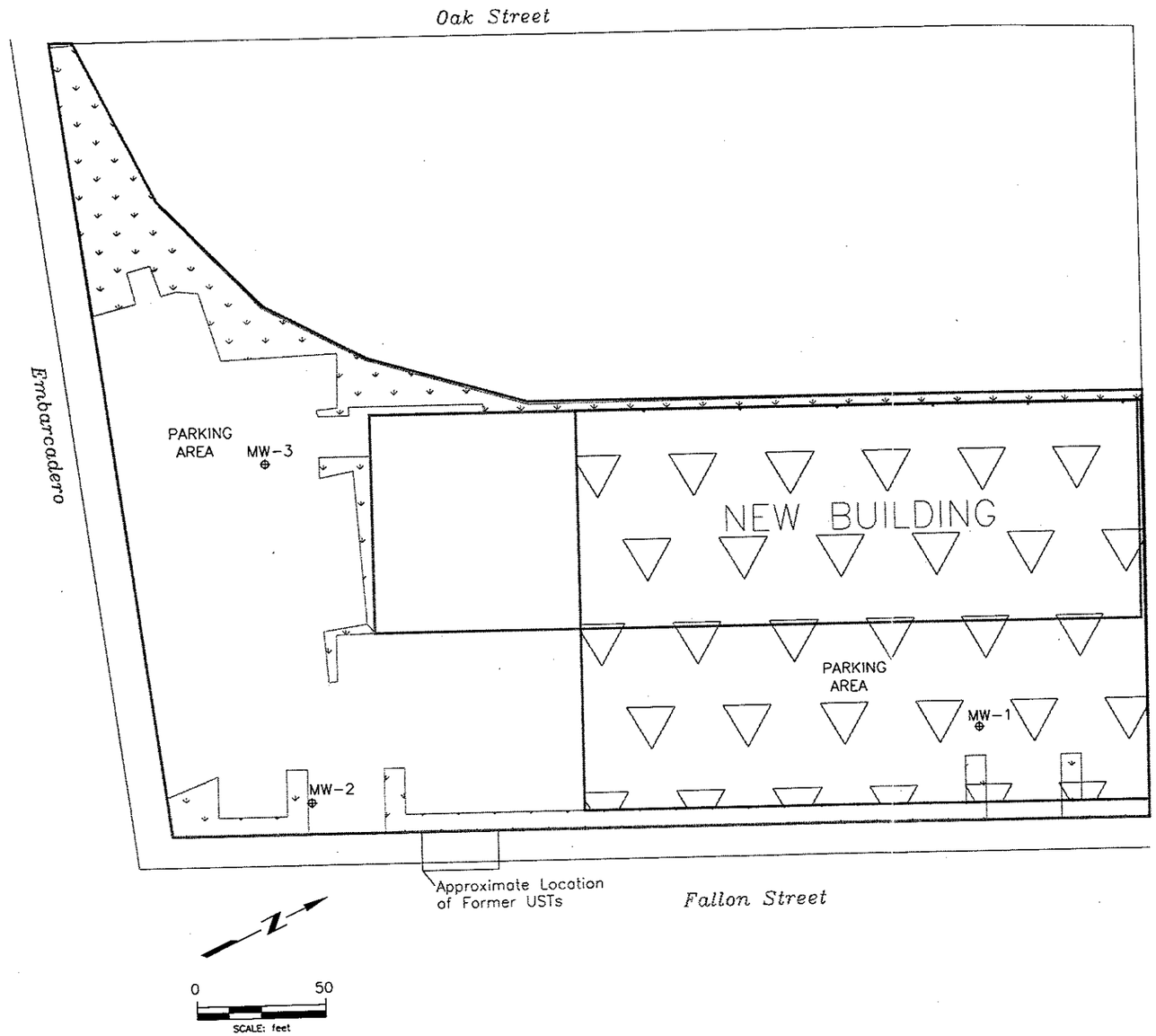
PEERLESS COFFEE
231-265 Fallon Street
Oakland, California

Clayton Project No. 70-99287.00

Figure 4

2/2/99
99287soil.dwg

Clayton ENVIRONMENTAL CONSULTANTS



LEGEND

MW-1 ⊕ Monitoring Well Location (by Mittlehauser)

Area of placement of Roadbase soil

Landscaped Area

SITE PLAN showing area of Roadbase Placement

PEERLESS COFFEE
231-265 Fallon Street
Oakland, California
Clayton Project No. 70-99287.00

Figure 5

7/7/99
99287sfill.dwg

Clayton ENVIRONMENTAL CONSULTANTS

Steffen Robertson & Kirsten (SRK) Report dated 8-8-89

TABLE 1

Comparison of Concentrations of Volatile and Semi-volatile Organics Found in Soil Samples to "Designated Levels" Sample date 7/88

COMPOUND	CONCENTRATIONS (ug/Kg) B5	B11	B13 ~~B14~~	B24	Designated level to protect Groundwater
Acenaphthene				275,000	20,000
Acenaphthylene				34,300	2.8**
Anthracene	44			90,300	2.8**
Benzene				8,340	2.8**
Benzo(a)anthracene	368			79,000	700
Benzo(b)fluoranthene	1,920			168,000	2.8**
Benzo(k)fluoranthene	180				2.8**
Benzo(g,h,i)perylene	1,090			118,000	2.8**
Benzo(a)pyrene	2,160			149,000	2.8**
Chrysene	658			102,000	2.8**
Dibenz(a,h)anthracene	214			15,600	2.8**
Dibenzofuran				11,400	***
Ethylbenzene				20,500	29,000
Fluoranthene	782		25	389,000	42,000
Fluorene				73,500	2.8**
Indo(1,2,3-c,d)pyrene	826			92,900	2.8**
2-Methylnaphthalene				121,000	****
Methylenechloride	6.4				190
Naphthalene		84	1,750	1,230,000	620,000*****
Phenanthrene	390		52	523,000	2.8**
Pyrene	704		28	411,000	2.8**
Toluene				1,530	100,000
Xylene				1,950	620,000

*Source: Regional Water Quality Board - Central Valley Region, "Designated Methodology", Draft Report, 1986.

**2.8 ug/Kg is the designated level for the sum of all polynuclear aromatic hydrocarbons.

***No toxicology information presently available for Dibenzofuran; however, a polynuclear aromatic hydrocarbon; futhermore has similar atomic structure as Dioxins.

****No designated level listed for 2-Methylnaphthalene; however, because of similar structure its designated level should be similar to naphthalene.

*****No designated level to protect groundwater listed for naphthalene; designated level to protect surface water is listed.

G. Vukasin c/o N. Pike
Well Installation, Sampling

June 1990
P1356

TABLE 1A
SOIL DATA TOTAL PETROLEUM HYDROCARBONS

Well	Depth feet	Gasoline mg/kg	Diesel mg/kg	Benzene ug/kg	Toluene ug/kg	Ethyl Benzene ug/kg	Total Xylenes ug/kg
	0.5-1.0	ND	160	ND	ND	ND	ND
MWS(2)	5-5.5	ND	250	ND	6.4	7.1	11
	9.5-10.0	ND	37	ND	ND	5.9	ND
MWE(3)	4.5-5.5	ND	120	ND	ND	8.5	ND
	9.5-10.0	ND	32	ND	ND	ND	ND
MWN(1)	1.0-1.5	ND	500	ND	5.6	ND	ND
	4.0-5.0	ND	130	ND	ND	ND	8.7
	9.5-10.0	ND	110	ND	6.5	ND	8.2

NOTE: ND indicates compound detected below laboratory reporting limits.

13561A.WK

TABLE ~~1~~ 2

July 27, 1988

SEMI-VOLATILE ORGANICS BY MASS SPECTROMETER -
WATER METHOD 625 -
VERBAL REPORT FROM PACE LABORATORIES,
NOVATO, CALIFORNIA
ON WATER WELL SAMPLES, ppb

SAMPLE NUMBER: 8-7004 SAMPLE LOCATION: M-1

COMPOUND	CONCENTRATION, ppb
Naphthalene	248
2-Methylnaphthalene	15
Acenaphthylene	30
Acenaphthene	70
Dibenzofuran	2
Fluorene	11
Phenanthrene	125
Anthracene	29
Fluoranthene	116
Pyrene	128
Benzo(a)anthracene	31
Chrysene	54
Benzo(b)fluoranthene	32
Benzo(k)fluoranthene	32
Benzo(a)pyrene	169
Indeno(1,2,3-cd)pyrene	54
Dibenzo(a,h,)anthracene	16
Benzo(g,h,i)perylene	66

SAMPLE NUMBER: 8-7006 SAMPLE LOCATION: M-2

COMPOUND	CONCENTRATION, ppb
Naphthalene	2.4
Phenol	2.4
4-Methylphenol	6.5
Benzoic Acid	98

SAMPLE NUMBER: 8-7008 SAMPLE LOCATION: M-3

COMPOUND	CONCENTRATION, ppb
ND	

S. Jeffers Robertson & Kirsten Report dated 8-8-88

TABLE 2

Comparison of Concentrations of Volatile and Semi-volatile Organics Found in Groundwater Samples to "Designated Levels"

COMPOUND	CONCENTRATIONS (ug/L) M1	M2	M3	Designated level to protect Groundwater
Acenaphthene	70			2,000
Acenaphthylene	30			.28**
Anthracene	29			.28**
Benzene	4.2			70
Benzo(a)anthracene	31			.28**
Benzo(b)fluoranthene	32			.28**
Benzo(k)fluoranthene	32			.28**
Benzo(a)pyrene	169			.28**
Chrysene	54			.28**
Dibenz(a,h)anthracene	16			.28**
Dibenzofuran	2			***
Ethylbenzene	2.3			2,900
Fluoranthene	116			4,200
Fluorene	11			.28**
Indo(1,2,3-c,d)pyrene	54			.28**
2-Methylnaphthalene	15			****
4-Methylphenol		6.5		*****
Naphthalene	248	2.4		62,000******
Phenanthrene	125			.28**
Pyrene	128			.28**
Phenol		2.4		30,000
Toluene	0.5			10,000
Xylene	0.7			62,000
Benzoic Acid		6.5		

*Source: Regional Water Quality Board - Central Valley Region, "Designated Methodology", Draft Report, 1986.

**2.8 ug/Kg is the designated level for the sum of all polynuclear aromatic hydrocarbons.

***No toxicology information presently available for Dibenzofuran; however, a polynuclear aromatic hydrocarbon; futhermore has similar atomic structure as Dioxins.

****No designated level listed; however, because of similar structure its designated level should be similar to naphthalene.

(continued on next page)

Kleinfelder Report dated 2-17-89

TABLE 3

ANALYTICAL RESULTS - SOIL
POLYNUCLEAR AROMATIC HYDROCARBONS (EPA METHOD 8270)

Compound	Detection Limit	B1-S1	B1-S3[1]	B1-S6	B2-S2[2]	B2-S4[1]	B2-S6	B3-S1	B3-S3.5	B3-S6	B4-S2	B4-S5
Acenaphthene	33	36	ND	ND	10,000	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	33	ND	ND	ND	24,000	ND	ND	47	ND	ND	ND	ND
Anthracene	33	56	ND	ND	71,000	5,800	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	33	ND	ND	ND	100,000	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	33	100	ND	72	22,000	ND	ND	240	ND	ND	ND	ND
Benzo(k)fluoranthene	33	110	ND	57	53,000	ND	ND	300	ND	ND	ND	ND
1022 Benzo(a)pyrene	33	180	ND	68	54,000	ND	ND	330	ND	ND	37	ND
Benzo(ghi)perylene	33	190	ND	ND	46,000	ND	ND	260	ND	ND	47	ND
1050 Chrysene	33	140	ND	ND	130,000	ND	ND	290	ND	ND	ND	ND
1063 Dibenzo(a,h)anthracene	33	ND	ND	ND	ND	ND	ND	49	ND	ND	ND	ND
Dibenzofuran	33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1120 Fluoranthene	33	440	ND	120	220,000	7,500	ND	430	ND	42	53	ND
Fluorene	33	42	ND	ND	55,000	ND	ND	ND	ND	ND	ND	ND
1137 Indeno(1,2,3-cd)pyrene	33	170	ND	ND	48,000	ND	ND	ND	ND	ND	33	ND
1160 Naphthalene	33	ND	ND	ND	11,000	ND	ND	240	ND	ND	ND	ND
Phenanthrene	33	330	ND	40	220,000	ND	ND	230	ND	39	39	ND
Pyrene	33	430	ND	200	330,000	11,000	ND	700	ND	97	97	ND
Total PNA		2224	ND	557	1,394,000	24,300	ND	3116	ND	178	306	ND

NOTE:
All concentrations in ug/kg(ppb)
(1) The reporting limits for this sample are 100 times the listed detection limits.
(2) The reporting limits for this sample are 200 times the listed detection limits.

KLEINFELDER

TABLE 2 (Continued Page 2)

ANALYTICAL RESULTS - SOIL
POLYNUCLEAR AROMATIC HYDROCARBONS (EPA METHOD 8270)

Compound	Detection Limit	B4-S6	B5-0.5[1]	B5-S3.5[2]	B5-S6	B6-S2	B6-S4[2]	B6-S6	B7-S0.5	B7-S3[2]	B7-S6	B8-S2
Acenaphthene	33	ND	ND	ND	ND	ND	ND	ND	ND	13,000	ND	ND
Acenaphthylene	33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	33	ND	ND	ND	ND	ND	ND	100	ND	ND	ND	ND
Benzo(b)fluoranthene	33	80	ND	ND	ND	ND	ND	ND	43	25,000	ND	ND
Benzo(k)fluoranthene	33	41	ND	ND	ND	ND	ND	120	55	28,000	ND	ND
Benzo(a)pyrene	33	59	ND	ND	ND	ND	ND	130	38	43,000	ND	ND
Benzo(ghi)perylene	33	ND	ND	ND	ND	ND	ND	130	77	35,000	ND	ND
Chrysene	33	ND	ND	ND	ND	ND	ND	150	ND	ND	ND	ND
Dibenzo(a,h)anthracene	33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	33	59	ND	ND	ND	ND	ND	210	33	120,000	ND	ND
Fluorene	33	ND	ND	ND	ND	ND	ND	ND	ND	3,900	ND	ND
Indeno(1,2,3-cd)pyrene	33	ND	ND	ND	ND	ND	ND	110	57	28,000	ND	ND
Naphthalene	33	ND	ND	ND	ND	ND	ND	69	ND	ND	ND	ND
Phenanthrene	33	ND	ND	ND	ND	ND	ND	150	ND	89,000	ND	ND
Pyrene	33	130	430	ND	ND	ND	ND	330	67	130,000	ND	ND
Total PNA		369	430	ND	ND	ND	ND	1499	370	514,900	ND	ND

NOTE:
All concentrations in ug/kg(ppb)
(1) The reporting limits for this sample are 10 times the listed detection limits.
(2) The reporting limits for this sample are 100 times the listed detection limits.

KLEINFELDER

TABLE 3 (Continued Page 3)

ANALYTICAL RESULTS - SOIL
POLYNUCLEAR AROMATIC HYDROCARBONS (EPA METHOD 8270)

Compound	Detection Limit	B8-S4[1]	B8-S6	B9-S1[1]	B9-S3	B9-S5[1]	B10-S2	B10-S4	B10-S6[2]	B11-S1	B11-S3[2]	B11-S5[2]
Acenaphthene	33	ND	ND	ND	ND	ND	ND	290	660,000	72	310,000	ND
Acenaphthylene	33	ND	ND	ND	ND	ND	ND	ND	85,000	ND	44,000	ND
Anthracene	33	ND	ND	ND	ND	ND	ND	70	440,000	ND	ND	ND
Benzo(a)anthracene	33	ND	ND	ND	300	ND	ND	61	310,000	ND	180,000	ND
Benzo(b)fluoranthene	33	ND	ND	ND	820	ND	ND	48	330,000	46	170,000	ND
Benzo(k)fluoranthene	33	ND	ND	ND	470	ND	ND	43	150,000	48	240,000	ND
Benzo(a)pyrene	33	ND	ND	ND	530	ND	ND	65	300,000	61	400,000	ND
Benzo(ghi)perylene	33	ND	ND	ND	560	ND	ND	ND	110,000	ND	280,000	ND
Chrysene	33	ND	ND	ND	500	ND	ND	ND	360,000	ND	280,000	ND
Dibenzo(a,h)anthracene	33	ND	ND	ND	36	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	33	ND	ND	ND	ND	ND	ND	ND	74,000	ND	ND	ND
Fluoranthene	33	ND	ND	ND	950	ND	ND	150	920,000	130	960,000	ND
Fluorene	33	ND	ND	ND	ND	ND	ND	180	650,000	ND	56,000	ND
Indeno(1,2,3-cd)pyrene	33	ND	ND	ND	480	ND	ND	50	120,000	50	300,000	ND
Naphthalene	33	ND	ND	ND	ND	ND	ND	220	3,500,000	2,700	1,200,000	ND
Phenanthrene	33	ND	ND	ND	330	ND	ND	390	2,000,000	130	910,000	ND
Pyrene	33	ND	ND	ND	1,400	ND	ND	210	1,000,000	180	1,200,000	ND
Total PNA		ND	ND	ND	6,376	ND	ND	1,777	10,935,000	3417	6,530,000	ND

NOTE:
All concentrations in ug/kg(ppb)
(1) The reporting limits for this sample are 100 times the listed detection limits.
(2) The reporting limits for this sample are 500 times the listed detection limits.

KLEINFELDER

TABLE 3 (continued Page 4)

ANALYTICAL RESULTS - SOIL
POLYNUCLEAR AROMATIC HYDROCARBONS (EPA METHOD 8270)

Compound	Detection Limit	B12-S2(1)	B12-S4.5	B12-S1(2)	B12-S6	B13-S3(3)	B13-S6(1)	B14 S0.5(2)	B14-32.5	B14-S5	B15-S5 S1(2)	B15-S3(2)
Acenaphthene	33	ND	ND	ND	ND	ND	2,300,000	ND	ND	ND	ND	ND
Acenaphthylene	33	ND	ND	ND	ND	ND	27,000	ND	ND	ND	ND	ND
Anthracene	33	ND	ND	ND	ND	ND	810,000	ND	ND	ND	ND	ND
Benzo(a)anthracene	33	ND	ND	ND	ND	ND	100,000	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	33	ND	ND	ND	ND	ND	590,000	ND	ND	ND	4,400	ND
Benzo(k)fluoranthene	33	ND	ND	ND	ND	ND	600,000	ND	ND	ND	8,900	ND
Benzo(a)pyrene	33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	33	ND	ND	ND	ND	ND	730,000	ND	ND	ND	6,600	ND
Chrysene	33	ND	ND	ND	ND	ND	960,000	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	33	ND	ND	ND	ND	ND	48,000	ND	ND	ND	ND	ND
Fluoranthene	33	ND	42	ND	4,900	ND	2,700,000	9,000	ND	ND	58,000	ND
Fluorene	33	ND	ND	ND	ND	ND	350,000	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	33	ND	ND	ND	ND	ND	670,000	ND	ND	ND	ND	ND
Naphthalene	33	ND	92	ND	ND	ND	3,800,000	ND	ND	ND	ND	ND
Phenanthrene	33	ND	ND	ND	ND	ND	3,100,000	ND	ND	ND	5,800	ND
Pyrene	33	ND	61	ND	5,300	ND	3,400,000	3,900	ND	ND	15,000	ND
Total PNA		ND	195	ND	10,200	ND	20,185,000	12,900	ND	ND	98,700	ND

NOTE:
All concentrations in ug/kg(ppb)
(1) The reporting limits for this sample are 500 times the listed detection limits.
(2) The reporting limits for this sample are 100 times the listed detection limits.
(3) The reporting limits for this sample are 10 times the listed detection limits.

KLEINFELDER

TABLE 7 (Continued Page 5)

ANALYTICAL RESULTS - SOIL
POLYNUCLEAR AROMATIC HYDROCARBONS (EPA METHOD 8270)

Compound	Detection Limit	B15-S6	B16-S1(1)	B16-S3(1)	B16-S6(1)	B17-S2	B17-S4	B18-S0.5(1)	B18-S3(1)	B18-S6(1)
Acenaphthene	33	ND	ND	ND	96,000	ND	ND	ND	ND	ND
Acenaphthylene	33	ND	ND	ND	16,000	ND	ND	ND	ND	ND
Anthracene	33	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	33	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	33	ND	ND	54,000	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	33	ND	ND	62,000	140,000	ND	ND	ND	ND	ND
Benzo(a)pyrene	33	ND	ND	20,000	160,000	ND	ND	ND	ND	ND
Benzo(ghi)perylene	33	ND	ND	74,000	63,000	ND	ND	ND	ND	ND
Chrysene	33	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	33	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	33	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	33	ND	ND	80,000	450,000	ND	ND	ND	ND	ND
Fluorene	33	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	33	ND	ND	24,000	52,000	ND	ND	ND	ND	ND
Naphthalene	33	ND	ND	ND	150,000	ND	ND	ND	ND	ND
Phenanthrene	33	ND	ND	54,000	350,000	ND	ND	ND	ND	ND
Pyrene	33	ND	ND	230,000	690,000	ND	52	ND	97	97
Total PNA		ND	ND	598,000	2,167,000	ND	52	ND	97	97

NOTE:
All concentrations in ug/kg(ppb)
(1) The reporting limits for this sample are 500 times the indicated detection limits.

KLEINFELDER

TABLE 3

ANALYTICAL RESULTS - POLYCHLORINATED DIOXINS/FURANS

Compound	Sample B10-56	Method Blank
FURANS		
TCDFs (total)	<0.046(1)	<0.056
PeCDFs (total)	<0.063	<0.12
HxCDFs (total)	<0.017	<0.022
HpCDFs (total)	<0.028	<0.039
OCDF	<0.10	<0.10
DIOXINS		
TCDDs (total)	<0.019	<0.032
PeCDDs (total)	<0.058	<0.064
HxCDDs (total)	<0.020	<0.034
HpCDDs (total)	<0.038	<0.048
OCDD	<0.045	<0.095

NOTE:

All concentrations in ng/g (ppb)

(1) < - Not detected at or above the indicated detection limit

Report dated 2-17-89

TABLE 4

ANALYTICAL RESULTS - WATER
PURGEABLE AROMATICS AND PETROLEUM HYDROCARBONS

Compound	Detection Limit	KMW-1A
Petroleum Hydrocarbons		
as gasoline	50	6,200
Purgeable Aromatics (EPA Method 602)		
Chlorobenzene	0.4	ND
1,2-Dichlorobenzene	0.4	ND
1,3-Dichlorobenzene	0.4	ND
1,4-Dichlorobenzene	0.4	ND
Benzene	0.5	75
Ethylbenzene	0.6	75
Toluene	0.5	42
Xylenes, total	0.6	23

NOTE:

All concentrations in μg/l (ppb)

$\frac{100}{\sum_{x=1}^{n} \frac{\%A_x}{T_{AX}}}$ = calculated lower LD_{50}

$\%A_X$ - weight % component in mixture

T_{AX} - oral LD_{50} of each component

TABLE 4

ANALYTICAL RESULTS - WATER
SEMI-VOLATILE ORGANICS AND POLYNUCLEAR AROMATIC HYDROCARBONS

Compound	Detection Limit	MW-1	MW-2	MW-3	KMW-1A	KMW-1B[1]	Rat oral LD_{50}
Acenaphthene	1	25	ND	ND	240	110	mouse mt carcin + 40-120
Acenaphthylene	1	ND	ND	ND	21	10	1930 mg/kg
Anthracene	1	ND	ND	ND	22	40	454
Benzo(a)anthracene	1	ND	ND	ND	ND	21 *	
Benzo(b)fluoranthene	1	ND	ND	ND	4.4	42	Carc animal +
Benzo(k)fluoranthene	1	ND	ND	ND	5.3	22	
Benzo(a)pyrene	1	ND	ND	ND	9.9	38 ~~*~~	50 ppm
Benzo(ghi)perylene CAS #1-24-2	1	ND	ND	ND	5.2	7.3	
Chrysene	1	ND	ND	ND	ND	60	
Dibenzofuran	NR	ND	ND	ND	23	ND	250 LD_{Lo}
Fluoranthene	1	3.7	ND	ND	48	150	2000
Fluorene	1	1.1	ND	ND	57	22	620
Indeno(1,2,3-cd)pyrene	1	ND	ND	ND	5.9	22	2250 *
Naphthalene	1	140	ND	ND	2,000	560	1780
Phenanthrene	1	7.6	ND	ND	160	200	
Pyrene	1	3.5	ND	ND	51	120	mutagen
Total PNA	15	180.9			2,672.7	1,424.3	

NOTE:

All concentrations in ug/l (ppb)

(1) The reporting limits for this sample are 7 times the listed reporting limits.

NR Not reported.

CA1400000

KLEINFELDER

G. Vukasin c/o N. Pike
Well Installation, Sampling

June 1990
P1356

TABLE #4
SUMMARY OF GROUNDWATER DATA
UNITS=mg/L

COMPOUND NAME	WELL MWN(1)	WELL MWS(2)	WELL MWE(3)	1989 KMW-1B	1989 MW1
PETROLEUM COMPOUNDS					
Gasoline	0.25	ND	ND		
Diesel	ND	ND	ND		
Benzene	0.032	ND	ND		
Toluene	0.007	ND	ND		
Ethyl Benzene	0.021	ND	ND		
Total Xylenes	0.017	ND	ND		
POLYNUCLEAR AROMATIC COMPOUNDS					
Naphthalene	17	ND	ND	0.560	0.14
Acenaphthylene	0.42	ND	ND	0.010	ND
Acenaphthene	ND	ND	ND	0.110	0.025
Fluorene	0.037	ND	ND	0.022	0.0011
Phenanthrene	0.16	ND	ND	0.200	0.0076
Anthracene	ND	ND	ND	0.04	
Fluoranthene	0.011	ND	ND	0.150	0.0037
Pyrene	ND	ND	ND	0.120	0.0035
Benzo(a)anthracene	ND	ND	ND	0.021	
Chrysene	ND	ND	ND	0.060	
Benzo(b)fluoranthene	ND	ND	ND	0.212	
Benzo(k)fluoranthene	0.017	ND	ND	0.022	ND
Benzo(a)pyrene	ND	ND	ND	0.038	
Indeno(1,2,3-cd)pyrene	ND	ND	ND	0.022	
Dibenzo(a,h)anthracene	ND	ND	ND		
Benzo(g,h,i)perylene	ND	ND	ND		
SUM	17.645	ND	ND	1.587	0.452

NOTES: ND indicates values below the laboratory reporting limit

1356W2.WK1

TABLE 4

SOIL DATA POLY NUCLEAR AROMATIC ORGANIC COMPOUNDS

UNITS=mg/kg

COMPOUND NAME	WELL MWN(1) DEPTH, FEET 1.0–1.5	4.0–5.0	9.5–10.0	WELL MWS(2) DEPTH, FEET 0.5–1.0	5.0–5.5	9.5–10.0	WELL MWE(3) DEPTH, FEET 0.5–1.0	4.5–5.0	9.5–10.0
Naphthalene	ND	1.5	2	0.59	ND	ND	ND	0.33	ND
Acenaphthylene	ND	0.84	0.43	0.42	ND	ND	ND	ND	ND
Acenaphthene	0.42	0.37	ND	ND	0.35	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	0.46	3.5	1.4	2.2	0.77	ND	ND	1.1	ND
Anthracene	ND	0.66	ND	0.4	ND	ND	ND	0.41	ND
Fluoranthene	1	5.4	1.2	3	ND	ND	ND	2	ND
Pyrene	1.2	5.7	1.2	3	0.54	ND	ND	2	ND
Benzo(a)anthracene	1.2	1.6	ND	0.84	ND	ND	ND	1.5	ND
Chrysene	1.4	2.1	0.41	1.1	0.58	ND	ND	1.5	ND
Benzo(b)fluoranthene	2.7	4	0.52	1.8	ND	ND	ND	3.2	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	2	2.6	0.4	1.4	ND	ND	ND	2.5	ND
Indeno(1,2,3-cd)pyrene	0.72	1.2	0.34	0.9	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	0.34	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	0.53	1.1	0.39	0.93	ND	ND	ND	1.2	ND
Total PNA	11.97	30.57	8.29	16.58	2.24	0	0	15.74	0

NOTE: ND indicates compound detected below the laboratory reporting limit.
No Pentachlorophenol detected in any sample.

13561B.WK1

Table 5

Petroleum Hydrocarbons Detected in Groundwater
255 Fallon Street
Oakland, California

Sample ID	Date Sampled	TPH-D	TPH-G	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE
MW-1	08-May-90	<0.05	0.25	0.032	0.0067	0.021	0.017	NA
MW-1	06-Nov-90	1.7	0.74	0.0075	0.0061	0.0011	0.0048	NA
MW-1	12-Feb-91	4.6	0.8	0.0071	0.0017	0.0053	0.0045	NA
MW-1	15-May-91	1.3	0.88	0.0052	0.0048	0.0012	0.0025	NA
MW-1	13-Aug-91	3.1	0.92	0.0052	0.0043	0.0022	0.0043	NA
MW-1	08-Dec-98	NA	NA	<0.005	<0.005	<0.005	<0.005	NA
MW-1	18-Jun-99	NA	<50	<0.005	<0.005	<0.005	0.0017	<5
MW-2	08-May-90	<0.05	< 0.05	< 0.0005	< 0.0005	< 0.0005	< 0.0005	NA
MW-2	06-Nov-90	0.18	< 0.05	< 0.0005	< 0.0005	< 0.0005	< 0.0005	NA
MW-2	12-Feb-91	<0.05	0.15	< 0.0005	< 0.0005	< 0.0005	< 0.0005	NA
MW-2	15-May-91	0.06	< 0.05	< 0.0005	< 0.0005	< 0.0005	< 0.0005	NA
MW-2	13-Aug-91	0.09	< 0.05	< 0.0005	< 0.0005	< 0.0005	< 0.0005	NA
MW-3	08-May-90	<0.05	< 0.05	< 0.0005	< 0.0005	< 0.0005	< 0.0005	NA
MW-3	06-Nov-90	0.21	< 0.05	< 0.0005	< 0.0005	< 0.0005	< 0.0005	NA
MW-3	12-Feb-91	<0.05	< 0.05	< 0.0005	< 0.0005	< 0.0005	< 0.0005	NA
MW-3	15-May-91	0.08	< 0.05	< 0.0005	< 0.0005	< 0.0005	< 0.0005	NA
MW-3	13-Aug-91	0.08	< 0.05	< 0.0005	< 0.0005	< 0.0005	< 0.0005	NA
HP-1	18-Jun-99	NA	<50	<0.005	<0.005	<0.005	<0.005	27
HP-2	18-Jun-99	NA	0.078	0.0025	<0.005	<0.005	<0.005	<5

Notes:

1. Concentrations Reported in milligrams per lLiter (mg/L).

Table 5

Polynuclear Aromatic Compounds Detected in Groundwater
255 Fallon Street
Oakland, California
(Concentrations Reported in Milligrams per Liter [mg/L])

Sample ID	Date Sampled	Acena-phthene	Acena-phthylene	Anthracene	Benzo(a) anthracene	Benzo(b) fluorathene	Benzo(k) fluorathene	Benzo(a) pyrene	Benzo(g,h,i) perylene	Chrysene	Dibenzo(a,h) anthracene
MW-1	08-May-90	<0.01	0.42	<0.01	<0.01	0.017	<0.01	<0.01	<0.01	<0.01	<0.01
MW-1	06-Nov-90	0.16	0.21	0.085	0.07	0.089	0.08	0.14	0.12	0.16	<0.0025
MW-1	12-Feb-91	0.12	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-1	15-May-91	0.17	0.098	0.048	0.032	0.063	0.029	0.077	0.065	0.082	<0.025
MW-1	13-Aug-91	0.15	0.065	0.027	0.015	0.017	0.014	0.026	0.017	0.031	<0.025
MW-1	08-Dec-98	0.089	0.006	0.022	0.025	0.039	0.017	0.051	0.048	0.038	<0.005
MW-2	08-May-90	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-2	06-Nov-90	<0.0019	<0.0035	<0.0019	<0.0078	<0.0048	<0.0025	<0.0025	<0.0041	<0.0025	<0.0025
MW-2	12-Feb-91	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-2	15-May-91	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
MW-2	13-Aug-91	<0.019	<0.035	<0.019	<0.078	<0.048	<0.025	<0.025	<0.041	<0.025	<0.025
MW-3	08-May-90	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-3	06-Nov-90	<0.0019	<0.0035	<0.0019	<0.0078	<0.0048	<0.0025	<0.0025	<0.0041	<0.0025	<0.0025
MW-3	12-Feb-91	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-3	15-May-91	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
MW-3	13-Aug-91	<0.019	<0.035	<0.019	<0.078	<0.048	<0.025	<0.025	<0.041	<0.025	<0.025
KMW-1B	1989	0.11	0.01	0.04	NA	0.212	0.022	0.038	NA	0.06	NA
MW-1	1989	0.025	ND	NA	NA	NA	NA	NA	NA	NA	NA
MW-1A	1989	0.24	0.021	0.022	ND	0.0044	0.0053	0.0099	0.0052	ND	NA
MW-1B	1989	0.11	0.01	0.04	0.021	0.042	0.022	0.038	0.0073	0.06	NA

Table 5

Polynuclear Aromatic Compounds Detected in Groundwater
255 Fallon Street
Oakland, California
(Concentrations Reported in Milligrams per Liter [mg/L])

Sample ID	Date Sampled	Acena-phthene	Acena-phthylene	Anthracene	Benzo(a) anthracene	Benzo(b) fluorathene	Benzo(k) fluorathene	Benzo(a) pyrene	Benzo(g,h,i) perylene	Chrysene	Dibenzo(a,h) anthracene
HP-1	18-Jun-99	<0.0001	<0.0001	<0.00005	<0.00015	<0.0001	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001
HP-2	18-Jun-99	<0.00065	**0.0043**	**0.0032**	**0.0069**	**0.011**	**0.0064**	**0.017**	**0.015**	**0.01**	**0.017**

Table 5

Polynuclear Aromatic Compounds Detected in Groundwater
255 Fallon Street
Oakland, California
(Concentrations Reported in Milligrams per Liter [mg/L])

Sample ID	Date Sampled	Fluorathene	Fluorene	Indeno(1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene
HP-1	18-Jun-99	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.00015
HP-2	18-Jun-99	**0.037**	<0.00065	**0.015**	**0.016**	**0.035**	**0.039**

Table 5

Polynuclear Aromatic Compounds Detected in Groundwater
255 Fallon Street
Oakland, California
(Concentrations Reported in Milligrams per Liter [mg/L])

Sample ID	Date Sampled	Fluorathene	Fluorene	Indeno(1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene
MW-1	08-May-90	0.011	0.037	<0.01	17	0.16	<0.01
MW-1	06-Nov-90	0.32	0.049	0.09	1.8	0.43	0.32
MW-1	12-Feb-91	<0.005	<0.005	<0.005	3.2	0.21	<0.005
MW-1	15-May-91	0.2	0.35	0.052	2.7	0.44	0.2
MW-1	13-Aug-91	0.097	0.028	0.014	3.9	0.2	0.097
MW-1	08-Dec-98	0.099	0.019	0.038	0.35	0.13	0.084
MW-2	08-May-90	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-2	06-Nov-90	<0.0022	<0.0019	<0.0037	<0.0016	<0.0054	<0.0019
MW-2	12-Feb-91	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-2	15-May-91	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
MW-2	13-Aug-91	<0.022	<0.019	<0.037	<0.016	<0.054	<0.019
MW-3	08-May-90	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-3	06-Nov-90	<0.0022	<0.0019	<0.0037	<0.0016	<0.0054	<0.0019
MW-3	12-Feb-91	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
MW-3	15-May-91	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
MW-3	13-Aug-91	<0.022	<0.019	<0.037	<0.016	<0.054	<0.019
KMW-1B	1989	0.15	0.022	0.022	0.56	0.14	0.12
MW-1	1989	0.0037	0.0011	NA	NA	NA	0.0035
MW-1A	1989	0.048	0.057	0.0059	2	0.16	0.051
MW-1B	1989	0.15	0.022	0.022	0.56	0.2	0.12

TABLE 6
SUMMARY OF NONCARCINOGENIC HAZARDS
INDUSTRIAL EXPOSURE SCENARIO

			Constituents of Interest									
	Notation	units	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)perylene	Dibenzofuran	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene
Noncarcinogenic Hazard												
Oral (ADIo/RfDo)	Ho	unitless	4.5E-04	8.0E-05	3.6E-05	5.4E-04	2.9E-04	1.1E-03	2.2E-04	3.5E-03	2.7E-03	1.9E-03
Inhalation (ADIi/RfDi)	Hi	unitless	9.1E-06	3.7E-05	7.1E-07	2.5E-04	5.8E-06	2.2E-05	4.4E-06	1.6E-03	1.3E-03	3.8E-05
Dermal (ADId/RfDo)	Hd	unitless	4.3E-04	1.8E-03	3.4E-05	1.2E-02	2.7E-04	1.1E-03	2.1E-04	7.7E-02	5.9E-02	1.8E-03
Constituent Total Hazard (ΣHo,Hi,Hd)	CT_H	unitless	8.9E-04	1.9E-03	7.0E-05	1.3E-02	5.7E-04	2.2E-03	4.3E-04	8.2E-02	6.3E-02	3.7E-03
Total Noncarcinogenic Hazard (ΣCT_H)			**1.7E-01**									

TABLE 6
SUMMARY OF CARCINOGENIC RISKS
INDUSTRIAL EXPOSURE SCENARIO

			Constituents of Interest						
	Notation	units	Benzo(a)anthracene	Benzo(b)fluroanthene	Benzo(k)fluroanthene	Benzo(a)pyrene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene
Carcinogenic Risks									
Oral (IADIo*SFo)	Ro	unitless	1.5E-06	2.1E-06	2.7E-07	2.1E-05	3.6E-08	5.4E-08	2.6E-06
Inhalation (IADIi*SFi)	Ri	unitless	1.2E-08	1.8E-08	2.3E-09	1.8E-07	3.1E-10	4.6E-10	2.2E-08
Dermal (IADId*SFo)	Rd	unitless							
Constituent Total Risk (ΣRo,Ri,Rd)	CT_R	unitless	1.5E-06	2.1E-06	2.7E-07	2.1E-05	3.7E-08	5.4E-08	2.6E-06
Total Carcinogenic Risk (ΣCT_R)			**2.7E-05**						

MITTELHAUSER corporation

BORING NO.: 1(MWN) PROJECT NO.: P1356 PROJECT NAME: G. Vukasin, 255 Fallon, Oakland

BORING LOCATION: by north driveway ELEVATION AND DATUM:

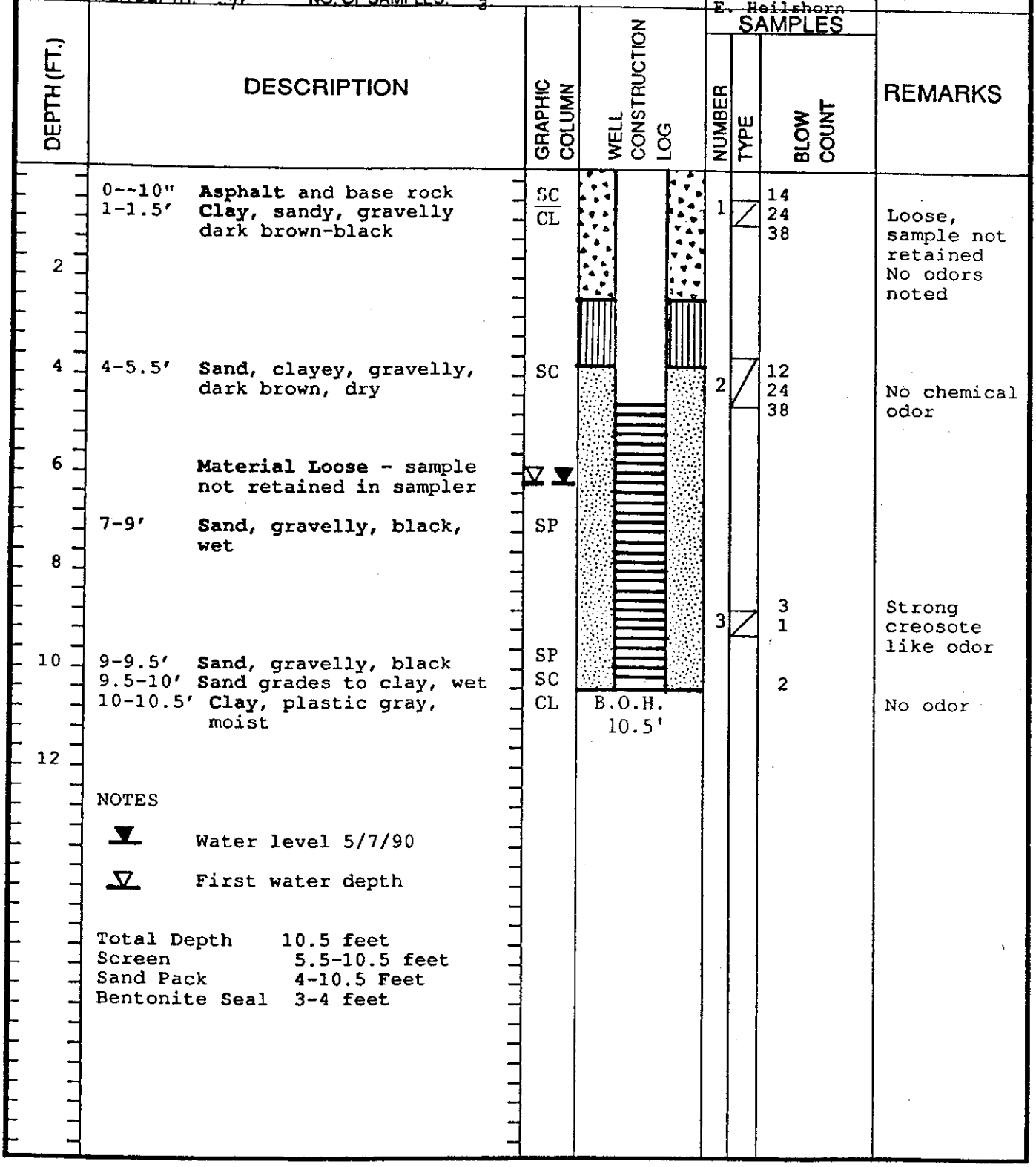
DRILLING AGENCY: Aquascience DRILLER: Tom McMullen

DRILLING EQUIPMENT: B-57, Hollow Stem Auger 8" O.D.

COMPLETION DEPTH: 10.5' BEDROCK DEPTH:

FIRST WATER DEPTH: 7' NO. OF SAMPLES: 3

DATE & TIME STARTED:	DATE & TIME FINISHED:
5/3/90 1000	5/3/90 1900
LOGGED BY:	CHECKED BY:
E. Heilshorn	



MITTELHAUSER corporation

BORING NO.: 2 (MWS) PROJECT NO.: P1356 PROJECT NAME: G. Vukasin, 255 Fallon, Oakland

BORING LOCATION: by south driveway ELEVATION AND DATUM:

DRILLING AGENCY: Aquascience DRILLER: Tom McMullen

DRILLING EQUIPMENT: B-57 Hollow Stem Auger, O.D. 8"

COMPLETION DEPTH: 10.5' BEDROCK DEPTH: -

FIRST WATER DEPTH: ~7' NO. OF SAMPLES: 3

DATE & TIME STARTED: 5/3/90 1000

DATE & TIME FINISHED: 5/3/90 1900

LOGGED BY: E. Heilshorn

CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
	0-10" **Asphalt** and Base rock						
	1-2' **Sand**, some clay, gray	SC		1		18	
2						23	
						21	
4	4-5.5' **Sand**, gray, moist at 5' 1-1.5" layer of black material	SP		2		10	
						9	
						8	Possibly weathered asphalt
6							
8		SC/CL				1	
	9-9.5' **Clay**, sandy, blue gray, soft, wet						
10	9.5-10.5' **Clay**, slightly plastic blue gray, wet to moist, approx. 1/3 of sample was organic debris, grass, twigs	CL/Pt	B.O.H. 10.5'	3		1	anaerobic decay odor
						1	
12							

NOTES

▼ First water

▽ Water level 5/7/90

Total Depth 10.5 feet
Screen 5.5-10.5 feet
Sand Pack 4.5-10.5 feet
Bentonite Seal 3.5-4.5 feet

MITTELHAUSER corporation

BORING NO.: 3 (MWE) PROJECT NO.: P1356 PROJECT NAME: G. Vukasin, 255 Fallon, Oakland

BORING LOCATION: near southeast corner of building ELEVATION AND DATUM:

DRILLING AGENCY: Aquascience DRILLER: Tom McMullen

DRILLING EQUIPMENT: B-57, Hollow Stem Auger 8" O.D.

COMPLETION DEPTH: 10.5' BEDROCK DEPTH: N.E.

FIRST WATER DEPTH: ~7' NO. OF SAMPLES: 3

DATE & TIME STARTED: 5/3/90 1000

DATE & TIME FINISHED: 5/3/90 1900

LOGGED BY: E. Heilshorn

CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
	0-6" **Asphalt** and base rock						
	0.5-1.5' **Sand**, clayey, tan	SC		1		20 8 20	No detectable odors
2							
	3-3.5' **Gravel**, clayey, sandy	GC					
4	4-5' **Sand**, clayey tan, loose	SC		2		8 6	
	5-5.5' **Clay**, sandy, dark, moist	CL				4	No odor detected
6		CL					
8							
	9-10.5' **Clay**, slightly plastic, blue-gray, moist-wet-moist, significant amount of organic debris - peat, grasses	CL		3		1 1 I	Slight odor
10		CL Pt					
			B.O.H. 10.5'				
12							