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

F

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

April 21, 2006

Mr. Dale Klettke
Port of Oakland
530 Water St.
Oakland, CA 94621

Dear Mr. Klettke:

Subject: Fuel Leak Site Case Closure MOIA, South Field MF8, 9,10, 0 Taxiway, Oakland, CA 94621; Case No. RO000087

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 Health (ACEH) 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 140 ppm TPH as diesel and 10 ppm lead remain in soil at the site.
- Up to 480 ppb TPHg, 9200 ppb TPH as diesel, 7300 ppb TPH as jet fuel and 8.4 ppb MTBE remain in groundwater at this site.

If you have any questions, please call Barney Chan at (510) 567-6765. Thank you.

Sincerely,

Donna L. Drogos, P.E.
LOP and Toxics Program Manager

Enclosures:
1. Remedial Action Completion Certificate
2. Case Closure Summary

cc:
Mr. Leroy Griffin
OFD
250 Frank H. Ogawa Plaza, Suite 3341
Oakland, CA 94612

Mr. Toru Okamoto (w/enc)
State Water Resources Control Board
UST Cleanup Fund
P.O. Box 944212
Sacramento, CA 94244-2120

Files (w/orig enc), D. Drogos (w/enc), R. Garcia (w/enc)

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Subject: Fuel Leak Site Case Closure MOIA, South Field MF8, 9,10, 0 Taxiway, Oakland, CA 94621; Case No. RO000087

This letter confirms the completion of a site investigation and remedial action for the three underground storage tanks, 1- 5000 gallon gasoline and 2-1000 gallon diesel, 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 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, this agency finds that the site investigation and corrective action carried out at your underground storage tank(s) site is in compliance with the requirements of subdivisions (a) and (b) of Section 25299.37 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.77 of the Health and Safety Code and that no further action related to the petroleum release(s) at the site is required.

This notice is issued pursuant to subdivision (h) of Section 25299.37 of the Health and Safety Code.

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

Sincerely,

William W Pitcher
William Pitcher
Interim Director
Alameda County Environmental Health

Alameda County Environmental Health

CASE CLOSURE SUMMARY
LEAKING UNDERGROUND FUEL STORAGE TANK - LOCAL OVERSIGHT PROGRAM

I. AGENCY INFORMATION

Date: March 8, 2006

Agency Name: Alameda County Environmental Health	Address: 1131 Harbor Bay Parkway
City/State/Zip: Alameda, CA 94502-6577	Phone: (510) 567-6765
Responsible Staff Person: Barney Chan	Title: Hazardous Materials Specialist

II. CASE INFORMATION

Site Facility Name: MOIA, SOUTH FIELD MF8, 9, 10		
Site Facility Address: 0 Taxiway, Oakland, CA 94621		
RB Case No.: ----	Local Case No.: STID 6409	LOP Case No.: RO0000087
URF Filing Date: 6/21/99	SWEEPS No.: ---	APN: -----

Responsible Parties	Addresses	Phone Numbers
Port of Oakland, Dale Klettke	530 Water St., Oakland, CA 94607	510-627-1118

Tank I.D. No	Size in Gallons	Contents	Closed In Place/Removed?	Date
MF-08	5000	Gasoline	Removed	4/26/99
MF-09	1000	Diesel	Removed	4/26/99
MF-10	1000	Diesel	Removed	4/26/99
Piping			Removed	4/26/99

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and Type of Release: unknown	
Site characterization complete? Yes	Date Approved By Oversight Agency: -----

Monitoring wells installed? Yes	Number: 4	Proper screened interval? 3-10' bgs
Highest GW Depth Below Ground Surface: 1.55'	Lowest Depth: 6.3'	Flow Direction: southeast-east
Most Sensitive Current Use: Potential drinking water source.		

Summary of Production Wells in Vicinity: no production wells identified within a ½ mile radius of site.	
Are drinking water wells affected? No	Aquifer Name: Oakland Subarea, East Bay Plain
Is surface water affected? No	Nearest SW Name: Retention pond ~300' southeast and the SF Bay ~ 850' east
Off-Site Beneficial Use Impacts (Addresses/Locations): none	
Reports on file? Yes	Where are reports filed? ACEH and City of Oakland Fire Dept.

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL

Material	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date
Tank	1-5000 gallon 2-1000 gallon	Disposed at ECI, Richmond, CA	4/26/99
Piping	250 pounds	Disposed at ECI, Richmond, CA	4/26/99
Free Product/ Liquid	411 gallons	Disposed at Industrial Service Oil, LA, CA	4/21/99
Soil	67 tons 193.84 tons	Disposed at Altamont Landfill, Livermore, CA Disposed at Republic Services, Livermore	4/30/99 6/8/05
Groundwater	4040 gallons 8500 gallons	Disposed at Industrial Services Oil, LA, CA Disposed at Instrat, Inc., Rio Vista, CA	4/28 & 4/29/99 6/2, 6/3 & 6/6/05

MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS BEFORE AND AFTER CLEANUP
(Please see Attachments for additional information on contaminant locations and concentrations)

Contaminant	Soil (ppm)		Water (ppb)	
	Before	After	Before [1]	After [2]
TPH (Gas)	4300	<1	42,000 380,000	480
TPH (Diesel)	39,000	140	54,000 1700	9200
TPH (Jet Fuel)	---	----	----	7300
Oil & Grease	---	-----	----	<500
Benzene	1.4	<0.005	620/1500	<0.5
Toluene	87	<0.005	3100/11000	<0.5
Ethylbenzene	65	<0.005	270/37000	<0.5
Xylenes	540	<0.005	8900/600	<0.5
MTBE * (groundwater results)	5.5	<0.005	20,000/28,000	*3.0
Heavy Metals- lead	10	10	NA	NA
Other (8240/8270) **	**		ND	ND

[1] post purge/ pre purge values from tank pits, MTBE results EPA 8020

[2] grab groundwater sample from UST over-excavation, 6/2/05

* 8.4 ppb MTBE, <1 ppb TAME, <1ppb ETBE, <2 ppb DIPE, <10 ppb TBA, <50 ppb EtOH <1 ppb EDB, and <1 ppb EDC , EPA 8260

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

* * PAHs were reported in soil sample SB-4, however, their source is believed to be from the asphalt cap material. No PAHs were detected in the groundwater sample from SB-4.

Site History and Description of Corrective Actions:

This site is the former South Field Airport Self-Fueling Facility, now occupied by a heli-pad, covering approximately one acre near Taxiway U at the Metropolitan Oakland International Airport (MOIA). See Attachment 1 for the site and vicinity. The three fuel tanks were installed around 1985 for fueling of tenant owned vehicles. Two USTs, MF09 and MF10, each 1000 gallon capacity held diesel fuel and were located in a common cavity. The third UST, MF08, 5000 gallons in capacity, held unleaded gasoline. The three tanks were single walled steel constructed, coated with tar and buried at a depth of approximately 3' bgs. They were held down by concrete deadmen due to the shallow groundwater conditions. All three tanks, ancillary piping and residual contents (approximately 411 gallons) were removed from the site on 4/26/99. A pre-purge groundwater sample from each pit was collected on 4/22/99 prior to removing the USTs. After tank removal and groundwater purging of approximately 4000 gallons of water, another grab groundwater sample was collected on 4/30/99, which generally exhibited lower contaminant concentrations.

A total of eight (8) sidewall soil samples were collected from the two pits. In the gasoline tank pit soil samples, up to 4,300 ppm TPHg, 6,200 ppm TPHd, and 1.4, 87, 65, 540, 5.5 ppm BTEX and MTBE, respectively was found. In the diesel tank pit samples, up to 39,000 ppm TPHd, 3,000 ppm TPHg and 1.5,3.4,38 ppm TEX, respectively was detected. MTBE and benzene were not reported in the diesel pit samples. The grab groundwater samples, collected at a depth of ~4.5' bgs exhibited elevated TPH levels up to 380,000 ppb gas, 54,000 ppb diesel and 1500, 11000, 37000, 8900 and 28000 ppb BTEX and MTBE, respectively. MTBE was analyzed by EPA Method 8020 and likely yielded biased high results since the highest confirmed MTBE result using EPA Method 8260 has been only 4500 ppb. The purged samples exhibited lower concentrations. The groundwater concentrations are indicative of potential free product, however, it is possible contaminated soil may have contributed to some of the reported contamination. See Attachment 2 for soil locations and Tables 3 and 4 for analytical results.

On August 31, 1999, eight geoprobe borings were advanced around the former tank area in an attempt to determine the lateral extent of contamination. Each boring was extended to a depth of 8' bgs. A soil sample was collected from each borehole from depths ranging from 5.5-6' bgs. A grab groundwater sample was then collected from a 0.02" slotted casing placed within each of the borings. Groundwater elevation was measured in the temporary wells and gradient estimated to be southwesterly. The soil sample with the highest diesel concentration was also analyzed for PAHs as was the grab groundwater sample from this boring. Though PAHs were detect in the soil sample, they were ND in the groundwater from this boring. The soil results indicated that the release from each of the UST pits is localized. The groundwater results indicated that both TPHg, BTEX and MTBE plumes appeared limited in lateral extent. PAHs were detected in the soil sample from SB-4, however given the large number of compounds detected, it is not likely that their source is from the diesel release, but rather from the asphalt cap. Bio-indicator parameters were also run on groundwater samples. See Attachments 3 & 4 for cumulative location and contaminant concentrations in soil and groundwater. Tables 1 and 2 are a summary of soil and groundwater analytical data and RBSLs for the exposure pathways evaluated.

On April 27, 2000, four monitoring wells, MW-1 through MW-4, were installed at the site. Each well was installed to a depth of 10' and screened from 3 to 10' bgs. Soils encountered were generally poorly graded sands. At about 5' bgs, the sand color changes to gray and trace amounts of clay and shell fragments appear. See Attachment 5, (Plates A-2 through A-5) for boring logs. Soil samples were collected from each well boring ranging in depth from 3-4.5'. These samples were analyzed for TPHg, TPHd, BTEX, MTBE and total lead. Little to no analytes were detected in these soil samples. The initial gradient was southeasterly and only diesel ranging from 51-210 ppb and MTBE ranging from ND to 17 ppb was detected in the groundwater. Groundwater monitoring has continued for four quarters with generally low levels of detectable contaminants. The flow direction has been southeasterly for four of the five monitoring events.

On June 1, 2005, the two former locations of these tanks were over-excavated to a depth of approximately 10' bgs. Groundwater was encountered at approximately 8' bgs in both excavations. PID readings were taken prior to sampling the sidewalls of each excavation. Three soil samples were collected from the former gasoline tank pit and three from the former diesel tank pit. The samples were taken at the soil water interface. Approximately 8500 gallons of groundwater was removed from the tank pits prior to sampling. The samples were analyzed for TPHd, TPHmo, TPH as jet fuel, TPHg, BTEX, MTBE and oxygenates and the lead scavengers, EDB and EDC. With the exception of 140 ppm TPHd, all other results from the soil samples were ND. The grab groundwater samples from the tank excavations reported up to 9200 ppb TPHd, 7300 ppb TPH as jet fuel, 480 ppb TPHg and 0.98, 1.4, 5.2, 44, 0.54 ppb BTEX and MTBE, respectively. It is noted that these concentrations are significantly less than the

groundwater results taken after the initial tank removals. See Attachment 6 for sample locations and Table 5 for soil and groundwater results.

Based upon the existing data, it appears that the lateral and vertical extent of soil and groundwater contamination has been determined. In addition, it also appears that most of the impacted soil from the UST releases has been removed and that groundwater contamination is confined to the former tank areas and has not impacted down-gradient of these areas. The nearest surface water is a shallow water retention pond approximately 300' southeast and the SF Bay approximately 850' east of MW-4. Shallow groundwater beneath the site is not considered a potential drinking water source since conductivity has been measured as high as 5750 uS/cm. As such, groundwater ingestion is not considered as a viable pathway. Given the location of this site, within the Oakland Airport, residential exposure and industrial direct contact is not likely and these pathways are also not considered complete.

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? Yes No		
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? Yes No		
Does corrective action protect public health for current land use? Alameda County Environmental Health staff does not make specific determinations concerning public health risk. However, based upon the information available in our files to date, it does not appear that the release would present a risk to human health based upon current land use and conditions.		
Site Management Requirements: Case closure for this site is granted for industrial use only. If a change in land use to residential or other conservative scenario occurs at this property, Alameda County Environmental Health must be notified and the case be re-evaluated. The site will be placed in the City of Oakland Permit Tracking System. Any subsurface work at the site requires a health and safety plan to address potential petroleum hydrocarbon impacted soil and groundwater.		
Should corrective action be reviewed if land use changes? Yes		
Was a deed restriction or deed notification filed? No		Date Recorded: NA
Monitoring Wells Decommissioned: Yes	Number Decommissioned: 4	Number Retained: 0
List Enforcement Actions Taken: None		
List Enforcement Actions Rescinded: None		

V. ADDITIONAL COMMENTS, DATA, ETC.

Considerations and/or Variances:

- Two of the four monitoring wells are located cross-gradient to the former tank pits, one well is located adjacent to the former gasoline tank pit and the fourth well, while being down-gradient of the tank pits, is located approximately 150' from the former diesel tanks. However, soil borings were drilled and grab groundwater samples taken in locations directly down-gradient of the former tanks. These results show a limited TPH plume and a narrow and decreasing MTBE plume.
- The vertical extent of contamination was not determined in the wells. Wells were screened within the first water bearing zone, where only sands were encountered.

Conclusion:

The site is totally surfaced as is currently being used as a heliport area. Alameda County Environmental Health staff believe that the levels of residual contamination do not pose a significant threat to water resources, public health and safety, and the environment under the current commercial land use based upon the information available in our files to date. Residual soil and groundwater contamination in vicinity of former USTs appears localized and attenuating. ACEH staff recommend closure for this site.

VI. LOCAL AGENCY REPRESENTATIVE DATA

Prepared by: Barney Chan	Title: Hazardous Materials Specialist
Signature: Barney Chan	Date: 03/17/06
Approved by: Donna L. Drogos, P.E.	Title: Supervising Hazardous Materials Specialist
Signature: Donna L. Drogos	Date: 03/17/06

This closure approval is based upon the available information and with the provision that the information provided to this agency was accurate and representative of site conditions.

VII. REGIONAL BOARD NOTIFICATION

Regional Board Staff Name: Cherie McCaulou	Title: Engineering Geologist
RB Response: Concur, based solely upon information contained in this case closure summary.	Date Submitted to RB: 3/21/06
Signature: C. McCaulou	Date: 4/13/06

VIII. MONITORING WELL DECOMMISSIONING

Date Requested by ACEH: ---	Date of Well Decommissioning Report: 7/9/05	
All Monitoring Wells Decommissioned: Yes	Number Decommissioned: 4	Number Retained: 0
Reason Wells Retained: ---		
Additional requirements for submittal of groundwater data from retained wells: ---		
ACEH Concurrence - Signature: Barney Chan		Date: 03/17/06

Attachments:

1. Site Vicinity Map
2. UST Removal Soil Locations and Analytical Data (Table 3 & 4)
3. Soil Boring Locations and Soil Analytical Data
4. Soil Boring Locations and Groundwater Data
   Tables 1 & 2, Summary of Soil and Groundwater Analytical Results
5. Boring Logs, MW1 through MW-4
6. Soil Sample Locations after Over-Excavation and Table 5, Analytical Data

This document and the related CASE CLOSURE LETTER & REMEDIAL ACTION COMPLETION CERTIFICATE shall be retained by the lead agency as part of the official site file.

VI. LOCAL AGENCY REPRESENTATIVE DATA

Prepared by: Barney Chan	Title: Hazardous Materials Specialist
Signature: Barney Chan	Date: 03/17/06
Approved by: Donna L. Drogos, P.E.	Title: Supervising Hazardous Materials Specialist
Signature: Donna L. Drogos	Date: 03/17/06

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Signature:	Date:

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Additional requirements for submittal of groundwater data from retained wells: ---		
ACEH Concurrence - Signature: Barney Chan		Date: 03/17/06

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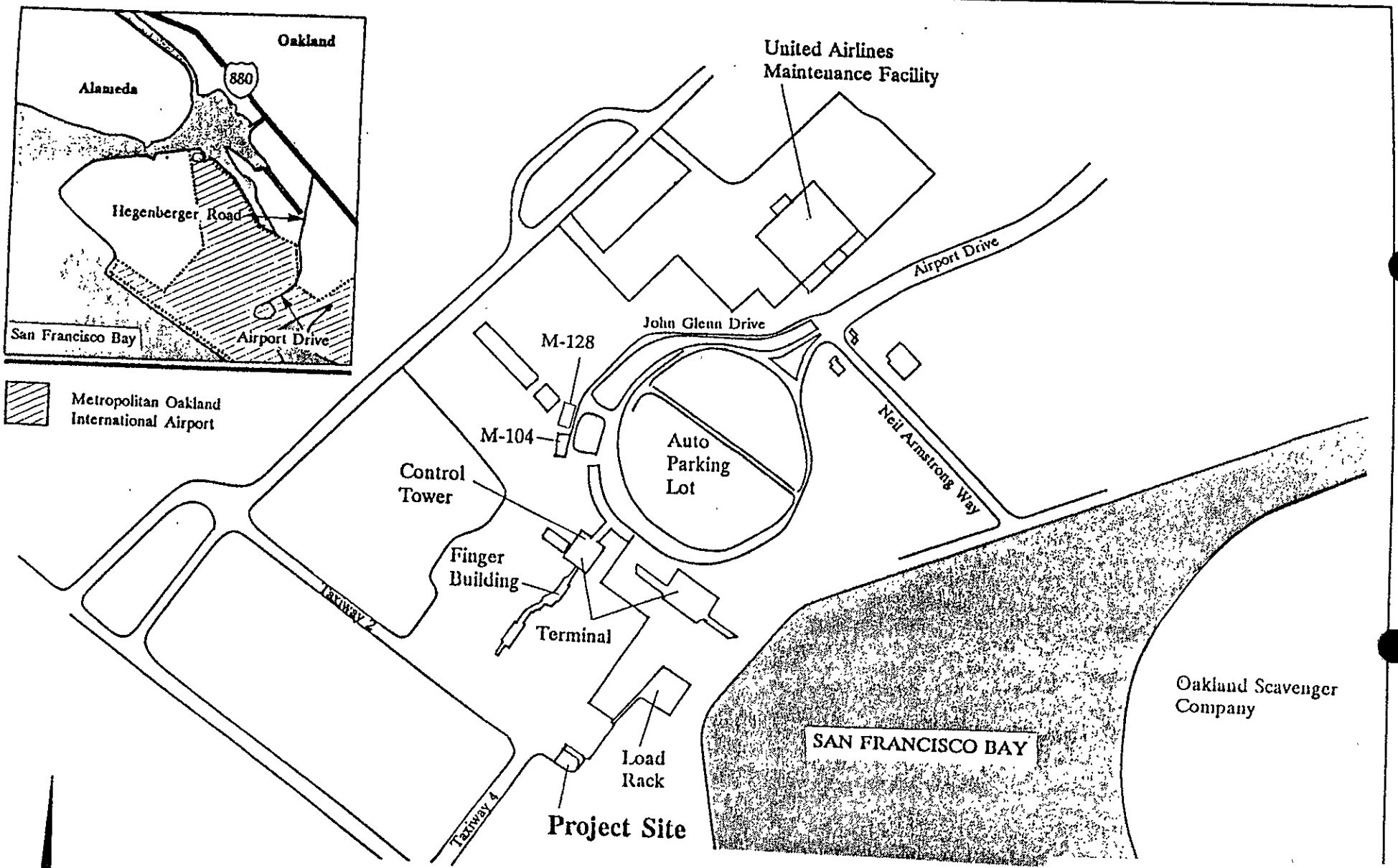
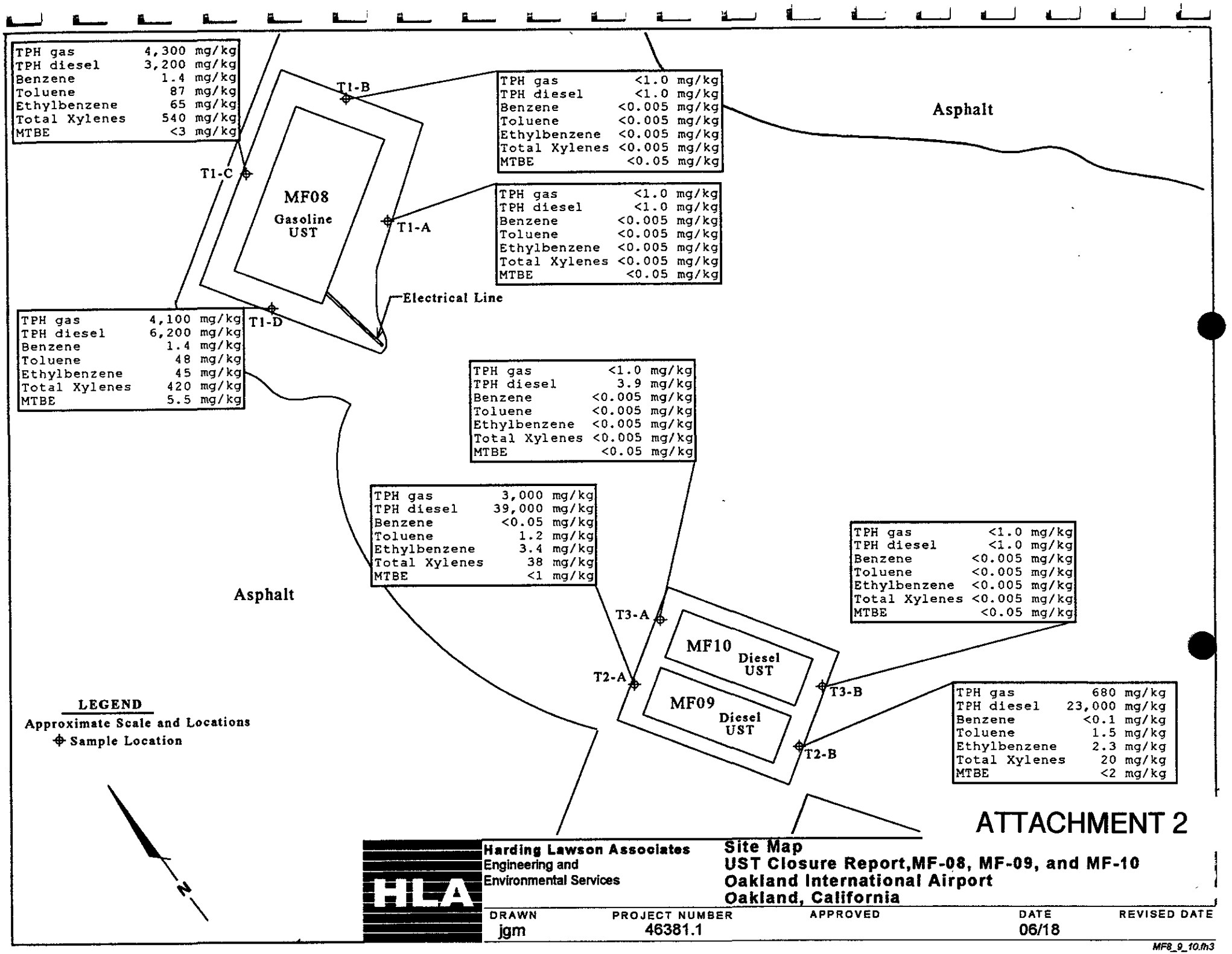


ATTACHMENT 1

Harding Lawson Associates
Engineering and Environmental Services

Site Location Map
UST Closure Report, MF-08, MF-09, and MF-10
Oakland International Airport
Oakland, California

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
jgm				



ATTACHMENT 2

Harding Lawson Associates
Engineering and
Environmental Services

Site Map
UST Closure Report,MF-08, MF-09, and MF-10
Oakland International Airport
Oakland, California

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
jgm	46381.1		06/18	

MF8_9_10.fh3

Results of Analyses of Soil and Groundwater Samples
UST Closure Report MF- 08, MF-09, and MF-10
Oakland International Airport
Oakland, California

Table 3 Soil Samples Analytical Results

Sample Location	Sample Depth	Date Sampled	TPH gas (mg/kg)	TPH diesel (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	Lead (mg/kg)
T1-A	3.5'	04/26/99	ND<1.0	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.05	NA
T1-B	3.5'	04/26/99	ND<1.0	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.05	NA
T1-C	3.5'	04/26/99	4,300	3,200	1.4	87	65	540	ND<3	NA
T1-D	3.5'	04/26/99	4,100	6,200	1.4	48	45	420	5.5	NA
T2-A	3.5'	04/26/99	3,000	39,000	ND<0.05	1.2	3.4	38	ND<1	NA
T2-B	3.5'	04/26/99	680	23,000	ND<0.1	1.5	2.3	20	ND<2	NA
T3-A	3.5'	04/26/99	ND<1.0	3.9	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.05	NA
T3-B	3.5'	04/26/99	ND<1.0	ND<1.0	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.05	NA
101	SP	04/22/99	41	110	ND<0.005	0.039	0.410	0.036	ND<0.005	0.10
102	SP	04/22/99	17	560	ND<0.005	0.025	ND<0.87	ND<0.005	ND<0.005	10
PRGs		–	–	–	1.4	5,200	2,300	210a	–	1,000

Table 4 Groundwater Samples Analytical Results

Sample Location	Date Sampled	TPH gas (mg/l)	TPH diesel (mg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Total Xylenes (µg/l)	MTBE (µg/l)
Gas Pit	04/22/99	380	NA	1,500	11,000	37,000	600	28,000
Diesel Pit	04/22/99	NA	0.64	ND<0.5	5.4	97	1.9	ND<0.5
Gas Pit	04/30/99	42	1.7	620	3,100	270	8,900	15,000
Diesel Pit	04/30/99	120	54	ND<500	ND<500	ND<500	ND<500	ND<2,500
MCL		–	–	1.0	150	700	1,750	–

-- = Not available
mg/l - milligrams per kg
mg/l - milligrams per liter
µg/l - micrograms per liter
SP - stockpile samples

NA = Not analyzed for this analyte
TPH gas - total petroleum hydrocarbons as gasoline
TPH diesel - total petroleum hydrocarbons as diesel
TPH motor oil - total petroleum hydrocarbons as motor oil
MTBE - methyl t-butyl ether

PRG - preliminary remediation goal for Industrial Soil as published by the Environment Protection Agency, Region 9, 1998
MCL - maximum concentration limit as published by the California Water Quality Control Board, 1995
a - value use is for m-xylene which is the most conservative

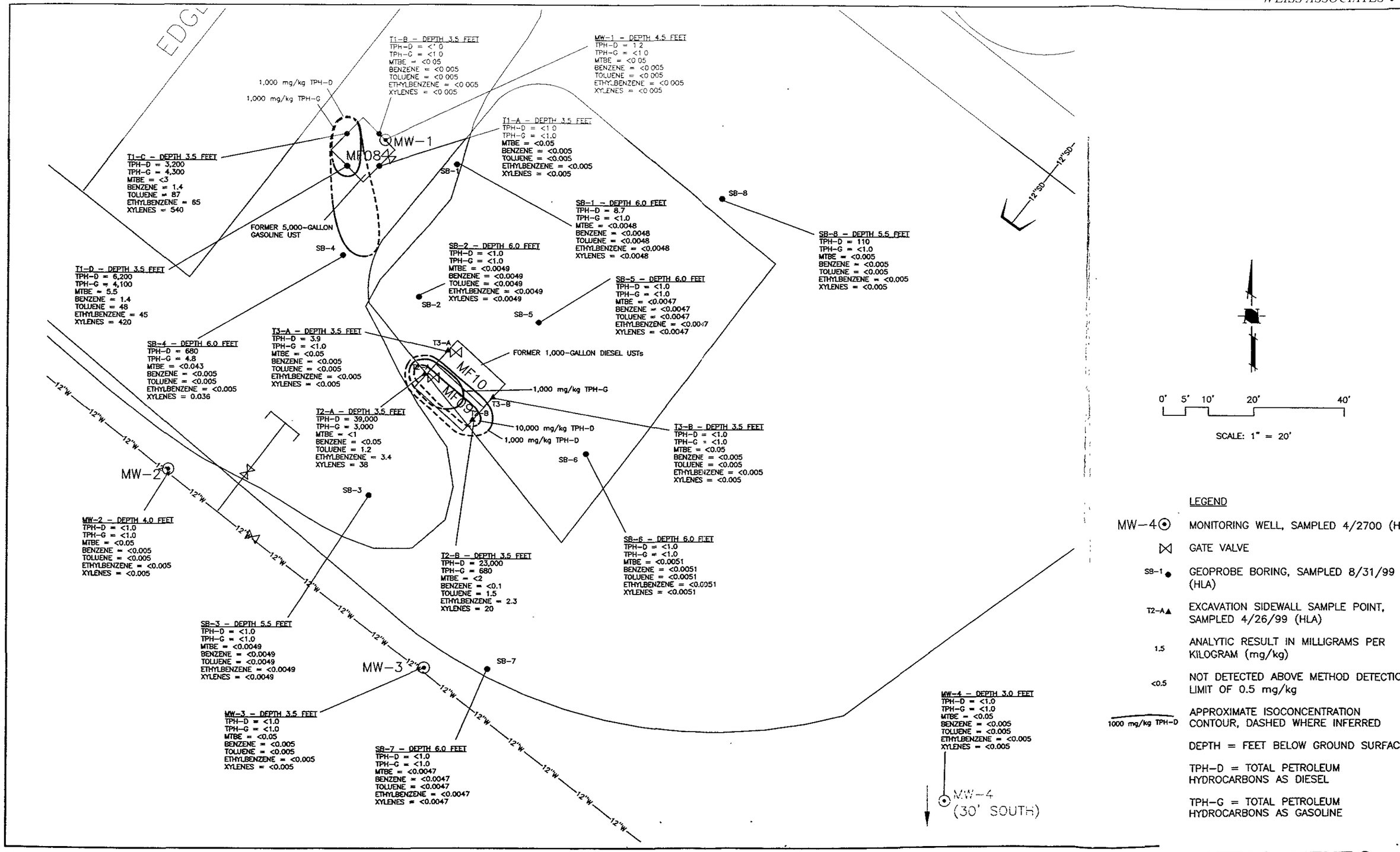


Figure 3. Soil Sample Locations and Summary of Analytic Results, South Airport Self-Fueling Facility, Taxiway U, Metropolitan Oakland International Airport

ATTACHMENT 3

FILE: L:\Oakland.259\South Field\1541-SF-02.dwg

DATE: 06/13/02 - 5:15pm

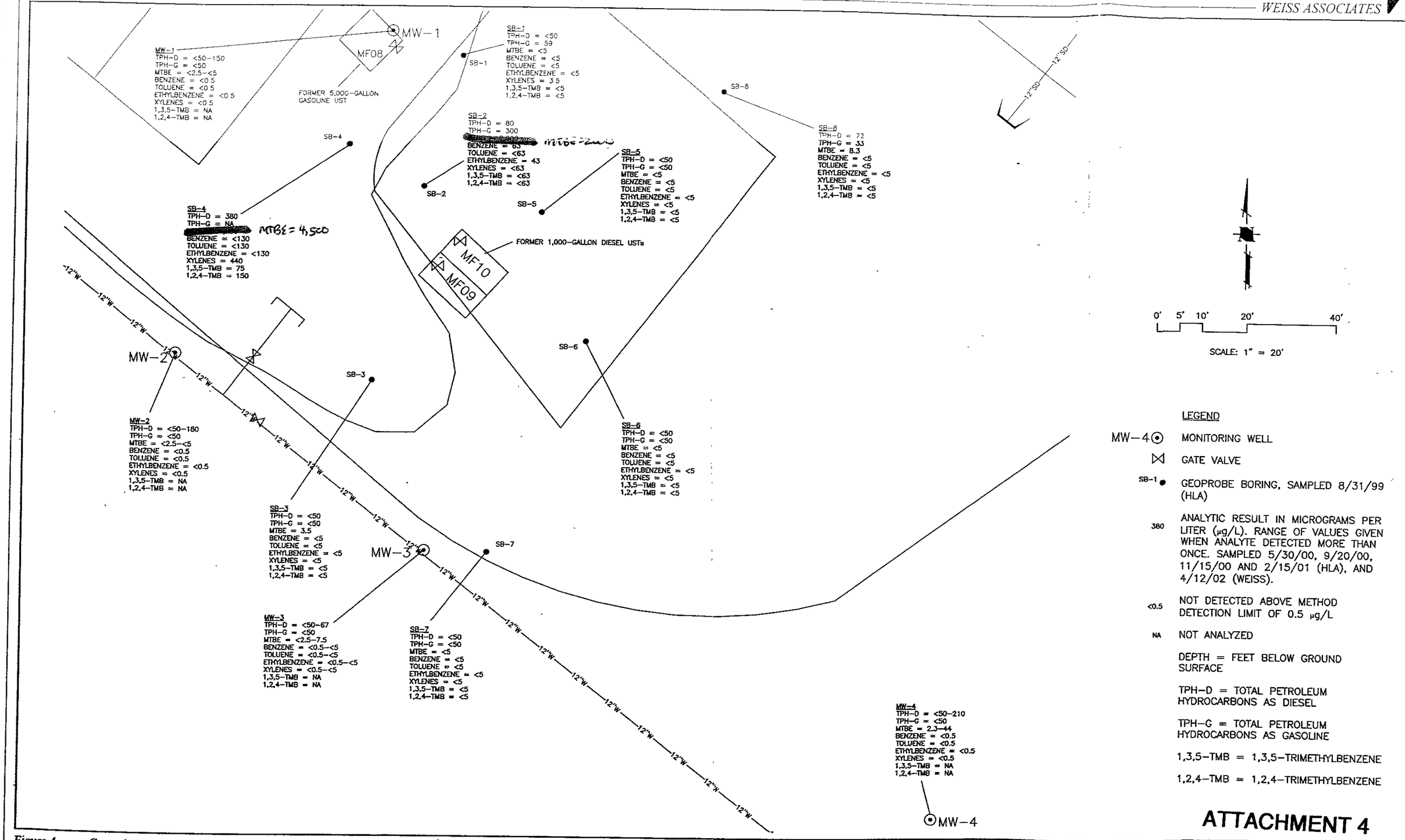


Figure 4. Groundwater Sample Locations and Summary of Analytic Results, South Airport Self-Fueling Facility, Taxiway U, Metropolitan Oakland International Airport

FILE: L:\Oakland.259\South Field\1541-SF-04.dwg

DATE: 06/13/02 - 5:01pm

Table 1. Summary of Analytical Results for COCs in Soil, South Airport Self-Fueling Facility, Taxiway U, Metropolitan Oakland International Airport, Oakland, California

Sample Location	Sample Date[1]	Lab	Depth (ft bgs)	TPH-D	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Total Xylenes	Lead
				← mg/kg →							
101	22-Apr-99	MOB	IDW	110	41	<0.005	<0.005	0.039	0.410	0.036[e]	0.10
102	22-Apr-99	MOB	IDW	560	17	<0.005	<0.005	0.025	<0.87	<0.005	10
T1-A	26-Apr-99	MCA	3.5	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---
T1-B	26-Apr-99	MCA	3.5	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---
T1-C	26-Apr-99	MCA	3.5	*3,200*	*4,300*	<3	*1.4*	*87*	*65*	*540*[e]	---
T1-D	26-Apr-99	MCA	3.5	*6,200*	*4,100*	*5.5*	*1.4*	*48*	*45*	*420*[e]	---
T2-A	26-Apr-99	MCA	3.5	*39,000*	*3,000*	<1	<0.05	1.2	3.4	*38*[e]	---
T2-B	26-Apr-99	MCA	3.5	*23,000*	*680*	<2	<0.1	1.5	2.3	*20*[e]	---
T3-A	26-Apr-99	MCA	3.5	3.9	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---
T3-B	26-Apr-99	MCA	3.5	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	---
SB-1	31-Aug-99	CT	6.0	8.7[a,c]	<1.0	<0.0048	<0.0048	<0.0048	<0.0048	<0.0048	---
SB-2	31-Aug-99	CT	6.0	<1.0	<1.0	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	---
SB-3	31-Aug-99	CT	5.5	<1.0	<1.0	<0.0049	<0.0049	<0.0049	<0.0049	<0.0049	---
SB-4	31-Aug-99	CT	6.0	*680*[a,b]	4.8[c]	0.043	<0.0050	<0.0050	<0.0050	0.036[f]	---
SB-5	31-Aug-99	CT	6.0	<1.0[d]	<1.0	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	---
SB-6	31-Aug-99	CT	6.0	<1.0	<1.0	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	---
SB-7	31-Aug-99	CT	6.0	<1.0	<1.0	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	---
SB-8	31-Aug-99	CT	5.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---
Drum 4223	27-Apr-00	SEQ	IDW	13	<1	<0.05	<0.005	<0.005	<0.005	<0.005	2.5
Drum 4230	27-Apr-00	SEQ	IDW	1.2	<1	<0.05	<0.005	<0.005	<0.005	<0.005	3.0
MW-1	27-Apr-00	SEQ	4.5	1.2	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	1.9
MW-2	27-Apr-00	SEQ	4.0	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	1.0
MW-3	27-Apr-00	SEQ	3.5	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	<1.0
MW-4	27-Apr-00	SEQ	3.0	<1.0	<1.0	<0.05	<0.005	<0.005	<0.005	<0.005	3.2
• Industrial/Commercial Ceiling Level RBSL[2]				1,000	1,000	500	1.000	520	230	210	2,500
• Groundwater Protection RBSL[3]				500	400	1.0	2.1	8.4	24	1.0	NA
Construction Worker Direct-Contact RBSL[4]				79,000[4]	79,000[4]	4,900	16	520	230	210	1,000
• Occupational Indoor Air RBSL[5]				NA	NA	69	0.39	89	220	210	NA
Analytic Method				8015M	8015M	8020	8020	8020	8020	8020	7420

Table 1. Summary of Analytical Results for COCs in Soil, South Airport Self-Fueling Facility, Taxiway U, Metropolitan Oakland International Airport, Oakland, California

Sample Location	Sample Date[1]	Lab	Depth (ft bgs)	TPH-D	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Total Xylenes	Lead
				mg/kg							

Notes and Abbreviations:

1 = April 1999 data from HLA, 1999a; August 1999 data from HLA, 1999b, April 2000 data from HLA, 2000

2 = RBSLs from Table H-2 (RWQCB, 2001)

3 = RBSLs from Tables B-1 and G (RWQCB, 2001)

4 = RBSLs from Table K-3 for construction/trench worker direct-contact exposure (RWQCB, 2001), (4) for a non-carcinogenic hazard quotient of 1.0

5 = RBSLs from Table E-1 for occupational indoor air exposure (RWQCB, 2001)

3,200 = exceeds groundwater protection RBSL & ceiling level for nuisance concerns

680 = exceeds groundwater protection RBSL

3,000 = exceeds indoor air RBSL

420 = exceeds groundwater protection, construction worker, and indoor air RBSL

7420 = analysis by USEPA Method 7420 for lead

8015M = analysis by USEPA Method 8015M for TPH-D and TPH-G

8020 = analysis by USEPA Method 8020 for BTEX and MTBE

--- = not analyzed

<N = not detected at or above the laboratory detection limit of "N" mg/kg

a = sample exhibits fuel pattern which does not resemble standard

b = lighter hydrocarbons than indicated standard

c = heavier hydrocarbons than indicated standard

d = Did not meet QA/QC limits for surrogate recovery. The sample was re-extracted outside the hold time with the same results: <1.0

e = value is for total xylenes; constituent values not available

f = sum of m,p-xylene and o-xylene

CT = Curtis & Tompkins, Ltd., Berkeley, California

ft bgs = feet below ground surface

IDW = investigative-derived waste sample; depth not applicable

MCA = McCampbell Analytical, Inc., Pacheco, California

mg/kg = milligrams per kilogram

MOB = Mobile Chem Labs, Inc., Lafayette, California

MTBE = methyl tertiary butyl ether

NA = not available

NE = not evaluated

RBSL = risk based screening level

SEQ = Sequoia Analytical, Walnut Creek, California

TPH-D = total petroleum hydrocarbons as diesel; RBSL equivalent to pyrene's

TPH-G = total petroleum hydrocarbons as gasoline; RBSL equivalent to pyrene

Table 2. Summary of Analytical Results for COCs in Groundwater, South Airport Self-Fueling Facility, Taxiway U, Metropolitan Oakland International Airport, Oakland, California

Sample Location	Sample Date[1]	Lab	TPH-D	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Total Xylenes	1,3,5-Trimethylbenzene	1,2,4-Trimethylbenzene
			← mg/L →								
Diesel Pit	22-Apr-99	MOB	640	NA	<0.5	<0.5	5.4	97	1.9[f]	---	---
Diesel Pit	30-Apr-99	SEQ	*54,000*	*120,000*	<2,500	<500	<500	<500	<500	---	---
Gas Pit	22-Apr-99	MOB	NA	*380,000*	*28,000*	*1,500*	*11,000*	*37,000*	*600[f]*	---	---
Gas Pit	30-Apr-99	SEQ	*1,700*	*42,000*	*15,000*	*620*	*3,100*	270	*8,900[f]*	---	---
SB-1	31-Aug-99	CT	<50	59	<5.0	<5.0	<5.0	<5.0	3.5[f]	<5.0	<5.0
SB-2	31-Aug-99	CT	80[ab]	300	*2,000*	63	<63	43[e]	<63	<63	<63
SB-3	31-Aug-99	CT	<50	<50	3.5[e]	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
SB-4	31-Aug-99	CT	380[ab]	---	*4,500*	<130	<130	<130	*440[e,f]*	75[e]	150
SB-5	31-Aug-99	CT	<50	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
SB-6	31-Aug-99	CT	<50	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
SB-7	31-Aug-99	CT	<50	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
SB-8	31-Aug-99	CT	72[ab]	33	8.3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-1	30-May-00	SEQ	60[d]	<50	<2.5/<2.5	<0.5	<0.5	<0.5	<0.5	---	---
MW-1	20-Sep-00	SEQ	<50	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---	---
MW-1	15-Nov-00	SEQ	58[e]	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---	---
MW-1	15-Feb-01	SEQ	150[e]	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---	---
MW-1	12-Apr-02	STL	<50	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---	---
MW-1 (dup)	12-Apr-02	STL	<50	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---	---
MW-2	30-May-00	SEQ	51[d]	<50	<2.5/<2.5	<0.5	<0.5	<0.5	<0.5	---	---
MW-2	20-Sep-00	SEQ	<50	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---	---
MW-2	15-Nov-00	SEQ	57[e]	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---	---
MW-2	15-Feb-01	SEQ	180[e]	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---	---
MW-2	12-Apr-02	STL	<50	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---	---
MW-3	30-May-00	SEQ	60[d]	<50	7.5/2.6	<0.5	<0.5	<0.5	<0.5	---	---
MW-3	20-Sep-00	SEQ	<50	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---	---
MW-3	15-Nov-00	SEQ	67[e]	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---	---
MW-3	15-Feb-01	SEQ	<50	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---	---
MW-3	12-Apr-02	STL	<50	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---	---
MW-4	30-May-00	SEQ	210[d]	<50	19/17	<0.5	<0.5	<0.5	<0.5	---	---
MW-4	20-Sep-00	SEQ	<50	<50	32/42	<0.5	<0.5	<0.5	<0.5	---	---
MW-4	15-Nov-00	SEQ	70[e]	<50	32/44	<0.5	<0.5	<0.5	<0.5	---	---
MW-4	15-Feb-01	SEQ	<50	<50	2.6/2.3	<0.5	<0.5	<0.5	<0.5	---	---
MW-4	12-Apr-02	STL	<50	<50	8.4	<0.5	<0.5	<0.5	<0.5	---	---
Ceiling Level RBSL[2]			5,000	5,000	1,800	20,000	400	300	5,300	NA	NA
Surface Water Protection RBSL[3]			640	500/3,700	66,000/8,000	46/700	130/5,000	290/430	13	NA	NA
Occupational Indoor Air RBSL[4]			NA	NA	290,000	84	76,000	170,000	150,000	NA	NA
Analytic Method			8015M	8015M	8020/8260	8020/8260	8020/8260	8020/8260	8020/8260	8260	8260

Table 2. Summary of Analytical Results for COCs in Groundwater, South Airport Self-Fueling Facility, Taxiway U, Metropolitan Oakland International Airport, Oakland, California

Sample Location	Sample Date[1]	Lab	TPH-D	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Total Xylenes	1,3,5-Trimethylbenzene	1,2,4-Trimethylbenzene
			mg/L								

Notes and Abbreviations:

1 = April 1999 data from HLA, 1999a; August 1999 data from HLA, 1999b, April 2000 data from HLA, 2000; April 2002 data reported in this document

2 = RBSLs from Table 1-2 (RWQCB, 2001)

3 = RBSLs from Tables F-4a,b,c,d (RWQCB, 2001), where two values given, the first is freshwater and the second is saltwater

4 = RBSLs from Table F-2 (RWQCB, 2001)

2,000 = exceeds ceiling level RBSL

1,700 = exceeds surface water protection RBSL; saltwater value used if available

15,000 = exceeds ceiling level and surface water protection RBSLs (saltwater if avail.)

620 = exceeds indoor air RBSL

1,500 = exceeds surface water protection and indoor air RBSLs

8015M = analysis by USEPA Method 8015M for TPH-D and TPH-G

8020 = analysis by USEPA Method 8020 for BTEX or MTBE by gas chromatograph (GC), STL confirms detections by mass spectrometer (MS)

8260 = analysis by USEPA Method 8260 for BTEX or MTBE by GC/MS

--- = not analyzed

<N = not detected at or above the laboratory detection limit of "N" µg/L

a = sample exhibits fuel pattern which does not resemble standard

b = lighter hydrocarbons than indicated standard

c = estimated value

d = chromatograph pattern: unidentified hydrocarbons >C16

e = chromatograph pattern: diesel C9-C24

f = sum of m,p-xylene and o-xylene

CT = Curtis & Tompkins, Ltd., Berkeley, California

dup = duplicate sample

µg/L = micrograms per liter

MOB = Mobile Chem Labs, Inc., Lafayette, California

MTBE = methyl tertiary butyl ether

NA = not available

RBSL = risk based screening level from Tables F-4a and F-4c of RWQCB, 2001

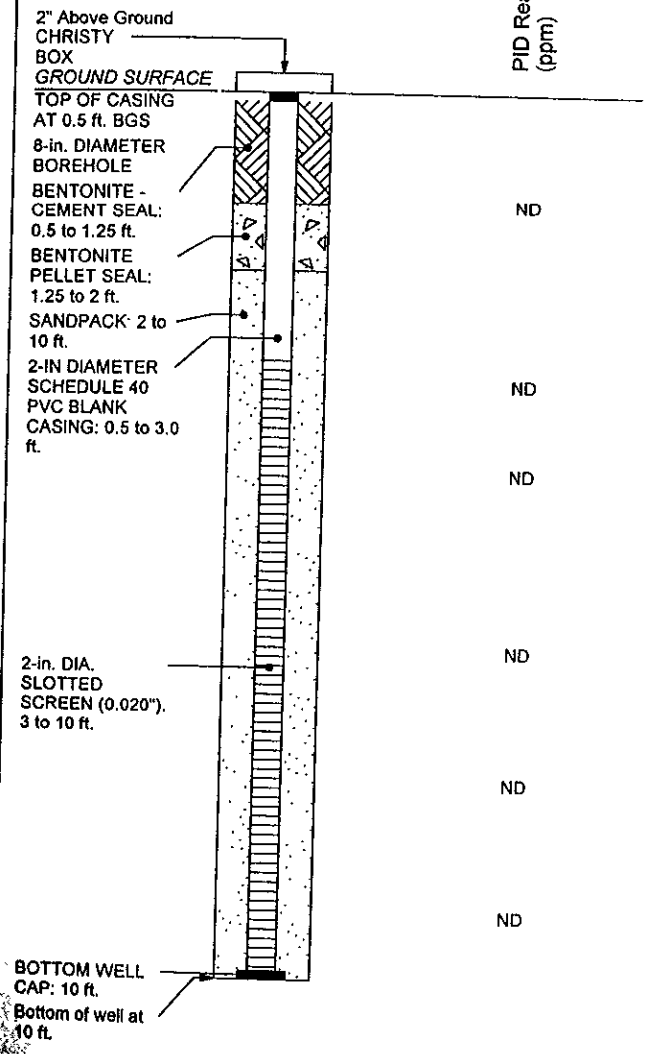
SEQ = Sequoia Analytical, Walnut Creek, California

STL = STL San Francisco, Pleasanton, California

TPH-D = total petroleum hydrocarbons as diesel

TPH-G = total petroleum hydrocarbons as gasoline

Top of PVC Casing
Elev. 8.28 ft.



PID Reading (ppm)	Depth (ft.)	Sample	
ND	0		LIGHT BROWN SAND (SP) Medium dense, damp
ND			Shell fragments
ND			Wet
	5		
ND			@ 6 ft.: Color change to gray
ND			
ND			
	10		Boring terminated at 10 ft.

Equipment Hollow Stem Auger
Hole Diameter 8 in.
Surface Elevation _____ **Date** 4/27/00
Reference Datum Port of Oakland

ATTACHMENT 5

Harding Lawson Associates
Engineering and Environmental Services

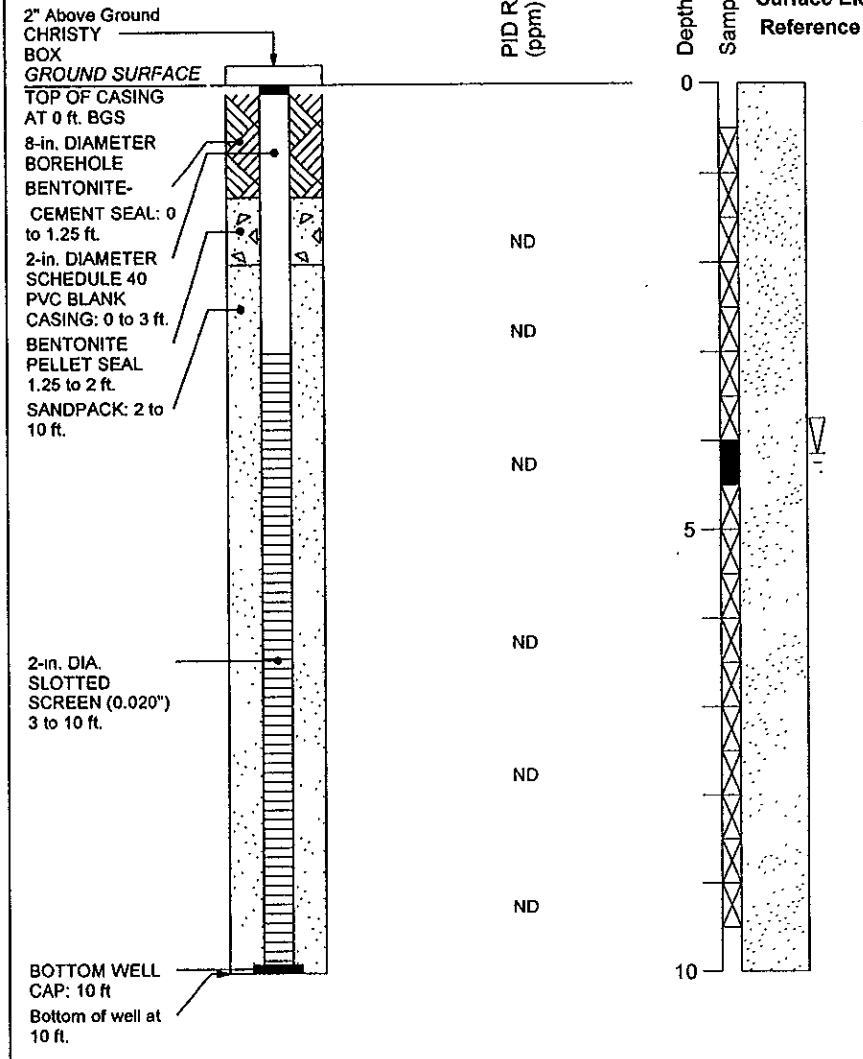
Log of Boring MW-1
Groundwater Monitoring Well Installation
South Airport Self-Fueling Facility, Taxiway U
Oakland, California

PLATE **A-2**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
PCB	49667 1	[signature]	8/00	

Top of PVC Casing
Elev. **6.41 ft.**

Equipment Hollow Stem Auger
Hole Diameter 8 in.
Surface Elevation _____ **Date** 4/27/00
Reference Datum Port of Oakland



Depth (ft.)	Sample	PID Reading (ppm)	
0			LIGHT BROWN SAND (SP) Medium dense, dry
		ND	
		ND	
		ND	@ 4.25 ft.: Wet
5			Color change to gray, loose, trace of clay
		ND	
		ND	@ 8.5 ft.: Color change to light brown
		ND	
10			Boring terminated at 10 ft.

BORING_WELL 49667.GPJ TEMP GDT 8/1/00

Harding Lawson Associates
Engineering and Environmental Services

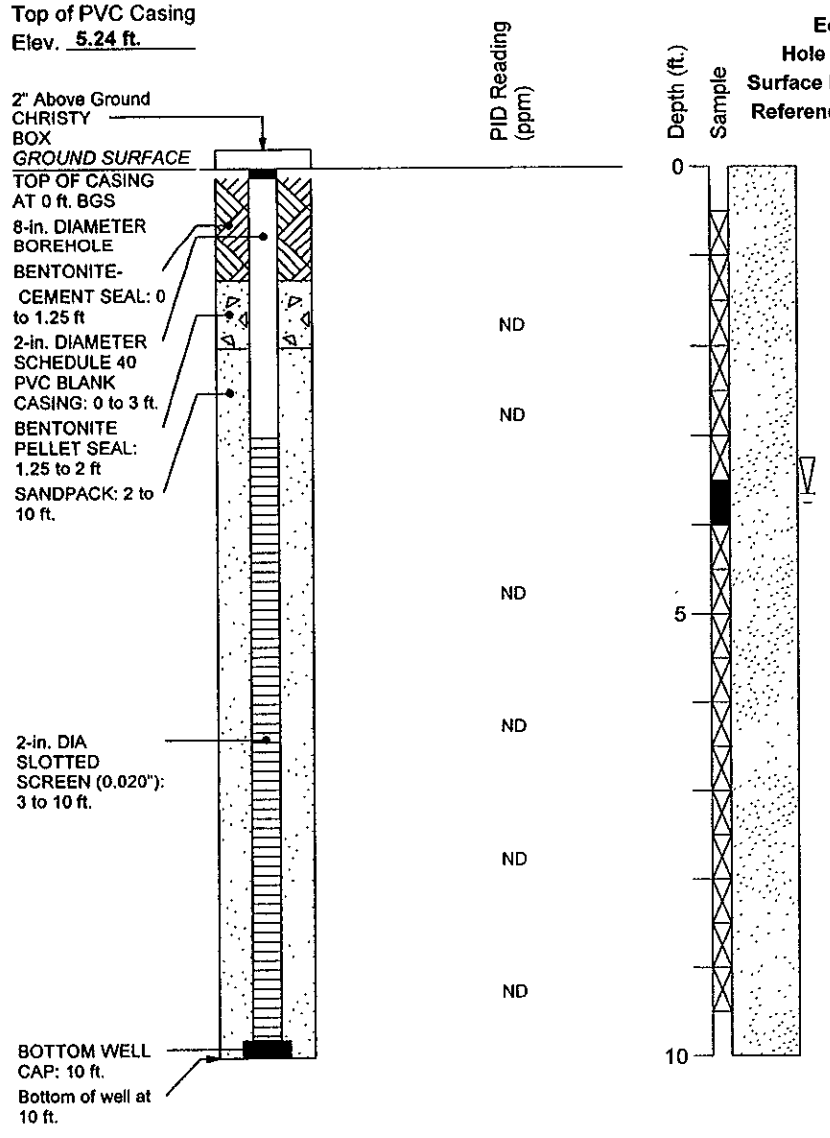
Log of Boring MW-2
Groundwater Monitoring Well Installation
South Airport Self-Fueling Facility, Taxiway U
Oakland, California

PLATE **A-3**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
PCB	49667 1		8/00	

Top of PVC Casing
Elev. 5.24 ft.

Equipment Hollow Stem Auger
Hole Diameter 8 in.
Surface Elevation _____ **Date** 4/27/00
Reference Datum Port of Oakland



PID Reading (ppm)	Depth (ft.)	Sample	
ND	0		LIGHT BROWN SAND (SP) Medium dense, dry
ND			Change to damp
			@ 3.75 ft.: Wet
ND	5		Color change to gray, loose, trace of clay
ND			
ND			
ND	10		Boring terminated at 10 ft.

BORING_WELL 49667.GPJ TEMP.GDT 8/1/00

Harding Lawson Associates
Engineering and
Environmental Services

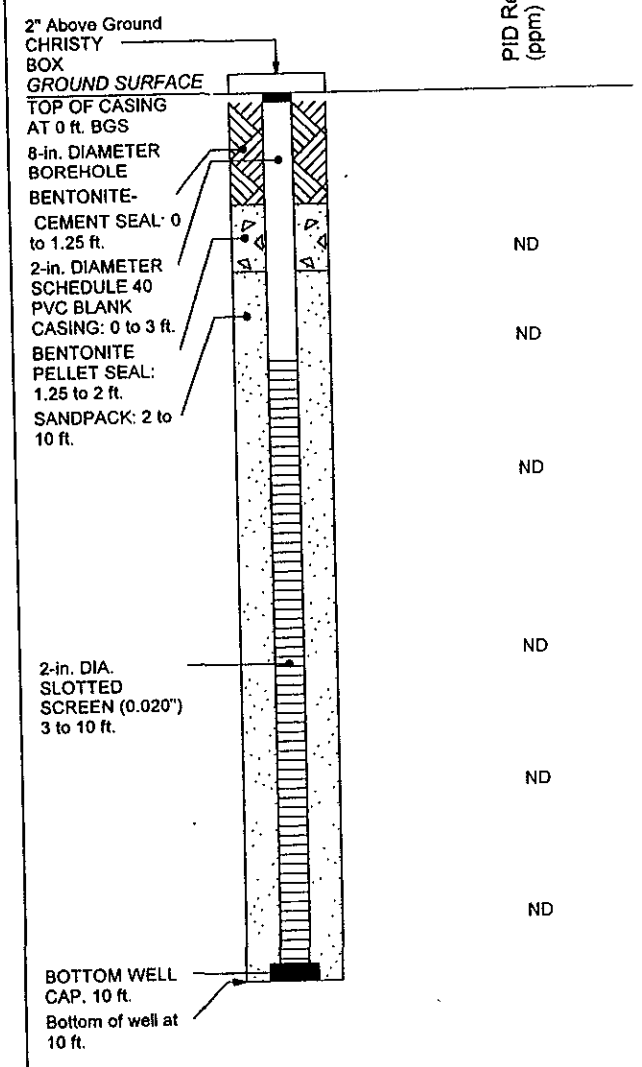
Log of Boring MW-3
Groundwater Monitoring Well Installation
South Airport Self-Fueling Facility, Taxiway U
Oakland, California

PLATE
A-4

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
PCB	49667 1		8/00	

Top of PVC Casing
Elev. 4.49 ft.

Equipment Hollow Stem Auger
Hole Diameter 8 in.
Surface Elevation _____ **Date** 4/27/00
Reference Datum Port of Oakland



Depth (ft.)	Sample	PID Reading (ppm)	
0			LIGHT BROWN SAND (SP) Medium dense, dry
		ND	
		ND	@ 3.25 ft.: Wet
		ND	
5			Color change to gray, loose, trace of clay
		ND	
		ND	@ 8.5 ft.: Color change to light brown
		ND	
10			Boring terminated at 10 ft.

BORING_WELL 49667.GPJ TEMP.GDT 8/1/00

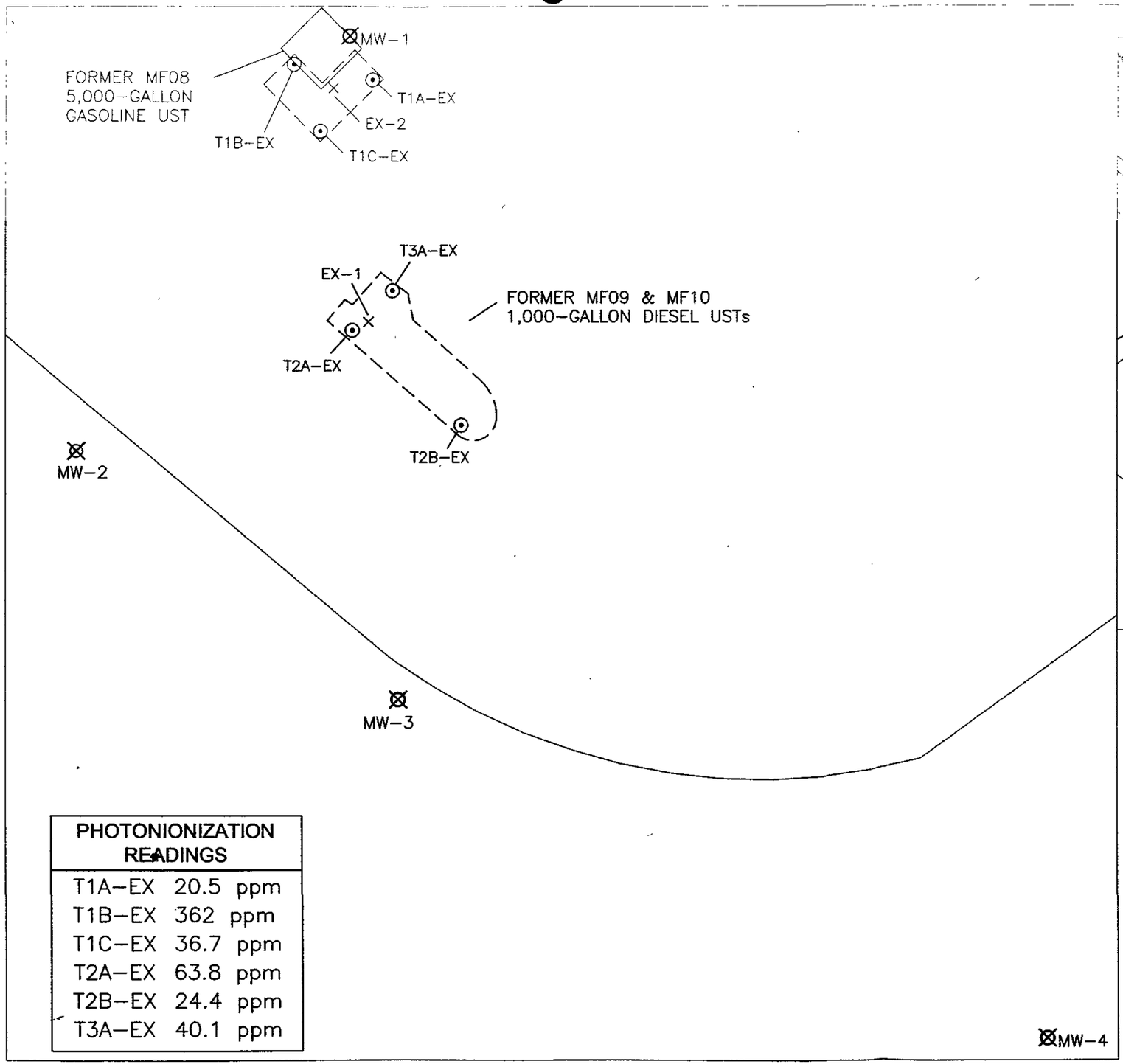
PLATE

Harding Lawson Associates
Engineering and Environmental Services

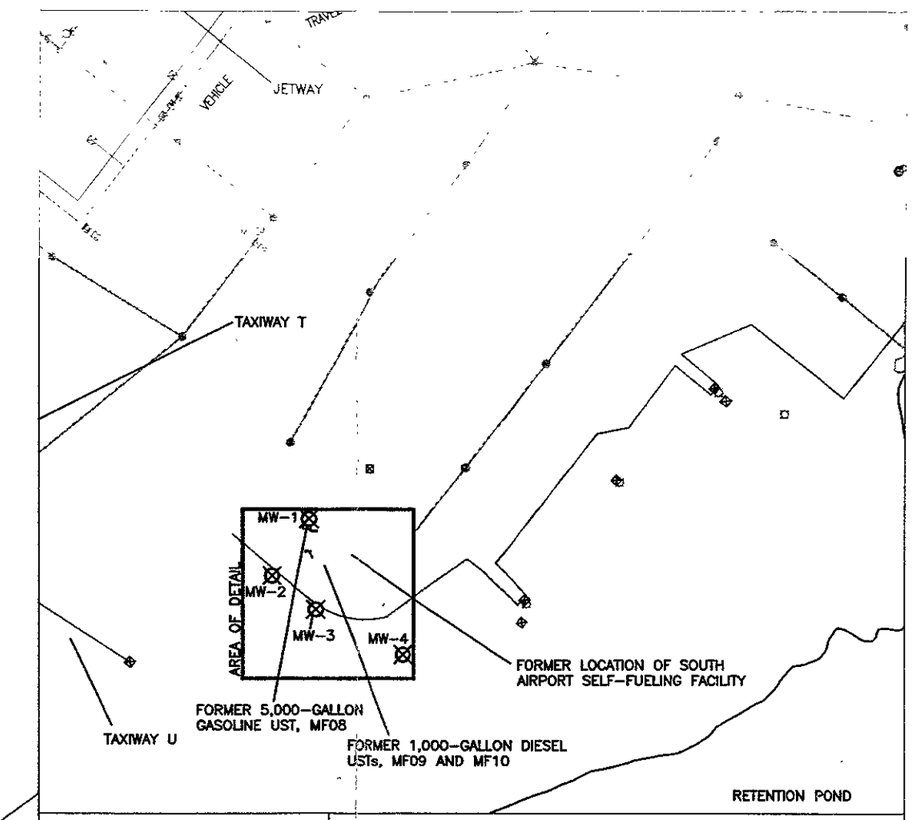
Log of Boring MW-4
Groundwater Monitoring Well Installation
South Airport Self-Fueling Facility, Taxiway U
Oakland, California

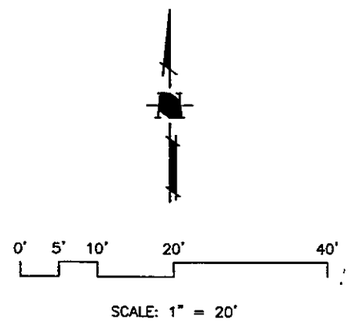
A-5

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
PCB	49667 1		8/00	



PHOTONIONIZATION READINGS	
T1A–EX	20.5 ppm
T1B–EX	362 ppm
T1C–EX	36.7 ppm
T2A–EX	63.8 ppm
T2B–EX	24.4 ppm
T3A–EX	40.1 ppm





LEGEND

MW–4 ⊠	MONITORING WELL, DESTROYED 06/29/05
T2B–EX ⊙	EXCAVATION SAMPLE
EX–1 ×	EXCAVATION WATER SAMPLE

URS	Project No. 26815144 South Airport Self-Fueling Facility, Taxiway U Metropolitan Oakland International Airport Oakland, California	SITE ATTACHMENT 6

Aug 28, 2005 - 2:32pm
X:\x_env_waste\Port of Oakland\Overexcavation\SITE MAP.dwg

Table 5
Soil and Groundwater Analytical Results

SAMPLE NAME	DATE	UNITS	TPH-g	Benzene	Toluene	Ethylebenzene	Xylenes	MTBE	ETBE	TAME	DIPE	TBA	Dichloroethane	Ethylene dibromide	Ethanol	TPH-Diesel	TPH-mo	Jet Fuel
Former UST MF-08 Soil Sidewall Samples																		
T1A-EX	6/2/2005	mg/kg	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
T1B-EX	6/2/2005	mg/kg	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
T1C-EX	6/2/2005	mg/kg	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
Former USTs MF-09 and MF-10 Soil Sidewall Samples																		
T2A-EX	6/2/2005	mg/kg	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
T2B-EX	6/2/2005	mg/kg	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	140	ND	ND
T3A-EX	6/2/2005	mg/kg	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND
RWQCB ESLs for shallow soils (< 3m bgs) Commercial/Industrial Land Use-Groundwater is not a potential source of drinking water																		
		mg/kg	**400**	**0.38**	**9.3**	**320**	**110**	**560**	**NL**	**NL**	**NL**	**110**	**0.07**	**NL**	**450**	**500**	**1,000**	**500**
Former USTs MF-08 through MF-10 Groundwater Samples																		
EX-1	6/3/2005	µg/L	**480**	ND	ND	ND	ND	**3.0**	ND	ND	ND	ND	ND	ND	ND	**9,200**	ND	**7,300**
EX-2	6/3/2005	µg/L	**460**	**0.98**	**1.4**	**5.2**	**44**	**0.54**	ND	ND	ND	ND	ND	ND	ND	**120**	ND	**200**
RWQCB ESLs for shallow soils (< 3m bgs) Commercial/Industrial Land Use-Groundwater is not a potential source of drinking water																		
		µg/L	**500**	**460**	**130**	**290**	**100**	**1,800**	**NL**	**NL**	**NL**	**18,000**	**200**	**NL**	**50,000**	**640**	**640**	**640**

TPH-g - Total Petroleum Hydrocarbons as gasoloine
MTBE - methyl tertiary buytl ether
ETBE - ethyl tertiary butyl ether
TAME - tertiary amyl ether
DIPE - di-isopropyl ether
TBA - tertiary-buytl alcohol
TPH-d - Total Petroleum Hydrocarbons as diesel
TPH-mo - Total Petroleum Hydrocarbons as motor oil
mg/kg - milligram per kilogram
µg/kg - micrograms per liter
ND - Non detect
NA - Not Analyzed
RWQCB - Regional Water Quality Control Board
ESL - Environmental Screening Levels
ft bgs - feet below ground surface
NL - Not Listed in ESL