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

RAFAT A. SHAHID, Assistant Agency Director

RO 562

CC4580

June 21, 1995

STID 4460

Alameda County
Environmental Protection Division
1131 Harbor Bay Parkway, Room 250
Alameda CA 94502-6577

REMEDIAL ACTION COMPLETION CERTIFICATION

Adadu Yemane
Unocal Corporation
2000 Crow Canyon Road, Ste. 400
San Ramon, CA 94583

RE: UNOCAL STATION #4845, 846 MARINA BOULEVARD, SAN LEANDRO

Dear Mr. Yemane:

This letter confirms the completion of site investigation and remedial action for the underground storage tanks formerly located at the above-described location. Enclosed is the Case Closure Summary for the referenced site for your records.

Based upon the available information, including current land use, 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 storage tank release is required.

This notice is issued pursuant to a regulation contained in Title 23, California Code of Regulations, Division 3, Chapter 16, Section 2721(e). If a change in land use is proposed, the owner must promptly notify this agency.

Please contact Scott Seery at (510) 567-6783 if you have any questions regarding this matter.

Sincerely,

Rafat A. Shahid
Director of Environmental Services

enclosure

cc: Jun Makishima, Acting Chief, Environmental Protection Div.
Kevin Graves, RWQCB
Mike Harper, SWRCB
Mike Bakaldin, San Leandro Fire Department

- SIGNED COPY -

01-1614

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

I. AGENCY INFORMATION **Date: 06/05/95**

Agency name: **Alameda County-EPD** Address: **1131 Harbor Bay Pkwy #250**
City/State/Zip: **Alameda, CA 94502** Phone: **(510) 567-6700**
Responsible staff person: **Scott Seery** Title: **Sr. Haz. Materials Spec.**

II. CASE INFORMATION

Site facility name: Unocal Station #4845
Site facility address: 846 Marina Blvd., San Leandro
RB LUSTIS Case No: **N/A** Local Case No./LOP Case No.: 4460
URF filing date: 6/5/87 SWEEPS No: **N/A**

Responsible Parties:	Addresses:	Phone Numbers:
Adadu Yemane Unocal Corporation	2000 Crow Canyon Pl., Ste. 400 San Ramon, CA 94583	510-277-2383

Tank No:	Size in gal.:	Contents:	Closed in-place or removed?:	Date:
1	5000	gasoline	removed	4-21-87
2	5000	"	"	"
3	6000	"	"	"
4	250	waste oil	"	"
5	12,000	gasoline	"	4-13-91
6	12,000	"	"	"

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: (suspected) fuel UST leak in 1978

Site characterization complete? YES

Date approved by oversight agency: UNK

Monitoring Wells installed? YES Number: 5

Proper screened interval? YES

Highest GW depth below ground surface: 14.55' Lowest depth: 22.30'

Flow direction: southwest

Most sensitive current use: commercial area - site vacant since 1991

Are drinking water wells affected? NO Aquifer name: S.L. Cone

Is surface water affected? NO Nearest affected SW name: NA

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

Leaking Underground Fuel Storage Tank Program

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

Treatment and Disposal of Affected Material:

Material	Amount (include units)	Action (Treatment of Disposal w/destination)	Date
Tank	(2 x 5000; 6000; 250)	UNK - presumed disposed @ H&H Ship Service, *Richmond*(?)	4/87 (?)
	(2 x 12,000)	Disposal - Erickson, Inc. Richmond, CA	4/23/91
Piping	UNK	presumed as above	UNK
Free Product	NA		
Soil	~ 300 yds^3	UNK - presumed Class 3 landfill	5/6, 5/11, 5/12/87 (?)
Groundwater	NA		
Barrels	NA		

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)
Maximum Documented Contaminant Concentrations - - Before and After Cleanup

Contaminant	Soil (ppm)		Water (ppb)	
	Before	After	Before	After
TPH (Gas)	4400	ND	16,120	ND
TPH (Diesel)	ND	NA	NA	NA
Benzene	12	ND	360	ND
Toluene	590	"	2430	"
Xylene	230	"	2840	"
Ethylbenzene	ND	"	670	"
Oil & Grease	250*	ND*	NA	NA
Heavy metals	*	NA	"	"
Other: (halocarbons)	ND	"	"	"

* Soil samples collected 4/91 from below oil/water separator @ depth of 4' ("Before"), and then 10.5' ("After"). Metals analysis results suggest geogenic concentrations.

Comments (Depth of Remediation, etc.):

Three fuel and one waste oil USTs reportedly removed under San Leandro Fire Dept. oversight on 4/21/87. One soil sample collected from below the east end of the central fuel UST @ a depth of 15' BG (sample #3) exhibited 4400 ppm TPH-G and 12 ppm benzene, among other gasoline compounds detected. All other samples were below 100 ppm TPH-G or "ND." *It is unclear whether further excavation ensued beyond that required to emplace two replacement USTs.* No GW was encountered. Approximately 300 yds^3 of stockpiled material was reportedly aerated on site, and subsequently transported to an *undisclosed* landfill on three dates during May 1987.

During April 1991, two (2) 12,000 gallon double-wall fuel USTs and an oil/water separator were removed, and samples collected. In preparation for the 1991 UST closures and the widening of Alvarado Street, two wells (MW-1 and -2), installed after the 1987 closures, were destroyed by overdrilling under permit from Zone 7.

Soil samples collected from below the USTs were, in essence, "ND." Soil samples collected from below the product piping yielded similar, unremarkable results. A single soil sample collected from below the oil/water separator at a depth of ~ 4' BG yielded 250 ppm TOG. The area was re-excavated and resampled at a depth of 10½' BG: all results were "ND." GW was not encountered. It is unknown how the material excavated from below the oil/water separator was eventually disposed.

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: NA

Should corrective action be reviewed if land use changes? **YES**

Monitoring wells Decommisioned: YES

Number Decommisioned: 2 Number Retained: 3

List enforcement actions taken: none

List enforcement actions rescinded: none

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Scott Seery Title: Sr Haz Mat Specialist
Signature: Date: 6-8-95

Reviewed by
Name: Eva Chu Title: Haz Mat Specialist
Signature: Date: 6-9-95

Name: Juliet Shin Title: Sr. Haz Mat Specialist
Signature: Date: 6/8/95

Leaking Underground Fuel Storage Tank Program

VI. RWQCB NOTIFICATION

Date Submitted to RB: 6-12-95 RB Response: Approved
RWQCB Staff Name: Kevin Graves Title: San. Engineering Asso. Date: 6/15/95

VII. ADDITIONAL COMMENTS, DATA, ETC.

Following the April 1987 UST closures, a single monitoring well (MW-1) was installed immediately west of the UST complex during May 1987. Because initial soil and water analyses yielded relatively high results, three (3) additional wells (MW-2, -3, and -4) were subsequently installed at the site several days later.

Sediments encountered during drilling consisted primarily of intervals of silty clay, silty sand and sand. Boring log for B-1/MW-1 indicates a strong-to-slight product odor between approximately 9 and 30' BG. Depth to water was reportedly 20' BG during drilling.

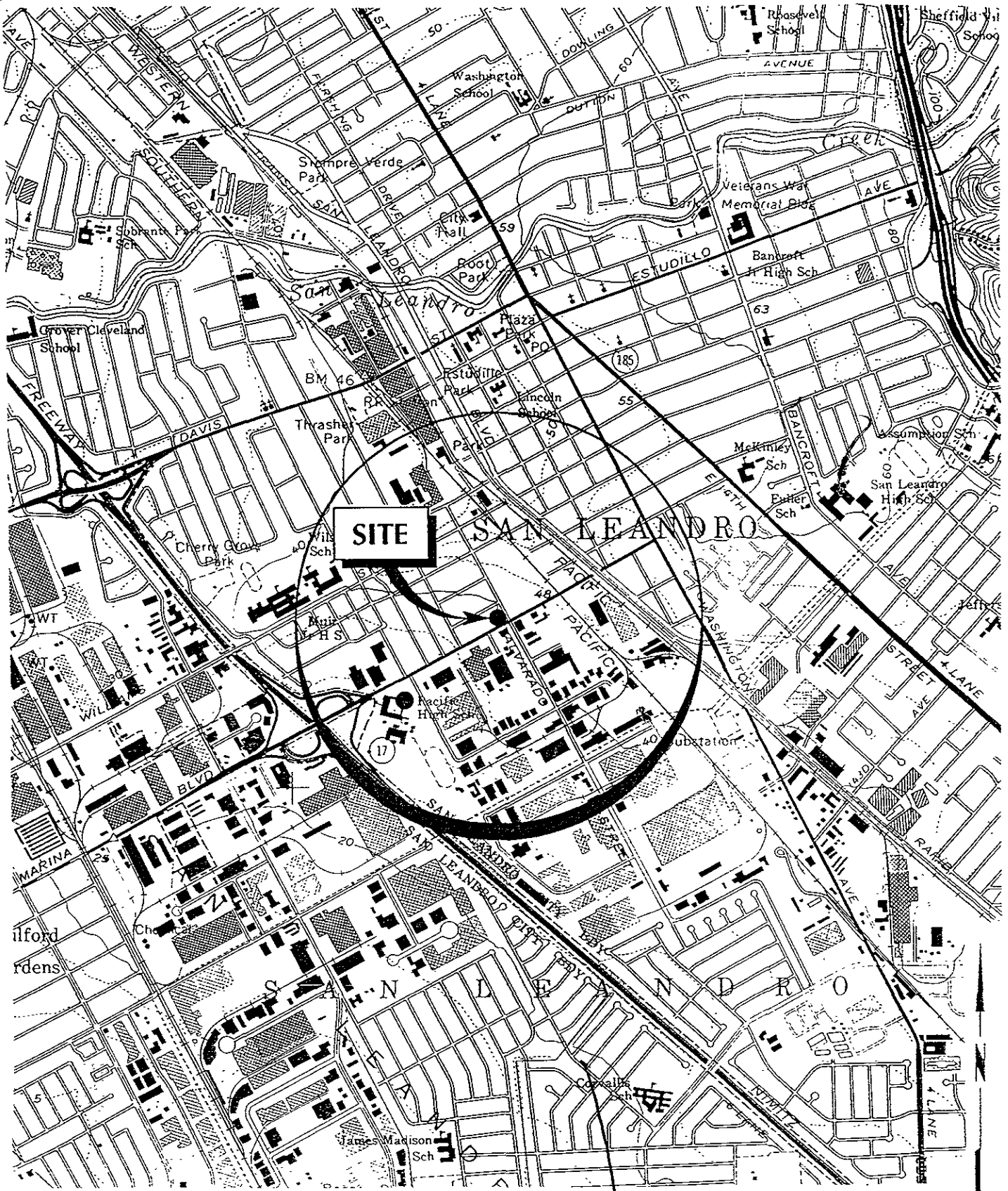
Only one soil sample from each boring was analyzed. The sample collected from B-1/MW-1 at 15' BG revealed nearly 1600 ppm TPH-G and 13 ppm benzene, among others detected. All soil samples from remaining borings were "ND" for target compounds. It is unclear whether soil encountered in boring B-1/MW-1 was later excavated during UST replacement.

Initial ground water samples yielded 16,120 ug/l TPH-G and 360 ug/l benzene in MW-1, and 1214 ug/l TPH-G and 26 ug/l benzene in MW-4. Wells MW-2 and -3 revealed detectable TPH-G and minor toluene "hits." GW flow was calculated to the west.

The four well network was sampled quarterly over the course of approximately one year, at which time sampling frequency was reduced (by Unocal) to semi-annually. Wells MW-1 and -2 were destroyed prior to final UST closures in April 1991. The remaining wells (MW-3 and -4) were sampled following this schedule until December 1993, at which time sampling ceased.

During the course of this sampling program, dissolved concentrations of fuel compounds detected in MW-1 initially dropped, and then periodically fluctuated as much as several orders-of-magnitude in terms of TPH and benzene concentrations. When last sampled during February 1991, TPH-G concentrations had been reduced from the initial 16,120 to 1100 ug/l, and benzene from 360 to 0.9 ug/l. Of the analyses results from the remaining wells, only GW collected from MW-4, located SW and downgradient of the dispenser islands, is noteworthy. However, between 2/91 and 12/93, GW samples collected from wells MW-3 and -4 were "ND" for all constituents.

To satisfy a request from ACDEH, well MW-5 was installed during January 1994 near the location of destroyed well MW-1 to gauge whether GW was still affected directly adjacent to the former UST pit and B-1/MW-1. *Neither soil nor GW contamination was detected in collected samples.*



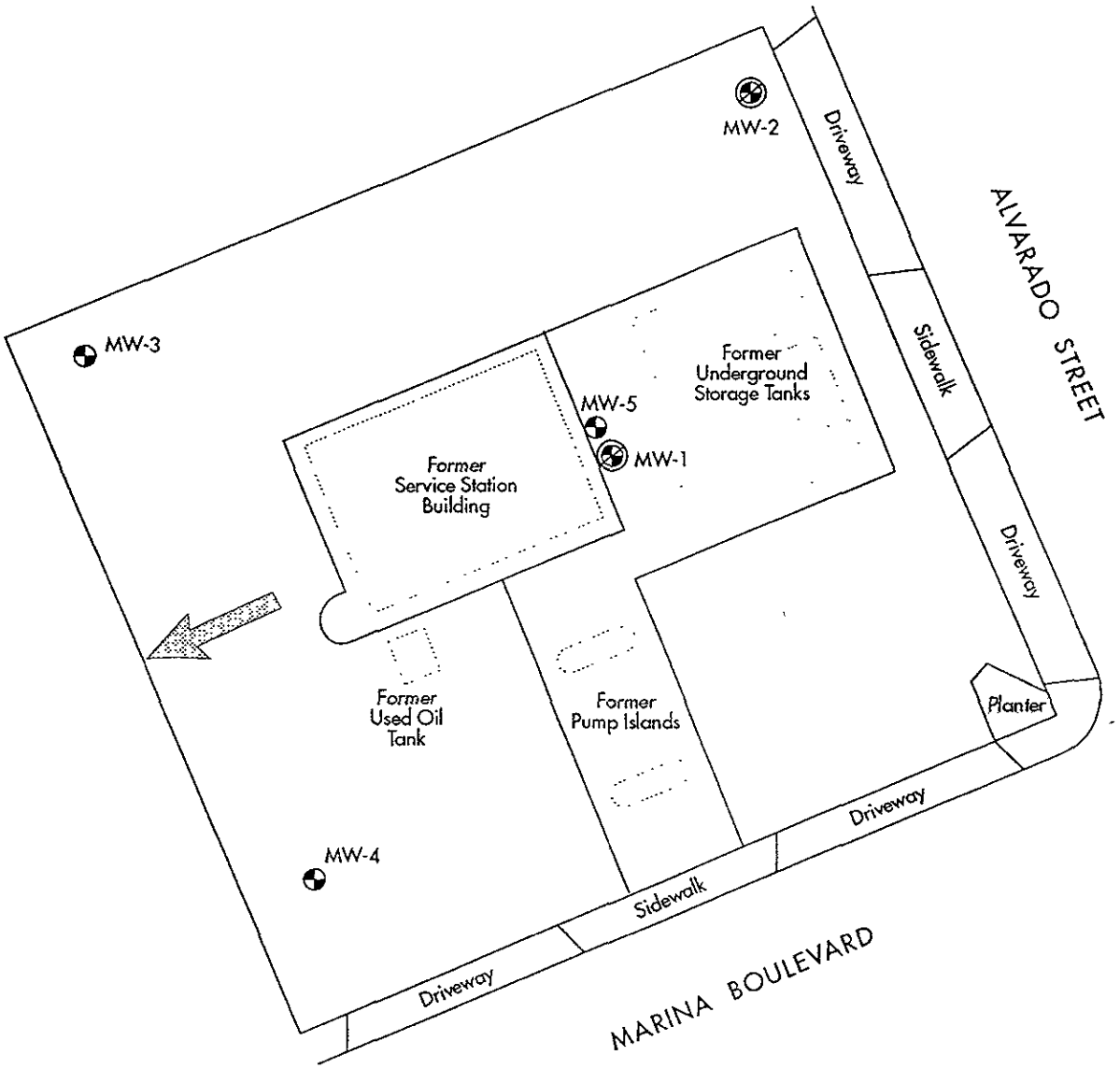
RESNA

PROJECT NO. 87043.07 | 4/93

SITE VICINITY MAP

Unocal Station No. 4845
Marina Boulevard and Alvarado Street
San Leandro, California

PLATE 1



EXPLANATION

MW-3	Monitoring well
MW-1	Destroyed monitoring well (April 1991)
	Estimated groundwater flow direction

N

0 25' 50' 100'

Base map source: Modified from map supplied by Unocal

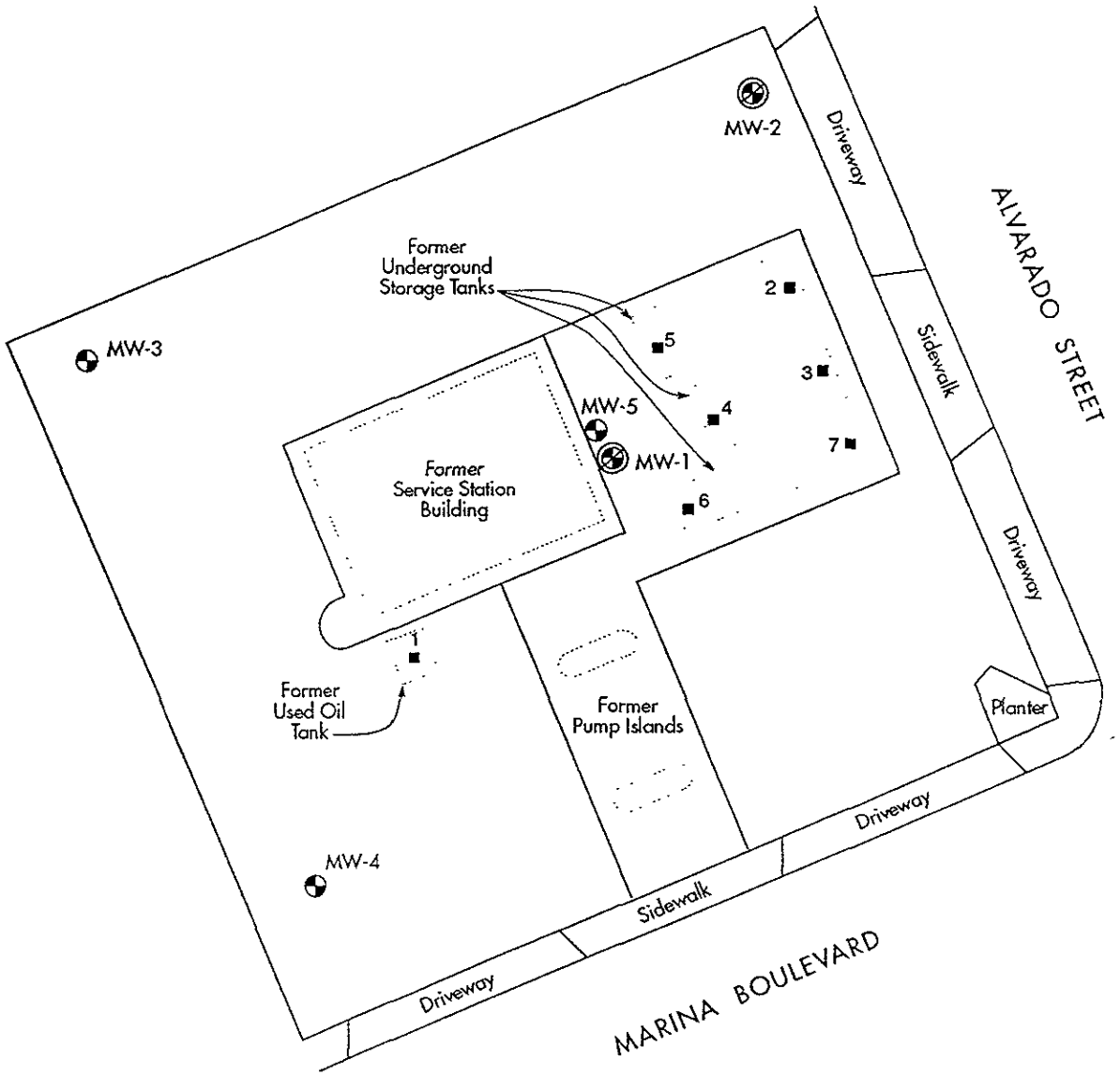
RESNA

PROJECT NO. 87043.07 | 4/94

GENERALIZED SITE PLAN

Former Unocal Service Station 4845
Marina Boulevard and Alvarado Street
San Leandro, California

PLATE 2



EXPLANATION

MW-3	Monitoring well
MW-1	Destroyed monitoring well (April 1991)
1	Soil samples collected April 1987

0 25' 50' 100'

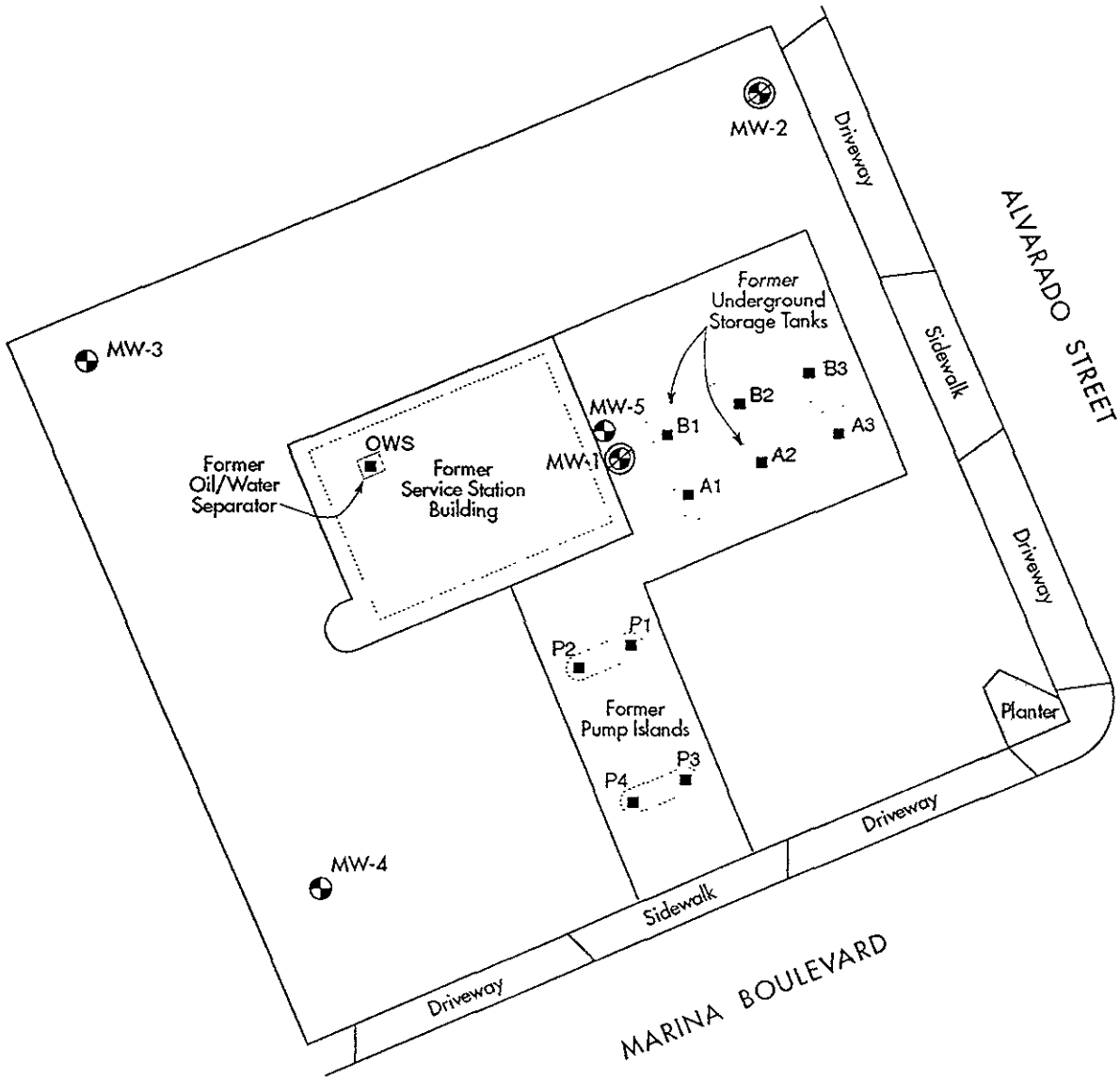
Base map source: Modified from map supplied by Unocal

RESNA

PROJECT NO. 87043.07 | 4/94

SOIL SAMPLE LOCATION MAP
April 1987
Former Unocal Service Station 4845
Marina Boulevard and Alvarado Street
San Leandro, California

PLATE
3



EXPLANATION

MW-3	Monitoring well
MW-1	Destroyed monitoring well (April 1991)
A1	Soil samples collected April 1991

N

0 25' 50' 100'

Base map source: Modified from map supplied by Unocal

RESNA

PROJECT NO. 87043.07 | 4/94

SOIL SAMPLE LOCATION MAP
April 1991

Former Unocal Service Station 4845
Marina Boulevard and Alvarado Street
San Leandro, California

PLATE
4

RESNA
Working to Restore Nature

TABLE 1
RESULTS OF ANALYSES OF SOIL SAMPLES
FROM TANK AND PRODUCT LINE EXCAVATIONS
Former Unocal Service Station 4845
Marina Boulevard and Alvarado Street
San Leandro, California

Sample Location	Collection Date	Depth (feet)	TPHg	TPHd	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TOG
Gasoline Tank Cavity - Initial Tank Complex									
2	4/22/87	15.5	83	NA	1.2	16	NA	16	NA
3	4/22/87	15.5	4,400	NA	12	590	NA	230	NA
4	4/22/87	15.0	4.7	NA	<1	<1	NA	2.0	NA
5	4/22/87	16.0	<1	NA	<1	<1	NA	<1	NA
6	4/22/87	16.0	1.6	NA	<1	<1	NA	<1	NA
7	4/22/87	15.5	6.2	NA	<1	<1	NA	<1	NA
Waste-Oil Tank Cavity - Initial Tank									
1	4/22/87	9.0	<1	NA	<1	<1	NA	<1	<30
Gasoline Tank Cavity - Second Tank Complex									
A1	4/23/91	13.5	<1	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
A2	4/23/91	13.5	<1	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
A3	4/23/91	13.5	<1	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
B1	4/23/91	14.0	<1	NA	<0.0050	<0.0050	<0.0050	0.018	NA
B2	4/23/91	13.5	<1	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
B3	4/23/91	13.5	<1	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
Product Lines									
P1	4/24/91	3.0	<1	NA	<0.0050	<0.0050	<0.0050	0.012	NA
P2	4/24/91	2.5	<1	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
P3	4/24/91	3.0	<1	NA	<0.0050	<0.0050	<0.0050	0.0077	NA
P4	4/24/91	3.0	<1	NA	<0.0050	<0.0050	<0.0050	<0.0050	NA
Oil/Water Separator									
OWS	4/30/91	4.0	NA	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	250
OWS	4/30/91	10.5	NA	NA	NA	NA	NA	NA	<30

Notes:

Results in parts per million
TPHg: Total petroleum hydrocarbons as gasoline
TPHd: Total petroleum hydrocarbons as diesel
TOG: Total oil and grease
<: Less than detection limit established by the laboratory
NA: Not analyzed

RESNA
Working to Restore Nature

TABLE 2
RESULTS OF ANALYSES OF SOIL SAMPLES
FROM SOIL BORINGS
Former Unocal Service Station 4845
Marina Boulevard and Alvarado Street
San Leandro, California

Sample Location	Date	Depth (feet)	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes
B-1	5/12/87	15	1566.0	13.0	77.0	121.0	459.0
B-2	5/12/87	18	<0.05	<0.05	<0.05	<0.05	<0.05
B-3	5/12/87	18	<0.05	<0.05	<0.05	<0.05	<0.05
B-4	5/12/87	18	<0.05	<0.05	<0.05	<0.05	<0.05
B-5	1/27/94	16	<1.0	<0.005	<0.005	<0.005	<0.005
B-5	1/27/94	18	<1.0	<0.005	<0.005	<0.005	<0.005

Notes:

Results in parts per million
TPHg: Total petroleum hydrocarbons as gasoline
< : Less than detection limits established by the laboratory

TABLE 3
GROUNDWATER MONITORING DATA
Former Unocal Station 4845
Marina Boulevard and Alvarado Street
San Leandro, California
(Page 1 of 3)

Well/ Sample Number	Date	Elevation of** Top of Casing	Depth to Water	Ground** Water Elevation	TPHg	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Observations
MW-1	05/12/87	0.00	N/A	N/A	16,120*	360	2,430	670	2,840	FP = No, S = No
	05/14/87		19.40	-19.40		NOT SAMPLED				FP = No, S = No
	05/22/87		19.58	-19.58		NOT SAMPLED				FP = No, S = No
	08/25/87		20.75	-20.75	3,070*	114	709	85	N/A	FP = No, S = No
	11/23/87		21.07	-21.07	630*	5.9	19.3	<0.5	105.9	FP = No, S = No
	02/17/88		19.38	-19.38	5,100	160	800	300	1,290	FP = No, S = No
	06/10/88		20.78	-20.78	6,100	35	646	269	1,375	FP = No, S = No
	01/03/89		21.47	-21.47	13,500	43	644	395	2,551	FP = No, S = No
	07/26/89		21.79	-21.79	2,900	3.5	39	51	310	FP = No, S = Slight
	01/18/90		21.76	-21.76	4,800	2.6	21	140	1,200	FP = No, S = No
	07/27/90		22.25	-22.25	1,200	36	56	66	210	FP = No, S = No
	07/31/90		22.30	-22.30		NOT SAMPLED				FP = No, S = No
	02/13/91		22.71	-22.71	1,100	0.9	1.4	19	320	FP = No, S = No
	04/91					WELL DESTROYED				FP = No, S = No
MW-2	05/22/87	0.86	18.62	-17.76	10.9*	<0.5	1.0	<0.5	<0.5	FP = No, S = No
	08/25/87		19.84	-19.98	15.0*	<0.5	0.8	<0.5	2.9	FP = No, S = No
	11/23/87		20.13	-20.99	<20*	<0.5	1.7	<0.5	<0.5	FP = No, S = No
	02/17/88		18.43	-19.29	<20	<0.5	<0.5	<0.5	0.7	FP = No, S = No
	06/10/88		19.86	-20.72	<20	<0.5	<0.5	<0.5	0.6	FP = No, S = No
	01/03/89		20.55	-21.41	<20	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	07/26/89		20.89	-21.75	<20	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	01/18/90		20.92	-21.78	<20	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	07/27/90		N/A	N/A	<20	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	07/31/90		21.41	-22.27	<20	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	02/13/91		21.80	-22.66	<50	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	04/91					WELL DESTROYED				

See Notes on Page 3 of 3.

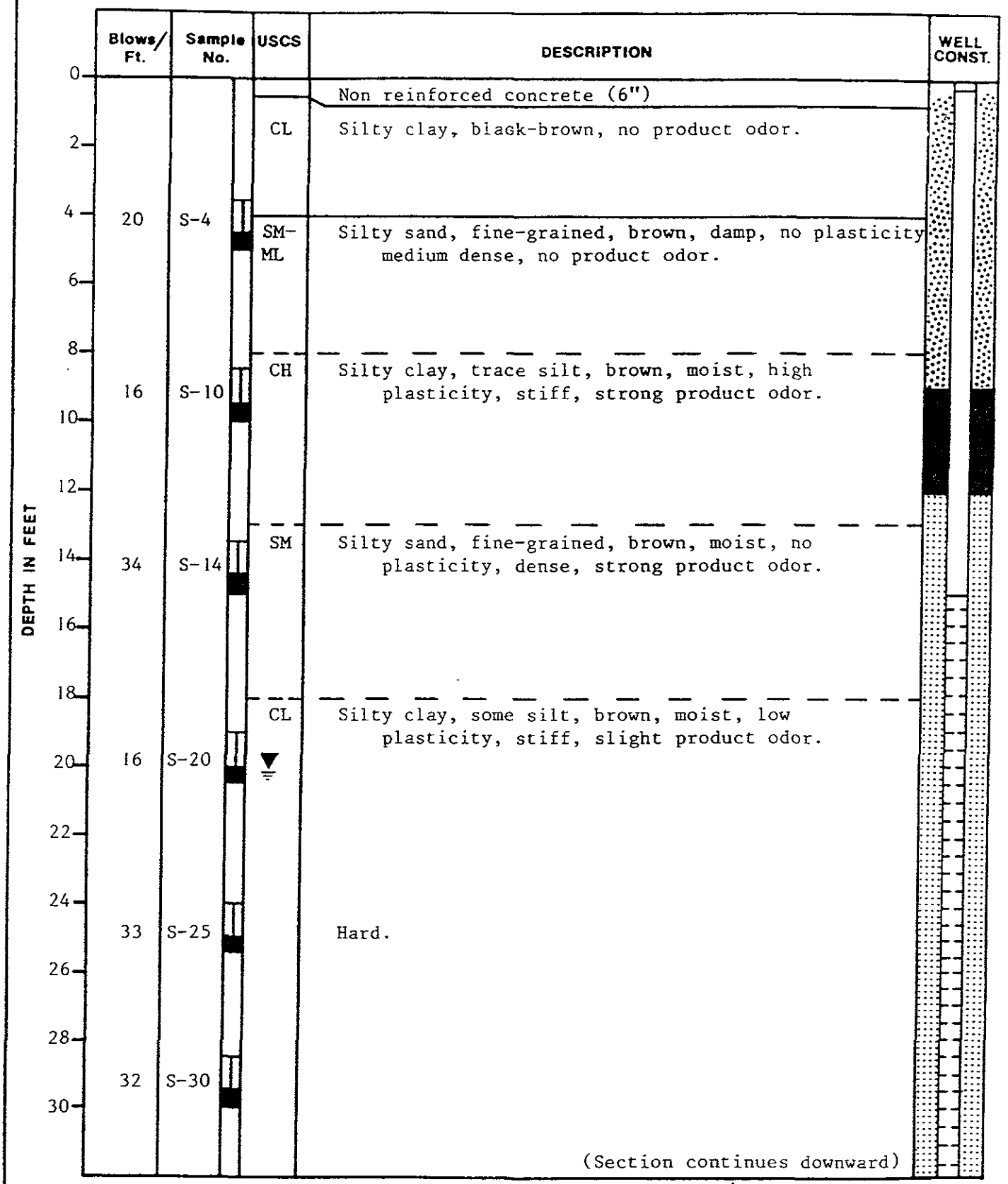
TABLE 3
GROUNDWATER MONITORING DATA
Former Unocal Station 4845
Marina Boulevard and Alvarado Street
San Leandro, California
(Page 2 of 3)

Well/ Sample Number	Date	Elevation of** Top of Casing	Depth to Water	Ground** Water Elevation	TPHg	Benzene	Toluene	Ethyl benzene	Total Xylenes	Observations
MW-3	05/22/87	0.43	19.26	-19.69	54.5*	<0.5	1.2	<0.5	<0.5	FP = No, S = No
	08/25/87		20.44	-20.87	2.8*	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	11/23/87		20.71	-21.14	<20*	<0.5	8.1	<0.5	<0.5	FP = No, S = No
	02/17/88		19.06	-19.49	<20	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	06/10/88		20.45	-20.88	660	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	01/11/89		20.88	-21.31	<20	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	07/26/89		21.47	-21.90	<20	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	01/18/90		21.48	-21.91	26	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	07/27/90		21.90	-22.33	76	0.7	<0.5	2.8	1.7	FP = No, S = No
	07/31/90		21.99	-22.42	NOT SAMPLED					FP = No, S = No
	02/13/91		22.34	-22.77	<50	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	08/02/91		21.80	-22.23	<50	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	02/10/92		22.09	-22.52	<50	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	08/28/92		21.33	-21.76	<50	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	06/30/93		14.55	-14.98	<50	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	12/28/93		19.67	-20.10	<50	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
MW-4	05/22/87	1.70	18.02	-19.72	1,213.9*	26.2	2.8	35.4	<0.5	FP = No, S = No
	08/25/87		19.21	-20.91	177.9*	<0.5	0.6	0.6	<0.5	FP = No, S = No
	11/23/87		19.49	-21.19	<20*	1.8	1.0	<0.5	<0.5	FP = No, S = No
	02/17/88		17.83	-19.53	80	8.2	1.8	2.5	5.5	FP = No, S = No
	06/10/88		19.21	-20.91	340	0.8	<0.5	<0.5	<0.5	FP = No, S = No
	01/11/89		19.67	-21.37	50	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	07/26/89		20.22	-21.92	NOT SAMPLED			<0.5		FP = No, S = No
	01/18/90		20.24	-21.94	<20	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	07/27/90		20.68	-22.38	240	4.6	13	11	39	FP = No, S = No
	07/31/90		20.75	-22.45	NOT SAMPLED					FP = No, S = No
	02/13/91		21.11	-22.81	<50	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	08/02/91		20.53	-22.23	<50	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	02/10/92		20.84	-22.54	<50	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	08/28/92		20.08	-21.74	<50	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	06/30/93		17.37	-19.07	<50	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
	12/28/93		14.55	-16.25	<50	<0.5	<0.5	<0.5	<0.5	FP = No, S = No
MW-5	03/11/94	-0.33	18.55	-18.88	<50	<0.5	<0.5	<0.5	<0.5	FP = No, S = No

See Notes on Page 3 of 3.

TABLE 3
GROUNDWATER MONITORING DATA
Former Unocal Station 4845
Marina Boulevard and Alvarado Street
San Leandro, California
(Page 3 of 3)

Notes:
Analytical results in parts per billion (ppb)
Static water level measured in feet below top of casing
N/A = Not applicable
<50 = Not Detected. Number following < indicates applicable detection limit
TPHg = Total petroleum hydrocarbons as gasoline
TPHd = Total petroleum Hydrocarbons as diesel
FP = Floating product
S = Sheen
* = Chromatogram also contains a discrete early-eluting peak.
** = Datum is an arbitrary elevation corresponding to the top of the formerly highest well casing (MW-1).



Applied GeoSystems
43255 Mission Blvd. Suite B Fremont, CA 94539 (415) 651-1906

PROJECT NO AGS 87043-2

LOG OF BORING B-1/MW-1

UNOCAL Station #4845
Marina Blvd. and Alvarado Street
San Leandro, California

PLATE P-5

DEPTH IN FEET	Blows/ Ft.	Sample No.	USCS	DESCRIPTION	WELL CONST.
30			CL	Silty clay, some silt, brown, moist, low plasticity hard, slight product odor.	
32					
34	7	S-35		Soft, no product odor.	
36					
38					
40	26	S-40		Clay, trace of coarse sand, very stiff.	Caved
42				Total Depth = 42 feet Well terminated due to sufficient depth below ground water and sufficient depth to evaluate contamination.	
44					
46					

Applied GeoSystems

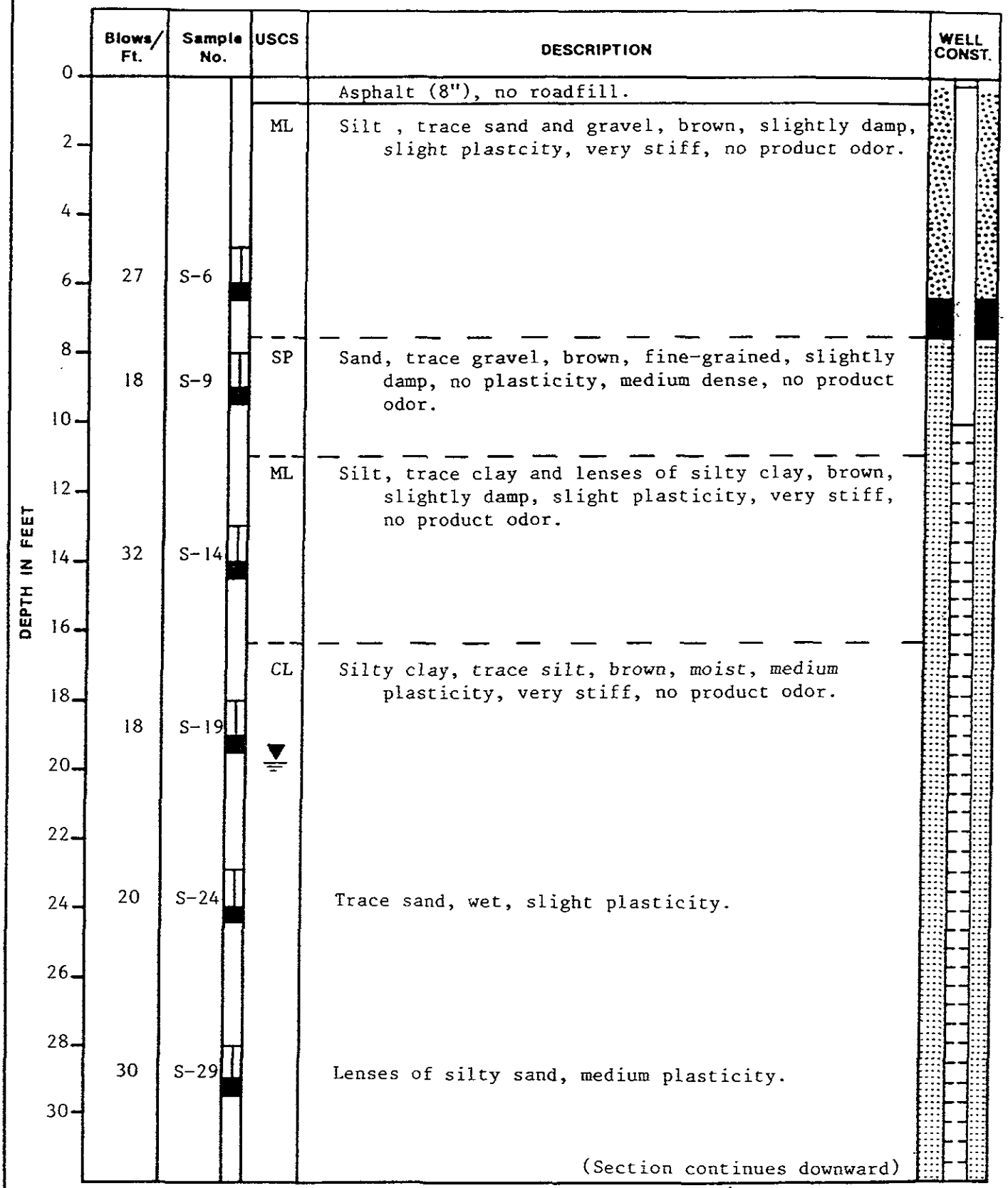
43255 Mission Blvd. Suite B Fremont, CA 94539 (415) 651-1906

LOG OF BORING B-1/MW-1

UNOCAL Station #4845
Marina Blvd. and Alvarado Street
San Leandro, California

PLATE P-6

PROJECT NO. [illegible]



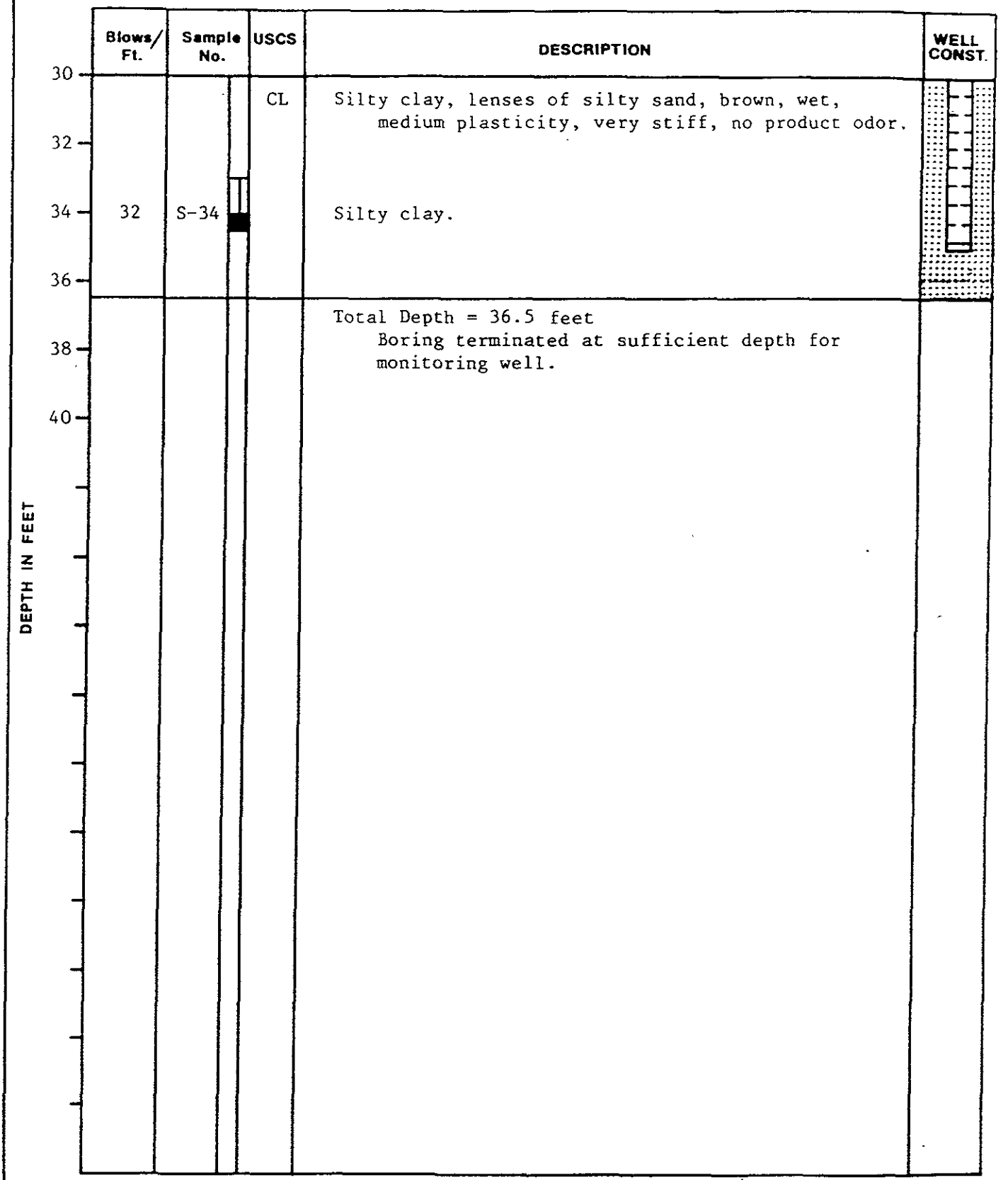
Applied GeoSystems
43255 Mission Blvd Suite B Fremont, CA 94539 (415) 651-1906

LOG OF BORING B-2/MW-2

UNOCAL Station #4845
Marina Blvd. and Alvarado Street
San Leandro, California

PLATE P-7

PROJECT NO. AGS 870(2.2)



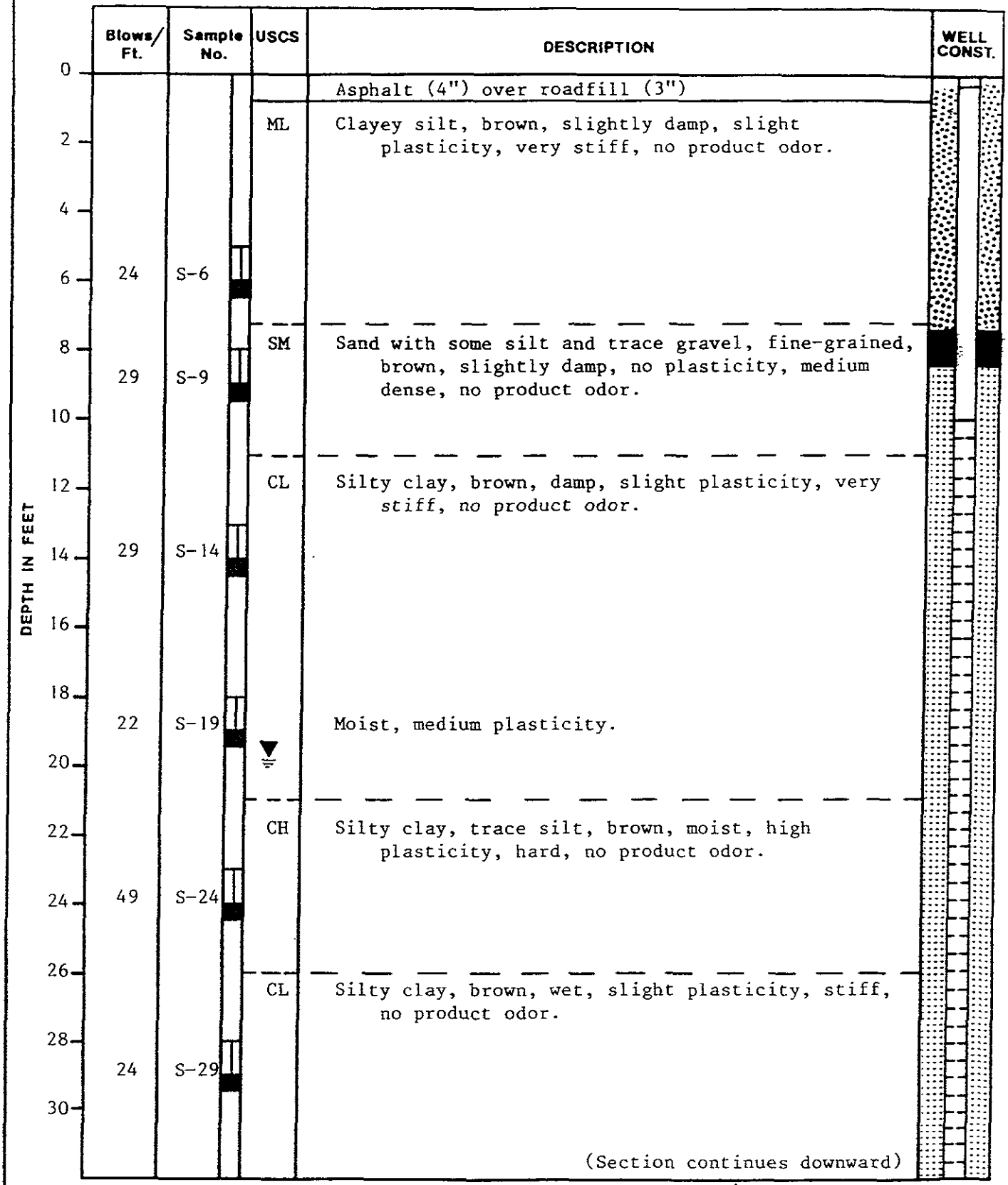
Applied GeoSystems
43255 Mission Blvd. Suite B Fremont, CA 94539 (415) 651-1906

LOG OF BORING B-2/MW-2

UNOCAL Station #4845
Marina Blvd. and Alvarado Street
San Leandro, California

PLATE
P-8

PROJECT NO. AGS 87043-2



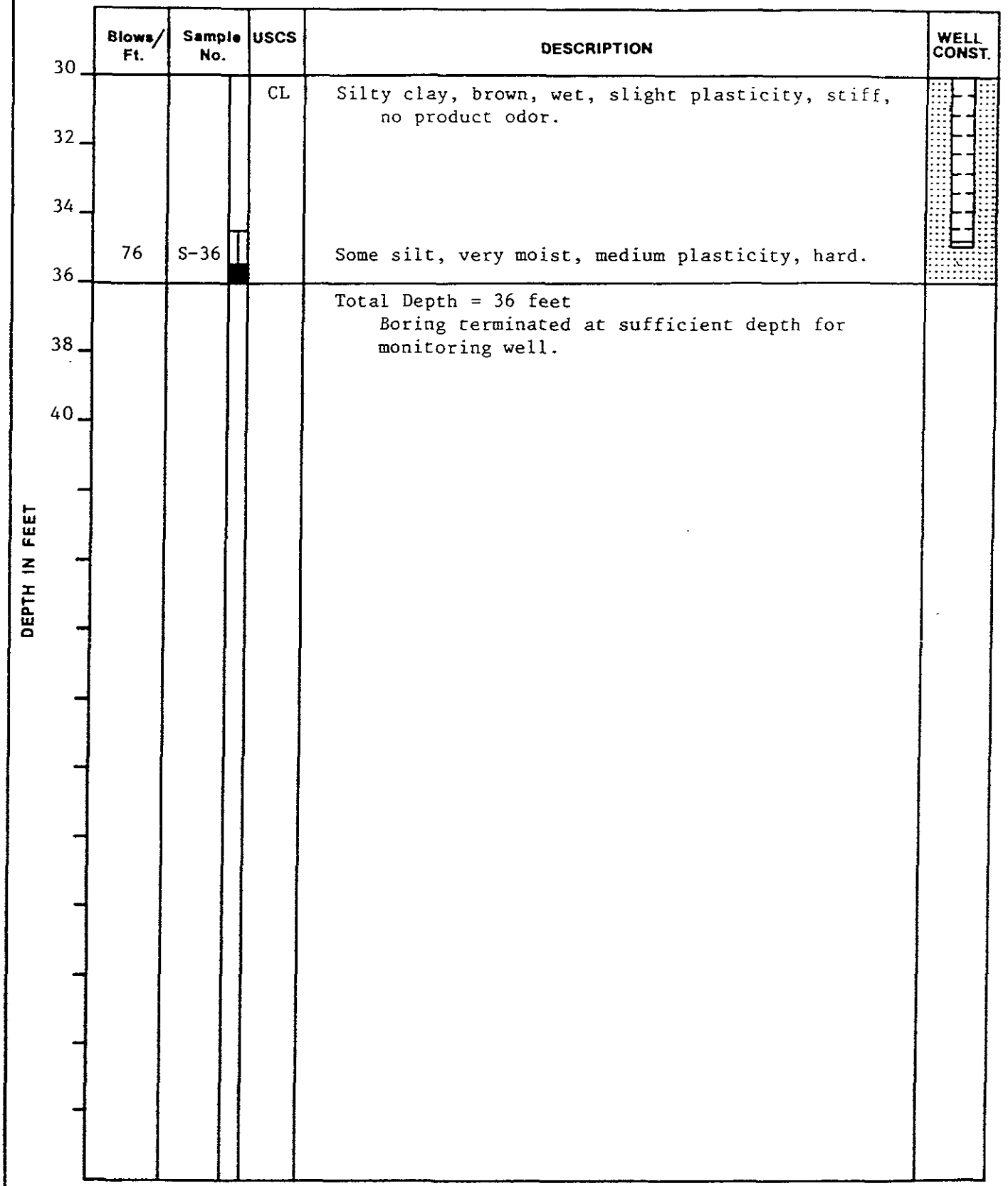
Applied GeoSystems
43255 Mission Blvd Suite B Fremont, CA 94539 (415) 651-1906

PROJECT NO. AGS 87043-2

LOG OF BORING B-3/MW-3

UNOCAL Station #4845
Marina Blvd. and Alvorado Street
San Leandro, California

PLATE P-9



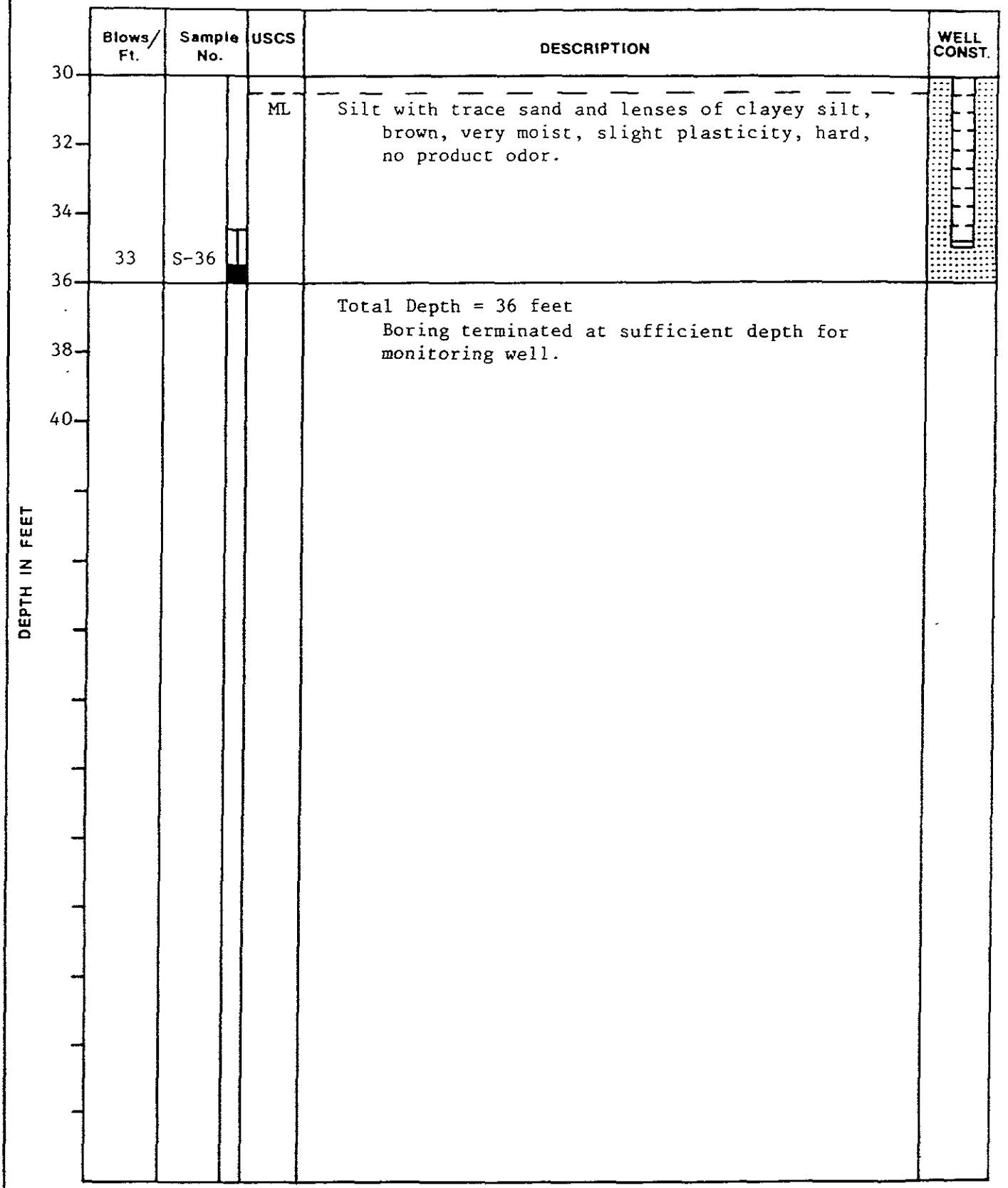
Applied GeoSystems
43255 Mission Blvd Suite B Fremont, CA 94539 (415) 651-1906

LOG OF BORING B-3/MW-3

UNOCAL Station #4845
Marina Blvd. and Alvarado Street
San Leandro, California

PLATE
P-10

PROJECT NO.



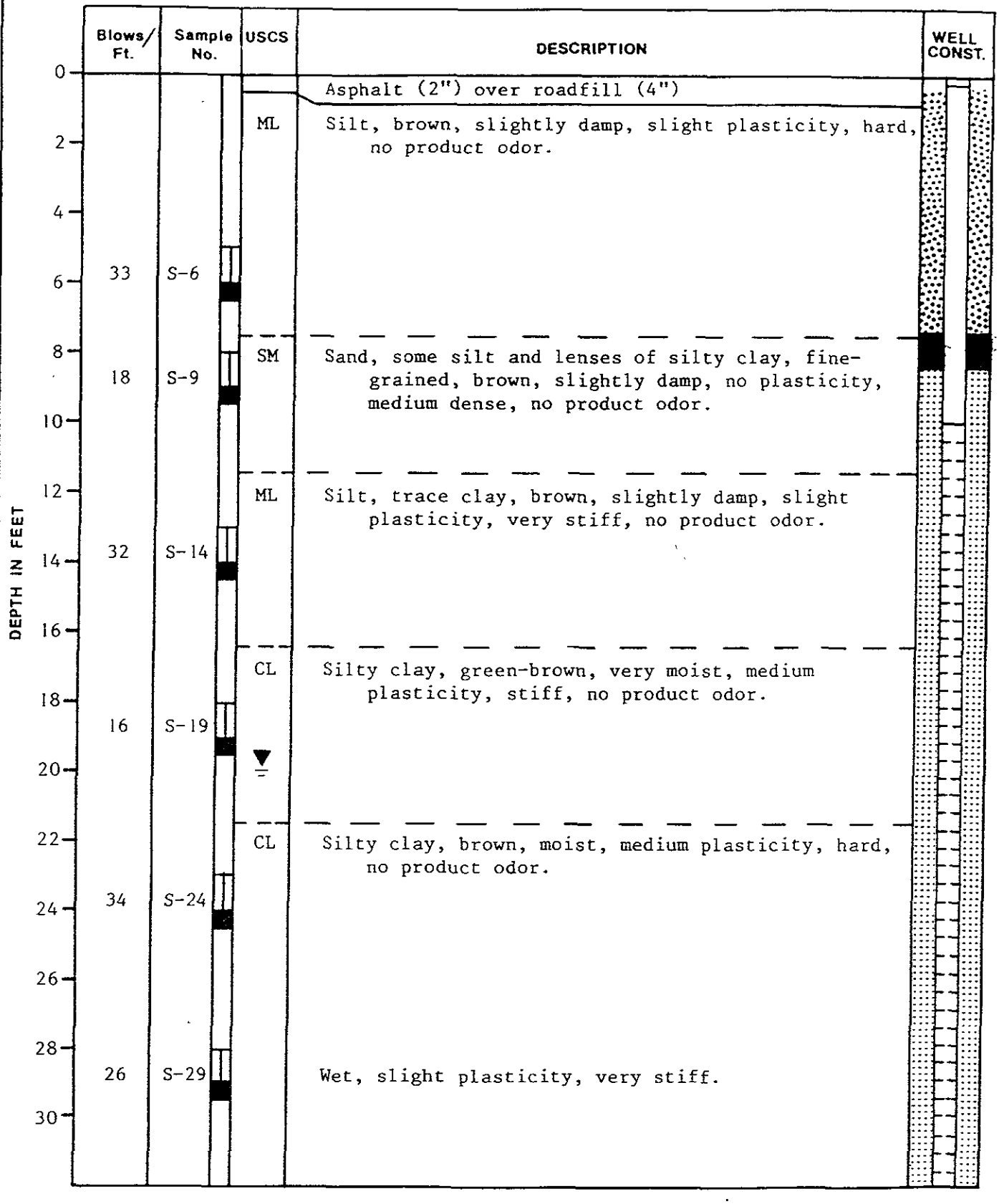
Applied GeoSystems
41255 Mission Blvd Suite B Fremont CA 94539 (415) 651-7906

PROJECT NO. AGS 87043-2

LOG OF BORING B-4/MW-4

UNOCAL Station #4845
Marina Blvd. and Alvorado Street
San Leandro, California

PLATE P-12



Applied GeoSystems
33255 Mission Blvd Suite B Fremont, CA 94539 (415) 651-1906

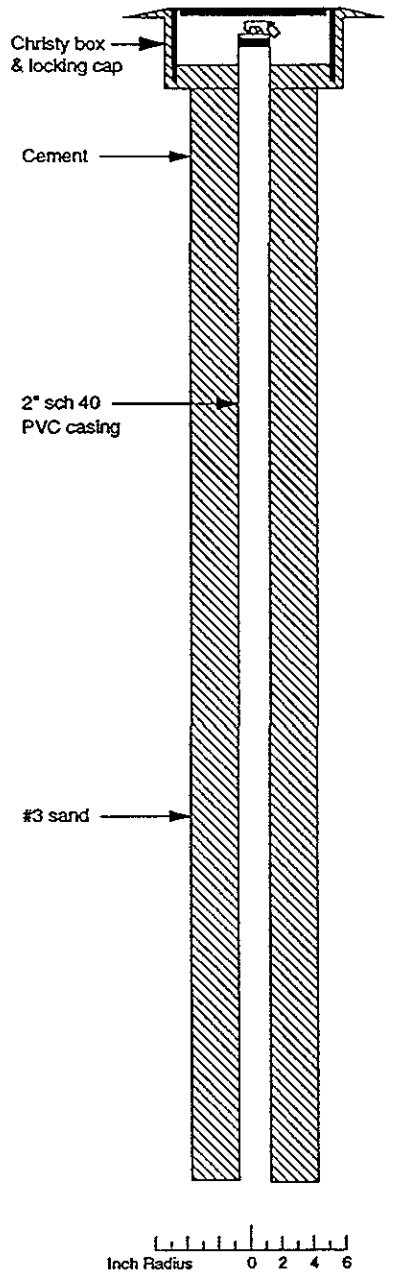
PROJECT NO. AGS 87043-2

LOG OF BORING B-4/MW-4

UNOCAL Station #4845
Marina Blvd. and Alvarado Street
San Leandro, California

PLATE

P-11



Measured Depth (Feet)	Blow Counts	PID (ppmv)	GRAPHIC LOG	DESCRIPTION
0				Clayey SILT (ML) with gravel, brown, dry to damp (Fill)
2				
4				
	20	0.9		Silty SAND (SM); fine grained, light brown to tan, dry to damp, dense
6	20			
	22			
8				
10	7	1.6		Silty CLAY (CL); brown to dark brown, dry to damp, very stiff
	11			
	15			
12				

continues

EXPLANATION

- Recovered drill sample
- Sample sealed for chemical analysis
- Sieve sample
- Grab sample
- Core sample
- est K — Estimated permeability (hydraulic conductivity) 1K = primary 2K = secondary
- NR — No recovery
- Water level during drilling
- Water level in completed well

CONTACTS:

- Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational

Logged by:	C.W. Lawrence
Project Mgr:	R.A. Stolzman
Dates Drilled:	1/27/94
Drilling Company:	Hazmat
Drilling Method:	8" Hollow Stem Auger
Driller:	Gene & Randy
Well Head Completion:	Christy box & locking cap
Type of Sampler:	2½" split spoon
TD (Total Depth):	31.0 feet

RESNA

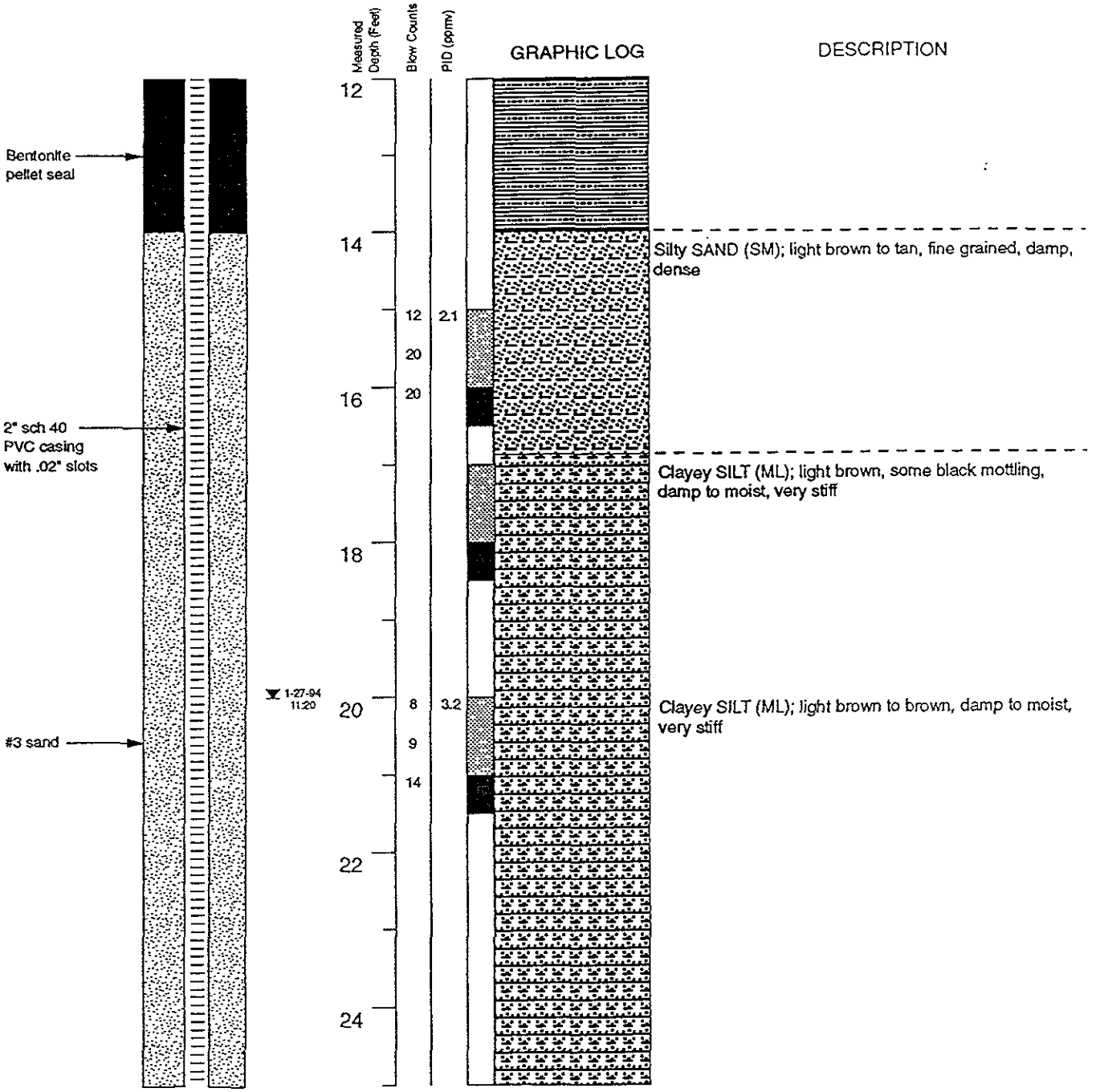
PROJECT NO. 87043.07 | 3/94

BORING LOG—Boring B-5 (Monitoring Well MW-5)

Former Unocal Service Station 4845

Marina Boulevard and Alvarado Street
San Leandro, California

BORING **B-5**



continues

EXPLANATION

- Recovered drill sample
- Sample sealed for chemical analysis
- Sieve sample
- Grab sample
- Core sample
- est K — Estimated permeability (hydraulic conductivity) 1K = primary 2K = secondary
- NR — No recovery
- Water level during drilling
- Water level in completed well

CONTACTS:

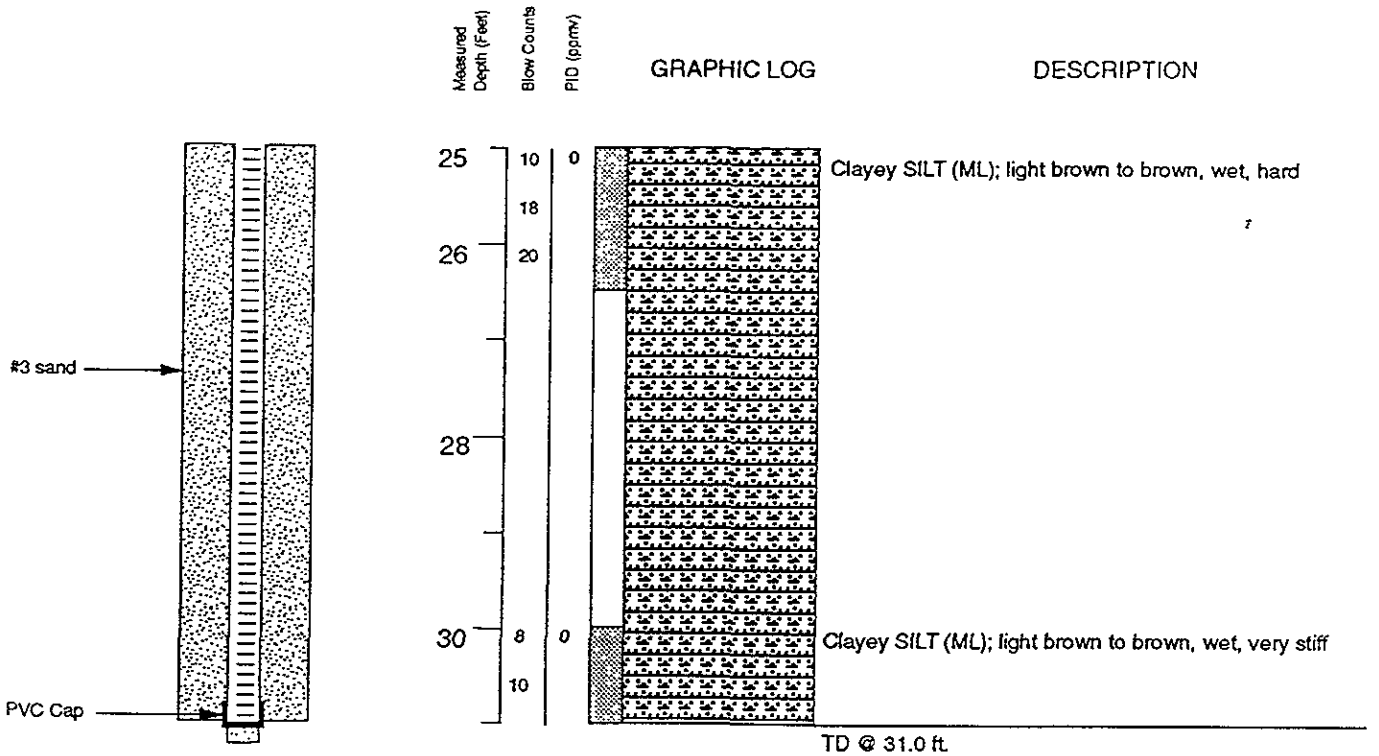
- Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational

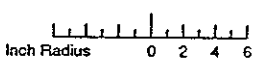
RESNA

PROJECT NO. 87043.07 | 3/94

BORING LOG—Boring B-5 (Monitoring Well MW-5)
Former Unocal Service Station 4845
Marina Boulevard and Alvarado Street
San Leandro, California

BORING **B-5**





EXPLANATION

- Recovered drill sample
- Sample sealed for chemical analysis
- Sieve sample
- Grab sample
- Core sample
- est K — Estimated permeability (hydraulic conductivity) 1K = primary 2K = secondary
- NR — No recovery
- Water level during drilling
- Water level in completed well

CONTACTS:

- Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational

RESNA

PROJECT NO. 87043.07 | 3/94

BORING LOG—Boring B-5 (Monitoring Well MW-5)
Former Unocal Service Station 4845
Marina Boulevard and Alvarado Street
San Leandro, California

BORING **B-5**