GETTLER-RYAN INC.

November 14, 2001

Mr. James Yoo
Alameda County Public Works Agency
Water Resources Section
399 Elmhurst St.
Hayward, California 94544-1395

Subject: **Work Plan for Well Abandonment at Former Unocal Service Station No. 2512, 1300 Davis Street, San Leandro, California**

Mr. Yoo:

At the request of Unocal Corporation (Unocal), Gettler-Ryan Inc. (GR) has prepared this Work Plan to abandon four groundwater monitoring wells at the above referenced site. Alameda County Health Care Services Agency issued a No Further Action (NFA) letter dated November 6, 2001 for above referenced site. A copy of the NFA letter is attached. Monitoring wells MW-3, MW-7, MW-8, and MW-9 will be abandoned by pressure grouting. Well locations are shown on the attached site plan (Figure 1).

SCOPE OF WORK

GR proposes the following tasks:

Task 1. **Pre-Field Activities**

GR will prepare a Site Safety Plan. Alameda County Public Works Agency (ACPWA) drilling permit applications are enclosed with this workplan. An encroachment permit will be obtained from the City of San Leandro. Underground Service Alert (USA) will be notified at least 48 hours prior to initiating well abandonment activities.

Task 2 . **Field Activities**

Monitoring wells MW-3, MW-7, MW-8, and MW-9 will be abandoned by filling each well casing with neat cement using a tremie pipe and pump. Tremie pipe will then be removed and the cement in the well casing will be pressurized to approximately 10 pounds per square inch for approximately 2 minutes. The well box will be removed and the upper three feet of well casing will be drilled out. The well boxes will be disposed of as non-hazardous construction debris. The borings will then be backfilled to ground surface with neat cement or native material. Drilling and grouting operations will be performed by Woodward Drilling (C-57 710079). GR Field Methods and Procedures are attached along with boring logs and well construction details.

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Task 3. Reporting

Following abandonment, a letter report will be prepared which summarizes the well destruction activities. This report will be submitted to Unocal for their use and distribution.

PROJECT STAFF

Mr. David Herzog, a Registered Geologist in the State of California (R.G. No. 7211), will provide technical oversight and review of the work. Mr. Greg Gurss, Senior Project Manager, will supervise implementation of field and office operations. GR employs a staff of geologists, engineers, and technicians who will assist with the project.

SCHEDULE

Implementation of the proposed scope of work will commence upon receipt of approval by ACPWA and issuance of all permits covering this work.

If you have any questions, please call us in our Sacramento office at (916) 631-1300.

Sincerely,
Gettler-Ryan Inc.

Geoffrey D. Risse
Project Geologist

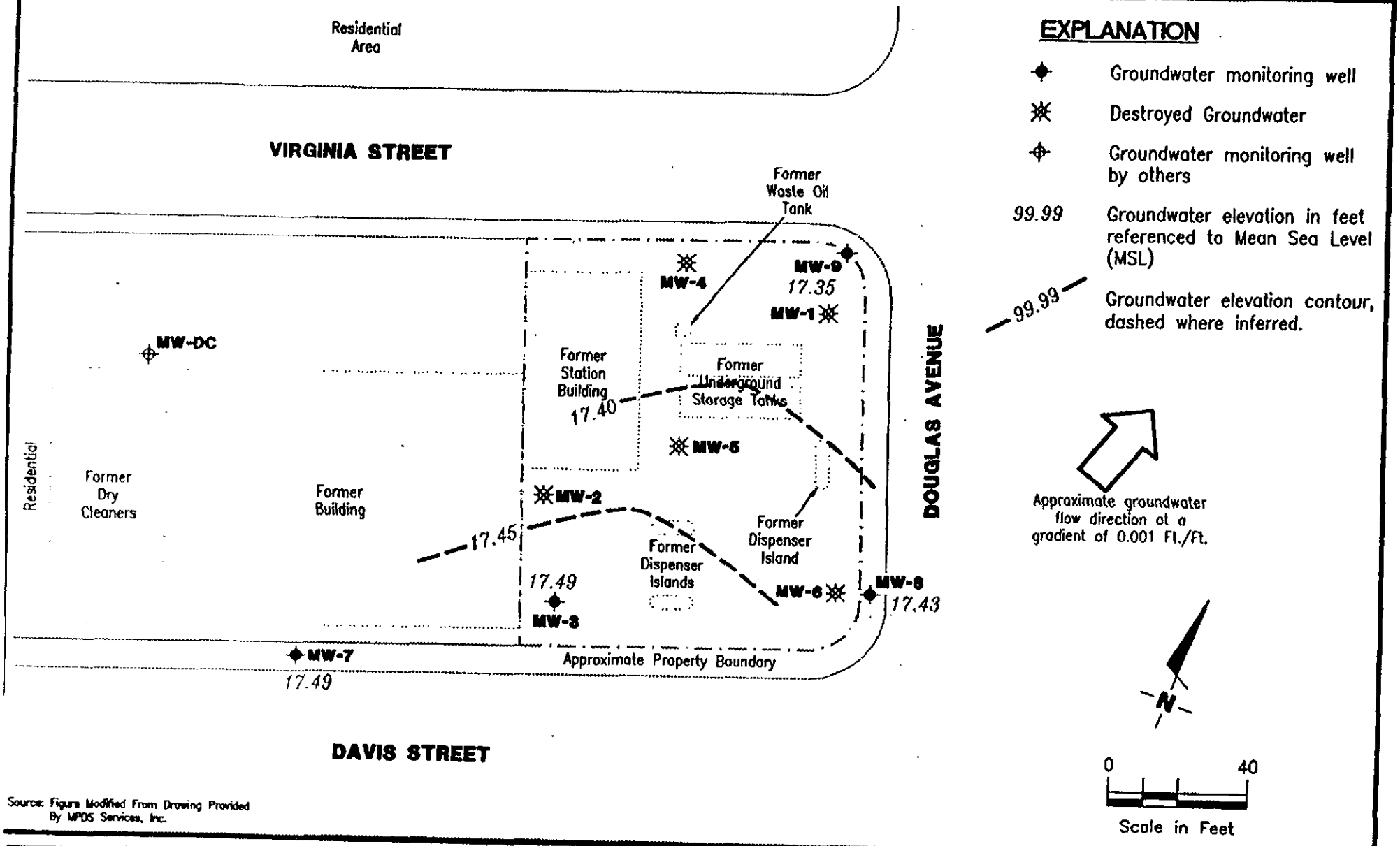
David W. Herzog
Senior Geologist
R.G. 7211

REGISTERED GEOLOGIST
DAVID W. HERZOG
No. 7211
STATE OF CALIFORNIA

Attachments: Figure 1. Site Plan
Alameda County Health Services Agency letter
Field Methods and Procedures
Boring Logs and Well Construction Details
Enclosures: ACPWA Drilling Permit Application (4)

CC: (W/o enclosures)
Mr. Nick Nickerson, Unocal Corporation, 8788 Elk Grove Blvd., Bldg. 3, Ste. 15, Elk Grove, CA 95624

ATTACHMENTS



Source: Figure Modified From Drawing Provided By MPDS Services, Inc.

Gettler - Ryan Inc.

6747 Sierra Ct., Suite J
Dublin, CA 94568
(925) 551-7555

POTENTIOMETRIC MAP
Former Unocal Service Station No. 2512
1300 Davis Street
San Leandro, California

FIGURE
1

JOB NUMBER
280036

REVIEWED BY

DATE
October 25, 1999

REVISED DATE

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

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

STID 2480

November 6, 2001

COPY

Mr. Nick Nickerson
UNOCAL-DBG/AMG
8788 Elk Grove Blvd., Building 3, Suite 15
Elk Grove, CA 95624

RE: Well Decommission at Former UNOCAL # 2512 located at 1300 Davis Street San Leandro, CA

Dear Mr. Nickerson:

This office and the San Francisco RWQCB have reviewed the case closure summary for the above referenced site and concur that no further action related to the underground tank release is required at this time. Before a remedial action completion letter is sent, the onsite monitoring wells should be decommissioned. Please notify this office upon completion of well destruction so a closure letter can be issued.

Well destruction permits may be obtained from Alameda County Flood Control and Water Conservation, Zone 7. They can be reached at (925) 484-2600.

Well destruction permits may be obtained from Alameda County Public Works. They can be reached at (510) 670-5575.

Should you have any questions, I can be reached at (510) 567-6876.

Sincerely,

Amir K. Gholami, REHS
Hazardous Materials Specialist

C: G. W. Leitao Trust, Et Al, 1441 Franklin Street, Oakland, CA 94612
files

Post-it® Fax Note 7671	Date 11/12	# of pages ▶
To Greg	From Nick	
Co./Dept.	Co	
Phone #	Phone #	

GETTLER-RYAN INC.

FIELD METHODS AND PROCEDURES

Site Safety Plan

Field work performed by Gettler-Ryan Inc. (GR) is conducted in accordance with GR's Health and Safety Plan and the Site Safety Plan. GR personnel and subcontractors who perform work at the site are briefed on the contents of these plans prior to initiating site work. The GR geologist or engineer at the site when the work is performed acts as the Site Safety Officer. GR utilizes a photoionization detector (PID) to monitor ambient conditions as part of the Health and Safety Plan.

Well Abandonment

Prior to well abandonment, the total depth of the well and the depth-to-water in the well casing are measured and recorded. Groundwater monitoring wells are abandoned by filling the well casing with neat cement using a tremie pipe and pump. The tremie is removed and the cement in the well casing is pressurized to approximately 10 pounds per square inch (psi) for approximately 2 minutes. The well box is removed and the upper 5 feet of well casing is drilled out. The boring is then backfilled with neat cement or native material, depending on local regulations.

Well Destruction

Prior to well destruction, the total depth of the well and the depth-to-water in the well casing are measured and recorded. Groundwater monitoring wells are destroyed by drilling the well boring out to remove the casing, sandpack, and seal material. The boring is advanced at least one foot past the installed depth of the well to insure that all the casing and seal material are removed. Upon completion of drilling, the boring is backfilled to ground surface with neat cement placed using a tremie pipe and pump.

Storing and Sampling of Drill Cuttings

Drill cuttings are stockpiled on and covered with plastic sheeting or stored in drums depending on site conditions and regulatory requirements. Stockpile samples are collected and analyzed for disposal classification on the basis of one composite sample per 100 cubic yards of soil. Stockpile samples are composed of four discrete soil samples, each collected from an arbitrary location on the stockpile. The four discrete samples are then composited in the laboratory prior to analysis.

Each discrete stockpile sample is collected by removing the upper 3 to 6 inches of soil, and then driving the stainless steel or brass sample tube into the stockpiled material with a hand, mallet, or drive sampler. The sample tubes are then covered on both ends with teflon sheeting or aluminum foil, capped, labeled, and placed in a cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected soil samples to the analytical laboratory. Stockpiled soils are covered with plastic sheeting after completion of sampling.

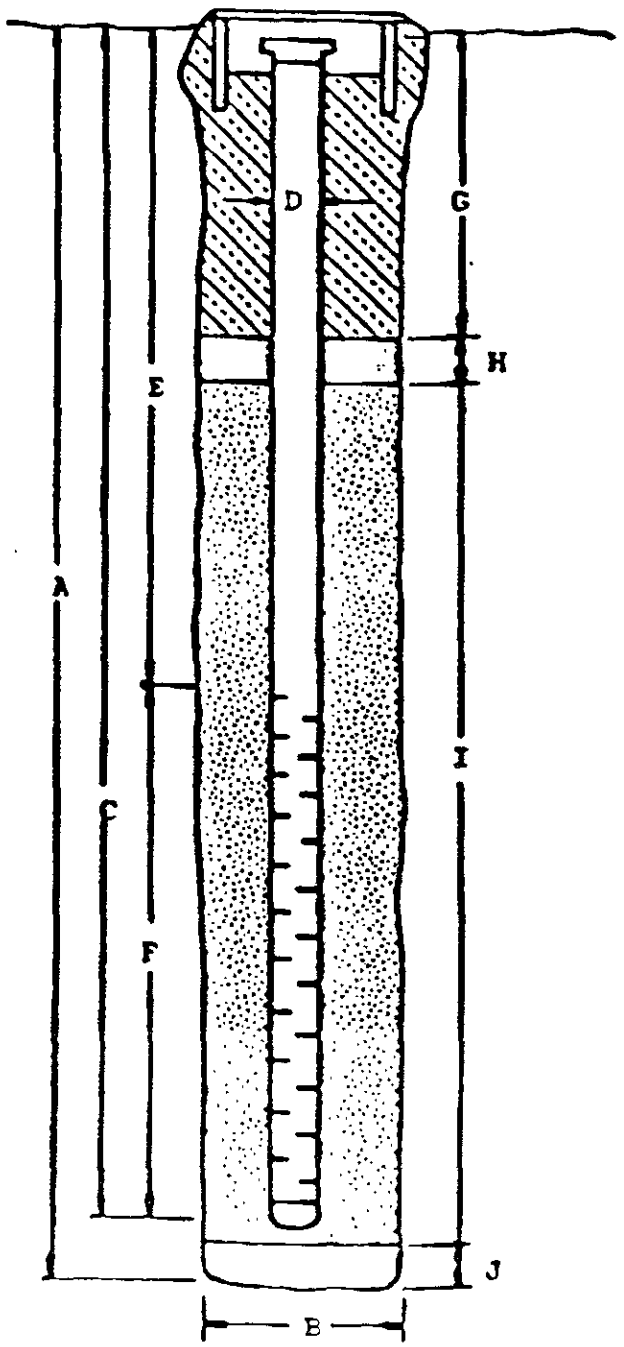
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - Davis St. - San Leandro BORING/WELL NO. MW3

PROJECT NUMBER: KEI-P88-1204

WELL PERMIT NO.:

Flush-mounted Well Cover



A. Total Depth: 33'

B. Boring Diameter*: 9"

Drilling Method: Hollow Stem Auger

C. Casing Length: 33'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 13'

F. Perforated Length: 20'

Perforation Type: Machined Slot

Perforation Size: 0.010"

G. Surface Seal: 9'

Seal Material: Concrete

H. Seal: 2'

Seal Material: Bentonite

I. Gravel Pack: 22'

Pack Material: RMC Lonestar Sand

Size: #3

J. Bottom Seal: None

Seal Material: N/A

*Boring diameter can vary from 8-1/4" to 9" depending on bit wear.

BORING LOG

Project No. KEI-P88-1204	**Boring & Casing Diameter** 9" 2"	**Logged By** Doug Lee
Project Name Unocal Davis St./San Leandro	**Well Head Elevation** N/A	**Date Drilled** 4/17/89
Boring No. MW3	**Drilling Method** Hollow-stem Auger	**Drilling Company** EGI

Penetration blows/6"	G. W. level	Depth (ft) Samples	Stratigraphy USCS	Description
		0		Clayey sand, gravel: fill
5/8/11		5	CH	Clay, high plasticity, very dark grayish brown, firm, moist, with root holes, dark grayish brown below 8.5'.
6/7/9		10	MH	Clayey silt, some fine sand, high plasticity, dark grayish brown, firm, moist, with root holes.
9/17/14		15		Silty clay, trace fine sand, high plasticity, dark grayish brown, stiff, moist, with cemented root holes.
14/18/24	▼	20		Clay, grayish brown & gray, mottled, very stiff, moist, high plasticity.
			CH	
		25		Clay, 15% silt, high plasticity, dark yellowish brown and dark grayish brown, mottled, very stiff, slightly moist.
		30		Color change at 31' to black.
				TOTAL DEPTH 33'

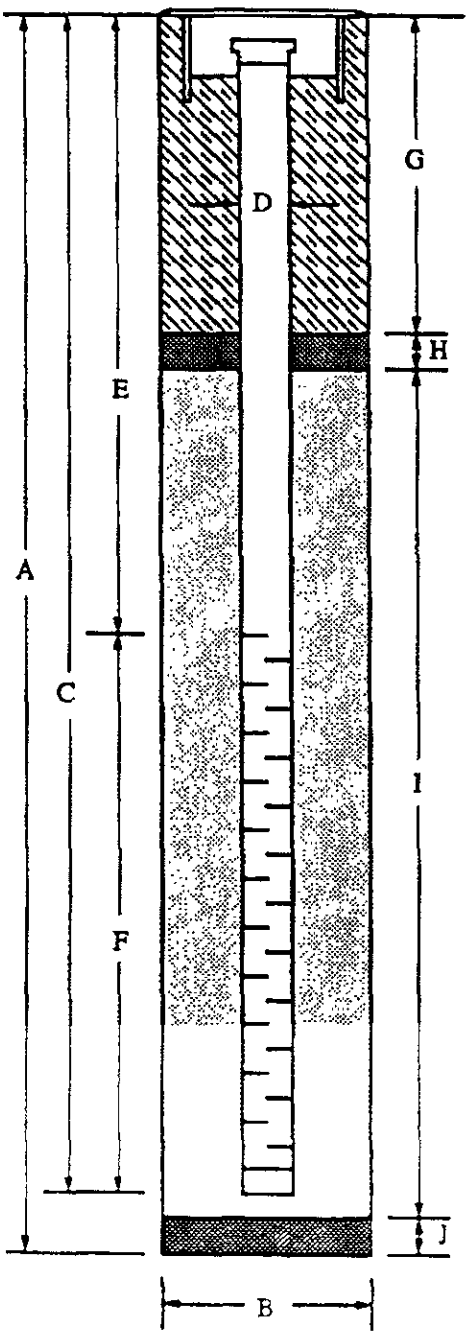
WELL COMPLETION DIAGRAM

PROJECT NAME: Unocal - San Leandro, Davis Street WELL NO. MW7

PROJECT NUMBER: KEI-P88-1204

WELL PERMIT NO.: ACFD&WCD #91476

Flush-mounted Well Cover



A. Total Depth : 30'

B. Boring Diameter: 8-1/4"

Drilling Method: Hollow Stem Auger

C. Casing Length: 30'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 10'

F. Perforated Length: 20'

Perforation Type: Machined Slot

Perforation Size: 0.010"

G. Surface Seal: 6'

Seal Material: Cement/sand slurry

H. Seal: 2'

Seal Material: Bentonite

I. Filter Pack: 22'

Pack Material: RMC Lonestar Sand

Size: #2/12

J. Bottom Seal: none

Seal Material: N/A

BORING LOG

Project No.	Boring & Casing Diameter	Logged By
KEI-P88-1204	8-1/4" 2"	D.L.
Project Name Unocal San Leandro, 1300 Davis Street	**Well Cover Elevation** 32.09' MSL	**Date Drilled** 2/11/92
Boring No. MW7	**Drilling Method** Hollow-stem Auger	**Drilling Company** EGI

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati-graphy USCS	Description
		0		Asphalt and concrete slab
				Silty clay with approximately 5-10% gravel, stiff, moist, very dark grayish brown; fill.
			CH	
5/7/11		5		Clay, estimated at 5 to 10% silt and sand, stiff to very stiff, moist, very dark gray to black.
			ML	Sandy silt, estimated at 5 to 10% clay, sand is fine- to medium-grained, stiff, moist, olive brown.
4/5/10		10		
			CH	Clay with silt, trace sand, very stiff, moist, very dark grayish brown with root holes, trace organic matter.
			SC	Clayey sand, estimated at 15 to 30% variable clay content, sand is fine- to coarse-grained, medium dense, moist, olive brown , with iron oxide staining.
4/6/9		15		
				Silty clay, trace to an estimated 10% variable sand content, stiff to very stiff, moist to wet, olive brown, with root holes, trace organic matter.
4/4/7	▽		CL	
				Silty clay, trace sand, stiff, moist, wet in voids, dark grayish brown, with root holes, fibrous cemented nodules common below 20 feet.
6/6/8		20		

BORING LOG

Project No.	Boring & Casing Diameter	Logged By
KEI-P88=1204	8-1/4" 2"	D.L.
Project Name	**Well Cover Elevation**	**Date Drilled**
San Leandro, Davis	32.09' MSL	2/11/92
Boring No.	**Drilling Method** Hollow-stem Auger	**Drilling Company**
MW7		EGI

Penetration blows/6"	G. W. level	Depth (feet) Samples	Strati-graphy USCS	Description
11/13/9		25	CL	Silty clay, estimated at 30 to 45% variable silt content, stiff to very stiff, moist, wet in voids, olive brown with iron oxide staining.
7/8/10		30		TOTAL DEPTH: 30'
		35		
		40		

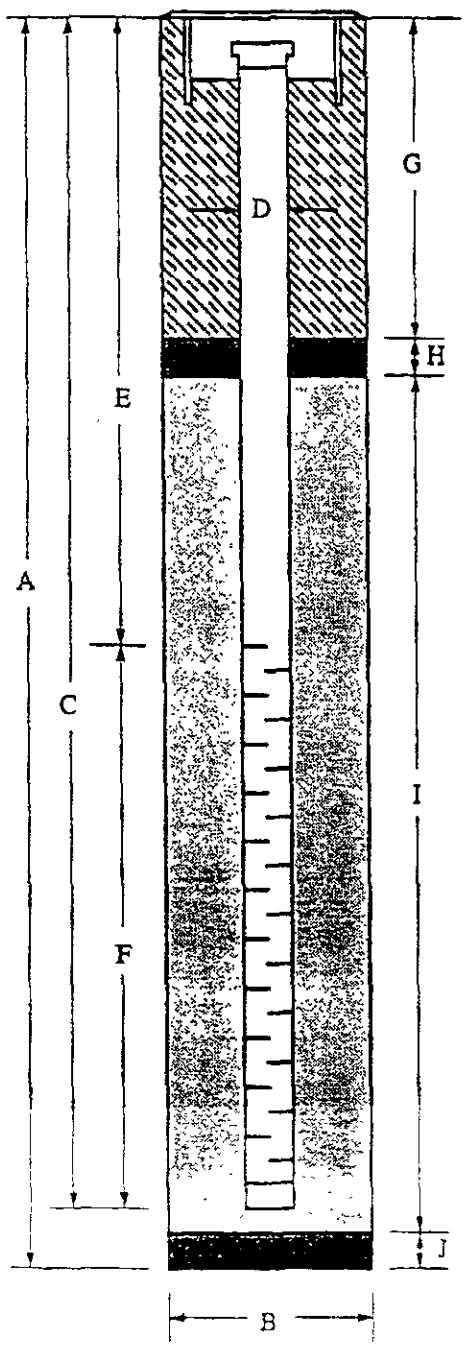
WELL CONSTRUCTION DIAGRAM

PROJECT NAME: Unocal S/S #2512, 1300 Davis Street, San Leandro **WELL NO.:** MW8

PROJECT NUMBER: KEI-P88-1204.P10

WELL PERMIT NO.: ACFC & WCD #95591

Flush-mounted Well Cover



A. Total Depth : 30'

B. Boring Diameter: 8.5"

Drilling Method: Hollow Stem Auger

C. Casing Length: 30'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 10'

F. Perforated Length: 20'

Perforation Type: Machine Slotted

Perforation Size: 0.010"

G. Surface Seal: 6'

Seal Material: Neat Cement

H. Seal: 2'

Seal Material: Bentonite

I. Filter Pack: 22'

Pack Material: RMC Lonestar Sand

Size: #2/12

J Bottom Seal: None

Seal Material: N/A

BORING LOG

Project No. KEI-P 88-1204.P10	**Boring Diameter** 8.5"	**Logged By** JGG
	Casing Diameter 2"	D.L. EG 1633
Project Name Unocal S/S #2512	**Well Cover Elevation**	**Date Drilled**
1300 Davis Street, San Leandro	N/A	9/26/95
Boring No. MW8	**Drilling Method** Hollow-stem Auger	**Drilling Company** Woodward drilling

Pene-tration blows/6"	G.W level	O.V.M. (P.P.M.)	Depth (feet) Samples	Stratigraphy USCS	Description
			0		Concrete slab over sand and gravel base.
				MH	Clayey silt, estimated at 35-45% clay, stiff, moist, dark gray to very dark gray, with iron oxide staining.
5/6/9			5	CH	Silty clay, moderate to high plasticity, very stiff, moist, very dark gray.
				ML	Silt, estimated at 10-15% clay, trace fine-grained sand, stiff, moist, olive brown.
6/7/11			10	CH	Silty clay, stiff to very stiff, moist, very dark grayish brown and black, mottled, with occasional caliche nodules.
				MH	Clayey silt, estimated at 30-35% clay, trace fine-grained sand, stiff, moist to very moist, olive brown and olive, mottled.
6/7/12			15	CH	Clay, high plasticity, trace silt, very stiff, moist, olive and olive brown, mottled.
				ML	Clayey silt, estimated at 5-10% fine to coarse-grained sand, trace gravel to 3/16 inch in diameter, stiff, moist, wet in voids, olive brown.
5/7/8	▽		20	CH	Clay, high plasticity, stiff, moist, olive brown and dark yellowish brown, mottled.

BORING LOG

Project No. KEI-P 88-1204.P10	**Boring Diameter** 8.5" **Casing Diameter** 2"	**Logged By** JGC **D.L.** GEC 1633
Project Name Unocal S/S #2512 1300 Davis Street, San Leandro	**Well Cover Elevation** N/A	**Date Drilled** 9/26/95
Boring No. MW8	**Drilling Method** Hollow-stem Auger	**Drilling Company** Woodward drilling

Pene-tration blows/6"	G.W. level	O.V.M. (P.P.M.)	Depth (feet) Samples	Stratigraphy USCS	Description
				CH	Clay, high plasticity, stiff, moist, olive brown and dark yellowish brown, mottled.
					Clayey silt, estimated at 30% clay, and 5-10% fine to medium-grained sand, stiff, very moist, olive brown.
5/6/8			25	ML	Silt, estimated at 15-30% clay, and 10-15% sand, trace gravel to 1/2 inch in diameter, stiff, very moist to wet, olive brown.
4/6/8			30		Clayey silt, estimated at 30-40% clay, stiff, moist, olive brown.
					TOTAL DEPTH: 30'
			35		
			40		

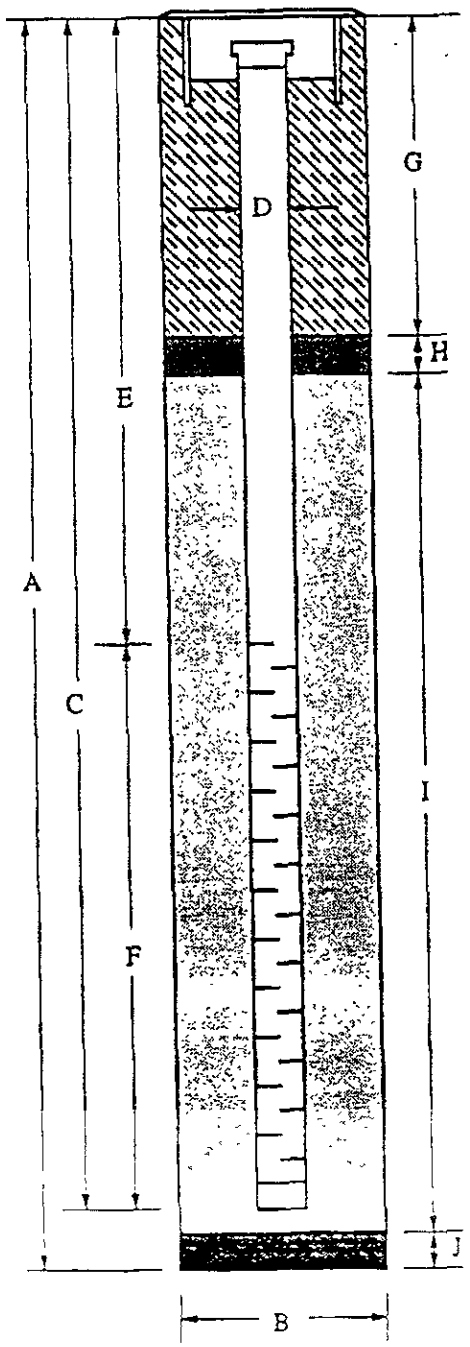
WELL CONSTRUCTION DIAGRAM

PROJECT NAME: Unocal S/S #2512, 1300 Davis Street, San Leandro **WELL NO.:** MW9

PROJECT NUMBER: KEI-P88-1204.P10

WELL PERMIT NO.: ACFC & WCD #95591

Flush-mounted Well Cover



A. Total Depth : 30'

B. Boring Diameter: 8.5"

Drilling Method: Hollow Stem Auger

C. Casing Length: 30'

Material: Schedule 40 PVC

D. Casing Diameter: OD = 2.375"

ID = 2.067"

E. Depth to Perforations: 10'

F. Perforated Length: 20'

Perforation Type: Machine Slotted

Perforation Size: 0.010"

G. Surface Seal: 6'

Seal Material: Neat Cement

H. Seal: 2'

Seal Material: Bentonite

I. Filter Pack: 22'

Pack Material: RMC Lonestar Sand

Size: #2/12

J Bottom Seal: None

Seal Material: N/A

BORING LOG

Project No. KEI-P 88-1204.P10	**Boring Diameter** 8.5" **Casing Diameter** 2"	**Logged By** D.L. JG6 CE6 1633
Project Name Unocal S/S #2512 1300 Davis Street, San Leandro	**Well Cover Elevation** N/A	**Date Drilled** 9/26/95
Boring No. MW9	**Drilling Method** Hollow-stem Auger	**Drilling Company** Woodward drilling

Pene-tration blows/6"	G.W. level	O.V.M. (P.P.M.)	Depth (feet) Samples	Stratigraphy USCS	Description
			0		Concrete slab over sand and gravel base.
				MH	Clayey silt, stiff, moist, very dark grayish brown, disturbed.
4/6/8			5	CH	Silty clay, high plasticity, stiff, moist, very dark grayish brown and black, mottled, with root holes.
5/8/11			10		Silty clay, as above.
5/7/10			15	CH/ MH	Clay estimated at 15-25% silt, stiff to vary stiff, moist, olive and olive brown, mottled, lensed with clayey silt, stiff, moist, olive brown.
5/8/12					
5/8/11	▽		20	CL	Silty clay, estimated at 35-45% silt, trace sand, stiff to vary stiff, moist, wet in voids, olive and olive brown, mottled, with iron oxide staining.

BORING LOG

Project No. KEI-P 88-1204.P10	**Boring Diameter** 8.5"	**Logged By** TGG
	Casing Diameter 2"	D.L. GEG 1633
Project Name Unocal S/S #2512	**Well Cover Elevation**	**Date Drilled**
1300 Davis Street, San Leandro	N/A	9/26/95
Boring No. MW9	**Drilling Method** Hollow-stem Auger	**Drilling Company** Woodward drilling

Pene-tration blows/6"	G.W. level	O.V.M. (P.P.M.)	Depth (feet) Samples	Stratigraphy USCS	Description
				CH	Silty clay, estimated at 35-45% silt, trace sand, stiff to vary stiff, moist, wet in voids, olive and olive brown, mottled, with iron oxide staining.
				MH	Clayey silt, trace fine to coarse-grained sand, stiff, very moist, olive brown.
4/5/7			25		
				CH	Clay, high plasticity, estimated at 10-15% silt, stiff, moist, olive and olive brown, mottled.
6/10/14					Silty clay, stiff to very stiff, moist, olive brown, with iron oxide staining.
			30		TOTAL DEPTH: 30'
			35		
			40		