Delta
Environmental
Consultants, Inc.

3164 Gold Camp Drive, Suite 200
Rancho Cordova, California 95670
Phone: (916) 638-2085
Fax: (916) 638-8385

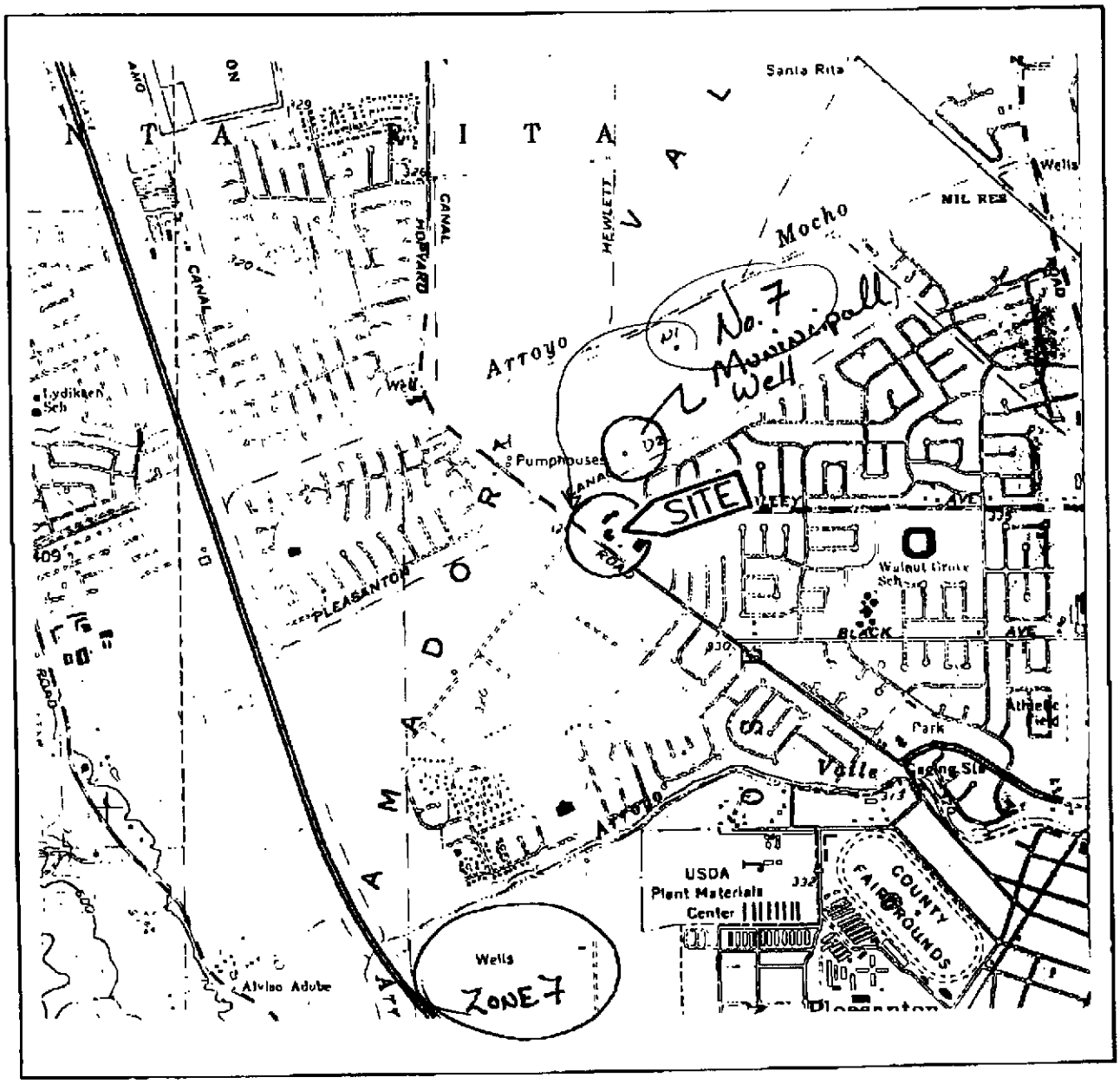
FAX TRANSMITTAL FORM

DATE: 12 MARCH '96
RECIPIENT: SCOTT SEERY
COMPANY: ALAMEDA COUNTY
RECIPIENT FAX NO: (510) 337-9335
SENDER:
NO. OF PAGES TO FOLLOW: 16
SUBJECT:
DELTA PROJECT NO: RE: 7-3399 EXXON
MESSAGE:

SCOTT:

THIS IS THE INFO ON THE MUNICIPAL WELL FROM DELTA'S FILE. I DO NOT HAVE THE MUNC. WELL BORING LOG.

- LID MCGAHAN.



Source: U.S. Geological Survey
7.5-Minute Quadrangle
Dublin, California
Photorevised 1980

N

Approximate Scale
2000 1000 0 2000
feet

RESNA
Working to Restore Nature

PROJECT 130009.03

SITE VICINITY MAP
Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
1

May 18, 1994

Ms. Marla A. Guensler
Exxon Company, U.S.A.
P.O. Box 4032
2300 Clayton Road
Concord, California 94520

Subject: Response to City of Pleasanton Letter dated April 28, 1994
Clean-up and Abatement Order No. 89-132
Exxon Station 7-3399
2991 Hopyard Road, Pleasanton, California.

Ms. Guensler:

At the request of Exxon Company, U.S.A., RESNA Industries Inc. (RESNA) presents this letter in response to the subject letter and hopefully will help clarify some of the concerns addressed in the letter. The concerns are listed in bold letters below followed by a brief discussion.

1. **Benzene in excess of Drinking Water Standards in MW-8**

In September 1989, Applied GeoSystems (AGS) drilled and installed monitoring well MW-8 (Applied GeoSystems [AGS], April 5, 1990). Laboratory analysis performed on selected soil samples collected from the depths of approximately 38½ and 74 feet reported nondetectable concentrations of total petroleum hydrocarbons as gasoline (TPHg), and gasoline constituents benzene, toluene, ethylbenzene, and total xylenes (BTEX) at the laboratory method detection limits (MDLs) of 2.0 parts per million (ppm) and 0.050 ppm, respectively.

Since the initiation of quarterly monitoring and sampling in October 1989, groundwater samples analyzed for TPHg and BTEX have either been below laboratory MDLs, or below California Department of Health (DHS) maximum contaminant levels (MCLs) for benzene, ethylbenzene, or total xylenes, and the DHS drinking water action level (DWAL) for toluene, with the exception of the water sample collected during the April 12, 1993 sampling event.

On April 12, 1993, RESNA performed quarterly monitoring and sampling at the subject site. An equipment rinsate blank, a periodic quality control sample, was collected from field equipment rinsate to verify adequate cleaning procedures. Analytical results of rinsate water collected from the bailer prior to sampling well MW-8 indicated 1.4 parts per billion (ppb) toluene. Analytical results of groundwater collected from well MW-8 indicated 26 ppb benzene, greater than the California DHS MCLs for benzene in drinking water.

Because of the nondetectable gasoline hydrocarbons in the soil samples collected during the installation of well MW-8, historical nondetectable concentrations of gasoline hydrocarbons in water samples from well MW-8 (except for April 12, 1993), and the concentration of toluene detected in the rinsate water, RESNA considers the analytical results of the groundwater samples collected from well MW-8 on April 12, 1993, to be anomalous. RESNA believes that following factors could have led to the detectable amounts of benzene in well MW-8:

- possible improper decontamination of groundwater monitoring and sampling equipment;
- possible mislabeling of the water sample collected from MW-8; or,
- possible contamination of sampling containers.

After review of the historic groundwater elevations in well MW-8, the groundwater elevations have risen to, and even above, the groundwater elevation measured on April 12, 1993, with no detectable amounts of gasoline hydrocarbons. This change in elevation appears to indicate that no gasoline hydrocarbons are stranded in the soils in the vicinity of well MW-8, which could have allowed for the concentration reported in the April 12, 1993, sample collected from well MW-8.

A silty clay aquitard is present between depths of 74 to 121 feet, above the screened interval of municipal well No. 7. As previously mentioned, a soil sample collected from a depth of approximately 74 feet had nondetectable concentrations of TPHg and BTEX. AGS submitted a soil sample from the silty clay aquitard for a vertical head permeability test using procedure EM-110-2-1906. The result of the test indicated an average permeability of 1.15×10^{-8}, representing a very low permeable material (AGS, April 5, 1990). Based on the test result, RESNA concludes that there does not appear to be a potential for gasoline hydrocarbons to migrate vertically through the aquitard to the aquifer that is included in the screened interval of municipal well No. 7.

Since April 1993, RESNA has been routinely performing quarterly monitoring and sampling at the subject site. For three consecutive quarters, gasoline hydrocarbon concentrations have been nondetectable in well MW-8, further indicating that the April 1993 analytical results of the groundwater samples collected from well MW-8 appear to be anomalous.

2. **Exxon Monitoring Well MW-8 is Correlatable to Municipal Well MW-7 in Terms of Geologic Sequence and Completion Interval**

Upon reviewing of the boring logs and well completion logs for well MW-8 and municipal well No. 7, RESNA has determined that monitoring well MW-8 was installed to monitor the aquifer that is present at the top of the slotted interval (approximately 120 feet below ground surface) of the municipal Well No. 7 (AGS, April 4, 1990). Monitoring well MW-8 is located approximately 300 feet in the historic downgradient direction (southeast) of municipal well No. 7. The boring for this double-cased well was drilled to a depth of approximately 140 feet. The well was constructed using 8-inch-diameter steel conductor casing from 2 to 93 feet below ground surface, and 4-inch-diameter slotted PVC casing from 118 feet to the total depth of the well at 132 feet.

Municipal Well No. 7 was drilled to a depth of approximately 454 feet. The well was constructed using 30-inch-diameter conductor casing from 0 to 86 feet below ground surface, and 18-inch-diameter slotted casing from 120 feet to the total depth of the well at 440 feet.

The city states that monitoring well MW-8 and municipal well No. 7 are constructed in the same aquifer. Upon reviewing the boring logs for both wells, it appears that the wells are only partially constructed in the same water bearing zone. The screened interval of municipal ell No. 7 is in a gravel layer, which was encountered at approximately 116 feet and extends to approximately 134 feet. The screened interval of monitoring well MW-8 is in a fine to course gravel layer, which was encountered at approximately 124 feet and extends to at least approximately 140 feet. However, municipal well No. 7 is also screened through at least six additional potential water bearing zones. Therefore, it is uncertain which of these zones is the preferred, or yielding, zone that provides water for municipal well No. 7.

The city states that the operation of municipal well No. 7 would cause significant hydraulic effects on the water bearing zone of monitoring well MW-8. In order to determine if pumping from municipal well No. 7 is influencing the area of monitoring well MW-8, a hydrograph (Graph 1) was generated from the groundwater monitoring data collected from monitoring well MW-8. This graph indicates that monitoring well MW-8 appears to be influenced by seasonal groundwater fluctuations only, and not from pumping municipal well No. 7.

this is very questionable in light of 1998 pump tests on Zone 7 wells

To further confirm that well MW-8 is influenced by seasonal fluctuations, and not by pumping municipal well No. 7, a hydrograph was generated for a well (monitoring well MW-5d) constructed within the water bearing zone immediately above well MW-8. A hydrograph (Graph 2) was generated from the groundwater monitoring data collected from monitoring well MW-5d. A comparison of the hydrographs generated from wells MW-8 and MW-5d reveal almost identical elevation fluctuation trends. Since monitoring well MW-5d is not installed in the same water zone as municipal well No. 7, RESNA concludes that these elevation fluctuations are seasonal fluctuations associated with associated with seasonal rainfall with periods of recharging of the aquifer.

Based on information provided in this letter, RESNA concludes the following:

- The detected gasoline hydrocarbons in the groundwater samples collected from well MW-8 appear to be anomalous, and possibly attributed to either improper decontamination of groundwater monitoring and sampling equipment, mislabeling of the water samples collected from well MW-8, or contamination of sample containers.

- It appears that there are apparent seasonal trends in the groundwater elevations fluctuations in the monitoring wells MW-5d and MW-8 that are indications of aquifer recharge from seasonal rainfall and not from pumping groundwater from municipal well No. 7. There does not appear to be any significant groundwater elevation change that may be seen from the operation of a municipal supply well at a high pumping rate. Additionally, since elevation fluctuations trends, as shown on Graphs 1 and 2 for wells MW-8 and MW-5d, are almost identical, RESNA concludes that there is no evidence to indicate that pumping from municipal well No. 7 has influence on the groundwater in the area of well MW-8.

In the future, if analytical results indicate the presence of compounds exceeding California DHS MCLs for benzene, ethylbenzene, or total xylenes; and the DHS drinking water action level (DWAL) for toluene, RESNA will resample well MW-8 within two weeks of the sampled date for confirmation.

Copies of this letter should be sent to:

Mr. Lester Feldman and Mr. Sum Arigalia
California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, California 94612

Mr. Jerry Killingstad
Alameda County Flood Control
& Water Conservation District (Zone 7)
5997 Parkside Drive
Pleasanton, California 94566

Mr. Steve Cusenza, Ms. Deborah Acosta,
Mr. Michael Roush, and Mr. Randy Lum
City of Pleasanton
123 Main Street, P.O. Box 520
Pleasanton, California 94566-0802

Mr. Rich Mueller
Pleasanton Fire Department
4444 Railroad Street
Pleasanton, California 94566

Please call (408) 264-7723 should you have any questions regarding this letter.

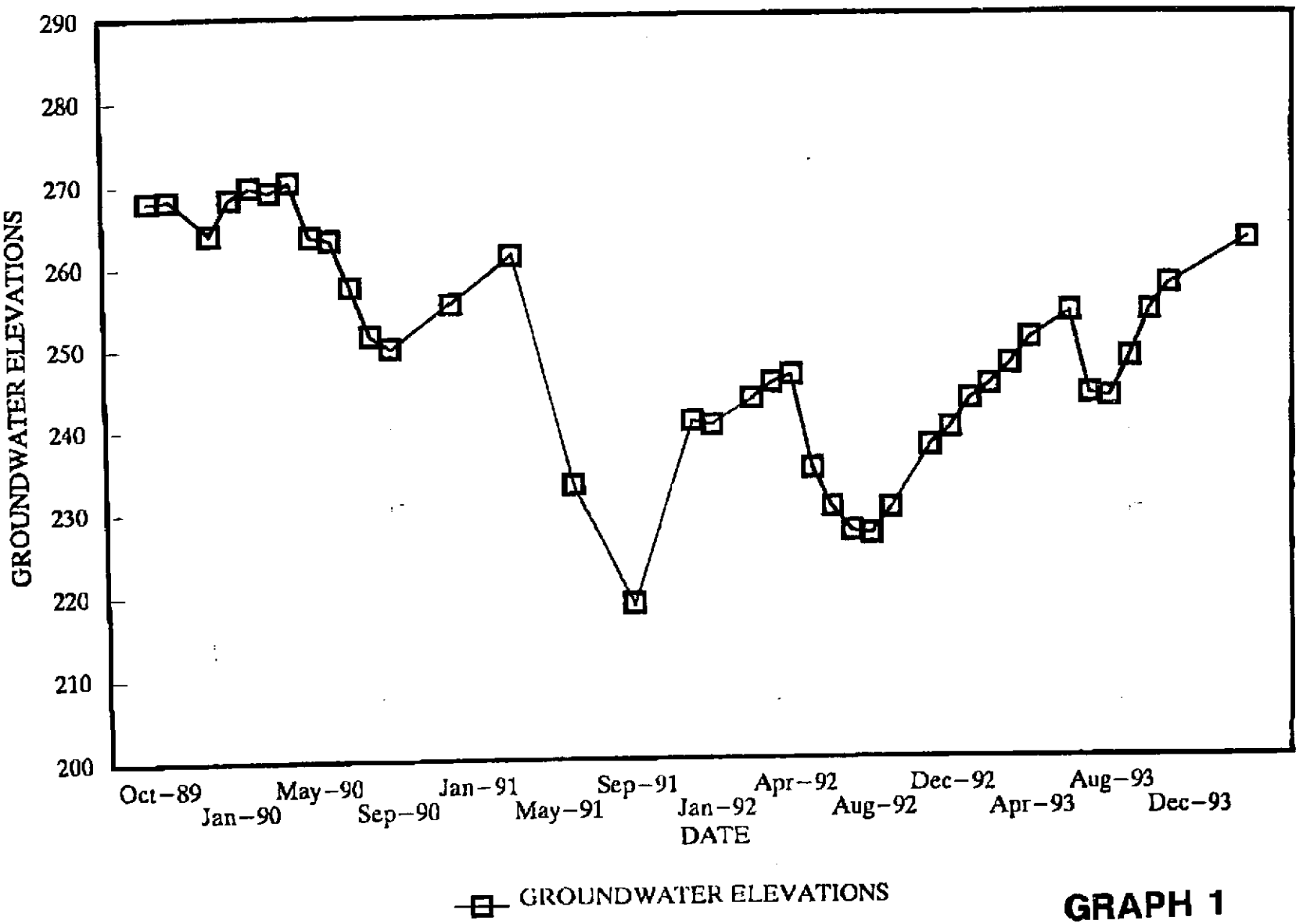
Sincerely,
RESNA Industries Inc.

Marc A. Briggs
Project Manager

Attachments: Graph 1, Hydrograph for well MW-8
Graph 2, Hydrograph for well MW-5d

EXXON STATION 7-3399

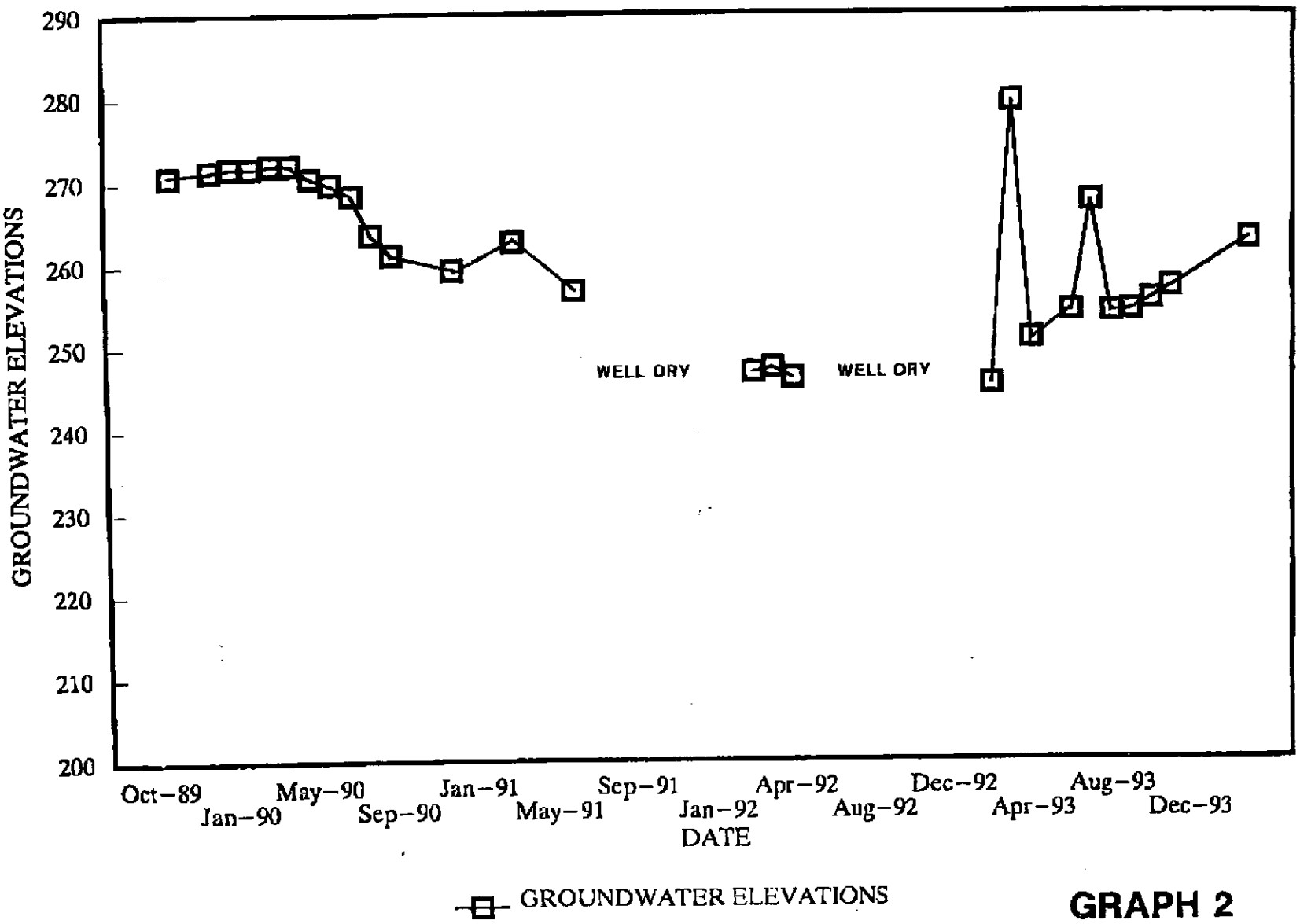
MONITORING WELL MW-8



GRAPH 1

EXXON STATION 7-3399

MONITORING WELL MW-5d



GRAPH 2

Total depth of boring: 140 feet **Diameter of boring:** 14 inches & 10 inches **Date drilled:** 9/28 – 9/30/89

Casing diameter: 4 inches **Length:** 133 feet **Slot size:** 0.020–inch

Screen diameter: 4 inches **Length:** 15 feet **Material type:** Sch 40 PVC

Drilling Company: All Terrain Exploration Drilling **Driller:** Ron, Bob and Lance

Method Used: Mud Rotary **Field Geologist:** Mark Armstrong

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Concrete.	
					First sample collected at 30 feet. See logs of borings of wells MW–1 and MW–4 (Applied GeoSystems, April 22, 1988) for description of sediments between the surface and 30 feet, and 40 and 50 feet.	
2						
4						
6						
8						
10					10–1/4–inch diameter, steel conductor casing	
12					14–inch–diameter borehole to 91 feet below ground surface	
14						
16						
18						
20						

Applied GeoSystems

PROJECT NO. 18034-7

LOG OF BORING B-8/MW-8

Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE

P - 4

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
22						
24						
26						
28						
30				CH	Silty clay, gray–brown with red–brown staining, damp, high plasticity, trace rootlets.	
32					Grades slightly more silty and brown–gray, trace specks of black, carbonaceous material.	
34					Grades very dark brown; increase organic material at 34–1/2 feet.	
36					Trace fine sand, green–brown with red–brown and very dark brown stained streaks and inclusions (decomposed seeds and other plant material).	
				SC	Clayey fine sand, brown with red–brown staining, damp.	
38				SM	Silty very fine to fine sand, trace medium sand as stringers, gray–brown with red–brown staining, damp.	
40						
42				GW	Fine to coarse gravel, gray.	
44						
46						
48						
50					(Section continues downward)	

Applied GeoSystems

PROJECT NO. 18034-7

LOG OF BORING B-8/MW-8

Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
P - 5

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
52				GW	Fine to coarse gravel, gray.	
54						
56						
58				CH	Silty clay, dark brown with white patches of caliche, wet, high plasticity.	
60						
62					Decreasing caliche, trace minute streaks of black carbonaceous material.	
64				SP	Fine sand, brown, wet.	
				GP	Fine to coarse sandy gravel, with silt, brown, wet.	
66				SM	Silty very fine to fine sand, with trace medium sand and fine gravel, gray–brown, wet.	
				SW	Gravelly fine to coarse sand, with silt, gray–brown, wet.	
68						
70					Lens of fine sand with trace gravel at 70 feet.	
72					Red–brown staining.	
74				CH	Silty clay, light brown mottled with white caliche, black specks of carbonaceous material, damp, high plasticity.	
				SM	Silty very fine sand, brown, wet.	
76				CL	Silty clay, trace fine to medium sand, light brown with red–brown staining, streaks and specks of black carbonaceous material, damp, medium plasticity.	
78					Trace white caliche appears at 78 feet and increases downward.	
80					Brown and light brown mottled.	

Applied GeoSystems

PROJECT NO. 18034-7

LOG OF BORING B-8/MW-8

Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
P - 6

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
82				CH	Silty clay, brown with white mottling (caliche) and trace red–brown staining, specks of black carbonaceous material, damp, high plasticity.	
84				CL	Silty clay, light brown with red–brown staining, trace black carbonaceous material, damp, medium plasticity.	
86				CH	Silty clay, trace fine gravel, brown with white mottling (caliche) and red–brown staining, damp, high plasticity.	
88				CL	Silty clay, green–brown with patches and streaks of black carbonaceous material, damp, medium plasticity.	
90				CH	Silty clay, green–gray with red–brown staining and trace white mottling (caliche), damp, high plasticity.	
92					Increase in caliche as patches, decreasing red–brown staining.	
94				CL	Very fine to fine sandy, silty clay, gray–brown with red–brown and white mottling (caliche) wet, low plasticity, trace plant material.	
96				CH	Silty clay, trace very fine to fine sand, gray–brown with red–brown mottling, trace stringers of white caliche, moist, high plasticity.	
98						
100					No sand, increasing caliche content to abundant at 101 feet, decrease in red–brown staining to trace.	
102						
104					10–inch–diameter borehole from 91 to 140 feet	
106					Gray–green with red–brown and white (caliche) mottling.	
108					Lens of very fine sand at 107 1/2 feet.	
110						

Applied GeoSystems

PROJECT NO. 18034-7

LOG OF BORING B-8/MW-8

Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE

P - 7

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
112				CL	Very silty clay, gray with red–brown mottling and trace white (caliche) mottling, moist, medium plasticity.	
114				CH	Clay, gray–brown with red–brown and white (caliche) mottling, moist, high plasticity. Color change to brown, increasing caliche at 112–1/2 feet. Color becomes brown and gray–brown mottled at 114 feet, caliche content decreases. Small patches and streaks of black carbonaceous material at 116 1/2 to 117 feet.	
116						
118				SM	Silty very fine sand, brown, wet.	
120				CH	Silty clay with interbeds of silty very fine sand, black with trace white caliche, wet, high plasticity.	
122				SM	Silty very fine to fine sand, gray–brown, wet.	
124				SW	Fine to coarse sand, with fine gravel, gray–brown, wet. Lens of fine to medium sand at 124 feet.	
126				GW	Fine to coarse gravel, with fine to coarse sand, brown–gray, wet. Grades downward to fine to coarse gravel, blue–gray.	
128						
130					Lens of silty gravelly fine to coarse sand at 130 feet.	
132					Lens of silty gravelly, fine to coarse sand at 132 feet.	
134						
136						
138						
140					Total Depth = 140 feet.	

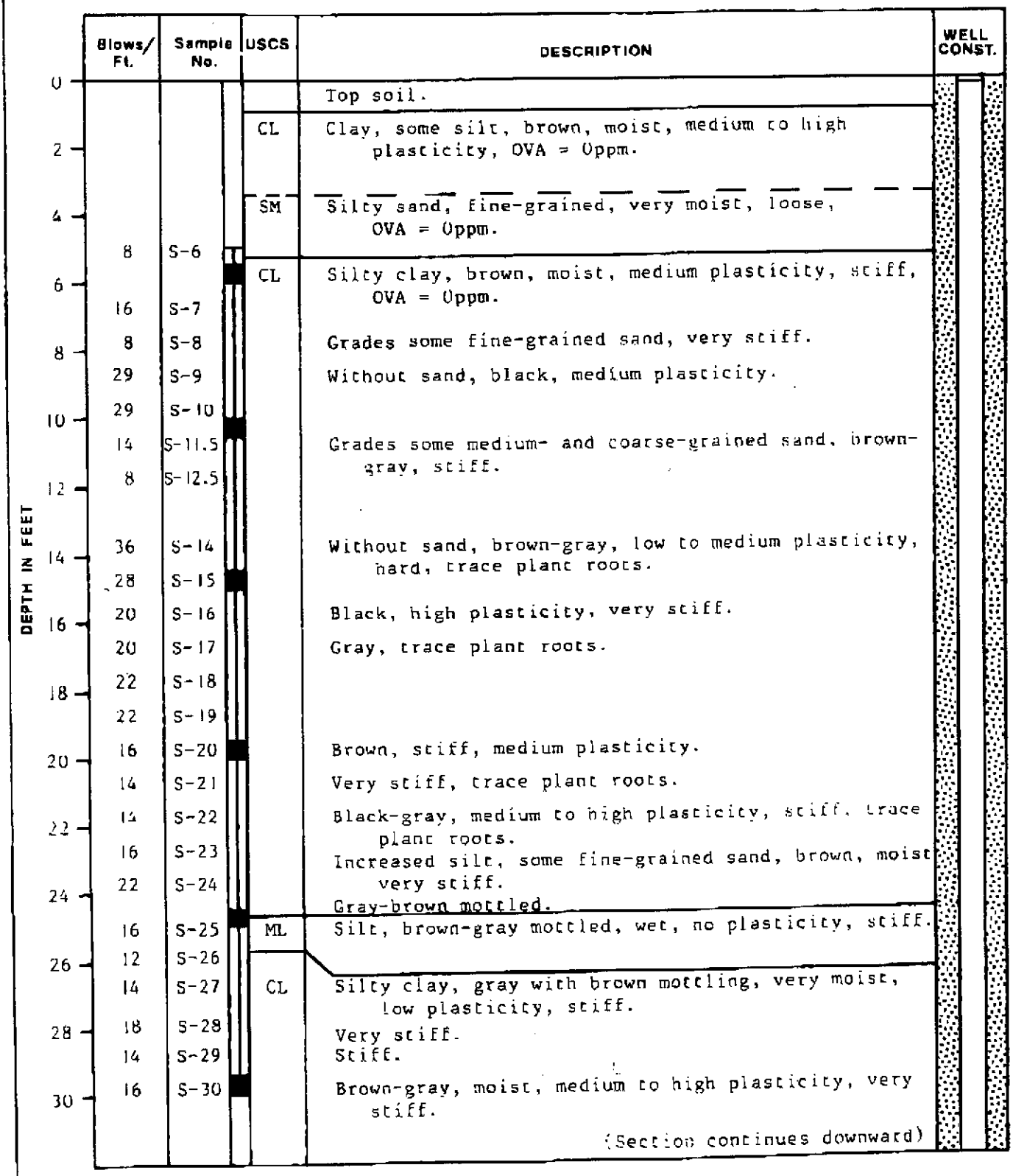
Applied GeoSystems

PROJECT NO. 18034-7

LOG OF BORING B-8/MW-8

Exxon Station No. 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
P - 8



Applied GeoSystems

LOG OF BORING B-5d/MW-5d

Exxon Station No. 7-3399

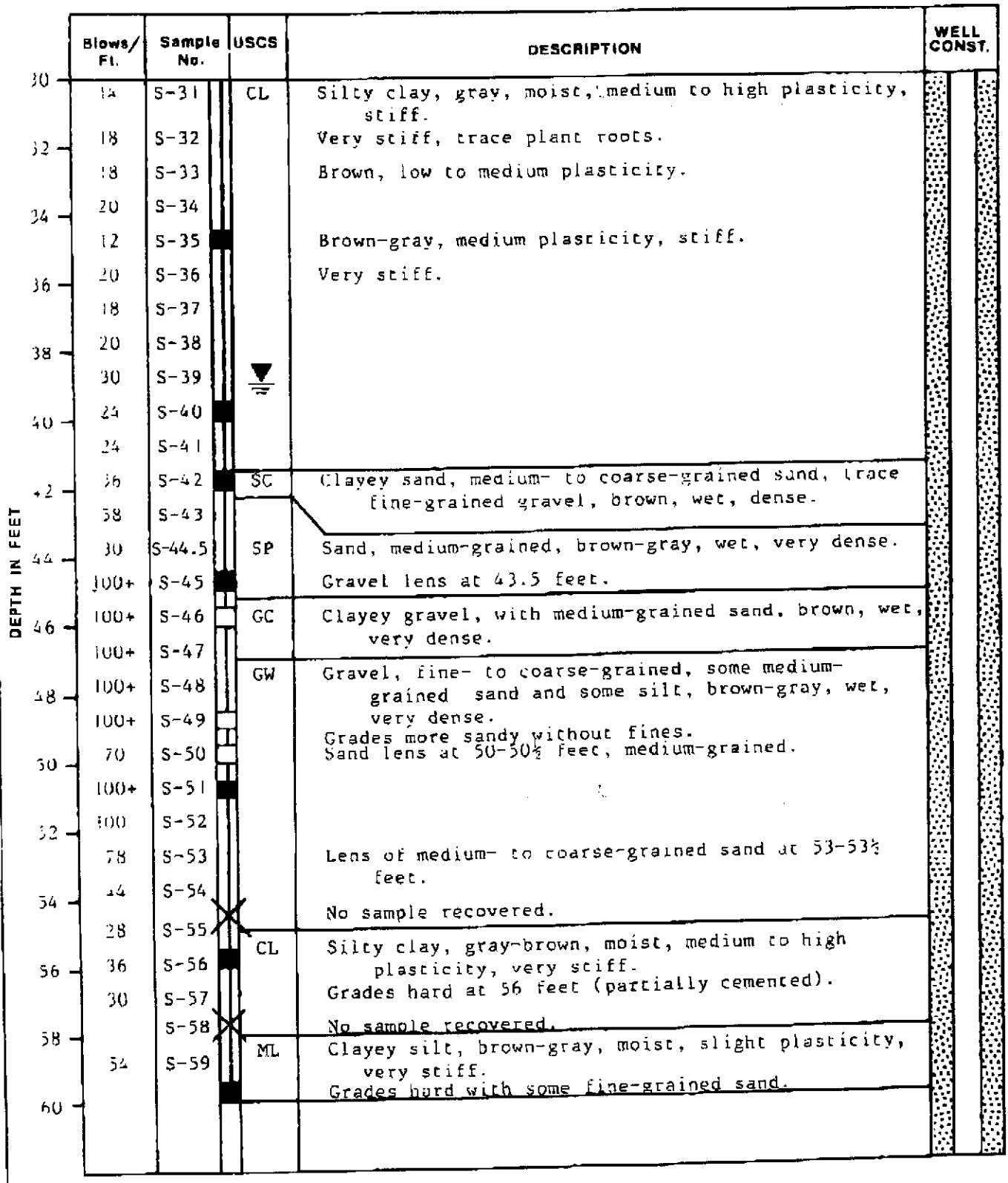
2991 Hopyard Road

Pleasanton, California

PLATE

P - 4

PROJECT NO. 18024.2



Applied GeoSystems

LOG OF BORING B-5d/MW-5d

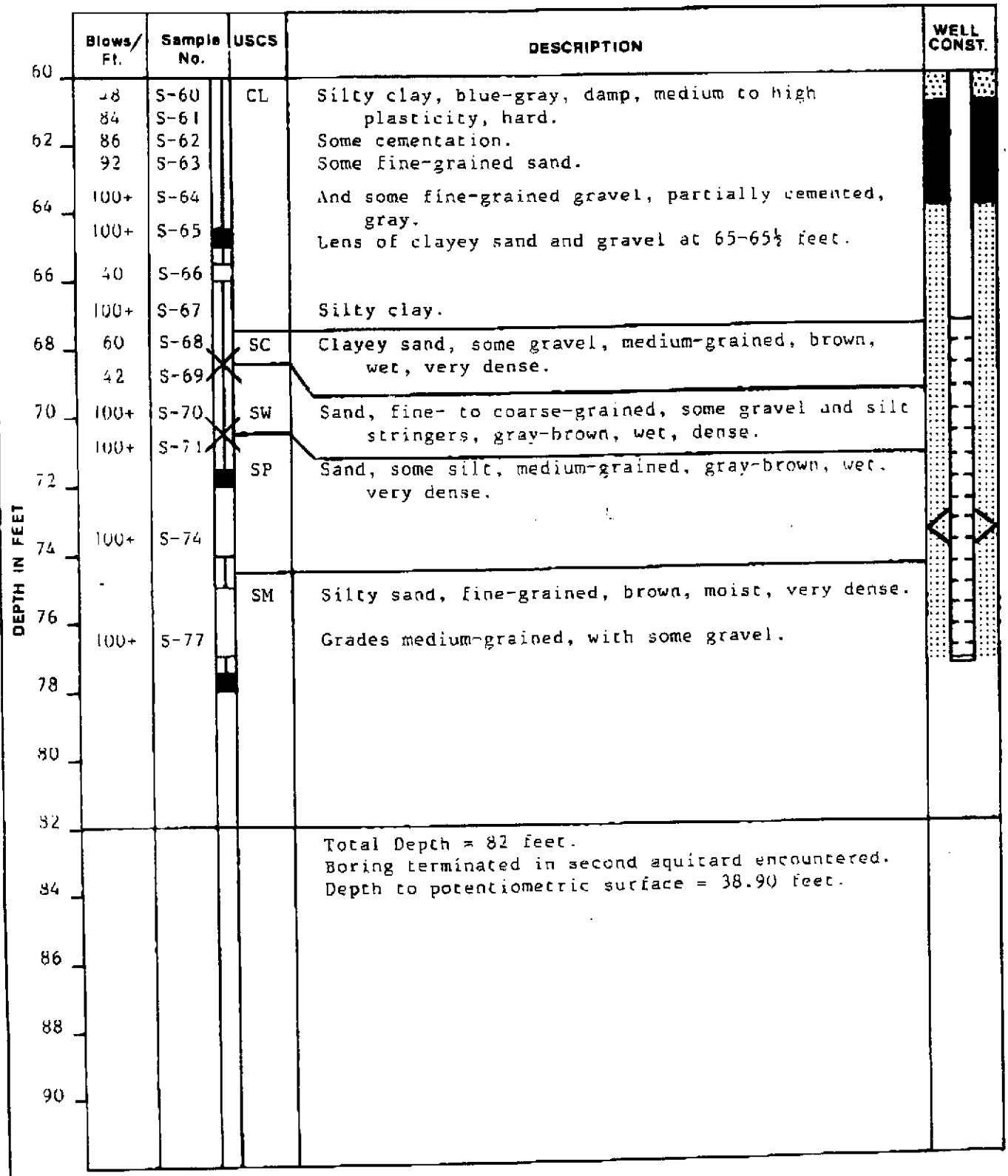
Exxon Station No. 7-3399

2991 Hopyard Road

Pleasanton, California

PLATE

P - 5



Applied GeoSystems

LOG OF BORING B-5d/MW-5d

Exxon Station No. 7-3399

2991 Hopyard Road

Pleasanton, California

PLATE P - 6